

# Breakthroughs

Feinberg School of Medicine Research Office

April 2018



*Ronald Ackermann, MD, MPH, director of the Institute for Public Health, talks with Dorothy Mangale of the Westside Health Authority, a non-profit organization serving the west side of Chicago.*

## Feinberg's Home for Public Health

At its core, a medical school's mission is to improve human health. And yet, at most universities, public health research activities are largely set apart in a separate school of public health.

At Feinberg, the approach is not isolation, but integration.

Within the Institute for Public Health and Medicine ([IPHAM](#)), investigators collaborate at the intersection of public health and medicine — connecting clinics to communities and accelerating innovations that impact the health of both patients and populations.

Since being named director in October 2016, [Ronald Ackermann, MD, MPH](#), has made strengthening that sense of cross-disciplinary teamwork within IPHAM one of his chief priorities.

"When we think about the institute's mission and strategic goals, they all center squarely on the word 'collaboration,'" said Ackermann, also the senior associate dean for public health and a professor of [Medicine](#) in the Divisions of [General Internal Medicine and Geriatrics](#) and [Endocrinology](#) and of [Medical Social Sciences](#). "Everything we do is meant to say: how can we

cut across departments and bring people out of silos to interact in a way that's mutually beneficial and really enables research innovation and impact?"

Today, five years since the institute's founding — and a year and a half into Ackermann's leadership — IPHAM has become known as a unique home for collaborative research among Feinberg investigators and an ever-growing hub for innovative solutions to public health's challenges.

### A Half-Decade of IPHAM

IPHAM launched at Feinberg in the summer of 2012. Public health research activities had long taken place at the medical school. But the formation of the institute established, for the first time, a dedicated home to support cross-disciplinary public health research. From the very beginning, IPHAM took a novel approach, integrating more traditional public health research with clinical investigation and healthcare delivery initiatives.

At the time of its launch — with [Rowland Chang, MD, MPH](#), professor of [Preventive Medicine](#), [Medicine](#) and [Physical Medicine & Rehabilitation](#), as its founding director — IPHAM was comprised of nine centers, with concentrations spanning from engineering to biostatistics, aging and health services research. Beyond connecting individual investigators across

## Public Health

(continued from cover page)

such diverse disciplines, IPHAM also became home to public health education and training, as well as a resource core, offering administrative support and technical assistance for proposals and awards.

By the fall of 2016, when Ackermann succeeded Chang as director, IPHAM had expanded to 14 centers, with more than \$23 million in externally funded grants during the fiscal year.

Since then, Ackermann has spearheaded the continued growth of the institute. Today, IPHAM includes more than 600 members across 51 departments and divisions in seven schools at Northwestern. Between 2015 and 2017, research award dollars grew 8 percent institute-wide, and 21 percent for research supported by IPHAM research administration.

Central to Ackermann's vision for IPHAM is to grow not just in numbers, but in impact. While the awarding of major NIH grants or publications in high-impact journals continue to be exciting achievements for the institute, Ackermann notes that the ability for such advancements to actually benefit the public is dependent on a deep connection between IPHAM and community partners.

"I like to make it my job to be that bridge between those two activities — to strategize about what our public health system and community partners really need, and how to leverage our many strengths at Northwestern to be more impactful in the public health arena," Ackermann said. "For us, it's about thoughtfully saying, yes, we can double research at Northwestern — but we can do it in a way that really doubles impact to the community."

### More Than the Sum of Its Parts

The 14 thematic centers within IPHAM, each with their own members and robust research portfolio, are all dedicated to impacting the community through their unique lens. But while there is a diversity of centers within IPHAM — ranging from the [Buehler Center for Health Policy and Economics](#) to [Global Health](#), [Primary Care Innovation](#) and [Patient-Centered](#)

[Outcomes](#), to name a few — it is their collective impact that allows IPHAM to carry out its public health mission.

"What I get really excited about is strategizing about how we can be more than the sum of our parts," said Ackermann, also director of the [Center for Community Health](#) within the

institute. "IPHAM is about marshalling all of the strengths we have at Northwestern and our clinical affiliates to impact not just individuals, but population health in a sustainable and meaningful way."

[Kelly Michelson, MD, MPH](#), director of the [Center for Bioethics and Medical Humanities](#), also sees collaboration within the institute as key to its impact. "Being housed within IPHAM has given those with interest and scholarship in bioethics and medical humanities a broad platform from which to disseminate ideas and cross-pollinate with faculty and staff from a variety of disciplines," explained Michelson, also the Julia and David Uihlein Professor of Bioethics and Medical Humanities. "Dr. Ackermann has been instrumental in encouraging enhanced collaboration across centers."

Beyond the investigations taking place across centers over the coming months, IPHAM also plans to strengthen its role in providing resources to investigators throughout the medical school. The institute is currently developing a pilot program that will allow Feinberg investigators to access key resources and services — data analysis of the Northwestern Medicine Enterprise Data Warehouse, for example — through IPHAM vouchers.

The institute will also continue to serve as a hub for developing the next leaders in public health, through masters, PhD and post-doctoral training, as well as mentoring and career development, and overall support of Feinberg investigators in the public health space from research proposal to dissemination.

"IPHAM is an open door, and we want people to come to us with their ideas. Sometimes we don't realize we have an inherent strength until investigators approach us asking how their research can be extended to impact the community and patients," Ackermann said. "We're always looking to grow. We're always looking for new forms of collaboration to impact population health."



Ronald Ackermann, MD, MPH, Director, Institute for Public Health and Medicine

## CONTENTS

<a href="#">Faculty profile: Alfred George, Jr., MD</a>	3
<a href="#">Research Day 2018 recap and winners</a>	4
<a href="#">Student profile: Samantha Genardi</a>	5
<a href="#">Staff profile: Kate Klein, MPH</a>	6
<a href="#">In the news and NUCATS corner</a>	7
<a href="#">Sponsored research/new faculty</a>	8
<a href="#">Funding opportunities</a>	9
<a href="#">Galter Library connection</a>	10
<a href="#">High-impact research</a>	11
<a href="#">Events and NIH news</a>	12

# Illuminating the Root of Ion Channel Disease

Alfred George, Jr., MD, chair of Pharmacology, director of the Center for Pharmacogenomics and the Magerstadt Professor of Pharmacology



[Alfred George, Jr., MD](#) serves as chair of [Pharmacology](#), director of the Center for Pharmacogenomics and the Magerstadt Professor of Pharmacology. The center studies how an individual's genetic makeup affects their response to drugs, in a bid to provide targeted therapies and improve the efficacy of a variety of drugs. George's own research focuses on the structure, function and genetics of ion channels — specifically with a group of genetic diseases called channelopathies.

