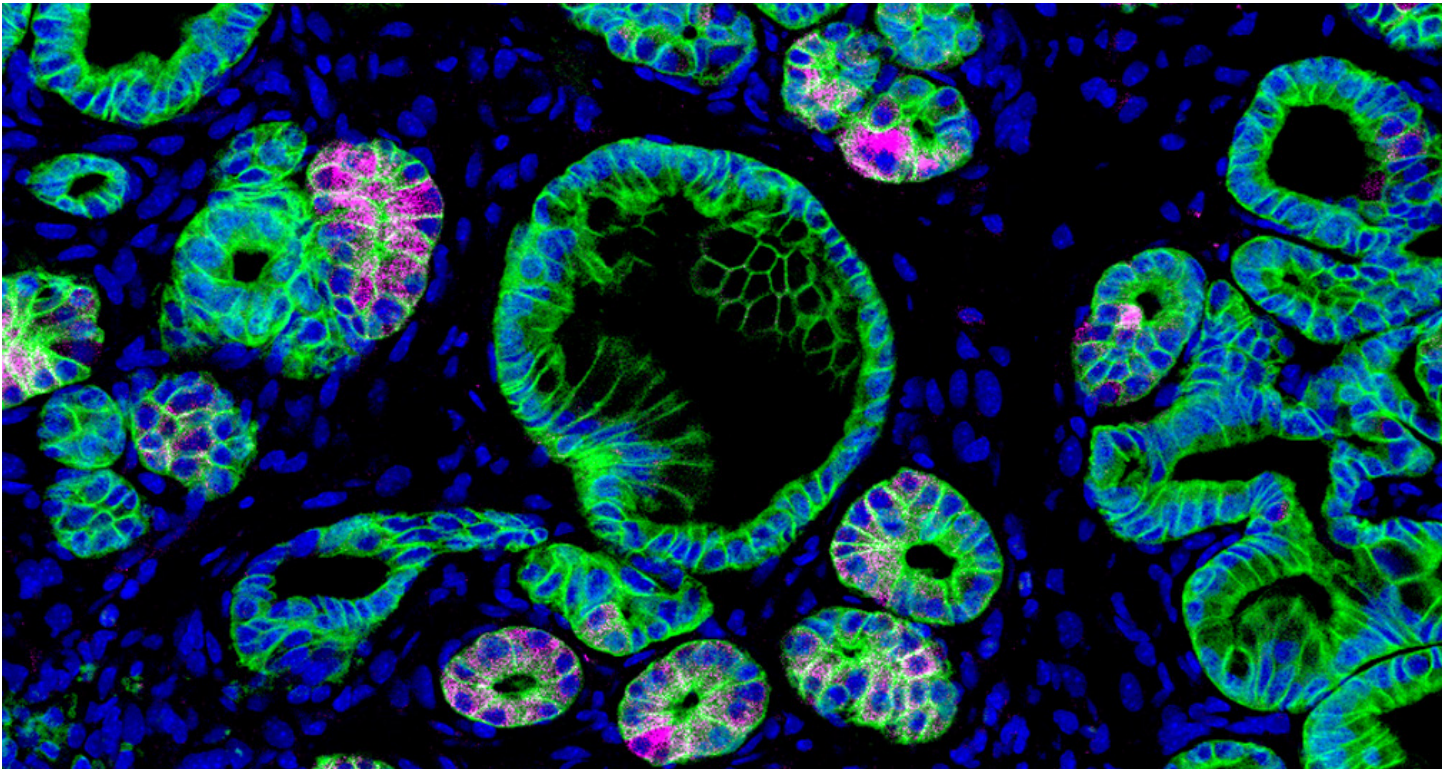


# Breakthroughs

Feinberg School of Medicine Research Office

May 2016



*Image of pancreatic neoplasia from research taking place at the Feinberg Cardiovascular Research Institute.*

## Cardiovascular Research: The Heart & Beyond

**Curing glaucoma with eye drops. Growing bioengineered, transplantable kidneys, pancreases and retinas in a lab. Extending the longevity of the cardiovascular system. These are some of the goals of research projects underway at the [Feinberg Cardiovascular Research Institute \(FCVRI\)](#) and examples of how the institute is expanding its reach and tackling vascular and cardiovascular diseases in organs beyond just the heart.**

“When I joined the institute three and a half years ago, there were a total of eight principal investigators, whose research primarily focused on the basic science of cardiovascular disease,” said [Susan Quaggin, MD](#), the FCVRI’s director. “We are now up to 25 independent investigators in different areas, with

a common goal to improve the lives of patients with a variety of cardiovascular and related diseases through discovery and innovation.”

As a result of the tremendous growth and the variety of projects taking place within the FCVRI over the past three years, Quaggin now divides all of the research within the institute into three new centers: the Center for Molecular Cardiology, the Center for Vascular and Developmental Biology, and the Center for Kidney Research and Therapeutics.

