



Weekly news for faculty, staff and students from  
the **Indiana University School of Medicine**

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## Sound Medicine

**An IU researcher reflects on personal cancer care journey, transformations in breast cancer, and more**

## Faculty & Staff News

### Vreeman named director of research for the IU Center for Global Health

Rachel Vreeman, M.D., has been named as director of research for the IU Center for Global Health as well as North American Co-Director of the AMPATH Research Network. She will also become the Joe and Sarah Ellen Mamlin Scholar for Global Health Research at the IU School of Medicine.

"Rachel is a dedicated health services researcher whose creative work has improved the lives of thousands of children infected with HIV," said Robert Einterz, M.D., director of the IU Center for Global Health and associate dean for global health at the IU School of Medicine. "She is a global leader with the credibility, skill and passion to direct the Center's research mission.

After graduating summa cum laude from Cornell University with a degree in English, Dr. Vreeman earned a medical degree from Michigan State University. She then completed pediatrics residency, a chief residency and a fellowship in Children's Health Services Research at the IU School of Medicine, concurrently earning a master's of science degree in clinical research.

Dr. Vreeman began work within the Academic Model Providing Access to Healthcare at the Moi University School of Medicine in Eldoret, Kenya, during her residency, and she continued to serve AMPATH as a highly

productive researcher and clinician upon joining the faculty at IU School of Medicine. Her research program has focused on providing long-term HIV care for children.

As a co-director of the AMPATH research field program for the last six years, Dr. Vreeman knows the program “from the inside out.” Her efforts have been recognized by the National Institutes of Health, Indiana Clinical and Translational Sciences Institute, the IU Alumni Association and IU Department of Pediatrics. She also chairs the global pediatric group for the Internal Epidemiologic Databases to Evaluate AIDS, the largest cohort of HIV care systems worldwide.

Dr. Vreeman succeeds Tom Inui, M.D., who served as the director of research for the IU Center for Global Health for the last four years. Dr. Inui will remain a professor of medicine at the IU School of Medicine.

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## Zieman appointed officer in student financial services

Justin Zieman has been named a financial aid officer in Student Financial Services, a part of the Office of Medical Student Affairs, at the IU School of Medicine.

Zieman holds a bachelor's degree from Mount St. Joseph University in Cincinnati. In 2011, Zieman relocated to Indianapolis to accept a position with the financial aid department at Harrison College. He possesses extensive knowledge in financial aid and has participated in statewide financial aid literacy programs, such as College Goal Sunday. He is also fluent in Spanish.

Outside the office, Zieman, who was a two-sport college athlete in baseball and basketball, enjoys the outdoors, sports and exercising, including weightlifting and bicycling.

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## Research News

### Protein linked to aging identified as new target for controlling diabetes

IU School of Medicine researchers have identified a small protein with a big role in lowering plasma glucose and increasing insulin sensitivity. Their research [appeared online Nov. 5 in Diabetes](#), the journal of the American Diabetes Association.

The report indicates that Sestrin 3 plays a critical role in regulating molecular pathways that control the production of glucose and insulin sensitivity in the liver, making it a logical target for drug development for type 2 diabetes and metabolic syndrome, which can produce increased blood pressure, abnormal cholesterol levels and insulin resistance.

Sestrin 3 is a member of a small family of proteins that have long been known to suppress oxidative stress and regulate normal cellular activity, thus making it an important regulator of metabolic homeostasis. The findings have significant implications in the prevention and treatment of type 2 diabetes and could prove to be useful targets for modulation of insulin sensitivity and glucose homeostasis and as a target for therapeutic agents to increase liver function to prevent diabetes

The study's lead author is [X. Charlie Dong](#), Ph.D., associate professor of biochemistry and molecular biology at the IU School of Medicine. The research was supported by the National Institute of Diabetes and Digestive and Kidney Diseases, the National Institute on Alcohol Abuse and Alcoholism and the U.S. Department of Veterans Affairs.

For more on this story, visit the [IUSM Newsroom](#).

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## High-speed 'label-free' imaging could reveal dangerous plaques

Researchers are close to commercializing a new type of medical imaging technology that could diagnose cardiovascular disease by measuring ultrasound signals from molecules exposed to a fast-pulsing laser.

The system takes precise three-dimensional images of plaques lining arteries and identifies deposits that are likely to rupture and cause heart attacks.

The imaging reveals the presence of carbon-hydrogen bonds making up lipid molecules in arterial plaques that cause heart disease. Research findings are detailed in [a paper appearing online Nov. 4](#) in the Nature journal Scientific Reports.