## Q&A

### What are your research interests?

My research seeks to elucidate the pathogenesis of a group of genetic diseases called channelopathies, which are disorders caused by mutations in ion channel genes. In addition to discovering the causes and underlying mechanisms, we also work to discover novel pharmacological approaches to treat these disorders.

Our major efforts are devoted to investigating genetic disorders of heart rhythm that can cause sudden death in young children and genetic forms of epilepsy and related neurological conditions that can have devastating effects on brain development. In addition, we investigate the genetic and genomic basis for inter-individual variability in drug responses, an area called pharmacogenomics.

Our multidisciplinary research operates at a nexus among several fields including human genetics, electrophysiology, pharmacology and neuroscience with implications for the diagnosis and treatment of patients in various clinical specialties including cardiology, neurology and pediatrics.

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

We would like to translate what we learn about the molecular basis of channelopathies into therapeutic strategies for these orphan diseases, and for more common disorders having shared mechanisms.

### What types of collaborations are you engaged in across campus (and beyond)?

We have an extensive network of collaborations with faculty at Northwestern, at other institutions within the U.S. and in other countries. Since my arrival to Northwestern in March 2014, I've become involved in productive collaborations with more than a dozen other faculty members in 10 departments in the Feinberg School of Medicine and McCormick School of Engineering. These collaborations have led to publication of scientific papers and funding of new grants.

Our multidisciplinary research requires collaboration to achieve scientific advances having the greatest impact. Further, collaboration with other scientists is one of the most enjoyable aspects of a career as a biomedical researcher. Collaboration across traditional departmental boundaries also fosters a better environment for training young scientists.

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

For a long time, I have been interested in learning how cells move charged ions across their membranes. This led naturally to the study of ion channels and other ion transporting mechanisms. In my postdoctoral training, I was introduced to the hypothesis that mutations in human ion channel genes may be the molecular basis for genetic disorders of the nervous system and other organs. This led to opportunities to investigate some of the very first channelopathies, and the work hasn't stopped since that time.

*(continued on page 9)*



# Record-Breaking 14th Annual Lewis Landsberg Research Day

On Thursday, April 5, more than 430 scientists, trainees, students and faculty presented abstracts at Feinberg's 14th Annual Lewis Landsberg Research Day, a celebration of the medical school's innovative research and the dedicated investigators who make it happen.

Mina Bissell, PhD, FRSC, distinguished scientist in the Biological Systems and Engineering Division at the Lawrence Berkeley National Laboratory, gave a keynote presentation on the often underappreciated impact of structure and form on a cell's function.

After the keynote, investigators fanned out across the Robert H. Lurie Medical Research Center and event space at Northwestern Memorial Hospital to showcase the results of their studies, answer questions about their posters and exchange ideas with colleagues.

Senior faculty served as judges and awarded participants whose projects demonstrated outstanding and innovative research with potential to advance science and medicine.

This year's winners are:

## Basic Science

First place: Anil Dangi, PhD, research associate, "Transplantation Tolerance Preserves Kidney-allograft Function in D+/R- CMV Transplant Setting"

Second place: Yinu Wang, PhD, postdoctoral research fellow, "Epigenetic Characteristics of Ovarian Cancer Stem Cells"

Third place: Hadijat Makinde, PhD, postdoctoral research fellow, "RNA Sequencing Reveals Differential Gene Expression in Microglia Following TBI"

## Clinical Research

First place: Heather Stefek, a third-year medical student, "Relating 2D PC-MRI Rex Shunt Flow, Shunt Diameter and Thrombocytopenia"

Second place: Yujin Park, a fourth-year medical student, "Outpatient Opioid Prescribing Patterns in a Pediatric Tertiary Care Hospital"

Third place: Kathryn Fay, MD, third-year resident in Obstetrics and Gynecology, "Reproductive Coercion in the Perinatal Context"

## Public Health & Social Sciences Research

First place: Mike Bancks, PhD, MPH, postdoctoral research fellow, "Lifetime risk for cardiovascular disease stratified by fasting glucose level"

Second place: Stephanie Mayne, PhD, MHS, postdoctoral research fellow, "Neighborhood Crime and Adverse Pregnancy Outcomes"



Third place: Victoria Kolbuck, MSW, behavioral research coordinator, "Pediatric Transgender Health Providers' Fertility-related Practice Behaviors"

## Education Research

First place: Trevor Barnum, RN, surgical nurse educator, "Outcomes associated with insertion of indwelling catheters by medical students"

Second place: Allison Dahlke, MPH, program manager, "Gender differences in the General Surgery Residency Experience"

Third place: [Bruce Henschen, MD, MPH](#), assistant professor of [Medicine](#) in the Division of [General Internal Medicine](#) and Geriatrics, "Clinical quality among patients in a longitudinal outpatient clerkship"

## Medical Women Faculty Organization Founders Award

Brannan Griffin, MD, a third-year resident in Pathology, "Histologic and Molecular Analysis of Hydropic Leiomyoma"

Christia Angela Sison, a third-year student in the Driskill Graduate Program in Life Sciences, "GATA6, genome-wide H3K-27ac histone modification, and active transcription in endometriosis"

## ARCC Community-Engaged Research Partnership Award:

"Cooking Up Health: Docs & Kids in the Kitchen"

## Tripartite Legacy Faculty Prize

[Watch video](#): Michael Abecassis, MD, MBA, chief of Organ Transplantation in the Department of Surgery, James Roscoe Miller Distinguished Professor of Medicine and director of the Comprehensive Transplant Center and a professor of Microbiology-Immunology.

