



• Research Development

Office of the Vice Chancellor for Research

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RESEARCH ENTERPRISE NEWSLETTER

May 24, 2017

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FEATURE STORY

Partnership between IUPUI and Duke Energy Foundation brings science to schools



The mobile lab is equipped with working solar panels and a wind turbine to demonstrate how renewable power works.

Photo courtesy of the School of Science

About 180 eighth-graders donned lab coats and learned about the science of spring storms on May 11, thanks to a partnership between Indiana University-Purdue University Indianapolis' Center for Earth and Environmental Science and the Duke Energy Foundation.

The event at Brownsburg East Middle School was the first stop for a mobile science lab that will travel the state to encourage more students to pursue careers in science, math, engineering and technology.

A \$400,000 Duke Energy Foundation grant is funding the mobile lab and a program that engages students in hands-on lessons on topics

such as the energy of storms and renewable power sources. The mobile lab is equipped with working solar panels and a wind turbine to demonstrate how renewable power works. IUPUI educators use interactive technology tools from the lab to bring lessons to life.



IUPUI's Center for Earth and Environmental Science took the show on the road May 11 for a hands-on science demonstration to 180 middle schoolers

at Brownsburg East Middle School. Kevin Gregory, meteorologist for WRTV-6 in Indianapolis, broadcast live from the school. Photos courtesy of the

School of Science

At the Brownsburg event, which was attended by School of Science Dean Simon J. Rhodes, students saw a "tornado in a box" demonstration and made wind turbines that they tested against different wind speeds. Kevin Gregory, meteorologist for WRTV-6 in Indianapolis, broadcast live from the school.

"The School of Science is so pleased to partner with Duke Energy to bring science experiences to young children in Indiana," Rhodes said. "Our state and country need more scientists and engineers, and we hope that this program will inspire more students to realize their potential."



The science educators, from left, Sam Ansaldi, Victoria Schmalhofer, Meghan Mercier, Ian Marrs, Taylor Smith.

The mobile science lab is one aspect of Discovering the Science of the Environment, the signature education initiative of IUPUI's Center for Earth and Environmental Science. CEES is an interdisciplinary academic center in the School of Science. It has three core missions: applied research addressing environmental issues of concern to local communities, public service through translation of research to inform decision-making and environmental science education.

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ANNOUNCEMENTS

News from 3D Bioprinting Core



Oh! The possibilities!

Now a CTSI Designated Core Facility, the IUPUI 3D Bioprinting Core (3DBPC) is pleased announce that it has been awarded an NIH Shared Instrument Grant (S10) for the Regenova 3D bioprinter!

What This Means for You:

- The Core and the Bioprinter became a permanent part of IU/IUPUI.
- Users can access CTSI and IUSM focused funding opportunities, which can be found [here](#).
- Since the Core is a collaboration between IUSM and IUPUI, there are also internal IUPUI funds available [here](#) to jump start your biofabrication research within the 3DBPC!

Making Bioprinting Accessible to Potential Users

Beginning May 1st, 2017, 3D Bioprinting Core Services are available free of charge for the next 6 months.*

Low cost microneedles arrays and tissue culture plate alternatives are being developed to reduce costs.

For more information regarding these supplies or starting up a bioprinting project, contact:

Director Dr. Nicanor Moldovan: nimoldov@iupui.edu

Manager Dr. Lester Smith: smitlej@iu.edu

Website: <http://bioprint.iupui.edu>

IUSM Focused Opportunities

IUSM Focused Opportunities

Core Pilot Funding

Funds: Up to \$10,000 in CTSI Designated Core Services

Applications Due: October/April

Biomedical Research Grant (BRG)

Funds: Up to \$50,000 for 1 year

Applications Due: September 1st, 2017

IU Grant Linking University-Wide Expertise (GLUE) Awards

Funds: up to \$100,000 per year for up to 2 years

Applications Due: TBD

IUPUI Focused Opportunities

Research Support Funds Grant (RSFG)

Funds: Up to \$35,000 for 1 year

Applications Due: October 15th, 2017

Funding Opportunities for Research Commercialization and Economic

Success (FORCES)

Funds: \$25,000 for 6 months or \$35,000 for 1 year

Applications Due: June 30th, 2017

*Users must provide their own bioprinting and cell spheroids preparation supplies. Offer expires November 1st, 2017.

