To the Class of 2019:

Please read carefully.

We are very pleased to provide you with this expanded and updated directory of the research interests of Yale Medical School Faculty for your use in selecting a faculty research advisor and thesis project. The Yale M.D. thesis is a cornerstone of the Yale system of medical education, and continues to be supported enthusiastically by faculty and students.

We encourage all first year students to participate in the summer research fellowship program in the summer of 2016. If you do not begin your thesis research then, there is little time available until the fourth year when many other activities require your attention. Last year approximately 84 first year students received summer research stipends. An application for this fellowship is included in this booklet and additional copies are available in the Office of Student Research. The stipend for 10-12 weeks of summer research in 2016 will be $5,730.

Each faculty member is identified by an abstract number and key index terms for their project. The Key Index Terms section in the front of the book has been expanded extensively and now lists more than 3,000 terms. We suggest that you first review the index terms for areas of interest, then read the faculty member’s abstracts. You should then contact multiple faculty members to discuss potential student research projects. The abstract also includes the current office location, email address, telephone number and two recent publications. Most faculty members know the amount of time needed to accomplish a thesis and are prepared to support medical student endeavors, whether or not you have had prior experience in medical research.

We suggest that you contact 3-5 potential research mentors to learn about their projects and discuss the possibility of working with them. I am then available for meetings with small groups (2-3 students) or individual students to discuss possible thesis topics and research advisors. It is advisable to schedule this meeting after you have met with several potential advisors.

Books with student evaluations of specific faculty mentors and thesis advisors are also available in the Office of Student Research Lounge, Room ESH-312 and should be reviewed as part of the process of choosing a faculty mentor and project.

The directory is organized as follows:
• Preface
• Key Index Terms
• Faculty Research Interests by Department
• Listing of Faculty Alphabetically
• Listing of Faculty by Department

An online listing of faculty research interests is also available on the Web at: http://medicine.yale.edu/education/osr/

We hope that your search for a faculty research advisor and thesis project will be most successful. Please stop by the Office of Student Research or call us at 203-785-6633 to answer any questions.

Sincerely,

John N. Forrest, Jr., M.D.
Director, Office of Student Research
Chair, Thesis Committee
Key Index Terms of Faculty Research Interests

Each faculty abstract is coded by the key index terms that describe the research projects. The first number following each term indicates the faculty UPI number. The second number indicates the page on which the abstract appears.

A

| Analytical, Diagnostic and Therapeutic Techniques and Equipment | 10405586 | 72 |
| | 11431485 | 310 |
| | 14063782 | 175 |
| | 10349843 | 192 |
| | 10334611 | 1 |
| | 10254830 | 314 |
| | 12763367 | 204 |
| | 1012557 | 121 |
| | 10412267 | 124 |
| | 13959929 | 318 |
| | 10024293 | 1 |
| Anthropology, Education, Sociology and Social Phenomena | 10977738 | 246 |
| | 14830822 | 293 |
| | 10285872 | 266 |
| Attention Deficit and Disruptive Behavior Disorders | 10268583 | 20 |
| Abdomen | 12790040 | 282 |
| Abruptio Placentae | 11639854 | 185 |
| Accident Prevention | 13198499 | 44 |
| Accidental Falls | 10408391 | 132 |
| Acetylcholine | 10054774 | 239 |
| Achievement | 12792645 | 270 |
| Acid-Base Equilibrium | 11961086 | 64 |
| | 10432106 | 118 |
| Acid-Base Imbalance | 10251566 | 65 |
| Acidosis, Renal Tubular | 11961086 | 64 |
| Acinar Cells | 10261086 | 8 |
| Acne Vulgaris | 10630241 | 33 |
| Acquired Immunodeficiency Syndrome | 10415922 | 64 |
| | 10239963 | 211 |
| | 10288558 | 80 |
| | 10460037 | 220 |
| | 10271660 | 84 |
| | 1201389 | 289 |
| | 13252474 | 161 |
| | 10335597 | 290 |
| | 10343961 | 292 |
| 11274813 | 293 |
| | 10489583 | 294 |
| | 11278910 | 100 |
| | 10262361 | 103 |
| | 14679896 | 162 |
| | 12749325 | 109 |
| | 11836680 | 260 |
| | 10232628 | 301 |
| | 14107251 | 304 |
| | 11582479 | 124 |
| | 11070527 | 165 |
| | 10639081 | 128 |
| | 13594072 | 166 |
| | 10292213 | 307 |
| Actin Cytoskeleton | 10182580 | 45 |
| Action Potentials | 10079662 | 30 |
| | 1035819 | 19 |
| Activin Receptors, Type II | 10630479 | 134 |
| Acute Disease | 12763367 | 204 |
| Acute Kidney Injury | 15004953 | 310 |
| | 10269790 | 76 |
| | 10292366 | 77 |
| | 12112743 | 114 |
| | 10630479 | 134 |
| Acute Lung Injury | 10791129 | 62 |
| | 12785750 | 221 |
| | 10351323 | 198 |
| Acyltransferases | 12194377 | 106 |
| Adaptation, Physiological | 13761777 | 189 |
| Adenosine Triphosphatases | 10238221 | 69 |
| | 10092999 | 52 |
| Adenosine Triphosphate | 13594531 | 151 |
| Adherens Junctions | 10272663 | 59 |
| Adipocytes | 12643806 | 191 |
| | 10245021 | 192 |
| Adolescent | 11021581 | 187 |
| | 13198499 | 44 |
Adolescent Behavior
10980356......................................................... 244
Adolescent Development
10314466............................................................ 250
Adolescent Psychiatry
10642311............................................................ 243
10111129............................................................. 244
10397919............................................................. 256
10488206............................................................. 24
10013668............................................................. 24
10351798............................................................. 24
10422569............................................................. 25
12018631............................................................. 26
10454767............................................................. 27
10387787............................................................. 273
10348653............................................................ 28
Adoption
10253963............................................................ 211
Advance Care Planning
10294100............................................................ 84
Affective Disorders, Psychotic
12624545............................................................ 239
10211871............................................................ 247
10291550............................................................ 252
Afghanistan
11652009............................................................ 253
Africa
11512184............................................................ 71
10946050............................................................ 216
10468010............................................................ 48
14391423............................................................ 301
Africa, Eastern
12387055............................................................ 123
Africa, Southern
10460037............................................................ 220
10271660............................................................ 84
12011389............................................................ 289
Africa, Western
10484789............................................................ 215
African Americans
15139542......................................................... 104
Agammaglobulinemia
10249203............................................................ 66
Aging
10791129............................................................ 62
11386588............................................................ 63
11247732............................................................ 63
10329902............................................................ 168
10405382............................................................ 85
11344768............................................................ 86
10088264............................................................ 252
14501736............................................................ 312
10420478............................................................ 192
11851708............................................................ 95
11629008............................................................ 96
10465596............................................................ 96
10639132............................................................ 97
10576453............................................................ 296
14600625............................................................ 103
10772973............................................................ 104
14231045............................................................ 104
10226219................................................................ 107
10336617................................................................ 110
12268582................................................................ 111
12386970................................................................ 123
11913180................................................................ 207
11479034................................................................ 123
10405042................................................................ 304
10011526................................................................ 272
12660721................................................................ 5
Aging, Premature
14461837................................................................ 79
AIDS-Related Opportunistic Infections
10415922................................................................ 64
11582479................................................................ 124
Air Conditioning
10267801................................................................ 141
Air Pollutants
10308567................................................................ 295
Air Pollution
11382814................................................................ 289
Airway Management
12730302................................................................ 71
10438226................................................................ 74
10280636................................................................ 217
Alagille Syndrome
12110431................................................................ 127
Alcohol Drinking
10397919................................................................ 256
Alcoholic Beverages
13198499................................................................ 44
Alcoholic Intoxication
10334084................................................................ 280
Alcohol-Induced Disorders, Nervous System
10334084................................................................ 280
Alcoholism
10980356................................................................ 244
10399704................................................................ 245
11861432................................................................ 246
10314466................................................................ 250
10288558................................................................ 80
12593962................................................................ 251
10291550................................................................ 252
10412879................................................................ 257
10334084................................................................ 280
10297772................................................................ 113
10428400................................................................ 262
10331959................................................................ 263
11469276................................................................ 265
14008804................................................................ 267
10313276................................................................ 267
10405042................................................................ 304
10639081................................................................ 128
15326151................................................................ 306
11652094................................................................ 273
Alcohol-Related Disorders
12266729................................................................ 257
10154683................................................................ 260
Alcohols
11487942................................................................ 258
Aldehyde Dehydrogenase
15326151................................................................ 306
| Antigens, CD20                          | 10194004 .......................................................... | 133 |
| Antigens, Differentiation, T-Lymphocyte | 10370124 .......................................................... | 75  |
| Anti-Glomerular Basement Membrane Disease | 12197811 .......................................................... | 177 |
| Anti-Infective Agents                   | 11084413 .......................................................... | 108 |
| Anti-Inflammatory Agents, Non-Steroidal | 13254378 .......................................................... | 92  |
| Antiphospholipid Syndrome               | 11513425 .......................................................... | 179 |
| Anti-Retroviral Agents                  | 10365364 .......................................................... | 232 |
| Anti-Retroviral Therapy, Highly Active  | 10253963 .......................................................... | 211 |
| .......................................................... | 10271660 .......................................................... | 84  |
| Antithrombin III Deficiency             | 11639854 .......................................................... | 185 |
| Antiviral Agents                        | 10312205 .......................................................... | 213 |
| .......................................................... | 13594072 .......................................................... | 166 |
| Anxiety                                 | 10314466 .......................................................... | 250 |
| .......................................................... | 13509412 .......................................................... | 23  |
| .......................................................... | 10304487 .......................................................... | 184 |
| .......................................................... | 14830839 .......................................................... | 300 |
| Anxiety Disorders                       | 11079500 .......................................................... | 23  |
| .......................................................... | 10291550 .......................................................... | 252 |
| .......................................................... | 12622097 .......................................................... | 263 |
| .......................................................... | 11100155 .......................................................... | 274 |
| Aorta                                   | 13606975 .......................................................... | 88  |
| Aortic Aneurysm                         | 11976420 .......................................................... | 315 |
| Aortic Aneurysm, Thoracic               | 10276981 .......................................................... | 1   |
| Aortic Diseases                         | 1012557 .......................................................... | 121 |
| Aortic Stenosis, Subvalvular            | 13606975 .......................................................... | 88  |
| Apnea                                   | 10356439 .......................................................... | 134 |
| Apoptosis                               | 10246976 .......................................................... | 95  |
| .......................................................... | 13033718 .......................................................... | 200 |
| .......................................................... | 10032555 .......................................................... | 172 |
| .......................................................... | 11125723 .......................................................... | 323 |
| .......................................................... | 10267801 .......................................................... | 141 |
| .......................................................... | 10025143 .......................................................... | 134 |
| Appetitive Behavior                     | 12319820 .......................................................... | 171 |
| Arbovirus Infections                    | 12451043 .......................................................... | 143 |
| Argonaute Proteins                      | 12431102 .......................................................... | 9   |

| Arrhythmias, Cardiac                    | 10330922 .......................................................... | 62  |
| .......................................................... | 14864499 .......................................................... | 83  |
| .......................................................... | 10281146 .......................................................... | 313 |
| .......................................................... | 10321997 .......................................................... | 101 |
| .......................................................... | 10306000 .......................................................... | 120 |
| .......................................................... | 10356439 .......................................................... | 134 |
| Arterial Occlusive Diseases             | 11431485 .......................................................... | 310 |
| .......................................................... | 12764285 .......................................................... | 311 |
| Arteriovenous Fistula                   | 11431485 .......................................................... | 310 |
| Arthritis                               | 12602921 .......................................................... | 194 |
| Arthritis, Rheumatoid                   | 13424089 .......................................................... | 158 |
| .......................................................... | 10312163 .......................................................... | 80  |
| .......................................................... | 13088050 .......................................................... | 59  |
| Arthroplasty                            | 13418190 .......................................................... | 193 |
| Arthropod Vectors                       | 10235127 .......................................................... | 112 |
| Ascites                                 | 10232373 .......................................................... | 84  |
| Asperger Syndrome                       | 12285514 .......................................................... | 222 |
| .......................................................... | 10455518 .......................................................... | 27  |
| Asthma                                  | 10382262 .......................................................... | 212 |
| .......................................................... | 10006511 .......................................................... | 74  |
| .......................................................... | 10438226 .......................................................... | 74  |
| .......................................................... | 12190909 .......................................................... | 288 |
| .......................................................... | 10370430 .......................................................... | 137 |
| .......................................................... | 11382814 .......................................................... | 289 |
| .......................................................... | 12748118 .......................................................... | 86  |
| .......................................................... | 10456382 .......................................................... | 291 |
| .......................................................... | 10315333 .......................................................... | 198 |
| .......................................................... | 14058563 .......................................................... | 99  |
| .......................................................... | 12011729 .......................................................... | 224 |
| .......................................................... | 10304198 .......................................................... | 119 |
| .......................................................... | 12477818 .......................................................... | 130 |
| .......................................................... | 10322150 .......................................................... | 231 |
| .......................................................... | 10423827 .......................................................... | 232 |
| Asthma, Exercise-Induced                | 10322150 .......................................................... | 231 |
| Astrocytes                              | 15232651 .......................................................... | 159 |
| Ataxia                                  | 15866819 .......................................................... | 212 |
| Atherosclerosis                         | 12191662 .......................................................... | 30  |
| .......................................................... | 12011661 .......................................................... | 221 |
| .......................................................... | 13606975 .......................................................... | 88  |
| .......................................................... | 10278885 .......................................................... | 93  |
| .......................................................... | 10469574 .......................................................... | 318 |
| .......................................................... | 11153467 .......................................................... | 135 |
| Athletes                                | 11832243 .......................................................... | 194 |
| Athletic Performance                    | 10420478 .......................................................... | 192 |
Atrial Fibrillation ................................................................. 62
10330922 ................................................................. 106
10014620 ................................................................. 281
13692655 ................................................................. 120
10306000 ................................................................. 83
Atrial Flutter ................................................................. 83
14864499 ................................................................. 106
10014620 ................................................................. 171
Attention ................................................................. 171
11900192 ................................................................. 2171
10394519 ................................................................. 22
Autoantibodies ................................................................. 27
10268583 ................................................................. 203
10249203 ................................................................. 152
11219767 ................................................................. 20
10076806 ................................................................. 174
12285514 ................................................................. 21
12264725 ................................................................. 222
10240006 ................................................................. 170
1527195 ................................................................. 183
10405518 ................................................................. 26
Autoantigens ................................................................. 105
10394179 ................................................................. 105
Autoimmune Diseases ................................................................. 179
11513425 ................................................................. 158
13424089 ................................................................. 75
10370124 ................................................................. 137
10370430 ................................................................. 198
10670208 ................................................................. 200
12331599 ................................................................. 105
10394179 ................................................................. 59
13088050 ................................................................. 12
10322099 ................................................................. 32
Autoimmune Diseases of the Nervous System ................................................................. 158
13424089 ................................................................. 200
12319599 ................................................................. 165
14556238 ................................................................. 15
Autoimmunity ................................................................. 55
13515226 ................................................................. 57
10035904 ................................................................. 161
13252474 ................................................................. 57
12347564 ................................................................. 312
14501736 ................................................................. 96
10465596 ................................................................. 59
11845197 ................................................................. 105
10394179 ................................................................. 39
11437027 ................................................................. 133
10194004 ................................................................. 133
Autonomic Nervous System................................................................. 101
10321997 ................................................................. 101
Autophagy ................................................................. 11
11273079 ................................................................. 58
12785212 ................................................................. 11
Autopsy ................................................................. 204
12613580 ................................................................. 204
10394468 ................................................................. 23
Avoidance Learning ................................................................. 148
13509412 ................................................................. 159
Axon ................................................................. 47
14570127 ................................................................. 171
Axons ................................................................. 166
15232651 ................................................................. 168
10444618 ................................................................. 105
10322626 ................................................................. 19
10358139 ................................................................. 19
Avoidance Learning ................................................................. 295
Babesia ................................................................. 12779398
10093007 ................................................................. 97
Babesiosis ................................................................. 143
1279395 ................................................................. 59
Bacteria ................................................................. 145
10247112 ................................................................. 305
13621595 ................................................................. 108
11845197 ................................................................. 12419083
10643756 ................................................................. 216
12319820 ................................................................. 1147690
11946050 ................................................................. 97
12419083 ................................................................. 1147690
Bacterial Infections ................................................................. 142
10946050 ................................................................. 28
11084413 ................................................................. 108
12419083 ................................................................. 299
Bacteriology ................................................................. 206
10643722 ................................................................. 142
12730302 ................................................................. 111
10149430 ................................................................. 206
11084413 ................................................................. 12419083
10643756 ................................................................. 12419083
12319820 ................................................................. 12419083
13129768 ................................................................. 31
11806947 ................................................................. 264
Basal Ganglia ................................................................. 264
11268285 ................................................................. 264
10413576 ................................................................. 264
12319820 ................................................................. 264
13129768 ................................................................. 264
Basal Ganglia Diseases ................................................................. 31
11268285 ................................................................. 31
10413576 ................................................................. 31
12319820 ................................................................. 31
13129768 ................................................................. 31
Basement Membrane ................................................................. 54
10151776 ................................................................. 54
Bayes Theorem ................................................................. 111
12268582 ................................................................. 111
Bedbugs ................................................................. 299
10438073 ................................................................. 299
Beer ................................................................. 305
12419083 ................................................................. 305
Behavior ................................................................. 6
12772343 ................................................................. 171
11900192 ................................................................. 271
10404668 ................................................................. 271
Behavior and Behavior Mechanisms ................................................................. 240
10126310 ................................................................. 240
10400010 ................................................................. 240
<table>
<thead>
<tr>
<th>Behavior, Addictive</th>
<th>10422569</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>10248506</td>
<td>259</td>
<td></td>
</tr>
<tr>
<td>Behavior, Animal</td>
<td>1542781</td>
<td>248</td>
</tr>
<tr>
<td>12319820</td>
<td>171</td>
<td></td>
</tr>
<tr>
<td>Behavioral Disciplines and Activities</td>
<td>10266628</td>
<td>248</td>
</tr>
<tr>
<td>Behavioral Medicine</td>
<td>10415922</td>
<td>64</td>
</tr>
<tr>
<td>1011129</td>
<td>244</td>
<td></td>
</tr>
<tr>
<td>10314466</td>
<td>250</td>
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</tr>
<tr>
<td>10397919</td>
<td>256</td>
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<tr>
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<td>267</td>
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<tr>
<td>12782645</td>
<td>270</td>
<td></td>
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<td>13198499</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>Behavioral Research</td>
<td>10449956</td>
<td>156</td>
</tr>
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<td>14830839</td>
<td>300</td>
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</tr>
<tr>
<td>Behavioral Sciences</td>
<td>11519086</td>
<td>239</td>
</tr>
<tr>
<td>10329902</td>
<td>168</td>
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</tr>
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<td>Bile</td>
<td>10484517</td>
<td>70</td>
</tr>
<tr>
<td>Bile Acids and Salts</td>
<td>10476918</td>
<td>65</td>
</tr>
<tr>
<td>Biliary Tract Diseases</td>
<td>11088238</td>
<td>66</td>
</tr>
<tr>
<td>1210431</td>
<td>127</td>
<td></td>
</tr>
<tr>
<td>Binge Drinking</td>
<td>14373964</td>
<td>251</td>
</tr>
<tr>
<td>Biochemical Phenomena</td>
<td>10326961</td>
<td>52</td>
</tr>
<tr>
<td>Biochemical Processes</td>
<td>10406640</td>
<td>145</td>
</tr>
<tr>
<td>11467185</td>
<td>144</td>
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<td>14391542</td>
<td>13</td>
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<td>142</td>
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</table>

<table>
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</thead>
<tbody>
<tr>
<td>11471690</td>
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<table>
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<td>142</td>
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</table>

Research Index     vii
BRCA2 Protein  
11036915 ......................................................... 321  
Bread  
12419083 ......................................................... 305  
Breast  
11833263 ......................................................... 198  
10329477 ......................................................... 322  
14382192 ......................................................... 117  
Breast Feeding  
13250842 ......................................................... 302  
Breast Neoplasms  
11629110 ......................................................... 62  
11625234 ......................................................... 196  
11379210 ......................................................... 197  
10032929 ......................................................... 285  
10299183 ......................................................... 78  
11833263 ......................................................... 198  
14798811 ......................................................... 89  
10340918 ......................................................... 199  
11450627 ......................................................... 292  
11036915 ......................................................... 321  
10359805 ......................................................... 292  
11124278 ......................................................... 200  
11379703 ......................................................... 205  
14382192 ......................................................... 117  
10415939 ......................................................... 206  
11125723 ......................................................... 323  
10301087 ......................................................... 208  
10364412 ......................................................... 325  
16666238 ......................................................... 308  
Bronchial Diseases  
10006511 ......................................................... 74  
Bronchiectasis  
10006511 ......................................................... 74  
14058563 ......................................................... 99  
Bronchiolitis, Viral  
11084413 ......................................................... 108  
Bronchopulmonary Dysplasia  
10319464 ......................................................... 217  
11329434 ......................................................... 281  
Buprenorphine  
10288558 ......................................................... 80  
10313276 ......................................................... 267  
10639081 ......................................................... 128  
Burkina Faso  
14391423 ......................................................... 301  
Burnout, Professional  
10933844 ......................................................... 240  
10107168 ......................................................... 97  

Calcium  
10038165 ......................................................... 235  
Calcium Signaling  
10410040 ......................................................... 112  
Cameroon  
13639003 ......................................................... 299  
Canada  
10268583 ......................................................... 20  
Capnography  
12011729 ......................................................... 224  
Carbapenems  
11581425 ......................................................... 66  
Carbohydrates  
10334084 ......................................................... 280  
Carbon Dioxide  
12011729 ......................................................... 224  
Carcinogenesis  
10240261 ......................................................... 36  
14504864 ......................................................... 312  
14433821 ......................................................... 38  
10347582 ......................................................... 324  
13310903 ......................................................... 209  
Carcinoma  
10492218 ......................................................... 285  
Carcinoma, Adenoid Cystic  
14504864 ......................................................... 312  
Carcinoma, Basal Cell  
10071485 ......................................................... 37  
Carcinoma, Hepatocellular  
11076627 ......................................................... 103  
1201220 ......................................................... 129  
13310903 ......................................................... 209  
Carcinoma, Renal Cell  
13102568 ......................................................... 196  
Carcinoma, Squamous Cell  
10434333 ......................................................... 34  
10071485 ......................................................... 37  
Carcinoma, Transitional Cell  
15645564 ......................................................... 327  
Cardiac Catheterization  
12167993 ......................................................... 212  
Cardiac Output, Low  
10381718 ......................................................... 225  
Cardiac Surgical Procedures  
14553365 ......................................................... 313  
10281146 ......................................................... 313  
10770984 ......................................................... 4  
13959929 ......................................................... 318  
Cardiology  
10330922 ......................................................... 62  
12167993 ......................................................... 212  
10206533 ......................................................... 68  
10365636 ......................................................... 214  
11244825 ......................................................... 76  
13482535 ......................................................... 79  
14885936 ......................................................... 218  
10323646 ......................................................... 219  
10557022 ......................................................... 82  
14864499 ......................................................... 83  
10412862 ......................................................... 220  
10941052 ......................................................... 86  
11344768 ......................................................... 86  
13606975 ......................................................... 88

Research Index  ix
<p>| Cardiomyopathies                          | 10356439 | 134 |
| Cardiopulmonary Bypass                  | 10351815 | 140 |
| Cardio-Renal Syndrome                  | 14506581 | 131 |
| Cardiovascular Abnormalities            | 10008517 | 203 |
| Cardiovascular Diseases                | 10139706 | 285 |
|                                         | 11851759 | 234 |
|                                         | 10743614 | 287 |
|                                         | 10314415 | 85  |
|                                         | 10384370 | 101 |
|                                         | 13265904 | 107 |
|                                         | 11640806 | 108 |
|                                         | 12792930 | 118 |
|                                         | 10433959 | 121 |
|                                         | 10112557 | 121 |
|                                         | 11240779 | 43  |
|                                         | 10319923 | 237 |
|                                         | 10259369 | 4   |
|                                         | 10272731 | 127 |
|                                         | 11289943 | 328 |
|                                         | 11153467 | 135 |
|                                         | 10024293 | 1   |
| Cardiovascular Physiological Phenomena  | 10259369 | 4   |
| Cardiovascular Surgical Procedures      | 14553365 | 313 |
| Cardiovascular System                   | 14208112 | 113 |
|                                         | 10285957 | 5   |
|                                         | 10284325 | 126 |
| Caribbean Region                        | 11981945 | 113 |
| Carotid Stenosis                        | 11431485 | 310 |
| Case-Control Studies                    | 10303450 | 228 |
| Catecholamines                          | 10292366 | 77  |
| Catheter Ablation                       | 10330922 | 62  |
|                                          | 10004620 | 106 |
| Cell Adhesion                           | 11851759 | 234 |
| Cell- and Tissue-Based Therapy          | 12652935 | 179 |
| Cell Biology                            | 12785875 | 9   |
|                                          | 12659344 | 145 |
|                                          | 10461353 | 156 |
|                                          | 11635332 | 70  |
|                                          | 12648617 | 33  |
|                                          | 11851759 | 234 |
|                                          | 10295885 | 14  |
|                                          | 10245259 | 34  |
|                                          | 12772347 | 6   |
|                                          | 10182580 | 45  |
|                                          | 10034697 | 56  |
|                                          | 10349979 | 7   |
|                                          | 10444363 | 86  |
|                                          | 12613478 | 46  |
|                                          | 13098505 | 7   |
|                                          | 10477190 | 7   |
|                                          | 10261086 | 8   |
|                                          | 13227841 | 8   |
|                                          | 10344131 | 139 |
|                                          | 12431102 | 9   |
|                                          | 10260797 | 203 |
|                                          | 14444565 | 10  |
|                                          | 12785212 | 11  |
|                                          | 11467185 | 144 |
|                                          | 10410040 | 112 |
|                                          | 14444905 | 150 |
|                                          | 12536247 | 11  |
|                                          | 12683688 | 11  |
|                                          | 13284646 | 150 |
|                                          | 10322099 | 12  |
|                                          | 13649339 | 13  |
|                                          | 11506557 | 20  |
|                                          | 10656183 | 13  |
| Cell Communication                      | 12785178 | 132 |
| Cell Cycle                              | 10296752 | 152 |
| Cell Death                              | 13037718 | 200 |
| Cell Differentiation                    | 13091926 | 50  |
|                                          | 13585861 | 167 |
| Cell Division                           | 10296752 | 152 |
| Cell Enlargement                        | 12785178 | 132 |
| Cell Fusion                             | 11912840 | 202 |
| Cell Growth Processes                   | 11210979 | 147 |
| Cell Hypoxia                            | 11789488 | 325 |</p>
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
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</thead>
<tbody>
<tr>
<td>Central Nervous System Neoplasms</td>
<td>285</td>
</tr>
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<td>Central Nervous System Parasitic Infections</td>
<td>178</td>
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<td>Central Nervous System Viral Diseases</td>
<td>178</td>
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<td>182</td>
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<td>163</td>
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<td>Chemical Engineering</td>
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<td>250</td>
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<td>Community Psychiatry</td>
<td>271</td>
</tr>
<tr>
<td>Community-Based Participatory Research</td>
<td>64</td>
</tr>
<tr>
<td>Comorbidity</td>
<td>252</td>
</tr>
<tr>
<td>Comparative Effectiveness Research</td>
<td>301</td>
</tr>
<tr>
<td>Complementary Therapies</td>
<td>322</td>
</tr>
<tr>
<td>Computational Biology</td>
<td>158</td>
</tr>
<tr>
<td>Computer-Assisted Instruction</td>
<td>204</td>
</tr>
<tr>
<td>Computing Methodologies</td>
<td>200</td>
</tr>
<tr>
<td>Conditioning, Eyelid</td>
<td>190</td>
</tr>
<tr>
<td>Cone-Beam Computed Tomography</td>
<td>225</td>
</tr>
<tr>
<td>Congenital Abnormalities</td>
<td>168</td>
</tr>
<tr>
<td>Congenital, Hereditary, and Neonatal Diseases and Abnormalities</td>
<td>44</td>
</tr>
<tr>
<td>Connective Tissue Diseases</td>
<td>202</td>
</tr>
<tr>
<td>Constipation</td>
<td>227</td>
</tr>
<tr>
<td>Consultants</td>
<td>23</td>
</tr>
<tr>
<td>Contraception</td>
<td>181</td>
</tr>
<tr>
<td>Contraceptive Devices</td>
<td>181</td>
</tr>
<tr>
<td>Contraceptive Devices, Female</td>
<td>181</td>
</tr>
<tr>
<td>Contusions</td>
<td>192</td>
</tr>
<tr>
<td>Coronary Artery Disease</td>
<td>76</td>
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<td>135</td>
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<td>315</td>
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<td>44</td>
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<td>Coxiella burnetii</td>
<td>145</td>
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<td>Craniofacial Trauma</td>
<td>315</td>
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<td>Craniofacial Abnormalities</td>
<td>191</td>
</tr>
<tr>
<td>Critical Care</td>
<td>62</td>
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<td>Critical Illness</td>
<td>63</td>
</tr>
<tr>
<td>Crohn Disease</td>
<td>213</td>
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<tr>
<td>Crohn Disease</td>
<td>219</td>
</tr>
<tr>
<td>Crops, Agricultural</td>
<td>221</td>
</tr>
<tr>
<td>Cryopreservation</td>
<td>161</td>
</tr>
<tr>
<td>Crosstube X-Ray</td>
<td>99</td>
</tr>
<tr>
<td>Cryoelectron Microscopy</td>
<td>225</td>
</tr>
<tr>
<td>Cryptogenetics</td>
<td>115</td>
</tr>
<tr>
<td>Crystallography, X-Ray</td>
<td>17</td>
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<td>34</td>
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<td>Diabetes Mellitus</td>
<td>43</td>
</tr>
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<td>Developmental Disabilities</td>
<td>273</td>
</tr>
<tr>
<td>Depression, Postpartum</td>
<td>250</td>
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<td>245</td>
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<td>33</td>
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<td>Dermatitis, Contact</td>
<td>38</td>
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<td>301</td>
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<tr>
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</tr>
<tr>
<td>Diagnostic Techniques, Neurological</td>
<td>177</td>
</tr>
<tr>
<td>Dialysis</td>
<td>71</td>
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<td>114</td>
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<td>Diffusion Magnetic Resonance Imaging</td>
<td>282</td>
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<td>225</td>
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<td>66</td>
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<tr>
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<td>8</td>
</tr>
<tr>
<td>Digestive System and Oral Physiological Phenomena</td>
<td>314</td>
</tr>
<tr>
<td>Digestive System Diseases</td>
<td>61</td>
</tr>
<tr>
<td>DNA Replication</td>
<td>65</td>
</tr>
<tr>
<td>Disease Transmission, Infectious</td>
<td>92</td>
</tr>
<tr>
<td>Disease-Free Survival</td>
<td>199</td>
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<td>Diseases</td>
<td>97</td>
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<tr>
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<td>103</td>
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<td>109</td>
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<tr>
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<td>110</td>
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<tr>
<td>Topic</td>
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<tr>
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</tr>
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<td>DNA Topoisomerases</td>
<td>123</td>
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<td>DNA Virus Infections</td>
<td>178</td>
</tr>
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<td>DNA Viruses</td>
<td>136</td>
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<tr>
<td>DNA, Recombinant</td>
<td>57</td>
</tr>
<tr>
<td>Domestic Violence</td>
<td>246</td>
</tr>
<tr>
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<td>Dose-Response Relationship, Radiation</td>
<td>320</td>
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<tr>
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<td>45</td>
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</tr>
<tr>
<td>Drug Delivery Systems</td>
<td>179</td>
</tr>
<tr>
<td>Drug Design</td>
<td>323</td>
</tr>
<tr>
<td>Drug Discovery</td>
<td>99</td>
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<tr>
<td></td>
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<td>Drug Resistance</td>
<td>100</td>
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<tr>
<td>Drug Resistance, Multiple, Bacterial</td>
<td>66</td>
</tr>
<tr>
<td>Drug Therapy</td>
<td>72</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
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</tr>
<tr>
<td>Drug Users</td>
<td>258</td>
</tr>
<tr>
<td>Drug-Related Side Effects and Adverse Reactions</td>
<td>114</td>
</tr>
<tr>
<td>Drugs, Chinese Herbal</td>
<td>234</td>
</tr>
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<td>Dynamins</td>
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<td>222</td>
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<td>Dystonia Musculorum Deformans</td>
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**E**

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<tbody>
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<td>317</td>
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<td>Early Detection of Cancer</td>
<td>287</td>
</tr>
<tr>
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<td>Emigrants and Immigrants</td>
<td>287</td>
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<td>287</td>
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<td>198</td>
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<td>Encephalitis, Viral</td>
<td>178</td>
</tr>
<tr>
<td>10471614</td>
<td>178</td>
</tr>
</tbody>
</table>
Endocarditis
10306170 ................................................................. 117

Endocrine System
10215407 ................................................................. 180
10443190 ................................................................. 183

Endocrine System Diseases
10477190 ................................................................. 7
12347564 ................................................................. 57
10412267 ................................................................. 124

Endocrinology
11635332 ................................................................. 70
10319039 ................................................................. 215
10425051 ................................................................. 215
10444805 ................................................................. 74
10086462 ................................................................. 93
10278885 ................................................................. 93
12481388 ................................................................. 94
10246976 ................................................................. 95
11229525 ................................................................. 98
10772973 ................................................................. 104
10032810 ................................................................. 115
11191020 ................................................................. 122
10253861 ................................................................. 124
10315792 ................................................................. 229
11628685 ................................................................. 231
10194004 ................................................................. 133

Endocytosis
12659344 ................................................................. 145
10349979 ................................................................. 7
15066557 ................................................................. 20

Endometrial Neoplasms
11629110 ................................................................. 62
10340918 ................................................................. 199

Endometrosis
10268294 ................................................................. 180

Endometrium
10240006 ................................................................. 183

Endophenotypes
10642311 ................................................................. 243
11634941 ................................................................. 262

Endoplasmic Reticulum
10034697 ................................................................. 56
14444565 ................................................................. 10

Endoplasmic Reticulum Stress
13033718 ................................................................. 200

Endoscopic Ultrasound-Guided Fine Needle Aspiration
11088238 ................................................................. 66
11261825 ................................................................. 201

Endoscopy
11088238 ................................................................. 66
11268285 ................................................................. 111

Endothelial Cells
11239946 ................................................................. 94
10263381 ................................................................. 202
10264452 ................................................................. 60

Endothelium
10206533 ................................................................. 68
10929458 ................................................................. 102

Endothelium, Vascular
13482535 ................................................................. 79
10929458 ................................................................. 102

14137596 ........................................................................ 177
12785178 ........................................................................ 132

Endothelium-Dependent Relaxing Factors
12785178 ........................................................................ 132

Endovascular Procedures
12764285 ........................................................................ 311

Endpoint Determination
13227977 ........................................................................ 116

Energy Metabolism
10959055 ........................................................................ 276
15314132 ........................................................................ 158

England
10382262 ........................................................................ 212
11640806 ........................................................................ 108

Entercoccus
10408051 ........................................................................ 76

Entercytes
10251260 ........................................................................ 209

Entomology
10438073 ........................................................................ 299

Environment and Public Health
10359805 ........................................................................ 292
10308567 ........................................................................ 295
10576453 ........................................................................ 296
10302889 ........................................................................ 188

Environmental Exposure
11833348 ........................................................................ 291

Environmental Health
11382814 ........................................................................ 289
11833348 ........................................................................ 291
10304198 ........................................................................ 119
10389657 ........................................................................ 121
15326151 ........................................................................ 306
11666238 ........................................................................ 308

Environmental Medicine
10791129 ........................................................................ 62
11765042 ........................................................................ 122

Environmental Pollution
10308567 ........................................................................ 295

Enzymes
11211097 ........................................................................ 147

Enzymes and Coenzymes
10302957 ........................................................................ 236

Ephrin-B2
11431485 ........................................................................ 310

Epidemiologic Factors
12791247 ........................................................................ 179

Epidemiologic Methods
10743614 ........................................................................ 287
12013389 ........................................................................ 289
10384370 ........................................................................ 101
12749325 ........................................................................ 109
11270138 ........................................................................ 300
10923049 ........................................................................ 133
12791247 ........................................................................ 179

Epidemiologic Research Design
11981843 ........................................................................ 186
10052819 ........................................................................ 115

Epidemiology
10791129 ........................................................................ 62
<table>
<thead>
<tr>
<th>Index Item</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>11386588</td>
<td>63</td>
</tr>
<tr>
<td>10415922</td>
<td>64</td>
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xxii  Research Index
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</tbody>
</table>

**G**

Golgi Apparatus .......................... 11
Gonadal Steroid Hormones ........... 303
Gonorrhea ................................ 78
Gout ....................................... 306
Graft vs Host Disease ................. 36
Granulosa Cells .......................... 183
Graves Disease .......................... 158
GTP-Binding Proteins .................. 238
Guatemala ................................ 299
Guillain-Barre Syndrome .............. 163
Gynecology ................................ 62
Gynecology ................................ 180
Hair Cells, Auditory .................. 284
Hair Cells, Auditory .................. 181
Hair Cells, Auditory .................. 89
Hair Cells, Auditory .................. 181
Hair Cells, Auditory .................. 182
Hair Cells, Auditory .................. 199
Hair Cells, Auditory .................. 182
Hair Cells, Auditory .................. 183
Hair Cells, Auditory .................. 183
Hair Cells, Auditory .................. 183
Hair Cells, Auditory .................. 9
Hair Cells, Auditory .................. 184
Hair Cells, Auditory .................. 184
Hair Cells, Auditory .................. 280
Hair Cells, Auditory .................. 184
Hair Cells, Auditory .................. 185
Hair Cells, Auditory .................. 186
Hair Cells, Auditory .................. 205
Hair Cells, Auditory .................. 186
Hair Cells, Auditory .................. 187
Hair Cells, Auditory .................. 187
Hair Cells, Auditory .................. 188

**H**

Hair Cells, Auditory .................. 317
Harm Reduction ........................ 262
Hazardous Substances ................ 41
Head and Neck Neoplasms ............. 72
Head and Neck Neoplasms ............. 311
Head and Neck Neoplasms ............. 201
Head and Neck Neoplasms ............. 37
Head and Neck Neoplasms ............. 318
Head and Neck Neoplasms ............. 325
Headache
10285957 ............................................................... 5
Health Behavior
10939980 ............................................................... 216
10310981 ............................................................... 259
10405042 ............................................................... 304
Health Care
10415922 ............................................................... 64
10139706 ............................................................... 285
11366069 ............................................................... 73
10269790 ............................................................... 76
12472769 ............................................................... 287
10238204 ............................................................... 77
10013124 ............................................................... 82
10294100 ............................................................... 84
10349843 ............................................................... 192
10334611 ............................................................... 1
10672350 ............................................................... 223
10007157 ............................................................... 92
10359805 ............................................................... 292
10397919 ............................................................... 256
1040421 ............................................................... 226
12053821 ............................................................... 226
12763367 ............................................................... 204
10290711 ............................................................... 164
10339507 ............................................................... 265
10285872 ............................................................... 266
10112557 ............................................................... 121
10405042 ............................................................... 304
12602921 ............................................................... 194
10454767 ............................................................... 27
12036022 ............................................................... 272
19173435 ............................................................... 142
10356439 ............................................................... 134
10024293 ............................................................... 1
Health Care Economics and Organizations
10237592 ............................................................... 277
Health Care Quality, Access, and Evaluation
12321571 ............................................................... 286
15004953 ............................................................... 310
10237592 ............................................................... 277
14864499 ............................................................... 83
10388875 ............................................................... 255
10359805 ............................................................... 292
10384370 ............................................................... 101
10328831 ............................................................... 102
14347937 ............................................................... 315
10128800 ............................................................... 114
11240779 ............................................................... 43
10631618 ............................................................... 270
13297626 ............................................................... 272
14451416 ............................................................... 44
11100155 ............................................................... 274
Health Information Exchange
13596350 ............................................................... 39
Health Policy
10269790 ............................................................... 76
12472769 ............................................................... 287
15359658 ............................................................... 287
10285872 ............................................................... 90
11089632 ............................................................... 88
11851708 ............................................................... 95
14830822 ............................................................... 293
10384370 ............................................................... 101
10232628 ............................................................... 301
12668014 ............................................................... 42
10467160 ............................................................... 303
15685888 ............................................................... 304
10405042 ............................................................... 304
Health Promotion
10269790 ............................................................... 76
10023239 ............................................................... 256
Health Resources
10232628 ............................................................... 301
Health Services
10474147 ............................................................... 40
10107157 ............................................................... 92
14679896 ............................................................... 162
Health Services Accessibility
10367217 ............................................................... 256
Health Services Administration
10237592 ............................................................... 277
10388875 ............................................................... 255
10356439 ............................................................... 134
Health Services Research
12321571 ............................................................... 286
11244825 ............................................................... 76
10743614 ............................................................... 287
10367217 ............................................................... 256
11076627 ............................................................... 103
10304776 ............................................................... 119
11920830 ............................................................... 120
14451416 ............................................................... 44
Health Status Disparities
10359805 ............................................................... 292
Healthcare Disparities
13082355 ............................................................... 40
11239500 ............................................................... 247
10367217 ............................................................... 256
11989195 ............................................................... 113
14347937 ............................................................... 315
13250842 ............................................................... 302
11240779 ............................................................... 43
14008804 ............................................................... 267
10922964 ............................................................... 268
11289943 ............................................................... 328
10630479 ............................................................... 134
Healthcare Financing
10373150 ............................................................... 91
Hearing
11331134 ............................................................... 163
Hearing Loss
14501736 ............................................................... 312
Heart
10153663 ............................................................... 105
12792930 ............................................................... 118
Heart Arrest
14864499 ............................................................... 83
13397076 ............................................................... 160
12254353 ............................................................... 44
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12347564 ............................................................... 57
13227212 ................................................................. 199
12319599 ................................................................. 200
11845197 ................................................................. 59
10302957 ................................................................. 236
10336617 ................................................................. 110
13378138 ................................................................. 164
Immune System Phenomena
11851589 ................................................................. 56
12319599 ................................................................. 200
Immune System Processes
11513425 ................................................................. 179
10416313 ................................................................. 137
Immune Tolerance
14596749 ................................................................. 218
11845197 ................................................................. 59
Immunity
11851589 ................................................................. 56
10370124 ................................................................. 75
10034697 ................................................................. 56
12643500 ................................................................. 78
10035904 ................................................................. 57
11344768 ................................................................. 86
Immunity, Cellular
10416313 ................................................................. 137
11273079 ................................................................. 58
11988065 ................................................................. 144
12477818 ................................................................. 130
Immunity, Humoral
14873611 ................................................................. 138
Immunity, Innate
11513425 ................................................................. 179
10386563 ................................................................. 69
11273079 ................................................................. 58
11471690 ................................................................. 97
10194004 ................................................................. 133
Immunity, Mucosal
11845197 ................................................................. 59
Immunization
14299198 ................................................................. 303
Immunocompromised Host
11386588 ................................................................. 63
14231045 ................................................................. 104
Immunogenetics
10444091 ................................................................. 55
11832328 ................................................................. 208
Immunohistochemistry
11270648 ................................................................. 137
11688202 ................................................................. 87
11833263 ................................................................. 198
10415939 ................................................................. 206
10442646 ................................................................. 178
Immunologic Memory
11437027 ................................................................. 39
Immunological Synapses
10416313 ................................................................. 137
Immunomodulation
10311882 ................................................................. 36
10319753 ................................................................. 142
Immunophenotyping
13227212 ................................................................. 199
Immunotherapy
12173195 ................................................................. 155
13515226 ................................................................. 55
10312273 ................................................................. 35
10400146 ................................................................. 139
12644724 ................................................................. 186
Impulse Control Disorders
10342346 ................................................................. 254
10316799 ................................................................. 264
Impulsive Behavior
12319820 ................................................................. 171
India
11274813 ................................................................. 293
10468010 ................................................................. 48
10772973 ................................................................. 104
11463003 ................................................................. 110
10232628 ................................................................. 301
Individualized Medicine
13673309 ................................................................. 90
12197811 ................................................................. 177
Induced Pluripotent Stem Cells
13310869 ................................................................. 51
Infant
10933980 ................................................................. 216
10373116 ................................................................. 175
10319464 ................................................................. 217
Infant, Extremely Premature
12053821 ................................................................. 226
Infant, Low Birth Weight
10319464 ................................................................. 217
Infant, Newborn
12053821 ................................................................. 226
Infant, Newborn, Diseases
10334271 ................................................................. 31
Infant, Premature
10086156 ................................................................. 297
11329434 ................................................................. 281
12053821 ................................................................. 226
Infarction, Middle Cerebral Artery
14557819 ................................................................. 165
Infection Control
11084413 ................................................................. 108
Infectious Disease Medicine
10415922 ................................................................. 64
10253963 ................................................................. 211
11581425 ................................................................. 66
13085041 ................................................................. 67
11512184 ................................................................. 71
10484789 ................................................................. 215
10408051 ................................................................. 76
10454835 ................................................................. 78
10002550 ................................................................. 218
14461837 ................................................................. 79
10247112 ................................................................. 81
10271660 ................................................................. 84
12011389 ................................................................. 289
13497699 ................................................................. 143
11629008 ................................................................. 96
11899461 ................................................................. 58

Research Index  xxxi
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</tr>
<tr>
<td></td>
<td>140</td>
</tr>
<tr>
<td>Policy Making</td>
<td>303</td>
</tr>
<tr>
<td>Polycystic Kidney Diseases</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>235</td>
</tr>
<tr>
<td></td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>53</td>
</tr>
<tr>
<td>Polycystic Ovary Syndrome</td>
<td>185</td>
</tr>
<tr>
<td></td>
<td>188</td>
</tr>
<tr>
<td>Polydactylly</td>
<td>53</td>
</tr>
<tr>
<td>Polymerase Chain Reaction</td>
<td>305</td>
</tr>
<tr>
<td>Polymorphism, Genetic</td>
<td>252</td>
</tr>
<tr>
<td></td>
<td>303</td>
</tr>
<tr>
<td>Polymaviridae</td>
<td>45</td>
</tr>
<tr>
<td>Polyradiculoneuropathy, Chronic Inflammatory Demyelinating</td>
<td>163</td>
</tr>
<tr>
<td>Population Characteristics</td>
<td>314</td>
</tr>
<tr>
<td>Portugal</td>
<td>189</td>
</tr>
<tr>
<td>Positron-Emission Tomography</td>
<td>275</td>
</tr>
<tr>
<td></td>
<td>246</td>
</tr>
<tr>
<td></td>
<td>175</td>
</tr>
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<td></td>
<td>126</td>
</tr>
<tr>
<td>Protein-Tyrosine Kinases</td>
<td>10299183</td>
</tr>
<tr>
<td>--------------------------</td>
<td>----------</td>
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<td>Proteinuria</td>
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<td>Protozoan Proteins</td>
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<tr>
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<td>10464117</td>
</tr>
<tr>
<td></td>
<td>12012137</td>
</tr>
</tbody>
</table>

<p>| Psychiatry and Psychology | 10126310 | .................................................................. | 240 |
|                          | 12046647 | .................................................................. | 21 |
|                          | 10338419 | .................................................................. | 22 |
|                          | 11861432 | .................................................................. | 246 |
|                          | 10977738 | .................................................................. | 246 |
|                          | 10379049 | .................................................................. | 246 |
|                          | 15427811 | .................................................................. | 248 |
|                          | 10266628 | .................................................................. | 248 |
|                          | 10013124 | .................................................................. | 82 |
|                          | 12593962 | .................................................................. | 251 |
|                          | 12748101 | .................................................................. | 252 |
|                          | 11114486 | .................................................................. | 278 |
|                          | 10293080 | .................................................................. | 255 |
|                          | 10388875 | .................................................................. | 255 |
|                          | 10023239 | .................................................................. | 256 |
|                          | 10367217 | .................................................................. | 256 |
|                          | 10397919 | .................................................................. | 256 |
|                          | 13509412 | .................................................................. | 23 |
|                          | 12266729 | .................................................................. | 257 |
|                          | 10576453 | .................................................................. | 296 |
|                          | 11487942 | .................................................................. | 258 |
|                          | 10318597 | .................................................................. | 258 |
|                          | 10422569 | .................................................................. | 25 |
|                          | 10154683 | .................................................................. | 260 |
|                          | 10428400 | .................................................................. | 262 |
|                          | 13310869 | .................................................................. | 51 |
|                          | 12142748 | .................................................................. | 25 |
|                          | 10331959 | .................................................................. | 263 |
|                          | 10316795 | .................................................................. | 264 |
|                          | 10339507 | .................................................................. | 265 |
|                          | 10266118 | .................................................................. | 266 |
|                          | 10323340 | .................................................................. | 266 |
|                          | 10285872 | .................................................................. | 266 |
|                          | 11980789 | .................................................................. | 268 |</p>
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychotherapy</td>
<td>268</td>
</tr>
<tr>
<td>Psychometrics</td>
<td>298</td>
</tr>
<tr>
<td>Psychological Phenomena and Processes</td>
<td>246</td>
</tr>
<tr>
<td>Psychological Theory</td>
<td>246</td>
</tr>
<tr>
<td>Psychology, Adolescent</td>
<td>24</td>
</tr>
<tr>
<td>Psychology, Child</td>
<td>168</td>
</tr>
<tr>
<td>Psychometrics</td>
<td>273</td>
</tr>
<tr>
<td>Psychopharmacology</td>
<td>263</td>
</tr>
<tr>
<td>Public Health Informatics</td>
<td>305</td>
</tr>
<tr>
<td>Public Health Practice</td>
<td>231</td>
</tr>
<tr>
<td>Public Health Surveillance</td>
<td>76</td>
</tr>
<tr>
<td>Public Opinion</td>
<td>303</td>
</tr>
<tr>
<td>Public Policy</td>
<td>250</td>
</tr>
<tr>
<td>Pulmonary Artery</td>
<td>212</td>
</tr>
<tr>
<td>Pulmonary Disease, Chronic Obstructive</td>
<td>219</td>
</tr>
<tr>
<td>Pulmonary Embolism</td>
<td>42</td>
</tr>
<tr>
<td>Pulmonary Fibrosis</td>
<td>88</td>
</tr>
<tr>
<td>Pulmonary Medicine</td>
<td>198</td>
</tr>
<tr>
<td>Psychotic Disorders</td>
<td>269</td>
</tr>
<tr>
<td>Puberty</td>
<td>239</td>
</tr>
<tr>
<td>Public Health</td>
<td>285</td>
</tr>
<tr>
<td>Purines</td>
<td>67</td>
</tr>
<tr>
<td>Pyramidal Cells</td>
<td>173</td>
</tr>
</tbody>
</table>
Qualitative Research
11477079 ................................................................. 69
10939800 ............................................................... 216
10980356 ............................................................... 244
10023239 ............................................................... 256
11270138 ............................................................... 300
Quality Assurance, Health Care
11366069 ................................................................. 73
10329477 ............................................................... 322
11981843 ............................................................... 186
Quality Improvement
10707727 ................................................................. 92
10984368 ............................................................... 132
Quality of Health Care
13596350 ................................................................. 39
13235882 ............................................................... 212
10139706 ............................................................... 285
11366069 ............................................................... 73
10946050 ............................................................... 216
12321571 ............................................................... 286
12472769 ............................................................... 287
10743614 ............................................................... 287
12743375 ............................................................... 81
10237592 ............................................................... 277
14864499 ............................................................... 83
10672350 ............................................................... 223
10367217 ............................................................... 256
10105018 ............................................................... 296
11076627 ............................................................... 103
14679896 ............................................................... 162
10329477 ............................................................... 322
11920830 ............................................................... 120
12387055 ............................................................... 123
14557819 ............................................................... 165
Quality of Life
10314466 ............................................................... 250
11833603 ............................................................... 297
10011288 ............................................................... 315
10307989 ............................................................... 119

Race Relations
10393499 ............................................................... 22
Radiation
10237592 ............................................................... 277
10103819 ............................................................... 321
10223431 ............................................................... 322
Radiation Effects
10668729 ............................................................... 174
Radiation Oncology
10406640 ............................................................... 145
12794902 ............................................................... 319
10668729 ............................................................... 174
11463054 ............................................................... 320
10103819 ............................................................... 321
11036915 ............................................................... 321
13564475 ............................................................... 322
10223431 ............................................................... 322
10172669 ............................................................... 323
10370719 ............................................................... 323
1125723 ................................................................. 323
11697144 ............................................................... 153
10347583 ............................................................... 324
10352869 ............................................................... 324
11789488 ............................................................... 325
Radiation, Ionizing
11463054 ............................................................... 320
14501736 ............................................................... 312
Radiculopathy
12581858 ............................................................... 174
12197811 ............................................................... 177
Radiochemistry
10281911 ............................................................... 181
Radiology
10385696 ............................................................... 274
10310250 ............................................................... 275
12122399 ............................................................... 275
10056270 ............................................................... 276
11861432 ............................................................... 246
10959055 ............................................................... 276
10327131 ............................................................... 277
11981061 ............................................................... 249
12237592 ............................................................... 277
13086265 ............................................................... 278
12587910 ............................................................... 278
10394655 ............................................................... 279
10471427 ............................................................... 280
14173596 ............................................................... 177
10269620 ............................................................... 280
11394343 ............................................................... 281
10714029 ............................................................... 281
13692655 ............................................................... 281
12790040 ............................................................... 282
10337025 ............................................................... 282
10418744 ............................................................... 324
10430049 ............................................................... 282
11067957 ............................................................... 109
Radiology, Interventional
12587910 ............................................................... 278
13089614 ............................................................... 135
Radiometry
10223431 ............................................................... 322
Radiosurgery
10666872 ............................................................... 174
Radiotherapy
10663187 ............................................................... 320
10329477 ............................................................... 322
Radiotherapy Planning, Computer-Assisted
10663187 ............................................................... 320
Radiotherapy, Adjuvant
10329477 ............................................................... 322
Radiotherapy, Image-Guided
11463054 ............................................................... 320
13564475 ............................................................... 322
Radiotherapy, Intensity-Modulated
10663187 ............................................................... 320
103644412 .............................................................. 325
<table>
<thead>
<tr>
<th>Research Subjects</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Religious</strong></td>
<td></td>
</tr>
<tr>
<td>Religion 10323663                                                                                      262</td>
<td></td>
</tr>
<tr>
<td>Religion and Medicine 10282319 10923049                                                              140  133</td>
<td></td>
</tr>
<tr>
<td>Religion and Science 10282319 10923049 11638090                                                 140  133  42</td>
<td></td>
</tr>
<tr>
<td>Renal Circulation 11961086                                                                   64</td>
<td></td>
</tr>
<tr>
<td>Renal Colic 11630810                                                                                   42</td>
<td></td>
</tr>
<tr>
<td>Renal Elimination 11961086                                                                          64</td>
<td></td>
</tr>
<tr>
<td>Renal Insufficiency 12112743                                                                 114</td>
<td></td>
</tr>
<tr>
<td>Renal Osteodystrophy 12643806                                                                       191</td>
<td></td>
</tr>
<tr>
<td>Reperfusion 10285957                                                                                   5</td>
<td></td>
</tr>
<tr>
<td>Reperfusion Injury 11431485                                                                            310</td>
<td></td>
</tr>
<tr>
<td>Reproducibility of Results 10112880                                                                 114</td>
<td></td>
</tr>
<tr>
<td>Reproduction 12041071                                                                                   284</td>
<td></td>
</tr>
<tr>
<td>Reproductive Behavior 10144211                                                                       260</td>
<td></td>
</tr>
<tr>
<td>Reproductive Health Services 10493068                                                                  283</td>
<td></td>
</tr>
<tr>
<td>Reproductive Medicine 12458387                                                                          183</td>
<td></td>
</tr>
<tr>
<td>Rescuer Work 10995473                                                                                   41</td>
<td></td>
</tr>
<tr>
<td>Research 11431485 10150518                                                                             296</td>
<td></td>
</tr>
<tr>
<td>Research Design 10329987                                                                                75</td>
<td></td>
</tr>
<tr>
<td>Research Subjects 10262361                                                                                103</td>
<td></td>
</tr>
<tr>
<td>Research &amp; Development 11487942                                                                       258</td>
<td></td>
</tr>
<tr>
<td>Resilience, Psychological 10314466                                                                    250</td>
<td></td>
</tr>
<tr>
<td>Respiration 11432658 11236767                                                                         219</td>
<td></td>
</tr>
<tr>
<td>Respiratory Distress Syndrome, Adult 10791129 12386970 10301172                                         62  123  125</td>
<td></td>
</tr>
<tr>
<td>Respiratory Mucosa 14058563                                                                           99</td>
<td></td>
</tr>
</tbody>
</table>
Risk Adjustment……………………………………………………………………………………………………………………212
Respiratory Muscles………………………………………………………………………………………………………………212
Respiratory Physiological Phenomena…………………………………………………………………………………………231
Respiratory System………………………………………………………………………………………………………………275
13219205…………………………………………………………………………………………………………………………8
10261086…………………………………………………………………………………………………………………………8
Respiratory System Diseases…………………………………………………………………………………………………………71
12730302…………………………………………………………………………………………………………………………71
10006511…………………………………………………………………………………………………………………………74
14123010…………………………………………………………………………………………………………………………99
10019975………………………………………………………………………………………………………………………139
Respiratory Tract Diseases…………………………………………………………………………………………………………139
10404107…………………………………………………………………………………………………………………………302
Respiratory Tract Neoplasms……………………………………………………………………………………………………99
14123010…………………………………………………………………………………………………………………………99
Restless Legs Syndrome…………………………………………………………………………………………………………162
14893076…………………………………………………………………………………………………………………………162
Retina………………………………………………………………………………………………………………………………316
10322796…………………………………………………………………………………………………………………………316
12739499…………………………………………………………………………………………………………………………190
Retinal Bipolar Cells………………………………………………………………………………………………………………189
13761777…………………………………………………………………………………………………………………………189
11506557…………………………………………………………………………………………………………………………20
Retinal Cone Photoreceptor Cells………………………………………………………………………………………………189
13761777…………………………………………………………………………………………………………………………189
Retinal Degeneration………………………………………………………………………………………………………………189
13375146…………………………………………………………………………………………………………………………189
Retinal Detachment………………………………………………………………………………………………………………189
11450576…………………………………………………………………………………………………………………………189
Retinal Diseases……………………………………………………………………………………………………………………189
11450576…………………………………………………………………………………………………………………………189
12739499…………………………………………………………………………………………………………………………190
Retinal Ganglion Cells………………………………………………………………………………………………………………189
13761777…………………………………………………………………………………………………………………………189
Retroviridae…………………………………………………………………………………………………………………………144
11467185…………………………………………………………………………………………………………………………144
RGS Proteins………………………………………………………………………………………………………………………148
10488461…………………………………………………………………………………………………………………………148
Rheumatology…………………………………………………………………………………………………………………………69
10386563…………………………………………………………………………………………………………………………69
11512184…………………………………………………………………………………………………………………………71
10370124…………………………………………………………………………………………………………………………75
10312613…………………………………………………………………………………………………………………………80
10658495…………………………………………………………………………………………………………………………83
10465595…………………………………………………………………………………………………………………………83
10394179…………………………………………………………………………………………………………………………96
10336617…………………………………………………………………………………………………………………………105
10336617…………………………………………………………………………………………………………………………110
Ribonucleoproteins…………………………………………………………………………………………………………………145
10406640…………………………………………………………………………………………………………………………145
Ribonucleoproteins, Small Nuclear………………………………………………………………………………………………152
10437325…………………………………………………………………………………………………………………………152
Rickets………………………………………………………………………………………………………………………………68
15141259…………………………………………………………………………………………………………………………68
10323646…………………………………………………………………………………………………………………………219
Rickets, Hypophosphatemic…………………………………………………………………………………………………………93
10086462…………………………………………………………………………………………………………………………93
Risk……………………………………………………………………………………………………………………………………314
12011457…………………………………………………………………………………………………………………………314
Risk Adjustment………………………………………………………………………………………………………………………91
10373150…………………………………………………………………………………………………………………………91
Sacccharomyces cerevisiae……………………………………………………………………………………………………………147
11211097…………………………………………………………………………………………………………………………147
10009299…………………………………………………………………………………………………………………………52
10296752…………………………………………………………………………………………………………………………152
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>216</td>
</tr>
<tr>
<td>Salmonella</td>
<td>144</td>
</tr>
<tr>
<td>Samoa</td>
<td>290</td>
</tr>
<tr>
<td>Sampling Studies</td>
<td>289</td>
</tr>
<tr>
<td>Sarcoioidis</td>
<td>109</td>
</tr>
<tr>
<td>Sarcoma, Kaposi</td>
<td>226</td>
</tr>
<tr>
<td>Saracopenia</td>
<td>134</td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>242</td>
</tr>
<tr>
<td>Schizophrenia and Disorders with Psychotic Features</td>
<td>239</td>
</tr>
<tr>
<td>Schools</td>
<td>22</td>
</tr>
<tr>
<td>Scoliosis</td>
<td>194</td>
</tr>
<tr>
<td>Secretory Pathway</td>
<td>8</td>
</tr>
<tr>
<td>Secretory Vesicles</td>
<td>15</td>
</tr>
<tr>
<td>Seizures</td>
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<td>Therapeutic Human Experimentation</td>
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<td>Thermodynamics</td>
<td>11434290</td>
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<td>Thoracic Neoplasms</td>
<td>13673309</td>
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<tr>
<td>Thoracic Surgical Procedures</td>
<td>14553365</td>
</tr>
<tr>
<td>Thrombocyteopenia, Neonatal Alloimmune</td>
<td>11639854</td>
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<tr>
<td>Thromboembolism</td>
<td>11834402</td>
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<tr>
<td>Thrombolytic Therapy</td>
<td>11976420</td>
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<td>Thrombophilia</td>
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<td>Thyroid Gland</td>
<td>11833263</td>
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<tr>
<td>Thyroiditis, Autoimmune</td>
<td>13424089</td>
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<tr>
<td>Tic Disorders</td>
<td>11079500</td>
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<td>Tick-Borne Diseases</td>
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<td>Ticks</td>
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<td>Tissue Engineering</td>
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<td>Tissue</td>
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<td>T-Lymphocytes</td>
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<td>10332299</td>
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<tr>
<td>Therapeutic Human Experimentation</td>
<td>13227977</td>
</tr>
</tbody>
</table>
Research Index

U

Ubiquitin
11211097 ................................................................. 147
Uganda
14347937 ................................................................. 315
14391423 ................................................................. 301
12387055 ................................................................. 123
Ultrafiltration
14506581 ................................................................. 131
Ultrasonography
13564475 ................................................................. 322
11630810 ................................................................. 42
Ultrasonography, Doppler, Transcranial
11329434 ................................................................. 281
Unfolded Protein Response
14444565 ................................................................. 10
Urban Health
10343961 ................................................................. 292
14830822 ................................................................. 293
13467762 ................................................................. 294
10922964 ................................................................. 268
12782645 ................................................................. 270
Urethral Neoplasms
13102568 ................................................................. 196
Urinary Bladder Neoplasms
10446930 ................................................................. 326
14474655 ................................................................. 115
10246568 ................................................................. 328
15645564 ................................................................. 327
Urinary Bladder, Neurogenic
10381616 ................................................................. 326
Urinary Incontinence
14574428 ................................................................. 326
10381616 ................................................................. 326
Urinary Tract
14697491 ................................................................. 327
Urinary Tract Infections
11629008 ................................................................. 96
Urinary Tract Physiological Phenomena
10251566 ................................................................. 65
Urination
19961086 ................................................................. 64
Urogenital Neoplasms
10364412 ................................................................. 325
Urologic Diseases
12772071 ................................................................. 327
Urologic Neoplasms
10446930 ................................................................. 326
14697491 ................................................................. 327
12052002 ................................................................. 328
Urologic Surgical Procedures
12052002 ................................................................. 328
Urology
10446930 ................................................................. 326
10381616 ................................................................. 326
12772071 ................................................................. 327
14474655 ................................................................. 115
12052002 ................................................................. 328
11289943 ................................................................. 328
10246568 ................................................................. 328
15645564 ................................................................. 327
Urothelium
14574428 ................................................................. 326
User-Computer Interface
10415021 ................................................................. 264
Uterine Cervical Neoplasms
10370719 ................................................................. 323
10245548 ................................................................. 187
Uterine Neoplasms
10245548 ................................................................. 187
V

Vaccines
11899461 ................................................................. 58
11270138 ................................................................. 300
10303450 ................................................................. 228
Vaginal Neoplasms
10245548 ................................................................. 187
Vaginosis, Bacterial
10454835 ................................................................. 78
Validation Studies as Topic
10112880 ................................................................. 114
Vancomycin-Resistant Enterococci
11581425 ................................................................. 66
10408051 ................................................................. 76
Varicose Veins
11976420 ................................................................. 315
Vascular Diseases
12641341 ................................................................. 156
11431485 ................................................................. 310
13606975 ................................................................. 88
11239946 ................................................................. 94
13265904 ................................................................. 107
10008517 ................................................................. 203
11976420 ................................................................. 315
1012557 ................................................................. 121
12791247 ................................................................. 179
1153467 ................................................................. 135
Vascular Endothelial Growth Factor A
11432658 ................................................................. 219
12477818 ................................................................. 130
12687105 ................................................................. 230
<table>
<thead>
<tr>
<th>Term</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight Reduction Programs</td>
<td>94</td>
</tr>
<tr>
<td>Werner Syndrome</td>
<td>109</td>
</tr>
<tr>
<td>West Nile virus</td>
<td>136</td>
</tr>
<tr>
<td>Wheelchairs</td>
<td>69</td>
</tr>
<tr>
<td>Wine</td>
<td>305</td>
</tr>
<tr>
<td>Women</td>
<td>254</td>
</tr>
<tr>
<td>Women’s Health</td>
<td>283</td>
</tr>
<tr>
<td>Workplace</td>
<td>121</td>
</tr>
<tr>
<td>Wound Healing</td>
<td>202</td>
</tr>
<tr>
<td>Wrist</td>
<td>195</td>
</tr>
<tr>
<td>Xeroderma Pigmentosum</td>
<td>88</td>
</tr>
<tr>
<td>X-Rays</td>
<td>319</td>
</tr>
<tr>
<td>Yellow Fever</td>
<td>299</td>
</tr>
</tbody>
</table>
Barash, Paul G

Abstract Number 10276981

Professor of Anesthesiology
(203) 785-2802
paul.barash@yale.edu
MD, University of Kentucky, 1967

Dr. Barash is currently conducting research in two areas: (1) peri-operative cardiovascular anesthetics and (2) healthcare delivery. In particular working with Dr. John Elefteriades (Chief Cardiac Surgery), he is utilizing intra-operative echocardiographic imaging techniques to elucidate the mechanical properties of thoracic aortic aneurysms. Using QA databases and information directly gathered in the operating rooms, Dr. Barash and his team are evaluating the logistics of delivering anesthetic care in an inpatient operating room suite of an academic medical center.

Specialized Terms: Cardiovascular Pharmacology

Clinical Anesthesia (Clinical Anesthesia (Barash)) by Paul G Barash, Bruce F Cullen, Robert K Stoelting, and Michael Cahalan (Hardcover - April 1, 2009)

Handbook of Clinical Anesthesia for PDA: Powered by Skyscape, Inc. by Paul G Barash, Bruce F Cullen, and Robert K Stoelting (CD-ROM - Nov 1, 2005)

Fontes, Manuel L

Abstract Number 10024293

Professor of Anesthesiology
(203) 785-2802
manuel.fontes@yale.edu
MD, University of Massachusetts, 1988

Cardiac surgery involves use of cardiopulmonary bypass machine, which can be associated with an inflammatory response that may lead to injury to different organs after surgery. My research interest in this area has been to explore the relationship between different markers of inflammation and outcomes such as stroke, kidney injury, death, and heart injury.

I also have research interest in high blood pressure and its influence on surgical outcomes. Specifically, I have been exploring the relationship between pre-existing subtypes of hypertension such as systolic vs diastolic vs pulse pressure (difference between systolic and diastolic pressures) and complications after surgery involving the brain, the heart, and the kidneys.

Additional research interest include the anticoagulation during and after surgery

Specialized Terms: Perioperative Outcomes Research in Cardiac Surgery with Bypass; Atrial Fibrillation; Thrombocytopenia; Perioperative Hypertension; Pulse Pressure Hypertension; Acute Kidney Injury Hypocoagulability and surgical outcomes


Halaszynski, Thomas M

Abstract Number 10334611

Associate Professor of Anesthesiology
(203) 785-2802
thomas.halaszynski@yale.edu

MBA, University of New Haven, 2002
MD, Universities College of Medicine, Ohio, 1993
DMD, Temple University, 1985

As a Regional Anesthesiologist, there remains a focus on maintaining and researching evidence-based best practices related to safe and effective peripheral nerve blockade techniques.


LaMotte, Robert H

Abstract Number 10396763

Professor of Anesthesiology
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PhD, Kansas State University, 1968

Our research focuses on the neural mechanisms of pain and itch. Experiments on pain examine the functional properties of dorsal root ganglion (DRG) neurons in the rodent. We are currently interested in how electrophysiological and neurochemical changes in these properties, occurring after a chronic compression of the DRG (CCD model), lead to behavioral signs of neuropathic pain. This type of pain might be produced in humans after injuries and degenerative disorders of the spine. Our experiments on itch use psychophysical methods in humans and behavioral testing in animals to measure itch and nociceptive sensations that can occur under normal conditions and after inflammatory or neuropathic disorders affecting the skin.

In our animal models, the neural encoding of normal and pathological itch vs. pain is measured using imaging and electrophysiological recordings of visualized sensory neurons in vitro and in vivo. Transgenic mice are used that express a fluorescent marker in a subset of itch or pain mediating DRG neuron to facilitate identification for functional studies. A major goal is to identify neurons and neurochemical mechanisms that could be targeted in clinical treatments of chronic pruritus or pain.

Specialized Terms: Pain; Dorsal root ganglion; Neurons; Electrophysiological; Neurochemical; Itch; Psychophysical; pruritic; Nociceptive sensations; Anesthesiology; Electrophysiology; Nervous System; Neurophysiology; Sensory System


Qu L, Fu K, Yang J, Shimada SG, LaMotte RH. CXCR3 chemokine receptor signaling mediates itch in experimental allergic contact dermatitis. 2015. Pain 156(9):1737-1746

Miller, Perry L

Abstract Number 10219521

Professor of Anesthesiology
(203) 737-2903
perry.miller@yale.edu
MD, University of Miami, 1978
PhD, Massachusetts Institute of Technology, 1973
MS, University of California, Berkeley, 1969

I am Director of the Yale Center for Medical Informatics (YCMl) and of the School of Medicine's research training program in Biomedical Informatics, which is supported by the National Library of Medicine. Biomedical Informatics, a field at the intersection of biomedicine and the computing and information sciences, focuses on the creative use of computers in clinical medicine, biomedical research, and medical education. Research at the YCMI includes major projects in clinical, neuro-, and genome informatics. Current projects include

1. Working with Prof. Gordon Shepherd (Neuroscience) on several neuroinformatics project, including the Yale Sense-Lab project and the national Neuroscience Information Framework (NIF) initiative;
2. Working with several groups to develop University-wide informatics support for microarray research, mass-spectrometry proteomics research, and high throughput sequencing research;
3. Developing databases and tools used by the laboratory of Prof. Kenneth Kidd (Genetics); and
4. A growing number of clinical and genomic research projects based at the West Haven VA Medical Center.

Additional information is available at our web site.

Specialized Terms: Biomedical informatics; Clinical informatics; Bioinformatics; Neuroinformatics


Niklason, Laura E

**Abstract Number 12285684**

Professor of Anesthesiology and of Biomedical Engineering

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MD, University of Michigan/Ann Arbor, 1991
PhD, University of Chicago, 1988

Dr. Niklason is Professor of Anesthesia and Biomedical Engineering at Yale. She received her Bachelors degrees in Physics and Biophysics from the University of Illinois, and went on to the University of Chicago for her PhD in Biophysics in 1988. Dr. Niklason subsequently received her MD from the University of Michigan, where she did her internship. She then went on to the Massachusetts General Hospital for residency in Anesthesiology, followed by fellowship training in Critical Care Medicine. During her time in Boston, Dr. Niklason was also a post-doctoral researcher at MIT with Dr. Robert Langer, where she developed techniques for the tissue engineering of autologous arteries. Dr. Niklason joined the faculty at Duke University in 1998, where she continued her work in cardiovascular tissue engineering, and founded a biotechnology company designed to bring tissue engineered cardiovascular products to the clinic. Dr. Niklason has received national and international recognition for her work in this field, receiving the Discover Magazine award for Technological Innovation in 2000. In January of 2006, Niklason moved to Yale University, where she is expanding her research program in tissue engineering of blood vessels and lung, as well as understanding the basic aspects of cellular aging.

Specialized Terms: Anesthesiology; Biomedical Engineering; Biophysics; Physics


Popescu, Wanda M

**Abstract Number 11126216**

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MD, Carol Davila University of Medicine, Bucharest, 1996

systolic and diastolic function during laparoscopic gastric bypass


Ramani, Ramachandran

**Abstract Number 11411578**

Associate Professor of Anesthesiology

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ramachandran.ramani@yale.edu

MD, Postgraduate Inst. of Medical Ed. and Research, 1979
MBBS, Delhi University, 1976

Understanding anesthesia through functional MRI

Functional MR imaging is an objective method of studying the subjective effects of anesthesia. It is a imaging tool being used widely by neuroscientist for studying functional activity in the CNS like speech, movement, visual / auditory activation etc. fMRI can measure BOLD (blood oxygen level dependent contrast) a qualitative measure of cerebral metabolism and regional cerebral blood flow (rCBF). BOLD and rCBF are indirect measures of neuronal activity.

In collaboration with the MRRC (magnetic resonance research center) we have been studying healthy ASA I volunteers under sevoflurane anesthesia. We study the effect of sevoflurane 0.25 and 0.5 MAC as well as the effect of activation under anesthesia. So far, close to 80 subjects have been imaged. In our first
Anesthesiology

The effect of visual, auditory and motor activation was studied under 0.25 MAC sevoflurane. Cerebral metabolism (BOLD) as well as rCBF was measured. Our conclusion from this study was - higher order association regions (like hippocampus, thalamus and cingulate gyrus) since they receive their input from multisynaptic pathways are much more sensitive to 0.25 MAC sevoflurane compared to unimodal association areas. Subsequently we studied the effect 0.25 and 0.5 MAC sevoflurane on auditory activation and memory activation. 0.25 MAC sevoflurane attenuates activation of auditory cortex while 0.5 MAC sevoflurane has profound effects on auditory cortex. This is of clinical relevance because auditory activation closely correlates with midlatency auditory evoked response which in turn correlates with amnesia under anesthesia. When specifically memory was activated both levels of sevoflurane anesthesia profoundly decreased the memory scores with loss of activation in the prefrontal cortex (primary site in the CNS for short term memory).

Specialized Terms: Functional MRI under anesthesia; Mechanism of action of anesthetics; Central effects of anesthetic agents


SHELLEY, Kirk H

Abstract Number 10259369

Professor of Anesthesiology
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kirk.shelley@yale.edu

MD/PhD, Pennsylvania State University, Hershey, 1981

Extensive experience in pulse oximeter waveform research and development of patient monitoring devices.

Specialized Terms: Pulse oximeter waveform analysis; Photoplethysmography; Ambulatory Care; Anesthesiology; Biochemistry; Cardiovascular Diseases; Electrical Engineering Or Electronics; Internal Medicine; Medical Devices; Surgery; Medical Devices; Non-invasive Cardiovascular Monitoring; Patient Monitoring; Pulse Oximeter Research


SCHONBERGER, Robert B

Abstract Number 10770984

Assistant Professor of Anesthesiology
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MD, Yale School of Medicine, 2006

Dr. Schonberger has a research interest in developing new anesthesia healthcare delivery models that aim to improve care coordination on the day of surgery with the aim to facilitate longitudinal cardiovascular risk-factor recognition and treatment in patients presenting for anesthesia.

He is also involved in several projects associated with perioperative care of the cardiothoracic surgery patient including the development of novel extracorporeal oxygenation techniques as well as other interventions to improve the safety and outcomes associated with surgeries involving patients with cardiac disease


Safavi K, Dai F, Gilbertsen T, Schonberger RB, Variation in surgical quality measure adherence within hospital referral regions: Do publicly reported surgical quality measures distinguish among hospitals that patients are likely to compare?, Health Services Research epub ahead of print March 11, 2014; PMID: 24611578
Xu, Xiangru

Abstract Number 12660721

Assistant Professor of Anesthesiology
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New Haven, CT, 06519
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PhD, Shanghai JiaoTong University School of Medicine, 2002

We are interested in the molecular mechanisms that underlie mammalian normal aging process. Currently, our research is focused on:

1. Functional characterization of candidate longevity genes in worms;
2. Understanding how epigenetic control mechanisms and epigenetic marks including DNA methylation and histone modifications underlie aging-related functional decline and the age-intervention strategies such as dietary restriction and rapamycin administration.
3. Our recent studies showed, for instance, that both the expression of DNA methyltransferases and the overall DNA methylation decline with brain aging, however, the age-associated loss of DNA methyltransferases and DNA methylation is preventable, at least partially, by dietary restriction and rapamycin. Regarding to histone modifications, we discovered a number of histone methylation/acetylation/phosphorylation changes with mouse brain aging. More interestingly, dietary restriction and rapamycin can rescue some of age-induced alterations of histone modifications. We have begun to investigate how epigenetic changes affect the cognitive functions, and to extend the epigenetic findings to the research of neurodegenerative disorders such as Alzheimer’s disease.


Colon-Ramos, Daniel A

Abstract Number 12772343

PhD, Duke University Medical Center, 2003
AB, Harvard College, 1998

The human brain consists of 100 billion neurons and over 100 trillion synapses. The ability of a neuron to find its correct target in this complex environment is critical for the formation of the circuits that underlie human behavior. How do neurons discriminate between a plethora of target choices to form precise synaptic connections and assemble specific neural circuits? How do circuits become substrates to experience, and change during to learning?

We have established a system in the C. elegans nerve ring (the nematode brain) to study these questions. The C. elegans nerve ring, the most complex neuropil structure in the organism, is precisely wired to facilitate the nematode’s behaviors. In my lab we examine the decisions that single neurons make in the living, developing animal as they assemble into a functioning brain, and how these connections change during behaviors.

Our lab couples genetic, molecular, biochemical, behavioral and imaging techniques to identify the signals that direct precise circuit connectivity in the nematode brain and how they change during behavior and learning.

Specialized Terms: Neural connectivity; Brain; Nematode C. elegans


**De Camilli, Pietro**

**Abstract Number 10349979**

John Klingenstein Professor of Cell Biology and Professor of Neurobiology  
(203) 737-4461  
pietro.decamiilli@yale.edu  
MD, University of Milan, Italy, 1972

The cytoplasm of eukaryotic cells is compartmentalized by intracellular membranes that are interconnected by membrane traffic. We study mechanisms underlying membrane dynamics, with emphasis on membrane transport reactions involved in neurotransmission. Our goal is to advance the understanding of nervous system function in health and disease, neurodegenerative diseases in particular. We also exploit the special properties of synapses to learn about general principles of membrane biology. Within this field, the interplay between bilayer lipids and peripheral membrane proteins is a major focus of our work. These interactions help regulate membrane budding, membrane fission and membrane progression along the secretory and endocytic pathways. A new interest of the lab concerns the role of lipid exchange between bilayers at membrane contact sites that do not result in membrane fusion. In our work we use a wide range of techniques, including biochemistry, structural biology, cell-free systems, optical and electron microscopy, and mouse genetics.

Specialized Terms: Synapses; Membrane Traffic; Endocytosis; Clathrin; Dynamin; Phosphoinositides; Lipid Metabolism; Lowe Syndrome; Bar Proteins; Neurodegeneration; Membrane Contact Sites


**Guo, Shangqin**

**Abstract Number 13098505**

Assistant Professor of Cell Biology  
(203) 737-6411  
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PhD, Boston University, 2005

We are interested in learning the cell fate decision processes: how does a cell know what to be and what not to be? We use three biological model systems to investigate this question. 1) Induced pluripotency (Yamanaka reprogramming). 2) Malignant transformation. 3) Hematopoietic stem cell emergence and maintenance. The long term goal of understanding the rules of cell fate decision making is to create desired cell types for cell replacement therapies and to eliminate the emergence of harmful cell types such as cancer.

Specialized Terms: Cell fate control; Reprogramming; Hematopoietic stem and progenitors; Leukemogenesis; Cell cycle; live-cell imaging


**Hashimoto, Carl**

**Abstract Number 10477190**

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Sheffield-Sterling-Strathcona  
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PhD, Yale University, 1986

Proteolysis drives a wide range of biological processes from the cell cycle to embryonic patterning, and is thought to mediate complex brain functions such as learning and memory. Not surprisingly, then, dysfunction in proteolysis is associated with many human disorders, including cancer and dementia. My laboratory is generally interested in cellular and developmental processes that are regulated by proteolysis.

Specialized Terms: Proteolysis; Serpins; Intercellular signaling; Morphogenesis; Disease modeling; Drosophila molecular genetics


Specialized Terms: Endocrine pancreas; Secretory pathways; Lung development


**JAMIESON, James D**

**Abstract Number 10261086**

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New Haven, CT, 06510
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MA, Yale University, 1975
PhD, Rockefeller University, 1966
MD, University of British Columbia, 1960

For most of my research career, I have focused on the processes of synthesis, trafficking and exocytosis of secretory proteins from the pancreatic acinar cell which has served as the paradigm for examining the "Intracellular Aspects of the Process of Protein Secretion"*. My early work as a graduate student with George Palade at the Rockefeller University was involved in defining the role of the Golgi complex in the process which culminates in the formation of zymogen granules. Subsequently, among other topics, my laboratory examined the development and regulation of exocytosis of secretory proteins from the acinar cell, membrane biogenesis and polarity in epithelial cells, and the relationship of cell polarity to the basement membrane.

Later work on this topic examined in detail the role of low Mr GTPases in regulated exocytosis. Since regulated exocytosis is accompanied by compensatory endocytosis of excess membrane inserted into the apical plasmalemma, we went on to illustrate an essential role of the actin cytoskeleton in this process and have demonstrated that proteins required for formation of endocytic vesicles (clathrin, adaptors, dynamin etc.) assemble at sites of exocytosis prior to compensatory membrane retrieval.

After more than 30 years carrying out cell biologic research with an impressive and accomplished group of graduate students and postdoctoral fellows, I decided to close my laboratory in 2001 in order to focus my interests on teaching Cell Biology and Histology to first-year medical students. As part of my teaching interest, I also direct the MD/PhD Program at Yale University School of Medicine. This allows me to be involved in the education of both medical students and graduate students. The dual degree Program is meant to provide trainees with a broad exposure to human biology and medicine, and to an in-depth and rigorous training in one of the scholarly disciplines relevant to medicine. The ultimate goal of educating this group of students is to bridge the gap between basic research and clinical medicine.

**KING, Megan C**

**Abstract Number 13227841**

Associate Professor Term
Boyer Center for Molecular Medicine
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(203) 737-4628
megan.king@yale.edu

PhD, University of Pennsylvania Medical School, 2004
BA, Brandeis University, 1997

Macromolecular complexes embedded in the nuclear envelope physically couple the cytoskeleton to the nucleus. These macromolecular bridges allow the cytoskeleton to regulate nuclear position within the cell. In addition, they provide a mechanism for signals to be mechanically transduced between the cytoplasm and nucleus.

My laboratory is interested in investigating the role(s) of these nuclear envelope bridges in both processes. We are focused on three primary questions. First, we are defining the macromolecular components that link microtubules (and thereby microtubule-dependent force) to the nucleus.

Second, we are interested in the dynamics and mechanism by which microtubule-nuclear interfaces form and dissolve. Finally, we are investigating the means by which cytoplasmic microtubules can affect chromatin organization and dynamics, as well as the biological implications of these effects. We primarily use fission yeast as our model system, taking advantage of the outstanding imaging, biochemical and genetic tools in this organism.

Specialized Terms: Microtubules; Nucleus; Nuclear envelope; DNA repair; Cellular mechanics; Telomere biology

Research themes in our lab include:

1. Structural DNA Nanotechnology: rational design of self-assembled DNA nanostructure with ever-increasing complexity and size.


3. Biosensing and Imaging: developing nucleic-acid-based barcodes as multiplexed biosensors and/or in situ imaging probes.

4. Synthetic Biology: rebuild naturally existing machineries (e.g., SNARE complex, nuclear pore, etc.) with artificial components and/or spatial arrangement.


Lin, Haifan

Abstract Number 12431102

Professor of Cell Biology, of Genetics and of Obstetrics, Gynecology, and Reproductive Sciences
(203) 785-6239
haifan.lin@yale.edu
PhD, Cornell University, 1990
BS, Fudan University, 1982

We study molecular mechanisms underlying the self-renewing division of stem cells. Currently, we focus on small RNA-mediated epigenetic programming and translational regulation that are required for the self-renewal of germline and embryonic stem cells. Meanwhile, we are exploring the clinical implications of our ﬁndings. Stem cells are characterized by their abilities to self-renew and to produce numerous differentiated daughter cells. These two special properties enable stem cells to play a central role in generating and maintaining most tissues in higher organisms. Over-proliferation of stem cells can cause cancer, whereas under-proliferation of stem cells leads to tissue dystrophy, anemia, immuno-deﬁciency, or infertility. Drosophila and the mouse represent two powerful systems for studying stem cells since they allow easy access to combined genetic, cell biological, and molecular analyses. We use Drosophila as a pilot model to explore molecular mechanisms underlying stem cell...
division, and the mouse as an advanced model to expand what we learn from Drosophila to mammalian and human systems. Previously, we identified germline stem cells in the Drosophila ovary and revealed their self-renewing asymmetric division. We and others showed that the asymmetric division of these stem cells is controlled by both niche signaling and intracellular mechanisms. Using systematic genetic screens, we have identified key genes involved in both niche signaling and intracellular regulation of stem cell division. Among them, piwi/argonaute genes represent the only known family of genes required for stem cell self-renewal in both animal and plant kingdoms. Currently, our research is focused on epigenetic programming and translational regulation of germline stem cell self-renewal mediated by the Piwi/Argonaute proteins and a novel class of non-coding small RNAs called piwi-Interacting RNAs (piRNAs) that we and others recently discovered. Meanwhile, we have begun to explore the role of these mechanisms in human embryonic stem cell division and oncogenesis.

Specialized Terms: Stem cell RNA-mediated epigenetic programming, post-transcriptional regulation


LUSK, Charles P

Abstract Number 13226107

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PhD, University of Alberta, 2005
BS, University of Alberta, 1998

The Lusk lab focuses on understanding the molecular mechanisms that control the organization, structure and function of the nuclear envelope: the membrane system that encapsulates the genome of all eukaryotes.

At the heart of this pursuit is the examination of the function of membrane proteins that selectively enrich at the nuclear envelope. Mutation or deletion of several genes encoding these proteins have profound effects on cellular processes that result in the loss of nuclear envelope structure along with changes in gene expression and an increase in genome instability. These phenotypes often lead to cell death or the manifestation of specific diseases termed nuclear envelopathies. To fully understand the mechanisms that contribute to these essential processes, we have identified conserved integral membrane proteins in the budding yeast S. cerevisiae. Using yeast as a model system allows us to use a myriad of genetic, biochemical and cell biological methodology to directly examine how membrane proteins affect various aspects of nuclear envelope physiology. Ongoing projects in the lab include (a) defining mechanisms of nuclear pore complex assembly and distribution (b) understanding membrane protein traffic to the inner nuclear membrane (c) investigating the role of membrane proteins in controlling transcription, gene recruitment and genome stability at the nuclear periphery.

Specialized Terms: Nuclear pore complex; Nuclear periphery; Membrane proteins; Chromatin structure


MARIAPPAN, Malaiyalam

Abstract Number 14444565

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PhD, University of Goettingen, Germany, 2005
MSc, University of Madras, India, 2001

Our laboratory is interested in understanding cellular mechanisms that prevent accumulation and aggregation of misfolded proteins in the cell. A better understanding of these mechanisms is essential for developing effective treatments for numerous human disorders including diabetes, neurodegeneration, and aging. We are specifically interested in the endoplasmic reticulum (ER) associated pathways that play a central role in preventing accumulation of misfolded proteins. The ER is the major site for synthesis, folding and maturation of secretory and membrane proteins, which account for nearly one third of the human proteome. Folding of these proteins is aided by chaperones and enzymes in the lumen of the ER. Despite this support, a significant proportion of newly synthesized proteins are misfolded in the ER due to genetic mutations, complexity of folding, and changes in the flux of proteins. Thus, the ER has evolved with two important pathways to deal with these misfolded proteins:

1) The unfolded protein response (UPR) pathway senses the
misfolded proteins in the ER and induces the genes responsible for increasing ER folding capacity.

2) The ER associated degradation (ERAD) pathway routes the misfolded proteins from the ER to the cytosol for degradation by the proteasome.

We use a variety of techniques, including biochemical reconstitution, mammalian cell culture, molecular biology and cell imaging to understand molecular mechanisms involved in these pathways.

Specialized Terms: Unfolded Protein Response (UPR); Endoplasmic Reticulum; Protein Translocation and Insertion; ER stress response; Misfolded Proteins; Protein Quality Control

Plumb, P., Zhang, Z. R., Appathurai, S., and Mariappan, M#. (2015) A functional link between the co-translational protein translocation pathway and the UPR. eLIFE # Corresponding author


Melia, Thomas

Abstract Number 12785212

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PhD, Baylor College of Medicine, 1999
BS, Carnegie Mellon Univ, 1992

Exploring how a cell consumes itself — Macroautophagy is classically defined as a pathway for the nonspecific sequestration and degradation of cytosolic material when the cell is faced with persistent starvation. This cytosolic material is captured within a double-membraned vesicle (the autophagosome) which forms de novo and ultimately traffics the material to the lysosome for degradation (and release of valuable nutrients). However, this pathway can also be utilized as a stress response to a wide variety of specific cellular insults. The ability to capture and degrade specific cytoplasmic targets including protein aggregates, invading pathogens or even whole dysfunctional organelles forms the basis of the cell’s response to diseases ranging from neurodegeneration to cancer and heart disease. In each case, large cytoplasmic targets are identified and encapsulated newly-formed autophagosomes for delivery to the lysosome. How these targets are identified and how this organelle forms are the major foci of our laboratory.

Specialized Terms: Macroautophagy; Autophagy


Qiu, Caihong

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PhD, Graduate Center, City University of New York, 2004
MS, HeBei Normal University, 1990
BS, HeBei Normal University, 1987

We are interested in understanding the mechanism of human embryonic stem cell self-renewal and directing hESCs differentiation down to specific lineages.

Specialized Terms: Human embryonic stem cells (hESCs); Hematopoietic differentiation of hESCs; Neuronal differentiation of hESCs


Melissa J. Lathrop, Mei Hsu, Christine A. Richardson, Emmanuel N. Olivier, Caihong Qiu, Eric E. Bouhassira, Steven Fiering, Christopher H. Lowrey Developmentally regulated extended domains of DNA hypomethylation encompass highly transcribed genes of the

Rothman, James E

Abstract Number 12683688

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We use a variety of techniques, including biochemical reconstitution, mammalian cell culture, molecular biology and cell imaging to understand molecular mechanisms involved in these pathways.

Specialized Terms: Unfolded Protein Response (UPR); Endoplasmic Reticulum; Protein Translocation and Insertion; ER stress response; Misfolded Proteins; Protein Quality Control

Plumb, P., Zhang, Z. R., Appathurai, S., and Mariappan, M#. (2015) A functional link between the co-translational protein translocation pathway and the UPR. eLIFE # Corresponding author

PhD, Harvard Medical School, 1976
BA, Yale University, 1971

We take an interdisciplinary approach, which includes cell-free biochemistry, single molecule biophysics, and super-resolution optical imaging of single events/single molecules in the cell and in cell-free formats. The overall goal is to understand transport pathways form structural mechanism to cellular physiology. We have a strong interest in new lab members who bring backgrounds in protein biochemistry, organic chemistry, biophysics, and bio-engineering.

Specialized Terms: Elucidating the underlying mechanisms of vesicular transport within cells; Secretion of hormones and neurotransmitters


Noncoding RNAs are involved in an enormous variety of processes. In addition to well-studied noncoding RNAs, such as ribosomal RNAs, tRNAs, and microRNAs, there are numerous noncoding RNAs whose function remains mysterious. Also, many noncoding RNAs must fold into complicated structures and assemble with proteins in order to function. Thus, cells need "RNA surveillance" mechanisms to detect misfolded and defective noncoding RNAs and target them for degradation.

We study how noncoding RNAs function, how cells recognize and degrade defective RNAs, and how failure to degrade RNA affects cells and contributes to disease. One pathway involves a ring-shaped protein, called Ro, that binds misfolded RNAs in its central cavity and noncoding RNAs called Y RNAs on its outer surface. Ro and Y RNAs are present in both animal cells and bacteria, and we discovered that a bacterial Ro and Y RNA associate with a nuclease to form a new RNA degradation machine. As mice lacking Ro develop a disease resembling systemic lupus erythematosus, Ro may be important for preventing autoimmunity. In a second effort, we are characterizing other RNA surveillance pathways in mammalian cells. We use many techniques, including cell culture, high-throughput sequencing, bioinformatics, mouse and bacterial genetics, biochemistry and cell imaging.

Specialized Terms: Noncoding RNAs; RNA surveillance; RNA damage; Autoimmune disease; Environmental stress


these forces are generally too weak to be directly detectable in traditional bulk experiments. Our group has broad interests in measuring the forces that hold single proteins or protein-DNA complexes together and the forces that are generated by various molecular engines, as a crucial step to understand their biological functions. Our primary tool is high-resolution optical tweezers, which is capable of detecting the forces and displacements involved in protein conformation transitions at subnanometer and submillisecond resolution.

Specialized Terms: Single-molecule biophysics and biochemistry; Optical tweezers; ATP-dependent chromatin remodeling; SNAREs; Membrane fusion; Membrane fission; Dynamin


CELLULAR AND MOLECULAR PHYSIOLOGY

YAO, Jie
Abstract Number 13649339
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PhD, Cornell University, 2006
BS, Peking University, 2001

Gene expression is exquisitely regulated during cellular growth and differentiation. Importantly, how the nuclear structure and dynamics encode additional regulatory information is not well understood. Single cell analysis such as advanced cell imaging has the potential to bridge the significant gap between biochemistry and genetics and to enable the analysis of gene regulation within its native nuclear environment. Our laboratory combines cellular imaging and molecular methods to characterize nuclear structure and dynamics, and to explore its functional implications.

Specialized Terms: Transcription regulation; Chromatin; Nuclear periphery; Nuclear compartmentalization; Protein dynamics; Cellular biophysics and imaging


Zhang, Yongli
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PhD, Yale School of Medicine, 2003
MS, Chinese Academy of Sciences, P.R.C., 1997

Structures and dynamics of cells are ultimately determined by numerous intra- and inter-molecular forces. Nevertheless,

Specialized Terms: Sensory physiology; Biophysics; Biochemistry; Neuroscience; Electrophysiology; Polymodal ion channels; Temperature-sensitive ion channels; Mechanosensitive ion channels; Two-pore potassium channels; Ion channel pharmacology
Caplan, Michael J

Abstract Number 10295885

C. N. H. Long Professor of Cellular And Molecular Physiology and Professor of Cell Biology
(203) 785-7316
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PhD, Yale University, 1987
MD, Yale University, 1987

The surface membranes of epithelial cells are divided into domains characterized by dramatically different protein compositions. Membrane proteins whose distributions are restricted to one of these domains must incorporate information that specifies their appropriate destinations. We seek to determine how this information is encoded and how it is interpreted.

Our studies of cellular trafficking focus on proteins involved in ion transport, as well as on the proteins associated with polycystic kidney disease. Polycystic kidney disease is caused by mutations in genes encoding polycystin-1 and 2. We have found that polycystin-1 undergoes a proteolytic cleavage that releases its cytoplasmic C terminal tail.

This fragment is transported to the nucleus, where it appears to modulate several signaling pathways. This behavior may account for the capacity of polycystin-1 to participate in communication between the cell surface and the nucleus.

Specialized Terms: Ion pumps in polarized epithelia; Sorting and function


One reason the brain is difficult to study is that many individual neurons or brain areas are active at once; conventional techniques allow one to monitor only one or a few neurons or locations at a time. We have worked on two variations of an optical method for measuring brain activity; both utilize voltage-sensitive or Calcium-sensitive dyes and a fast camera with frame rates of 1 kHz or a 2-photon microscope. In the first variation, we use the dyes and a 2-photon microscope to follow the spike activity of individual neurons, and in favorable preparations about 500 individual neurons can be monitored simultaneously. We hope that monitoring many neurons simultaneously will improve our understanding about how nervous systems are organized to generate behaviors. In the second variation, each pixel in the recording receives light from a large number of neurons and processes (e.g. from an area of cortex 20 um x 20 um) and thus each signal represents the average of a population of neurons. There are several interesting aspects of vertebrate brain function where populations are involved.

Specialized Terms: Brain; Central Nervous System; Neurons; Vertebrate Physiology; Olfaction; Olfactory Bulb; Protein Sensors of Voltage and Calcium


Forbush, Biff

Abstract Number 10352512

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PhD, Johns Hopkins University, 1975

Regulation of intracellular ion concentrations is essential to all living cells. The transport of ions mediated by specific membrane proteins underlies control of cell volume, epithelial transport, and the maintenance of transmembrane ion gradients which underlie electrical activity in nerve and muscle cells. Our work is directed towards understanding the mechanisms by which ion transport take place, and our attention is focused on a particular family of transport proteins, the cation-chloride cotransporters. Among these, the Na-K-Cl cotransporter uses the Na gradient to drive accumulation of cellular K and Cl and is a central element in the process of net salt transport in both secretory and absorptive epithelia. We are addressing questions of protein structure, of structure-function relationships, and of protein kinase-mediated regulation, in animal models and by expression of transport proteins in cell culture.

Specialized Terms: Membrane Proteins; Epithelial Transport; Ion Transport; Na-K-Cl Cotransporter; Nerve Cells; Muscle Cells


**Pieribone, Vincent A**

**Abstract Number 10946458**

Professor of Cellular And Molecular Physiology and of Neurobiology
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PhD, New York University, 1992
BA, New York University, 1986

Dr Pieribone is developing genetically encoded fluorescent probes of membrane electrical potential. These probes allow one to use optical instruments (microscopes) to monitor the electrical activity of neurons. Such an approach is less invasive, allows study of identified cell types over large regions of the cortical surface. The laboratory has also engineered miniature imaging systems that can be head mounted on mammals and allow mobile recording of neuronal activity. These types of studies will allow a better understanding of the neuronal networks that encode information in the central nervous system.

Specialized Terms: Neurophysiology; Neurotransmission; Voltage and calcium imaging; Sensory physiology; Drug development; Coral biology; Fluorescent proteins


**Nitabach, Michael N**

**Abstract Number 11863098**

Professor, Cellular And Molecular Physiology
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JD, New York University, 1998
PhD, Columbia University, 1995

Our laboratory applies cellular, molecular, genetic, and systems biology approaches to the question of how neuronal physiological properties determine the information processing characteristics of neural networks. We take an interdisciplinary approach to these questions. We manipulate the physiological properties of neurons in directed ways by genetically targeted cell-specific expression of engineered proteins in transgenic animals. These engineered proteins include ion channel subunits, intracellular ionic buffers, signaling enzymes, membrane-tethered neuropeptides, and membrane-tethered peptide neurotransmitters that target specific ion channel subtypes. Subsequently, we measure the effects of these manipulations on the whole-animal behavior of intact flies as well as on various physiological parameters of the manipulated neurons using cell biological, neurophysiological, functional imaging, and genomics/systems biology techniques. As model systems for addressing these issues, we study the neural circuits that control circadian rhythms of locomotor activity, sexual courtship behavior, sleep, energy metabolism, and decision making in Drosophila melanogaster flies and Caenorhabditis elegans worms.

We also have a new project in the laboratory aimed at identifying novel analgesics from the venom of Australian funnel-web spiders.

Specialized Terms: Neurophysiology; Molecular genetics; Systems Physiology; Animal Behavior


**Rinehart, Jesse J**

**Abstract Number 10897277**

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Our laboratory applies cellular, molecular, genetic, and systems biology approaches to the question of how neuronal physiological properties determine the information processing characteristics of neural networks. We take an interdisciplinary approach to these questions. We manipulate the physiological properties of neurons in directed ways by genetically targeted cell-specific expression of engineered proteins in transgenic animals. These engineered proteins include ion channel subunits, intracellular ionic buffers, signaling enzymes, membrane-tethered neuropeptides, and membrane-tethered peptide neurotransmitters that target specific ion channel subtypes. Subsequently, we measure the effects of these manipulations on the whole-animal behavior of intact flies as well as on various physiological parameters of the manipulated neurons using cell biological, neurophysiological, functional imaging, and genomics/systems biology techniques. As model systems for addressing these issues, we study the neural circuits that control circadian rhythms of locomotor activity, sexual courtship behavior, sleep, energy metabolism, and decision making in Drosophila melanogaster flies and Caenorhabditis elegans worms.

We also have a new project in the laboratory aimed at identifying novel analgesics from the venom of Australian funnel-web spiders.

