



May 2011

## **IU investigators find biomarker that predicts taxane-induced neuropathy among breast cancer patients**

Indiana University researchers have identified a genetic biomarker that causes neuropathy among some breast cancer patients using a class of chemotherapy drugs called taxanes.

It is one of the first genetic biomarkers to have been reported for neuropathy caused by taxanes, which includes paclitaxel or Taxol. The finding may eventually lead to a blood test to determine if a patient is at risk of developing neuropathy.

Neuropathy is a nerve problem that causes pain, numbness, tingling, burning, or muscle weakness in different parts of the body.

"We found multiple, provocative genes that may be associated with neuropathy, one of which stood out from the rest in a gene named RWDD3," **Bryan Schneider**, MD, lead investigator, said.

Dr. Schneider and colleagues found the gene by conducting a comprehensive genetic look of more than one million genetic variations in each of the 2,204 breast cancer patients studied.

The patients were enrolled in the Eastern Cooperative Oncology Group clinical trial E5103.

The IU investigators looked for variations in DNA called single nucleotide polymorphisms or SNPs. They identified genetic subgroups that were likely to develop neuropathy. Those who carried two normal nucleotides in the RWDD3 gene had a 27 percent chance of experiencing neuropathy. But those who carried one normal nucleotide and one SNP had a 40 percent chance and those who carried two SNPs had a 60 percent chance.



Schneider

The study also found that older patients and African Americans were much more likely to have neuropathy.

### **Dr. Schneider takes Early Career Achievement Award**

During the IU School of

Dr. Schneider and colleagues will advance their research with additional trials to validate these findings and to determine whether a different type of taxane therapy would result in less neuropathy in the more susceptible genetic group.

Medicine's Alumni Association's Alumni Weekend on May 20-21, Dr. Schneider was presented with the Early Career Achievement Award. Recipients are chosen because of their significant dedication as a researcher and clinician at the IU School of Medicine.

Dr. Schneider's IU collaborators were: **Sunil Badve**, MD; **David Flockhart**, MD, PhD; **Lang Li**, PhD; **Kathy Miller**, MD; and **George Sledge**, MD.

The American Society of Clinical Oncology has invited Dr. Schneider to present his research findings during its 47<sup>th</sup> annual meeting in Chicago in early June. His research also has been selected to be highlighted in ASCO's official press program. Less than 1

percent of abstracts are chosen for that distinction. The press program plays a vital role in garnering accurate, national media coverage of cancer research presented at the meeting. In addition, Dr. Schneider's research has been selected to be included in the Best of ASCO program, an educational initiative that seeks to increase global access to cutting-edge science.

The following cancer center members also are presenting at ASCO's 47<sup>th</sup> annual meeting: **Jose Azar**, MD; **Sunil Badve**, MD; **Gabi Chiorean**, MD; **Noah Hahn**, MD; **Shadia Jalal**, MD; **Daniela Matei**, MD; and **Kent Robertson**, MD, PhD. Jackie Brames, RN, research nurse coordinator, is also presenting.



May 2011

## NIDDK awards grant to Center of Excellence in Molecular Hematology

The National Institute of Diabetes and Digestive and Kidney Disease (NIDDK) has awarded a \$480,000 grant to the Center of Excellence in Molecular Hematology (CEMH).

IU's CEMH center was one of only five such centers to receive funding. The others were Fred Hutchinson Cancer Research Center (Seattle), Children's Hospital of Philadelphia, Children's Hospital Medical Center (Cincinnati), and Children's Hospital Boston.

The CEMH, which will receive more than \$3.6 million over five years from NIDDK, brings together investigators from relevant disciplines to enhance and extend the effectiveness of research related to hematologic diseases and their complications, according to the NIDDK.

"This is a center of excellence in molecular hematology," **Edward F. Srour**, PhD., one of the center's co-directors, explained. "Our focus is on mechanisms that will facilitate or improve stem cell clinical utilization."

The center's membership draws from a group of well-funded investigators with a diverse but complementary experience in hematopoiesis and stem cell biology, viral mediated gene transfer, molecular genetics, virology, hematopoietic stem cell transplantation (cord blood, bone marrow, and mobilized peripheral blood), neonatology, and vascular and developmental biology.

Overall, the center is composed of four cores: administration; Angiogenesis, Endothelial and Pro-Angiogenic Cells; Experimental Mouse Resources; and Optical Microscopy.

Dr. Srour and **Hal E. Broxmeyer**, PhD, the center's other co-director, form the center's administration core.

The Angiogenesis, Endothelial and Pro-Angiogenic Cell Core, led by **Jamie Case**, PhD, and **Mervin Yoder**, MD, conducts validated and highly reproducible *in vitro* and *in vivo* angiogenesis assays. These assays function as experimental platforms for understanding the basic mechanisms of angiogenesis and discovering compounds that inhibit new blood vessel formation in tumor microenvironments.

