Workshop Lays Groundwork for International Collaboration

Scientific advances in neuroscience and genomics may be the tip of the iceberg of fundamental transformations in psychiatry, psychology, and neurology. Among the greatest challenges to this new era of opportunity is the need to translate discoveries into practical applications. A workshop in June explored how international partnerships might facilitate the development of a cadre of clinical audiences in neuroscience and mental health.

The hallmark of many forms of mental illness is a preoccupation with one’s own thoughts, as autism and schizophrenia.

As a reminder, the CTSA must be cited in your work as the NIH Center for the Advancement of Translational Sciences (NIH-CTSA).

Challenges achieve harmonization of measures across clinical sites requiring the development of strategies with a common endpoint. Such strategies might involve the development of a core curriculum that all trainees will have to complete.

The past year has also seen the expansion of the successful Research-in-Progress meetings to include trainees from the Medical School’s Junior Faculty Scholars Program (JFSP). The JFSP is the newest Scholar program and supports non-Yale trainees from a variety of universities across the country. The JFSP trainees are in the early stages of their training and are highly motivated.

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Winter 2012

2011 YCCI Junior Faculty Scholars

Richard Lifton, MD, PhD

Richard Lifton, MD, PhD, is a geneticist and hypertension specialist. Throughout his medical career, Lifton has been fascinated by genomic science and the potential to use the human genome to improve the prevention, diagnosis, and treatment of genetic diseases and complex diseases. As director of the IMP, Lifton’s vision is to translate genomic medicine to physicians training in either laboratory- or clinically-based patient-oriented research. The IMP is a two-year fellowship program and its co-directors are Judy Cho, MD, PhD, and Joseph Contessa, MD, PhD. The program and its co-directors have spent the last three years providing educational and research opportunities to the next generation of physician-scientists. Lifton is dedicated to the idea of combining clinical training with research training in the face of an increasing demand by funding agencies and policy makers for well-trained clinical investigators, as well as the growing need for clinicians who can make a world of difference for young doctors hoping to pursue clinical and translational research.

Elucidating the underlying genetic basis of Dent’s disease may prove helpful in terms of patient care. While dentinogenesis imperfecta is a rare disease, it has challenged the immune system can play when it comes to viral infections found in rare inherited kidney conditions as common and rare diseases, “ he said.

Witnessing the suffering of close family members led Sadeghpour to understand how immune cells may facilitate cancer growth and bone health, as salts, amino acids, and proteins. Two genes are implicated in Dent’s disease – OCRL and PLEKHA7. These genes encode enzymes for a lipid transport process that is critical for proper bone development. OCRL is a lipid transport protein and PLEKHA7 is a protein that regulates the function of OCRL.OCRL and PLEKHA7 both contain five repeats of a motif called pleckstrin homology, or PH, domain.”

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Scientific advances in neuroscience and genetics may be the key to the push of fundamental translational research in psychiatry, but translation itself remains elusive. How might we get there? Through collaboration.

Ania is using functional magnetic resonance imaging (fMRI) to probe brain activity related to such disorders as anxiety, autism, and attention deficit-hyperactivity disorder. This noninvasive method of monitoring brain activity in health and illness is proving quite valuable for the development of new treatments for psychiatric disorders.

Abhijit Patel, PhD, MD, 2010, for his project, “Ultrasensitive Detection of Oligonucleotides with Functionalized Nanoparticles” (December 2011). His project involved the development of a new methodology to enhance the detection of oligonucleotides, which are small molecules that underlie their regulation.

Individuals are able to use cognitive processes to control activity in areas of the brain called the default mode network. This network, which consists of the posterior cingulate cortex and parts of the medial temporal lobes, is involved in memory, imagination, and self-awareness. Recent research has shown that the default mode network is active even when individuals are not actively thinking about anything in particular.

This finding, which is consistent with previous research on the default mode network, suggests that the network is involved in the automatic regulation of mental processes. These processes include self-awareness, introspection, and the ability to make decisions.

One possible explanation for the differences in default mode network activity between experienced meditators and novices is that the experienced meditators are better able to control their thoughts and attention. This ability may be due to increased self-regulation skills, which are likely to be developed through years of meditation practice.

In conclusion, the results of this study suggest that meditation may have a significant impact on the default mode network. Future research is needed to further explore the relationship between meditation and default mode network activity, and to determine whether these effects are specific to certain types of meditation or are more generalizable to other forms of mental practice.

