

Vanderbilt-Ingram Cancer Center

2009 In Review



VANDERBILT UNIVERSITY
MEDICAL CENTER

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At year-end, it is customary to review the accomplishments of the year that is ending and look with anticipation to the year ahead. By any measure, 2009 has been a year of remarkable progress for the Vanderbilt-Ingram Cancer Center.

For instance:

We expanded and enhanced our capacity to serve our patients and families, with a new Chemotherapy Infusion Center, new stereotactic radiosurgery technology, the new REACH for Survivorship Program and a new Breast Center at One Hundred Oaks.

VICC investigators remained highly competitive for federal research dollars, including new opportunities through the American Recovery and Reinvestment Act. Based on 2008 funding, Vanderbilt-Ingram is ranked 7th in competitive funding from the National Cancer Institute – and 3rd when compared to similarly organized and governed “matrix” cancer centers.

New faculty joined our team to expand our capabilities in personalized cancer medicine, drug discovery and development, informatics, clinical care and cancer control and survivorship.

2009 also was the year for competing renewal of our National Cancer Institute-Cancer Center Support Grant (CCSG). This 1,400-page document, which was submitted at the end of September, showcases the accomplishments past funding period and outlines our plans and aspirations for the next. As 2009 comes to a close, we are focused on putting our best foot forward for our External Scientific Advisory Board and our NCI CCSG site reviewers in January.

What follows are just a few highlights of 2009, representing the hard work and commitment of many individuals throughout the Center. These achievements are also a testament to important support from the Vanderbilt University and Medical Center leadership as well as countless friends and donors who make our work possible. For that, we are enormously grateful.



American Recovery and Reinvestment Act

Vanderbilt-Ingram Cancer Center investigators took seriously the opportunity to compete for federal “stimulus” funding made available by the American Recovery and Reinvestment Act. Cancer Center members secured 75 grants from the National Institutes of Health that provided more than \$40 million to support new and ongoing initiatives. Among the higher-profile awards:

David Carbone, M.D., Ph.D.



Lawrence Marnett, Ph.D., and a team of investigators including new faculty recruit Steve Fesik, Ph.D., were awarded \$4.7 million to help launch an innovative cancer drug discovery program.

David Carbone, M.D., Ph.D., received \$1 million in ARRA funding to study genetic variations among African Americans with non-small cell lung cancer.

Wendell Yarbrough, M.D., received two Challenge Grants (among the most competitive category with fewer than 3% of applications funded) totaling \$1.4 million to continue his research in head and neck cancer.



Wendell Yarbrough, M.D.

In addition, ARRA funding was provided to significantly enhance the value of the Southern Community Cohort Study (SCCS) as a national resource for evaluating cancer disparities and conducting comparative effectiveness research. The supplement will enable Vanderbilt and Meharry investigators to gather medical records, tumor tissues, and new information for SCCS participants who develop cancer. In addition, interviews will be conducted with cancer survivors, many of whom are uninsured, to identify barriers faced in obtaining the diagnosis, treatment and long-term management of their tumors so that more effective health care strategies for individuals with limited resources can be developed.



Stand Up To Cancer

In September 2008, the Entertainment Industry Foundation launched a groundbreaking initiative to raise funds from the private sector to support pioneering cancer research. The goal of the program is to support collaborative, “big and bold” science with great potential for changing the way cancer is treated. Members of the Vanderbilt-Ingram Cancer Center were selected for these prestigious awards:

Breast cancer researcher Carlos Arteaga, M.D., and patient advocate Patricia Lee were selected as part of a multi-center “Dream Team” studying the P13K signaling pathway in women’s cancers.

William Pao, M.D., was one of 13 to receive Innovative Grant Awards, designed to support the next generation of cancer research leaders.

William Pao, M.D.



Vanderbilt Breast Center at One Hundred Oaks

Area's only dedicated breast MRI in a comprehensive breast center

Multi-disciplinary team approach

New Chemotherapy Infusion Center



45 chemoinfusion rooms

Expanded pharmacy

Natural light, soothing colors, comfortable waiting area

REACH for Survivorship Clinic

Led by Debra Friedman, M.D., recruited from Fred Hutchison Cancer Center

Region's only comprehensive program for survivors after acute oncology care ends

Open to all survivors, regardless of type of cancer, age at diagnosis or where treated

Locations in both Village at Vanderbilt and Nashville General Hospital

Stereotactic Radiosurgery Suite

Idiko Csiki, M.D., Fen Xia, M.D., Ph.D. & Tony Cmelak, M.D.