“One of the reasons we’ve redesigned the institute into these individual centers is to make it easier for people to understand the breadth of projects we’re working on,” said Quaggin, who is also the Charles H. Mayo, MD Professor and Chief of [Nephrology](#) in the Department of [Medicine](#). “The centers will be focused on specific diseases, and we will be

## Cardiovascular Research: The Heart & Beyond

(continued from cover page)

sharing the incredible depth of expertise across centers to explore therapies and cures for those diseases.” Many of the investigators belong to more than one center, which highlights the emphasis on collaboration – a core value of the FCVRI.

### A Wide Range of Cardiovascular Research

Areas of focus within the new centers include: heart failure, cardiac arrhythmias such as atrial fibrillation, vascular complications of diabetes affecting kidneys and eyes, regenerative medicine and bioengineering of organs, as well as developing new approaches to organ transplantation.

Along with the new centers and an impressive roster of new hires, the FCVRI is also developing stronger collaborations with Northwestern scientists in Evanston and investigators from other top institutions around the world. Quaggin’s team recently collaborated with scientists on the Evanston campus and other investigators in the Midwest, Australia and Europe to publish [breakthrough research](#) on glaucoma, the leading cause of blindness worldwide.

“You might not think of eye disease being a cardiovascular or vascular disease, but as it turns out, we discovered that glaucoma, which affects over 60 million individuals worldwide, can be caused by a defect in a very specialized blood vessel known as Schlemm’s canal,” Quaggin said. “Because of this discovery, we are now working with [Sam Stupp, PhD](#), on developing an eye drop to treat this glaucoma. This is a story that wouldn’t have happened anywhere else, it’s only because of the collaborative spirit of investigators here at Northwestern and in the FCVRI.”

### Center Directors Named

[Guillermo Oliver, PhD](#), the Thomas D. Spies Professor of Lymphatic Metabolism, will be the director of the Center for Vascular and Developmental Biology. Oliver is a prominent expert in developmental biology who joined Feinberg in



Watch a video about the three new centers at the Feinberg Cardiovascular Institute.

August of 2015. [His lab](#) is using human stem cells to make organoids, complex organs that could ultimately be used for transplantation in people suffering from vascular eye disease or kidney failure. He will lead members of the Center for Vascular and Developmental Biology in developing initiatives and collaborations across Northwestern in the areas of stem cell biology and regenerative medicine.

“There is expertise across Northwestern that covers different aspects of developmental biology, stem cell biology, vascular biology and the main goal of the center is to coordinate activities in these areas and strengthen collaborations that have been more dispersed,” said Oliver, who is also a professor of Medicine in the Division of Nephrology. “We will be establishing training grants and program projects, bringing trainees and PIs together to explore new ideas and new ways of attacking problems that impact human health.”

[Hossein Ardehali, MD, PhD](#), professor of Medicine in the Division of [Cardiology](#) and of [Pharmacology](#), will direct the Center for Molecular Cardiology. It will be home to a number of physician-scientists and cardiologists working in different areas of heart disease with the goal of understanding and developing novel therapies for devastating conditions such as heart arrhythmias. The Center for Kidney Research and Therapeutics will be led by [Xunrong Luo, MD, PhD](#). She is an associate professor of Medicine in the Division of Nephrology and the Director of the Islet Transplant Program. Members of this center are working on many different approaches to diagnose, manage, prevent and ultimately cure kidney diseases.

### A Plan for the Future

Each center will host international meetings, gathering the best minds in science together to share ideas on a regular basis. They also plan to frequently open their doors to colleagues, patients and donors, to explain their research in exciting and easy-to-understand ways.

“Our goal, first and foremost, is to do great science, which ultimately will make a difference for patients,” Quaggin said. “These new centers are designed to support translational medicine at its very best, within an incredible clinical institution and medical school, sitting amidst a powerhouse of basic science across both NU campuses. This environment is the perfect storm for success.”

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# Neuroscience of the Human Olfactory System

Jay Gottfried, MD, PhD



[Jay Gottfried, MD, PhD](#), professor of [Neurology](#), studies the human sense of smell. Understanding the neural mechanisms of the olfactory system, which is impaired in many neurodegenerative and neuropsychiatric disorders – often prior to the onset of overt symptoms and signs – may open up new translational research directions for disease modification.

He joined the Feinberg faculty in 2004 and has a secondary appointment in Psychology at the Weinberg College of Arts and Sciences.

## Q&A

### What are your research interests?

My research focuses on how the brain perceives and interprets information about different smells, such as the aroma of mint, peanut butter or wet dog. For a variety of reasons, smell is often regarded as the trivial “fifth” sense, but this sentiment is incorrect: Evidence increasingly shows that the human sense of smell is highly refined. Our noses can discriminate odor molecules with subtle differences in molecular structure, distinguish hundreds of thousands of unique smells, transport us back in time to reactivate distant memories and detect certain odors with greater sensitivity than observed in other animals. Additionally, the olfactory system (in humans and other vertebrates) is an increasingly attractive and powerful model for studying neural circuit function under normal and pathological conditions. Because almost nothing is known about the basic neuroscience of the human olfactory system, it’s exciting to explore this “final frontier” of the senses.