Purdue STEM Conference Registration Now Open

The National STEM Education Research and Practice Summit will be held at Purdue University on October 16-17, 2017. Nationally there has been incredible progress in the areas of STEM and STEM education over the past decade. This event is designed as a forum for STEM education researchers, as well as those enacting best practice in STEM education K-20 to come together and share their collective knowledge and experiences. The Summit will start on the evening of October 16th at 6 p.m. with an opening reception with a special guest speaker (to be announced very soon). The second day of the conference (October 17) will begin with sessions starting at 9 a.m. and running through the day with an approximate end time of 3 p.m. EST.

There are four strands in the National STEM Education Research and Practice Summit.

Strand 1: STEM Education Research

Strand 2: Best-practice in K-20 STEM Education

Strand 3: STEM Research in Grades 6 to college

Strand 4: Resources for STEM Education

Register at www.conf.purdue.edu/NationalSTEMSummit

New classes are available in Research Administration 101 Series!

Research Administration classes include:

Understanding Allowable Costs

Award Management Best Practices for Fiscal Officers and Delegates

Managing and Understanding Effort

Subrecipient Monitoring

Commercial Sponsors and Overview of Contracts

Accessing Research Information

To register at <https://expand.iu.edu/browse/e-training/research/grants>

Please log in to see available sessions. Sessions are available on both the IUPUI and IUB campuses. If you have any questions, please contact John Talbott, jtalbott@iu.edu or Susan Whitt, scwhitt@iu.edu



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INSTITUTE SPOTLIGHT

Institute at IUPUI sets sights on becoming leader in events and tourism innovation

The Events and Tourism Institute at Indiana University-Purdue University Indianapolis wants to become the leading institute for events and tourism innovation worldwide.



Godwin (Charles) Ogbeide

The institute's mission is to advance the delivery of events and tourism innovation products and services locally, in the nation and globally. Institute researchers and consultants will assist cities, states, and

events and tourism professionals to enhance their events, their tourist experience and the economic impacts of tourism in their communities, said [Godwin "Charles" Ogbeide](#), inaugural director of the institute and an associate professor in the School of Physical Education and Tourism Management at IUPUI.

Jay Gladden, former dean of the School of Physical Education and Tourism Management, and Amanda Cecil, chair of the Department of Tourism, Conventions and Event Management in the school, were the inspiring proponents of the Events and Tourism Institute.

"They were aware of the critical roles the institute would play in our community and in global communities, which is why they established the institute within the School of Physical Education and Tourism Management," Ogbeide said.

Launched this spring, the institute serves as a collective umbrella for

the expertise of nearly a dozen faculty members in the School of Physical Education and Tourism Management. The institute is also open to collaboration with interdisciplinary units across the IUPUI campus.

Among the institute's products and services are:

- Collecting survey data and handling the analytics.
- Building tourism brands.
- Improving events education and execution.
- Defining and delivering service innovation principles.
- Assisting organizations with tourism product development.
- Maximizing revenue.

The institute's focus is on Indiana. "Indy is our home, of course. It's right there, first in line for any of our projects," Ogbeide said.

Still, the institute's work will reach far beyond Indiana through partnerships and collaboration with faculty at other universities in the U.S. and around the globe.

"There is a new market developing in other parts of the world, especially in developing countries, for tourism development," Ogbeide said. "We want to be part of it."

The institute also wants to engage with clients concerning opportunities for innovation in event management and tourism, including the use of innovative technology, Ogbeide said.

"For example, many of us are familiar with apps used to help manage events such as dinners at conferences," he said. An app called Social Tables enables event coordinators to hold a smartphone or tablet in

their hand to review the dining preferences of individuals at a particular table to ensure they receive a customized hospitality experience.

"We can create more technology like that by working with our technology collaborators," Ogbeide said. "We can create apps for different events that make participants feel more welcome and bring the event to you, so you just feel at home."

Destination marketing will also be part of the mix, Ogbeide said. The institute has the expertise to promote tourism in a manner designed to expand a simple trip to an athletic event, for example, into a longer visit to the area where the event is located.

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CENTER SPOTLIGHT

Three IUPUI religious studies professors co-edit new book on the Bible in American life



American Christians view the Bible as their spiritual guide. But as an everyday, usable volume, is it something a bit different?

Three Indiana University-Purdue University Indianapolis School of Liberal Arts religious studies professors set out to answer that question through nationwide surveys and

"The Bible in American Life" co-editors, from left:

Philip Goff, Peter J. Thuesen and Arthur E.

