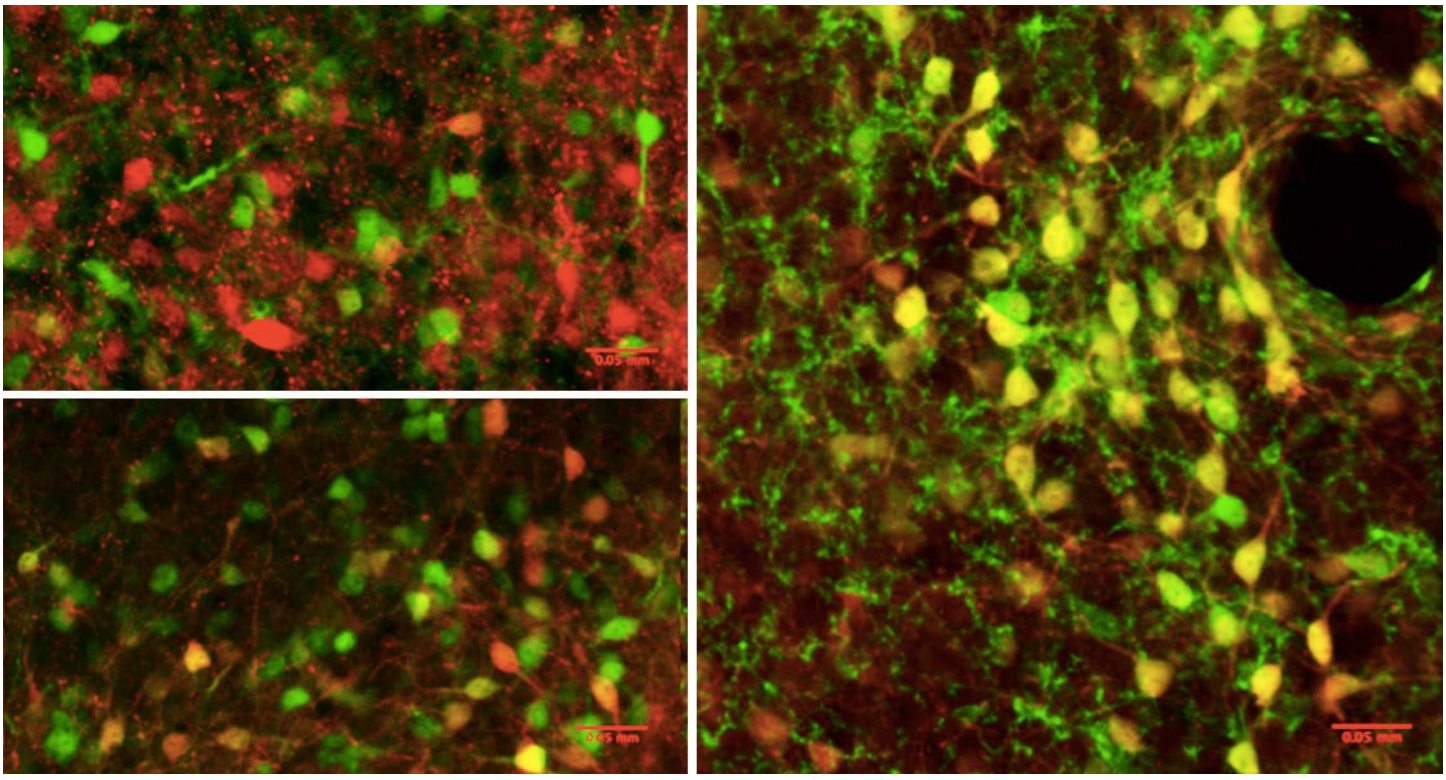
Breakthroughs

Feinberg School of Medicine Research Office

March 2015



*After social stress, oxytocin activates a pathway in neurons of the lateral septum, strengthening negative memory and future anxiety. In these before and after images, yellow represents neurons activated by social stress.*

# Decoding Stress-Related Memories

**Years after a stressful event, most people remember sensory details, such as what it looked like and how it felt. But some also continue to experience the intense negative emotion associated with the event long after it occurred.**

"For many people, the affective response decays over time, even though the memory is still there. In others, memories trigger the same strong affective responses that occurred during the stressful event," said Jelena Radulovic, MD, PhD, Dunbar Professor in Bipolar Disease. "We're trying to identify which mechanisms in the brain are important for the sensory features of the memory, and which are important for the affective component."

For nearly 30 years, Radulovic, a professor in Psychiatry and Behavioral Sciences and Pharmacology, has been studying the molecular and cellular processes behind stress. She has focused her research on investigating how stress shapes memories.