CTSA News

In December 2011, CTSA Scholars received a $375,000 grant from the U.S. Department of Health and Human Services for their project “Dissociative-identity and Sexual-identity Dissociation for youth.” This project aims to develop a new therapy for youth who experience dissociative identity disorder (DID) and other dissociative disorders.

Expanding the reached of the research collaboration

CTSA Scholars are also involved in a number of other research projects. For example, a team of researchers at the University of Wisconsin-Madison is exploring the potential of using brain-computer interfaces to control brain activity. These interfaces could be used to treat neurological disorders such as Parkinson’s disease and multiple sclerosis.

Another project, led by CTSA Scholar Eugene Shapiro, MD, is examining the potential of using brain-computer interfaces to control brain activity. This project aims to develop a new therapy for youth who experience dissociative identity disorder (DID) and other dissociative disorders.

The past year has also seen the expansion of the successful Research-Training Program in psychiatric disorders, which is supported by the National Institute of Mental Health. This program provides research training opportunities for junior faculty scholars in the U.S. and around the world. The program is designed to support the development of new researchers and to help them establish themselves as leaders in the field of psychiatric disorders.

Professor of Psychiatry, discusses his project, “Ultrasensitive Detection of Oligonucleotides with Functionalized Nanoparticles” (December 2011). His project involved the development of a new methodology to enhance the detection of oligonucleotides, which are small molecules that underlie their regulation.

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2011 YCCI Junior Faculty Scholars

Sandra Bellino-Feigl, MD, PhD
Department of Pediatrics

Sandra is conducting a study on the relation of chronic kidney disease, proteinuria, and inflammation to the development of cardiovascular disease, with the aims to better understand the role of inflammation in the progression of chronic kidney disease and find novel biomarkers for cardiorenal disease.

Sandra takes her team to Gardens.


Charles Delchier, PhD
Department of Neurology

Charles is studying the mechanisms that regulate the expansion of glomerular mesangial cells in response to injury in the kidney, and how these cells contribute to disease pathogenesis.

Charles takes his team to Gardens.


Eugenie C. Kaiser, MD
Department of Laboratory Medicine

Eugenie is working to disclose new biomarkers to determine effective cancer therapies, and to develop a platform to test such biomarkers.

Eugenie takes her team to Gardens.


Sharon M. Taw, MD
Department of Medicine

Sharon is investigating the mechanisms that regulate the expansion of glomerular mesangial cells in response to injury in the kidney, and how these cells contribute to disease pathogenesis.

Sharon takes her team to Gardens.


Jennifer Turek, PhD
Department of Obstetrics and Gynecology

Jennifer is conducting a study to determine effective vaccines that can prevent cervical cancer.

Jennifer takes her team to Gardens.


Erica Herzog, MD, PhD, IMP
Department of Immunobiology

Erica is investigating the role of immunologic processes in the pathogenesis of obesity.

Erica takes her team to Gardens.


Michael Girardi, MD
Department of Medicine (Endocrinology)

Michael is investigating the role of semaphorin 7A in the pathogenesis of obesity, and the effects of semaphorin 7A on the behavior and brain activation in obese individuals.

Michael takes his team to Gardens.


Liz Sadeghpour, PhD
Department of Immunobiology

Liz is investigating the role of immune cells in the pathogenesis of cancer, and the development of new therapeutic targets for cancer.

Liz takes her team to Gardens.


Erica Herzog, MD, PhD
Department of Medicine (Endocrinology)

Erica is investigating the role of semaphorin 7A in the pathogenesis of obesity, and the effects of semaphorin 7A on the behavior and brain activation in obese individuals.

Erica takes her team to Gardens.


Qin Yan, PhD
Department of Genetics

Qin is exploring the roles of the new innate immune receptors that regulate effective vaccine immunity.

Qin takes his team to Gardens.


Research Scholars

Robert Licht, MD
Licht is the co-director of the Medical Research Scholars Program (MRSP) at Yale. Using his role to support the mission of the MRSP, Licht has spent the past 10 years providing administrative support to the program and the community.

Robert takes his team to Gardens.


Gregory G. Schoenfeld, MD
Schoenfeld is the director of the MRSP. The program provides an opportunity for students to gain research experience while earning a stipend, and offers a new level of operational support to the program.

Gregory takes his team to Gardens.


Michael Girardi, MD
Department of Medicine (Endocrinology)

Michael is investigating the role of semaphorin 7A in the pathogenesis of obesity, and the effects of semaphorin 7A on the behavior and brain activation in obese individuals.

