

Pathways to Discovery

At the Forefront of Discovery



Winter 2008-09

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Powerful New CT Scanner Quickly Produces High-Resolution Images, Reduces Radiation Exposure



Meresamun, a 3,000 year-old mummy, from the U of C's Oriental Institute is the first test subject of a powerful new computer tomography scanner (CT).

The first 256-slice "wide-area" computed tomography scanner in Illinois, with four times the capacity of the previous generation of multi-slice scanners, is now in clinical use at the University of Chicago Medical Center. The scanner, called the "Brilliance iCT" combines power, speed, and coverage to produce extremely high-resolution images with reduced radiation exposure.

The new scanner, with 128 rows of detectors, can produce 256 slices of information in a single rotation, which takes less than one-third of a second. It can reconstruct those slices for display at a rate of more than 100 slices a second.

"The pictures are breathtaking," said Michael Vannier, MD, Professor of Radiology. "They are clearer and crisper than anything we had seen before. We can perform detailed analysis of very complex anatomy in seconds."

The shift from earlier 4- 8- or 16-slice scanners to 64-slice scanners, introduced in 2005, changed the way radiologists look at CT scans. In the past, they examined individual slices. They now generate two- three- and four-dimensional views.

Speed and precision not only improve image quality, but also show dynamic processes. About sixty percent of CT scans at the Medical Center are for cancer patients. "Instead of just monitoring changes in tumor size, we can watch the perfusion of a contrast agent as it moves toward, around, and through a tumor," said Dr. Vannier. "This can provide an early view of how a patient is responding to therapy. It helps us measure and predict, rather than simply describe responses to treatment."

In addition to providing better images, the more powerful scanner cuts the radiation dose almost in half. Many examinations take only about five seconds on this scanner. In some cases, the iCT reduces radiation exposure by 80 percent compared to standard 64-slice CT exams.

Neither radiation nor speed mattered to the first human studied with this scanner. The female "patient," known only as Meresamun, came to the Medical Center from the University's Oriental Institute where, 3,000 years after her death, she is on display. A mummy, she had been scanned with a standard and a 64-slice scanner at the Medical Center. Dr. Vannier called her in for a follow-up visit when the Brilliance iCT arrived.



The new scanner created this high-resolution image of a human heart.

The images from the new scanner were "significantly better," said Dr. Vannier. "We could see subtle things – wear patterns on her teeth, subtle fractures, a clear view of the embalming incision, precise indications of her age – that were not apparent on the previous exam."

The University of Chicago Medical Center entered into a partnership with Philips Medical Systems, Inc., manufacturer of the Brilliance iCT 256 scanners, in 2004. The Medical Center will serve as a clinical and testing site for the equipment. Experts in computer-aided cancer detection and diagnosis at the Medical Center will help Philips test and improve their image-processing software.

A Message from The Director



We begin this year with the confidence that great opportunities lie before us, even during these tough times. The economic crisis poses obstacles for cancer researchers, reducing available funding and leaving promising avenues of investigation unexplored. These limitations are especially distressing, because we are on the brink of discoveries that have the potential to dramatically diminish the harsh impacts of cancer.

However, I know that we will make great progress in 2009. Our strategic reorganization of the University of Chicago Research Center (UCCRC) has made us more effective and efficient, and increased our level of expertise. The completion of the new Gwen and Jules Knapp Center for Biomedical Discovery will give us new dedicated laboratory space for some of our talented

researchers. We know from past experience that the University of Chicago Cancer Research Foundation (UCCRF) and our other contributors are highly committed to our cause and will maintain their generosity.

Our researchers, physician scientists, physicians, staff, and colleagues will find ways to make breakthrough discoveries. The University of Chicago Medical Center will continue to see cancer research and treatment as top priorities and support our efforts to the greatest extent possible. We will strive to do more with less, husband our resources carefully, and maintain the accelerated pace of discovery. Most of all we will rely on you—our friends and colleagues—for guidance and support, which will help us overcome many of the new difficulties we face.

My optimism is not based on hope, but on my knowledge of the strengths of this organization, its people, and its supporters. The challenges are tough, but our people are tougher. Their commitment to our mission, their dedication to our patients, and their innovative approaches to the tasks at hand will overcome these obstacles.

We are heading into a new year of enormous opportunity, and we have the will, the expertise, and the talent to bring the promise of tomorrow to life.

With thanks and warm regards,

Michelle M. Le Beau, PhD

Director, University of Chicago Cancer Research Center / Professor of Medicine

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Focus on UCCRC Scientific Program Six: Defining Risk and Preventing Cancer

Six integrated scientific programs are fundamental components of the UCCRC. Each one concentrates on a promising research path while also collaborating with the other programs through cross-disciplinary teams. This issue of Pathways to Discovery features Program Six: Cancer Risk and Prevention.

If we can understand the risk factors that increase a person's chance of developing cancer, then we can help them take the necessary steps to reduce that risk. The Cancer Risk and Prevention program works to determine the genetic, psychological, behavioral, and socio-environmental basis of cancer with the ultimate goal of developing new methods for risk assessment, early detection, and prevention. Clinical research focuses on high-risk individuals defined by genetics, behavior, environmental exposure, and access to health care.

Laboratory researchers are developing models to identify biomarkers for early detection and to study chemoprevention strategies translatable to individuals at high risk for certain cancers. In addition, and as a crosscutting theme throughout Program Six, health disparities research is providing new clues to cancer risk and leading to cancer control and prevention efforts from the Southside of Chicago to the villages in Nigeria and Bangladesh.

