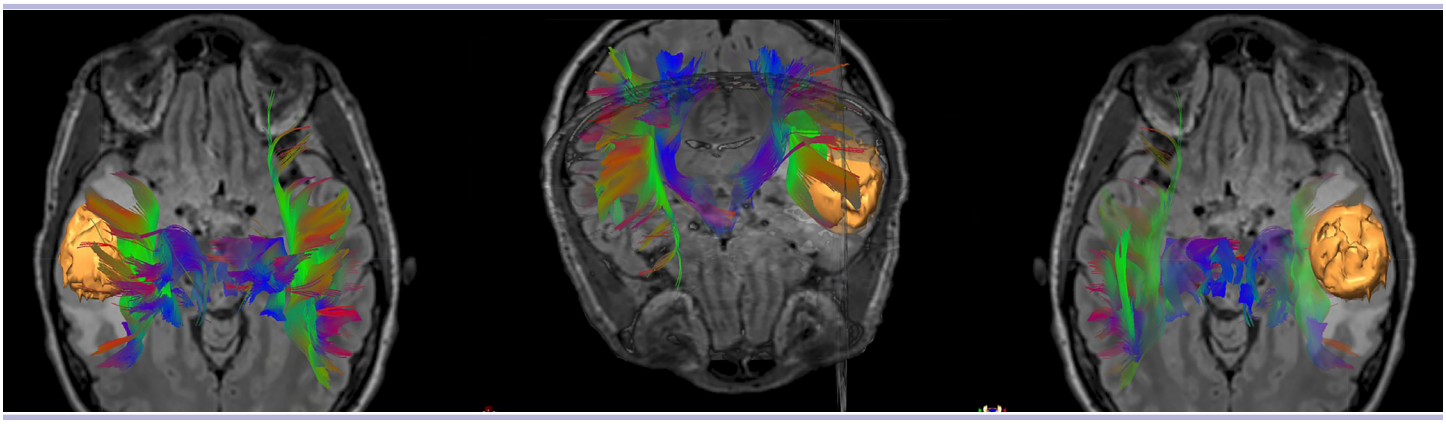
Breakthroughs

Feinberg School of Medicine Research Office

October 2018



Functional MRI images shows presurgical brain mapping of the critical motor and language white matter pathways around a glioblastoma tumor (orange) for a patient enrolled in the SPORE project testing a novel neural stem cell treatment. Images courtesy of Benjamin P. Liu, MD, a co-investigator on the SPORE.

Brain Tumor SPORE Drives Rapid Translation

By Cheryl SooHoo and Will Doss

Feinberg and the Robert H. Lurie Comprehensive Cancer Center of Northwestern University have created a robust research enterprise to improve outcomes for patients with brain tumors.

This goal is especially important for glioblastoma (GBM), one of the most common and aggressive of primary malignant brain cancers. While gains have been made in treating GBM, today's standard of care only yields a median survival rate of 15 months.

In August, Northwestern Medicine scientists obtained a highly competitive $11.5 million grant from the National Cancer Institute (NCI) that supports research to change this sobering reality. With this new award to the Lurie Cancer Center, Northwestern investigators are now leading a Specialized Program of Research Excellence (SPORE) in brain cancer with a special emphasis on GBM.

"Not only is this the first brain tumor SPORE ever awarded in the state of Illinois, but it is also the first SPORE for Northwestern that's not shared with another institution," says Maciej "Matt" Lesniak, MD, the Michael J. Marchese Professor, chair of Neurological Surgery and one of the grant's PIs. "This is truly a transformative opportunity for us."

The NCI's SPORE program advances cancer research focused on specific organ sites, from breast to lung and brain to prostate. It awards institutions around the country that demonstrate they have the talent and resources to bring scientific breakthroughs to the clinical setting. Designed to promote discoveries that rapidly translate to human application of novel cancer therapies, these prestigious grants support projects — typically four — currently in or poised to enter clinical trials.

The NCI stipulates that these studies must touch and significantly benefit the lives of oncology patients within the five-year period of the grant. Earlier this year when Lurie Cancer Center investigators applied for the brain tumor SPORE, two of their proposed GBM studies were already in clinical trials.

Seek and Destroy

One of the Northwestern SPORE projects features the first drug to use spherical nucleic acids to deliver and target gene suppression in tumor cells. Developed by Chad Mirkin, PhD, director of the Northwestern's International Institute for Nanotechnology, and Alexander Stegh, PhD, associate professor of Neurology in the Division of Neuro-Oncology, the novel drug has been shown to cross the blood brain barrier to reach intracranial tumors in animal models. In the phase 0 clinical trial that is ongoing, the drug targets the gene *BCL2L12* to promote therapy-induced apoptosis in glioblastoma. The study seeks to determine if systematically administered nanoparticles reach tumors cells in patients with brain cancer.