When memories have a negative valence – the aversive emotional charge felt when thinking about an event – they can have major effects on a person, as evidenced by the panic attacks, anxiety, and depression experienced by people with post-traumatic stress disorder (PTSD).

"We believe that the processing of stress-related memories has extra encoding, which attaches the negative valance of the memory and then causes these strong reactions," Radulovic said. "One of our ultimate goals is to understand the critical steps of memory formation, starting from the initial

*(continued on page 2)*

## Decoding Stress-Related Memories

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encoding, to find out what causes negative valence of stress-related memories."

Historically, scientists in this area concentrate on the hippocampus, a structure in the brain that plays a significant role in both stress and memory, particularly in turning short-term memories into long-term ones. Radulovic's lab has had much success exploring the hippocampus. In 2010, she and colleagues identified a molecular pathway associated with PTSD and demonstrated a potential drug therapy for preventing the disorder.

But more recently, Radulovic's interest has shifted to learning what happens to memory information within the broader hippocampal circuit. For instance, in 2013, she published a paper implicating the lateral septum as the brain region responsible for mediating the fear-enhancing effects of the hormone oxytocin, intensifying the memories of negative stressful events.

Her new work has also highlighted the prominence of cortical networks to process aging memories.

"We know that for episodic memory, information has be ultimately encoded and processed through the cortex in order for us to be able to consciously recall things," she said. "We have tested several brain areas and found that the retrosplenial cortex is very important for both recent and remote memory."

By mapping the connections between the cortex and the hippocampus, Radulovic's team showed that NMDA receptors and unique signaling pathways in the retrosplenial cortex are necessary for the extinction of remote fear. This suggests that dysfunction in these interactions keeps the emotional components of memories from declining with time, leading to the persistent fear and anxiety that define conditions like PTSD.

In parallel to her investigations beyond the hippocampus, Radulovic has also initiated research efforts aimed at uncovering stress-related memories that are not consciously perceived.

"People have two pathologic responses to stress. The first is

*Jelena Radulovic, PhD, has focused her research on investigating how stress shapes memories in the brain.*

PTSD, which is over-remembering. The second is suppression, which is forgetting about a traumatic event. Yet, the memory may still linger somewhere and impact behavior," she said.

This line of research is not new – psychological theorists such as Sigmund Freud and Carl Jung made repressed memory a well-known concept in the early twentieth century. But Radulovic and colleagues take a different approach to the topic, focusing on revealing the receptors, genes, and pathways at work. In ongoing research, they want to prove whether stress-related unconscious memories really exist and, then, figure out if the mechanism that represses them is in place for a reason.

"Is it a useful, protective phenomenon? Are these memories hidden because they are too overwhelming and the subject would suffer more if they remembered?" Radulovic said. "Or is it is causing problems later in life that they are not aware of?"

Research suggests that repressed memories may be common in people who have endured trauma as children.

"Therapy could potentially help those people remember and reprocess the events at a later stage, when the brain has evolved more and developed a greater capacity to process those memories," Radulovic said.

She believes that her team's findings on stress-related memories might be used to develop treatments for those who can't stop remembering high-stress events from the past, whether one-time traumas or repeated exposure from working in the military or on a police force. First, Radulovic's discoveries made with mice need to be validated in people; perhaps using new human imaging tools that highlight abnormal functioning of brain regions, connections, and interactions.

As for preventing stress from affecting a person in the first place, Radulavic thinks there are safer methods than drug treatments that manipulate the brain.

"We cannot avoid stress," she said. "Given what we currently know about the brain, prescribing psychotropic drugs to otherwise healthy individuals is a bad idea. A healthy lifestyle from early childhood on can help us cope better with stressful events and develop resilience."

## CONTENTS

# Schleimer Named Winner of Tripartite Legacy Faculty Prize

Robert Schleimer, PhD, chief of the Division of Medicine-Allergy and Immunology and Dr. Roy Patterson Professor of Medicine, has been named the winner of the Tripartite Legacy Faculty Prize in Translational Science and Education. This award is presented annually to a faculty member who has demonstrated excellence in research that emphasizes translational approaches, teaching and mentoring, and leadership.

Schleimer began his career at Northwestern in 2004, after serving in a variety of academic leadership roles at Johns Hopkins University School of Medicine. During the course of his career he has published more than 300 papers and edited numerous books and supplements. He has also trained more than 40 post-doctorate fellows during his research career.