The program, which includes thirty-three members from twelve departments and two University of Chicago Divisions (Biological Sciences and Social Sciences), is led by Andrea King, PhD and Habibul Ahsan, MD. (Dr. Ahsan

succeeds Olufunmilayo Olopade, MBBS, FACP, who co-directed Program Six for seven years.)

“Integration of complementary expertise across these disciplines and intra- and inter-programmatic collaborations are the key to Program Six research agenda and goals,” said Dr. Ahsan.

The interactions and collaborations among these diverse members allow the program to bring together seemingly disparate scientific disciplines including basic scientific research in carcinogenesis, preclinical and clinical translational research, epidemiology and behavioral research, environmental toxicity, chemoprevention and population-based genetics.

Understanding Genetics in Cancer Risk

Scientists at the University of Chicago are among the leaders in understanding the genetic basis of cancer, and have been since the groundbreaking discovery in 1972 by Janet Rowley, MD, that identified a translocation of small pieces of DNA in patients with a certain type of leukemia. Researchers in Program Six continue to focus on understanding the genetic basis of common cancers and work to effectively translate that knowledge into various clinical and public health practices.

The work of Dr. Olopade on the inherited alterations found in the genes BRCA1 and BRCA2 (acronyms for breast cancer 1 and breast cancer 2) serves as a model in cancer genetics practice. In the Cancer Risk Clinic at the University of Chicago, she uses genetic analysis to create customized prevention plans for patients at risk for breast and ovarian cancer.

A steadily growing database of these and other high-risk individuals has allowed Dr. Olopade to investigate the effects of certain mutations in BRCA1 and BRCA2 in diverse populations. For example, she was the first researcher to describe recurrent BRCA1 mutations in extended African American families. (Breast cancer is less common in African American women than in Caucasian women, but it strikes African Americans at a younger age, is more aggressive, and has a higher rate of mortality). To confirm her findings, Dr. Olopade broadened

1 Program One:
Cell Signaling and Gene Regulation

2 Program Two:
Molecular Genetics and Hematopoiesis

3 Program Three:
Immunology and Cancer

4 Program Four:
Clinical and Experimental Therapeutics

5 Program Five:
Advanced Imaging

6 Program Six:
Cancer Risk and Prevention

her research to the “founder” population in Nigeria and its genetic constitution.

Under the auspices of the University of Chicago's Center for Interdisciplinary Health Disparities Research, Dr. Olopade, Sarah Gehlert, PhD, and Martha McClintock, PhD, are taking a multilevel approach to understanding population differences in the incidence and nature of breast cancer among African American and Caucasian women.

Dr. McClintock and her colleagues demonstrated a plausible link between vulnerability to cancer and neglect in socially-isolated animals that are naturally interactive with other members of their species. Using a similar model with volunteers in the local community, Dr. Gehlert currently is looking at the influence of social interaction on the psychosocial behavior of African American women newly diagnosed with breast cancer. Dr. Olopade is extending the McClintock model to breast cancer patients in Nigeria.

Dr. Ahsan's investigations in the area of genetic epidemiology strengthen the Program Six focus on discovering genes that affect breast cancer. He has shown that women carrying certain variants in hormone-related genes are at increased risk of breast cancer, especially those who use exogenous hormones. (Exogenous hormones are not produced in the body itself, but are introduced from the outside for therapeutic reasons.) His current genome-wide association studies (GWAS) in early-onset breast cancer include 6,000 population-based young (less than 50 years old) women with BRCA1/2-negative invasive breast cancer using population and sister controls in Australia, Canada, the United States, and Germany. In a collaborative initiative, Dr. Ahsan will share the data from his study with other experts in Program Six to facilitate further examination of the genomics of breast cancer in genetic epidemiology, clinical genetics, molecular genomics, and systems biology.

Adding further depth to the program's genetics research is the work on colorectal cancer genetics conducted in the laboratory of Nathan Ellis, PhD. His research focuses on the analysis of genomic instability and its relationship to cancer susceptibility. For this purpose, Dr. Ellis has assembled or has access to DNA samples from approximately 4000 colorectal cancer cases from New York, Italy, Israel, Spain, and Korea. An additional 2000 cases from the University of Chicago Medical Center pathology surgical specimen archive will be added to this group.

Examining the Roles of Behavior and Environment in Cancer Risk

Tobacco use represents the leading preventable cause of several cancers, including lung, and head and neck malignancies. With one in three cancer deaths linked to tobacco, research to understand the development and maintenance of tobacco addiction remains a top priority in the cancer risk and prevention field. Further, heavy smoking and alcohol drinking often co-occur, and increase cancer rates beyond those of each substance alone.

“The broad goal of the program’s research in this area is to elucidate the mechanisms underlying the initiation and continued use of tobacco, so that successful interventions can be developed,” explains Andrea King, PhD. She adds, “Translational and multi-investigational research by our faculty spans diverse research on the molecular, cellular, biochemical and behavioral approaches in the laboratory setting and in clinical treatment trials.”

In 2001, translational work by Paul Vezina, PhD, showed that animals displaying high activity levels when exposed to a new environment (analogous to stress in humans) are more likely to self-administer nicotine. This finding led to neurophysiologic studies examining the nicotine receptors in the brains of these animals. The results suggested that differences in the receptors’ function might contribute to an increased susceptibility to nicotine addiction.