Latest generation radiation oncology technology

Delivers sculpted radiation therapy with millimeter precision

Personalized Cancer Medicine Initiative

Led by William Pao, M.D., recruited from Memorial Sloan-Kettering Cancer Center

Collaboration of VICC, Department of Medicine/Division of Hematology-Oncology, Lung Specialized Program of Research Excellence, departments of Pathology and Medical Bioinformatics

Will leverage strengths of discoveries from basic and clinical research programs, laboratory medicine, surgical pathology and cancer informatics

Goal: tailor therapy to molecular drivers of each individual's tumor

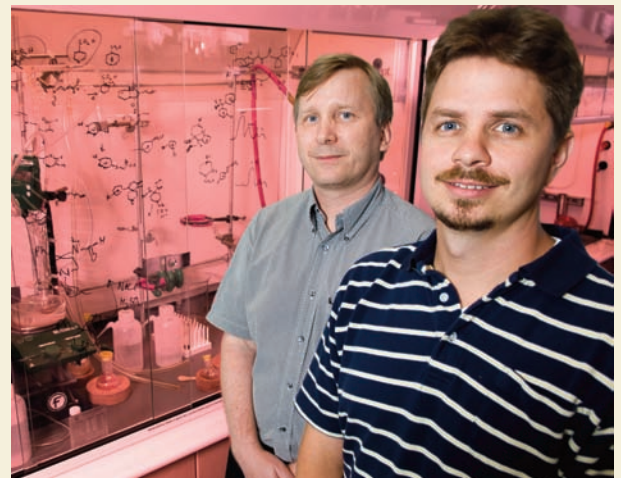
Cancer Drug Discovery Program

Led by Steve Fesik, Ph.D., recruited from Abbott Laboratories

Collaboration of VICC, Vanderbilt Institute for Chemical Biology, Department of Biochemistry and Center for Structural Biology

Leverages strengths of target/lead pipeline from basic and clinical programs, chemical libraries, high throughput screening facility, and nuclear magnetic resonance capabilities

Goal: Using an approach pioneered by Fesik, develop new cancer drugs that provide significant advances for survivors



Gary Sulikowski, Ph.D. & Alex Waterson, Ph.D, leaders of Chemical Biology Consortium

Hope Connection

Free, confidential 1-1 phone support with a cancer survivor or caregiver

(615) 936-8501 or www.vicc.org/hope

Renewed "centers of excellence"

Commission on Cancer Accreditation with Commendation

Centers of Excellence for bone marrow transplantation by 7 key insurers



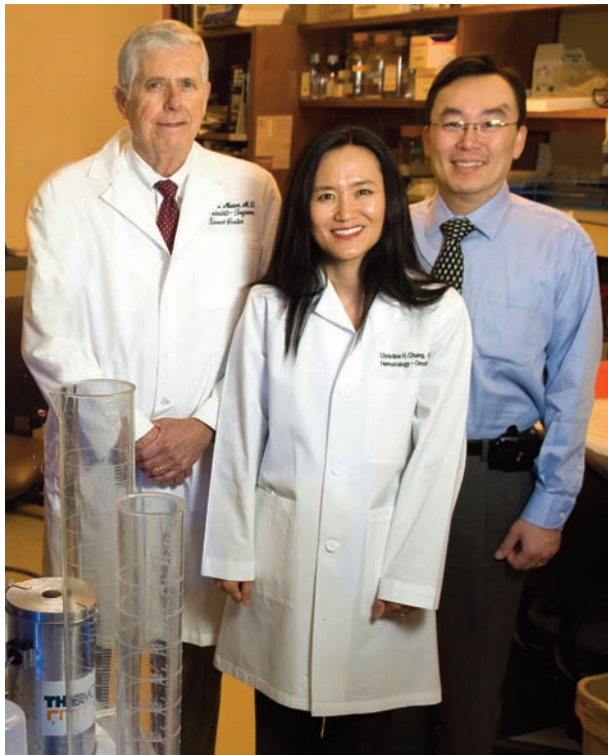
High-Impact Research

Soy foods and breast cancer recurrence – JAMA – Xiao-ou Shu, M.D., Ph.D.

Higher intake of soy foods was associated with a lower risk of death and breast cancer recurrence among breast cancer patients in China. There had been concern that soy foods would be harmful among breast cancer patients. Shu noted that the study was of soy food intake, not soy capsule supplements, which contain only soy isoflavones; while soy isoflavones are known to have anti-estrogen effects that may be involved in better breast cancer outcomes, other nutrients in soy foods may also play a role.

Cancer biomarker boost – Nature Biotechnology – Daniel Liebler, Ph.D.,

Lisa Zimmerman, Ph.D., and colleagues in the National Cancer Institute's Clinical Proteomic Technology Assessment for Cancer (CPTAC) program. New method for detecting and quantifying cancer-associated proteins in body fluids increases accuracy and reproducibility of candidate biomarker verification, ensuring that the best biomarker candidates are carried through to clinical validation. The findings may offer a major boost to the development of biomarkers to aid in early cancer detection and personalized cancer therapy – including the development of blood tests for cancer detection.



Gene signature predicts breast cancer prognosis – Journal of Clinical Investigation – Harold (Hal) Moses, M.D.

Newly identified gene signature may help predict clinical outcomes in certain types of breast cancer. Associated with the transforming growth factor-beta (TGF- β) signaling pathway, this signature correlates with reduced relapse-free survival in patients with breast cancer, especially in those with estrogen receptor-positive tumors. The results suggest that assessing TGF- β signaling may be a useful aid in determining breast cancer prognosis and in guiding treatment. The work also sheds light on how TGF- β affects tumor growth and progression.

Hal Moses, M.D., with study contributors Christine Chung, M.D. & Yu Shyr, Ph.D.