Specialized Terms: Neurophysiology; Molecular genetics; Systems Physiology; Animal Behavior


Sigworth, Frederick J

Abstract Number 10479145

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PhD, Yale University, 1979

Ion channels act as molecular transducers, responding to chemical, mechanical, or electrical stimuli by opening a pore to allow ionic current to flow. Work in my laboratory seeks to clarify the transduction mechanisms of channel proteins. We use single-particle imaging in electron cryo-microscopy to obtain three-dimensional structures of channel proteins. To this end we are developing new computational and experimental methods for imaging membrane proteins in membranes. To study function we use patch-clamp recordings for the sensitive measurement of ion channel currents and collaborate with colleagues in Yale engineering departments to advance this technology as well.

Specialized Terms: Cell Physiology; Electron Microscopy; Electrophysiology; Ion Channel; Mathematical Model; Patch Clamp; Potassium Channel; Protein Structure; Sodium Channel; Voltage Gated Channel; Xenopus Oocyte


Singh, Satinder K

Abstract Number 13395240

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PhD, University of Minnesota, 2002
BS, University of Minnesota, 1995

Signal transduction in the brain is a complex, highly regulated process. The transmission and regulation of nerve impulses between neurons are mediated by a number of proteins such as ion
channels, G-protein coupled receptors, protein kinases, protein phosphatases, and neurotransmitter transporters. Importantly, many of these proteins are the target of potent psychoactive substances and antiepileptic drugs. Furthermore, their dysfunction has been implicated in the development of multiple debilitating neuropsychiatric and neurological diseases.

My lab is interested in elucidating the atomic mechanism by which these signaling proteins work, how disease-associated polymorphisms disrupt activity and regulation, and the mechanism by which therapeutic and illicit compounds exert their effects. We are currently focusing our efforts on neurotransmitter transporters. To achieve our objectives, we use a broad array of complementary biochemical and biophysical techniques, including X-ray crystallography, radioligand binding, and flux assays. Our ultimate goal is to help pave the road toward rational, structure-based drug design efforts and to shed light on the molecular underpinnings of disease-associated polymorphisms.

Specialized Terms: Chemical neurotransmission; Neuropsychiatric disease; Epilepsy; Neuropharmacology; Biogenic amine; Gamma-aminobutyric acid; Neurotransmitter transporter; Antidepressant; Structural neurobiology; X-ray crystallography; Transporter kinetics


SLAYMAN, Clifford

Abstract Number 10392921

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PhD, Rockefeller University, 1963

Our research into the molecular mechanisms of charge-dependent transport across biological membranes is directed toward two classes of proton pumps (P-type and V-type), a family of proton-coupled potassium transporters (TRK proteins), and a peculiar group of potassium channels which form as intramembrane homodimers (TOKs). All of these are studied in microorganisms, especially fungi, made accessible by full-genome sequences and by advanced electrophysiological techniques. A new, completely unexpected, direction for this research has been the investigation of interactions between specific membrane proteins and the rapidly growing catalogue of small proteins known as “host-defense peptides” or Ribosomally synthesized AntiMicrobial peptides (“RAMPs”). Some of these kill microorganisms by directly forming membrane pores, but more act by stealth, subverting the functions of surface proteins by reaction from the cell interior. One group of RAMPs, the salivary histatins, kills each of our three current “model” organisms: Candida albicans, Saccharomyces cerevisiae, and Neurospora crosa, by a different molecular route.

Specialized Terms: Charge-dependent Transport; Proton Pumps; Potassium channels; Ribosomally Synthesized AntiMicrobial Peptides (RAMPs)


THOREEN, Carson

Abstract Number 14930391

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PhD, Massachusetts Institute of Technology, 2008
ScB, Brown University, 2000

Our lab is working to understand the molecular basis of translational control mechanisms, how signaling pathways engage them, and how defects can lead to disease. A major focus of our research is the mTOR signaling pathway, a sensor of the cellular nutrient status and a master regulator of cell growth. This pathway can elicit profound changes in the translational machinery, and is deregulated in a wide variety of diseases, including cancer, metabolic disease and neurologic disorders. We are using biochemical, bioinformatic and chemical biology approaches to understand the molecular basis of mTOR-regulated translational control mechanisms, how they are employed for normal physiologic purposes in nutrient-sensitive tissues, and how they are exploited by tumor cells to support unrestricted growth.

Specialized Terms: Growth control; RNA; Translation; Cancer biology; Signaling; Biochemistry; Bioinformatics; Metabolism

WANG, Tong

Abstract Number 10396916

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MD, Beijing Medical University, 1974

Our major research focus is to characterize the cellular and molecular mechanisms underlying regulation of electrolyte transport in kidney tubules, acid-base balance and general kidney functions. In particular, we use genetically manipulated animal models to conduct both in vivo and in vitro microperfusion of kidney tubules to characterize the functional roles of ion transporters, pumps and channels in physiology and transport lesions. We are one of the few labs in the world that is able to conduct both in vivo and in vitro microperfusion of kidney tubules from single nephrons of mouse kidney.

Our lab is the core Laboratory of Integrated Kidney Function in the Department of Cellular & Molecular Physiology and also the Renal Physiology Core of the George M O'Brien Kidney Center at Yale University. We have a large number of collaborations both inside and outside of Yale University and provide training and services to examine phenotypes of blood pressure, GFR, electrolyte excretion and acid-base parameters in transgenic and knockout animal models. Our expertise is the use of transgenic animal models and the examination of their phenotypes in blood pressure, renal functions, kidney tubule transport and acid-base balance.

Specialized Terms: Kidney tubule transport; Electrolyte and acid-base balance; Transgenic animal models and human disease


TOMITA, Susumu

Abstract Number 12292858

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PhD, University of Tokyo, 2000

My laboratory’s approach to understand the brain is to reduce the brain to various components and ultimately molecules. Temporally, neurotransmission by a major excitatory neurotransmitter, glutamate, is very quick and is clearly essential for brain function; however, the modulation of brain function underlying learning, memory, emotion, cognition, etc., happens on a different time scale than that of neurotransmission. Our broad goal is to understand how basic synaptic transmission can be modulated over seconds to hours, thereby supporting complex brain functions. The efficacy of synaptic transmission is determined by glutamate concentration at the synaptic cleft and by the number and channel properties of the glutamate receptors, which can be modulated by neuronal activation (synaptic plasticity). We have uncovered a network of modulatory proteins for glutamate receptors to control their number and properties. By understanding the machinery that controls the number and channel properties of glutamate receptors, we hope to reveal the principal rules governing synaptic transmission and synaptic plasticity.

Specialized Terms: Synaptic transmission; Brain; Biochemistry; Molecular biology; Immunocytochemistry; Gene-targeted animals; Electrophysiology


ZECEVIC, Dejan P

Abstract Number 10358139

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PhD, University of Belgrade, 1981
Neurons communicate with one another by the release of neurotransmitters through exocytosis. Although all eukaryotic cells secrete molecules, a hallmark of neurons is the speed and spatial regulation of the secretion process. The main objective of the research in my laboratory is to understand how presynaptic terminals are specialized for these tasks. This work involves the study of several aspects of presynaptic function including vesicle transport, exocytosis, and endocytosis.

The primary model system in the laboratory is the retinal bipolar neuron of the goldfish and zebrafish, which have unusually large synaptic terminals. These neurons belong to a class of neurons that have specialized synaptic structures known as synaptic ribbons. One specific focus of the laboratory is to understand the role of these structures in synaptic transmission in tonic sensory neurons. In order to study presynaptic function, my laboratory uses a combination of electrophysiological, molecular, and optical approaches.

Specialized Terms: Physiology and cell biology of the presynaptic terminal; Retinal Bipolar Neuron; Synaptic Terminal; Synaptic Ribbons; Vesicle transport; Exocytosis; Endocytosis


ZENISEK,
David

Abstract Number 11506557

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PhD, State University of New York, 1998

ANDERSON,
George M

Abstract Number 10268583

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PhD, McGill University, 1978

Research includes studies on the neurobiology of childhood neuropsychiatric disorders including autism, Tourette syndrome and ADHD, as well as adult depression, PTSD and addiction.

Specialized Terms: Stress response systems; Serotonin neurochemistry and psychopharmacology; Early biomarkers

Domestically in the United States, I am working on understanding the identity development of Muslim children. The aim of this work is to better be able to provide services for Muslim children, about whom little is known presently.

Specialized Terms: Early child development and education programming and policy; Development of national standards and indicators for monitoring child development outcomes; Government early childhood policies; Early intervention programs in several countries; Growing up Muslim in the United States and the influence of the present socio-political context on young Muslim children's identity development.


My research interests focus primarily on two lines of inquiry: research leading to a better understanding of the early phenotypic expression of Autism Spectrum Disorders (ASD) and examining mechanisms that underlie gaze and face processing abnormalities observed in infants and toddlers with ASD. My clinical research has been centered on examining the stability of early diagnosis of ASD, variability of the early syndrome expression as related to outcome, as well as determining when and in which areas the developmental trajectories of infants with ASD begin to diverge from those without social disability. Towards this end I have been following prospectively the development of infants who are either at risk for development of ASD or who are showing early signs of the disorder and tracking their development of verbal, nonverbal and social-cognitive skills. Experimental work in my lab is focused on studying visual processing in young children with ASD using eye-tracking technology.

Specialized Terms: Social, cognitive, and emotional development of infants and toddlers with autism and other developmental disorders; Eye tracking research of visual attention; Early...
Comer, James P

Abstract Number 10393499

Maurice Falk Professor in the Child Study Center
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MPH, University of Michigan, 1964
MD, Howard University, 1960
BA, Indiana University, 1956

I participated in the process of changing two inner-city low-income elementary schools from chaos to stability and academic and social achievement. Through the School Development Program, we helped staff develop a framework for change that created a culture that supported overall student development and academic learning. We believe that development and academic learning are inextricably linked. This project has been utilized in more than 1000 schools in 82 districts in 26 states. We have expanded our work to middle and high schools; and to teacher and administrator preparatory programs and policy makers. I am interested in the psychological and social impact of our Program on the children involved, their families, school staff, and the community.

I am interested in the historical and contemporary economic and resultant political, economic, and social circumstances contributing to black and white racial conflict in America.

I am interested in the traditional and new issues involved in child rearing as a result of scientific and technological changes in society since the 1940s. I have a special interest in the rearing of Black children.

Since 1998 we have been interested in involving entire school systems in using our School Development Program to facilitate student and staff development and improved achievement. We developed partnerships with universities and school districts to facilitate the application of child and adolescent development principles in pre-service preparation and in-in-service work. Based on our findings we have increasingly engaged in work designed to inform education policy and advocacy among policy makers, practice leaders, and education consumers.


FERNANDEZ,
Thomas V

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MD, Yale University School of Medicine, 2005
BA, Princeton University, 1997

Uncovering the genetic and epigenetic basis of childhood neuropsychiatric disorders including Tourette Syndrome, OCD, anxiety, and autism spectrum disorders. Using these findings to understand the biology of disorders, improve diagnosis and treatment.


GILLIAM,
Walter S

Abstract Number 10419730

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PhD, University of Kentucky, 1996
MSc, University of Kentucky, 1993

Dr. Gilliam’s research involves early childhood education and intervention policy analysis (specifically how policies translate into effective services), ways to improve the quality of pre-kindergarten and child care services, and the impact of early childhood education programs on children’s school readiness. His scholarly writing addresses early childhood care and education programs, school readiness, and developmental assessment of young children. Dr. Gilliam has led national analyses of state-funded prekindergarten policies and mandates, how pre-kindergarten programs are being implemented across the range of policy contexts, and the effectiveness of these programs at improving school readiness and educational achievement, as well as experimental and quasi-experimental studies on methods to improve early education quality. Dr. Gilliam actively provides consultation to state and federal decision-makers; His work has been covered in major national and international news outlets for print, radio, and television.


LEBOWITZ,
Eli R

Abstract Number 13509412

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PhD, Tel Aviv University, 2010
MA, Tel Aviv University, 2004

Studying the course, character and neurobiology of anxiety disorders of children with an emphasis on the systemic and relational characteristics such as family accommodation to the child’s symptoms. Development, testing and dissemination of therapeutic interventions for childhood anxiety, particularly parent-based treatment.

The study of avoidance, a core feature of anxiety, using novel motion-tracking technology and software.

Specialized Terms: Anxiety disorders; Neurobiology; Hypophyseal Hormones; Family Systems; Parent based treatment; Technology


The laboratory focuses on mammalian learning and how these processes are disrupted in various neuropsychiatric disorders. We are interested in several disorders including fragile X syndrome, schizophrenia, Parkinson’s disease, and Alzheimer’s disease. Central to this investigation is a brain-specific protein tyrosine phosphatase called STEP and its role in regulating intracellular signaling.

Our earlier work showed that STEP regulates ERK1/2 and Fyn by dephosphorylating and inactivating them. STEP also regulates the cell surface expression of AMPA and NMDA glutamate receptors and leads to their internalization. Signals that lead to STEP inactivation potentiate learning, whereas signals that lead to the STEP activation oppose the development of synaptic plasticity. We use biochemical, molecular, immunocytochemical, and behavioral techniques in animal models to address the role that STEP plays in regulating aspects of learning.

On-going projects include the involvement of STEP in several neuropsychiatric and neurodegenerative disorders including: Fragile X syndrome, Alzheimer’s disease, Parkinson’s disease, and schizophrenia. We are characterizing novel STEP inhibitors in animal models of these disorders and determining their ability to reverse cognitive and behavioral deficits; STEP’s regulation of glutamate receptor trafficking; the regulation of STEP by ubiquitination and phosphorylation.

Specialized Terms: Translational Neuroscience; Identification of small molecule inhibitors of STEP; Child and adolescent psychiatry; Neuropsychopharmacology

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**Lombroso, Paul J**

**Abstract Number 10013668**

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MD, Albert Einstein College, 1975
BA, Harvard College, 1972

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**Marans, Steven**

**Abstract Number 10351798**

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PhD, London University, 1993
MSW, Smith College, 1979
Over the past two decades, Dr. Marans’ research has focused on acute, intermediate and longer-term responses to violent and catastrophic events in the lives of children, families and communities. The mental health-law enforcement partnership developed by Marans and colleagues has led to innovative approaches to identification and response to traumatized children and families and for women and children specifically affected by domestic violence. This collaborative intervention has demonstrated effectiveness in reducing levels of violence in the home and increases the likelihood of children receiving needed clinical services. In addition, Dr. Marans is the co-developer with Dr. Steve Berkowitz, of the Child Family Traumatic Stress Intervention (CFTSI), a brief approach to children and families affected by potentially traumatic events. Results of a randomized controlled treatment study indicates that children who received CFTSI were far less likely to develop post-traumatic related psychiatric symptoms and disorders as compared to those treated by standard-of-care-psychoeducation approaches.

Specialized Terms: Child psychoanalysis and psychotherapy; adolescent psychoanalysis and psychotherapy; Adult psychoanalysis and psychotherapy; Trauma consultation and treatment


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**MAYES, Linda C**

**Abstract Number 10422569**

Arnold Gesell Professor in the Child Study Center and Professor of Epidemiology (Chronic Diseases), of Pediatrics and of Psychology

(203) 785-7205

linda.mayes@yale.edu

MD, Vanderbilt University, 1977

Our laboratory focuses on how young children and adolescents develop abilities to regulate their emotions especially under stressful or challenging circumstances. We are especially interested in how early adverse conditions such as severe poverty or parental substance use change developmental pathways and may render children more vulnerable to stress and later adversity. We use behavioral and neuroimaging methods to study these relationships and are especially focused on developing neural circuits for emotional regulation and stress reactivity which we assess using electroencephalography. Recently, we have also begun studies of how substance use impacts the development of those neural circuits that regulate parental care and sensitivity to the infant and at the same time, render substance using adults more vulnerable to the stress of parenting which in turn increases the stress in their children’s environment. In addiction, individuals seek rewarding stimuli such as drugs to diminish negative emotional and stressful experiences. Social attachment is also a process based on the balance between reward and stress. It may be that the impaired function in these neural systems conveyed by addictive processes directly impact parenting such that stimuli salient for eliciting parenting behaviors such as an infant cry are sufficiently stressful to the addicted adult to elicit instead avoidant behavior toward the infant and increased craving for drugs. Our work in this area also directly informs treatment programs for addicted adults.

Specialized Terms: Early adversity; Stress regulation; Parental addiction; Risk for drug use in adolescence; Neural circuitry of social attachment and parental behavior; Developing reward systems; Electrophysiology


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**PELPHREY, Kevin**

**Abstract Number 12142748**

Harris Professor in the Child Study Center and Professor of Psychology

(203) 785-3486

kevin.pelphrey@yale.edu

PhD, University of North Carolina at Chapel Hill, 2001

Work in Dr. Pelphrey’s laboratory focuses on discovering brain mechanisms underlying the development of different aspects of social cognition including social perception (the initial stages of evaluating the intentions and goals of others by analysis of biological motion cues), theory of mind (the ability to make inferences about the mental states of others), and the perception and regulation of emotion. This work employs cognitive neuroscience methods including functional and structural magnetic resonance imaging, diffusion tensor imaging, imaging genetics, visual scanpath recordings, and virtual reality techniques.

The laboratory conducts studies focused on fundamental questions regarding the typical and atypical development of social cognition in children with and without autism spectrum disorders and other neurodevelopmental disorders. By studying the normal ontogeny of the brain mechanisms underlying social cognition and the abnormal development of these mechanisms...
in children with autism and other neurodevelopmental disorders, the Pelphrey laboratory is working to uncover the building blocks for complex, multi-faceted, social cognitive abilities.

Dr. Pelphrey has received a Scientist Career Development Award from the National Institutes of Health, a John Merck Scholars Award for his work on the biology of developmental disorders, and the American Psychological Association’s Boyd McCandless Award for distinguished early career theoretical contributions to Developmental Psychology. His research program is funded by the National Institutes of Health, the Simons Foundation, Autism Speaks, and the National Science Foundation.

Specialized Terms: Brain mechanisms; Child development; Neurodevelopmental disorders


**PONCIN, Yann B**

**Abstract Number 12018631**

Assistant Professor in the Child Study Center and of Computer Science
(203) 785-2513
yann.poncin@yale.edu
MD, Temple University, 2000
BA, University of California at Berkeley, 1988
BACH OTHER, Columbia University,

Dr. Poncin currently has administrative, leadership, and clinical responsibilities for home-based services, including In-Home Intensive Child & Adolescent Psychiatric Service, Multidimensional Family Therapy, and York St. Family Clinic. He formerly held Medical Directorships for the Outpatient Clinic, Children’s Psychiatric Inpatient Service, and the Child Psychiatric Consultation Service to the Pediatric Emergency Department for Yale-New Haven Children’s Hospital. Other roles have included consultation to parents and schools for educational needs, and consultation with juvenile justice and extended day treatment services. Dr. Poncin views the developmental course of children and adults as shaped by the interactions over time of biological vulnerability, individual psychology, family function, and environment. His interest and experience are in the care of individuals and their families who present with complex psychosocial distress across multiple domains.

Specialized Terms: Autism; Eye-tracking; Gaze-contingent technology; Magnetic resonance spectroscopy; Galvanic skin response; Electrodermal activity; Augmentative and alternative communication


**SHIC, Frederick**

**Abstract Number 11527195**

Assistant Professor in the Child Study Center and of Computer Science
(203) 764-5934
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PhD, Yale University Graduate School, 2008
MS, Yale University Graduate School, 2004
BS, California Institute of Technology, 1996

Fred focuses on the exploration of new technologies and methodologies for enriching both our understanding of ASD and the lives of children with ASD. His current research interests include using eye-tracking to study visual social attention in ASD, computational modeling to describe gaze patterns in terms of perceptual characteristics, the development of gaze contingent interactive technologies, using electrodermal activity to index autonomic arousal in infants and toddlers, and the development of specialized software applications for both education and augmentative and alternative communication.

Specialized Terms: Autism; Eye-tracking; Gaze-contingent technology; Magnetic resonance spectroscopy; Galvanic skin response; Electrodermal activity; Augmentative and alternative communication


of neural stem cells into a large variety of neuronal and glial cell types are regulated by a complex array of factors. We study how cell-to-cell contacts and signaling systems govern the behavior of neural stem cells and brain plasticity in the embryonic and postnatal periods. Our goal is to understand whether abnormal proliferation and differentiation of neural stem cells contributes to the genesis of disorders such as autism, Tourette syndrome, and developmental disabilities. We recently founded the The Program in Neurodevelopment and Regeneration. The objectives of this new interdepartmental program are to use induced pluripotent cells (iPSC) as a tool to understand neuronal development in individuals with specific neuropsychiatric disorders. Neuronal development will be recapitulated in vitro by differentiating neuronal progenitors of various CNS lineages from iPSC lines. This will allow us to perform cellular, molecular, genetic, epigenetic and functional studies of these cell lines.


Volkmar, Fred R

Abstract Number 10405518

Irving B. Harris Professor in the Child Study Center and Professor of Psychology
(203) 785-2522
fred.volkmar@yale.edu

MA, Stanford University, 1976
MD, Stanford University, 1976

Our research focuses on neurobiology and treatment of autism and related disorders in individuals of all ages (infants through adults). We are interested in mechanisms (brain and genetics) as well as treatment.

Specialized Terms: Autism and related disorders; Asperger’s disorder; Childhood Disintegrative Disorder (CDD); Social development; Diagnosis; Neuropsychology

Booth, Carmen J

Abstract Number 11883651

Assistant Professor of Comparative Medicine
(203) 785-2872
carmen.booth@yale.edu
PhD, University of Washington (Seattle), 2005
DVM, University of California at Davis, 1992
BS, University of California at Davis, 1987

1. Collaborative research in primarily mouse developmental and research pathology with investigators within and outside Yale University School of Medicine.

2. Hemophilia A in WAG/RijYcb Rats.


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Woolston, Joseph

Abstract Number 10348653

Albert J. Solnit Professor in the Child Study Center and Professor of Pediatrics
(203) 785-7071
joseph.woolston@yale.edu
MD, University of Pennsylvania, 1973

My research interests are the development, implementation and evaluation of effective treatments for childhood onset mental disorders. Current active projects include

1. Implementation and evaluation of cognitive-behavioral therapy (CBT) and medication training (PMT) in our Outpatient Clinic;


Specialized Terms: Child and adolescent psychiatry; Inpatient child psychiatry; Intensive home-based treatment; Empirically based practice


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Compton, Susan R

Abstract Number 10149430

Research Scientist in Comparative Medicine
(203) 785-6733
susan.compton@yale.edu
PhD, Uniformed Services University, 1988
BS, Bucknell University, 1981

1. Understanding the pathogenesis and epizootiology of rodent pathogens

2. Development and validation of new diagnostic methods to detect rodent pathogens (astrovirus, coronavirus, parvovirus, norovirus, fur mites, pinworms)

**DIXIT, Vishwa D**

**Abstract Number 14667248**

Professor of Comparative Medicine and of Immunobiology

(203) 785-2525
vishwa.dixit@yale.edu

PhD, Haryana Agricultural University, Hisar, India, 2000
PhD, Research completed in University of Hannover, Germany, 2000
MAST OTHER, Haryana Agricultural University, Hisar, India, 1999
DVM, Haryana Agricultural University, Hisar, India, 1994

A major goal of my research program is to obtain creative insights that advance knowledge in the field of Immune-Metabolic interactions that drive adiposity and age-related chronic diseases. Our studies focus on understanding the mechanisms and consequences of aberrant immune-cell activation in adipose tissue microenvironment and age-related ectopic adipocyte development in lymphoid microenvironment like thymus and bone marrow. This Laboratory utilizes basic cellular and molecular tools, genetic manipulations including reporter and Cre/Lox mouse models to understand pathophysiology of obesity and aging. In addition, clinical studies are evaluating the impact of caloric excess and caloric restriction on mechanism that impact immune system. The long-term goal of our research is to understand the mechanisms of immune-metabolic crosstalk and to help develop novel approaches to regulate the aberrant immune cell activation as means to enhance healthspan.


**Dietrich, Marcelo d**

**Abstract Number 12266355**

Assistant Professor of Comparative Medicine
and of Neurobiology

Brady Memorial Laboratory
310 Cedar Street
New Haven, CT, 06510
(203) 785-6695
marcelo.dietrich@yale.edu

PhD, Universidade Federal do Rio Grande do Sul, 2012
MD, Universidade Federal do Rio Grande do Sul, 2007
MA, Universidade Federal do Rio Grande do Sul, 2003

Our research focuses on the molecular and cellular mechanisms that play a role in behavior and how these processes are regulated by energy metabolism. It is our working assumption that energy and fuel availability (through hunger) are key regulators of biological functions from molecular to systemic levels. Focusing on mouse models, our lab applies a variety of genetic tools to manipulate cell function in combination with electrophysiological, morphological and behavioral analyzes. It is our goal to build a multidisciplinary approach to integrative physiology, from identification of cell specific mechanisms to the exploration of how these pathways are related to whole body physiology and behavior.

Currently, our laboratory is using genetic tools to activate or inhibit discrete populations of neurons to test the influence of these cells in previously unappreciated behaviors. We believe that the brain mechanisms involved in complex behaviors are evolutionarily conserved and, thus, phylogenetically old. We are also taking advantage of robust sequencing tools to study changes in neuronal transcriptome to identify the molecular mechanisms involved in neuronal activity and plasticity. Our laboratory motto is to work on innovative projects that can have a greater impact on our understanding of physiology.

Specialized Terms: behavior; neuroendocrinology; hypothalamus; energy balance; Agrp neurons; synaptic plasticity; organelle dynamics; neurophysiology


Comparative Medicine

Our long-term goal is to understand how signaling at molecular, cellular and circuit levels leads to the emergence of instinctive behaviors critical for animal survival and how adaptive and maladaptive changes in the LH lead to diseases and conditions such as obesity, diabetes, sleep disorders, etc.


Abstract Number 12119662

Fernandez-Hernando, Carlos

Associate Professor of Comparative Medicine and of Pathology
(203) 737-4615
carlos.fernandez@yale.edu
PhD, Universidad Autonoma, Madrid, Spain, 2003

We combine cell biology, genetics and mouse models to study lipid metabolism and cardiovascular related disorders. In particular, our research program aims to:

1. Identifying novel mechanisms by which cholesterol metabolism is regulated.

2. Assessing the contribution of non-coding RNA in regulating lipid metabolism.


Abstract Number 10193443

Horvath, Tamas L

Jean and David W. Wallace Professor of Comparative Medicine and Professor of Neurobiology and of Obstetrics, Gynecology, and Reproductive Sciences
Brady Memorial Laboratory
310 Cedar Street
New Haven, CT, 06510
(203) 785-2525
tamas.horvath@yale.edu
PhD, Szeged University, 2000
DVM, University of Veterinary Sciences, Budapest, 1992

My main interest is the neuroendocrine regulation of homeostasis with particular emphasis on metabolic disorders, such as obesity and diabetes, and the effect of metabolic signals on higher brain functions and neurodegeneration. We have active research programs to pursue the role of synaptic plasticity in the mediation of peripheral hormones’ effects on the central nervous system.

We also study the role of mitochondrial membrane potential in normal and pathological brain functions with particular emphasis on the acute effect of mitochondria in neuronal transmission and neuroprotection. We combine classical neurobiological approaches, including electrophysiology and neuroanatomy, with endocrine and genetic techniques to better understand biological events at the level of the organism.


Abstract Number 10079662

Gao, Xiao-Bing

Associate Professor of Comparative Medicine and of Obstetrics, Gynecology, and Reproductive Sciences
(203) 785-2340
xiao-bing.gao@yale.edu
PhD, Shanghai Institute of Physiology, China, 1996

The lateral hypothalamus (LH) plays a substantial role in a number of functions including sensorimotor integration, energy homeostasis, sleep-wake regulation, addiction, emotion and regulation of the autonomic nervous system. It has been shown that the LH is a central hub receiving physiological, behavioral and environmental inputs from and sending outputs to other brain structures to participate in homeostatic and behavioral functions. Our long-term goal is to understand how signaling at molecular, cellular and circuit levels leads to the emergence of instinctive behaviors critical for animal survival and how adaptive and maladaptive changes in the LH lead to diseases and conditions such as obesity, diabetes, sleep disorders, etc.
McGRATH, James M

Abstract Number 10334271

Research Scientist in Comparative Medicine, in Genetics and in Pediatrics
(203) 785-2686 james.mcgrath@yale.edu

MD, Temple University, 1986
PhD, Temple University, 1980
MA, Temple University, 1976
BA, Temple University, 1973

Genetic imprinting; mouse embryo development; embryonic stem cells; gene knockouts; embryo cryopreservation; sperm cryopreservation; cloning; left right development; Beckwith Weidemann syndrome; genomic imprinting; nuclear transfer; embryonic stem cell derivation; gene knockouts in embryonic stem cells.


LEVY, Ifat

Abstract Number 13129768

Associate Professor of Comparative Medicine and Neurobiology
Brady Memorial Laboratory
310 Cedar Street
New Haven, CT, 06510
(203) 737-1374
ifat.levy@yale.edu

PhD, Hebrew University of Jerusalem, 2004
LLB, Tel Aviv University, 1997
BS, Tel Aviv University, 1994

I am interested in the neural mechanisms that underlie human decision-making, especially under risk and uncertainty, and in the way individual differences in decision-making are reflected by the neural activation. My studies combine functional MRI methods from cognitive neuroscience and experimental methods from behavioral economics to study the neural correlates of decision parameters and valuation processes. Similar paradigms are used in healthy young volunteers, as well as in adolescents, older adults and obese individuals in order to unravel changes in behavior and in neural activation that may be at the core of pathological behaviors such as extreme risk-taking in adolescents and overeating in obese individuals.


RODEHEFFER, Matthew S

Abstract Number 13086792

Associate Professor of Comparative Medicine and Assistant Professor of Molecular, Cellular, and Developmental Biology
(203) 737-3370
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PhD, Emory University, 2002
BS, University of Washington (Seattle), 1997

Obesity, which is defined as an excessive increase in white adipose tissue (fat) mass, is one of the leading public health concerns of the 21st century. The relevance of obesity as a public
health concern is due to two main factors 1) the rates of obesity have increased over the last thirty years and today almost one third of the adult population in the U.S. is classified as obese, and 2) obesity is associated with several other health conditions, including type 2 diabetes, cardiovascular disease and some forms of cancer.

Despite the importance of fat in human disease our understanding of the regulation of fat mass is limited. The research in my laboratory is directed toward elucidating the molecular mechanisms that regulate fat mass and contribute to the development of obesity and obesity associated pathologies. Specifically, we focus on identifying and characterizing fat progenitor and stem cells and the molecular processes that control the differentiation of these cells into mature, lipid-filled fat cells.

We take several approaches to accomplish our research goals, employing several mouse models of human disease, human primary cell culture, genomic and proteomic techniques and developing novel mouse models for the study of fat regulation. Determining how the growth of fat is regulated may lead to the development of novel therapeutics for the treatment of obesity, diabetes and cardiovascular disease.


**YAO, Gang-Qing**

**Abstract Number 10368237**

Research Scientist in Comparative Medicine
(203) 737-5134
gang-qing.yao@yale.edu

MD, Shandong University, 1984

Dr. Yao’s research interest focuses on cellular and molecular mechanisms of Colony Stimulating Factor-1 isoforms in bone. Selective deletion of the isoform in vivo is being pursued to better define their separate roles. The lab also provides a complete vector design and construction for knockout and knockin mice, as well as transgenic mice.

Yao GQ, Wu JJ, Troiano N, Zhu ML, Xiao XY, Insogna K. Selective deletion of the membrane-bound colony stimulating factor 1 isofom leads to high bone mass and hypertriglyceridemia in mice. J Bone Miner Metab. In press.

DERMATOLOGY

ZIELSCHMIDT, Caroline J  
**Abstract Number 11091604**

Professor of Comparative Medicine and Associate Professor of Ophthalmology and Visual Science  
(203) 737-4303  
caroline.zeiss@yale.edu  
PhD, Cornell University, 1999  
BVMS, University of Pretoria, South Africa, 1990

Our lab focuses on the means by which specialized cells of the retina, photoreceptors, survive or die in a range of blinding disorders. Understanding these mechanisms provides insight into how they could be delayed to preserve sight. We are also interested in evolutionary morphology, particularly of the retina, in a wide range of vertebrate species.


ANTAYA, Richard J  
**Abstract Number 10630241**

Professor of Dermatology, Pediatrics and Nursing  
(203) 737-5418  
richard.antaya@yale.edu  
MD, Tufts University, 1989

Pediatric Dermatology: specializes in the diagnosis and management of all types of skin disease affecting infants, children and adolescents. Besides treating common skin disorders in children such as atopic dermatitis, psoriasis, cutaneous infections and acne, particular interests include genetic skin disorders, neonatal skin disease, medical and laser treatment of vascular malformations and hemangiomas, management dilemmas and severe skin disease affecting children of all ages.  
Specialized terms: Atopic dermatitis; Infantile hemangiomas; Warts; Genetic skin diseases


BOLOSENBERG, Marcus W  
**Abstract Number 12648617**

Associate Professor of Dermatology and of Pathology  
Laboratory for Medicine and Pediatrics (LMP)  
15 York Street  
New Haven, CT, 06510  
(203) 737-3484  
marcus.bosenberg@yale.edu  
MD, Cornell University Medical College, 1994  
PhD, Cornell University Medical College, 1993  
BA, Cornell University, 1986

M.D., Yale University, 1980

Clinicopathologic correlations regarding various types of melanocytic nevi (moles) and melanoma; cutaneous side effects of chemotherapy.


Directs a National Cancer Institute funded melanoma research laboratory with interests in several aspects of melanoma biology including the cell biology and genetics of metastasis, prognostic and diagnostic markers and development of new therapeutic agents.

Specialized Terms: Melanocytic neoplasms; Soft tissue tumors; Cutaneous lymphoma; Genodermatoses


We employ a comprehensive approach human genetic disorders, attempting to understand their clinical presentations by studying their genetics and pathobiology. Using genetic tools, we have identified new genetic causes of inherited disorders and we are actively studying how these genes function in health and disease.


Bunick, Christopher G

Abstract Number 12747659

Assistant Professor of Dermatology

(203) 785-3693
christopher.bunick@yale.edu

MD/PhD, Vanderbilt University School of Medicine, 2008
BS, Vanderbilt University, 2000

Dr. Bunick uses a technique called x-ray crystallography to determine the high resolution, three-dimensional structures of proteins important to both normal and diseased skin. Knowing the structure of various skin proteins enables a better understand of how a protein functions in normal and diseased skin states. Ultimately, it may lead to the development of novel therapies.

Specialized Terms: structural biology of skin proteins; x-ray crystallography; epidermal structure and function; structure-based drug design


Colecgio, Oscar R

Abstract Number 10434333

Assistant Professor of Dermatology

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New Haven, CT, 06510
(203) 785-4092
oscar.colegio@yale.edu

MD, Yale University School of Medicine, 2004
PhD, Yale University, 2001
MPhil, Yale University, 2000
BS, University of Texas at Austin, 1995

The focus of our lab is to characterize the role of immune cells called macrophages in tumor progression. The focus of these studies has been to identify pathways of tumorigenesis critical to a variety of murine tumor types including lung carcinoma, melanoma, colon carcinoma and cutaneous squamous cell
carcinoma. In addition, we are performing parallel studies in identifying tumor-promoting pathways produced by infiltrating macrophages in human squamous cell carcinomas from immunosuppressed transplant recipients vs non-immunosuppressed patients.

Specialized Terms: Squamous cell carcinoma; Casal cell carcinoma; Melanoma; Tumor-associated macrophages; Immunology; Hypoxia; Epithelial-mesenchymal transitions; Solid organ transplantation


COWPER, Shawn E

Abstract Number 11417698

Associate Professor of Dermatology and of Pathology
Laboratory for Medicine and Pediatrics (LMP)
15 York Street
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(203) 785-3524
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MD, Michigan State University, 1990

Nephrogenic systemic fibrosis (NSF) is a disease marked by skin stiffening in the setting of a patient with kidney disease. The disease has been linked with MRI Contrast Agents. There is no evidence to suggest that patients without kidney disease can develop NSF.

Our laboratory investigates cases of possible NSF (examining clinical records and tissue slides) to try to confirm the diagnosis. Once confirmed, we interview patients, conduct an investigation into medical records, and use the information to populate a database comparing all known patients with NSF verified in our laboratory. We use this information to guide medical, pharmaceutical, and government advisory personnel, and to guide further research into the cause of this mysterious disorder.

Our goal is to eradicate this dangerous (and sometimes deadly) condition, and to use the information to better understand fibrosis and wound healing in the hopes of impacting research on related conditions.

Specialized Terms: Alopecia; Cutaneous lymphoma; Pathology informatics; Nephrogenic fibrosing dermopathy; Nephrogenic systemic fibrosis


EDELSON, Richard L

Abstract Number 10312273

Aaron B. and Marguerite Lerner Professor of Dermatology
(203) 785-4091
redelson@yale.edu

MD, Yale University, 1970

Cutaneous T cell lymphoma is the most common malignancy of lymphocytes in adults. Our group studies the basic biology of the malignant cells of CTCL and relates cellular properties to the clinical course of the disease. We have developed an active immunotherapy program, a biological modifier system approved as a standard treatment for advanced CTCL by the FDA and now used in over 100 therapy centers worldwide. This treatment, known as “photopheresis” has been recently shown by us to work through a mechanism of increasing immunogenicity of class I associated tumor specific peptides including those derived from the clone specific T cell receptors. We are investigating means of increasing the expression of these peptide antigens and characterizing the cytotoxic T cell response against them.

Specialized Terms: Cutaneous T cell lymphoma (CTCL); Human T cell physiology; Immunobiology of normal and diseased skin


GIRARDI, Michael

Abstract Number 10240261

Professor of Dermatology
(203) 785-4092
michael.girardi@yale.edu

MD, Yale University, 1992

Dr. Girardi’s principal research focus as a faculty member has been to investigate the relationship between the immune system and cancer from two complimentary perspectives: as a laboratory / translational investigator, and as a clinical scholar. He has published in high impact journals (Science, Nature, New England Journal, Nature Immunology, Journal of Experimental Medicine, Proceedings of the National Academy of Sciences). In addition, he has developed an internationally recognized clinical expertise in several areas including cutaneous T cell lymphoma (CTCL), nephrogenic systemic fibrosis (NSF), and the immunodulatory treatment extracorporeal photochemotherapy (ECP). His scientific and clinical scholarly accomplishments have been recently recognized by his elected membership into the American Society for Clinical Investigation. His laboratory has made several advances in our understanding of the immunoregulation of carcinogenesis. They are credited as the first lab to demonstrate the critical contribution of gamma/delta T cells to the regulation of cutaneous malignancy using three different skin cancer models [Science 2001]. This has directly led to the elucidation of the differential contributions of alpha/beta T cells relative to gamma/delta T cells [J Exp Med 2003]. Indicative of the influence of different alpha/beta T components on tumor growth, tumor cell populations reflect the immune status in that tumors developing in immunocompetent mice differed substantially from those developing in TCRbeta–/– or IFNgamma–/– mice by: (1) reduced expression of the natural killer receptor (NKG2D) ligand Rae-1, (2) overt regional necrosis reflected by an impoverished vasculature, and (3) reduced expression of a set of genes implicated in angiogenesis [J Invest Dermatol 2005]. We also identified and characterized a novel population of CD8+ tumor-promoting T cells (T-pro) [PNAS 2007] that drives cancer progression via local inflammatory influences. The identification of these T-pro cells adds substantially to the recognized association of inflammation and cancer, and has served as the basis for a translational study of human tumors [NCI SPORE].

Specialized Terms: Cancer; Carcinogenesis; Cellular Immunology; Chemotherapy; Dermatology; DNA; Immunobiology; Immunology; Receptors; Tumor Immunology


HALABAN, Ruth

Abstract Number 10328950

Senior Research Scientist in Dermatology
(203) 785-4352
ruth.halaban@yale.edu

PhD, Princeton University, 1968

Genes controlling differentiation, proliferation and malignant transformation of melanocytes, growth factors and receptor kinases, signal transduction, epigenetic modification and gene expression, markers for melanoma

Specialized Terms: Genes controlling differentiation, proliferation; malignant transformation of melanocytes; Growth factors and receptor kinases; Signal transduction; Epigenetic modification and gene expression; Markers for melanoma; Next-Generation sequencing; mutations


IMAEDA, Suguru

Abstract Number 10311882

Assistant Professor of Dermatology
(203) 932-5711 x3285
suguru.imaeda@yale.edu

MD, Albert Einstein College of Medicine, 1988

BA, Johns Hopkins University, 1984

Identification of major histocompatibility complex class I (MHC I) associated tumor-specific peptides and immunomodulation
of T cell tumors. 2) MHC I antigen processing and presentation in cutaneous T cell lymphoma (CTCL) cells. The research involves isolation, purification and characterization of MHC I self-peptides from a murine and human T cell lymphoma cell lines. Immunoaffinity purification, reversed phase high performance liquid chromatography (RP-HPLC), automated chemical sequencing and peptide synthesis have been used to identify and characterize octamer and nonamer self-peptides from a murine B cell lymphoma cell line. Similar techniques are used to isolate distinctive peptide antigens of CTCL cells and murine T cell tumors. The biological significance of isolated antigens is determined by cytotoxicity assays.


Ko, Christine J

Abstract Number 12426937

Associate Professor of Dermatology and of Pathology
(203) 785-4094
christine.ko@yale.edu

MD, New York University School of Medicine, 1999
BA, Princeton University, 1995

I am studying skin cancer, particularly squamous cell carcinoma and keratoacanthoma. I also participate in a multidisciplinary vascular conference and inherited kidney cancer program.

Specialized Terms: Adnexal tumors; Benign and malignant epidermal tumors; Vascular tumors


Lazova, Rossitza

Abstract Number 10416721

Associate Professor of Dermatology and of Pathology
(203) 785-4094
rossitza.lazova@yale.edu

MD, Higher Medical University Bulgaria, 1985

My main interest is in Spitz's nevi, Spitzoid malignant melanomas, and Atypical Spitzoid melanocytic neoplasms. Other interests of mine are melanocytic nevi on special anatomic sites and their histologic characteristics and malignant melanoma. I am also interested in melanomas with heavily pigmented and multinucleated melanocytes, presumably hybrids with melanophages.

Specialized Terms: Spitz nevi; Spitzoid melanocytic neoplasms; Malignant melanoma; Melanocytic nevi on special anatomic sites; Atypical Spitzoid neoplasms


Leffell, David J

Abstract Number 10071485

David P. Smith Professor of Dermatology and Professor of Surgery (Otolaryngology and Plastic)

Temple Medical Center
40 Temple Street
New Haven, CT, 06510
david.leffell@yale.edu

MD, McGill University, 1981
BS, Yale College, 1977

Dr. Leffell and colleagues discovered the skin cancer gene, PTCH, in 1996 and have directed subsequent research towards understanding how skin cancer develops. Other research includes studies of the p53 gene in skin cancer, epidemiology of skin cancer, and innovative diagnostic devices.
Understanding how stem cells are regulated to promote tissue regeneration is key to developing targeted therapies to treat human diseases that lead to either tissue damage or uncontrolled growth in cancer. My research uses innovative technology to examine how a key stem cell molecular signal can recruit cells to undergo collective growth during normal tissue regeneration and how this mechanism can also be utilized aberrantly to promote cooperative growth during carcinogenesis.

Specialized Terms: Hair follicle stem cells; skin regeneration; wound healing


temic Vγ5-γδ cells were necessary and sufficient to down-regulate SpD. Finally, crosses of susceptible (NOD) and resistant (C57BL/6) d-/- mice which showed that susceptibility to SpD behaves as a recessive trait, have been recently analyzed by genome-wide, microsatellite mapping; these studies clearly indicate that several distinct genetic intervals contribute to the regulation of this cutaneous inflammatory response. Ongoing studies in this arena:

1. To characterize in more detail the pathology in SpD normally down-regulated by skin-associated DETC;

2. To characterize the genes expressed by “resting” DETC and in vitro “activated” DETC by serial analysis of gene expression (SAGE);

3. To investigate the potentials of selected candidate DETC cytokines/effector molecules to down-regulate SpD.

Specialized Terms: Immunobiology of γδT cells; Immune system-skin interactions; Immunopathogenesis of contact dermatitis, atopic dermatitis, and cutaneous T-cell lymphoma


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**ABUJARAD, Fuad**

**Abstract Number 13596350**

Assistant Professor of Emergency Medicine
(203) 737-5088
fuad.abujarad@yale.edu

PhD, Michigan State University, 2010
MSc, Michigan State University, 2005

Dr. Abujarad’s primary research area is in Health Information Technology (HIT). Currently, Dr. Abujarad is utilizing HIT to improve patient health outcomes while decreasing costs and unnecessary hospitalizations and emergency department visits. His specific research interests focus on the area of mHealth technology, human-computer interaction, Automated Model revision, Fault-Tolerance, Formal Methods, Software Engineering, Distributed Computing, and systems that provide real-time background searches. His overarching aim is to apply his in-depth knowledge and methodological expertise to address major health disparities in vulnerable populations by developing technologies that optimize the human interface of complex systems. Currently, his research is focused on developing and testing a web-based patient centered virtual multimedia interactive informed consent tool to enhance quality of care and patient safety. This research was recently funded by AHRQ.

Specialized Terms: mHealth, human-computer interaction, Automated Model revision, Fault-Tolerance, Formal Methods, Software Engineering, Distributed Computing, and systems that provide real-time background searches.


BERNSTEIN, Steven L

**Abstract Number 13082355**

Professor of Emergency Medicine and of Health Policy
(203) 737-3574
steven.bernstein@yale.edu

MD, Temple University School of Medicine, 1985
AB, Princeton University, 1981

Dr. Bernstein’s chief interest is in clinical trials of tobacco dependence treatment. He developed a screening and treatment intervention for tobacco users in the hospital emergency department, and programs to train providers in tobacco control.

Before coming to Yale in January, 2009, Dr. Bernstein was Vice Chair for Research and Associate Professor of Clinical Emergency Medicine, Epidemiology & Population Health, and Family & Social Medicine at the Albert Einstein College of Medicine in the Bronx, New York. At Einstein, he was the PI of a study supported by the National Institute on Drug Abuse (NIDA) that examined the efficacy of a brief motivational interview and nicotine replacement therapy for adult smokers in the ED. Dr. Bernstein maintains an active clinical practice in the ED at Yale New Haven Hospital.

From 2004-2006, Dr. Bernstein chaired the Smoking Cessation Task Force for the American College of Emergency Physicians (ACEP). The task force was funded by a grant from the Smoking Cessation Leadership Center, a national program office of the RWJF. The task force, composed of members of all major national organizations in emergency medicine, published an educational, research, and clinical agenda for ED personnel in the arena of tobacco control.

Dr. Bernstein’s other research program concerns the effects of ED crowding on quality of care. He developed the ED Work Index (EDWIN), a validated measure of crowding that has been linked to adverse events. He also chaired SAEM’s ED Crowding Task Force.

Specialized Terms: Smoking cessation; Healthcare access; Information technology; Disparities


BRANDT, Cynthia A

**Abstract Number 10474147**

Professor of Emergency Medicine and of Anesthesiology
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MPH, University of Washington (Seattle), 1989
MD, Loma Linda University, 1984

Much of my work has focused on building informatics infrastructure for clinical research, working closely with many clinical research groups, and performing research focused on issues such as the management of clinical vocabularies used in clinical research databases and implementation of computerized clinical practice guidelines. Another focus is primarily informatics research working on the development and the application and use of open-source informatics tools for information retrieval and information extraction from the VA’s electronic medical record free-text data.


CHEUNG, Kei-Hoi

**Abstract Number 10110925**

Associate Professor of Emergency Medicine
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PhD, University of Connecticut, 1998

As the number of life science databases and analytic tools increase, the interoperability of such databases and tools has become important and challenging. We tackle this challenge by exploring efficient and innovative approaches involving the use of ontologies, semantic web, metadata, natural language processing and high performance computing. Dr. Cheung has been collaborating with many faculty members in different departments and core facilities including Genetics, Biology, Computer Science, Biostatistics, and Yale Keck Protein Profiling Facility. His research has been carried out in the context of integrating and analyzing: a) genomics data, b) proteomics data including mass spectrometry (MS) data, c) immunology data and d) neuroscience data.

Specialized Terms: Genetic database; Tool interpolation
My research has focused primarily on the impact of obesity on health. In work conducted with Dr. Sonia Caprio, we have evaluated metabolic impairment in young obese children and have identified markers of this impairment and strategies to prevent. In emergency department and other primary care settings, we are investigating methods of identifying individuals at risk of complications from obesity and ways to manage obesity.


Evans, Leigh V

Abstract Number 10638333
Assistant Professor of Emergency Medicine
(203) 737-2489
leigh.evans@yale.edu
MD, Washington University School of Medicine, 1990

Dr. Evans’ research focuses on the transfer of clinical skills from the simulation laboratory to the hospital setting. Her primary focus has been on central venous catheter insertion performance by resident physicians. Her AHRQ funded study demonstrated that residents trained to competence in the simulation laboratory perform better in the clinical setting. She is currently investigating skills decay in procedural skills.

Specialized Terms: Emergency Medicine; Simulation in Undergraduate Medical Education; Invasive Procedure Simulation


MOORE, Christopher L

Abstract Number 11630810

Associate Professor of Emergency Medicine
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(203) 785-4058
chris.moore@yale.edu

MD, University of Virginia School of Medicine, 1998
BA, Amherst College, 1992

Dr. Moore’s research interests are primarily in the area of diagnostic imaging in the emergency department, including ultrasound and CT. He is currently funded by the Agency for Healthcare Research and Quality (AHRQ) to disseminate the appropriate use of reduced-dose CT protocols for renal colic (kidney stone).

Other interests include bedside ultrasound, pulmonary embolism (PE), aortic dissection, kidney stones, bedside echocardiography, and emergency ultrasound education.

In 2009 Dr. Moore received the Society for Academic Emergency Medicine “Ultrasound Achievement Award”, a national award for “Exceptional Academic Accomplishments and Leadership in Emergency Ultrasound”.


MOOWAFI, Hani O

Abstract Number 14967808

Assistant Professor of Emergency Medicine
(203) 785-2353
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MPH, Harvard School of Public Health, 2006
MD, University of Virginia School of Medicine, 2002

Dr. Mowafi’s research areas are:
• Conflict and health in the Middle East and North Africa
• Assessing burden of injuries and level injury of injury care in limited resource settings
• Emergency care data systems in low-resource settings

Specialized Terms: global health; injury; humanitarian assistance; trauma; injury

Effectiveness of a Primary Health Care Program on Urban and Rural Community Disaster Preparedness, Islamic Republic of Iran: A Community Intervention Trial. Ali Ardalan, MD, PhD, Hani Mowafi, MD, MPH, Hessein Malekafzali Ardakani, MD, MPH, PhD, Farid Abolhasanai, MD, Ali-Mohammad Zanganeh, MD, Hessein Safizadeh, MD, Sirous Salari, MD, MPH, and Vahid Zonoobi, MD, MPH.

Iran’s Disaster Risk: Now is the Time for Community-based Public Health Preparedness Ali Ardalan, MD, PhD;1,2 Hani Mowafi, MD, MPH;2,3 Frederick M. Burkle, Jr., MD, MPH, DTM;4,5

POST, Lori A

Abstract Number 12668014

Associate Professor of Emergency Medicine
(203) 785-4172
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PhD, Michigan State University, 1999
MA, Michigan State University, 1992
BA, Michigan State University, 1988

Dr. Post’s area of research expertise is in the nexus of violence/injury prevention and health information technology. To this end, she has been the principal investigator on several federal, state, and foundation grants.

Specialized Terms: Elder Abuse; Gender-Based Violence; Demography; Domestic Violence; Evaluation; Injury; Methodology; Prevention; Program Evaluation; Research Design; Violence; Violence Against Women; Health Information Technology; Informatics


SAFDAR, Basmah

Abstract Number 11240779

Assistant Professor of Emergency Medicine
(203) 737-2489
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MSc, Harvard University, 2013
MD, Aga Khan University, Pakistan, 1999

Dr. Safdar’s research interests include women’s health, in particular sex and gender disparities in cardiovascular health and a multisystem approach to pain management in the Emergency Department. Dr. Safdar has served as the Medical Director of the Yale New Haven Hospital Women’s Heart Program, a comprehensive community awareness program that aims to improve knowledge of women about heart disease (2008-2013). Dr. Safdar is also the Director of the Chest Pain Center.

Dr. Safdar’s current research focuses on the physiology of microvascular disease and the role of persistent, unexplained chest pain as it affects patient-centered outcomes and systems costs and resource utilization. Dr. Safdar has won several research awards including Yale EM Research of the year award in 2004, Connecticut Chapter of Emergency Physicians (CCEP) award in 2004 and the National Best Clinical Science Research Award (Resident) by Society of Academic Emergency Medicine (SAEM) in 2005. Dr. Safdar speaks regularly at regional and national forums and has given several media presentations raising awareness about gender-specific forms of heart disease. She is currently the principal investigator for the RAMP-ED trial (RANolazine for Microvascular angina by PET – in the Emergency Department). She also collaborates with VIRGO (Variation In Recovery: Role of Gender on Outcomes of Young AMI Patients), OPALS (Ontario Prehospital Advanced Life Support Study) and the Women’s Veterans Health Strategic Healthcare Group (cardiovascular) on studying sex/gender-specific outcomes.

For the past three years, Dr. Safdar has been leading a national collaborative initiative on Gender-Specific Research in Emergency Care. This multidisciplinary and multi-institutional effort is aimed to set the agenda for sex- and gender-specific research in emergency care research for the next five years. Dr. Safdar was appointed President-Elect of Academy for Women in Academic Emergency Medicine (AWAEM).

Specialized Terms: Sex- and gender-specific research; Persistent chest pain physiology and patient-centered outcomes; Endothelial reactivity; Microvascular disease; Cardiac biomarkers; Coronary risk factors; Depression; Disparities; Chest pain in a multidimensional model.


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TOMASSONI, Anthony

Abstract Number 12487916

Assistant Professor of Emergency Medicine
(203) 785-4710
anthony.tomassoni@yale.edu
MD, UMDNJ-New Jersey Medical School, 1989
MS, Fairleigh Dickinson University, 1984
BA, Fairleigh Dickinson University, 1979

Anthony J. Tomassoni is the medical director of the Yale Office of Emergency Preparedness. He practices and teaches Emergency Medicine and Toxicology at Yale University. Through the Yale New Haven Health System he serves as Medical Director of the Yale Office of Emergency Preparedness (OEP). Dr. Tomassoni’s early projects with YNH-CEPDR included the drafting of diagnostic and treatment guidelines for chemical and radiological emergencies. He is interested in the practice of clinical toxicology and promotes the recognition of the specialty and its practitioners through frequent lectures. His publications include contributions to chapters in toxicology texts and electronic references.

He has been an item writer for the certification exam for Specialists in Poison Information since 2000, and is the outgoing Chair of the AAPCC Medical Director’s Committee. He was the recipient of the 2008 Faculty Teaching award from the graduating emergency medicine residents. Dr. Tomassoni is also an adjunct Senior Scientist for the Wise Laboratory of Environmental and Genetic Toxicology at the University of Southern Maine.

Specialized Terms: EMS; Emergency preparedness and disaster medicine; Global health; Medical toxicology and chemical emergencies; Emergency medicine and injury prevention; Education


**VACA, Federico**

**Abstract Number 13198499**

Professor of Emergency Medicine

(203) 785-4363
federico.vaca@yale.edu

MPH, University of California at Los Angeles, 2002
MD, Creighton University School of Medicine, 1992

The focus of Dr. Vaca’s scholarly work and research is to investigate and better understand the racial and ethnic disparities in traffic-related morbidity and mortality. Moreover, it is to study traffic safety in a cultural context with a sociological and public health perspective in order to identify behavioral determinant of risk and protection that would inform the development of effective community and clinical contact intervention strategies.

Specialized Terms: Adolescent; Alcohol; Behavioral; Injury; Injury Epidemiology; Intervention; Motor Vehicle; Pedestrian; Prevention; Trauma; Health Disparities


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**WIRA, Charles R**

**Abstract Number 12254353**

Assistant Professor of Emergency Medicine

(203) 737-2489
charles.wira@yale.edu

MD, Dartmouth School of Medicine, 2000
BS, University of New Hampshire, 1993

Ischemic stroke is a leading cause of death with limited therapeutic options. Blood flow delivery to the area of a stroke is dependent upon many factors. Dr. Wira and stroke researchers with the Yale ED have participated in studies evaluating neuroprotective agents, clot dissolution medications, neuro-interventional procedures, and have also conducted observational studies characterizing the hemodynamic profile and myocardial complications seen in acute stroke patients. This research will lead to the development of better acute therapeutic interventions in ischemic stroke.

Specialized Terms: Stroke; Sepsis; Cardiac arrest


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**VENKATESH, Arjun K**

**Abstract Number 14451416**

Instructor in Emergency Medicine

(203) 785-2353
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MHS, Yale University School of Medicine, 2014
MD, Northwestern University The Feinberg School of Med, 2008
MBA, The Ohio State University, 2004
BS, Northwestern Univeristy, 2002

Specialized Terms: Emergency Services; Healthcare Costs; Performance Measurement; Cardiac Testing; Health Services Research


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**GENETICS**

**BALE, Allen E**

**Abstract Number 10016626**

Professor of Genetics

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The dramatic growth of ring canals during oogenesis requires both actin polymerization and depolymerization, making ring canals a valuable model for in vivo actin dynamics. The polarized movement of maternal mRNA and protein through ring canals from nurse cells to the oocyte is highly regulated. We identified proteins specifically targeted to the oocyte by GFP protein trapping; we are determining the mechanism of targeting using both live imaging and molecular dissection of the proteins to identify localization signals.

Specialized Terms: Molecular Genetics of Drosophila Oogenesis; Actin Cytoskeleton Regulation; Drosophila; Oogenesis; Ring Canal; Ovarian Muscle Function


DiMaio, Daniel C

Abstract Number 10036261

Waldemar Von Zedtwitz Professor of Genetics and Professor of Molecular Biophysics and Biochemistry and of Therapeutic Radiology

(203) 785-2684
daniel.dimaio@yale.edu

PhD, Johns Hopkins University, 1981
MD, Johns Hopkins University, 1978

We use genetic techniques to study the interactions between tumor viruses and their host mammalian cells. We discovered that the 44-amino acid transmembrane E5 protein of bovine papillomavirus transforms cells to tumorigenicity by binding to and activating the cellular platelet-derived growth factor receptor. We are now using the E5 protein as a scaffold to construct novel, small transmembrane proteins that modulate cell phenotype and virus replication by interacting with a variety of transmembrane target proteins. So far, we have constructed artificial proteins that can drive the formation of human red blood cells and others that block infection by HIV. We are also using genetic and biochemical techniques to determine how tumor viruses enter cells and have identified novel cellular factors required for polyomavirus and papillomavirus infection. We also showed that repression of the human papillomavirus oncogenes in cervical carcinoma cells activates endogenous tumor suppressor pathways, resulting in cessation of proliferation and rapid entry into a senescent state. We are studying these dramatic effects on cell behavior to discover new principles of cell cycle control.
and to develop novel approaches to manipulate these processes and treat cancer.


GRECO, Valentina

Abstract Number 12613478

Associate Professor of Genetics, of Cell Biology and of Dermatology
(203) 737-5241
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PhD, Heidelberg University, 2002
BS, University of Biological Science, Palermo, Italy, 1996

Stem cells and the microenvironment in which they reside - the so called niche - are central for the development and regeneration of all our organs, and their deregulation leads to a disease state. Despite the key relevance of stem cell niches and their conserved features, the dynamic interactions between stem cells and the niche are still not well understood.

The aim of my lab is to understand how stem cells and the niche contribute to tissue regeneration and what goes awry during disease states such as cancer using the murine skin hair follicle as a model system. The major challenge in studying these questions is the lack of accessibility to stem cell niches and consequently the inability to visualize the same stem cells over time to determine their specific behavior and long-term fate.

My laboratory has recently established the ability to study cellular mechanisms, in real-time, within an intact stem cell niche during physiological hair follicle regeneration in live mice. My lab integrates cell biology, genetics, genomics and two-photon imaging of live mice to understand 1) the functional role that stem cell niche components exert during hair follicle regeneration, 2) the signaling mechanisms that control hair follicle stem cell behaviors and 3) how basic mechanisms of hair follicle regeneration are hijacked during disease such as skin cancer.

Specialized Terms: Organ regeneration in vertebrate systems; Stem cells; Stem cell niche organization; Cancer


**HAMMARLUND, Marc**

**Abstract Number 12748135**

Associate Professor of Genetics  
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PhD, University of Utah, 2003

Individual neurons sometimes continue working for the life of the animal. In other cases, their function is abrogated by injury, disease, or age-associated decline. Since damaged or dead neurons generally cannot be replaced, the continuing function of our nervous system depends on the ability of our individual neurons to survive for as long as we do: repairing damage, resisting disease, and maintaining function over the long term. Neurons are complex cells with an extended and fragile morphology. Each neuron must generate and maintain delicate balances in membrane potential, trafficking, and secretion to perform its function. How do neurons sometimes survive and continue to function for decades, and why do they sometimes fail?

We study the cell-biological mechanisms that modulate neuronal endurance. We use the model organism *C. elegans*, which allows us to analyze neuronal structure and function in adult animals, in vivo, with single-neuron resolution—an approach that is difficult in other systems. We develop novel molecular and genetic tools, which we use together with single-neuron laser axotomy, in vivo imaging, optogenetics, electron microscopy, and genetic analysis, to address two fundamental questions:

1) How do neurons maintain their structure and their ability to transmit information?

2) How do neurons repair themselves when they are damaged?

Answering these questions will provide fundamental insights into the mechanisms that attempt to maintain neuronal cellular and circuit function over time: when successful, allowing the brain to outlast the body; when unsuccessful, increasing susceptibility to cognitive decline and neurological disease. By understanding and manipulating these mechanisms we aim to prevent the decline of the nervous system.

**Specialized Terms:** Axon regeneration and degeneration; Neuronal plasticity; Femtosecond laser surgery; C. elegans neurobiology


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**HORWICH, Arthur L**

**Abstract Number 10398004**

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Boyer Center for Molecular Medicine  
295 Congress Avenue  
New Haven, CT, 06510  
(203) 737-4431  
arthur.horwich@yale.edu

MD, Brown University, 1975

We are focused on misfolding caused by mutant forms of the cytosolic enzyme superoxide dismutase (SOD1), that produces an inherited form of ALS (Lou Gehrig’s Disease), with progressive, fatal motor neuron dysfunction. We are using mice overexpressing a mutant G85R SOD1-YFP fusion protein to study the mechanism of disease causation. Notably, other forms of ALS, including both inherited and non-inherited forms in humans, are indistinguishable at a clinical level. The mouse model studied affords one of the most powerful approaches to following the development of this non-treatable neurodegenerative condition. The hope is that basic understanding may lead to directed therapy.

**Specialized Terms:** Chaperones in protein folding; ALS (Lou Gehrig’s Disease)


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**IVANOVA, Natalia B**

**Abstract Number 12627282**

Associate Professor of Genetics  
(203) 785-5957  
natalia.ivanova@yale.edu

PhD, Engelhardt Institute for Molecular Biology, 1996  
MS, Moscow Institute of Physics and Technology, 1991

Individual neurons sometimes continue working for the life of the animal. In other cases, their function is abrogated by injury, disease, or age-associated decline. Since damaged or dead neurons generally cannot be replaced, the continuing function of our nervous system depends on the ability of our individual neurons to survive for as long as we do: repairing damage, resisting disease, and maintaining function over the long term. Neurons are complex cells with an extended and fragile morphology. Each neuron must generate and maintain delicate balances in membrane potential, trafficking, and secretion to perform its function. How do neurons sometimes survive and continue to function for decades, and why do they sometimes fail?

We study the cell-biological mechanisms that modulate neuronal endurance. We use the model organism *C. elegans*, which allows us to analyze neuronal structure and function in adult animals, in vivo, with single-neuron resolution—an approach that is difficult in other systems. We develop novel molecular and genetic tools, which we use together with single-neuron laser axotomy, in vivo imaging, optogenetics, electron microscopy, and genetic analysis, to address two fundamental questions:

1) How do neurons maintain their structure and their ability to transmit information?

2) How do neurons repair themselves when they are damaged?

Answering these questions will provide fundamental insights into the mechanisms that attempt to maintain neuronal cellular and circuit function over time: when successful, allowing the brain to outlast the body; when unsuccessful, increasing susceptibility to cognitive decline and neurological disease. By understanding and manipulating these mechanisms we aim to prevent the decline of the nervous system.

**Specialized Terms:** Axon regeneration and degeneration; Neuronal plasticity; Femtosecond laser surgery; C. elegans neurobiology


Our long-term research interest is to understand how cell-fate decisions in stem cells are regulated at the molecular level. Our immediate focus is to define how the numerous components and pathways function coordinately to regulate self-renewal and commitment to differentiation in embryonic and hematopoietic stem cells, the two stem cell systems the lab is currently focusing on. For these studies we employ a broad-based strategy that integrates molecular, cellular and organismal approaches. The overall goal is to gain a comprehensive and deep understanding of fundamental cell fate choices.

Specialized Terms: Embryonic and somatic stem cells; Vertebrate development; Functional genomics; Systems biology


KIDD,
Kenneth K

ABSTRACT NUMBER 10468010

Professor of Genetics, of Ecology and Evolutionary Biology and of Psychiatry

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PhD, University of Wisconsin, 1969

The majority of the work in my laboratory is currently focused on human genome diversity: the patterns of normal genetic variation among four dozen populations (~2500 individuals) from around the world, the variation in those patterns along the genome, and the inference of recent human evolutionary processes. The research involves both molecular and biostatistical components. Because of longstanding interest in neuropsychiatric disorders that fail to show a Mendelian pattern but do “run in families,” our genome diversity studies include sequence variation at several genes with important neurologic functions, candidate genes for various neuropsychiatric disorders, and genes demonstrated to be associated with alcoholism. Managing these genotype and allele frequency data and making them publicly available has also involved us in a major bioinformatics effort: ALFRED, the allele frequency database we have developed. That database, illustrations of our human evolution findings, recent publications, and other material can be accessed through the Lab’s website.

Specialized Terms: Complex Human Disorders; Neuropsychiatric Disorders; Human Population ; Genetics; Human Evolution


KRISHNASWAMY, Smita

ABSTRACT NUMBER 15815989

Assistant Professor of Genetics

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PhD, University of Michigan, 2008
MS, University of Michigan, 2004
BA, Kalamazoo College, 2002
BS, University of Michigan, 2002

My original background is in computer science, specializing in algorithms for the automated synthesis and verification of large, and often probabilistic Boolean networks—such as those in modern computer chips. I then shifted my focus from electronic circuits to biological circuits. Accordingly, my lab’s research centers around the idea that cells are actually complex computational networks. Cells contain complex biological circuitry for sensing the external environment, and process these external signals through networks of interacting components, producing chemical output as well as regulating gene expression and state reconfiguration.

In my lab, we are especially interested in the power of single-cell technologies such as mass cytometry and single-cell RNA-sequencing in learning predictive computational models of various biological phenomenon such as differentiation, response to antigen, and drug treatment. To this end, our previous work has focused on developing information-theoretic methods for identifying and characterizing the “logic” of interactive relationships between signaling proteins and uncovering how these relationships are dysregulated in disease such as cancer and diabetes.

Ongoing work involves creating more sophisticated and accurate models of transformational biological processes (especially the epithelial-to-mesenchymal transition in cancer) by combining both signaling and genomic data. We are developing methods that learn how signaling networks dynamically rewire over extended periods of time, methods for uncovering novel causal relationships from observational and perturbation data, as well as more basic methods for probabilistically modeling single-cell transcriptomic data despite its inherent sparsity. Our goal is to be able to understand biological logic enough to compensate for defects, and reprogram cells to behave correctly under a wide variety of conditions.
The common human diseases that account for the vast majority of morbidity and mortality in human populations are known to have underlying inherited components. Advances in human genetics have made the identification of genetic variants contributing to these traits feasible. Such identification promises to revolutionize the diagnostic and therapeutic approaches to these disorders. We have gone on from these starting points to use biochemistry and animal models to define the mechanisms linking genotype and phenotype. These findings have provided new insight into normal and disease biology, are identifying new pathways underlying disease pathogenesis, and are identifying new targets for development of novel therapeutics.

Specialized Terms: Molecular genetics of common human diseases


sclerosis, polyglutamine diseases, and hereditary ataxias, etc.

The main research goal of my laboratory is to better understand the molecular and cellular mechanisms that are responsible for neurodegeneration and ultimately to translate our findings into the development of therapeutics for neurodegenerative diseases. To achieve this goal, we focus on polyglutamine diseases as model systems. Polyglutamine diseases are dominantly inherited neurodegenerative conditions caused by an expansion of a CAG trinucleotide repeat encoding a glutamine tract in the respective disease-causing proteins. Polyglutamine expansion makes the host protein toxic, resulting in the formation of mutant protein aggregates and cell death. The commonalities in the nature of these mutations and the presentation of the different polyglutamine disorders suggest the occurrence of a common pathogenic mechanism. Such mechanism, however, has remained elusive and to date there are no cures or even effective therapies for most of these diseases.

We have been focusing on two distinct polyglutamine diseases, named spinocerebellar ataxia type 1 (SCA1) and spinal and bulbar muscular atrophy (SBMA). SCA1 is a dominantly inherited disease characterized by the progressive degeneration of neurons, specifically those in the cerebellum and brainstem. SBMA is an X-linked progressive neuromuscular disease. SBMA patients present with progressive weakness and muscle atrophy resulting from the degeneration of the motor neurons and skeletal muscles.

Specialized Terms: Mechanisms of neural development; Neurological disorders; Neurodegenerative diseases


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Lu, Jun

Abstract Number 13091926

Associate Professor of Genetics

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PhD, Boston University, 2003

We are interested in using genomics to understand the role of non-coding RNAs in mammalian development and disease. Currently, we are focusing on the following topics. 1. Non-coding RNAs in blood stem cell differentiation and malignancies 2. MicroRNA-mediated control of embryonic stem cell fates 3. MicroRNA mechanisms.


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Noonan, James

Abstract Number 12592466

Associate Professor of Genetics and of Ecology and Evolutionary Biology

(203) 737-1922
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PhD, Stanford University, 2004
BS, State University of New York at Binghamton, 1997

What makes us human? Our capacities for invention, language and abstract thought set us apart from all other living things. With the sequencing of the human genome and the genomes of our closest primate relatives, locating the origins of such uniquely human characteristics has become a tractable genetic problem.

Many human traits are based on anatomical changes, including increased brain size and changes in the morphology of the limbs, that evolved due to genetic changes in development. Our laboratory uses a combination of computational and in vivo experimental approaches to study human-specific changes in developmental gene regulation. We are pursuing an integrated strategy that synthesizes maps of human-specific accelerated evolution in noncoding DNAs, in vivo analysis of cis-regulatory elements, and functional genomic atlases of human development to reveal the genetic basis of unique human biology.

Specialized Terms: Human Evolution; Evolutionary Dynamics of Gene Regulation; Synthetic Biology; Applications of Ultra-High Throughput Sequencing Technologies; Comparative and Functional Genomics in Vertebrates


Cotney J, Muhle RA, Sanders SJ, Liu L, Willsey AJ, Niu W, Liu W, Klein...
Overexpression of four factors (Oct4, Sox2, Klf4, Myc, or Oct4, Sox2, Nanog, Lin28) reprogram somatic cells to become induced pluripotent stem (iPS) cells. Reprogramming accompanies genetic and epigenetic changes, and its molecular mechanism is still unknown. We recently showed that in iPS cells the global DNA methylation status is close to that of human embryonic stem (hES) cells, suggesting the epigenetic resetting during reprogramming. Furthermore, we have showed the possible dissection of stages in reprogramming through live cell imaging analysis.

We will investigate the molecular mechanism of genetic and epigenetic change during reprogramming. iPS cells show similar characteristics as hES cells, such as self-renewal and pluripotency, and provide an incredible resource for cell-based therapy, in vitro disease model and screening drugs.


Germ cells are highly specialized cells with the unique responsibility of producing healthy offspring, thus ensuring the continuity of a species across generations. These cells guard their DNA very carefully to allow the production of sperm and eggs with the right number of chromosomes and no mutations. We wish to understand how germ cells protect their DNA, while turning different genes on and off at the right times to make functional sperm and eggs. To grasp the most important trends, we use global genomic technologies to investigate many genes simultaneously. We are studying germ cell regulation primarily using the model organism C. elegans, a nematode, because of the large number of germ cells it contains, and because of the many experimental advantages it offers. Because the genes in C. elegans are related to those in higher organisms, the results from our studies should help us to understand how germ cells function in humans as well.

Slayman, Carolyn W  

Abstract Number 10009299  
Sterling Professor of Genetics and Professor of Cellular And Molecular Physiology  
(203) 737-1770  
carolyn.slayman@yale.edu  
PhD, Rockefeller University, 1963

Research in Carolyn Slayman's laboratory uses the plasma-membrane H+-ATPase of yeast (Saccharomyces cerevisiae) as a simple model for studies on P-type pumps, a physiologically important family that includes the Na+,K+-, H+,K+-, and Ca2+-ATPases of animal cells. These pumps control the ionic composition of cells; many of them also serve as important drug targets (e.g., for cardiac glycosides in the case of Na+,K+-ATPase and anti-ulcer drugs in the case of gastric H+,K+-ATPase).

Specialized Terms: Genetics of Ion Transport


Seashore, Margretta R  

Abstract Number 10326961  
Professor of Genetics, of Laboratory Medicine, of Nursing and of Pediatrics  
Winchester Building  
25 York Street  
New Haven, CT, 06511  
(203) 785-2660  
margretta.seashore@yale.edu

MD, Yale University, 1965  
AB, Swarthmore College, 1961

The success of treatment of inborn errors of metabolism depends upon early diagnosis and effective long-term management. We are concerned with improving the treatment of these genetic disorders. Our activities include diagnosis and screening, therapy, prenatal diagnosis and genetic counseling.

Specialized Terms: Clinical Genetics; Inborn errors of metabolism, diagnosis and treatment


Sun, Zhaoxia  

Abstract Number 10057035  
Associate Professor of Genetics  
(203) 785-3589  
zhaoxia.sun@yale.edu  
PhD, Yale University School of Medicine, 1998

We use zebrafish to study polycystic kidney disease (PKD) and other diseases caused by defects in a cell surface organelle called cilium. PKD is a common human genetic disease with severe medical consequences. Currently no directed treatment is available for this disease. Our ultimate goal is to understand cilia-mediated signaling and its role in the etiology of PKD, thus provide insight for rational designing of treatment against this disease and other ciliopathies.
WEISSMAN, Sherman M

Abstract Number 10403393

Sterling Professor of Genetics
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MD, Harvard University, 1955

Genomics Scale analyses:
We have collaborated in a range of studies using genomic tiling arrays to map sites of transcription factor binding, intergenic transcripts, genomic structure variation, sites of early and late DNA replication, and chromatin structure mRNA expression patterns in the hematopoietic/immune system. We have analyzed patterns of mRNA expression in purified cell types in the immune and hematopoietic system, and are characterizing at a genomic level transcription factor binding sites and chromatin structure in these cells. One area of focus is the differentiation and response patterns of neutrophils and monocytes to various stimuli.

Specialized Terms: Globin and Histocompatibility Gene Structure and Function; Genome wide mapping of gene activity and chromosome structure in man; Transcription Factors; Lymphocyte and myeloid Transcription Networks; Stem Cells; Cell Senescence; Methods for Molecular Genetics


WEATHERBEE, Scott D

Abstract Number 12627163

Associate Professor of Genetics
(203) 737-1923
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PhD, University of Wisconsin-Madison, 1999
BA, SUNY at Oswego, 1993

Limbs have played a crucial role in animal evolution. The adaptive evolution of vertebrates to aquatic, terrestrial, and aerial environments involved the acquisition and modification of their limbs. Over the past several decades, labs studying limb development in the mouse and chicken have identified a number of important signaling centers in the limb as well as several key molecules required for patterning the limb. Despite these advances, there are gaps in our understanding of how a limb is built. There is much to learn about the early stages of limb development and the identification of new genes required for limb growth and patterning is needed. We use mice to fill in some of these gaps by exploring limb formation, patterning and growth.

Specialized Terms: Limb development; Developmental genetics; Organogenesis; Mouse genetics; Signaling pathways; Embryogenesis


XIAO, Andrew z

Abstract Number 13310937

Assistant Professor of Genetics
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(203) 737-3650
andrew.xiao@yale.edu
PhD, University of North Carolina at Chapel Hill, 2003

We focus on elucidating epigenetic mechanisms for mammalian stem cell biology, cellular reprogramming (iPS) and embryonic

**HISTORY OF MEDICINE**

**Radin, Joanna**

**Abstract Number 14450702**

Assistant Professor in the History of Medicine, of Anthropology and of History  
(203) 785-4258  
joanna.radin@yale.edu

PhD, University of Pennsylvania, 2012  
MS, University of Pennsylvania, 2007  
MS, Cornell University, 2004  
BS, Cornell University, 2002

I am currently at work on a book about Cold War efforts to freeze blood salvaged from members of indigenous communities. This project focuses on ideas about human life science and practices of salvage. Related research deals with the history, anthropology, and ethics of cryopreservation with special attention to the uses of cold storage in the realms of regenerative biomedicine and biodiversity conservation.

Other ongoing projects include an edited book, tentatively titled, Cryopolitics: Frozen Life in a Melting World, Cold War histories of global biomedicine and indigeneity; the mobility and ethics of “big data”; a history of the Wenner-Gren Foundation for Anthropological Research (with Susan Lindee); a biological history of decay; and a biography of science fiction author, Michael Crichton.

Specialized Terms: History of biology, medicine, and anthropology since 1945; Scientific expeditions; Biomedical ethics, human subjects research, collections, and laboratories; History of global health; Biomedical technology


Joanna Radin. (forthcoming) “Planned Hindsight: Banking Frozen Life at the Zoo and Natural History Museum”, Journal of Cultural Economy

**Xu, Tian**

**Abstract Number 10151776**

Professor of Genetics  
(203) 737-2624  
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PhD, Yale University, 1990

The Xu lab is interested in utilizing model organisms to understand cancer biology and developmental mechanisms. In particular, the lab is developing and using new genetic approaches to identify genes that are involved in tumor growth and metastasis, and are exploring the developmental and biochemical functions of these genes.

Specialized Terms: Genetic methodology; Cancer biology; Food and metabolism; Developmental mechanisms

ROGERS, Naomi

Abstract Number 10347786

Professor in the History of Medicine and of History
(203) 785-4341
naomi.rogers@yale.edu

MA, University of Pennsylvania, 1986
PhD, University of Pennsylvania, 1986
BA, Melbourne University, 1980
BA, Melbourne University, 1979

Naomi Rogers is an Associate Professor in the Women’s, Gender, and Sexuality Studies and History of Medicine departments. Her professional interests range across the history of disease, public health, gender and medicine, nursing, and alternative medicine in 19th- and 20th-century America. Her forthcoming publications include: a book tentatively titled Healer from the Outback: Sister Elizabeth Kenny, Polio and American Medicine, 1940-1952; a study of American radical health movements in the 1960s; and a study of American homeopathy in the 20th century.

Polio Wars: Sister Kenny and the Golden Age of American Medicine, Oxford University Press, 2013


IMMUNOBIOLOGY

BOTHWELL, Alfred L

Abstract Number 10444091

Professor of Immunobiology
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alfred.bothwell@yale.edu

PhD, Yale University, 1975
BA, Washington University, 1971

To characterize the development and function of regulatory T cells and characterize mechanisms that affect autoimmunity, inflammation, transplantation and recruitment into vascular sites.


WARNER, John H

Abstract Number 10360434

Avalon Professor in the History of Medicine and Professor of American Studies and of History
(203) 785-4338
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PhD, Harvard University, 1984
MA, University of Wisconsin-Madison, 1977

History of medicine; Medical education; Professionalism; Public health; Clinical medicine; Experimental life science


CHEN, Lieping

Abstract Number 13515226

United Technologies Corporation Professor in Cancer Research and Professor of Immunobiology, of Dermatology and of Medicine (Medical Oncology)

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PhD, Drexel University, 1989
MS, Beijing Union Medical College, Beijing, China, 1986
MD, Fujian Medical College, 1982
I am interested in 1) basic aspects of cell surface immune modulatory molecules and 2) design of new methods to treat advanced human cancer and autoimmune diseases based on laboratory findings.

Specialized Terms: Lymphocyte activation and tolerance; Costimulation and coinhibition; Tumor site immune modulation; Immunotherapy of advanced human cancer; Immunotherapy of advanced autoimmune diseases


Specialized Terms: Epigenetic memory; Transgenerational inheritance; Chromatin biology


CHI, Tian H

Abstract Number 11851589

Research Scientist in Immunobiology

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PhD, University of California at Los Angeles, 1996
MD, Fudan University Medical School, 1987

Research focus: epigenetics in the immune system.

Chromatin is a focal point of gene regulation. Alterations in chromatin structure in response to external signals are often reversible, but the altered chromatin states can sometimes be maintained and propagated to daughter cells and even to the future generations of an animal after the cessation of the signaling event. This latter effect enables transient signals to heritably or "epigenetically" modify gene function without altering DNA sequences, thus providing a molecular basis for cellular memory and transgenerational inheritance of acquired traits. On the other hand, misdirected epigenetic controls, or "epimutations," underlie many human diseases. Epimutations also explain phenotypic differences between identical twins, between cloned and original animals, and explain the high incidents of birth defects in "test tube babies". Epigenetics has emerged as a new frontier in biology, with far-reaching implications. Our long-term goals are to reveal fundamental principles in epigenetics and to define how such principles underpin the development and function of the immune system.

MHC class I molecules in the endoplasmic reticulum (ER) bind antigenic peptides translocated from the cytosol by the Transporters associated with Antigen Processing (TAP). The assembly of a class I molecule involves two chaperones, calnexin and calreticulin, and the thiol oxido-reductase, ERp57. Calreticulin- and ERp57-associated class I molecules physically associate with TAP molecules, with another protein, tapasin, serving as a bridge. Peptide binding releases the class I molecules from the "peptide loading complex", and a disulfide-linked dimer of tapasin and ERp57 within the complex catalyzes peptide loading. The peptides can come from extracellular proteins in the case of dendritic cells, a process called cross-presentation. Calnexin, calreticulin and ERp57 are also involved in the assembly of CD1d molecules, which bind lipids.

MHC class II molecules form a complex in the ER with the invariant chain. This complex is targeted to lysosomes where invariant chain is degraded and a residual fragment eliminated by HLA-DM, allowing peptide binding. A gamma interferon-inducible lysosomal thiol reductase (GILT) plays a role in peptide generation, shown using a GILT "knock-out" mouse. Reduction of disulfide bonds by GILT helps unfold protein antigens to MHC class II molecules. Recent work has shown that cross-presentation of disulfide-containing antigens can be facilitated by GILT.

Other work centers on antiviral mechanisms of proteins inducible by interferons. The interferon-inducible viperin protein plays a role in resistance to influenza virus.

Specialized Terms: Molecular mechanisms of antigen processing; Assembly and intracellular transport of CD1 molecules, Class I and Class II MHC molecules; Effector functions; mechanisms of action of interferon-induced proteins; Viral immunity
**FLAVELL, Richard A**

**Abstract Number 10035904**

Sterling Professor of Immunobiology

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PhD, Hull University, 1970

Richard Flavell is co-discoverer of introns in cellular genes: he showed DNA methylation correlates inversely with, and prevents, gene expression. He was the first to develop reverse genetics as a postdoc with Weissmann and in his own lab continued in this field throughout his career; he is a pioneer in the use of this approach in vivo to study function. Dr. Flavell's laboratory studies the molecular and cellular basis of the immune response. He has been instrumental in discovering the molecular basis of T-cell differentiation from precursor cells into differentiated subsets. This work led to the discovery of GATA3 as a critical regulator of the Th2 response and the first example of such a molecule in Th cell differentiation. He went on to demonstrate the first case of regulation of gene expression in trans, via "chromosome kissing." Moreover his laboratory has elucidated the mechanisms of immunoregulation which prevent autoimmunity and overaggressive responses to pathogens. Specifically, Dr. Flavell's laboratory has elucidated the role of TGFI in the regulation of immune response. This work is of relevance both to the control of autoimmune disease and the evasion of immune response by tumors.

Dr. Flavell's laboratory has discovered the role of several receptor families in the innate immune response, including the role of several Toll-like receptors and intracellular Nod-like receptor families (NLRs). This has recently led to the elucidation of function of Nod2 in inflammatory bowel diseases and Nlrp proteins in the production of IL-1. Most recently he has established a fascinating connection between inflammasomes, microbial homeostasis and chronic diseases. He showed that inflammasome dysfunction causes dysbiosis of the microbiota which, in conjunction with a susceptible diet, leads to IBD and Metabolic Syndrome, including Obesity, Fatty Liver disease and Type 2 diabetes.

**HEROLD, Kevan**

**Abstract Number 12347564**

Professor of Immunobiology and of Medicine (Endocrinology)

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MD, Jefferson Medical College, 1979
BS, Pennsylvania State University, 1977

The work in our laboratory involves translational studies in human immunology, focused on Type 1 diabetes. We are carrying out clinical studies of new immune therapies, in particular humanized anti-CD3 monoclonal antibody, and study the metabolic and immunologic effects of these interventions on the disease process. We are studying the ability of this intervention to prevent the loss of insulin production that characterizes the disease and determining the optimal approach to use this and other immune treatments in the disease setting. We have identified a novel regulatory mechanism that we believe is involved in the patients' response to anti-CD3 mAb and plan to expand these studies so that adoptive immune therapy can be performed without the need for systemic treatment of patients.

In addition, we are interested in developing new ways in which immune therapies can be combined with cellular and/or metabolic approaches to restore normal beta cell mass and function. We are testing whether immune interventions can lead to spontaneous restoration of beta cell mass and developing new approaches to stimulate beta cell regeneration. Our studies to address this goal involve studies in patients and in animal models of the disease.

Specialized Terms: Type 1 diabetes; Immune therapy; Autoimmunity
Iwasaki, Akiko

Abstract Number 11273079

Professor of Immunobiology and of Molecular, Cellular, and Developmental Biology

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PhD, University of Toronto, 1998

The mucosal surfaces represent major sites of entry for numerous infectious agents. Consequently, the vast mucosal surfaces are intricately lined with cells and lymphoid organs specialized in providing protective antibody and cellular immunity. We focus on understanding how viruses are recognized by the cells of the innate immune system and how that information is used to generate protective adaptive immunity. We study immune responses to herpes simplex viruses in the genital tract and influenza virus and rhinovirus infection in the lung. Our studies probe the mechanism of protection provided by the memory T cells that reside within the mucosal organs, known as tissue resident memory T cells, and use this information to design better vaccines. We developed a new vaccine strategy, “Prime and Pull” in which memory T cells can be established at the mucosal surface targeted by viruses. Prime and Pull confers better protection against genital herpes than conventional vaccine approaches. Our ultimate goal is to utilize the knowledge we gain through these areas of research in the rational design of effective vaccines or microbicides for the prevention of transmission of viral pathogens and possible treatment of cancers.

Specialized Terms: Innate immunity; Autophagy; Inflammasomes; Sexually transmitted infections; Herpes simplex virus; Human papillomavirus; Respiratory virus infections; Influenza infection; T cell immunity; Commensal bacteria


KAECH, Susan

Abstract Number 11899461

Professor of Immunobiology
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PhD, Stanford University, 1998
BS, University of Washington, Seattle, WA, 1993

Memory T and B cells constitute our primary system of defense against reoccurring infectious disease and the ability to form these cells is the ultimate goal of vaccination. My laboratory aims to understand how memory T cells are generated during infection and vaccination, and why, in some circumstances, an immunization fails to induce long-term T cell immunity. We are also learning how T cells are regulated in tumor microenvironments to better understand how their functions become suppressed as they infiltrate tumors in order to develop new methods of immunotherapy that enhance anti-tumor responses. Using several powerful model systems of infection or cancer in mice, we are elucidating mechanisms involved in the development of protective and long-lived memory T cells that form after acute infection or conversely, of dysfunctional or “exhausted” T cells that form in tumors or during chronic viral infections. Our studies are aimed at identifying the signals and genetic pathways that regulate the differentiation of T cells in these different types of environments so that we can design new ways to optimize the formation of highly functional, protective memory T cells to fight infection and cancer.

Specialized Terms: Mechanisms of memory T cell development; Developmental Biology; Immunobiology; Immunology; Vaccine; Immunobiology; T-Cells; Vaccines; Adaptive immunity and immunological memory to viruses

Staron M, Gray S, Li MO, Ip WK, Kaech SM. FoxO1 directly regulates the expression of PD-1 and sustains viral specific CD8+ T-cell responses during chronic infection. Immunity 41(5) 802-14 (2014). PMCID in Progress

Immunobiology are constantly in contact with microbial antigens at the mucosal surfaces. This phenomenon is partly due to the fact that the human gut microbiota and immune system have co-evolved for millennia with the host. Diet and environmental influences that have shaped these processes in the past are very different in today’s societies. Recent changes in the gut microbial community composition are thought to contribute to metabolic and immune-mediated diseases. An emerging theme in autoimmunity research is that outgrowth of detrimental commensals (“pathobionts”) or loss of beneficial commensals (“symbionts”) unleashes the autoimmune process in a genetically susceptible host by various mechanisms. While evidence exists for this paradigm in some mouse models, the proof in human autoimmune diseases is still outstanding. A major aim of this laboratory is to characterize the gastrointestinal microbiome of both mice and humans with systemic autoimmune diseases, and to potentially prove causal relations with humanized gnotobiotic animals. The ultimate goal is to develop novel biomarkers and therapeutic strategies for human autoimmune diseases.

Ruff WE, Kriegel MA. Autoimmune host-microbiota interactions at barrier sites and beyond. Trends in Mol Med 2015; 21(4):233-244


Kluger, Martin S

Abstract Number 10272663

Research Scientist in Immunobiology
(203) 737-2870
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PhD, University of Connecticut, 1994

Endothelial cells form an inner lining to human microvessels that serve as a systemic organ for regulating the access of fluid, macromolecules and cells from circulating blood into all vascularized tissues. We focus on how to maintain stable endothelial cell-cell junctions during activation by inflammatory mediators (cytokines). This is important to systemic sepsis, atherosclerosis and ischemia reperfusion injury. We are also interested in how endothelial cells and pericytes form new microvessels (angiogenesis). This process is relevant to wound healing, to tumor (lymph)angiogenesis and to the engineering of vascularized synthetic tissues.

Specialized Terms: Sepsis; Vascular Hyperpermeability (leak); Tumor Necrosis Factor (TNF); Interleukin-1 (IL-1); Claudin-5; Microvascular Endothelial Cells; NF-κB signaling

Abrahimi, P., Chang, WG., Kluger, MS., Qyang, Y., Tellides, G., Saltzman, WM., and Pober, J.S. Efficient gene disruption in cultured primary human endothelial cells by CRISPR/Cas9. 2015. Circulation Research (Accepted for Publication)


Kluger, Martin S

Abstract Number 10272663

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(203) 737-2870
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PhD, University of Connecticut, 1994

Endothelial cells form an inner lining to human microvessels that serve as a systemic organ for regulating the access of fluid, macromolecules and cells from circulating blood into all vascularized tissues. We focus on how to maintain stable endothelial cell-cell junctions during activation by inflammatory mediators (cytokines). This is important to systemic sepsis, atherosclerosis and ischemia reperfusion injury. We are also interested in how endothelial cells and pericytes form new microvessels (angiogenesis). This process is relevant to wound healing, to tumor (lymph)angiogenesis and to the engineering of vascularized synthetic tissues.

Specialized Terms: Sepsis; Vascular Hyperpermeability (leak); Tumor Necrosis Factor (TNF); Interleukin-1 (IL-1); Claudin-5; Microvascular Endothelial Cells; NF-κB signaling

Abrahimi, P., Chang, WG., Kluger, MS., Qyang, Y., Tellides, G., Saltzman, WM., and Pober, J.S. Efficient gene disruption in cultured primary human endothelial cells by CRISPR/Cas9. 2015. Circulation Research (Accepted for Publication)


Kriegel, Martin A

Abstract Number 11845197

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PhD, Friedrich-Alexander University of Erlangen-Nurn, 2001
MD, Friedrich-Alexander University of Erlangen, 2000

The gut microbiota, the collection of trillions of commensals colonizing the gastrointestinal tract, does not elicit a pathologic immune response in healthy hosts even though immune cells are constantly in contact with microbial antigens at the mucosal surfaces. This phenomenon is partly due to the fact that the human gut microbiota and immune system have co-evolved for millennia with the host. Diet and environmental influences that have shaped these processes in the past are very different in today’s societies. Recent changes in the gut microbial community composition are thought to contribute to metabolic and immune-mediated diseases. An emerging theme in autoimmunity research is that outgrowth of detrimental commensals (“pathobionts”) or loss of beneficial commensals (“symbionts”) unleashes the autoimmune process in a genetically susceptible host by various mechanisms. While evidence exists for this paradigm in some mouse models, the proof in human autoimmune diseases is still outstanding. A major aim of this laboratory is to characterize the gastrointestinal microbiome of both mice and humans with systemic autoimmune diseases, and to potentially prove causal relations with humanized gnotobiotic animals. The ultimate goal is to develop novel biomarkers and therapeutic strategies for human autoimmune diseases.

Ruff WE, Kriegel MA. Autoimmune host-microbiota interactions at barrier sites and beyond. Trends in Mol Med 2015; 21(4):233-244


Meffre, Eric R

Abstract Number 13088050

Associate Professor of Immunobiology and of Medicine (Immunology)
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PhD, University of Aix-Marseille, France, 1996
MS, University of Paris, 1989
BS, University of Paris, 1988

The long range goal of our research is to further elucidate the mechanisms that regulate B cell tolerance in healthy humans and that are altered in patients with autoimmune diseases. The working hypothesis is that B cells from rheumatoid arthritis (RA), systemic lupus erythematosus (SLE) and type 1 diabetes (T1D) patients suffer from intrinsic signaling defects that result in a central failure to remove autoreactive B cells. In addition, alterations in T cell/dendritic cell functions may affect the counterselection of autoreactive B cells in the periphery. We are currently studying patients with CD19, TACI, ICOS, Fas, and AID gene defects to identify the roles of these molecules in the establishment of B cell tolerance. The involvement of NKT and Treg cells on peripheral B cell tolerance is currently being assessed by analyzing XLP patients who display no NKT cells and IPEX patients with Foxp3-deficiency in which no functional Treg cells develop resulting in severe autoimmune manifestations.
Finally, we aim to characterize gene expression profiles using Affimetrix gene chips in unstimulated and BCR-stimulated RA and T1D B cells and compare them to those from healthy donor B cells to potentially identify defective pathways through genes that would fail to be properly regulated.

Specialized Terms: Human B-cell tolerance; Primary immunodeficiencies; Autoimmune diseases


PEREIRA, Joao P

Abstract Number 13509395

Assistant Professor of Immunobiology
(203) 737-2089
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PhD, University of Porto, Portugal, 2004
MS, DeMontfort University, 1997

Research in this laboratory is focused on several aspects related to hematopoiesis, a fundamental and complex cell differentiation process that generates many different cell types including all blood cells. With the exception of T-lymphocytes, all other hematopoietic cells are predominantly generated in the bone marrow of adult mammals. Central to this process are the bone marrow niches where immune cells develop. These are sites where hematopoietic precursors travel to meet with specialized bone marrow stromal cells that provide lineage-specific signals necessary for their development and differentiation. Our laboratory is specifically interested in understanding the molecular mechanisms that regulate hematopoietic cell development, positioning and migration within bone marrow niches, and export into the periphery under normal homeostatic conditions. Our long-term goals are to understand at the molecular level how these mechanisms are regulated during changes in the environment such as inflammation, hormone imbalance, hypoxia, etc.

Specialized Terms: Immunology; Hematopoiesis; B-lymphocyte development; Bone marrow niches; Cell migration


ROTHLIN, Carla V

Abstract Number 13141277

Assistant Professor of Immunobiology
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PhD, University of Buenos Aires, 2002
Inflammation involves a complex interplay of biochemical pathways that trigger and shape the immune response. These culminate in a coordinated response that is essential for protection against invading pathogens. Inflammation, if unchecked, can favor the development of chronic inflammatory and autoimmune diseases. Thus, mechanisms that regulate its duration and intensity are fundamental to immune homeostasis. Our research interest is to elucidate the mechanisms that underlie the regulation of inflammation and the homeostatic control of immune function. We have discovered a signaling pathway downstream of the TAM (Tyr03, Axl, Mer) receptor tyrosine kinases that limits the amplitude and phase of the inflammatory response. We are currently focusing on identifying the in vivo source of TAM ligands, unraveling the molecular determinants that account for the specificity of TAM-mediated inhibition, decoding the transcriptome activated during TAM-mediated inhibition of inflammation, and testing the role of TAM-mediated immune suppression in vivo. Our long-term goal is to manipulate this pathway as an innovative therapeutic strategy for the inhibition or enhancement of the inflammatory response.


Schatz, David G

Abstract Number 10365211

Professor of Immunobiology and of Molecular Biophysics and Biochemistry
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PhD, Massachusetts Institute of Technology, 1990

Generating a Diverse and Effective Repertoire of Antibodies During an Immune Response:
The Schatz laboratory studies V(D)J recombination and somatic hypermutation, reactions that create and optimize antibody genes. Antibodies are blood proteins produced by B cells that are important for fighting infectious disease. V(D)J recombination puts antibody genes together from small pieces of chromosomal DNA, while somatic hypermutation makes mutations in antibody genes and allows for the generation of antibodies that bind viruses and bacteria very tightly. We study these reactions using a wide variety of molecular, genetic, cellular, and biochemical approaches. The focus of our research is understanding the underlying mechanisms of these reactions and how they are targeted specifically to antibody genes. We are also very interested in understanding why V(D)J recombination and somatic hypermutation sometimes affect the wrong genes, and how such mistakes contribute to the development of B cell cancers known as lymphomas and leukemias.


My research interest centers around obesity and metabolic pathways in critical illness. Because of their impact on cardiac and pulmonary function, such pathways may affect risk and prognosis in critical illness. I focus on acute lung injury (ALI)/acute respiratory distress syndrome (ARDS) and sepsis as common critical illness with systemic physiologic derangements and high morbidity and mortality. The relationship between obesity and ARDS is of particular interest. My current American Heart Association grant focuses on patient-oriented research of both phenotypic and genotypic markers relevant to metabolic pathways, including insulin-like growth factor (IGF) and adipokines, in acute lung injury.


Allore, Heather G

Abstract Number 11247732

Associate Professor of Medicine (Geriatrics) and of Public Health (Biostatistics)

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PhD, Cornell University, 1996

Dr. Allore’s research is focused on issues related to the design and analysis of studies of multi-component interventions and the design and analysis of observational studies of multifactorial geriatric health conditions. Other areas of her applied research include developing strategies for handling missing data that frequently occurs in studies of older persons, applying extended Cox models for state transitions in geriatrics, such as frailty and disability that consist of multiple discrete states in which both onset and recovery are possible, and determining the mechanisms of action of an effective multi-component intervention. She has collaborated on several projects in immunology and is introducing new analytic methods to account for correlations among elements of the innate immune system. She developed a subdiscipline of biostatistics within the American Statistical Association that focuses on training and methodological development in Aging Research called “Gerontologic Biostatistics.” This discipline trains biostatisticians for conducting collaborative clinical research with geriatricians and gerontologists in elderly populations and provide the basis for the development new statistical methodology. She served on the NIH Aging Systems and Geriatrics study section, VA Human Rights Committee, and CDC Special Emphasis study section. She has served as a reviewer and editorial board member for a variety of medical journals.

Specialized Terms: State transition models; Experimental design; Longitudinal methods; Missing data Methods; Marginal structural models; Latent class models; Trajectory models; Dynamic stochastic models; Joint models

Akgün, Kathleen M

Abstract Number 11386588

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MS, Yale Graduate School of Public Health, 2014
MD, University of Medicine and Dentistry of New Jersey, 2001
BS, Rutgers University, 1997

Dr. Akgun’s research is focused on critical illness in immunocompromised patients. Specifically, she is working with the Veteran’s Aging Cohort Study (VACS) to investigate the risk factors for and incidence of intensive care unit (ICU) admissions in HIV-infected patients. She received funding from the American Subspecialty Physicians-American College of Chest Physicians CHEST Foundation investigating ICU admissions in older HIV-infected patients and the impact of age on ICU admission diagnosis and outcome in this patient population. She is currently funded by VISN from the Departament of Veteran Affairs to describe patient- and ICU-level risk factors for decrements in quality of life outcomes in ICU survivors. She is beginning to identify frequency and content of family meetings for patients admitted to the ICU using electronic health records.

Specialized Terms: Critical care, Pulmonary disease in HIV and other immunocompromised hosts, Aging, HIV and critical illness Palliative and end of life care in the intensive care unit (ICU), Resident debriefing and emotional distress during training


ALTICE, Frederick L

Abstract Number 10415922

Professor of Medicine (Infectious Diseases) and of Epidemiology (Microbial Diseases)

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MD, Emory University, 1986

Focus has broadly been on the interface between infectious diseases and substance use disorders, with additional interests in research in community, criminal justice and clinical care settings. As a clinical epidemiologist, health services and intervention researcher, has created novel programs for the treatment of HIV, HCV, and tuberculosis in vulnerable populations, including injection drug users and prison inmates. Specifically, has been an international leader in research related to adherence to antiretroviral therapy, particularly among HIV+ drug users, and has made considerable inroads into novel approaches using directly administered antiretroviral therapy and other structural interventions to facilitate adherence both nationally and internationally.