Farnsley II. IU School of Liberal Arts at IUPUI

explored the results with the help of other preeminent religion and history scholars. The culmination of that work is a new book, "The Bible in American Life," published by Oxford University Press.

Philip Goff, Arthur E. Farnsley II and Peter J. Thuesen served as co-editors and the driving forces behind the book, which explores how the Bible is used by Americans in their personal lives.

"People are always interested in the Bible, but usually it's more in public life -- how it might show up in film or in literature, certainly in politics," said Goff, executive director of the Center for the Study of Religion and American Culture at IUPUI. "We wanted to see how it worked out in people's personal lives. That really had never been done."

With a grant from Lilly Endowment Inc., the professors were able to add questions to the General Social Survey and the National Congregations Study in 2012. Participants were asked to name which translation of the Bible they most often read, if they had read the Bible outside of worship services within the last year, the extent and purpose of their usage, if they read it on electronic devices, and more. The answers, combined with participants' demographic information, provided a baseline for study.

"This isn't exactly a surprise in the survey, but one response was 50 percent -- exactly half of the people had read the Bible outside of a

worship service in the past year," said Farnsley, director of the Indiana University Center for Civic Literacy at IUPUI and associate director of the Center for the Study of Religion and American Culture. "There have been people who said to us, 'Wow, I would have thought it would be a lot more,' and people who said 'I thought it would be a lot less.' It turns out, it depends on where you're coming from -- what 50 percent looks like."

Among the findings were that African-Americans read the Bible at a higher rate than other races; women read it more often than men; older citizens read it more than younger; and the American South had higher readership than the Midwest, West and Northeast. Also, the 400-year-old King James Bible is the most-read version.

"The extent to which people are still attached to a 17th-century translation of the Bible indicates that people are not necessarily looking for clear meaning or teaching; what's also important is the actual sound of Scripture," Thuesen said.

Amanda Friesen, an assistant professor of political science and faculty research fellow in the Center for the Study of Religion and American Culture, wrote a chapter exploring how American men and women read the Bible. Conclusions included that women, in reading the Bible more than men, do so with motives more toward personal devotion than political reasons.

Paul Gutjahr, the Ruth Halls Professor of English at Indiana University

Bloomington, contributed a chapter on the use of production and reception studies to determine the most popular English-language translation of the Bible in contemporary America, reiterating that the King James Version is the most popular despite many newer translations.

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FACULTY SPOTLIGHT

Study shows real-world massage is effective treatment for low back pain



Niki Munk, an assistant professor of health sciences in the School of Health and Rehabilitation Sciences at Indiana University-Purdue University Indianapolis and one of the co-first authors of the study, said that the study's findings are important, given the large number of people who suffer low back pain in the U.S.

In the first study of its kind, researchers found real-world massage therapy to be an effective treatment for chronic low back pain.

Low back pain leads all disorders in years lost to disability in the U.S. Most patients improve rapidly, but one-third report persistent back pain, and 15 percent develop chronic low back pain with significant physical limitations.

More than 50 percent of those who participated in the study

experienced clinically meaningful improvements in their low back pain with disability, according to Munk.

"The study can give primary care providers the confidence to tell patients with chronic low back pain to try massage, if the patients can afford to do so," Munk said. Generally, massage is not covered by insurance, Medicaid or Medicare.

Previous studies of the effectiveness of massage were conducted in controlled research situations. In this study, patients were referred by a physician to a massage therapist. The massage therapist designed and provided a series of 10 massages -- at no cost to the patient -- in a clinical treatment environment, mimicking the experience of people who choose to seek massage therapy in the real world.

The study also looked at different characteristics associated with patients being more likely or less likely to experience clinically meaningful change from massage. Among the study's findings:

- Adults in the baby-boom and older generations tended to be much more likely to experience clinically meaningful changes.
- Obese patients experienced significant improvements, but those improvements were not retained over time.

Patients who were taking opioids experienced improvements in their pain from disability in some cases but were two times less likely to experience clinically meaningful change compared to those who were not taking opioids.

While the study results are promising, much more work needs to be done, Munk said: "The fact of the matter is that chronic lower back pain is very complex and often requires a maintenance-type approach versus a short-term intervention option."

Additional investigation is needed to replicate the results of the initial study and to conduct a cost-benefit analysis of massage therapy, Munk said.

