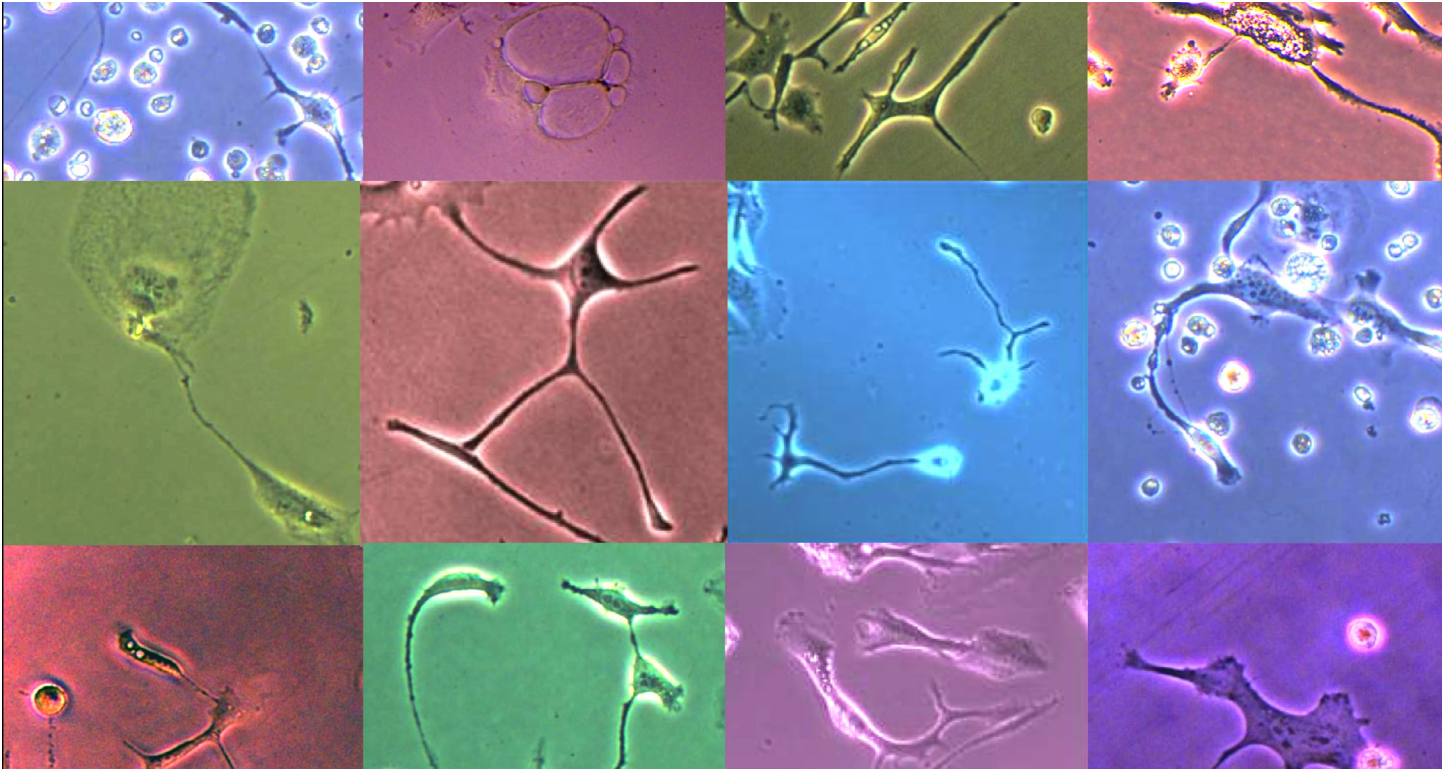


Breakthroughs

Feinberg School of Medicine Research Office

November 2015



Cancer cells form different shapes during the stages of a process that eventually kills them, called "death induced by CD95 receptor or ligand elimination" or DICE.

NCI Awards for Innovative Cancer Research

Northwestern Medicine scientists have been awarded seven-year, \$6.4 million grants from the National Cancer Institute (NCI) to embark on projects that have unusual potential to advance cancer research.

[Marcus Peter, PhD](#), professor of [Medicine](#) in the Division of [Hematology/Oncology](#), and [Ali Shilatifard, PhD](#), chair and Robert Francis Furchgott Professor of [Biochemistry and Molecular Genetics](#), both [Robert H. Lurie Comprehensive Cancer Center of Northwestern University](#) members, were each chosen to receive an NCI Outstanding Investigator Award.

The new program was established to support experienced and exceptional investigators.

