



# NOTABLE ACHIEVEMENTS IN RESEARCH



## THE T.J. MARTELL FOUNDATION HAS CONTRIBUTED TO MANY IMPORTANT ACHIEVEMENTS IN RESEARCH INCLUDING:

***Gastric Cancer Research at Vanderbilt-Ingram Cancer Center:*** Cancer of the stomach is the second leading cause of cancer-related death in the world. In the United States, five-year survival rates are less than 15 percent. Through the generosity of the Ronnie James Dio Stand Up and Shout Cancer Fund and the T.J. Martell Foundation, our researchers are making meaningful scientific advances in gastric cancer.

***Informatics and My Cancer Genome at Vanderbilt-Ingram Cancer Center:*** Through My Cancer Genome, the nation's first personalized cancer decision support tool, the VICC is providing physicians with the latest information on discoveries and clinical trials, enabling them to deliver more personalized and effective care to patients around the world. Support from the T.J. Martell Foundation is instrumental in extending this service to an international audience.

***Drug Discovery at Vanderbilt-Ingram Cancer Center:*** Vanderbilt investigators are developing new approaches to target proteins currently considered to be "undruggable." In particular, Vanderbilt researchers are studying a notorious protein called K-Ras, which when present in a tumor, usually means that the cancer will not respond to conventional therapies. Over the last several years, T.J. Martell Foundation support stimulated several promising discoveries.

***Lung Cancer Research at Vanderbilt-Ingram Cancer Center:*** Dr. Jennifer Pietenpol at Vanderbilt-Ingram Cancer Center made a discovery that describes the true role for the p73 gene, which is a suspected tumor suppressor. Dr. Pietenpol's laboratory described its function during the development of lungs, which will be key in determining how this gene will be studied in the context of lung cancer.

***Neuroblastoma Progress at Children's Hospital Los Angeles:*** Neuroblastoma, a tumor of the sympathetic nervous system (outside the brain), is one of the most common solid tumors in infants and children. Dr. Shahab Asgharzadeh has developed a new mouse model of neuroblastoma that is remarkably similar to the human disease that will lead to a better understanding of tumor growth and spread and to new treatments.

***Leukemia Research at Children's Hospital Los Angeles:*** Acute lymphoblastic leukemia (ALL) is the most frequent type of cancer in children and is seen throughout adulthood as well. Dr. Nora Heisterkamp has discovered that releasing ALL cells from their protective microenvironment renders them sensitive to chemotherapy. Dr. Steven Mittelman has discovered that fat cells attract ALL cells and provide an environment that protects them from chemotherapy.

**Breast Cancer Research at Mount Sinai Medical Center:** Research in Dr. James Holland's lab has shown that a virus in 40 % of human breast cancers is more than 90 % identical to the virus that causes breast cancer in mice. The human virus can infect normal human cells in test tube experiments. Normal cells in the breast that has the cancer with virus are not positive for virus, proving that the virus is acquired, not genetically inherited. These findings suggest that the virus may cause a large proportion of breast cancers, and that if so, special treatments and specific prevention may be possible.

**Prostate Cancer Research at Mount Sinai Medical Center:** Scientists have discovered a gene that acts as a switch and activates the aggressiveness of prostate tumor cells. Published and highlighted on the cover of the prestigious scientific journal *Cancer Cell*, this research describes a mechanism by which prostate cancer cells become aggressive and survive standard treatment. This discovery could have a major impact on the development of treatments for prostate cancer, which is the most common tumor and one of the leading causes of cancer death in men.

**Prostate Cancer Progress at Columbia University Medical Center:** The Genito-Urinary Malignancies Program (GUMP) has obtained major grants from the National Institutes of Health, the Department of Defense and the Prostate Cancer Foundation to study the prostate cancer carcinogenesis using mouse models and to characterize the genetic basis for development of therapeutic resistance by prostate cancers.