Understanding the correlation between human behavior and nicotine addiction, and creating strategies for smoking cessation are being

explored in clinical settings. Harriet de Wit’s, PhD, research examined the effect of stress response in smoking behaviors. (Smokers have reported they smoke more under stress, but very little research has been done on the relationship). Her findings showed that stress factors significantly increased cigarette cravings and that adult chronic smokers reported feelings of satisfaction after smoking. In addition, Dr. de Wit found that progression of smoking activity in young adults is related to stress.



Several clinical studies have shown that women may be less successful than men when it comes to quitting smoking. Dr. King recently translated her pre-clinical human laboratory studies with the medication naltrexone (an opioid antagonist used in the treatment of alcohol and drug dependencies) to a clinical trial to investigate potential sex differences in smoking quit rates. Findings from the first pilot study showed that quit rates were nearly doubled in women treated with naltrexone, and approached those of the men smokers in the study. Men did not show any additional benefits from naltrexone in the context of standard treatment with nicotine patch and counseling. Further studies are underway to examine a larger sample of smokers with the goal of better understanding this discrepancy between men and women and examining potential mechanisms underlying clinical response.

Smoking rates are higher among certain minority groups, yet ethnic minorities are underrepresented in smoking cessation studies and often do not have access to comprehensive smoking treatments. Given the ethnic and racial disparities in cancer outcomes, Dr. King and Lisa Sanchez-Johnsen, PhD identified an urgent need for treatments designed to overcome ethnic and cultural barriers. In 2004, they initiated a trial of community-based and culturally-tailored smoking cessations programs for African American smokers living in Southside Chicago. Results of the study are promising, with 75 percent of participants completing the six-week intervention and nearly one-third quitting smoking at the end of treatment. Along with colleagues at the University of Illinois at Chicago, they have developed a culturally-targeted smoking cessation manual for African American smokers. People who followed this program had treatment completion rates and quit rates better than those observed with standard treatment.

Dr. Sanchez-Johnsen is also developing a community-based participatory research study that focuses on reducing risk factors, such as obesity and smoking in Latinos. She is forming a culture-based intervention that addresses diet, physical activity, body image and secondhand smoke in overweight Latina women. She also is investigating cultural variables underlying obesity in Puerto Rican and Mexican women.

Marc Bissonnette, MD, is looking at diet as an environmental risk factor for colon cancer, especially the Western-style diet that is high in animal fat and red meat and low in fiber and micronutrients. He is studying the role of growth factors and bile acids in diet-related colon cancer. Growth factors, when aberrantly regulated, can drive tumor development. Bile acids, made in the liver and metabolized in the colon, also promote colon cancer growth. The Western style high-fat diet increases the concentrations of bile acids in the colon. Dr. Bissonnette is studying - in animal models - how growth factors and bile acids contribute to Western-style, diet-associated colon cancer.

Health disparities and genetics research is helping investigators understand why African American men have higher incidence rates of prostate cancer, are diagnosed later, and have higher mortality rates than men of other ethnic backgrounds. In 2007, Rick Kittles, PhD, and his colleagues published research showing that while Caucasian men with a genetic variation on chromosome 8 are at an increased risk for prostate cancer, African American men have an additional genetic variation that is an even stronger marker for cancer risk. The genetic marker, known as rs7008482, is located within a gene that is involved in DNA replication, recombination, and repair. Finding this genetic variation may provide clues to more precise ways to predict the risk of prostate cancer in African American men, ultimately leading to improved screening, early detection, and possibly treatment.

Dr. Kittles is also an expert in the socio-cultural issues related to race and health disparities in African American and Hispanic American communities. In his role as Associate Director for Diversity and Community Outreach, Dr. Kittles is strengthening the UCCRC’s links with the local community through cancer genetics and prevention education programs. (see related story on page 5).

Using Chemoprevention Strategies to Protect At-Risk Groups

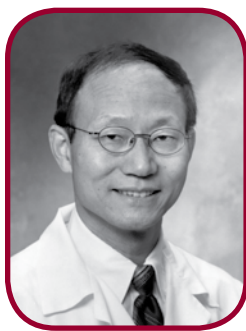
Developing clinical chemoprevention programs for at-risk populations represents an exciting challenge and is another top priority for researchers in Program Six.

“Chemoprevention is a new frontier in cancer prevention research for reduction of cancer risk among high risk populations, be it due to genetics, environment, or high-risk behavior,” said Dr. Ahsan.

In collaboration with researchers in Bangladesh, Dr. Ahsan established that low-dose arsenic exposure from the drinking water in that country is directly related to the risk of developing pre-malignant skin lesions. The investigators noted that risk for these lesions was greater among participants with lower levels of the trace mineral selenium in their blood. These findings formed the basis of a chemoprevention trial among 6,000 patients with pre-malignant lesions to prevent arsenic-induced cancer through vitamin E and selenium supplementation. The eight-year study is likely to determine whether the supplements act as “antidotes” to the toxicity of the arsenic. The extensive epidemiologic and clinical data and biological samples from the participants in his Bangladesh studies will serve as invaluable resources for future UCCRC population research in cancer risk and prevention.

In another chemoprevention effort, Dr. Olopade is participating in a multicenter five-year study for post-menopausal patients who are at risk for developing breast cancer. Post-menopausal women have low levels of estrogen, yet the hormone continues to play a part in the development of breast cancer. In this research study, investigators are testing a new drug called exemestane that stops the supply of estrogen to pre-cancerous and cancerous cells and helps to prevent their growth. Exemestane may have fewer side effects than other chemoprevention drugs (such as tamoxifen and raloxifene) and may also protect against other health problems linked to menopause.