Award recipients are encouraged to use the grant to be more adventurous and to take greater risks so that they can break new ground in their lines of inquiry.

"There are thousands of cancer researchers. The idea is to let a few of us play with completely out of the box ideas that could have tremendous payoffs," Peter said. "My lab is doing exactly the opposite of what most others are doing. Instead of focusing on oncogenes to kill cancer cells, we're targeting tumor suppressors."

While much research is devoted to developing therapies that target the specific genetic mutations that cause various forms of cancer, Peter's strategy applies to all solid cancers because

NCI Awards for Innovative Cancer Research

(continued from cover page)

it concentrates on the roots rather than the manifestations of cancer.

“We are trying to turn on powerful cancer-destructive mechanisms designed by evolution to prevent cancer,” Peter said. “By the time a patient presents to the clinic with a tumor, some cancer surveillance mechanisms have already failed.”

Last year, he published a study showing that removing the death receptor CD95, or Fas, kills cancer cells, but not normal cells. The molecule’s day-to-day function is to trigger apoptosis to get rid of potentially harmful cells, including those that drive malignant tumor growth. But mutations can hit every gene, including those responsible for the tumor suppressor CD95 and its ligand CD95L. Peter believes that a network of sensors in cells recognizes when mutations will stop tumor suppressors from doing their job and the cells commit suicide as a failsafe mechanism. Eliminating CD95 in cancer cells may induce the same mechanism.

“This self-destruct program has to be a very tightly controlled, very efficient process, otherwise none of us would be here,” Peter said. “We believe we’ve tapped into this program.”

Over the next seven years, Peter will pursue eight projects to understand the signals and pathways that surround CD95, other tumor suppressors and CD95 removal, which Peter has termed “death induced by CD95 receptor or ligand elimination” or DICE for short. With the NCI grant, he can do this without worrying about imminent grant renewal.

“During the last decade not enough attention has been given to very basic science that could eventually result in a completely new way of attacking the cancer problem,” Peter said. “This grant is perfect for us, because that is exactly what we do.”

Cancer forms because genetic mutations can cause cells to lose control of self-regulation and multiply rapidly. For nearly



Marcus Peter, PhD and Ali Shilatifard, PhD, received Outstanding Investigator Awards from the National Cancer Institute.

20 years, Shilatifard has explored how chromatin – genetic material that encompasses DNA, RNA and proteins – and the process of transcription play a role in this cancer pathogenesis. This research led to the identification of a protein complex he named COMPASS, a signaling pathway of H3K4 methylases that activates gene expression. Importantly, mutations in COMPASS are hidden within a broad array of cancers, from leukemia to brain tumors to liver cancer.

“This grant gives me the opportunity and time to think comprehensively and ask, what are the most fundamental biological questions in the field that have not yet been answered?” Shilatifard said. “Why are COMPASS family mutations associated with so many different forms of cancer? And what is the molecular mechanism of this process?”

In several recent manuscripts published in *Science*, *Cell* and *Nature*, Shilatifard and colleagues provided molecular clues on how transcription factor mutations cause misregulation of gene expression in cancer. With the new award, Shilatifard aims to fully characterize the molecular and biochemical properties of the six members of the COMPASS family that his lab previously identified in multiple model systems.

“The better molecular understanding we have of this epigenetic process, the better chance we’ll have of developing targeted therapeutics, such as a small molecule that turns off COMPASS or something that augments its activity, depending on whether the mutation causes cancer through loss or gain of function,” he said. “Without having to worry about grant renewal for our COMPASS studies, we can really focus on making substantial, meaningful discoveries.”

In addition to Peter and Shilatifard, Lurie Cancer Center newcomer [Maciej Lesniak, MD](#), chair of [Neurological Surgery](#) as of November 1, was also chosen to receive an NCI Outstanding Investigator Award while a professor at the University of Chicago. In research he will continue at Northwestern, he plans to develop therapies for malignant brain tumors by targeting stem cells. Though the results of their funded projects are uncertain, each of these scientists has the potential to improve treatment options in areas where new ideas – and time to investigate them – are critically needed.

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Nutrients Role in Regulating Inflammation

Joan Cook-Mills, PhD, professor of Medicine, Division of Allergy-Immunology



[Joan Cook-Mills, PhD](#), professor of [Medicine](#) in the Division of [Allergy-Immunology](#) and a member of the Interdepartmental [Immunobiology Center](#), has had a longstanding interest in the regulation of inflammation. She completed her graduate training in biochemistry with an emphasis on immunology and micronutrient malnutrition at Michigan State University.