Dr. Altice is currently leading a number of studies that bridge the gap between the correctional and community setting, specifically on the use of directly observed antiretroviral therapy and medication-assisted therapy for the treatment of substance use disorders. Current research includes methadone and buprenorphine as primary and secondary HIV prevention, directly administered antiretroviral therapy, peer-driven interventions, secondary prevention among drug users and prisoners, medication-assisted therapies for the treatment of substance use disorders using methadone, buprenorphine and naltrexone. International research projects are currently underway in Malaysia, Indonesia, Ukraine, Russia and Argentina. Planned projects are underway in Brazil.

Specialized Terms: Interface between infectious diseases and substance abuse; HIV, HCV, and tuberculosis treatment in vulnerable populations (including injection drug users and prison inmates); Antiretroviral therapy; extended release naltrexone, buprenorphine and methadone treatment in management of co-morbid conditions; Healthcare integration; Adherence interventions; Behavioral interventions


ANANTH, Meena

Abstract Number 10476918

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PhD, Postgraduate Inst Medical Education and Research, Chandigarh, India, 1980
PhD, University of Madras, India, 1980

Over the last two decades, my research has focused on the mechanisms of regulation of bile acid transporters in liver during development and in pathological situations such as the human liver disease cholestasis. My main focus over the last decade has been on the role of Nuclear Receptors (with specific reference to FXR) on the regulation of Bile salt export pump (BSEP) a canalicular transporter for bile acids in the hepatocytes. I have recently also explored the role of microRNAs (miRs) in regulating bile salt transporters in liver in physiology and pathophysiology. Since the beginning of this year, I am conducting research into molecular mechanisms of regulation of Inositol 3-phosphate receptors (IP3Rs) that act as Ca-channels in the endoplasmic reticulum (ER) with specific focus on the promoters of the Type 2 and 3 isoforms and their regulation by microRNAs.

Specialized terms: Gene Regulation; Bile Acid Transporters; Cholestasis; Development; Inositol Phosphate Receptors; MicroRNAs


ARONSON, Peter S

Abstract Number 10251566

C. N. H. Long Professor of Medicine (Nephrology) and Professor of Cellular And Molecular Physiology
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MD, New York University, 1970
AB, University of Rochester, 1967

The general goal of our research is to understand how the kidney regulates the composition of the urine, especially as needed to maintain the salt (NaCl) and acid-base balance of the body. To eliminate waste products from the body, the kidney filters gigantic quantities of the plasma (over 160 quarts per day) resulting in the flow of huge quantities of water, NaCl and the base bicarbonate through the renal tubules. The first portion of each renal tubule is called the proximal tubule, and the proximal tubules are collectively responsible for reabsorbing the vast majority of the filtered NaCl, bicarbonate and water, and secreting acid in the form of ammonium ions.

Our lab has specifically focused on identifying the proteins involved in mediating the transport of bicarbonate, NaCl and ammonium in the proximal tubule. We found that “knockout” mice lacking one of these transport proteins have a high incidence of calcium oxalate urinary stones, the same type that is most common in human patients with kidney stones. We showed that the cause of the calcium oxalate kidney stones is a very high concentration of oxalate in the urine. We found that this kidney transport protein also plays a very crucial role in the intestine, where it secretes oxalate and thereby limits how much of ingested oxalate is absorbed and then excreted in the urine. Based on this discovery, our laboratory has been devoting increasing effort to understanding the role of transporters in governing oxalate homeostasis and excretion. We have also been studying mechanisms by which oxalate crystals induce inflammation and thereby cause damage to the kidney and other tissues.


**ASKENASE, Philip W**

**Abstract Number 10249203**

Professor of Medicine (Immunology)
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MD, Yale University, 1965

Dissection of crucial cellular and molecular interactions guiding the traffic and eventual recruitment of antigen-specific T cells, out of the blood vessels, and into the tissues, at specific sites of immune reactivity, such as allergic responses (asthma) or protective responses, expulsion of helminth worms from the GI tract, or ticks from the skin.

Determination that micro-mediators, such as serotonin and leukotrienes, released by mediator-containing cells, such as mast cells or platelets, are of crucial importance in alteration of the local vasculature to allow penetration into the tissues by antigen-specific T cells, that arrive and interact with local antigen-presenting cells that present relevant peptides of antigens, causing release of cytokines by the T cells, to mediate local inflammation and allergy, or in contrast, immune protection and resistance.

Specialized Terms: Therapeutic B cell and T cell exosomes; therapeutic mesenchymal stem cell-derived exosomes; allergies and neuropsychiatric diseases; poison ivy; multiple sclerosis; autism, spinal cord injury.


Yamamoto N, Kerfoot S, and Askenase PW. Role of B-1 cells in early acquired protection from pneumococcal pneumonia: Immune B-1 cells reconstitute defective protection on AID-/- mice. Submitted 2009

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**ASLANIAN, Harry R**

**Abstract Number 11088238**

Associate Professor of Medicine (Digestive Diseases)
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MD, Brown University, 1996
BA, Brown University, 1992

I am interested in the optimal application of advanced endoscopic techniques to clinical problems including gastrointestinal bleeding, colonoscopic polyp detection, evaluation of pancreas cysts, diagnosis of pancreas cancer, pancreatic and biliary disorders, therapy of bile duct obstruction via ERCP, Endoscopic ultrasound (EUS) and fine-needle aspiration (FNA), advanced endoscopic imaging, sedation for endoscopy.

Specialized Terms: Advanced endoscopic techniques; Gastrointestinal bleeding; Colonoscopic polyp detection; Evaluation of pancreas cysts; Diagnosis of pancreas cancer; Pancreatic and biliary disorders; Therapy of bile duct obstruction via ERCP; Endoscopic ultrasound (EUS); Fine-needle aspiration (FNA); Advanced endoscopic imaging; Sedation for endoscopy


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**BANACH, David B**

**Abstract Number 11581425**

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MS, Mt. Sinai School of Medicine, 2012
MD, University of Connecticut School of Medicine, 2006
MPH, University of Connecticut School of Medicine, 2006

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My current research focuses on the epidemiology, prevention and outcomes of infections with multi-drug resistant bacterial pathogens. The organisms of focus include vancomycin-resistant enterococci (VRE) and multi-drug resistant gram-negative organisms, including those resistant to carbapenem antibiotics.

Specialized Terms: Healthcare-associated infections; Influenza vaccination; Infections in solid organ transplant recipients


Ben Mamoun, Choukri

Abstract Number 13085041

Associate Professor of Medicine (Infectious Diseases) and of Microbial Pathogenesis
(203) 737-1972
choukri.benmamoun@yale.edu

PhD, University of Paris, 1996

Basic Research

Purine transport and metabolism in P. falciparum. P. falciparum cannot synthesize purine nucleotides de novo, and therefore the purine salvage pathway provides an indispensable nutritional function for the parasite and offers the prospect of selective therapeutic manipulation of malaria. The first step in purine acquisition by P. falciparum is the translocation of host purines into the parasite. P. falciparum has four putative purine transporter
Membrane biogenesis in *P. falciparum*. During its 48-h asexual life cycle within human erythrocytes, *P. falciparum* grows to many times its own original size and divides to produce 16-32 new parasites. This rapid multiplication requires active synthesis of new membranes and is fueled by phospholipid precursors and fatty acids that are scavenged from plasma. A major focus of our research is to investigate the mechanism of membrane biogenesis and identification of enzymes that play an important role in Plasmodium growth, replication and sexual differentiation.

**Therapy Program**

Our therapy program builds upon the findings of our basic research program. There are two main topics investigated in this program: vaccine development and drug discovery.

Vaccine Development: Create transgenic parasites that can be used as attenuated malaria vaccines.

Drug development: Screen chemical libraries and design new compounds that target specific enzymes of the parasite.

**BENDER, Jeffrey R**

**Abstract Number 10206533**

Robert I. Levy Professor of Medicine (Cardiology) and Professor of Immunobiology

300 George Street
New Haven, CT, 06511
(203) 737-2223
jeffrey.bender@yale.edu

MD, University of California/San Francisco, 1979

Our research focuses on inborn errors of phosphate metabolism and the endocrine regulation of phosphate homeostasis with emphasis on the metabolic and homeostatic effects of phosphate.

**Bergwitz, Clemens W**

**Abstract Number 15141259**

Assistant Professor of Medicine (Endocrinology)

(203) 737-5450
clemens.bergwitz@yale.edu

MD, Hannover Medical School, Germany, 1993

Our research focuses on inborn errors of phosphate metabolism, include studies of.

1. molecular mechanisms of intercellular adhesion;
2. leukocyte-mediated vascular injury;
3. influence of ovarian steroid hormones on endothelial activation; and
4. effects of lipid abnormalities associated with the metabolic syndrome on angiogenesis.
BINDER, Henry J

Abstract Number 10238221

Professor Emeritus of and Senior Research Scientist in Medicine (Digestive Diseases)
(203) 785-4796
henry.binder@yale.edu

MD, New York University, 1961
BA, Dartmouth College, 1957

Dr. Binder’s research career has primarily been directed toward the regulation of colonic electrolyte transport and the pathophysiology of diarrhea and the basis for development of new approaches for treatment of diarrhea. These transport studies were primarily in vitro and dissected the cellular mechanisms of Na, C1, K, HCO3 and short-chain fatty acid transport and were supported by NIDDK for 37 years. During the past few years, Dr. Binder has focused his investigative activities toward the establishment of a major modification of oral rehydration solution (ORS) that is based on his prior laboratory studies that demonstrated butyrate-stimulated Na absorption in the colon was cyclic AMP-insensitive. These studies supported by Bill & Melinda Gates Foundation are designed to increase the uptake of ORS with the adaption of an improved formulation with resistant starch (starch that is relatively insensitive to amylase digestion).

Specialized Terms: ATPase; Colonic Electrolyte Transport; Epithelial Cell Function; Ion Transport; Short Chain Fatty Acids; Molecular Cellular Entities; Receptors; Regulation of colonic Na transport in apical and basolateral membranes.

doi:10.1371/journal.pone.0056753


BOCKENSTEDT, Linda K

Abstract Number 10386563

Harold W. Jockers Professor of Medicine (Rheumatology)
The Alnyan Center
300 Cedar Street
New Haven, CT, 06519
(203) 785-2454
linda.bockenstedt@yale.edu

MD, New York University, 1961
BA, Pomona College, 1986

Understanding the patient’s perspective, particularly in the context outside of the clinical arena is an essential, though often overlooked, component of the doctor-patient relationship. Is currently studying the perspective of the individual wheelchair user with communications technologies and several qualitative methods. Also interested in using video to study health care delivery in the emergent medical setting, specifically medical codes and operative traumas. Developing a seminar series on the role of media and medicine with the Yale Clinical Scholars Program.


My laboratory studies the pathogenesis of Lyme disease, a tick-borne infection with the spirochete Borrelia burgdorferi. We use the murine model of Lyme borreliosis to investigate the host immune response to the spirochete and mechanisms by which the spirochete persists in the host. Using molecular genomic, proteomic and imaging approaches, we are studying 1) spirochete interactions with ticks and host tissues in vivo in real-time; 2) mechanisms of spirochete evasion of innate and adaptive immune defenses, including biophysical studies of the spirochete; and 3) protein profiles of spirochetes during acute and chronic infection for improving diagnostic tests.

Specialized Terms: Pathogenesis of Lyme disease; Tick-borne infections; Innate immunity; Multiphoton imaging; Faculty development in context of team science


Bogan, Jonathan S

Abstract Number 11635332

Associate Professor of Medicine (Endocrinology) and of Cell Biology
The Anlyan Center
300 Cedar Street
New Haven, CT, 06519
(203) 785-6319
jonathan.bogan@yale.edu

MD, Harvard Medical School, 1992
BS, Yale University, 1986

Dr. Bogan’s research seeks to understand how glucose uptake is regulated in fat and muscle cells. In these cell types, insulin causes glucose transporters to move from internal membranes to the cell surface. Glucose is then transported into the cells, and is removed from the bloodstream. The regulation of this process is defective in insulin-resistant states such as type 2 diabetes. Dr. Bogan’s laboratory identified regulated proteolytic cleavage as a novel biochemical mechanism to control glucose transporter movement. Current efforts are focused on characterizing this mechanism in detail, and on determining how this pathway controls metabolism and physiology.

Specialized Terms: Membrane transport; Bile formation; Cholestasis; Nuclear receptors; Bile acids; Membrane targeting; Jaundice; Autoimmune hepatitis; Primary biliary cirrhosis; Sclerosing cholangitis; Hepatic drug toxicity

Bogan, Jonathan S

Abstract Number 10484517

Ensign Professor of Medicine (Digestive Diseases)
The Anlyan Center
300 Cedar Street
New Haven, CT, 06519
(203) 785-7352
james.boyer@yale.edu

MD, Johns Hopkins University, 1962

Our laboratory has a long standing interest in the basic physiology of bile formation and the pathophysiologic mechanisms underlying mechanisms of cholestasis. Bile formation is one of the unique functions of the liver and is impaired in many forms of cholestatic liver injury. Our early studies established that the hepatocyte is a polarized secretory cell where transport mechanisms are organized on plasma membrane domains like a classic epithelium (Physiologic Reviews 60:303-326, 1980). This concept has led to the identification and characterization of a number of membrane transport proteins both at the functional level and through molecular cloning techniques that determine the secretion of bile (Physiologic Reviews 83:633-671, 2003). Current studies focus on adaptive responses of hepatobiliary transporters to cholestasis and involve both studies of nuclear receptor transcriptional and post-transcriptional regulators. Trainees utilize a variety of fundamental techniques ranging from general cell biologic and molecular biologic procedures to advanced morphologic approaches including fluorescent and confocal scanning microscopy. This research is supported by NIH grants and core facilities provided by an NIH Liver Center.

Specialized Terms: Protein trafficking; Ubiquitin-like modification; Cell structure; Insulin signaling; Type 2 diabetes; Metabolic diseases


SPLUNC1 functions. It also participates in the maintenance of the airway surface liquid, the liquid layer that covers the airways, an important protective mechanism against infection.

The functions of SPLUNC1 suggest it is critical to maintain a healthy respiratory tract. Some of these functions are dramatically impaired in patients with cystic fibrosis (CF), where chronic airway inflammation, poor secretion clearance and recurrent infections are prominent features of their clinical course. Dr. Britto’s interest is in understanding how high levels of SPLUNC1 in CF may contribute to the development of airway disease.

Specialized Terms: Airway epithelium; airway inflammation; innate immunity; SPLUNC1; BPIFA1


My research interests have been largely focused in the hemodialysis patient population and have included the preservation of vascular access, prevention of infection and hemodynamic changes in patients during dialysis. Specialized Terms: Hemodynamics of dialysis patients; Preservation of vascular access and prevention of infection


The goal of our studies is to understand the mechanisms by which host immunity converts from a protective response to one producing disease. We focus significant attention on the role of host cytokine, MIF, which we cloned in 1993, in the development of the inflammatory complications of different infections and autoimmune diseases. MIF is an endogenous counter-regulator of the immunosuppressive action of glucocorticoids and its role in human disease has been underscored by the discovery of functional promoter polymorphisms in the human gene, which are associated with different inflammatory and infectious disorders. Our studies of MIF encompass structure-function, immunological, and pharmacologic targeting studies. We also are pursuing the genetic epidemiology of MIF; for example, we direct studies of malaria

Bucala, Richard

Bucala, Richard

Bucala, Richard

Bucala, Richard
and tuberculosis susceptibility in sub-Saharan Africa, and we are investigating the role of MIF alleles in different autoimmune and infectious diseases. A separate line of inquiry is directed at the fibrocyte, which is a novel circulating leukocyte that contributes to the immunopathogenesis of fibrosing disorders.

Specialized Terms: Mechanisms by which host immunity converts from a protective response to one producing disease and tissue pathology; Emergence of steroid resistance; Biochemical, biological, and genetic characterization of the MIF cytokine family; MIF’s role in malaria and global infectious diseases; Pharmacologic immunomodulation of the MIF pathway; Role of fibrocytes in different systemic fibroses


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**CANTLEY, Lloyd G**

**Abstract Number 11251115**

C. N. H. Long Professor of Medicine (Nephrology) and Professor of Cellular And Molecular Physiology

The Anlyan Center
300 Cedar Street
New Haven, CT, 06519
(203) 785-4186
lloyd.cantley@yale.edu

MD, West Virginia University, 1981
BS, West Virginia Wesleyan College, 1977

Our laboratory is interested in defining the cellular pathways that regulate kidney epithelial development and repair and determining the effector proteins that mediate the changes that occur during tubule formation, injury and repair. We have found that macrophages are critical regulators of both initial injury and subsequent repair, and that cross-talk between macrophages and surviving tubular cells determines the macrophage expression profile that induces tubule repair. We have identified activation of the phosphoinositide 3-kinase and MAPK pathways as critical regulators of epithelial cell migration and morphogenesis during both development and repair.

Specialized Terms: Nephrology; Acute Kidney Injury; Physiology and integrative medical biology; Epithelial cell migration and morphogenesis; Epithelial cell adhesion; Migration; Branching tubulogenesis


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**BURTNESS, Barbara A**

**Abstract Number 10405586**

Professor of Medicine (Medical Oncology)
(203) 737-7636
barbara.burtness@yale.edu

MD, SUNY at Stonybrook, 1986
AB, Bryn Mawr College, 1982

Studies of targeted treatments for EGFR expressed head and neck cancers. She has shown that high EGFR expression predicted resistance to cetuximab in head and neck cancers and is the principal investigator of a phase I clinical trial of cetuximab with escalating doses of the mTOR inhibitor everolimus to target signaling from pAkt, and an investigator-initiated phase II trial of chemotherapy plus cetuximab, followed by addition of erlotinib.

Specialized Terms: EGFR expressed head and neck cancers.


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**CHAO, Herta H**

**Abstract Number 11087541**

Associate Professor of Medicine (Medical Oncology)
(203) 937-3421
herta.chao@yale.edu

PhD, Max Planck Institut, 1995
MD, University of Goettingen, Germany, 1994

and tuberculosis susceptibility in sub-Saharan Africa, and we are investigating the role of MIF alleles in different autoimmune and infectious diseases. A separate line of inquiry is directed at the fibrocyte, which is a novel circulating leukocyte that contributes to the immunopathogenesis of fibrosing disorders.

Specialized Terms: Mechanisms by which host immunity converts from a protective response to one producing disease and tissue pathology; Emergence of steroid resistance; Biochemical, biological, and genetic characterization of the MIF cytokine family; MIF’s role in malaria and global infectious diseases; Pharmacologic immunomodulation of the MIF pathway; Role of fibrocytes in different systemic fibroses


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One of my research interests is studying the effects of castration treatment for on cognitive function in prostate cancer patients and their impact on the quality of life. Another research interest is evaluating potential therapeutic targets within one of the major cell signalling pathways - the phospho-inositol-3-kinase pathway - in the treatment of non-small cell lung cancer.

Specialized Terms:
- Prostate cancer
- Androgen deprivation therapy
- Cognitive function
- Lung cancer
- Phospho-inositol-3 kinase pathway as a drug target


Chaudhry SI, Murphy TE, Gahbauer E, Sussman LS, Allore HG, Gill, TM. Restricting Symptoms During the Last Year of Life in Older Persons. JAMA Internal Medicine, 2013; 173: 1534-1540, PMID: 23836056.

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Chung, Chuhan

Abstract Number 12033472

Associate Professor of Medicine (Digestive Diseases)
(203) 932-5711 x3680
chuhan.chung@yale.edu

MD, Medical College of Pennsylvania, 1998
BA, Wesleyan University, 1989

Obesity is a risk factor for diseases such as diabetes and the development of cancer. We are studying the role of angiogenesis in these processes. Angiogenesis is usually quiescent in the adult human but becomes disturbed in disease conditions. In diseases characterized by fat accumulation, the endogenous levels of angiogenic inhibitors are decreased or lost. We are evaluating the loss of these endogenous inhibitors of angiogenesis in animal models and measuring their levels in the serum of patients with metabolic diseases.

Specialized Terms:
- Matricellular proteins;
- Endogenous angiogenic inhibitors;
- Pigment Epithelium-Derived Factor (PEDF);
- Thrombospondin-1


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Chaudhry, Sarwat I

Abstract Number 11366069

Associate Professor of Medicine (General Medicine) and in the Institution for Social and Policy Studies
(203) 737-7624
sarwat.chaudhry@yale.edu

MD, University of Chicago, 1995
BS, Loyola University, 1991

Dr. Chaudhry’s research is directed toward improving outcomes in older patients with heart failure. She is currently funded by the NIH to conduct studies to determine the prognostic importance of geriatric conditions in patients with heart failure. She also has an interest in remote monitoring systems in heart failure.

Research Organizations include Center for OUtcomes Research & Evaluation (CORE), and the Center for Health Care Innovation, Redesign, and Learning (CHIRAL).
Diabetes mellitus has a profound impact on hepatic and peripheral glucose metabolic fluxes. My studies on the biochemical mechanisms responsible for the pathophysiology of diabetes mellitus primarily employ nuclear magnetic resonance spectroscopy, mass spectroscopy, and stable isotopic techniques. Using these techniques, the flux and fate of key intermediates of carbohydrate and lipid metabolism can be determined in vitro and in vivo. These techniques are developed in cell systems and small animal models and when appropriate applied to studies of human physiology. New areas of research are the application and adaptation of these techniques to the study of pancreatic beta-cell metabolism and glucose-stimulated insulin release.

Future Research
Recent dramatic improvement in the success rate of islet transplantation in humans has prompted interest for more widespread application of this methodology. My future research will explore the development of NMR based methods for non-invasive in vitro quality assessment of tissue destined for transplantation, and in vivo monitoring of islet transplants.


MD, University of Minnesota, 1987

Dr. Cohn’s research focuses on airway inflammation. Ongoing projects in the laboratory include (1) defining inflammatory pathways that inhibit allergic airway inflammation and asthma, (2) investigations of the airway epithelium in its contribution to lung inflammation, (3) immunologic pathways that provide protection in inflammatory diseases and mycobacterial infection.

Specialized Terms: Chronic inflammation in asthma; Mechanisms of mucus metaplasia; Airway epithelial functions in airway diseases and host defense


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Cooney, Leo M

**Abstract Number 10037927**

Humana Foundation Professor of Medicine (Geriatrics)

874 Howard Avenue
New Haven, CT, 06519
(203) 688-2204
leo.cooney@yale.edu

MD, Yale University, 1969

Dr. Leo Cooney established the program in Geriatrics at Yale, coming to this institution in 1976 as the Director of the Continuing Care Unit. This unit is now known as the Yale Acute Care for the Elderly Unit. His career at Yale has focused on assisting elderly individuals to attain the highest level of independence possible. His research interests have focused on efforts to ensure that health care resources are applied to those in most need. Along with Dr. Brandt Fries, he developed the Resource Utilization Groups, which is now used as the method of reimbursing Medicare patients in nursing homes throughout the country. He directs the utilization review efforts at Yale-New Haven Hospital, and is a past President of the American Geriatrics Society. He continues to have a very active clinical and teaching role to ensure that medical residents and students are as prepared as possible to care for the multiple problems of the frail elderly.

Specialized Terms: Geriatric medicine; Assistance in elderly independence; Resource utilization; Transitional models of care for nursing home residents


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Concato, John P

**Abstract Number 10329987**

Professor of Medicine (General Medicine)

VA Connecticut Healthcare
950 Campbell Avenue
West Haven, CT, 06516
(203) 932-5711 x2993
john.concato@yale.edu

MD, New York University, 1985

As a general internist and clinical epidemiologist, Dr. Concato conducts research to address questions related to screening, prognosis, and treatment strategies, as well as to improve methods of study design and statistical analysis. This dual focus has involved a range of topics in both patient care and research methodology. Examples include evaluating the effectiveness of screening for prostate cancer, studies of prognosis in prostate cancer, comparing the results of observational studies and randomized trials, and clarifying the use of multivariable analysis in patient-oriented research. More recent (“center-based”) research includes projects in genomic medicine, as part of the VA Cooperative Studies Program and Genomic Medicine Program.

Specialized Terms: Screening, prognosis, and treatment strategies; improving methods of research design and statistical analysis


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Craft, Joseph E

**Abstract Number 10370124**

Paul B. Beeson Professor of Medicine (Rheumatology) and Professor of Immunobiology

(203) 785-2453
joseph.craft@yale.edu

MD, University of North Carolina, 1977
We have a longstanding interest in dissecting the pathogenesis of systemic autoimmunity, focusing upon the activation and differentiation of CD4 T effector cell subsets in mice and in humans. Our lab has characterized CD4 T cells that help B cells in murine models of lupus and in conventional immune responses, with the idea that information gleaned from the latter studies could be applied to our understanding of autoimmunity. In recent work, we have begun to define the transcription factors critical for the development and function of CD4 T cells that help B cells, with ongoing studies aimed at further investigating these cells developmentally, and dissecting the mechanisms that lead to their effector function in autoimmunity and inflammation.

Specialized Terms: Autoimmunity; Cytokines; Lupus; T Cell Differentiation; Tolerance


CROWLEY, Susan T

Abstract Number 10269790

Professor of Medicine (Nephrology)
VA Connecticut Healthcare
950 Campbell Avenue
West Haven, CT, 06516
(203) 932-5711 x2215
susan.crowley@va.gov

MD, Union University, 1984

My research interests have centered on pharmacologic and dialytic strategies to reduce the morbidity and mortality associated with kidney failure. As an Executive Committee Member and/or a Site Investigator for the VA’s Cooperative Studies Program, I have conducted clinical trials targeting vascular access preservation and renal and cardiovascular risk reduction in chronic kidney disease, and all-cause mortality in acute kidney injury.

Specialized Terms: Kidney failure; Acute kidney injury; Chronic kidney disease; Dialysis; Health policy; Healthcare delivery


DEMBRY, Louise-Marie

Abstract Number 10408051

Professor of Medicine (Infectious Diseases) and of Epidemiology (Microbial Diseases)

MD, Wayne State University, 1986


Curtis, Jeptha P

Abstract Number 11244825

Associate Professor of Medicine (Cardiology)

(203) 785-4129
jeptha.curtis@yale.edu

MD, Columbia College of Physicians and Surgeons, 1997
BA, Yale University, 1993

My research focuses on the interface of interventional cardiology and health services research. Advances in technology have greatly expanded the diagnostic and therapeutic options available to interventional cardiologists. Currently, however, systematic efforts to monitor the diffusion of these novel technologies, assess the safety and effectiveness of these therapies outside the setting of clinical trials, and ensure that new technologies are being applied in the most efficient and efficacious manner have fallen behind the pace of discovery. Critically examining the practice of interventional cardiology is a key step to improving the quality of care delivered to patients with coronary artery disease.

Specialized Terms: Interventional cardiology; Health services research


Dr. Dembry’s research interests are in hospital epidemiology, namely the prevention and control of nosocomial infections, antimicrobial resistant organisms and the use of molecular typing techniques in the study of these issues. Major focus of work is on vancomycin-resistant enterococci and transmission within acute-care facilities and other settings. Other interests include preparedness for public health emergencies, with a particular emphasis on 1) effective methods for training and educating clinicians, 2) healthcare facility and public health coordination and 3) surveillance methodologies.

Specialized Terms: Hospital epidemiology; Prevention and control of healthcare associated infections and antimicrobial resistant organisms; Molecular typing techniques in study of prevention and control of healthcare associated infections; Antimicrobial resistant organisms


Henderson DK, Dembry L, Fishman NO, Grady C, Lundstrom T, Palmore TN, Sepkowitz KA, Weber DJ. SHEA Guideline for Management of Healthcare Workers Who are Infected with Hepatitis B Virus, Hepatitis C Virus, and/or Human Immunodeficiency Virus. Infection

**DESIER, Gary V**

**Abstract Number 10292366**

Professor of Medicine
Boardman Building
330 Cedar Street
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(203) 785-4119
gary.desir@yale.edu

MD, Yale University, 1980

Discovery of a novel pathway for catecholamines metabolism and in therapeutic utility in cardiac and renal disease

Renalase is a novel renal hormone that was discovered in our laboratory. It is synthesized by the proximal tubule and secreted in plasma where it metabolizes catecholamines and signals via a receptor-mediated pathway to enhance cell survival. Renalase deficiency aggravates renal and cardiac ischemic injury, and administration of recombinant renalse protects against ischemic and toxic acute kidney injury (AKI) and myocardial necrosis. Single nucleotide polymorphisms of the renalse gene are associated with essential hypertension, stroke and type 1 diabetes. We are currently investigating the molecular mechanisms mediating the direct cellular protective effect of renalse, its utility as a therapeutic agent for ischemic and toxic AKI, and as a potential biomarker for AKI.

**Identification and validation of therapeutic targets for the treatment of obesity and diabetes**

Voltage-gated potassium (Kv) channels regulate cell membrane potential and control a variety of cellular processes including insulin secretion. We found that the voltage-gated channel Kv1.3 and its signaling cascade represented a novel, pathway that regulates body weight and peripheral glucose metabolism. Inhibitors of Kv1.3 could prove useful in the management of obesity and diabetes.

Specialized Terms: Hypertension; Diabetes, Acute kidney injury; Catecholamines metabolism


**DEVITA, Vincent T**

**Abstract Number 10238204**

Amy and Joseph Perella Professor of Medicine (Medical Oncology) and Professor of Epidemiology (Chronic Diseases)
(203) 737-1010
vincent.devita@yale.edu

MD, George Washington University, 1961

Primary interest in the mechanisms cancer cells use to develop resistance to cancer drugs. The molecular switches.

DeVita VT, DeVita-Raeburn E. The Death of Cancer: After Fifty Years on the Front Lines of Medicine, a Pioneering Oncologist Reveals Why the War on Cancer is Winnable—and How We Can Get There. New York, NY, Sarah Crighton Books at Farrar, Straus and Giroux, November 3, 2015.

We study signal transduction by growth factor receptor tyrosine kinases, focusing on the EGFR/HER2/ErbB family, including the impact of signaling by these receptors on clinical outcomes and response to targeted therapies for cancer, and their potential as therapeutic targets in novel combination therapies. A major focus in our laboratory has been the interaction of HER2 signaling with estrogen receptor (ER) signaling in breast cancer, and more recently with IGF-I receptor signaling, and the effects of inhibitors of these receptors in combination targeted therapies. We have also found that in breast cancer patients, tumors harboring activated HER2 have adverse prognosis, and these tumors have co-overexpression of EGFR. We continue to study how signaling by these receptors impacts responses to different types of therapies and explore targeting these receptors in combination with other novel targeted therapeutics.

Specialized Terms: Breast cancer; HER-2/neu/ErbB-2; IGF1 receptor; EGF receptor; Growth factor receptor tyrosine protein kinases in malignancy; Estrogen receptor; Signal transduction; Breast cancer clinical trials


Our laboratory is focused on understanding the persistent deficits in the immune system in individuals with HIV infection, despite the advent of successful antiretroviral therapy. Individuals with HIV, even after effective control of HIV replication, remain at higher risk for some non-AIDS-related clinical conditions, including cardiovascular disease, metabolic disorders, and certain malignancies. Our research focuses on understanding those aspects of the immune system that remain impaired despite effective treatment of HIV infection. In addition, we hope to elucidate which of these persistent immunologic aberrancies are associated with clinical disease. In this way, we hope to elucidate important biomarkers for clinical risk.

Our laboratory will also be specifically focused on understanding the pathogenesis, incidence, presentation, and prognosis of cancers in the setting of HIV infection. Individuals with HIV remain at risk for particular malignancies, despite effective control of HIV replication. The malignancies where continue increased risk is seen are non-Hodgkin's lymphoma, Hodgkin's lymphoma, HPV-related cancers, hepatocellular carcinoma, and lung cancer. We will be studying biomarkers that will allow for early diagnosis of patients at increased risk, as well as focusing on the pathologic, molecular, and genetic differences of these cancers in HIV-infected individuals compared to individuals without HIV infection.

Specialized Terms: HIV and aging; Immune dysfunction in setting of HIV infection


Evans, Janine

Abstract Number 10312613

Associate Professor of Medicine (Rheumatology)
(203) 785-2454
janine.evans@yale.edu
MD, Temple University, 1983

My research interests are clinically oriented and initially were focused on Lyme disease. I have actively participated in the Yale University Lyme Disease Clinic since 1992. I have been involved in several clinical studies including evaluating the safety and efficacy of a Lyme vaccine, and the evaluation of persistent symptoms following treatment for well documented Lyme disease. Recently, I have focused on translational projects involving patients with inflammatory diseases including systemic lupus, Sjogren’s, and rheumatoid arthritis.


Federman, Daniel G

Abstract Number 10245701

Professor of Medicine (General Medicine)
(203) 932-5711x2704
daniel.federman@va.gov
MD, New York University, 1986

I am extremely interested in skin cancer screening, quality of care with respect to the diagnosis and treatment of skin disease, thrombophilia and the treatment of peripheral vascular disease.

Specialized Terms: Skin cancer; Skin disease; Thrombophilia; Peripheral vascular disease

**FIKRIG, Erol**

**Abstract Number 10247112**

Waldemar Von Zedtwitz Professor of Medicine (Infectious Diseases) and Professor of Epidemiology (Microbial Diseases) and of Microbial Pathogenesis
The Anlyan Center
300 Cedar Street
New Haven, CT, 06519
(203) 785-4140
erol.fikrig@yale.edu

MD, Cornell University, 1985
BA, Cornell University, 1981

My laboratory investigates vector-borne diseases. Studies are directed toward understanding Lyme disease, Human granulocytic ehrlichiosis, and West Nile virus. Efforts on Lyme disease include exploring immunity to Borrelia burgdorferi, selective B. burgdorferi gene expression in vivo, and the immunobiology of Lyme arthritis. Human granulocytic ehrlichiosis is caused by a newly described pathogen, transmitted by Ixodes scapularis ticks, that persists within neutrophils.

We are investigating the molecular strategies that this pathogen uses to survive in polymorphonuclear leukocytes. West Nile virus can cause fatal encephalitis, and we seek to understand the pathogenesis of this emerging disease. Finally, we are also developing molecular approaches to prevent ticks from feeding on a mammalian host, thereby interfering with pathogen transmission.

Specialized Terms: Vector-borne diseases; Lyme disease; Human granulocytic ehrlichiosis; West Nile virus


**FISHER, Rosemarie L**

**Abstract Number 10316625**

Professor of Medicine (Digestive Diseases) and of Pediatrics
(203) 688-1449
rosemarie.fisher@yale.edu

MD, Tufts University, 1971

Research activities include various clinical projects, related to both gastrointestinal diseases and nutritional support. As Director of the Nutritional Support Team, there is a multitude of opportunities for the clinical investigation of patients undergoing nutritional support. The utilization and effectiveness of home parenteral nutrition in patients with malignant bowel obstruction is a major ongoing interest. Other interests include hepatobiliary abnormalities during parenteral nutrition, nutritional support of bone marrow transplant patients and patients with inflammatory bowel disease.

Specialized Terms: Gastrointestinal diseases; Nutritional support; Home parenteral nutrition


**FOGERTY, Robert**

**Abstract Number 12743375**

Assistant Professor of Medicine (General Medicine)
(203) 688-4748
robert.fogerty@yale.edu

MD, Northwestern University The Feinberg School of Med, 2008
MPH, Northwestern University The Feinberg School of Med, 2008

My research interests focus on quality improvement and patient safety. More specifically, I'm interested in communication between healthcare providers, especially around patient care, and in education for trainees in safety and quality issues, with a particular focus towards cost-awareness education.

Horwitz LI, Moriarty JP, Chen C, Fogerty RL, Brewster UC, Kanade S, Ziaein B, Jenq GY, Krumholz HM. Quality of Discharge Practices
In the common genetic disease, cystic fibrosis, mutations in a transmembrane chloride channel, the cystic fibrosis transmembrane regulator (or CFTR), are responsible for clinical manifestations in many organs (lung, pancreas, GI tract). The most common mutation (delta F 508) results in defective trafficking of the protein to the cell membrane. Agents that reverse this abnormality or that increase the driving force for chloride secretion have the potential to treat this disease.

Forrest, John N

**Abstract Number 10252450**

Professor of Medicine
E.S. Harkness Memorial Hall
367 Cedar Street
New Haven, CT, 06510
(203) 785-6633
john.forrest@yale.edu

MD, University of Pennsylvania, 1964

In the common genetic disease, cystic fibrosis, mutations in a transmembrane chloride channel, the cystic fibrosis transmembrane regulator (or CFTR), are responsible for clinical manifestations in many organs (lung, pancreas, GI tract). The most common mutation (delta F 508) results in defective trafficking of the protein to the cell membrane. Agents that reverse this abnormality or that increase the driving force for chloride secretion have the potential to treat this disease.

Specialized Terms: Cystic fibrosis; CFTR; Kidney; Chloride channels; Shark rectal gland


Fortin, Auguste H

**Abstract Number 10013124**

Associate Professor of Medicine (General Medicine)
(203) 688-2615
auguste.fortin@yale.edu

MPH, Johns Hopkins School of Hygiene and Public Health, 1993
MD, Tufts University, 1985
BA, Brandeis University, 1981

Medical education research, particularly the teaching of the Biopsychosocial Model, medical interview skills and office procedures. Current projects for student research collaboration:
Fraenkel, Liana

Abstract Number 10658495

Professor of Medicine (Rheumatology)
VA Connecticut Healthcare
950 Campbell Avenue
West Haven, CT, 06516
(203) 932-5711
liana.fraenkel@yale.edu

MPH, Boston University, 1997
MD, McGill University, 1990
BS, McGill University, 1986

My research focuses on studying medical decision making. Specifically my work has focused on understanding the determinants of patients’ choices and improving ways of effectively communicating complex risk information and eliciting patient preferences for alternative treatments in clinical practice.

Specialized Terms: Epidemiology; provision of health services in rheumatic disease


Freeman, James V

Abstract Number 14864499

Assistant Professor of Medicine (Cardiology) and Assistant Clinical Professor of Nursing
(203) 737-5417
james.freeman@yale.edu

MD, Johns Hopkins University School of Medicine, 2003

I am a clinical cardiac electrophysiologist, and I study the comparative effectiveness, cost-effectiveness and clinical outcomes associated with cardiac arrhythmias and their treatments, cardiac electrophysiology and exercise physiology. I have an NIH funded career development award (K23) to study the comparative effectiveness of ablation for atrial fibrillation compared with medical therapy for the prevention of long term adverse

Fortune, Brett E

Abstract Number 14305335

Assistant Professor of Medicine (Digestive Diseases) and of Surgery (Transplant)
(203) 737-6890
brett.fortune@yale.edu

MSc, University of Colorado at Denver, 2011
MD, Wake Forest University School of Medicine, 2004
BS, North Carolina State University, 1999

My research interests focus on clinical outcomes regarding patients with advanced liver disease.

Fortune BE and Groszmann RJ. Combination of splanchnic vasoconstrictors and endoscopic band ligation is an effective treatment strategy for acute variceal hemorrhage: but how do we get those drugs approved by the FDA? Hepatol. 2014 Sep;60(3):789-791.

outcomes such as death and ischemic stroke. I am also conducting research sponsored by the American Heart Association and industry focused on ICD therapy, heart failure, and atrial fibrillation.

Specialized Terms: Arrhythmias; atrial fibrillation; atrial flutter; ventricular tachycardia; ventricular fibrillation; implantable cardioverter-defibrillator; cardiac ablation; outcomes research; cost-effectiveness


Fried, Terri R

Abstract Number 10294100

Professor of Medicine (Geriatrics)
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MD, Harvard University, 1988

The long-term goal of Dr. Fried’s research is to improve treatment decision-making for older persons. It seeks to enhance the frequency and quality of shared decision-making in order to provide patients with care that best meets their treatment preferences. In order to achieve this goal, her research has focused on a) expanding the treatment choices available to older persons for their care, b) eliciting their preferences for these different options, and c) identifying barriers to honoring patients’ preferences.

Specialized Terms: Treatment decision-making; Preferences; Advance care planning; Multiple conditions

Thomas J, O’Leary JR, Fried TR. Clinical experience as a determinant of physicians’ willingness to comply with the requests of patients at the end of life. J Gen Intern Med 2014;29:1048-54.


FRIEDLAND, Gerald

Abstract Number 10271660

Professor of Medicine (Infectious Diseases) and of Epidemiology (Microbial Diseases)
135 College Street
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(203) 737-6133
gerald.friedland@yale.edu

MD, New York University, 1964

Dr. Friedland’s major research interests are in the provision of HIV care to vulnerable populations and clinical trials of anti-retroviral agents, including adherence to HIV therapies and pharmacologic interaction studies between methadone and buprenorphine and antiretroviral agents. Dr. Friedland is also involved in studies of HIV and risk reduction among HIV seropositives in clinical care and, most recently, in studies on the integration of care and treatment of tuberculosis and HIV disease in resource limited settings, notably South Africa. His group has uncovered the epidemic of XDR TB in South Africa and is working on epidemiologic, clinical and mycobacteriologic studies in this area.

Specialized Terms: HIV care; Injection drug use and HIV; Anti-retroviral agents; Tuberculosis, HIV and TB; drug resistant TB; Prevention and treatment in vulnerable populations


GARCIA-TSAO, Guadalupe

Abstract Number 10232373

Professor of Medicine (Digestive Diseases)
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MD, Universidad Nacional Autonoma de Mexico, 1977

The long-term goal of Dr. Fried’s research is to improve treatment decision-making for older persons. It seeks to enhance the frequency and quality of shared decision-making in order to provide patients with care that best meets their treatment preferences. In order to achieve this goal, her research has focused on a) expanding the treatment choices available to older persons for their care, b) eliciting their preferences for these different options, and c) identifying barriers to honoring patients’ preferences.

Specialized Terms: Treatment decision-making; Preferences; Advance care planning; Multiple conditions

Thomas J, O’Leary JR, Fried TR. Clinical experience as a determinant of physicians’ willingness to comply with the requests of patients at the end of life. J Gen Intern Med 2014;29:1048-54.

I am primarily involved in clinical research which focuses on cirrhosis and its complications. A major area of interest is describing the natural history of cirrhosis and its complications and the predictors of death at different stages. Another major area of interest is in the pathophysiology and treatment of portal hypertension, investigating the usefulness of portal-pressure reducing drugs and their impact in the prevention and treatment of gastroesophageal varices and variceal hemorrhage. I am also involved in the research of the development of bacterial infections in cirrhosis, a complication that is often overlooked and constitutes a rising complication of cirrhosis. Another area of research involves therapeutic modalities in the treatment of ascites which include the use of large volume paracentesis and transjugular intrahepatic portosystemic shunts, as well as therapeutic modalities to prevent the post-paracentesis circulatory dysfunction and the treatment of hepatorenal syndrome.

Specialized Terms: Cirrhosis; Natural history of cirrhosis; Gastroesophageal varices; Variceal hemorrhage; Ascites; Spontaneous bacterial peritonitis; Hepatorenal syndrome


GILL, Thomas M

Abstract Number 10405382

Humana Foundation Professor of Medicine (Geriatrics) and Professor of Epidemiology (Chronic Diseases) and of Investigative Medicine

E.S. Harkness Memorial Hall, Building A 367 Cedar Street New Haven, CT, 06510 (203) 688-9423 thomas.gill@yale.edu

MD, University of Chicago, 1987
BA, Loyola University, 1985
BS, Loyola University, 1983

Dr. Gill’s research is directed towards understanding the mechanisms underlying the development of functional decline and disability among community-living older persons and towards developing preventive strategies to forestall the onset and progression of disability among those who are most vulnerable. The results from the Yale Precipitating Events Project (PEP), Dr. Gill’s ongoing NIA-funded cohort study, which includes monthly assessments of functional status for over 16 years, are revolutionizing our understanding of disability, a problem of immense importance to older persons, their families, and society. In a landmark clinical trial, Dr. Gill’s research group demonstrated that functional decline among frail older persons can be prevented through a prehabilitation program targeting underlying impairments in physical capabilities.


GIORDANO, Frank J

Abstract Number 10941052

Associate Professor of Medicine (Cardiology)

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frank.giordano@yale.edu

MD, Loyola Stritch School of Medicine, 1986
BS, University of Illinois, 1980

Dr. Frank Giordano has been studying myocardial angiogenesis, evaluating the consequences of deletion or over-expression of pro-angiogenic genes in animal models. He has been working on the development of new viral vectors for gene delivery, in ongoing assessments of cardiovascular gene therapy. Dr. Giordano is leading the efforts to develop a viral vector core at Yale. Dr. Kerry Russell studies signaling pathways induced by growth factors of the neuregulin family, and their erbB receptors, and the effect of activation on vascular form and function.

Specialized Terms: Myocardial angiogenesis; Viral vectors


GOMEZ VILLALOBOS, Jose L

Abstract Number 12748118

Assistant Professor of Medicine (Pulmonary)

(203) 737-7610
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MS, Yale University Graduate School of Arts and Sciences, 2012
MD, Pontificia Universidad Javeriana, 1999

My research is focused on the impact of second-hand smoke in the biology of asthma and the role of microRNAs in asthma severity. Cigarette smoke is a strong environmental influence with a negative effect in lung function and asthma. MicroRNAs are important in the epigenetic regulation of biologic processes, we have identified a microRNA that is associated with airflow obstruction and we are working to understand its biologic function.


GOLDSTEIN, Daniel R

Abstract Number 11344768

Professor of Medicine (Cardiology) and of Immunobiology

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(203) 785-2241
daniel.goldstein@yale.edu

MBBS, University of London, 1992

We are primarily interested in how inflammation impacts organ transplantation, and how aging alters acute and chronic inflammation to enhance disease.

Specialized Terms: Immunity in transplantation; Impact of aging on inflammation and immunity

GORELICK, Fred

Abstract Number 10444363

Professor of Medicine (Digestive Diseases) and of Cell Biology

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Gorelick, Fred

Abstract Number 10444363

Professor of Medicine (Digestive Diseases) and of Cell Biology

(203) 932-5711 x3679
fred.gorelick@yale.edu

Song Y, Shen H, Du W and Goldstein DR. Inhibition of x-box binding protein 1 expression reduces tunicamycin-induced apoptosis in aged murine macrophages. Aging Cell 2013 (12): 794-801

Song Y, Shen H, Schenten D, Lee PJ and Goldstein DR. Aging enhances the basal production of IL-6 and CCL2 in vascular smooth muscle cells. Arteriosclerosis, Thrombosis and Vascular Biology, 2012 Jan;32(1):103-9
The central interest of our laboratory is the mechanisms that initiate pancreatitis, a severe inflammatory disease that causes death in up to 5% of patients. The disease begins with the premature activation of pancreatic digestive enzymes within the acinar cell, inhibition of secretion, activation of inflammatory pathways, and cell death. We study the pathways that initiate disease with a goal of identifying therapeutic targets.

Specialized Terms: Exocrine pancreas; Pancreatitis; Intracellular proteolysis; Vacuolar ATPase; Protein kinase C


Gould Rothberg, Bonnie E

Abstract Number 11688202

Assistant Professor of Medicine (Medical Oncology)
Sterling Hall of Medicine, I-Wing
333 Cedar Street
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(203) 737-6313
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PhD, Yale University, 2009
MPH, Yale School of Public Health, 2005
MD, Yale University School of Medicine, 1994
BA, Cornell University, 1990

The prognosis for certain localized cancers, such as Stage II melanoma and Stage IA/IB non-small cell lung cancer is uncertain. Following curative-intent resection of the primary tumor, the long-term (5- or 10-year) overall survival for these patients can hover around 50%. At the same time, the morbidities associated with available adjuvant therapies preclude their use in the majority of these patients. Current prognostic models derived from conventional clinicopathologic parameters are insufficient to identify, at the time of diagnosis, the subset of patients at highest risk of recurrence for selective adjuvant therapy administration. The goal of my research program is to develop novel prognostic models for both early-stage non-small cell lung cancer and melanoma. Variables reflecting characteristics of the index tumor (somatic mutations, differential transcript profiling, differential protein expression), the patient’s germline genetics as well as lifestyle behaviors are all simultaneously considered.


Green, Michael L

Abstract Number 10317900

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Boardman Building
330 Cedar Street
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michael.green@yale.edu

MD, University of Missouri, 1973

The central interest of our laboratory is the mechanisms that initiate pancreatitis, a severe inflammatory disease that causes death in up to 5% of patients. The disease begins with the premature activation of pancreatic digestive enzymes within the acinar cell, inhibition of secretion, activation of inflammatory pathways, and cell death. We study the pathways that initiate disease with a goal of identifying therapeutic targets.


Gould Rothberg, Bonnie E

Abstract Number 11688202

Assistant Professor of Medicine (Medical Oncology)
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(203) 737-6313
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PhD, Yale University, 2009
MPH, Yale School of Public Health, 2005
MD, Yale University School of Medicine, 1994
BA, Cornell University, 1990

The prognosis for certain localized cancers, such as Stage II melanoma and Stage IA/IB non-small cell lung cancer is uncertain. Following curative-intent resection of the primary tumor, the long-term (5- or 10-year) overall survival for these patients can hover around 50%. At the same time, the morbidities associated with available adjuvant therapies preclude their use in the majority of these patients. Current prognostic models derived from conventional clinicopathologic parameters are insufficient to identify, at the time of diagnosis, the subset of patients at highest risk of recurrence for selective adjuvant therapy administration. The goal of my research program is to develop novel prognostic models for both early-stage non-small cell lung cancer and melanoma. Variables reflecting characteristics of the index tumor (somatic mutations, differential transcript profiling, differential protein expression), the patient’s germline genetics as well as lifestyle behaviors are all simultaneously considered.


The over-arching theme of my work is the disconnect between evidence generated from clinical research and the needs of members of patients in the “real-world” setting, outside of clinical trials. Ongoing investigations focus on the comparative effectiveness of different approaches to cancer screening and treatment, the complex interplay of factors affecting the value of cancer care, and the abandonment of low-value approaches to cancer care. Bioethics and research integrity are also a major interest; my work has focused on the scope and impact of financial conflicts, as well as identifying and overcoming barriers to sharing research data as part of the YODA project at Yale (http://yoda.yale.edu/).

Specialized Terms: Cancer policy; Health policy; Comparative effectiveness; Cancer outcomes; Research ethics and integrity


Cardiovascular disease is the number one cause of death globally. My laboratory utilizes multi-disciplinary approaches to investigate how blood vessels initially form, are maintained and go awry in disease. Our research spans from cultured cells to mouse models to human samples. We aim to gain critical insights into the pathogenesis of diverse cardiovascular pathologies and leverage these insights into novel therapeutics for human disease.

Specialized Terms: Vascular biology; Vascular smooth muscle; Vessel wall; Developmental biology; Clonal analysis; Lineage analysis; Pulmonary artery hypertension; Aorta; Intracranial hemorrhage; Atherosclerosis.


Dr. Halene’s laboratory studies hematopoiesis and myelopoiesis and in particular how abnormalities of the hematopoietic stem and progenitor cells lead to diseases with abnormal numbers and function of blood cells. The laboratory uses primary patient cells and murine models to study mechanisms of disease leading to myelodysplasia and acute myeloid leukemia with the ultimate goal to contribute to the development of novel treatments.

Specialized Terms: Hematopoiesis; Myeloid differentiation; Leukemia; Myelodysplasia


HASKELL, Sally G

Abstract Number 10227256

Associate Professor of Medicine (General Medicine)

(203) 932-5711

MD, Emory University, 1985

Women’s health including women veteran’s health, chronic pain, menopause, hormone therapy, and women’s health education. Specific interests include gender specific outcomes after combat exposure in male and female veterans. A current project, the Women Veteran’s Cohort Study, is examining gender differences in outcomes of PTSD, depression, chronic pain, military sexual trauma, cost of care, and utilization after combat exposure in the national cohort of veterans of the wars in Iraq and Afghanistan. A recent study has been completed that surveyed more than 1000 women veterans about their experiences with menopause and hormone therapy. Another recently completed study surveyed women veterans about their experiences with chronic pain and associations with sexual trauma history.Specilized Terms: Women’s health; Women veteran’s health; Chronic pain; Menopause; Hormone therapy; Women’s health education


HATZIS, Christos

Abstract Number 14798811

Assistant Professor of Medicine (Medical Oncology)

(203) 785-5863

christos.hatzis@yale.edu

PhD, University of Minnesota, 1993

Dr. Hatzis continues to be involved in the design of biomarker validation clinical studies and development of strategies for translating genomic diagnostic assays to clinical practice. His current research interests focus on developing methods to characterize the genetic and molecular heterogeneity of breast cancer subtypes and the implications it might have on response and resistance to treatment. A key area of interest is to develop methodology that integrates genomic level information of individual patients to lead to more focused treatment decisions tailored for the individual tumor.

Specialized Terms: Personalized medicine; Molecular diagnostics; Cancer heterogeneity; Next generation sequencing; Diagnostic study design


HENRICH, Janet B

Abstract Number 10413185

Associate Professor of Medicine (General Medicine) and of Obstetrics, Gynecology, and Reproductive Sciences

(203) 688-2984

janet.henrich@yale.edu

MD, University of Michigan, 1968

I have a long-standing interest in women’s health educating and training, and in clinical issues related to the menopause. I am currently directing a menopause project with colleagues at the National Institutes of Health and have a Macy Foundation grant to examine women’s health education and training in U.S. medical schools.
I am an Associate Editor of Scientific American Medicine responsible for developing its women’s health section and am Section Editor for the women’s health section in Noble’s Textbook of Primary Care Medicine. Specialized Terms: Women’s Health education and training; Menopause issues


HERBST,
Roy S

Abstract Number 13673309

Ensign Professor of Medicine (Medical Oncology) and Professor of Pharmacology
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MM5, Harvard University, 1997
MD, Cornell University Medical College, 1991
PhD, Rockefeller University, 1990
BS, Yale University, 1984
MS, Yale University, 1984

I am committed to maintaining Yale’s status as one of the world’s top centers for cancer research and patient care, through innovative programs at the cutting edge of science and clinical practice. For example, we have a facility to investigate a patient’s cancer at the molecular level giving us key molecular data that our oncologists use to pursue the most promising treatments for our patients as early as possible in the course of their disease.

I am the principal investigator for the innovative BATTLE clinical trial program for lung cancer, which uses molecular analysis of fresh tissue biopsies to help determine the best novel treatment in real time, and these results provide laboratory scientists the ability to explore and uncover potential resistance mechanisms in the clinic.

Specialized Terms: Early phase clinical trials; Biomarker studies; Personalized medicine for cancer treatment.


HERZOG,
Erica L

Abstract Number 11236767

Assistant Professor of Medicine (Pulmonary)
(203) 785-3627
Erica.herzog@yale.edu
PhD, Yale University School of Medicine, 2005
MD, University of North Carolina at Chapel Hill, 1997
BA, University of North Carolina at Chapel Hill, 1993

Work in the Herzog lab is dedicated to understanding common mechanisms promoting pulmonary fibrosis. This condition, which is characterized by the accumulation of scar tissue in the lung, is a major cause of death in Americans. We have identified a number of novel pathways that might control the development of this disease. Our studies focus on the role of Semaphorin 7a, a protein that is implicated in both brain development and inflammation, in the pathogenesis of pulmonary scar. Our lab also is performing studies of fibrosis using an artificial lung technique that was developed here at Yale. Finally, we are heavily involved in the search for predictive biomarkers that might allow physicians to identify patients with active disease and understand what separates these people from those with stable disease. It is hoped that this unique combination of translational studies will allow better insight into diseases such as Idiopathic Pulmonary Fibrosis, Scleroderma related Interstitial Lung Disease, and Sarcoidosis, with the ultimate goal of developing preventative or treatment strategies.

Specialized Terms: Pulmonary fibrosis; Semaphorins; Regulatory T cells; Plexin C1; Bioengineering


HERZOG, Raimund I

**Abstract Number 10955111**

Assistant Professor of Medicine (Endocrinology)
(203) 737-4773
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MHS, Yale University, 2012
MD, Ulm University, Germany, 1998

Dr. Raimund Herzog is an Assistant Professor in Endocrinology at Yale School of Medicine. He received his M.D. from University of Ulm, Germany before moving to the US, where he pursued his training in Internal Medicine at Yale School of Medicine. He earned his M.H.S. in the YCCI Junior Faculty Scholars program while further specializing in Endocrinology at Yale. In addition to caring for patients at the Yale Diabetes Center and teaching medical students Dr. Herzog maintains an active translational research program. A physician scientist with a strong interest in neuroscience and diabetes Dr. Herzog’s laboratory is focused on characterizing and preventing its central nervous complications. He uses state-of-the-art technologies like in vivo NMR spectroscopy and phospho-proteomics to define the impact of diabetes and intensive insulin treatment on brain metabolism and cognition. His work extends from cell culture and animal models all the way to translation of findings to human subjects with diabetes. It has produced novel insights into the molecular mechanisms underlying brain energy substrate metabolism and cognition. In a related area Dr. Herzog’s workgroup has engaged in several collaborative projects that apply his understanding of metabolism towards more comprehensive and unbiased metabolomic analysis of peripheral plasma metabolites in an obese and diabetic adolescent cohort. Furthermore he is exploring the role of circulating small molecules and lipids in the context of aging-related cognitive decline in a cohort of elderly subjects. As part of these studies he has established a close working relationship with the Keck Mass Spectrometry Center and the Biostatistics Resource at Yale. His studies are funded by several NIH and private foundation awards and have resulted in high impact publications in journals like *The Journal of Clinical Investigation, Diabetes and Endocrinology*.


HONIDEN, Shyoko

**Abstract Number 12574599**

Assistant Professor of Medicine (Pulmonary)
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shyoko.honiden@yale.edu

MD, Brown Medical School, 2001
MS, Stanford University, 1997
BA, Stanford University, 1996

Dr. Honiden has a wide array of interests related to the care of critically ill patients in the ICU. She has been involved in research related to the management of patients with acute liver failure, as well as studies that examine the biological effects of hyperglycemia in the ICU. She is also involved in a number of quality improvement projects, as well as ongoing clinical trials in the ICU.

Specialized Terms: Hyperglycemia in critically ill patients; Management of acute liver failure in the ICU; Therapeutic hypothermia in acute liver failure


HUGHES, John S

**Abstract Number 10373150**

Professor of Medicine (General Medicine)
(203) 932-5711
hughes.john@yale.edu

MD, University of North Carolina School of Medicine, 1972
BA, University of North Carolina at Chapel Hill, 1968

Design and implementation of risk stratification/risk adjustment methods for use in analyzing computerized health care data sets.

We wish to determine why patients with diabetes mellitus have increased vascular thrombosis. We use a combination of approaches including molecular signaling, biochemistry, genomics and proteomics on both human subjects and animal models. The ultimate goal is to develop novel mechanistic based therapies.

Specialized Terms: Platelets; Diabetes Mellitus; Atherothrombosis; Prostacyclin; Thromboxane; NSAIDs


Dr. Huot’s main areas of academic interest are medical education and hypertension quality improvement/health service research. His scholarly interests in medical education are in the area of evaluating clinical competence, faculty development, and assessing the impact of training program and teaching service structure on patient care and education.

Specialized Terms: Medical education; Hypertension quality improvement; Health services research


The majority of my time is spent in clinical activities, teaching and running the fellowship program. Thus, my research interests are focused mainly on quality improvement projects with the fellows in the section and clinical projects with residents interested in applying for GI fellowship. Past projects have included examining patient preferences for colon cancer screening modality in collaboration with Liana Fraenkel MD, Department of Medicine, Rheumatology, examining the location of angioectasias within the small bowel using capsule endoscopy, and looking at outcomes for different modes of endoscopic treatment of angioectasias in patients with significant GI bleeding. Past quality improvement projects have included identifying a mechanism to effectively notify patients of their lab and imaging results within 2 weeks at our VA GI clinic and testing a mechanism to calculate fellow adenoma detection rates. Currently we are planning a project to improve inpatient colonoscopy preps which should allow us to provide higher quality care in a more timely fashion. Additionally, I am collaborating with a Yale Internal Medicine Resident Pichamol Jirapinyo and Christopher Thompson MD, Brigham and Women’s Hospital, Harvard, on a project looking at the use of a part-task endoscopy simulator in endoscopy training. The simulator was developed by Drs Jirap-
In the clinical arena, Dr. Insogna is interested in the role of dietary protein in skeletal metabolism. Over the past decade, he and Dr. Jane Kerstetter from the University of Connecticut have established a new paradigm for the effect of dietary protein on calcium homeostasis. They have found that, contrary to the widely held view, increases in dietary protein within the physiologic range do not result in negative bone balance. Using dual stable calcium isotopes they determined that the long-recognized hypercalciuria, which attends an increase in dietary protein, is quantitatively explained by improved intestinal calcium absorption, rather than increased bone resorption. In fact the rate of resorption tends to slow as dietary protein is increased from low to high-normal. These data have led Drs. Insogna, Kerstetter, and Anne Kenney from the University of Connecticut, to launch an NIH-funded, multi-center trial examining the impact of a dietary protein supplement on bone metabolism in postmenopausal women. Ongoing studies also seek to better define the cellular and molecular mechanisms by which dietary protein augments intestinal calcium absorption. Some of this work suggests a potential role for the calcium-sensing receptor, but alternative theories are currently being explored in the laboratory.

Specialized Terms: Role of dietary protein in skeletal metabolism; Factors that lead to skeletal disease in adult patients with X-linked hypophosphatemic rickets; Cellular mechanisms of PTH-induced bone resorption and bone anabolism; Effects of CSF1 in mature osteoclasts


Our laboratory is interested in defining the mechanism of proteinuria by studying podocytes, which are specialized cells that line the capillary loops and play a key role in maintenance of the glomerular filtration barrier. We have identified a network of proteins that bind directly or indirectly to proteins that human genetic studies have implicated to be causal for nephrotic syndrome. Through mice genetics, loss of specific proteins in this network has demonstrated severe proteinuria, and podocyte foot process effacement. By utilizing fluorescently tagged proteins, we have visualized that these proteins lie at the interface of endocytosis and the actin cytoskeleton, and are implicated in controlling the formation and maintenance of the glomerular filtration barrier.

Specialized Terms: Podocytes; Glomerular Filtration Barrier


Iwakiri, Yasuko

Abstract Number 11239946

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PhD, Colorado State University, 2000
MS, Oregon State University, 1995
BS, Miyazaki University, Japan, 1988d

1. Portal hypertension in liver diseases
2. Liver fibrosis, regeneration, alcoholic and non-alcoholic fatty liver diseases
3. Endothelial cell biology and nitric oxide signaling

Specialized Terms: Portal hypertension; Nitric oxide; S-nitrosylation; CD147 (EMMPRIN, Basigin); Reticulon 4B (Nogo-B); Liver fibrosis; Liver regeneration; Vascular biology


Jastreboff, Ania M

Abstract Number 12481388

Assistant Professor of Medicine (Endocrinology) and of Pediatrics (Endocrinology)

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PhD, Yale University Graduate School of Arts and Sciences, 2011
MD, University of Maryland at Baltimore, 2002
BA, Bucknell University, 1998

Dr. Jastreboff’s research seeks to elucidate neural mechanisms involved in obesity including neural control of eating behaviors. During her doctoral thesis work, Dr. Jastreboff became interested in understanding how metabolic perturbations, such as insulin resistance, hyperinsulinemia, leptin resistance, etc, affect neural mechanisms, which subsequently impact eating behavior and weight gain. To this end, she utilizes functional MRI to examine neural responses in obese adults and adolescents (insulin resistant and insulin sensitive) to various food cues (viewing images of high-calorie and low-calorie foods, ingestion of glucose or fructose drinks, etc). Dr. Jastreboff’s overarching goal is to conduct research that is clinically applicable for the treatment of obesity and has a clear public health impact to mitigate the obesity pandemic.

Specialized Terms: Obesity; Insulin resistance; Type 2 diabetes; Neural control of eating behaviors; Weight-loss maintenance; Dietary glycemic index; Diabetes technology tools, Transitions of care from pediatric to adult care


membranes, normally play an important role in cell death at the soma, but can also strengthen or weaken synaptic connections. Thus the actions of mitochondria at synaptic sites position these organelles to influence physiological and pathological changes in the brain. In neurodegenerative diseases, proteins that control mitochondrial ion channel activity may be key in deciding whether a synapse will live or die, and eventually, after the loss of many synaptic connections, whether a neuron will survive or undergo untimely death.

Specialized Terms: Mitochondrial ion channel; Regulation of apoptosis; Control of the strength of synaptic transmission in the nervous system


Justice, Amy C

Abstract Number 11851708

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PhD, Wharton School, University of Pennsylvania, 1996
MSc, University of Pennsylvania Medical School, 1994
MD, Yale University School of Medicine, 1988
BA, Harvard University, 1982

Dr. Justice has done research in outcomes in chronic HIV infection, for the past 16 years. Her goal is to use HIV infection as a model for improving outcomes in chronic disease by studying the association between mutable mediators of clinical outcome in HIV and intervening on these mediators. She is the Principal Investigator on the Veterans Aging Cohort Study (VACS). This research, initially funded by career development awards from the National Institute on Aging and The Robert Wood Johnson Foundation, considers the complex roles of aging, symptoms, medical treatment, adherence, patient-provider relationships, disease severity, and medical and psychiatric comorbid illness in determining survival and quality of life for people with HIV infection. VACS has received 5 years of funding from NIAAA to con-
duct an expansion of the study to include HIV negative controls and additional study sites. The study is focused on understanding the likely interactive and overlapping role of alcohol use and abuse in determining outcomes among veterans aging with HIV infection and comparing this role to age-race-site matched HIV negative veterans.

Specialized Terms: Chronic disease; HIV infection; Veterans Aging Cohort Study


KAMINSKI, Naftali

Abstract Number 14811833

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MD, Hebrew University, 1989
BM, Hebrew University, 1985

Dr. Kaminski’s research is currently focused on improving our understanding and treatment of chronic lung diseases such as Idiopathic Pulmonary Fibrosis (IPF), a chronic lung disease characterised by progressive scarring of the lungs, as well as COPD, Sarcoidosis and Asthma. His group applies cutting edge high throughput technologies that measure changes in the sequence, expression or regulation of all the genes in the human genome to identify the mechanisms, improve the diagnosis and develop new therapeutic targets.


JUTHANI, Manisha

Abstract Number 11629008

Associate Professor of Medicine (Infectious Diseases)

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MD, Cornell University Medical College, 1998
BA, University of Pennsylvania, 1994

Dr. Juthani is primarily interested in infectious diseases in the aging population. Specifically, she is investigating diagnostic, management, and prevention strategies for urinary tract infections and pneumonia in nursing home residents. Her current research focus has shifted to optimizing antimicrobial use at the end of life.

Specialized Terms: Infectious diseases in the aging population

Manisha Juthani-Mehta, MD; Preeti N. Malani, MD, MSJ; Susan L. Mitchell, MD, MPH. JAMA. Published online October 01, 2015. doi:10.1001/jama.2015.13080


KANG, Insoo

Abstract Number 10465596

Associate Professor of Medicine (Rheumatology)

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MD, Hallym University, 1990

My laboratory investigates human T cell biology, focusing on immunosenescence and autoimmunity. Aging is associated with diminished immune responses against pathogens and malignancy. However, the underlying mechanisms for these findings are largely unknown. Recently, we investigated the effect of aging on the IL-7-mediat-
ed CD8 + T cell survival since IL-7 is critical for the generation and survival of memory CD8 + T cells. Cells expressing IL-7 receptor (R) alpha (a) high and low were identified in CD45RA+ effector memory (EM CD45RA+, CD45RA+ CCR 7+) CD8+ T cell subset. The elderly (age = 65) had an increased frequency of EM CD45RA+ IL-7Ra low CD8+ T cells leading to decreased signaling and survival responses to IL-7 compared to the young (age = 40). These EM CD45RA+ IL-7Ra low cells were largely antigen-experienced (CD27- CD28-) replicatively senescent (CD57+) and perforin high CD8+ T cells that had decreased IL-7Ra mRNA expression. These findings indicate that aging affects IL-7Ra expression by EM CD45RA+ CD8+ T cells, leading to impaired signaling and survival responses to IL-7.

Specialized Terms: Human T cell biology; Immunosenescence; Autoimmunity

NE Lee, SY You, MS Shin, WW Lee, KS Kang, SH Kim, WU Kim, RJ Homer, MJ Kang, RR Montgomery, CS Dela Cruz, AC Shaw, PJ Lee, GL Chupp, DH Hwang, I Kang. 2014. L-6 receptor a defines effector memory CD8+ T cells producing Th2 cytokines and expanding in asthma. Am J Respir Crit Care Med. 190:1383-94


**KAZMIERCZAK, Barbara I**

**Abstract Number 11471690**

Associate Professor of Medicine (Infectious Diseases) and of Microbial Pathogenesis

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MD, Cornell University Medical College, 1994
PhD, Rockefeller University, 1993
BA, University of Chicago, 1986
MS, University of Chicago, 1986

Our laboratory is interested in how environmental or commensal organisms—bacteria with which we come into daily contact—can become pathogens capable of causing severe, life-threaten-
ing infections. To answer this question, we study the bacterial determinants that allow the bacterium Pseudomonas aeruginosa to move between soil and water reservoirs to human patients, as well as the host immune responses that usually keep it in check. Our second pathogen of interest is Staphylococcus aureus; we are interested in the host immune factors that permit some individuals to become stable carriers of this bacterium on their skin and nares, while preventing others from acquiring this bacterium.

We are also studying how the use of antibiotics alters the composition of the bacteria that reside in the human gut— the “gastrointestinal microbiome”—and what consequences this has for an individual’s ability to mount immune responses to vaccines and to infecting pathogens.

Specialized Terms: Pseudomonas aeruginosa; Staphylococcus aureus; Innate immunity; Host-pathogen interactions; Mucosal immunity


Czechowska K, McKeithen-Mead S, Al Moussawi K, Kazmierczak Bl. (2014) Cheating by Type 3 secretion system negative Pseudomonas aeruginosa during pulmonary infection. PNAS 111: 7801-7806

KERNAN, Walter N

Abstract Number 10034578

Professor of Medicine (General Medicine)
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MD, Dartmouth College, 1984
BA, Harvard College, 1978

The major focus of my research has been on the clinical epidemiology of cerebrovascular disease and the interface between primary care and stroke treatment. With colleagues in our section and in the Department of Neurology, this research has included clinical trials of new therapies for prevention of recurrent stroke (estrogen, thiazolidinediones), cohort studies of prognosis, case-control studies of risk factors, and cross-sectional examinations of quality of care. My current work includes several studies on the prevalence and course of impaired glucose metabolism among patients with a recent stroke. In addition to work on cerebrovascular disease, my research includes efforts to measure and improve clinical instruction of medical students in the ambulatory setting.

Specialized Terms: Clinical epidemiology of cerebrovascular disease; Interface between primary care and stroke treatment; Medical education


Koff, Jonathan

Abstract Number 14058563

Assistant Professor of Medicine (Pulmonary)
The Anlyan Center
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MD, Case Western Reserve University School of Medicine, 2000
BA, Hamilton College, 1993

The airways are continuously exposed to pathogens, allergens, toxins, and environmental contaminants. In addition to its role as a physical barrier, the airway epithelial surface represents a "battleground," where the host intercepts signals from pathogens (e.g., viruses) and activates epithelial defenses to prevent infection. The defensive roles of the airway epithelium are crucial; the epithelium activates innate defense mechanisms and recruits inflammatory and immune cells to activate innate immune responses and to amplify adaptive immunity. Our research program focuses on elucidating airway epithelial inflammatory responses to viral infection. Utilizing both in vitro and ex vivo airway epithelial cell cultures and murine models, we have found novel signaling pathways which regulate viral infection. Currently, there are only limited therapies available to treat viral exacerbations of chronic airway diseases (e.g., asthma, COPD, and cystic fibrosis); therefore investigating novel viral mechanisms may provide targets for novel therapies.


Koff, Jaseok P

Abstract Number 14123010

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PhD, University of North Carolina @ Chapel Hill, 1993

Dr. Knauert’s research investigates sleep deprivation in critically ill patients with a focus on environmental sources of sleep disturbance. In collaboration with the many members of the medical ICU care team, she is implementing a quiet time protocol aimed at providing patients with an opportunity to sleep while admitted to the hospital.

Specialized Terms: Sleep deprivation in critically ill patients; noise and light reduction in the hospital environment; sleep disordered breathing in pregnant women


Knauert, Melissa P

Abstract Number 10912084

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(203) 785-4163
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MD, Yale School of Medicine, 2006
PhD, Yale University, 2005
ScB, Brown University, 1996

Dr. Knauert’s research investigates sleep deprivation in critically ill patients with a focus on environmental sources of sleep disturbance. In collaboration with the many members of the medical ICU care team, she is implementing a quiet time protocol aimed at providing patients with an opportunity to sleep while admitted to the hospital.

Specialized Terms: Sleep deprivation in critically ill patients; noise and light reduction in the hospital environment; sleep disordered breathing in pregnant women


Comprehensive understanding of carcinogenesis provides critical knowledge useful for the development of efficient targets and methods for treatment and prevention of cancer. My research interests focus on the identification of novel targets and development of new drugs for treatment and prevention of cancer. In particular, targeting signaling networks linking membrane receptors to transcription factor CREB (cAMP-responsive element-binding protein) using small molecule inhibitors is my laboratory’s immediate research objective. I am also interested in identifying novel drugs (single or combination) targeting resistant and refractory cancers.

Sin-Aye Park, James Platt, Jong Woo Lee, Roy S. Herbst, Ja Seok Koo. E2FB as Novel Therapeutic Target for Lung Cancer. JNCI 2015 PMID:26089541


KOUMPOURAS, Fotios

Abstract Number 11982489

Associate Professor of Medicine (Rheumatology)
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MD, St. George's University School of Medicine, 2000
BS, University at Albany, 1994

My interest in science, immunology, and rheumatology has been long-standing. This initially became manifest during my college career when I engaged in basic science research exploring the role of heat-shock response in archaea bacteria responsible for bio-remediation of sludge wastewater. That experience at the Wadsworth Center in Albany New York taught me basic laboratory principles, DNA extraction, northern (RNA) blood analysis, ELISA, immunohistochemistry, bacterial cell culture, glassware care, critical analysis of results, and scientific writing. Following that experience, I worked on masking red cell antigens in search of a blood substitute, and gained experience with laboratory animal use, biochemistry, and hematology. My interest in immunology deepened during my residency when I worked with dendritic cells and witnessed first hand, by exquisite microscopy, their infinite detail. The research was focused on elucidating T-cell differentiation and tolerance as caused by dendritic-cell interactions by specific serum proteins in the laboratories of Drs. Berhane Ghebrehiwet, Santiago-Schwartz and Richard Kalish, University Hospital and Medical Center, School of Medicine at Stony Brook, SUNY.

As a post-graduate fellow, I explored the cellular and molecular mechanisms of inflammation using a collagen-induced arthritis model and explored certain herbal effects on inflammation.

I made the leap to a clinical research career after fellowship and quickly focused on systemic lupus erythematosus, a disease under current investigation in Dr. Craft’s laboratory at Yale. I launched my clinical research career after I joined Susan Manzi’s group at the University of Pittsburgh. I was site PI for several BLISS trials investigating belimumab for the treatment of SLE. This was the first drug approved by the FDA for the treatment of SLE in over 50 years. I was involved with the SABLE study, which follows SLE patients currently being treated with belimumab. I have been involved in research studying the effect of vitamin D in SLE. Collaboration with the Immune Tolerance Network led to me to being site PI for the abatacept in combination with cyclophosphamide for the treatment of lupus nephritis trial. As a result of my participation in these, I rapidly developed a large practice for (refractory) SLE and related diseases. I developed particular expertise in neurologic SLE, pregnant rheumatic disease, SLE nephritis, APLS and spondyloarthritis.

Double-Blind Randomized Placebo-Controlled Trial of the Effect of Vitamin D3 on the Interferon Signature in Patients with Systemic Lupus Erythematosus. Arthritis & Rheumatology. 2015 Jul;67(7):1848-57

ACCESS Trial Group, Treatment of lupus nephritis with abatacept: the Abatacept and Cyclophosphamide Combination Efficacy and Safety Study. Arthritis & Rheumatology. 2014 Nov;66(11):3096-104

KOZAL, Michael J

Abstract Number 11278910

Professor of Medicine (AIDS)
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MD, University of Nebraska, 1988

Dr. Kozal’s major research interests are the genetic determinants of HIV and Hepatitis C drug resistance. Dr. Kozal’s lab uses new deep sequencing technologies to detect minority resistant viral variants in patients and study the impact of these resistant variants on clinical outcomes. Dr. Kozal is the Director of HIV Clinical Trials at Yale and the VA and he is the principal investigator on multiple HIV and Hepatitis C clinical trials.

Specialized Terms: Genetic determinants of HIV and Hepatitis C drug resistance; New technologies to detect low abundance drug resistant viral variants


Kumar, Priti

**Abstract Number 12780350**

Assistant Professor of Medicine (Infectious Diseases) and of Microbial Pathogenesis
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PhD, Indian Institute of Science, India, 2002

My laboratory is involved in developing novel RNA interference (RNAi)-based strategies for treating viral infections. RNAi is a gene silencing mechanism in which 19-21 nucleotide double-stranded RNAs called small interfering RNAs (siRNAs) can guide the destruction of complementary cellular mRNAs with a high degree of specificity. A major challenge in using RNAi-based therapies in vivo is the targeted delivery of siRNAs to specific tissues/cells of interest. Targeted delivery would not only improve efficacy but also reduce potential side effects of RNAi therapy.

Towards this goal we have recently developed a novel method for the specific delivery of siRNAs into human T cells and tested in vivo efficacy using “humanized mice”: (immunodeficient mice transplanted with human hematopoietic stem cells and consequently a human immune system). Antiviral siRNAs delivered by this approach could control HIV in these mice demonstrating the feasibility of RNAi therapy for HIV infection.

Specialized Terms: RNA interference (RNAi)-based strategies for treating viral infections


Krumholz, Harlan M

**Abstract Number 10384370**

Harold H. Hines, Jr. Professor of Medicine (Cardiology) and Professor in the Institute for Social and Policy Studies, of Investigative Medicine and of Public Health (Health Policy)

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SM, Harvard, 1992
MD, Harvard University, 1985
BS, Yale College, 1980

My research is focused on determining optimal clinical strategies and identifying opportunities for improvement in the prevention, treatment and outcome of cardiovascular disease with emphasis on under-represented populations. Using methods of clinical epidemiology and health services research, I have sought to illuminate the balance of risks, benefits and costs of specific clinical approaches. The research efforts are intended to provide critical information to improve the quality of health care, monitor changes over time, and guide decisions about the allocation of scarce resources.

Specialized Terms: Outcomes research in cardiovascular disease


Lampert, Rachel J

**Abstract Number 10321997**

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MD, Vanderbilt University, 1987


Kumar, Priti

**Abstract Number 12780350**

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PhD, Indian Institute of Science, India, 2002

My laboratory is involved in developing novel RNA interference (RNAi)-based strategies for treating viral infections. RNAi is a gene silencing mechanism in which 19-21 nucleotide double-stranded RNAs called small interfering RNAs (siRNAs) can guide the destruction of complementary cellular mRNAs with a high degree of specificity. A major challenge in using RNAi-based therapies in vivo is the targeted delivery of siRNAs to specific tissues/cells of interest. Targeted delivery would not only improve efficacy but also reduce potential side effects of RNAi therapy.

Towards this goal we have recently developed a novel method for the specific delivery of siRNAs into human T cells and tested in vivo efficacy using “humanized mice”: (immunodeficient mice transplanted with human hematopoietic stem cells and consequently a human immune system). Antiviral siRNAs delivered by this approach could control HIV in these mice demonstrating the feasibility of RNAi therapy for HIV infection.

Specialized Terms: RNA interference (RNAi)-based strategies for treating viral infections


Krumholz, Harlan M

**Abstract Number 10384370**

Harold H. Hines, Jr. Professor of Medicine (Cardiology) and Professor in the Institute for Social and Policy Studies, of Investigative Medicine and of Public Health (Health Policy)

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SM, Harvard, 1992
MD, Harvard University, 1985
BS, Yale College, 1980

My research is focused on determining optimal clinical strategies and identifying opportunities for improvement in the prevention, treatment and outcome of cardiovascular disease with emphasis on under-represented populations. Using methods of clinical epidemiology and health services research, I have sought to illuminate the balance of risks, benefits and costs of specific clinical approaches. The research efforts are intended to provide critical information to improve the quality of health care, monitor changes over time, and guide decisions about the allocation of scarce resources.

Specialized Terms: Outcomes research in cardiovascular disease


Lampert, Rachel J

**Abstract Number 10321997**

Associate Professor of Medicine (Cardiology)
(203) 737-4068
rachel.lampert@yale.edu

MD, Vanderbilt University, 1987
Although psychologic stress and sudden cardiac death have been strongly correlated in epidemiological studies, the underlying physiologic link remains poorly understood. The ICD population allows evaluation of effects of mental stress on arrhythmia. Recent investigation has included evaluation of effects of mental stress on ventricular tachycardia as well as mechanisms and prognostic implications of this effect. Ongoing studies include emotional triggering of atrial fibrillation and the role of stress reactivity.

A second, related area of interest involves heart rate variability, a measurement of autonomic balance derived from ambulatory ECG monitoring. Heart rate variability can provide a measure of effects of acute or chronic stress. Previous investigations include a study of correlations of socioeconomic status and life stress with heart rate variability, and an ongoing study of the predictive value of heart rate variability changes with stress.

Clinical aspects of ICD therapy, including safety of sports for patients with ICDs represent another avenue of research. Specialized Terms: Arrhythmias, stress, and the autonomic nervous system; Management issues for patients with implantable defibrillators; End of life; Sports; Sports and exercise cardiology


Lee, Forrester

Abstract Number 10328831

Professor of Medicine (Cardiology)
(203) 785-7191
woody.lee@yale.edu

MD, Yale University, 1979

My research interests span three areas:

1. Clinical research in therapies for congestive heart treatment and clinical outcomes in heart transplantation. I am affiliated with the Yale Heart Failure and Transplant Center;

2. Studies in heart rate variability as a method of noninvasively probing cardiovascular autonomic regulatory mechanisms in health and disease. This research includes classical methods of time series analysis as well as more recent methods based on chaos/complexity theory and nonlinear dynamics;


Specialized Terms: Congestive heart treatment; Heart rate variability; Minority population cardiovascular health care access


Lee, Patty J

Abstract Number 10929458

Associate Professor of Medicine (Pulmonary)
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MD, Brown University, 1991
BA, Brown University, 1987

Dr. Lee’s laboratory studies the mechanisms whereby the lung responds to and protects against oxidant injury. Oxidant injury is caused by excessive reactive oxygen species and is an important component of processes such as acute respiratory failure, inhaled oxygen therapy, lung transplantation and chronic obstructive lung disease. We have identified important molecules, such as heat shock proteins, and more recently, innate immunity receptors that function to protect the lungs against oxidant challenges. We have also developed techniques to silence specific genes in the lung and endothelial cells in vivo, which allows us to ascertain gene function in a highly specific manner.

Specialized Terms: Oxidant-induced acute and chronic lung injury; Toll-like receptors in lung and endothelium; Lung-targeted RNA interference; Heme oxygenase-1 in lung and vascular injury


LEVINE, Robert J

Abstract Number 10262361

Professor of Medicine

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MD, George Washington University, 1958

In the last 35 years, most of Dr. Levine's research, teaching and publications have been in the field of medical ethics with particular concentration on the ethics of research involving human subjects.

Specialized Terms: Medical ethics; Human subject research ethics; International research; Research involving children and adolescents; Informed consent; Institutional review boards; Regulations for the protection of human subjects; Doctor/patient relationship


LILENBAUM, Rogerio C

Abstract Number 14600625

Professor of Medicine (Medical Oncology)

(203) 200-2094
rogerio.lilenbaum@yale.edu

MS, Harvard School of Public Health, 1996
MD, Federal University of Rio De Janerio, Brazil, 1986

Dr. Lilenbaum's life has been about caring for patients with lung cancer. He has done pioneering work in defining the best way to treat lung cancer—particularly in older patients. He is a proven leader who is committed to enhancing Smilow Cancer Hospital's ability to provide the very best care to our patients.

Specialized Terms: Lung cancer; Treatment of lung cancer; Elderly patients with lung cancer


LIAPAKIS, Annmarie H

Abstract Number 14305352

Assistant Professor of Medicine (Digestive Diseases) and of Surgery (Transplant)

(203) 737-6890
annmarie.liapakis@yale.edu

MD, Albert Einstein College of Medicine, 2005
BS, Fordham University, 2000

I am currently involved in the conduct of clinical trials related to therapeutics for viral hepatitis.

Specialized Terms: Viral hepatitis; Transplant hepatology


LIM, Joseph K

Abstract Number 11076627

Associate Professor of Medicine (Digestive Diseases)

(203) 737-6063
joseph.lim@yale.edu

MD, Northwestern University Medical School, 1999
BA, Northwestern University, 1994
Dr. Lim’s primary clinical and research interests are focused on acute and chronic liver diseases, with emphasis on: 1) Chronic hepatitis B and C infections; 2) Fatty liver disorders, including non-alcoholic fatty liver disease (NAFLD) and non-alcoholic steatohepatitis (NASH); and 3) Complications of cirrhosis and portal hypertension.


Dr. Llor’s research interests relate to colorectal cancer. He focuses on forms of colorectal cancers that can be passed along through the genes and thus can affect multiple members in a family. He is trying to unveil specific genes that can be responsible for some of these cases and how cancers in these families develop. He is also interested in understanding why some racial groups are more prone to develop colorectal cancer than others and how environmental factors can play a key role in colorectal cancer development.

Specialized Terms:Mismatch Repair Proficient Hereditary Non-Polyposis Colorectal Cancer; MSS-HNPCC: Lynch syndrome; Colorectal Cancer Disparities: Colorectal Cancer in African Americans


Dr. Lipska conducts diabetes outcomes research to help provide better information for patients and providers about the risks and benefits of various treatment options available for managing type 2 diabetes.

Specialized Terms: diabetes outcomes research; diabetes management of older adults; hypoglycemia; cardiovascular complications of diabetes; global health


My research interest focuses on infections in immunocompromised hosts with emphasis on solid organ transplant (SOT) recipients. Currently, I am conducting a multi-center retrospective observational study of epidemiology and outcomes of infections among older liver transplant recipients in collaboration with American Society of Transplantation Infectious Diseases Community of Practice (AST IDCOP). My other research also involves outcomes of SOT in HIV patients. Lastly, I am involved in multi-center clinical trials of novel anti-cytomegalovirus drugs intended for prophylaxis and treatment in SOT recipients.

Specialized Terms: Infections in Solid Organ Transplant Recipients; Cytomegalovirus (CMV) in Immunocompromised host; Immunization and safety living of solid organ transplant recipients; Infections in aging population


MAMULA, Mark J

Abstract Number 10394179

Professor of Medicine (Rheumatology)
(203) 737-2840
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PhD, University of Oklahoma, 1986
MS, University of Notre Dame, 1982
BA, University of California at Los Angeles, 1979

The immune system maintains a delicate balance in its ability to recognize and eliminate foreign pathogens versus its ability to be tolerant of self tissues. Dr. Mamula has had a long standing interest in investigating the early events involved with the induction of autoimmunity. It is the goal of Dr. Mamula’s laboratory to understand the mechanisms that may shift this balance toward the initiation of autoimmune responses. In particular, his efforts have centered on the molecular interactions of autoimmune B and T lymphocyte responses to intracellular autoantigens in systemic lupus erythematosus (SLE). His laboratory is also interested in determining the forms of autoantigens capable of breaking immunologic tolerance, the processing of these autoantigens, and understanding the role of autoreactive T cells in autoimmune diseases such as lupus and diabetes. More recently, Dr. Mamula has also been applying some his studies towards developing “autoimmune” responses against tumor tissues, in particular, models of melanoma and breast cancer. These latter studies have evolved into novel approaches for the design of therapeutic tumor vaccines.

Specialized Terms: Autoimmune diseases


MANI, Arya

Abstract Number 10153663

Associate Professor of Medicine (Cardiology) and of Genetics
(203) 737-2837
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MD, Johannes-Gutenberg-University of Mainz, 1991

Despite our recent advances in Cardiovascular Medicine, the cardiovascular disease remains the leading cause of death in the world. With the break through brought about by The Human Genome project, we are now in a unique position to dissect the genetic causes of cardiovascular diseases to better understand the pathways that lead to disease in human and subsequently try to find therapies tailored to the specific genetic abnormality.

My interest is to identify cardiovascular disorders that have strong familial pattern. We identify kindreds with these disorders and collect DNA samples from the extended family members to proceed with the technique of positional cloning to identify the disease-causing genes.

Thus far, I, and my colleagues have mapped and identified several gene mutation for congenital heart diseases including patent ductus arteriosus and bicuspid aortic valve. Recently my group identified a gene mutation in LRP6, a co-receptor for Wnt, in a kindred with coronary artery disease and several metabolic phenotypes. We have shown that the mutation impairs a signaling pathway known as Wnt. We have created knockin and knockout mouse models of this gene and are conducting in vivo and in vitro functional studies using human cells, in vitro transfection models, human clinical studies as well as studies on lipid and glucose metabolism in mice in collaboration with Dr. Gerald Shulman, The GCRC, and The Mouse Metabolic Phenotyping Center. We are also investigating the genetic causes of premature coronary artery disease in South Asians. South Asians suffer largely from coronary artery disease in young ages and have high risk for developing diabetes, a constellation of phenotypes commonly referred to as metabolic syndrome. Our preliminary
Marin, Ethan P

Abstract Number 12194377

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MD, Cornell University Medical College, 2003
PhD, Rockefeller University, 2002

We study how post translational modifications of proteins affect functioning of the affected proteins as well as the cells, tissues and organs in which they reside. In particular, we are interested in the physiological function of the attachment of lipids to proteins by a class of enzymes called the ZDHHC protein acyl transferases. There are more than 20 ZDHHC enzymes which are found in numerous cell types, and which catalyze the attachment of lipids to hundreds of diverse proteins. Aberrant functioning of ZDHHC enzymes has been linked to cancer, neurodegenerative diseases, and alterations of vascular function.


Marieb, Mark A

Abstract Number 10014620

Associate Professor of Medicine (Cardiology) and Associate Clinical Professor of Nursing
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MD, Boston University, 1984

Current research interests include ablation of rotors thought to be important in the maintenance of atrial fibrillation, predictors of atrial arrhythmias after atrial flutter ablation, MRI compatible implantable devices, methods to help prevent atrio-esophageal fistula formation at the time of atrial fibrillation ablation, origins of idiopathic ventricular tachycardia.


Marks, Peter W

Abstract Number 12389945

Associate Professor of Medicine (Hematology) and of Laboratory Medicine
(203) 200-2094
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MD, New York University School of Medicine, 1991
PhD, New York University, 1990
MS, New York University, 1988
BA, Columbia College, 1985

We use several different techniques in our laboratory, which includes positional cloning using DNA microarrays, techniques used for protein chemistry, subcloning, tissue culture, confocal microscopy, FACS, real time PCR and animal model.

Specialized Terms: Identification of cardiovascular disorders that have strong familial pattern

Singh, R, Smith, E, Fathzadeh, M, Liu, W, Faramarzi, S, Subrahmanyan, L, Go, GW, McKenna, W and Mani, Rare nonconservative LRP6 mutations are associated with metabolic syndrome. Human Mutation, 2013 PMID: 23703864


We data suggests, that we have identified at least one gene locus for this disorder. We are currently collaborating with several medical centers across the world and in India to recruit new families and individuals with premature coronary artery disease with or without metabolic syndrome to refine the mapped region and identify the gene mutation.
The treatment of acute myeloid leukemia, particularly in older individuals and the treatment of acute lymphoid leukemia represent areas in which there is significant unmet medical need for better therapeutic options. We are interested in clinical research in these areas with novel therapeutic agents and novel combinations of existing agents. In particular, we would like to develop more effective therapies that have less toxicity.

Specialized Terms: Leukemia treatment; Thrombosis; Hemostasis


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**MARSHALL, Peter S**

**Abstract Number 10192899**

Assistant Professor of Medicine (Pulmonary)

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MPH, Yale School of Public Health, 2005

MD, University of Connecticut School of Medicine, 1995

BS, Yale University, 1991

Pulmonary embolism occurs when a clot blocks an artery that takes blood from the right side of the heart to the lungs. The condition is potentially life threatening. Finding methods to identify patients at greatest risk of harm (i.e. risk stratifying) from pulmonary embolism is important. Identifying patients at risk for harm allows us to offer aggressive interventions that may save lives.

Therapeutic hypothermia is the intentional cooling of patients for the purpose of improving outcomes. It is used in a variety of illnesses (most notably after cardiac arrest). The procedure is complex and has potential complications. Research into methods of improving methodology and minimizing complications is vital. This research may improve outcomes for patients treated with this intervention.

ICU patients are among the sickest in the hospital. They often have a long and complex hospital course. Studying the process and outcomes of these patients provides incites into the care they receive. Outcomes of interest include mortality, morbidity, length of stay and infections. Once information is gathered regarding the process and outcomes, interventions can be studied with the aims of improving outcomes for ICU patients in general.

Marshall PS, Kerr KM, Auger WR; Chronic Thromboembolic Pulmonary Hypertension; Clinics in Chest Medicine; 34(4), December 2013


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**MAROTTOLI, Richard A**

**Abstract Number 10226219**

Professor of Medicine (Geriatrics)

(203) 688-5045

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MPH, Yale University, 1991

MD, Yale University, 1984

Dr. Richard Marottoli’s research interests include the approaches clinicians can use to identify at-risk older drivers, interventions to lessen risk, and the factors contributing to, and the consequences of, driving cessation. Dr. Marottoli is a past-chairperson of the Committee on the Safe Mobility of Older Persons of the National Research Council’s Transportation Research Board.

Specialized Terms: At-risk older drivers; Driving cessation


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**MARTIN, Kathleen A**

**Abstract Number 13265904**

Associate Professor of Medicine (Cardiology) and of Pharmacology

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The treatment of acute myeloid leukemia, particularly in older individuals and the treatment of acute lymphoid leukemia represent areas in which there is significant unmet medical need for better therapeutic options. We are interested in clinical research in these areas with novel therapeutic agents and novel combinations of existing agents. In particular, we would like to develop more effective therapies that have less toxicity.

Specialized Terms: Leukemia treatment; Thrombosis; Hemostasis


Our overall goal is to understand how regulation of the muscular layer of blood vessels contributes to normal vessel function and to cardiovascular disease. Hyperproliferation or dysfunction in vascular smooth muscle cells contributes to atherosclerosis, hypertension, organ transplant failure, and failure of revascularization therapies such as balloon angioplasty or bypass surgery. By understanding the regulatory mechanisms of vascular smooth muscle, we aim to develop new therapies for treatment and prevention of cardiovascular diseases.

Specialized Terms: Vascular smooth muscle; Differentiation; Signal transduction; Transcription; Epigenetics


Dr. Martinello’s research interests include the molecular epidemiology and transmission of respiratory viruses, specifically respiratory syncytial virus and influenza. In addition, Dr. Martinello investigates the epidemiology, impact and transmission of healthcare associated infections including methicillin resistant Staphylococcus aureus, Clostridium difficile and ventilator associated pneumonia.


Meyer, Jaimie P

**ABSTRACT NUMBER 12749325**

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MS, Yale School of Public Health, 2014
MD, University of Connecticut School of Medicine, 2005

Dr. Meyer’s research focuses on the intersection between HIV, women’s health, and substance use disorders, with particular attention to criminal justice populations.

Specialized Terms: HIV; women’s health; prisoners; substance use disorders


Mehal, Wajahat Z

**ABSTRACT NUMBER 10020536**

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PhD, University of Oxford, 1993
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BM, University of Oxford, 1988
BA, University of Oxford, 1986

Sterile Inflammation: Inflammation occurs in response to tissue injury even in the absence of signals from pathogens. There are numerous examples of this, from soft tissue swelling after trauma to the inflammatory infiltrate after a myocardial infarction. In the liver a number of clinically important conditions have a significant sterile inflammatory component. These include drug induced liver injury, alcoholic, and non-alcoholic liver disease. We have recently identified a two signals pathway consisting of activation of TLR9 by DNA from apoptotic self cells, and also activation of the inflammasome pathway. In addition we have found that the cheap and safe anti-inflammatory drug aspirin can inhibit the TLR9 mediated pathway. We are expanding these findings to test their general applicability to a wide range of liver diseases and also to further identify the role of up-stream activating steps including nuclear DNA, and metabolites of the uric acid pathway.

Specialized Terms: Non-alcoholic hepatitis, Sterile inflammation; Liver fibrosis; Liver immunology


Miller, Edward J

**ABSTRACT NUMBER 11067957**

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(203) 785-4127
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PhD, Yale University School of Medicine, 2008
MD, Loyola-Stritch School of Medicine, 1999
BS, University of Notre Dame, 1994

Dr. Miller’s research focus is on optimizing the evaluation and management strategies of patients with cardiac sarcodosis and amyloidosis, particularly looking at how imaging techniques can be useful for determining the diagnosis and treatment response of these conditions. Much of Dr. Miller’s current work focuses on optimizing nuclear imaging techniques and protocols in order to provide specific and clinically useful information for patients with sarcodosis and amyloidosis. In particular, Dr. Miller’s work has been instrumental in developing quantitative techniques for enhancing the interpretive certainty of FDG-PET imaging in cardiac sarcodosis.


Meyer, Jaimie P

**ABSTRACT NUMBER 12749325**

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(203) 737-2883
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Dr. Meyer’s research focuses on the intersection between HIV, women’s health, and substance use disorders, with particular attention to criminal justice populations.

Specialized Terms: HIV; women’s health; prisoners; substance use disorders


Mehal, Wajahat Z

**ABSTRACT NUMBER 10020536**

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BM, University of Oxford, 1988
BA, University of Oxford, 1986

Sterile Inflammation: Inflammation occurs in response to tissue injury even in the absence of signals from pathogens. There are numerous examples of this, from soft tissue swelling after trauma to the inflammatory infiltrate after a myocardial infarction. In the liver a number of clinically important conditions have a significant sterile inflammatory component. These include drug induced liver injury, alcoholic, and non-alcoholic liver disease. We have recently identified a two signals pathway consisting of activation of TLR9 by DNA from apoptotic self cells, and also activation of the inflammasome pathway. In addition we have found that the cheap and safe anti-inflammatory drug aspirin can inhibit the TLR9 mediated pathway. We are expanding these findings to test their general applicability to a wide range of liver diseases and also to further identify the role of up-stream activating steps including nuclear DNA, and metabolites of the uric acid pathway.

Specialized Terms: Non-alcoholic hepatitis, Sterile inflammation; Liver fibrosis; Liver immunology


Miller, Edward J

**ABSTRACT NUMBER 11067957**

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(203) 785-4127
edward.miller@yale.edu
PhD, Yale University School of Medicine, 2008
MD, Loyola-Stritch School of Medicine, 1999
BS, University of Notre Dame, 1994

Dr. Miller’s research focus is on optimizing the evaluation and management strategies of patients with cardiac sarcodosis and amyloidosis, particularly looking at how imaging techniques can be useful for determining the diagnosis and treatment response of these conditions. Much of Dr. Miller’s current work focuses on optimizing nuclear imaging techniques and protocols in order to provide specific and clinically useful information for patients with sarcodosis and amyloidosis. In particular, Dr. Miller’s work has been instrumental in developing quantitative techniques for enhancing the interpretive certainty of FDG-PET imaging in cardiac sarcodosis.
MISTRY, Pramod K

Abstract Number 11463003

Professor of Medicine (Digestive Diseases) and of Pediatrics (Gastroenterology)
(203) 785-3412
pramod.mistry@yale.edu
MBBS, Royal Free Hospital School of Medicine, 1983
PhD, St. Thomas’ Hospital Medical School, 1979

The major focus of my research is Gaucher disease. The key areas that are under active investigations are:

1. Development of clinical tools to define the spectrum, severity and sub-types of Gaucher disease;
2. Genetic mutations causing Gaucher disease in defined populations, i.e., Egypt and India;
3. Correlation of genetic defects with disease severity and manifestations;
4. Development of serum biomarkers of Gaucher disease activity to aid patient monitoring and understand disease mechanisms;
5. We are participating in several clinical trials of recombinant enzyme replacement therapies and small molecule therapies for Gaucher disease;
6. Recently, we developed an authentic mouse model of type 1 Gaucher disease that replicates human disease entirely. This is a key development to enable mechanistic understanding of Gaucher disease and develop novel treatments;
7. We are conducting genome-wide association study to understand the role of modifier genes in the hope that we may be able to predict future disease severity accurately and plan pre-emptive therapy for vulnerable patients.

Specialized Terms: Gaucher’s disease; Molecular genetics; Genotype/phenotype correlations modifier genes; Animal models and therapies; Wilson’s disease; Glycogen storage disease type 1a

MONTGOMERY, Ruth R

Abstract Number 10336617

Associate Professor of Medicine (Rheumatology)
(203) 785-7039
ruth.montgomery@yale.edu
PhD, Rockefeller University, 1987
BA, University of Pennsylvania, 1981

The focus of our lab’s research is on innate immunity, specifically the interaction of macrophages, neutrophils, and dendritic cells with pathogens. We study the effect of aging and immunosuppression on immune responses and specifically on the expression and efficiency of Toll-Like receptors. In our studies from a large cohort of human subjects, we have shown that older donors express lower levels of certain TLRs and show dysregulation of immune pathways in aging.

Our studies on West Nile virus (WNV) have shown that infection attenuates the activation of macrophages and interferes with intracellular signaling pathways. We have shown dysregulation of TLR3 in macrophages from older donors infected with WNV that leads to higher expression of cytokines and which may contribute to more severe infection in the elderly. We have evaluated the contribution of macrophages and neutrophils in several murine models of WNV infection, and in a genome-wide RNAi screen to identify host factors involved in anti-viral responses.

We conducted a comprehensive examination of phagocyte killing mechanisms in Lyme disease, and we have identified components of vector saliva that inhibit PMN function through down-regulation of leukocyte integrins. In addition to our high-resolution confocal imaging studies on phagocytes, we have imaged entire Ixodes ticks (J. Exp. Med. cover image, June 2006), and intact salivary glands to demonstrate expression of a novel tick receptor for spirochete outer surface protein A, and efficient down-regulation of salivary anti-coagulants by RNAi.