Breast cancer ‘hot spot’ – Nature Genetics – Wei Zheng, M.D., Ph.D.

A newly identified genetic hot spot for breast cancer on chromosome 6 – a single nucleotide polymorphism (SNP) – may explain about 18 percent of breast cancer cases in the general population. Women with one copy of this SNP have about 40 percent increased risk of breast cancer; having two copies of the SNP increases risk about 60 percent. Although the function of the SNP is not clear, it is strongly associated with estrogen receptor (ER)-negative cases of breast cancer, which carry a worse prognosis than ER-positive cases. Zheng hopes to use this SNP and others to build a risk prediction model that could help identify high-risk women for chemoprevention or regular cancer screening to reduce their breast cancer mortality.

Lithium shields brain from radiation damage – Journal of Clinical Investigation – Fen Xia, M.D., Ph.D.

Lithium – a drug widely used to treat bipolar mood disorder – promotes DNA repair in healthy cells but not in brain tumor cells. The findings suggest that lithium treatment could offer a way to protect healthy brain tissue from damage that may occur during cranial radiation treatments.

Protein protector against DNA stress – Genes & Development – David Cortez, Ph.D.

Genome maintenance systems prevent and repair DNA damage to maintain the genome’s stability and protect against mutations that cause cancer and other diseases. In their search for novel genome maintenance factors, David Cortez, Ph.D., and colleagues have identified SMARCAL1 as a genome maintenance protein. Mutations in SMARCAL1 are known to cause the rare genetic disorder Schimke immunosseous dysplasia (SIOD), characterized by short stature, kidney disease and a weakened immune system. The team found that SMARCAL1 protein limits DNA damage at stalled replication “forks” (sections of unwound DNA undergoing replication).

New to the Team

Vandana Abramson, M.D. – breast oncologist

Dana Backlund, M.D. – gastrointestinal oncologist

James Broome, M.D. – endocrine surgeon

Scott Borenstein, M.D. – pediatric oncologist

Dai Chung, M.D. – pediatric surgeon

Sandra Deming, Ph.D., M.P.H. – epidemiologist

Stephen Fesik, Ph.D. – leading Cancer Drug Discovery

Leora Horn, M.D. – thoracic oncologist

Mia Levy, M.D. – chief medical informatics officer

Eric Liu, M.D. – surgical oncologist

Kevin Palka, M.D. – neuro-oncologist

William Pao, M.D. – leading Personalized Cancer Medicine Initiative

David Pensen, M.D. – urologic surgeon

Otis Rickman, D.O. – pulmonologist

Allen Sills, M.D. – neurosurgeon

Stephen Smith, M.D. – oncologist, Cool Springs practice

William Tansey, Ph.D. – co-leading the Genome Maintenance Program

Zhongming Zhao, Ph.D. – chief bioinformatics officer

Honors & Awards

Vanderbilt-Ingram Cancer Center – only Tennessee hospital listed by US News & World Report among the best in cancer care.

Donna S. Hall, Carlos L. Arteaga, M.D., & John Hall



Carlos L. Arteaga, M.D.

Inaugural Donna S. Hall Chair in Breast Cancer Research Bonnadonna Award; American Society for Clinical Oncology

Jordan Berlin, M.D.

NCI Clinical Investigator Team Leadership Award

Gordon Bernard, M.D.

Co-chair, NIH Clinical and Translational Steering Committee

Bill Blot, Ph.D.

Visiting Scholar Award, NCI Division of Cancer Epidemiology and Genetics

Mark Boothby, Ph.D.

Board of Directors, Federation of American Societies for Experimental Biology

Neil Bhowmick, Ph.D.

Young Investigator Award, Society for Basic Urologic Research

David Carbone, M.D., Ph.D.

NCI Lung Cancer Steering Committee

Cheryl Coffin, M.D.

President-Elect, Pediatric Pathology Association

Terence Dermody, M.D.

President Elect, American Society for Virology

Ellen Fanning, Ph.D.

2009 Humboldt Research Award

Peter F. Guengrich, Ph.D.

Outstanding Achievement in Chemistry in Cancer Research-American Association for Cancer Research

Rizwan Hamid, M.D., Ph.D., and Jason Jessen, Ph.D.

American Cancer Society Scholars

David Johnson, M.D.

Association of American Physicians

Daniel Liebler, M.D.

2009 Scientific Achievement Award, International Society for Study of Xenobiotics

Harold L. Moses, M.D.

Lifetime Medical Research Award - T.J. Martell Foundation

Jennifer Pietenpol, Ph.D.

Board of Directors, American Association for Cancer Research

Joe B. Putnam Jr., M.D.

Chair, Thoracic Committee, American College of Surgeons Oncology Group

Jeffrey Sosman, M.D.

American Cancer Society Mary-Hendrickson Johnson Melanoma Professorship; National PI, Phase II personalized cancer medicine trial with BRAF inhibitor in melanoma

Wei Zheng, M.D., Ph.D.

National Institutes of Health MERIT Award

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Vanderbilt-Ingram Cancer Center

A National Cancer Institute-designated Comprehensive Cancer Center

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