"Massage is an out-of-pocket cost," she said. "Generally, people wonder if it is worth it. Will it pay to provide massage to people for an extended period of time? Will it help avoid back surgeries, for example, that may or may not have great outcomes? These are the types of analyses that we hope will result from this study."

The study, "[Real-World Massage Therapy Produces Meaningful Effectiveness Signal for Primary Care Patients with Chronic Low Back Pain: Results of a Repeated Measures Cohort Study](#)," was published online March 14 in the journal Pain Medicine.

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STUDENT SPOTLIGHT

Indiana Impact for International Health



Michelle Ramirez with faculty mentor Dr. Silvia

At the annual Center for Research and Learning award luncheon this spring, Michelle Ramirez, a community health major and Diversity Scholars Research Program (DSRP) scholar, received the 2017 Richard E Ward Undergraduate Research Opportunities Program (UROP) Recognition Award. In

Bigatti

summer 2016 alone, she did multiple projects, three while in Colombia for two and a half months through UROP. Michelle shadowed four physicians with the Universidad del Valle Escuela de Medicina in Cali, the nation's third largest metropolis. The U.S.-born Ramírez aspires "to impact people on a global scale."

She continues, "I want to see funding for student research travel to be restored. My favorite thing out of my four years was this Colombian international-research experience." In November 2016, a groundbreaking peace accord ended decades of violence between the South American country's government and the Revolutionary Armed Forces of Colombia (FARC). Their federal government has designated funds to create programs for reparations, and the Instituto Cisarva, in the Cali university's School of Public Health, created two mental-health interventions for victims of armed conflict. Ramírez wrote a letter to a journal about Afro-Colombian victims, pointing out the need for research on how perpetrators reintegrate into society. She also is writing an article on the scarcity of data in Latin America on suicide in pregnant women.

Michelle's summer UROP project focused on cultural factors that predict depression, comparing Indiana Latino adolescents with those in their country of origin. The particularly family-oriented nature of Latin culture compounds the issues for immigrants who leave loved ones behind, in addition to struggling with navigating two different cultures. Many U.S.-born Mexican-Americans, for instance, often find themselves treated as outsiders in both countries. In Indiana, Latino

adolescents experience higher rates of depression and suicide attempt. To address these issues, IUPUI faculty members Monica Medina and Silvia Bigatti, with their community partner, Virna Díaz of the Latino Health Organization, created a summer camp called Your Life, Your Story (YLYS) to help such youth to build coping skills.

Ramírez, who served as an YLYS peer mentor, reflects, "I think at every stage in life you should have a mentor and also mentor others to give back." Of her own faculty mentor, she comments, "My relationship with Dr. Bigatti has just been super instrumental! I just wouldn't be today where I am without her guidance and support. Dr. Bigatti introduced me to the type of research where you're making an impact on people's lives. CRL has played a big part in my college career!" For summer 2017, Michelle will pursue research in Africa.

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TRANSLATIONAL RESEARCH IMPACT

IUPUI chemist tackles lethal designer drugs with rapid, low-cost screening method



Manicke cartridge prototype

With funding from the National Institute on Drug Abuse, [Nicholas Manicke](#) of the School of Science is developing a new method to screen for lethal designer drugs such as fentanyl and synthetic cannabinoids including K2 and Spice.

In the United States, deaths from [fentanyl](#), a potent opioid with heroin-like effects, increased at least 200 percent between 2013 and 2015, according to NIDA. The number of fatalities from [synthetic cannabinoids](#) -- man-made mind-altering chemicals sprayed on dried, shredded plant material and then smoked or sold as liquids to be inhaled -- has also been climbing rapidly. Fentanyl, often mixed with heroin and/or cocaine, and synthetic cannabinoids account for the majority of emergency room visits related to designer drugs in the U.S.

Drug testing in hospital emergency departments, often done by urine analysis, misses these potentially deadly compounds, leaving physicians in the dark about the specifics of the overdose they are treating. Public health officials are similarly unaware of the precise nature of the drug problem facing their community or state.

Now, Manicke and his team are developing a rapid, sensitive, low-cost screening method to help emergency room physicians treating overdoses of these lethal compounds and to inform public health officials combating their growing use in the nation's cities, suburbs and rural areas.

Unlike current mass spectrometry methods used for screening, a new mass spectrometry process Manicke and his team are developing requires only minimal sample preparation, enabling quick turnaround of drug screens. Mass spectrometry is an attractive option for performing synthetic drug screens because it is sensitive and

selective and can be adapted relatively quickly as new harmful drug compounds become available to consumers.