I am the Director of the CyTOF facility, which houses CyTOF2 instrument from DVS Sciences. CyTOF is a mass-spec based cell analyzer which provides multi-parametric single cell data. CyTOF improves on fluorescent flow cytometry by allowing detection of a greater number of markers per sample (~30-40
instead of 4-8) without background signals, and most importantly, without overlap between signals.

Specialized Terms: Innate Immunity; Macrophage; Neutrophil; Aging; West Nile Virus; Lyme Disease


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**MURPHY, Terrence E**

**Abstract Number 12268582**

Assistant Professor of Medicine (Geriatrics)
(203) 737-2295
terrence.murphy@yale.edu

PhD, Georgia Institute Of Technology, 2004
MS, Georgia Institute Of Technology, 2000
MS, Rochester Institute of Technology, 1998

Dr. Murphy is a member of the biostatistics staff of the Program on Aging. With twelve years experience in the design and manufacture of clinical instrumentation and advanced training in engineering statistics, he is interested in the application of engineering tools to research on aging. Current areas of investigation include multivariate statistics for characterization of multiple co-morbidity, robust design techniques for assessing the tradeoffs of multiple medication use, and the use of hierarchical models, propensity scores, and Bayesian techniques to enhance the analysis of non-randomized interventional designs such as the fall-related utilization of healthcare services by older persons in the state of Connecticut.

Specialized Terms: Aging; Bayesian methods; Spatial modeling; Non-randomized interventional designs; Multistate modeling


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**MORIARTY, John P**

**Abstract Number 10356167**

Associate Professor of Medicine (General Medicine)
(203) 737-5645
john.moriarty@yale.edu

MD, University of Maryland Medical School, 1995
BS, Fairfield University, 1990

Current research projects include the study of medical team assistants and the impact of team assistants on the clinical and educational environment of house officers; also a study looking at the quality of discharge communication and its association with adverse outcomes after hospital discharge.

Specialized Terms: Medical Education; Discharge communication; Transitions of care


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**NAGAR, Anil B**

**Abstract Number 11268285**

Associate Professor of Medicine (Digestive Diseases)
(203) 932-5711 x2830
anil.nagar@yale.edu

MD, Saint John’s Medical College and Hospital, India, 1990
BS, St. Joseph’s College, Bangalore, India, 1985

I am interested in clinical studies that examine the value of interventions for detecting and treating GI diseases. We have a large
clinical practice and some of our present clinical studies include the value of surveillance of Barrett’s esophagus, screening intervals for colo-rectal cancer surveillance, interventions to prevent post-ERCP pancreatitis and use of confocal microscopy in management of pre-malignant mucosal GI diseases. Specialized Terms: Value of interventions for detecting and treating GI diseases.

AGA gastroenterology teaching project: Pancreatic Physiology and: Acute Pancreatitis Senior author: Fred Gorelick MD. Co-authors: Anil Nagar, Lars Fischer, Steven Pandol, Guillermo Robles-Diaz, Akihiko Sato and Mark Topazian.


Narasimhan, Sukanya

Abstract Number 10235127

Associate Research Scientist in Medicine (Infectious Diseases)

(203) 737-2642
sukanya.narasimhan@yale.edu

PhD, Indian Institute of Science, India, 1990

Sukanya Narasimhan is a research scientist of infectious diseases in the department of internal medicine at Yale University School of Medicine. Her research focuses on arthropod vector-host-pathogen interactions and arthropod vector gut microflora and host skin microflora in the context of pathogen transmission. Dr. Narasimhan studies how pathogen infection levels are sustained on the molecular level in arthropod vectors and what factors determine infection rates in endemic areas, with an aim to control vector-borne diseases. Her current research interests are the tick-Borrelia interactions and Lyme disease. Dr. Narasimhan is a recipient of the inaugural travel grant from the Yale Global Health Initiative.

Dr. Narasimhan received her M.Sc. from Central College and her Ph.D. from the Indian Institute of Science in Bangalore, India. She was a postdoctoral research associate of internal medicine, molecular biophysics and biochemistry at the Yale University School of Medicine. Dr. Narasimhan served on the board of editors of the Journal of Eukaryotic Microbiology.

Specialized Terms: Tick-Borrelia interactions


Nathanson, Michael H

Abstract Number 10410040

Gladys Phillips Crofoot Professor of Medicine (Digestive Diseases) and Professor of Cell Biology

(203) 785-7312
michael.nathanson@yale.edu

MD, Case Western Reserve Univ, 1985
PhD, Case Western Reserve Univ, 1983
MS, Massachusetts Institute of Technology, 1977
BS, University of California, Berkeley, 1976

My laboratory studies the mechanisms and effects of calcium signals in polarized epithelia. One aspect of our work is to define how calcium signals are differentially regulated in the nucleus and cytoplasm. This involves identification of distinct calcium stores and release mechanisms in the nucleus, and we are examining whether and how these are activated selectively by growth factors. The second aspect of our work is to examine how calcium waves and other calcium signals regulate secretion in polarized epithelia. Calcium waves preferentially begin in the apical region of most secretory epithelia, and we are in the process of defining the mechanisms responsible for this. We also are using an adenoviral antisense approach to understand the relative roles of each IP3 receptor isoform in regulating calcium signaling and secretion in vitro and in vivo. Another major focus is to examine intercellular communication of second messenger signals and to establish the mechanism by which gap junctions act in coordinating intercellular spread of Ca2+ waves in isolated pairs and triplets of cells. Specialized Terms: Mechanisms and effects of calcium signals in polarized epithelia; Effect of spatial organization of calcium signals on organ function regulation; Factors that organize Ca2+ waves in hepatocytes; Organization and effects of Ca2+ waves in cholangiocytes; Mechanisms and effects of Ca2+ signals in the nucleus


NICOLI, Stefania  
**Abstract Number 14208112**

Assistant Professor of Medicine (Cardiology)  
300 George Street  
New Haven, CT, 06511  
(203) 737-4151  
stefania.nicoli@yale.edu

PhD, University of Brescia, 2007  
BS, University of Milan, Italy, 2002  

Using Zebrafish, my laboratory’s goal is to understand how small non-coding RNAs coordinate cardiovascular and neuronal development.


NUNEZ SMITH, Marcella  
**Abstract Number 11981945**

Associate Professor of Medicine (General Medicine) and of Epidemiology (Chronic Diseases)  
(203) 785-6454  
marchella.nunez-smith@yale.edu

MHS, Yale University, 2006  
MD, Jefferson Medical College, 2001  
BA, Swarthmore College, 1996  

1. National Institutes of Health: Eastern Caribbean Health Outcomes Research Network (ECHORN); Formation of a research collaborative across the Eastern Caribbean islands that will recruit and follow a community-dwelling adult cohort to examine chronic disease burden and to enhance health outcomes research and leadership capacity in the region. Role: PI.

2. National Institutes of Health: Validating the Patient-reported Experiences of Discrimination in Care Tool (PreDict). This study advances preliminary work supported by YCCI and NIH to finalize and test an item bank, the Patient-Re-

Specialized Terms: Healthcare workforce diversity; Cancer disparities; Patient assessment of healthcare experiences; Healthcare system strengthening to address chronic disease in low and middle resource settings; Discrimination in health care systems; Role of race in professional experiences


O’CONNOR, Patrick G  
**Abstract Number 10297772**

Professor of Medicine (General Medicine)  
(203) 688-6532  
patrick.oconnor@yale.edu

MPH, Yale University School of Medicine, 1988  
MD, Albany Medical College, 1982  

Dr. O’Connor has focused his scholarly work on the interface between primary care and substance abuse. This has included research examining the transfer of substance abuse treatment strategies from “specialty” settings to primary care settings. His publications in this area include studies on the management of opioid withdrawal in primary care settings, opioid maintenance in primary care, and the use of naltrexone for treating alcohol dependence in primary care patients. He has been active in medical education on substance abuse both nationally and internationally.

Specialized Terms: Interface between primary care and substance abuse


The outcome of patients with acute kidney injury remains unchanged in the last five decades, despite tremendous advances in understanding at the cellular and molecular level. Delayed diagnosis of acute kidney injury with traditional markers, such as serum creatinine, is one of the main reasons for failure of interventional strategies in this disease. This issue is becoming increasingly recognized, with an urgent need for translational research to identify new biomarkers and interventions to improve outcomes for this relatively common and deadly condition.

My group is involved in several epidemiological and translational research projects. We are validating novel biomarkers, such as urine IL-18 and urine NGAL, in several multi-center patient cohorts of kidney injury. In addition, we are analyzing several national and international databases to address important questions surrounding prevention, patterns of care, and the prognosis of various kidney diseases.

Specialized Terms: Acute kidney injury; Novel biomarkers of kidney injury; Translational research

1. Diagnostic utility of urine microscopy in AKI: Urine sediment utility in distinguishing ATN from prerenal azotemia; Prognostic value of the urine sediment in predicting AKI severity;

2. Adverse renal effects of therapeutic agents and other drugs;

3. Hypotension in ESRD patients during Hemodialysis: Role of vasopressin deficiency in intradialytic hypotension (IDH); Utility of midodrine in treatment of IDH; Potential utility of vasopressin in the treatment of IDH

4. HIV-related kidney disease: Diagnosis and management with HAART, Nephrotoxicity of therapeutic agents (HAART); Nephrogenic systemic fibrosis; Treatment with sodium thiosulfate.

Specialized Terms: Diagnostic utility of urine microscopy in AKI; Adverse renal effects of therapeutic agents and other drugs; Hypotension in ESRD patients during hemodialysis; HIV-related kidney disease; Nephrogenic systemic fibrosis
Parathyroid hormone-related peptide (PTHrP) is a multifunctional protein which plays a role in the inhibition of programmed differentiation in a number of systems. To explore the role of this peptide in development, we have taken a targeted overexpression approach using transgenic mice. In the epidermis, PTHrP delays hair follicle initiation, while in the mammary gland and bone, it acts as a potent inhibitor of branching morphogenesis and endochondral ossification, respectively. Current projects include further characterization of these systems both in vivo and in vitro and investigation of the role of PTHrP in the development of the lung and the immune system.

When overproduced by tumors, PTHrP can enter the circulation and react with classical PTH receptors in bone and kidney resulting in hypercalcemia. We have found that PTHrP gene expression is regulated by methylation of critical sites in the promoter, by the levels of specific trans-acting factors, and finally by stabilization of the tumor suppressor, p53. We are presently engaged in characterizing the nature of the DNA-protein interactions involved in all three mechanisms.

Specialized Terms: Parathyroid hormone-related peptide (PTHrP)


Pisani, Margaret A

Abstract Number 10052819

Associate Professor of Medicine (Pulmonary) and of Nursing
The Anlyan Center
300 Cedar Street
New Haven, CT, 06519
(203) 785-3207
margaret.pisani@yale.edu

MPH, Yale School of Public Health, 2001
MD, Temple University, 1994
MS, New Jersey Institute of Technology, 1987
BS, Iona College, 1985

Dr. Pisani performs clinical research in the field of pulmonary, critical care and sleep medicine. She has focused much of her research on outcomes in older intensive care unit patients. Specifically, she has looked at the prevalence of pre-existing cognitive impairment of patients admitted to the MICU and physician recognition of the impairment. She has also examined risk factors for poor outcomes from ICU care in older patients.

Her work has focused on predisposing risk factors as well as precipitating or modifiable risk factors such as medication use in
the intensive care unit. She is interested in delirium, its pathogenesis, treatment and impact on outcomes.

She is currently studying sleep in an intensive care unit population. She is examining risk factors for sleep disruption, use of portable polysomnography in the ICU, and the impact of sleep deprivation on delirium and other ICU outcomes.

She is also examining the impact of rapid response team calls on older patients.

She also is a co-investigator in the Interventional Pulmonary (IP) research program where she provides expertise in clinical study design and data analysis. Projects from IP have included studies of the etiology of bilateral pleural effusions, safety of performing thoracentesis in patients with bleeding risks, impact of thoracentesis on dyspnea and quality of life, safety and tolerability of endobronchial ultrasound EBUS under conscious sedation and in obese patients.

Her studies have been funded by the Yale Pepper Center on Aging, American Lung Association, The Chest Foundation, The Hartford Foundation and Merck/American Federation on Aging Research and the NIH.


PREISIG, Patricia A

Abstract Number 11968209

Professor of Medicine (Nephrology) and of Cellular And Molecular Physiology

(203) 785-7287
patricia.preisig@yale.edu

PhD, University of California at San Francisco, 1983

MS, University of California at San Francisco, 1979

BSN, California State University, 1975

Elucidation of the acid-activated pathway that mediates the physiological response of the renal proximal tubule to the need for the kidney to excrete acid


PROCTOR, Deborah D

Abstract Number 10686358

Professor of Medicine (Digestive Diseases)

(203) 785-4138
deborah.proctor@yale.edu

MD, University of Cincinnati, 1982

BS, University of Toledo, 1978

Our IBD Program group does clinical research with inflammatory bowel disease (IBD) patients including evaluating and treating depression in patients with inflammatory bowel disease and setting up databases to correlate genotype with phenotypic expression. We participate in several international multi-center trials for different medications and databases.

Our HHT group does clinical research in patients with hereditary hemorrhagic telangiectasia (HHT) who also have gastrointestinal (GI) bleeding.

Specialized Terms: Inflammatory Bowel Disease; Crohn’s Disease; Ulcerative Colitis; Hereditary Hemorrhagic Telangiectasia


Proctor DD. Missionary work – it’s about more than doing endoscopies. AGA Perspectives 2013;9(3):22-23.

PROTIVA, Petr

Abstract Number 13227977

Associate Professor of Medicine (Digestive Diseases)

(203) 932-5711
petr.protiva@yale.edu

MD, Charles University, Prague, 1993

BA, Masaryk University, 1987

Major goal of our research is to identify molecular pathways that modulate the risk of colon cancer.


PUSZTAI, Lajos

**Abstract Number 14382192**

Professor of Medicine (Medical Oncology)
(203) 737-6858
lajos.pusztai@yale.edu
DPhil, University of Oxford, 1993
MD, Semmelweis University School of Medicine, Budapest, Hungary, 1987

I am the Chief of the Breast Medical Oncology service at Smilow Cancer Hospital and Co-Director of Yale Cancer Center’s Cancer Genetics and Genomics Program. As responsible for organizing, building, and leading a program of extramurally funded multidisciplinary clinical and laboratory research in breast cancer. We have developed a portfolio of innovative clinical research projects involving laboratory and clinical scientists. My laboratory includes a “wet” lab where we focus on developing new therapeutic strategies and drugs for triple negative breast cancer and a bioinformatics team involved with analyzing and developing new methodologies for the interpretation of gene expression and next generation sequencing data. In the clinic, our goal is to “divide and conquer”, identify molecularly defined subtypes of breast cancer and design distinct curative strategies for each subtype. In the laboratory, our goal is to explore new paradigms of cancer biology, we study the functional impact of clonal heterogeneity within the same cancer, we study how interactions between germ line polymorphisms in regulatory kinases and somatic mutations collectively determine the malignant phenotype, we also examine how age-related epigenetic changes in the breast accumulate at different rate in different individuals and how this may influence risk to develop breast cancer at a younger age.

The following is a web-link to our laboratory website: http://medicine.yale.edu/lab/pusztai/publications/

Specialized Terms: Breast cancer; Translational cancer research; Developing pharmacogenomic markers of response to breast cancer therapy and identifying methods to select the optimal treatment for each patient


QUAGLIARELLO, Vincent J

**Abstract Number 10306170**

Professor of Medicine (Infectious Diseases)
(203) 785-7571
vincent.quagliarello@yale.edu
MD, Washington University, 1980

Dr. Quagliarello’s current research interest is utilizing observational research methods (both retrospective and prospective cohort designs) to understand infectious disease. Recent research projects have focused on community acquired bacterial meningitis (including studies on prognostic staging, utility of head CT before LP in suspected meningitis, identification of the causes and timing of death, and the diagnostic accuracy of bedside meningeal signs), native valve endocarditis (a study using prognostic stratification to evaluate the impact of valve surgery on mortality), and risk factors for nursing home acquired pneumonia in conjunction with the Yale Program on Aging. In addition, Dr. Quagliarello’s is currently conducting a large prospective cohort study examining modifiable risk factors on nursing home acquired pneumonia.

Specialized Terms: Observational research methods for understanding infectious disease


Qyang, Yibing

Abstract Number 12792930

Assistant Professor of Medicine (Cardiology)
300 George Street
New Haven, CT, 06511
(203) 737-6354
yibing.qyang@yale.edu

PhD, University of Texas M.D. Anderson Cancer Center, 2002
MS, University of Texas M.D. Anderson Cancer Center, 1999

Our research laboratory has been focused on establishing novel cellular and animal models of human cardiovascular diseases for the purpose of elucidating causative mechanisms and identifying potential therapeutic interventions to treat those diseases. Through a close collaboration with several clinicians at Yale, we are able to obtain cells from a variety of tissues procured from healthy subjects and patients with cardiovascular diseases. These cells include dermal fibroblast cells derived from skin punch biopsies or peripheral mononuclear blood cells, which are isolated and reprogrammed into induced pluripotent stem (iPS) cells by introducing stem cell factors before being re-differentiated into functional cardiovascular cells. In this way, we have the ability to derive an unlimited amount of human cardiovascular cells for use in our investigations into the specifics of cardiovascular disease mechanisms and the discovery of potential therapeutic treatments by performing high-throughput drug screening, as well as the generation of patient-specific, autologous cardiovascular tissues for organ repair.

Specialized Terms: Heart; Stem cell; ES cell; iPS cell; Physiology; Tissue engineering; Small molecule; Patient; Disease; Cardiovascular


Rabin, Tracy

Abstract Number 12386630

Assistant Professor of Medicine (General Medicine)
(203) 680-1843
tracy.rabin@yale.edu

MD, Univ of Rochester School of Medicine & Dentistry, 2006
MS, Harvard University School of Public Health, 2000
BA, College of William and Mary, 1997

Research interests include: examining the impact of a curriculum for teaching health professions trainees about ethical challenges that are commonly encountered during short-term clinical rotations abroad; innovative models of primary care for patients with complex medical needs (with a focus on the safe transition from hospital to home); quality improvement efforts in low-resource settings; the use of patient-centered educational tools to facilitate chronic disease care in low-resource settings; and understanding reasons for provider discomfort in caring for patients with noncommunicable diseases in low-resource settings.


Rastegar, Asghar

Abstract Number 10432106

Professor of Medicine
Laboratory for Medicine and Pediatrics (LMP)
15 York Street
New Haven, CT, 06510
(203) 737-2078
asghar.rastegar@yale.edu

MD, University of Wisconsin, 1968

1. Nephrology:
   - Acid-base and electrolyte disorders; Training of nephrologists for resource poor environment world-wide.
2. General Medicine:
   Residency training and capacity building.

3. International health:
   Capacity building for resource poor settings; Development of bilateral interinstitutional collaboration in education.


Rastegar A. Mixed acid-base disorders. In Gennari FJ, Adrougue HJ, Galla JH, Madaias NE editors. Acid-base disorders and their treat-

REDLICH, Carrie A

Abstract Number 10304198

Professor of Medicine (Occupational Medicine)
(203) 785-6434
carrie.redlich@yale.edu

MPH, Yale University, 1988
MD, Yale University, 1982

Dr. Redlich's current research interests include occupational and environmental lung diseases, in particular isocyanate asthma.


ROCHESTER, Carolyn

Abstract Number 10307989

Associate Professor of Medicine (Pulmonary)
(203) 785-4163
carolyn.rochester@yale.edu

MD, Columbia University, 1983

Co-investigator: “Quality of Life and Survival of Patients Affected by Chronic Respiratory Failure”, International Study (PW Jones, London, UK, and Mauro Carone, Veruno, Italy, Principal Investigators). This study aims to validate a newly developed questionnaire to assess health-related quality of life in patients with severe COPD or kyphoscoliosis who require supplemental oxygen and/or other non-invasive equipment to support ventilation.

The Effect of Electrical Muscle Stimulation on Exercise Performance in Patients with COPD, project begun Fall 1999, in collabor-
oration with Drs Vahid Mohsenin and Ghada Bourjeily.

Collaborator, National Emphysema Treatment Trial, in conjunc-
tion with Columbia Presbyterian Medical Center, New York, NY. Established Gaylord Hospital-based pulmonary rehabilitation program as official satellite rehabilitation center for the NET Trial.


ROSE, Michal G

Abstract Number 10304776

Associate Professor of Medicine (Medical Oncology)
(203) 937-3421
michal.rose@yale.edu

MD, Hebrew University, 1987

I am interested in the interface between oncology/hematology and primary care and improving timeliness and efficiency of oncology and hematology care.


ROSENBAUM,
Julie R

Abstract Number 10786046

Associate Professor of Medicine (General Medicine)
(203) 789-3179
julie.rosenbaum@yale.edu

MD, Yale University School of Medicine, 1996
BA, Brown University, 1990d

My scholarly work focuses on the exploration of ethical and professional behavior in medicine, how to evaluate it, and encourage its flourishing. Early in my career, I developed an interest in how to support ethical and professional behavior through attention to context and the environment. As a Robert Wood Johnson Clinical Scholar, I elucidated factors that created ethical discomfort among medical residents. This work has been a foundation of my ethics and professionalism teaching at Yale, and a contribution to the literature that has previously focused more on medical student ethical development and less on residency, arguably a distinct stage of training. This more recent publication has lead to my participation in the American Board of Internal Medicine Foundation’s Project on the Impact of Transitions of the Professional Development of Residents. My interest in articulating, establishing, and influencing the role of physicians and the pharmaceutical industry has led to my participation in two projects (including a systematic review of residency education) that evaluated efforts to teach residents about these crucial issues. Another area of focus has been effective end-of-life communication, including development and evaluation of a ward-based exercise for medical students.

Specialized Terms: Evaluation of efforts to improve ethics and professional education; Education to improve end of life communication; Clarification of appropriate relationships between physicians and pharmaceutical industry

Editor-in-Chief, Yale Primary Care Curriculum. Produced semiannually, 26 chapter evidence-based, case-based primary care text, including resident and preceptor guide. Rotating 3 year curriculum of topics including relevant updates. Used by approximately 180 internal medicine residencies in US and abroad.

ROSENFELD,
Lynda E

Abstract Number 10306000

Associate Professor of Medicine (Cardiology) and of Pediatrics (Cardiology)
(203) 737-4068
lynda.rosenfeld@yale.edu

MD, Cornell University, 1976

My research efforts have been clinical. They have included clinical trials of innovative therapy of both tachy and bradyarrhythmias as well as several evaluations of treatment strategies for common arrhythmias, including nonsustained ventricular tachycardia and atrial fibrillation. I have had a special interest in the long term electrophysiological consequences of surgery to correct and palliate congenital heart disease.

Specialized Terms: Bradycardia and tachycardia device therapy; Remote monitoring of implanted devices; Atrial fibrillation; Intraoperative determinants of post operative atrial fibrillation; Therapy of patients with post operative AF; Arrhythmias in patients with post operative adult congenital heart disease


Ross,
Joseph S

Abstract Number 11920830

Associate Professor of Medicine (General Medicine) and in the Institute for Social and Policy Studies and Assistant Professor of Public Health (Health Policy)

E.S. Harkness Memorial Hall, Building A
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New Haven, CT, 06510
(203) 785-2987
joseph.ross@yale.edu

MHS, Yale University School of Medicine, 2006
MD, Albert Einstein College of Medicine, 2001
BS, University of Rochester, 1996
BA, University of Rochester, 1996

Dr. Ross’s research focuses on the translation of clinical research into practice, using health policy research methods to examine the use and delivery of higher quality care and to better understand issues related to pharmaceutical and medical device evidence development and post-market surveillance.


Downing NS, Aminawung JA, Shah ND, Braunstein JB, Krumholz
workplace exposures and occupational illnesses of healthcare workers. In particular I have sought to apply a scholarly approach to developing national guidance for healthcare worker safety, and to teaching medical center-based occupational health practice. Leadership in this endeavor has been fostered by my work with the CDC which straddles an interface of medical center occupational health and infection control. In addition, I have pursued a separate and secondary agenda addressing cancers associated with occupational and environmental exposures.

Specialized Terms: Occupational and environmental epidemiology; Infectious disease epidemiology; Healthcare workers’ health issues


SADEGHI, Mehran M

Abstract Number 10112557

Associate Professor of Medicine (Cardiology)
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Molecular imaging provides a unique opportunity to link vascular and molecular biology and imaging, ultimately leading to the development of novel imaging approaches, both for research and clinical diagnostics. The ultimate goal of research in my laboratory is to develop novel imaging approaches to detect the molecular pathobiology of the vessel wall in vivo. Our comprehensive approach includes several components. Through basic vascular biology research we identify relevant molecular processes and potential targets for imaging (and therapeutics). Next, we use the state of the art technology to develop novel tracers targeted at relevant molecular markers, and establish molecular vascular imaging protocols in animal models of human disease. Finally, we exploit these techniques to further advance vascular biology and clinical research. We have made significant progress towards achieving these goals in the past few years. Specifically, we have focused on vascular remodeling, as the prototypic pathological vascular process shared by many vascular diseases, including atherosclerosis, graft arteriosclerosis, post-angioplasty restenosis, and aneurysm formation.


**SAKR, Carine J**

**Abstract Number 11765042**

Assistant Professor of Medicine (Occupational Medicine)

(203) 785-6434
carine.sakr@yale.edu

MPH, Yale School of Public Health, 2005
MD, Saint Joseph University, 1999

Dr Sakr conducted research on workers with specific exposures and tried to evaluate whether their occupational exposures resulted in adverse health effects. She studied a group of employees who were exposed to biopersistent chemicals and evaluated the effects of their exposure on health parameters (lipids, liver enzymes, etc) and other endpoints such as ischemic heart disease and mortality. She also evaluated a cluster of adverse pregnancy outcomes among a group of Aluminum Smelter workers.

Currently she is evaluating low back pain in a cohort of Veterans who were deployed in the Gulf War.

She is also working on multiple initiatives to improve health and safety of healthcare workers at VA CT (improving flu immunization among employees, decreasing rates of work-related injuries, etc).

Specialized Terms: Health and safety of Healthcare workers; Low back pain in OEF/OIF Veterans


**SANKEY, Christopher B**

**Abstract Number 11623330**

Assistant Professor of Medicine (General Medicine)

(203) 737-5830
christopher.sankey@yale.edu

MD, Ohio State University College of Medicine, 2002
BA, Rice University, 1997

Chris’ main research focus is upon inpatient clinical deterioration and the function of the rapid response team (RRT)


SAULER, Maor

Abstract Number 12386970

Assistant Professor of Medicine (Pulmonary)
The Anlyan Center
300 Cedar Street
New Haven, CT, 06519
(203) 785-2319
maor.sauler@yale.edu

MD, Rutgers New Jersey Medical School, 2006
BA, Princeton University, 2001

Our research is focused on understanding age-related changes in innate immune function and lung biology, and determining how those changes predispose us to lung disease.


SHAW, Albert C

Abstract Number 11479034

Associate Professor of Medicine (Infectious Diseases)

(203) 785-3571
albert.shaw@yale.edu

PhD, Harvard University, 1991
MD, Harvard Medical School, 1991
AB, Harvard College, 1983

Research in the Shaw laboratory is directed toward understanding the mechanisms underlying the functional decline of the immune system with aging. Ongoing projects include studies on the function of presenilins—proteins implicated in the pathogenesis of Alzheimer’s Disease—in cells of the immune system. In addition, the laboratory is examining the role of mammalian topoisomerases in the control of DNA repair, genomic stability and age-related alterations in the immune system. Finally, we are engaged in ongoing studies in humans that seek to elucidate age-related changes in the innate immune system (such as the Toll-like receptors), and to correlate such changes with responsiveness to vaccines (which decreases substantially in older adults) and susceptibility to infectious diseases.

Specialized Terms: Mechanisms underlying the functional decline of the immune system with aging

Sheela Shenoi is an Assistant Professor of Medicine in the AIDS Program of the Section of Infectious Diseases at Yale University School of Medicine. She conducts clinical research on HIV/AIDS and tuberculosis with a focus on resource-limited settings. Dr. Shenoi has worked in South Africa to study the epidemiology of drug resistant tuberculosis and tuberculosis infection control strategies. She currently develops and implements community-based projects that emphasize the integration of HIV and tuberculosis services to improve prevention, care and treatment for patients with HIV/AIDS and tuberculosis. She serves as a member of Yale’s Global Health Program committee of the Department of Medicine.

Dr. Shenoi received her M.P.H. from Tulane University School of Public Health and Tropical Medicine and her M.D. from the University of Connecticut. She is a member of the International AIDS Society, the Infectious Diseases Society of America and the International Union Against Tuberculosis and Lung Disease. Dr. Shenoi was honored as a Fulbright Scholar and was awarded an international clinical research fellowship in global health by the U.S. National Institutes of Health Fogarty International Center for Advanced Study in the Health Sciences.

Specialized Terms: HIV/AIDS; Tuberculosis; Screening; Improving Clinical Outcomes; Resource-limited settings


George R. Cowgill Professor of Medicine (Endocrinology) and Professor of Cellular And Molecular Physiology

George Shulman received his MD, Wayne State University, 1979. PhD, Wayne State University, 1979. BS, University of Michigan, Ann Arbor, MI, 1974. Despite much work the cellular mechanisms responsible for insulin resistance in type 2 diabetes and the metabolic syndrome remain unknown. In this regard recent studies measuring muscle triglyceride content by biopsy or intramyocellular lipid content...
by 1H magnetic resonance spectroscopy have shown a strong relationship between intramuscular lipid content and insulin resistance in skeletal muscle. Recent studies have also demonstrated increases in intramyocellular lipid content in insulin resistant offspring of parents with type 2 diabetes suggesting that dysregulation of fatty acid metabolism may be responsible for mediating the insulin resistance in these individuals. Increases in the intramyocellular concentration of fatty acid metabolites in turn have been postulated to activate a serine kinase cascade leading to decreased insulin stimulated insulin receptor substrate-1 associated phosphatidylinositol 3-kinase activity resulting in reduced glucose transport activity and glycogen synthesis. This presentation will focus on recent studies using noninvasive 13C, 31P and 1H magnetic resonance spectroscopy techniques in humans that elucidate the pathogenesis of insulin resistance that occurs in obesity, type 2 diabetes, lipodystrophy and the metabolic syndrome.


SINNER, Jonathan M

**Abstract Number 11626101**

Assistant Professor of Medicine (Pulmonary)

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MD, University of Pittsburgh School of Medicine, 1998
BA, Swarthmore College, 1992

Dr. Siner currently conducts translational research examining the role of circulating growth factors in the sepsis syndrome and their relationship to outcomes in the intensive care unit. Patients with a diagnosis of sepsis are enrolled from the Medical Care Intensive Care Unit at Yale-New Haven Hospital. Plasma and DNA specimens are obtained and extensive clinical data is abstracted and entered into a clinical database. These investigations drawn on the extensive basic science activity conducted in the Pulmonary Section and examine these discoveries in humans with sepsis and ARDS (supported by an award from the CTSA). He was the recipient of an NIH National Research Service Award (NRSA) which supported his investigation of the role of VEGF and HO-1 in cytoprotection from hyperoxia induced acute lung injury. He is a site co-investigator on several ongoing multi-center trials investigating novel treatments for Sepsis, ARDS and Interstitial Lung Disease.

Specialized Terms: Vascular Growth Factors; Sepsis pathophysiology; Host Response to Viral Infections


Siner JM, Bhandari V, Engle KM, Elias JA, Siegel MD. Elevated serum angiopoietin 2 levels are associated with increased mortality in sepsis. Shock. 2009 Apr;31(4):348-53.
**SOFAIR,**
Andre N

**Abstract Number 10349894**

Associate Professor of Medicine (General Medicine) and of Epidemiology (Microbial Diseases)

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MPH, Yale School of Medicine, 1997
MD, Albert Einstein College, 1986

My research interests lie primarily in the area of emerging infectious diseases. I have worked to develop surveillance systems for the detection of emerging pathogens, developed hospital and practice-based cohorts to define infectious disease burden and epidemiology, and performed a number of validation studies to limit biases in estimation of incidence rates. My current work focuses largely on the epidemiology of chronic liver disease with an emphasis on liver disease due to hepatitis C infection.

Specialized Terms: Emerging infectious diseases


**SOMLO,**
Stefan

**Abstract Number 10973760**

C. N. H. Long Professor of Medicine (Nephrology) and Professor of Genetics

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MD, Columbia University, 1984
BA, Harvard University, 1980

The goal of our laboratory is to understand the human polycystic diseases of the kidney and liver so that specific treatments can be developed. As a group, these diseases result in the progres-
Soufer, Robert

Abstract Number 10272731

Professor of Medicine (Cardiology)
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MD, New York Medical College, 1978
BA, New York University/Uptown Campus, 1975

Dr. Soufer's research effort deals with the elucidation of the interaction between the brain and the heart. His research integrates Cardiology, Neurobiology, Psychology and Nuclear Medicine. Specifically, he and his colleagues have elucidated Brain and Heart interactions of emotion and stress culminating in progressive myocardial ischemia (“low blood flow”) resulting in myocardial infarction (“heart attack”). His research efforts are singular in methodology which simultaneously measures brain activation and myocardial perfusion and function with Positron Emission Tomography during a laboratory stress intervention. His group was the first to establish specific brain activation patterns associated with myocardial ischemia, which results from emotional provocation.

Specialized Terms: Neurobehavioral Correlates of Mental Stress in Cardiovascular Disease; Neuro-Cardiac Interaction; Mental Stress; Myocardial Blood Flow


Soroka, Carol J

Abstract Number 10390813

Senior Research Scientist in Medicine (Digestive Diseases)
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PhD, SUNY at Buffalo, 1986

Our lab is interested in how the liver is able to adapt to diseases that impair bile secretion. Specifically, we are interested in the expression of proteins of the main liver cell, called the hepatocyte. In different disease states the liver attempts to up- or down-regulate specific proteins in order to compensate for its inability to secrete toxic substances. We utilize rodent models of liver disease and genetically altered mouse models in order to study the liver function. These models have allowed us to understand adaptive responses in the liver, as well as in other organs such as the kidney and intestine.

Specialized Terms: Cholestatic liver diseases; Hepatocyte; Membrane transporters


Spirli, Carlo

Abstract Number 12110431

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(203) 737-6882
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PhD, University School of Medicine, Parma, 2000
BS, University of Padova, 1995

The main focus of my research is the pathophysiology and therapy of diseases of the biliary tree (also called cholangiopathies).
This is a large group of chronic liver diseases, congenital or acquired, that causes significant morbidity and mortality in both the adult and pediatric population. The pathogenesis of biliary tree diseases is still elusive and, contrary to other areas of hepatology, effective treatment is still lacking. Previous work of our laboratory has contributed to the understanding of the normal physiology of biliary cells and to the identification of prototypic mechanisms for biliary damage for which a model human cholangiopathy exists. Among them, the lab is now addressing the pathophysiology and treatment of Cystic Fibrosis cholangiopathy, polycystic liver disease and Alagille syndrome.


Our laboratory is focused on the study of human immunodeficiency virus type I (HIV) replication and the development of small animal models of HIV. For example, mice are not susceptible to HIV due to a profound block in HIV assembly and release from cells. We are exploring the nature of this block and are conducting genetic screens and biochemical assays to identify human genes that may be able to overcome this deficiency. Our work has zeroed in on Crm1, and we are now attempting to determine why murine Crm1 is defective in terms of HIV replication.

We also utilize replication-defective HIV as a vector to transduce non-dividing cells for gene therapeutic purposes and are developing novel methods of vector production. These vectors are used to investigate other viruses (for example, cellular binding and entry requirements of Ebola and Western Equine Encephalitis) and to explore fundamental questions in molecular biology, such as high throughput identification of DNA elements that serve as transcriptional activators in various cell types, including human embryonic stem cells.

We are now funded through NIDA to use advanced genomic and genetic techniques to identify host genes associated with control of HIV in man. We are studying HIV+ elite controllers, a select subset of patients who are able to control the virus in the absence of therapy. Using a combination of molecular biology and genomic methods, we hope to pinpoint the genes causally responsible for elite control, at least in the patients who manifest a distinct in vitro phenotype. This work may inform both the HIV vaccine and eradication effort.


and improve survival in patients with hepatocellular carcinoma. In collaboration with colleagues across a spectrum of disciplines, she will develop and implement clinical trials, translational projects, and outcome studies at Yale and the VA.

Specialized Terms: Clinical, translational, and outcome research on hepatocellular carcinoma


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**TAKYAR, Shervin (Seyedtaghi)**

**Abstract Number 12477818**

Assistant Professor of Medicine (Pulmonary) and of Molecular Biophysics and Biochemistry

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PhD, University of Queensland, 2002
MD, Iran University of Medical Sciences, 1995

My research is focused on understanding the molecular basis of a variety of lung disease ranging from asthma to lung cancer. I study the role of a recently discovered group of genes called non-coding RNAs (ncRNAs). These molecules are expressed in the cells, but rather than coding a specific protein, target and modify the expression of other RNAs including messenger RNAs (mRNAs).

In our workflow we first measure the levels of coding and non-coding RNAs in human samples and animal models to identify changes in ncRNAs and candidate target genes that are unique to a specific lung pathology. We then analyze the relationship between these regulatory elements through various bioinformatic and biochemical methods. Finally, we directly investigate the role of these ncRNAs and their targets by modulating their expression in disease models and testing their effects on specific pathogenic mechanisms.

One of our main research interests in recent years has been the role of ncRNAs in the lung endothelium. We are trying to answer questions such as how and why vascular cells become inflamed in diseases like asthma and how activation of these cells permits the propagation of cancerous cells in the lung. In our investigations we found that the levels of a specific small ncRNA; microRNA-1 (miR-1), closely corresponds with the severity of vascular involvement in inflammation and cancer models. Using various molecular tools we identified a genuine target of miR-1 in lung endothelial cells and have so far shown that modulation of miR-1 or its target in asthma models inhibits the lung inflammatory response. We are currently examining the role of miR-1 in lung cancer. Recently we have expanded the scope our work and are currently examining the effect of miR-1 and a number of other ncRNAs in other lung diseases such as emphysema and lung injury.


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**TALWALKAR, Jaideep**

**Abstract Number 11268047**

Assistant Professor of Medicine (General Medicine) and of Pediatrics

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jaideep.talwalkar@yale.edu

MD, Tufts University School of Medicine, 2000
ScB, Brown University,

I have two general areas of research interest. I develop educational material used for training doctors locally and at many residency programs across the country. I study the impact that these materials have on physician training.

Within the Yale Cystic Fibrosis Center, my patients have access to participate in research trials of new therapies.

Specialized Terms: Medical education; Curriculum development and evaluation; Cystic fibrosis; Transition of care


mechanistic basis for and specific phenotypes of cardio-renal dysfunction in humans has prevented targeted application of these “cardio-renal” therapies. As a result, translation of these novel therapies from bench to bedside has failed secondary to indiscriminant application in unselected heart failure populations.

The disappointing performance of these therapeutic approaches in clinical trials highlights the importance of bridging the large gap in knowledge between epidemiology and laboratory based research in this area. However, mechanistic study of this syndrome has proven complex due to the multiple different phenotypes of renal dysfunction that coexist (i.e., heart failure induced renal dysfunction, chronic kidney disease, treatment induced acute kidney injury) and the lack of a “gold standard” to differentiate these entities.

As such, the primary goals of my research program have been/are to: 1) provide proof of concept that mechanistically and prognostically distinct phenotypes of renal dysfunction exist; 2) phenotype these candidate mechanistic subtypes in detail with respect to the operative renal and cardiac pathophysiology; 3) develop methodology to allow more accurate identification of mechanistic subtypes of renal dysfunction on the individual patient level; and 4) initiate trials of therapeutic strategies tailored to specific mechanistic phenotypes of cardio-renal dysfunction.

Specialized Terms: Mechanisms underlying cardiac-renal interactions; Management of heart failure induced renal dysfunction and diuretics resistance; Management of acute decompensated heart failure and volume overload; Ultrafiltration and mechanical circulatory support


with substance use disorders with a focus on prescription drug abuse. Her work has described the impact of marijuana inhalation on pulmonary function, the unique features of women with prescription opioid dependence, and the prevalence of substance use disorders in patients diagnosed with sexually transmitted infections.

Tirziu, Daniela C

Abstract Number 12785178

Research Scientist in Medicine (Cardiology)
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PhD, Romanian Academy of Sciences, 2000

My laboratory is interested to understand at the cellular and molecular level, the growth regulatory mechanisms generated by the endothelium-cardiomyocyte communications that prevent pathological remodeling and heart failure. Our research is focused on the hypertrophic mechanisms regulated by the endotelium-released nitric oxide, Gi/Gq protein signaling and microRNAs.

Specialized Terms: Endothelium-Cardiomyocyte Communication; Myocardial Hypertrophy; Angiogenesis; Nitric Oxide; Gi/Gq Signaling; microRNAs


Tobin, Daniel G

Abstract Number 10984368

Assistant Professor of Medicine (General Medicine)
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MD, Cornell University Medical College, 1999
BS, Cornell University, 1995

Through a series of epidemiologic and intervention studies in the area of falls and fall injury, our group identified risk factors in older persons related to falls and injuries associated with a range of serious adverse outcomes including nursing home placement and functional decline, and that multifactorial risk reduction strategies were effective and cost-effective at reducing the rate of falling. Efforts to translate these research findings into clinical and public health practice, with suggestions for prevention, are in place.

Other clinical research studies, with resulting publications, cover the areas of functional disability, mobility impairment, and the adverse effects of multiple medications. A recent area of investigation is clinical decision making in the face of multiple competing health conditions.

I direct an interdisciplinary research program in geriatrics and clinical epidemiology at the Yale School of Medicine.

Specialized Terms: Falls and injuries; Mobility; Clinical decision-making in the face of multiple health conditions; Harms and benefits of medications

Dr. Tobin’s research and academic efforts focus on chronic pain management, opioid safety, prescription drug abuse, quality improvement, medical education, and primary care.


TROW, Terence K

Abstract Number 10007259

Associate Professor of Medicine (Pulmonary)

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MD, Dartmouth School of Medicine, 1986
BA, Bowdoin College, 1982

The Pulmonary Hypertension Center at Yale is involved in industry sponsored studies of combination therapy in pulmonary arterial hypertenstion treatment. This involved looking at established therapies usually used alone and seeing if further gains can be made by using them together.

The Center is participating in the RESPIRE registry, looking at factors that influence patient compliance with inhaled iloprost therapy.

We are also interested in pulmonary arterial blood and systemic serial blood sample testing for a variety of biomarkers that may prove to be useful in knowing if treatments are working or failing in this disease, and a biorepository and database currently being developed.

Specialized Terms: Pulmonary Arterial Hypertension; Combination Therapy in Pulmonary Arterial Hypertension; Biomarkers to follow treatment success in Pulmonary Arterial Hypertension


Van Ness, Peter H

Abstract Number 10923049

Senior Research Scientist in Medicine (Geriatrics) and Lecturer in Epidemiology (Chronic Diseases) and in Medicine (Geriatrics)

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MPH, Yale School of Public Health, 2000
PhD, University of Chicago, 1983

Dr. Van Ness' research work addresses the statistical challenges arising in clinical research with older populations, e.g., evaluating instrument reliability, designing small sample studies, analyzing multicomponent interventions, and handling missing data. A special research interest involves formulating ways to integrate qualitative and quantitative data using mixed methods.


Van Ness PH, Murphy TE, Araujo KL, Pisani MA. Multivariate graphical methods provide an insightful way to formulate explanatory hypotheses from limited categorical data. Journal of Clinical Epidemiology 2012;65:179-188.

Wen, Li

Abstract Number 10194004

Senior Research Scientist in Medicine (Endocrinology)

(203) 785-7186
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PhD, University of London, 1992
MD, Capital College of Medicine, Beijing, 1983

Our research interest lies mainly in autoimmunity, in particular the immunology of type 1 diabetes. Using different animal models, my research group has been trying to understand why immune cells attack insulin producing islet beta cells and how we can prevent this attack and if we can reverse the autoimmune destruction after the disease onset. Our current research topics include a) the role of innate immunity in type 1 diabetes; b) gut flora in health and disease; c) the study of regulatory T
Dr. Yaggi is an Associate Professor of Medicine at the Yale University School of Medicine and Director of the Yale Program in Sleep Medicine. He is board certified in Internal Medicine, Pulmonary Medicine, Critical Care, and Sleep Medicine. He is a Principal Investigator at the national VA Clinical Epidemiology Research Center. His research interest is the clinical epidemiology of sleep-disordered breathing, with a focus on the diverse health implications of sleep apnea and an emphasis on informing clinical care. Within this larger domain, his work has focused on 3 specific topics: sleep apnea as a risk factor for adverse cardiovascular and metabolic health outcomes; prognostic factors for adverse cardiovascular and metabolic health outcomes in patients with sleep-disordered breathing; and the impact of diagnosing and treating sleep apnea (using home-based strategies) on cardiovascular risk.


Dr. Wilson’s research focuses on the epidemiology of chronic kidney disease and acute kidney injury. He has a particular interest in trying to understand the mechanism of muscle wasting in these conditions, and the impact muscle wasting has on outcomes that are important to patients. He pursues interventional studies to try to help patients live longer, happier lives.

Specialized Terms: Randomized Trials; Acute Kidney Injury; Activin Receptor 2b; Sarcopenia; Disparities; Outcomes; CKD progression


Our laboratory is studying the cellular and molecular mechanisms responsible for the metabolic adaptation to the hypoxic stress associated with myocardial ischemia.
Laboratory Medicine

**ZHUANG, Zhenwu**  
**Abstract Number 13089614**  
Senior Research Scientist in Medicine  
(Cardiology)  
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Specialized Terms: Myocardial ischemia; Metabolic adaptation to hypoxic stress; Cardioprotection; Cardiomyopathy; LKB1-AMPK pathway; Diabetes


**Yu, Jun**  
**Abstract Number 11153467**  
Senior Research Scientist in Medicine (Cardiology)  
(203) 737-2869  
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MD, Capital University of Medical Sciences, Beijing, 1992

The primary research goals in my laboratory are to understand the molecular control of vascular remodelling and angiogenesis/arteriogenesis in response to arterial injury, atherosclerosis and ischemia. We have intensively used mouse genetic, cell biological and biochemical approaches to achieve these goals.

Specialized Terms: Vascular Remodeling, Atherosclerosis, Angiogenesis/Arteriogenesis, Signaling Transduction


**ZHUANG, Zhenwu**  
**Abstract Number 13089614**  
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(Cardiology)  
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Dr. Zhuang’s research interests include multi-modality imaging in the cardiovascular system, the neurovascular system, and tumors. Currently his research is focusing on developing of micro-imaging approaches (microCT and micro-SPECT) for the assessment of angiogenesis, arteriogenesis, and vascular remodeling. Because of his interventional radiologist’s background, he is also interested in the translational research to develop strategies for local gene or cellular therapies and evaluate the therapeutic efficacy using noninvasive imaging approaches.

Specialized Terms: Angiogenesis; Arteriogenesis; Vascular/Cardiac Remodeling; Vascular Integrity; MicroCT; Micro-SPECT; MR; Molecular Imaging; Interventional Cardiology/Radiology; Gene Therapy; Cell Therapy; Cardiac Repair; Phenotype; Cardiovascular Development; Lung; Tumor; Nanoparticle; Thrombosis; Fibrinolysis; Coronary microvascular disease; Factor XIII


**Yu, Jun**  
**Abstract Number 11153467**

**Campbell, Sheldon M**  
**Abstract Number 10433551**

Associate Professor of Laboratory Medicine  
(203) 932-5711 x2908  
sheldon.campbell@yale.edu

MD, Baylor College of Medicine, 1988  
PhD, Baylor College of Medicine, 1987  
PhD, Baylor College of Medicine, 1987

My scholarly interests lie in the areas of clinical microbiology, especially point-of-care testing; and medical education.

Emerging technology has enormously expanded the array of tests available at the point of care, e.g. ‘bedside testing,’ in recent years; currently over 40 analytes and over 300 kits and instruments are available as ‘waived’ tests, which can be performed with minimal regulation. These and a number of more-complex tests are all performed at the ‘point-of-care’. New methods for testing for pathogens such as HIV have had a major impact on screening and diagnosis of infectious diseases, but the impact of these tests on health and on the logistics...
and economics of health care remains unclear in many cases. Emerging technologies for simplifying and automating technologies such as molecular diagnostics, DNA arrays, and mass-spectrometric methods are likely to cause continued growth in the range and complexity of tests performed outside of traditional laboratory settings. There is a continuing need for research and standards development in this rapidly-advancing area of diagnostic medicine.

In medical education, my work has focused on bringing active learning strategies into the basic science classroom, including microbial songs. I've also been active in developing guidelines for resident education in clinical pathology.

Specialized Terms: Clinical microbiology; Point-of-care testing; Medical education; HIV and mycobacterial diagnosis


CHANG, Sandy

Abstract Number 13382099

Professor of Laboratory Medicine and Molecular Biophysics and Biochemistry
(203) 737-4667
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MD, Cornell University Medical College, 1997
PhD, Rockefeller University, 1996
BS, Yale University, 1988

Dr. Chang has a strong track record in implementing tools and techniques, including the use of mouse genetics and cell biology approaches, to address the questions in telomere biology. Dr. Chang has been an active contributor for over a decade in how telomeres, repetitive sequences that cap the ends of eukaryotic chromosomes, protect chromosomal ends from being recognized as damaged DNA. Using mouse knockout technology and cellular/biochemical studies, his laboratory has previously demonstrated that single-strand telomere binding proteins protect chromosome ends from initiating a DNA damage response (DDR). In particular, his lab discovered that the Protection of Telomere 1a (Pot1a) protein plays an important role to protect telomeres from engaging an ATR-dependent DDR, which initiates p53 dependent apoptosis and/or cellular senescence. His lab also discovered that Pot1b, the second Pot1 ortholog in the mouse genome, is required for stem cell proliferation. The Pot1b conditional knockout mouse recapitulates many salient features of human bone marrow (BM) failure syndromes, and will be used to understand what roles dysfunctional telomeres play in the pathogenesis of BM failure. The Chang lab is also generating additional novel mouse models to understand mechanistically how dysfunctional telomeres activate apoptotic and/or cellular senescence pathways to suppress hematopoietic stem cell proliferation commonly observed in BM failure.


Cotmore, Susan F

Abstract Number 10106913

Senior Research Scientist in Laboratory Medicine
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PhD, London University, 1973

We study the molecular mechanisms used by viruses in the family Parvoviridae to interact with, and overwhelm, their mammalian host cells. I focus particularly on the strategies used to uncoat, replicate and package their DNA, and on how they manipulate their nuclear environment. These viruses are common and effective pathogens, and so are important objects of study in their own right, but they also teach us much about the biology of the mammalian cells they infect.

Specialized Terms: Parvovirus entry and uncoating; Subversion of nuclear environment for viral DNA replication


**EID, Tore**

**Abstract Number 11270648**

Assistant Professor of Laboratory Medicine and of Neurosurgery  
(203) 688-2635  
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PhD, University of Bergen, 1999  
MD, University of Bergen, 1992

My laboratory’s research focuses on the discovery of novel diagnostics and therapeutics of epilepsy, one of the most common chronic neurological disorders in humans. Using state-of-the-art techniques in chemical profiling by mass spectrometry, we are exploring alterations in the metabolome (entire profile of small molecule metabolites) in brain microdialysis fluids and blood samples from patients with drug-resistant epilepsy. Changes in specific metabolites detected during the initial profiling will be further validated as potential diagnostic markers and therapeutic targets for this disease. We are also investigating the role of glutamate, glutamine synthetase and astrocytes in the causation of epilepsy. Patients with drug-resistant mesial temporal lobe epilepsy have remarkably high levels of the excitatory and toxic amino acid glutamate in their brain. Recent studies by us have indicated that the glutamate overflow in mesial temporal lobe epilepsy may be due to a loss of the enzyme glutamine synthetase in astrocytes of the epileptic brain (Eid et al., Lancet 2004; 363: 28-37). An important goal of our research is to define the relationships among the loss of glutamine synthetase, brain glutamate concentrations, epileptic seizures and epilepsy-related brain damage. To this end we are using a variety of techniques such as simultaneous brain microdialysis and video-intracranial EEG monitoring, 13C- and 15N-isotope labeling studies combined with mass spectrometry and immunogold electron microscopy. We are also exploring the molecular-genetic and proteomic mechanism of the glutamine synthetase deficiency using chromatin immunoprecipitation, 2D gel electrophoresis and mass spectrometry on epileptic brain tissue.

Specialized Terms: Epilepsy; Neuropathology; Electron microscopy; Immunohistochecmy; Mass spectrometry; Clinical chemistry and toxicology; Therapeutic drug monitoring


**EISEN BARTH, Stephanie C**

**Abstract Number 10370430**

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MD, Yale School of Medicine, 2005  
PhD, Yale University, 2003  
BA, Bryn Mawr College, 1996

Our research centers on how the innate branch of the immune system regulates adaptive immunity in disease states such as allergy, autoimmunity and alloimmunization and in beneficial states such as vaccination and spans both mouse and human studies. We are currently focused on the function of a more recently discovered family of innate immune receptors, the NOD-like receptors (NLRs). In particular, we recently identified an unusual role for one structurally unique NLR, NLRP10, in regulating adaptive immunity via dendritic cell migration. In a process that was not previously known to require an innate immune signal, the emigration of activated dendritic cells from inflamed tissue is a crucial decision point in the generation of a productive lymphocyte-driven adaptive immune response. Yet how NLRP10 regulates this step or the immunological consequences of its activation remain unanswered questions that we are actively studying.


**HABERMAN, Ann M**

**Abstract Number 10416313**

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New Haven, CT, 06519  
(203) 785-7349

MD, Yale School of Medicine, 2005  
PhD, Yale University, 2003  
BA, Bryn Mawr College, 1996

My laboratory’s research focuses on the discovery of novel diagnostics and therapeutics of epilepsy, one of the most common chronic neurological disorders in humans. Using state-of-the-art techniques in chemical profiling by mass spectrometry, we are exploring alterations in the metabolome (entire profile of small molecule metabolites) in brain microdialysis fluids and blood samples from patients with drug-resistant epilepsy. Changes in specific metabolites detected during the initial profiling will be further validated as potential diagnostic markers and therapeutic targets for this disease. We are also investigating the role of glutamate, glutamine synthetase and astrocytes in the causation of epilepsy. Patients with drug-resistant mesial temporal lobe epilepsy have remarkably high levels of the excitatory and toxic amino acid glutamate in their brain. Recent studies by us have indicated that the glutamate overflow in mesial temporal lobe epilepsy may be due to a loss of the enzyme glutamine synthetase in astrocytes of the epileptic brain (Eid et al., Lancet 2004; 363: 28-37). An important goal of our research is to define the relationships among the loss of glutamine synthetase, brain glutamate concentrations, epileptic seizures and epilepsy-related brain damage. To this end we are using a variety of techniques such as simultaneous brain microdialysis and video-intracranial EEG monitoring, 13C- and 15N-isotope labeling studies combined with mass spectrometry and immunogold electron microscopy. We are also exploring the molecular-genetic and proteomic mechanism of the glutamine synthetase deficiency using chromatin immunoprecipitation, 2D gel electrophoresis and mass spectrometry on epileptic brain tissue.

Specialized Terms: Epilepsy; Neuropathology; Electron microscopy; Immunohistochemistry; Mass spectrometry; Clinical chemistry and toxicology; Therapeutic drug monitoring

The Hendrickson laboratory studies complications of transfusion therapy, including RBC alloimmunization. Factors influencing RBC alloimmunization, including those on the donor and recipient sides of the equation, are studied primarily using reductionist murine models with expression of authentic human blood group antigens. Environmental and genetic factors impact the intersections of innate and adaptive immunity, resulting in RBC antibodies that lead to hemolytic transfusion reactions or hemolytic disease of the fetus and newborn. In addition to developing strategies to prevent RBC alloimmunization in a transfusion setting, the Hendrickson laboratory also studies strategies to prevent alloimmunization or to mitigate the dangers of existing maternal RBC alloantibodies in a pregnancy setting.
KAVATHAS, Paula B

Abstract Number 10400146

Professor of Laboratory Medicine, of Immunobiology and of Molecular, Cellular, and Developmental Biology

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PhD, University of Wisconsin-Madison, 1980
BA, University of Wisconsin-Madison, 1972

Our lab studies an important immune cell coreceptor called CD8 and host-pathogen interaction with Chlamydia trachomatis, an obligate intracellular bacteria. The human and chimpanzee CD8β gene has acquired new exons that lead to isoforms with different cytoplasmic tails. We are determining functional relevance with potential applications to immunotherapy. For the Chlamydia project we are examining the mechanisms by which host cells respond when infected.

Specialized Terms: Gene Regulation; Immunology; Molecular Cellular Entities; Receptors; Structure or Function (Health or Safety or Medical); Transgenic Animals


Nod1, but not the ASC inflammasome, contributes to induction of IL-1β secretion in human trophoblasts after sensing of Chlamydia trachomatis. Kavathas PB, Boeras CM, Muller MJ, Abrahams VM. Mucosal Immunol. 2013 Mar;6(2):235-43. PMID: 22763410

LANDRY, Marie-Louise

Abstract Number 10019975

Professor of Laboratory Medicine and of Medicine (Infectious Diseases)

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MD, Georgetown University, 1974

My interests focus on the rapid detection and quantitation of viruses for clinical diagnosis and the impact of new test methods on patient management. Ongoing projects include optimization of rapid assays for respiratory viruses and herpesviruses and development of real-time molecular methods for viral diagnosis.


Dr. Smith’s research laboratory primarily investigates the inflammation-coagulation interface, especially at the cellular level, i.e., the interaction of leukocytes and platelets, but also at the level of soluble mediators such as the complement system. A major interest is in relating basic biological events to human disease, for example, studying the mechanisms and consequences of platelet, leukocyte and complement activation during cardiac surgery, as a consequence of transfusion, in the pathophysiology of tumor metastasis, and in primary hematologic disorders. Because of the importance of inflammation-coagulation in the success or failure of clinically utilized biomechanical devices, the laboratory is also engaged in aspects of biomedical engineering.

In addition to these areas, Dr. Smith is involved in clinically oriented research designed to improve hematologic and immunologic diagnostics and “personalized” cell therapy, has published in the area of bioethics, and is engaged in educational methodology research to improve medical student education in Laboratory Medicine.

Specialized Terms: Inflammation-Coagulation Interface; Hematology; Bioethics; Biomedical Engineering; Laboratory Medicine Education; Therapeutic Pathology


Dr. Rinder’s research interests primarily revolve around cellular coagulation and platelet physiology in two related areas. First, the laboratory investigates the biology of platelet activation and subsequent leukocyte-platelet adhesive interactions. Our laboratory has investigated the responsible receptor-ligand pairs, the adhesive alterations as a result of signal transduction, and differences in functional cell adhesion based on cell lineage and phenotype. This bench investigation has led the laboratory into studying the mechanisms of platelet and leukocyte activation during platelet storage and in the setting of extracorporeal circulation. During extracorporeal circulation, the complement system plays a major role in stimulating cellular events and this, in turn, has led to investigations of specific complement component blockade.

Our second area of interest has been the detection of that subset of platelets which is most recently released from the circulation (“reticulated platelets”), analogous to red cell reticulocytes. Enumeration of reticulated platelets has allowed our laboratory to explore platelet kinetic diagnostics in patients with different etiologies of thrombocytopenia, in patients with thrombotic disorders, and in those recovering from marrow injury. These studies have also led to bench studies of reticulated platelet function in order to discern the differential hemostatic potential of the youngest circulating platelets.

Specialized Terms: Biomaterials; Blood Or Blood Products Or Transfusions; Cardiopulmonary Chest Medicine; Cytokines; Hematology; Inflammation; Laboratory Practice Or Procedure; Thrombosis Adhesion Molecules; Blood Platelets; Cardiopulmonary Bypass; Coagulation; Hematology; Hemostasis; Reticulated Platelets


**SNYDER, Edward L**  
**Abstract Number 10267801**

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MD, New York Medical College, 1973

Dr. Snyder’s research relates to the broad field of Transfusion Medicine and, more specifically, Transfusion Oncology and Transfusion Immunobiology. His current research includes an on-going evaluation of the platelet storage lesion. This includes evaluation of alterations that occur in platelet metabolism during various storage conditions, in the platelet’s cytoskeleton and in the mitochondria within platelets. Studies of the in vitro and in vivo aspects of platelet storage are an on-going effort in the laboratory. Dr. Snyder also has a long-term history of investigating the role of leukodepletion in blood components. Most recently, the laboratory has turned to the evaluation of new pathogen reduction technology. This includes the addition of various compounds to blood to remove known and potentially dangerous, as well as unknown, viral, bacterial, and protozoal contaminants in donated blood. The laboratory has a special expertise in radiolabeling human blood cells. The laboratory is currently performing clinical trials related to in vivo recovery and survivals using indium-111 and chromium-51 radiolabeled platelets and red cells, as well as Phase III trials for transfusion of pathogen-reduced blood components into patients. We are also involved in ongoing evaluations of clinical responses of patients to pheresis interventions for a variety of immunologic disorders. This is often done in conjunction with the evaluation of new apheresis machine hardware developed by a variety of corporations.

Dr. Snyder’s current research also involves the seeding of biodegradable support structures (mandrills) for use with children with congenital heart disease. This is done in conjunction with Dr. Christopher Breuer.

**Specialized Terms:** Cytoskeleton; Health and Medicine; Membranes; Metabolism; Apheresis Technology; Pathogen Inactivation; Platelet Apoptosis; Platelet Storage Lesion Manufacturing Tissue Engineered Vascular Grafts for Pediatric Surgical Patients

**Tormey CA, Sweeney JD, Champion M, Pisciotta PT, Snyder EL, Wu YY.** Analysis of transfusion reactions associated with pre-storage pooled platelet components. Transfusion (2008, in press)


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**STACK, Gary E**  
**Abstract Number 10350676**

Professor of Laboratory Medicine  
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MD, Johns Hopkins University, 1984  
PhD, University of Wisconsin, 1983  
BS, University of Maryland-College Park, 1975

We have focused on finding ways to improve transfusion safety. We have studied blood group alloimmunization, i.e. the development of antibodies to red blood cells that occurs in some patients after transfusion. These antibodies are important since they can make it difficult to find compatible blood. They also mediate destruction of transfused red blood cells and transfusion reactions. We found that these antibodies are more dangerous than previously thought due to their higher rate of disappearance over time than previously thought. Their disappearance causes them to become undetectable during transfusion compatibility testing, yet their levels increase dramatically following transfusion of incompatible red blood cells. We have also studied the tendency of some patients to develop more than one blood group antibody. Currently, we are investigating ways to better detect and prevent blood group antibodies.

We have also studied how to better prepare and store platelets for transfusion. Platelets are small blood particles that are important in the early stages of blood clotting. Some patients develop dangerously low platelet counts and require platelet transfusions to prevent bleeding. However, we have found that platelets leak substances during blood bank storage that can mediate adverse inflammatory reactions when transfused. We are attempting to understand what causes this leakage and how to prevent it.

We also have recently been investigating the use of genetic testing to better predict correct doses of anticoagulant and anti-platelet drugs. Our initial focus has been on determining the advantages and disadvantages of different testing methods.

**Specialized Terms:** Blood group alloimmunization; Pharmacogenetics; Blood bank storage of platelets; Pro-inflammatory cytokines; Blood transfusion


**TATTERTSALL, Peter J**  
**Abstract Number 10319753**  
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PhD, University of London, 1971

Our research efforts are directed at understanding the molecular mechanisms by which mammalian paroviruses target particular cell types, express their genes, take over their host cells and replicate their own DNA. Eukaryotic and prokaryotic expression systems, coupled with directed mutagenesis, are currently being used to separate the various functions of the complex, multi-functional paroviral gene products, in order to understand how the virus subverts the macromolecular metabolism of its target host cell to its own ends. We are currently applying this knowledge to the construction of vectors for transducing immunomodulatory genes into tumor cells as therapeutic strategy against cancer.

**Specialized Terms:** Biochemistry; Genetics; Paroviruses; DNA replication; Gene therapy; Oncolytic virus; Vaccines; Vectors; Viral replication and vectors


Li, L., Cotmore, S.F., & Tattersall, P. Paroviral left-end hairpin ears are essential during infection for establishing a functional intranuclear transcription template and for efficient progeny genome encapsidation. J. Virol. 87:10501-14, 2013.

**TORMEY, Christopher A**  
**Abstract Number 11917345**  
Associate Professor of Laboratory Medicine and Lecturer in Molecular Biophysics and Biochemistry  
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New Haven, CT, 06519  
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MD, New York Medical College, 2004  
BA, University of Chicago, 2000

Dr. Tormey has several diverse research interests within the field of Transfusion Medicine ranging from large clinical studies to translational research projects. Areas of current investigation include blood bank-based immunohematology where the properties of red blood cell alloantibodies in veteran populations are examined, particularly those factors influencing the duration of humoral response following alloimmunization. In addition, Dr. Tormey is interested in studying the biochemical and immunologic effects of storage on platelet, red blood cell, and plasma components in the blood bank.


**Use of a cytokine-release assay to demonstrate loss of platelet secretory capacity during blood bank processing and storage. Arch Pathol Lab Med 2014;138:1481-7.**

**GALAN, Jorge E**  
**Abstract Number 10643722**  
Lucille P. Markey Professor of Microbial Pathogenesis and Professor of Cell Biology  
(203) 737-2404  
jorge.galan@yale.edu  
PhD, Cornell University, 1986  
DVM, National University of La Plata, Argentina, 1980

Our laboratory studies the pathogenesis of two intestinal pathogens, Salmonella enterica and Campylobacter jejuni. Combined, these two pathogens account for the majority of cases of infectious diarrhea world-wide leading to an estimated 2,000,000 deaths. We take a multidisciplinary approach in our studies involving bacterial genetics, biochemistry, cell biology, immunology as well as structural biology. As a result, we are beginning to define not only the molecular details of the host pathogen interactions but also the atomic interphase between these pathogens and the host.


GROISMAN, Eduardo

Abstract Number 13497699

PhD, University of Chicago, 1986
MS, University of Buenos Aires, Argentina, 1980

Molecular Mechanisms of Bacterial Signal Transduction

Summary: Eduardo Groisman is interested in understanding how pathogenic and symbiotic bacteria modulate their gene expression patterns in response to signals detected in host and in abiotic environments, as well as in how bacterial regulatory circuits evolve. Our laboratory investigates the mechanisms by which pathogenic and commensal bacteria modify their gene expression patterns so they can survive and proliferate within host tissues and in abiotic environments. We have focused on the mechanisms utilized by the gastroenteritis- and typhoid fever-causing Salmonella enterica, the bubonic plague agent Yersinia pestis, and the human gut commensal Escherichia coli. Our research program can be divided into three general areas: (1) the signal transduction pathways by which bacteria detect and integrate multiple signals into a cellular response, (2) the molecular mechanisms by which a regulatory protein or signal elicits distinct responses from coregulated targets, and (3) the genetic basis for the phenotypic differences that distinguish closely related bacterial species.

Specialized Terms: Bacterial genetics; Signal transduction; Infectious diseases; Gene regulation; Bacteria-host interactions; Gut commensal bacteria


GOODMAN, Andrew

Abstract Number 13621595

PhD, Harvard Medical School, 2006
BA, Princeton University, 1999

Each of us harbors an enormous microbial community. In the gut, these microbes form a metabolic organ whose cells outnumber our own by 10-fold, whose genes outnumber those in the human genome by 100-fold, and whose composition can be transformed overnight. It is becoming increasingly clear that variation in these communities has important consequences for health.

The central hypothesis that guides our research is that resident human-associated microbes play critical roles in our response to nutrients, toxins, and pathogens. We use genomics and biochemistry to study the process of selection and competition that shapes these communities.

Specialized Terms: Microbiota; Microbiome; Genomics; Gnotobiotic; Germfree; Symbiosis; Gut; Flora; Bacteria; Pathogen

LINDENBACH, Brett D

Abstract Number 12451043

Professor of Microbial Pathogenesis

PhD, Washington University School of Medicine, 1999
PhD, Washington University School of Medicine, 1999
BS, University of Illinois, 1990

Research in the Lindenbach laboratory focuses on the replication of hepatitis C virus (HCV) and related positive-strand RNA viruses, including flaviviruses (yellow fever virus, dengue virus, West Nile virus, tick-borne encephalitis virus). Specifically, we combine genetic, biochemical, and cell biological approaches
to study how viral structural and nonstructural (NS) proteins contribute to viral genome replication and to the assembly of infectious particles. We have also developed novel methods to reveal essential interactions between viruses and host cells.


**MacMicking, John**

**Abstract Number 11988065**

Associate Professor of Microbial Pathogenesis
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PhD, Cornell University, 1997
BS, Australian National Univ, 1990

Our laboratory focuses on the biological question of how all nucleated cells - irrespective of tissue origin - protect themselves against infection. This broad-based system of non-classical host defense is called cell-autonomous immunity and has recently been studied in plants but remains poorly understood in higher vertebrates. We are interested in characterizing the antimicrobial genes and pathways which constitute the cell-autonomous defense network in mammals. Many of these genes including a new superfamily of immune GTPases are transcriptionally elicited via activating stimuli such as interferons (IFNs) and Toll-like receptor (TLR) signaling. The overall goal is to understand how individual cells protect themselves against major human bacterial pathogens like *Mycobacterium tuberculosis* and *Salmonella* serovars *in vitro* and *in vivo*. Some of the questions we are interested in are the following: What are the protein machineries and signaling hubs involved in restricting intracellular pathogens? Do such pathways operate in the cytosol or on specialized organelles, and is this response tailored to the subcellular lifestyle of the invading pathogen? Are common sets of host effectors shared across all diploid cells, or are there cell type-specific systems deployed in diverse histogenetic lineages and tissues? Lastly, can we reconstruct a virtual cell that assembles these host effector proteins and pathways in a coherent way? Answering these questions should help define the basic principles underlying this unique form of host resistance in complex, multicellular organisms.

Specialized Terms: Cell-autonomous immunity; Constitutive and inducible host defense programs; Inflammasomes; Interferons (IFNs); Intracellular pathogens; Single cell analyses; Vertebrate and bacterial genetics


**Mothes, Walther H**

**Abstract Number 11467185**

Associate Professor of Microbial Pathogenesis
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PhD, Humboldt University of Berlin, 1998
BC, Humboldt University of Berlin, 1993

Dr. Mothes’ laboratory is interested in various aspects of viral spread and pathogenesis of HIV-1 and other retroviruses. Retroviruses can efficiently spread from cell to cell through contact zones, called virological and infectious synapses. The Mothes lab has contributed to this process by directly visualizing how cell-cell contacts between infected and uninfected cells form, virus assembly is directed towards cell-cell contact sites and viruses are actively transferred to infect neighboring cells. A major current interest of the laboratory is to monitor viral spread and aspects of retroviral pathogenesis directly in living animals using multi-photon laser scanning microscopy. The laboratory is also applying single molecule imaging to understand how conformational events in the HIV-1 envelope protein lead to fusion between viral and cellular membranes. A detailed understanding of these processes will permit the rational design of vaccines and antiviral therapies that prevent virus spreading and the infection of new cells.

Specialized Terms: cell biology; retroviral replication; retroviruses; immune; viral biology; genetic; biochemical; cell imaging; Viral entry and exit; Retroviruses including HIV


Of Yeast and Ribosome Biogenesis: Ribosome biogenesis is a complex process requiring the coordinated expression of rRNA and protein moieties and their assembly in the eukaryotic nucleolus. In order to better understand each aspect of this process, we are using an array of genetic, biochemical, and cell biological techniques in the yeast Saccharomyces cerevisiae. My laboratory focuses on the role of the ribonucleoprotein and protein complexes involved in generating the mature rRNAs.

Specialized Terms: Ribosome biogenesis; RRNA processing; U3 RNP structure and function; RNA helicases; Polymerase I transcription and processing


Berro, Julien

The focus of our research is to understand the molecular and cellular events that enable microbial pathogens to evade host defense mechanisms. In particular, we are interested in how bacteria that replicate inside mammalian cells create specialized vacuoles that support pathogen replication. We have been using Legionella pneumophila and Coxiella burnetii as model pathogens to study this process. We have been characterizing a type IV secretion system called Dot/Icm that delivers bacterial effector proteins into the eukaryotic host cell cytosol. The goals of this research are to determine the mechanism by which these bacterial effector proteins regulate phagosome maturation, modulate host immunity, and subvert eukaryotic cell functions.

Specialized Terms: Molecular; Cellular; Microbial pathogens; Bacteria; Vesicular transport; Legionella pneumophila; Coxiella burnetii; Macrophages; Protozoan; Proteins


ENGELMAN, Donald M

Abstract Number 10478142

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PhD, Yale University, 1967

Our work is in two areas: interactions of transmembrane helices, and insertion of peptides into membranes. We have discovered a peptide that is soluble in water but can insert itself across a membrane if the local pH is low. This peptide can be used to deliver molecules into cells, driving delivery with low pH. Phalloidin, dyes, and PNAs can be delivered, and research is aimed at finding the rules for transport. We have also found that the peptide can target tumors when injected into mice, and we are pursuing this exciting finding with imaging and therapy in mind. Our studies of helix interactions are now concerned with their roles in viral envelope proteins and single TM receptors, and the use of druglike molecules to modulate the activity of receptors or to attenuate virulence by binding to the TM regions.

Specialized Terms: Helix Interactions; Lipid Bilayers; Membranes; Physical Biochemistry; Protein Folding; Proteins


DE LA CRUZ, Enrique M

Abstract Number 11434290

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PhD, Johns Hopkins University School of Medicine, 1997

Identifying the chemical and physical principles of work production by molecular motor protein enzymes and polymers has emerged as a major area in contemporary Biochemistry and Biophysics. My research program integrates comprehensive kinetic and thermodynamic analyses of catalytic reaction pathways with computational and mathematical modeling to develop and test predictive models of work output by molecular motor proteins, enzyme function and adaptation, and biopolymer fragmentation. Our work has revealed how enzymatic adaptations among evolutionary related molecular motor proteins determine their biological function, and how cells regulate the length and assembly dynamics of polymers that drive cell movement.

Our current and future efforts focus primarily in three areas:

1. identifying the molecular origins of actin filament elasticity and the mechanical basis of filament severing by regulatory proteins;
2. defining how ATP utilization by DEAD-box proteins (DBPs) is coupled to duplex rRNA unwinding; and
3. determining the catalytic pathways, specificities and biological activities of nucleotide pyrophosphatase/phosphodiesterase (NPP) enzymes.

Specialized Terms: Cytoskeleton; RNA helicases; Kinetics; Thermodynamics; Polymer Mechanics; Processivity

W. Cao & EM De La Cruz (2013) Quantitative full time course analysis of nonlinear enzyme cycling kinetics. Nature Scientific Reports 3, 2658. DOI:10.1038/srep02658


GAREN, Alan

Abstract Number 10308414

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PhD, University of Colorado at Denver, 1953

We constructed a fusion molecule (Icon) composed of factor VII, the natural ligand for Tissue Factor (TF), conjugated to the Fc domain of an IgG1 immunoglobulin. The factor VII domain binds with high affinity and specificity to TF, which is expressed selectively on the luminal surface of pathological angiogenic blood vessels, and the Fc domain activates an immune response.

Specialized Terms: Cytoskeleton; RNA helicases; Kinetics; Thermodynamics; Polymer Mechanics; Processivity

W. Cao & EM De La Cruz (2013) Quantitative full time course analysis of nonlinear enzyme cycling kinetics. Nature Scientific Reports 3, 2658. DOI:10.1038/srep02658

that destroys the blood vessels. The Icon can be delivered as a protein, or by an adenoviral or nanoparticle vector carrying the Icon cDNA. The Icon showed efficacy and safety in mouse models of human cancer, and in mouse and pig models of macular degeneration, and is being prepared for a clinical trial. We described a novel mechanism of gene regulation, involving a tumor-suppressor protein (TSP) and a noncoding retroelement RNA (ncRNA). The TSP contains a DNA-binding domain that represses gene transcription, and RNA-binding domains (RBD) that bind a ncRNA, releasing the TSP and activating transcription. This mechanism is involved in embryogenesis, tumorigenesis, and steroidogenesis.

Specialized Terms: Development; Genetics; Medical Sciences; Molecular Biology


**GERSTEIN, Mark B**

**Abstract Number 10324241**

Albert L. Williams Professor of Molecular Biophysics and Biochemistry

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PhD, Cambridge University, 1992

We do research in bioinformatics, applying computational approaches to problems in molecular biology. Broadly, we are interested in large-scale analyses of genome sequences, macromolecular structures, and functional-genomics datasets. It is hoped that these will allow us to address a number of overall statistical questions about macromolecules, relating to their physical properties, cellular function, interactions, and phylogenetic distribution. We are especially focused on the human genome and proteome. Our research involves a number of quantitative techniques, including database design, systematic datamining and machine learning, visualization of high-dimensional data, and molecular simulation. More specifically, we focus on three questions. First, we are interested in annotating the raw human genome sequence, especially in characterizing the vast intergenic regions and one of their most important elements, pseudogenes. Next, we are trying to get at the function of all the protein elements encoded by the genome. Here, we try to characterize function on a large-scale through the use of molecular networks. Finally, for the population of proteins that have known 3D structures, we are trying to see how their function is carried out through motion and how motion can be predicted from packing geometry.

Specialized Terms: Biochemistry; Bioinformatics; Biophysics; Computational Biology; DNA; Genomics; Molecular Simulation; Proteins; Sequence Alignment; Structural Biology


**HOCHESTRESSER, Mark W**

**Abstract Number 11211097**

Eugene Higgins Professor of Molecular Biophysics and Biochemistry and Professor of Molecular, Cellular, and Developmental Biology

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PhD, University of California-San Francisco, 1987

We wish to understand at a molecular level how specific eukaryotic proteins are selected for rapid degradation even while most proteins are spared. Such turnover occurs primarily through the ubiquitin-proteasome system and is central to a variety of cell regulatory mechanisms, many of medical relevance. The proteasome is a molecular machine that fragments proteins into short peptides. More generally, we study the reversible enzymatic coupling of proteins to other proteins within cells. The prototypical example of such a protein modifier is ubiquitin, but at least a dozen such systems exist. While ubiquitin generally is used to mark its targets for destruction, the consequences of protein ligation to the various “ubiquitin-like proteins” are less understood. One such protein that we study, SUMO, is attached to many proteins and is crucial for cell-cycle progression. Much of our work is conducted in baker’s yeast, a model organism ideal for genetic and biochemical analysis.

Specialized Terms: Adenosinetriphatase; Cell Growth Regulation; Chemical Cleavage; Chemical Conjugate; Chimeric Protein; Enzyme Activity; Enzyme Complex; Enzyme Mechanism; Enzyme Structure; Fungal Genetics; Gene Deletion Mutation; Immunoelectron Microscopy; Isozyme; Mass Spectrometry; Mutant; Proteasome; Protein Degradation; Protein Purification; Proteinase; Protooncogene; Saccharomyces Cerevisiae; Transcription Factor; Ubiquitin


We study the mechanism of signaling by neurotransmitters, the molecules neurons use to communicate with each other. We first identify and study behavioral mutants of the nematode *C. elegans* in which neurotransmitter signaling is defective. By cloning the genes defined by the mutations we can identify the molecules responsible for signaling, study them biochemically, and determine the detailed mechanisms underlying neurotransmission. Using this approach, we discovered a large family of Regulators of G Protein Signaling (RGS proteins) that directly inactivate the G proteins that mediate much of the signaling in the brain. One current project focuses how signaling by the neurotransmitter GABA is regulated to reduce neural activity enough to prevent seizures but not so much as to prevent any activity. Another project seeks to uncover the basic mechanisms of signaling by the neurotransmitter serotonin, defects in which are thought to underlie depression in humans.

Specialized Terms: *C. Elegans; G Protein; Neurotransmission; RGS Protein; Serotonin; Molecular Genetics; Neurobiology; Neurotransmitters; Proteins and Macromolecules; Receptors*


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**Howard, Jonathon**

*Abstract Number 14570127*

Eugene Higgins Professor of Molecular Biophysics and Biochemistry and Professor of Physics

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PhD, Australian National Univ, 1983
BS, Australian National Univ, 1979

Our lab is fascinated by the question of how small molecules like proteins, lipids and nucleotides self-assemble into cells and tissues that are thousands and millions of times larger than molecular dimensions. How do the molecules know where they are, and whether the structures that they have made are the right size and shape? By combining highly sensitive techniques to visualize and manipulate individual biological molecules, with theory and modeling, we are trying to understand the interaction rules that allow molecules to work together to form highly organized and dynamic cellular structures.

Specialized Terms: Motor proteins and the cytoskeleton; Microtubule dynamics and motors; Cell motility; Mitosis; the Axoneme; Neuronal Morphology


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**Koleske, Anthony J**

*Abstract Number 10934133*

Professor of Molecular Biophysics and Biochemistry

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PhD, Massachusetts Institute of Technology, 1993
BS, University of Wisconsin, 1988

Our lab has a long-standing interest in understanding how growth factor and adhesion receptor signaling controls changes in cell shape and movement. We have pursued these studies primarily in three model systems: fibroblast migration, breast cancer cell invasion and metastasis, and the formation and stabilization of neuronal dendrites and dendritic spines. In each of these systems, we have developed biochemical approaches to elucidate signaling mechanisms, genetic approaches in mice to manipulate these signaling mechanisms, and a complementary collection of quantitative assays of cell migration, in vivo metastasis, electrophysiology, neuroanatomy, and animal behavior as functional readouts.
Miranker, Andrew D

Abstract Number 10285294

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PhD, Harvard University, 1992

The “central dogma” is a phrase coined in 1958 by Francis Crick to describe the universal observation that DNA codes for RNA which codes for proteins. Implicit in this description is the tenet that a linear chain of amino acids represents a complete code for a molecular structure. The study of protein folding is predicated on two observations. First, the functional structure of a protein resides at the free energy minimum of all possible conformations. Second, that despite an astronomical number of possible configurations, proteins successfully and independently adopt the functional one in a finite amount of time.

That normally soluble proteins are capable of aggregating is a well known frustration. Careful analysis, however, reveals that in many instances of disease, the aggregates are actually highly structured. These aggregates are typically called amyloid fibers and are defined by the presence of a central core of β-strands stacked at right angles to the long axis of the fiber. The initial formation of such structures is a rare event. However, once present, fibers template and appear to catalyze their own formation. The resultant structures are exceptionally resistant to degradation and disassembly by chemical or proteolytic means. Projects currently underway are therefore focused on model peptides, islet amyloid polypeptide from type II diabetes, and β2 microglobulin which forms amyloid deposits in renal failure patients on dialysis therapy. Our approaches are kinetic, thermodynamic and structural in scope, enabling our investigations to be conducted at a molecular level.


Konigsberg, William H

Abstract Number 10279310

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PhD, Columbia University, 1956

The current objective of our laboratory is to determine the mechanisms used by B family DNA polymerases for base discrimination. We have selected a T even phage DNA polymerase, RB69 pol, as a prototype for several reasons: (i) it has considerable sequence similarities to human DNA pol α and δ; (ii) it is assembled into a DNA replicase with accessory proteins in an analogous fashion to human DNA replicases; (iii) there is a wealth of structural and kinetic information about this enzyme that enables new findings about the mechanism of action of RB69 pol to be interpreted within a well established framework; (iv) despite extensive studies it is still unclear how RB69 as well as other DNA pols are able to replicate DNA with a minimum of errors (2×10⁻⁸ per base per genome replication).

Specialized Terms: Blood Coagulation; DNA Replication; Genetics; Proteins and Macromolecules


1. **Protein Structure, Function, and Design:** We are interested in the fundamental question: How does a protein’s primary sequence specify its three-dimensional structure? In addition, we are investigating the mechanisms by which proteins achieve the exquisite specificity and efficiency that are characteristic of protein-ligand interactions and enzymatic catalysis. Our research focuses upon small proteins, particularly four-helix bundle proteins, that are amenable to study by a variety of biophysical, biochemical and molecular biological techniques.

2. **Designed Metal-Binding Proteins:** We have introduced novel metal-binding sites into two proteins: a designed four-helix bundle protein, a4 and the B1 domain of IgG-binding protein G. The metal-site designs are for both structural and catalytic tetrahedral Zn(II) sites. The structural sites enhance the stability of the proteins, whereas the catalytic sites aim to exploit the powerful nucleophilic activity of Zn(II)-bound water and to mimic natural enzymes such as carbonic anhydrase and carboxypeptidase.

3. **A Model System to Study b-Sheet Formation:** The factors that are important for a-helix formation are much better understood than those for b-sheet formation. This is largely because tractable model systems in which to study b-sheet formation have been lacking. We are using the B1 domain of Ig-binding protein G as an ideal model system in which to study b-sheet formation. We have determined both the intrinsic b-sheet forming propensities of the amino acids and the energetics of pair-wise interactions across two strands of a b-sheet. The results of these studies allow us to formulate the first guidelines for rational b-sheet design.

Specialized Terms: **mental retardation; protein-protein interactions; fragile X mental retardation protein (FMRP); protein-based nanomaterials**


**Schlieker, Christian**

**Abstract Number 13238466**

Associate Professor of Molecular Biophysics and Biochemistry and of Cell Biology

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PhD, University of Heidelberg, 2004

**Mechanisms of membrane dynamics in relation to nuclear envelopathies and viral infection**

Nuclear envelopathies are a diverse group of congenital diseases that are caused by mutations affecting proteins in the nuclear envelope or lamina. We hypothesize that envelopathy-associated alleles act at least in part through a gain of function mechanism that leads to a poisoning of nuclear membrane dynamics. Our goal is to unravel the cellular mechanisms that regulate protein homeostasis in the nuclear periphery, and to elucidate the role that these pathways play in muscular dystrophies, premature aging and related envelopathies. We exploit viral proteins known to manipulate the nuclear envelope as a novel tool.
approach to identify cellular factors involved in protein turnover and non-canonical nuclear transport via vesicular intermediates.

Specialized Terms: DYT1 Dystonia, Membrane dynamics; Torsin ATPases; Alternative nuclear transport (nuclear egress); Protein quality control; viral pathogenesis


SIMON, Matthew

Abstract Number 14403935

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PhD, University of California at Berkeley, 2006
BA, Tufts University, 1999

My laboratory develops chemical and molecular approaches to study chromatin biology, with a focus on large non-coding RNAs.

Specialized Terms: Chemical biology; Large non-coding RNAs; Epigenetic regulation; Histone modifications


SOLL, Dieter G

Abstract Number 10415565

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PhD, Stuttgart Technical University, 1962

Our major interests focus on the mechanism and evolution of aminoaeryl-tRNA synthesis and the expansion of the genetic code. Currently twenty-two cotranslationally inserted amino acids (including selenocysteine and pyrrolysine) are known to occur in proteins. The synthesis of this set of aminoaeryl-tRNAs is very diverse in nature, relying on direct acylation of tRNAs by aminoaeryl-tRNA synthetases (as predicted by Crick’s adaptor
hypothesis) and also on recently discovered, novel mechanisms of pre-translational tRNA-dependent amino acid modification. The latter process is related to tRNA-dependent amino acid biosynthesis (e.g., asparagine and cysteine), the sole route to these amino acids in many bacteria and archaea. These processes also enable us to synthesize proteins containing unusual amino acid (e.g., phosphoserine and pyrrolysine).

Specialized Terms: Aminoacyl-tRNA Synthesis; Functional Genomics; Life Science Biological; Mechanism of Translation


**SOLOMON, Mark J**

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PhD, Massachusetts Institute of Technology, 1986
BA, Princeton University, 1981

My lab seeks to understand the eukaryotic cell cycle at a biochemical level. To get there, we use a variety of approaches ranging from genetics and “pseudo genetics” in yeast to biochemistry and enzyme assays using cell extracts and purified proteins from yeast and mammalian cells. We focus on two broad areas: Post-translational modification and activation of the cyclin-dependent kinases (CDKs) that control the cell cycle, and ubiquitin-dependent proteolysis of cyclins and other proteins by the Anaphase-Promoting Complex and how this proteolysis is controlled by cellular checkpoints. Progressing from genetic identification of components through their study in vitro we hope to achieve a more complete understanding of these macroscopic cellular behaviors.


**STEITZ, Joan A**

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PhD, Harvard University, 1967
BS, Antioch College, 1963

Noncoding RNA-protein complexes (ncRNPs) are ubiquitous in eukaryotic cells and inhabit specific cellular compartments. The most famous noncoding nuclear RNPs (snRNPs) participate in pre-mRNA splicing by recognizing important intron signals and assembling to form an active splicing complex called a spliceosome. There are many other kinds, including those where the RNA is made by an infecting virus. Our recent contributions to understanding the roles of ncRNA-protein complexes in mammalian gene expression include: 1) The discovery that splicing-like snRNPs are made by a virus to degrade a host microRNA. 2) Finding that a viral noncoding RNA possesses an element that forms a triple helix with the polyA tail that serves to stabilize the RNA in the nucleus.

Specialized Terms: Autoantibodies; Gene Expression; RNA; RNA Processing; SnRNPs; Viral Transformation


**STEITZ, Thomas A**

*Abstract Number 10415871*

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PhD, Harvard University, 1966
BA, Lawrence College, 1962

Our major interests are in the structural bases of the molecular mechanisms by which the proteins and nucleic acids involved in DNA replication, transcription, translation, and genetic recom-
Repair by homologous recombination

The recombinational repair of DNA double-strand breaks is mediated by a group of genes called the RAD52 epistasis group. In mammals, the efficiency of recombinational DNA repair is modulated by the tumour suppressors BRCA1 and BRCA2, providing compelling evidence that this repair pathway functions to suppress cancer formation. Importantly, recombinational DNA repair is also required for the removal of interstrand DNA crosslinks induced by bifunctional crosslinking agents, which are commonly used to treat various malignancies. In 1994, we identified the yeast Rad51 protein, a key member of the RAD52 group, as the recombinase that mediates the “homologous DNA pairing and strand exchange” reaction central to all recombination-dependent processes, including the repair of DNA double-strand breaks. This finding marked the beginning of studies on recombination enzymology in eukaryotic organisms and has created a much-needed experimental framework for dissecting the role of the other RAD52 group members in the recombination reaction.

Specialized Terms: Repair of DNA double-strand breaks; Repair by homologous recombination; Repair by DNA end-joining


ENDogenous free radicals and environmental agents such as ionizing radiation induce DNA double-strand breaks. The repair of these breaks is crucial for the maintenance of genome stability. Two distinct pathways help eliminate DNA double-strand breaks. In homologous recombination, the repair of a broken DNA molecule requires an intact homologous duplex to direct the process. Alternatively, a pathway known as non-homologous DNA end joining (NHEJ) simply rejoins the ends of the broken DNA molecule. Our research efforts focus on delineating the mechanisms of these two DNA repair pathways.

Sung, Patrick

Abstract Number 11697144

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DPhil, University of Oxford, 1985
BS, University of Liverpool, 1981

Endogenous free radicals and environmental agents such as ionizing radiation induce DNA double-strand breaks. The repair of these breaks is crucial for the maintenance of genome stability. Two distinct pathways help eliminate DNA double-strand breaks. In homologous recombination, the repair of a broken DNA molecule requires an intact homologous duplex to direct the process. Alternatively, a pathway known as non-homologous DNA end joining (NHEJ) simply rejoins the ends of the broken DNA molecule. Our research efforts focus on delineating the mechanisms of these two DNA repair pathways.

Wang, Jimin

Abstract Number 10464746

Research Scientist in Molecular Biophysics and Biochemistry
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PhD, University of California, San Diego, 1988

X-ray intensity corrections for crystals containing lattice-translocation defects

Lattice translocation defects are caused by the random translocation of some layers by a fixed constant within the stacked layers of a crystal. When such events result in the fragmentation of the crystal into smaller mosaic blocks, the observed intensities are simply additive from each block and independent of the translocation vector. When such events occur within one single coherent mosaic block, interference in X-ray diffraction is observed with the intensities modulated by a factor that is a function of this translocation vector and the fractions of the
translocated and un-translocated layers (Wang et al., 2005). This phenomenon was first observed nearly 50 years ago (Bragg and Howells 1954; Cochran and Howells 1954; Howells and Perutz 1954). The atomic structures of crystals containing the lattice-translocation defects were considered to be unsolvable (Glauser and Rossmann 1966; Pickersgill 1987). Recently, an equation for the modulation factor caused by these defects was formulated and the observed intensities become correctable using this factor (Wang et al., 2005).

Because of lattice translocation defects, two identical but translated lattices can co-exist as a single coherent mosaic block in a crystal. The observed structure in such cases is a weighted sum of two identical but translated structures, one from each lattice; the observed structure factors are a weighted vector sum of the structure factors with identical unit amplitudes but shifted phases.


XIONG, Yong

Abstract Number 11472557

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PhD, Ohio State University, 2000
MS, Ohio State University, 1999

Our lab uses structural biology methods to study biological systems that have direct health impacts. A primary interest is innate immune systems, in particular, host cellular factors that fight viral infections such as those in the human body’s first line of defense against HIV. Another major interest is the mechanisms of fatty acid synthase (FAS), the cellular fat factory, and its close relationship to polyketide synthase (PKS), the cellular machinery that produces the most important natural products widely used in human medicine. Our goal is to provide a structural basis for understanding these systems and use the information gained to direct structure-based drug design of anti-viral, anti-fungal, and antibiotic compounds. Screening of inhibitors will be carried out at the Yale Chemical Genomics Screening Facility. Additionally, we are interested in the development of X-ray crystallographic methods that will push the limits of this technique.


NEUROLOGY

ALKAWADRI, Rafeed

Abstract Number 14394585

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MD, University of Damascus, 2005

- Functional Mapping and Brain Stimulation
- Real Time Mapping of the Brain
- Passive Identification of Epileptic and Physiologic Brain Networks
- High Frequency Oscillations
- Broadband Intracranial EEG Analysis
- Evoked Potentials
- Cortical Evoked Potentials and Brain Connectivity
- Cingulate Gyrus Epilepsy and Connectivity
- Clinical Neurophysiology and Epileptology


Baehring, Joachim M

Abstract Number 11617618

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(203) 737-7084
joachim.baehring@yale.edu
MD, Johannes-Gutenberg-University of Mainz, 1994

The primary foci of Dr. Baehring’s laboratory work are primary brain tumors and neurological complications of cancer.

Dr. Baehring is involved in clinical and translational research at Yale University School of Medicine. He is an investigator for the national tumor consortia RTOG (Radiation Therapy Oncology Group) and ECOG (Eastern Cooperative Oncology Group). Other research interests include the molecular pathogenesis and development of molecular markers for primary CNS lymphoma.

Specialized Terms: Molecular markers of cancer; Nervous system lymphoma


Becker, Kevin P

Abstract Number 12173195

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MD, University of South Carolina College of Medicine, 2005
BS, SUNY at Stonybrook, 1995

My current research focus is bringing novel treatments and therapeutics to clinical trial for patients with primary brain tumors. Areas currently being developed include immunotherapeutics and novel drug delivery (use of nano-particles) to treat glioblastoma.

Specialized Terms: Primary brain tumors; Immunotherapeutics; Novel drug delivery; Nano-particles in the treatment of glioblastoma


Benjamin, Christopher F

Abstract Number 15450982

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MA, University of Melbourne, 2012
PhD, University of Melbourne, Vic., Australia, 2012
BA, University of Melbourne, Vic. Australia, 2002

If treatment with medication is not successful, neurosurgery is potentially curative for patients with epilepsy. The ability of these patients to proceed to surgery rests on the surgical team being able to accurately evaluate the likely benefit of surgery, however. A critical component of this evaluation is determining whether surgery could pose any risk to language. While we can identify which half of the brain is critical to language, we do not yet have simple methods for mapping the specific parts important for language within a given hemisphere. My work is currently determining whether a new method is suitable for doing this.

We are currently finishing a study of the method’s reliability, and are developing work determining its validity. We hope this will lead to a new method neuropsychologists and epilepsy teams can use to make sure patients and clinicians have the best information at hand in decision making.

Specialized Terms: Epilepsy, MRI, fMRI, DWI, Language, Memory, Vision


What is the relationship between brain activity and conscious thought? One of the most important unsolved questions in science, the basis of consciousness is worthy of empiric study. Our laboratory investigates brain activity when consciousness is transiently impaired during epileptic seizures. By understanding impaired consciousness, we hope to restore normal consciousness to patients with epilepsy and other brain disorders.

Our work combines neuroimaging, electrophysiology and behavioral testing. We investigate cerebral cortical networks interacting with deeper brain structures such as the thalamus and brainstem. Current projects include single cell and larger-scale electrical recordings, neuroimaging with functional magnetic resonance imaging (fMRI) and other methods in animal models and human patients to understand changes in behavior during seizures.

Our goal is to understand and to prevent impaired consciousness. Other practical applications emerging from our research include: 1. Improved computational methods for neuroimaging data analysis; 2. Relating neuroimaging signals to underlying neurophysiology; and 3. Finding molecular mechanisms of epileptogenesis and strategies to prevent or cure epilepsy.

For more information visit: http://www.yale.edu/blumenfeld/

Specialized Terms: Impaired consciousness in epilepsy; Epilepsy neuroimaging and electrophysiology


Mark Loughridge and Michele Williams
Professor of Neurology and Professor of Neurobiology and of Neurosurgery

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PhD, Columbia University, 1992
MD, Columbia University, 1990

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Specialized Terms: Impaired consciousness in epilepsy; Epilepsy neuroimaging and electrophysiology


Mark Loughridge and Michele Williams
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Specialized Terms: Impaired consciousness in epilepsy; Epilepsy neuroimaging and electrophysiology


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For more information visit: http://www.yale.edu/blumenfeld/

Specialized Terms: Impaired consciousness in epilepsy; Epilepsy neuroimaging and electrophysiology


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MD, Columbia University, 1990

What is the relationship between brain activity and conscious thought? One of the most important unsolved questions in science, the basis of consciousness is worthy of empiric study. Our laboratory investigates brain activity when consciousness is transiently impaired during epileptic seizures. By understanding impaired consciousness, we hope to restore normal consciousness to patients with epilepsy and other brain disorders.

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For more information visit: http://www.yale.edu/blumenfeld/

Specialized Terms: Impaired consciousness in epilepsy; Epilepsy neuroimaging and electrophysiology


The inability of CNS axons to regenerate and reinnervate appropriate targets after trauma results in chronic compromise of function that presents a devastating prognosis for TBI, MS, stroke and SCI patients. Numerous studies have identified two broad classes of axon growth inhibitor (AGI) proteins responsible for axon growth arrest, the myelin associated inhibitors (Nogo, MAG, OMgp) and the Chondroitin Sulfate Proteoglycans (CSPGs). Experimental paradigms that negate the activity of these inhibitors in vivo have shown a slight increase in regeneration of damaged axons, but a more dramatic restitution of function. An alternative hypothesis to long-distance axon regeneration-mediated restitution of function would be the reorganization of intact spinal circuitry that often remains after SCI. One of the central goals of my laboratory is to comprehensively evaluate the potential for intact spinal circuits to replace lost connections after SCI, and furthermore define whether negating the action of AGIs supports adaptive or maladaptive axonal reorganization. Complex wiring of the myriad phenotypes of ascending, descending and intrinsic spinal tracts points to tract-specific sensitivity to AGI’s. Understanding the molecular mechanisms that underlie the ability of intact axons to initiate a growth response to adjacent trauma is crucial to the design of therapeutic agents that can either enhance or arrest this response depending on need. Exploiting the plastic potential of intact spinal circuits will offer additional therapeutic tools to encourage restitution of function after CNS injury. In summary, my laboratory is currently utilizing anatomical, electrophysiological, genetic and in vivo imaging methodology to define the extent of plasticity within intact spinal circuitry to investigate the capacity of de novo circuits to restore function after spinal cord injury and therefore reduce the burden of this neurological disease borne by every age group, by every segment of society, by people all over the world.


the pathways that maintain synapses and their roles in aging and neurodegeneration. We are characterizing a novel presynaptic mechanism for the prevention of synapse loss and neurodegeneration involving the co-chaperone Cysteine String Protein alpha. This gene is also mutated in adult-onset neuronal ceroid lipofuscinosis, a neurodegenerative disorder with lysosomal pathology. We are also screening for new synapse maintenance genes using a dissociated neuronal culture system.

Parkinson’s disease (PD) is a prevalent, neurodegenerative disease with a strong genetic underpinnings. The first PD gene to be identified was the alpha-synuclein gene. Three point mutations and gene multiplications link alpha-synuclein to familial PD. In addition, alpha-synuclein protein is the main component of Lewy bodies, the pathological signature for PD. We are elucidating both the physiological functions and pathological properties of alpha-synuclein, in an effort to understand its central role in PD. Our lab uses mouse genetics in combination with biochemical, biophysical, and cell biological approaches to tackle these important questions.

Specialized Terms:
- Presynaptic Biology
- Synapse Maintenance
- Parkinson’s Disease
- Neuronal Ceroid Lipofuscinosis
- Neurodegeneration


DIB-HAJJ, Sulayman D

Abstract Number 10390762

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(203) 932-5711x4180
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PhD, Ohio State University, 1990
MS, The American University of Beirut, 1982
BS, The American University of Beirut, 1977

My research focuses on understanding the role of individual sodium channels, a class of proteins that conduct electrical currents, in the transmission of nerve impulses. A few sodium channels have been implicated in the hyperexcitability of pain-sensing neurons in acquired and inherited pain disorders. We are currently investigating the contribution of individual channels to the excitability of neurons under normal and pathological conditions. These studies aim to identify new targets for treatment of neurological disorders including neuropathic pain.

