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Game Changer: Biomarker identified for noncancerous pancreatic cysts

Feb. 11, 2014

INDIANAPOLIS -- Researchers at the **Indiana University School of Medicine** have discovered a highly accurate, noninvasive test to identify benign pancreatic cysts, which could spare patients years of nerve-racking trips to the doctor or potentially dangerous surgery.

The findings are reported in "**Vascular Endothelial Growth Factor, a Novel and Highly Accurate Pancreatic Fluid Biomarker for Serous Pancreatic Cysts**" online in the Journal of the American College of Surgeons.

The test, which analyzes fluid from pancreatic cysts, can identify a common type of benign cyst that can't be differentiated by imaging alone from cysts that may progress to pancreatic cancer.

Pancreatic cyst fluid is tested for a biomarker, a specific isoform of vascular endothelial growth factor A, or VEGF-A. Pancreatic cyst fluid is often obtained in patients with pancreatic cysts as a part of standard testing during endoscopy. High levels of VEGF-A indicate with 99 percent accuracy that the cyst will not become malignant, the researchers found after analyzing the results of 87 patients.

First author **Michele T. Yip-Schneider**, Ph.D., associate research professor of surgery, and senior author **C. Max Schmidt**, M.D., Ph.D., MBA, professor of surgery, biochemistry and molecular biology, report this is the first cyst fluid protein biomarker that can differentiate serous cystic neoplasms, a benign type of cystic lesion, from all other cancerous or precancerous cystic lesions without surgery.

Pancreatic cancer is one of the deadliest cancers in part because it is frequently diagnosed late and treatment options are somewhat limited. According to the National Cancer Institute, about 45,220 people will be diagnosed this year with pancreatic cancer and about 38,460 will die from the disease.

Treatments may include chemotherapy, radiation and surgery, but few patients are cured.

"Only 15 percent of pancreatic cancer patients will benefit from surgery, and of those, only about 20 percent will survive five years," said Dr. Schmidt, who is a researcher with the **Indiana University Melvin and Bren Simon Cancer Center** and director of the IU Health Pancreatic Cyst and Cancer Early Detection Center.

Complications from pancreatic surgery are common and can be life threatening, so sparing a patient unnecessary surgery is important, Dr. Schmidt said.

"As scientists, we have tried to figure out which cystic lesions are benign, which are pre-cancerous and which are malignant," Dr. Yip-Schneider said. "Although pancreatic cysts are best seen on pancreatic MRI-MRCP, making a diagnosis of which type of cyst and how likely cancer will develop is not usually possible through imaging alone."

Surgery is not the panacea that patients frequently hope for, and the majority of pancreatic cancer patients aren't even eligible due to the advanced stage of the disease at presentation.

Pancreatic cysts and cancer are becoming more common in the American population. It is unclear why, but pancreatic cancer is clearly associated with obesity, smoking and a family history of pancreatic cancer.


Today, about 3 percent of the U.S. population has pancreatic cysts, although many are asymptomatic and go undiagnosed. Most of these cysts are pre-cancerous, but some are completely benign while others are cancerous. Patients go through extensive follow-up medical visits, invasive biopsies and sometimes unnecessary surgery to determine the true nature of their pancreatic cyst. The novel marker VEGF-A can completely eliminate the need for this extensive follow-up and potential harm for patients with unrecognized benign cysts, the researchers said.

"Many of my patients when initially told they have pancreatic cysts are very fearful and ask for surgical


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A benign pancreatic cyst is evident at the tip of the clamp in this photo.

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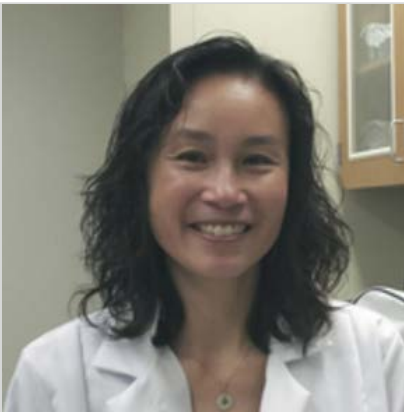
C. Max Schmidt, M.D., Ph.D., MBA

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removal of the cyst or the entire pancreas before they even learn their options," Dr. Schmidt said. "Now, physicians will have an outpatient procedure to offer that can take some of the guesswork out of the equation."

A short video describing this research can be found at <http://youtu.be/NGLh6rjOPvs>.




Michele Yip-Schneider, Ph.D.

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Efroymson Family Fund endows chair for cancer research at IU

The Rachel Cecile Efroymson endowed chair has been established at the Indiana University Melvin and Bren Simon Cancer Center with a \$2 million gift from the Efroymson Family Fund.

Lori Efroymson-Aguilera, chair of the [Efroymson Family Fund](#), serves on the [IU Simon Cancer Center's development board](#). The fund has now established two endowed chairs to benefit research at the IU Simon Cancer Center and to honor the memories of Lori's late husband, Dan, and their daughter, Rachel. Both lost their lives to cancer.