Her understanding of metabolism and nutrient regulation of cell signaling led her to study whether nutrients could be an effective and safe approach for regulation of chronic diseases, such as allergic inflammation, instead of current drug interventions.

Cook-Mills enjoys teaching and mentoring students in class and the lab, especially when she sees them increase their knowledge, get excited about their novel ideas and results and realize that they have an impact on discovery.

Q&A

What are your research interests?

My primary interest is in the mechanisms of allergic inflammation and how nutrients regulate the signals for allergic inflammation.

What is the ultimate goal of your research?

The ultimate goal of my research is to understand the molecular mechanisms for regulation of inflammation by nutrients. Nutrients are chemical compounds that functionally interact with cell metabolism and cell signaling molecules, thereby regulating cellular function. The prevalence of allergic diseases and asthma has increased dramatically in the last 50 years in developed and developing countries.

This time span is too short for genetic changes in populations, suggesting that there are environmental changes contributing to the increased prevalence in allergy and asthma.

How does your research advance medical science and knowledge?

We have discovered that different forms of vitamin E have opposite regulatory effects during inflammation. The alpha-tocopherol form of vitamin E inhibits allergic inflammation, but the gamma-tocopherol form of vitamin E increases allergic inflammation.

In the U.S., the average human plasma gamma-tocopherol concentration is five to seven times higher than most other countries, most likely due to gamma-tocopherol being rich in soybean oil, corn oil and canola oil – oils common in the North American diet. In contrast, oils prevalent in European and Mediterranean diets are rich in alpha-tocopherol such as olive oil, sunflower oil and safflower oil.

We reported that alpha-tocopherol associates with higher lung function and that gamma-tocopherol associates with lower lung function in a study of 4,500 individuals. In mouse models of allergic inflammation, alpha-tocopherol inhibited and gamma-tocopherol elevated allergic lung inflammation.

In mechanistic studies, we demonstrated that recruitment of inflammatory cells to the site of allergic inflammation was mediated through endothelial cell signaling by the receptor vascular cell adhesion molecule-1 and that this receptor activates signals including protein kinase C-alpha (PKC-alpha).

We further showed that alpha-tocopherol is an antagonist of PKC-alpha and that gamma-tocopherol is an agonist of PKC-alpha. As alpha-tocopherol and gamma-tocopherol represent modifiable risk factors, this may be an effective strategy for primary and/or secondary asthma prevention by dietary modification to lower gamma-tocopherol and increase alpha-tocopherol.

How is your research funded?

My research has been funded by the National Institutes of Health, the American Heart Association, Ray Biotech Inc. and the Ernest S. Bazley Asthma and Allergic Diseases Center Research and Education Program.

(continued on page 5)

Clinical Research Tracking Policy Updates

Two policies related to clinical research have recently been approved by the Feinberg Executive Committee of the Faculty to help improve the quality and efficiency of the clinical research enterprise.

The first is a modification of the [Clinical Research Participant Tracking Policy](#). This revision builds upon the process of tracking participants by requiring that consent for all participants be uploaded to Study Tracker within 14 days of participant enrollment in a research study.

Users should include studies that upload consent documents for participants enrolled on or after Sept. 1, 2013. For studies where the backlog is greater than 100 participants, Study Tracker staff will assist with the process.

The second policy update, [Clinical Research Study Information Tracking](#), requires the addition of some key information about the study, including the name of the Department, Institute or Center that is providing study support services, the chartstring where all financial activity (expenses and revenue) for the study is recorded and the sponsored project number of the grant or contract funding the study.

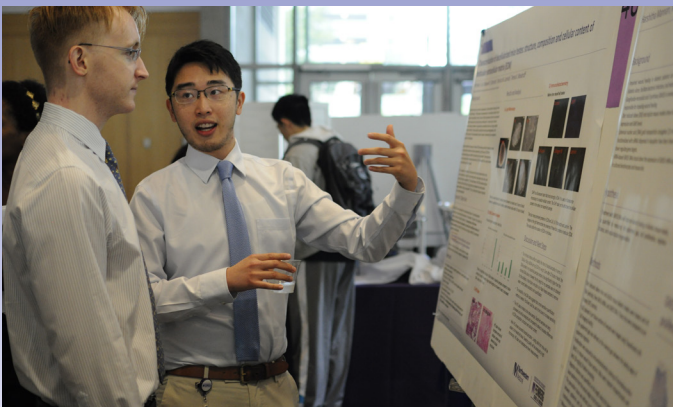
In addition, this policy requires that all clinical research studies, whether externally or internally funded must use a chartstring in NUFinancials that includes the new Clinical Research Project Attribute.