Specialized Terms: Molecular biology of voltage-gated sodium channels; Quantitative analysis of gene expression in normal and injured neurons; Structure-function relationship of sodium channel alpha subunits; Identification of proteins that modulate channel properties


GILMORE, Emily J

Abstract Number 12182902

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MD, University of New Mexico, 2005
BS, Vassar College, 1998

My research to date has focused on the use of continuous EEG (cEEG) monitoring in patients with severe brain injury, either secondary to a primary brain process or as a manifestation of systemic disease.

My most recent project was a prospective study in Medical ICU patients with severe sepsis who were connected to EEG monitoring. Patients with severe sepsis are at an increased risk of developing frank seizures and abnormal brain wave patterns that represent an increased risk for developing seizures. Our goal was to assess the incidence of seizures and abnormal brain wave patterns as well as the effect of such findings on short and long-term outcomes in this population.

I have also authored chapters on neuromonitoring and have experience with multimodality monitoring, which involves using how the temporally and spatially inappropriate activity of these fundamental regulators of cell behavior can drive disease states. Current interests center on: (1) intracellular signaling pathways that regulate neuronal polarity and circuit development, regeneration and aberrant polarity signaling in glioblastoma. (2) Cell-cell interaction between neural and immune cells in CNS development, regeneration and cancer. The goal of our studies is to unlock the potential for precision medicine by specifically targeting these molecular instigators.

Specialized Terms: Neuronal polarity and axon specification in neurodevelopment and regeneration; immune cells and regeneration; astrocyte polarity signaling and glioblastoma; immune cells in glioblastoma;


TAM receptor signaling in inflammatory bowel disease and colitis-associated cancer Carla V. Rothlin, Jonathan A. Leighton and Sourav Ghosh, Inflammatory Bowel Diseases, 2014, PMID: 24846720

GHOSH, Sourav

Abstract Number 15232651

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PhD, University of Tennessee, 2000
MSc, University of Calcutta, 1992

The overarching goal of the lab is to contribute to the understanding of the molecular basis of diseases by studying signaling pathways in development and cell physiology, and identifying the molecular instigators of such diseases. Recent interests center on: (1) intracellular signaling pathways that regulate neuronal polarity and circuit development, regeneration and aberrant polarity signaling in glioblastoma. (2) Cell-cell interaction between neural and immune cells in CNS development, regeneration and cancer. The goal of our studies is to unlock the potential for precision medicine by specifically targeting these molecular instigators.

Specialized Terms: Neuronal polarity and axon specification in neurodevelopment and regeneration; immune cells and regeneration; astrocyte polarity signaling and glioblastoma; immune cells in glioblastoma;


TAM receptor signaling in inflammatory bowel disease and colitis-associated cancer Carla V. Rothlin, Jonathan A. Leighton and Sourav Ghosh, Inflammatory Bowel Diseases, 2014, PMID: 24846720

Neurology 159
information from probes placed in the acutely injured brain of comatose patients to guide medical management.

Specialized Terms: Neurocritical Care; Neuromonitoring; Cerebral Multimodality Monitoring; Status Epilepticus; Traumatic Brain Injury; Subarachnoid Hemorrhage; Ischemic and Hemorrhagic Stroke; Sepsis Associated Brain Dysfunction; Encephalopathy; Delirium


Grutzendler, Jaime

Abstract Number 14008056

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MD, Universidad Javeriana School of Medicine, 1991

The dynamics and logic of neuro-glio-vascular interactions in health and disease

The overall goal of our laboratory is to uncover rules that govern the complex interactions between all brain cell types in their unperturbed in vivo environment and to determine how these dynamic cell-cell interactions are disrupted in a variety of disease states. We combine high-resolution cellular imaging in vivo and fixed tissues of single cells and small clusters of interacting cells with novel optical sensors of cellular physiology, optogenetics, chemogenetics, genome editing techniques. Our studies are initially exploratory and hypothesis generating but as we observe unique and interesting features we develop novel experimental approaches to test such hypotheses. Because of this approach, our results take us in different directions such that projects in the lab can have a neuronal, glial or vascular focus and can be geared towards understanding normal physiology or neuropathology (such as Alzheimer’s disease, microvascular and demyelinating disorders).

Specialized Terms: Neuro-glio-vascular interactions, cerebral blood flow and metabolism blood-brain barrier, two-photon microscopy, myelin imaging, synaptic plasticity, development and pathology of the brain microvasculature, Neuroinflammation, neurodegenerative diseases and stroke


HAFLER, David

Abstract Number 13252474

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MD, University of Miami School of Medicine, 1978
BS, Emory College, 1974
MS, Emory University, 1974

Dr. Hafler’s laboratory has been a major force in defining human autoimmune disease for over a quarter of a century. After demonstrating the presence of an activated peripheral immune system in patients with MS, he was among the first to apply human T cell cloning to human disease, defining the dominant epitopes of myelin antigens in MS (Nature, 1990) and of islet antigens in diabetes (Nature 2005). His lab has deeply examined the mechanism for the loss of suppression, and was among the first to describe regulatory T cells in humans (JI, 2005) and molecular mechanism elucidating defects in regulating tolerance in autoimmune disease (JEM, 2006; Science 2007). Moreover, his lab has recently elucidated the mechanism for induction of Th17 cells in humans (Nature 2008).

He continues to be active as a clinician, and has led a number of clinical trials, including the first therapy of human autoimmune disease with monoclonal antibodies in the 1980s. After a sabbatical with Eric Lander at the Broad Institute, Hafler led the first whole genome scan identifying gene variants associated with MS (NEJM, 2007).

Dr. Hafler is Founder and past president of the Federation of Clinical Immunology Societies and is an NIH Jacob Javits Scholar.

Specialized Terms: Neuroimmunology; Multiple Sclerosis; Autoimmunity; Genetics; Immunobiology


HIRSCH, Lawrence J

Abstract Number 13718240

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MD, Yale University School of Medicine, 1991
BA, University of Pennsylvania, 1987

Dr. Hirsch’s interests and publications are on topics including brain monitoring in the critically ill, status epilepticus, epilepsy surgery, effectiveness and tolerability of antiepileptic drugs, brain stimulation for epilepsy, and sudden death in epilepsy.


HWANG, David Y

Abstract Number 14272916

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MD, Harvard Medical School, 2006
BS, Emory University, 2001

Our group and collaborations have the following ongoing interests: (1) the accuracy and thought processes of clinicians when predicting functional outcomes for Neuro ICU patients with severe diseases such as hemorrhagic stroke; (2) the experiences of family members of patients hospitalized in the Neuro ICU, with regards to shared decision making; (3) the decision-making priorities of surrogate decision makers for Neuro ICU patients who lack capacity and who are seriously ill; (4) the variability across US hospitals regarding how decisions to prolong care versus pursue comfort care for Neuro ICU patients are made; and (5) the efficacy of communication training for physicians.
Koo, Brian B

**Abstract Number 14893076**

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BA, University of Pennsylvania, 1995

My main research interests lie in the intersection between neurology and sleep medicine. My current area of focus is on the restless legs syndrome (RLS) and periodic limb movements during sleep (PLMS) and their association with cardiovascular disease. We have compiled epidemiologic evidence that PLMS is associated with the development of cardiovascular disease such as myocardial infarction, peripheral vascular disease and stroke. We are learning from additional studies that hypertension may play a role in this association. I am currently interested in taking a closer look at the sleep physiology in individuals with RLS and PLMS, inspecting specific time domain elements of these limb movements as well as heart rate and breathing. In addition to this vein of research, I have completed work on an animal model of RLS and am currently investigating the human genetics related to this troubling disorder.

Specialized Terms: Restless Legs Syndrome; Periodic Limb Movements During Sleep; Obstructive Sleep Apnea and Stroke


Kocsis, Jeffery D

**Abstract Number 10412845**

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PhD, Wayne State University, 1976

My research program focuses on cell transplantation strategies to repair the damaged spinal cord. We have shown that a number of cell types can both remyelinate the demyelinated CNS and encourage CNS axonal regeneration. Our laboratory utilizes a number of cellular and electrophysiological techniques to study cell transplant-induced repair.

While most of our work utilizes rodent models, we also use non-human primates. Although direct surgical implantation of cells is a reasonable approach for cell delivery in single lesion sites, multiple sclerosis is complicated by numerous demyelinated sites within the CNS. We have shown that intravenous delivery of a bone marrow cell fraction enriched with mesenchymal stem cells (MSCs) can home to a demyelinated lesion in the rodent spinal cord and remyelinate the damaged axons.

This suggests the intriguing prospect that methods could be developed for autologous intravenous delivery of cells that could repair demyelinated lesions scattered throughout the CNS. We are aggressively studying this approach in various demyelinating lesion models.

Specialized Terms: Transplantation-based approaches toward restoration; Preservation of function in the injured central nervous system; Axonal regeneration; Cell transplantation; Ion channels; Nerve injury; Remyelination; Spinal cord injury


Meyer, Ana-Claire L

**Abstract Number 14679896**

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MHS, Veterans Affairs / University of California - Los Angeles, 2008
MSHS, University of California, 2008
MD, Harvard Medical School, 2002
AB, Amherst College, 1994

My main research interests lie in the intersection between neurology and sleep medicine. My current area of focus is on the restless legs syndrome (RLS) and periodic limb movements during sleep (PLMS) and their association with cardiovascular disease. We have compiled epidemiologic evidence that PLMS is associated with the development of cardiovascular disease such as myocardial infarction, peripheral vascular disease and stroke. We are learning from additional studies that hypertension may play a role in this association. I am currently interested in taking a closer look at the sleep physiology in individuals with RLS and PLMS, inspecting specific time domain elements of these limb movements as well as heart rate and breathing. In addition to this vein of research, I have completed work on an animal model of RLS and am currently investigating the human genetics related to this troubling disorder.

Specialized Terms: Restless Legs Syndrome; Periodic Limb Movements During Sleep; Obstructive Sleep Apnea and Stroke


The overarching goal of my research is to expand access to neurological care to underserved populations domestically and to underserved regions globally. My research focuses on epilepsy treatment and infectious diseases of the nervous system. I have active projects focused on the global burden of disease due to epilepsy, a clinical trial of preventive strategies for cryptococcal meningitis and evaluating health and economic outcomes of Kenyans with HIV-associated cognitive impairment. I also work to improve access to Neurology training for physicians from underserved regions.

**Specialized Terms:** Global health; HIV/AIDS; Epilepsy; Tropical medicine; HIV-associated neurocognitive impairment; Health services research; Quality of care


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**Navaratnam, Dhasakumar S**

**Abstract Number 11331134**

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PhD, Oxford University, 1991

MD, University of Colombo, 1986

We work on the molecular basis of a number of physiological phenomena related to the hearing and balance organs.

**Phenomenon of electrical resonance.**

Electrical tuning is a phenomenon by which certain vertebrates discriminate between different frequencies of sound. Electrical resonance results when the inherent oscillation in the membrane potential of hair cells corresponds to sound of a particular frequency. This gives rise to a resonance and amplification of signal with consequent transmitter release from these cells. The inherent oscillation in membrane potential in a hair cell is brought about by an inward Calcium current and an outward Potassium current (calcium dependent). Inherent to this view is that the two proteins are physically proximate.

We had previously erroneously believed that the range in BK channel currents was brought about by alternative splicing. We now hypothesize that this variation in current is brought about by association with other proteins. We have isolated several binding partners using the yeast two hybrid technique and are in the process of evaluating their ability to alter BK kinetics and bring about channel clustering and co-localization. The role of Prestin (in Collaboration with Dr. Joseph Santos-Sacchi). Prestin is a recently described protein in outer hair cells that is responsible for the sharp tuning seen in the hearing organ of mammals. It is critical for normal hearing. Knocking out of this protein results in the loss of hearing in mice.

**Specialized Terms:** Hearing and Balance Organs


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**Nowak, Richard**

**Abstract Number 12561730**

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MD, Drexel University College of Medicine, 2007

MS, Northwestern University, 1999

BS, Loyola University of Chicago, 1997

Dr. Nowak is focused on elucidating the immunopathologic mechanisms of myasthenia gravis, an autoimmune disorder targeting the neuromuscular junction in patients resulting in weakness. He is working toward identifying new drug targets as well as exploring the effectiveness of B cell directed therapies (e.g., rituximab).

**Specialized Terms:** Myasthenia Gravis; Guillain-Barre Syndrome (GBS); CIDP; Immune Therapies, Neuropathy; Charcot Marie Tooth Disease; ALS.


The O’Connor laboratory, is part of the Department of Neurology and program in Human Translational Immunology (HTI) at Yale University School of Medicine. The aim of our research is to further elucidate the role that B cells play in disease. We are specifically interested in defining the mechanisms by which B cells, and the antibodies they produce, affect tissue damage in autoimmunity and participate in tumor biology. To this end we are engaged in determining the specificity of autoantibodies and understanding the mechanisms by which B cells organize in autoimmune tissue. Areas of special interest in our autoimmunity program include multiple sclerosis, inflammatory myopathy and myasthenia gravis. Our cancer program is currently focused on meningiomas and germ cell tumors.


Dr. Patel’s research interests include the use of deep brain stimulation in the treatment of movement disorders, in particular Parkinson’s disease, tremor and dystonia. He is interested in identifying the most appropriate patient candidates for this advanced therapy, as well as determining their optimal targets and programming parameters. For patients with Parkinson’s disease, he is investigating the variable effects of stimulation to the subthalamic nucleus and globus pallidus interna on gait and balance. These symptoms are currently challenging to treat with deep brain stimulation, and represent a significant source of debility and quality of life concerns for those living with advanced Parkinson’s disease.


Dr. Sheth’s research focuses on the identification and translation of new therapies for patients with acute neurological injury such as stroke, brain hemorrhage, and trauma. The main focus of his group is to further the understanding of inflammation and swelling after acute central nervous system injury. His group is actively involved in developing new methods, including neuroimaging, to detect and follow brain swelling. He is also involved in leading several national clinical trials testing novel therapies directed at brain swelling. Dr. Sheth also studies medical decision making and prognostication in patients with acute neurological injury.

Specialized Terms: Brain edema; Stroke; Intracranial hemorrhage; Neurocritical Care; Critical care; Prognosis; Biomarkers; Clinical Trials


Kimberly WT, Battey T, Pham L, Wu O, Yoo AJ, Furie KL, Singhal AB, Elm JJ, Stern BJ, Sheth KN. Glyburide is associated with attenuated vasogenic edema in stroke patients. Neurocrit Care (in press)

Sico, Jason J

Abstract Number 11700527

Assistant Professor of Neurology
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MD, Temple University School of Medicine, 2003
BS, University of Scranton, 1999

I am interested in how medical comorbidities among ischemic stroke patients may be both novel stroke risk factors and adversely affect outcomes (e.g., mortality and readmission rates). Several areas that I am active examining include the role of HIV and stroke risk in the era of HAART, hematologic abnormalities associated with higher mortality rates among stroke patients, and addressing cardiac screening in this high risk vascular population.

Specialized Terms: Ischemic stroke; Outcomes based research; HIV/AIDS; Neuropathy; Obstructive sleep apnea


Dr. Sivaraju’s research interests and publications are on topics including epilepsy surgery, intracranial EEG monitoring, and outcome prediction using EEG in post-cardiac arrest comatose patients.


Our group’s clinical and translational research focuses on characterization of the central nervous system in HIV-infected patients in an effort to understand and treat the processes underlying damage to the nervous system by HIV, as well as establishment and reduction of potential central nervous system reservoirs for infection.

Our current program employs a multidisciplinary approach to patient-oriented research in neuro-HIV, through active collaborations with researchers in immunology, radiology, neuropsychology, virology, and molecular biomarkers. We apply these methods to novel studies of patients that may inform about neuroprotection and neuropathogenesis in HIV, including individuals with acute or early HIV infection, elite controllers who maintain undetectable viral loads in the absence of antiretroviral therapy, and patients at different stages of treatment with antiretroviral therapy. We are also performing clinical studies aimed to examine and/or reduce early establishment of central nervous system reservoirs for HIV infection.

Our studies focus on subjects recruited in urban centers in the US and other international sites including Bangkok, Thailand. Broader involvement with the design and implementation of multicenter studies relevant to neuro-HIV is facilitated by Dr. Spudich's leadership position within the international AIDS Clinical Trials Group (ACTG), facilitated by an affiliation with the Cornell AIDS Clinical Trials Unit.

Specialized Terms: HIV; AIDS; Central nervous system inflammation; Viral compartmentalization; Acute infection; HIV reservoirs; Magnetic resonance spectroscopy; Diffusion tensor imaging; Neural markers; Cerebrospinal fluid biomarkers


Cerebrospinal fluid and neuroimaging biomarker abnormalities suggest early neurological injury in a subset of individuals during primary HIV infection. Peluso MJ, Meyerhoff DJ, Spudich S. Cerebral metabolite changes prior to and after antiretroviral therapy in primary HIV infection. Neurology. 2014 Jun 1;207(11):1703-12.
organism to regain function, new pathways must form by growth of cut or surviving nerve fibers. Unfortunately, the growth of axons and the rearrangement of brain circuitry are extremely limited in the adult brain and spinal cord.

We focus on understanding the molecular pathways that limit fiber growth and functional rewiring of neuronal circuits during health and disease. Axonal growth encompasses both neural plasticity and repair. Technically, we utilize chronic in vivo imaging of neuronal connections, genetic alteration of mice and induction of surgical lesions resembling clinical SCI and Stroke. In particular, we have found that the NogoReceptor (NgR1) pathway mediating myelin inhibition of axonal growth plays a role in titrating anatomical plasticity in the adult CNS.

In Alzheimer’s Disease and several other neurodegenerative conditions, nerve cells are lost over time. Molecular contributors to this pathology have been discovered by genetic methods, but their mechanism of action has remained poorly understood. We have focused on defining the pathophysiological action of Amyloid-beta (Aβ) peptide oligomers in Alzheimer’s Disease, and on the role of secreted Progranulin in Fronto-Temporal Dementia. For both of these molecules, interaction with the specific receptors on the neuronal surface is crucial. We utilize receptor ligand binding assays, expression cloning, electrophysiology, genetics and mouse behavior to study these pathways.


Our second axis of studies concerns neurovascular interactions, especially the neurobiology of vascular growth factors and receptors. In collaboration with A. EICHMANN (Dpt of CardioVascular Medicine, Yale School of Medicine), we are exploring the role of VEGFRs (Vascular Endothelial Growth Factor Receptors) in neural stem cells and neurovascular niches of the adult brain. As VEGF receptors are targeted by anti-angiogenic anti-tumor therapies, investigations of possible effects of these treatments in the CNS are clinically highly relevant.

Specialized Terms: stem cells; Glial cells; Neurovascular niches; Cell proliferation and differentiation; Cell migration; Vascular growth factors and receptors; Axonal guidance molecules


Our first axis of research aims at understanding the development of glial cells in the central nervous system. Studies are focusing onto the specification and migration of oligodendrocyte precursor cells (OPCs) in the avian and murine embryonic brain. Research programs are currently developed to investigate the role of Hox Homeoproteins in OPC development and myelin repair.

Thomas, Jean-Leon

Abstract Number 13585861

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(203) 737-5044
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PhD, University of Paris, 1992
MSc, University of Nantes, 1981

Our first axis of research aims at understanding the development of glial cells in the central nervous system. Studies are focusing onto the specification and migration of oligodendrocyte precursor cells (OPCs) in the avian and murine embryonic brain. Research programs are currently developed to investigate the role of Hox Homeoproteins in OPC development and myelin repair.

Tokuno, Hajime

Abstract Number 10434452

Assistant Professor of Neurology
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MD, George Washington University, 1993

I have an interest in studying patients with chronic pain syndromes. I focus on subjects with myofascial pain syndromes, neuropathic pain and complex regional pain syndrome (a.k.a. reflex sympathetic dystrophy).


**WAXMAN, Stephen G**

*Abstract Number 10322626*

Bridget M. Flaherty Professor of Neurology

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MD, Albert Einstein College, 1972
PhD, Albert Einstein College, 1970

My research program focuses on the application of molecular techniques to the study of neurological diseases, especially spinal cord injury, multiple sclerosis, and neuropathic pain. We are interested in understanding the molecular basis for functional recovery after CNS injury. Our studies on ion channels in impulse conduction in normal, demyelinated, and regenerating nerve fibers use molecular biological, immunomorphological, and patch-clamp techniques. We are also investigating the modification of conduction properties by pharmacologically altering ion channel characteristics, an approach that has led to clinical studies in multiple sclerosis and spinal cord injury. Using familial erythromelalgia, a human pain syndrome as a model system, we are studying the role of sodium channels in the regulation of excitability of pain-signaling sensory neurons. We hope that our work will lead to new therapies not only for erythromelalgia but also for multiple sclerosis, spinal cord injury, and related disorders.

**Specialized Terms:** Axons; Electrophysiology; Genes; Ion Channels; Molecular Biology; Multiple Sclerosis; Pain Syndromes; Sodium Channels; Spinal Cord Injury; Stroke


**AYOUB, Albert E**

*Abstract Number 11854938*

Research Scientist in Neurobiology

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MD, Albert Einstein College, 1972
PhD, Albert Einstein College, 1970

My research program focuses on the application of molecular techniques to the study of neurological diseases, especially spinal cord injury, multiple sclerosis, and neuropathic pain. We are interested in understanding the molecular basis for functional recovery after CNS injury. Our studies on ion channels in impulse conduction in normal, demyelinated, and regenerating nerve fibers use molecular biological, immunomorphological, and patch-clamp techniques. We are also investigating the modification of conduction properties by pharmacologically altering ion channel characteristics, an approach that has led to clinical studies in multiple sclerosis and spinal cord injury. Using familial erythromelalgia, a human pain syndrome as a model system, we are studying the role of sodium channels in the regulation of excitability of pain-signaling sensory neurons. We hope that our work will lead to new therapies not only for erythromelalgia but also for multiple sclerosis, spinal cord injury, and related disorders.

**Specialized Terms:** Axons; Electrophysiology; Genes; Ion Channels; Molecular Biology; Multiple Sclerosis; Pain Syndromes; Sodium Channels; Spinal Cord Injury; Stroke


**NEUROSCIENCE**

**ARNSTEN, Amy F**

*Abstract Number 10329902*

Professor of Neurobiology and of Psychology

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PhD, University of California, San Diego, 1981

The Arnsten lab studies molecular influences on higher cognitive function, with the aim of developing rational therapies for mental illness and for age-related cognitive disorders such as Alzheimer’s Disease. The work focuses on the prefrontal cortex, a highly evolved brain region that creates our “Mental Sketchpad”, allowing us abstract reasoning, high order decision-making, working memory, and thoughtful regulation of attention, behavior and emotion (including inhibition of inappropriate thoughts, actions and feelings). The Arnsten lab has discovered powerful chemical signaling pathways that can impair prefrontal function, e.g. when we are stressed, as well as protective pathways that maintain strong cognitive function. These pathways are altered by normal aging, and can be genetically altered in mental illness. Based on research in the Arnsten lab, two medications have been developed for human use: guanfacine (Intuniv) for the treatment of Attention Deficit Hyperactivity Disorder, and prazosin for the treatment of Post-Traumatic Stress Disorder.

**Specialized terms:** Molecular influences on higher cognitive function


Cardin, Jessica A

**Abstract Number 13237276**

Assistant Professor of Neurobiology

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PhD, University of Pennsylvania, 2004
BA, Cornell University, 1997

I am interested in how neurons in the brain communicate with each other, and how that communication leads to perception and behavior. We study how the brain represents and interprets what the eyes see, and how changes in the pattern of brain activity can change what is perceived.

Specialized Terms: Neuroscience; Cortex; Inhibitory interneuron; Oscillation; Electrophysiology; Vision; Schizophrenia; Epilepsy; Intracellular; Network


Bruce, Charles J

**Abstract Number 10377944**

Associate Professor of Neurobiology

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PhD, University of North Carolina, 1976

My laboratory’s research concerns cortical mechanisms of behavior and our experiments involve studying the activity of single neurons in different regions of the neocortex. These neuronal recording data are complemented by several related techniques including intracortical microstimulation, physiological identification of corticocortical pathways with antidromic activation, neurochemical injection, neuroanatomical tracer injection, etc., and also by investigations of the behavioral effects of experimental brain lesions and computer simulations of cortical networks’ underlying behavior. “Our mission is nothing short of trying to crack the brain code.”

Specialized Terms: Neurophysiology of Sensorimotor Processing in Cerebral Cortex


Carnevale, Nicholas

**Abstract Number 10455090**

Senior Research Scientist in Neurobiology

(203) 737-4232
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MD/PhD, Duke University, 1974
BS, University of Arizona, 1968

My field of interest is computational neuroscience, with an emphasis on bridging the gap between experimentation and theory. The premise that underlies my work is that the “device physics” of brain hardware (i.e. the anatomical and biophysical properties of neurons and their interconnections) has an essential role in brain function. Neurons operate by the interaction of electrical and chemical signals.

I have focused on the spatiotemporal dynamics and functional consequences of these interactions, which are governed by mechanisms that span a wide range of temporal and spatial scales and are often highly nonlinear. Furthermore they are
constrained by the complex architectures of neuronal networks, individual cells, and subcellular structures.


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**CRAIR, Michael C**

**Abstract Number 12442135**

William Ziegler III Professor of Neurobiology and Professor of Ophthalmology and Visual Science
Sterling Hall of Medicine, B-Wing
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PhD, University of California at Berkeley, 1991
MA, University of California at Berkeley, 1987
AB, University of California at Berkeley, 1985

In the brains of mammals, birds and invertebrates, the sensory world is organized into regular neuronal arrays or maps. Common examples are the map of body surface in somatosensory cortex (the so called “homunculus”) and the representation of oriented bars or edges in visual cortex.

We are interested in understanding how genes (‘nature’) and the environment (‘nurture’) interact to guide the development of neuronal maps. Our research focuses on development of the visual and somatosensory systems. We employ a broad range of experimental techniques, including neuroanatomy, molecular biology and biochemistry, in vitro and in vivo electrophysiology as well as optical imaging.

This array of approaches allows us to examine neural circuit development from many perspectives, and provides synergistic impetus to our exploration of the cellular and molecular mechanisms for sensory map development.

Specialized Terms: Neural circuit development; Synapse formation; Visual system development; Cortex development


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**HIGLEY, Michael J**

**Abstract Number 13247425**

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Boyer Center for Molecular Medicine
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MD/PhD, University of Pennsylvania, 2007
BA, Cornell University, 1998

The neocortex plays a central role in the processing, storage, and retrieval of information necessary for sensory perception and higher cognitive abilities. These functions depend on the capability of individual neurons to perform complex computations through the compartmentalization of electrical and biochemical signaling within their dendritic arbors. Our goal is to understand how the dynamic interactions of excitatory, inhibitory, and neuromodulatory inputs within different subcellular domains influence the activity of single neurons and the local networks in which they participate. By combining an array of methods, including electrophysiology, multiphoton microscopy, and opto-genetic manipulation of targeted neuronal populations, we are bridging the gaps between molecular, cellular, and systems neuroscience. With this multilevel approach, we hope to generate new insights into the neural mechanisms of complex behaviors and the pathophysiology of neuropsychiatric disorders including schizophrenia and autism.

Specialized Terms: Synaptic Integration; GABAergic Inhibition; Dendrites; Electrophysiology; Multiphoton Imaging


Lab focuses on three issues: (1) Characterizing neuronal responses to spectrally complex natural scene stimuli. This work uses modern linear and non-linear system identification methods to estimate the receptive field properties of visual neurons based on neuronal responses to natural visual stimuli. (2) Identifying the sources and circuits underlying top-down modulation of visual selectivity using neurophysiological methods. We use visual search tasks in conjunction with single neuron recordings to investigate how attention and memory interact with visual processing during complex behavior to facilitate target detection. (3) Exploring interactions between visual processing and oculomotor behavior. These studies seek to clarify the relationship between spatial attention and the oculomotor planning processes by studying how saccadic eye movements affect the locus of spatial attention.


Decision making is ubiquitous, and the ability to develop the knowledge about the animal’s environment from experience and use this knowledge to maximize the overall reward is essential for survival. Lee's laboratory focuses on the role of the prefrontal cortex and the basal ganglia in evaluating the outcomes of the animal’s previous choices and incorporating this information to improve the animal’s decision-making strategies.

His research is highly inter-disciplinary and capitalizes on the insights from formal theories of economics and reinforcement learning as well as computational neuroscience of neural coding and behavioral studies of decision making. His laboratory also develops novel behavioral paradigms that can probe the core processes of decision making. Combined with the use of multi-electrode recording systems, this research seeks to unravel the biological basis of willful actions.


Lab focuses on three issues: (1) Characterizing neuronal responses to spectrally complex natural scene stimuli. This work uses modern linear and non-linear system identification methods to estimate the receptive field properties of visual neurons based on neuronal responses to natural visual stimuli. (2) Identifying the sources and circuits underlying top-down modulation of visual selectivity using neurophysiological methods. We use visual search tasks in conjunction with single neuron recordings to investigate how attention and memory interact with visual processing during complex behavior to facilitate target detection. (3) Exploring interactions between visual processing and oculomotor behavior. These studies seek to clarify the relationship between spatial attention and the oculomotor planning processes by studying how saccadic eye movements affect the locus of spatial attention.


McCormick, David A

Abstract Number 10394519

Our laboratory investigates the cellular and network mechanisms of cortical function using a variety of in vitro and in vivo approaches, from patch clamp recording in vivo, to voltage sensitive dye imaging and two photon microscopy in vitro. Recently, we have discovered that intracortical synaptic communication operates through both an analog and digital mode. We are currently investigating the mechanisms by which axons and synapses may operate in this regime.

Additional topics we are investigating are Recurrent Networks and their potential contribution to Gain Modulation, Working Memory, and Attention. In addition, we examine Visual Cortical receptive field mechanisms and fast plasticity. Finally, we also are investigating the mechanisms of cortical dynamics in the vibrissal and auditory systems of the awake animal. Together, our studies span from the sub-cellular, through the cellular and local network, all the way to the awake behaving animal in an effort to understand the cellular and network mechanisms of cortical function and dysfunction.

Mazer, Jamie A

Abstract Number 11900192

The Mazer lab studies the role of extrastriate visual cortex in natural, visually guide behavior. We are interested in how cortical microcircuits support complex behavior. Current work in the lab focuses on three issues: (1) Characterizing neuronal responses to spectrally complex natural scene stimuli. This work uses modern linear and non-linear system identification methods to estimate the receptive field properties of visual neurons based on neuronal responses to natural visual stimuli. (2) Identifying the sources and circuits underlying top-down modulation of visual selectivity using neurophysiological methods. We use visual search tasks in conjunction with single neuron recordings to investigate how attention and memory interact with visual processing during complex behavior to facilitate target detection. (3) Exploring interactions between visual processing and oculomotor behavior. These studies seek to clarify the relationship between spatial attention and the oculomotor planning processes by studying how saccadic eye movements affect the locus of spatial attention.

Schwartz, Michael L

Abstract Number 10452778

Associate Professor of Neurobiology
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PhD, George Washington University, 1980
BA, University of Denver, 1973

The research in my laboratory is concerned with the organization and development of the mammalian cerebral cortex, the influence of prenatal and neonatal experiences on the final organization of these regions and the impact on behavioral function. Studies in non-human primates focus on the organization and synaptic features of cortical areas in developing and mature monkeys, with particular emphasis on cortico-cortical, cortical-thalamic, and local circuit neurons. Studies in mice focus on the impact of perinatal hypoxia on brain development, behavioral maturation and mechanisms of recovery using a variety of wild type, knockout and overexpressing mouse models.

Studies currently in progress in the laboratory include:

1. Examination of the expression of neurotransmitter substances in the cerebral cortex of fetal and postnatal monkeys;
2. Analysis of the role of GABA and FGF on neuronal proliferation and transmitter phenotype;
3. The impact of prenatal ultrasound exposure on brain development, behavioral maturation and mechanisms of recovery using a variety of wild type, knockout and overexpressing mouse models.
4. The impact of hypoxia on the emergence of cortical connectivity and behavioral function.

The studies in the lab utilize a variety of techniques including fetal and adult neurosurgery, light (LM) and electron microscopy (EM), immunocytochemistry, tract tracing methods, and behavioral analysis techniques.

Specialized Terms: Mammalian cerebral cortex


Specialized Terms: Cellular mechanisms of cortical function; Thalamocortical function and modulation


Rakic, Pasko

Abstract Number 10032555

Dorys McConnell Duberg Professor of Neurobiology and Professor of Neurology
(203) 785-4326
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PhD, Belgrade University, 1969
MD, Belgrade University, 1959

The long standing objective of research in this laboratory is to understand the cellular events and molecular mechanisms that govern development of the mammalian central nervous system. One line of investigation focuses on the fundamental issue of the regulation of cell proliferation and death (apoptosis) that determine the number of neurons allocated to the building of the cerebral cortex. The other series of studies concern molecular mechanisms involved in neuronal migration including cell-cell recognition, neuron glia-interaction and nuclear translocation.

Specialized Terms: Central nervous system development


**SELEMON, Lynn D**

**Abstract Number 10332299**

Research Scientist in Neurobiology  
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PhD, University of Rochester, 1982

My research is directed toward elucidating structural abnormalities in brain that are associated with neuropsychiatric illness, drug exposure, and aging. In particular, I am interested in the prefrontal cortex and its connections with other brain areas because the prefrontal cortex mediates higher brain function and has been strongly implicated in diseases such as schizophrenia.

Specialized Terms: Quantitative neuroanatomy; Schizophrenia; Dendritic morphology; Prefrontal cortex; Thalamus; Hippocampus


**SHEPHERD, Gordon M**

**Abstract Number 10442935**

Professor of Neurobiology  
Farnam Memorial Biology  
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(203) 785-4336  
gordon.shepherd@yale.edu

DPhil, Oxford University, 1962  
MD, Harvard University, 1959  
BS, Iowa State College, 1955

The main research interest of this laboratory is in the neuron as a complex system and in the synaptic organization of neurons into microcircuits in the brain. We focus on the ways that information processing by the neuron takes place through an interplay of the geometry of dendritic branching, the mechanisms of transduction of synaptic or sensory signals, and contributions of passive and active membrane properties.

Specialized Terms: Neuronal Dendrites; Dendritic Spines; Synaptic Organization; Olfactory System; Brain Microcircuits; Computational Neuroscience; Neuroinformatics; Functional Connectomes

The brain is a wonderful and mysterious machine, which makes us who we are. The activity of billions of neurons and glia orchestrate our thoughts and daily life. However, alterations in the number of neurons, their misplacement, or changes in the way they receive, handle, or send information can negatively impact our brain function and our lives. A mutation in a single gene can lead to such alterations resulting in a specific pathology and disorder. Our Mission is to understand how a mutated, dysfunctional protein will lead to abnormal brain formation and function.

Specialized Terms: Neurogenesis; stem cells; mTOR; Neural stem cell; Cognitive functions; autism


Chiang, Veronica L

Abstract Number 10668729

Associate Professor of Neurosurgery and of Therapeutic Radiology

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(203) 785-2808
veronica.chiang@yale.edu

MD, University of Western Australia, 1992

Dr. Chiang’s research interests include:

1. clinical outcomes in patients with metastatic brain tumors
2. imaging changes following stereotactic radiosurgery to brain tumors

Specialized Terms: Brain Tumor; Cancer; Cerebral Metastases; Clinical Outcomes; Radiation Side Effects; Radiosurgery


DELANEROLLE, Nihal C

Abstract Number 10439297

Professor of Neurosurgery and of Neurobiology
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DSc, University of Sussex, 1995
DPhil, University of Sussex, England, 1972

In many types of epilepsy, notably in Temporal Lobe Epilepsy (TLE), seizures originate from regions of the brain that are anatomically and physiologically disorganized (seizure foci). The goal of our research is the analysis of the neuropathology of seizure foci to determine how they generate and maintain seizures. State-of-the-art molecular neuroanatomical techniques are employed to define the neuroanatomical substrates for specific types of epilepsy, while high-throughput gene expression analyses and proteomics are further employed to define the molecular complexity that underlies seizure foci.

Astrocytes in human seizure foci are targeted in studies to define their role in seizure maintenance and epileptogenesis. Our hypothesis is that astrocytes are the source of high extracellular glutamate at seizure foci through their responsiveness to inflammatory factors and modification of the blood-brain barrier at seizure foci. The laboratory is also developing new animal models of epilepsy, based on results of human studies, for translational research.

Our studies on traumatic brain research are focused primarily on brain injury caused by explosive blast pressure waves as encountered by soldiers in warfare.

Specialized Terms: Molecular and cellular neuropathology of human seizure foci; Development of animal models of human temporal lobe epilepsy; Neuropathology of Traumatic brain injury


DUNCAN, Charles C

Abstract Number 10373116

Professor of Neurosurgery and of Pediatrics
(203) 785-2809
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MD, Duke University, 1971

Development of cerebral blood flow measurement systems for immature brain by positron emission tomography, the prevention of intraventricular and germinal matrix hemorrhage in the premature infant by basic and multicenter clinical trials, basic investigations into the adaptive mechanisms of developing brain to injury, and the development of endoscopic surgery in the very young.

Specialized Terms: Adaptation of the developing brain to injury


GERRARD, Jason L

Abstract Number 14063782

Assistant Professor of Neurosurgery and of Neurobiology
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MD, University of Arizona, 2004
PhD, University of Arizona, 2002

Dr. Gerrard’s research lab is focusing on understanding the neurological processes that underlie epileptogenesis, seizure activation and seizure propagation. He is also intricately involved in several translational research projects within the Epilepsy Program that aim to advance the understanding of epilepsy and movement disorders as well as the treatment of our patients.

**Gunel, Murat**

**Abstract Number 10153459**

Nixdorff-German Professor of Neurosurgery and Professor of Genetics and of Neurobiology  
(203) 737-2096  
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MD, Istanbul University, 1991

Within the Neurogenetics program, my lab has three major research interests: the first two relate to the molecular genetics and biology of hemorrhagic stroke, focusing on brain aneurysms and cavernous malformations, and the third centers on gene discovery in developmental structural brain disorders (cerebral malformations).

The overall approach of my lab is to start with a focus on gene discovery through modern, cutting edge molecular genetics and moving on to molecular biology and functional analysis of disease in order to design diagnostics and non-invasive novel treatments.

**Specialized Terms:** Molecular genetics and biology of brain aneurysms and cavernous malformations; Molecular genetics of brain development


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**Greer, Charles A**

**Abstract Number 10452132**

Professor of Neurosurgery and of Neurobiology  
(203) 785-4034  
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PhD, University of Colorado, 1978  
BA, University of Colorado at Colorado Springs, 1971

We study mechanisms mediating the complex pathfinding and synaptogenesis of axons and dendrites during early development and how those mechanisms may degrade during aging. In the olfactory system, ~1,000 subpopulations of sensory neurons express different odor receptors. The sensory neuron axons segregate in the olfactory bulb based on odor receptor expression, producing a highly specific molecular map. Understanding the molecular basis of this segregation of axons is one of our primary goals.

In parallel, we study the targeting and differentiation of dendrites to understand the mechanisms that regulate their highly specific interactions with small subsets of the sensory neuron axons. Unique to the olfactory system, ongoing adult neurogenesis generates new populations of sensory neurons in the olfactory epithelium and interneurons centrally. The molecular differentiation and integration of these adult generated neurons into synaptic circuits is an ongoing interest in the lab.


Louvi, Angeliki

**Abstract Number 11917226**

Associate Professor of Neurosurgery
(203) 737-2457
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PhD, Columbia College of Physicians and Surgeons, 1997
BS, University of Athens, 1987

Our research is generally concerned with the study of molecular mechanisms governing the development of the mammalian brain. We are particularly interested in addressing how the perturbation of basic biological mechanisms leads to clinically significant brain pathologies. Working closely with other research groups in the Yale Program on Neurogenetics, we study the molecular and cellular mechanisms underlying neurodevelopmental disorders associated with specific genetic lesions. Insight into these questions will shed light on fundamental neurodevelopmental processes and provide information relevant for the design of therapeutic approaches.

Specialized Terms: Mammalian neural development; Mechanisms of brain morphogenesis and pathogenesis; Microcephaly; Structural brain disorders; Cerebrovascular disease; Cerebral cavernous malformations; Notch signaling; CADASIL


Matouk, Charles C

**Abstract Number 14137596**

Assistant Professor of Neurosurgery and of Diagnostic Radiology
(203) 737-5597
charles.matouk@yale.edu
MD, University of Calgary, 1999
BS, McGill University, 1996

My translational research interests can be divided along two thematic lines: (1) clinical trials implementation and design in neurological disease, and (2) advanced imaging in cerebrovascular disease. Specialized Terms: Translational application of advanced imaging protocols in neurovascular disease; clinical trials


Moliterno, Jennifer

**Abstract Number 12197811**

Assistant Professor of Neurosurgery
(203) 785-2791
jennifer.moliterengunel@yale.edu
MD, University of Florida College of Medicine, 2005

Dr. Moliterno’s interest is in taking important findings discovered in the lab (i.e. underlying genetic mutations of tumors) and applying them to patient care through clinical trials.

Specialized Terms: Clinical trials for brain tumors; Personalized medicine for patients with brain tumors; Brain tumors


PIEPMEIER, Joseph M  
**Abstract Number 10422603**  
Nixdorff-German Professor of Neurosurgery  
(203) 785-2791  
joseph.piepmeier@yale.edu  
MD, University of Tennessee, 1975  
Yale’s neuro-oncology program puts together all of the components critical to managing patients with brain tumors: comprehensive evaluation and diagnosis, leading edge treatment options, thorough follow-up and psychosocial support. Patients are welcome whether they are newly diagnosed or have already received extensive treatment.  

Calls from referring physicians, patients or their families are handled by an experienced clinical care coordinator. The coordinator ensures that appropriate appointments are made quickly. New patients with brain tumors are usually seen in the oncology clinic of the Yale Cancer Center within a couple of days. The care coordinator also acts as the patient’s interface with the various medical specialists who are called into play in each treatment plan. The patient is the focus of all of the diagnosis and treatment skills Yale’s interdisciplinary team of specialists brings to the service. Neuro-oncology surgeons, radiation oncologists, neuroradiologists, medical oncologists, neurologists, neuropathologists and others meet weekly at a Tumor Board Conference to arrive at the most appropriate treatment plan for each individual. Because the Yale Cancer Center is an academic referral center, the teams of specialists have an opportunity to treat the rarest as well as the most common cancers. Because of the center’s research and teaching mission, its practitioners are well acquainted with the most advanced treatment methods. Patients benefit from that knowledge and from specialized resources such as a dedicated neurological intensive care unit and the latest imaging technologies.  

Specialized Terms: Neuro-oncology; Acoustic neuroma; Brain tumor; Stereotactic needle biopsy  


SPENCER, Dennis D  
**Abstract Number 10442646**  
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dennis.spencer@yale.edu  
MD, Washington University, 1971  

Dr. Spencer’s research has brought together basic scientists and clinicians around a program concerning energetics, glutamate metabolism and the neurobiological study of human epileptogenic tissue. Study techniques include 4T MRS, C13 intraoperative glucose turnover studies, and in vivo and in vitro electrophysiology and microdialysis, immunohistochemistry, confocal and EM microscopy, and molecular biology. In particular, laboratory discoveries are correlated with the epileptogenic substrate in order to help define human epilepsy pathogenesis and potential therapies.  

Specialized Terms: Cerebral metabolic abnormalities that sustain epileptogenesis using MR spectroscopy, Microdialysis, and human tissue studies  


VAN DEN POL, Anthony N  
**Abstract Number 10471614**  
Professor of Neurosurgery and of Psychiatry  
(203) 785-5823  
anthony.vandenpol@yale.edu  
PhD, Yale University, 1977  

**Relationship of Research to Neurological Disease:**  
Developmental processes may underlie a number of neurological problems. These relate to normal and abnormal development. Many childhood behavioral disabilities may relate to underlying problems in brain development. We find, for
instance, that raising neurons from any region of the brain in the absence of glutamate neurotransmitter stimulation results, at a later point in neuronal development, in a hypersensitivity to glutamate, neuronal hyperexcitability (seizure-like activity), and cell death. These problems can be reduced to varying degrees by a number of peptide modulators of glutamate release and response. Another example of clinical relevance is our finding that the primary inhibitory transmitter in the brain, GABA, has excitatory actions after neuronal trauma, potentially resulting in additional secondary brain injury due to the potential loss of inhibition in affected brain circuits. An important theme in the context of this research program is the parallel that occurs between normal development and recovery after neuronal injury. Understanding normal brain development facilitates the understanding of the steps that may occur as neurons recovery from injury.


YASUNO, Katsuhito

**Abstract Number 12791247**

Research Scientist in Neurosurgery

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PhD, Tokyo Inst. Technical, 2002

Interests include: Epidemiologic Factors; Epidemiologic Methods; Mental Disorders; Nervous System Diseases; Psychiatry and Psychology;Vascular Diseases


Endometriosis is one of the most common benign diseases in reproductive aged women. It still remains one of the most enigmatic disorders in gynecology and in addition to infertility, endometriosis may also cause severe pelvic pain. Although retrograde menstruation is a nearly universal phenomenon, the prevalence of endometriosis suggests that other factors, such as immunologic changes, may determine a woman’s susceptibility to endometriosis.

The goal of our work is to understand and identify the factors present in the peritoneal environment that may help explain the development of endometriosis. We have previously shown that the peritoneal environment in women with endometriosis has characteristics of preinflammatory tissue. There is an elevation of monocyte chemotactic protein-1 and interleukin-8 in the peritoneal cavity and these chemoattractant cytokines may play a role in the pathogenesis of endometriosis. The purpose of our work is to identify the role of these chemokines in the disease process and pathophysiology associated with endometriosis.

(2) **Mechanisms of antiphospholipid antibody-induced pregnancy complications.** Another major area of interest to the lab is the impact antiphospholipid antibodies (aPL) have on a woman’s chance of reproductive success. Women with antiphospholipid syndrome are at risk for recurrent pregnancy loss and pre-eclampsia. aPL are known to directly target the placenta. Studies in the lab characterize the mechanisms by which aPL alter trophoblast function. We use mechanistic findings to identify new predictors of adverse pregnancy outcomes in these patients. We also use our in vitro studies to test the efficacy of various therapeutic agents on trophoblast responses to aPL in order to determine better ways to prevent obstetrical problems in these patients.

(3) **The role of placental microparticles in the pathogenesis of preeclampsia.** Normal pregnancy is associated with the presence of circulating placental microvesicles (MV) and exosomes and increased shedding and altered immune activation are seen in patients with preeclampsia, suggesting that placental MV and exosomes may play a role in the pathophysiology of this disease. Studies by the lab have found that placental-derived MV express high levels of the human endogenous retrovirus (HERV), syncytin-1, and have demonstrated a functional role for this protein through its interactions with immune cells. We have also identified microRNAs enriched in trophoblast-derived exosomes and are examining their biological function.


My research focuses on CNS (hypothalamic) mechanisms relating to the regulation of energy homeostasis, with emphasis on hormone action in the hypothalamus. These studies on hypothalamic inter- and intra-cellular mechanisms that regulates energy metabolism add critical information to the current understanding of the central regulation of energy balance and how alterations in stored energy are sensed in the hypothalamus. The results of my research have important implications for understanding the pathogenesis of metabolic syndrome, obesity and type 2 diabetes, disorders that are the leading cause of morbidity and mortality in the U.S., and the developed world in general, with the highest financial burden on the national economy.


GARIEPY, Aileen

**Abstract Number 13950392**

Assistant Professor of Obstetrics, Gynecology, and Reproductive Sciences and Assistant Clinical Professor of Nursing

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MPH, University of Pittsburgh Graduate Studies, 2010
MD, MCP Hahnemann School of Medicine, 2001
BA, Cornell University, 1996

My research focuses on patient-centered outcomes research to address unintended pregnancy, contraception, and abortion. Current research projects include reducing high-risk sexual behavior in adolescents, the health-related quality of life impact of unintended pregnancy, the relationship between unintended pregnancy and preterm birth and maternal mental health outcomes, and the comparative effectiveness of hysteroscopic (Essure) versus laparoscopic sterilization.


HOCHBERG, Richard B

**Abstract Number 10281911**

Professor of Obstetrics, Gynecology, and Reproductive Sciences

(203) 737-2288
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PhD, Hahnemann Medical College, 1967

Studies of hormone action, detection of tumors with steroid hormones labeled with radioactive tags, imaging the hormone responsive regions of the brain, and synthesis of unique estrogens for treatment of menopausal symptoms. Studies of an unusual family of the fatty acid esters of steroids.

Specialized Terms: Steroid biochemistry; Steroid receptors; Synthesis of estrogens; locally active estrogens; SERMs; Radiochemistry; Estrogens and Androgens labeled with high energy isotopes
Zhang J, Labaree DC, Mor G, Hochberg RB 2004 Estrogen to Antiestrogen with a Single Methylene Group Resulting in an Unusual Steroidal SERM. J Clin Endocrinol Metab 89:3527-3535


ILLUZZI, Jessica L

Abstract Number 10641427

Associate Professor of Obstetrics, Gynecology, and Reproductive Sciences
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MS, Yale University, 2006
MD, Harvard Medical School, 1998

Dr. Huang’s research interest has been the post-transcriptional regulation of gene expression in the mammalian system. Recently, her research interest has extended to the imprinted, developmentally regulated H19 long noncoding RNA (lncRNA) as a result of her serendipitous discovery of its relationship with the let-7 family of microRNAs. Abundantly expressed in fetal tissues and adult skeletal muscle, H19 has been implicated in human genetic disorders and cancer. However, how H19 acts to regulate gene function has remained enigmatic. Dr. Huang and her team noted that vertebrate H19 harbors binding sites for let-7 microRNAs, which play important roles in development, cancer, and metabolism. Using H19 knockdown and overexpression, combined with in vivo crosslinking and genome-wide transcriptome analysis, they have demonstrated that H19 modulates let-7 availability by acting as a molecular sponge. The physiological significance of this interaction is highlighted in culture where H19 depletion causes precocious muscle differentiation, a phenotype recapitulated by let-7 overexpression. Together, these results reveal an unexpected mode of action of H19 and identify this lncRNA as an important regulator of the major let-7 family of microRNAs. Currently, Dr. Huang’s lab is focusing on the identification and characterization of the molecular composition of H19-associated complexes, which will be followed by determination of biological significance of interactions of H19 with identified RNA and protein components. The ultimate goal of the studies is to gain a comprehensive mechanistic understanding of how H19, through dynamic interactions with associated components, functions to regulate gene expression under both normal and pathological conditions, with a particular focus on metabolism and reproduction.

Specialized Terms: RNA biology; Stem cells; Post-transcriptional regulation of gene expression; Metabolism

ILLUZZI, Yingqun

Abstract Number 10971601

Associate Professor of Obstetrics, Gynecology, and Reproductive Sciences
(203) 737-2578
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PhD, University of Connecticut Health Center, 1997
MD, Shanghai Medical University, 1988

Dr. Huang’s research interest has been the post-transcriptional regulation of gene expression in the mammalian system. Recently, her research interest has extended to the imprinted, developmentally regulated H19 long noncoding RNA (lncRNA) as a result of her serendipitous discovery of its relationship with the let-7 family of microRNAs. Abundantly expressed in fetal tissues and adult skeletal muscle, H19 has been implicated in human genetic disorders and cancer. However, how H19 acts to regulate gene function has remained enigmatic. Dr. Huang and her team noted that vertebrate H19 harbors binding sites for let-7 microRNAs, which play important roles in development, cancer, and metabolism. Using H19 knockdown and overexpression, combined with in vivo crosslinking and genome-wide transcriptome analysis, they have demonstrated that H19 modulates let-7 availability by acting as a molecular sponge. The physiological significance of this interaction is highlighted in culture where H19 depletion causes precocious muscle differentiation, a phenotype recapitulated by let-7 overexpression. Together, these results reveal an unexpected mode of action of H19 and identify this lncRNA as an important regulator of the major let-7 family of microRNAs. Currently, Dr. Huang’s lab is focusing on the identification and characterization of the molecular composition of H19-associated complexes, which will be followed by determination of biological significance of interactions of H19 with identified RNA and protein components. The ultimate goal of the studies is to gain a comprehensive mechanistic understanding of how H19, through dynamic interactions with associated components, functions to regulate gene expression under both normal and pathological conditions, with a particular focus on metabolism and reproduction.

Specialized Terms: RNA biology; Stem cells; Post-transcriptional regulation of gene expression; Metabolism

Specialized Terms: Obstetric Intervention; Group B streptococcus


KALLEN, Amanda N

Abstract Number 12458387

Assistant Professor of Obstetrics, Gynecology, and Reproductive Sciences
(203) 785-4005
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MD, University of Connecticut School of Medicine, 2007

Dr. Kallen is currently one of a few physician-scientists appointed by the NIH as a RSDP (Reproductive Scientist Development Program) scholar. She is presently carrying out her postdoctoral research under the supervision of Dr. Yingqun Huang and Dr. Haifan Lin of the Yale Stem Cell Center. Her current projects include investigation of the role of the H19/let-7 axis in granulosa cell function, steroid pathway regulation, and ovarian follicular development.

Specialized Terms: granulosa cell function; ovarian biology; infertility; steroid pathway; long noncoding RNAs; microRNAs


LERANTH, Csaba

Abstract Number 10443190

Professor of Obstetrics, Gynecology, and Reproductive Sciences and of Neurobiology
(203) 785-4748
csaba.leranth@yale.edu
PhD, Hungarian Academy of Sciences, 1978
MD, Semmelweis University, 1964

Positive gonadal hormonal and negative bisphenol A effects on brain areas involved mnemonic functions (hippocampus and prefrontal cortex) of females and males

Specialized Terms: Positive gonadal hormonal negative bisphenol A effects


**Mak, Winifred**

**Abstract Number 14107268**

Assistant Professor of Obstetrics, Gynecology, and Reproductive Sciences  
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(203) 737-4173  
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PhD, University of London, 2004  
MBBS, University of London, 1997

Dr Mak, is currently one of a few physician-scientists appointed by the NIH as a WRHR (Women’s Reproductive Health Research) scholar. She is presently carrying out her postdoctoral research under the supervision of Dr Haifan Lin, the director of the Yale Stem Cell Center. Her current projects include investigating the role of an RNA binding protein, Pumilio in the ovary and during embryonic development using a transgenic knockout model; the epigenetic regulation of trophoblast stem cells and their future potential use in placental therapy.

**Specialized Terms:** Embryogenesis; Epigenetic regulation of placental development; Role of Pumilio; RNA binding protein in oogenesis and embryogenesis; Trophoblast stem cells


**Mor, Gil G**

**Abstract Number 10353736**

Professor of Obstetrics, Gynecology, and Reproductive Sciences  
(203) 785-6294  
gil.mor@yale.edu  

PhD, Weizmann Institute of Science, 1993  
MSc, Hebrew University of Jerusalem, 1988  
MD, Hebrew University, 1987

Major research interest: Models for delivery of obstetric care.

Other research interests: Use of cognitive behavior therapy in the treatment of anxiety in patients with pregnancy losses with Dr Neill Epperson; Medical complications of pregnancy; Ultrasound of fetal anomalies.

“Group Prenatal Care” The Centering Pregnancy Program is an innovative model for providing group prenatal care that has been implemented at prenatal care sites around the United States since 1995. It has ten defined 2-hour sessions implemented from weeks 16 through 40 of pregnancy. All prenatal care occurs within the group setting except for the initial intake done prior to group assignment, medical concerns involving the need for privacy, and cervical assessments late in pregnancy.

In this group setting, up to 12 women of the same gestational age receive basic prenatal risk assessments, can share support from other women, and obtain knowledge and skills related to pregnancy, childbirth, and parenting. Groups are led by an obstetrical provider and an assistant trained in the model. Group prenatal care is designed to address the recommended content for prenatal care, as well as the psychosocial needs and as such is designed to improve the quality of care and consequently perinatal outcomes. We are currently in participating in a randomized clinical trial to examine whether the intervention improves STD rates as well and are looking forward to implementing the model to different sites including Haiti and South Africa.

**Specialized Terms:** Obstetric care delivery; Cognitive behavioral therapy; Complications of pregnancy; Centering pregnancy


Dr. Paidas’s career in medicine has focused on women’s health with special emphasis on blood disorders, reproduction, pregnancy complications and the latter’s impact on health and disease. His activities span direct patient care, translational research and clinical trials. Dr. Paidas’s research has been supported by federal and non-federal funding agencies.


Abstract Number 11639854

Professor of Obstetrics, Gynecology, and Reproductive Sciences
(203) 737-1982
michael.paidas@yale.edu

MA, Yale University, 2013
MD, Tufts University School of Medicine, 1987
BS, Fairfield University, 1982

Specialized Terms: Decline in ovarian reserve and multisystem implications thereof; Polycystic Ovarian Syndrome (PCOS) and metabolic implications; Menopause; Vitamin D and Reproductive Function

Dr. Pettker’s research interests relate to clinical and outcomes-based research, particularly in labor and delivery. With Dr. Edmund Funai, he has worked on developing and studying the comprehensive patient safety program at Yale, which has demonstrated significant improvements in obstetrical adverse outcome rates. His work continues to focus on patient safety efforts as well as risk/adverse outcome perception in obstetrics.


Santin, Alessandro D

In Vitro Fertilization and Intracytoplasmic Sperm Injection; Fertility Preservation for cancer patients (Eggs-Embryos-Ovary-Spermatozoa-Testis Cryopreservation); Genetics of Female and Male Infertility; Pre-implantation Genetic Diagnosis; Ethical issues in reproduction

Specialized Terms: Mutational landscape of gynecologic tumors; Therapeutic vaccine development for gynecologic malignancies; Tumor immunology; Immunotherapy; Tumor angiogenesis; Radiation biology; Experimental therapeutics in gynecologic oncology


Schwartz, Peter E

**Abstract Number 10245548**

John Slade Ely Professor of Obstetrics, Gynecology, and Reproductive Sciences

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MD, Albert Einstein College, 1966

Ovarian cancer is currently the fifth most common cancer in American women and the fourth most common cause of female cancer deaths. A lack of early warning symptoms and a lack of tests highly sensitive for detecting the disease are the major cause for the high death rate. My research is involved with early detection of ovarian cancer by screening a population of women who have at least one first degree relative with ovarian cancer, thereby making them at higher risk than the population at large for the disease.

My research is also involved with identifying tumor markers which may be useful in early detection of ovarian cancer and in monitoring women who have themselves experienced ovarian cancer. We are interested in new and innovative ways of treating patients with ovarian cancer and are enroll women in a prospective trial of neoadjuvant chemotherapy. Finally, we see a large number of women at Yale with an aggressive form of uterine cancer, uterine papillary serous cancer. I have developed new clinical approaches that have been very successful in the treatment of women with early stages of this disease and am collaborating with colleagues in studying the molecular biology of this disease in order to develop new treatment strategies.

Specialized Terms: Ovarian Cancer; Uterine; Vaginal; Cervical and vulvar cancer; Screening for ovarian cancer

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**SHETH, Sangini S**

**Abstract Number 11021581**

Assistant Professor of Obstetrics, Gynecology, and Reproductive Sciences

(203) 737-8838
sangini.sheth@yale.edu

MD, Johns Hopkins University School of Medicine, 2009
MPH, Johns Hopkins Bloomberg School of Public Health, 2008
BS, Yale University, 2003

Dr. Sheth’s clinical and public health backgrounds have guided her research interests which include optimizing reproductive health awareness, access, and care among marginalized groups such as adolescent, immigrant and HIV-infected women in areas ranging from contraception and preventative health services to pregnancy planning and management. Dr. Sheth is also committed to establishing evidence based obstetrics practices to reduce maternal morbidity and mortality. Dedicated to global women’s reproductive health, Dr. Sheth is also interested in quality and timeliness of care for women in resource limited settings with prior work in Honduras and South Africa.

Specialized Terms: Reproductive health access and outcomes; HIV; HPV vaccine; Management and treatment of HPV-related disease; Contraception utilization; Maternal morbidity and mortality; Adolescents


STACHENFELD, Nina S

Abstract Number 10302889

Senior Research Scientist in Obstetrics, Gynecology, and Reproductive Sciences
Pierce Laboratories
290 Congress Avenue
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(203) 562-9901 x219
nina.stachenfeld@yale.edu

PhD, Columbia University, 1993

The regulation of body fluid and sodium content involves the integration of several physiological systems. One important system controls water and sodium output and/or reabsorption by the kidneys. A number of investigations have found that hormones involved primarily in reproductive function, specifically estrogen and progesterone, have important effects on the systems that regulate body fluid balance.

Estrogen, for example, can alter the “set point” around which the thirst mechanism and kidney water reabsorptive functions regulate body fluid content. Progesterone appears to affect body fluid content through its impact on the hormones that regulate body sodium content. The study of these hormones is challenging in young women because estrogen and progesterone fluctuate during the menstrual cycle.

Consequently, we have examined these systems in older post-menopausal, women before and during treatment with estrogen. We have also used the birth control pill to control the levels of estrogen and progesterone in young women. Most recently we have used medications to temporarily suppress the menstrual cycle in young women while adding back estrogen and/or progesterone to study the effects of these hormones on body fluid regulation under more controlled conditions.

Specialized Environmental physiology; Reproductive hormone effects on temperature and body fluid regulation; Polycystic Ovary Syndrome; Orthostatic tolerance; Blood pressure regulation


XU, Xiao

Abstract Number 14115037

Assistant Professor of Obstetrics, Gynecology, and Reproductive Sciences and in the Institution for Social and Policy Studies
(203) 737-6254
xiao.xu@yale.edu

PhD, Wayne State University, 2004
MA, Wayne State University, 2002

As a health economist, Dr. Xu’s research focuses on improving the efficiency and outcomes of care for women and older adults. Her research projects have examined regional and hospital variation in utilization, cost, and outcomes of care; cost-effectiveness of interventions in obstetrics and gynecology; influence of medical malpractice environment on obstetric care; impact of insurance on health care utilization and outcomes of care; and gender and racial/ethnic differences in health and health trajectories.

Dr. Xu’s research has been funded by the Agency for Healthcare Research and Quality (AHRQ) and the Blue Cross Blue Shield of Michigan Foundation. She received Honorable Mention for the Aetna Susan B. Anthony Award from the American Public Health Association (Gerontological Health Section) for excellence in research on older women and public health (2005) and the Frank J. McDevitt Excellence in Research Award in Policy Research from the Blue Cross Blue Shield of Michigan Foundation (2008, 2011).


Diated neuroprotective effects on photoreceptors, the primary sensory neurons that mediate the first step in vision. For neural regeneration, we examine intrinsic signaling pathways and transcription control in Müller glial cells, the primary glial cell type in the retina, in order to reprogram them in vivo to generate adult retinal stem cells that are capable of differentiating to retinal neurons. In addition, my laboratory is also actively exploring strategies to promote axon regeneration after nerve injury in the adult CNS (central nervous system).

Specialized Terms: Retinal degenerative diseases; Retinal neurobiology; Signal transduction pathways; Gene network regulation


Our immediate goals are to define and characterize novel inter-neuron pathways in the mouse retina using optogenetic, electrophysiology and inactivation methods. We are also studying the cellular mechanisms that underly contrast adaptation in retinal circuitry. We will also apply our methods to reveal synaptic dysfunction in mouse models of eye disease.


Ehrlich, Michael S

Abstract Number 15353453

Assistant Professor of Ophthalmology and Visual Science
(203) 785-2020
michael.ehrlich@yale.edu
MD, Jefferson Medical College, 2005
BA, Duke University, 2000

Dr. Ehrlich is available for consultations regarding all oculoplastic and orbital conditions. Dr. Ehrlich’s clinical interests include revisional eyelid surgery, blepharospasm, and thyroid eye disease. His research interests include psycho-social aspects of reconstructive surgery and the development of tools and techniques to measure and improve outcomes in oculoplastic surgery.

Specialized Terms: Innovation of techniques and procedures in oculoplastic, orbital and lacrimal surgery


Ehrlich M, “Rethinking Vanity” Plastic Surgery Practice February 2013

Zhou, Z. Jimmy

Abstract Number 12739499

Marvin L. Sears Professor of Ophthalmology and Visual Science and Professor of Neurobiology
300 George Street
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PhD, State University of New York at Buffalo, 2003
BS, Pohang University of Science and Technology, 1993

Our laboratory is interested in understanding how neural circuits form and function to elicit appropriate behavior, and how they can be modified by experience. Orderly and specific patterns of neuronal wiring are critical to trigger coherent responses to sensory inputs. Conversely, mistakes in connectivity may lead to altered behaviors observed in disorders such as autism or schizophrenia. It is therefore essential to learn how neurons choose synaptic partners as they “wire up” the developing brain and maintain such connections throughout life. To study mechanisms of neuronal wiring, we have focused on the visual system. The success of our research will provide novel insights into the cellular basis of visual perception and will allow to generate new methods to examine neural circuitry in the normal brain and in animal models of of neurological and psychiatric diseases.

Specialized Terms: Neuroscience; Development; Visual system; Neural circuits; Transgenic approaches; Direction selectivity


Orthopaedics and Rehabilitation

Eswarakumar, Jacob V

Abstract Number 11511487

Associate Professor of Orthopaedics and Rehabilitation

(203) 785-2263
jacob.eswarakumar@yale.edu

PhD, Madurai Kamaraj University, 1999

The focus of my lab is to determine the mechanisms of signaling by Fibroblast Growth Factor Receptors (FGFRs) during development and disease conditions.

Specialized Terms: Fibroblast Growth Factor Receptors (FGFRs)


FRETZ, Jackie A

Abstract Number 12643806

Assistant Professor of Orthopaedics and Rehabilitation

(203) 785-5930
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PhD, University of Wisconsin-Madison, 2007
BS, University of New Hampshire, 2002

While the hematopoietic stem cell is a clearly defined cell type, efforts to identify a universal and standard mesenchymal stem cell have not been successful. Instead, mesenchymal progenitors are not equavelant between tissues, and harbor numerous differences in the pathways regulating thier lineage up to the mesenchymal progenitor stage. Our laboratory investigates the identities of mesangial progenitors resident in both kidney and bone. To do this we use the mouse as a genetic model system and interrogate both extrinsic signaling pathways that modulate their differentiation as well as key intrinsic transcriptional processes.

Specialized Terms: mesenchymal cell differentiation; kidney development; renal osteodystrophy; transcription; osteoprogenitors; mesenchymal to epithelial transition; skeletal homeostasis; MSC; pericyte; perivascular cells


FRETZ, Jackie A

Abstract Number 12643806

Assistant Professor of Orthopaedics and Rehabilitation

(203) 785-5930
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PhD, University of Wisconsin-Madison, 2007
BS, University of New Hampshire, 2002

While the hematopoietic stem cell is a clearly defined cell type, efforts to identify a universal and standard mesenchymal stem cell have not been successful. Instead, mesenchymal progenitors are not equavelant between tissues, and harbor numerous differences in the pathways regulating thier lineage up to the mesenchymal progenitor stage. Our laboratory investigates the identities of mesangial progenitors resident in both kidney and bone. To do this we use the mouse as a genetic model system and interrogate both extrinsic signaling pathways that modulate their differentiation as well as key intrinsic transcriptional processes.

Specialized Terms: mesenchymal cell differentiation; kidney development; renal osteodystrophy; transcription; osteoprogenitors; mesenchymal to epithelial transition; skeletal homeostasis; MSC; pericyte; perivascular cells


ORTHOPAEDICS AND REHABILITATION

Eswarakumar, Jacob V

Abstract Number 11511487

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(203) 785-2263
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PhD, Madurai Kamaraj University, 1999

The focus of my lab is to determine the mechanisms of signaling by Fibroblast Growth Factor Receptors (FGFRs) during development and disease conditions.

Specialized Terms: Fibroblast Growth Factor Receptors (FGFRs)


Jokl, Peter

Abstract Number 10420478

Professor of Orthopaedics and Rehabilitation
(203) 785-2579
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MD, Yale University, 1968
BA, Yale University, 1964

In conjunction with the bioengineering section of the Yale Department of Orthopaedics and Rehabilitation, we have established an animal model which creates a reproducible muscle contusion injury. At this stage, we are assessing various treatment strategies of this injury which is a common cause of morbidity among athletes; Knee ligament injury model. We are establishing an animal model to establish a reproducible knee ligament injury model. This model will allow us to assess biomechanical parameters involved in causing specific types of knee injuries. In conjunction with this, anatomical and histological sequela of specific injury patterns will be assessed. The model will also be used to study physiologic response to injury and mechanisms of healing; Aging and athletic performance; Future of athletic records; Non surgical factors influencing surgical outcomes in heathy patients.

Specialized Terms: Musculoskeletal pathophysiology and the effect of rehabilitation and stress on surgical outcomes; Muscle injury and repair; Psychosocial impact on surgical outcome


**Keggi, Kristaps J**

Abstract Number 10300118

Elihu Professor of Orthopaedics and Rehabilitation
Orthopaedics - Middlebury
1579 Straits Turnpike
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(203) 737-5656
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MD, Yale University, 1959

Clinical, surgical and non-surgical methods to relieve hip pain and improve the ability to walk and lead a normal life.

Specialized Terms: Bone graft alternatives; Procedures other than hip replacements for hip pain and disability; denervations; Modular hip prosthesis


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**Leslie, Michael P**

Abstract Number 13418190

Assistant Professor of Orthopaedics and Rehabilitation
(203) 785-2579
michael.leslie@yale.edu

DO, New York College of Osteopathic Medicine, 2004
BA, College of the Holy Cross, 1997

Currently my research interests include evaluating the fixation of complex, unstable pelvic ring injuries suffered as a result of high energy civilian trauma. This has most recently been working with a composite bone model that established the validity of percutaneous stabilization of the pelvic ring. In addition I have looked at anterior external fixation of the pelvis as an adjunct measure.


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**Kovacevic, David**

Abstract Number 15731771

Assistant Professor of Orthopaedics and Rehabilitation
(203) 737-2843
david.kovacevic@yale.edu

MD, Ohio State University, 2008
BA, Miami University, Oxford, Ohio, 2003

As an early career clinician-scientist, Dr. Kovacevic has a strong interest in biologic augmentation of tendon-to-bone healing and the prevention of rotator cuff muscle “fatty atrophy”. His studies are aimed at gaining a better understanding of gene expression and extracellular matrix signaling pathways that regulate tendon-bone healing and muscle repair in hopes of developing new therapeutic interventions for the treatment of tendon injury and repair and the prevention of muscle degeneration. He has an extensive background in shoulder and elbow surgery, sports medicine, and molecular biology. He has collaborated with scientists during his time at Hospital for Special Surgery, the Cleveland Clinic Foundation, and Columbia University. With his experience and the support of his section chief, Dr. Blaine, he looks to build a programmatic soft tissue research program at Yale University.


Another project involves the assessment of Lyme arthritis in children presenting to the Emergency Room with joint effusions and distinguishing Lyme from Septic Arthritis.

Specialized Terms: Spinal mobility following spinal fusion; Effectiveness of bracing on idiopathic scoliosis; cavus foot deformity treatment; Neuromuscular scoliosis; fractures in children


Walls, Raymond J

Abstract Number 15398571

Walls, Raymond J

Assistant Professor of Orthopaedics and Rehabilitation
(203) 737-5554
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MD, Royal College of Surgeons in Ireland, 2009
MBBCh, Trinity College, Dublin Ireland, 2003

Dr Walls is active in many aspects of foot and ankle research ranging from laboratory based biomechanical studies through to clinical trials and surgical outcome studies. He considers the opportunity to improve patient outcomes through such activities a privilege. Moreover, his research interests ensure that Dr Walls’ clinical work is at the forefront of international best practice.

Management of ankle osteochondral lesions (OCL’s); Clinical effectiveness of minimally invasive techniques in foot and ankle surgery; Prehabilitation in total ankle replacement; Adjuvent therapy in foot and ankle surgery; Shockwave & PRP

RJ Walls; J Chan; S Ellis. A case of acute tarsal tunnel syndrome following lateralizing calcaneal osteotomy; Accepted for publication in “Foot and Ankle Surgery”

RJ Walls, J O’Malley, S. O’Flanagan, A. Leahy, P. Kenny, P.Keogh. Effects of total knee arthroplasty performed under tourniquet control on peripheral arterial vasculature. Accepted for publication in “The Surgeon”

Whang, Peter G

Abstract Number 12442560

Whang, Peter G

Associate Professor of Orthopaedics and Rehabilitation
(203) 785-2584
peter.whang@yale.edu

MD, Duke University, 1999
BA, Harvard College, 1995

The relationship between bone quality, metabolism, and mechanosensitivity, especially how changes in metabolism (as a result of diet, age, drug treatment, or estrogen withdrawal) alter the morphology of the osteocyte lacunar-canalicular network potentially affecting bone’s response to biomechanical stimuli.


Dr. Whang is actively involved in clinical and basic science research with a focus on the biology of spinal fusion and bone healing, bone grafting substitutes, and evidence-based medicine. He continues to present the results of his studies at a number of national and international meetings. He is also involved in the development of new spinal implants and techniques. At this time he is currently an investigator for various clinical trials. Dr. Whang is on the editorial staff of several publications and serves on multiple committees for the National Association of Spine Surgeons (NASS). In addition to his research pursuits, Dr. Whang devotes much of his time to the teaching of residents and medical students in the Yale School of Medicine.

Specialized Terms: Biology of spinal fusion; bone graft substitutes; Emerging technologies for spinal surgery; Motion-sparing/nonfusion techniques for spinal fusion; Evidence-based medicine


**PATHOLOGY**

**ADENIRAN, Adebowale**

**Abstract Number 13102568**

Associate Professor of Pathology

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(203) 737-2734
adobowale.adeniran@yale.edu

MD, University of Ibadan, Nigeria, 1995

Biology of translocation renal cell carcinoma; Biology of the primary urethral carcinomas

Specialized Terms: Oncologic Surgical Pathology; Cytopathology; Urologic Pathology; Biology of translocation Renal Cell Carcinoma (RCC); Biology of the primary urethral carcinomas


**BOSSUYT, Veerle**

**Abstract Number 11625234**

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MD, Vrije Universiteit Brussel Belgium, 2002
BS, Vrije Universiteit Brussel Belgium, 1998

Tumors of the breast and female genital organs; ancillary diagnostic techniques on cytology samples

Specialized Terms: Breast and Gynecologic pathology; Cytopathology


**CAI, Guoping**

**Abstract Number 13115964**

Associate Professor of Pathology

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MS, Wenzhou Medical College, 1988
MD, Wenzhou Medical College, 1983
Application of molecular studies in fine needle aspiration biopsy, metastatic carcinoma of unknown primary


**CHOI, Young**

**Abstract Number 11379210**

Professor of Pathology
Bridgeport Hospital
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MD, Seoul National University, 1966

One of the major treatment tools for breast cancer is antiestrogen treatment against estrogen Receptor-alpha (ERα) and it is the accepted therapeutic prognostic marker to predict the response of an individual breast cancer to antiestrogen therapy. However, approximately 50% of ERα positive breast cancers are de novo resistant to selective estrogen receptor modulators (SERMs) and many breast cancers acquire tamoxifen (Tam) resistance during progression due to de novo and acquired resistance to tamoxifen and seriously limit the efficacy of this treatment. The reasons for this lack of response are poorly understood. One of the mechanisms may be related to the second receptor ER-beta. I am pursuing the receptor to determine a possible targeted therapy for breast cancer.

Specialized Terms: Immunopathology; Molecular Pathology; Cytopathology and Clinical Pathology; Breast Cancer;

Choi Y, Krause L. Evidence-based medical practice and the outcomes of education. Modern Pathol 2011; 24:129A

Choi Y, ERβ1, AIB-1 and TIF-2 expression in breast cancer-associated myofibroblasts. Modern Pathol 2010; 23:40A.

**FINBERG, Karin E**

**Abstract Number 10313616**

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Application of molecular studies in fine needle aspiration biopsy, metastatic carcinoma of unknown primary


**COSTA, Jose**

**Abstract Number 10454036**

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MD, University of Barcelona, 1967

I am interested in understanding the forces driving tumor formation and tumor progression. Using clues from clinical observation, experimental models and in silico simulations, I formulate hypotheses that can then be tested either in the laboratory or in the clinic. For example, the theory that carcinogenesis is a micro-evolutionary process best described by metapopulation dynamics provides a framework for understanding the origins of tumor heterogeneity and explains the reason for the long term failures of some therapies. It also demonstrates how intermediate disturbance can favor the emergence and progression of tumors without significant increase in mutational rate. Theory also suggests that inhibiting the so-called capacitors of evolution may be a useful intervention to increase the therapeutic effect of some of the anticancer agents used in the clinic.

Specialized Terms: Oncology; Carcinogenesis; Tumor development and progression; Advanced diagnostics; Molecular diagnostics; Diagnosed genetic alterations in tumors; Cancer risk detection by mutational load distribution analysis


MD, Yale School of Medicine, 2003
PhD, Yale School of Medicine, 2002
BS, Yale College, 1993

Iron is an essential metal required for many cellular processes, including hemoglobin synthesis in red blood cells; excess iron, however, causes oxidative damage that can lead to organ failure. Our laboratory is interested in elucidating the molecular mechanisms that regulate systemic iron balance through genetic study of patients with iron disorders and through phenotypic characterization of genetically engineered mouse models.


HARIGOPAL, Malini

Abstract Number 11833263

Associate Professor of Pathology
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BM, Gandhi Medical College, 1980

Biomarker studies in breast cancer and pancreatic cancers using an objective and quantitative method of analysis (AQUA) in tissue microarrays.

Specialized Terms: Cancer biomarkers; Breast; Thyroid; Immunohistochemistry; AQUA method of analysis in tissue microarrays and cytologic material


HOMER, Robert J

Abstract Number 10315333

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PhD, Yale University, 1987
MD, Yale University, 1987

(1). Models of inflammatory lung disease especially fibrosis.

(2) Miscellaneous interests include autopsy pathology, case reports, and quality assurance issues in pathology.

Specialized Terms: Lung pathology; Interstitial lung disease; Immunopathology; Pathology of animal models of asthma; Pulmonary fibrosis; Acute lung injury; Emphysema
Dr. Hui’s academic interests primarily focus on clinical and biological aspects of human neoplasia. Using molecular and genetic approaches, he has active research collaborations with clinical oncologists and basic science investigators in exploring the pathogenesis of several fascinating gynecological tumors including Type II endometrial carcinomas and gestational trophoblastic diseases. As medical director of the Molecular Diagnostics Laboratory, he has been exploring molecular methods in facilitating routine histological evaluations of neoplastic processes including lymphomas, translocation specific sarcomas and common solid tumors.

Specialized Terms: Gynecological tumors including endometrial and ovarian cancers; Gestational trophoblastic disease; Molecular diagnosis of cancers and molecular genotyping diagnosis of trophoblastic disease.


Katz, Samuel G  

**Abstract Number 13033718**  
Assistant Professor of Pathology  
Brady Memorial Laboratory  
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(203) 737-6262  
yuval.kluger@yale.edu  

MD, Harvard Medical School, 2004  
PhD, Harvard Medical School, 2004  

The goal of the Katz laboratory is to selectively control the cell death machinery for therapeutic benefit. Toward that end a multidisciplinary approach is applied to understand how mammalian cells are conditioned to expire, and how mutations in essential apoptotic regulators lead to developmental defects or malignancy. In particular, BCL-2 family proteins are vital regulators of mitochondrial integrity and have been implicated in the development, maintenance and chemoresistance of numerous cancers. While the basic mode of BCL-2 family action is established, how this pathway is integrated in the context of various cellular programs, including alternate survival and death pathways, is not nearly as well understood.  

Thus, we focus on:  

1. severe apoptotic blockades in cancer stem cells;  
2. loss of pro-apoptotic BCL-2 family members in mantle cell lymphoma as well as other cancers; and  
3. the mechanism of key understudied family members.  


Kleinstein, Steven H  

**Abstract Number 12319599**  
Associate Professor of Pathology and of Immunobiology  
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PhD, Princeton University, 2002  
BAS, The University of Pennsylvania, 1994  

My research seeks to make fundamental contributions to immunology through the development and application of innovative computational methods. Somatic hypermutation (SHM) and B cell affinity maturation, the core of adaptive immunity, have been a long-term focus of my work, with a major emphasis on B cell immunoglobulin repertoire analysis. Over the past several years, my research has expanded to include methods for other high-throughput immune profiling data types, with several applications to influenza infection and vaccination responses. My lab has significant expertise in both bioinformatics and immunology and, although we do not directly perform wet-lab experiments, we work closely with experimental and clinical groups for the initial phases of hypothesis generation and experimental design.  


Kluger, Yuval  

**Abstract Number 11124278**  
Associate Professor of Pathology  
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PhD, Tel Aviv University, 1993
The research in our computational biology and bioinformatics laboratory involves analysis of genomics and proteomics experiments. This includes computational analysis of output from high-throughput datasets generated from experiments involving melanoma, breast cancer, hematopoeisis, cell cycle genomics, and protein-protein interactions. The central focus of our earlier studies was to reveal functional and regulatory gene modules using genome-wide data generated in various “Omic” experiments and auxiliary information from genomics databases. We addressed issues of normalization and artifacts in microarrays. Subsequently, we developed a novel spectral method for bi-directional clustering of cancer microarray data to reveal regulatory gene modules. The lab has also focused on extracting meaningful biological information from experimental systems by assessing the co-expression of genes regulated by various transcription factors, evaluating pathway expression and building genetic networks based on functionality rather than pure expression. This approach is a step forward in identifying genes in regulatory networks that are disrupted by mutations of tumor suppressors and oncogenes and could shed light on the process of malignant transformation. Our research also involves the integration of sequence information with genome-wide transcriptome and epigenome profiles. This analysis has allowed us and our collaborators to reveal non-unique sequence recognition motifs of transcription factors in an in vivo context and to predict combinatorial regulation partners of transcription factors. Moreover, this approach has allowed us to find spatial organization of transcription factor binding events, as well as their relationships with other epigenomic factors.

The current computational activities in our laboratory include the following areas: a) Application of signal processing approaches for identification of relevant biological signals in high-throughput experiments, such as identification of aberrations in multi-subclonal cancer samples, signal denoising in next generation platforms, and de-mixing of cell types in heterogeneous samples, b) developing approaches to analyze high dimensional data from genomics platforms for biomarker discovery and personalized medicine. In particular, we use advanced applied mathematical methods to search complex local and non-local genomic patterns across the genome that may discriminate cancer patients with good vs. poor outcomes in CNA studies employing next generation sequencing or SNP platforms and c) uncovering direct and collective regulatory relationships between regulators (TFs, epigenomic factors and miRNAs) and their target genes by integration of heterogeneous Omics datasets and DNA sequences.

From a biological standpoint we are particularly interested in: a) Identification of primary or drug-treated metastatic subclones with proliferation and invasion potential in heterogeneous cancer biopsies b) The interplay between regulatory motifs, chromatin status and multi scale chromosomal structure c) Determining whether complex traits associated with certain common diseases vary across populations with different genetic backgrounds

MADRI, Joseph A

Abstract Number 10263381

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MD, Indiana University School of Medicine, 1975
PhD, Indiana University School of Medicine, 1973

Endothelial cells play central roles in development and maintenance of the vascular system and in the processes of inflammation and metastasis. Interactions with cell adhesion molecules, surrounding matrix, and soluble factors directs endothelial cell responses; yet little is known about these complex interactions and the mechanisms involved in signal transduction. Specifically, we are investigating the roles of homotypic and heterotypic cell adhesion molecules, integrins, junction associated molecules, and extracellular matrix components in modulating vascular development and behavior. We are also investigating neural stem cell-endothelial cell interactions and the roles of T-cell and endothelial cell proteinases and proteinase inhibitors in modulating T-cell transendothelial migration and their roles in initiating and maintaining the inflammatory response in murine models of autoimmune disease and in several tissue culture models. A multi-disciplinary approach is used which includes the use of knockouts, transgenics, tissue and embryo culture model systems of cell adhesion, migration, and angiogenesis.

Specialized Terms: Connective tissue disorders; Cell-Matrix and Cell-Cell Interactions; Integrin-Mediated Signaling; Cardio-vascular and neuro-vascular development; Angiogenesis and Vascular Biology; inflammation; T-cell-Endothelial cell interactions

**Means, Robert**

**Abstract Number 12030021**

Research Scientist in Pathology

Lauder Hall
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robert.means@yale.edu

PhD, Harvard Medical School, 1999
BS, Rochester Institute of Technology, 1991

Viruses have evolved exquisite mechanisms for avoiding the host immune responses. Understanding these mechanisms can lead to a better understanding of both disease and how the immune system works. My lab exploits human and non-human oncogenic herpesviruses to help uncover new approaches to improve human health.


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**Marchesi, Vincent T**

**Abstract Number 10260797**

Anthony N. Brady Professor of Pathology and Professor of Cell Biology

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MD, Yale University School of Medicine, 1963
PhD, Oxford University, 1961
BA, Yale University, 1957

During the past decade my interest have focused on the pathogenesis of Alzheimer’s disease, one of the most destructive neurological diseases that affects millions worldwide. This insidious disease becomes clinically symptomatic during the sixth decade of life, but there are reasons for believing that the disease process may begin one or two decades earlier, and abnormal metabolism of amyloid abeta peptides may be an important contributing factor.

I have been analyzing naturally occurring auto-antibodies to the amyloid abeta protein as a measure of the body’s response to either elevated levels or abnormal forms of these peptides. It is my feeling that the development of a reliable way to identify individuals who are risk for AD before the disease is evident is a critical unmet need. This lack of early detection hampers our ability to develop new therapies.

**Specialized Terms:** Pathogenesis of Alzheimer’s disease; Neurodegeneration; Amyloid abeta metabolism; Auto-antibodies; Protein-folding


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**Min, Wang**

**Abstract Number 10008517**

Professor of Pathology

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PhD, University of Wales, Swansea, UK, 1993

Understanding of the fundamental molecular mechanisms for inflammation may lead to improved therapeutic strategies for treatment of vascular diseases such as atherosclerosis. The vascular cells that primarily respond to inflammatory stimuli are the vascular endothelial cells (EC). The goal in my lab is to dissect the inflammatory signaling pathways in EC involved in vasculature. For over 15 years, my laboratory has been funded through 8 NIH, 3 AHA grants and 2 industry Research Agreements to define the critical molecules mediating inflammatory responses, and their roles in progression of vascular diseases such as atherosclerosis, graft transplant rejection and tumor metastasis. We have been the leader in the field of inflammation/stress signaling.
Since 2008, my lab has expanded our research to vascular development and remodeling. The goal in my lab is to dissect the signaling pathways, establish mouse models and define the fundamental mechanisms involved in vascular development, remodeling and repair related to human diseases such as vascular malformation, ischemia and stroke. In the past 4 years, my lab has extensively employed biochemical, cell biological and mouse genetic approaches to define the critical molecules mediating vascular development, remodeling and repair. These new projects are currently funded by 2 NIH (as PI) and 2 AHA (as a mentor) grants. These projects fit very well to the overall research mission in the Department of Pathology and the Program of Vascular Biology & Therapeutics (VBT).


MITCHELL, Kisha A

Abstract Number 12613580

MD, West Indies University, 1998

I am particularly interested in the early onset of cancer of that gastrointestinal tract, mainly of that in the colon.

I am also interested in the development and prognosis of liver cancer.

Specialized Terms: Gastrointestinal; Liver Pathology; Forensic Pathology


MOECKEL, Gilbert

Abstract Number 12763367

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PhD, Ludwig-Maximilians-Universitat Munchen, Munich, 1993
MD, Ludwig-Maximilians-Universitat Munchen, Munich, 1989

My lab studies the molecular mechanisms of fibrosis in the kidney and factors that lead to progression of fibrosis in diabetic nephropathy. We are also studying the role of adult stem cells in repair of acute kidney injury.


MORROW, Jon S

Abstract Number 10394468

Raymond Yesner Professor of Pathology
(203) 785-3624
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MD, Yale University, 1976
PhD, Indiana University School of Medicine, 1974

Central to the integrated function of multicellular organisms is cell contact mediated signaling and the spatial organizations of specialized membrane-surface domains. While many factors contribute, recent evidence indicates that the spectrin based membrane skeleton plays a pivotal role in these processes. Current research in the laboratory is aimed at understanding three aspects of the spectrin membrane skeleton in erythrocytes, epithelial cells, and neurons: 1) The factors that mediate its polarized assembly with specific surface membrane receptor domains; 2) the nature of the proteins that interact with spectrin and their role in signal transduction, cell differentiation, vesicle trafficking, and topographic membrane assembly; and 3) the molecular basis of diseases that involve spectrin or any of its associated proteins, including contributions of the cortical...
cytoskeleton to the phenotypic alterations of malignant cells and the molecular pathology of acquired and inherited disorders involving this structure. Our studies on the erythrocyte focus on a molecular understanding of how specific proteins that cause human disease.

Specialized Terms: Hemolytic Disease; Degenerative Brain Disease; spectrin; Autopsy Pathology; Renal Pathology; Medical Informatics; Computer Aided Instruction (CAI); Telepathology


PINTO, Marguerite M

Abstract Number 11379703

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MBBS, St. John’s Medical College, India, 1969

Tumor Markers in Cyst Fluids, Effusions and FNA Breast Pathology

Specialized Terms: Cytopathology/Surgical Pathology GYN; Breast


NGUYEN, Don

Abstract Number 13361563

Assistant Professor of Pathology
Brady Memorial Laboratory
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PhD, University of Rochester, 2004
BS, McGill University, 1998

Cancer metastasis remains an unresolved clinical and biological problem. This is particularly relevant in the case of thoracic malignancies, which can spread aggressively to multiple distant organs with limited opportunity for effective therapeutic intervention. Metastatic lung cancer cells are believed to acquire complex biological properties by deregulating pleiotropic genetic programs and interacting with their microenvironment. My laboratory is interested in uncovering the molecular, cellular, and physiological determinants of metastasis by different lung cancers. In this endeavor, we utilize a variety of approaches such as animal modeling, cell biology, bioinformatics, and clinical validation.

Specialized Terms: Metastasis; Lung cancer; Cancer genomics; Tumor microenvironment


POLITI, Katerina

Abstract Number 13396209

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PhD, Columbia University, 2003

Mutations in the Epidermal Growth Factor Receptor (EGFR) are found in 10-20% of lung adenocarcinomas (a subtype of lung cancer). These mutations are most common in tumors in never-smokers and are associated with sensitivity to drugs that specifically block the activity of the mutant receptor. Patients with mutant tumors initially respond to treatment with these drugs, however drug-resistant disease almost invariably emerges within a year of starting treatment. In our laboratory we use genetically engineered mouse models of mutant lung cancer to study: 1) how the mutant receptors alter signaling pathways in lung cells to cause cancer and, 2) mechanisms of resistance to therapies directed against mutant EGFR.


Robert, Marie E

Abstract Number 10415939

Professor of Pathology and of Medicine (Medical Oncology)

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MD, Johns Hopkins University, 1989
PhD, Johns Hopkins University, 1989

Current projects include creating and implementing courses for pathologists and clinicians on state of the art clinicopathologic correlation in GI and liver pathology, the role of stains such as D2-40 in evaluating lymphatic invasion in early colon cancer, and incidence of pancreatic intra-epithelial neoplasia in serous microcystic adenoma of the pancreas.

Specialized Terms: Gastrointestinal and liver pathology; Inflammatory bowel diseases; Barrett esophagus; Dysplasia associated with inflammatory bowel disease and Barrett esophagus


ROSE, John K

Abstract Number 10427074

Professor of Pathology

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PhD, Stanford University, 1973
BS, Brandeis University, 1969

The research in our laboratory is focused on novel approaches to vaccine development based on recombinant viruses and on specific targeting of viral vectors. Several years ago our group developed methodology for generating recombinants of vesicular stomatitis virus (VSV) starting from plasmid DNA. VSV is a simple membrane-enveloped, negative-strand RNA virus that grows to high titers in most animal cells. These recombinant VSVs expressing foreign viral proteins induce potent cellular and humoral immune responses to the foreign proteins in animals and protect from infection or disease caused by other viruses such as influenza, measles, respiratory syncytial virus, SARS, and a monkey AIDS virus. We are interested in understanding the mechanisms by which the recombinants generate such strong immune responses and in ways to enhance these responses further while improving vector safety. In addition, we are developing novel priming and boosting vaccine vectors based on propagating replicons of positive-strand RNA viruses.

Specialized Terms: Virology; Vaccine and gene expression vectors based on rhabdoviruses; Membrane protein assembly, transport and targeting; Viral assembly


SHADEL, Gerald S

Abstract Number 11913180

Professor of Pathology and of Genetics

Brady Memorial Laboratory
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PhD, Texas A & M University, 1991
BS, University of Nevada, Las Vegas, 1986

In humans, as in most animal cells, genetic information is housed not only in the nucleus, but also in mitochondria. Mitochondrial DNA (mtDNA) encodes thirteen essential proteins of the oxidative phosphorylation complexes as well as 22 tRNAs and 2 rRNAs required to translate these thirteen mRNAs in the mitochondrial matrix. Mutations in mtDNA cause maternally inherited neuromuscular disorders due to declines in cellular energy metabolism. In addition, mtDNA mutations accumulate in normal aging tissues, certain tumors, and have been implicated in late-onset diseases such as Alzheimer’s, Parkinson’s, and diabetes, indicating that the pathology of dysfunctional mitochondria is only beginning to be unraveled. The research in my laboratory is directed toward understanding the mechanism of gene expression in human mitochondria and its impact on human aging and disease. The ultimate goal is to understand the full impact of dysfunctional mitochondrial gene expression on human health and use this information to design specific interventions to treat mitochondria-based disease and age-related pathology.

Specialized Terms: Mitochondria; Mitochondrial Genetics and Biogenesis; Mitochondrial Dysfunction in Human Disease and Aging; Mechanisms of mtDNA Transcription and Mitochondrial Translation; Signaling Pathways that Sense and Control Mitochondrial Function; Cancer; Immune System Signaling

208 Pathology

**SINARD, John H**

Abstract Number 10411077

Professor of Pathology and of Ophthalmology and Visual Science

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MD, Johns Hopkins University, 1990
PhD, Johns Hopkins University, 1990
BA, Harvard University, 1982

I am interested in the use of computers and information technology to promote the practice and teaching of anatomic pathology. Current work includes developing enhancements to our department’s clinical information system(s) to improve workflow in the department.

Specialized Terms: Medical informatics


**SKLAR, Jeffrey L**

Abstract Number 11832328

Professor of Pathology and of Laboratory Medicine

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(203) 785-6836
jeffrey.sklar@yale.edu

PhD, Yale University, 1977
MD, Yale University School of Medicine, 1977

My lab is interested in the molecular biology of human disease, especially cancer. At present, the lab is particularly interested in two genes, JAZF1 and JJAZ1/SUZ12, which we discovered and showed to be fused head to tail in the cells of certain uterine tumors. Little is known about the function of JAZF1, although single nucleotide polymorphisms in this gene are associated with altered risk for type 2 diabetes and prostate cancer. JJAZ1is a Polycomb group gene (PcG), the product of which is essential for histone methylations that regulate chromatin remodeling and gene transcription. We have made significant progress in understanding how the JAZF1-JJAZ1 fusion functions in oncogenesis, and the mechanism by which it acts has features not previously described in cancer. Recently, we found that JAZF1-JJAZ1 RNA is produced by trans-splicing between the pre-mRNAs for the two genes in normal endometrium and that this production is regulated during the menstrual cycle. This discovery suggests that perhaps other examples among the many gene fusions known in cancer exert their oncogenic effects through the constitutive expression of chimeric RNAs normally generated in a regulated fashion by trans-splicing. The lab is currently vigorously testing this hypothesis and investigating its many biological implications.

Specialized Terms: Molecular biology of human disease, especially cancer; Molecular biologic methods of disease diagnosis; Cancer-related genes and their functions in neoplasia and normal cellular physiology; Chromosomal structure and chromosomal abnormalities in genetic and neoplastic disorders; Immunogenetics


**STERN, David F**

Abstract Number 10301087

Professor of Pathology

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PhD, University of California, San Diego, 1983
BS, Massachusetts Institute of Technology, 1976

The HER-2/Neu/ErbB-2 receptor tyrosine kinase is a major human oncogene and a validated therapeutic target in breast cancer. We are investigating the normal and carcinogenic functions of HER2 and other EGF receptor family kinases to understand how they cause cancers and how they can best be treated. We are also beginning to study the biology of other forms of breast cancer. This work includes use of cell biological, animal, and human models. Checkpoint controls are quality controls that supervise cell cycle progression and maintain genome stability. We are investigating signal transduction in yeast and human DNA checkpoint controls and the implications for cancer therapy. An
important practical problem with new, targeted cancer therapies is linking patients to therapies that match the specific alterations in their cancers. We are pursuing high throughput genetic and proteomic approaches to this problem.

Specialized Terms: Cancer Biology; Signal transduction by HER2/ErbB2 and other EGF family receptor tyrosine kinases; EGF family receptors in breast cancer and mammary development; DNA damage checkpoint signaling; Functional and genetic analysis of cancer; Melanoma


WALThER, Zenta

Abstract Number 10251260

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WajaPeyee, Narendra

Abstract Number 13310903

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PhD, Indian Institute of Science, India, 2005

Cancer is a complex disease and typically involves multiple gene-specific and global genetic and epigenetic changes in human genome. The major class of genes that has been causally linked to the process of tumorigenesis is tumor suppressors, which act as “breaks” and oncogenes, which function as “accelerators” and typically promotes cancer. Recently, non-coding RNAs such as miRNAs and long non-coding RNAs are also linked to cancer wherein they can either promote or inhibit cancer cell growth. The focus of our lab is to understand the mechanisms of genetic and epigenetic regulation of cancer initiation and progression and translating this understanding for early detection and treatment of human cancers. We use melanoma, pancreatic cancer, lung cancer, hepatocellular carcinoma and hematological malignancies as model systems to study mechanism of tumor initiation and progression.

Specialized Terms: Genetic and epigenetic mechanisms of cancer initiation and progression


YAN, Qin

Abstract Number 13089308

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PhD, University of Oklahoma College of Medicine, 2002
MS, University of Oklahoma College of Medicine, 1998
BS, University of Science and Technology of China, 1996

Epigenetic aberrations often lead to cancer and other human diseases. Our laboratory is interested in dissecting the roles of epigenetic regulators in cancer and stem cells. In particular, we focus on the roles and regulatory mechanisms of histone demethylases for tri-methylated lysine 4 in histone H3 (H3K4me3), the epigenetic mark for transcriptionally active chromatin. We have previously showed RBP2/JARID1A is one of the first known histone demethylases for H3K4me3. Using the RBP2 knockout mouse model, we further showed that loss of RBP2 inhibits tumorigenesis in several genetically-engineered mouse models. We are currently studying how this enzyme contributes to oncogenesis using a combination of biochemical, molecular biological, cell biological and mouse genetic approaches. We are also investigating the roles of another H3K4me3 histone demethylase PLU1/JARID1B. These enzymes are potential drug targets for epigenetic therapies against cancer, and we have developed first generation inhibitors against these enzymes.

Specialized Terms: Epigenetics; Gene regulation; Cancer biology; Stem cell biology


AMEEN, Nadia A

Abstract Number 12998188

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MBBS, University of West Indies, Jamaica, 1985

My laboratory has been supported continuously by NIH awards (K08, R03, R01) to study intracellular trafficking routes and mechanisms and that regulate the expression and function of the cystic fibrosis transmembrane conductance regulator (CFTR) chloride channel in the intestine. CFTR represents the primary exit pathway responsible for anion and fluid secretion on the apical membranes of intestinal cells. Mutations in the CFTR gene result in absence of functional CFTR channels and the genetic disease Cystic Fibrosis while up-regulation of CFTR function is implicated in the pathogenesis of diarrheal disease. We employ transgenic animal and polarized intestinal cell models in conjunction with cell biologic, molecular and physiologic approaches to understand the intracellular trafficking routes traversed by CFTR and how alterations in these pathways lead to intestinal diseases.


ZHANG, Xuchen

Abstract Number 11158380

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PhD, Chinese Academy of Medical Sciences, 2000
MS, Beijing Univ of Traditional Chinese Medicine, 1994
MD, Chengde Medical College, 1988

Specialized Terms: Liver and gastrointestinal pathology; Neoplastic and non-neoplastic pulmonary pathology; Acute and chronic oxidant-induced lung injury


**ANDIMAN, Warren A**

**Abstract Number 10253963**

Professor of Pediatrics (Infectious Disease)
Laboratory for Surgery, Obstetrics & Gynecology
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(203) 785-4730
warren.andiman@yale.edu

MD, Albert Einstein College, 1969

1. Natural history of HIV infection in infants, children and adolescents
2. Long-term clinical outcomes of HIV infection in children
3. Methods for interrupting mother-to-child transmission of HIV
4. Pathogenesis and clinical expression of EB virus infection

Specialized Terms: Prospective longitudinal studies of clinical outcomes in a cohort of perinatally infected HIV-positive children; Morphologic, metabolic and endocrinologic consequences of longstanding HIV infection and antiretroviral therapy; Virologic and immunologic factors associated with long-term survival in perinatally infected HIV-positive children; AIDS clinical treatment trials in HIV-positive children; Transitioning long-term survivors of pediatric HIV infection into adult healthcare practices; Epidemiology and clinical manifestations of renal disease in HIV positive children


**ASNES, Andrea G**

**Abstract Number 12264434**

Associate Professor of Pediatrics (General Pediatrics)
(203) 785-3898
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MD, Mt. Sinai School of Medicine, 1998
MSW, New York University, 1990
BA, Yale University, 1987

My areas of research and scholarly work include identifying best practices to support medical providers in the recognition and reporting of child abuse, screening for psychosocial stressors in pediatric primary care settings, and the prevention of downstream negative consequences of adverse childhood experiences.