"One of the difficulties in dealing with the public health crisis caused by designer drugs is that the actual drug compounds associated with acute intoxications are unknown," said Manicke, principal investigator on the NIDA grant. "We hope to enable mass spectrometry-based drug screening in the ER by developing an inexpensive, disposable cartridge that combines all the sample workup.

"People often say that mass spectrometry instruments are too big and expensive for hospitals, but I don't think that's true," Manicke said.

"They are smaller than, and a fraction of the cost of, an MRI machine. If we can just simplify the analysis procedure, the barriers to implementing these sorts of tests will become much lower."

Manicke's new mass spectrometry cartridges enable qualitative and quantitative analysis from a blood sample without sample purification in about 30 seconds. It is estimated that the disposable cartridges will cost less than \$10 each.

This summer, the emergency departments in Eskenazi Health and IU Health Methodist Hospital will begin testing mass spectrometry screening for lethal designer drugs using the novel cartridges.

"In the short term, these cartridges could be used by health facilities of any size, anywhere, and mailed to a central lab -- rapidly

generating data alerting health and law enforcement to the chemical composition and geographic distribution of the drugs out there," said Indiana Poison Control Medical Director [Daniel Rusyniak](#), an IU School of Medicine professor of emergency medicine and a co-investigator on the NIDA-funded study. "In the longer term, the cartridges could be used to give clinicians vital information on specific altered patients."

NIDA is supporting this work with a two-year, \$410,000 grant, R21DA043037, to Manicke, who is an assistant professor of chemistry and chemical biology and a faculty member in the [Forensic and Investigative Sciences Program](#) in the School of Science.

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EVENTS AND WORKSHOPS

Patients, Families, and Medical Decision Making

Date/Time

Date(s) - 06/22/2017

6:00 pm - 8:00 pm

This seminar series, Seminars in Religion, Spirituality, Healthcare, and Ethics, will explore the role that religions and spirituality play in patients' and family members' understanding and experience of health and healthcare and how religion and spirituality are addressed in the healthcare setting. It will also explore how spiritual and religious

beliefs contribute to patients' understanding of health, illness, and healing, affect decision-making about health, and contribute to coping, distress, and healing. Additionally, because many patients require family members to make decisions, the seminars will explore how frameworks of health and illness affect the family. A medical ethics framework will be used to explore how clinicians incorporate their own beliefs as well as patient/family beliefs into clinical care.

This third session, Patients, Families, and Medical Decision Making, will seek to answer the following questions: 1) how do religious beliefs influence major decisions, especially at the beginning and end of life? and 2) how do chaplains and others provide spiritual support and/or guidance to patients and families in the healthcare setting? The seminar's co-facilitators are Amber Comer, JD, PhD, Assistant Professor at the Indiana University School of Health and Rehabilitation Sciences, and Alexia Torke, MD, MS, Associate Professor at the Indiana University School of Medicine.

The remaining seminars in this series will be held on September 21st, October 26th, and November 16th from 6-8pm. Dinner will be served, and books will be provided. The seminar is seeking an interdisciplinary group of chaplains, clinicians (physicians, nurses, others), religious scholars, and social scientists with an interest in the intersection of religion/spirituality in healthcare. Interested graduate students and advanced medical trainees may also participate with permission of the co-leaders. Participants should RSVP to Sarah Rush at srush7@iuhealth.org. Sarah can also be contacted with any

questions.

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RECENT EXTERNAL FUNDING AWARDS

Grants and Awards – April 2017

PI	Agency	Project Title	School	Department	Total
Brustovetsky, Nickolay	NATIONAL INSTITUTE NEUROLOGICAL DISORDERS & STROKE	CRMP2, mitochondria, and Huntington?s disease	MEDICINE	PHARMACOLOGY & TOXICOLOGY	\$3,393,236
Kelley, Mark R.	NATIONAL CANCER INSTITUTE	(PQ9)Mechanistic Role of APE1 and BER in chemotherapy-induced peripheral neuropathy	MEDICINE	PED-HEME/ONC BASIC RESEARCH	\$3,222,992
Zarzaur, Ben Louis	NATIONAL INSTITUTE ON AGING	Collaborative Care for the Older Injured Patient: A Trauma Medical Home	MEDICINE	GENERAL SURGERY	\$2,465,165
	NATIONAL	Selective modulation of			