"One of the greatest privileges of my career has been being able to see the scientists I have trained go on to receive national and international awards for the work we did together," said Schleimer. "It is a great honor to receive this prestigious award."

While mentorship and his research collaborations have been pivotal in his career, so has his leadership in the allergy and immunology field. Schleimer's laboratory has received continuous NIH funding for more than 30 years. He has also been the recipient of an NIH MERIT award from the National Heart Lung and Blood Institute, and presently holds a U19 Program Project grant.

*Related: Learn about the Tripartite Legacy Faculty Prize in Translational Science and Education*

In his nomination letter, Robert Kern, MD, chair of the Department of Otolaryngology–Head and Neck Surgery and George A. Sisson Professor of Otolaryngology, highlighted Schleimer's many accomplishments and prided him on his collaborative spirit.

"Bob has been an amazing partner, and I only wish that I could have worked with him earlier in my career," said Kern. "As a teacher and mentor, he has helped train a generation of physician-scientists in allergy and asthma and will continue to do so for many more years."

The prize will be presented during the 11th Annual Lewis Landsberg Research Day on Thursday, April 2, 2015.

## Save the Date: Research Day Promises Education, Collaboration

*Research Day poster presenters will have the opportunity to share findings with the Feinberg community. Pictured above: attendees at the 2014 Research Day poster session.*

The 11th annual Lewis Landsberg Research Day takes place on Thursday, April 2, from 1 to 5 p.m. in the Robert H. Lurie Medical Research Building's Hughes Auditorium and in Northwestern Memorial Hospital's 3rd Floor Conference Center in the Feinberg Pavilion.

This year's event features keynote speaker Elaine Fuchs, PhD, Rebecca Lancefield Professor in Mammalian Cell Biology and Development at The Rockefeller University, and a Howard Hughes Medical Institute Investigator. She will present, "Stem Cells in Silence, Action and Cancer" during the opening session.

The opening session will begin at 1 p.m., and will also feature Feinberg's Faculty Mentor of the Year Awards and the presentation of the Tripartite Legacy Faculty Prize in Translational Science and Education. The poster session will begin at 2:15 p.m., and poster awards will be announced at 4:15 p.m. Visit the Research Day website for a complete listing of events and locations.

# Searching for New Approaches to Prostate Cancer

## Sarki Abdulkadir, MD, PhD, Professor of Urology and Pathology

Understanding the molecular mechanisms behind prostate cancer, one of the most common cancers in men, is a primary research objective for Sarki Abdulkadir, MD, PhD, John T. Grayhack, MD, Professor of Urological Research.

Abdulkadir joined Northwestern University in December 2013 from Vanderbilt University. He earned a medical degree at Ahmadu Bello University in Nigeria, a doctorate in immunology from John Hopkins University, and completed his residency and a fellowship at Washington University School of Medicine in St. Louis.

In addition to serving as a professor of Urology and Pathology at Feinberg, Abdulkadir is director of international relations at the Robert H. Lurie Comprehensive Cancer Center of Northwestern University. Through the position, he coordinates and works to expand the Lurie Cancer Center's global research efforts, alliances, and partnerships.

# Q&A

**What are your research interests?**
I am interested in the mechanisms that drive the evolution of prostate cells through cancer initiation, progression, and recurrence following therapy. We are particularly interested in the aberrant gene programs that underlie these processes, how they operate in vivo, and possible approaches to counteract them. In one example, we identified two proteins, called MYC and PIM1, that work in tandem to promote the development of aggressive prostate cancer. We developed a new, rapid animal modeling approach to show that these two genes synergize to promote the development of aggressive prostate cancer when they are both active. Notably, while MYC function is hard to inhibit directly with drugs, PIM1 is an enzyme to which small molecule inhibitors can be more easily generated. We recently showed that a novel small molecule inhibitor of PIM1 that can be taken orally inhibits MYC function and tumorigenesis.

**What is the ultimate goal of your research?**
Ultimately, our goal is to develop approaches that translate into viable diagnostic tools or therapeutic agents for cancer patients.

**How does your research advance medical science and knowledge?**
First, our studies seek to elucidate the fundamental mechanisms of disease. Second, the experimental models we develop provide excellent platforms for testing new therapeutic agents in vivo. Finally, our work identifies novel therapeutic targets that can benefit cancer patients.