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Northwestern Medicine®

SPORE *(continued from cover page)*

A second SPORE project involves a first-of-its kind clinical trial employing neural stem cells, which produce a virus that infects and kills tumor cells. Developed by Lesniak, the cells are injected throughout the resection cavity that remains following surgical removal of the tumor bulk. This phase I study aims to show that the novel stem cell therapy can be safely administered to patients with newly diagnosed GBM and ultimately improve outcomes. To date, eight individuals have participated in the clinical study with promising results, according to Lesniak.

Weakening Tumor Survival

The third project, co-led by Derek Wainwright, PhD, assistant professor of Neurological Surgery, and Microbiology-Immunology, and Rimas Lukas, MD, associate professor of Neurology, involves two immunotherapies for treating glioblastoma. The Wainwright laboratory has studied the influence of an enzyme known as ID01, whose activity suppresses a patient's immune response against their tumor. Devising strategies to block the enzyme with approved IDO1 pharmaceuticals, investigators will inhibit IDO1 while treating with a second therapeutic that further stimulates patient immune response against their tumor. A clinical trial for evaluating this novel therapeutic approach will begin next year.

The final project focuses on an activator of autophagy known as ATG4B. Recently discovered by Shi-Yuan Cheng, PhD, professor of Neurology, this project will investigate the effects of inhibiting this new therapeutic target while treating with either radiotherapy, the cytotoxic drug temozolomide (TMZ), or a combination of radiotherapy and TMZ. The latter, combined radiotherapy and TMZ for treating GBM, is known across the globe as the "Stupp Protocol" — named after renowned neuro-oncologist Roger Stupp, MD, who joined Northwestern Medicine in 2017. Stupp and Leonidas Platanias, MD, PhD, director of the Lurie Cancer Center, are co-investigators on this SPORE project, which will evaluate the effectiveness of NSC185058, a recently discovered inhibitor of ATG4B, for use in patients.

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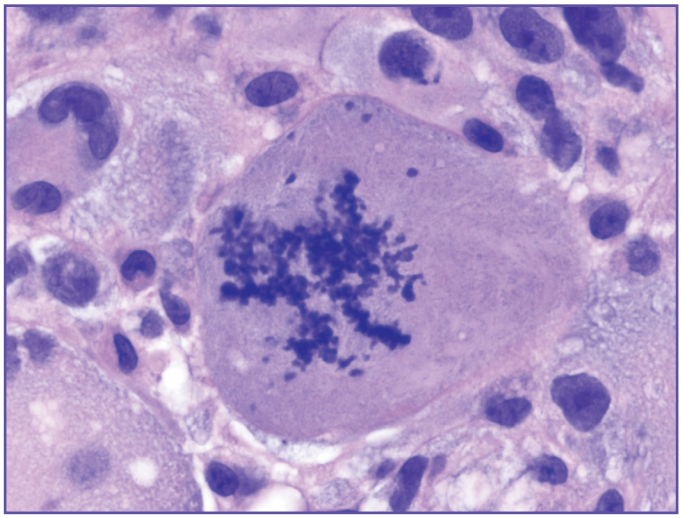

Atypical mitosis in a glioblastoma.
Image courtesy of Craig Horbinski, MD, PhD, who leads the biospecimen core for the SPORE.

A Critical Mass

These new projects require a range of scientific and administrative support, drawing from newly established entities within the Brain Tumor SPORE.

The Biospecimen Core, co-directed by Craig Horbinski, MD, PhD, associate professor of Pathology, and Daniel Brat, MD, PhD, Magerstadt Professor and chair of Pathology, will serve as a source of high-quality samples, collecting up to 400 new tumors and matching blood samples per year from surgical procedures at Northwestern. The Biostatistics and Bioinformatics Core, directed by Denise Scholtens, PhD, chief of Biostatistics in the Department of Preventive Medicine and Neurological Surgery, will manage data collection and storage, provide bioinformatics analysis, and contribute to interpretation of results from preclinical studies and clinical trials.

In addition, a Career Enhancement Program will nurture early stage investigators in neuro-oncology research, and a Developmental Research Program will provide funding for the early development of additional novel approaches for treating glioblastoma that have a strong likelihood of developing into fully-fledged SPORE projects or being spun off into independent translational research initiatives.