Specialized Terms: Child Maltreatment

**ARNOLD, Linda D**

**Abstract Number 11088204**

Associate Professor of Pediatrics (Emergency Medicine)
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(203) 737-7433
linda.arnold@yale.edu

MD, University of Connecticut School of Medicine, 1991

Linda Arnold is an assistant professor of pediatrics in the section of emergency medicine at Yale University School of Medicine. Dr. Arnold is an attending physician in the Pediatric Emergency Department at Yale-New Haven Children’s Hospital, where she oversees medical student and resident education and serves as course director for the Department of Pediatrics. A former Peace Corps volunteer, Dr. Arnold is the Associate Director of the Yale Program in International Child Health and a longstanding member of the Down’s Fellowship selection committee at Yale University. She established and directs the Yale Pediatric Global Health Track, for which she also oversees curriculum and site development.

Dr. Arnold received her M.D. at the University of Connecticut School of Medicine. She is also a teaching fellow in the division of pediatric emergency medicine, the creator of Pediatric Orthopedic Radiographic Teaching File, an instructor for Biweekly Emergency Medicine Core Curriculum, and coordinator of the Pediatric Emergency Medicine Weekly Radiology Conference at Brown University. Dr. Arnold is a member of the Executive Committee for the American Academy of Pediatrics Section on International Child Health (SOICH), and serves as Co-Chair of the SOICH Program for the American Academy of Pediatrics / National Conference Exhibit annual meeting.

Specialized Terms: International child health medical errors

*Arnold, LD and Goldberg DJ: “Heat-Related Illness.” Pediatric Case Reviews*


I currently serve as the co-director of INSPIRE (International Network for Simulation-based Pediatric Innovation Research and Education), the largest simulation-based research network in the world. Two major themes in my work are 1) the creation of effective simulation-based training interventions and 2) the use of simulation as an investigative methodology.


Cheng A, Grant V, Auerbach MA. JAMA Pediatrics. Published online March 9, 2015

Associate Professor of Pediatrics (Neurology)
(203) 785-5708
nigel.bamford@yale.edu

BS, University of Utah, 1988
AS, Salt Lake Community College, 1984

Dr. Bamford’s laboratory investigations show how dopamine can trigger lasting changes in acetylcholine and will generate new pharmacological targets and treatments for parkinsonism and the dyskinetic motor movements that accompany treatment.


My area of research scholarship involves using technology and innovative techniques to improve the quality and safety of care through work at the level of individual providers, teams of providers, and teams of providers working within complex systems.


I currently serve as the co-director of INSPIRE (International Network for Simulation-based Pediatric Innovation Research and Education), the largest simulation-based research network in the world. Two major themes in my work are 1) the creation of effective simulation-based training interventions and 2) the use of simulation as an investigative methodology.


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BS, University of Utah, 1988
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My area of research scholarship involves using technology and innovative techniques to improve the quality and safety of care through work at the level of individual providers, teams of providers, and teams of providers working within complex systems.


I currently serve as the co-director of INSPIRE (International Network for Simulation-based Pediatric Innovation Research and Education), the largest simulation-based research network in the world. Two major themes in my work are 1) the creation of effective simulation-based training interventions and 2) the use of simulation as an investigative methodology.


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Associate Professor of Pediatrics (Neurology)
(203) 785-5708
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BS, University of Utah, 1988
AS, Salt Lake Community College, 1984

Dr. Bamford’s laboratory investigations show how dopamine can trigger lasting changes in acetylcholine and will generate new pharmacological targets and treatments for parkinsonism and the dyskinetic motor movements that accompany treatment.


My area of research scholarship involves using technology and innovative techniques to improve the quality and safety of care through work at the level of individual providers, teams of providers, and teams of providers working within complex systems.
Our research interests have focused on trying to understand the role of respiratory muscle fatigue in the development of respiratory failure in children. In particular, studying sites along the neuromuscular axis that could potentially fail and lead to impaired performance of the respiratory muscles. Examples of these include phrenic neural activation, neuromuscular transmission and utilization of energy substrate by the muscle. We have determined that neuromuscular transmission failure plays an important in the development of muscle fatigue in the newborn diaphragm, and that this relates to impaired release of neurotransmitter from the nerve terminals. Because of the important role of calcium in neurotransmitter release, we are focusing on the differences between presynaptic calcium channels subtypes in newborn and mature neuromuscular junction.

A second research interest has been childhood asthma. We currently have 2 areas that are being developed in the laboratory. One is to try to understand the mechanisms underlying the development of chronic asthma in childhood, and in particular how airway inflammation might modulate airway smooth muscle function. We will be examining the effect of chronic exposure to several cytokines on ion channel activity in airway smooth muscle, and how this affects the contractile properties of the muscle. We are also interested in performing clinical studies to determine whether the increase in exhaled nitric oxide (NO) that is observed in children with asthma is secondary to increased production or decreased absorption of NO in the lungs. This has implications on understanding the pathogenesis of the inflammatory process in asthma.

Specialized Terms: Respiratory Muscle Fatigue in Children; Development of Chronic Asthma in Children; Pathogenesis of Inflammatory Process in Asthma


play in early organogenesis, specifically the Hhex gene. Based on a null mutation of Hhex generated in my laboratory, we have determined that Hhex is crucial for early liver budding and morphogenesis, cardiovascular development, and lymphopoiesis. We plan to determine the precise role of Hhex in these critical developmental processes and the factors with which it interacts using mouse molecular genetics, conditional gene knockouts, and transgenic overexpression in specific cells and tissues. The two major areas of focus in the lab are the roles that Hhex plays in liver and cardiovascular development. By studying the specific role of Hhex during development, we will gain important insight into the basic developmental mechanisms involved in early organogenesis of a number of different organs. Ultimately, we plan to use the knowledge obtained by our study of the basic mechanisms of organ development to repair and regenerate organs and tissues in humans.

Specialized Terms: Role of homeobox transcription factors in early liver and cardiovascular development; Stem cells in organ repair and regeneration


Brueckner, Martina

**Abstract Number 10365636**

Associate Professor of Pediatrics (Cardiology) and of Genetics

Fitkin Memorial Pavilion

789 Howard Avenue

New Haven, CT, 06519

(203) 785-4765

martina.brueckner@yale.edu

MD, University of Virginia, 1984

My laboratory focuses on the cause(s) of a type of congenital heart disease called heterotaxy. Patients with heterotaxy don’t have normal development of their organs along the left-right body axis (some have the heart on the right or in the middle, instead of the normal left), and more than 90% of them have severe congenital heart disease. Currently, we are developing a large-scale international collaboration using state of the art genomic technology to identify the genes causing heterotaxy in humans. In addition, we study mice with CHD to better understand how the left-right axis is formed, and how the heart develops.

Although our medical and surgical management of patients with congenital heart disease has made tremendous progress in the past 25 years, the understanding of why CHD develops remains relatively limited. One challenge in the care of patients with CHD is that different patients with anatomically very similar disease can have greatly disparate long-term outcomes. The mechanism underlying any individual patient’s CHD may have as yet unknown impact on how well they do, and it is hoped that eventually it will become possible to tailor medical management and surgery more specifically based on an individual’s combination of anatomical abnormality and underlying developmental defect. If ciliary defects are responsible for some human CHD, it may become possible to treat the later manifestations of the disease, such as the myocardial dysfunction observed in many adult patients who have had successful surgery for their CHD, with drugs aimed at restoring more normal ciliary signaling.

Specialized Terms: Development of left-right asymmetry; Heterotaxy syndrome; Kartagener syndrome; Situs inversus


**Bruscia, Emanuela M**

**Abstract Number 11635230**

Assistant Professor of Pediatrics (Respiratory)

(203) 737-5556

emanuela.bruscia@yale.edu

PhD, Tor Vergata University in Rome, 2002

Our research aims to understand how CFTR—the gene that, when mutated, causes Cystic Fibrosis (CF)—affects innate immunity and how this will impact the progression of CF lung disease. We have performed pioneering studies demonstrating that CFTR expression is necessary for the normal function of an important player of the innate immune response: macrophages. Using in vitro and in vivo models, we are dissecting the molecular mechanisms by which CFTR affects these cells.

Specialized Terms: Cystic Fibrosis; Lung inflammation; Macrophages


Reduced caveolin-1 promotes hyperinflammation due to abnormal heme oxygenase-1 localization in lipopolysaccharide-challenged macrophages with dysfunctional cystic fibrosis transmembrane conductance regulator. Zhang PX, Murray TS, Villola VR, Ferrari E, E
CAPPELLO, Michael

**ABSTRACT NUMBER 10484789**

*Professor of Pediatrics (Infectious Disease), of Epidemiology (Microbial Diseases) and of Microbial Pathogenesis*

(203) 737-4320

michael.cappello@yale.edu

MD, Georgetown University, 1988

BA, Brown University, 1984

Our research encompasses laboratory and field based studies of parasitic diseases that affect children in developing countries. This work focuses on bloodfeeding hookworms, intestinal nematodes that infect nearly one billion people worldwide, and malaria, a major killer of children in the tropics. Using molecular, immunological, and biochemical techniques, we study pathogenesis in order to develop new drugs, vaccines and diagnostics for use in resource limited settings. Collaborative field based research is focused on identifying risk factors for parasitic infections, characterizing the impact of polyparasitism on child health, and monitoring the effectiveness of current control strategies.

Specialized Terms: Molecular parasitology; Hookworm pathogenesis and vaccine development; International child health


CAPPETRO, Thomas O

**ABSTRACT NUMBER 10425051**

*Professor of Pediatrics (Endocrinology) and of Orthopaedics and Rehabilitation and Clinical Professor of Nursing*

(203) 785-6526

thomas.carpenter@yale.edu

MD, University of Alabama, 1977

Dr. Thomas Carpenter investigates disorders of mineral metabolism in children, including calcium, phosphorus, and Vitamin D (nutritional rickets). Dr. Carpenter is director of the Yale Center for X-Linked Hypophosphatemia (YC-XLH). He also directs the Physiology Core of the NIH-supported Yale Core Center for Musculoskeletal Diseases, which facilitates basic research in the bone. Dr. Carpenter chairs a committee which functions in concert with the Human Investigation Committee and the Yale Center for Clinical Investigation to insure the highest quality approach to clinical research and optimum measures of safety in pediatric research.

Specialized Terms: Regulation of phosphate homeostasis and Vitamin D metabolism; Vitamin and mineral nutrition; Bone cell biology; Assessment of bone density in children; Ethical issues in pediatric research


CAPRIO, Sonia

**ABSTRACT NUMBER 10319039**

*Professor of Pediatrics (Endocrinology)*

(203) 764-9199

sonia.caprio@yale.edu

MD, Universita di Medicina e Chirurgia, Italy, 1978

Dr. Sonia Caprio researches the pathophysiology of metabolic defects of juvenile obesity, including metabolic predictors and markers of childhood obesity. Her research includes the pathophysiology of Type 2 Diabetes in youth, including uncovering the metabolic phenotype of pre-diabetes in youth. She is the Principle Investigator of an NIH-funded multicenter study of the treatment of T2DM in youth.

Specialized Terms: Pathophysiology of Insulin Resistance in Children; Metabolic Complications of Childhood Obesity; Pathophysiology of Prediabetes in Obese Youth


CENGIZ, Eda

Abstract Number 12595662

Assistant Professor of Pediatrics (Endocrinology)
(203) 785-7163
eda.cengiz@yale.edu

MHS, Yale School of Medicine, 2012
MD, Hacettepe University Faculty of Medicine, 1995

• Pharmacokinetics & pharmacodynamics of insulin therapy;
• Artificial Pancreas Project (APP);
• Preservation of beta cells for children with new onset type 1 diabetes;
• Pediatric Diabetes Consortium (PDC) project: building a database to monitor diabetes management and complications;
• Integrating technology with diabetes care: use of new high-tech devices and methods to improve insulin delivery and function;
• Detecting early cardiovascular disease markers for children and adolescents with type 1 diabetes.


CHEN, Lei

Abstract Number 10946050

Associate Professor of Pediatrics (Emergency Medicine)
(203) 737-7442
lei.chen@yale.edu

MHS, Yale University School of Medicine, 2010
MD, New York University School of Medicine, 1997

I am committed to a career in Health Services Research as a means to improve the care of children in the acute care setting. My short-term goal is to gain additional knowledge in health care management and policy and in assessing cost-effectiveness as well as efficiency of clinical interventions based on emerging technologies. My long-term career goal is to develop the expertise to design, to implement, and to evaluate the clinical and public health effectiveness of interventions that employ new emerging technologies for the acute care of children.

I have focused on the application of new technology to improve the care of pediatric patients in the emergency department. Broadly speaking these projects have one or both of the following goals:
• increase efficiency of medical care;
• enhancing the safety of the patients during the delivery of medical care.
• improved delivery of quality health care in developing world settings.

Specialized Terms: Emergency ultrasound; Ethics and subject protection; Student, resident and fellow education; Serious bacterial infections in infants; Pediatric resuscitations, Global Health


COLSON, Eve R

Abstract Number 10933980

Professor of Pediatrics (General Pediatrics)

Laboratory for Medicine and Pediatrics (LMP)
15 York Street
New Haven, CT, 06510
(203) 785-6935
eve.colson@yale.edu

MEd, University of Illinois, Chicago, 2014
MD, Yale University School of Medicine, 1989

Dr. Colson’s research interest is in education. She has advanced training in medical education and is involved in curriculum development at Yale School of Medicine.

Dr. Colson is also interested in health behavior and education as it relates to patients with a particular focus on infant morbidity and mortality.

Specialized Terms: Health-related Behaviors; SIDS; Smoking; Safe sleep in infants; Education; Qualitative research; International student education

EHRENKRANZ, Richard A

Abstract Number 10319464

Professor of Pediatrics (Neonatology) and of Obstetrics, Gynecology, and Reproductive Sciences
(203) 688-2320
richard.ehrenkranz@yale.edu

MD, SUNY Downstate Medical Center, 1972

My research interests include the nutritional requirements of very low birth weight (VLBW) birth weight infants.

I coordinated Yale’s participation in a multicenter research network of newborn intensive care units sponsored by the National Institute of Child Health and Human Development from 1991-2011. The purpose of this network was to design and perform collaborative clinical research investigations, both randomized clinical trials and observational studies. Examples of on-going or recently completed randomized clinical trials include projects evaluating the efficacy of parenteral glutamine supplementation in reducing the incidence of death or late-onset infection in extremely low birth weight infants, the efficacy of induced hypothermia (body cooling) for hypoxic-ischemic encephalopathy in term infants, the efficacy of early erythropoietin therapy in reducing blood transfusions in infants and the efficacy of supplemental vitamin A therapy in prevention of dexamethasone treatment randomized trial aggressive vs conservative phototherapy extremely low birth weight infants.

Specialized Terms: Clinical trials in neonatal-perinatal medicine; Nutritional needs of very low birth weight infants; Bronchopulmonary dysplasia; Neurodevelopmental follow-up of Newborn Special Care Unit graduates


EGAN, Marie E

Abstract Number 10280636

Professor of Pediatrics (Respiratory) and of Cellular And Molecular Physiology
(203) 785-2480
marie.egan@yale.edu

MD, Mount Sinai School of Medicine, 1986

Dr. Egan’s primary research interest is to understand the regulation of ion transport across the airway epithelia in health and disease. Transepithelial ion transport is responsible for maintaining the airway surface fluid, i.e. the periciliary fluid layer, which controls mucociliary clearance. Abnormalities in the ion channels and regulators of these channels can alter mucociliary clearance, leading to retained secretions, mucus plugging, infection, and lung destruction, as seen in cystic fibrosis. In CF, it is the abnormal function of the cystic fibrosis transmembrane conductance regulator (CFTR), a multifunctional protein encoded by the gene that is affected in cystic fibrosis (CF) that underlies the abnormal ion transport in affected organs.

The Egan lab uses a variety of electrophysiologic techniques to examine how CFTR expression affects transepithelial ion transport in airway epithelial cells. They have shown that CFTR can modulate other ion channels and, as its name implies, act as a conductance regulator. In addition, they have been very interested in understanding and identifying the mechanism(s) that underlie these interactions; and the lab has been examining proteins related to CFTR with the hopes of identifying regions/domains that are common to these proteins and are necessary for these interactions. Lastly, the laboratory is interested in examining how mutations in CFTR affect its ability to function.

Specialized Terms: Cystic fibrosis clinical studies; Cystic fibrosis basic science research (ion transport, Cystic Fibrosis Transmembrane Conductance Regulator (CFTR) function); Cystic fibrosis translational research studies (strategies to bypass the basic defect)


Dr. Elder is interested in long term outcomes of adult patients with repaired or palliated congenital heart disease who required surgery as children. In particular, he has focused on the late term effects of the Fontan operation (used commonly as the last stage of palliation for functionally single ventricle patients) and its complex effects on the liver. He also has developed an interest in studying the effects of immune dysfunction following early neonatal thymus removal in patients who required sternotomy for repair of congenital heart disease as children.

Specialized Terms: Long-term outcomes of the Fontan operation; Liver disease associated with congenital heart disease; Immune function in adults with congenital heart disease.


Specialized Terms: DNA replication; Tumor virus; Herpesvirus; Oncogenic; Transcription factor; Replication protein; Phosphorylation; Protein modification; Kinase


ESQUIBIES, Americo E

Abstract Number 11432658

Assistant Professor of Pediatrics (Respiratory)
Fitkin Memorial Pavilion
789 Howard Avenue
New Haven, CT, 06519
(203) 785-2480
americo.esquibies@yale.edu

MD, Cayetano Heredia University Lima, Peru, 1992

Bronchopulmonary dysplasia (BPD) occurs primarily in preterm infants who require mechanical ventilation and supplemental oxygen. High inspired oxygen levels can cause arrested lung development. My ultimate goal is to design strategies to treat preterm infants who are at risk for BPD in a manner that promotes normal lung development in the face of therapeutic interventions including supplemental oxygen.

Specialized Terms: Hypoxia; Lung development; VEGF; Hyperoxia; Prostaglandin D synthase


FAHEY, John T

Abstract Number 10323646

Professor of Pediatrics (Cardiology) and Associate Clinical Professor of Nursing
Hunter Building
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New Haven, CT, 06510
(203) 785-2022
john.fahey@yale.edu

MD, New Jersey Medical School, 1979

Dr. Fahey’s research interests include exercise stress testing, and Adults with Congenital Heart Disease. Research in the exercise laboratory has included patients with congenital heart defects, as well as children with obesity, rickets, pulmonary arteriovenous fistulas, and stridor. He is now the exercise core laboratory for an international study investigating the effects of a transcatheter placed pulmonary valve on exercise performance. In addition, he is now a member of the Pediatric Exercise Network, an international group attempting to standardize pediatric integrative physiology, exercise testing, and body composition measurements throughout the US.

Research in the Adult Congenital Heart Disease clinic includes investigating liver dysfunction in adults with complex congenital heart disease.

Specialized Terms: Exercise physiology in children with congenital and acquired heart defects; Adults with congenital heart disease

Kenny, D, et al. Percutaneous Implantation of the Edwards SAPIEN Transcatheter Heart Valve for Conduit Failure in the Pulmonary Position: Early Phase 1 Results from an International Multicenter Clinical Trial. JACC 58: 2248-56. 2011


FAUSTINO, Edward Vincent S. V

Abstract Number 11834402

Associate Professor of Pediatrics (Critical Care)
Hunter Building
15 York Street
New Haven, CT, 06510
(203) 785-4651
vince.faustino@yale.edu

MD, Cayetano Heredia University Lima, Peru, 1992

Specilialized Terms: DNA replication; Tumor virus; Herpesvirus; Oncogenic; Transcription factor; Replication protein; Phosphorylation; Protein modification; Kinase

Dr. Faustino studies treatment strategies that could improve the outcomes of critically ill children. He is currently focusing on the prevention of blood clots in these children. His also working on blood glucose control in this population. He conducts observational and interventional studies.

Specialized Terms: venous thrombosis; thromboembolism; anticoagulation; hyperglycemia; hypoglycemia; glucose control; clinical trial; biomarker; critical care; child


MD, Wayne State University, 1987

Dr. Friedman participates in research to evaluate the cardiovascular transition from the fetus to the newborn. Dr. Friedman is working with members of the Section of Hematology and Oncology to evaluate the hemodynamic effects of Sickle Cell Disease in the outpatient setting. He is also working in a project that examines the effects of hyperphosphatemia on myocardial performance. Dr. Friedman is also active in novel and innovative methods of pediatric resident education and systems management.

Specialized Terms: Fetal echocardiography; Echocardiography in congenital heart disease


Gallagher, Patrick G

Abstract Number 10392751

Professor of Pediatrics (Neonatology), of Genetics and of Pathology
(203) 785-2320
patrick.gallagher@yale.edu

MD, Northeastern Ohio University, 1985

Dr. Gallagher’s research focuses on the genetic basis of inherited disorders of the erythrocyte and the molecular control of erythropoiesis. Dr. Gallagher’s research is funded by the NIH and private foundations. Current NIH support includes two R01 awards, ARRA supplements, and P30 support for the Yale Center for Excellence in Molecular Hematology (YCEMH). Dr. Gallagher is PI of the Expression and Genomics Core of the YCEMH. He is

MHS, Yale School of Medicine, 2014
MD, University of the Philippines, 1997
also supported by an Innovation in Clinical Research Award from the Doris Duke Foundation. Dr. Gallagher is fully engaged in the Yale scientific community, with a joint appointment in Genetics, and active membership in both the Yale Stem Cell Center and the Yale Cancer Center. He is director of the Yale Center for Blood Disorders.

Current extramural activities include Editorial Board service for the Journal of Biological Chemistry, the American Journal of Hematology, Pediatric and Developmental Pathology, BMC Pregnancy and Childbirth (Associate Editor), and Blood Cells, Molecules and Disease and grant and abstract reviewing for numerous NIH, private foundations, and academic society meetings including PAS. He recently finished a two-year-term as chair of the NIH Erythrocyte and Leukocyte Biology Study Section and is currently chair of the American Society of Hematology Scientific Subcommittee on Hemoglobin/Red Cell.

Specialized Terms: Neonatal hematology; Erythropoiesis; Inherited abnormalities of the erythrocyte including metabolic, membrane, and hemoglobin disorders; Sickle cell disease; Hereditary spherocytosis; Elliptocytosis; Pyropoikilocytosis; Stomatocytosis


GIULIANO JR, John S

Abstract Number 12757502

Associate Professor of Pediatrics (Critical Care)
(203) 785-4651 john.giuliano@yale.edu
MD, George Washington University School of Medicine, 2002

John Giuliano, M.D, has focused his research interests around inflammation and the host’s response to sepsis/acute lung injury. To this end, he is involved in a translational research project looking at the role angiopoietins play in capillary leak from pediatric sepsis. Additionally, he is looking at the incidence of morbidity and mortality in pediatric patients admitted to the ICU with influenza. He is investigating the use of an antibiotic-impregnated central line dressing to see if it reduces catheter associated bloodstream infections. Finally, he is involved with improving the morbidity and mortality associated with pediatric endotracheal intubation.

Specialized Terms: Pediatric sepsis; Acute lung injury and the inflammatory response; Pediatric transport medicine; Pediatric endotracheal intubation


Thompson C, Shabanova V, Giuliano Jr. JS. The SNAP index does not correlate with the State Behavioral Scale in intubated and sedated children. Paediatr Anaesth 2013; 23(12):1174-9

GOODWIN, Julie E

Abstract Number 12011661

Assistant Professor of Pediatrics (Nephrology)
(203) 785-4643 julie.goodwin@yale.edu
MD, Boston University School of Medicine, 2001

The glucocorticoid receptor is found in nearly every cell type. It is the receptor for the body’s endogenous steroid (cortisol) as well as for the many synthetic steroids (prednisone, dexamethasone) that are used therapeutically for a variety of conditions. Studies have clearly shown that this receptor has tissue-specific functions and that loss of the receptor in specific tissues produces profound and unexpected phenotypes. I am interested in determining the role of this receptor in the endothelium, and more recently, in podocytes, the specialized cells which maintain the filtration barrier in the kidney.

Specialized Terms: Glucocorticoid-induced hypertension; Vascular endothelial glucocorticoid receptor; Steroids and sepsis; Atherosclerosis; Podocyte glucocorticoid receptor and nephrotic syndrome


Gupta, Abha R  
**Abstract Number 12285514**

Assistant Professor of Pediatrics (General Pediatrics)
(203) 785-6066
abha.gupta@yale.edu

PhD, University of Pennsylvania School of Medicine, 2001
PhD, University of Pennsylvania, 2001
MD, University of Pennsylvania Medical School, 2001

Abha Gupta is interested in the genetic basis and neurobiology of autism spectrum disorders (ASDs).


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Hattangadi, Shilpa  
**Abstract Number 14476661**

Assistant Professor of Pediatrics (Hematology / Oncology) and of Pathology
(203) 785-4640
shilpa.hattangadi@yale.edu

MD, Duke University Medical Center, 1999
BS, MIT,

We are focused on understanding the very late stages of normal red blood cell development, from committed progenitors to circulating red blood cells (RBCs). This is important (1) to learn why certain RBC disorders develop in the first place, but also (2) to help overcome one of the challenges in the latest advancement of red blood cells grown in culture for transfusion created from patients’ own hematopoietic stem cells: poor enucleation. Our most recent focus on red blood cell development has been...
on how enucleation is dependent on nuclear protein export, how the nucleus condenses, and how histones are replaced in the condensing red cell nucleus before it is extruded. We are also interested in identifying new genetic causes and/or modifiers of bone marrow failure syndromes and are interested in creating new mouse models of cytopenias found in children using the humanized mouse system here at Yale. We are currently pursuing one such regulator which is a post-translational modifier of hematopoietic regulators and has been found to be mutated in MDS and AML.


Hsiao AL, Shiffman RN. Dropping the Baton During the Handoff from Emergency Department to Primary Care: Pediatric Asthma Continuity Errors. Journal on Quality and Patient Safety, 2009 Sep; 35(9):467-474.

JOHNSTON, Lindsay C

Abstract Number 13251845

Assistant Professor of Pediatrics (Neonatology)

(203) 688-2320
lindsay.johnston@yale.edu
MD, University of Pittsburgh School of Medicine, 2003

I am primarily interested in Educational Research related to procedural skills training and assessment of trainee and provider competency. Much of my work today has focused on improving success rates in neonatal endotracheal intubation through numerous strategies, including simulation-based mastery training with deliberate practice, videolaryngoscopy, and quality improvement initiatives.


Hsiao AL, Shiffman RN. Dropping the Baton During the Handoff from Emergency Department to Primary Care: Pediatric Asthma Continuity Errors. Journal on Quality and Patient Safety, 2009 Sep; 35(9):467-474.

KHOKHA, Mustafa K

Abstract Number 12302344

Associate Professor of Pediatrics (Critical Care) and of Genetics

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MD, Northwestern University Medical School, 1995 BS, Northwestern University, 1991
Our laboratory is interested in understanding congenital birth defects. Many children are born with various birth defects including defects of the heart, brain, lungs, and face. These birth defects often require surgery and can be difficult to treat for the child. We hope to discover the genes that lead to these birth defects with the hope of improving our understanding of how human development (embryology) occurs.


**KUPFER, Gary**

**Abstract Number 12554845**

Professor of Pediatrics (Hematology / Oncology) and of Pathology

(203) 785-4640
gary.kupfer@yale.edu

MD, Johns Hopkins University School of Medicine, 1989
BS, University of Florida, 1983

The Kupfer lab works on the relationship of genomic instability and the propensity towards development of cancer. Specifically, we focus on the genetic syndrome Fanconi anemia (FA). Interestingly, children with FA are born with congenital anomalies and develop aplastic anemia and an assortment of leukemias and other cancers. Based on our interest in marrow failure and genomic instability, we have also started working on 3 related projects. First, we have begun to purify the protein complexes containing gene products that are defective in 2 additional hematopoietic failure syndromes, Diamond-Blackfan anemia (DBA) and congenital dyserythropoietic anemia (CDA). As in FA, the proteins (RPS19 for DBA, codanin for CDA) have no known function, and additional genes accounting for additional genetic complementation groups remain to be cloned and identified. Second, we are investigating ways to use our knowledge of genomic instability for improving cancer therapeutics. Finally, we have also started a more clinical project, using mass spectroscopy technology we have used to find FA binding proteins. Again in collaboration with the Semmes laboratory, we have adapted the mass spec to analyze sera from patients with pediatric malignancies in order to identify unique protein markers of disease. These markers could then be used for diagnosis, prognosis, staging, and tracking of minimum residual disease in patients. In addition, our goal is to identify interesting proteins for further analysis in our laboratory.

**Specialized Terms:** Genomic instability; Development of cancer; Genetic syndrome Fanconi anemia (FA); Viral protein enhancement of cancer therapeutics


**LANGHAN, Melissa**

**Abstract Number 12011729**

Associate Professor of Pediatrics (Emergency Medicine)

(203) 737-7413
melissa.langhan@yale.edu

MHS, Yale University, 2013
MD, SUNY Downstate, 2000
BS, University of Richmond, 1995

Dr. Langhan is interested in performing research to improve the safety of acutely ill children and develop objective measurements of illness.

**Specialized Terms:** Pediatric Emergency Medicine; End-tidal carbon dioxide monitoring; Capnography; Acute exacerbations of asthma; Prehospital care; Patient safety; Objective measures of severity


Makhani, Naila

Abstract Number 14798947

Assistant Professor of Pediatrics (Neurology) and of Neurology
(203) 785-5708
naila.makhani@yale.edu

MPH, Harvard School of Public Health, 2011
MD, University of British Columbia, 2005
BS, Simon Fraser University, 2001

Dr. Makhani’s has explored key genetic and environmental risk factors determining MS risk is children presenting with a first attack of central nervous system demyelination. She is currently funded by Race to Erase MS to identify novel biomarkers for paediatric MS. She is also the site investigator for an international multi-center clinical trial sponsored by Novartis.
volumetric, functional and diffusion tensor imaging strategies. Her research on the “adaptive mechanisms of developing brain” addresses questions of neurogenesis, axonal guidance, synaptogenesis and the angiogenic/neurogenic interface in a preclinical model of preterm birth. Finally, Dr. Ment and her colleagues have just begun a 14 center study investigating the genetic and environmental risk factors for intraventricular hemorrhage, the most common cause of injury to the developing preterm brain.

Specialized Terms: Adaptive Mechanisms of Developing Brain; Clinical Studies of Pathophysiology and Gene Targets for Prevention of Injury to Preterm Brain; Volumetric, Diffusion Tensor and Functional Imaging of Developmental Changes; Preclinical Studies in employing Animal Models of Injury and Repair in Preterm Brain with MRI, Genetic and Behavioral Assessments


**MERCURIO, Mark R**

**Abstract Number 10401421**

Professor of Pediatrics (Neonatology)

Yale-New Haven Children’s Hospital

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MA, Brown University, 2004

MD, Columbia University, 1982

BA, Princeton University, 1978

My academic work focuses on studying the ethical problems faced by clinicians, patients and families, in all aspects of medicine, but particularly with regard to pediatrics.

Specialized Terms: Ethics; Medical Ethics; Pediatrics; Neonatology; Education;


**MILLER, Geoffrey**

**Abstract Number 12053821**

Professor of Pediatrics (Neurology)

(203) 785-5708

geoffrey.miller@yale.edu

MPhil, University of Glasgow, 2002

MD, University of Western Australia, 1986

MA, Trinity College Dublin, 1982

MBChB, Trinity College, Dublin, 1972

Geoffrey Miller, M.B., Ch.B., investigates neuropsychological function in the muscular dystrophies. In addition, he investigates and reports on the bioethical issues that surround the care and management of the disabled child. This includes end-of-life issues, extreme prematurity, and the neurologically impaired infant.

Specialized Terms: Outcome studies; Follow-up of high risk preterm and full term infants; Bioethics; Pediatric neuromuscular disorder; Neurodevelopmental disorder; Cerebral palsy; Extreme prematurity

Miller G. Ten Days in Texas. Hastings Center Report; 2007:37: July/August


**MILLER, I George**

**Abstract Number 10405841**

John F. Enders Professor of Pediatrics (Infectious Disease) and Professor of Epidemiology (Microbial Diseases) and of Molecular Biophysics and Biochemistry

(203) 785-4758

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AB, Harvard College, 1968

MD, Harvard Medical School, 1962

Our research is directed at understanding a central unexplained phenomenon in virology, namely mechanisms underlying viral persistence and reactivation.

Specialized Terms: Epstein-Barr Virus (EBV); Kaposi’s Sarcoma-Associated Herpesvirus (KSHV); Tumor virology


PAINTSIL, Elijah

Abstract Number 11628073

Associate Professor of Pediatrics (Infectious Disease), of Epidemiology (Microbial Diseases) and of Pharmacology
(203) 785-4730
elijah.paintsil@yale.edu
MBChB, Ghana Medical School, 1992

Research focus is on
1. The disposition of anti-HIV drugs, e.g. nucleoside analogs such as AZT, in HIV-infected individuals in relation to treatment response, drug toxicity, and evolution of drug resistance
2. Understanding of the dynamics of hepatitis C virus (HCV) and HIV transmission

Specialized Terms: HIV translational research; Cellular pharmacology of HIV-RT inhibitors in relation to clinical toxicities; 
Fitness and evolution of HIV drug resistant mutants; Molecular epidemiology and dynamics of HIV/HCV transmission


PASHANKAR, Dinesh S

Abstract Number 12056541

Laboratory for Medicine and Pediatrics (LMP) 
15 York Street 
New Haven, CT, 06510 
(203) 785-4649 
dinesh.pashankar@yale.edu
MD, Poona University, 1990
Dr. Pashankar focuses on gastroesophageal reflux disease (GERD), constipation, and inflammatory bowel disease in children. He studies the prevalence and treatment of gastroesophageal reflux disease in children. His research also includes obesity and associated gastrointestinal disorders such as constipation and gastroesophageal reflux in children. He has published a number of studies in pediatric gastroenterology.

Specialized Terms: Chronic constipation treatment; Gastroesophageal reflux disease


PASHANKAR, Farzana D

Abstract Number 12094672

Associate Professor of Pediatrics (Hematology / Oncology)
(203) 785-4640
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MD, Poona University, 1992

My primary research interest is in pulmonary hypertension in Sickle Cell Disease. Pulmonary hypertension occurs in one third of adults with sickle cell disease and is an independent risk factor for mortality. There was limited data on this complication in children. I designed a prospective screening study with Dr Alan Friedman (Cardiology) and Dr Alia Bazzy-Asaad (Pulmonary) to determine the prevalence and risk factors of elevated pulmonary artery pressures in children with homozygous SS or S 0 thalassemia using echocardiography. This study identified that elevated pulmonary artery pressures do occur in approximately
30% of children with sickle cell disease, and are associated with hypoxia, hemolysis and a high platelet count. This was the first prospective screening study in children, and showed that similar to adults, children with sickle cell disease do develop elevated pulmonary artery pressures. Prevalence of elevated pulmonary artery pressures in children with sickle cell disease. Pediatrics 2008 Apr; 121(4):777-82). This study has been widely quoted and has had an impact on decision to screen children with sickle cell disease for pulmonary hypertension.

Specialized Terms: Clinical trials in Pediatric Oncology; Sickle cell anemia


PHATAK, Uma P

Abstract Number 12588437

Assistant Professor of Pediatrics (Gastroenterology)
(203) 785-4649
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MBBS, Topiwala National Medical College, 2001

Dr Phatak focuses on clinical research in pediatric gastroenterology. Her particular research interests include conditions such as obesity and related gastrointestinal disorders, functional constipation, inflammatory bowel disease. Dr Phatak is currently recruiting patients for a study involving children with irritable bowel syndrome.


RIERA, Antonio

Abstract Number 12588522

Assistant Professor of Pediatrics (Emergency Medicine)
(203) 737-7439
antonio.riera@yale.edu

MD, Boston University School of Medicine, 2004 BA, Princeton University, 2000

Dr. Riera has various research interests related to the field of pediatrics and pediatric emergency medicine. These include the use of point-of-care ultrasound to improve the efficiency of care and outcomes experienced by children in the emergency department and health care disparity reduction, primarily around issues related to communication for Latino children with asthma.


SHAPIRO, Eugene D

Abstract Number 10303450

Professor of Pediatrics (General Pediatrics) and of Epidemiology (Microbial Diseases)

MD, University of California/San Francisco, 1976

The effectiveness of vaccines in clinical practice; Prevention, diagnosis and treatment of Lyme disease; clinical epidemiology; case-control studies

Specialized Terms: Vaccines; Lyme disease; Epidemiology of infectious diseases

**SHAYWITZ, Sally E**

**Abstract Number 10259981**

Audrey G. Ratner Professor of Pediatrics (Neurology) and Professor in the Child Study Center

Laboratory for Medicine and Pediatrics (LMP)
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(203) 785-4641
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MD, Albert Einstein College, 1966

Sally E. Shaywitz, M.D., studies dyslexia in children and adults. She is the author of over 200 scientific articles, chapters and books, including, Overcoming Dyslexia (Knopf, 2003) which details critical scientific findings in dyslexia and how to translate this scientific knowledge into clinical practice. Her research provides the basic framework: conceptual model, epidemiology and neurobiology for the scientific study of dyslexia. Dr. Shaywitz originated and championed the “Sea of Strengths” model of dyslexia which emphasizes a sea of strengths of higher critical thinking and creativity surrounding the encapsulated weakness found in children and adults who are dyslexic. Her most recent work provides the long awaited empiric evidence for the unexpected nature of dyslexia.

Specialized Terms: Epidemiology and Neurobiology of Dyslexia


**TAMBORLANE, William V**

**Abstract Number 10315792**

Professor of Pediatrics (Endocrinology)
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MD, Georgetown University, 1972

The entire focus of our research is to evaluate improved ways to treat children and adolescents with diabetes. These studies span the spectrum of clinical research from testing of advances in diabetes technology di-
rected at the development of an artificial pancreas to behavioral interventions aimed at improved outcomes with current therapies. Our center has been at the forefront of pediatric diabetes research for many years.

Specialized Terms: Advances in the treatment of type 1 and 2 diabetes; Counterregulatory Hormone Responses to Hypoglycemia; Psychosocial Consequences of Diabetes; Behavioral Interventions in Diabetes; insulin pumps; continuous glucose monitoring; artificial pancreas development


TUFRO, Alda

Abstract Number 12687105

Associate Professor of Pediatrics (Nephrology)
Laboratory for Medicine and Pediatrics (LMP)
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PhD, University of Buenos Aires, 1990
MD, University of Buenos Aires, 1977

The molecular mechanisms of proteinuria in kidney diseases that lead to renal failure are poorly understood. Our research focuses on the role of a guidance protein called Semaphorins3a, and on vascular endothelial growth factor (VEGF-A), an important angiogenic factor, on kidney development and disease. We discovered that excess semaphorin3a causes proteinuria and this molecule is essential for the correct assembly and maintenance of the kidney filters. Our experiments in semaphorin3a genetically engineered mice provide new information to understand at the cell and molecular level how semaphorin3a causes proteinuria, and identify kidney diseases mediated by semaphorin3a. We also discovered that excess VEGF-A in a specific kidney cell type from adult mice mimics diabetic nephropathy, whereas in newborn mice it causes a minimal change-like disease. Our experiments in VEGF-A transgenic mice are advancing the understanding of diabetic nephropathy in adults and nephrotic syndrome in children, and should enable us to design new strategies for treatment of diabetic nephropathy and glomerular diseases.

Specialized Terms: Molecular and developmental biology; VEGF-A; Semaphorins; Proteinuria; Slit-diaphragm proteins; Protein interactions; Signaling pathways; Cyst development; Vascular patterning; Podocyte differentiation


VALENTINO, Pamela L

Abstract Number 15765652

Assistant Professor of Pediatrics (Gastroenterology)
(203) 785-4649
pamela.valentino@yale.edu

MSc, University of Toronto, 2014
MD, McGill University, 2007

Dr. Valentino is investigating liver diseases that arise in children with inflammatory bowel disease (IBD). Primary sclerosing cholangitis (PSC) occurs in 5% of children with IBD, and of these, 20% may undergo liver transplantation. While a large proportion of children with IBD (&gt;50%) develop abnormal blood tests suggesting inflammation of the liver, the majority do not have an underlying chronic liver disease. Invasive investigations are sometimes required in the evaluation of these abnormal blood tests. Dr. Valentino is investigating non-invasive means to distinguish chronic liver diseases from transient liver abnormalities in children with IBD.

My research focuses on the application of new technologies to the treatment of diabetes. As part of my collaborations within the Diabetes Research in Children Network (DirecNet) and the Juvenile Diabetes Research Foundation Artificial Pancreas Project, I have been studying the safety, accuracy, and effectiveness of continuous glucose sensors to improve diabetes therapy, as well as investigating basic physiological questions of hypoglycemia counter-regulation. My main focus now is on the development of a so-called “artificial pancreas”, in which an insulin pump automatically delivers the appropriate amount of insulin at any given time based upon receiving information from glucose sensor devices. I am also collaborating with several other pediatric endocrinologists and neuroimaging specialists to determine the effects of childhood diabetes on brain growth and function in children diagnosed with diabetes at a young age.

Specialized Terms: Insulin pump therapy; Continuous glucose sensors; Artificial pancreas


Weiss, Pnina G

**Abstract Number 10322150**

Associate Professor of Pediatrics (Respiratory) and Clinical Fellow in Medicine (Pulmonary)
(203) 785-2480
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MD, Case Western Reserve Univ, 1986

I am interested in the mechanism for exercise-induced asthma. I am studying the lack of recognition of exercise-induced asthma in athletic organizations and trying to determine the reasons from both an organizational and athlete standpoint. I am also interested in the impact of asthma on athletes, particularly as it relates to their self-image.

Anderson, Karen S

Abstract Number 10365364

Professor of Pharmacology and of Molecular Biophysics and Biochemistry
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PhD, Ohio State University, 1982

The primary emphasis focuses on developing an understanding of enzymatic reactions and receptor-ligand interactions at a molecular level. The approach is to use a combination of structural techniques including rapid transient kinetics, NMR, and x-ray crystallography. This allows a quantitative and structural basis for understanding how proteins work at a molecular level.

Our ultimate goal in this research is to develop an in-depth mechanistic understanding of how enzymes function and thereby provide a more effective means of modulating their function. This approach has been used to examine a number of enzyme mechanisms including EPSP synthase, tryptophan synthase, PABA synthase, LAR-tyrosine phosphatase, and HIV reverse transcriptase. We have recently uncovered some interesting mechanistic features of HIV reverse transcriptase which may ultimately aid in the design of better therapeutic agents for the treatment of AIDS.

Specialized Terms: Enzyme function; Anti-viral agents


Boggon, Titus J

Abstract Number 12227340

Associate Professor of Pharmacology and of Molecular Biophysics and Biochemistry

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(203) 785-2943
titus.boggon@yale.edu

PhD, University of Manchester, UK, 1998
BS, University of Manchester, UK, 1995

The Boggon lab is interested in using structural biology approaches to help understand functional alterations that impact human disease. Specific areas of interest are briefly described below. Please also see the lab website: www.boggonlab.org

Cerebral Cavernous Malformations

Cerebral cavernous malformations (CCM) disease has a prevalence of 0.1-0.5% in the human population and is an important cause of hemorrhagic stroke. Between 10 and 50% of CCM cases are associated with inherited autosomal-dominant mutations in three genes, KRIT1 (CCM1), CCM2 and CCM3 (PDCD10). These mutations result in loss-of-function of the protein products of these genes (KRIT1, CCM2 and CCM3) and result in destabilized vascular endothelial cell-cell interactions and CCM lesions. We are studying CCM3, CCM2 and KRIT1 using a structure-directed functional approach and have determined the first crystal structures of each of these proteins.

Integrin signaling

Integrins are transmembrane receptors that play essential roles during development, tissue formation, hemostasis, and in response to injury and infection. We are particularly interested in the integrin-linked kinase, pinch, parvin (IPP) complex, a hub in integrin-actin and integrin-signaling networks. The IPP complex has critical roles in anchorage-dependent cell growth and survival, cell cycle progression, epithelial to mesenchymal transition, cell motility, contractility and early development.

Rho GTPase signaling cascades

Rho family GTPases are critical regulators of actin dynamics
and are important for cell proliferation, apoptosis, cell-cycle and cell adhesion. We are interested in understanding the structural biology of the signaling cascades which are regulated by Rho GTPases and the ways that these pathways are altered in disease, especially cancer.

We are also investigating regulation mechanisms for downstream Rho-family effector molecules, and have discovered that the type II p21-activated kinases are regulated by pseudosubstrate autoinhibition.

Specialized Terms: Structural biology of signal transduction


Specialized Terms: Integrin; Cell adhesion; Cell migration; Cytoskeleton; Structural biology


**CHENG, Yung-Chi**

**Abstract Number 10036975**

Henry Bronson Professor of Pharmacology
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PhD, Brown University, 1972

Our laboratory focuses on cancer and viral chemotherapy. We are studying the functional roles and properties of virus-specific proteins in order to design selective antiviral compounds. Some anti-HIV drugs have selective action against mitochondrial DNA synthesis that could lead to toxicity. This observation offered the opportunity to develop new antiviral drugs without such side effects and to examine the role of mitochondrial DNA synthesis in nuclear DNA synthesis. A new class of biological active nucleoside analogs, L(-)nucleosides were discovered. Drug resistance is a critical issue in cancer chemotherapy.

Our laboratory is interested in exploring the mechanisms of drug resistance development, with a special emphasis on the process involved in DNA topoisomerase, targeting drugs and nucleoside analogs. The gene regulator and the inhibitors may not only have use as cancer chemotherapeutic agents, but also in controlling the development of drug resistance. Several novel compounds targeting on NF-KB were discovered by my laboratory and are currently being studied. To explore Chinese medicine for current clinical usage is also pursued.

Specialized Terms: Cancer; Viral chemotherapy; Chinese herbs; Chinese medicine


Specialized Terms: Integrin; Cell adhesion; Cell migration; Cytoskeleton; Structural biology


**CALDERWOOD, David A**

**Abstract Number 11851759**

Associate Professor of Pharmacology and of Cell Biology
(203) 737-2311
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PhD, University of Manchester, UK, 1996

Integrins, transmembrane adhesion receptors, mediate cell adhesion and permit bidirectional transmission of mechanical force and biochemical signals across the plasma membrane. Integrin-dependent cellular activities such as adhesion, migration, proliferation, and survival rely upon the dynamic interaction of integrin cytoplasmic tails with intracellular integrin tail-binding proteins.

We use cell-biological, biochemical, and structural techniques to identify and characterize the interactions of integrin cytoplasmic tails with intracellular ligands, and to decipher how these interactions are regulated. This has allowed us to establish talin as a key regulator of integrin activation; to show that integrin binding to the actin crosslinking protein filamin controls cell migration and modulates integrin-talin interactions; to reveal that kindlins modulate talin-mediated integrin activation in an integrin-specific fashion; and to characterize interactions of the integrin-linked kinase. Ongoing studies aim to extend these observations, to characterize the molecular basis and functional significance of new interactions between integrin cytoplasmic tails and cytoskeletal and signaling proteins, and to identify novel mechanisms by which specific integrin-associated proteins are regulated.
Pharmacology

HA,
Ya

**Abstract Number 11476263**

Associate Professor of Pharmacology

Sterling Hall of Medicine, B-Wing
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New Haven, CT, 06510
(203) 785-7530

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PhD, University of Minnesota, 1998
BS, Nanjing University, 1992

In our laboratory we are interested in the structure and mechanism of a class of integral membrane proteins called intramembrane proteases. These proteases are involved in many important biological pathways responsible for metabolic regulation and cell signaling. The x-ray structures of rhomboid protease and GxGD protease, both solved first in our laboratory, have revealed general architectural principles for the two protease families, enabling us to ask specific questions about their mechanism of action. One question concerns how the protease changes conformation during catalysis. Since the active site of the protease is filled with water, it has to be closed initially to minimize unfavorable contact with lipids. Then how does transmembrane substrate, whose diffusion is restricted to the membrane plane, gain access to the active site? The crystal structures showed that the proteases have narrow transmembrane domains, suggesting that the lipid bilayer is severely constricted around the protein. Can this affect the presentation of buried cleavage sites to the protease? Finally, how does the protease achieve specificity? To study these questions we apply a wide array of biochemical and biophysical techniques to the two protease systems described above. The knowledge generated from these studies has both theoretical and practical significance because many membrane proteases are potential targets for pharmacological intervention.

Specialized Terms: Membrane protein; X-ray crystallography; Enzyme mechanism


HOE,
James R

**Abstract Number 10436883**

Professor of Pharmacology

(203) 737-2398
james.howe@yale.edu

PhD, University of Minnesota, 1983
BA, University of Minnesota, 1980

We are interested in understanding how the structure of glutamate receptors determines their kinetic behavior. A combination of patch-clamp recording of macroscopic and single-channel currents and X-ray crystallography is employed to elucidate the major conformational changes that translate neurotransmitter...
binding into ion channel opening and receptor desensitization. Experimental and simulation studies are designed to determine the role of receptor kinetics in shaping synaptic transmission in the brain.

Specialized Terms: Glutamate receptors


KACZMAREK, Leonard K

Abstract Number 10473280

Professor of Pharmacology and of Cellular And Molecular Physiology
(203) 785-4500
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PhD, University of London, 1971

Research in our laboratory is aimed at understanding the nature of the biochemical changes that occur in neurons and that result in prolonged changes in the behavior of an animal or in its ability to detect specific patterns of sensory inputs. It is known that alterations of the intrinsic electrical excitability of specific neurons are the key feature of such events, and that these are caused by the short-term and long-term regulation of proteins termed ion channels. Our laboratory has isolated the genes for multiple ion channels, and is studying both how these channels function to in the normal nervous system, and how human mutations in these channels give rise to several neurological conditions that produce severe intellectual disability.

Specialized Terms: Neuroscience; Learning and memory; Ion channels


LOLIS, Elias

Abstract Number 10302957

Professor of Pharmacology
(203) 785-6233
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PhD, Massachusetts Institute of Technology, 1989
BA, Columbia College, 1984

We are interested in understanding the mechanism of action of proteins involved in infectious disease, inflammation, and cancer using a variety of techniques including structural biology, yeast genetics, and signal transduction. For example, we determined the three-dimensional structure of two chemokines, human CXCL12 and herpesvirus-8 vMIP-II. We are currently using variety of methods to determine how these proteins interact with the G-protein coupled receptor, CXCR4, a HIV-1 co-receptor and a therapeutic target for cancer metastasis. In collaboration with Demetrios Braddock (Department of Pathology), we determined the structure of FIR, a protein that counter-regulates the transcription of the oncogene c-myc. In the area of inflammation we have been studying the signaling mechanism by which macrophage migration inhibitory factor (MIF) exerts its pro-inflammatory effects. We have determined the structure of MIF in the presence of small molecule inhibitors and are studying these inhibitors in mouse models of autoimmunity, inflammation, or infectious diseases.

Specialized Terms: Cancer; Inflammation; Infectious disease; Macromolecular X-ray crystallography; Signaling pathways; Drug design; High throughput screening (HTPS)


RUDNICK, Gary

Abstract Number 10342074

Professor of Pharmacology
(203) 785-4548
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PhD, Brandeis University, 1974

Experimental and simulation studies are designed to determine the role of receptor kinetics in shaping synaptic transmission in the brain.

Specialized Terms: Glutamate receptors


Our research concerns the proteins involved in neurotransmitter recycling responsible for the reuptake of serotonin and other biogenic amines. We are interested in how the structure of these proteins determines their ability to couple ion gradients to substrate transport. The transporters are responsible for the process that terminates the action of serotonin, norepinephrine, and dopamine released into the synaptic cleft. They are targets for antidepressant drugs like fluoxetine (Prozac) and for stimulants such as cocaine and amphetamines, such as MDMA (ecstasy). Current efforts in the laboratory include the identification of the pathway by which serotonin passes through the membrane, including residues that are involved in substrate and inhibitor binding and those involved in conformational changes that accompany transport. We are also studying the regulation of serotonin transporter activity by phosphorylation, and we are investigating bacterial homologues of the neurotransmitter transporter family for insights into the structure of these proteins.


identified Nogo-B, which had no known function. Nogo-B is a member of the reticulon family of proteins including Nogo-A and -C. Nogo-A produced in oligodendrocytes has been identified as an inhibitor of axonal growth and repair. We discovered that Nogo-B promotes the adhesion of endothelial cells and smooth muscle cells and is a potent chemoattractant for endothelial cells. In contrast to its motogenic properties in the endothelium, Nogo-B blocks PDGF-mediated migration of smooth muscle cells.


Wu, Dianqing (Dan)

Abstract Number 12288387

Professor of Pharmacology

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PhD, Clarkson University, 1991
BS, Nanjing University, 1985

Dr. Wu’s lab is interested in the mechanisms and functions of chemoattractant and Wnt-activated signaling. Chemoattractants, including chemokines, play an important role in host defense. However, their unchecked activities contribute to many inflammation-related diseases, including atherosclerosis, arthritis, tumorigenesis, and various allergies. The Wnt family of secretory glycoproteins participates in a wide variety of developmental events including, control of cell growth, generation of cell polarity, and specification of cell fate. Wnt pathways have also been closely linked to tumorigenesis, glucose metabolism, and bone formation. We are using a combination of molecular and cell biological, biochemical, chemical biological, transgenic, functional genomic, and proteomic approaches to discover novel signaling mechanisms and functions for these signaling proteins.

Specialized Terms: Wnt; signal transduction; G protein, Chemoattractant; Cell migration; Cancer biology and therapeutics; Stem cell biology; Chemoattractant signaling; Inflammation


AHN, Kyung-Heup

Abstract Number 12624545

Clinician in Psychiatry
(203) 785-2095
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MD, Seoul National University, 1996

The main area of research interest has been investigating neurochemical underpinning of schizophrenia. More specifically, investigating effects and interactions of various psychoactive chemicals inducing clinical characteristics of schizophrenia or inducing vulnerability to psychosis in human subjects. In this context, I have involved in several challenge studies using ketamine, iomezanil, and amphetamine during my residency training at Seoul National University and postdoctoral fellowship at the VA-Yale schizophrenia research program. I also have some expertise in neuro-imaging studies from experience as a research fellow at Brain Imaging Center at McLean Hospital, Harvard Medical School. Currently, I am conducting study, as a PI, investigating interactive effects of GABA and Dopamine system in schizophrenia.


PSYCHIATRY

ADDY, Nii A

Abstract Number 11519086

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PhD, Yale University, 2007
BS, Duke University, 2000

Our research examines the neurobiological mechanisms of reinforcement learning and motivational control and seeks to identify how these mechanisms are altered in psychiatric illnesses, such as substance abuse. In this work, we use an integrative methodological approach that incorporates in vivo electrochemistry (fast scan cyclic voltammetry), in vivo optogenetics and preclinical behavioral analyses. We are currently investigating the neurobiological processes that underlie the ability of reward-associated cues to modulate ongoing behavior. Our recent findings show that midbrain cholinergic mechanisms powerfully regulate cue-induced cocaine-seeking behavior and suggest that cholinergic receptor modulation of phasic dopamine signaling may be critical for this behavior. Through ongoing projects, we are continuing to examine the role of cholinergic and dopaminergic mechanisms in cue-induced drug-seeking. In other work, we are investigating phasic dopamine mechanisms in nicotine addiction and the potential ability of tobacco product additives to enhance nicotine reinforcement through the regulation of dopamine signaling. In addition to our drug addiction research, we are also determining the role of cholinergic and dopaminergic mechanisms in other psychiatric illnesses, such as major depressive disorder (MDD). The goals of our research are to provide new insight into the mechanistic basis of these complex behaviors and to identify novel therapeutic targets to treat psychiatric disorders.

Specialized terms: Neurobiology of addiction; In vivo electrochemistry; Behavioral pharmacology; Systems neuroscience; Neurotransmission; Signal transduction


Wickham RJ, Solecki W, Rathbun LR, McIntosh JM and Addy NA. (2013) Ventral tegmental area alpha6beta2 nicotinic acetylcholine receptors modulate phasic dopamine release in the nucleus accumbens core. Psychopharmacology. Apr 30 Epub.

ALREJA, Meenakshi

Abstract Number 10054774

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PhD, Delhi University, 1987

A major focus of the Alreja lab is to study brain circuits involved in learning and memory mechanisms. Studies focus on cellular mechanisms operating in septohippocampal and prefrontal cortical circuits; these circuits are implicated in cognitive deficits that are a hallmark of neurological diseases such as Alzheimer’s, Parkinson’s and Lewy body dementia and mental disorders such as Schizophrenia. A second major focus of the lab is to study the neuroendocrinology of puberty and reproduction.
The two lines of research are intended to provide novel insights into mechanisms underlying developmental disorders such as schizophrenia that often have an onset around puberty. The lab uses various lines of transgenic mice to prepare brain slices for electrophysiological and neuropharmacological studies that are used in conjunction with anatomical and molecular approaches.

Specialized Terms: Prefrontal cortex; Interneurons; Nicotine; Acetylcholine; Electrophysiology; GABA; glutamate; Hypocretin; MCH; Learning and Memory; Neurotransmitters; Signal Transduction; GnRH; Puberty; Fertility; HPG axis; Kisspeptin


BALL, Samuel A

Abstract Number 10126310

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PhD, University of Delaware, 1990
MA, University of Delaware, 1988
BA, Colgate University, 1984

My major research interests involve the evaluation of personality dimensions and disorders as important constructs for subtyping addicted individuals for the purpose of predicting treatment outcome and developing interventions. My diagnostic and assessment research has included the validation of a multi-dimensional substance abuse typology that defines subtypes of substance abusers based on multiple risk factors that may have prevention and treatment relevance. I have developed and evaluated the first manual-guided psychotherapy for the full range of personality disorders co-occurring with substance abuse. I also have been an investigator on various projects evaluating the effectiveness of cognitive-behavioral therapies and brief interventions to improve retention and symptom reduction in substance abuse patients.

Specialized Terms: Personality; Personality Disorders; Psychotherapy; Substance Abuse; Addiction Treatment; Psychodiagnosis; Homelessness; Treatment Dropout

Samuel DB, Miller JD, Widiger TA, Lynam DR, Pilkonis PA, Ball SA. Conceptual changes to the definition of borderline personality disorder proposed for DSM-5. Journal of Abnormal Psychology. in press.


AXELROD, Seth R

Abstract Number 10933844

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PhD, University of Kentucky, 1999
MA, University of Kentucky, 1995
BS, Cornell University, 1992

My primary clinical, research, and training interests center around personality disorders, with a focus on borderline personality disorder and Dialectical Behavior Therapy (DBT). I am particularly interested in adaptations of DBT, including DBT modified for the day hospital setting, for comorbid borderline personality disorder and substance use disorders, and for children with suicidal and self-injurious behaviors. My other research interests include trauma, PTSD, mindfulness, and emotion regulation.

Specialized Terms: Borderline personality disorder and comorbid conditions (e.g., substance use disorders, PTSD); Adaptations of Dialectical Behavior Therapy (DBT); Mindfulness; Emotion regulation; DBT Formulation; Burnout

**BARRY, Declan**

**Abstract Number 10979931**

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PhD, University of Toledo, 2000
MA, University of Toledo, 1996

My research is aimed at: (1) developing and evaluating treatments for patients with co-occurring opioid addiction (e.g., prescription opiates, heroin) and chronic pain (i.e., physical pain lasting at least 3 months); (2) examining the role of sociocultural factors in the occurrence and treatment of addictions (e.g., eating disorders, gambling, substance-related disorders).

Specialized Terms: Addictions; Chronic Pain; Opioid Dependence; Psychotherapy; Pharmacotherapy; Culture


**BEECH, Robert D**

**Abstract Number 10397885**

Assistant Professor of Psychiatry
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MD, University of Illinois, 1997
PhD, University of Illinois, 1994

Our laboratory is interested in the roles of transcription factors and adult neurogenesis in the neurobiology of psychiatric disorders. We are approaching this question in two related ways. First, in the clinical arena, we are conducting microarray studies to look at changes in expression of growth factor-related genes in peripheral blood of patients being treated with antidepressant medications. Current theories regarding the mechanism of action of both mood stabilizers and antidepressants suggest that the effects of these medications are mediated by the induction of specific genes in the brain. However, the relationship of these changes to disease-state and treatment-response remains unclear because the tissue of interest (the patient’s brain) is not, under normal circumstances available for study.

An emerging alternative is to look for biomarkers in a surrogate tissue such as blood since the signaling pathways affected by these medications are present in a wide variety of peripheral tissues, including blood. The long-term goal of this project is to identify molecular biomarkers that are predictive of changes in mood-state and/or positive treatment-response to aid in the treatment of mood disorders including depression and bipolar disorder. A second area of interest involves animal studies aimed at understanding on the role of adult neurogenesis in psychiatric disorders. Patients with major depression, bipolar disorder and schizophrenia have all been found to have decreased hippocampal volumes, suggesting that decreased hippocampal cell number may be a common endophenotype in multiple mental illnesses.

Specialized Terms: Addictions Psychiatry; Bipolar Disorder; Molecular Neuroscience


Bell MD, Choi KH, Dyer C, Wexler BE. Benefits of Cognitive Remediation and Supported Employment for Schizophrenia Patients with Poor

**BEHAR, Kevin L**

**Abstract Number 10428944**

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PhD, Yale University, 1985

Glutamate and GABA are the major excitatory and inhibitory neurotransmitters in the central nervous system and together account for the majority of all of its neurons. Their synaptic actions are maintained through the operation of complex metabolic cycles between neurons and neighboring astroglia. Work in our laboratory is centered on deciphering the mechanism(s) linking glutamate and GABA neurotransmitter cycling to brain activity, and the role of glucose and alternate substrates (e.g., monocarboxylic acids) in this process. Our studies employ nuclear magnetic resonance (NMR) spectroscopy with stable isotope labeling (13C, 15N) and kinetic modeling to study metabolic pathway fluxes in neurons and glia of the intact brain in vivo. This work is being applied to study the role of altered glucose and neurotransmitter metabolism in rodent models of diabetes, depression, and epilepsy. Our laboratory uses Magnetic Resonance Spectroscopy and Imaging (MRS/I) in conjunction with stable 13C-labeled substrates, which can be introduced into the bloodstream in rodents to ‘visualize’ the pathways of brain glucose and energy metabolism and the synthesis of the neurotransmitter amino acids glutamate (excitatory) and GABA (inhibitory).

Specialized Terms: NMR; 1H NMR; 13C NMR; In vivo brain metabolism; Glutamate; Gamma-aminobutyrate; Glutamine; Neuron-glial trafficking


**BELL, Morris D**

**Abstract Number 10031501**

Professor of Psychiatry  
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PhD, George Washington University, 1976

“Exploring Ways to Restore Cognitive and Work Capacity” is our mission. Our goal is to restore functional capacity to people with disabling psychiatric conditions. We are particularly interested in vocational rehabilitation and neurocognitive rehabilitation and have tested interventions that can augment current best practices. Our work suggests that providing patients with on-going, specific feedback about their cognitive and work performance can improve vocational outcomes. Based on models of neuroplasticity, we have tested the use of computer-based cognitive exercises of attention, memory, language and executive functioning. We have found that such training can result in normal levels of task performance, improved neuropsychological test performance, and better functioning on the job. We have found that cognitive training combined with work therapy leads to greater productivity and when combined with supported employment leads to higher rates of competitive employment, especially for those with the poorest initial community functioning.

Evidence linking cognitive training to neuroplastic changes comes from pre-post fMRI studies that show improved cognitive efficiency on working memory tasks. Other methods being explored include social information processing groups, a CBT approach to negative cognitions regarding return to work, using D’serine as a cognitive enhancer to boost new learning in conjunction with cognitive training, and using motivation enhancing strategies. While most of our work has been with schizophrenia, we are now applying cognitive remediation approaches to patients in initial stages of substance abuse treatment and early stage Alzheimer’s disease. Under development are new cognitive training software, simulated job interview training, and psychophysiological approaches.

Specialized Terms: Cognitive Remediation; Neuropsychology; Neuropsychology of Schizophrenia; Psychiatric Rehabilitation; Schizophrenia; Supported Employment

Bell MD, Choi KH, Dyer C, Wexler BE. Benefits of Cognitive Remediation and Supported Employment for Schizophrenia Patients with Poor
Blumberg, Hilary

Abstract Number 10642311

John and Hope Furth Professor of Psychiatry and Professor in the Child Study Center and of Diagnostic Radiology

(203) 785-6180
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MD, Cornell University Medical College, 1990

A focus of Dr. Blumberg’s laboratory is the use of brain scanning techniques to elucidate the differences in brain circuitry that underlie mood disorders, and how these differences develop. The laboratory has identified differences in parts of the brain that are important in emotional regulation in bipolar disorder, including differences in the pattern of their development in the disorder. For example, the laboratory has identified amygdala differences that are present in adults with bipolar disorder and also in adolescents with bipolar disorder suggesting that these are features that appear early, at least by adolescence in the disorder. Differences in the ventral prefrontal cortex (a part of the brain that includes the orbitofrontal cortex, the part of the prefrontal cortex above the eyes) appear to progress over the course of adolescence in bipolar disorder. This suggests that early intervention might be able to prevent progression and help prognosis. Preliminary evidence suggests treatment may reverse some of the brain differences and may have the potential to prevent this progression.

The lab is working intensively on genetic and environmental factors that may contribute to the differences in development and that may point to new prevention and treatment strategies. Brain scanning techniques used in this work include structural magnetic resonance imaging (MRI) to study the size and shape of brain structures, functional magnetic resonance imaging (fMRI) to study how the parts of the brain function individually and as part of brain circuits, and diffusion tensor imaging (DTI) to study the connections between brain structures.

Specialized Terms: Adolescence; Bipolar Disorder; Brain; Depression; Development; Diffusion Tensor Imaging; Emotion; Endophenotype; Functional Magnetic Resonance Imaging; Magnetic Resonance Imaging; Mania; Manic Depressive Disorder; Neuropsychiatry; Neuroscience; Women

Carroll, Kathleen M

Abstract Number 10400010

Albert E. Kent Professor of Psychiatry

(203) 932-5711 x7403
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PhD, University of Minnesota, 1988
BS, Duke University, 1980

My long-term goal is to improve the effectiveness of addiction treatment through:

• More precise understanding of the treatments and mechanisms that produce the best outcomes in substance abusers;

• Development, refinement, and evaluation of innovative behavioral approaches;

• Working to increase the methodological quality of research in the field of substance abuse;

• Evaluating effective means of transferring new technologies and fostering broader use of empirically supported treatments by the clinical community;

• Training new researchers in the most rigorous methodology of treatment outcome research.

Current interests include computer-based treatments and training (CBT4CBT)

Specialized Terms: Addiction and treatment; Evidence-based treatments; Treatment development; Computer-assisted therapies; Research-practice partnerships; Clinician training; Psychotherapy-pharmacotherapy combinations; Neurocognitive effects of behavioral therapies

Cavallò, Dana A

Abstract Number 10111129

Assistant Professor of Psychiatry
Connecticut Mental Health Center
34 Park Street
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(203) 974-7607
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PhD, Hofstra University, 2003
MA, Fairfield University, 1992

My research is focused on developing the optimal smoking cessation program for adolescent smokers, with an emphasis on the factors that maintain smoking behavior, such as weight concerns and other drug use.

Specialized Terms: Weight Concerns and smoking; marijuana


Connell, Christian

Abstract Number 10980356

Associate Professor of Psychiatry
(203) 789-7645
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PhD, University of South Carolina, Columbia, SC, 2000
BS, Penn State University/University Park, 1993

My research addresses issues related to the prevention of risk behaviors and promotion of positive outcomes for at-risk child and adolescent populations within community settings or served by formal systems of care. I engage in a range of research activities encompassing several areas of interest but ultimately linking back to this central focus. One area of research examines potentially malleable influences on the development of risky behavior (i.e., substance use, sexual risk behavior, antisocial behavior) among at-risk child and adolescent populations, and also involves the development and testing of programs to prevent or reduce involvement in such behaviors.

Another area of research uses identifies routes by which child, family, and service setting characteristics interact to influence youth outcomes (e.g., behavioral or functional well-being, systems-level outcomes such as entry or discharge from care) within youth-serving systems of care, and seeks to inform the

Chawarski, Marek C

Abstract Number 10340340

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PhD, Yale University, 1995
MPhil, Yale University, 1993
MS, Yale University, 1992
MA, Jagiellonian University, Krakow, Poland, 1987

My research aims to improve efficacy, accessibility, and availability of addiction treatments and HIV risk reduction and prevention interventions in diverse settings and populations. My recent work focuses on the development of behavioral counseling programs that target high-risk individuals; addressing their limited understanding of addiction problems and treatment process, increasing their treatment engagement, helping them to transfer treatment-learned skills into real-life situations, and reducing their risks of HIV and other infectious diseases.

Specialized Terms: Substance Abuse; Opiate Dependence; Risk Behaviors; Psychiatry; Psychology


development of more effective services and supports within these systems. Finally, I am broadly interested in the application of advanced multivariate data analytic methods to examine risk and protective processes associated with developmental processes in behavioral outcomes.

Specialized Terms: Adolescent Risk Behavior; Alcohol and Drug Abuse; Child Abuse and Neglect; Child Development; Child Welfare; Clinical Psychology; Community Studies; Consulting Services; Quantitative Methods


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**Cooney, Ned L**

**Abstract Number 10399704**

Associate Professor of Psychiatry  
(860) 594-6339  
ned.cooney@yale.edu  
PhD, Rutgers University, 1981  
MA, Rutgers University, 1980  
BA, State University of New York at Stony Brook, 1977

My research is focused on the efficacy of psychotherapy for alcohol dependence, on the determinants of relapse after alcoholism treatment, and on the interaction of alcohol and tobacco dependence. I have conducted studies that have attempted to bridge the gap between basic behavioral research and clinical treatment methods. My alcohol cue reactivity research involved a systematic laboratory assessment of subjective and physiological responses to alcohol-related stimuli. Using this methodology, I have attempted to bring the phenomenon of “craving” into the laboratory. My studies of alcohol cue reactivity have focused on the contribution of negative affect to craving for alcohol. I have conducted two clinical trials designed to test alcohol treatment matching hypotheses.

My interest in matching has focused on severity of alcohol dependence and comorbid psychopathology as matching variables. My recent research has utilized Ecological Momentary Assessment methodology to study craving and relapse after alcohol treatment. Computerized self-monitoring is used to obtain real-time assessments of alcohol craving antecedents and consequences. This methodology is also used to measure the impact of tobacco smoking on alcohol urges.

Specialized Terms: Alcoholism and Alcohol Abuse Therapy; Clinical Trial; Cognitive Behavior Therapy; Cue Reactivity; Ecological Momentary Assessment; Human Data; Human Therapy Evaluation; Psychotherapy; Substance Abuse; Tobacco Smoking


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**Cook, Joan M**

**Abstract Number 12575942**

Associate Professor of Psychiatry  
(203) 856-2782  
joan.cook@yale.edu  
PhD, Nova Southeastern University, 1999  
MS, Nova Southeastern University, 1995

Dr. Cook’s clinical and research interests falls within three domains: traumatic stress, geriatric mental health, and the dissemination and implementation of effective mental health services in the community. She is currently the principal investigator of a NIMH career development award examining psychotherapy dissemination to front-line clinicians. Her ultimate goal in this regard is to offer empirically-supported recommendations on how to overcome the barriers to achieving effective treatments in the community and to apply such protocols in large scale services effectiveness research. One focus is on understanding means of influencing clinician attitudes and preferences with an equal concentration on re-designing interventions and strategies to implement them to fit the needs and preferences of clinicians.


**Crusto, Cindy A**

**Abstract Number 10977738**

Associate Professor of Psychiatry
(203) 789-7645
cindy.crusto@yale.edu

PhD, University of South Carolina, 2000
MA, University of North Carolina at Charlotte, 1996
BA, Vassar College, 1991

Dr. Crusto has extensive experience in the development, implementation, and evaluation of child and family prevention and intervention programs and initiatives. She has 15 years of experience providing training and technical assistance to staff of community-based organizations in program evaluation design and implementation. She has directed several statewide and community-based initiatives and programs focused in the areas of family violence, education, youth substance use/abuse, child protective services, early literacy, service system development, and host of other children's mental health related issues.

Dr. Crusto’s research interests are focused on understanding the impact of family violence exposure on young children’s well-being and on identifying the factors that serve to place young children at risk and protect against negative developmental outcomes through basic and intervention research.

Specialized Terms: Social determinants of health; Children’s exposure to trauma; Family violence; Program and service system evaluation; School-based mental health; Community-academic partnerships; Prevention and health promotion


**Davidson, Larry**

**Abstract Number 10379049**

Professor of Psychiatry
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PhD, Duquesne University, 1989

My training, research, and policy interests focus on the interface of recovery in psychiatric and substance use disorders with membership in society. I have investigated processes of recovery in psychosis, using peer support and other social engagement strategies in engaging people with co-occurring disorders and/or who are homeless into care, the development of qualitative and participatory research methods, the development and evaluation of innovative, community-based psychosocial interventions, and the promotion of collaborative relationships between people with behavioral health disorders and their healthcare providers. Much of
this work has been oriented toward articulating a disability and civil rights perspective on psychiatric disorders, attempting to create an array of pathways into community life for people with psychiatric disabilities. Throughout this work, my colleagues and I also have attempted to identify and redress social, political, and economic disparities as they relate to healthcare, opportunities for recovery, and the participation of persons with disabilities in the activities, and communities, of their choice.


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**DIAZ, Esperanza**  
**Abstract Number 10211871**

Associate Professor of Psychiatry  
(203) 974-5800  
esperanza.diaz@yale.edu  
MD, Javeriana University, Colombia, 1978

Adherence to medication in persistent mental disorders. Mental Health Services for Latino Populations: exploring influences affecting access and retention. Exploring effective methods to teach cultural sensitivity. Participating in a cultural formulation interview pilot an international effort to address culture in DSM 5.

Specialized Terms: Medication adherence in Latinos; Culturally sensitive services; Ethnicity and language influences on mood disorders diagnoses; Teaching methods for cultural sensitivity; Cultural formulation interview DSM5


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**DELPHIN, Miriam E**  
**Abstract Number 11235900**

Assistant Professor of Psychiatry  
(203) 764-7587  
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PhD, Purdue University, 2000

I am particularly interested in research, training and consulting in areas related provider, organizational, and systems level cultural competence with the ultimate goals of both eliminating behavioral health disparities and creating systems of care that are more person centered and recovery oriented. Some of my specific interests include:

- Conducting technology transfer work with community organizations in areas related to program design and evaluation,
- Designing agency tailored cultural competency training for direct care and administrative staff, and,
- Consulting with agencies in the design and implementation of strategic plans focused on the elimination of behavioral health disparities.

Some of my additional research interests include exploring ethnic differences in coping and help seeking behavior, and assessing the impact of race and stereotyping biases on the clinical judgment process.

Specialized Terms: Behavioral health disparities; Stereotyping biases; Individual, organizational and service system level cultural competence including such areas as training, program design and evaluation; System level strategic planning geared towards eliminating health disparities


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**DiLEONE, Ralph J**  
**Abstract Number 11130976**

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Connecticut Mental Health Center  
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New Haven, CT, 06519  
(203) 974-7684  
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PhD, Stanford University, 1998  
BA, Skidmore College, 1992

Our goal is to establish an understanding of the molecular and neuronal circuits that are responsible for controlling reward-related behavior. We seek to define brain mechanisms that regulate eating and are important in the development of obesity. Dysfunction of these appetite behaviors also contributes to related pathological states, such as eating disorders, drug addiction, and depression. We are identifying critical molecules and neural circuitry that connect metabolic signals to behavioral output. Projects in the lab are aimed at better defining the molecular and neural mechanisms that integrate the hypothalamus and peripheral metabolic signals with brain regions that drive, and control, motivated behavior. In addition, the lab is active in developing tools that facilitate efforts to better understand the molecular and cellular basis of neural plasticity and animal behavior.

Specialized Terms: Addictions; Animal Behavior; Ethology; Animal Nutrition; Diseases and Disorders; Drug Abuse; Eating Disorders; Etiology; Evolution; Genetic Manipulation; Natural History; Obesity; Psychiatry


D’SOUZA, Deepak C  
ABSTRACT NUMBER 10266628

Professor of Psychiatry  
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MD, SUNY at Brooklyn, 1992  
MBBS, St. John’s Medical College, India, 1986

Our group has been studying the treatment and pathophysiology of schizophrenia. Our work involves the use of various psychopharmacological probes (ketamine, delta-9-THC, iomazenil, etc) to evaluate the contributions of various neurotransmitter systems (NMDA, cannabinoid, GABA, etc) to the pathophysiology of schizophrenia; laboratory studies of comorbid substance abuse in schizophrenia, (alcohol, cannabis and nicotine) and clinical trials with novel agents for schizophrenia.


D’SOUSA, Deepak C  
ABSTRACT NUMBER 10339150

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(203) 932-5711x2594  
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MD, SUNY at Brooklyn, 1992  
MBBS, St. John’s Medical College, India, 1986

Our group has been studying the treatment and pathophysiology of schizophrenia. Our work involves the use of various psychopharmacological probes (ketamine, delta-9-THC, iomazenil, etc) to evaluate the contributions of various neurotransmitter systems (NMDA, cannabinoid, GABA, etc) to the pathophysiology of schizophrenia; laboratory studies of comorbid substance abuse in schizophrenia, (alcohol, cannabis and nicotine) and clinical trials with novel agents for schizophrenia.


DUMAN, Ronald S  
ABSTRACT NUMBER 10339150

Elizabeth Mears and House Jameson Professor of Psychiatry and Professor of Neurobiology  
(203) 974-7726  
ronald.duman@yale.edu

PhD, Rutgers University, 2002  
MD, Gr. T. Popa University of Medicine, 1994

Our cognitive life depends on our ability to generate internal representations of the external world. Internal representations can be driven by the external stimuli (e.g., perceptions) or can be internally-generated in their absence (e.g., imagining, memory). The dynamic interplay between externally-driven and internally-generated representations is thought to be disrupted in neuropsychiatric conditions such as schizophrenia, autism, and Alzheimer’s disease. The long-term goal of the lab is to map and dissect the neural circuits and decipher the neuronal codes underlying the formation of internal representations within hippocampal-neocortical networks that support innate and learned behavior, with implications for our understanding of neuropsychiatric diseases.


DRAGOI, George  
ABSTRACT NUMBER 15427811

Assistant Professor of Psychiatry and of Neurobiology  
(203) 785-4515  
george.dragoi@yale.edu

PhD, Rutgers University, 2002  
MD, Gr. T. Popa University of Medicine, 1994

Our cognitive life depends on our ability to generate internal representations of the external world. Internal representations can be driven by the external stimuli (e.g., perceptions) or can be internally-generated in their absence (e.g., imagining, memory). The dynamic interplay between externally-driven and internally-generated representations is thought to be disrupted in neuropsychiatric conditions such as schizophrenia, autism, and Alzheimer’s disease. The long-term goal of the lab is to map and dissect the neural circuits and decipher the neuronal codes underlying the formation of internal representations within hippocampal-neocortical networks that support innate and learned behavior, with implications for our understanding of neuropsychiatric diseases.


PhD, University of Texas, 1984

Studies in Dr. Duman’s laboratory are focused on identifying the molecular and cellular adaptations that underlie the actions of antidepressant drugs and stress. This includes adaptations of receptors, signal transduction proteins, gene transcription factors, neurotrophic factors, and regulation of synaptic processes and even birth of new neurons (neurogenesis) in the adult brain. Preclinical and clinical studies support the hypothesis that neuronal atrophy and cell loss in response to stress contribute to mood disorders. Conversely, the therapeutic action of antidepressants may occur in part via blocking or reversing these damaging effects of stress. A variety of molecular approaches combined with cellular and behavioral studies are conducted to elucidate the basis of complex behavioral abnormalities.

Specialized Terms: Depression; Antidepressants; Stress; Molecular biology; Neuropharmacology; Signal transduction pathways; Gene expression; Identifying the molecular and cellular adaptations that underlie the actions of psychotropic drugs and stress.


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Elsworth, John D

Abstract Number 10213163

Senior Research Scientist in Psychiatry
(203) 785-6768
john.elsworth@yale.edu

PhD, University of London, 1979

Dysfunction of brain dopamine neurons is critically involved in the pathology of several neurologic and psychiatric disorders. Dr Elsworth’s research focuses on the “development, dysfunction, and demise” of dopamine neurons. The goal is to understand the mechanisms underlying the particular susceptibility of dopamine neurons to damage, and devising strategies for protecting, repairing or replacing these cells.

Specialized Terms: Dopamine neurons; Oxidative stress; Mitochondrial dysfunction; Uncoupling proteins; Neurotrophic factors; Development; Stem cell transplantation; Parkinson’s disease; Striatum; Prefrontal cortex; Schizophrenia.

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Esterlis, Irina

Abstract Number 11981061

Assistant Professor of Psychiatry
(203) 737-6820
irina.esterlis@yale.edu

PhD, University of Connecticut, 2005
MA, University of Connecticut, 2003
BA, SUNY Buffalo, 1999

There is a high comorbidity between psychiatric illness and tobacco smoking, with common denominator of cognitive difficulties. The goal of our research is to examine the neurochemical changes, tested by PET brain imaging or Magnetic Resonance techniques, associated with mood disorders and comorbid tobacco addiction and the underlying cognitive decrements. We aim to determine specific systems, such as the nicotinic and glutamatergic, that may be a target for new pharmacotherapies to aid in alleviating mood and cognitive difficulties, and thus aiding with smoking cessation.

Specialized Terms: Neuroreceptor imaging; Mood disorders; Tobacco addiction.


**FLANAGAN, Elizabeth H**

**Abstract Number 11851164**

Assistant Professor of Psychiatry  
(203) 764-7592  
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PhD, Auburn University, 2003

My research focuses on health equity. One research line investigates stigma in health care, structural stigma, stigma in the community, and self-stigma including interventions to reduce stigma in health care providers and the community. Another research line investigates health disparities in the Connecticut Department of Mental Health and Addiction Services (DMHAS) and interventions to address these disparities. I have received funding from the NIMH and private foundations to conduct my research. Current projects include:

1) mixed-methods research (quantitative-qualitative) investigating stigma and discrimination in the Connecticut Department of Mental Health and Addiction Services system.  
2) investigating the impact of “Recovery Speaks,” a photovoice intervention to reduce stigma in healthcare and the community.  
3) mixed method research investigating disparities in access, treatment engagement, and health outcomes for people who receive services from the Connecticut Department of Mental Health and Addiction Services.  
4) evaluating system-level interventions to eliminate health disparities in CT DMHAS including staff training and workforce development.


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**FEHON, Dwain C**

**Abstract Number 10314466**

Assistant Professor of Psychiatry  
(203) 688-9779  
dwain.fehon@yale.edu  
PsyD, University of Hartford, 1992

My clinical, teaching, and research interests fall into several basic areas: a) the development and provision of behavioral medicine services, b) psychotherapy to adolescents, adults and families, c) psychological and neuropsychological assessment, and d) the coordination of predoctoral internship training in clinical psychology within YNHH and YNPH.

The majority of my research interests have focused on the developmental period of adolescence and the impact that traumatic events, such as childhood abuse and the exposure to community violence played in the development and symptomatic expression of psychopathology—specifically as related to adolescent depression, aggression, substance abuse, PTSD, and personality dysfunction.

More recently, however, my clinical and research interests have shifted to behavioral medicine and the relationship between physical illness, emotional functioning, and quality of life. Clinically, my colleagues and I have developed a psychological behavioral medicine service that is integrated within the Yale New Haven Hospital Transplantation Center, Cancer Center, and Epilepsy Program. Within these settings, we have initiated several pilot studies to examine the psychological, behavioral, and neuropsychiatric comorbidities among patients facing serious, chronic, and sometimes life threatening illnesses. We are also interested in exploring the feasibility and effectiveness of novel therapies to reduce the risk of adverse stress-related symptoms such as drug and alcohol abuse, depression, anxiety and PTSD in these vulnerable patient populations.

Specialized Terms: Behavioral medicine; Resilience; Coping with chronic illness; Quality of life; Adolescent and young adult development; Depression; Psychotherapy


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**FORRAY, Ariadna**

**Abstract Number 12222580**

Assistant Professor of Psychiatry  
(203) 764-8620  
ariadna.forray@yale.edu  
MD, Harvard Medical School, 2005

My clinical, teaching, and research interests fall into several basic areas: a) the development and provision of behavioral medicine services, b) psychotherapy to adolescents, adults and families, c) psychological and neuropsychological assessment, and d) the coordination of predoctoral internship training in clinical psychology within YNHH and YNPH.

My clinical, teaching, and research interests fall into several basic areas: a) the development and provision of behavioral medicine services, b) psychotherapy to adolescents, adults and families, c) psychological and neuropsychological assessment, and d) the coordination of predoctoral internship training in clinical psychology within YNHH and YNPH.

The majority of my research interests have focused on the developmental period of adolescence and the impact that traumatic events, such as childhood abuse and the exposure to community violence played in the development and symptomatic expression of psychopathology—specifically as related to adolescent depression, aggression, substance abuse, PTSD, and personality dysfunction.

More recently, however, my clinical and research interests have shifted to behavioral medicine and the relationship between physical illness, emotional functioning, and quality of life. Clinically, my colleagues and I have developed a psychological behavioral medicine service that is integrated within the Yale New Haven Hospital Transplantation Center, Cancer Center, and Epilepsy Program. Within these settings, we have initiated several pilot studies to examine the psychological, behavioral, and neuropsychiatric comorbidities among patients facing serious, chronic, and sometimes life threatening illnesses. We are also interested in exploring the feasibility and effectiveness of novel therapies to reduce the risk of adverse stress-related symptoms such as drug and alcohol abuse, depression, anxiety and PTSD in these vulnerable patient populations.

Specialized Terms: Behavioral medicine; Resilience; Coping with chronic illness; Quality of life; Adolescent and young adult development; Depression; Psychotherapy


3. Testing primary healthcare topics (e.g., sleep) as a “gateway” to addressing heavy alcohol consumption and smoking;

4. Identifying factors that optimize the efficacy of existing smoking and alcohol interventions;

5. Examining the mechanisms through which these treatments bring about clinical change.

Specialized Terms: Treatments for cigarette smoking and heavy drinking; Moderators of treatment response; Risk behavior mechanisms; Sleep disturbance and substance use; Multiple health behavior change; M-health; Health feedback


Fucito, Lisa

Abstract Number 12593962

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(203) 974-5759
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PhD, American University, 2008
MA, American University, 2005
BA, Boston College, 1998

Cigarette smoking and heavy alcohol consumption are among the leading preventable causes of death and disease in the United States. Both also frequently co-occur with other negative health behavior risks such as obesity and sleep disturbance. Despite these health risks, a substantial number of individuals are unable to successfully quit smoking or reduce their drinking. Moreover, current efficacious treatments have small to moderate effects on smoking and drinking.

Most cigarette smokers and heavy-drinking individuals are treated in primary healthcare settings where the opportunity to address smoking and alcohol use is often missed. There is a need to identify effective integrated models as well as interventions that generalize across multiple negative health behaviors. Multiple health behavior change interventions have the potential to maximize health benefits and reduce health costs.

My research focuses on:

1. Developing novel, integrated treatments for smoking and heavy alcohol consumption;

2. Using biomarker feedback to motivate multiple health behavior change;

3. Testing primary healthcare topics (e.g., sleep) as a “gateway” to addressing heavy alcohol consumption and smoking;

4. Identifying factors that optimize the efficacy of existing smoking and alcohol interventions;

5. Examining the mechanisms through which these treatments bring about clinical change.


Garrison, Kathleen A

Abstract Number 14373964

Assistant Professor of Psychiatry
(203) 737-6232
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PhD, University of Southern California, 2011
MSc, University of Edinburgh, Scotland, 2002
BS, University of California, Los Angeles, 2000

My primary research interests are to better understand the cognitive processes related to tobacco/nicotine addiction and to develop novel treatments for smoking cessation. My research involves clinical trials of treatments for smoking and neuroimaging studies of the related neurobiological mechanisms. My current work uses approaches in mobile health and neuroimaging. In mobile health, my work includes a randomized controlled trial to test the efficacy of a smartphone app for mindfulness training for smoking cessation. The app is embedded with experience sampling, a method to query smokers’ behavior and experience in real-time to measure psychological mechanisms of change related to mindfulness, stress, and smoking. In neuroimaging, my background is in cognitive and clinical functional MRI. My current work uses fMRI to better understand the neural mechanisms of potential treatments for smoking such as mindfulness, and to test how the brain changes across treatments for smoking. My neuroimaging work also includes studies using real-time neurofeedback.
Gelernter, Joel

Abstract Number 10291550

Foundations Fund Professor of Psychiatry and Professor of Genetics and of Neurobiology
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MD, SUNY Downstate Medical Center, 1983
BS, Yale University, 1979

The research focus of my laboratory is genetics of psychiatric illness. We study a range of behavioral phenotypes including cocaine, opioid, nicotine, and alcohol dependence, PTSD, panic and other anxiety disorders. In addition we study a range of intermediate phenotypes, such as neuroimaging measures; and basic issues in population and complex trait genetics.

The overall approach involves study of genetic polymorphism and sequence variation, on a molecular level, and from the perspective of population genetics. Current studies include NIH-funded multicenter case/control association studies with the goal of identifying genes predisposing to cocaine, opioid, nicotine, and alcohol dependence (using genomewide association analysis and other approaches); a whole exome sequencing study of methamphetamine dependence, in Thailand; an international drug dependence genetics training project in collaboration with Chulalongkorn Faculty of Medicine (Bangkok, Thailand); and studies of posttraumatic stress disorder (PTSD).

Specialized Terms: Complex trait genetics; Psychiatric genetics; Population genetics; Substance dependence; Gene mapping


Goulet, Joseph L

Abstract Number 10088264

Assistant Professor of Psychiatry
(203) 932-5711x5325
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PhD, Yale University, 2003

Dr. Goulet conducts research focusing on the process of care and outcomes related to HIV infection, including the effects of fMRI neurofeedback, resting-state functional connectivity, and graph theory. My research extends to tobacco regulatory science, and to the relationship between drinking and smoking.


Goulet, Joseph L

Abstract Number 12748101

Assistant Professor of Psychiatry
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MD, American University of Beirut, 2003

Pain and Pleasure are mediated by overlapping neurochemical pathways; however, little is known about how the brain mediates the perception of pain and pleasure using very similar brain circuitry and neurochemicals. The interaction of pain and pleasure in the brain is reflected in co-morbid conditions such as chronic pain and obesity. Hence, pathological pain and overeating (due to disruption in perception of food pleasure) are good clinical examples of how we can tackle this question. We use functional magnetic resonance imaging (fMRI) as well as psychophysical (pain and food pleasure perception) and neuro-hormonal measures to address these questions.

Specialized Terms: Chronic pain, Obesity


Grunschel, Beth D

Abstract Number 13489590

Assistant Professor of Psychiatry
(203) 370-9993
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MD, Jefferson Medical College, 2010
ScM, Brown University, 2006
ScB, Brown University, 2004

Medical Education

Chronic Pain and Mental Health Comorbidities including Addiction
Quality Improvement/Patient Safety; Root Cause Analysis in Collaborative Formats to Improve System Function/Integration


Griffith, Ezra H

Abstract Number 10291431

Professor Emeritus of and Senior Research Scientist in Psychiatry
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MD, University of Strasbourg, 1973

am presently working on the use of narrative in the forensic psychiatry context, particularly as it applies to the “performance” of the forensic specialist—both in written and in oral forms. The second project focuses on clarifying how the forensic psychiatrist can perform the necessary roles while maintaining eyes on parameters that are rooted in solid narrative ethics. The robust ethics base is especially important when the forensic performance is at risk for undue influence from socio-cultural factors.

Specialized Terms: Forensic psychiatry; Cultural psychiatry


Harpaz-Rotem, Ilan

Abstract Number 11652009

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ilan.harpaz-rotem@yale.edu
PhD, New School for Social Research, 2002

My research interests lie in three primary areas: (1) Psychological Trauma and Posttraumatic Stress Disorder in children and adults, (2) Mental Health Service Research and Psychotherapy Outcome Research and (3) Attachment in Adolescence and Early Adulthood. My current work is focused, primarily, on the efficacy of treatment for posttraumatic stress disorder and the failure of many American soldiers to engage in recommended psychiatric treatment when they return from deployment in Iraq (Operation Iraq Freedom) and Afghanistan (Operation Enduring Freedom). Other ongoing research projects include: the assessment of the effectiveness of Seeking Safety intervention implemented in 11 VA sites nationwide among traumatized female veterans, an evaluation of the predictors and effectiveness
of Risperidone Consta (IM) vs oral intake in the treatment of Schizophrenia within the VA healthcare system, and an investigation of youth addiction and mental health problems and their association to attachment to primary caregivers and romantic partners.


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**HERMES, Eric D**  
**Abstract Number 12750107**

Assistant Professor of Psychiatry  
(203) 932-5711x7422  
eric.hermes@yale.edu  

MD, University of South Florida College of Medicine, 2000

Dr. Hermes is a researcher and educator working at the VA Connecticut Healthcare System who investigates trends in mental healthcare in large healthcare organizations such as the Veterans Health Administration. Along with investigating recent trends in VA mental healthcare utilization, he is interested in evaluating current approaches to the use of pharmacologic and non-pharmacologic therapies in real-world clinical settings as well as the implementation and evaluation of novel treatments.

His recent work has focused on assessing how providers use pharmacologic agents, such as second-generation antipsychotics and sedative-hypnotics in real-world clinical practice, especially in contexts where use may be complicated by side-effects, such as obesity, or driven by less well-documented clinical problems such as insomnia. The recent surge in the development of computer-based therapies has provided Dr. Hermes with the opportunity to evaluate the implementation and outcomes of this novel therapeutic platform, specifically those programs focused on treating insomnia, as a proxy for other computer-based therapies, and as a potential augmentation or substitute to pharmacologic treatment.

Specialized Terms: mental healthcare in large healthcare organizations; current approaches to the use of pharmacologic and non-pharmacologic therapies in real-world clinical settings; pharmacologic agents in real-world clinical practice; computer-based therapies

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**Desai RA, Manley MM, Desai MM, Potenza MN. Gender differences in the association between body mass index and psychopathology.** CNS Spectr. 2009 Jul;14(7):372-83. PMID:19773713

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**Hoff, Rani A**  
**Abstract Number 10342346**

Professor of Psychiatry  
VA Connecticut Healthcare  
950 Campbell Avenue  
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(203) 937-3850  
rani.desai@yale.edu

PhD, Yale University, 1994  
MPH, Yale University, 1991

Dr. Desai’s research utilizes principles of psychiatric epidemiology and services research to examine risk factors and correlates of psychiatric disorders, with particular attention paid to co-occurring disorders and vulnerable populations. This research has included studies on pathological gambling, schizophrenia, substance abuse/dependence, the risk of suicide in psychiatric patients, trauma and comorbidity, criminal justice mental health, and the mental health problems experienced by the homeless and by returning Veterans from the Middle East. At the national level, Dr. Desai regularly advises senior management within the VA Office of Mental Health Operations, the Office of Mental Health services, and other areas of VA Central Office regarding VA performance with respect to mental health services, and the appropriate metrics to evaluate those services nationally. She has also served on several advisory committees to the VA on the mental health needs of female veterans, with particular attention to military sexual trauma. She is currently the Principal Investigator of the Survey of the Experiences of Returning Veterans (SERV) a large VA-funded study of the gender differences in coping behaviors of Veterans returning from military service.


Desai RA, Manley MM, Desai MM, Potenza MN. Gender differences in the association between body mass index and psychopathology. CNS Spectr. 2009 Jul;14(7):372-83. PMID:19773713

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**Hoffman, Ralph E**

*Abstract Number 10293080*

Professor of Psychiatry and Clinical Professor of Nursing

(203) 688-9734
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MD, Albert Einstein College of Medicine, 1976
BS, Brown University, 1971

Dr. Hoffman has employed a variety of methods including brain imaging, transcranial magnetic stimulation, and computer models of brain processes, to better understand psychological and neurobiological factors leading to psychotic experiences reported by persons with schizophrenia. His work has revealed that abnormal brain connectivity and neuroplasticity involving language processing, memory consolidation, and emotionality leading to hallucinations and delusions.

Hoffman RE, Greasemann U, Gueorgueva R, Quinlan D, Lane D, Mikkelainen R. Using computational patients to evaluate illness mechanisms in schizophrenia. Biological Psychiatry 2011;69:997-1005


**Kaffman, Arie**

*Abstract Number 11410949*

Research Scientist in Psychiatry

(203) 785-6657
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MD, University of California/San Francisco, 2001
PhD, University of California San Francisco, 1999

My laboratory is studying the molecular mechanisms by which events early in life modify neurodevelopment and how these neurodevelopmental changes alter brain function and behavior in adult mice. This work bridges behavioral and developmental neuroscience, two experimental approaches that traditionally have not been integrated. For example, behavioral neuroscientists study how manipulations of the adult brain modify adult behavior, but have paid little attention to how circuits that program this behavior are assembled during development. Similarly, developmental biologists focus on how circuits are formed during early development, but have traditionally shied away from exploring how these developmental changes modify behavior in adulthood. This artificial chasm is reflected in the way we practice medicine (pediatric vs. adult medicine), psychiatry (child vs. adult psychiatry), and our basic science and translational approaches to understanding behavior.


**Hoge, Michael A**

*Abstract Number 10388875*

Professor of Psychiatry

(203) 785-5629
michael.hoge@yale.edu

PhD, Kent State University, 1984
BA, Kent State University, 1977

Dr. Hoge specializes in the development, evaluation, and management of comprehensive systems of care for persons with mental health and substance conditions. His research has focused on severe mental illness and non-hospital alternatives for individuals experiencing acute mental health problems. Most recently his research has centered on workforce development in behavioral health, including recruitment, retention, training, and the performance of individuals providing mental health and addiction services.


Dr. Kaufman and her team conduct program evaluations, needs assessments, and evaluations of service delivery systems. The team provides consultation and technical support to state departments on issues such as the development of performance indicators, training and technical assistance plans to train community-based organizations to implement mandated reporting requirements, and utilizing data to inform program and policy development. In addition to our research on evaluation methodology our team works to identify risk and protective factors for children exposed to violence and for children at risk for severe emotional and behavioral difficulties.

Case, AD; Byrd, R; Claggett, E; DeVeaux, S; Perkins, R; Huang, C; Sernyak, M.J.; Kaufman, JS. Stakeholders’ Perspectives on Community-Based Participatory Research to Enhance Mental Health Services. American Journal of Community Psychology, 2014; DOI 10.1007/s10464-014-9677-8


Research is broadly in the area of behavioral medicine with specific interests in fields of pain and pain management. Dr. Kerns is Principal Investigator of the Pain Research, Informatics, Medical comorbidities, and Education (PRIME) Center funded by the Department of Veterans Affairs that emphasizes the conduct of pain-relevant health services research that can inform policy, practice, and educational initiatives. The development of quality indicators for pain management is an overarching focus of research in this area. Several funded research projects are designed to evaluate the efficacy of self-management interventions for persistent pain including novel interventions that employ telehealth and other technologies to promote access and sustainability. Research informed by a motivational model of pain self-management explores moderators and mediators patient participation and outcomes and processes of change during these interventions.

Additional focuses include research related to the interface between pain and overweight/obesity, patient preferences for pain treatment, racial/ethnic and gender differences in the experience of pain and disparities in pain treatment, pain and prescription substance abuse, and medical and psychiatric comorbidities of pain.


Research is broadly in the area of behavioral medicine with specific interests in fields of pain and pain management. Dr. Kerns is Principal Investigator of the Pain Research, Informatics, Medical comorbidities, and Education (PRIME) Center funded by the Department of Veterans Affairs that emphasizes the conduct of pain-relevant health services research that can inform policy, practice, and educational initiatives. The development of quality indicators for pain management is an overarching focus of research in this area. Several funded research projects are designed to evaluate the efficacy of self-management interventions for persistent pain including novel interventions that employ telehealth and other technologies to promote access and sustainability. Research informed by a motivational model of pain self-management explores moderators and mediators patient participation and outcomes and processes of change during these interventions.

Additional focuses include research related to the interface between pain and overweight/obesity, patient preferences for pain treatment, racial/ethnic and gender differences in the experience of pain and disparities in pain treatment, pain and prescription substance abuse, and medical and psychiatric comorbidities of pain.


The goal of my laboratory is to understand the neural circuit basis of high-level cognitive functions, which are essential for goal-directed behavior and commonly impaired in psychiatric disorders. Using the mouse as a model enables us to apply a diverse set of tools, including in vivo two-photon imaging, optogenetics, and patch-clamp electrophysiology, to relate neural activity to behavior. We are particularly interested in the prefrontal and cingulate cortices that are central nodes of the cognitive circuits.

Specialized Terms: Neural circuits; Inhibitory neurons; Executive functions; Working memory; Decision-making; Action selection; Two-photon microscopy; Optogenetics; Mouse behavior; Electrophysiology


**Li, Chiang-Shan R**

**Abstract Number 11487942**

Associate Professor of Psychiatry and of Neurobiology

(203) 974-7354  
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PhD, California Institute of Technology, 1996  
MD, National Taiwan University, 1989

Our research focuses on combining psychophysics, neural imaging, and computation to understand how brain works at the systems level. In particular, we are interested in the neural processes of cognitive control and how deficits in these processes may contribute to the pathogenesis of substance use disorders and other psychiatric conditions. Our research also focuses on the neurochemical basis of cognition. We employ pharmacological manipulation and resting state as well task-based brain imaging to examine the catecholaminergic circuits of importance to neuropsychiatric conditions.