**What types of collaborations are you engaged in across campus and beyond?**
I collaborate with colleagues at Northwestern to investigate genetic and biochemical mechanisms of tumorigenesis (David Gius, MD, PhD, and Debu Chakravarti, PhD) and to develop and test new therapeutic agents (Frank Giles, MD, Bene Carneiro, MD, MDc, and Praveen Thumbikat, PhD). I am actively involved in the Prostate SPORE (Specialized Program of Research Excellence) program here at Northwestern, collaborating with investigators including William Catalona, MD, Walter Stadler, MD, of the University of Chicago, and Parkash Gill, MD, of the University of Southern California.

**How is your research funded?**
We are supported by RO1 grants from the National Cancer Institute and funds from the Zell Family Scholarship and the Grayhack Chair in Urological Research.

**Where have you recently published papers?**
We have published recently in the *Journal of Clinical Investigation*, *Cancer Cell*, the *Journal of the National Cancer Institute*, and *Oncogene*.

**What do you enjoy about teaching and mentoring young scientists in the lab?**
I enjoy seeing young scientists transition to a level where they can logically and convincingly challenge established concepts.

# Linking Behavior and Genetics

## Jamie Barstein, Clinical Psychology PhD Program

Jamie Barstein, a second-year PhD student in Northwestern University's Clinical Psychology Program, studies neurobiological and behavioral factors that influence neurodevelopmental disabilities under Molly Losh, PhD, associate professor of Psychiatry and Behavioral Sciences.

Barstein's interest in working with individuals with neurodevelopmental disorders began at a young age and continued through a combination of career opportunities and education and eventually inspired her to pursue a PhD degree. She received a bachelor's degree in psychology from the University of Texas at Austin before enrolling at Northwestern.

## Q&A

**Where is your hometown?**
I grew up in a very tight-knit community in Birmingham, Alabama. I love traveling back there to be with my family any chance I can get. As much as I love living in Chicago, I miss the slow-paced lifestyle of my hometown—it was the kind of place where your family and closest friends happen to also be your neighbors.

**What are your research interests?**
I'm fascinated by the breadth and complexity of neurobiological and behavioral factors that influence neurodevelopmental disabilities such as autism spectrum disorder and fragile X syndrome. In particular, I am intrigued by the subtle sociocognitive and language differences documented in family members (e.g., parents) of individuals affected by these disorders. Additionally I am interested in utilizing a family genetic model to understand the heritability of these features as well as identifying links between behavioral and genetic expressions.

**What exciting projects are you working on?**
My master's project focuses on examining pragmatic (social) language in children with a range of disabilities, including Down syndrome, fragile X syndrome, and autism spectrum disorder in the laboratory of Molly Losh, PhD. More specifically, I'm looking at differences in the strategies utilized to repair a breakdown in conversation. In other words, when a listener indicates that they don't understand a message, what does the child do to repair this message?

I also recently began a project after being awarded the National Science Foundation Graduate Research Fellowship in the spring of 2014 to examine the tie between sensorimotor and language development. This project will involve investigating sensorimotor functioning in parents of individuals with autism spectrum disorder as well as carriers of the gene associated with fragile X syndrome. I plan to relate these findings to previously collected measures of cognition and functional language in order to understand how genes influence sensory and language deficiencies.

**What attracted you to the PhD program?**
I was first introduced to neurodevelopmental disabilities in the first grade, when I befriended a child in my class with Rett Syndrome. As my friend and I grew up, I became aware of the underlying condition affecting her abilities and resolved to learn more about her disorder. Many clinical and research experiences along the road led me to my ultimate decision to pursue a doctorate in clinical psychology. With this degree, I am able to combine my interest in treating individuals with neurodevelopmental disorders with a basic research component that targets the underlying influences affecting such disorders.

I was thrilled when I received an acceptance at Feinberg and the opportunity to work with current advisor Dr. Losh; the program offers excellent training both in child clinical work as well as the strong research experience I'm gaining through my lab.

**What has been your best experience at Feinberg?**
The people at Northwestern have largely contributed to my positive experience in the program. Whether it's time spent with families, my classmates, or other students and staff members in my lab, I am constantly surrounded by individuals who challenge me intellectually and encourage me to be my best self.

## Student Research in the News

PhD candidate Tamar Gefen, a student in the Clinical Psychology-PhD Program, was recently featured in *The New York Times* for her work studying memory. Gefen and colleagues published findings in *The Journal of Neuroscience*, reporting on the abundance of oversize brain cells, known as von Economo neurons, found in the brains of SuperAgers—individuals over the age of 80 with remarkable memory.

Gefen was previously featured in *Breakthroughs* in a student Q&A.