Northwestern's large brain tumor enterprise is fertile ground for these future projects, according to C. David James, PhD, the Jean Malnati Miller Professor of Brain Tumor Research and co-PI of the SPORE.

"We have a critical mass of investigators in our brain tumor community who are uniquely focused on a specific brain cancer, said James, who is also vice chair for research in the Department of Neurological Surgery and a professor of Biochemistry and Molecular Genetics. "Very few institutions in the country have a comparable depth and breadth of expertise as exists here."

Three Years of Construction Progress on the Simpson Querrey Biomedical Research Center

By Amber Bemis

Three years after Northwestern University broke ground on the Louis A. Simpson and Kimberly K. Querrey Biomedical Research Center, the exterior of the building and bridge is nearly completed and progress on the interior construction is underway.

From the start, the architectural and interior design for the building has revolved around supporting the scientific work that will be conducted in the building once it is completed. From the extensive foundation system to the connection to the Robert H. Lurie Comprehensive Cancer Center and the floor layout and interior design, every detail has taken the needs of scientists into account.

"The building itself was designed from the inside out. By that I mean the interior lab construction is a framework for the science. We're trying to create a very efficient, functional space to support the research happening at Northwestern," explained Bridget Lesniak, managing principal at Perkins + Will. She leads the architectural and engineering design team and has been involved with the project since the design competition. (See a timeline of the building progress here.)

The building was designed with flexibility, transparency and collaboration in mind. Each floor will have three lab "neighborhoods" featuring glass wall partitions, with open work spaces along the perimeter of the building and high ceilings to allow for maximum natural light and views. Conference spaces and common areas will encourage impromptu meetings between groups.

"The idea of collaborative teams came into play when thinking about the design of the labs. The labs were created to be very flexible to accommodate different research groups, so they can grow and morph over time," Lesniak said.

The building is also connected to the Lurie Cancer Center on a floor-by-floor basis to further connect the scientific community. The ground floor lobby will create a seamless connection between the two buildings, creating one open space along Superior Street that can be used for breakout sessions, lectures and campus events.

In coming months, the team will finish the interior construction on the lab floors, and work on the ground floor lobby and conference center spaces will begin.

"For me, it has been particularly rewarding getting to know and work with Northwestern leadership on this project," Lesniak said. "Also, understanding how much biomedical research has changed healthcare in my lifetime and how important it is moving into the future has made this a very meaningful project personally."

Investigating Sex-Related Differences in Multiple Sclerosis

Melissa Brown, PhD, professor of Microbiology-Immunology

Why are females significantly more susceptible than males to multiple sclerosis and other autoimmune diseases? Within her laboratory at Feinberg, Melissa Brown, PhD, professor of Microbiology-Immunology, aims to answer this question and many others. Brown's research focuses on uncovering basic immune mechanisms that mediate multiple sclerosis, with the goal of using novel findings to develop new and more specific targeted therapies.

Brown is also associate director of student advising in the Medical Scientist Training Program and a member of the Robert H. Lurie Comprehensive Cancer Center of Northwestern University.

Q&A

What are your research interests?

As an immunologist, I am interested in understanding the basic mechanisms that allow proper functioning of the immune system. Although immune cells are essential for providing protection from infectious microbes, some diseases are actually caused by an overly robust immune response. My research focuses primarily on multiple sclerosis (MS), an autoimmune inflammatory disease of the central nervous system (CNS). In this disease, immune cells are directed to attack a person's own tissues — the myelin protein structures surrounding nerves that insulate neuronal axons and facilitate nerve impulse conduction. The ensuing inflammatory damage in the brain and spinal cord leads to a number of sometimes devastating sensory, cognitive and motor deficits.

Like many autoimmune diseases, MS is much more prevalent in women. It has been estimated that females develop MS three to four times more frequently than men. Our laboratory investigates the events that promote CNS inflammation in females, but we are also very interested in determining what confers male-specific protection.

What is the ultimate goal of your research?

Scientists have made great strides in MS research in recent years. Treatments that slow disease progression in patients with relapsing-remitting MS — a form of disease characterized by intermittent periods of disability interspersed with temporary recovery — are particularly promising. However, there are some forms of progressive disease for which there are still no good therapies. Like many scientists in autoimmune disease research, our goal is to identify approaches to effective treatments that do not cause global immune suppression, leaving the ability to fight infection completely intact. There is no cure for MS, and we also hope to uncover pathways that will lead to reversing the damage in the brain and spinal cord.