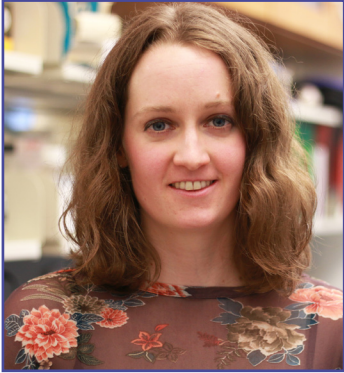
## Medical Faculty Council Mentors of the Year

[Watch video](#): [Mercedes Carnethon, PhD](#), chief of [Epidemiology](#) and vice chair of the Department of [Preventive Medicine](#)

[Watch video](#): Joint recipients [Erin Hsu, PhD](#), research associate professor of [Orthopaedic Surgery](#) and assistant director of the [Simpson Querrey Institute for BioNanotechnology](#) and [Wellington Hsu, MD](#), Clifford C. Raisbeck, MD, Professor of Orthopaedic Surgery and a professor of [Neurological Surgery](#).

# Finding Links Between Inflammation and Infection

Samantha Genardi, Driskill Graduate Program in Life Sciences



Samantha Genardi, a fourth-year student in the Driskill Graduate Program (DGP), studies cell response to bacterial infection in the laboratory of [Chyung-Ru Wang, PhD](#), professor of [Microbiology Immunology](#).

## Q&A

### Where is your hometown?

I am from Dover, New Hampshire. I was born in New York City and spent the first few years of my life in New Jersey. My family moved to New Hampshire when I was young, and it was the place I spent my formative years. I went to undergraduate school in Boston, where I first developed my interests in biomedical research, and moved to Chicago for graduate school shortly after completing my undergraduate degree. Chicago's been my home ever since!

### What are your research interests?

Biomedical research with a focus on translational medicine has been my primary interest since undergraduate school. I had the opportunity to work in cancer research at Dana-Farber Cancer Institute during my undergrad years. This opportunity is what initially interested me in immunology and cancer immunotherapy. Coming into graduate school, I thought I would end up in a cancer immunology lab. After rotating in a few labs, I discovered microbial immunity and have been hooked ever since. I love studying the immune system as it intersects most aspects of human health, from microbial diseases to cancer to autoimmunity and inflammation.

### What exciting projects are you working on?

I work in the laboratory of Chyung-Ru Wang, PhD, in the Department of Microbiology-Immunology, where we study T-cell responses to bacterial infections. The T-cells we work with are unique in that they recognize lipid antigens (CD1-restricted T-cells), and have important implications for human health. My project focuses on the role of CD1-restricted T-cells in the context of methicillin-resistant *Staphylococcus aureus* (MRSA), a common hospital-acquired pathogen. In addition to identifying basic mechanisms these T-cells have in recognizing and promoting immunity against MRSA, we are working with a lipid biochemist to identify dominant lipid antigens isolated from the cell membrane of MRSA that can be used in vaccine candidate design. I am also working on identifying

the role of these T-cells in the context of staph infection and hyperlipidemia, a condition characterized by high blood lipid content. Hyperlipidemia can lead to inflammation, which is a risk factor for a host of complications, including autoimmunity (which my lab will be publishing a review paper on next month, of which I will be a co-author). The link between hyperlipidemia and infection is not well understood, and I believe the work I am doing will be important for public health and how we treat patients with hyperlipidemia and infection.

### What attracted you to the PhD program?

I was initially attracted to the PhD program because of the high quality of biomedical research that is done at Feinberg and the access to a clinical environment. My lab has worked in the past with clinicians in exchanging ideas and blood samples from infected patients. I believe Feinberg has the perfect mix of basic science research and access to translational medicine approaches. I was also particularly interested in the Driskill Graduate Program due to the wide range of research students are engaged in, while maintaining a sense of community and work-life balance. I believe DGP and Feinberg really care for their students, and there is a great support system for students through various stages of graduate school.

### What has been your best experience at Feinberg?

My best experiences at Feinberg so far have been through the student organizations and research experiences I've participated in outside of the lab. My first two years of graduate school, I was involved in the Feinberg Salseros club, where I learned to dance salsa with other graduate and medical students, performing at events such as In Vivo, a student-run show put on by the medical school. I've also been a member of the Chicago Graduate Student Association for the past two years as acting treasurer, managing funds for events such as graduate student appreciation week. I also founded a yoga club with one of my classmates called NU Pose Yoga. We teach free yoga once a week to members of the Feinberg community. For research related activities, I was part of a two-year intercampus training grant assignment, the Cellular and Molecular Basis of Disease training grant, where I presented my work in the form of chalk talks to a general biology audience. I've also had the opportunity to travel and present my work at conferences, such as the Gordon Research Conference, "Staphylococcal Diseases 2017," where I won an award for best poster presentation. All of these opportunities have strengthened my oral presentation skills and allowed me to give back to the community and form connections across the university and in my field of study.

Connect with Samantha on [LinkedIn](#).

# Finding Connections For Collaborative Research

Kate Klein, MA, MPH, associate director of the Center for Global Health



## Q&A

Kate Klein's work revolves around helping scientists and students and supporting their research through administration of grants and by finding research opportunities and funding.

### Where are you originally from?

I was born in Washington D.C. and grew up in Great Falls, Virginia.

### What is your educational background?

I studied anthropology as an undergraduate at the University of Mary Washington and interned at the Smithsonian Institution while in college. I received my first master's degree in medical anthropology from American University. I completed my second master's degree in public health from Northwestern University.

### Please tell us about your professional background.

Prior to coming to the Center for Global Health, I worked at the Centers for Disease Control and Prevention in their Vietnam country office in Hanoi. There, I worked on their global health security agenda activities including their field epidemiology training program and their immunization strengthening activities. I also worked at the American Academy of Pediatrics as their manager of the Zika virus response. Prior to this, I worked at Northwestern on the Evanston campus as the associate director of the Program of African Studies.

### Why did you choose to work at Northwestern?

I chose to work at Northwestern because of the exciting work of the Center for Global Health in training the next generation

of clinicians and scientists, both through their NIH-funded grants and their education programs.

### How do you help scientists and/or research students at the medical school?

I work with both faculty and students to support their projects, through administration of our grants and by finding research opportunities and funding. I enjoy finding connections between our partner institutes and faculty and students for collaborative research.

### What is your favorite part of the job?

I enjoy working with the students to help them participate in global health experiences abroad. Students are so inspired by going abroad, and it's wonderful to see these experiences translate into lifelong interests.

### What exciting projects are you working on?

We currently have many NIH-funded research projects, most of which help train outstanding scientists at our partner sites in Nigeria and Mali. It's very exciting to bring these scientists to Northwestern and help them expand their research profiles. Another exciting project is that next year we're going to be the co-hosts of the Consortium of Universities for Global Health meeting (along with University of Chicago and University of Illinois at Chicago), to be held March 2019. This should be a very big conference that will interest much of the Northwestern community.