# Enabling High-Quality Research Support

## Joseph Boes, MA, Associate Director of Research Adminstration

**Where are you originally from?**
I was born in Iowa and grew up in the Des Moines area.

**What is your educational background?**
My undergraduate degree is from the University of Iowa with a double major in English and religious studies. I also earned a Master of Art degree in humanities focusing on media studies from the University of Chicago.

**Please tell us about your professional background.**
Prior to Northwestern I spent time as a bank teller and editorial assistant, which provided me some background in finances as well as editing of technical material. At Northwestern I started with the Division of Organ Transplantation about eight years ago, and saw the expansion to the Comprehensive Transplant Center in my time there as I grew from a finance-specific focus to overall research administration. I then moved to the Department of Obstetrics and Gynecology as a senior research administrator and subsequently as the manager of research administration. I have most recently accepted a position with Basic Sciences Administration, where I am able to support even more faculty and build upon systems and successes to enable top-quality research administrative support.

**Why did you choose to work at Northwestern?**
After receiving my master's degree, I decided that I did not necessarily want to pursue my PhD, as I had originally planned. Yet I knew that there was something about pursuing a PhD and a career as a professor that had intrigued me. Through some introspection I realized that I enjoyed the contribution to the generation of new knowledge whatever the subject may be, and that academic institutions were the best place to contribute to that mission. And so I began hunting for academic jobs with a financial or communications leanings due to my banking experience, was lucky enough to find a great position at Northwestern, and have been extremely grateful ever since.

**How do you help scientists at the medical school?**
My focus is to provide a research administration infrastructure that is service oriented and allows for faculty to focus on scientific discovery as much as possible.

**What is your favorite part of the job?**
I enjoy contributing to new knowledge, even if indirectly, and knowing that my contributions can help faculty bring new discoveries to the world. I share the excitement of investigators as they receive new funding, and enjoy learning about their projects and lines of scientific inquiry.

**What exciting projects are you working on?**
Having just started with the Basic Sciences Administration I am working to adapt best practices established in the past, learn new tools and techniques from that exist in my environment, and develop systems and reporting that can improve efficiency and oversight of the large research operation in the basic science departments we support.

**What do you do in your spare time?**
I love to cook, spend time with family and my cats, indulge my English literature background, and play bass guitar. My wife is a filmmaker and I enjoy the times when I get to collaborate with her on her projects.

**Anything else we should know about you?**
I am a member of the steering committee of Northwestern University Research Administration Professionals (NURAP) and co-chair of the Continuing Education Subcommittee, and am currently coordinating study sessions (and teaching a few) toward the Certification in Research Administration (CRA) exam, which I was able to receive myself in 2013 thanks in large part to these study sessions.

## Diverse Perspectives of Physician-Scientists

Sponsored by the MSTP Student Council, *Diverse Perspectives of Physician Scientists* is a series of conversations between researchers and current trainees which address the unique experiences of those who identify as an underrepresented minority and/or serve populations where health disparities exist.

On Monday, March 30, at 4 p.m., David Ostrow, MD, PhD, senior investigator for the Cannabinoid Therapies Translational Research Project, will present a keynote speech. Ostrow completed his undergraduate and MSTP training at the University of Chicago, and has dedicated most of his career to delineating the causes of medically underserved populations, more specifically the Chicago LGBT community and African Americans at highest risk for Hepatitis and HIV infection. The event takes place in the Robert H. Lurie Medical Research Center—Baldwin Auditorium, and a reception will follow.

Learn more about the event and RSVP.

# Research in the News

**Chicago Tonight (WTTW-TV) February 24**
New dietary guidelines: What's in, what's out?
Neil Stone was interviewed.

***The New York Times* February 23**
Feeding infants peanut products could prevent allergies
Ruchi Gupta was quoted.

**WBEZ-FM (NPR Chicago) February 21**
SuperAger brains
Changiz Geula's research was featured.

► This research was also featured in *The New York Times*, ABC News (national), NBC News (national), WGN-TV, *US News & World Report*, Web MD, *Dallas Morning News*, and more.

***Chicago Tribune* February 19**
Losing weight before pregnancy is healthier for mom, baby
Lisa Neff was quoted.

***Smithsonian Magazine* February 19**
Midnight snacking is bad for your brain
Ravi Allada was quoted.

***The Washington Post* February 16**
Heart attack 'risk calculators' miss mark, researchers say
Donald Lloyd-Jones was quoted.