The goal of this additional information is to better track expenses associated with all clinical research activity. We are asking all departments, institutes and centers implement this to capture expenses effective Sept. 1, 2015.

Poster Session Highlights Student Research

Second-year medical student Michael Lin, who studies the use of biologic scaffolds to restore fertility in prepubescent male patients with cancer, presented his research to peers and faculty at the Area of Scholarly Concentration (AoSC) poster session.

Lin and his fellow second-year medical students gathered to share the results of their ongoing research projects for the AoSC, a four-year longitudinal project that culminates with a thesis at the end of Feinberg medical students' fourth year.



Michael Lin, a second-year medical student, showcases his research on the use of biologic scaffolds to preserve and restore fertility in prepubescent male patients undergoing cancer treatments at the Area of Scholarly Concentration poster session.

Project topics ranged from the basic sciences to clinical investigation, including translational medicine, medical humanities and many others.

Working under the mentorship of Teresa Woodruff, PhD, chief of Fertility Preservation in the Department of Obstetrics and Gynecology, Lin decided to pursue a basic science project while waiting for the results of his primary AoSC project, which used a survey to analyze how the Oncofertility Consortium website could be improved.

The Oncofertility Consortium at Northwestern University represents a national, interdisciplinary initiative to better understand the relationships between health, disease, survivorship and fertility preservation in young cancer patients.

Lin is currently working to find ways to preserve fertility in prepubescent male cancer patients, an area understudied because they are too young to produce viable sperm.

Over the summer, he researched ways to use biologic scaffolds composed of the extracellular matrix, a mesh of proteins that provides structure and communication for cells, and worked to optimize conditions for isolating the extracellular matrix of the testes. He hopes in the future the scaffold will be able to grow tissue that produces viable sperm.

Helping You Navigate Library Resources

Margarita Chung, Administrative Director, Galter Health Sciences



Where are you originally from?

I was born in Paraguay and lived there for eight years. Then, my family immigrated to the United States and settled in the Chicagoland area, where I've been living ever since.

What is your educational background?

I received a bachelor's degree in business administration with a concentration in

marketing, from the University of Illinois at Chicago.

Please tell us about your professional background.

In the early 90s, I worked in advertising and marketing as a product specialist at a computer retail store head-quartered in Chicago. After doing that for a couple of years, I decided I wanted to change course and possibly pursue physical therapy. I decided to look for job opportunities at Northwestern and take some classes while working.

I discovered that I could make a career in higher education administration and decided to focus on gaining skills and experience in this area. My first position was working in the Department of Preventive Medicine as a program assistant.

In 2007, I was promoted to business administrator for the newly funded Northwestern University Clinical and Translational Sciences (NUCATS) Institute. After NUCATS successful launch,

and re-funding of its CTSA, I decided it was time to do something new. In September 2015, I transitioned to a new role as the administrative director for the Galter Health Sciences Library which is a division of the NUCATS Institute.

I support and manage the day-to-day library operations and administration working alongside a great team of librarians and library paraprofessionals.

What is your favorite part of the job?

While I enjoy working with numbers managing the finances for the library, I also enjoy working with the great group of people in the library and being able to help someone new to Northwestern navigate their way around our resources.

Why did you choose to work at Northwestern?

I originally came to work at Northwestern because of the tuition assistance benefit and its reputation. I stayed at Northwestern because of the work/life balance, great benefits and I enjoy the work I do and the people I work with.

What exciting projects are you working on?

There's never a dull moment. There's always something to do in the library. Aside from the daily administration and operations, I am excited about the upcoming renovation of the library space that will occur next year.

What do you like to do in your spare time?

In my spare time, my husband and I volunteer for the Anti-Cruelty Society in Chicago and I always look forward to visiting and spending time with the kittens. I love that I can help make them comfortable in an uncomfortable situation. My husband and I also like to take advantage of living in the South Loop and experiencing all that the city has to offer such as walking along the lake and eating at great restaurants. When we can, we love to travel to Hawaii.

Cook-Mills Q&A

(continued from page 3)

Where have you recently published papers?

Some of our recent manuscripts have been published in the *Journal of Immunology*, *American Journal of Physiology-Lung Cellular and Molecular Physiology*, *American Journal of Respiratory Care and Critical Medicine*, *Respiratory Research* and *Biochemical Journal*.