How does your research advance medical science and knowledge?

It has been recognized for some time that there are striking sex-determined discrepancies in susceptibility to disease. Not only do many autoimmune diseases predominate in women, where female to male ratios can approach 11:1, but women also have a reduced incidence of developing some types of tumors and a more vigorous response to infectious microbes. A combination of X chromosome content, microbiota, genetics and hormones contribute to these differences. However, the precise molecular pathways remain largely undefined.

Our most recent work aims to define the mechanisms that promote male resistance to MS. Several previous mouse and human studies have implicated testosterone, a sex hormone present at levels seven to eight times higher in healthy adult men than women, in blocking immune responses and conferring protection from MS. Yet there is still little information available about how this hormone exerts its effects.

Using a mouse model of MS in which females are susceptible and males are resistant, we have identified a molecular and cellular pathway that explains how testosterone works to suppress harmful immune responses, thus providing an explanation for male-biased disease protection. We show that testosterone activates mast cells to produce the cytokine IL-33. IL-33 then acts on another immune cell, the type 2 innate lymphoid cell (ILC2).

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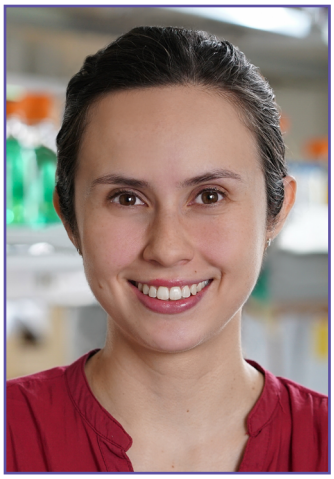
Understanding the Mechanisms of Blood Cancers

Blanca Gutierrez-Diaz, Driskill Graduate Program in Life Sciences



Blanca Gutierrez-Diaz, a second-year student in the Driskill Graduate Program (DGP), studies how relapse after chemotherapy works in T-cell acute lymphoblastic leukemia, an aggressive blood cancer that affects children and adults. Diaz works in the laboratory of Panos Ntziachristos, PhD, assistant professor of Biochemistry and Molecular Genetics and of Medicine in the Division of Hematology and Oncology.

Q&A

Where is your hometown?
I was born and raised in Mexico City, the biggest city and capital of Mexico.

What are your research interests?
I find the hematopoietic system fascinating. I have always been amazed by how a single hematopoietic stem/progenitor cell can give rise to different cell types with such diverse but precise functions. I am also interested in understanding how dysregulations in this fine-tuned system result in blood cancers and what we can do to develop therapeutic strategies to fight leukemia.

What exciting projects are you working on?
I am currently working on two projects related to blood diseases, specifically T-cell acute lymphoblastic leukemia (T-ALL). T-ALL is an aggressive cancer that affects children and adults, and although patients' initial response to treatment is good, chemotherapy treatments have debilitating effects and present a risk of relapse. For these reasons we want to understand how relapse works in T-ALL, focusing on how posttranslational modifications affect chemotherapy response. In one of my projects I am studying how the ubiquitin-proteasomal pathway affects glucocorticoid response, and in the second project I am addressing how leukemic cells deal with chemotherapy damage to their DNA.

What attracted you to the PhD program?
One of the things that attracted me the most to the program was the big number of faculty members with research topics related to cancer. I quickly realized the quality of research and mentorship in this program is extremely good, and I wanted to learn from the best. The fact that Northwestern University is also associated with hospitals such as the Ann and Robert H. Lurie Children's Hospital and Northwestern Memorial Hospital opens up opportunity to do more translational research. In a similar way, I was attracted to the fact that DGP students can pursue a double degree. So, in addition to the PhD degree, I am working towards getting a Master's in Clinical Investigation, which I believe will shorten the gap between my future bench work and clinical research.

What has been your best experience at Feinberg?
It is difficult to choose one, but I will say that the best experiences have come from the people at Feinberg. I feel so lucky to have classmates, coworkers and a mentor that love what they do and are as passionate about their research as I am. I am continually amazed by their work, inspired by their ideas and energized by their enthusiasm.

How would you describe the faculty at Feinberg?
The faculty at Feinberg are very passionate. I admire how much effort and creativity they put into their work. They are also very knowledgeable and always open to collaborations. I have found that these characteristics come extremely handy if you are developing a project.

What do you do in your free time?
I love to explore Chicago. I find this city very interesting and culturally rich. Chicago has a lot of museums and exhibitions, and it is full of art, music, amazing restaurants and very interesting neighborhoods, so there are always a lot of things to do and see.