***Boston Globe* February 13**
What Brian Williams case may teach about false memories
Joel Voss research was featured.

**Reuters February 9**
Men with prostate trouble should avoid some cold medicines
William Catalona was quoted

**Reuters February 5**
Patient ratings not linked to cancer surgery outcomes
Karl Bilamoria's research was featured.

► This research was also featured in ABC News (national) the Associated Press, *The Washington Post, The Wall Street Journal*, *US News & World Report*, *Boston Globe*, WebMD, and more.

***The Washington Post* February 2**
Want to prevent thousands of deaths a year? Make doctors and nurses meditate
Melinda Ring's research was featured.

More media coverage available online.

Northwestern University
NUCATS
Clinical and Translational Sciences Institute

# NUCATS Corner

## Engage the Community, Patients, and Clinicians in Research

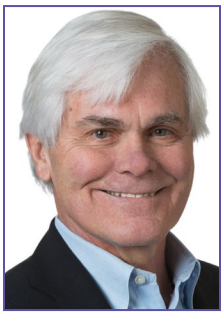
Engaging stakeholders in your research offers a promising approach for ensuring science and interventions are culturally sensitive and responsive to community needs, as well as increasing the likelihood of generating meaningful and sustainable results.

The Center for Community Health (CCH), housed in the Institute of Public Health and Medicine (IPHAM), understands that engagement can take time and may be unfamiliar to some researchers. To facilitate this process, CCH offers consultation services to provide investigators with key considerations related to incorporating engagement into different phases of research projects. CCH is also a resource for researchers who are preparing for grant applications that require or suggest patient, community, and stakeholder engagement.

Services may include consultation on research and engagement design, proposal review, financial and contractual challenges, letter of support and much more.

See how CCH can support your current or future work.

# Sponsored Research



## PI: John Disterhoft, PhD
## Ernest J. and Hattie H. Magerstadt Memorial Research Professor of Physiology

**Sponsor: National Institute on Aging**

**Title: "Slow Outward Current and Learning in Aging Hippocampus"**

The hippocampus is critically involved in the early stages of declarative learning, and its function and capacity are degraded during normal aging, causing age-associated learning impairments.

It has been repeatedly demonstrated that a cellular biomarker of this age-associated learning deficit is the enlarged Ca2+-dependent postburst afterhyperpolarization (AHP) that reduces the intrinsic excitability of CA1 pyramidal neurons in aged subjects. Disterhoft hypothesizes that restoring intrinsic excitability of aged CAI neurons to a young-like state by reducing the AHP using genetic manipulations would rescue age-related learning deficits.

Diesterhoft's team designed a research program to identify candidate proteins for genetic manipulation with the use of recombinant adeno-associated viral (AAV) vectors. In the intial five years of this MERIT award, they found that Ca2+ accumulation in the cytosol evoked with trains of action potentials is greatly elevated in aged CA1 neurons and may underlie the enlarged AHP in these neurons. They also found that Ca2+ buffer capacity is increased in aged CAI neurons (potentially as a cellular mechanism to counteract the increased Ca2+ accumulation), that CREB activation—an important cellular mechanism for protein synthesis necessary for learning and AHP reduction—is impaired in hippocampus of aged rats, and that L-type Ca2+ channel (LTCC) expression on the surface of CAI neurons is elevated in aged rats, which provides a molecular mechanism for the reported increased Ca2+ influx through LTCC in aged CAI neurons.

Based on these findings, Disterhoft identified Ca2+ binding proteins, CREB, and LTCC as candidates to rescue age-related deficits by manipulating their function with AAV vectors.

They have created AAV vectors targeting CREB and LTCC, and will continue the systematic characterization of their potential as therapeutics for restoring age-related deficits. Candidate Ca2+ binding protein genes to manipulate will be determined from protein microarray experiments and confirmed through literature review and further molecular (e.g., western blot) assays. In addition, they will identify the source(s) of the elevated Ca2+ accumulation in aged CAI neurons using Ca2+ imaging with two-photon laser scanning microscopy, and thus, reveal additional potential therapeutic targets for intervention.

Disterhoft's goals are to confirm that the AHP is the key regulator of intrinsic excitability, and that targeted molecular methods to reduce AHP in CAI neurons in aged subjects will lead to successful learning. Continued success will indicate that the protein being manipulated is a viable candidate to target as a therapeutic intervention point for age-associated learning impairments.

This research has clear relevance to understanding and treating neurodegenerative diseases such as Alzheimer's disease, in which aging is the principal risk factor.

This award is the second consecutive MERIT award for this long-running research program; it has been supported by MERIT award funding from the National Institute on Aging for 20 consecutive years.