\$6 Million NIH Grant Will Support Research on Cancer-Fighting Properties of Ginseng



Chun-Su Yuan, MD, PhD

University of Chicago Medical Center researchers will investigate the anti-tumor effects of the herbs American ginseng (*Panax quinquefolius*) and notoginseng (*Panax notoginseng*) thanks to a six million dollar grant from the NIH's National Center for Complementary and Alternative Medicine (NCCAM). The award will support the creation of the Center for Herbal Research on Colorectal Cancer (CHRCC) at the University of Chicago, one of only four new Centers of Excellence for Research on Complementary and Alternative Medicine funded in the country this year.

Ginseng and notoginseng are widely used to treat a variety of ailments, including the prevention and treatment of colon cancer. Colorectal cancer is the third most common cancer and the second leading cause of cancer-related death in the United States. Successful treatment is more likely with early detection. Patients with advanced colon cancer often have poor prognoses.

"At least one-third of adult patients in the United States turn to some sort of dietary supplement and many of them take herbal remedies, such as ginseng, to supplement or substitute for conventional pharmacotherapy," said Chun-Su Yuan, MD, PhD, a renowned expert in herbal medicine studies and director of the University of Chicago's Tang Center for Herbal Medicine Research. "Yet we know very little about how, when, or even if these products are beneficial."



Dr. Yuan further explained that scientific investigation of herbs is still in its infancy. "Considering their widespread use, the time has come to apply contemporary research principles and techniques to the study of botanical medications."

The Cyrus Tang professor of anesthesia and critical care and a member of the University of Chicago Cancer Research Center, Dr. Yuan will be the director of the new center. He will work with Tang Center colleagues Tong-Chuan He, MD, PhD, Associate Professor of Surgery and Wei Du, PhD, Associate Professor in the Ben May Department for Cancer Research, on three separate but interrelated projects designed to characterize the anti-tumor activities and mechanisms of action in the two types of ginseng and their active constituents

Project One, led by Dr. Yuan, will study the ability of ginseng to kill cancer cells and identify herbal components responsible for tumor cell death. Project Two, led by Dr. He, will focus on how ginseng extracts alter gene expression in tumor cells. Project Three, led by Dr. Du, will examine how ginseng manipulates the internal

signals that cells use to self-regulate cell growth and death.

Through the University of Chicago's Tang Center for Herbal Medicine Research, Drs. Yuan, He, and Du have considerable experience applying scientific techniques to the study of herbal medicine. The Center, founded in 2000, focuses on scientifically evaluating the effects of herbs, including those used in the Far East for centuries and now gaining popularity in the United States. Researchers have already uncovered some possible benefits as well as serious side-effects of herbal remedies.

Michelle Le Beau Receives Top Honor from American Cancer Society



Michelle Le Beau, PhD, UCCRC Director, with Otis Webb Brawley, MD, chief medical officer of the ACS and alumnus of the Pritzker School of Medicine.

The American Cancer Society (ACS) recently honored Michelle Le Beau, PhD, Director of the University of Chicago Cancer Research Center, with its prestigious Distinguished Service Award. Dr. Le Beau, a professor of medicine and human genetics, was given the award in recognition of her major contributions to cancer research.

"I am incredibly humbled by this award," Dr. Le Beau said. "My life's work and motivation have been pursuing cancer research and building academic programs that find ways to improve the quality of life for cancer patients."

My colleagues and I work toward the dream that one day we will bring cancer under control. We are making slow but steady progress toward that goal."

In announcing the honor, the American Cancer Society cited Dr. Le Beau's extraordinary work in therapy-related cancers. Also noted was her leadership in identifying recurring genetic abnormalities in blood cancers, and her groundbreaking research that led to the discovery of several distinct genetic subtypes of therapy-related myelodysplastic syndrome, a precursor to leukemia, and acute myeloid leukemia (AML).

Dr. Le Beau has published more than 410 papers on genetic abnormalities in human leukemia. Much of her current efforts focus on therapy-related AML. She is the principal investigator of a Program Project Grant sponsored by the National Cancer Institute examining the causes of AML following prior cancer treatments.

Since becoming the director of the University of Chicago Cancer Research Center in 2004, Dr. Le Beau has led the reorganization of interdisciplinary research programs and shared resources. She also developed a strategic plan for optimal use of the talent and resources of the UCCRC.

She has administered large peer-reviewed grants and successfully overseen academic research programs aimed at discovering mechanisms that trigger cancer and at designing prevention and treatment strategies. In addition, she has fostered the careers and training of many young scientists.

Dr. Le Beau also is the director of the Cancer Cytogenetics Laboratory at the University of Chicago. This diagnostic facility analyzes the abnormal cells from patients with leukemia, lymphoma, and solid tumors to identify key genetic events that lead to malignant transformation.

Dr. Le Beau holds a bachelor's degree in genetics from Purdue University and a master's degree and PhD in pathology from the University of Illinois. She completed fellowship training at the University of Chicago. Dr. Le Beau was appointed Assistant Professor at the University of Chicago in 1986 and became a full Professor in 1997. She has served on numerous editorial boards, including *Blood*, *British Journal of Haematology*, *Leukemia*, *Leukemia Research*, and *Genes, Chromosomes and Cancer*.

Black and White Ball Raises \$800,000 for Cancer Research

The University of Chicago Cancer Research Foundation Women's Board raised \$800,000 at its 42nd Annual Grand Auction gala this past November. Nearly 500 guests attended the Women's Board "Black and White Ball," in the Grand Ballroom of the Four Seasons Hotel. Tiffany and Co. and American Airlines were principal sponsors of the gala.