Led by **Karen Pollok**, PhD, and **Simon Conway**, PhD, the Experimental Mouse Resources Core is designed to fulfill the extensive demand for immunodeficient and genetically modified mice for *in vivo* lineage mapping, transplantation, and tumor xenograft studies to functionally examine the therapeutic potential for hematopoietic cells.

The Optical Microscopy Core provides access, training, and services in high resolution optical microscopy. **Ken Dunn**, PhD, and **Nadia Carlesso**, MD, PhD, serve as co-directors.

“There are certain crucial cores that we need in order for IU investigators to do the best research that they can,” **Dr. Broxmeyer** said. “Having these cores not only allows us to do the work but also allows our members to have a discounted rate to use the cores. The center is really about facilitating collaborations and interactions. It gives us cutting-edge technology, which makes us more competitive.”

All of the cores support the basic and translational studies that underlie the CEMH’s mission and will facilitate the development of new discoveries into human trials.

CEMH also includes a pilot and feasibility program, to be funded in part through university funds, in order to enhance the training of young investigators and to enhance their ability to successfully compete for extramural funding.



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## News briefs

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### IUSCC members participate in cancer survivor celebration June 13

IU Simon Cancer Center researchers will join local and national figures as Cancer Support Community and Indiana University Health partner to present an educational and celebratory symposium and luncheon for cancer survivors, co-survivors, and healthcare professionals.

[more](#) 

### Cancer Research Day winners announced

Award recipients of this year's IU Simon Cancer Center Cancer Research Day were selected Thursday, May 26. [See the list of award winners.](#)

### Cancer center members serve as mentors during Summer Research Program

The IU Simon Cancer Center's [Summer Research Program](#), now in its ninth year, is about to begin. The program aims to increase the number of high school and undergraduate students from underrepresented populations pursuing biomedical and behavioral science careers by providing positive and meaningful firsthand exposure to these fields. The program is June 1 to July 29. Participants will be paired with the following mentors: **Angelo Cardoso**, MD, PhD; **Janet Carpenter**, PhD, RN; **Jake Chen**, PhD; **David Flockhart**, MD, PhD; **Theresa Guise**, MD; **Noah Hahn**, MD; **Brittney-Shea Herbert**, PhD; **Marc Mendonca**, PhD; **Hari Nakshatri**, PhD; **Christy Orschell**, PhD; **Karen Pollok**, PhD; George Sandusky, **Eddy Srour**, PhD; **Attaya Suvannasankha**, MD; **John Turchi**, PhD; and **Clark Wells**, PhD.

### IUSCC hosts Future Scientist Program

The IU Simon Cancer Center is hosting five students this summer in the Future Scientist Program, a partnership among the cancer center, Indiana University Health, Indianapolis Public Schools (IPS), and the American Cancer Society. Five IPS high school students, who have a keen interest in science, have been selected into the program. The following cancer center members are the students' mentors: **Louis Pelus**, PhD (blood cell homing and cancer); **Bryan Schneider**, MD (breast cancer genomics and individualized

therapy); **Theresa Guise**, MD, and **Khalid Mohammad**, MD, PhD, (breast and prostate cancer metastasis); **Sunil Badve**, MD, (breast cancer pathology and genomics); and **David Gilley**, PhD (telomerase, DNA damage and repair; breast cancer).

### Applications due June 15 for Cancer Biology Training Program

The goal of the [Cancer Biology Training Program](#) (CBTP) is to provide an interdisciplinary training environment for pre-doctoral students who wish to pursue a career in cancer research. The application deadline is June 15, 2011.

### Cancer center members in the news

- **George Sledge**, MD, is featured in the Discovery Channel documentary "Getting Personal: The Shifting Landscape of Cancer Care." The documentary airs at 8 a.m. June 4.
- **Nadia Carlesso**, MD, PhD, and colleagues wrote "The SKP2 E3 Ligase Regulates Basal Homeostasis and Stress-induced Regeneration of Hematopoietic Stem Cells," which appeared in the April 18 issue of the journal [Blood](#).
- **Bryan Schneider**, MD, and **George Sledge**, MD, wrote an editorial, "Anti-Vascular Endothelial Growth Factor Therapy for Breast Cancer: Can We Pick the Winners?," which appears online in the [Journal of Clinical Oncology](#).
- **David Flockhart**, MD, PhD, is a participant in the National Cancer Institute/Center to Reduce Cancer Health Disparities' Cancer Health Disparities Program in Bethesda, Md., 12-15.



Flockhart

### Reminders

- **Membership criteria changes**  
IU Simon Cancer Center membership criteria, benefits, and responsibilities have been updated. Membership in the IU Simon Cancer Center is open to full-time faculty of Indiana University or IUPUI who contribute on some level to the overall mission of the cancer center in areas of research, education, patient care, or community outreach. [Learn more.](#)
- **Miss a Combined Seminar Series?**  
Did you miss a Combined Seminar Series? You can now watch it online. A full listing of past Seminar Series events is [here](#). Also, speakers for the 2010-11 academic year have been announced. You can find the schedule [here](#).
- **Grants available to researchers**  
For the latest grant opportunities, visit the [Funding Opportunities](#) page on the IUSCC Web site.