### What is the ultimate goal of your work?

To leverage the unique features of the olfactory system as a hub around which to span the human condition from molecule to mind, and from health to disease. Broadly, a better understanding of the molecular, cellular, systems and behavioral foundations of olfaction will uncover basic principles of molecular recognition that apply across biological systems. To this end, my research program is thematically organized into three broad components ranging from the microscopic to the macroscopic: cellular, molecular and genetic analysis of human olfactory tissue; in vivo electrophysiological analysis using intracranial electroencephalographic (EEG) recordings in patients with temporal lobe epilepsy; and systems-level analysis using fMRI and olfactory psychophysical techniques in human subjects.

### How did you become interested in this area of research?

My reason for studying human olfaction is three-fold. First, the unique anatomical organization of the olfactory system – including its relative simplicity and its intimate overlap with limbic networks – means that odor stimuli can be effectively used to explore the interface between sensory perception, emotion, memory and behavior. Second, when it comes to animal model systems, the human animal holds a distinct advantage: the gift of speech. The ability of human subjects to verbalize their perceptual experiences and provide behavioral ratings offers a highly tractable method to relate perception directly to brain states. Third, impairments in the sense of smell are commonly reported in Alzheimer’s disease, Parkinson’s disease and other neurodegenerative disorders, often before the emergence of cognitive and neurological deficits. The implication is that a comprehensive understanding of the human olfactory system may guide future development of translational applications for pre-clinical diagnosis and monitoring, and perhaps even for establishing how these disorders first take hold in the brain.

### What collaborations are you engaged in across campus and beyond?

I closely collaborate with Tom Bozza, PhD, in Neurobiology, who has considerable expertise in mouse olfactory genetics and behavior. Together we have devised an interdepartmental research project that exploits next generation sequencing, genetic “trans vivo” approaches, physiological recordings and immunohistochemical techniques to uncover the cellular and anatomical organization of the human olfactory pathway.

*(continued on page 9)*

# Hou Appointed to 'Moonshot' Cancer Initiative Panel



*Lifang Hou, MD, PhD, associate professor of Preventive Medicine in the Division of Cancer Epidemiology and Prevention, has been named a member of the Blue Ribbon Panel, a working group of the National Cancer Advisory Board (NCAB) that advises the National Cancer Institute. The panel will help inform the scientific direction of Vice President Joe Biden's National Cancer Moonshot Initiative to accelerate cancer research.*



[Lifang Hou, MD, PhD](#), chief of [Cancer Epidemiology and Prevention](#) in the Department of [Preventive Medicine](#), has been named a member of a Blue Ribbon Panel of scientific experts, cancer leaders and patient advocates that will inform the scientific direction and goals at the National Cancer Institute of Vice President Joe Biden's National Cancer Moonshot Initiative to accelerate cancer research.

As a member of the panel, she will serve as a part of a working group of the Presidentially appointed National Cancer Advisory Board (NCAB) which will make recommendations to the NCI. NCI will also seek guidance from thought-leaders throughout the cancer community.

"It is a great honor to be able to participate in the Vice President's National Cancer Moonshot Initiative," said Hou, also a member of the [Robert H. Lurie Comprehensive Cancer Center of Northwestern University](#). "I am confident that the initiative will enable cancer researchers to leverage novel technologies, exciting scientific findings, existing infrastructures and interdisciplinary expertise and experience from the entire scientific community to move our current cancer research, treatment and preventive efforts to ever-higher levels, including addressing the persistent disparities in cancer screening, early detection, prevention and therapies."

Over the next several months, the panel will consider how to advance the development of cancer vaccines, approaches to early detection, advances in immunotherapy and combination therapies, single-cell genomic profiling of cancer cells and

cells in the tumor microenvironment, enhanced data sharing and new approaches to the treatment of pediatric cancers. Hou will join 27 other members on the panel whose expertise represent a spectrum of scientific and clinical areas, in addition to individuals from cancer advocacy groups and pharmaceutical and biotechnology companies.

"This is an exciting initiative," said [Leonidas Platanias, MD, PhD](#), director of the Lurie Cancer Center. "Lifang's insights and expertise will be a tremendous addition to the panel's important efforts."

Hou's research focuses on identifying molecular biomarkers that may predict cancer risk, progression and mortality in various populations, thus providing potential tools for early cancer detection and prevention. Hou has published more than 150 peer-reviewed scientific papers including two recent reports on blood-based biomarkers that have the potential to be used for cancer early detection. Hou heads the population epigenetics laboratory with an overarching research focus on understanding the biological mechanisms linking environmental and lifestyle factors with subclinical or clinical disease development.

The NCAB will advise the NCI director based on its consideration of the Blue Ribbon Panel's recommendations, expected to be delivered later this summer.