"It was an extraordinary affair, made even more meaningful because these funds will lead to tomorrow's important discoveries in the war against cancer," said Nalisa Ward, who co-chaired the event with Shelley Johnstone Paschke. "We are committed to accelerating the pace of progress and making cancer a thing of the past."



Black and White Co-Chairs Nalisa Ward (center left) and Shelley Johnstone Paschke (center right) with children of Women's Board members who volunteered to raise additional funds for UCCRC by selling raffle tickets.

Women's Board guests themselves were the décor. Men wore black tuxedos and women dressed in black or white. Masks were imaginative and elegant. Black and white balloons adorned the ceiling and plumes ornamented the tables.

Truman Capote's legendary Black and White Ball, the social event of the season in November 1966, inspired the Women's Board gala. The acclaimed author hosted his glittering party in the Grand Ballroom of New York City's Plaza Hotel.

Like Capote's soiree, decorations and flowers for the Gala were minimal:

"The original Black and White Ball celebrated one man's personal achievements. This event celebrated an outstanding cause—raising money for one of the top cancer programs in the world," said Barbara Sessions, president of the UCCRF Women's Board. "We couldn't have been more pleased and thankful that so many individuals and organizations stepped up to support this cause, despite these challenging economics."

The live auction portion of the evening featured several exceptional prizes. Tiffany & Co. donated a platinum and diamond necklace, "Breakfast at Tiffany's" in New York City and dinner in their Michigan Avenue store. American Airlines offered trips to Moscow and Tokyo. Everlands Resort Network donated a weeklong stay at the Lone Mountain Ranch in Big Sky, Montana. Art Smith, proprietor of Table Fifty-Two restaurant and former chef to Oprah Winfrey, made a surprise appearance and auctioned off two private dinners in his home.

Proceeds from this year's event will support research in early detection, diagnosis, treatment, prevention, and population science. Since its inception in 1947, the UCCRC Women's Board has funded a broad spectrum of basic, clinical, and translational research at the University of Chicago. Past recipients of Grand Auction gala funds include the Ben May Department for Cancer Research and the University of Chicago's Specialized Program for Research Excellence (SPORE) in Breast Cancer.



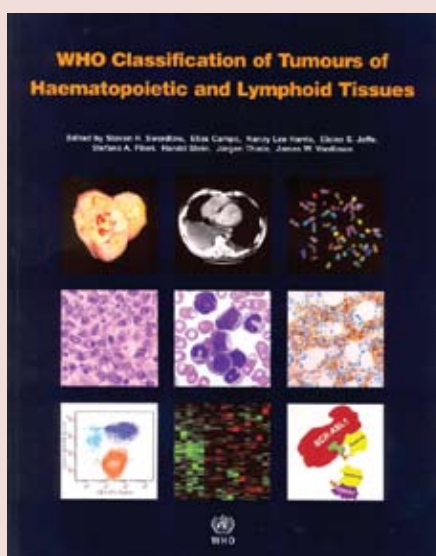
Black and White Ball Co-Chair Nalisa Ward (left to right); Catherine Elward (representing Platinum Sponsor Tiffany & Co.); Women's Board President Barbara Sessions; and Ball Co-Chair Shelley Johnstone Paschke.

Vardiman Plays Critical Role in Global Classification System

It does not feature vampires and teenage girls or a school of wizardry, but the first printing of the WHO *Classification of Tumours of Haematopoietic and Lymphoid Tissues* sold out quickly "due to the huge and unprecedented demand." The World Health Organization (WHO) is hurrying to release a second printing in January. The revised classification system combines the growing information about genetic characteristics of individual hematopoietic neoplasms with morphologic, immunophenotypic and clinical features to provide more exacting identification. (Genetics includes the microscopic and submicroscopic study of chromosomes and gene mutations.)

According to pathologist James Vardiman, MD, genetic analysis often provides more objective information than morphologic and immunophenotypic analyses alone. (Morphology focuses on the form and structures of the tumor or cells; immunophenotyping analyzes the antigenic properties of the cells.) Genetic studies eliminate the subjectivity sometimes associated with less state-of-the-art approaches. It also provides a more comprehensive and complex analysis of the cancer and its unique characteristics, and may allow for more targeted, personalized therapies.

Dr. Vardiman is one of 8 editors of this reference work, which provides consensus classifications of cancers of the blood and the lymphatic system. Common descriptions, definitions, and names are essential for accurate diagnosis, successful treatment, and productive research. A shared vocabulary is especially valuable during these times of international collaboration in medical research.



With 8 editors and 130 contributors, including pathologists, clinicians and clinical scientists from around the world, the work represents the wisdom and expertise of some of the world's most knowledgeable cancer specialists. Dr. Vardiman and Dr. Thiele (Cologne, Germany) edited the first half of the book, which focuses on hematopoietic (mainly myeloid neoplasms), whereas the remaining six editors took responsibility for classification of tumors of the lymphoid tissues, which takes up the work's second half.

Dr. Vardiman also was instrumental in developing consensus among a diverse group of experts with various perspectives. Dr. Vardiman, Michelle Le Beau, PhD, UCCRC Director, and Richard Larson, MD, facilitated this worldwide effort. In 2007, they organized and hosted a meeting to achieve consensus of the clinical and scientific community regarding the nomenclature and disease entities included in the myeloid section. The UCCRC provided the initial grant that launched the fundraising, which made it possible to convene a global conference. "We could not have worked out all of the differences of opinion without the participation of Michelle, Dick, and the UCCRC," said Dr. Vardiman.