Johnson, Steven M	INSTITUTE OF GENERAL MEDICAL SCIENCES	bacterial chaperonins by targeting novel small molecule binding sites	MEDICINE	BIOCHEMISTRY / MOLECULAR BIOLOGY	\$2,183,948
Loehrer, Patrick J.	WALTHER CANCER FOUNDATION, INC.	Walther Cancer Informatics and Data Science Program: A Joint Regenstrief Institute/IU Simon Cancer Center Proposal	MEDICINE	CANCER CENTER	\$2,000,000
Hannon, Tamara S	NATIONAL INSTITUTE OF DIABETES, DIGESTIVE & KIDNEY	Patient- Centered Decision Support to Improve Diabetes Management in Pre-Teens and Adolescents with Type 1 Diabetes	MEDICINE	PED- COMPARATIVE EFFECTIVENESS RESEARCH	\$1,920,183
		Improving access to Pediatric Burkitt Lymphoma (PBL) and Non-Hodgkin Lymphoma (NHL) Care in			

Asirwa, Fredrick Chite	TAKEDA DEVELOPMENT CENTER AMERICAS, INC.	Sub-Saharan Africa (SSA) through community awareness, diagnostics support, treatment, supportive and survivorship care	MEDICINE	CANCER CENTER	\$999,145
Mott, Nathan David	SERVE INDIANA	Indiana Kids - IUPUI Academic Success Program (K- 12 Outreach)	EXTERNAL AFFAIRS	FAMILIES, SCHOOLS & NEIGHBORHOOD ENGAGEM	\$748,160
Vest, Joshua Ryan	AGENCY FOR HEALTHCARE RESEARCH AND QUALITY	The impact of enterprise health information exchange on organizational performance and local health care markets	PUBLIC HEALTH	HEALTH POLICY & MANAGEMENT	\$464,634
Watson, Dennis P	ESKENAZI HEALTH	Project POINT	PUBLIC HEALTH	SOCIAL & BEHAVIORAL SCIENCES	\$216,243
	INTERNATIONAL DEVELOPMENT	Index of Philanthropic Freedom and		LILLY FAMILY	

Osili, Una O	RESEARCH CENTRE	Remittances / Index of Philanthropic Freedom	PHILANTHROPY	SCHOOL OF PHILANTHROPY	\$190,919
Carroll, Aaron E	THE ROBERT WOOD JOHNSON FOUNDATION	Change Leadership IRL Dissemination Proposal	MEDICINE	PED- COMPARATIVE EFFECTIVENESS RESEARCH	\$156,965
Yoder, Karmen K	YALE UNIVERSITY	PET-derived 'Dopamine Movies' of Early-Stage Addiction to Cigarette Smoking: A Pilot Study	MEDICINE	RADIOLOGY & IMAGING SCIENCES	\$119,265
Haggstrom, Anita N	DUKE UNIVERSITY	Efficacy, Safety and Pharmacokinetics of Topical Timolol in Infants with Infantile Hemangioma	MEDICINE	DERMATOLOGY	\$105,500
Bodenhamer, David J	SPA RISK	Mitigation Saves 2.0	LIBERAL ARTS	POLIS CENTER	\$105,000
	UNIVERSITY OF	Central Nervous System			

Johnson, Philip L	ALABAMA BIRMINGHAM	Control of Intraocular and Intracranial Pressure	MEDICINE	ANATOMY & CELL BIOLOGY	\$100,534
Carroll, Aaron E	THE ROBERT WOOD JOHNSON FOUNDATION	Obesity Assessment	MEDICINE	PED- COMPARATIVE EFFECTIVENESS RESEARCH	\$100,000

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CURRENT EXTERNAL FUNDING OPPORTUNITIES

Funding opportunities in this section include selected current grant announcements from federal agencies for new initiatives and changes to existing programs. Announcements with limited scope are not listed here but instead are sent directly to IUPUI School Deans. For comprehensive coverage of funding opportunities, please use the links below to search online tools.

FANCONI ANEMIA RESEARCH FUND (FARF)

Research Grants: The FARF seeks to improve the lives of

individuals with Fanconi anemia through research that focuses on the rapid discovery and development of therapies or strategies that treat, control or cure Fanconi anemia. It has a particular interest in funding interdisciplinary, translational research efforts that effectively address one or more of the following priorities: 1) To understand how alteration of the Fanconi anemia genes and their products lead to the clinical manifestations of Fanconi anemia; 2) To determine the causes of bone marrow failure, myelodysplasia and leukemia in individuals with Fanconi anemia, and to develop strategies to prevent, treat and cure these disorders; 3) To define the pathogenesis of cancers that affect persons with Fanconi anemia, and to develop strategies for early detection, prevention, treatment and cure; 4) To identify practical and proactive management strategies that families and persons with Fanconi anemia can use to develop and maintain a high quality of life; and 5) To support the creation of shared resources, databases and technologies for the international Fanconi anemia research community.

