High Impact Health Findings

Our investigators have completed 69 studies; 7 more are ongoing. A selection of our findings includes:

**GENETIC MARKERS SIGNAL DEGREE OF BREAST CANCER CELLS’ INVASIVENESS**

Dr. Harriet Kluger identified genetic markers that correlate with breast cancer cells’ varying capability to spread to other cells and parts of the body. Health care providers are using her analytic technique that screens thousands of genes simultaneously to inform decisions on when chemotherapy is necessary and when it can be avoided.

**WOMEN FARE WORSE THAN MEN AFTER HEART BYPASS SURGERY**

Dr. Viola Vaccarino discovered that women recovering from heart bypass surgery suffer more pain, infection, lower physical functioning and twice the likelihood of hospital readmission. Her results — the first to show gender differences in heart bypass surgery recovery — alerted the cardiology world and prompted care givers to ensure that women recovering from heart bypass complete cardiac rehabilitation, which dramatically reduces mortality after a heart attack.

**ADEQUATE PROTEIN IS NECESSARY FOR WOMEN’S BONE HEALTH**

Dr. Karl Insogna's surprising results showed that diets based exclusively on soy (vegetable) protein rather than animal protein can reduce calcium absorption, necessary for bone health, unless care is taken to include essential amino acids. This is particularly important for post-menopausal women who tend to consume less than 25 percent of the recommended daily allowance of calcium and who face greater osteoporosis-related risks than men. His results led directly to ongoing work to develop dietary supplements and drug discovery to prevent osteoporosis.

**ENDOMETRIAL MARKER PREDICTS RECEPTIVITY TO EMBRYO IMPLANTATION**

Reproductive health research initiated by Dr. Harvey Kliman to treat infertility found biochemical markers highly predictive of the endometrium’s receptivity to embryo implantation. Using the association of these markers with the likelihood of successful implantation in this mucous membrane lining of the uterus, he developed a widely used test that guides physicians and patients in treating infertility.

**GENDER DIFFERENCES AFFECT SMOKING BEHAVIOR AND CESSION**

In studies now influencing the national direction of smoking cessation approaches for women, Dr. Sherry McKee identified gender differences in the perceived risks for women quitting smoking — including not being able to manage negative mood, stress and weight gain. These innovative studies re-focused smoking cessation therapies for women on what women found most difficult about quitting contrasted with men and resulted in a new National Institutes of Health specialized center of research on gender-specific treatment and drug discovery to help women quit smoking.

**FOCUSED ON WOMEN WHO DO NOT HAVE RECOMMENDED MAMMOGRAPHY SCREENING FOR EARLY DETECTION OF BREAST CANCER**

Dr. Peter Salovey found that health messages tailored to individual women’s information-processing styles increase mammography rates. In research that continues to have far-reaching implications, persuasiveness of positively framed messages (if you get a mammogram, you will live to see your grandchildren) vs. negatively framed messages (if you don’t get a mammogram, you may
not live to see your grandchildren), when matched to processing styles, resulted in greater screening utilization. This approach is now incorporated into the design of messages motivating countless women to seek breast cancer screening and in other successful health-promotion messages.

SEVERE STRESS IN ADOLESCENCE CAN ALTER BRAIN CIRCUITRY INVOLVED IN REGULATING MOOD
Dr. Hilary Blumberg’s study located effects on the brain of severe childhood stress which are greater in girls than boys. These effects on the development of the brain’s circuitry affect mood regulation and suggest a neurobiological basis for why depression worldwide is twice as prevalent in women vs. men. These results allowed her to obtain NIH funding designed to identify and develop interventions that protect brain circuitry under stress and help repair disruptions — thus reducing the risk of depression, especially in teenage girls and young women.

BRCA1 AND BRCA2 GENETIC MARKERS PREDICT VULNERABILITY TO BREAST CANCER RECURRENCE
This study revealed that BRCA1/2 genetic markers predict a vulnerability to breast cancer recurrence in either the treated breast or the untreated breast. Dr. Bruce Haffty’s landmark results, with lasting national and global implications, continue to inform clinical decisions by patients and health care providers about treatments to prevent breast cancer from returning.

A MODEL OF BREAST CANCER THAT CLOSELY SIMULATES HOW THE HUMAN IMMUNE SYSTEM AFFECTS RESPONSES TO CANCER THERAPIES AND TUMOR GROWTH
Dr. Joann Sweasy’s ongoing research is focusing on determining the most effective treatments for breast cancer. Her work, in concert with other Yale researchers, is also allowing for the creation of individual models for personalized treatments of breast and other cancers that disproportionately affect women. Using mice bred to mimic human responses, Dr. Sweasy is testing treatments, an individual patient’s tumor, and the specific makeup of the patient’s immune system inside a mouse to determine the best course of therapy.

A CRITICAL WINDOW FOR ESTROGEN THERAPY TO PRESERVE MEMORY
Building on results of earlier WHRY-funded work, Dr. Karyn Frick demonstrated that, to preserve memory, estrogen likely needs to be administered when females are just entering menopause. This work addresses the controversy about how the timing of when women start estrogen around menopause will provide a benefit or possibly increase health risks.

GENITAL HERPES TRANSMISSION IN WOMEN MAY BE BLOCKED
In research with national and global implications, Dr. Akiko Iwasaki discovered the receptor on the vaginal surface that must be blocked in order to stop transmission of genital herpes, a virus that affects a fifth of women worldwide. Her results are being used in drug development to prevent transmission of the virus.

SUPPLEMENTARY SCREENING WITH ULTRASOUND CAN DETECT BREAST CANCERS MISSED BY MAMMOGRAPHY
Using unique multi-year Connecticut data collected through the Yale-New Haven Health System, Dr. Regina Hooley conducted one of the first studies in the nation on the performance and value of supplementing mammography with ultrasound screening. Her results indicate that women with dense breast tissue can benefit from this extra screening and often will choose the screening if made aware of their breast density.

NANOPARTICLES CAN BE SPECIALLY DESIGNED TO COMBAT OVARIAN CANCER
Drs. Alessandro Santin and W. Mark Saltzman demonstrated they can formulate ultra-tiny nanoparticles that strategically target and destroy chemotherapy-resistant ovarian cancer cell lines in the laboratory with greater accuracy and tumor-killing power than existing therapies. Using their preliminary results, they obtained NIH funding to develop their approach so as to ultimately design a totally new treatment for ovarian cancer — the most lethal gynecological cancer.