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

We collaborated with [Rajesh Kumar, MD](#), professor of [Pediatrics](#) in the Division of [Allergy and Immunology](#), [Pedro Avila, MD](#), professor of Medicine in the Division of Allergy-Immunology and [Kiang Liu, PhD](#), professor of [Preventive Medicine](#) in the Division of [Epidemiology](#) and Medicine in the Division of [Internal Medicine and Geriatrics](#). I am currently collaborating with clinical investigators at Harvard and Vanderbilt for studies on the associations of alpha-tocopherol and gamma-tocopherol in children and outcomes of inflammation early in life.

Memory and Language in Aging

Aneesha Nilakantan, Interdepartmental Neuroscience Program



Aneesha Nilakantan, a third-year student in the [Northwestern University's Interdepartmental Neuroscience \(NUIN\)](#) program, studies the changes in cognition that occur in the aging brain in the laboratories of [Marsel Mesulam, MD](#), director, [Cognitive Neurology and Alzheimer's Disease Center \(CNADC\)](#) and [Joel Voss, PhD](#), assistant professor in [Medical Social Sciences](#).

Nilakantan earned an undergraduate degree in Molecular Cellular Biology and Cognitive Science from the University of California, Berkeley.

Q&A

Where is your hometown?

I grew up in Cupertino, California. It is located south of San Francisco in the Bay Area. It's a small city within Silicon Valley that is best known as the location of Apple headquarters.

What are your research interests?

I was introduced to academic research when I was an undergraduate research assistant in a lab studying human attention in healthy aging -- and it has captivated me (or held me captive) ever since. I'm interested in studying changes in cognition that occur in the aging brain. I'm lucky to be a part of two labs that allow me to follow this passion. The

laboratory of human neuroscience, directed by Joel Voss, studies the organization of human memory. CNADC, directed by Dr. Mesulam, studies aging and neurodegenerative disease. Together, we are studying the interaction of memory and language in aging.

What exciting projects are you working on?

I'm currently working on a project that uses Transcranial Magnetic Stimulation (TMS) to study networks subserving human memory. We have used this method to target the hippocampus and the cortical structures it interacts with, to enhance associative memory. We are also currently developing studies that explore this same technique in healthy older adults and individuals with memory impairments due to neurodegenerative disease.

What attracted you to the PhD program?

NUIN, as an interdisciplinary program, has diverse faculty and expertise. I knew that I would have the opportunity to learn a lot about neuroscience, regardless of which lab I joined. I've also never lived in a metropolitan city, and Chicago seemed like a great place to explore. I consider the weather one of those "learning experiences."

What do you do in your free time?

Once a week, I volunteer tutor a third-grader through the Tutoring Chicago Program. It is easy to feel overwhelmed with all of the learning involved in lab and class in graduate school, and so helping someone with their weekly spelling and multiplication tables centers me. While I'd like to say that I'm the one teaching her, she has taught me a lot, too. Mostly, that coloring is a great post-homework reward.

I'm also hopelessly addicted to new television series and constantly looking for new restaurants and cuisines to try. I'll take recommendations for either, any time.

Welcome New Faculty



Craig Horbinski, MD, PhD, joins as associate professor of Pathology and Neurological Surgery. He earned his Medical and Doctor of Philosophy degrees from the State University of New York, Buffalo and completed an anatomic pathology residency and neuropathology fellowship at the University of Pittsburgh Medical Center. He was most recently an associate professor at the University of Kentucky.

Dr. Horbinski's research focuses on gliomas, including the use of molecular diagnostics in gliomas. He directs the Northwestern Brain Tumor Institute (NBTI) Nervous System Tumor Bank, which provides full neuropathology support for all research endeavors within the NBTI.

Research in the News

Newsweek Oct. 5

[How to Get Through One Day With No Sleep](#)

Phyllis Zee's study was featured.

Crain's Chicago Business Oct. 12

[Taking a cool invention from the Rehab Institute to the marketplace](#)

Todd Kuiken, Levi Hargrove and Jonathan Sensinger are featured.

Men's Health Oct. 14

[6 Ways to beat dry skin](#)

Stavonnie S.L. Patterson is quoted.

WBEZ Oct. 22

[American Cancer Society says start mammograms at 45, not 40](#)

Sarah Friedewald is quoted.

Chicago Tribune Oct. 22

[Cubs' young players smash expectations](#)

Mark Reinecke is quoted.

The Wall Street Journal Oct. 22

[Why Double Knee Replacement Might Be Best](#)

David Manning's research was featured.

WBEZ Oct. 28

[Northwestern study minimizes racism one nap at a time](#)

Ken Paller's research was featured.