Deadlines: Letter of Intent: October 13, 2017; Application: February 02, 2018.

http://www.fanconi.org/index.php/research/grant_applications

NATIONAL ENDOWMENT FOR THE HUMANITIES

Arts Education Statewide data Infrastructure Project: This opportunity will support state-level extraction, analysis, and reporting of K-12 arts education data that is already being collected by states. Easy access to timely, reliable data about arts education is a

prerequisite for knowing how much and to whom arts education is being delivered in schools. These data can help decision-makers determine whether they are meeting national and state-approved policies and content standards regarding arts education. In addition, these data can help state departments of education, state arts agencies, funders, and others to direct resources to increase the likelihood that all students will benefit from an education that includes the arts.

Deadline: April 12, 2018.

<https://www.grants.gov/web/grants/view-opportunity.html?oppld=292119>

NATIONAL INSTITUTES OF HEALTH

Mechanistic Ancillary Studies to Ongoing Interventional Clinical Trials (R01): This opportunity encourages applications that propose to conduct time-sensitive mechanistic ancillary studies related to the NIAMS mission in conjunction with privately or publicly funded, ongoing interventional clinical trials. The ongoing "parent" project has to be an interventional clinical trial that can provide a cohort of well-characterized patients, infrastructure, data, and biological samples. Applications submitted in response to this FOA will undergo an accelerated review and award process. The objective of this FOA is to provide a flexible mechanism to leverage established resources and maximize the return on existing investments in parent projects. Successful ancillary studies will enhance the scientific content and value of the parent projects, improve the research community's

understanding of a disease or organ system in the NIAMS portfolio, and thus may identify novel targets for diagnosis, treatment, and prevention of disease.

Deadline: August 07, 2017.

<https://grants.nih.gov/grants/guide/rfa-files/RFA-AR-18-002.html>

Nasal Delivery of CNS Therapeutics (R41/R42): The purpose of this opportunity is to develop a nasal delivery formulation that reliably delivers of a therapeutic (e.g. peptides, antibodies, RNAi, or pharmacotherapeutics), at a physiologically relevant concentration, into the CNS. Less than 2% of small molecule pharmacotherapeutics effectively cross the blood brain barrier (BBB). Larger molecules (peptides or antibodies) are virtually impenetrable. Direct routes of administration (epidural-, intracerebral- or intracerebral ventricular delivery) are invasive, costly and impractical for repeated CNS dosing. These difficulties significantly limit the development of therapeutics to treat substance use disorders (SUDs).

Nasal delivery of therapeutics may offer several advantages. It is thought that therapeutics, large or small, can directly enter the central nervous system (CNS) and/or CSF through the olfactory nerve via extracellular diffusion, axonal transport and/or other unknown mechanism(s). Thus, inhaled drugs do not face the same pharmacokinetic (PK) challenges as do systemically administered drugs. PK issues such as gastric-acid mediated destruction, intestinal absorption, first-pass metabolism, circulatory stability, BBB penetrability, etc. can be minimized or obviated. Nasal administration

has been noted to delivery therapeutics into the CNS in a matter of minutes. The development of nasal delivery formulations would, theoretically, reduce resources needed for chemical synthesis, iterative pharmacophore modifications, and scale up production. Non-systemic administration may limit the formation of unwanted active metabolites, while allowing for an effective, less harmful dosing strategy. Novel nasal delivery technologies would likely open the door for the development of several a wide variety of novel therapeutic options, such as peptides, antibodies, RNAi, stem cells, or small molecule pharmacotherapeutics.

Deadlines: Letter of Intent: July 24, 2017; Application: August 23, 2017.

<https://grants.nih.gov/grants/guide/rfa-files/RFA-DA-18-007.html>

New Technologies for the Glycosciences (R43/R44): This program aims to develop affordable tools and technologies for carbohydrate research. Areas of primary interest include new approaches for glycan synthesis, easily accessible analytical reagents and technologies for the study of glycoconjugates, and informatics tools for glycan data analysis. This SBIR program complements the Common Fund program "Accelerating Translation of Glycoscience: Integration and Accessibility" launched in 2015 to develop new methods, tools, and technologies for studying carbohydrates. Common Fund programs do not utilize the SBIR mechanisms.