### What do you like to do in your spare time?

In my spare time, I enjoy reading, hiking or going to the beach and running around after my two-year-old son.

### Anything else we should know about you?

In 2014, I was honored to have met President Barack Obama when I was working on the President's Young African Leaders Initiative. It was one of the highlights of my career. I'll never forget him welcoming me as his "fellow Chicagoan."

Connect with Kate on [LinkedIn](#).

## Stream Our Podcast

Listen to the latest episodes of the *Breakthroughs* podcast on [iTunes](#) or [Soundcloud](#). Each episode features a conversation with a Feinberg scientist featured in the *Breakthroughs* newsletter.





# Research in the News



## Reuters, March 6

[Salt tied to elevated blood pressure, even with healthy diet](#)  
Jeremiah Stamler was quoted.

## HealthDay, March 15

[Coffee May Have Bigger Effect on Your Body Than Thought: Study](#)

Marilyn Cornelis was quoted.

► This research was also featured in WebMD, U.S. News & World Report, and other outlets.

## HealthDay, March 16

[Can you Be Obese But Heart Healthy? Study Says No](#)

► This research was also featured in WebMD and U.S. News & World Report.

## WebMD, March 19

[Stem Cell Transplant for MS Shows Promise](#)

Richard Burt was quoted.

## Reuters, March 20

[Doctors endorse counseling of some kids, young adults to prevent skin cancer](#)

June Robinson was quoted.

## U.S. News & World Report, March 20

[School Nurses at Ground Zero for Food Allergies](#)

Ruchi Gupta was quoted.

## Reuters, March 23

[Obesity, overweight tied to shorter life, more years with heart disease](#)

Sadiya Khan was quoted.

[More media coverage available online.](#)

## NUCATS Corner

### Resources to Support Research Teams

Over the past two decades, translational science has become a team-based endeavor that leverages the strengths and expertise of scientists trained in different fields. Successful teams learn, through coaching, to commit to interdependence, joint ownership and collective responsibility between and among scientists.

The NUCATS Team Science Program offers the expertise and resources to help investigators and teams learn the fundamentals of team science and to support them as they develop and mature.

The Team Science Program offers customizable workshops that provide hands-on training for:

- Strategic team mapping
- Role responsibilities and accountability
- Meeting management
- Team dynamics and conflict resolution
- Collaboration tools

The goal of these interactive and experiential workshops is to teach participants competencies necessary for effective performance as a team. The program also offers consultations on team management, culture, growth, new funding opportunities and transition planning, as well as needed tools and processes to help interdisciplinary teams function efficiently.

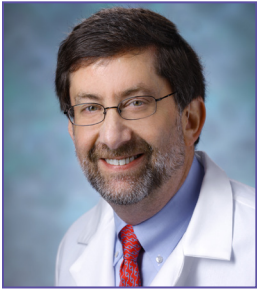
To learn more about the available Team Science resources that NUCATS offers, [click here](#).



## Conversations with the President

During his annual "Conversations with the President" talk April 4, Northwestern University President Morton Schapiro reaffirmed the university's leadership role in critical research in science, medicine and the humanities, noting that federal research dollars coming to Northwestern increased by 53 percent in recent years. [Read more](#) about the president's remarks on topics ranging from the university's current fiscal belt-tightening to future financial goals.

# Sponsored Research



**PI: Bruce Bochner, MD, the Samuel M. Feinberg Professor of Medicine in the Division of Allergy and Immunology**

**Sponsor: National Institute of Allergy and Infectious Diseases**

**Title: "Using siglecs and their ligands to treat allergic diseases"**

The goal of this program is to identify new molecular and cellular pathways to control allergic inflammation with implications for enhanced understanding and improved treatments for asthma, allergy and immune disorders of the skin and gastrointestinal tract.

Bochner is part of an experienced team that discovered that members of the Siglec family of glycan binding proteins can be exploited to suppress allergic inflammation, leading to the hypothesis that natural or synthetic glycans can engage complementary glycan binding proteins (Siglec-3/CD33, Siglec-6, and Siglec-8) on eosinophils and mast cells to prevent or limit allergic damage. Knowledge of the glycan structures and glycan binding proteins involved, the control of their expression and the mechanisms responsible for translating glycan engagement into cell signaling will be leveraged to provide new insights into the pathophysiology and novel approaches for treatment of allergic diseases.

Bochner will serve as the principal investigator of project one out of three (Defining Siglec-6 and Siglec-8 function on effector cells of allergic diseases) as well as Core A (Administration) and Core B (Human mast cell and tissue acquisition core).

[Read more about the other projects and PIs.](#)



**PI: Rishi Arora, MD, associate professor of Medicine in the Division of Cardiology**

**Sponsor: National Heart, Lung, and Blood Institute**

**Title: "Oxidative stress contributes to atrial fibrillation by causing remodeling of the autonomic nervous system"**

Atrial fibrillation (AF) is a cause of significant morbidity and mortality, with one in six Americans expected to develop AF during their lifetime. As a major cause of stroke, the public health implications of AF are profound.

Ongoing research is therefore attempting to better define the mechanisms underlying AF, in order to improve upon current treatments and to develop new therapies for AF. An important mechanism thought to underlie AF is altered activity of the autonomic nervous system (ANS), with Arora's team's recent work demonstrating extensive remodeling of autonomic nerves in the AF atrium. Unfortunately, the upstream molecular mechanisms responsible for this adverse neurological remodeling are not known. Another important mechanism thought to underlie the formation of a vulnerable substrate for AF is oxidative stress (OS), even though the precise molecular mechanisms by which OS contributes to AF in the intact atrium are not known.

Arora's team proposes to determine the role of two mechanisms -- oxidative stress and the autonomic nervous system -- in causing AF, by using novel biological agents (genes) to target these mechanisms. This gene-based approach will not only shed much-needed light on the molecular basis of AF, but may also have significant therapeutic potential in AF.