U.S. News & World Report Oct. 28

[Dr. Elizabeth McNally Details Promise, Challenges of Genetic Research](#)

Elizabeth McNally's research was featured.

Fox News (National) Oct. 29

[5 common myths your doctor may believe](#)

Lauren Streicher is quoted.

The Washington Post Oct. 29

[Some new doctors are working 30-hour shifts at hospitals around the U.S.](#)

Karl Bilimoria is quoted.

[More media coverage](#) available online.

Northwestern University

NUCATS

Clinical and Translational Sciences Institute

NUCATS Corner

Center for Community Health Seeking Investigators to Pilot New Studio Service

There is an increasing need to embed patients, city agencies, community organizations, and stakeholders into all phases of the research pipeline. This includes understanding their needs from the very beginning so that research is designed and disseminated in a relevant and accessible way.

The [Center for Community Health \(CCH\)](#) is piloting a new studio service, ShARP (Stakeholder-Academic Resource Panel), to help principal investigators and partners at any phase of research design, implementation or dissemination to develop robust and appropriate stakeholder engagement into their research projects.

CCH will organize a panel comprised of both academic and community representatives with expertise related to the research topic and community engaged research experience. The panel will provide investigators with a dedicated space and time for stakeholder engagement guidance and an opportunity to receive constructive criticism on a specific set of questions related to their study.

If you are interested in learning more about how to participate in this service, please email CCH's Research Portfolio Manager, Grisel M. Robles-Schrader. To view all the services CCH offers to engage communities in research with the aim of expediting the translation of research findings into solutions that improve health in Chicagoland and beyond, please click [here](#).

The Center for Community Health is housed in the Institute for Public Health and Medicine (IPHAM).

Sponsored Research



PI: Brian Layden, PhD, Assistant Professor of Medicine in the Division of Endocrinology, Metabolism and Molecular Medicine

Sponsor: National Institute of Diabetes, Digestive and Kidney Diseases

Title: “The function and regulation of the novel pregnancy-specific hexokinase HKDC1”

Gestational diabetes (gestational hyperglycemia) is dramatically increasing worldwide and can result in acute and chronic adverse outcomes for mothers and their babies. In a recent genetic study of the Hyperglycemia and Adverse Pregnancy Outcomes (HAPO) cohort, a Northwestern team including the Layden lab reported a novel locus associated with maternal glycemic traits specifically during pregnancy. The lead candidate gene in the associated region encodes the hexokinase-domain containing 1 (HKDC1) protein.

The goal of this proposal, which builds upon those initial findings, is to test the central hypothesis that HKDC1 is a novel hexokinase that controls glucose homeostasis during pregnancy. Testing that hypothesis is important because it will reveal new mechanisms contributing to one of the most common complications of pregnancy worldwide. The central hypothesis will be tested at three complementary levels.

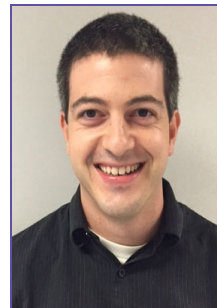
First, following up on the initial discovery that HKDC1 is a hexokinase, the enzymatic activity of the protein will be systematically characterized. Doing so will reveal whether HKDC1 is more likely responsible for glucose sensing or glucose metabolism, and will relate HKDC1 to the other hexokinases. Those insights are essential for understanding the role of HKDC1 in maternal health.

Second, the *in vivo* role of HKDC1 in glucose homeostasis during pregnancy will be assessed. Tissue expression patterns suggest that HKDC1 regulates glucose homeostasis during pregnancy specifically through its role in pancreatic β cells and the liver. Through global and tissue-specific ablation mouse models, glucose homeostasis during pregnancy will be assessed. These findings will be translated to *in vitro* studies in human islets and primary human hepatocytes.

Third, the role of HKDC1 in regulating glucose during human pregnancy will be investigated by testing the hypothesis that gestational hyperglycemia-associated genetic variants alter the regulation of HKDC1 during pregnancy.

That hypothesis will be tested using novel high-throughput reporter assays to discover the primary and secondary hormone and glucose response elements that regulate HKDC1 expression and to identify genetic variants that alter regulatory element function in the original GWAS population.

The outcome of this proposal will be a comprehensive understanding of the activity and transcriptional regulation of HKDC1 during pregnancy.