**Psychological Research at Memorial Sloan-Kettering Cancer Center:** A "patient-communication training (PCT)" project demonstrated that researchers were able to effectively teach patients communication skills that can use in conversations with their physicians. Patients learned new strategies to have their communication needs better met as a result of the training they received.

**Psychological Research at Memorial Sloan-Kettering Cancer Center:** A series of studies examining the association of DNA damage and cognitive functioning in breast cancer survivors was undertaken. As predicted, a higher percentage of survivors who were exposed to chemotherapy demonstrated cognitive impairment (20%), compared to survivors not exposed to chemotherapy (13%).

**Ovarian Cancer Research at Memorial Sloan-Kettering Cancer Center:** The CA125 antigen is found in the blood of patients with most ovarian cancers and has been very useful for the management of these patients. Because it is commonly present on the individual cancer cells, we are creating antibodies and vaccines for the development targeted immunotherapy.

**Collaborative Research at the Winship Cancer Institute at Emory University:** Martell funding has been used to support a multi-investigator group that is developing approaches to combine array- and seq-based platforms for the study of cancers. In this initial pilot project referred to as myelomics, biologists, clinicians, statisticians and bioinformaticians have simultaneously incorporated 7 different genomic platforms on 3 myeloma cell lines to determine how best to integrate, utilize and validate data on structural, epigenetic and expression changes in a disease.

**Lung Cancer Research at MD Anderson Cancer Center:** Dr. Lauren Byer has identified a target protein, PARP-1, that is highly expressed in small cell lung cancer (SCLC), a very aggressive disease. Several drugs are being developed specifically to block PARP-1 in other tumor types, such as breast cancer. However, she discovered that they are effective against SCLC as well. She soon will begin the first clinical trials to test these PARP inhibitors in SCLC patients. She will take the resultant data from the trials back to the lab to figure out who the drug works for and why.

**HIV Research at the Harvard School of Public Health:** Researchers in Botswana are conducting a pilot study, "Genetic Risk Factors Affecting Health Outcomes in Infants born to HIV-Positive Mothers." This study will help determine which genetic characteristics of the HIV alter the risk that infants become infected, and why infants who are born to HIV-positive mothers have a higher risk of lethal respiratory and gastrointestinal infections, even when the infants aren't infected with HIV. The answers to these questions could have a significant impact on infant mortality throughout the world.

For more details on this and other life-saving research funded by the T.J. Martell Foundation, please contact Kate Fitzpatrick, Communications Director, at [kfitzpatrick@tjmartell.org](mailto:kfitzpatrick@tjmartell.org).

## CURRENT RESEARCH FACILITIES FUNDED BY THE FOUNDATION:

- Children's Hospital Los Angeles
- Columbia-Presbyterian Cancer Center
- Harvard School of Public Health
- Memorial Sloan-Kettering Cancer Center
- Mount Sinai Medical Center
- University of Texas MD Anderson Cancer Center
- Vanderbilt-Ingram Cancer Center
- Winship Cancer Institute at Emory University

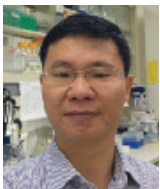
The T.J. Martell Foundation is focused on funding the brightest minds that will be the leaders in scientific research of tomorrow.

## OUR 2014 RESEARCH FELLOW AWARD RECIPIENTS:

The T.J. Martell Foundation is focused on funding the brightest minds in the laboratories that will be the leaders in scientific research of tomorrow. This year we awarded grants to:



**Jeremy An, Ph.D.** from the Department of Biochemistry and Molecular Biology and Urology at the Mayo Clinic in Rochester, MN is focused on prostate cancer and the mechanisms by which prostate cancer cells is resistance to androgen ablation, the most common therapy for advanced prostate cancer.



**Chunlei Jin, Ph.D.** from the Department of Pediatrics Research at the University of Texas MD Anderson Cancer Center is focused on the mechanism of tumor metastasis in osteosarcoma.