Specialized Terms: Systems neuroscience; Psychophysics; Neural imaging; Cognitive control; Addiction; Psychostimulant; Alcohol; Anxiety disorders


**Marienfeld, Carla**

**Abstract Number 12581807**

Assistant Professor of Psychiatry  
(203) 974-7543  
carla.marienfeld@yale.edu  
MD, Baylor College of Medicine, 2007

My previous research experience includes biochemical research focusing on cholangiocarcinoma, which then shifted more towards psychiatric and global interests during my work in Chile, Nigeria, and in projects in China looking at epidemiology and basic treatment outcomes of methadone maintained patients. My current work is focusing more on health services and clinical outcomes in opioid use disorders in the US and abroad. I have also completed a series of papers looking at medication and health care utilization of large samples of dually diagnosed and methadone maintained patients at the VA.

Specialized Terms: Global mental health; Health services in addiction


**Martino, Steve**

**Abstract Number 10318597**

Professor of Psychiatry  
(203) 932-5711 x 2468  
steve.martino@yale.edu  
PhD, Depaul University, 1990

The driving force behind my research and related scholarly activities has been my dedication to promoting the use of evidence-based treatments in clinical settings. My major contributions have been:

1. Modifying an approach called motivational interviewing for patients who have both psychiatric and substance abuse problems;
2. Studying the degree to which community program clinicians use motivational interviewing with skill;

3. Researching different strategies for training clinicians in evidence-based treatments.

This latter work has involved examining expert and train-the-trainer approaches, a stepwise approach for offering training to only those who demonstrate a need for it, and use of standardized patient instructors. I am currently conducting a multi-site randomized clinical trial testing the effectiveness of supervising motivational interviewing on both clinicians’ ability to use it and on their clients’ treatment outcomes. I also am studying the effectiveness of motivational interviewing delivered by medical practitioners compared to a computer-based version of this treatment approach. Finally, I have developed performance rating systems to measure how much and how well clinicians use motivational interviewing in practice and have modified these materials for use as clinical supervision toolkit.

Specialized Terms: Motivation interviewing (MI); Clinician training strategies; Implementation science; Technology-based treatment approaches; Curriculum evaluation


Specialized Terms: Pain; obesity; eating disorders; cognitive-behavioral therapy; empirically-supported treatments; health behavior change; body image


Mazure, Carolyn M

Abstract Number 10248506

Norma Weinberg Spungen and Joan Lebson Bildner Professor of Psychiatry and Professor of Psychology
(203) 764-6600
carolyn.mazure@yale.edu
PhD, Penn State University/University Park, 1980

Carolyn M. Mazure is a Professor of Psychiatry and Psychology. She created and directs Yale’s research program on health and gender, Women’s Health Research at Yale, which initiates and supports innovative studies on women’s health and translates findings into practice. Professor Mazure’s own research focuses on the development of models for understanding depression and addictive disorders, with a special emphasis on gender-based analyses.

Specialized Terms: Depression; Addictive behaviors; Women’s health research; Gender specific aspects of health and disease and the interplay of stress


Mazure, Robin

Abstract Number 10310981

Research Scientist in Psychiatry
(203) 932-5711x3954
robin.masheb@yale.edu
PhD, St. John’s University, 1997
BS, Tufts University, 1988

Dr. Masheb is a Research Scientist at the Yale School of Medicine and the VA Connecticut Healthcare System. She specializes in the design and implementation of behavioral, dietary, and pharmacologic interventions, and has extensive NIH-funded research experience conducting clinical trials for weight loss, and more recently, weight loss maintenance. Her research is focused on improving weight loss outcomes, and treating eating disorder symptoms, in non-traditional populations (i.e., binge eating, male, minority, pain and Veteran groups). Dr. Masheb also serves as scientific consultant to the VA National Weight Management Program, MOVE!. Specialized Terms: Depression; Addictive behaviors; Women’s health research; Gender specific aspects of health and disease and the interplay of stress


McMAHON, Thomas J

Abstract Number 10144211

Associate Professor of Psychiatry and in the Child Study Center and Associate Clinical Professor of Nursing

(203) 974-5950
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PhD, New York University, 1994
MA, New York University, 1986
BSW, Temple University, 1975

As a clinical child and school psychologist, I am broadly interested in ways the principles of developmental psychopathology can be used to explore the impact of substance abuse on family process and the psychosocial development of children. I am particularly interested in (a) the impact of substance abuse on fathering, (b) parenting as a treatment issue for substance-abusing men and women, and (c) the development of parent intervention for men and women enrolled in substance abuse treatment.


MOORE, Brent A

Abstract Number 11836680

Research Scientist in Psychiatry

(203) 932-5711 x2587
brent.moore@yale.edu

PhD, University of New Mexico, 1998
MS, Western Washington University, 1992
BS, University of Utah, 1990

I have broad research interests in substance abuse, technological behavioral interventions, HIV/AIDS, chronic pain, and the integration of behavioral interventions in primary care settings. I also have extensive research methodology, data management, and analytic and statistical experience, and currently have ongoing clinical trials of an automated, mobile treatments for substance abuse.
I am particularly interested in developing and evaluating a computer-based treatment for substance abuse. This type of treatment is particularly relevant for rural settings where access to counselors and therapeutic treatments are either unavailable or unfeasible. Currently we are developing and evaluating a computer-based system, to provide daily cognitive and behavioral treatment (CBT) via telephone to opioid dependent patients who are receiving medication management in a primary care setting.

Specialized Terms: Automated mobile treatment for chronic disorders including substance abuse, HIV, and chronic pain; Primary care treatment for substance abuse and chronic pain; Implementation research; Addictions; Cannabis dependence; Substance abuse treatment; HIV; Chronic pain


Morgan, Peter T

Abstract Number 11214803

Associate Professor of Psychiatry
(203) 974-7515
peter.morgan@yale.edu
MD, Mount Sinai School of Medicine, 2000
PhD, Mount Sinai School of Medicine, 1999
MS, University of California Davis-LLNL, 1999
BS, Yale University, 1992

I am interested in the neurophysiology of substance dependence for its own sake and as a window into understanding cognition and behavior. The major focus of my laboratory is the examination of the role of disturbances of sleep and sleep-dependent memory consolidation in chronic substance use and other mental illnesses. My laboratory has found that abstinent male cocaine users suffer from an “occult” insomnia. Although their sleep is objectively poor and they exhibit cognitive disruptions related to this poor sleep, they believe that their sleep is unimpaired.

Recent findings suggest that modafinil, a wakefulness promoting agent, reverses some of the sleep deficits associated with chronic cocaine use.


Nairn, Angus C

Abstract Number 11343051

Charles B. G. Murphy Professor of Psychiatry
(203) 974-7725
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PhD, University of Birmingham, 1979

Our research is focused on the molecular actions of dopamine in the striatum. Dopamine plays a key role in goal-directed behavior, as well as in reward and habit learning. The disruption of normal dopaminergic neurotransmission is known to underlie certain neurodegenerative and neuropsychiatric diseases, including Huntington’s and Parkinson’s disease, and schizophrenia. Modulation of dopamine-regulated signaling pathways also plays an important role in the addictive actions of various drugs of abuse. Our studies of dopamine-dependent signal transduction in striatal neurons provide novel insights into how dopaminergic neurotransmission is altered in various diseases models and also provides a rational new approach to developing drugs that specifically affect these signaling pathways. An important component of our research is the development of biochemical methods to interrogate alterations in protein expression and regulation in specific neuronal cell types using novel proteomic approaches. Specialized Terms: signal transduction; Structure and function of protein kinases and phosphatasers


NORKO, Michael A

Abstract Number: 10323663

Associate Professor of Psychiatry
(860) 418-6807
michael.norko@yale.edu

MA, Yale Divinity School, 2010
MD, SUNY Upstate Med Center, 1983

Measures of individual function as indicators for treatment and management of risk of violence to others; Interplay of religion, spirituality and psychiatry and mental health care; Outcomes of service delivery in provision of forensic mental health care

Specialized Terms: Psychiatric risk assessment; gun violence and mental health; forensic mental health care system delivery; religion, spirituality and psychiatry/mental health; sexual diversity and religion


O'MALLEY, Stephanie S

Abstract Number: 10428400

Professor of Psychiatry
(203) 974-7590
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PhD, Vanderbilt University, 1983
BS, Vanderbilt University, 1976

The goal of our laboratory is to develop more efficacious treatments for alcohol use disorders and nicotine dependence and to provide the science base for the regulation of tobacco products. Toward this end, we are conducting clinical trials to determine efficacy of medications and behavioral interventions, and laboratory studies to determine the mechanisms underlying the effects of treatment and the underlying nature of the disorder. Research on how flavors, such as methol and sweeteners, influence the use of tobacco products is underway to inform the regulation of tobacco products by the FDA.

Specialized Terms: Medications development for alcoholism and smoking; Risk reduction and young adult drinking; tobacco regulatory science; treatment methodology; patient treatment matching; biomarkers of treatment response


PEARLSON, Godfrey D

Abstract Number: 11634941

Professor of Psychiatry and of Neurobiology
(860) 545-7757
godfrey.pearlson@yale.edu

MA, Columbia University, 1976
MBBS, Newcastle University, 1974

Large-scale studies of individuals with major psychiatric disorders and their close relatives, and of healthy persons, combining genotyping results with biological measurements to determine risk of both neuropsychiatric disorders, and associations of normal behaviors and personality traits.

Specialized Terms: Endophenotypes; multivariate genotype/phenotype relationships; psychosis; addiction; IMRI, DTI


Psychiatry  263

Dr. Picciotto's laboratory also studies signaling molecules downstream of nicotinic receptors, such as calcineurin, CaM kinases and adducins, which may mediate long-term changes in behavior downstream of these receptors.

Specialized Terms: Neuroscience; Molecular basis of behavior; Intracellular signaling; Mouse genetic models


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PETRAKIS, Ismene L

Abstract Number 10331959

Professor of Psychiatry
(203) 932-5711 x2244
ismene.petrakis@yale.edu
MD, University of Pittsburgh, 1987

Dr. Petrakis’ research interests are in the field of addiction and alcoholism. They focus on finding appropriate treatments, including medications, to treat individuals who have alcoholism and a psychiatric disorder. In addition, her work has focused on understanding the neurobiological mechanisms underlying alcohol dependence and what goes into the risk to develop alcoholism.

Specialized Terms: Alcohol; Alcoholism; Dual diagnosis; Psychiatric comorbidity; Addiction; Neurobiology; Psychopharmacology; Familial vulnerability


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PIETRZAK, Robert H

Abstract Number 12622097

Assistant Professor of Psychiatry
(860) 638-7467
robert.pietrzak@yale.edu
PhD, University of Connecticut, 2008
MPH, University of Connecticut, 2003
BA, Clark University, 2001

Dr. Pietrzak is Director of the Translational Psychiatric Epidemiology Laboratory of the Clinical Neurosciences Division of the National Center for PTSD. His research focuses on the epidemiology of trauma-related disorders across the lifespan. His most recent work has examined a broad range of topics related to civilian and military trauma, including health and psychosocial correlates of partial and full PTSD; dimensional structure and neurobiological correlates of trauma-related psychopathology; protective effects of psychological resilience and social support; and posttraumatic growth. He also maintains an active interest in geriatric mental health, the role of stress in dementia, and cognitive assessment methodology.


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PICCIOTTO, Marina

Abstract Number 10284529

Charles B. G. Murphy Professor of Psychiatry and Professor in the Child Study Center, of Neurobiology and of Pharmacology
(203) 737-2041
marina.picciotto@yale.edu
PhD, Rockefeller University, 1992
BS, Stanford University, 1985

The goal of Dr. Picciotto’s research team is to understand the role of single molecules in complex behaviors related to addiction, depression, feeding and learning. She and her colleagues use molecular genetic and pharmacological approaches to link the biochemical, cellular, and anatomical levels of investigation to behavior. Of primary interest is the role of nicotinic acetylcholine receptors in brain function and development.
**PITTENGER, Christopher**

**Abstract Number 11806947**

Associate Professor of Psychiatry and in the Child Study Center
Connecticut Mental Health Center
34 Park Street
New Haven, CT, 06519
(203) 974-7675
christopher.pittenger@yale.edu

MD, Columbia College of Physicians and Surgeons, 2003
PhD, Columbia University, 2002
MPhil, Columbia University, 1998
BS, Yale University, 1994
MS, Yale University, 1994

My research is aimed towards a better understanding of a particular network of brain structures, called the basal ganglia, and the consequences of dysfunction of this network in various neuropsychiatric diseases. The basal ganglia are involved both in motor control and in the formation of habits. Abnormalities in this circuit are implicated in a variety of conditions characterized by maladaptive, inflexible behaviors - habits gone bad. These include obsessive-compulsive disorder, Tourette syndrome, and drug addiction.

Our research in the laboratory has two strands. First, we seek to better understand the mechanisms of normal basal ganglia-dependent habit-like learning, by manipulating this circuit in mice and then testing their ability to learn a variety of tasks. Second, we seek to better understand how perturbation of the basal ganglia system can lead to symptoms of psychiatric disease. We do this by recapitulating some of the biology of diseases such as Tourette syndrome, again in mice, and observing the behavioral and neurophysiological consequences.

I also direct the Yale OCD Research Clinic, where our research aims towards the better understanding of the biology of obsessive compulsive disorder and the development of new treatments. We have a number of active research programs. We are investigating abnormalities in the neurotransmitter glutamate in OCD and whether glutamate modulating medications can be of therapeutic benefit. We are probing the network connectivity of the brain in OCD and Tourette syndrome using recent advances in fMRI imaging. We are exploring the phenomological heterogeneity of OCD, seeking clues to how we might better personalize effective treatments. We are also developing innovative neurofeedback techniques, in which patients actually learn to control the activity of key brain regions, in an effort to develop a new type of nonpharmacological treatment.


**POTENZA, Marc N**

**Abstract Number 10316795**

Professor of Psychiatry, in the Child Study Center and of Neurobiology
(203) 737-3553
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MD, Yale University School of Medicine, 1994
PhD, Yale University, 1994

My research focuses on how non-substance (“behavioral”) addictions are similar to and different from substance addictions. We use brain imaging, genetic, clinical, pharmacological, behavioral and epidemiological approaches to study this topic. We are also interested how individual differences related to impulsivity and gender, for example, influence non-substance and substance addictions.

Specialized Terms: Pathological gambling; Impulse control disorders; Substance abuse; Addiction; Gender differences


**POWSNER, Seth M**

**Abstract Number 10415021**

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MD, Columbia College of Physicians and Surgeons, 2003
PhD, Columbia University, 2002
MPhil, Columbia University, 1998
BS, Yale University, 1994
MS, Yale University, 1994

My research is aimed towards a better understanding of a particular network of brain structures, called the basal ganglia, and the consequences of dysfunction of this network in various neuropsychiatric diseases. The basal ganglia are involved both in motor control and in the formation of habits. Abnormalities in this circuit are implicated in a variety of conditions characterized by maladaptive, inflexible behaviors - habits gone bad. These include obsessive-compulsive disorder, Tourette syndrome, and drug addiction.

Our research in the laboratory has two strands. First, we seek to better understand the mechanisms of normal basal ganglia-dependent habit-like learning, by manipulating this circuit in mice and then testing their ability to learn a variety of tasks. Second, we seek to better understand how perturbation of the basal ganglia system can lead to symptoms of psychiatric disease. We do this by recapitulating some of the biology of diseases such as Tourette syndrome, again in mice, and observing the behavioral and neurophysiological consequences.

I also direct the Yale OCD Research Clinic, where our research aims towards the better understanding of the biology of obsessive compulsive disorder and the development of new treatments. We have a number of active research programs. We are investigating abnormalities in the neurotransmitter glutamate in OCD and whether glutamate modulating medications can be of therapeutic benefit. We are probing the network connectivity of the brain in OCD and Tourette syndrome using recent advances in fMRI imaging. We are exploring the phenomenological heterogeneity of OCD, seeking clues to how we might better personalize effective treatments. We are also developing innovative neurofeedback techniques, in which patients actually learn to control the activity of key brain regions, in an effort to develop a new type of nonpharmacological treatment.

Petrakis, IL, Kerfoot, K, Pittman, B, Perrino, A, Koretski, J, Newcomb, J, Limoncelli, D, Acompora, G, Ralevski, E. Subjective Effects of Thiopental in Young Adults with and without a Family History of Alcoholism. J Addict Res Ther. 2012 May 14;Suppl 7(2)

Redmond Jr., D. Eugene

Abstract Number 10430474

Professor of Psychiatry and of Neurosurgery
(203) 785-4432
eugene.redmond@yale.edu
MD, Baylor University, 1968

Research interests and ongoing projects include the study of cell replacement and gene therapies for Parkinson's disease, amyotrophic lateral sclerosis, other neurodegenerative diseases, and spinal cord injuries, and the study of plasticity and function of central catecholaminergic systems in primates and humans.

Specialized Terms: Dopamine; Fetal Neural Tissue; Gene Therapy; MPTP Primate Model; Neural Grafts; Parkinson’s Disease; Stem Cell


Ralevski, Elizabeth

Abstract Number 11469276

Assistant Professor of Psychiatry
(203) 932-5711 x4282
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PhD, York University, 2000

Dr. Ralevski is pursuing research into various aspects of substance abuse, with a primary focus on alcoholism. Current research projects are focusing on treatment studies with novel psychopharmacological approaches to the treatment of individuals who are diagnosed with alcoholism and other psychiatric conditions including depression, post traumatic stress disorder, schizophrenia and borderline personality disorder. Her other research examines factors, such as stress, that may lead to the development and maintenance of alcoholism and other mental disorders.

Specialized Terms: Alcoholism; Dual Diagnosis; Personality; Personality Disorders; Psychiatric comorbidity; Pharmacology; Stress


Rohrbaugh, Robert M

Abstract Number 10339507

Professor of Psychiatry
(203) 737-2433
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MD, Yale University, 1982
BA, Franklin and Marshall College, 1978

Dr. Rohrbaugh has developed clinical programs and educational programs at the interface of geropsychiatry and medicine. His research has been focused on evaluating the effect these interventions have had on patient care and on trainee education and
skill development. For example, Dr. Rohrbaugh developed a psychiatry primary care clinic at VA-Connecticut to provide primary care medical services to patients with serious mental illness. He also participated on the team that evaluated this intervention and found it improved access, quality of care, and cost essentially the same as standard care. Dr. Rohrbaugh included a module on psychiatry resident education on the principles of primary care in the development of the clinic. This module was part of a national review of such interventions recently published by Dr. Rohrbaugh in 2009.

Specialized Terms: Undergraduate Medical Education; Post-graduate (Residency) Education; Electronic Medical Record; Practice Based Learning


Rohrbaugh, RM, Felker B and Kosten TR: The Veterans Administration Psychiatry Primary Care Education Initiative: Defining a Model and Determining Outcomes for Psychiatry Resident Education in Primary Care. Academic Psychiatry 2009; 33: 31-35

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**ROSEN, Marc I**

**Abstract Number 10266118**

Associate Professor of Psychiatry

VA Connecticut Healthcare

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West Haven, CT, 06516

(203) 932-5711 x2112

marc.rosen@yale.edu

MD, University of Pennsylvania, 1986

BA, Columbia, 1982

Our group develops, tests, and disseminates behavioral therapies for people with psychiatric and/or substance abuse disorders. We are working primarily with:

- people receiving disability payments related to their disorders;
- people with HIV;
- veterans applying for Compensation and Pension


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**ROTH, Robert H**

**Abstract Number 10323340**

Professor of Psychiatry

(203) 785-4506

robert.roth@yale.edu

PhD, Yale University, 1965

Our laboratory takes a neurochemical approach towards examining neurotransmitter function and the mechanism of action of psychotropic drugs. The major research investigates the biochemical organization, regulatory control, pharmacology, and function of catecholamine-containing neurons in the CNS. We also investigate the post-translational mechanisms by which neuronal impulse flow regulates tyrosine hydroxylase and examine the function of dopamine autoreceptors. Our focus recently has been on central dopamine systems and, in particular, on the mesocortical system. These studies, carried out both in rodents and non-human primates, have revealed that the mesotelencephalic dopamine systems are quite heterogeneous, exhibiting distinct physiological and pharmacological properties. Neural grafting is another research interest of our lab. We are currently investigating the function of neural grafts and stem cells in the MPTP primate model of Parkinson’s disease.

Asenapine effects on cognitive and monoamine dysfunction elicited by subchronic phencyclidine administration. Elsworth JD, Groman SM, Jentsch JD, Valles R, Shahid M, Wong E, Marston H, Roth RH. Neuropharmacology. 2011 Aug 23


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**ROWE, Michael**

**Abstract Number 10285872**

Associate Professor of Psychiatry

(203) 764-8690

michael.rowe@yale.edu

PhD, Yale University, 1996

The intervention research with which I’ve been engaged for the past twenty years includes mental health outreach to people who are homeless, peer (person with lived experience of mental illness) support and mentoring, and citizenship as a framework for the social inclusion and
valued participation in society of people with mental illnesses. This research shares a focus on cutting-edge interventions in community mental health care. It also shares a link to the dual, foundational goal of community mental health care starting in the late 1950s and 1960s, that of providing effective treatment for people with mental illnesses and supporting their access to a ‘life in the normal manner’ in their home communities (1961 federal Action for Mental Health report). I am currently PI on an NIMH R-34 exploratory study in the new area of ‘financial health’ support and education and resources for persons with mental illnesses. My research methods have ranged from qualitative-ethnographic to quantitative and experimental. It has drawn on the talents of researchers from a number of academic disciplines and on the unique perspectives of people with experience of mental illness, substance addictions, incarceration, homelessness, and/or poverty as co-researchers.


SARTOR, Carolyn E

Abstract Number 14008804

Assistant Professor of Psychiatry
VA Connecticut Healthcare
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PhD, Palo Alto University, 2005

The goal of my program of research is to refine etiological models of substance use disorders by integrating genetically-informative designs with a developmental psychopathology approach to the study of drug and alcohol use in adolescents and young adults. Much of my research focuses on the progression through stages of substance use (e.g., initiation, onset of symptoms) and the timing of transitions in relation to the onset of psychiatric disorders and trauma exposure. I have a particular interest in the influence of traumatic life events such as childhood sexual abuse on the course of alcohol use in women and have recently expanded my program of research to include the examination of racial/ethnic differences in patterns of substance use in adolescent girls and young women.

Specialized Terms: Alcoholism/alcohol; Substance abuse; Genetic epidemiology; Psychological trauma


SCHOTTENFELD, Richard S

Abstract Number 10313276

Professor of Psychiatry
(203) 974-7349
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MD, Yale University, 1976

My research is aimed at improving the efficacy, accessibility and availability of addictions treatment (primarily focusing on heroin or other opioid dependence, stimulant abuse, and chronic pain) in the United States and internationally. We generally develop and investigate new treatments through clinical trials.

Specialized Terms: Addictions; Behavioral Treatments; Buprenorphine; Methadone; Opioid Dependence; Alcohol Dependence; Stimulant Abuse; Chronic Pain


SMALL, Dana

**Abstract Number 11980789**

Professor of Psychiatry and Associate Professor of Psychology

(203) 401-6242
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PhD, McGill University, 2001
MSc, McGill University, 1998

Neuroimaging techniques such as functional magnetic resonance imaging (fMRI) and positron emission tomography have made it possible to study brain representation of sensation, motivation and cognition in humans. The primary interest of my lab is to use these techniques in conjunction with psychophysics and behavioral testing to uncover brain substrates of taste, smell, flavor, and food reward. We are particularly interested in multisensory integration of taste and smell as well as in understanding how sensory processing interacts with behavioral choices such as decisions to eat or stop eating in healthy individuals and in people with eating disorders. A new research aim is to examine similarities and differences in the neural representation of food and drug reward to answer questions such as how nicotine addiction may influence the ability of food odors to induce eating. We currently have a fully automated and fMRI compatible olfactometer and gustometer and are using these devices to study taste, smell and food reward in the 3 Tesla Magnet at the Yale MR Imaging Research Center.

Specialized Terms: Neurophysiology of feeding; Chemical senses; Neuroimaging; Dopamine; Addiction; Motivation; Psychophysics; Stress; Obesity


SMITH, Megan V

**Abstract Number 10922964**

Assistant Professor of Psychiatry, in the Child Study Center and of Epidemiology (Chronic Diseases)

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PhD, Yale University, 1992
PhD, Oklahoma University Health Sciences Center, 1990

Clinical neurobiology of stress and relaxation, stress coping and regulation, emotion dysregulation, effects of stress and emotion dysregulation on desire for reward, dysfunctional motivation and addictive behaviors, such as, alcohol use, smoking, high calorie food intake, sex, gambling and drug use. Mechanisms underlying sex differences in stress neurobiology, and interaction with motivational processes and effects on health outcomes is integral to this research area. The neurobiology of relaxation and its effect on resilience and chronic stress and emotion dysregulation is also being studied. An additional interest is in developing treatments to target stress-related relapse in addictive behaviors. We’ve developed and validated a laboratory model of stress-induced and hedonic cue-induced craving and lapse to addictive behaviors. The laboratory model characterizes the compulsive craving state and is being applied to test new pharmacological and psychological interventions to reduce craving and maladaptive behaviors. Individual difference variables such as gender, genetics, early trauma, chronic stress, prefrontal cognitive functioning that may modulate responses to stress and urges are also being studied.

Specialized Terms: Stress; Relaxation; Chronic Disease; Addiction; Addictive behaviors; Clinical Prevention


The basis of my clinical research work is my belief that the successful prevention of poor childhood outcomes requires an alternative understanding of women’s mental and physical health problems beginning in the preconception period. Mental and physical illness, I believe, should be conceptualized as constructs in dynamic relation to the social, historical, cultural, economic, and political context in which families reside. This framework has driven my research thus far in specific projects related to the psychiatric and social epidemiology of depression in pregnancy and prevention of mental illness in women and children.

Specialized Terms: Mental health promotion and prevention in children and families; Mental illness in pregnancy and parenting; Community-based mental health research; Community-based participatory research in mental health; Gender disparities in mental illness


Sofuoglu, Mehmet

Abstract Number 11469973

Professor of Psychiatry
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PhD, University of Minnesota, 1991
MD, Hacettepe University Faculty of Medicine, 1986

Our research is focused on development of novel medications for cocaine and nicotine dependence. Our program seeks to bridge the gap between human laboratory studies examining the medical safety and potential efficacy of new medications for substance dependence and outpatient trials directly examining these medications in drug relapse. Among the key findings is our work on sex and menstrual cycle influences on cocaine responses in humans. To explain our novel observations on sex and menstrual cycle effects on cocaine responses, we proposed progestosterone’s role as a modulator of cocaine effects. We tested this hypothesis with a series of systematic human studies ranging from human laboratory to clinical trials examining the potential utility of progesterone as a treatment for cocaine and nicotine addiction. Following those seminal contributions, progesterone is considered a key modulator of drug use behavior, and an active area of research at the international level. Similarly, we were among the first to examine the contribution of the adrenergic system in cocaine responses with novel findings for effects of an alpha- and beta-adrenergic blocker, carvedilol. These novel human laboratory findings led to a new potential treatment approach using carvedilol for cocaine as well as methamphetamine addiction that is being pursued by other research research groups. More recently, we have developed a novel intravenous nicotine self-administration model which allows examination of both rewarding and aversive effects of nicotine in male and female smokers. This model has a great utility for early human screening for potential medications for tobacco addiction.

Specialized Terms: Tobacco addiction; Cocaine addiction; Clinical trials; Human laboratory studies


dren and adults with PTSD and very high functioning stress-resilient prisoners of war and active Special Forces soldiers. Dr. Southwick has been awarded numerous research grants and has served on a number of federal grant review committees. He has also won awards for excellence in teaching and clinical work.

Specialized Terms: Posttraumatic stress disorder; Resilience; Neurobiology; Epidemiology


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**Strambler, Michael J**

**Abstract Number 12782645**

Assistant Professor of Psychiatry
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New Haven, CT, 06511
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michael.strambler@yale.edu
PhD, University of California at Berkeley, 2007

One area of my research concerns understanding the role of social environments in the academic, psychological, social, and behavioral well-being of children and youth in urban contexts. My main focus in this area is on the ways in which home and school settings shape how youth perceive themselves academically and how self-perception affects academic performance and behavior.

Another primary area of my work focuses on the assessment of school-based programs and practices for the purpose of improving the academic performance and health of children. I am particularly interested in the design and implementation of rigorous and practical approaches to using data for informing practice and policy.

Specialized Terms: Academic achievement and engagement; Social, emotional, and behavioral health; Child development; Self-concept; Program development and evaluation; Culture


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**Srihari, Vinod H**

**Abstract Number 10631618**

Associate Professor of Psychiatry
(203) 974-7816
vinod.srihari@yale.edu
MD, University of Rochester, 1998
BA, University of Rochester, 1994

Dr. Srihari is seeking to determine how best to provide care to individuals who have recently experienced the onset of psychotic symptoms. He directs a research clinic that provides multi-disciplinary care to such individuals while also collecting outcomes to inform an assessment of the cost-effectiveness of such care. The overall goal is to articulate a model of care that can be implemented in community settings across the U.S. to promote the functional recovery of individuals with psychotic illnesses.


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**Suchman, Nancy E**

**Abstract Number 10305133**

Associate Professor of Psychiatry
1 Long Wharf Drive
New Haven, CT, 06511
(203) 285-1472
nancy.suchman@yale.edu
PhD, Colorado State University, 1994
MS, Syracuse University, 1986
BA, Cornell University, 1979

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Several addictive abused drugs such as cocaine, amphetamine, and also examine sex differences in attention, motivation, and recently developed a novel corticosterone model of depression exposure and alterations in reward-related learning. We have long-lasting deficits in inhibitory control after repeated cocaine including memory reconsolidation. Studies in monkeys have found conlumbic-striatal circuits that subserve dysfunctional cognitive control, impulsivity and alterations in reward-related learning.

Our basic research program focuses on dysfunction of cortico-limbic-striatal circuits that subserve dysfunctional cognitive control, impulsivity and alterations in reward-related learning with relevance to drug addiction, depression, schizophrenia, and Tourette Syndrome. Our current studies examine how DA/PKA-regulated intracellular signaling and neurotrophin molecules within the prefrontal cortex, amygdala, and accumbens contribute to motivation, learning, and memory processes, including memory reconsolidation. Studies in monkeys have found long-lasting deficits in inhibitory control after repeated cocaine exposure and alterations in reward-related learning. We have recently developed a novel corticosterone model of depression and also examine sex differences in attention, motivation, and impulse control in rodents and underlying molecular alterations. Several addictive/abused drugs such as cocaine, amphetamine, PCP, THC, nicotine, and alcohol are examined using drug self-administration models. We use transgenic mouse models, intracerebral infusion techniques, and viral-vector mediated overexpression of targeted proteins in combination with sophisticated behavioral techniques in mice, rats, and monkeys.


Specialized Terms: Mother-child relations; Human attachment; Substance abuse; Intervention development and evaluation; Neurobiology of parenting and addiction


My primary interests are in community-based research to promote resilience, prevent adolescent substance use, and the integration of cultural approaches into practice, research, and policy. My research is collaborative and often carried out in partnership with community-based organizations, state and municipal agencies, colleagues, and other community stakeholders. This work is conceptualized from a social justice perspective, examines multiple levels (such as the individual, the family, peers, the school, the neighborhood or community, and the broader culture), and takes place in a variety of community settings that involve mostly at risk, traumatized, or clinical populations. Examples of some of these population groups are: bereaved young adults; “sandwiched generation” women caregivers; children of mothers with serious mental illness; maltreated children or children in foster care; urban, low-income adolescents; and persons in recovery from mental illness or addiction. Some of my research involves randomized controlled trials and some involves evaluations of programs or services carried out by public agencies or community-based organizations. Most of this research has been collaborative and conducted in partnership with other investigators, community-based organizations, state and municipal agencies, and community stakeholders. In my evaluation research, I study the operations and effectiveness of programs and services designed for vulnerable populations. To the extent possible, my research is intended to inform profes-
Tsai, Jack

**Abstract Number 13297626**

Assistant Professor of Psychiatry
(203) 932-5711 x2090
jack.tsai@yale.edu

PhD, Purdue University, 2009
MS, Purdue University, 2007
BA, Pitzer College, 2003

My work is focused mainly on health services research of three different, but often related populations: adults with severe mental illness, American military veterans, and chronically homeless adults. I seek to improve understanding of mental illnesses like schizophrenia, posttraumatic stress disorder, and substance use disorders. I am interested in improving health services through program evaluation, testing new interventions, and finding explanatory variables for individual differences in outcomes.


Tsai, J., Rosenheck, R. A., Culhane, D. P. Artiga, S. (2013). Medicaid expansion: chronically homeless adults will need targeted enrollment and access to a broad range of services. Health Affairs, 32(9), 1552-9.

Tek, Cenk

**Abstract Number 12036022**

Associate Professor of Psychiatry
Connecticut Mental Health Center
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New Haven, CT, 06519
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MD, Hacettepe University Faculty of Medicine, 1991

Our lab can accommodate limited number of students for small projects on cognition in schizophrenia or cross-sectional case control studies in clinical subjects in relevance to schizophrenia and other psychotic disorders. We are also interested in human reward mechanisms and appetite regulation, and can support small student projects in these areas.

Specialized Terms: Schizophrenia; Psycho-pharmacology; Cognitive neuroscience; Translational neuroscience; Working memory; Cognitive impairment in schizophrenia; Medical comorbidities in schizophrenia; Obesity and mental illness; Human reward mechanisms and appetite regulation


Jean-Baptiste M, Tek C*, Lisakov E, Chakunta UR, Nicholls S, Hassan AQ, Brownell KD, Wexler BE. A pilot study of a weight management program with food provision in schizophrenia. Schizophr Res. 2007 Nov;96(1-3):198-205.

Van Dyck, Christopher H

**Abstract Number 10011526**

Professor of Psychiatry, Neurology, and Neurobiology
(203) 764-8100
christopher.vandyck@yale.edu

MD, Northwestern University, 1984
BA, Yale University, 1978

Dr Christopher H. van Dyck is a graduate of Yale College and Northwestern University Medical School. He completed his residency in psychiatry, fellowship in geriatric psychiatry, and research fellowship in neuroimaging at Yale University School of Medicine. He subsequently joined the faculty at Yale where he is Professor of Psychiatry, Neurology, and Neurobiology, Director of the Alzheimer’s Disease Research Unit, and Director of the Division of Aging and Geriatric Psychiatry.

Dr. van Dyck is a recognized leader in the neuroimaging of Alzheimer’s disease and healthy aging. His research interests also include the pharmacologic treatment of Alzheimer’s disease and
Mild Cognitive Impairment, and he serves as Steering Committee member and Yale site Principal Investigator for the Alzheimer’s Disease Cooperative Study (National Institute of Aging). He is also Principal Investigator on grants from the National Institutes of Health and a number of private foundations, including the Alzheimer’s Association.

He received the prestigious Junior Investigator Award from the American Association for Geriatric Psychiatry (1996) and serves on the Editorial Board for the Journal of Nuclear Medicine and Brain Imaging and Behavior. He has participated in several invited presentations at national and international meetings and has authored over 100 papers, abstracts, and reviews. Finally, Dr. van Dyck is extremely committed to advancing the cause of Alzheimer’s patients and their families on the local and national level. As Chairman of the Medical Scientific Advisory Committee for the Connecticut Chapter of the Alzheimer’s Association, he is intimately involved with local program development, advocacy, and education.

Specialized Terms: Alzheimer’s disease; Healthy aging; Cognitive aging; Pharmacotherapy; Neuroimaging; Genetics


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**WHITE, Marney A**

*Abstract Number 11858491*

Associate Professor of Psychiatry and of Epidemiology (Chronic Diseases)

marney.white@yale.edu

MS, Yale School of Public Health, 2009

PhD, Louisiana State University, 2003

BS, University of Virginia, 1991

Dr. White’s research focus is on weight and eating problems, with particular emphasis on the interaction of tobacco use with eating disorders and weight concerns. Current projects focus on the influence of smoking on factors related to binge eating, specifically the influence of cigarette smoking on food cravings and emotional eating.


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**WOODS, Scott W**

*Abstract Number 10387787*

Professor of Psychiatry

(203) 974-7038

scott.woods@yale.edu

MD, Baylor College of Medicine, 1978

Dr. Woods conducts studies aiming to improve prediction of which prodromal adolescents and young adults will progress to frank psychosis and which will remit. He also conducts studies aiming to improve the treatment of current symptoms and to prevent progression.

Specialized Terms: Risk syndrome for psychosis; Psychosis prodrome; Attenuated psychosis disorder


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**YANG, Bao-Zhu**

*Abstract Number 11652094*

Assistant Professor of Psychiatry

(203) 932-5711 x3273

bao-zhu.yang@yale.edu

PhD, university at Albany, 2001

MS, university at Albany, 1993

My research focus in the past few years includes investigation of issues related to hidden genetic clusters which might cause...
potentially false positive for case control association studies, effects of interaction between gene and environment on disease manifestation, haplotype reconstruction and association analysis, and identification of genes for psychiatric disorders among admixed populations, and applied these analytical methods in finding genetic bases of psychiatric disorders such as childhood depression, alcoholism, drug dependence, nicotine dependence, and post traumatic stress disorder. Currently, I devote myself to mapping genes for comorbidity of substance use disorders and depression using genetic linkage and association methods under the support of an NIH K01 career development award.

Specialized Terms: Substance dependence; Alcoholism; Depression; Psychiatric genetics; Statistical genetics; Genetic epidemiology


Zhang, Huiping

Abstract Number 12012137

Assistant Professor of Psychiatry

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huiping.zhang@yale.edu

PhD, Queens University, Kingston, Canada, 2004

We are examining genetic and epigenetic changes that may increase the risk for substance dependence and related psychiatric disorders.

Specialized Terms: Substance Dependence; Psychiatric Genetics; Epigenetics; Functional genomics; Stem cell


Yonkers, Kimberly A

Abstract Number 11100155

Professor of Psychiatry, of Epidemiology (Chronic Diseases) and of Obstetrics, Gynecology, and Reproductive Sciences

(203) 764-6621
kimberly.yonkers@yale.edu

MD, Columbia College of Physicians and Surgeons, 1986

Through research, I am committed to servicing women who suffer from mood and anxiety disorders. My specific interests have included sex differences in these conditions as well as the relationship and treatment of mood, anxiety and substance use disorder occurring during the premenstrual phase of the menstrual cycle and during pregnancy and parturition. My research foci are several and include determining the efficacy and effectiveness of pharmacological treatments of perinatal mood disorders, substance use disorders and PMDD, determine the degree of health care utilization among women with PMDD and perinatal depression and investigating the impact of perinatal depressive, anxiety and substance use disorders on birth outcomes.


Radiology and Biomedical Imaging

Bokhari, S.A. Jamal

Abstract Number 10385696

Professor of Diagnostic Radiology and of Surgery (Trauma)

Yale-New Haven Hospital
20 York Street
New Haven, CT, 06510
(203) 785-2688
jamal.bokhari@yale.edu

MBBS, Army Medical College, Rawalpindi, Pakistan, 1984
Streamlining trauma imaging; Use of multiple row detector Computed Tomography (CT) scanners for emergent CT-Angiography; The role of CT scans in redefining pediatric and adult anatomy; Ramifications of obesity on diagnostic imaging

Specialized Terms: Trauma imaging; Computed Tomography (CT) scanners; CT-Angiography


BROKEN, Richard A

Abstract Number 10310250

Professor of Diagnostic Radiology
(203) 785-2384
richard.broken@yale.edu
MD, Emory University, 1980

Magnetic resonance (MR) imaging is playing an increasingly important role in the evaluation of epilepsy. Human epilepsy is associated with many types of conditions affecting the brain. Thus, the study of epilepsy with MR runs the gamut of cerebral disorders. These include tumors, vascular malformations, hippocampal sclerosis, migration disorders, perinatal insults, infections, trauma, and stroke. MR imaging is particularly important for the patient with medically intractable epilepsy (approximately 30% of epilepsies) who may be a candidate for surgical control of their epilepsy, because MR usually detects the responsible lesion and guides decision making and surgical management. Current epilepsy research includes the investigation of MR imaging in the surgical epilepsy group.

Specialized Terms: Imaging of epilepsy, Cortical dysplasias, Temporal lobe anatomy, and Anatomic variants

Berg AT, Mathern GW, Bronen RA, Fulbright RF, DiMario F, Testa FM, Levy SR. Frequency, prognosis, and surgical treatment of MRI structural abnormalities in childhood epilepsy. BRAIN 2009 Jul 28 [Epub]


CARMON, Richard E

Abstract Number 12122399

Professor of Diagnostic Radiology and of Biomedical Engineering
(203) 737-2814
richard.e.carson@yale.edu
PhD, University of California at Los Angeles, 1983
BS, Brown University, 1977

Dr. Richard Carson’s research uses Positron Emission Tomography (PET) as a tool to noninvasively measure a wide range of in vivo physiology in human beings and laboratory animals. His focus is on the development and applications of new tracer kinetic modeling methods and algorithms and on research in PET image reconstruction and image quantification. These quantitative techniques are then applied in clinical populations and preclinical models of disease. Application areas include neuropsychiatric populations, diabetes, cardiology, and oncology. A primary focus of his more biological applications is the measurement of dynamic changes in neurotransmitters.

Specialized Terms: Positron emission tomography (PET) modeling and physics; Tracer kinetic modeling methods and parametric imaging techniques for PET tracers; Application of receptor ligands to assess neurotransmitter dynamic; 3D and 4D PET image reconstruction; Medical imaging


CHOMA, Michael A

Abstract Number 13219205

Assistant Professor of Diagnostic Radiology, of Biomedical Engineering and of Pediatrics
(203) 785-2945
michael.choma@yale.edu
MD, Duke University, 2006
PhD, Duke University, 2004

Streamlining trauma imaging; Use of multiple row detector Computed Tomography (CT) scanners for emergent CT-Angiography; The role of CT scans in redefining pediatric and adult anatomy; Ramifications of obesity on diagnostic imaging

Specialized Terms: Trauma imaging; Computed Tomography (CT) scanners; CT-Angiography


BROKEN, Richard A

Abstract Number 10310250

Professor of Diagnostic Radiology
(203) 785-2384
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MD, Emory University, 1980

Magnetic resonance (MR) imaging is playing an increasingly important role in the evaluation of epilepsy. Human epilepsy is associated with many types of conditions affecting the brain. Thus, the study of epilepsy with MR runs the gamut of cerebral disorders. These include tumors, vascular malformations, hippocampal sclerosis, migration disorders, perinatal insults, infections, trauma, and stroke. MR imaging is particularly important for the patient with medically intractable epilepsy (approximately 30% of epilepsies) who may be a candidate for surgical control of their epilepsy, because MR usually detects the responsible lesion and guides decision making and surgical management. Current epilepsy research includes the investigation of MR imaging in the surgical epilepsy group.

Specialized Terms: Imaging of epilepsy, Cortical dysplasias, Temporal lobe anatomy, and Anatomic variants

Berg AT, Mathern GW, Bronen RA, Fulbright RF, DiMario F, Testa FM, Levy SR. Frequency, prognosis, and surgical treatment of MRI structural abnormalities in childhood epilepsy. BRAIN 2009 Jul 28 [Epub]


CARMON, Richard E

Abstract Number 12122399

Professor of Diagnostic Radiology and of Biomedical Engineering
(203) 737-2814
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PhD, University of California at Los Angeles, 1983
BS, Brown University, 1977

Dr. Richard Carson’s research uses Positron Emission Tomography (PET) as a tool to noninvasively measure a wide range of in vivo physiology in human beings and laboratory animals. His focus is on the development and applications of new tracer kinetic modeling methods and algorithms and on research in PET image reconstruction and image quantification. These quantitative techniques are then applied in clinical populations and preclinical models of disease. Application areas include neuropsychiatric populations, diabetes, cardiology, and oncology. A primary focus of his more biological applications is the measurement of dynamic changes in neurotransmitters.

Specialized Terms: Positron emission tomography (PET) modeling and physics; Tracer kinetic modeling methods and parametric imaging techniques for PET tracers; Application of receptor ligands to assess neurotransmitter dynamic; 3D and 4D PET image reconstruction; Medical imaging


CHOMA, Michael A

Abstract Number 13219205

Assistant Professor of Diagnostic Radiology, of Biomedical Engineering and of Pediatrics
(203) 785-2945
michael.choma@yale.edu
MD, Duke University, 2006
PhD, Duke University, 2004

Streamlining trauma imaging; Use of multiple row detector Computed Tomography (CT) scanners for emergent CT-Angiography; The role of CT scans in redefining pediatric and adult anatomy; Ramifications of obesity on diagnostic imaging

Specialized Terms: Trauma imaging; Computed Tomography (CT) scanners; CT-Angiography


Many pediatric diseases are poorly understood, in part because they involve processes that occur at small, microscopic scales. In addition, the causes often involve small motions and fluid flows. For example, an early embryonic heart has a diameter of about 100 micrometers, which is about the diameter of a human hair. The cilia that move mucus out of our airways are even smaller—about 10 micrometers long. In order to better study pediatric disease at such small scales, we develop innovative optical imaging methods to visualize and quantify disease at these microscopic scales.

We have three areas of active research.

1. First, we develop new laser sources for microscopy and biological imaging.
2. Second, using sophisticated optical imaging methods, we study abnormal embryonic heart function in different animal models of human disease, including the tadpole *Xenopus tropicalis*. In particular, we study the role that specific human genes play in abnormal embryo heart development and physiology.
3. Third, we are developing imaging methods to better diagnose abnormalities in respiratory cilia function. Since cilia expel mucus that contains allergens, viruses, and bacteria, they are essential to keeping lungs healthy.

The overall impact of our work is two-fold. First, we are developing core optical technologies that may find widespread use in microscopy. Second, our cilia and heart imaging research has the potential to personalize the diagnosis and treatment of a wide-variety of pediatric diseases.


**DE GRAAF, Robin**

**Abstract Number 10959055**

Associate Professor of Diagnostic Radiology

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PhD, Utrecht University, 1998

The main focus of Dr. Robin de Graaf’s research is the study of cerebral energy metabolism and its relationship to functional activation in human and animal brains. NMR spectroscopy (proton, (inverse) carbon-13, oxygen-17 and phosphorus-31) is the most important tool in the study of metabolic processes and fluxes, non-invasively in vivo. Besides studying brain energy metabolism, a significant part of the research is reserved for technological and methodological improvements to the technique of NMR spectroscopy. These include methods for better water suppression, spatial localization, spectral editing, quantification, and shimming. Dr. de

**CONSTABLE, Todd**

**Abstract Number 10056270**

Professor of Diagnostic Radiology and of Neurosurgery

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PhD, University of Toronto, 1990

My research is focused on developing and validating novel approaches to functional Magnetic Resonance Imaging (fMRI) and using these methods to improve our understanding of brain function. This work includes approaches for quantitative neuroimaging and methods for assessing brain function via connectivity mapping. These developments are applied in the neurosurgical environment to localizing epileptogenic tissue and mapping function prior to surgical intervention. These studies provide a framework for validating the fMRI techniques through comparisons with cortical stimulation, behavioral analyses, Wada testing, and patient outcomes. They also improve our understanding of the link between fMRI signal changes and neuronal activity, through comparisons of fMRI in vivo with EEG/ERP recordings obtained in patients with depth electrodes and/or subdural grids. We are also interested in better understanding basic language and memory processing in humans and factors that influence the networks revealed by neuroimaging.

Specialized Terms: Development of MRI techniques to allow faster scanning and/or to provide functional information; Quantitative information and high quality pictures of anatomy; Application of new methods to answer fundamental questions in basic science and medicine with emphasis on applications in neuroscience.


Graaf’s current research focus covers areas that are all related to tackling the challenges and grasping the opportunities of MR at very high magnetic fields. Developing methods to achieve magnetic field uniformity throughout the human and animal brain are central to the technological innovation of his research. The problem of magnetic field inhomogeneity is tackled through dynamic shimming and through the use of novel electrical coil element arrays. 13C NMR methods have been pioneered at the Yale MRRC and part of his research is to extend those methods to achieve 3D coverage, higher sensitivity (through 1H detection), and higher specificity (e.g., GABA turnover detection).

Specialized Terms: Cerebral energy metabolismenergy


DUNCAN, James S

Abstract Number 10327131

Ebenezer K. Hunt Professor of Diagnostic Radiology and Professor of Biomedical Engineering
(203) 785-6322
james.duncan@yale.edu

PhD, University of Southern California, 1982
MS, UCLA, 1975
BSEE, Lafayette College, 1973

Dr. James Duncan works with engineering and mathematical principles and uses mainly signal/image processing techniques to derive useful image feature information and capture model-based information in concise mathematical forms. He uses nonlinear optimization methods to implement reasoning strategies. Dr. Duncan’s image processing and analysis research can be divided into three general areas:

Segmentation of meaningful regions and/or objects in images. He looks at deformable model-based approaches to boundary finding and aim at locating the complete boundary of a deformable object efficiently and reproducibly. This is done by incorporating basic structural or parametric models into an optimization-based search strategy. Initially, Dr. Duncan aimed at 2D parametrized boundary finding, but now he has extended it into an approach for segmenting deformable surfaces from three-dimensional biomedical image data sets. Current applications include segmentation of the left ventricle of the heart from 4D cine Magnetic Resonance images (MRI) and segmentation of the temporal lobes of the brain from static MR images. Future research will focus on isolating structures using images obtained from laser-scanning confocal microscopes.

Image-based measurement and quantification of anatomical, physiological and/or clinically meaningful parameters. A primary example of this research is the tracking and modeling of non-rigid motion for the purpose of quantifying cardiac left ventricular (LV) regional function from 2-D and 3-D diagnostic image sequences. Such quantification permits measurements that are useful in understanding the basic relationships between the state of the heart muscle (myocardium) and overall LV function; these measurements can be important for managing patients with ischemic heart disease. Dr. Duncan’s methodology makes use of mathematical models related to the motion of 3-D elastically deformable objects and is adaptable to the nonlinear, non-rigid regional motion of the LV.

Development of decentralized approaches for forming complete, integrated computer vision/image analysis systems. Dividing computer vision and image analysis systems into modular hierarchies is useful computationally and also allows to model particular image understanding tasks better. Hierarchical systems are necessary to perform such complex tasks as recognizing anatomy, quantifying the shape and motion of the heart, or performing an integrated segmentation of anatomical structures using multiple imaging modalities. He has recently developed an approach based on the mathematical concept of game theory, where functionals representing each module’s tasks both compete and cooperate to make decisions about particular image analysis goals.

Specialized Terms: Computer vision; Image processing and medical imaging, with an emphasis on biomedical image analysis


FORMAN, Howard P

Abstract Number 10237592

Professor of Diagnostic Radiology, in the Institute for Social and Policy Studies, of Economics, of Management and of Public Health (Health Policy)

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GUNABUSHANAM, Gowthaman

**Abstract Number 12587910**

Assistant Professor of Diagnostic Radiology  
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Currently available ultrasound teaching simulators are expensive and require the use of dedicated hardware. I have developed and am currently testing a high-fidelity ultrasound simulator that uses off-the shelf hardware components, allowing for the wider dissemination of this technology, given its markedly lower cost.


GALIANA, Gigi

**Abstract Number 13086265**

Assistant Professor of Diagnostic Radiology  
(203) 785-5052  
gigi.galiana@yale.edu  
PhD, Princeton University, 2008

MR mammography has shown stellar sensitivity in early disease detection, but its high rate of false positives makes it difficult for clinicians to decide which apparent lesions merit biopsy. To aid this decision, my lab is developing a method to yield new chemical information from the suspicious regions identified on MR mammography. More specifically we are modifying an iMQC method that can give detailed chemical information (highly resolved spectra) on the composition of fat in the suspicious region.

One challenge of acquiring this information is the long scan time of these experiments, which dovetails with my other research interest in highly efficient image reconstruction. These techniques help us reconstruct images and spectra with a minimum amount of data, leading to shorter MR scan times.

HAMPSON, Michelle

**Abstract Number 11114486**

Assistant Professor of Diagnostic Radiology  
(203) 737-5994  
michelle.hampson@yale.edu  
PhD, Boston University, 1999  
BS, University of Alberta, 1993

My lab is focused on the development and application of new functional brain imaging paradigms. These include resting...
state functional connectivity analyses and neurofeedback via real-time fMRI (rt-fMRI). Rt-fMRI neurofeedback has great potential as a clinical treatment for mental and neurological disorders. When used in conjunction with resting state functional connectivity assessments (collected before and after the neurofeedback), it provides a powerful perturb-and-measure approach for studying human brain function.


The societal burden of misdiagnosed brain disorders and diseases is substantial. The Hyder lab is leading breakthroughs in quantitative and translational imaging technologies, based primarily on magnetic resonance methods, to visualize molecular processes of function and dysfunction at the laminar level.

A primary interest of the Hyder lab is to develop functional imaging techniques that relate neural activity to underlying laminar structure in health and disease. Emphasis is on fMRI, but other multi-modal fMRI methods in conjunction with MRS, electrophysiology, optical imaging, and PET are being sought for increased biomarker specificity.

Another active interest in the Hyder lab is molecular imaging with magnetic resonance technologies where several disciplines connect, from chemistry and physics to material science and physiology. A new molecular imaging method, pioneered in the Hyder lab called BIRDS, combines high MRI spatial resolution with high MRS molecular specificity. Highly precise molecular imaging with BIRDS is being sought.

Specialized Terms: Brain energy metabolism; Neurovascular and neurometabolic coupling; BOLD technology; BIRDS technology; Calibrated fMRI technology; SAR technology; Cancer imaging and therapy technology; Molecular probes and nanocarriers


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PhD, Dr.rer.nat, University of Tuebingen, 2006
MSc, University of Bonn, 2001

Functional MR imaging and spectroscopy methods are commonly applied to study cognitive function in the human and animal brain. Strong and localized magnetic field homogeneities in brain areas such as the human prefrontal cortex, however, limit the achievable data quality and the validity of the results. These magnetic field distortions are caused by air-tissue interfaces and scale with the scanner B0 field strength. The continuous trend towards ultra-high field MR for improved sensitivity and spectral dispersion therefore further enhances the problem. Conventional, low order spherical harmonic correction fields are able to compensate (‘shim’) for the large-scale, shallow field variations, but they are not able to deal with such strong and localized field foci.

My current research focuses on the development of advanced magnetic field modeling techniques for shimming the human/animal brain as a whole or slices thereof. Optimal magnetic field homogeneity is essential for meaningful functional MR imaging and spectroscopy and will open up a large range of fundamental neuroscience applications.

Together with my co-workers, I was able to show that generic, individual coils can be used to establish a powerful field modeling system. The combination of simple, unspecific (i.e. not spherical harmonic shaped) basis fields allows the flexible synthesis of complex and high amplitude shim fields in the human and animal brain that are much better suited for the task at hand than the shallow low-order spherical harmonics used so far. In fact, the multi-coil approach permits the simultaneous generation of linear MRI encoding fields and complex shim fields by the same setup and allows the integration of conventional imaging and shim coils into a single multi-coil system.


concentrations of brain glutamate, glutamine, GABA and other compounds that are important for brain activity.

Among the most unique capacities of this laboratory is the ability to use MRS to measure metabolic rates with the stable isotope 13C. It is possible to observe the synthesis of glutamate, glutamine, GABA, and other compounds in the intact brain, with collaborative studies to examine other systems. Measurements of the synthesis of these compounds provide an assessment of neurotransmission and energetics in the brain. To plan experiments and evaluate data, mathematical simulations of brain metabolism are used with a user-friendly package called CWave. As theories are developed, new experiments planned, and new data obtained, the models are constantly under revision and expansion.

The goals of the laboratory are to acquire the necessary data and create concrete mathematical expressions of the metabolic regulation of brain metabolism. Such expressions will help understand basic biochemical regulation, aid the development and evaluation of pharmacologic agents, and predict the effects of functional perturbations on the health and activity of the human brain.


MCCARTHY, Shirley M

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MD, Yale University, 1979
PhD, Cornell University, 1975

Body MRI/CT applications and cost effectiveness

Specialized Terms: Women’s imaging; CT; MRI

Radiation and Biomedical Imaging

318.721 sation during neurosurgical interventions, as well as complex 3D visualization of multimodal image data for surgical planning and guidance; (ii) Medical Image Analysis software development – primarily the BioImage Suite project (see www.bioimagesuite.org); and (iii) vascular image analysis, both in terms of monitoring angiogenesis and in the quantification of the growth of tissue engineered vessels.

Specialized Terms: Automated biomedical image analysis and measurement; Interactive 3D visualization of medical images and structures


Miller, Cindy R
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MD, George Washington School of Medicine, 1985

Cranial sonography including developing normal standards for ventricular sizes and the relationship between imaging findings and neurodevelopmental outcomes; relationship between chest radiographic findings of premature infants with bronchopulmonary dysplasia and degree of clinical compromise; utilization of multi-slice CT scanning in the pediatric population.

Specialized Terms: Cranial sonography


Peters, Dana C
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PhD, University of Wisconsin, Madison, 2000 BS, Johns Hopkins University,

Peters’ research is motivated by the desire to generate new imaging methods to improve current diagnostic methods for cardiovascular disease, and improve effectiveness of therapies. She focuses on magnetic resonance imaging. Her group has developed technology for electrophysiologists who treat patients with electrical abnormalities in the heart. These MRI methods allow electrophysiologists to see tissue characteristics responsible for electrical changes. They have also developed new methods for rapid imaging, using underesampled radial MR acquisition strategies. Most important, is to develop MRI methods in close collaboration with cardiologists and radiologists to detect early disease and monitor therapy.

Peters is also committed to training a new generation of biomedical imaging scientists. She believes in providing an environment with excellent MRI resources, knowledge about state of the art methods, and important questions in collaboration with clinicians and scientists, to generate creative new solution in medical imaging.

Specialized Terms: Magnetic Resonance Imaging; Atrial fibrillation; Radial imaging; Late gadolinium enhancement; Cardiac imaging

Papademetris, Xenophon
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PhD, Yale University, 2000

Dr. Xenophon Papademetris’s research is currently focused on three main areas: (i) brain deformation modeling and compensation during neurosurgical interventions, as well as complex 3D visualization of multimodal image data for surgical planning and guidance; (ii) Medical Image Analysis software development – primarily the BioImage Suite project (see www.bioimagesuite.org); and (iii) vascular image analysis, both in terms of monitoring angiogenesis and in the quantification of the growth of tissue engineered vessels.

Specialized Terms: Automated biomedical image analysis and measurement; Interactive 3D visualization of medical images and structures

Dr. Staib’s research centers on techniques for accurate analysis and quantification of medical images. Current medical imaging modalities can reveal rich information about structure and function in three dimensions and in vivo. However, in order to extract measures that are meaningful for scientific or clinical purposes, it is necessary to have quantitative methods of medical image analysis that are robust in the presence of noise, complexity, artifacts, etc.

Dr. Staib is developing methods for the measurement of structure and function from images using geometric models of deformable objects. These boundaries can then be used to measure various geometric features (e.g., curvature, volume, surface area) that may be indicative of disease.

Nonrigid registration between images of different subjects or other nonrigidly related structures is another key problem. Dr. Staib is working on a formulation of match measures and transformations which will enable the determination of an optimal alignment of homologous features. He is also interested in the analysis of diffusion tensor magnetic resonance images and functional magnetic resonance images. Dr. Staib is applying these techniques primarily to the measurement of neuroanatomy and function.

Specialized Terms: Automated biomedical image analysis and measurement; geometric and probabilistic deformable models for segmentation and nonrigid registration of biomedical images for measurement of structure and function with applications to neuroscience and cardiology; functional magnetic resonance image (fMRI) analysis; diffusion weighted magnetic resonance (DW-MR) image analysis


Staib, Lawrence

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Dr. Staib’s research centers on techniques for accurate analysis and quantification of medical images. Current medical imaging modalities can reveal rich information about structure and function in three dimensions and in vivo. However, in order to extract measures that are meaningful for scientific or clinical purposes, it is necessary to have quantitative methods of medical image analysis that are robust in the presence of noise, complexity, artifacts, etc.

Dr. Staib is developing methods for the measurement of structure and function from images using geometric models of deformable objects. These boundaries can then be used to measure various geometric features (e.g., curvature, volume, surface area) that may be indicative of disease.

Nonrigid registration between images of different subjects or other nonrigidly related structures is another key problem. Dr. Staib is working on a formulation of match measures and transformations which will enable the determination of an optimal alignment of homologous features. He is also interested in the analysis of diffusion tensor magnetic resonance images and functional magnetic resonance images. Dr. Staib is applying these techniques primarily to the measurement of neuroanatomy and function.

Specialized Terms: Automated biomedical image analysis and measurement; geometric and probabilistic deformable models for segmentation and nonrigid registration of biomedical images for measurement of structure and function with applications to neuroscience and cardiology; functional magnetic resonance image (fMRI) analysis; diffusion weighted magnetic resonance (DW-MR) image analysis


Tagare, Hemant D

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Dr. Hemant D. Tagare’s research interests include new and innovative approaches to bio-medical image analysis, especially in Cryogenic electron microscopy of
proteins, MRI and ultrasound image segmentation, non-rigid registration, shape spaces, and image indexing, and each of the former’s foundational issues.

Specialized Terms: Heart motion analysis


**ABDALA, Nadia**

**Abstract Number 10493068**  
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PhD, Ludwig-Maximilians-Universitat Munchen, Munich, 1993  
DVM, Universidade Federal de Uberlandia, 1984

Dr. Abdala’s research focus lies in the field of HIV prevention. Her past research and professional experience focused on vaccine production and diagnostics of infectious diseases including HIV infection. Dr. Abdala has used her expertise to answer epidemiological questions regarding HIV transmission through injection drug use. She has investigated how long HIV remains viable inside syringes, how cooking or heating drugs prior to injection might affect HIV transmission and has assessed the effectiveness of bleach and other disinfectants in reducing HIV transmission risks via contaminated syringes. Her participation in international research projects began with investigations of infectious HIV in home made illicit drugs commonly prepared in Russia.

Most recently the focus of her research has been on the investigation of HIV transmission via sexual route. Dr Abdala has conducted several studies to investigate risk behaviors that facilitate the transmission of sexually transmitted diseases (STDs) including HIV among populations at risk for HIV. She culturally adapted a STD/HIV risk reduction intervention for use in Russia and conducted a randomized controlled trial to test the efficacy of a behavior intervention to reduce alcohol related HIV sexual risk behaviors among STD clinic patients in St Petersburg, Russia.

Specialized Terms: Virus inactivation studies; HIV prevention research; Alcohol related HIV risk behaviors; HIV risk reduction interventions.

Zhan W, Krasnoselskikh TV, Shabolts AV, Skochilov RV, Abdala N. History of childhood abuse, sensation seeking, and intimate partner violence under/not under the influence of a substance: a cross-sectional study in Russia. PLOSONE (in press).

Abdala N, Hansen NB, Tousova OV, Krasnoselskikh TV, Kazlov AP, Heimer R. Age at First Alcoholic Drink as Predictor of Current HIV Sexual Risk Behaviors Among a Sample of Injection Drug Users (IDUs) and Non-IDUs who are Sexual Partners of IDUs, in St. Pet

**Aksoy, Serap**

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PhD, Columbia University, 1982

We study the molecular basis of biological complexity that determines host-microbe interactions, with a focus on tsetse flies, insect vectors of the protozoan parasite African trypanosomes. We investigate the molecular aspects of tsetse immunity during parasite transmission with the eventual goal of manipulating these responses to block disease transmission. Tsetse also harbors three maternally transmitted bacterial symbionts, which influence its nutritional and reproductive biology. We characterize the biology of each symbiont using biochemical, genetic, cellular and molecular techniques to understand the evolution and functional significance of each in the context of the dynamic host environment. We developed a paratransgenic approach where we exploit the commensal gut flora to express in the midgut milieu trypanocidal products that can block parasite development. The replacement of natural tsetse populations with the engineered parasite refractory flies can provide a novel approach for control of this devastating vector-borne disease.

Specialized Terms: African trypanosomes; Bacterial symbionts of tsetse flies


ATTARDO, Geoff M

**Abstract Number 12041071**

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PhD, Michigan State University, 2004
BS, University of Massachusetts at Amherst, 1994

My research focuses upon the reproductive biology of insect vectors of human disease. My Ph.D. thesis in the lab of Dr. Alex Raikhel, is focused upon the effects of nutritional components of blood (amino acids) upon the transcriptional regulation of yolk protein genes in the Yellow Fever mosquito (Aedes aegypti). My current work in the Aksoy lab involves the molecular characterization of reproductive processes of the viviparous Tsetse fly (Glossina morsitans morsitans). This work targets multiple aspects of reproduction in tsetse including nutrient metabolism and mobilization to the intrauterine offspring; identification and characterization of reproductive genes and regulatory mechanisms; and the role of the obligatory symbiotic bacteria wigglesworthia in tsetse fertility.

Specialized Terms: Insect vectors; Reproduction; Genetics; Biochemistry; Tsetse fly; Nutrition; Viviparity; Trypanosomiasis; Africa


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BRACKEN, Michael B

**Abstract Number 10207043**

Susan Dwight Bliss Professor of Epidemiology (Chronic Diseases) and Professor of Neurology and of Obstetrics, Gynecology, and Reproductive Sciences

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PhD, Yale University, 1974
MPhil, Yale University, 1972
MPH, Yale University, 1970

Professor Bracken has published some 400 articles and chapters, providing major contributions in the fields of perinatal epidemiology, clinical trials and evidence-based medicine. His 1984 textbook, Perinatal Epidemiology, defined the field of perinatal epidemiology, predicting the role of fetal and early childhood illness on later chronic disease.

Bracken was involved in the discoveries of CFH polymorphism for age-related macular degeneration, the first study to successfully use genome-wide association methodologies and HapMap to identify a disease polymorphism. Professor Bracken is a founder of the evidence-based medicine paradigm. He co-edited one of the first evidence-based texts, Effective Care of the Newborn Infant, forming the basis for the Cochrane Neonatal Review Group. In 2007, the British Medical Journal named the book one of the influential texts in evidence-based medicine.

Specialized Terms: Perinatal and pediatric epidemiology; Evidence-based health care and medicine


Dr. Cartmel’s primary research interests are in the area of cancer prevention and cancer survivorship. Dr. Cartmel is collaborating on a large case control study of basal cell carcinoma in young people. The goal of this study is to explore the etiology and genetics of basal cell carcinoma, the most common type of non-melanoma skin cancer, with a particular focus on UV exposure from tanning beds. Her recently funded grant will investigate the genetics of tanning addiction. In addition to this study, Dr. Cartmel is involved in two exercise intervention studies in cancer survivor (Melinda Irwin Ph.D., PI). She is also participating in a nationwide longitudinal quality of life study in cancer survivors in which she is studying communication of health information to long-term cancer survivors. Other interests include the use of a novel noninvasive assessment method of skin carotenoids.

Specialized Terms: Nutrition; Cancer prevention; Cancer survivorship


Dr. Claus works in cancer epidemiology and statistical genetics with emphasis on the development of risk models for breast and ovarian cancer and tumors of the central nervous system (CNS). She is principal investigator of a study of 2000 female Connecticut residents examining the clinical (including mammographic density), genetic, and epidemiologic characteristics of breast carcinoma in situ (BCIS), and following these women over time to better define their long-term outcomes, including those with mutations in two breast cancer susceptibility genes, BRCA1 and BRCA2. Dr. Claus is a neurosurgeon working in neuro-oncologic surgery, including the intra-operative use of magnetic resonance imaging and computerized tomography for brain tumor removal, including glioma and metastatic lesions to the CNS, particularly metastatic breast cancer. She has recently received funding from NIH to commence the first national study of meningioma. This

Specialized Terms: Nutrition; Cancer prevention; Cancer survivorship


multi-state project will enroll over 3000 subjects to define genetic and environmental risk factors for meningioma as well as identify pedigrees with multiple family members affected with meningioma. Dr. Claus is also co-investigator in the GlioGene project, an international effort to identify genes associated with glioma. More recently, Dr Claus has begun to partner with a number of national patient organizations (The Acoustic Neuroma Association and The American Brain Tumor Association) to develop patient-centered, web-based registries designed to enhance research and patient education efforts in the study of tumors of the central nervous system. In addition to her research activities,


Cunningham, Shayna D

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PhD, Johns Hopkins Bloomberg School of Public Health, 2007
MHS, Johns Hopkins Bloomberg School of Public Health, 2002

Dr. Cunningham’s research focuses on the fundamental determinants of health disparities and the development, implementation, and evaluation of sustainable intervention strategies that address them. She is an expert in the field of sexual and reproductive health and has extensive experience in the use of mixed methods research design, program and policy development and evaluation, working in multi-disciplinary teams, and collaborating with individuals from government, the private-sector, community-based organizations, and academic institutions.


CURRY, Leslie

**Abstract Number 12472769**

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PhD, University of Connecticut, 2000

Dr. Curry’s research focuses on quality of health care and patient experiences with health and health care systems in hospital, nursing home and community settings. She is an internationally recognized expert in the use of qualitative and mixed methods in public health and health services research. Dr. Curry has two decades of experience in health policy and program implementation and evaluation in collaboration with government agencies and policymakers with a primary objective of informing the development and scale up of innovative health programs and policy.

She has authored or co-authored papers and books in the areas of health care quality, patient and provider experiences of care, mixed methods research in public health, scale up of innovations, innovative models of organizing and financing long term care, and the use of grand strategy to improve global health.

Dr. Curry has several current projects in international settings. She serves on a number of editorial boards including the Journal of Mixed Methods, is a fellow in the Gerontological Society of America, and a member of Academy Health, and the Global Health Council.

Specialized Terms: Quality of health care and patient experiences with health and health care systems; Organizational culture and performance; Scale up of innovations; Social and health care spending

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DAVIDOFF, Amy

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PhD, Johns Hopkins Bloomberg School of Public Health, 1997

MS, University of Massachusetts, 1984

AB, Brown University, 1981

Dr. Davidoff studies the ways in which federal and state policies affect availability and cost of private insurance, eligibility and participation in public insurance, and impacts of insurance on access to care, use of services, and health care spending. In previous research she has studied the effects of the Medicaid and SCHIP expansions, private market insurance reform, Medicaid managed care, Medicare Part D, and most recently, the Affordable Care Act. Much of her recent research has focused on the specific effects for individuals newly diagnosed with cancer, or longer term cancer survivors.

Specialized Terms: Medicare Part D; Affordable Care Act; Medicaid expansions; health insurance enrollment; cancer survivors; prescription medications; outcomes research

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DESAI, Mayur M

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PhD, University of Connecticut, 2000

MPhil, University of Connecticut, 1991

Dr. Desai’s research focuses on quality of health care and patient experiences with health and health care systems in hospital, nursing home and community settings. She is an internationally recognized expert in the use of qualitative and mixed methods in public health and health services research. Dr. Desai has two decades of experience in health policy and program implementation and evaluation in collaboration with government agencies and policymakers with a primary objective of informing the development and scale up of innovative health programs and policy.

She has authored or co-authored papers and books in the areas of health care quality, patient and provider experiences of care, mixed methods research in public health, scale up of innovations, innovative models of organizing and financing long term care, and the use of grand strategy to improve global health.

Dr. Desai has several current projects in international settings. She serves on a number of editorial boards including the Journal of Mixed Methods, is a fellow in the Gerontological Society of America, and a member of Academy Health, and the Global Health Council.

Specialized Terms: Quality of health care and patient experiences with health and health care systems; Organizational culture and performance; Scale up of innovations; Social and health care spending

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PhD, Yale University, 1997
MPH, Yale School of Public Health, 1994
BS, University of California, San Diego, 1992

Professor Desai directs Yale’s Advanced Professional MPH Program and teaches courses on epidemiologic research methods and data analysis. His research interests focus on: (1) improving the quality and outcomes of medical care in complex and vulnerable populations, including persons with mental disorders, veterans, immigrants, and the elderly; and (2) workforce issues in public health and medicine. Professor Desai’s interests also include global health, cardiovascular disease, and psychosocial epidemiology.

Specialized Terms: Epidemiologic Methods; Health Services Research; Mental Disorders; Cardiovascular Disease; Global Health


DEWAN, Andrew T

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PhD, Rockefeller University, 2005
MPH, University of Minnesota, 2000

Professor DeWan seeks to understand how variation in the human genome contributes to complex human diseases. Using high-throughput technologies, he conducts genome-wide association studies to map disease susceptibility loci. His work also emphasizes the development of methods that improve the way in which this information is interpreted and utilized by disease researchers. He is also interested in the role that the interaction between genetic and environmental factors plays on disease susceptibility. His past work mapping disease genes has led to the discovery of susceptibility loci for age-related macular degeneration, non-syndromic hearing loss, renal function and myopia. Current projects include a genetic study of childhood asthma in collaboration with the Yale Center for Perinatal, Pediatric and Environmental Epidemiology, a study of genetic factors predisposing women to develop preeclampsia during pregnancy in collaboration with researchers at Brown and Yale Universities, and a study of genetic susceptibility loci for sepsis in collaboration with investigators at the Norwegian University of Science and Technology.

Specialized Terms: Genetic epidemiology; Statistical genetics; Asthma; Preeclampsia; Sepsis


DUBROW, Robert

Abstract Number 10282064

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PhD, University of Pennsylvania, 1975
MD, University of Pennsylvania, 1974

Dr. Dubrow’s research has focused on two separate areas: HIV-related malignancies and glioma. HIV-infected persons are at elevated risk for cancer. Dr. Dubrow’s work has focused on determining which cancer types have elevated incidence, describing time trends in incidence, disentangling immune system effects of HIV infection from non-HIV risk factor effects, and understanding relationships between cumulative and current measures of CD4 count, HIV RNA level, and antiretroviral therapy and cancer risk. With respect to glioma, Dr. Dubrow has published on its descriptive epidemiology, dietary and genetic risk factors, and outcomes. In a new phase of his career, Dr. Dubrow is currently developing scholarly work on climate change and health.

Specialized Terms: Glioma; Glioblastoma; HIV-related malignancies; Immunosuppression and cancer


Professor Galvani's research focuses on integrating epidemiology and the evolutionary ecology or economics in order to generate predictions that could not be made by these disciplines alone. This interdisciplinary approach has widespread potential for answering evolutionary questions, explaining empirical observations and informing public health policy. Professor Galvani has applied this approach to the study of HIV, influenza, TB and HPV, among other diseases.

Specialized Terms: Applications of epidemiology and evolutionary ecology in the study of numerous diseases


Dr. Gent’s primary research focus is the effects of air pollution on childhood asthma. She is a co–investigator on studies specifically focused on exposure to traffic, a major source of air pollution in our region. These studies take advantage of the large data base of ambient air contaminants measured by the Environmental Protection Agency (EPA) at central monitoring sites. Using this information as well as data collected by the research team at the CPPEE inside and outside of study subjects’ homes, Dr. Gent and her colleagues hope to contribute to the understanding of public health effects of short–term exposure to traffic–related air pollution.

Dr. Gent has served as a consultant for the EPA reviewing literature on the effects of nitrogen dioxide and particles on health. Her work for the EPA contributes to the production of their Integrated Science Assessments for these pollutants. This in turn is an important step in the regulatory process that leads to the setting of the National Air Quality Standards.
Hawley, Nicola

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BS, Loughborough University, 2005

My research focuses broadly on: (1) understanding how maternal and child health are impacted by rising levels of obesity and diabetes in developing countries, (2) determining how the delivery of healthcare impacts the identification and treatment of these diseases during the perinatal period, and (3) developing interventions focused on pregnancy and early infancy to prevent the intergenerational transmission of chronic disease. I have ongoing projects and collaborations in American Samoa, Samoa, South Africa, and the US.

Specialized Terms: global non-communicable disease, obesity, diabetes, maternal and child health, pregnancy health, infant feeding, prenatal care


Gueorguieva, Ralitza

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PhD, University of Florida, 1999
MSc, University of Florida, 1996
MSc, Sofia University, 1994

Professor Gueorguieva’s interests are in development and application of statistical methods for the analysis of data from clinical trials and epidemiological studies. She is working on models for repeatedly measured observations, survival outcomes and risk assessment. Her main collaborations are in the area of psychiatry and clinical neuroscience.


Heimer, Robert

Abstract Number 10335597

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PhD, Yale University, 1988
MSc, Yale University, 1980
BA, Columbia University, 1974

Dr. Gent is also a co-investigator with Melinda Pettigrew, Ph.D., School of Public Health, Division of Epidemiology of Microbial Diseases, on a study of microbial interactions of pathogens involved in otitis media.
Dr. Heimer is also the Director of the Yale office of the Connecticut Emerging Infections Program. This Centers for Disease Control and Prevention-funded program is one of eleven programs nationwide that seek to assess, through population-based surveillance, the public health impact of emerging infectious diseases and to evaluate methods for their prevention and control in the community. The Yale program currently focuses on chronic liver disease (especially hepatitis C), foodborne illnesses, and respiratory illnesses.

Dr. Heimer’s major research efforts include scientific investigation of the mortality and morbidity associated with injection drug use. Areas of investigation include syringe exchange programs, HIV survival in syringes, hepatitis B vaccination, hepatitis C transmission risks, overdose prevention and resuscitation, and pharmacological treatment of opiate addiction. His research combines laboratory, operational, and ethnographic analyses to evaluate the effectiveness of intervention programs in preventing the negative medical consequences of injection drug use. Dr. Heimer is Director of the Interdisciplinary Research Methods Core at Yale’s Center for Interdisciplinary Research on AIDS.

Specialized Terms: Mortality and morbidity in relation to injection drug use; HIV and hepatitis C transmission; Evaluation of prevention and treatment for people who inject drugs


HOLFORD, Theodore R

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BA, Andrews University, 1969

Professor Holford’s current research extends his work with age-period-cohort models for population disease trends to analyses that quantify the impact of exposure to known risk factors on those trends. His work measuring the impact of cigarette smoking on lung cancer mortality is an example of this approach and it is part of the Cancer Intervention and Surveillance Modeling Network (CISNET). These models are useful in planning disease control strategies. Another focus of his research is the development of methods for studying the impact of environmental exposures on disease risk using Geographic Information Systems (GIS). These applications include the effect of exposure to traffic on asthma symptoms, and the prediction of areas that have habitats that are compatible with vectors for specific microbial diseases.

Specialized Terms: Development and application of statistical methods in health research; Methodology for the analysis of spatial and temporal trends in disease


**Ickovics, Jeannette R**  
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PhD, George Washington University, 1989  
Jeannette R. Ickovics is Professor of Epidemiology and Public Health and of Psychology at Yale University. She was the Founding Director of Social and Behavioral Sciences at the School of Public Health (2000-2012). Dr. Ickovics is Director of CARE: Community Alliance for Research and Engagement — committed to bringing “evidence to action” to improve health. She is also Deputy Director for the Yale Center for Interdisciplinary Research on AIDS, where she served as Director of Training since its inception from 1999-2014.  
Dr. Ickovics’ research investigates the interplay of complex biomedical, behavioral, social and psychological factors that influence individual and community health. She uses this lens to examine challenges faced by those often marginalized by the health care system and by society. Dr. Ickovics is an expert on maternal and child health and community health with a focus on large-scale prevention interventions. Her community-engaged research — funded by more than $25 million dollars in grants from the National Institutes of Health, the US Centers for Disease Control and Prevention and private foundations — is characterized by methodological rigor and cultural sensitivity. She is the author of more than 150 peer-reviewed publications, and recipient of numerous awards for her research and community engagement.  
Specialized Terms: Maternal and Child Health; Prenatal Care; Teen pregnancy and STD risk; Obesity and chronic disease prevention; Community engaged research; Interventions; Randomized controlled trials  

**Irwin, Melinda L**  
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MS, University of North Carolina at Chapel Hill, 1994  
BS, College of William and Mary, 1992  
Professor Irwin’s primary research interests are in the areas of energy balance and cancer prevention and prognosis. She is trained in cancer epidemiology, exercise physiology, and clinical trials. Specifically, Professor Irwin’s research involves examining the effect of exercise and weight loss on cancer biomarkers, treatment side effects and quality of life.  
Specialized Terms: Energy balance; Cancer prevention and prognosis  

**Jones, Beth A**  
**Abstract Number 10359805**  
Research Scientist in and Lecturer in Epidemiology (Chronic Diseases)  
Laboratory of Epidemiology and Public Health  
60 College Street  
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(203) 764-7207  
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PhD, Yale University, 1993  
MPH, Yale School of Public Health, 1986
Dr. Jones is a cancer epidemiologist who works on health disparities. Her research is focused on racial/ethnic differences in the incidence, morbidity and mortality of cancer, particularly breast cancer. Using a multidisciplinary approach, she is evaluating the role(s) of tumor characteristics, selected genetic alterations and genetic polymorphisms, as well as social class, medical care, and psychosocial factors, in explaining the lower cancer survival of African Americans as compared with Whites. Additionally, she is researching the process of screening mammography and the racial/ethnic-specific factors that influence future screening and screening outcomes. Another area of her cancer prevention research includes a study of African American/White differences in the prevalence and correlates of high-risk breast density patterns.


Keene, Danya E

Abstract Number 14830822

Assistant Professor of Epidemiology (Chronic Diseases)
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PhD, University of Michigan, 2009
MAT, Johns Hopkins University, 2001

My work is focused on understanding how social inequalities can get under the skin produce health inequalities, with the hopes that a better understanding of these processes will lead to greater health equity. Underneath this broad umbrella, I am particularly interested in how social policies and macro-level forces affect health by structuring access to homes and communities. For example, my work has explored topics such as housing affordability, residential stability, attachment to place, community cohesion and exposure to stigma that may vary according to one’s place of residence.

Specialized Terms: health inequality; racism; housing affordability and housing policy; geographic determinants of health; stigma and spatial stigma;

In Press Keene, D, Cowan, S and Baker, A “When you are in a crisis like that, you don’t want people to know: mortgage strain, stigma and mental health. American Journal of Public Health

Kershaw, Trace

Abstract Number 11274813

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PhD, Wayne State University, 2000

Professor Kershaw’s research is in the area of HIV/STD prevention and reproductive and maternal-child health epidemiology. Specifically, he is interested in 1) the role of heterosexual men and relationships on sexual risk and reproductive health of young couples; 2) social, psychological, and biological influences on health and sexual behavior before, during, and after pregnancy; and 3) integrating HIV/STD and unwanted pregnancy prevention with prenatal and postnatal care for young couples. Currently, he is involved in several research projects assessing the influence of behavioral interventions aimed to reduce the occurrence of HIV/STD and negative perinatal and postnatal outcomes for young women in the United States and abroad.


Albert Ko is a Professor of Epidemiology and Medicine at the Yale University School of Medicine. His research focuses on infectious diseases that have emerged as a consequence of rapid urbanization and urban poverty, and conducts much of his research in Brazil. Dr. Ko is particularly interested in understanding the natural history of leptospirosis, a disease that has become a health problem in urban slum environments. He also conducts research on bacterial meningitis, vaccine-preventable diseases and dengue. Dr. Ko is the head of the division of epidemiology of microbial disease at the department of epidemiology and public health at the School of Medicine.

Dr. Ko received his M.D. from Harvard Medical School. He is the deputy editor of Public Library of Science Neglected Tropical Diseases and is a founding member of the Urban Health Council of the Residents’ Associations of Pau da Lima. Dr. Ko is a fellow of the Infectious Diseases Society of America, a member of the Brazilian Society of Tropical Medicine and an executive board member of the International Leptospirosis Society. He is a member of the leptospirosis burden epidemiology review group at the World Health Organization and received the Clinical Infectious Disease award for outstanding review.

Specialized Terms: Urban slum health, Leptospirosis; Dengue; Bacterial meningitis; Vaccine preventable diseases


Albert Ko is a Professor of Epidemiology and Medicine at the Yale University School of Medicine. His research focuses on infectious diseases that have emerged as a consequence of rapid urbanization and urban poverty, and conducts much of his research in Brazil. Dr. Ko is particularly interested in understanding the natural history of leptospirosis, a disease that has become a health problem in urban slum environments. He also conducts research on bacterial meningitis, vaccine-preventable diseases and dengue. Dr. Ko is the head of the division of epidemiology of microbial disease at the department of epidemiology and public health at the School of Medicine.

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Specialized Terms: Urban slum health, Leptospirosis; Dengue; Bacterial meningitis; Vaccine preventable diseases


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Specialized Terms: Urban slum health, Leptospirosis; Dengue; Bacterial meningitis; Vaccine preventable diseases


**LEADERER, Brian P**

**Abstract Number 10308567**

Susan Dwight Bliss Professor of Epidemiology (Environmental Health) and Professor of Forestry and Environmental Studies

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PhD, Yale University, 1975
MPH, Yale University, 1971

Dr. Leaderer’s research interests are assessing exposures to air contaminants and assessing the health impact resulting from those exposures in both controlled human and epidemiological studies. His research is interdisciplinary in nature, typically focusing on indoor air quality issues, its purpose to establish a close link between exposure assessment and health and comfort effects measured in both chambers and in epidemiologic studies.

Within the context of assessing exposures, his work includes developing a theoretical framework for exposure assessment, determining the type and quantity of health related contaminants emitted from sources, assessing environmental concentrations and the factors impacting those concentrations, developing monitoring and modeling techniques and formulating strategies to assess exposures in epidemiologic studies.

Dr. Leaderer is Principal Investigator on three environmental epidemiologic studies:

1. Prospective study investigating the role of indoor and outdoor air contaminant exposures on daily respiratory symptoms in 918 infants and their nonsmoking mothers; and
2. A prospective study of the environmental risk factors in the development of asthma in a population of 1,000 infants followed from birth to age 10; and
3. A prospective study of the role of indoor allergens and air contaminants (indoor and outdoor) on the severity of asthma in 1,000 asthmatic children between the ages of 5 and 11.

He is also a co-investigator on several other environmental epidemiologic studies.

**Specialized Terms:** Exposures to air contaminants; Air quality issues


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**KRAUSE, Peter J**

**Abstract Number 12779398**

Senior Research Scientist in Epidemiology (Microbial Diseases), in Medicine (Infectious Diseases) and in Pediatrics (Infectious Disease) and Lecturer in Epidemiology (Microbial Diseases)

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MD, Tufts University School of Medicine, 1971
BA, Williams College, 1967

Dr. Krause’s research interests are in vector borne diseases including babesiosis, Lyme disease and *Borrelia miyamotoi*, a relapsing fever spirochete. Current projects include babesiosis and Lyme disease persistence, co-infection, and geographic expansion; the host immunologic response to *Babesia microti*; prevention of transmission of babesiosis through blood transfusion; and human infection with *Borrelia miyamotoi*.

**Specialized Terms:** Vector borne diseases


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*nucleolar RNAs of Leishmania major reveals a rich repertoire of RNAs involved in modification and processing of rRNA. RNA Biol. 2015 [Epub ahead of print]*

**Lichtman, Judith H**

**Abstract Number 10150518**

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PhD, Yale University, 1996
MPH, Yale University, 1988
BA, University of Rochester, 1985

Dr. Lichtman’s primary research interests are the epidemiology of heart disease and stroke. She has extensive experience examining vascular disease outcomes using large administrative databases. Dr. Lichtman has also developed a national, longitudinal, 14-year database from Medicare data to examine disease trends, patterns of care, and outcomes among elderly patients with heart disease and stroke. She is also Principal Investigator for several studies examining heart disease in young women, and Co-Principal Investigator for an on-going large prospective study of young heart attack survivors. Her research examines biological, social, and environmental factors that influence the presentation and outcomes of young women with heart disease.


**Levy, Becca**

**Abstract Number 10576453**

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PhD, Cornell University, 1995

Professor Levy’s research explores psychosocial influences on aging. Her studies focus on how psychological factors, particularly older individuals’ perceptions of aging, affect cognition and health in old age. She studies this by examining: 1) how psychosocial factors influence recovery and survival in old age; 2) how the aging process differs in cultures that hold diverse views of aging; and 3) how interventions, designed to trigger either positive or negative age stereotypes, influences a variety of outcomes in older individuals including memory, physical performance and cardiovascular response to stress.


**Lin, Haiqun**

**Abstract Number 11246032**

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PhD, Cornell University, 2000
MD, Beijing Medical University, 1987

My primary research interests lie in the development and application of statistical methods for biological responses that vary in time and occasion, for example: biomarker readings over time; gene expression profiles in different cell lines and under different biological conditions; and tumor recurrence. My biostatistical research areas include: joint modeling of longitudinal responses and event process; latent class models with random effects; and analysis of longitudinal responses in the presence of missing and confounding data. I am collaborating with researchers in cancer, nutrition, health service evaluation and psychiatry.

Specialized Terms: Statistical methods for time-varying biological responses
Ma, Xiaomei

ABSTRACT NUMBER 11833603

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PhD, University of California at Berkeley, 2001

Dr. Ma’s primary research interest is in cancer etiology (particularly the etiology of hematological malignancies), cancer outcomes research, and epidemiological methods. Her current research includes (1) selected environmental and genetic factors in the etiology of childhood leukemia; (2) previous exposures, patterns of care, outcomes, and health-related quality of life in patients with myelodysplastic syndromes; and (3) statistical methods to address spatial uncertainty in cancer risk estimation.


Lu, Lingeng

ABSTRACT NUMBER 12041411

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PhD, Texas A & M University, 2004
MD, Shanghai Medical University, 1991

Dr. Lu’s research interests focus on cancer etiology, cancer prognosis and survivorship. His research work integrates molecular biology, bioinformatics and epidemiology methods into investigating genetic, epigenetic and environmental factors in chronic diseases. His recent work includes 1) the assessment of epigenetic (non-coding RNA, DNA methylation) and genetic markers and ovarian, breast and pancreatic cancer prognosis; 2) the understanding of genetic and environmental factors, as well as their interactions in the risk of pancreatic, endometrial and liver cancer; 3) the functional studies of genetic variations in human diseases; 4) the lifestyle intervention and cancer-related molecular markers.


Makuch, Robert W

ABSTRACT NUMBER 10086156

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PhD, Yale University, 1977

Professor Makuch’s primary research interests involve methodologic issues in the design, conduct, and analysis of clinical studies. One area of particular interest is the appropriate design and analysis of active control equivalence studies, where he described in a series of papers how controls should be selected, how the sample size for these studies is determined, and what constitute appropriate methods of analysis. Design and
sample size considerations for Phase IV studies is another active research area, in which a new class of hybrid designs has been proposed for scientific and regulatory purposes. Analytic areas of interest include prospective individual matching designs and methods for the analysis of longitudinal data. These methodological developments have been directed towards cancer and HIV. Dr. Makuch is currently developing a Biostatistics post-graduate program in Japan.

Specialized Terms: Clinical studies; Methodology


MARKS, Lawrence E

Abstract Number 10280415

Professor of Epidemiology (Environmental Health) and of Psychology
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PhD, Harvard University, 1965

Professor Marks develops quantitative, psychophysical models to account for sensory and perceptual responses to environmental stimuli. His current research is directed in particular at elucidating the mechanisms by which perceptual systems combine information from multiple sensory modalities and cognitive processes then modify and modulate perceptual information. Of special interest are the mechanisms of multisensory integration and interaction involved in the perception of flavors. The flavors of foods and beverages come partly from molecules that stimulate gustatory (taste) receptors on the tongue, but importantly – often most importantly – from molecules that stimulate olfactory receptors in the nose. Cognitive processes are also important, as flavor perception depends not only on sensory signals, but also, for example, on verbal labels, which modulate expectations, and on processes underlying perceptual decision-making. The perception of flavor is a critical factor controlling the intake of food. And the intake of food, in turn, is critical to the energy balance of the body, a topic central to the mission of the John B. Pierce Laboratory.


MAYNE, Susan T

Abstract Number 10452914

C.-E.A. Winslow Professor of Epidemiology (Chronic Diseases)
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PhD, Cornell University, 1987

Professor Mayne’s primary research interests are in the area of nutritional epidemiology of chronic diseases, and more specifically in nutrition and cancer prevention and survivorship. She is trained in nutritional biochemistry, epidemiology, and clinical trials, and has an interest in biomarkers of nutritional status. Professor Mayne’s program of research has emphasized the role of dietary factors in the etiology of several major cancers. Her work involves both observational studies and intervention trials, with a particular emphasis on carotenoids. She also studies other lifestyle factors (e.g., tobacco, alcohol, tanning) and their interaction with diet and genetics in cancer risk.

Specialized Terms: Nutritional epidemiology of chronic diseases; Nutrition and cancer prevention and survivorship; Cancer epidemiology and genetics


Munstermann’s research emphasizes three genetic approaches: (1) Gene linkage mapping provides genetic backbone for isolating genes and macrogenomic evolution; (2) Genetic variability within an insect species in the form of isoenzymes or DNA base pair substitutions indicate population structure, population origin or taxonomic relatedness; and (3) Identification of closely related vector species by (biochemical) genetic means. Research organisms are Aedes mosquitoes and phlebotomine sand flies of New and Old World.

A long term research focus is the geographic distribution of the insect vectors and the association with disease transmission. Species distribution maps, correlation to environmental factors and location of disease cases form a data matrix analyzable in a Geographical Information System. To better predict risk of disease outbreak-knowledge of vector species involved, vector distribution, and vector competence is required. These have been applied in the Mosquitoes of Sardinia Project and the Biogeography of New World Sand Flies.

Specialized Terms: Molecular genetics; Insect vectors; Phlebotomine sand flies; Entomology; Phylogeny; Taxonomy; Speciation


John Pachankis is an Associate Professor in the Social and Behavioral Sciences division of the Yale School of Public Health, where he studies the health of lesbian, gay, bisexual, and transgender (LGBT) individuals. He specifically seeks to identify the psychological processes and social contextual factors explaining LGBT individuals' disproportionate experiences with various adverse mental and physical health outcomes. To accomplish these aims, he combines social psychological methods with life course developmental models of stigma, health, and mental health. For example, one line of his research examines the psychosocial consequences of concealing one's sexual orientation in various contexts and across formative years of development. Another seeks to examine the longitudinal effects of migrating to urban areas on young gay and bisexual men's health. He draws upon his training as a clinical psychologist to translate the results of these studies into psychosocial interventions to improve the health of the LGBT community. One of these intervention projects, for example, seeks to promote resilient coping among young gay and bisexual men to counter the negative mental health effects of stigma.


PALTIEL, A David

Abstract Number 10232628

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(203) 785-2854
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PhD, Yale University, 1992
MBA, Yale University, 1985
BA, McGill University, 1981

The objective that guides Dr. Paltiel’s scholarly activities is to promote a reasoned approach to choices under uncertainty and resource scarcity in health and medicine. Trained in the field of Operations Research, Dr. Paltiel designs and implements model-based cost-effectiveness analyses of medical technologies and public health interventions. His published research, including more than 100 peer-reviewed papers, spans both methods development and applications to a wide range of disease areas and clinical specialties. He has a special interest and expertise in HIV/AIDS and has published broadly on the cost-effectiveness of testing, prevention, treatment, and care, both in the United States and around the world.

Among the many talented modelers at Yale, Dr. Paltiel’s unique contribution lies in bringing a decision-analytic and cost-effectiveness overlay to public health policy and resource allocation. His expertise in both the theory of choice under uncertainty and its practical adaptation to policy-relevant applications provides substantial opportunity to mentor colleagues interested in promoting a more reasoned approach to clinical practice and priority setting in health and medicine.

Specialized Terms: Operations research; Disease simulation modeling


PARIKH, Sunil

Abstract Number 14391423

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MPH, University of California at Berkeley, 2005
MD, Johns Hopkins University School of Medicine, 1998

Professor Parikh’s research interests focus on translational studies of malaria in sub-Saharan Africa. Dr. Parikh focuses upon several aspects of malaria: early host immune responses to infection, human genetics, and treatment. Current projects include: (1) understanding host factors affecting response to artemisinin-based antimalarial therapies using a combination of individual and population-based pharmacologic approaches to inform treatment guidelines; 2) characterizing the impact of host genetic and transcriptional variability in early immune responses to malaria; and 3) understanding the impact of the HIV epidemic on the treatment of malaria in co-endemic regions. Dr. Parikh has ongoing projects in several African countries, including Uganda, Burkina Faso, and Nigeria.

Specialized Terms: Translation research in malaria; Pharmacology of antimalarials; HIV-malaria co-infection; Host response to malaria infection; Innate immunity to malaria


PEDUZZI, Peter N

Abstract Number 10036329

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PhD, Yale University, 1992
MBA, Yale University, 1985
BA, McGill University, 1981

The objective that guides Dr. Peduzzi’s scholarly activities is to promote a reasoned approach to choices under uncertainty and resource scarcity in health and medicine. Trained in the field of Operations Research, Dr. Peduzzi designs and implements model-based cost-effectiveness analyses of medical technologies and public health interventions. His published research, including more than 100 peer-reviewed papers, spans both methods development and applications to a wide range of disease areas and clinical specialties. He has a special interest and expertise in HIV/AIDS and has published broadly on the cost-effectiveness of testing, prevention, treatment, and care, both in the United States and around the world.

Among the many talented modelers at Yale, Dr. Peduzzi’s unique contribution lies in bringing a decision-analytic and cost-effectiveness overlay to public health policy and resource allocation. His expertise in both the theory of choice under uncertainty and its practical adaptation to policy-relevant applications provides substantial opportunity to mentor colleagues interested in promoting a more reasoned approach to clinical practice and priority setting in health and medicine.

Specialized Terms: Operations research; Disease simulation modeling

PhD, Yale University, 1976

Dr. Peduzzi’s primary research interests involve the design, conduct, and analysis of clinical trials and issues in multivariable analysis. He is currently Director of the Yale Center for Analytical Sciences. He was formerly the Director of the Department of Veterans Affairs (VA) Cooperative Studies Program Coordinating Center in West Haven, Connecticut, which conducts multi-center, multi-national clinical trials and epidemiologic studies. Dr. Peduzzi’s current research activities involve the efficient design of clinical trials.

Specialized Terms: Clinical trials; Comparative effectiveness research; General statistical methods; Variable selection


Mr. Perez-Escamilla, Rafael

Abstract Number 13250842

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PhD, University of California at Davis, 1991
MS, University of California at Davis, 1985
BS, Universidad Iberoamericana, Mexico City, 1982d

My global public health nutrition research program seeks to understand how best to: a) promote breastfeeding and other infant feeding practices; b) measure household food insecurity; c) mitigate the negative impact of household food insecurity on maternal-child physical and mental health outcomes; d) mitigate the negative impact of maternal HIV on child growth and development; d) design community nutrition education programs. My domestic health disparities research program focuses on design and evaluation of community health worker models seeking to improve behavioral (nutrition, physical activity, self-glucose monitoring, medication adherence) mental health (stress reduction) and metabolic outcomes among Latinos with type 2 diabetes.

Specialized Terms: Breastfeeding; Household food security measurement and outcomes; Maternal HIV and child development; Community health workers; Type 2 diabetes; Community nutrition program design and evaluation; Maternal-child public health nutrition; Health disparities


Pettigrew, Melinda M

Abstract Number 10404107

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PhD, Yale University, 1999

Professor Pettigrew’s research focuses on infectious diseases of the respiratory tract. Her current work utilizes a combined approach involving molecular biology and infectious disease epidemiology to identify bacterial virulence factors important for otitis media caused by the gram-positive pathogen Streptococcus pneumoniae. In collaboration with researchers in the Center for Perinatal, Pediatric and Environmental Epidemiology, Professor Pettigrew is also studying interactions between viruses and bacterial pathogens as they impact on upper respiratory tract infections in children.


Pitzer, Virginia E

Abstract Number 14299198

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ScD, Harvard School of Public Health, 2007

Professor Pitzer uses mathematical models for the transmission dynamics of infectious diseases to understand patterns in the distribution of cases over time and space, and to predict the potential impact of interventions. By integrating epidemiological data analysis with concepts from disease ecology, she studies how characteristics of host-pathogen interactions affect the population-level spread of disease. Current projects include understanding the dynamics of rotavirus and the potential impact of vaccination in developing countries; evaluating strategies for controlling typhoid fever in endemic countries; and understanding how climatic factors influence the seasonality and spatio-temporal spread of RSV.

Specialized Terms: Transmission dynamics; Rotavirus; Typhoid fever


Risch, Harvey A

Abstract Number 10468809

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PhD, University of Chicago, 1980
MD, University of California, San Diego, 1976
BS, California Institute of Technology, 1972

Dr. Risch’s research interests are in the areas of cancer etiology and prevention, and in epidemiology methods. He is especially interested in the effects of reproductive factors, diet, genetic predisposition, and histopathologic factors in the causation of ovarian cancer, and these factors as well as infection and immune functioning in the etiology of pancreatic cancer. His major research projects have included studies of ovarian cancer, pancreas cancer, lung cancer, bladder cancer, esophageal and stomach cancer, and of cancers related to usage of oral contraceptives and noncontraceptive estrogens. Dr. Risch is Associate Editor of the Journal of the National Cancer Institute, Editor of the International Journal of Cancer, and Member of the Board of Editors, the American Journal of Epidemiology.


Schlesinger, Mark J

Abstract Number 10467160

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PhD, University of Wisconsin, 1984

Professor Schlesinger’s research focuses on three topics. The first explores ways in which the general public and policymakers make sense of and communicate about complex social issues, as well as how they evaluate policies to address those issues. This research examines the determinants of public opinion, the role of political framing, and the importance of norms of fairness in policy assessment. The second set of research examines the impact of ownership on the delivery of health and social services. These studies explore the comparative performance of nonprofit, for-profit and public health care agencies, the nature of public expectations involving ownership, and the extent to which ownership is related to trust in and trustworthiness of medical care.
The third set of research examines the attitudinal and behavioral underpinnings of medical consumerism, comparing the effectiveness of exit versus voice to improve medical markets, and identifying the barriers to effective consumer empowerment.


Schlesinger, M. A loss of faith: The sources of reduced political legitimacy for the American medical profession. Milbank Quarterly 80(2): 1-45, 2002

**SCHWARTZ, Jason L**

**Abstract Number 15685888**

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PhD, University of Pennsylvania, 2012  
MBE, University of Pennsylvania, 2006  
AB, Princeton University, 2003

Dr. Schwartz’s research on public health policy, history, and ethics focuses on vaccines and vaccination programs, decision-making in public health policy, and the structure and function of scientific expert advice to government. His general research interest is in the ways in which evidence is interpreted, evaluated, and translated into regulation and policy in medicine and public health. Among his current research projects is an examination of how policy-makers, regulators, physicians, and patients evaluate and respond to the risks, benefits, and costs of vaccines, pharmaceuticals, and other medical technologies.