PI: Gregory Schwartz, PhD, Assistant Professor of Ophthalmology and Physiology

Sponsor: The National Eye Institute

Title: “Novel circuit mapping strategies to reverse engineer the retina”

Developing a deeper understanding of brain function requires researchers to connect the different levels of analysis that have characterized the field of neuroscience. In particular, the frontier of systems neuroscience is to reveal how the biophysical properties of neurons and the pattern and characteristics of their synaptic connections together give rise to a functional neural circuit.

Measurements of neuronal biophysics, anatomical connectivity, synaptic currents, and circuit function are rarely performed on the same cells, and this experimental limitation has been a barrier to our integration of knowledge across these different levels.

Schwartz’s project aims to develop new techniques to classify cell types and measure anatomical connectivity, synaptic properties, and circuit output all in the same neurons. It also includes a new theoretical framework to integrate these measurements into a model to predict circuit function given its natural input (patterns of light) while recording its full output (the spike trains of retinal ganglion cells).

In addition to their impact as templates for the integration of measurements across levels to predict circuit function, the circuit maps of the mouse retina will provide critical insights into the segregation of visual processing between the retina and downstream visual areas in the brain.

Detailed models linking synaptic connectivity to function will also aid in the diagnosis and treatment of retinal disease by associating particular circuit components with specific types of visual processing.

Sponsored research

(continued from page 8)

This project aims to improve the understanding of the neural circuits of the retina by linking detailed wiring maps with functional measurements from the same cells.

Several new brain-mapping techniques developed as part of the project will have broad impacts in other mapping efforts throughout the brain.

A circuit level understanding of the retina will have important implications for our understanding of downstream visual areas and for the diagnosis and treatment of retinal diseases that impair human vision.

Grant Tackles Cancer in Chicago Neighborhoods



Melissa Simon, MD, the George H. Gardner, MD, Professor of Clinical Gynecology in the Department of Obstetrics and Gynecology, will lead Northwestern's contributions to the Chicago Cancer Health Equity Collaborative (ChicagoCHEC).

A new \$17.4 million grant from the National Cancer Institute (NCI) will help three Chicago universities work together with many of the city's under-served communities to foster meaningful cancer research, education, training and outreach.

The five-year grant will support the creation of the Chicago Cancer Health Equity Collaborative (ChicagoCHEC), led by researchers from the Robert H. Lurie Comprehensive Cancer Center of Northwestern University, the University of Illinois at Chicago and Northeastern Illinois University.

The collaborative held a joint community kick-off event Oct. 23 in Chicago's Little Village neighborhood to launch this initiative to help reduce the burden of cancer in low-income and racial and ethnic minority communities.

Funding

Novel Genomic Technology Development

[More information](#)

Sponsor: United States Department of Health and Human Services, National Institutes of Health, National Human Genome Research Institute

Submission deadline: Jan. 14

Upper Amount: \$2.8 million

Synopsis: This Funding Opportunity Announcement seeks grant applications to catalyze major advances in genomics through technology development (beyond developing nucleic acid sequencing technologies).

The goal is to provide a mechanism for support of very novel and high impact work from across this gamut of genomics technology development. This initiative seeks to support technologies that will have a major impact in the next five to seven years.

Role of the Human Virome in Heart, Lung, and Blood Health and Resilience

[More information](#)

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

Submission deadline: Feb. 3

Upper Amount: \$1.795 million

Synopsis: The human virome includes viruses that infect host cells, virus-derived elements in our chromosomes, and viruses that infect other types of organisms that inhabit the human body.

The virome may influence the host in profound ways independent of classical viral diseases. The purpose of this Funding Opportunity Announcement is to support research to identify and evaluate the basic underlying molecular and physiological mechanisms by which the virome may influence heart, lung, and blood health and resilience.

[View more funding opportunities](#)

Galter Library Connection

Informatics Support and Software at Galter Health Sciences Library

Need access to statistical software? Interested in trying out bioinformatics tools? Galter Library offers a wide range of software tools and resources on various library computers to help you accomplish your statistical, research, and presentation needs. Check out our [Software on Library Computers](#) page to see what is available on our PC and Macintosh computers.

Research Computer Cluster

Specialized software tools and resources are available on the Research Computing Cluster located in the Learning Resources Center (LRC).

Users can select one of six computers equipped with software packages handling statistical and bioinformatics workflows. These packages include: SPSS, SAS, Stata, R & R Studio, Vector NTI, Atlas.ti, GraphPad Prism and Partek Genomics Suite.

The Research Computer Cluster is accessible during regular library hours and after the library closes through WildCARD access to the LRC.