## PI: Chyung-Ru Wang, PhD
## Professor of Microbiology-Immunology

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

**Title: "Group 1 CD1-restricted Autoreactive T cells in Inflammatory Disease"**

Psoriasis is a chronic inflammatory skin disease affecting 1 to 3 percent of the population worldwide. Several studies have shown a significant association between psoriasis and hyperlipidemia, a well-established risk factor for cardiovascular disease, suggesting these conditions may share common inflammatory pathways.

While multiple immune cell types have been implicated in the pathogenesis of psoriasis, including conventional CD4+ and CD8+ T cells, the potential contributions of lipid autoreactive CD1-restricted T cells to psoriasis pathogenesis remain elusive. CD1 molecules bind and present lipid antigens to T cells. These antigens include mammalian self-lipids and foreign lipids derived from specific microorganisms. In humans, the CD1 family consists of group 1 CD1 molecules (CD1a, -b, and c) and the group 2 CD1 molecule CD1d. Mice lack group 1 CD1, but do express CD1d.

The unique binding specificity of CD1 suggests a potential role for CD1 molecules in the presentation of modified lipids to autoreactive T cells in hyperlipidemic conditions. However, due to the lack of a suitable animal model, the role of autoreactive group 1 CD1-restricted T cells

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## Sponsored Research

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in hyperlipidemia-associated inflammatory diseases is unknown.

To overcome this limitation, Wang has generated a double transgenic mouse model that expresses human group 1 CD1 molecules and a group 1 CD1-autoreactive T cell receptor. In this study, she crossed this novel transgenic mouse to the ApoE-deficient background to study the role of autoreactive group 1 CD1-restricted T cells in hyperlipidemia. Interestingly, the presence of group 1 CD1-autoreactive T cells under hyperlipidmic conditions resulted in the mice developing severe psoriasis-like skin inflammation. While this finding suggests that autoreactive group 1 CD1-restricted T cells contribute to the pathogenesis of hyperlipidemia-induced skin inflammation, when, where and how these T cells are activated is unclear.

Therefore, in this project, Wang will investigate the mechanisms by which group 1 CD1-restricted autoreactive T cells contribute to skin inflammation and the kinetics of activation and localization of lipid autoreactive T cells during the course of disease. She will also examine how these T cells are activated by deciphering the nature of the lipid antigens presented by group 1 CD1 molecules during disease progression and further examining whether hyperlipidemia affects DC function, thereby resulting in group 1 CD1-autoreactive T cell activation.

Collectively, these studies will lead to a better understanding of how group 1 CD1-restricted autoreactive T cells contribute to hyperlipidemia-associated inflammatory diseases and provide the basis for manipulating these T cells to uncover new strategies for therapeutic intervention for psoriasis and other inflammatory disorders.

## Welcome New Faculty

**Ronen Sumagin, PhD**, joins as assistant professor of Pathology. He earned his Doctor of Philosophy degree in biomedical engineering from the University of Rochester, New York, and completed a postdoctoral fellowship in pathology at Emory University. Most recently he served as an instructor in pathology and laboratory medicine at Emory.

Sumagin's research interests include understanding mechanisms regulating leukocyte recruitment to mucosal tissues, determining the underlying mechanisms for leukocyte-associated effects on endothelial/epithelial function, wound healing, and host-pathogen interactions.

# Funding

### Translational Programs in Lung Diseases (P01)

More information

**Sponsor:** Department of Health and Human Services, National Institutes of Health, National Heart, Lung and Blood Institute

**Submission deadline: May 19**
**Upper Amount: $8.75 million**

**Synopsis:** This Funding Opportunity Announcement (FOA) invites submission of Program Project (P01) applications from institutions and organizations that will perform collaborative, translational research with the goal of using mechanistic research as the basis for the rational design of clinical applications to improve prevention, diagnosis and/or treatment of lung diseases and sleep disorders.

### Support of NIGMS Program Project Grants (P01)

More information

**Sponsor:** Department of Health and Human Services, National Institutes of Health, National Institute of General Medical Sciences

**Submission deadline: May 25**
**Upper Amount: $6.5 million**

**Synopsis:** This funding opportunity issued by the National Institute of General Medical Sciences encourages innovative, interactive Program Project (P01) grant applications from institutions and organizations that propose to conduct research which aims to solve a significant biological problem, important for the mission of the National Institute of General Medical Sciences, through a collaborative approach involving outstanding scientists. The Program Project grant is designed to support research in which the funding of several interdependent projects as a group offers significant scientific advantages over support of these same projects as individual regular research grants.

View more funding opportunities

# High Impact Factor Research

## January 2015

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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."