What are your plans for after graduation?
As a Fulbright scholar, I came to Northwestern University to learn how to do high quality research in order to apply it in my home country. My biggest dream is to become a top Hematology-Oncology researcher who can foster beneficial collaborations between the United States and Mexico. To pursue my objective, I will continue with my postdoctoral training in leukemias and at the same time keep in touch with my collaborators in Mexico.

Watch Blanca Gutierrez Diaz share what the DGP program is like for an international student here.

Full Spectrum of Support for Research Administration

Brandon Greene, Research Administrator, Research Administration Services

Brandon Greene, research administrator in the Office for Research Administration Services, helps Feinberg investigators secure funding for their projects.

Q&A

Where are you originally from?
I grew up in Gresham, South Carolina. It's an extremely small town, roughly 45 minutes from Myrtle Beach, with a population of about 3,000.

What is your educational background?
I attended South Carolina State University, a historically black university, where I obtained an honors degree in accounting.

Please tell us about your professional background.
In college, I was employed as a work study student for the vice president of finance, facilities and management information systems for three years and the office for accounts payable. Working for the vice president of finance was my first job in a professional setting at a university. Post graduation, I was hired by the Office for Sponsored Research (OSR) at Northwestern University, on the Evanston Campus as a grants assistant. I worked in Evanston for a few years before I transferred to OSR's Chicago office. During my time in OSR, I've reviewed many federal and non-federal sponsored proposals and budgets on behalf of numerous departments and schools across Northwestern. I was hired as a research administrator by Research Administration Services at Feinberg in August.

How do you support scientists at the medical school?
In my current role, I'll be supporting Dermatology investigators with their award management and closeout responsibilities.

What is your favorite part of the job?
What I enjoy most about working in research administration is helping investigators obtain funding for research they are passionate about.

What do you like to do in your spare time?
Though I've lived in Chicago for six years, I still feel like a tourist. I enjoy trying new restaurants and attending street fairs and festivals in different neighborhoods. Most of all, I enjoy cooking at home and binge-watching Netflix.

Connect with Brandon on LinkedIn.

Brown *(continued from page 3)*

ILC2s turn off the harmful immune response and prevent disease development. The lower testosterone levels in females are not sufficient to activate this IL-33 pathway.

While it is not practical to treat most patients with testosterone, this information may allow us to ultimately treat with IL-33 or locally activate the IL-33 pathway in affected females. Most promising is the possibility that IL-33 may have a role in the regeneration of neuronal cell function.

How did you become interested in this area of research?
My foray into MS research was quite personal. My youngest brother was a sophomore in college when he developed optic neuritis, often a first sign of MS, after a bout of mononucleosis. He was treated with steroids to suppress inflammation and the neuritis resolved, but a year later he had another episode. Subsequently he developed other symptoms, including episodic seizures, loss of sensation and memory problems. He wasn't definitively diagnosed until several years later. I was already an investigator in immunology, so I had ready access to published scientific information and was eager to learn what was known about MS and what treatments were available to patients.

I was studying the regulation of cytokine production by mast cells, immune cells almost exclusively studied in the context of allergic inflammation at the time. Mast cells are very potent inflammatory cells present in the skin, airways and gastrointestinal tract and are the major source of substances such as histamine and leukotrienes that cause the itching, redness, swelling, mucus production and airway obstruction associated with allergic responses. However, unknown to many, mast cells are also quite numerous in the brain and spinal cord as well as the meninges, structures that are in direct proximity to the brain and spinal cord and enclose the cerebrospinal fluid.

My studies made me realize that mast cells produce many other molecules implicated in the central nervous system inflammation in MS. Although most research had focused on circulating immune T-cells as the orchestrators of brain and spinal cord damage, mast cells have many properties that could significantly increase this inflammation and damage. These ideas were met with a lot of skepticism for many years. However, fast forward and we and others have established critical roles for mast cells not only in MS but in other inflammatory diseases of the central nervous system.

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Research in the News

The New York Times, September 6
Diet and Exercise May Stem Weight Gain of Pregnancy, but Should Begin Early

Alan Peaceman, MD, was quoted.

▶ This research was also featured in *Chicago Tribune* and *Reuters*.

ABC News, September 10
Scientists say they've developed blood test that can detect internal body clock

Ravi Allada, MD, and Phyllis Zee, MD, PhD, were quoted.

▶ This research was also featured in *WebMD*, *HealthDay*, *Chicago Tribune* and *San Francisco Chronicle*.