[Read more about this project.](#)



## Welcome New Faculty

Carolyn C. Foster, MD, MSHS, FAAP, joins as an assistant professor of Pediatrics in the Division of Academic General Pediatrics and Primary Care. Her research is focused on finding ways to improve patient health outcomes and family-care experiences for children. She uses health services research to inform healthcare policy and to better integrate healthcare services for children with medical complexity across different settings. Previously, she was an acting instructor in the Department of Pediatrics at the University of Washington School of Medicine. Foster earned her medical degree from Harvard University and a master's in health services from the University of Washington. She completed her postdoctoral training in pediatrics and health services and quality of care at the University of Washington School of Medicine. In addition to the numerous awards for her research and academic achievements, she has published 15 journal articles and is currently principal investigator on grant from the Lucile Packard Foundation for Children's health to evaluate access to and quality of pediatric home healthcare.



## George

(continued from page 3)

Now there are more than 60 known channelopathies involving thousands of ion channel gene mutations. Feinberg will host an international conference this summer on channelopathies that will bring together experts from several fields, called [Channelopathy 2018](#). I encourage anyone interested in the topic to register and attend.

### How is your research funded?

My laboratory receives funding from a variety of sources including the National Institutes of Health, disease-focused foundations and pharmaceutical companies. This diverse portfolio of research funding has helped preserve a stable workforce during times when federal funding for research was less available.

### Who makes up your research team and what role does each individual play in your research?

My research team is composed of graduate students, postdoctoral fellows, senior research technicians and research-track faculty members. Everyone has their own projects or tasks, but each contributes to at least one other active area of research. The more senior members of the laboratory provide supervision and training to the more junior members of the research team including students. I am fortunate to work with such a professional and dedicated group.

## Omnibus Spending Bill



At a press conference at the Shirley Ryan AbilityLab March 28, U.S. Sen. Dick Durbin (D-ILL.) announced new federal investments included in the recent omnibus spending bill that will help Chicago's biomedical research institutions continue their important work creating new technologies and finding ways to treat and cure disease. Several Northwestern University Feinberg School of Medicine faculty members spoke at the event, such as Thomas Shanley, MD, chair and professor of Pediatrics, pictured above.

## Funding

### Johnson & Johnson Lung Cancer Innovation Science Grants

[More information](#)

**Sponsors:** American Association for Cancer Research

**Submission deadline:** May 2

**Upper amount:** \$1.5 M over three years

**Synopsis:** Simple yet accurate diagnostic tools that can improve the detection of early lung cancers are urgently needed. The AACR-Johnson & Johnson Lung Cancer Innovation Science Grants represent a joint effort to address this need by promoting and supporting pioneering cancer research.

### Non-Pharmacological Interventions for Gait and Balance Disturbances

[More information](#)

**Sponsors:** Michael J. Fox Foundation

**Pre-Proposals Due::** May 31

**Upper amount:** Up to \$500,000 for one to two years

**Synopsis:** The Michael J. Fox Foundation will award one-to-two-year grants to test non-pharmacological interventions for the treatment of gait and balance disturbances in people with Parkinson's disease. They are particularly interested in proof-of-concept, validation and data-analysis projects.

### Grand Challenges Explorations

[More information](#)

**Sponsors:** Gates Foundation

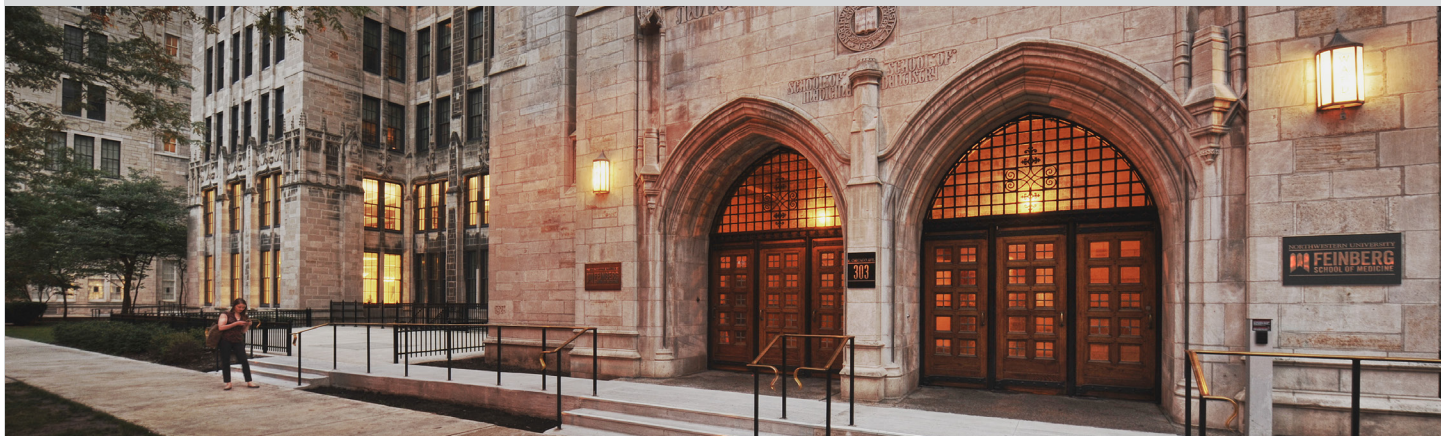
**Submission deadline:** May 2

**Upper amount:** \$100,000 (Phase I; successful projects have an opportunity to receive an additional \$1M)

**Synopsis:** The Gates Foundation's Grand Challenges aims to solve key global health and development problems. Funding is available for three challenge areas including innovations in immunization data management, use and improved process efficiency.

[View more funding opportunities](#)

# Wisdom of the Crowd: Asking Questions to the Scientific Community



We all have preferred sources of assistance we turn to when we are stumped by a question. Some people reach out to a dependable mentor or trusted group of colleagues; others query an email list-serv or pose their question at a conference. But when those avenues aren't available or you're interested in reaching a larger audience, consider options for crowd-sourcing answers for your question. Some crowd-sourcing platforms take on any topic, while others are dedicated to domain-specific areas of knowledge. Below we review several platforms and suggest use-cases for each one.

## Quora

Quora is an online platform for users to pose questions on any topic and people weigh in with responses. The content is mainly moderated by the users, who can rank answers by up-voting helpful answers and down-voting those that seem less helpful. Users can report plagiarism, harassment or factually incorrect materials. They can also suggest edits to the original author of the question or answer, which can be approved or rejected.

**Example question:** What is the loudest sound or noise in the world?

**When to use:** Good for science-related questions that encourage narrative-like answers and appeal to academics and the general public.