Deadline: September 05, 2017.

<http://grants.nih.gov/grants/guide/pa-files/PA-16-157.html>

NATIONAL SCIENCE FOUNDATION

Semiconductor Synthetic Biology for Information Processing & Storage Technologies: Future ultra-low-energy computing, storage and signal-processing systems can be built on principles derived from organic systems that are at the intersection of chemistry, biology, and engineering. New information technologies can be envisioned that are based on biological principles and that use biomaterials in the fabrication of devices and components; it is anticipated that these information technologies could enable stored data to be retained for more than 100 years and storage capacity to be 1,000 times greater than current capabilities. These could also facilitate compact computers that will operate with substantially lower power than today's computers. Research in support of these goals can have a significant impact on advanced information processing and storage technologies. This focused solicitation seeks high-risk/high-return interdisciplinary research on novel concepts and enabling technologies that will address the scientific issues and technological challenges associated with the underpinnings of synthetic biology integrated with semiconductor technology. This research will foster interactions among various disciplines including biology, engineering, physics, chemistry, materials science, computer science, and information science that will enable heretofore-unanticipated breakthroughs as well as meet educational goals.

Deadline: October 30, 2017.

https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505397

Geoinformatics (GI): This opportunity invites proposals for the development of cyberinfrastructure for the geosciences (Geoinformatics). Specifically, the development and implementation of enabling information technology that extend beyond an individual's impact or that of a small group of investigators. It must also facilitate the next generation of geosciences research. Projects may include community-driven development and implementation of databases; tools for data integration, interoperability, and visualization; software development and code hardening; and data-intensive/new computing methodologies that support the enhancement of geosciences research and education activities.

Awards under this solicitation do not overlap with EarthCube, another NSF unit. The goal of EarthCube is to transform the conduct of geoscience research by supporting community-created cyberinfrastructure that integrates knowledge management across all the geosciences. This opportunity will support efforts to create the underlying knowledge base and utilities that will be integrated, over time, through EarthCube.

Deadline: July 03, 2017.

http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503447

CyberCorps: Scholarship for Service (SFS): This opportunity seeks proposals that address cybersecurity education and workforce development. The Scholarship Track provides funding to award scholarships to students in cybersecurity. All scholarship recipients must work after graduation for a Federal, State, Local, or Tribal

Government organization in a position related to cybersecurity for a period equal to the length of the scholarship. A proposing institution must provide clearly documented evidence of a strong existing academic program in cybersecurity. Such evidence can include: designation by the National Security Agency and the Department of Homeland Security as a Center of Academic Excellence in Information Assurance Education/Cyber Defense (CAE IA/CD), in Cyber Operations or in Research (CAE-R); a specialized designation by a nationally recognized organization; or equivalent evidence documenting a strong program in cybersecurity.

The Capacity Track seeks innovative proposals leading to an increase in the ability of the United States higher education enterprise to produce cybersecurity professionals. Proposals are encouraged that contribute to the expansion of existing educational opportunities and resources in cybersecurity and focus on efforts such as research on the teaching and learning of cybersecurity, including research on materials, methods and interventions; curricula recommendations for new courses, degree programs, and educational pathways with plans for wide adoption nationally; teaching and learning effectiveness of cybersecurity curricular programs and courses; integration of cybersecurity topics into computer science, data science, information technology, engineering and other existing degree programs with plans for pervasive adoption; and partnerships between institutions of higher education, government, and relevant employment sectors leading to improved models for the integration of applied research experiences into cybersecurity degree programs.

Deadlines: Scholarship Track: July 31, 2017; Capacity Track: Dec. 05, 2017.

https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504991

NOTE: : All faculty, researchers, and scientists on continuing contracts at IU interested in applying for Department of Defense funding are eligible for assistance by the consulting firm--Cornerstone Government Affairs--arranged by the Vice President for Research.

Those interested in securing assistance from Cornerstone must submit a 2 page summary of their research project and a CV or biosketch to the VP for Research Office at vpr@iu.edu. Prior to submission, the IUPUI Office of the Vice Chancellor for Research is offering assistance with the 2 page summaries. For more information, contact Steven Chin schin@iupui.edu.

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