Dr. Vardiman, an international leader in refining the classification of hematological malignancies and incorporating molecular and cytogenetic features into available classification systems, has participated as a member of the WHO Steering Committee for the Classification of Haematopoietic and Lymphoid Tissues since 2000. In the 1970s, Dr. Vardiman worked with Janet Rowley, MD and Harvey Golomb, MD, to define a number of distinct subtypes of leukemia and lymphoma based on morphologic and genetic features.

Members News and Notes



Sonali Smith, MD, (l.) and **Koen van Besien, MD, (r.)** are co-chairs of the Sixth International Chicago Lymphoma Symposium, along with Andrew Evens, DO, MS, of the Robert H. Lurie Comprehensive Cancer

Center at Northwestern University. The two-day (April 16-18, 2009) Symposium will be in honor of John Ultmann, MD, who introduced innovative treatment for Hodgkin's disease and other lymphomas. Death rates from Hodgkin's disease fell 60 percent in the past 50 years thanks, in part, to his insights. Dr. Ultmann was the UCCRC's first Director. The Symposium's panel of national and international experts will provide updates on recent advances in the diagnosis and management of patients with lymphoid malignancies, as well as reports on the latest scientific and translational advances in lymphoma studies. Interested persons should go to <http://www.chicagolymphoma.com/> to register.



Philip C. Hoffman, MD, will become the Associate Section Chief for Academic Affairs in the Section of Hematology/Oncology. On January 1, 2009, Dr. Hoffman will assume responsibilities for the faculty promotions, appointments, and re-appointments in the Section. Dr. Hoffman is an expert in cancers of the lung, breast, and esophagus, and has

an interest in hematologic disorders, such as anemia and thrombocytopenia (low platelets). He joined the University of Chicago faculty in 1980 and is Co-Director of the Hematology/Oncology Outpatient Clinic.



The November 18, 2008, issue of the National Cancer Institute's (NCI) Cancer Bulletin featured the UCCRC's Center for Interdisciplinary Health Disparities Research (CIHDR). CIHDR leverages the diverse talents of social workers, psychologists, physicians, cancer researchers, and molecular geneticists to explore the possible causes

of breast cancer in African American women. Researchers are examining the influence of social stress on the incidence and severity of breast cancer. CIHDR is one of eight centers funded by the NIH, but the only one discussed in the article. Led by **Sarah Gehlert, PhD**, CIHDR (pictured above) has four studies underway. Primary investigators for these projects are Dr. Gehlert, **Suzanne Conzen, MD**; **Olufunmilayo (Funmi) Olopade, MBBS, FACP**; and **Martha McClintock, PhD**.



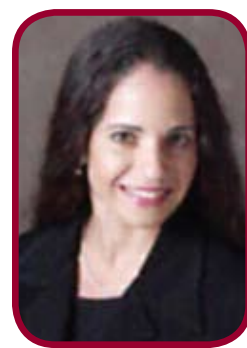
Dr. Olopade has also been elected to the National Academy of Science's Institute of Medicine. This prestigious honor recognizes her prominence as an international leader in cancer genetics and breast cancer research. Membership in the Institute is considered "one of the highest honors in the fields of health and medicine and recognizes individuals who

have demonstrated outstanding professional achievements and commitment to service," according to the IOM. In July, 2008, Dr. Olopade assumed the newly-created role of Associate Dean for Global Health. This new role helps to address the ever-increasing importance of this issue.



Crain's Chicago Business named **Kevin White, PhD**, as one of its "40 Under 40," its annual snapshot of the area's up-and-comers. He was the only person on this year's list from an academic setting. A pioneer in combining experimental and computational techniques to understand the networks of factors that control gene expression during development and

evolution, White came to Chicago from Yale University in 2006, as a Professor in Human Genetics and Ecology & Evolution. He also is Director of the Institute for Genomic & Systems Biology.



Lisa Sanchez-Johnsen, PhD, received the "Distinguished Professional Early Career Award" by the National Latina/o Psychological Association (NLPA) on November 15, 2008 at the NLPA conference in Costa Mesa, California. The NLPA is committed to promoting the educational and professional advancement of Latina and Latino psychologists. The honor is

presented annually to a psychologist who fosters an effective application of psychological knowledge for the benefit of the Hispanic/Latino population. Dr. Sanchez-Johnsen was honored for her research, training, teaching, clinical work, community outreach, and service to Latinos. She conducts culturally-tailored cancer prevention and control research in the areas of obesity, physical activity, and smoking with ethnic minorities. For the past 7 years, she has been a Health Disparities Research Scholar with the NIH-National Center for Minority Health and Health Disparities. Her current funding includes an NIH K award to develop culture-based diet, exercise, body image, and tobacco interventions for overweight Latinos, as well as an NIH R21 award that examines cultural variables underlying obesity in Puerto Rican and Mexican women.



The Academy of Distinguished Medical Educators at the Pritzker School of Medicine inducted **Kevin Roggin, MD**, as one of its 2008 Fellows. Dr. Roggin serves as the University of Chicago Medical Center and Pritzker School of Medicine Ombudsman for students and residents. He is also a member of the Society of Surgical Oncology Training Committee.

Dr. Roggin is currently updating the didactic curriculum of the General Surgery Residency Program in an interactive problem-solving workshop format.

A Message from the Executive Director of the Foundation



Last year seemed to rush by, and now, before we are able to catch our breath, 2009 has begun with the UCCRC enthusiastically working to find new ways to advance cancer research. It is stunning to consider how much the University of Chicago Cancer Research Foundation (UCCRF) accomplished in 2008.