"I am deeply inspired by Lori and her family. Our relationship with them began because of a disease that took two lives, far too soon. What it did not take away from this extraordinary family is the passion to make a difference for others. Through their generosity, the names of Rachel and Dan Efoymson will remain a constant reminder to our researchers -- not for what cancer did to them -- but rather as a charge for what we must do to relieve the burden of cancer for other families," said Patrick J. Loehrer Sr., MD, director of the IU Simon Cancer Center.

[Jiali Han](#), PhD, an internationally recognized cancer researcher who links



genes for diseases with their environmental triggers, has been named the Rachel Cecile Efroymson Professor in Cancer Research, pending approval by the IU board of trustees. Dr. Han also has been named professor and inaugural chair of the Department of Epidemiology at the new [Fairbanks School of Public Health](#) at IUPUI.

"I'm grateful that the Efroymson Family Fund is a partner in our mission to decrease cancer rates in Indiana with public health strategies and to increase opportunities for physicians to educate their patients about personal genetic risk factors," Dr. Han said.

Dr. Han's role is to reveal the genetic traits that trigger disease when exposed to certain behaviors and then translate that knowledge into public policy and individual prevention strategies. His research involves comparing the genes of those who are exposed to environmental risks and get cancer with those who have the same environmental exposure but remain cancer

free.

“We can’t change the genes that trigger disease, but educating about individual risk can lead to behavior modification,” Dr. Han said. His goal is to collaborate with physicians to provide patients with personalized prevention programs.

Dr. Han is widely known for his skin cancer research. For example, he has demonstrated a link between tanning bed exposure and increased risk of basal cell carcinoma, the most common form of skin cancer. He has also published studies that indicate caffeinated coffee consumption lowers the risk of developing this specific skin cancer. Most recently, he has shown that those with a personal history of prostate cancer also have a greater chance of developing melanoma, the most deadly type of skin cancer.

As chairman of the Department of Epidemiology at the Fairbanks School of Public Health, Dr. Han intends to recruit three more faculty members specializing in cancer epidemiology to join three current faculty members. Dr. Han will also serve as co-leader of the IU Simon Cancer Center’s [cancer prevention and control research program](#). Nearly 40 researchers in the program are engaged in innovative and collaborative research, with the potential to decrease cancer morbidity and mortality.

“Dr. Han is the right man at the right time for the Fairbanks School of Public Health and the IU Simon Cancer,” Dr. Loehrer said. “He brings experience, enthusiasm, and leadership to the burgeoning field of molecular epidemiology and cancer. Only through the understanding of the many intricacies of the causes of cancer can we hope to make meaningful and sustainable impacts in patients’ lives.”

Currently, Dr. Han leads collaborative studies that compare DNA markers across the genome -- the complete genetic material in a person -- in people with a disease or trait to people without the disease or trait by using bioinformatics and molecular biology tools to examine the association and the biological function of genetic variants. He has also worked on breast and lung cancers and endometriosis.

Dr. Han most recently was an associate professor of dermatology and medicine at Harvard Medical School and an associate professor of epidemiology at the Harvard School of Public Health. He earned his doctorate in biological sciences in public health from Harvard University.

Dr. Han serves as a key investigator on multiple National Institutes of Health-funded projects, providing critical expertise in genetic and molecular epidemiology to other faculty members and researchers. He has been the principal investigator on a number of NIH grants, and he has published more than 100 original research articles in peer-reviewed journals.

He has been invited to speak about his research at regional, national and international scientific meetings. He is an associate editor for the journal Cancer Causes and Control and serves on the editorial board of Experimental Dermatology, and he has been a guest associate editor of PLoS Genetics. He has served on a number of national and international committees and chaired sessions of national scientific societies.

“This is a very rare opportunity,” Dr. Han said of his decision to come to Indiana University. “It’s an opportunity to build a new school and a new department. It’s very exciting to collaborate with outstanding physicians and scientists at IU who are doing extraordinary translational research.”

The IU Simon Cancer Center is currently conducting a national search for a faculty member to hold the Daniel and Lori Efroymson Chair in Cancer

Research.

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News briefs

Cancer center undergoes NCI site visit

On Feb. 25, 21 reviewers from the National Cancer Institute (NCI) and NCI-designated cancer centers spent the day on campus for an intensive site visit of the IU Simon Cancer Center.

The site visit was the next step in the cancer center's multi-step competitive process for renewal of its Cancer Center Support Grant (CCSG) and its NCI designation.

During the site visit, [Patrick Loehrer](#), MD, director of the IU Simon Cancer Center, presented an overview of the cancer center, while the co-leaders of the center's five [research programs](#) presented overviews of their respective programs.

What happens next?

Four to six weeks after the site visit, the cancer center will receive a draft summary statement. In April or May, the NCI's review committee, having received feedback on the draft from cancer center leadership, will work to produce the final summary statement for the National Cancer Advisory Board (NCAB). The NCAB will issue the final summary statement in May or June. In September, the new funding cycle of the CCSG begins.

The CCSG is an important source of funding for the cancer center's [shared facilities](#). This support, along with IU Simon Cancer Center funding, assures that cancer center members have access to the highest quality technology for their research.