"This allows us to see the exact nature of plaque formation in the walls of arteries so we can define whether plaque is going to rupture," said [Michael Sturek](#), Ph.D., co-author of the paper and a professor and chair of the Department of Cellular and Integrative Physiology at the IU School of Medicine. "Some plaques are more dangerous than others, but one needs to know the chemical makeup of the blood vessel wall to determine which ones are at risk of rupturing."

The paper was authored by researchers from the Purdue University, the IU School of Medicine, the University of California-Davis, the University of California-Irvine and startup company Spectral Energy.

The technology is being commercialized by the company Vibronix Inc., co-founded by said [Ji-in Cheng](#), Ph.D., a professor in Purdue University's Weldon School of Biomedical Engineering and Department of Chemistry, and Pu Wang, Ph.D, a postdoctoral research associate at Purdue.

For more on this story, visit the [IUSM Newsroom](#).

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## Student Showcase

### Informational session for third-year medical students

An informational session for third-year medical students is scheduled from 1 to 2:30 p.m. Friday, Nov. 14, in the IUPUI Campus Center Theater (lower level).

The session will focus on preparation for the fourth year of medical school.

The meeting will also be live-streamed on the [IUSM Mediasite](#).

Questions to [admarche@iupui.edu](mailto:admarche@iupui.edu).

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## Opportunities

### Applications sought for new medical education position: Quality Systems Coach

As a part of the [AMA Accelerating Change in Education grant](#), the [Office of Undergraduate Medical Education](#) is recruiting faculty to serve as Quality Systems Coaches, or QSCs, for medical students.

Quality Systems Coaches will teach and evaluate a small group of medical students in systems-based practice through the newly-designed innovative virtual health system curriculum using a teaching electronic medical record.

"The QSCs will become an important part of our medical students' experience here at IU," said Sara Jo Grethlein, M.D., associate dean for Undergraduate Medical Education at the IU School of Medicine. "Faculty in these roles will engage students in hands-on activities that explore health care delivery, patient safety, quality improvement, and population health using an innovative platform: the new tEMR."

In addition to their teaching responsibilities, Quality Systems Coaches will participate in the Jump Start Faculty Development program, designed to help coaches gain confidence and competence in preparation for their role. Provided predominantly online and reinforced with in-person retreats, the faculty development program will be enhanced by structured involvement in their local health system. The faculty development program will begin in January, and teaching in August.

Successful Quality Systems Coaches will be IUSM faculty members with an M.D. or equivalent degree. Individuals with prior medical education experience are preferred. Knowledge related to the use of electronic medical records, health care systems, and quality improvement are desired, but not required. Applicants should be receptive to teaching and learning with technology.

The total time commitment for Quality Systems Coaches is expected to be about 2.25 hours per week. Coaches will be eligible for CME, as well as Academy of Teaching Scholars credit, and may be able to meet requirements for MOC. There will be an allocation of funds associated with participation.

Applications are due Friday, Dec. 5. To apply, submit a letter of interest and resume to Deb Debusk at [dkdebusk@iu.edu](mailto:dkdebusk@iu.edu).

For more information and a full position description, visit [the Office of Undergraduate Medical Education's website](#).

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### Professional business planning assistance for scientists -- apply by Nov. 19

A good business plan is critical to the success of any research core or program. The Indiana Clinical and Translational Sciences Institute Access Technology Program, in collaboration with the IU Kelley School of Business, offers access to a team of Kelley MBA students who will receive course credit for partnering with the successful applicants on business solutions for their core or program.

Cores, resources and units at IU, Purdue or Notre Dame providing a central service to Indiana CTSI investigators are eligible. Priority will be given to proposals that will lead to improvements in organizational efficiency, speed of service, and/or quality; and have the potential to be extrapolated and benefit other cores, resources or units. The proposal must request and define a need for assistance in one or at most two of these following: project management, marketing, financial management and resource efficiency management.

Successful applications to this program will receive business management assistance from teams of Kelley MBA students. Project durations vary from eight to 12 weeks, depending on project scope, starting in February or March and completing anywhere from mid-May to July.

Selected cores will be expected to engage with the MBA students for initial project scope (two hours), additional follow-up or onsite meetings (eight to 12 hours) and a final project close-out (one to two hours). The MBA students will contribute 30 to 100 hours each (depending on the project scope, number of team members and course credit assignment) to the project progression in turn.

Applications are due **Friday, Nov. 21**. More on this program and access to the application are available online. Log in using your institutional username and password. Application instructions are under "CTSI - IU Kelley MBA Core and Project Business Management Assistance - 2014.11."