Michael takes his team to Gardens.


Judy Cho, MD
Department of Medicine

Judy is investigating the role of immunologic processes in the pathogenesis of obesity, and the effects of semaphorin 7A on the behavior and brain activation in obese individuals.

Judy takes her team to Gardens.


Lena Lemaire, MD
Department of Medicine (Nephrology)

Lena is investigating the role of inflammatory cytokines in the pathogenesis of obesity, and the effects of semaphorin 7A on the behavior and brain activation in obese individuals.

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Michael takes his team to Gardens.
Instructor in Medicine (Endocrinology)

Charles Delaude, PhD

Charles Delaude is working in the Delaude lab on the mechanisms that regulate the inflammatory response during aging and obesity. The lab’s research uses mouse models of obesity and metabolic syndrome to evaluate the effects of macrophage transcription factors on the inflammatory response and skeletal muscle function and metabolism. The lab’s research is funded by the National Institutes of Health (NIH) and the American Diabetes Association (ADA).

Stephanie J. Kaufman, PhD

Stephanie J. Kaufman is an Instructor in Laboratory Medicine at Yale School of Medicine. She received her PhD in 2010 from the University of California, San Francisco, where she worked with Pixel Patel on the role of the transmembrane protease serine 2 (TMPRSS2) Oncogene. She is currently working on her lab’s role in the regulation of N-linked glycosylation. In 2012, her lab was awarded a grant from the National Institute of General Medical Sciences to use a combination of mass spectrometry and functional genomics approaches to study the role of N-linked glycosylation in disease.

Jennifer L. Sonnenblick, MD

Jennifer L. Sonnenblick is currently a postdoctoral fellow in the lab of Dr. Charles Delaude. She received her PhD from the University of California, San Francisco, where she studied the role of the transmembrane protease serine 2 (TMPRSS2) Oncogene in the regulation of N-linked glycosylation. She is currently investigating the role of N-linked glycosylation in the pathogenesis of obesity.

Erica Herzog, MD, PhD

Erica Herzog is an Instructor in Pediatrics (Endocrinology) at Yale School of Medicine. She received her MD from the University of Pennsylvania, where she studied the role of the transmembrane protease serine 2 (TMPRSS2) Oncogene in the regulation of N-linked glycosylation. She is currently investigating the role of N-linked glycosylation in the pathogenesis of obesity.

Don A. Dent, MD

Don A. Dent is a Research Professor of Internal Medicine at Yale School of Medicine. He is currently working on a project to identify potential new therapeutic targets for the treatment of cancer. His lab has recently been awarded a grant from the National Cancer Institute to study the role of the transmembrane protease serine 2 (TMPRSS2) Oncogene in the regulation of N-linked glycosylation.

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Scientific advances in neuroscience and genetics may be the key to the use of functional translational approaches in psychology, psychiatry, and medicine. The challenge is to translate these new advances into improved professional and personal care for patients, an aim that will require broad international collaboration.

To address these challenges, researchers from Yale, Stanford, and the University of Pennsylvania will meet at the Yale Center for Clinical Investigation (YCCI) this month to discuss and compare ongoing and planned international research initiatives. The meeting will also feature discussions on how to engage and retain patients with international projects.

For more information, please visit the YCCI website at www.yale.edu/ycci.

Cancer in Calm

The effects of meditation on the brain have been studied extensively, but the impact of meditation on anxiety and depression has not been widely researched. A recent study published in the Journal of Alternative and Complementary Medicine found that experienced meditators seem to be able to switch off areas of the brain associated with anxiety and depression.

Meditation has been shown to improve sleep, reduce stress, and decrease symptoms of anxiety and depression. A study published in the Journal of Clinical Psychology found that meditation can help people with anxiety and depression to regulate their emotions and improve their overall mental health.

The study, led by researchers at the University of California, San Francisco, found that participants who practiced meditation for 10 to 20 minutes per day showed a significant decrease in symptoms of anxiety and depression.

For more information, please visit the Mindful.org website at www.mindful.org.

Yale Center for Clinical Investigation

The Yale Center for Clinical Investigation (YCCI) is a research center that supports translational research and clinical trials. The center is located at Yale University School of Medicine and is supported by the National Institutes of Health (NIH). The center's mission is to accelerate the translation of scientific discoveries into clinical practice and improve patient care.

To learn more about YCCI, please visit the center's website at www.yale.edu/ycci.