The Lurie Cancer Center is one of 45 Comprehensive Cancer Centers as designated by NCI and is one of two NCI-designated Comprehensive Cancer Centers in Illinois.

# Finding a Niche in Academic Medicine Administration

Julianna Lee, Associate Administrator in the Department of Medicine



## Where are you originally from?

My roots are in Chicago, although I've spent many years away. Now my office is about three blocks from the apartment building my parents lived in when I was born, so I haven't really gone very far after all.

## What is your educational background?

I did undergraduate and graduate studies at The University of Iowa, where I studied English, art history and education.

## Please tell us about your professional background.

Before coming to Northwestern, I spent nine years at the University of Kentucky (UK), first as the Associate Administrator in Surgery, then as clinical operations manager for the Kentucky Neuroscience Institute. Before that I had been the operations manager of a large catering company in Iowa City and didn't have a speck of experience in academic medicine administration. My first boss and mentor at UK said, "I knew you could juggle a lot of priorities and collaborate with all sorts of people. The rest you would learn."

## Why did you choose to work at Northwestern?

When I came back to Chicago, I knew I wanted to continue working in academic medicine, so that's where I focused my job search. Of course, Northwestern University and The University of Chicago were at the top of my list, but Northwestern had a special draw since my dad and other family members went here – it had a familiarity. Coincidentally, and luckily, I had three interviews in a row – one at Northwestern in Preventive Medicine and two at The University of Chicago. The jobs at The

University of Chicago were related to residency programs and clinical operations – things I knew about. The job here was in the basic science department – something I didn't know much about. In my prior experience, grants made up a tiny fraction of our budgets; while the Department of Medicine had \$20 million in awards. I was really impressed by the people who interviewed me here, especially the way they talked about the importance of mentoring and growing faculty, students and staff. The department's culture seemed to be very aligned with the mission of the school and the University. This turned out to be true and I'm so glad to have the opportunity to work with so many people who are really good at, and invested in, what they do.

## What is your favorite part of the job?

I enjoy being able to say 'yes.' Often faculty, staff or students will come to my office with what they think is an unsupportable request or an unsolvable problem. When I can help them find a way through or around the problem, which makes life or work better for them, that's good. Plus, if you can build a collaborative relationship with people upon a series of "yeses," it makes the occasional "no" easier to handle – because by then they already know that you're on their side.

## What exciting projects are you working on?

I've been lucky this year to be more involved with NUCATS and help them to build some infrastructure around the programs funded by their new grant. This is great for me, since I have no experience in working with CTSAs, so I'm learning a lot. I've also been participating in the inaugural year of Feinberg's Administrative Leadership Development Program, which has introduced me to colleagues and programs in both the basic science and clinical realms. For that program, I'm working on a project around Northwestern Core Facilities – which has given me good incentive to better understand the compliance and fund-flow issues around the two cores housed under our roof – the Biostatistics and BIT Cores.

Connect with Julianna on [LinkedIn](#).



## Thirty Years of CARDIA at Feinberg

The [Chicago Tribune](#) published a front-page story May 2 about Feinberg's three-decade contribution to the [Coronary Artery Risk Development in Young Adults](#) study, or CARDIA. The study, funded by the National Heart, Lung and Blood Institute at the National Institutes of Health, began in 1986, with Feinberg as one of four initial study sites nationwide. Three study participants were interviewed for the story, along with [Donald Lloyd-Jones, MD, ScM](#), the principal investigator for the Chicago CARDIA field office and [Kiang Liu, PhD](#), the previous Chicago CARDIA principal investigator.

# Examining the Aging Process

Rahul Rai, Driskill Graduate Program in Life Science



Rahul Rai, a fifth-year student in the Driskill Program in Life Science, studies the role of apelin in the aging process in the lab of [Douglas Vaughan, PhD](#), chair of [Medicine](#).

Prior to his beginning his training at Northwestern, Rai earned a Bachelor of Medicine from Panjab University in India. After completing his Northwestern degree, he hopes to enter into an academic program that allows him to practice both of his passions, clinical medicine and research.

organs and cause seemingly unrelated pathologies? It was also noteworthy that most of these disorders are more commonly seen in the aging population.

We hypothesized that a decrease in levels of apelin contributes to the aging process. In last few years we have shown that levels of apelin decrease with age. In addition, mice lacking apelin age faster and exhibit features of cardiovascular, metabolic and renal aging. Lastly, at least in mice, when we restore the levels of apelin, we can reverse some components of the aging process. We are working on further confirmation of our findings and hope to publish these in a high-impact paper soon.

## What attracted you to the PhD program?

I loved that the DGP is an integrated program. It gave me the freedom to choose my area of research after joining Northwestern. As a student, you enroll, take classes, rotate in different labs, meet faculty and then decide what you would like your area of research to be. Secondly, I was really impressed with people running the DGP program, especially [Steve Anderson, PhD](#) and Judy Brown. They made the whole interview process and the transition to Northwestern really effortless.