Additional Software, Tutorials and Licenses

- **ArcGIS**
Northwestern University Libraries provide ArcGIS software to all members of the Northwestern Community. ArcGIS can be used to map, analyze, and visualize geospatial data and is available on computers in the LRC classroom space.
- **Open Helix Video Tutorials**
Galter Library has licensed the [Open Helix video tutorial suite](#), which has lots of videos on how to use bioinformatics tools and databases.
- **GeneGo MetaCore Pathway Analysis License.** Galter Health Sciences Library has a long-standing license to MetaCore pathway analysis software. With MetaCore, users can construct networks of functionally relevant interactions for a gene or list of genes and experimental values. Users need to [register for a MetaCore account](#).

Bioinformatics and Biosciences Research Support

Through our Bioinformatics and Biosciences Research Support services, Galter Library offers both individual and group data management consultations, presentations to departments on newly available resources, and scheduling of workshops by experts on the use of bioinformatics databases and other research tools.

Additionally, we can point users to online trainings and resources for support when using specialized software tools. We provide access to licensed bioinformatics and biostatistics software, and other helpful information resources. Contact [Pamela Shaw](#), our Bioinformatics and Biosciences Research Librarian, for more information.

Computational Skills for Informatics Workshop

Galter Library has teamed up with NUIT Research Computing and NUCATS to provide innovative and helpful trainings through the Computational Skills for Informatics workshop series. The topics are relevant to bioinformatics and large dataset management and computation.

The workshop series is currently underway with three sessions coming up in November and December. Sessions include:

- What is Command Line?
- Introduction to Quest
- Introduction to Sequence Analysis
- Ensembl Genome Browser (11/19)
- Version Control with GitHub (12/03)
- Introduction to Tableau Desktop (12/17)

Each session is designed with the novice or those with some experience in mind. The instructors are experienced in introducing new concepts and skills to a research-oriented audience.

Many of the workshops are full but we hope to offer another series like this in the future.

When it comes to receiving bioinformatics research support, keep in mind that Galter Library is here to provide support and assistance to help you accomplish your research goals.

High Impact Factor Research

September 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."

Calendar

Monday, November 16

5th Annual Les Turner Symposium on ALS and NeuroRepair

Kevin Eggan, PhD, Professor, Harvard University Department of Stem Cell and Regenerative Biology, Howard Hughes Medical Institute is the keynote speaker at this day-long event celebrating research, patient care and education.

Time: 8:00 a.m. to 4:30 p.m.

Location: Prentice Women's Hospital
Conference Room L, 3rd floor
250 E. Superior

Contact: suzanne.pressler@northwestern.edu
[More information](#)

Thursday, November 19

Molecular Mechanisms of Long-Term Memory Formation and Enhancement

Cristina Alberini, PhD, Professor, Center for Neural Science, New York University will speak.

Time: 2:00 p.m. to 4:00 p.m.

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

Contact: xiaowenyu2016@u.northwestern.edu
[More information](#)

Tuesday, November 24

Guts, Germs and Steel: Microbes and Metal in the Inflamed Gut

Manuela Raffatellu, MD of the University of California, Irvine will speak as part of the Department of Microbiology-Immunology seminar series.

Time: Noon to 1 p.m.

Location: Robert H Lurie Medical Research Center
Baldwin Auditorium
303 E. Superior [More information](#)

Contact: n-cianciotto@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

Input: Office of Behavioral and Social Sciences Research

Help inform the Office of Behavioral and Social Sciences Research's 2016–2020 Strategic Plan. A request for information (ROI) has been announced to solicit broad public input on the core scientific and policy areas of basic and applied behavioral and social sciences research that hold extraordinary opportunities to achieve the stated mission of the Office of Behavioral and Social Sciences Research and the NIH. The closing date is November 20. [Read more about this ROI.](#)

2016 Grant Application Changes

The NIH is planning changes to policies, forms and instructions for grant applications submitted in 2016. The planned changes focus on the following areas:

- Rigor and transparency in research
- Vertebrate animals
- Inclusion reporting
- Data safety monitoring
- Research training
- Appendices
- Font requirements
- Biosketch clarifications

These changes will be effective for applications submitted for due dates on or after Jan. 25, 2016. [Read more.](#)

Proposed Changes to the Common Rule

This Sept., the Department of Health and Human Services (HHS) published proposed changes to the Common Rule through a Notice of Proposed Rulemaking (NPRM), which is now open for public comment through Dec. 7, 2015.

The NPRM contains many wide-ranging changes to the Common Rule, with the aim of modernizing the current regulations to reflect how research is done today. The proposed changes may affect your current and future studies. Submit your comments as described on the [NPRM website.](#)

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