## ResearchGate

Though ResearchGate has many controversial practices (such as ongoing problems with copyright infringement or taking advantage of user-curated metadata without making it openly available), it does offer a question and answer platform that is highly popular with scientists. ResearchGate administrators moderate content and provide minor edits to questions and answers. Users are able to report inappropriate content and they can recommend questions and answers that make those items more visible overall.

**Example question:** Can anyone suggest where I might find information regarding the approval process for cell substrates for clinical use?

**When to use:** Good for deeper-level science questions with answers not easily found online and should appeal to the academic research audience.

## Stack Overflow

Stack Overflow is a platform for users to ask and answer questions related to computer programming. Users can earn reputation points by receiving up-votes from other users for helpful answers. The content is moderated mostly by users, though Stack Overflow moderators will step in to suspend users who exhibit disruptive behavior. Another Q&A platform option for IT-related questions is Experts Exchange.

**Example question:** How do I write web scraping results to a .txt file?

**When to use:** Good for very specific coding problems for major computer programming languages (such as Java, Python, C#). Usually the question asker provides the problematic code snippet for those working on the answer to review.

## SEQanswers

SEQanswers is an active online forum for the next generation sequencing community, though any scientific topic related to genomics is welcome. Anyone can freely visit the site and post messages on the forum. Moderators do review content and will provide direct edits as needed. They also reserve the right to remove users or delete threads if they identify inappropriate behavior. Registered vendors are allowed to promote their product and services.

**Example question:** How can I evaluate the polymerase read and subread statistics from raw data?

**When to use:** Good for specific questions on next-generation sequencing or broader questions on genomics that appeal to the scientific audience.

If you have a question and don't know where to find some assistance, consider contacting your [Liaison Librarian](#), who can connect you with resources on campus, or help you search for information online.



# High Impact Factor Research

Albers GW, Marks MP, Kemp S, Christensen S, Tsai JP, Ortega-Gutierrez S, McTaggart RA, Torbey MT, Kim-Tenser M, Leslie-Mazwi T, Sarraj A, Kasner SE, **Ansari SA**, Yeatts SD, Hamilton S, Mlynash M, Heit JJ, Zaharchuk G, Kim S, Carrozzella J, Palesch YY, Demchuk AM, Bammer R, Lavori PW, Broderick JP, Lansberg MG, Investigators D. [Thrombectomy for Stroke at 6 to 16 Hours with Selection by Perfusion Imaging](#). *New England Journal of Medicine*. 2018 Feb;378(8):708-718.

Brown PD, Ahluwalia MS, **Khan OH**, Asher AL, Wefel JS, Gondi V. [Whole-Brain Radiotherapy for Brain Metastases: Evolution or Revolution?](#) *Journal of Clinical Oncology*. 2018 Feb;36(5):483.

Burgart AM, Magnus D, Tabor HK, **Paquette EDT**, Frader J, Glover JJ, Jackson BM, Harrison CH, Urien DK, Graham RJ, Brandsema JF, Feudtner C. [Ethical Challenges Confronted When Providing Nusinersen Treatment for Spinal Muscular Atrophy](#). *JAMA Pediatrics*. 2018 Feb;172(2):188-192.

Giri VN, Knudsen KE, Kelly WK, et al. (including **Catalona WJ** and **Schaeffer E**). [Role of Genetic Testing for Inherited Prostate Cancer Risk: Philadelphia Prostate Cancer Consensus Conference 2017](#). *Journal of Clinical Oncology*. 2018 Feb 1;36(4):414-424.

Gong YX, Lazaris C, Sakellariopoulos T, Lozano A, Kambadur P, **Ntziachristos P**, Aifantis I, Tsigros A. [Stratification of TAD boundaries reveals preferential insulation of super-enhancers by strong boundaries](#). *Nature Communications*. 2018 Feb;9:12.

Goode B, Mondal G, Hyun M, Ruiz DG, Lin YH, Van Ziffle J, Joseph NM, Onodera C, Talevich E, Grenert JP, Hewedi IH, Snuderl M, **Brat DJ**, Kleinschmidt-DeMasters BK, Rodriguez FJ, Louis DN, Yong WH, Lopes MB, Rosenblum MK, Butowski N, Tihan T, Bollen AW, Phillips JJ, Wiita AP, Yeh I, Jacobson MP, Bastian BC, Perry A, Solomon DA. [A recurrent kinase domain mutation in PRKCA defines chordoid glioma of the third ventricle](#). *Nature Communications*. 2018 Feb;9:8.

Grossman DC, Curry SJ, Owens DK, Barry MJ, Davidson KW, Doubeni CA, Epling JW, Kemper AR, Krist AH, Kurth AE, Landefeld S, Mangione CM, Phipps MG, Silverstein M, **Simon MA**, Tseng CW, Force USPST. [Screening for Ovarian Cancer US Preventive Services Task Force Recommendation Statement](#). *JAMA*. 2018 Feb;319(6):588-594.

Harshman LC, Chen YH, Liu G, Carducci MA, Jarrard D, Dreicer R, Hahn N, Garcia JA, **Hussain M**, Shevrin D, Eisenberger M, Kohli M, Plimack ER, Cooney M, Vogelzang NJ, Picus J, Dipaola R, Sweeney CJ. [Seven-Month Prostate-Specific Antigen Is Prognostic in Metastatic Hormone-Sensitive Prostate Cancer Treated With Androgen Deprivation With or Without Docetaxel](#). *Journal of Clinical Oncology*. 2018 Feb 1;36(4):376-382.

**Huffman MD**, Mohanan PP, Devarajan R, **Baldridge AS**, Kondal D, Zhao LH, Ali M, Krishnan MN, Natesan S, Gopinath R, Viswanathan S, Stigi J, Joseph J, Chozhakkat S, **Lloyd-Jones DM**, Prabhakaran D, Acute Coronary Syndrome Q. [Effect of a Quality Improvement Intervention on Clinical Outcomes in Patients in India With Acute Myocardial Infarction The ACS QUIK Randomized Clinical Trial](#). *JAMA*. 2018 Feb;319(6):567-578.

Karabin NB, Allen S, Kwon HK, Bobbala S, Firlar E, Shokuhfar T, Shull KR, **Scott EA**. [Sustained micellar delivery via inducible transitions in nanostructure morphology](#). *Nature Communications*. 2018 Feb;9:13.