For more information, contact Lilith Reeves at [ictsi@iu.edu](mailto:ictsi@iu.edu).

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## Last Lecture nominations due Nov. 23

The Last Lecture -- "Lessons for Life from a Lifetime of Learning" -- offers the university community an opportunity to hear reflections on life's lessons and meaning from a retired or current IUPUI colleague of exceptional merit.

The IUPUI community is invited to submit nominations for The Last Lecture speaker by Nov. 23, using the [online nomination form](#).

The 2015 lecture will take place on from 2 to 4 p.m., Friday, March 27, in the IUPUI Campus Center Theater.

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## News to Use

### Access drug development services from the Indiana CTSI and Covance

The Molecular Therapeutics Program, a part of the Indiana Clinical and Translational Sciences Institute, has established a service agreement with Covance, Inc., to support early drug discovery through in vivo assessment.

The **Indiana CTSI** is a National Institutes of Health-funded collaboration of IU, Purdue University and the University of Notre Dame that facilitates the translation of scientific discoveries in the lab into new patient treatments. **Covance, Inc.** is one of the world's largest and most comprehensive drug development services

companies.

The Indiana CTSI and Covance **formed an alliance last year to conduct early clinical trials** on behalf of biotechnology and pharmaceutical companies at clinical research facilities managed by the Indiana CTSI at the IU School of Medicine in Indianapolis -- as well as Covance's clinical research unit in Evansville. Early phase clinical research includes trials in which investigational new drugs are administered to humans for the first time.

The list of drug development services available through the Indiana CTSI-Covance alliance include Ames toxicity screening; Oral Gavage Pilot Toxicity Study; Toxicity and Toxicokinetic study; hERG; Screening Package (Membrane Permeability and P group Assessment, Metabolic Stability, and Rat PK); Membrane Permeability and P-group Assessment; Metabolic Stability; Rat PK; Rat Cassette PK; Dose Formulation Optimization.

These services are available to all three universities partners affiliated with the Indiana CTSI: IU, Purdue and Notre Dame.

For more information about these services, including pricing estimates, contact Padma Portonovo, project manager for the IUSM-Indiana CTSI Industry Collaboration Portal, at [pportono@iupui.edu](mailto:pportono@iupui.edu).

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## National Science Foundation educational proposal workshops

The Office of the Vice Chancellor for Research and the IUPUI STEM Education Research Institute will host five National Science Foundation-sponsored STEM (Science, Technology, Engineering and Math) Interactive Web-Based Workshops from Nov. 6 to 20 at IUPUI.

These workshops are primarily intended for STEM faculty members who are interested in NSF educational proposals or already have a funded project. These programs are designed to engage local participants in discussions related to the workshop topic, interdisciplinary collaboration and will enable local sites to interact with the entire virtual group. Attending some or all of these workshops may give faculty a competitive edge in developing STEM educational projects and writing successful NSF proposals.

Each session will be presented by former program directors in the Directorate for Education and Human Resources at the National Science Foundation and is facilitated by an IUPUI faculty member.

All sessions are scheduled from 2 to 4 p.m. in the IUPUI Library. Workshop topics are:

- Nov. 6: "Proposal Strategies," Room 2115E. The goal of this workshop is to enhance the participants' understanding of strategies for dealing with several important aspects of an NSF educational project so that they can more effectively address them in preparing proposals or in implementing funded efforts.
- Nov. 11: "Project Goals and Objectives," Room 1140P. The goal of this workshop is to enhance the participants' ability to write goals and the corresponding expected outcomes for an NSF educational project so that they can more effectively address them in preparing proposals or in implementing funded efforts.
- Nov. 13: "Project Evaluation," Room 1126. The goal of this workshop is to enhance the participants' understanding of evaluation concepts and methods so that they can more effectively work with an evaluator in addressing this important component in preparing proposals or in implementing funded efforts.
- Nov. 18: "Impact and Transportability," Room 2115E. The goal of this workshop is to enhance the participants' understanding of strategies for developing a project that is adaptable and potentially

transformative so that they can more effectively address transportability and dissemination in preparing proposals or in implementing funded efforts.

- Nov. 20: "Broader Impacts," Room 2115E. The goal of this workshop is to enhance the participants' understanding of strategies for dealing with broader impacts in an NSF educational project so that they can more effectively address this issue in preparing proposals or in implementing funded efforts. The discussion of the broader impacts criterion has changed substantially in the latest version of the [Grant Proposal Guidelines](#).