WebMD, September 11
Blood Sugar Spike in Pregnancy Bad for Mom and Baby

Boyd Metzger, MD, was quoted.

▶ This research was also featured in *HealthDay.*

TIME, September 12
The Placebo Effect Is Real, and Scientists May Be Able To Predict Who Responds

A. Vania Apkarian, PhD, was quoted.

▶ This research was also featured in *WebMD* and *HealthDay*.

Crain's Chicago Business, September 14
The cancer patient had exhausted his options. Enter immunotherapy.

Young Kwang Chae, MD, MPH, MBA, was quoted.

The Washington Post, September 17
Scientists Identify Four Personality Types

Luis Amaral, PhD, was quoted.

▶ This research was also featured in *HealthDay*, *TIME*, *TODAY* and others.

The New York Times, September 18
Why Your DNA Is Still Uncharted Territory

Luis Amaral, PhD, was quoted.

▶ This research was also featured in *HealthDay*.

More media coverage available online.

Northwestern University NUCATS Clinical and Translational Sciences Institute

NUCATS Corner

Commercialize your Biomedical Technology and Innovations

The Center for Translational Innovation (CTI), a partnership between NUCATS and the Innovation and New Ventures Office, offers expertise in technology commercialization and innovation. Whether you are a new faculty member looking to get your innovation to the bedside or a seasoned innovator looking to launch a business, CTI provides resources to propel this process to successful outcomes. CTI offers counsel relating to pilot grant funding, mentorship programs, commercialization clinics and courses, intellectual property protection, business development and regulatory strategy. CTI programs include:

Commercialization Clinic: a consulting service offered to all members of Northwestern who have questions about how to commercialize an idea

INVOHub: an incubator initiative spearheaded by INVO that builds on the university's mission of achieving excellence in research-driven innovation by accelerating translation of its research portfolio to the public

INVOForward: a new Northwestern mentorship program to accelerate biomedical commercialization, such as medical devices, therapeutics and health IT

INVOReach: an initiative that focuses on developing resources to help improve the diversity of inventorship and entrepreneurship at Northwestern. To receive updates on INVOReach, join the email list

N.XT: a gap fund designed to promote early stage technologies to the next stages of commercialization

Explore more CTI resources here or contact Nick Maull at nicholas.maull@northwestern.edu.

Sponsored Research

PI: A. Vania Apkarian, PhD, professor of Physiology, Anesthesiology and Physical Medicine and Rehabilitation

Sponsor: National Institute on Drug Abuse

Title: Center for Chronic Pain and Drug Abuse

Opioid addiction and chronic pain engage the same brain circuitry, the mesolimbic system. Although opiates continue to be prescribed to millions of chronic pain patients, and chronic pain is a primary contributor to the ongoing opiate epidemic, there is virtually no scientific knowledge regarding mechanisms that control the interaction between chronic pain and opioid exposure. This center will be organized to uncover mechanisms that causally control this interaction, and to aggressively search for critical molecules, circuits and biomarkers, and ultimately novel non-addictive treatment options for chronic pain.

The team's overarching hypothesis is that the chronic pain state primes limbic circuitry for opiate abuse and that associated adaptations depend on the duration and dose of both chronic pain and opioid exposure. The hypothesis will be rigorously tested using an array of cutting-edge tools to study the underlying mechanisms from the scale of genes to molecules, circuits and whole-brain anatomy and function, focusing on patients with chronic back pain, the largest and best characterized group of humans at risk for opioid abuse disorder.

Read more about this project and listen to our podcast interview with Apkarian here.

PI: Abel Kho, MD, director of the Center for Health Information Partnerships, and David Cella, PhD, chair of Medical Social Sciences

Sponsor: Agency for Healthcare Research and Quality and the Patient-Centered Outcomes Research Institute

Title: A Chicago Center of Excellence in Learning Health Systems Research Training

The Learning Health System (LHS) is a model in which science, informatics, incentives and culture align to improve care quality and generate novel findings that readily translate directly into routine care. Most training programs focus on supporting knowledge generation but do not support the development of researchers trained to embed within an LHS and efficiently translate their research into patient centered care.

The Chicago Center of Excellence in Learning Health Systems Research Training (ACCELERAT) will develop the next generation of health system transformation leaders with a K12 Scholars Program residing within the Northwestern Institute for Public Health and Medicine. ACCELERAT is anchored by a tightly integrated team of Northwestern University researchers and Northwestern Medicine healthcare quality experts, along with the living laboratory of the 11 healthcare institutions across Chicago that constitute the PCORnet Clinical Data Research Network and the Chicago Area Patient Centered Outcomes Research Network (CAPriCORN).