## What has been your best experience at Feinberg?

Winning the second prize in basic research at Research Day 2016 was pretty cool. It's always nice when your hard work is recognized. I'd also like to think that my best experience at Feinberg is yet to come.

## How would you describe the faculty at Feinberg?

The faculty at Feinberg are extremely supportive, approachable and encouraging of new ideas. We are currently collaborating with labs of [Joseph Bass, MD, PhD](#), [Teresa Woodruff, PhD](#) and [Daniele Proccisi, PhD](#). These collaborations have helped us develop a more exhaustive and accurate assessment of our mouse models. In addition, faculty members at Feinberg also serve as terrific role models and we look up to them for both professional and personal supervision.

## What do you do in your free time?

I like to be physically active and I plan to run the Chicago Marathon this fall. I also enjoy catching up on NBA games.

## What are your plans for after graduation?

Although I have really cherished my time doing bench research as a graduate student, I do intend to return to clinical medicine and will be applying for the 2017 match in Internal Medicine. I hope to get into an academic program where in addition to my clinical training, I can undertake research.

Connect with [Rahul](#) on LinkedIn.

## Q&A

### Where is your hometown?

I am from Chandigarh, India. It's a small city about 150 miles north of the capital, New Delhi.

### What are your research interests?

I try to keep myself updated on research being undertaken in all fields of medicine. Knowledge of other fields not only enhances the quality of your project, but also is a good icebreaker. As a student in the lab of Douglas Vaughan, MD, I have developed a deep appreciation for the aging process. Questions like: "How and why we age? What are the processes which mediate aging? Why some people age slower or faster than others? And is aging reversible?" are some of the things we think about and work on all of the time.

### What exciting projects are you working on?

My thesis project involves the study of apelin and its role in aging. Apelin is small protein which is made primarily by the endothelial cells (cells lining our blood vessels). Since this is a newly-identified protein, its physiological role hasn't been extensively assessed. When I started working on my thesis project, we noticed that multiple studies had shown that apelin levels were lower in patients suffering from diverse disorders like hypertension, heart failure, diabetes, renal disorders and pulmonary hypertension. This was a peculiar observation, why would decrease in levels of one small protein affect so many

# Research in the News

## ***The Wall Street Journal*, April 1**

[Regeneron, Sanofi Say Eczema Drug Met Targets in Late-Stage Studies](#)

Jonathan Silverberg was quoted.

## ***Chicago Tribune*, April 12**

[Scientists can 3D print working mouse ovaries. What else can they do?](#)

Monica Laronda was quoted.

## ***The New York Times*, April 14**

[Study: Brain Implant Lets Paralyzed Man Regain Use of Hand](#)

Lee Miller was quoted.

► This research was also featured in *The Chicago Tribune*, *Associated Press* and *The Washington Post*

## ***Fox News (National)*, April 15**

[Surgery directors like flexible schedules for trainees](#)

Anthony Yang was quoted.

## ***The New York Times*, April 20**

[How Medicare Penalizes Hospitals for Being Too Careful](#)

Karl Bilimoria was quoted.

## ***U.S. News & World Report*, April 26**

[During Conception, Human Eggs Emit Sparks](#)

Teresa Woodruff was quoted.

## ***Los Angeles Times*, April 27**

[Why having a food allergy costs more for the poorest kids](#)

Ruchi Gupta was quoted.

► This research was also featured on *CBS News (National)*

## ***Chicago Tribune*, April 28**

[1st-year med school students get real world experience saving man's life](#)

► This story was also featured on *ABC7 Chicago*

[More media coverage available online.](#)

## **Training in Reproductive Science**

Northwestern University has established a first-of-its-kind [Master of Science in Reproductive Science and Medicine](#) program. The 18-month, full-time degree program will provide training in reproductive science focusing on mammalian reproductive biology and medicine with an emphasis on applications to human health.

Northwestern University

# NUCATS

Clinical and Translational Sciences Institute

## NUCATS Corner

### Toolbox for Implementing New NIH Sex-Inclusion Policy

The [Women's Health Research Institute](#) of Northwestern University (WHRI) has developed a [Research Toolbox](#) to help support investigators, as they engage in sex specific research. Earlier this year, the National Institutes of Health implemented a [policy](#) requiring sex to be included as a variable in all grant submissions.

The WHRI's Research Toolbox provides several resources for investigators including:

[Statistical considerations in basic science sex inclusive research](#): An explanation of how sex can impact the statistic analysis of data in five specific instances.

[Analyzing sex in preclinical basic and translational research FAQ](#): Answers common questions about the implementation of the new policy.

[Fifty blog posts](#) sharing studies that highlight the importance of sex-inclusion

[Illinois Women's Health Registry](#): A tool for the recruitment of women into research studies.

#### **More About the Policy**

Implementing the sex as a biological variable policy will help with the translation of clinical studies into medical care. To comply, investigators must make "adequate plans to address relevant biological variables, such as sex, for studies in vertebrate animals or human subjects" and include these plans within the grant's approach section of their research projects.