Laiteerapong N, **Cooper JM**, Skandari MR, Clarke PM, Winn AN, Naylor RN, Huang ES. [Individualized Glycemic Control for U. S. Adults With Type 2 Diabetes A Cost-Effectiveness Analysis](#). *Annals of Internal Medicine*. 2018 Feb;168(3):170.

Larkin J, Minor D, D'Angelo S, Neyns B, Smylie M, Miller WH, Jr., Gutzmer R, Linette G, Chmielowski B, Lao CD, Lorigan P, Grossmann K, Hassel JC, Sznol M, Daud A, **Sosman J**, Khushalani N, Schadendorf D, Hoeller C, Walker D, Kong G, Horak C, Weber J. [Overall Survival in Patients With Advanced Melanoma Who Received Nivolumab Versus Investigator's Choice Chemotherapy in CheckMate 037: A Randomized, Controlled, Open-Label Phase III Trial](#). *Journal of Clinical Oncology*. 2018 Feb 1;36(4):383-390.

Li R, Guiney LM, Chang CH, Mansukhani ND, Ji Z, Wang X, Liao YP, Jiang W, Sun B, **Hersam MC**, Nel AE, Xia T. [Surface Oxidation of Graphene Oxide Determines Membrane Damage, Lipid Peroxidation, and Cytotoxicity in Macrophages in a Pulmonary Toxicity Model](#). *ACS Nano*. 2018 Feb 27;12(2):1390-1402.

Lin QY, Mason JA, Li ZY, Zhou WJ, O'Brien MN, Brown KA, Jones MR, Butun S, Lee B, Dravid VP, Aydin K, **Mirkin CA**. [Building superlattices from individual nanoparticles via template-confined DNA-mediated assembly](#). *Science*. 2018 Feb;359(6376):669-672.

Linehan JL, Harrison OJ, Han SJ, Byrd AL, Vujkovic-Cvijin I, Villarino AV, Sen SK, Shaik J, Smelkinson M, Tamoutounour S, Collins N, Bouladoux N, Dzutsev A, Rosshart SP, Arbuckle JH, **Wang CR**, Kristie TM, Rehmann B, Trinchieri G, Brenchley JM, O'Shea JJ, Belkaid Y. [Non-classical Immunity Controls Microbiota Impact on Skin Immunity and Tissue Repair](#). *Cell*. 2018 Feb;172(4):784.

Lu LY, Gutfurth P, Xia L, Bhatti DL, Wang XY, Vazquez-Guadado A, Ning X, Shen XR, Sang T, Ma RX, Pakeltis G, Sobczak G, Zhang H, Seo DO, Xue MT, Yin L, Chanda D, Sheng X, Bruchas MR, **Rogers JA**. [Wireless optoelectronic photometers for monitoring neuronal dynamics in the deep brain](#). *Proceedings of the National Academy of Sciences of the United States of America*. 2018 Feb;115(7):E1374-E1383.

**Morgans AK**. [Optimization of Risk Stratification in Localized Prostate Cancer](#). *Journal of Clinical Oncology*. 2018 Feb;36(6):528.

Moriguchi S, Ishizuka T, Yabuki Y, Shioda N, Sasaki Y, Tagashira H, Yawo H, Yeh JZ, Sakagami H, **Narahashi T**, Fukunaga K. [Blockade of the K-ATP channel Kir6.2 by memantine represents a novel mechanism relevant to Alzheimer's disease therapy](#). *Molecular Psychiatry*. 2018 Feb;23(2):211-221.

Radvansky BA, **Dombeck DA**. [An olfactory virtual reality system for mice](#). *Nature Communications*. 2018 Feb 26;9(1):839.

**Russi AE**, Ebel ME, Yang YC, Brown MA. [Male-specific IL-33 expression regulates sex-dimorphic EAE susceptibility](#). *Proceedings of the National Academy of Sciences of the United States of America*. 2018 Feb;115(7):E1520-E1529.

Saadalla AM, Osman A, Gurish MF, **Dennis KL**, Blatner NR, Pezeshki A, McNagny KM, Cheroutre H, Gounari F, Khazaie K. [Mast cells promote small bowel cancer in a tumor stage-specific and cytokine-dependent manner](#). *Proceedings of the National Academy of Sciences of the United States of America*. 2018 Feb;115(7):1588-1592.

Sangwan VK, Lee HS, Bergeron H, Balla I, Beck ME, Chen KS, **Hersam MC**. [Multi-terminal memtransistors from polycrystalline monolayer molybdenum disulfide](#). *Nature*. 2018 Feb;554(7693):500.

**Souma T**, Thomson BR, Heinen S, **Carota IA**, Yamaguchi S, Onay T, Liu P, Ghosh AK, Li CJ, Eremina V, Hong YK, Economides AN, Vestweber D, Peters KG, Jin J, **Quaggin SE**. [Context-dependent functions of angiopoietin 2 are determined by the endothelial phosphatase VEPTP](#). *Proceedings of the National Academy of Sciences of the United States of America*. 2018 Feb;115(6):1298-1303.

Spratt DE, Zhang JB, Santiago-Jimenez M, Dess RT, Davis JW, Den RB, Dicker AP, Kane CJ, Pollack A, Stoyanova R, Abdollah F, Ross AE, Cole A, Uchio E, Randall JM, Nguyen H, Zhao SG, Mehra R, Glass AG, Lam LLC, Chelliserry J, du Plessis M, Choeurng V, Aranes M, Kolisnik T, Margrave J, Alter J, Jordan J, Buerki C, Yousefi K, Haddad Z, Davicioni E, Trabulsi EJ, Loeb S, Tewari A, Carroll PR, Weinmann S, **Schaeffer EM**, Klein EA, Karnes RJ, Feng FY, Nguyen PL. [Development and Validation of a Novel Integrated Clinical-Genomic Risk Group Classification for Localized Prostate Cancer](#). *Journal of Clinical Oncology*. 2018 Feb;36(6):581.

Thiagarajan PS, Sinyuk M, Turaga SM, Mulkearns-Hubert EE, Hale JS, Rao V, Demelash A, Saygin C, China A, Alban TJ, Hitomi M, Torre-Healy LA, Alvarado AG, Jarrar A, Wiechert A, **Adorno-Cruz V**, Fox PL, Calhoun BC, Guan JL, **Liu HP**, Reizes O, Lathia JD. [Cx26 drives self-renewal in triple-negative breast cancer via interaction with NANOG and focal adhesion kinase](#). *Nature Communications*. 2018 Feb;9:14.