Read more about this project.

Welcome New Faculty

Stacy Cooper Bailey, PhD, MPH, joins us as associate professor of Medicine in the Division of General Internal Medicine and Geriatrics. Her research focuses on investigating the definition and measurement of health literacy as well as testing low-literacy interventions to help individuals promote, protect and manage their health. The goal of her work to help combat health inequalities in individuals with limited English proficiency and low health literacy.

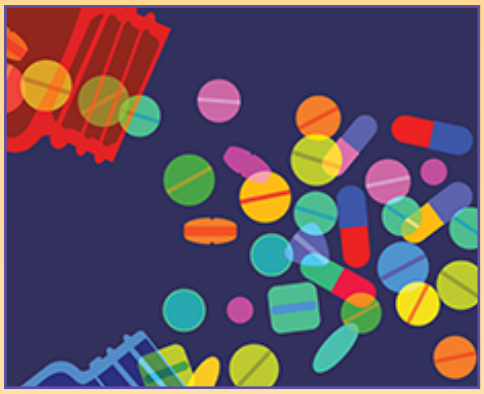
Bailey earned a master's degree in public health from the University of North Carolina and a PhD in public health from the University of Illinois at Chicago. She has published more than 53 peer-reviewed papers and is currently an investigator on several NIH, industry and foundation-funded grants. She has also received numerous awards and honors for her research and teaching achievements.

Brown *(continued from page 6)*

What do you enjoy about teaching and mentoring young scientists in the lab?
Teaching and mentoring are the favorite part of my job. Young scientists bring an enthusiasm and fresh perspective to a project. The majority of the seminal observations our laboratory has published are the direct result of undergraduate and graduate student investigations. There is nothing better than experiencing the joy of a new discovery through their eyes and watching them mature into independent and critical-thinking scientists.

How is your research funded?
My research is funded by the National Institutes of Health and the National Multiple Sclerosis Society.

Latest Podcast Episodes



How to Stop Antibiotic Misuse with Jeffrey Linder, MD, MPH. Listen here.

New Ways to Diagnose Sleep and Circadian Rhythm Disorders with Phyllis Zee, MD, PhD. Listen here.

Subscribe to our podcast and rate it here.

Funding

Ancillary Studies to the NIDDK Inflammatory Bowel Disease (IBD) Genetics Consortium (R01- Clinical Trial Optional)

More information

Sponsors: National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)
Letter of Intent Due: January 21, 2019
Submission Deadline: February 21, 2019
Amount: $200,000 in direct costs per year for a maximum project period of three years

Synopsis: The purpose of this opportunity is to collaborate with NIDDK Inflammatory Bowel Disease Genetics Consortium to expand the number of genes and range of IBD-related phenotypes and physiological domains of previously identified susceptibility loci. Investigators from a wide range of disciplines (e.g., immunology, cell biology, microbiology, bioinformatics, systems biology) are encouraged to respond.

Analytical and/or Clinical Validation of a Candidate Biomarker for Pain (R61/R33 Clinical Trial Optional)

More information

Sponsor: National Institute of Health
Letter of Intent: 30 days prior to the application due date
Submission Deadlines: November 27, 2018; March 7, 2019; November 25, 2019; March 12, 2020
Amount: Budgets are not limited but need to reflect the actual needs of the proposed project.

Synopsis: Eight to 10 grants will be awarded in 2019 in support of the NIH Helping to End Addiction Long-Term (HEAL) Initiative. The goal of this research is to identify biomarkers for pain that define not only how patients experience pain, but also how candidate therapies — including medications, biologics, natural products and devices — engage these molecular targets to ultimately relieve pain.

Clinician-Scientists Transdisciplinary Aging Research (Clin-STAR) Coordinating Center: Synergizing Career Development Toward Improved Care of Older Adults across Specialties and Disciplines (U24 - Clinical Trial Optional)

More information

Sponsor: National Institute of Aging
Letter of Intent Due: January 4, 2019
Submission Deadline: February 4, 2019

Amount: $1 M for a maximum project period of five years

Synopsis: This grant will support the development of a Clinician-Scientists Transdisciplinary Aging Research Coordinating Center that will organize activities and provide research resources for clinician-investigators focusing their careers on aging research.