Contact the Women's Health Research Institute, [womenshealthresearch@northwestern.edu](mailto:womenshealthresearch@northwestern.edu), with questions or for more information about the new research toolbox.

The program has been designed to provide relevant training to a spectrum of students, including recent undergraduate students, residents, clinical fellows and embryologists.

Applications are now open, and the deadline is July 1. Classes begin September 2016.

Applicants should use the online [TGS application](#).

# Sponsored Research



**PI: Guang-Yu Yang, MD, PhD, Joseph C. Calandra Research Professor of Pathology and Toxicology**

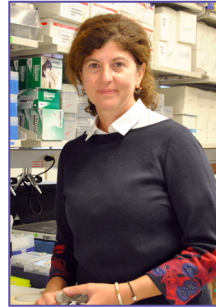
**Sponsor: National Institute of Diabetes, Digestive and Kidney Diseases**

**Title: “Omega-3 derived epoxy fatty acids and sEH in pancreatitis-induced carcinogenesis”**

The long-term objective of research in Yang’s lab is to study molecular mechanisms and chemoprevention of chronic inflammation-driven carcinogenesis. Chronic pancreatitis is a well-recognized risk factor for pancreatic cancer, in which aberrant polyunsaturated fatty acids (PUFAs) metabolism and pro-inflammatory enzyme soluble epoxide hydrolase (sEH) overexpression are believed to be the key mediators contributing to carcinogenesis.

The objective of this project is to determine the role of  $\omega$ -3 derived epoxy fatty acid ( $\omega$ -3 epoxides) and soluble epoxide hydrolase (sEH) in mutant Kras/pancreatitis-induced carcinogenesis and to establish an efficient strategy for the prevention of pancreatic cancer using  $\omega$ -3 polyunsaturated fatty acids (PUFAs) and small molecular sEH inhibitors. Anti-inflammatory/carcinogenic effects of  $\omega$ -3 PUFAs are well known, but the mechanism/s remains unclear. Therefore, targeting PUFAs ( $\omega$ -3/6) metabolism and sEH would constitute a highly significant strategy for the prevention of pancreatic cancer.

[Read more about this project.](#)



**PI: Jelena Radulovic, MD, PhD, Dunbar Professor in Bipolar Disease and professor of Psychiatry and Behavioral Sciences, Pharmacology and Physiology**

**Sponsor: National Institute of Mental Health**

**Title: “Mechanisms of Stress-Enhanced Aversive Conditioning”**

Radulovic’s body of work explores the molecular and cellular mechanisms by which memories of stressful events contribute to anxiety- and depression-like behavior. In some individuals, traumatic stressful experiences leave lasting painful memories. In others, they cause dissociative amnesia—an inability to consciously access memories of the traumatic events.

For this project, using mouse models, Radulovic’s team will identify the molecular mechanisms of state-dependent fear conditioning and the circuit mechanisms by which they affect social behavior. They will use contextual fear conditioning as a model of episodic memory processed by the hippocampal formation. By using neurobiological approaches with the mouse models, her team proposes to establish how unconscious memories are formed and how they influence social behavior. The findings may inform the development of novel treatments for sufferers of stress-related psychopathologies such as dissociative disorders and post-traumatic stress disorder (PTSD).

[Read more about this project.](#)



## Welcome New Faculty

**Daniel Kim, PhD**, joins as associate professor of Radiology. His area of expertise is cardiovascular imaging research. He comes from the University of Utah where he was also an associate professor of Radiology. Kim earned his master’s degree and PhD in Biomedical Engineering from the University of Virginia. He then completed postdoctoral training at New York University, focusing on cardiovascular MRI. He is the principal investigator on grants from the National Heart Lung and Blood Institute and the American Heart Association and has published more than 50 peer-reviewed journal articles. He is part of Feinberg’s cardiovascular imaging research group that focuses on the development and application of methods to help improve diagnosis of cardiovascular diseases using MRI and CT.



# Neuroscience of the Human Olfactory System

## Q&A with Jay Gottfried, MD, PhD

*(continued from page 3)*

Recent NIH funding from the National Institute on Deafness and Other Communication Disorders (NIDCD) has been essential for getting our study underway. This project includes other critical collaborators ([Eileen Bigio, MD](#), professor of [Pathology](#); [Changiz Geula, PhD](#), research professor in the [Cognitive Neurology and Alzheimer's Disease Center](#); William Kath, PhD, in Engineering Sciences and Applied Mathematics; [Bruce Tan, MD, '10 GME](#), assistant professor of [Otolaryngology](#)), enabling us to gain a comprehensive characterization of the human olfactory system at multiple levels of analysis.