Space is limited. To RSVP, email Etta Ward at [emward@iupui.edu](mailto:emward@iupui.edu).

Workshop questions to Yolanda George at [ygeorge@aaas.org](mailto:ygeorge@aaas.org).

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## Grants

### IUSM grants and awards report -- October 2014

IU School of Medicine researchers earned more than \$16 million in grants and awards -- excluding commercial projects -- in October 2014:

| Investigator              | Sponsor   | Type | Project Title   | Begin Date | End Date   | Awarded Dollars |
|---------------------------|---|------|---|------------|------------|-----------------|
| Jeffrey Owen Anglen, M.D. | Johns Hopkins University                            | New  | Transtibial Amputation Outcomes Study (TAOS): Comparing transtibial amputation with and without a tibia-fibula synostosis procedure | 9/23/2014  | 9/28/2015  | \$76,875        |
| Janice S. Blum, Ph.D.     | Juvenile Diabetes Research Foundation International | New  | Prevention of type I diabetes by disrupting heat shock protein 90-beta cell antigen complexes                                       | 10/1/2014  | 9/30/2015  | \$100,000       |
| Andrea Bonetto, Ph.D.     | National Cancer Institute                           | New  | (PQB-3) Roles of skeletal muscle mass in chemotherapy-associated cachexia   | 9/15/2014  | 8/31/2015  | \$203,580       |
| David L. Boone, Ph.D.     | Crohn's and Colitis Foundation of American Inc.     | New  | Microbiome and inflammatory bowel disease   | 7/1/2014   | 11/30/2014 | \$2,500         |

|                                |  |         |  |           |            |             |
|--------------------------------|--|---------|--|-----------|------------|-------------|
| Nadia Carlesso, M.D., Ph.D.    | National Institute of Diabetes, Digestive and Kidney | Renewal | Physiologic regulation of hematopoiesis by notch   | 9/15/2014 | 8/31/2015  | \$397,080   |
| D. Wade Clapp, M.D.            | Riley Children's Foundation                          | New     | Research Scholars, Department of Pediatrics  | 7/1/2014  | 6/30/2015  | \$500,000   |
| Linda A. DiMeglio, M.D.        | Johns Hopkins University                             | New     | IMPAACT is a NIH-defined Phase III clinical trial with human subjects                    | 1/1/2014  | 11/30/2014 | \$3,576     |
| Michael T. Eadon, M.D.         | Satellite Healthcare Inc.                            | New     | Genetic susceptibility to nephrotoxicity   | 7/1/2014  | 6/30/2015  | \$100,000   |
| Michelle S. Howenstine, M.D.   | Cystic Fibrosis Foundation                           | Renewal | IN-182/182 - Riley Hospital for Children, Indiana University Medical Center              | 7/1/2014  | 6/30/2015  | \$171,755   |
| Travis J. Jerde, Ph.D.         | U.S. Department Of Defense                           | New     | Overcoming drug-resistant prostate cancer with APE1/Ref-1 blockade                       | 9/30/2014 | 9/29/2017  | \$345,590   |
| Xiaoming Jin, M.D., Ph.D.      | National Institute Neurological Disorders and Stroke | New     | Homeostatic plasticity in the control of neuropathic pain                                | 9/15/2014 | 8/31/2015  | \$312,000   |
| Michelle Anne Keiski, Ph.D.    | Indiana State Department of Health                   | New     | Memantine for neuroprotection and cognitive enhancement following traumatic brain injury | 4/1/2014  | 3/31/2016  | \$120,000   |
| Patrick J. Loehrer, M.D.       | National Cancer Institute                            | New     | AMPATH Oncology Institute-HPV and cervical cancer in Kenyan women with HIV/AIDS          | 9/19/2014 | 8/31/2015  | \$728,206   |
| Howard C. Masuoka, M.D., Ph.D. | Indiana University Health                            | New     | Mechanisms of apoptosis in non-alcoholic fatty liver disease                             | 5/1/2014  | 4/30/2015  | \$46,935    |
| Thomas W. McAllister, M.D.     | National Collegiate Athletic Association             | New     | The NCAA-DOD Grant Alliance: Concussion Assessment,                                      | 7/29/2014 | 7/28/2017  | \$8,000,000 |