Vaccarino V, Sullivan S, Hammadah M, Wilmoth K, Al Mheid I, Ramadan R, Elon L, Pimple PM, Garcia EV, Nye J, Shah AJ, Alkhoder A, Levantsevych O, **Gay H**, Obideen M, Huang MX, Lewis TT, Bremner JD, Quyyumi AA, Raggi P. [Mental Stress-Induced Myocardial Ischemia in Young Patients With Recent Myocardial Infarction Sex Differences and Mechanisms](#). *Circulation*. 2018 Feb;137(8):794-805.

Vaduganathan M, Nagarur A, Qamar A, **Patel RB**, Navar AM, Peterson ED, Bhatt DL, Fonarow GC, Yancy CW, Butler J. [Availability and Use of Shared Data From Cardiometabolic Clinical Trials](#). *Circulation*. 2018 Feb 27;137(9):938-947.

**Wong YC**, Ysselstein D, Krainc D. [Mitochondria-lysosome contacts regulate mitochondrial fission via RAB7 GTP hydrolysis](#). *Nature*. 2018 Feb;554(7692):382.

Xiao J, Zhu Y, Huddleston S, Li P, Xiao B, Farha OK, **Ameer GA**. [Copper Metal-Organic Framework Nanoparticles Stabilized with Folic Acid Improve Wound Healing in Diabetes](#). *ACS Nano*. 2018 Feb 27;12(2):1023-1032.

Zhang SY, Clark NE, Freije CA, Pauwels E, Taggart AJ, Okada S, Mandel H, Garcia P, Ciancanelli MJ, Biran A, Lafaille FG, Tsumura M, Cobat A, Luo JC, Volpi S, Zimmer B, Sakata S, Dinis A, Ohara O, Reino EJG, Dobbs K, Hasek M, Holloway SP, McCammon K, Hussong SA, DeRosa N, Van Skike CE, Katolik A, Lorenzo L, Hyodo M, Faria E, Halwani R, Fukuhara R, **Smith GA**, Galvan V, Damha MJ, Al-Muhsen S, Itan Y, Boeke JD, Notarangelo LD, Studer L, Kobayashi M, Diogo L, Fairbrother WG, Abel L, Rosenberg BR, Hart PJ, Etzioni A, Casanova JL. [Inborn Errors of RNA Lariat Metabolism in Humans with Brainstem Viral Infection](#). *Cell*. 2018 Feb;172(5):952.

Zhu S, Zhao DY, Yan L, Jiang WH, Kim JS, Gu BN, Liu QP, Wang R, Xia B, Zhao JC, Song G, Mi WY, Wang RF, Shi XB, Lam HM, Dong XS, **Yu JD**, Chen KF, Cao Q. [BMI1 regulates androgen receptor in prostate cancer independently of the polycomb repressive complex 1](#). *Nature Communications*. 2018 Feb;9:13.

*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, April 19

## Autism Research: What We Have Learned, Where We Are Now and Next Steps

Thomas W. Frazier, PhD, Chief Science Officer, Autism Speaks.

Time: 6:00 p.m. to 7:00 p.m.

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

Contact: [Michelle Mohnhey](#)

[More information](#)

Friday, April 20

## Hodgkin Lymphomas: A Walk Down Memory Lane

Saul Rosenberg, professor, Department of Oncology, Stanford University, will present.

Time: 8:00 a.m. to 9:00 a.m.

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

Contact: [cancer@northwestern.edu](mailto:cancer@northwestern.edu)

[More information](#)

Wednesday, May 9

## Second Annual Biomedical Data Science Day

For members of Northwestern University, Northwestern Memorial Hospital and affiliated institutions with an interest in the application of data science and “big data” methods to clinical and biomedical domains. This event is designed to bring together domain experts and computational methodologists.

Time: 7:30 a.m. - 5:00 p.m.

Location: Prentice Women's Hospital, 250 E. Superior, Chicago

Contact: [lindsay.varasteh1@northwestern.edu](mailto:lindsay.varasteh1@northwestern.edu)

[More information](#)

## Follow Feinberg Social Media



# NIH News

## Feinberg Faculty Featured in NIH Webinar

[Kenzie Cameron, PhD, MPH](#), research professor of [Medicine](#) in the Division of [General Internal Medicine and Geriatrics](#), recently delivered a Director's Series Webinar for the NIH Office of Behavioral and Social Sciences Research. Her presentation was titled: “From patient perspectives to preventive care: Harnessing technology to improve adult pneumococcal vaccination.” [Read more](#) about Cameron's work and the webinar series.

## Using the Science of Teamwork with NIH Grants

The finding that teams produce more highly-cited research was detailed more than a decade ago in the paper “The Increasing Dominance of Team in Production of Knowledge,” published by a team of Northwestern faculty in *Science*.

In a *Science* review paper published a few weeks ago, Santo Fortunato and colleagues offered an overview of the “Science of Science.” One of their key messages was that “Research is shifting to teams, so engaging in collaboration is beneficial.”

Michael Lauer, the NIH's deputy director for Extramural Research, recently explored this concept further using NIH grants. [Read more](#) about his analysis, using data that were acquired using a specific NIH portfolio analysis tool called iSearch. This platform provides easy access to carefully curated, extensively-linked datasets of global grants, patents, publications, clinical trials and approved drugs.

## Make Your Voice Heard

NIH is requesting public feedback on some proposed approaches to reduce administrative burden on investigators use of laboratory animals in biomedical research ([NOT-OD-18-152](#) and [Federal Register Notice 2018-05173](#)).

Along with colleagues at the U.S. Department of Agriculture and the Food and Drug Administration, the NIH is looking for constructive and thoughtful feedback on this topic from individuals, research institutions, professional societies, animal advocacy organizations and other interested parties. Input will be accepted electronically during a 90-day comment period, that is until June 12, 2018.

The NIH hopes to gain insights into how it can best improve the coordination and harmonization of regulations and policies with respect to research with laboratory animals. This call will help shed further light on where the community feels that regulations and policies are inconsistent, overlapping or unnecessarily duplicative. Share your feedback [here](#).