I am also working closely with the Comprehensive Epilepsy Center and Surgical Epilepsy Program at Northwestern to investigate odor-evoked patterns of EEG activity directly from the human brain in patients with medically refractory epilepsy. This patient-based research project relies on a large team of investigators in Neurology and [Neurological Surgery](#) ([Stephan Schuele, MD, MPH](#), [Josh Rosenow, MD](#), [Marc Slutzky, MD, PhD](#)), whose combined expertise in clinical neurology, epilepsy, functional neurosurgery and extraoperative recording and stimulation of the human brain is difficult to rival at other institutions. This research will open a unique window to the physiological underpinnings of the olfactory system with unparalleled temporal and spatial resolution. In bringing a more comprehensive basic research understanding of human olfaction in patients with epilepsy, our project may help optimize the development of olfactory diagnostic tests that will improve prediction of epilepsy surgery outcomes.

### Who are your mentors?

[Jack Kessler, MD](#), has been instrumental in guiding my career development, especially when I was an assistant professor trying to navigate the treacherous waters of the tenure track process. [Marsel Mesulam, MD](#), was scientific mentor on my NIH K08 training grant, and has served as an inspiring role model of a consummate physician-scientist who can seamlessly integrate basic neuroscience and behavioral neurology. Aryeh Routtenberg, PhD, whose scientific enthusiasm and spiritual patronage gave me an extra boost of confidence early in my career. His loss has [been felt](#) by many Northwestern and beyond. I also draw inspiration and creativity from many non-scientific sources, including vintage comic books, John Updike, Vosne-Romanée and the smell of fresh shiso leaf, all of which filter indirectly into my research.

## Funding

### Dr. William E. Paul Distinguished Innovator Awards in Lupus and Autoimmunity

[More information](#)

**Sponsor:** Lupus Research Institute

**Submission deadline:** July 8

**Upper Amount:** \$250,000 per year, for a term of up to 4 years

**Synopsis:** The Lupus Research Institute (LRI) invites applications for its Dr. William E. Paul Distinguished Innovator Awards in Lupus and Immunology, a global program that will provide outstanding scientists with substantial support for up to four years to conduct novel research into the fundamental causes of lupus and so provide new directions toward a cure or prevention.

### Understanding HIV Rebound (P01)

[More information](#)

**Sponsor:** National Institutes of Health, National Institute of Allergy and Infectious Diseases, National Institute of Mental Health

**Submission deadline:** June 29

**Upper Amount:** \$1M

**Synopsis:** This program project is aimed at understanding specific mechanisms, biomarkers, and pathways associated with rebound of HIV viremia. Research should focus on viral rebound in: 1) HIV/SIV-positive hosts who initiated antiretroviral therapy early after infection, had fully suppressed viremia for an extended period, and who later stopped therapy, 2) HIV/SIV-positive hosts receiving an intervention aimed at controlling or delaying HIV rebound or 3) HIV/SIV-positive hosts receiving an intervention aimed at diminishing or eradicating viral reservoirs.

### Limited Submission: The Hartwell Foundation Individual Biomedical Research Award

[More information](#)

**Sponsor:** The Hartwell Foundation

**Submission deadline:** June 7 (internal proposal due)

**Upper Amount:** \$100,000 direct cost per year for three years

**Synopsis:** Northwestern University has been invited to nominate two candidates from faculty and research staff from appropriate areas of basic and applied life sciences, including engineering focused on biomedical applications. The Foundation will only consider proposals in biomedical research. It seeks to fund innovative and cutting-edge applied research that has not yet qualified for funding from traditional outside sources.

[View more funding opportunities](#)

# Dissemination of Research in the Wild World Wide Web



Explaining your research over a cup of coffee may seem like the ideal way to build a rapport with a potential collaborator, but in this global marketplace, sharing your work online may be the best way to make new connections. If you are new to social media or other online tools, it's time to set up some accounts and get into the game. Here is a primer on some of the most popular online social media and research-sharing tools for scientists:

## Twitter

[Twitter](#) conversations happen in a flutter of newsfeed updates, hashtags and character limits. Twitter is a great way to track research trends, follow the work of your peers and share your own work. If you've never experienced Twitter, try setting up an account and ease your way into it. Consider these ideas:

- While attending a conference, search Twitter for the conference's custom hashtag, such as #AAASmtg and follow along with the online conversation taking place. Use the "Follow" function to track the Twitter account of a well-known researcher, such as Francis Collins, Director of NIH, known on Twitter as @NIHDirector.
- Write a Tweet about your publication (using 140 characters or less). Go to your publisher's website and click on the "Share" or "Twitter" icon, paste your text next to the shortened link to your paper, and hit "Tweet" to send it to your followers.

## Facebook and Google+

Patient advocacy groups, professional societies and research labs often have [Facebook](#) groups or [Google+](#) communities that follow research advancements and send news out to their members. If you've never shared your work or someone else's on Facebook or Google+, consider opening an account and trying it out. Here's how to start: Join a professional society or advocacy Facebook group or Google+ community, such as the "Science on Google+" community with 600,000 members. To find groups in Facebook, enter keywords into the search field and click on the "Groups" tab. To find communities in Google+ navigate to the Communities page and enter keywords in the search field.

- Write some text about your publication. Go to your publisher's website and click on the "Share" or "Facebook" or "Google+" icon and paste your text next to the shortened

link to your paper. Select "Share in a group" or "Share on your own Timeline" depending on your preferences.