The IU Simon Cancer Center's last renewal was in 2008. Since that time, the cancer center's total research space has increased from 25,000 square feet to 125,000 square feet, NCI projects increased by 30 percent (56 to 73 per year), and average NCI funding is up \$3.5 million.

The IU Simon Cancer Center is one of only 68 NCI-designated cancer centers in the nation. The designation recognizes centers around the country that meet rigorous criteria for world-class, state-of-the-art programs in multidisciplinary cancer research. These centers put significant resources into developing research



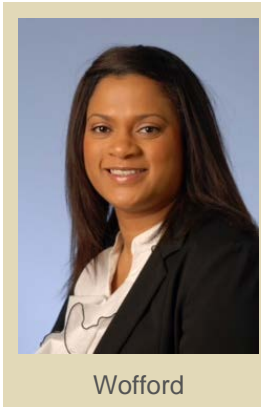
programs, faculty, and facilities that will lead to better approaches to prevention, diagnosis, and treatment of cancer. The NCI designation not only recognizes excellence but opens doors to greater federal funding, information sharing, and resources.

iCTSI seeks Young Investigator Awards applicants

The Indiana Clinical and Translational Sciences Institute is seeking applications for its Young Investigator Awards in Clinical-Translational Research.

[more](#) >

Behavioral and Cancer Control Recruitment core manager named



Wofford

Stephanie Wofford, MSM, has been named the [Behavioral and Cancer Control Recruitment](#) core manager at the IU Simon Cancer Center. She is responsible for oversight, organization, and implementation of all recruitment activities for descriptive, correlational, epidemiologic, and non-therapeutic interventional non-clinical drug/device trials, including recruitment at the IU Health Simon Cancer Center's clinics, Eskenazi, and IU Health affiliates.

Stephanie holds a master of science degree in management and healthcare administration from Indiana Wesleyan University and a bachelor's degree in communication from IU. Her office is in the Indiana Cancer Pavilion (RT 455). She can be reached at 278-0608 or sdwillia@iupui.edu.

Reminders

Pack the House for Charity

The Indiana Ice is hosting "Pack the House for Charity" at 7:05 p.m.



Saturday, March 1 when they take on the Chicago Steel at Bankers Life Fieldhouse. A portion of the online ticket sales benefit research at the IU Simon Cancer Center. Visit this [site](#) to order tickets and use the group ID "IUSCC." Parking is available at the Maryland Street Parking Garage, 121 E. Maryland St., for \$5. Go, Ice! The Indiana Clinical and Translational Sciences Institute is seeking applications for its

Young Investigator Awards in Clinical-Translational Research.

IUSCC offers travel awards for AACR

The AACR (American Association for Cancer Research) 2014 annual meeting is April 5-9 in San Diego. IUSCC travel awards are available for post- and pre-docs and clinical fellows to attend the 2014 meeting. This award will partially cover the cost of travel expenses for the meeting.

Eligibility requirements:

- Accepted abstract
- Mentor must be IU Simon Cancer Center member
- Should be willing to participate and present for IUSCC seminar on June 19.

Application requirements:

- Accepted abstract – indicate poster/platform presentation
- CV

Application deadline is March 3 and should be submitted to chasmill@iupui.edu. Recipients will be announced March 17.

Navigators help researchers at IUPUI, IU-B, Notre Dame, Purdue

Researchers, did you know there are navigators to help you more easily connect with translational science resources across the state? Tammy Sajdyk, PhD, a neuroscientist and clinical and translational sciences research officer at the Indiana Clinical and Translational Sciences Institute, is the new IUPUI campus navigator. There are additional navigators at IU Bloomington, Purdue University and the University of Notre Dame.

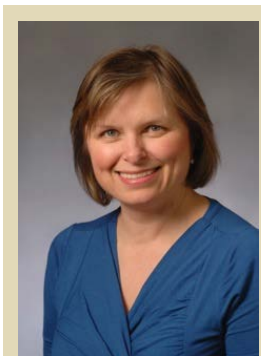
[full story >](#)

Cancer center seeks high school, college students for 2014 Summer Research Program

Although summer seems far away because of the deep freeze, it's not too early to think about the IU Simon Cancer Center's 2014 Summer Research Program. If you know of high school or college students from underrepresented populations interested in exploring a career in cancer research, encourage them to apply. Applications are due today (Feb. 28).

[more >](#)

Cancer center members in the news



Petrache

Irina Petrache MD, has received a Harrington Scholar-Innovator Award, one of 11 awarded nationwide by the Harrington Discovery Institute recognizing physician-scientists whose research has the potential to change the standard of care.

Shadia Jalal, MD, recently was named the Hoosier Oncology Group's (HOG) 2013 recipient of the George and Sarah Jane Fisher Young Investigator Award. Dr. Jalal plans to use the award to study the role that EME1, a DNA repair protein, plays in esophageal cancer development and resistance to therapy. The \$5,000 award, endowed in 2011 by Dr. William B. Fisher through the Fisher Family Fund, is

given annually to an Indiana University oncology fellow or faculty member who has made significant contributions to clinical or basic science research in collaboration with the HOG.

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