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|--------------------------------|--|---------|---|-----------|-----------|-------------|
|                                |  |         | Research and Education (CARE) Consortium  |           |           |             |
| Kathy D. Miller, M.D.          | The Breast Cancer Research Foundation                | New     | Repurposing Guanabenz   | 10/1/2014 | 9/30/2015 | \$217,992   |
| Raghu G. Mirmira, M.D., Ph.D.  | National Institute of Diabetes, Digestive and Kidney | New     | Biomarkers of beta cell stress in type 1 diabetes (BetaMarker)                                | 9/23/2014 | 8/31/2017 | \$2,401,653 |
| Michael D. Ober, M.D.          | Cystic Fibrosis Foundation                           | Renewal | Cystic Fibrosis Foundation Grant 2014-2015  | 7/1/2014  | 6/30/2015 | \$60,825    |
| Irina Petrache, M.D.           | National Heart, Lung and Blood Institute             | New     | Endothelial mechanisms of impaired lung gas exchange by HIV                                   | 9/11/2014 | 8/31/2015 | \$683,614   |
| Emily K. Sims, M.D.            | National Institute of Diabetes, Digestive and Kidney | New     | Beta cell derived miR-21 as an intrinsic protective response and biomarker in type 1 diabetes | 9/15/2014 | 7/31/2015 | \$147,557   |
| Anna Maria V. Storniolo, M.D.  | The Breast Cancer Research Foundation                | Renewal | Development of a molecular encyclopedia of the normal human breast                            | 10/1/2014 | 9/30/2015 | \$250,000   |
| Nathan Waite Stupiansky, Ph.D. | National Institute of Diabetes, Digestive and Kidney | New     | Type 1 diabetes management during the transition to living independently                      | 9/1/2014  | 8/31/2015 | \$116,469   |
| Jie Sun, Ph.D.                 | University of Alabama Birmingham                     | New     | Targeting Tfh transcription factors to enhance anti-HIV innate immunity                       | 8/15/2014 | 5/31/2015 | \$233,613   |
| Steven P. Templeton, Ph.D.     | American Association of Immunologists                | New     | AAI Careers in Immunology Fellowship Application  | 10/1/2014 | 9/30/2015 | \$40,800    |
| Debbie C. Thurmond, Ph.D.      | National Institute of Diabetes, Digestive and Kidney | New     | Targeting PAK1 to improve functional beta-cell mass and insulin sensitivity                   | 9/12/2014 | 7/31/2015 | \$347,808   |
|                                |  |         |   |           |           |             |

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|------------------------|----------------------------|-----|--|-----------|-----------|-----------|
| Jian-Ting Zhang, Ph.D. | U.S. Department of Defense | New | Targeting survivin to overcome acquired taxol resistance in prostate cancer chemotherapy | 9/30/2014 | 9/29/2017 | \$584,998 |
|------------------------|----------------------------|-----|--|-----------|-----------|-----------|

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## Kudos

### Emeritus professor earns lifetime achievement award from Hoosier Environmental Council

Stephen Jay, M.D., professor emeritus of medicine at the IU School of Medicine and past founding chair of the IU Richard M. Fairbanks School of Public Health, has been honored with the Hoosier Environmental Council's 2014 Lifetime Achievement award.

A physician and public health scholar, Dr. Jay was honored with the Lifetime Achievement Award Nov. 1 in Indianapolis at the Hoosier Environmental Council's 7th annual "Greening the Statehouse" forum, which is Indiana's largest annual gathering of environmental advocates.

For more than four decades, Dr. Jay has provided expert commentary before legislative and regulatory bodies as well as public forums on the public health consequences of an array of environmental issues, from industrial livestock operations to coal combustion to industrial air pollution to climate change. Beyond his contributions to environmental health policy, Dr. Jay has had a distinguished career as a pulmonologist, prolific academic, chairman of the public health department at the IU School of Medicine, and a Board member of several important health-related institutions, including the Executive Board of the Indiana Tobacco Prevention and Cessation Agency and former President of the Association for Hospital Education.

"Dr. Jay has, in our view, done more than any academic in Indiana to make environmental public health matters visible and relevant before the public and policymakers. His brilliance, encyclopedic knowledge, compassion, and humility all make Dr. Jay an absolute exemplar of a civic-engaged academic. In addition to helping to shape policy discussions, Dr. Jay has been instrumental in helping medical and public health faculty, staff, and students become more engaged in policy, as an 'elder statesman' of the community and a mentor to countless, inquisitive students," said Jesse Kharbanda, executive director of the Hoosier Environmental Council.

Founded 30 years ago, the Hoosier Environmental Council is the largest statewide environmental policy organization in Indiana. HEC aims to set a new path for Indiana, embracing practices and policies that dramatically reduce the footprint of transportation, industry, commerce, and agriculture on the environment. Visit [the Hoosier Environmental Council's website](#) for more information.

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