In FY 2008, UCCRF members raised more than \$3.25 million for cancer research. Our members are well on their way to reaching their \$5.5 million goal for the capital campaign, and the Women's Board has already achieved its goal of \$1.5 million. Later this year the Women's Board Drug Discovery Lab will be open for business, and scientists will be busy developing new therapies that are safer, more effective and precise in seeking out cancer cells and avoiding healthy ones.

The Auxiliary Board has ambitious plans to attract new funding and to raise awareness of the importance of cancer research and philanthropy. This year, the Auxiliary Board will support three new doctors: Tara Henderson, MD, MPH; Ernst Lengyel, MD; and Samuel L.

Volchenbom, MD, PhD, MS. These physicians, although relatively young, have already made significant discoveries that have enhanced pediatric and gynecologic cancer care.

The pace of the Associates Board's efforts is also accelerating quickly. The Associates Board is very active, hosting multiple fund raising events, doubling its membership in one year, and making a name for itself as a hard-charging group of generous young professionals.

All of the UCCRF members have focused their minds on a mission, supporting cancer research that is innovative, ground-breaking, and gives patients reasons to hope. I and the rest of the UCCRF staff feel very privileged to work with such dedicated, compassionate individuals who have a vision of a better world.

With appreciation and warm regards,

Mary Ellen Connellan

Executive Director,

University of Chicago Cancer Research Foundation

Research Highlights

Walter Stadler: DOD Funds Prostate Cancer Trials



The Department of Defense (DOD) Prostate Cancer Research Program (PRCP) will fund a proposal from **Walter Stadler, MD**, (l.) professor of medicine, for prostate cancer-focused clinical trials. The funding will support new prostate cancer clinical trials with a focus on early phase, innovative, and

multidisciplinary therapies. The grant is in collaboration with the NorthShore University Health System, an affiliate of the University of Chicago Medical Center since July 2008 and Northwestern University. The hospitals will now be part of a 16-institution clinical trial consortium that includes the leading centers conducting prostate cancer-directed research. DOD based its decision to fund the study on the relevance of the proposal to the programmatic goals of the PRCP, and on the potential of the project to significantly enhance our understanding of prostate cancer.

Dr. Stadler and **William Dale, MD**, (r.) are researching the role that cancer-specific anxiety plays in a patient's decision to accept androgen-deprivation therapy (ADT). This treatment suppresses or blocks the production or functioning of male hormones (androgens). Some prostate cancers require androgens to grow. Older men often choose to delay or refuse ADT, because of toxic side-effects, including osteoporosis, muscle wasting, weakness, fatigue, and geriatric frailty. It is hoped that more of these men will accept the therapy if measures are developed to prevent these side effects. The *Journal of Clinical Oncology* will soon publish an article by Drs. Stadler and Dale, focusing on the impact of anxiety among prostate cancer patients.

Andy Minn: Era of Hope Scholar Award Recognizes Innovative Approaches to Breast Cancer Research



The Department of Defense Breast Cancer Research Program (BCRP) has honored Andy Minn, MD, PhD, with a \$3.8 million Era of Hope Scholar Award. The Award supports individuals who have high potential for innovation in breast cancer research early in their careers. According to BCRP, awardees are "exceptionally talented, early-career scientists who have demonstrated that they are the 'best and brightest' in their field(s) through extraordinary creativity, vision, and productivity." They are also researchers who "challenge current dogma and demonstrate an ability to look beyond tradition and convention."

Dr. Minn's laboratory focuses on understanding how cancer cells develop metastatic and treatment resistant phenotypes. (A phenotype is the physical or biochemical characteristics of an organism, as determined by genetic makeup and environmental influences.)

Ralph Weichselbaum: Targeted Radiation Therapy Eradicates Cancer in Some Patients



According to a study by Ralph Weichselbaum and his colleagues, precisely targeted radiation therapy can eradicate all evidence of disease in selected patients with cancer that has spread to only a few sites. Ongoing clinical trials suggested that targeted radiation therapy had completely controlled all signs of cancer in twenty-one percent of patients who had five or fewer sites of metastatic disease. Dr. Weichselbaum published his findings in *Clinical Cancer Research*.

"We had encouraging results, including several long-term survivors, in patients with Stage IV cancers that had spread to distant sites," said Dr. Weichselbaum. "This was a proof of principle in patients who had failed the standard therapies and had few, if any, remaining options."

The UCCRC and The Ludwig Center for Metastasis Research funded the study. Additional UCCRC researchers and authors on the study include Steven Chmura, Neil Mehta, Walter Stadler, Everett Vokes, Daniel Haraf and Samuel Hellman.

Dorothy Sipkins: Protecting Healthy Blood-Forming Cells from Cancer

Dorothy Sipkins, MD, PhD, and her colleagues recently published a paper in the journal *Science*, which reports that blocking a chemical signal that cancerous cells release could protect maturing red and white blood cells, and improve their accessibility for use in bone marrow transplantation to treat cancers of the blood system. Leukemic and other cancerous cells can halt the development of blood-forming stem cells before they mature fully.

Dr. Sipkins studies the molecular characteristics of tissue microenvironments, or "niches," within the bone marrow where normal, healthy bone marrow stem cells divide and mature. From these niches, the stem cells produce all the different types of blood cells involved in transporting oxygen from the lungs to the rest of the body, fighting off infections, and controlling blood clotting.