## Mendeley, CiteULike, Delicious

Social bookmarking is a popular way to store references online, discover new articles, and share references with colleagues. Consider setting up an account in one of the many tools, such as [Mendeley](#), [CiteULike](#) and [Delicious](#), and creating your own library of citations. Consider these ideas:

- Create a library of papers in Mendeley relevant to your field of study and share the papers with your colleagues, or invite members to join your group. As an example, navigate to the Groups tab and search for the "Prostate Cancer Research" group.
- Use the "Suggest" feature in Mendeley to find articles you may be interested in based on your library of work.

## Tools for Tracking Dissemination

If you've put in the effort to broadly disseminate your work, it may be helpful to see if your work is gathering attention and which tools are helping to generate the most interest. There are several tools that pull together data on the attention that articles receive online.

- [Altmetric](#) has partnered with Elsevier's [Scopus](#) literature database and with many publishers to provide data on those sites for individual articles. You can also download their [free bookmarklet](#) for quick access to Altmetric data. Their colorful "donut" ring depicting the areas of high attention for an article.
- [PlumX](#) has partnered with universities and institutional repositories to provide impact metrics for individual articles. Their signature "plum-print" which highlights the attention an article has received in usage, captures, mentions, social media and citations.
- [Impact Story](#) uses your CV to track attention you've received online. They offer options to pull data from your Twitter, SlideShare, GoogleScholar and ORCID accounts, among others.

Google is a very simple way to check the web for your work. Run a Google Search of your name, research topic or article title, and then clicking on Google's "News" tab, you can see if any media mentions comes up.

# High Impact Factor Research

## March 2016

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## Help Feinberg Track Journals

The Feinberg Research Office regularly tracks research published by Feinberg investigators. The citations are used on web pages, in newsletters and social media, for internal reporting and more. To more accurately track these journals, the Research Office asks that Feinberg investigators use the following institution name in the address field when publishing in peer-reviewed journals: "Northwestern University Feinberg School of Medicine."

# Calendar

Thursday, May 12

## Northwestern Alzheimer Day

**22nd Annual Alzheimer Day features lecture, poster presentation and more.**

**Time:** 11:30 a.m. to 4:00 p.m.

**Location:** Northwestern Memorial Hospital  
Feinberg Pavilion  
251 E. Huron St., 3rd Floor Conference Center

**Contact:** [k-zachrich@northwestern.edu](mailto:k-zachrich@northwestern.edu)

[More information](#)

Tuesday, May 17

## Interaction Between Yersinia and Innate Immune Cells in Animal Infections

**Joan Meccas, PhD, Tufts University, to give lecture as part of the Microbiology-Immunology Seminar Series.**

**Time:** Noon to 1 p.m.

**Location:** Robert H Lurie Medical Research Center  
Baldwin Auditorium  
303 E. Superior

**Contact:** [lathem@northwestern.edu](mailto:lathem@northwestern.edu)

[More information](#)

Monday, May 23

## 2016 Feinberg Commencement

**Class of 2016 Commencement and reception**

**Time:** 3:30 p.m. to 6:30 p.m.

**Location:** Grand Ballroom, Navy Pier  
600 East Grand Avenue, Chicago, Illinois

**Contact:** [j-langland@northwestern.edu](mailto:j-langland@northwestern.edu)

[More information](#)

### [More Events](#)

Event organizers are encouraged to submit calendar items on [Plan-It Purple](#) for consideration. Please contact the [Research Office](#) with further questions.

## NIH News

### NIH Seminar in Chicago

Mark your calendar for the NIH Regional Seminar, Oct. 26 to 28 at the Palmer House in Chicago. This two-day event offers first-hand information from the NIH about policy review and program and grants management for investigators and administrators.

Sessions and workshops will cover topics such as:

- Grant writing for success
- Career development
- Peer review and compliance
- Electronic tools and resources
- Intellectual property and data sharing
- Research integrity
- Animals and humans in research
- Federal regulations and policies

[Registration is open.](#)

### Clarifying Biomarker Terminology

The word “biomarker” has become commonplace in biomedical research and clinical care, but there has been some confusion about the definition of the word. Earlier this year the FDA and NIH published [BEST \(Biomarkers, EndpointS, and other Tools\) Resource](#), an online living textbook that aims to offer a uniform way to convey biomarker and other key technical terms to help advance scientific progress.

The BEST textbook includes a glossary of terms and definitions that can be used by diverse communities, including biomedical scientists, translational researchers, clinical researchers, medical product developers and clinicians. Check out BEST and offer your feedback and comments.

### New NIH Grants and Funding Website

The newly redesigned [NIH grants and funding website](#) is now live. You can check out [short video tours](#) of the new site and a [new application guide](#) to orient yourself new tools. The new website has less clutter, more context, improved navigation and simplified pages to help you find the information you need more easily.

### Follow Feinberg Social Media