Dr. Sindelar is a professor of public health and a health economist at the Yale School of Public Health. In addition, she is a Research Associate at the National Bureau Economic Research, is a Research Fellow at IZA (Institute for the Study of Labor) an Associated Faculty at the Institution for Social and Policy Studies at Yale, and has been the President of the American Society of Health Economists (ASHEcon). She has published over 100 papers, served on editorial and other boards, and has presented her research internationally.

Dr. Sindelar is an expert on the economics of substance abuse including alcoholism, illicit drugs and smoking. Her studies include lost productivity, cost-effectiveness of treatments, social costs, and policy. She has published on the impacts of substance abuse on productivity, educational attainment, gender differences, and related policy issues in economics, policy, addiction, health and medical journals.

Specialized Terms: Substance abuse economics


theory to the repeated evolution of cancer in whole-exome sequence data sets to reveal the level of clonal natural selection for cancer drivers.

2. BIOSTATISTICAL ANALYSIS FOR NONLINEAR MATHEMATICAL MODELS OF THE EPIDEMIOLOGY OF DISEASE

I am developing probabilistic statistical methodologies for the mathematical modeling of disease emergence and spread. For diverse reasons, data for estimation of epidemiological parameters is often sparse. Evaluating a model with the “best point estimate” of sparse data may convey a misleading certitude to policy makers basing decisions on deterministic models of disease outbreak, spread, and persistence. Conversely, policy makers who are aware that models are parameterized with limited data may be dismissive of deterministic predictions that yet have significant validity. We address these issues by probabilistic sensitivity analysis of parameters and full uncertainty analysis of outcomes of interest.


Vasiliou, Vasilis

Abstract Number 15326151

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PhD, University of Ioannina, 1988

Dr Vasiliou’s research interests include mechanisms of cellular responses to environmental stress, gene-environment interactions, alcohol toxicity, pharmacogenetics and the evolution of gene families.

His research focuses on the role of aldehyde dehydrogenases (ALDHs) and glutathione (GSH) in metabolism, cellular responses to environmental stress and disease. Currently, his laboratory studies the roles of: corneal crystallins (ALDH3A1 and ALDH1A1) in cellular defense mechanisms against UV-radiation, ALDH1B1 and other alcohol metabolizing enzymes in human colon cancer, ALDH1H1A1 in gout, and ALDH1A1 in pyridoxine-dependent adolescent epilepsy. Other areas of active research include delineation of the involvement of brain ethanol metabolism in alcohol drinking preference and examination of GSH as a signaling molecule in anterior eye development and in diabetes.

Drug discovery represents a newer area of active interest, emanating out of the recent identification of ALDHs as markers of cancer stem cells. In a multi-investigator collaboration with several universities and the National Center for Advancing Translational Sciences (NCATS), Dr. Vasiliou is developing small molecules that will enhance the efficacy of chemotherapy and radiotherapy of cancer.

Specialized Terms: Mechanisms of Cellular Responses to Environmental Stress, Gene-Environment Interactions; Alcohol and Disease; Aldehyde Dehydrogenases and Glutathione in Metabolism and Disease (specifically, diabetes, gout and cancer), Cancer Drug Discovery, and Evolution of Gene Families.
Zelterman, Daniel

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daniel.zelterman@yale.edu

PhD, Yale University, 1983

Professor Zelterman’s research interests are centered in applied statistics. He is the Director of the Biostatistics Core at the Yale Cancer Center and is Co-Director of the Methodology and Biostatistics Core of the Center for Interdisciplinary Research in AIDS (CIRA). His research covers survival analysis, modeling of cancer mechanisms, and discrete distributions. His interests in cancer epidemiology and genetics have brought him to examine the analysis of pedigrees, familial clusters of disease, and similar computationally intensive statistical methods. He is the author of five books on the analysis of statistical data and associate editor of five scientific journals. He is an elected fellow of the American Statistical Association.

Specialized Terms: Applied statistics


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Wang, Zuoheng Anita

**Abstract Number 13250757**

Assistant Professor of Public Health (Biostatistics)
(203) 737-2672
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PhD, University of Chicago, 2009
MS, University of Florida, 2004

Dr. Wang’s research focuses on development of statistical and computational methods to address problems in genetics, in particular, the identification of genes contributing to common complex diseases. She has developed statistical methods to address both dependent and partially-observed data and has applied these methods to problems in association analysis of complex traits in related individuals. Her current project involves multiple hypothesis testing in GWAS. Another research area of interest involves using next-generation sequencing data for detection of rare variants.

Specialized Terms: Genetics; Bioinformatics; Genomics


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Zhang, Heping

**Abstract Number 10464117**

Susan Dwight Bliss Professor of Public Health (Biostatistics) and Professor in the Child Study Center and of Statistics

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New Haven, CT, 06510
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heping.zhang@yale.edu

PhD, Stanford University, 1991

Dr. Zhang’s research focuses on development of statistical and computational methods to address problems in genetics, in particular, the identification of genes contributing to common complex diseases. She has developed statistical methods to address both dependent and partially-observed data and has applied these methods to problems in association analysis of complex traits in related individuals. Her current project involves multiple hypothesis testing in GWAS. Another research area of interest involves using next-generation sequencing data for detection of rare variants.

Specialized Terms: Genetics; Bioinformatics; Genomics


Professor Zhang and members in his center conduct research in both the general area of regression and classification analyses and the methodologies for post-genome data analyses. In particular, with funding from multiple National Institutes of Health (NIH) grants, his group has been developing and implementing flexible and powerful approaches to the analyses of complex data including longitudinal data with multi-dimensional responses, neuroimaging data, genetic and genomic data. Zhang also has made major research efforts in: (a) child health ranging from the identification of neurological and genetic pathways in developing brain to the assessment of risk factors for pregnancy outcomes and to the understanding of cognitive and behavioral development in children; and (b) substance use, especially in understanding the transition from use to abuse. In addition, Dr. Zhang serves as Principal Investigator of the data coordination and statistics center for the National Genomic and Proteomic Network for Preterm Birth Research and Reproductive Medicine Network.

Specialized Terms: Biostatistics; Genomics; Epidemiology; Psychiatry; Pregnancy; Infertility; Substance Use; Bioinformatics


Zhao, Hongyu

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Laboratory of Epidemiology and Public Health
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PhD, Rice University, 2000
MA, Rice University, 1998

Our research is driven by the need to analyze and interpret large and complex data sets in biomedical research. For example, in genome wide association studies involving thousands of individuals, millions of DNA variants are analyzed for each person. Such data offer people the opportunity to identify variants affecting disease susceptibility and develop risk prediction models to facilitate disease prevention and treatment. There are many statistical challenges arising from the analysis of such data, including the very high dimensionality, the relatively weak signals, and the need to incorporate prior knowledge and other data sets in analysis. Another example is the analysis of next generation sequence data which present even greater statistical and computational challenges. Our group has been developing statistical methods to address these challenges, such as empirical Bayes methods to borrow information across different data sets, different generalizations of Gaussian graphical models for network inference, Markov random field models for spatial and temporal modeling, and general machine learning methods for high dimensional data.

Specialized Terms: Statistical genomics and proteomics; Bioinformatics; Data integration; High dimensional data; Network and graphical models; Disease risk prediction; Herbal medicine; Microbiome


Surgery     309

cardium and as such is merely symptomatic without improving the underlying heart failure. Mechanical circulatory support can reverse the heart failure and can be an effective strategy to interrupt the relentless progression of heart failure. My vision constitutes a small intra-cardiac mechanical circulatory device, which can be inserted by minimally invasive surgery and can be powered wirelessly to offer an un-tethered and unrestricted quality of life. Such device will use a novel controller algorithm to train the myocardium to recover to its fullest extent, eventually to be weaned completely from mechanical support. For such a vision to crystallize it needs three essential components: a small innovative ventricular assist device (VAD), a wireless transmission system and a reproducible animal model of heart failure. My lab has focused on these areas to bring this to reality in the last few years.


Cha, Charles H

Abstract Number 11789063

Associate Professor of Surgery (Oncology and Gastrointestinal)
(203) 785-2380
charles.cha@yale.edu
MD, Northwestern University Medical School, 1995
BS, Northwestern University, 1990

Dr. Cha has established an active research laboratory studying the effects of angiogenesis on colorectal and liver malignancy using gene-silencing techniques to silence angiogenic factors leading to decreased tumor growth. He collaborates with a number of Yale researchers to use nanoparticle delivery systems to target tumor cells before they can grow larger than a few millimeters in size. His laboratory effort has resulted in support from a number of funding sources including the Hartford Foundation, American College of Surgeons Faculty Research Award, Ohse Foundation, and the VA Healthcare System Career Development Award. His clinical research interests include the determination of the diagnostic and therapeutic utility of angiogenic inhibitors for treatment of colorectal and liver cancers. In addition, he is involved in clinical outcomes research in surgery for liver, gastric, esophageal and colorectal malignancy using the National Surgical Quality Improvement Program Database
as well as the Connecticut Tumor Registry. In his lab, Dr. Cha has mentored a number of medical students, surgical residents, fellows and postdoctoral students including Steve Ward, MD, Abby Mulkeen, MD, Peter Yoo, MD, Sharon Kiang, MD, and Wenli Gao, PhD, leading to over 20 publications and honors such as Best Resident Paper at the New England Surgical Society (Mulkeen), Ohse Foundation Award (Mulkeen, Yoo), Pfizer/ACS Travel Scholarship (Yoo), Best Case Presentation Connecticut Chapter, ACS (Yoo), NIH LRP Award (Yoo).


COULOURES, Kevin G

Abstract Number 15004953

Assistant Professor of Surgery (Pediatrics)

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kevin.couloures@yale.edu

MPH, Johns Hopkins University, 2010
DO, Western University of Health Sciences, 2000

I am actively involved in utilizing a multi-institution pediatric sedation database to define trends in sedation and use this information to improve both the quality and safety of sedation.


DARDIK, Alan

Abstract Number 11431485

Professor of Surgery (Vascular)
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New Haven, CT, 06519
(203) 737-2082
alan.dardik@yale.edu

MD/PhD, University of Pennsylvania, 1993
BS, Yale University, New Haven, CT, 1986

Dr. Dardik is a surgeon-scientist who seeks to use the power of molecular biology to achieve a modern understanding of vascular disease, and to use the basic science laboratory to perform cutting edge research to ultimately benefit patients with vascular disease. The Dardik laboratory studies how vascular interventions heal and can be improved. We are currently trying to understand the fundamental molecular mechanisms by which vein graft adaptation results in successful adaptation to the arterial environment, yet often proceeds, in the long-term, to graft failure or failure of arteriovenous fistula (AVF) maturation. We are also studying how patches heal after angioplasty or venoplasty. We are also using a new biomimetic scaffold to deliver mesenchymal stem cells to diabetic wounds.


GEIBEL, John P

Abstract Number 10164390

Professor of Surgery (Gastrointestinal) and of Cellular And Molecular Physiology

(203) 737-4152
john.geibel@yale.edu

MD, University of Innsbruck, 1986
DSc, University of Innsbruck, 1983
MS, University of New Brunswick, 1981

Our primary focus is on real time monitoring of ion transport mechanisms in epithelia, using high-resolution microscopy. One


Issaeva, Natalia

Abstract Number 14500852

Assistant Professor of Surgery (Otolaryngology)

(203) 737-6341
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PhD, Karolinska Institute, 2005
MSc, Novosibirsk State University, 1997

Our long term research interest is to improve cancer treatment by targeting specific cancer defects.

Currently we are working on:

1. Association between human papilloma virus and the development of head and neck cancer.
2. Link between human papilloma virus and DNA damage signaling and repair in head and neck cancer.
3. Cellular and small molecules modulators of p53 expression and functions;
4. Designing of novel therapeutic strategies to target specific tumors exploiting their various defects.

Specialized Terms: Oncogenes and tumor suppressors; DNA replication and repair; P53 regulation and signaling; Head and neck cancer; Human papilloma virus


Indes, Jeffrey

Abstract Number 12764285

Assistant Professor of Surgery (Vascular)

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330 Cedar Street
New Haven, CT, 06510
(203) 785-6216
jeffrey.indes@yale.edu

MD, Mt. Sinai School of Medicine, 2001

His research currently focuses on outcomes in patients undergoing various open and endovascular treatment modalities for vascular disease. By better characterizing statewide and national trends in the treatment of these disease processes and documenting morbidities, costs incurred and mortality associated with each, these treatments can be applied to the appropriate patients with the greatest benefit.

Specialized Terms: Clinical outcomes of endovascular and open surgery; Limb salvage in diabetic patients; Open and Endovascular Surgical Education; Aortoiliac Occlusive Disease; Peripheral Artery Disease (PAD)

of the crucial problems facing all epithelial cells is the control of the intracellular milieu. In an effort to maintain ionic homeostasis, epithelial cells have devised a variety of ion channels, transport proteins, and carriers to regulate and maintain the intracellular ionic concentrations. To further understand how ions are transported in epithelial cells, we have developed a variety of optical techniques to continuously monitor intracellular ionic concentrations in real time. Using high-resolution video or confocal microscopy we are presently able to monitor intracellular Ca²⁺, Na⁺, K⁺, Cl⁻, pH, and membrane potential. We are currently investigating various aspects of renal tubule and gastric tissue ion transport in intact renal tubules and gastric glands. We also are characterizing the secretory and reabsorptive properties of the colonic crypt, with a special focus on diarrheal disease.

Specialized Terms: Gastric Acid Secretion; Colonic Fluid Transport; Renal Physiology; Intracellular Ion Activity Measurements; Calcium Sensing Receptor; Diarrheal disease; electrophysiology; CFTR; AMPKinase volume regulation


**Ivanova, Alla**

**Abstract Number 14501736**

Research Scientist in Surgery (Otolaryngology)

(203) 785-6314
alla.ivanova@yale.edu

PhD, Institute of Cytology & Genetics, Novosibirsk, 1993

The main direction of my research is studying the impact of mitochondrial dysfunction on development of various systemic pathologies. We created mice with targeted inactivation of a mitochondrial tumor suppressor protein Fus1 and use them as a model of systemic mitochondrial dysfunction. As we demonstrated, Fus1 deficiency/loss causes enhanced mitochondrial ROS production at the basal and stress-induced states, increased mitochondrial membrane potential, abnormal calcium handling by mitochondria, and deficient mitochondrial respiration.

Mechanisms of the following pathologies impacted by Fus1 loss/mitochondrial dysfunction are studied:

- Spontaneous and induced tumorigenesis
- Sterile and infection-induced acute inflammation
- Oxidative stress and chronic inflammation
- Autoimmunity
- Sensitivity to ionizing radiation
- Premature aging and shortened lifespan
- Age-related loss of hearing and olfactory senses
- Age-related development of seizures as a result of chronic oxidative stress

**Specialized Terms:** Mitochondrial dysfunction; Tumor suppressor Fus1; Mechanisms of tumorigenesis; Acute and chronic inflammation; Oxidative stress, Radiosensitivity; Aging; Age-related changes in hearing loss and lifespan


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**Ivanov, Sergey**

**Abstract Number 14504864**

Research Scientist in Surgery (Otolaryngology)

(203) 785-7675
sergey.ivanov@yale.edu

PhD, Novosibirsk State University, 1993
BS, Novosibirsk State University, 1983

My research is focused on salivary gland cancers, the least studied subtype of head and neck cancers that urgently requires targeted therapies. Among salivary cancers, adenoid cystic carcinoma and adenocarcinoma are most notorious due to their ability to invade, recur, and metastasize to bone, nerves, lung, skull, and lymph nodes. Our approach for identification of novel biological markers and clinically important genes/pathways is based on extensive molecular analysis of these cancers using expression profiling and new generation sequencing. Once such genes and pathways are determined, we model growth of human salivary tumor in a subcutaneous mouse model and explore effects of various inhibitors that are used to block these pathways. So far, using this approach we have been able to identify in salivary adenoid cystic carcinoma a distorted neurologic signaling pathway (autocrine TrkC/NT-3 signaling) that can be blocked with small molecule inhibitors already approved for clinical use. Modeling of this cancer in a mouse model showed that human tumor growth can be suppressed with AZD7451, one of these inhibitors recently developed by AstraZeneca and used against recurrent gliomas. We are now organizing clinical trials of this drug.

**Specialized Terms:** Head and neck cancers; Salivary adenoid cystic carcinoma; TrkC; Neural stem cells; Autocrine mechanisms of tumorigenesis; SOX10 in cancers; Erk1/2; Akt; Cell migration, invasion; Neurotrophic signaling


patients requiring less or no blood transfusion have lower need for heart medications, shorter ventilator support, lower complication rate, and much shorter length of stay in the hospital.

Specialized Terms: improved surgical techniques, including lower need for heart medications, shorter ventilator support, lower complication rate, and much shorter length of stay in the hospital; blood conservation measures to improve outcomes in pediatric cardiac operations; blood conservation in cardiac surgery; limited or no-blood transfusion during cardiac surgery.

1. Mohsen Karimi, MD, Ivan Florentino-Pineda, MD, Ted Weathered, MD, Ahsan Qadeer, MD, Carol Ann Rosenberg, CCP, Andrea Hudacko, CCP, Duchwan Ryu, PhD. Blood Conservation Surgery in Pediatric Cardiac Patients: A paradigm Shift to Blood Use. (Accepted to the ATS 09/2012)

2. Mohsen Karimi, MD, Alysha Jaffer, PA, Mac Vining, MD, Rod Pellenberg, MD, Ryan Jajosky, MD. Papillary Fibroelastoma of Tricuspid Valve in a Pediatric Patient. (Accepted to ATS 10/2012).

KARIMI, Mohsen

Assistant Professor of Surgery (Cardiac Surgery)
Yale-New Haven Children’s Hospital
1 Park Street
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mohsen.karimi@yale.edu

MD, Indiana University School of Medicine, 1996
MS, Indiana University, Purdue University, 1992

Dr. Karimi’s clinical research interests include the development of improved surgical techniques and blood conservation measures to improve outcomes in pediatric cardiac operations. He has been practicing blood conservation cardiac surgery in children for the last 5 years, having sophisticated heart-lung bypass support and equipment which allows for limited or no blood transfusion during cardiac surgery. He has demonstrated that
**KULKARNI, Sanjay**

**Abstract Number 12011457**

Associate Professor of Surgery (Transplant) and of Medicine (Nephrology)

(203) 785-2556
sanjay.kulkarni@yale.edu

MD, Medical College Wisconsin, 1995
BS, University of Wisconsin, 1990

Increasing living donation in a safe and effective manner is the only solution to the organ shortage. My research tries to examine how kidney donors assess risk and how this information can be better used by transplant centers when they evaluate possible living donors. Carrie Thiesen MD PhD (Yale) and I are currently conducting a multicenter study and are actively recruiting potential living donors.

I am also conducting a clinical study that tests an FDA approved system Airseal (Surgiquest, Inc.) to determine if we can reduce pain from the kidney donor surgery. The study is currently underway and actively recruiting patients.

Unfortunately, kidneys don’t last forever. There are new medications that may help some kidney transplant patients keep their kidney longer. We are conducting a clinical study using a complement inhibitor, eculizumab, to determine if we can stop antibodies from injuring kidneys. The study is still active, though it is closed to the recruitment of new patients.

Specialized Terms: The role of complement inhibition in kidney and liver transplantation; Methods to decrease pain for living kidney donors; UNOS & CMS regulations and compliance; Living donor risks and perceptions.


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**LEDER, Steven B**

**Abstract Number 10254830**

Professor of Surgery (Otolaryngology)

(203) 737-4647
steven.leder@yale.edu

PhD, University of Connecticut, 1983
MA, University of Maryland, 1976

Dr. Steven B. Leder’s research focuses on speech and swallowing abilities of patients with head and neck cancer, tracheotomy and ventilator dependency, and swallowing diagnostic and rehabilitative strategies with both acute and long-term care patients, who receive all diagnoses. In his research, Dr. Leder works with patients of all ages in order to investigate the continuum of speech and swallowing problems and the impact of rehabilitative techniques aimed at improving these skills. Dr. Leder’s studies are complemented by clinical expertise regarding voice restoration rehabilitation following total laryngectomy, and use of both videofluoroscopy and flexible fiberoptic endoscopy in the diagnosis and rehabilitation of dysphagia and voice disorders.


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**MANES, R Peter**

**Abstract Number 13466691**

Assistant Professor of Surgery (Otolaryngology)
rpeter.manes@yale.edu

MD, Albany Medical College, 2004
BA, Georgetown University, 1998

My research interests parallel my clinical focus. Chronic sinusitis and intranasal inflammation are an interest. Furthermore, my research focuses on minimally invasive, endoscopic treatments of nasal and sinus tumors.

Specialized Terms: Nasal and Sinus Neoplasms; Otorhinolaryngologic Diseases
I am interested in training and research to develop capacity for surgery in resource-limited settings. While my primary clinical interest is in surgical services for children, I am broadly interested in sustainable collaborations to improve surgery and perioperative care in low-income countries.

Specialized Terms: Global health; Global surgery; Health disparities; Access to care; Burden of surgical disease; Partnerships and collaboration; Uganda; Capacity-building; Pediatric surgery

Ochoa Chaar, Cassius Iyad

Assistant Professor of Surgery (Vascular)

Boardman Building
330 Cedar Street
New Haven, CT, 06510
(203) 785-4582
cassius.chaar@yale.edu

MD, American University of Beirut, 2002
MS, American University of Beirut, 2000d

Premature peripheral vascular disease; Endovenous ablation of varicose veins; Endovascular aortic aneurysm repair; Deep vein thrombosis; Catheter-directed thrombolytic therapy


Ozgediz, Doruk E

Assistant Professor of Surgery (Pediatrics) and of Pediatrics

(203) 785-2701
doruk.ozgediz@yale.edu

MSc, London School of Hygiene and Tropical Medicine, 2004
MSc, London School of Hygiene & Tropical Medicine, 2004
MD, University of California at San Francisco, 2000

Specialized Terms: Craniofacial growth and development; Cosmetic surgery/quality of life issues; Combined cerebral and facial trauma; Craniofacial vascular malformations; Hemangiomas

Roberts, Kurt E

Abstract Number 12246091

Associate Professor of Surgery (Gastrointestinal)
(203) 785-9060
kurt.roberts@yale.edu

MD, University of Innsbruck, 1997

Dr. Kurt Eric Roberts is a board-certified general surgeon who is fellowship-trained in minimally invasive surgery. He specializes in laparoscopic gastrointestinal surgery; laparoscopic bariatric surgery; laparoscopic gastric bypass surgery and especially laparoscopic gastric banding; laparoscopic surgery for reflux and achalasia (esophagus); laparoscopic colon surgery; laparoscopic emergency general surgery; endoluminal therapy (a revolutionary approach to Gastroesophageal Reflux Disease - GERD); laparoscopic surgery for pancreatitis. Additionally, he focuses on new technology and techniques in advanced minimally invasive surgery including Single Incision Laparoscopic Surgery (SILS), i.e. removal of the appendix or gallbladder through only one small incision hidden in the umbilicus (belly button). He also performs scarless surgery (Natural Orifice Transluminal Surgery - NOTES) through natural orifices such as the stomach or vagina for patients with appendicitis or symptomatic gallbladder disease.

Specialized Terms: Natural Orifice Transluminal Surgery (NOTES); Single Incision Laparoscopic Surgery (SILS); Gallbladder surgery; Endoluminal surgery; Surgical simulation and training; General surgery education; Obesity in adults and adolescents; Laparoscopic trauma and emergency surgery; Surgical outcomes


SANTOS-SACCHI, Joseph

Abstract Number 10240210

Professor of Surgery (Otolaryngology), of Cellular and Molecular Physiology and of Neurobiology

Brady Memorial Laboratory
310 Cedar Street
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(203) 785-7566
joseph.santos-sacchi@yale.edu

MPhil, Columbia University, 1978
PhD, Columbia University, 1978
BA, Columbia College, 1973

The exquisite sensitivity and frequency resolving power of the mammalian inner ear depends upon interactions between the two receptor cells of the organ of Corti, inner (IHC) and outer (OHC) hair cells. While inner hair cells appear to function solely as receptors of acoustic information, OHC’s function both as receptors and effectors, producing motile responses as a function of transmembrane potential fluctuations.

These motile responses modify the mechanical input to the inner hair cells which receive the majority of afferent innervation, thereby enhancing the gross frequency tuning afforded by basilar membrane mechanics. Dr. Joseph Santos-Sacchi studies the effector role of the OHC with electrophysiological (patch clamp) and displacement measurement techniques using isolated OHCs from the guinea pig. He also works on the motor protein (prestin) responsible for the cell’s mechanical activity, utilizing mutational analysis and expression systems to understand how it works.

Specialized Terms: Mammalian inner ear


SCHUSTER, Kevin

Abstract Number 12428501

Associate Professor of Surgery (Trauma)

(203) 785-2572
kevin.schuster@yale.edu

MPH, Yale School of Public Health, 2015
MD, Temple University School of Medicine, 1998
BS, Drexel University, 1994

I am interested in outcomes and trauma prevention in elderly individuals. I am also interested in continuous glucose monitoring and control of blood sugar in critically ill patients. I have additional interests in the most cost effective treatment strategies of emergency surgical disease.


STITELMAN, David H

Abstract Number 10055522

Assistant Professor of Surgery (Pediatrics)

(203) 785-2701
david.stitelman@yale.edu

MD, University of Pennsylvania Medical School, 2004

The level of sophistication of prenatal imaging and genetic diagnostics is growing rapidly, however cures for many congenital anomalies lag behind our diagnostic abilities. In developmental defects where babies are born with a disease phenotype, fetal therapy offers an opportunity to prevent or cure these disease. This is an opportunity that is lost after birth.

There are 3 broad aims of my basic science laboratory: 1) In Utero gene editing for the treatment of genetic diseases, 2) In Utero reversal of lung hypoplasia in diaphragmatic hernia 3) Minimally invasive In Utero therapy for spina bifida.


YARBROUGH, Wendell G  

Abstract Number 14444769  

Professor of Surgery (Otolaryngology) and of Pathology  
(203) 785-4862  
wendell.yarbrough@yale.edu  

MMHC, Vanderbilt University, 2010  
MD, University of North Carolina at Chapel Hill, 1989  

Identification of tumor suppressors in head and neck cancers; Understanding of tumor growth; Association between viruses and the development of cancer, particularly the link between the human papillomavirus and head and neck cancers.  

Specialized Terms: Head and neck oncology; Salivary oncology; Mouse modeling of human cancer; Human-in-mouse cancer models; Tumor suppressor activity; Molecular defects in cancer; NF-kappa B; NF-kB; Signaling; DNA damage; Human papilloma virus; HPV  


SUMPIO, Bauer  

Abstract Number 10469574  

Professor of Surgery (Vascular)  
Boardman Building  
330 Cedar Street  
New Haven, CT, 06510  
(203) 785-6217  
bauer sumpio@yale.edu  

PhD, Cornell University, 1981  
MD, Cornell University, 1980  

The Vascular Surgery Research Laboratories are conducting studies on the role of hemodynamic forces in influencing the biology of the vascular wall. Dr. Bauer Sumpio and his team are specifically interested in the role of strain and pressure in modulating endothelial cell and smooth cell growth, morphology and production of vasoactive molecules and mitogens. They are currently focused on the signal transduction pathways which couple the external force stimuli and the cytoplasmic and nuclear responses. Recent work in Dr. Sumpio’s laboratory has demonstrated the involvement of the phosphoinositol/protein kinase C and cAMP/protein kinase A pathways, activation of the fos and jun family of oncogenes and the involvement of the transcription factors AP-1, NF-kB and CRE with the initiation of cyclic strain or with an acute change cyclic strain frequency. They are currently attempting to determine the events which occur subsequently in the cell nucleus to induce transcriptional initiation.

Dr. Sumpio and his team’s underlying hypothesis is that the molecular basis of cellular events which occur in response to mechanical forces depends upon the establishment of specific patterns of gene expression achieved through a network both ubiquitous and tissue specific transcriptional regulatory proteins. They plan to define the necessary and sufficient promoter sequences involved in the regulation of gene transcription in cultured endothelial cells exposed to cyclic strain. The upstream promoter for the human tPA gene is used as a model for these experiments. The group speculates that there are cyclic strain responsive promoter elements (CSRE).  

Specialized Terms: Diabetic foot disease; Cerebrovascular disease; Peripheral vascular disease; Wound healing; Atherosclerosis; Hemodynamics


YUH, David D  

Abstract Number 13959929  

Professor of Surgery (Cardiac Surgery)  
(203) 785-6258  
david.yuh@yale.edu  

MD, Stanford University, 1991  

My research interests lie in improving surgical robotic technology and developing computational models of the heart with advanced imaging techniques to improve preoperative surgical planning of complex reconstructive cardiac operations.

Sumpio, Bauer  

Abstract Number 10469574  

Professor of Surgery (Vascular)  
Boardman Building  
330 Cedar Street  
New Haven, CT, 06510  
(203) 785-6217  
bauer sumpio@yale.edu  

PhD, Cornell University, 1981  
MD, Cornell University, 1980  

The Vascular Surgery Research Laboratories are conducting studies on the role of hemodynamic forces in influencing the biology of the vascular wall. Dr. Bauer Sumpio and his team are specifically interested in the role of strain and pressure in modulating endothelial cell and smooth cell growth, morphology and production of vasoactive molecules and mitogens. They are currently focused on the signal transduction pathways which couple the external force stimuli and the cytoplasmic and nuclear responses. Recent work in Dr. Sumpio’s laboratory has demonstrated the involvement of the phosphoinositol/protein kinase C and cAMP/protein kinase A pathways, activation of the fos and jun family of oncogenes and the involvement of the transcription factors AP-1, NF-kB and CRE with the initiation of cyclic strain or with an acute change cyclic strain frequency. They are currently attempting to determine the events which occur subsequently in the cell nucleus to induce transcriptional initiation.

Dr. Sumpio and his team’s underlying hypothesis is that the molecular basis of cellular events which occur in response to mechanical forces depends upon the establishment of specific patterns of gene expression achieved through a network both ubiquitous and tissue specific transcriptional regulatory proteins. They plan to define the necessary and sufficient promoter sequences involved in the regulation of gene transcription in cultured endothelial cells exposed to cyclic strain. The upstream promoter for the human tPA gene is used as a model for these experiments. The group speculates that there are cyclic strain responsive promoter elements (CSRE).  

Specialized Terms: Diabetic foot disease; Cerebrovascular disease; Peripheral vascular disease; Wound healing; Atherosclerosis; Hemodynamics


**CARLSON, David J**

**Abstract Number 12794902**

Associate Professor of Therapeutic Radiology

Smlow Cancer Hospital at Yale - New Haven
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david.j.carlson@yale.edu

PhD, Purdue University, 2006
BA, Middlebury College, 2002

The overall goal of my research is to develop more accurate radiobiological dose-response models that will advance biologically-guided radiation therapy (BGRT) for cancer patients. I hope to make scientific contributions to improve our basic understanding of the underlying physical and biological mechanisms that govern radiation response. Specifically, in my recent research, I have quantified the effects of the spatial pattern of energy deposition by different types of radiation on the relative biological effectiveness of x-rays, protons, and carbon ions in achieving local tumor control. I have also examined the combined effects of cellular oxygen concentration and spatial energy deposition on DNA damage formation and processing and cell death. I have broad background in radiation physics and radiation biology. As a doctoral candidate at Purdue University, I conducted research on the mechanisms of intrinsic radiation sensitivity and examined the effects of DNA damage repair, oxygen, and radiation quality (particle LET) on biological endpoints such as double-strand break formation and cell killing. As a physics resident at Stanford University, I obtained a comprehensive understanding of the clinical application of radiation for the treatment of malignant and benign disease. I continued my research in radiobiological modeling to develop more realistic models of tumor hypoxia based on radial oxygen diffusion from tumor vasculature and the impact on radiation response. I am currently focused on (1) developing non-invasive functional imaging tools to quantify the spatial and temporal distributions of tumor hypoxia in early-stage non-small cell lung cancer and (2) implementing methods of biological optimization in heavy ion radiotherapy.

Specialized Terms: Biological optimization of radiation therapy; Tumor hypoxia and reoxygenation effects; Proton and heavy ion radiotherapy; Functional imaging; DNA damage and repair; Motion management; 4D imaging and treatment strategies; Prostate cancer; Lung cancer


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**BRASH, Douglas E**

**Abstract Number 10405144**

Senior Research Scientist in Therapeutic Radiology and in Dermatology and Clinical Professor of Therapeutic Radiology

(203) 785-2988
douglas.brash@yale.edu

PhD, Ohio State University, 1979
BA, University of Illinois, 1973

Cancer begins as an encounter between a carcinogen and a gene. We are pinpointing these early events, which occur decades before the appearance of a tumor. Our past work on sunlight-induced mutations in tumor suppressor genes has led us to three current topics: 1) Exploring how UBV-induced apoptosis and UV-driven cell fate decisions drive a single mutant cell to clonally expand. 2) Determining rates of DNA photoproduct formation and repair across the genome, as dosimeters of a person’s past UV exposure. 3) The interaction of UV and melanin in causing melanoma.


Rochette, PJ and Brash, DE. Human telomeres are hypersensitive to UV-induced DNA damage and refractory to repair. PLoS Genetics 6 (e1000926): 1-13, 2010.
DENG, Jun

Abstract Number 11463054

Associate Professor of Therapeutic Radiology
Smilow Cancer Hospital at Yale - New Haven
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(203) 200-2013
jun.deng@yale.edu

PhD, University of Virginia, 1998
BS, Sichuan University, 1991

Radiotherapy is an effective treatment modality for fighting cancers around the world. My current research on cancer radiotherapy is primarily focused on three areas: (1) kilo-voltage cone beam CT (kVCBCT) scan optimization and dose reduction strategy; (2) accurate estimation of organ doses from medical imaging procedures; and (3) Monte Carlo treatment planning. My research on kVCBCT imaging doses and dose reduction strategies will make personalized low dose CBCT possible, hence contributing to the safe applications of CBCT worldwide. My study on the organ doses will provide a consistent and systematic approach to accurately estimating the organ doses from medical imaging procedures, offering highly relevant information in clinical decision-making for individual patient. My work on Monte Carlo treatment planning involves beam modeling of high-energy ionizing radiation and accurate dose calculations in patient CT anatomy, which is crucial in radiotherapy planning, delivery and quality assurance.

Specialized Terms: Dose Reduction and Scan Optimization; Medical Imaging; Image-Guided Radiation Therapy (IGRT); Monte Carlo Treatment Planning for Radiation Therapy of Cancers; Intensity Modulated Radiation Therapy (IMRT); Organ Motion and Deformable Registration; Optimization for Radiation Therapy; Biologically Guided Radiation Therapy (BGRT)

PMID: 23158242.

We are studying the interplay between autoimmunity and malignancy and are attempting to harness and optimize select autoantibodies for use against cancer.


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**Glazer, Peter M**

**Abstract Number 10103819**

Robert E. Hunter Professor of Therapeutic Radiology and Professor of Genetics  
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PhD, Yale University, 1987  
MD, Yale University, 1987

**Gene targeting via triple helix formation:** From an interest in studying cellular DNA repair and recombination pathways, we recognized the utility of DNA triple helix formation as a mechanism for the site-specific induction of recombination in human cells. We have recently demonstrated that triplex forming oligonucleotides can be used to mediate targeted modification of human disease-related genes. We are currently optimizing this approach for application in human hematopoietic stem cells and in mouse models of human genetic diseases.

**Tumor hypoxia, genetic instability, and cancer therapy:** We discovered that tumor hypoxia is a key driver of genetic instability in human cancer cells. Mechanistically, we determined that this instability arises because of suppression of the DNA mismatch repair and homology dependent repair pathways, due to specific repression of the MLH1 and BRCA1 genes, respectively. This down-regulation of DNA repair in hypoxic cancer cells renders them vulnerable to therapeutic strategies that exploit the specific repair deficiencies, providing the basis for novel, rationally designed cancer therapies.

Specialized Terms: Gene targeting and gene therapy; Genetic instability in cancer; Mutagenesis; DNA repair; Radiation resistance; Cellular responses to radiation

*Czochor JR and Glazer PM: microRNAs in Cancer Cell Response to Ionizing Radiation. Antioxid Redox Signal. 2013 Nov. 10


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**Jensen, Ryan B**

**Abstract Number 11036915**

Assistant Professor of Therapeutic Radiology  
(203) 737-6456  
ryan.jensen@yale.edu

PhD, Yale University, 2004  
BA, University of California at Berkeley, 1996

Research in our lab is focused on the DNA Double Strand Break (DSB) repair response in mammalian cells. DNA DSB’s are critical lesions for a cell and can lead to cell death if left unrepaired. Alternatively, if repaired incorrectly, a DSB can result in mutagenic consequences leading normal cells down a path to tumorigenesis. We are currently investigating the role BRCA2 (breast cancer susceptibility gene 2) plays in the DSB response as well as its role in homologous recombination (HR). People who inherit a deleterious mutation in the BRCA2 gene are at an incredibly high lifetime risk for breast, ovarian, and other types of cancer. We are particularly interested in the molecular pathogenic events that lead to such a high risk for cancer in the absence of functional BRCA2. Specialized Terms: Cancer biology; DNA repair; BRCA2; DNA damage signaling; Genomic instability


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**Hansen, James E**

**Abstract Number 12759236**

Assistant Professor of Therapeutic Radiology  
(203) 737-4429  
james.e.hansen@yale.edu

MD, UCLA School of Medicine, 2004  
MS, University of California, 1999

We are studying the interplay between autoimmunity and malignancy and are attempting to harness and optimize select autoantibodies for use against cancer.


Liu, Wu

Abstract Number 13564475

Assistant Professor of Therapeutic Radiology
(203) 453-7250
wu.liu@yale.edu

PhD, University of Wisconsin-Madison, 2007
MS, University of Wisconsin-Madison, 2006
MS, University of Wisconsin-Madison, 2004

- Clinical-oriented research on image guided radiotherapy: tumor motion monitoring and management. Dose reconstruction. Medical image analysis.
- Applying artificial intelligence techniques to IGRT for margin reduction and adaptive imaging and planning.
- Cancer diagnosis & treatment evaluation using advanced ultrasound parametric imaging.

Specialized Terms: Image guided radiotherapy; Tumor motion monitoring and management; Dose reconstruction; Medical image analysis; Ultrasound parametric imaging


Nath, Ravinder

Abstract Number 10223431

Professor of Therapeutic Radiology
(203) 785-2971
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PhD, Yale University, 1971
MPhil, Yale University, 1969

More than half of the cancer patients receive radiation treatment. The goal of radiation treatment of cancer is to deliver a lethal dose to the tumor volume without exceeding the tolerance of surrounding normal tissues. This is achievable by current treatment techniques for about half of the patients receiving radiation with a curative intent. About half of these patients fail locally within the tumor volume itself.

Our research is aimed to benefit these patients who should not have failed locally. The overall objective of the research in radiological physics is to develop and utilize new physical techniques of tumor and normal tissue imaging, dose calculations, dosimetry measurements and delivery techniques, and to develop new physical modalities such as new brachytherapy sources, new radiation devices, etc.

Specialized Terms: Radiation Oncology Physics; Dose calculations; Dosimetry measurements and delivery techniques; Brachytherapy sources and Physics; Radiation devices; Tumor and normal tissue imaging; Radiation Biology


PATEL, Abhijit A

**Abstract Number 10172669**

Assistant Professor of Therapeutic Radiology  
(203) 785-2971  
abhijit.patel@yale.edu  
MD, Yale University School of Medicine, 2003  
PhD, Yale University Graduate School, 2002  
MS, Yale College, 1995  
BS, Yale College, 1995

In the Patel Lab, we are seeking to develop innovative strategies to diagnose, characterize, and monitor cancer with the ultimate goal of improving patient outcomes. Our research aims to understand and exploit new classes of DNA and RNA biomarkers that are shed from tumor cells into a patient’s bloodstream. We are developing ultrasensitive diagnostic tools to enable measurement of trace amounts of these circulating DNA and RNA fragments that harbor cancer-specific genomic signatures. In parallel, we are investigating clinical applications to take advantage of the exceptional specificity of these biomarkers.

Our research draws upon expertise from diverse fields such as clinical oncology, molecular biology, chemistry, computer science, and microfluidics. We rely on extensive collaborations with both scientists and clinicians, and we are always open to new collaborations from investigators with good ideas.

Specialized Terms: Circulating tumor DNA; Next-generation sequencing; RNA profiling; Selection of nucleic acids from combinatorial libraries


ROGERS, Faye A

**Abstract Number 11125723**

Associate Professor of Therapeutic Radiology  
(203) 737-3658  
faye.rogers@yale.edu  
PhD, University of Maryland at Baltimore, 1998  
BS, Andrews University, 1992

Overexpression of HER2, which occurs in ~30% of human breast cancers, correlates with enhanced tumor aggressiveness and decreased patient survival. Although Herceptin has significantly improved the treatment of HER2-positive tumors, drug resistance remains an obstacle in a high fraction of patients. The ability to target these cancers using antitumor agents with mechanisms of action that are independent of HER2 cellular growth function, represents a powerful tool to circumvent this form of resistance. Our lab is interested in the design of novel gene-targeted molecules that can be used in the treatment of both HER2-positive and Herceptin-resistant breast cancers.

Specialized Terms: Breast cancer; Drug design; Altered helical structures; Cancer and genomic instability; DNA repair and apoptosis


The focus of my research is genomic instability and how it leads to the mutations that result in human diseases such as cancer. The goal of one of the projects in my laboratory is to understand how DNA polymerases synthesize DNA accurately, and how they make mistakes that result in mutations. We study DNA mammalian DNA polymerase beta (Pol β) because it was a relatively small, single subunit enzyme that could be easily manipulated and purified. My laboratory developed a method for assessing the activity and accuracy of rat Pol β in bacteria. This led to the identification of a number of variants of Pol β that synthesized DNA inaccurately. Our focus upon detailed biochemical characterization of variants of the Pol β protein has shown that single amino acid residues that are quite distant from the active site of the enzyme are very important for accurate DNA synthesis. We found that many of these residues act at a distance in DNA positioning, nucleotide binding, and by influencing the rates of conformational changes that are important for accurate DNA synthesis. A second project is focused upon tumor-associated variants of Pol β. Pol β functions in base excision repair. The base excision repair system is responsible for removal of at least 10,000 DNA lesions per day. Interestingly, the Pol β gene appears to be mutated in a large percentage of tumors. We have found that expression of the tumor-associated variants in mouse cells results in cellular transformation that has a mutational mechanism. We have shown that some of the Pol β variants synthesize DNA inaccurately and others have no catalytic activity, but can bind to DNA and interfere with its repair. Our results suggest that the variants compromise base excision repair and lead to the induction of mutations, and suggest that base excision repair itself is a tumor suppressor mechanism. These studies impact our fundamental understanding of DNA repair and have the potential to lead to the design of targeted cancer therapeutics.

Specialized Terms: Genome Stability; Mutagenesis; DNA Replication; DNA Repair; Carcinogenesis


Several theories have been proposed to explain the pathogenesis of the disorder known as cutaneous T-cell lymphoma (CTCL), or mycosis fungoides (MF). The first of two leading hypotheses proposes that MF is a disorder of malignant helper CD4+ T-cells, with a single neoplastic clone present at the very start of the disease process. The second hypothesis postulates a two stage process: a phase of chronic antigenic stimulation which results in a benign polyclonal proliferation of T lymphocytes, in which one clone is mutated (by polymerase errors, exposure to endogenous oxygenating agents, or an exogenous mutagen) and dominates the T-cell infiltrate. Cells are stimulated to develop “malignant potential,” and to proliferate freely in the skin subsequently producing lesions clinically consistent with CTCL.

Weiss et al. clearly demonstrated that cutaneous T-cell lymphoma (Mycosis Fungoides) is a disorder resulting from an expansion of a neoplastic clone of T-cells with characteristic rearrangements in T-cell receptor genes. Therefore, it should be possible to determine whether a “clinical recurrence” derives from the original neoplastic clone or represents a different neoplastic clonal T-cell expansion (which would reveal a second primary) by comparing the T-cell receptors (and/or the genes which have been rearranged to produce the receptor) in the primary lesion and the recurrence. This is an example of one area of research which our group has pursued.


Specialized Terms: Cutaneous Lymphoma; Lung Cancer; Total Skin Electron Beam Therapy


pathological progression of obesity, and in obesity-associated metabolic syndromes including type 2 diabetes and cardiovascular diseases.

Specialized Terms: Molecular and cancer biology; Stem cell biology; hypoxia; microRNA; tumor microenvironment; Obesity and metabolic syndromes


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**COLBERG, John W**

**Abstract Number 10446930**

Associate Professor of Urology

(203) 785-7671

john.colberg@yale.edu

MD, Washington University School of Medicine, 1985

Urologic oncology; urologic cancers; kidney cancer; testicular cancer; prostate cancer; penile cancer; and bladder cancer.


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**CHAI, Toby C**

**Abstract Number 14574428**

Professor of Urology and of Obstetrics, Gynecology, and Reproductive Sciences

(203) 737-8076

toby.chai@yale.edu

MD, Indiana University School of Medicine, 1989

Dr. Chai's area of research interests include study of causes and treatment for urinary incontinence (UI, involuntary loss of urine). He has both laboratory and human research experience in studying UI.


---

**FOSTER, Harris E**

**Abstract Number 10381616**

Professor of Urology

(203) 737-3619

harris.foster@yale.edu

MD, University of Miami, 1987

Dr. Harris Emilio Foster Jr.'s research interests revolve around neurogenic dysfunction of the lower urinary tract, incontinence, and female urology. At present, he and his group are investigating the distribution of adrenergic, muscarinic and endothelin receptors in the lower urinary tract of rats and rabbits. In addition, they are involved in determining the role nitric oxide synthase plays in the pathogenesis of lower urinary tract dysfunction. The team has found that nitric oxide synthase is high in patients with urinary tract infections; however, it is significantly lower than controls in female patients with interstitial cystitis. Dr. Foster Jr. and his colleagues hope to eventually apply this knowledge to improving both the diagnosis and treatment of interstitial cystitis. Presently, they have treated a small number of patients with oral L-arginine, which is a substrate for nitric oxide synthase obtaining encouraging results. A randomized double-blind placebo controlled study is now in progress to further investigate these preliminary findings. Other projects include assessing the long term efficacy of surgical
procedures to treat female stress urinary incontinence, and the use of non-surgical methods such as biofeedback. Finally, Dr. Foster Jr. is the principal investigator at Yale University for an NIH sponsored 7 year randomized clinical trial assessing the ability of doxazosin and/or finasteride to delay or prevent the progression of benign prostatic hyperplasia.

Specialized Terms: Benign prostatic hyperplasia clinical trials; Interstitial cystitis clinical trials; Basic science investigations into changes in receptor system in the prostate in response to treatment with standard pharmacotherapies


HITTELMAN, Adam B

Abstract Number 12772071

MD, New York University School of Medicine, 2001
PhD, New York University School of Medicine, 2000

Molecular and developmental biology focusing on the transcriptional and regulator mechanisms for genitourinary development; Congenital anomalies and urologic malignancies


SHUCH, Brian M

Abstract Number 14697491

MD, New York University School of Medicine, 2004
BS, University of Michigan/Ann Arbor, 2000

1) Molecular characterization of sporadic and hereditary kidney cancer
2) Development of novel therapeutic strategies for Kidney cancer
3) Development of novel biomarkers to avoid overtreatment of small renal masses
4) Integration of molecular diagnostics and Genomics data to patient care


Weiss, Robert M

Abstract Number 10246568

Donald Guthrie Professor of Urology

(203) 737-3619
robert.weiss@yale.edu

MD, SUNY Downstate Medical Center, 1960

We are involved in using nano-particle delivery systems to diagnose and treat diseases of the urinary system with special emphasis on benign and malignant diseases of the bladder. These studies, which are presently focused on diagnosing and treating bladder and prostate cancer utilizing nano-particles loaded with specifically targeted siRNAs are directed by Darryl T. Martin, PhD. In addition we are studying the pharmacology and physiology on ureteral-vesical smooth muscle.

Specialized Terms: muscle pharmacology; Signal transduction; Bladder cancer; Drug delivery


Listing of Faculty by Last Name

Faculty are listed in the following order: name, faculty UPI number, page on which the abstract appears.

A

ABBED, Khalid: 12581858 ......................................................... 174
ABDALA, Nadia: 10493068 ....................................................... 283
ABRAHAM, Clara: 12631719 ..................................................... 61
ABRAHAMS, Vikki: 11513425 .................................................... 179
ABUJARAD, Fuad: 15636350 ..................................................... 39
ABU-KHALAF, Mayssa: 11629110 ............................................... 62
ADDY, Nii: 11519086 ............................................................... 239
ADELMAN, Ron: 11450576 ....................................................... 189
ADENIRAN, Adebowale: 13102568 ............................................ 196
AHASIC, Amy: 10791129 .......................................................... 62
AHN, Kyung-Heup: 12624545 ................................................... 239
AKAR, Joseph: 10330922 ........................................................... 62
AKGUN, Kathleen: 11386588 ..................................................... 63
AKSOY, Serap: 10006528 ............................................................ 283
ALKAWADRI, Rafeed: 14394585 ............................................... 154
ALLORE, Heather: 11247732 ..................................................... 239
ALPERN, Robert: 11976806 ........................................................ 64
ALREJA, Meenaskhi: 10054774 .................................................. 239
ALTICE, Frederick: 10415922 ..................................................... 64
AMEEN, Nadia: 12998188 .......................................................... 210
ANANTH, Meena: 10476918 ...................................................... 65
ANDERSON, George: 10268583 .................................................. 20
ANDERSON, Karen: 10365364 .................................................... 232
ANDIMAN, Warren: 10253963 ................................................... 211
ANTAYA, Richard: 10630241 ..................................................... 33
ARICI, Aydin: 10268294 ............................................................. 180
ARNOLD, Linda: 11088204 ........................................................ 211
ARNSTEN, Amy: 10329902 ....................................................... 168
ARONSON, Peter: 10251566 ....................................................... 65
ASKENASE, Philip: 10249203 ....................................................... 66
ASLANIAN, Harry: 11088238 ..................................................... 66
ASNES, Andrea: 12264434 ........................................................ 211
ASNES, Jeremy: 12167993 ........................................................ 212
ATTARDO, Geoff: 12041071 ....................................................... 284
AUERBACH, Marc: 13235882 ..................................................... 212
AXELROD, Seth: 10933884 ........................................................ 240
AYOUB, Albert: 11854938 ........................................................ 168

BEAUVAIS, John: 10164781 ....................................................... 241
BECKER, Kevin: 12173915 ....................................................... 155
BECKER, William: 11409946 ..................................................... 67
BEECH, Robert: 10397885 ......................................................... 241
BEHAR, Kevin: 10428944 ........................................................ 242
BELL, Morris: 10031501 ........................................................... 242
BELPERNON, Alexia: 10093007 .................................................. 67
BEN MAMOUN, Chouki: 13085041 ............................................. 67
BENDER, Jeffrey: 10206533 ........................................................ 68
BENJAMIN, Christopher: 15450982 .......................................... 155
BENNETT, Anton: 10276760 ...................................................... 233
BERGWITZ, Clemens: 15141259 ............................................... 68
BERLAND, Gretchen: 11477079 .................................................. 69
BERNSTEIN, Steven: 13082355 ................................................... 40
BERRO, Julien: 12659344 .......................................................... 145
BEWERSDORF, Joerg: 13119279 ................................................ 6
BHATTACHARYA, Bishwajit: 14032128 ....................................... 309
BINDER, Henry: 10238221 ........................................................ 69
BLACK, Joel: 10461533 .............................................................. 156
BLOCH, Michael: 11273521 ....................................................... 21
BLUMBERG, Hilary: 10642311 .................................................... 243
BLUMENFELD, Hal: 10449956 .................................................... 156
BOCKENSTEDT, Linda: 10386563 ............................................... 69
BOGAN, Jonathan: 11635332 ..................................................... 70
BOGGON, Titus: 12227340 ......................................................... 233
BOGUE, Clifford: 10380528 ....................................................... 213
BOKHARI, S.A. Jamil: 10385696 ............................................... 274
BOLOGNIA, Jean: 10345899 ....................................................... 33
BONDE, Pramod: 14059617 ....................................................... 309
BOOTH, Carmen: 11883651 ....................................................... 28
BORDEY, Angelique: 11291767 ................................................... 174
BOSENGEN, Marcus: 12648617 ................................................... 33
BOSSUTY, Veerle: 11625324 ....................................................... 196
BOTHWELL, Alfred: 10444091 ................................................... 55
BOYER, James: 10484517 .......................................................... 70
BRACKEN, Michael: 10207043 ................................................... 284
BRADLEY, Elizabeth: 10197906 .................................................. 285
BRANDT, Cynthia: 10474147 ...................................................... 40
BRASH, Douglas: 10405144 ....................................................... 319
BREWSTER, Ursula: 10637126 ..................................................... 71
BRITTO, Pia: 12046647 .............................................................. 21
BRITTO-LEON, Clemente: 12730302 ......................................... 71
BROEN, Richard: 10310250 ....................................................... 275
BROWN, Franklin: 12641341 ...................................................... 156
BRUCE, Charles: 10377944 ....................................................... 169
BRUECKNER, Martina: 10365636 ............................................... 214
BRUSCIA, Emanuela: 11635230 ................................................... 214
BUCAALA, Richard: 11512184 ................................................... 71
BUNICK, Christopher: 12746559 ............................................... 34
BURTNESS, Barbara: 10405586 .................................................. 72

B

BAEHRING, Joachim: 11617618 ................................................... 155
BAGRIAN'TSEV, Slaev: 14391562 ................................................... 13
BALE, Allen: 10016626 ............................................................ 44
BALL, Samuel: 10126310 ........................................................... 240
BAMFORD, Nigel: 15866819 ....................................................... 212
BANACH, David: 11581425 ........................................................ 66
BARASH, Paul: 10276981 .......................................................... 1
BARRY, Declan: 10979931 .......................................................... 241
BASERGA, Susan: 10406640 ....................................................... 145
BAZZY-ASAAD, Aila: 10382262 ............................................... 212
BEARDSLEY, George: 10312205 ............................................... 213
<table>
<thead>
<tr>
<th>Name</th>
<th>ID Number</th>
</tr>
</thead>
<tbody>
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KRAUTHAMMER, Michael: 11912806 .................................. 201
KRIEGEL, Martin: 11845197 .................................................. 59
KRISHNAMURTHY, Shyam: 12785875 ..................................... 9
KRISHNASWAMI, Suchitra: 10397919 ................................. 256
KRISHNASWAMY, Smita: 15815989 ....................................... 48
KRUMHOLZ, Harlan: 10384370 ............................................. 257
KRYSKAL, John: 10412857 .................................................... 297
KULKARNI, Sanjay: 12011457 ............................................. 314
KUMAR, Prithi: 12780350 .................................................... 101
KUPFER, Gary: 12554845 ................................................. 224
KWAN, Alex: 14867321 ..................................................... 257
KYRIAKIDES, Themis: 11912840 ......................................... 202

L

LAMBERT, Rachel: 10321997 ............................................. 101
LANDRY, Marie-Louise: 10019975 .................................... 139
LANGHAN, Melissa: 12011729 ......................................... 224
LAZOVA, Rossitza: 10416721 ............................................. 37
LEADERER, Brian: 10308567 ............................................. 295
LEBOWITZ, Eli: 13094042 .................................................. 23
LECKMAN, James: 10488206 ............................................. 24
LEDER, Steven: 10254830 .................................................. 314
LEE, Daeyeon: 12319620 ................................................... 171
LEE, Forrest: 10328831 ..................................................... 102
LEE, Patty J: 10929458 ..................................................... 102
LEEMAN, Robert: 12266729 ............................................. 257
LEFFEL, David: 10071485 .................................................. 37
LERANTH, Csaba: 10443190 ............................................. 183
LESLIE, Michael: 13418190 ............................................... 193
LEVINE, Robert: 10262361 ................................................. 103
LEVY, Becca: 10576453 ..................................................... 296
LEVY, Itai: 13129768 .......................................................... 31
LI, Chiang-Shan: 11487942 ............................................. 258
LI, Peining: 10416721 ..................................................... 49
LIAPAKIS, Anamaria: 14305352 ....................................... 103
LICHTMAN, Judith: 10150518 .......................................... 296
LIFTON, Richard: 10354994 ................................................. 49
LILENBAUM, Rogerio: 14600625 .................................... 103
LIM, Jinghoo: 13364323 .................................................. 49
LIM, Joseph: 11076627 .................................................... 296
LIN, Chenxiang: 14442372 ............................................... 9
LIN, Haifan: 12431102 .................................................... 9
LIN, Haiping: 11246032 ................................................... 296
LINDENBACH, Brett: 12451043 ......................................... 143
LIPSKA, Kasia: 10772973 ................................................. 104
LISTER, George: 10381718 ............................................. 225
LIU, Wu: 13564475 ........................................................... 322
LLOR, Xavier: 15139542 .................................................... 104
LOUIS, Elias: 10302957 .................................................. 236
LOMBROSO, Paul: 10033668 ........................................... 24
LOUVI, Angeliki: 11917226 .............................................. 177
LU, Jun: 13091926 ........................................................... 50
LU, Lingeng: 12044141 .................................................... 297
LUSK, Charles: 13226107 ................................................ 10

M

MA, Xiaomei: 11833603 .................................................... 297
MACMICICKING, John: 11988065 .................................. 144
MADRI, Joseph: 10263381 ............................................. 202
MAGRIPES, Uranya: 10304487 ........................................ 184
MAK, Winifred: 14107268 ............................................. 184
MAKHALI, Naina: 14798947 ............................................ 225
MAKUCH, Robert: 10086156 .......................................... 297
MALINIS, Maricar: 14231045 ......................................... 104
MAMULA, Mark: 10394179 ............................................. 105
MANES, R Peter: 13466691 ............................................. 314
MANI, Arya: 10153663 .................................................... 105
MARANS, Steven: 10351798 .............................................. 24
MARCHESI, Vincent: 10260797 ....................................... 203
MARIAPPAN, Malayalam: 14444565 ......................... 10
MARIEB, Mark: 10014620 .............................................. 106
MARIENFELD, Carla: 12581807 ....................................... 258
MARIN, Ethan: 12194377 ................................................. 106
MARKS, Asher: 14886038 ............................................... 225
MARKS, Lawrence: 10280415 ......................................... 298
MARKS, Peter: 12389945 .................................................. 106
MAROTTOLI, Richard: 10226219 ...................................... 107
MARSHALL, Peter: 10192899 .......................................... 107
MARTIN, Kathleen: 13265904 ........................................... 107
MARTINELLO, Richard: 11084413 ..................................... 108
MARTINO, Steve: 10318997 ............................................. 258
MASHEB, Robin: 10319081 ............................................. 259
MASON, Graeme: 10334084 ........................................... 280
MATOUK, Charles: 14137596 .......................................... 177
MATTHAY, Richard: 10465205 ........................................ 108
MAYES, Linda: 10422569 .................................................. 25
MAYNE, Susan: 10452914 ............................................... 298
MAZER, Jamie: 11900192 .................................................. 171
MAZURE, Carolyn: 10248506 .......................................... 259
MCCARTHY, Shirley: 10269620 ......................................... 280
MCCORMICK, David: 10394519 ....................................... 171
MCGRAH, James: 10334271 ............................................. 171
MCKEE, Sherry: 10154683 ............................................... 260
MCMAHON, Thomas: 10144211 ....................................... 260
MCMAHON-PRAST, Diane: 10481508 ............................ 299
MCNAMARA, Robert: 11640806 ...................................... 108
MCNIFF, Jennifer: 10011407 .............................................. 38
MEANS, Robert: 12030021 ............................................. 203
MEFFRE, Eric: 13088050 ................................ ..................... 59
MEHAL, Wajahat: 10020536 ............................................. 109
MELIA, Thomas: 12785212 ............................................. 11
MENT, Laura: 10347905 ................................................... 225
MERCURIO, Mark: 10401421 ........................................... 226
MEYER, Ana-Claire: 14679896 ......................................... 162
MEYER, Jaime: 12749325 .................................................. 109
MILLER, Cindy: 11329434 .................................................. 281
MILLER, Edward: 11067957 ............................................. 109
MILLER, Geoffrey: 12053821 ........................................... 226
MILLER, I George: 10405841 ........................................... 226
MILLER, Perry: 10219521 ................................................... 2
MIN, Wang: 10008517 ..................................................... 203
MIRANKER, Andrew: 10285294 ....................................... 149
MISTRY, Pramod: 11463003 .............................................. 110
MITCHELL, Kisha: 12613580 ........................................... 204
MOECKEL, Gilbert: 12763367 .......................................... 204
N
NAGAR, Anil: 11268285 ................................................................. 111
NAIRN, Angus: 11343051 ............................................................. 261
NARASIMHAN, Sukanya: 10235127 ........................................... 112
NATH, Ravinder: 10223431 ........................................................ 322
NATHANSON, Michael: 10410040 ............................................... 112
NAVARATNAM, Dhasakumar: 11331134 ..................................... 163
NDEFFO MBAH, Martial: 13639003 .............................................. 299
NEUGEBAUER, Karla: 14444905 .................................................. 150
NGUYEN, Don: 13361563 ........................................................... 205
NICCOLAI, Linda: 11270138 ........................................................ 300
NICOLI, Stefania: 14208112 ......................................................... 113
NIKLASON, Laura: 12285684 ....................................................... 3
NITABACH, Michael: 11386358 ................................................... 54
NOONAN, James: 12592466 ........................................................ 50
NORKO, Michael: 10326633 ......................................................... 262
NOWAK, Richard: 12561730 ........................................................ 163
NUNEZ SMITH, Marcella: 11981945 .............................................. 113
O
OCHOA CHAAR, Cassius Iyad: 11976420 .................................... 315
O'CONNOR, Kevin: 13378138 ....................................................... 164
O'CONNOR, Patrick: 10297772 .................................................... 113
O'MALLEY, Stephanie: 10428400 .................................................. 262
OZGEDIZ, Doruk: 14347937 ..........................................................1
P
PACHANKIS, John: 14830839 .........................................................300
PAIDAS, Michael: 11639854 .........................................................185
PAINTSIL, Elijah: 11628073 ..........................................................227
PAL, Lubna: 10944486 .................................................................185
PALTIEL, A David: 10232628 .........................................................301
PAN, Xinghua: 10197387 ...............................................................51
PAPADEMETRIOS, Xenophon: 10174029 .................................... 281
PARikh, Chirag: 12112743 .............................................................114
PARikh, Sunil: 14391423 ...............................................................301
PARK, In-Hyun: 13301869 ............................................................51
PASHANKAR, Dinesh: 12056541 ....................................................227
PASHANKAR, Farzana: 12094672 ..................................................227
PATEL, Abhijit: 10172669 ..............................................................323
PATEL, Amar: 11317602 ..............................................................164
PATERZIO, Pasquale: 11892780 ....................................................186
PEARLSON, Godfrey: 11634941 ..................................................262
PEDUZZI, Peter: 10036329 .............................................................301
PEIXOTO, Aido: 10112880 ............................................................114
PELKER, Richard: 10287453 ........................................................ 194
PELPHREY, Kevin: 12142748 ........................................................ 25
PERAZELLA, Mark: 1039927 ........................................................ 114
PEREIRA, Joao: 13509395 .............................................................. 60
PEREZ-ESCAMILLA, Rafael: 13250842 ....................................... 302
PERSING, John: 10011288 ............................................................. 315
PETERS, Dana: 13692655 ............................................................. 281
PETRAKIS, Ismeni: 10331959 ........................................................ 263
PETROFF, Ognen: 12097017 .......................................................... 164
PETRYLAK, Daniel: 14474655 ....................................................... 115
PETTIKOT, Melinda: 14040107 ....................................................... 302
PETTIKTER, Christian: 11981843 ................................................... 186
PHATAK, Uma: 12588437 ............................................................. 228
PHILBRICK, William: 10032810 .................................................... 115
PICCIOTTO, Marina: 10284529 ......................................................263
PIEMEIER, Joseph: 10422603 ......................................................... 178
PIERBONE, Vincent: 10946458 ...................................................... 16
PIETRZAK, Robert: 12622097 ........................................................ 263
PINTO, Marguerite: 11379703 ......................................................... 205
PISTANI, Margaret: 10052819 ......................................................... 115
PITT, David: 14556238 ................................................................. 165
PITENGER, Christopher: 11806947 .............................................. 264
PITZER, Virginia: 14299198 ........................................................... 303
POBER, Jordan: 10264452 ............................................................. 60
POLITI, Katerina: 13396209 ............................................................ 205
PONCIN, Yann: 12018631 ............................................................. 26
POPESCU, Wanda: 1126216 ........................................................... 3
POST, Lorn: 12668014 ................................................................. 42
POTENZA, Marc: 10316795 ........................................................... 264
POWSNER, Seth: 10415021 ........................................................... 264
PREISIG, Patricia: 11968209 ........................................................... 116
PROCTOR, Deborah: 10686358 ...................................................... 116
PROTIVA, Petr: 13227977 ............................................................... 116
PUSZTAI, Lajos: 14382192 ............................................................. 117
Q
QUI, Caihong: 12536247 ................................................................. 11
QUAGLIARELLO, Vincent: 10306170 ............................................. 117
Qyang, Yibing: 12792930 ............................................................... 118
R
RABIN, Tracy: 12386630 ............................................................... 118
RADIN, Joanna: 14450702 ............................................................. 54
RAKIC, Pasko: 10032555 ............................................................... 172
RALEVSKI, Elizabeth: 11469276 ................................................... 265
RAMANI, Ramachandran: 11411578 .......................................... 3
RASTEGAR, Ashgar: 10432106 ..................................................... 118
REDLICH, Carrie: 10304198 .......................................................... 119
REDMOND JR., D. Eugene: 10430474 ........................................... 265
REGAN, Lynne: 10019533 ............................................................... 150
REINKE, Valerie: 11289773 ............................................................ 51
RIERA, Antonio: 12588522 ............................................................. 228
RIM, David: 10415939 ................................................................. 206
RINDER, Henry: 10351815 ........................................................... 140
<table>
<thead>
<tr>
<th>Name</th>
<th>Employee Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>RINEHART, Jesse</td>
<td>10897277</td>
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<tr>
<td>SUTER, Lisa</td>
<td>10639098</td>
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</tbody>
</table>
SUTTON, Karen: 11832243 ................................................................. 194
SUTTON, Richard: 12768654 .......................................................... 129
SWEASY, Joann: 10347582 ............................................................... 324
SWIGART, Carrie: 10334356 ............................................................... 195

T

TADDEI, Tamar: 12012120 ................................................................. 129
TAGARE, Hemant: 10430049 ......................................................... 282
TAKYAR, Shervin (Seyedtaghi): 12477818 ........................................ 130
TAULWALKAR, Jaideep: 11268047 ................................................... 130
TAMBORLANE, William: 10315792 ............................................... 229
TANOUYE, Lynn: 10483293 .............................................................. 131
TATTERSALL, Peter: 10319753 .......................................................... 142
TAYLOR, Jane: 10404668 ................................................................. 271
TEBES, Jacob: 10402305 ................................................................. 271
TEK, Cenk: 12036022 ................................................................. 272
TESTANI, Jeffrey: 14506581 ........................................................... 131
TETRAUL T, Jeanette: 11384072 .................................................... 131
THOMAS, Jean-Leon: 13585861 ...................................................... 167
THOREEN, Carson: 14930391 ......................................................... 18
TIGELAAR, Robert: 10410992 ............................................................ 38
TINETTI, Mary: 10408391 ............................................................... 132
TIRZIU, Daniela: 12785178 .............................................................. 132
TOBIN, Daniel: 10984368 .............................................................. 132
TOKUNO, Hajime: 10434452 ............................................................ 167
TOMASSONI, Anthony: 12487916 .................................................... 43
TOMAYKO, Mary: 11437027 ............................................................. 39
TOMITA, Susumu: 12292858 ............................................................ 19
TOMMASINI, Steven: 14177121 ....................................................... 195
TOOMRE, Derek: 11434069 ............................................................. 12
TORMEY, Christopher: 11917345 .................................................... 142
TOWNSEND, Jeffrey: 12419083 ........................................................ 305
TROW, Terence: 10007259 .............................................................. 133
TSAI, Jack: 13297626 ................................................................. 272
TSCHUDI, Christian: 10151980 ......................................................... 306
TUFRO, Alida: 12687105 ................................................................. 230
TURK, Benjamin: 12003722 ............................................................ 238

V

VACA, Federico: 13198499 ............................................................... 44
VACCARINO, Flora: 10484211 ......................................................... 27
VALENTINO, Pamela: 15765652 ....................................................... 230
VAN DEN POL, Anthony: 10471614 ............................................. 178
VAN DYCK, Christopher: 10011526 ............................................. 272
VAN NESS, Peter: 10923049 .......................................................... 133
VASILIOU, Vasilis: 15326151 .......................................................... 306
VENKATESH, Arjun: 14451416 ........................................................ 44
VOLKMAR, Fred: 10405518 ............................................................. 27

W

WAJAPEYEE, Narendra: 13310903 .................................................... 209
WALKER, Charles: 11289943 .......................................................... 328
WALLS, Raymond: 15398571 .......................................................... 195
WALTHER, Zenta: 10251260 ............................................................ 209
WANG, Jimin: 10464746 ................................................................. 153
WANG, Tong: 10396916 ................................................................. 19
WANG, Zuoheng Anita: 13250757 .................................................... 307
WARNER, John: 10360434 ............................................................... 55
WAXMAN, Stephen: 10322626 ....................................................... 168
WEATHERBEE, Scott: 12627163 ..................................................... 53
WEEKS, Bevin: 11628736 ............................................................... 231
WEINZIMER, Stuart: 11628685 ....................................................... 231
WEISS, Pnina: 10322150 ................................................................. 231
WEISS, Robert: 10246568 ............................................................... 328
WEISSMAN, Sherman: 10403393 ................................................... 53
WEN, Li: 10194004 ................................................................. 133
WHANG, Peter: 12442560 ............................................................. 195
WHITE, Marney: 11858491 ............................................................ 273
WILSON, Francis: 10630479 ........................................................... 134
WILSON, Lynn: 10352869 .............................................................. 324
WIRA, Charles: 12254353 .............................................................. 44
WOLIN, Sandra: 10322099 ............................................................... 12
WOODS, Scott: 10387787 ............................................................ 273
WOOLSTON, Joseph: 10348653 ..................................................... 28
WU, Qianqi (Dan): 12288387 .......................................................... 238

X

XIAO, Andrew: 13310937 ............................................................... 53
XIANG, Yong: 11472557 ............................................................... 154
XU, Tian: 10151776 ................................................................. 54
XU, Xiangru: 12660721 ................................................................. 23
XU, Xiao: 14115037 ................................................................. 188

Y

YAGGI, Henry: 10356439 .............................................................. 134
YAN, Qin: 13089308 ................................................................. 210
YANG, Bao-Zhu: 11652094 ............................................................ 273
YANG, Xiaoyong: 12794800 ........................................................... 32
YAO, Gang-Qing: 10368237 ........................................................... 32
YAO, Jie: 13649339 ................................................................. 13
YARRBOUGH, Wendell: 14444769 ............................................. 318
YASUNO, Katsuhito: 12791247 ..................................................... 179
YONKERS, Kimberly: 11100155 .................................................... 274
YOUNG, Lawrence: 10025143 ..................................................... 134
YU, James: 10364412 ................................................................. 325
YU, Jun: 11153467 ................................................................. 135
YUH, David: 13959929 ............................................................... 318
YUN, Zhong: 11789488 ............................................................... 325

Z

ZECEVIC, Dejan: 10358139 ............................................................. 19
ZEISS, Caroline: 11091604 ............................................................ 33
ZELTERMAN, Daniel: 10292213 .................................................... 307
ZENISEK, David: 11506557 ............................................................. 20
ZHANG, Heping: 10464117 ........................................................... 307
ZHANG, HuiPing: 12012137 .......................................................... 274
ZHANG, Xiangru: 11153467 .......................................................... 210
ZHANG, Yongli: 10494887 ............................................................. 308
ZHAO, Hongyu: 11472557 ............................................................. 179
ZHU, Z. Jimmy: 12739499 ............................................................ 167
ZHUANG, Zhenwu: 13089614 ........................................................ 135
ZHAO, Hongyu: 12739499 ............................................................ 167
ZHUANG, Zhenwu: 13089614 ........................................................ 135
Listing of Faculty by Department

Anesthesiology ...............................................1
BARASH, Paul G: Abstract Number 10276981 .........1
FONTES, Manuel L: Abstract Number 10024293 .......1
HALASZYNSKI, Thomas M: Abstract Number 10334611 .....1
LAMOTTE, Robert H: Abstract Number 10396763 .......1
MILLER, Perry L: Abstract Number 10219521 ........2
NIKLASON, Laura E: Abstract Number 12285684 .......3
POPECUC, Wanda M: Abstract Number 11126216 .....3
RAMANI, Ramachandran: Abstract Number 11411578 .....3
SCHONBERGER, Robert B: Abstract Number 10770984 .....4
SHELLEY, Kirk H: Abstract Number 10259369 .........4
SILVERMAN, David G: Abstract Number 10285957 .....5
XU, Xiangru: Abstract Number 12660721 .........5

Cell Biology ..................................................6
BEVERSDORF, Joerg: Abstract Number 13192797 .......6
COLON-RAMOS, Daniel A: Abstract Number 12772343 .....6
DE CAMILLI, Pietro: Abstract Number 10349979 .......7
GUO, Shangqin: Abstract Number 13098505 ........7
HASHIMOTO, Carl: Abstract Number 10477190 .......7
JAMIESON, James D: Abstract Number 10261086 .....8
KING, Megan C: Abstract Number 13227841 .........8
KRISHNAMURTHY, Shyam S: Abstract Number 12785875 ...9
LIN, Chenxian: Abstract Number 14442372 .........9
LIN, Haifan: Abstract Number 12431102 ........9
LUSK, Charles P: Abstract Number 13226107 ......10
MARIAPPAN, Malaiyalam: Abstract Number 14444565 ...10
MELIA, Thomas: Abstract Number 12785212 .......11
QIU, Caihong: Abstract Number 12536247 .......11
ROTHMAN, James E: Abstract Number 12683688 .....11
TOOMRE, Derek K: Abstract Number 11434069 ......12
WOLIN, Sandra L: Abstract Number 10322099 .....12
YAO, Jie: Abstract Number 13649393 .........13
ZHANG, Yongli: Abstract Number 10656183 .........13

Cellular and Molecular Physiology .............13
BAGRIANTSEV, Slava: Abstract Number 14391542 .......13
CANESSA, Cecilia: Abstract Number 10437614 .......14
CAPLAN, Michael J: Abstract Number 10295858 .....14
COHEN, Lawrence B: Abstract Number 10396559 .....14
FORBUSH, Bill: Abstract Number 10352512 ........15
KARATEKIN, Erdem: Abstract Number 12784634 .......15
NITABACH, Michael N: Abstract Number 11863098 .....16
PIERBONE, Vincent A: Abstract Number 10946458 .......16
RINEHART, Jesse J: Abstract Number 10897277 ........17
SIGWORTH, Frederick J: Abstract Number 10479145 .....17
SINGH, Satinder K: Abstract Number 13395240 .......17
SLAYMAN, Clifford: Abstract Number 10399291 .......18
THOREEN, Carson: Abstract Number 14930391 .......18
TOMITA, Susumu: Abstract Number 12292858 .......19
WANG, Tong: Abstract Number 10396916 ........19
ZECEVIC, Dejan P: Abstract Number 10358139 .......19
ZENIxEK, David: Abstract Number 11506557 .......20

Child Study Center ........................................20
ANDERSON, George M: Abstract Number 10268583 .......20
BLOCH, Michael H: Abstract Number 11273521 ........21
BRITTO, Mia R: Abstract Number 12046647 ........21
CHAWARSKA, Katarzyna: Abstract Number 10076806 .....21
CLOSE, Ann L: Abstract Number 10338419 ........22
COMER, James P: Abstract Number 10393499 .......22
FERNANDEZ, Thomas V: Abstract Number 11079500 .......23
GILLIAM, Walter S: Abstract Number 10419730 .......23
LEBOWITZ, Eli R: Abstract Number 13509412 .......23
LECKMAN, James F: Abstract Number 10488206 .....24
LOMBROSO, Paul J: Abstract Number 10013668 ......24
MARANS, Steven: Abstract Number 10351798 .......24
MAYES, Linda C: Abstract Number 10422569 .....25
PELPHREY, Kevin: Abstract Number 12142748 .....25
PONCIN, Yann B: Abstract Number 12081631 .......26
SHIC, Frederick: Abstract Number 11527195 .....26
STUBBE, Dorothy: Abstract Number 10454767 ......27
VACCARINO, Flora M: Abstract Number 10484211 ......27
VOLKMAR, Fred R: Abstract Number 10405318 ......27
WOOLSTON, Joseph: Abstract Number 10348653 ......28

Comparative Medicine ..................................28
BOOTH, Carmen J: Abstract Number 11883651 ......28
COMPTON, Susan R: Abstract Number 10194300 ......28
DIEITRICH, Marcelo d: Abstract Number 12266355 .....29
DIXIT, Visha: Abstract Number 14667248 .....29
FERNANDEZ-HERNANDO, Carlos: Abstract Number 12196622 ...30
GAO, Xiao-Bing: Abstract Number 10079662 .......30
HORVATH, Tamas L: Abstract Number 10193443 ......30
LEVY, Ifat: Abstract Number 13129768 ........31
MCGRATH, James M: Abstract Number 10334271 .......31
RODEHEFFER, Matthew S: Abstract Number 13086792 .......31
YANG, Xiaoyong: Abstract Number 12794800 ...32
YAO, Gang-Qing: Abstract Number 10368237 .......32
ZEISS, Caroline J: Abstract Number 11091604 .....33

Dermatology ................................................33
ANTAYA, Richard J: Abstract Number 10630241 .......33
BOLOGNIA, Jean L: Abstract Number 10345899 .....33
BOSENBERG, Marcus W: Abstract Number 12648617 ...33
BUNICK, Christopher G: Abstract Number 12747659 .....34
CHOATE, Keith A: Abstract Number 10245259 .....34
COLEGIO, Oscar R: Abstract Number 10434333 .....34
COWPER, Shawn E: Abstract Number 11476989 ...35
EDELSON, Richard L: Abstract Number 10312273 .....35
GIRARDI, Michael: Abstract Number 10240266 .....35
HALABAN, Ruth: Abstract Number 10328950 .....36
IMAEDA, Suguru: Abstract Number 10311882 .....36
KO, Christine J: Abstract Number 12426937 .....37
LAZONt, Rossita: Abstract Number 10416721 .....37
LEFFEL, David: Abstract Number 10071485 .....37
MCNIIFF, Jennifer M: Abstract Number 10011407 .....38

Specialty Index 337
Emergency Medicine ........................................39

ABUJARAD, Fuad: Abstract Number 13596350 .......... 39
BERNSTEIN, Steven L: Abstract Number 13082395 .... 40
BRANDT, Cynthia A: Abstract Number 10474147 ....... 40
CHEUNG, Kai-Hoi: Abstract Number 10110925 ....... 40
CONE, David C: Abstract Number 10985473 ....... 41
DZIURA, James D: Abstract Number 10067833 ....... 41
EVANS, Leigh V: Abstract Number 10638333 ....... 41
MOORE, Christopher L: Abstract Number 11630810 .... 42
MOWAFI, Hani: Abstract Number 14967808 ....... 42
POST, Lori A: Abstract Number 12668014 ....... 42
SAFDAR, Basmah: Abstract Number 11240779 ....... 43
TOMASSONI, Anthony: Abstract Number 12487916 .... 43
VACA, Federico: Abstract Number 13198499 ....... 43
WIRA, Charles R: Abstract Number 12254353 ....... 44

Genetics ..................................................44

BALE, Allen E: Abstract Number 10016626 ....... 44
COOLEY, Lynn: Abstract Number 10182580 ....... 45
DIMAO, Daniel C: Abstract Number 10036261 ....... 45
GIRALDEZ, Antonio J: Abstract Number 12477801 .... 46
GRECO, Valentina: Abstract Number 12613478 ....... 46
HAMMARLUND, Marc: Abstract Number 12481385 .... 47
HORWICH, Arthur L: Abstract Number 10398004 .... 47
IVANOVA, Natalia B: Abstract Number 12627282 .... 47
KIDD, Kenneth K: Abstract Number 10468010 ....... 48
KRISHNASWAMY, Smita: Abstract Number 15619989 .... 48
LI, Peining: Abstract Number 11142094 ....... 49
LIFTON, Richard P: Abstract Number 10354994 ....... 49
LIU, Jun: Abstract Number 13091926 ....... 50
NOONAN, James: Abstract Number 12592466 ....... 50
PAN, Xinha: Abstract Number 10197387 ....... 51
REINKE, Valerie: Abstract Number 11289773 ....... 51
SEASHORE, Margaret R: Abstract Number 10326961 .... 52
SHEYMAN, Sherrie M: Abstract Number 10009299 .... 52
SUN, Zhaoxia: Abstract Number 10057030 ....... 52
WEATHERBEE, Scott D: Abstract Number 12627163 .... 53
WEISSMAN, Sherman M: Abstract Number 10403393 .... 53
XIAO, Andrew Z: Abstract Number 13301937 ....... 53
XU, Tian: Abstract Number 10151776 ....... 54

History of Medicine ......................................54

RADIN, Joanna: Abstract Number 14450702 ....... 54
ROGERS, Naomi: Abstract Number 10347786 ....... 55
WARNER, John H: Abstract Number 10360434 ....... 55

Immunobiology ........................................55

BOTHWELL, Alfred L: Abstract Number 10444091 ....... 55
CHEN, Lieping: Abstract Number 13515226 ....... 55
CHI, H Tian: Abstract Number 11851589 ....... 56
CRESSWELL, Peter: Abstract Number 10034697 ....... 57
FLAVER, Richard A: Abstract Number 10035904 ....... 57
HEROLD, Kevan: Abstract Number 12347564 ....... 57
IWASAKI, Akiko: Abstract Number 11273079 ....... 58
KAECH, Susan: Abstract Number 11899461 ....... 58
KLUGER, Martin S: Abstract Number 10272663 ....... 59
KRIEGEL, Martin A: Abstract Number 11845197 ....... 59
MEFFRE, Eric R: Abstract Number 13088050 ....... 59
PEREIRA, Joao P: Abstract Number 13509395 ....... 60
POBER, Jordan S: Abstract Number 10264452 ....... 60
ROTHLIN, Carla V: Abstract Number 13141277 ....... 60
SCHATZ, David G: Abstract Number 10365211 ....... 61

Internal Medicine .........................................61

ABRAHAM, Clara: Abstract Number 12631719 ....... 61
ABU-KHALAF, Maysa M: Abstract Number 11629110 .... 62
AHASIC, Amy M: Abstract Number 10791129 ....... 62
AKAR, Joseph G: Abstract Number 10330922 ....... 62
AGUN, Kathleen M: Abstract Number 11385683 ....... 63
ALLORE, Heather G: Abstract Number 11267712 ....... 63
ALPERN, Robert J: Abstract Number 11961084 ....... 64
ALTICE, Frederick L: Abstract Number 10415922 ....... 64
ANANTH, Meena: Abstract Number 10476918 ....... 65
ARONSON, Peter S: Abstract Number 10251566 ....... 65
ASKENASE, Philip W: Abstract Number 10249203 ....... 66
ASLANIAN, Harry R: Abstract Number 11088238 ....... 66
BANACH, David B: Abstract Number 11581425 ....... 66
BECKER, William C: Abstract Number 11409946 ....... 67
BELPERRON, Alexia A: Abstract Number 10093007 ....... 67
BEN MAMOUN, Chouki: Abstract Number 13085041 ....... 67
BENDER, Jeffrey R: Abstract Number 10206633 ....... 68
BERGWITZ, Clemens W: Abstract Number 15141259 ....... 68
BERLAND, Gretchen K: Abstract Number 11477079 ....... 69
BINDER, Henry J: Abstract Number 10238221 ....... 69
BOCKENSTEDT, Linda K: Abstract Number 10386563 ....... 69
BOGAN, Jonathan S: Abstract Number 11635332 ....... 70
BOYER, James L: Abstract Number 10484517 ....... 70
BREWSTER, Ursula C: Abstract Number 11637126 ....... 71
BRITTO-LEON, Clemente J: Abstract Number 12730302 ....... 71
BUCALA, Richard: Abstract Number 11521841 ....... 71
BURTNESS, Barbara A: Abstract Number 10405586 ....... 72
CANTLEY, Lloyd G: Abstract Number 11251115 ....... 72
CHAO, Herta H: Abstract Number 11087541 ....... 72
CHAUDHRY, Sarwat I: Abstract Number 11366069 ....... 73
CHUAN, Chuan: Abstract Number 12053472 ....... 73
CHUPP, Geoffrey L: Abstract Number 10006511 ....... 74
CLINE, Gary W: Abstract Number 10444805 ....... 74
COHN, Lauren E: Abstract Number 10438226 ....... 74
CONCATO, John P: Abstract Number 10329987 ....... 75
COONEY, Leo M: Abstract Number 10037927 ....... 75
CRAFT, Joseph E: Abstract Number 10370124 ....... 75
CROWLEY, Susan T: Abstract Number 10269790 ....... 76

338 Specialty Index
ROCHESTER, Carolyn: Abstract Number 1012557 .............................. 121
SAKRI, Carine J: Abstract Number 11765042 .............................. 122
SAMUEL, Varman T: Abstract Number 1191020 .............................. 122
SANKEY, Christopher B: Abstract Number 11623330 .............................. 127
SAUER, Maor: Abstract Number 12386970 ....................................... 123
SCHWARTZ, Jeremy I: Abstract Number 12387055 ....................................... 123
SHAW, Albert C: Abstract Number 11479034 ....................................... 123
SHEINOI, Sheela: Abstract Number 11582479 ....................................... 124
SHERWIN, Robert S: Abstract Number 10253861 ....................................... 124
SHULMAN, Gerald I: Abstract Number 10412267 ....................................... 124
SIEGEL, Mark D: Abstract Number 10301172 ....................................... 125
SINER, Jonathan M: Abstract Number 11626105 ....................................... 125
SINUSAS, Albert J: Abstract Number 10284325 ....................................... 125
SIOFAIR, Andre N: Abstract Number 10349894 ....................................... 126
SOMLO, Stefan: Abstract Number 10973760 ....................................... 126
SOROKA, Carol J: Abstract Number 10390813 ....................................... 127
SOUFER, Robert: Abstract Number 10272731 ....................................... 127
SPIRLI, Carlo: Abstract Number 12110431 ....................................... 127
SPRINGER, Sandra A: Abstract Number 10639081 ....................................... 128
STROUT, Matthew P: Abstract Number 11623228 ....................................... 128
SUTER, Lisa G: Abstract Number 10639098 ....................................... 129
SUTTON, Richard: Abstract Number 12768654 ....................................... 129
TADDEI, Tamar H: Abstract Number 12011210 ....................................... 130
TAYKAR, Seryn (Seyedtaghi): Abstract Number 12477818 ....................................... 130
TALWALKAR, Jaideep: Abstract Number 11268047 ....................................... 130
TANOUÉ, Lynn: Abstract Number 10483293 ....................................... 131
TESTANI, Jeffrey M: Abstract Number 14506581 ....................................... 131
TETRAULT, Jeanette M: Abstract Number 11384072 ....................................... 131
TINETTI, Mary E: Abstract Number 10408391 ....................................... 132
TIRZIU, Daniela C: Abstract Number 12785178 ....................................... 132
TOBIN, Daniel G: Abstract Number 10984368 ....................................... 132
TROW, Terence K: Abstract Number 10007259 ....................................... 133
VAN NESS, Peter H: Abstract Number 10923049 ....................................... 133
WEN, Li: Abstract Number 10194004 ....................................... 133
WILSON, Francis P: Abstract Number 10630479 ....................................... 134
YAGGI, Henry K: Abstract Number 10356439 ....................................... 134
YOUNG, Lawrence H: Abstract Number 10025143 ....................................... 134
YU, Jun: Abstract Number 11153467 ....................................... 135
ZHOU, Zhenwu: Abstract Number 13089614 ....................................... 135
RINDER, Henry M: Abstract Number 10351815 ....................................... 140
SMITH, Brian R: Abstract Number 10282319 ....................................... 140
SNYDER, Edward L: Abstract Number 10267801 ....................................... 141
STACK, Gary E: Abstract Number 10350676 ....................................... 141
TATTERSALL, Peter J: Abstract Number 10319753 ....................................... 142
TORMEY, Christopher A: Abstract Number 11973451 ....................................... 142

Microbial Pathogenesis .......................................................... 142
GALAN, Jorge E: Abstract Number 10643722 ....................................... 142
GOODMAN, Andrew: Abstract Number 13621595 ....................................... 143
GROSMAN, Eduardo: Abstract Number 13497699 ....................................... 143
LINDENBACH, Brett D: Abstract Number 12451043 ....................................... 143
MACMICKING, John: Abstract Number 11980865 ....................................... 144
MOTHE, Walter H: Abstract Number 11467185 ....................................... 144
ROY, Craig R: Abstract Number 10643756 ....................................... 145

Molecular Biophysics and Biochemistry .................................................. 145
BASEGGA, Susan J: Abstract Number 10406640 ....................................... 145
BERRO, Julien: Abstract Number 12659344 ....................................... 145
DE LA CRUZ, Enrique M: Abstract Number 11434290 ....................................... 146
ENGELMAN, Donald M: Abstract Number 10478142 ....................................... 146
GAREN, Alan: Abstract Number 10308414 ....................................... 146
GERSTEIN, Mark B: Abstract Number 10324241 ....................................... 147
HOCHEMAN, Mark W: Abstract Number 11211107 ....................................... 147
HODGE, Jonathan: Abstract Number 14570127 ....................................... 148
KOELLE, Michael R: Abstract Number 10488461 ....................................... 148
KOLESKE, Anthony J: Abstract Number 10934133 ....................................... 148
KONIGSBERG, William H: Abstract Number 10279310 ....................................... 149
MIRANKER, Andrew: Abstract Number 10852924 ....................................... 149
NEUROBAUER, Karla M: Abstract Number 14444905 ....................................... 150
REGAN, Lynne J: Abstract Number 10019533 ....................................... 150
SCHLIEKER, Christian: Abstract Number 12384866 ....................................... 150
SIMON, Matthew: Abstract Number 14403395 ....................................... 151
SINDELAR, Chuck V: Abstract Number 13594531 ....................................... 151
SOLL, Dieter G: Abstract Number 10415565 ....................................... 151
SOLOMON, Mark J: Abstract Number 10296752 ....................................... 152
STEITZ, Joh A: Abstract Number 10437325 ....................................... 152
STEITZ, Thomas A: Abstract Number 10415871 ....................................... 152
SUNG, Patrick: Abstract Number 11697144 ....................................... 153
WANG, Jimin: Abstract Number 10464746 ....................................... 153
XIONG, Yong: Abstract Number 11472557 ....................................... 154

Neurology .......................................................... 154
ALKAWADRI, Rafeed: Abstract Number 14394585 ....................................... 154
BAEHRING, Joachim M: Abstract Number 11617618 ....................................... 155
BECKER, Kevin P: Abstract Number 12173195 ....................................... 155
BENJAMIN, Christopher F: Abstract Number 15450982 ....................................... 155
BLACK, Joel A: Abstract Number 10461533 ....................................... 156
BLUMENFELD, Hal: Abstract Number 10449956 ....................................... 156
BROWN, Franklin C: Abstract Number 12641341 ....................................... 156
CAFFERTY, William B: Abstract Number 12046902 ....................................... 157
CHANDRA, Seeganga S: Abstract Number 12463691 ....................................... 157
COTSAPAS, Chris: Abstract Number 13424089 ....................................... 158
DEARBORN-TOMAZOS, Jennifer L: Abstract Number 15314332 ....................................... 158
DIB-HAJJ, Sulayman D: Abstract Number 10390762 ....................................... 159

Laboratory Medicine .......................................................... 135
CAMPBELL, Sheldon M: Abstract Number 10433551 ....................................... 135
CHANG, Sandy: Abstract Number 13382099 ....................................... 136
COTMORE, Susan F: Abstract Number 10106913 ....................................... 136
EID, Tore: Abstract Number 11270648 ....................................... 137
EISENORTH, Stephanie C: Abstract Number 10370430 ....................................... 137
HABERMAN, Ann M: Abstract Number 10416313 ....................................... 137
HENDRICKSON, Jeanne: Abstract Number 14876111 ....................................... 138
HOLM, John G: Abstract Number 10468843 ....................................... 139
KAVATHAS, Paula B: Abstract Number 10400146 ....................................... 139
KRAUSE, Diane S: Abstract Number 10344131 ....................................... 139
LANDRY, Marie-Louise: Abstract Number 10019975 ....................................... 139
CAI, Guoping: Abstract Number 13115964 ...........................................196
CHOI, Young: Abstract Number 11379210 ...........................................197
COSTA, Jose: Abstract Number 10454036 ...........................................197
FINBERG, Karin E: Abstract Number 10313616 ......................................197
HAO, Luming: Abstract Number 10670208 ..........................................197
HARIGOPAL, Malini: Abstract Number 11833263 ....................................197
HOMER, Robert J: Abstract Number 10315333 ......................................197
HUDNALL, Stanley D: Abstract Number 13227212 ..................................197
HUI, Pei: Abstract Number 10340918 ..................................................198
JAIN, Dhanapat: Abstract Number 10113662 ........................................199
KATZ, Samuel G: Abstract Number 13033718 ......................................200
KLEINSTEIN, Steven H: Abstract Number 12319599 ................................200
KLUGER, Yuval: Abstract Number 11124278 ........................................201
KOWALSKI, Diane: Abstract Number 11261825 ....................................201
KRAUTHAMMER, Michael O: Abstract Number 11912806 .....................201
KRYIAKIDES, Themis: Abstract Number 11912806 ................................202
MADRI, Joseph A: Abstract Number 10263381 ....................................202
MARCHESI, Vincent T: Abstract Number 10260797 ................................203
MEANS, Robert: Abstract Number 12030021 .......................................203
MIN, Wang: Abstract Number 10008517 ..............................................203
MITCHELL, Kisha A: Abstract Number 12613580 ....................................204
MOECKEL, Gilbert: Abstract Number 12763367 .....................................204
MORROW, Jon S: Abstract Number 10394468 .......................................204
NGUYEN, Don: Abstract Number 13361563 .........................................205
PINTO, Marguerite M: Abstract Number 11379703 ................................205
POLITI, Katrena: Abstract Number 13396209 .......................................205
RIMM, David L: Abstract Number 10415939 ........................................206
ROBERT, Marie E: Abstract Number 10413576 .....................................207
ROSE, John K: Abstract Number 10427074 .........................................207
SHADEL, Gerald S: Abstract Number 11913180 ....................................207
SINARD, John H: Abstract Number 10411077 .......................................208
SKLAR, Jeffrey L: Abstract Number 11832328 .......................................208
STERN, David F: Abstract Number 10301087 .......................................208
WAJAPYEYEE, Narendra: Abstract Number 13310903 ............................209
WALTHER, Zentai: Abstract Number 10251260 ....................................209
YAN, Qin: Abstract Number 13089308 ................................................210
ZHANG, Xuchen: Abstract Number 11158380 .......................................210

Pediatrics .................................................................210

AMEEN, Nadia A: Abstract Number 12998188 ......................................210
ANDIMAN, Warren A: Abstract Number 10253963 ................................211
ARNOLD, Linda D: Abstract Number 11088204 ......................................211
ASNES, Andrea G: Abstract Number 12264434 .....................................212
ASNES, Jeremy D: Abstract Number 12167993 .....................................212
AUERBACH, Marc: Abstract Number 13235872 .....................................212
BAMFORD, Nigel: Abstract Number 15866819 .....................................212
BAZZY-ASAAD, Aliya: Abstract Number 10382262 ................................212
BEARDSLEY, George P: Abstract Number 10312205 ................................213
BOGUE, Clifford W: Abstract Number 10380528 ....................................213
BRUECKNER, Martina: Abstract Number 10365636 ................................214
BRUSCIA, Emanuel: Abstract Number 11635230 ...................................214
CAPPLESO, Michael: Abstract Number 10484789 ................................215
CAPRIO, Sonia: Abstract Number 10319039 ..........................................215
CARPENTER, Thomas O: Abstract Number 10425051 ................................215
CENGIZ, Edo: Abstract Number 12595662 ............................................216
CHEN, Lei: Abstract Number 10946050 ................................................216
COLSON, Eve R: Abstract Number 10933980 ........................................217
EGAN, Marie E: Abstract Number 10280636 ........................................217
EHRENKRAZN, Richard A: Abstract Number 10319464 ..........................217

EKONG, Udeme D: Abstract Number 14596749 .....................................218
ELDER, Robert W: Abstract Number 1485936 .......................................218
EL-GUIDY, Ayman S: Abstract Number 10002550 ..................................218
ESQUIBES, Americo E: Abstract Number 11432658 ................................219
FAHEY, John T: Abstract Number 10323647 .........................................219
FAUSTINO, Edward Vincent S: Abstract Number 11834402 ....................219
FORSYTH, Brian W: Abstract Number 10460037 ....................................220
FRIEDMAN, Alan H: Abstract Number 10412862 ...................................220
GALLAGHER, Patrick G: Abstract Number 10392751 ................................220
GIULIANO JR, John S: Abstract Number 12757502 ................................221
GOODWIN, Julie E: Abstract Number 12011661 .....................................221
GRUEN, Jeffrey R: Abstract Number 10382449 .....................................222
GUPTA, Abha R: Abstract Number 12285514 ........................................222
HATTANGADI, Shilpa: Abstract Number 14476661 ................................222
HSIAO, Allen L: Abstract Number 10672350 .........................................223
JOHNSTON, Lindsay C: Abstract Number 13251845 ................................223
KHOKHA, Mustafa K: Abstract Number 12302344 ................................223
KUPFER, Gary: Abstract Number 12554845 .........................................224
LANGHAN, Melissa: Abstract Number 12011729 ..................................224
LISTER, George: Abstract Number 10381718 .......................................225
MAKHANI, Naila: Abstract Number 14798947 .......................................225
MARKS, Asher M: Abstract Number 14886038 .......................................225
MENT, Laura R: Abstract Number 10347905 .........................................225
MERCURIO, Mark R: Abstract Number 10401421 ..................................226
MILLER, Geoffrey: Abstract Number 12053821 .....................................226
MILLER, I George: Abstract Number 10405841 .....................................226
PAINTSIL, Elia: Abstract Number 11628073 ............................................227
PASHANKAR, Dinesh S: Abstract Number 12056541 ................................227
PASHANKAR, Farzana D: Abstract Number 12094672 ............................227
PHATAK, Uma P: Abstract Number 12588437 .......................................228
RIERA, Antonio: Abstract Number 12588522 .......................................228
SHAPIRO, Eugene D: Abstract Number 10303450 ..................................228
SHAYWITZ, Bennett A: Abstract Number 10445060 ................................229
SHAYWITZ, Sally E: Abstract Number 10299981 .....................................229
TAMBORLANE, William V: Abstract Number 10315792 ..........................229
TUFRO, Alda: Abstract Number 12687105 ............................................230
VALENTINO, Pamela L: Abstract Number 15765652 ...............................230
WEEKS, Bevin P: Abstract Number 11628736 .......................................231
WEINZIMER, Stuart A: Abstract Number 11628685 ................................231
WEISS, Pina G: Abstract Number 10322150 ..........................................231
ZHOU, Zhou: Abstract Number 10423827 ............................................231

Pharmacology ...............................................................232

ANDERSON, Karen S: Abstract Number 10365364 ..................................232
BENNETT, Anton M: Abstract Number 10276760 ................................233
BOGGON, Titus J: Abstract Number 12227340 .......................................233
CALDERWOOD, David A: Abstract Number 11851759 ............................234
CHENG, Yung-Chi: Abstract Number 10036975 .....................................234
EHRlich, Barbara E: Abstract Number 10038165 ...................................235
HA, Ya: Abstract Number 11476263 ..................................................235
HOLME, James R: Abstract Number 10434688 .....................................235
Kaczmarek, Leonard K: Abstract Number 10473280 ................................236
LOLIS, Elias: Abstract Number 10302957 .............................................236
RUDNICK, Gary: Abstract Number 10342074 .......................................236
SCHLESSINGER, Joseph: Abstract Number 11302081 ............................237
SESSA, William C: Abstract Number 10391923 .....................................237
TURK, Benjamin E: Abstract Number 12003722 .....................................238
WU, Dianqing (Dan): Abstract Number 12288387 ................................238
WILSON, Lynn D: Abstract Number 10352869 .............................. 324
YU, James B: Abstract Number 10364412 ........................................ 325
YUN, Zhong: Abstract Number 11789488 ................................. 325

Urology ................................. 326

CHAI, Toby C: Abstract Number 14574428 .................................. 326
COLBERG, John W: Abstract Number 10446930 .......................... 326
FOSTER, Harris E: Abstract Number 10381616 .............................. 326
HITTELMAN, Adam B: Abstract Number 12772071 ........................ 327
MOTAMEDINIA, Piruz: Abstract Number 15645564 ........................ 327
SHUCH, Brian M: Abstract Number 14697491 .............................. 327
SINGH, Dinesh: Abstract Number 12052002 .................................. 328
WALKER, Charles N: Abstract Number 11289943 .......................... 328
WEISS, Robert M: Abstract Number 10246568 .............................. 328