"This is not a cure for leukemia," Dr. Sipkins said, "but it's one more tool. We like to hit cancer from all sides. This approach could potentially boost the immune system's response to the cancer by protecting the hematopoietic progenitor cells (HPCs) that are the source of mature immune cells. It could also maintain the patient's ability to tolerate treatment and to remain active."

Dr. Sipkins and her team performed the research using mouse models. The researchers are hoping to confirm their findings in human studies.

Gifts of Hope

Michael Rolfe Foundation Funds Integrated Effort Focusing on Pancreatic Cancer

The Michael Rolfe Pancreatic Cancer Foundation is providing \$150,000 in seed funding to the UCCRC to support ongoing research in the early detection and prevention of pancreatic cancer. This research, encompassing a diversity of complementing expertise, will focus on the most deadly cancer. (Pancreatic cancer has a five-year survival rate of five percent, the worst of all cancers in the US.) This effort will unite expertise in the Departments of Surgery, Pathology, Radiation and Cellular Oncology, and Medicine, and the Cancer Risk Clinic under the umbrella of the UCCRC.

This grant is the Foundation's largest award in 2008. The Foundation supports advanced medical research, public awareness initiatives and educational programs to enable early diagnosis of the disease and promote the search for a cure. Founded in 1999 by family and friends of Michael Rolfe, the Foundation is a "grass-roots effort" that inspires "fighting spirit in those who have been touched by this devastating disease." According to his wife Judy, Rolfe was an "other centered" person and a mentor to many friends and colleagues. A lifelong learner, he attended the University of Chicago at age 55 to earn an MBA.

For the past two years, the Foundation has supported a study, led by Kevin Roggin, MD, to identify a molecular signature for pancreatic cystic neoplasms (PCN). (A neoplasm is a tumor.) There are various types of pancreatic cystic lesions, such as benign, inflammatory and malignant, and it is often difficult to tell them apart. The Foundation's support has enabled Roggin to expand his investigation and explore ways to predict the malignant nature of PCN in high-risk individuals. Dr. Roggin's work is facilitating detection of pancreatic cancer or precursors to the disease. Early detection of the cancer when it is most treatable is the surest path to a healthy outcome.

Support from the Foundation will enable others to build on Dr. Roggin's work and pursue new and complementary lines of research in pancreatic cancer early detection under the leadership of Mitchell Posner, MD.

Six Chicago High Schools Compete in Nutrition Knowledge Bowl

There was an overflow crowd at the First Annual Nutrition Knowledge Bowl on December 13, 2008 at the DuSable Museum of African American History in Chicago. More than five hundred cheering, poster-waving high school students, parents, and other supporters filled the DuSable auditorium to watch the Kenwood Academy team win the first place trophy and demonstrate its expertise about nutrition.



The teams from Kenwood Academy (L.), the Chicago High School for Agricultural Science (C.), and the Urban Prep Charter Academy for Young Men demonstrate their knowledge of nutrition to qualify for the final round.

The Knowledge Bowl used a Jeopardy-like game show format to encourage students to learn about the importance of a healthy diet to help prevent cancer and other diseases. (A balanced diet can reduce the risk of cancer by as much as 30 to 40 percent.)

De La Salle Institute Lourdes Campus won second place. Third place went to the University of Chicago Charter School Woodlawn Campus. The Chicago High School for Agricultural Science reached the final round. Urban Prep Charter Academy for Young Men and Hales Franciscan High School were fierce competitors as well.

The six participating schools represented a diverse collection of public and private institutions. "All of the students exhibited extraordinary grasp of the information," said Rick Kittles, PhD, Associate Director for Diversity and Community Outreach, the University of Chicago Cancer Research Center (UCCRC). "The questions were perfectly matched to the students, which helped provide a lot of drama and excitement."

The renowned Ian Smith, MD, a graduate of the University of Chicago's Pritzker School of Medicine, emceed the event. Dr. Smith is the creator of the 50 Million Pound Challenge, the medical/diet expert for the Celebrity Fit Club on VH1, and author of the best-selling books *The Fat Smash Diet* and the *Extreme Fat Smash Diet*.

WGCI radio personality, Frankie Robinson, enlivened the event and gave away prizes to enthusiastic youth throughout the program. She concluded with wise advice drawn from her personal struggles as a young person, and encouraged young attendees to continue to dream despite discouraging circumstances.

Community Engagement Centering on Solutions (CECOS) hosted the event. Led by Dr. Kittles, CECOS is a program of the UCCRC. "It is remarkable that so many students turned out on a wintry, Saturday morning to cheer on the teams and learn about nutrition," said Michelle M. Le Beau, PhD, Director of the UCCRC. "The participants and their supporters turned the Knowledge Bowl into a lively, joyful event."

CECOS promotes engagement with Chicago's Southside community to increase local awareness of advances in cancer research and communicate the benefits of participation in cancer clinical trials and other UCCRC research studies. CECOS also provides information about important cancer-related issues and treatment options.



The winning team from Kenwood Academy receives its winning check and trophy. Ian Smith, MD, is at the far left. Rick Kittles, PhD, is fourth from left.

This educational event attracted support from numerous groups, including Oprah's Angel Network, Exelon, WGCI, Dominick's, Farmer's Best Market, the DuSable Museum of African American History, the University of Chicago Medial Center Office of Community Affairs, and the University of Chicago Institute for Translational Medicine.

EducationalGameWorks, an African American Educational Consulting Firm, skilled in the creation of innovative games that facilitate learning, developed the Bowl's game-format. Engage Everyone provided digital Screens and pre-event digital promotion.

Pathways to Discovery

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