## New PET/CT Imaging of Small Animals Now Available on Campus

The Center for Translational Imaging (CTI) has installed a Mediso nanoScan PET/CT, now available for use by Northwestern investigators. This nuclear imager is located alongside the existing High Field MRI instruments available in the CTI facility.

The new scanner offers reliable, quantitative imaging at sub-millimeter resolution and features extremely fast, parallel workflow for data acquisition, image reconstruction, and image quantitation. It will enable a broad range of preclinical and in vivo molecular investigations, including:

- Synthesis and testing of novel contrast agents
- Identification of new biomarkers of disease progression
- Monitoring of response to therapy
- Multimodality imaging to assess structure, function, and metabolism in living animals

The Center for Advanced Molecular Imaging (CAMI) in Evanston, located in Silverman Hall, has made the same equipment available for investigators.

Both facilities are open-access and can accommodate investigators from either campus. CCM can provide animal transport between campuses, free of charge. Both facilities support development and implementation of advanced imaging experiments and provide resources for image analysis and data management.

For facility details, access and instrument scheduling on the Chicago campus, please contact Daniel Procissi at d-procissi@northwestern.edu.

# Calendar

## Thursday, March 19

### Lurie Tumor Cell Biology Seminars

"FoxM1 in Tumor Progression," by Pradip Paychaudhuri, PhD, University of Illinois at Chicago.

**Time:** 1 to 2 p.m.
**Location:** Lurie Medical Research Building — Baldwin
303 E. Superior St. (Chicago campus)
**Contact:** cancer@northwestern.edu
More information

## Tuesday, March 24

### Lectures in Life Sciences

"Hematopoietic stem cell biology," by David T. Scadden, Harvard Stem Cell Institute.

**Time:** 4 to 5 p.m.
**Location:** Lurie Medical Research Building — Hughes
303 E. Superior St. (Chicago campus)
**Contact:** nav@northwestern.edu
More information

## Wednesday, March 25

### FCVRI Seminar Series

"Modulating Levels of the Anti-Inflammatory Protein Tristetraprolin (TTP): Effects on Physiology and as Potential Therapy," by Perry Blackshear, MD, DPhil, National Insitute of Environmental Health Sciences.

**Time:** 4 to 5 p.m.
**Location:** Lurie Medical Research Building — Baldwin
303 E. Superior St. (Chicago campus)
**Contact:** dlr635@northwestern.edu
More information

## Thursday, April 3

### Research Day Keynote and Poster Session

Keynote presentation, "Stem Cells in Silence, Action, and Cancer," by Elaine Fuchs, PhD, The Rockefeller University and Howard Hughes Medical Institute. Poster session follows.

**Time:** 1 to 2 p.m. Opening session and keynote
2 to 5 p.m. Poster viewing and competition
**Location:** Northwestern Medicine Chicago Campus
**Contact:** researchday@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

**Get ready for the New NIH Biosketch!**
NIH is rolling out a new biosketch format to better reflect the increasingly team-based nature of research and diverse scholarly accomplishments of investigators. NIH will require use of the new format for applications submitted for due dates on or after May 25, 2015.

According to NIH NOT-OD-15-024, "The new format extends the page limit from four to five pages, and allows researchers to describe up to five of their most significant contributions to science, along with the historical background that framed their research. Investigators can outline the central findings of prior work and the influence of those findings on the investigator's field."

Descriptions in the new section can be supplemented with a listing of up to four relevant peer-reviewed publications or non-publication research products (e.g., videos, patents, data and research materials, databases, models, protocols, software). Researchers will be able to include a link to a full list of their scholarly work found in a publicly available database such as MyBibliography at NCBI or SciENcv.

To generate a new-format NIH biosketch using MyNCBI:

1. Log into MyNCBI at http://www.ncbi.nlm.nih.gov/myncbi/ and find the SciENcv section
2. Click "Manage SciENcv" to start a new biosketch
3. Click "Create New Profile" and select "New NIH biosketch" from the profile drop-down menu
4. Pull in publications from your MyNCBI bibliography or your ORCID profile

The revised forms and instructions are also available on the SF 424 (R&R) Forms and Applications page.

**For more information**
Email Pamela Shaw, Biosciences and Bioinformatics Librarian at Galter Library at p-shaw@northwestern.edu for help or to arrange a presentation to your group. Pamela can also assist with NIH Public Access Policy compliance issues and is happy to speak about this, as well.

Read Sally Rockey's Rock Talk blog at NIH:
http://nexus.od.nih.gov/all/2014/05/22/changes-to-the-biosketch/

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