View more funding opportunities

Designing Equitable Foundations for Open Knowledge, Open Access Week

By Karen Gutzman, digital innovations specialist, and Sara Gonzales, data librarian

Every October, libraries, societies, publishers and authors around the world gear up to celebrate International Open Access Week. Now in its 11th year, and this year happening October 24 to 30, Open Access Week is an opportunity to discuss and explore the economy of information access. This year's theme, *Designing Equitable Foundations for Open Knowledge*, focuses on building open systems of knowledge that are inclusive, equitable and truly serve the needs of a diverse global community.

Open Access Week Activities

- **Quiz in Galter Library Atrium.** Visit our library's atrium to take an interactive quiz on open access, earn a sweet treat for your efforts, and learn more about this year's theme.
- **Poster on the Importance of Open Access.** Check out the Galter Library News site to view a graphic representation detailing the importance of Open Access Week for the various stakeholder groups at Northwestern.
- **Screening of the movie, "Paywall: The Business of Scholarship."** Join us on Wednesday, October 24, at 3 p.m. in the Hughes Auditorium for a movie that focuses on the need for open access in research and science. There will be time for discussion directly after the movie. See the movie trailer here.

Open access journals have leveled the playing field for many scientists seeking to publish affordably. Likewise publicly available datasets have facilitated the work of those needing datasets for preliminary or feasibility studies, or multi-cohort studies. Open datasets have fueled the work of citizen scientists, leading to breakthroughs in research and an increase in enthusiasm for science among crowdsourced project participants. While great work in open access has been done, next-generation technologies are opening the door to even greater possibilities. At Galter Library, we hope to highlight advances in open access publishing and spotlight the contributions of our staff in building equitable open systems for knowledge sharing.

Galter Library is also celebrating three years of DigitalHub, Northwestern Medicine's institutional repository. Expect demonstrations showcasing new features and recent uploads to DigitalHub in Galter Library's atrium throughout the week.

Finally, Galter Library will highlight Northwestern University's partnership with the Center for Data to Health (CD2H), the data and informatics coordinating hub for the National Center for Advancing Translational Sciences at NIH. Among the many ongoing projects at the CD2H that support openness, Galter Library's Digital Systems team is working collaboratively with partners to advance open access through repositories and other digital resources. Join us in our library's atrium throughout the week for a sneak peak at the team's progress on their projects.

High-Impact Factor Research

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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, October 11 – 14

Lynn Sage Breast Cancer Symposium

Northwestern Medicine and the Robert H. Lurie Comprehensive Cancer Center of Northwestern University will host their 20th annual symposium focused on leading-edge technology and the multidisciplinary approach required to manage today's breast cancer patient. This four-day event will feature lectures by William Gradishar, MD, Mary Disis, MD, and many others.

Location: **Chicago Marriott Downtown Magnificent Mile**
540 N. Michigan Ave., 7th Floor

Contact: cancer@northwestern.edu

Registration and other information

Tuesday, October 23

Microbiology-Immunology Lecture

Guest speaker, Lena Al-Harthi, PhD, professor of Microbial Pathogens and Immunity at Rush Medical College, will present "HIV Sanctuary Sites: The Brain/Peripheral Organ Connection." Al-Harthi will share her research regarding the role of the brain — particularly astrocytes — as an HIV reservoir.

Time: **Noon to 1:00 p.m.**

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

Contact: naghavi@northwestern.edu

More information

Thursday, October 25

Women in Medicine Symposium

The aim of this inaugural symposium is to empower women in medicine and to facilitate career advancement by identifying barriers prevalent in medicine and finding ways to initiate constructive solutions. The conference will also allow for networking, bringing together leaders of various clinical specialties.

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

Location: **Prentice Women's Hospital**
Conference Room L (3rd Floor)
250 E. Superior St.

Contact: rana.khalifeh@northwestern.edu

More information

More research events here.

NIH News

Helping to End Addiction Long-term (HEAL) Initiative Update

The NIH has responded to the prescription opioid and heroin epidemic, announcing the launch of HEAL Initiative earlier this year at the April 2018 National Rx Drug Abuse and Heroin Summit and outlining the Initiative's research plan in a JAMA article in June.

More recently, the HEAL Inititaive and the NIH Common fund announced the innovative Acute to Chronic Pain Signatures to understand the origins of chronic pain. The program is aimed at developing objective biomarkers that form a "signature" that can predict which patients are more likely to transition to chronic pain after an acute episode. This knowledge will guide pain prevention strategies and support the development of new therapies.

Awards totaling $9.4 million over three years in research grants to study the impact of behavioral interventions for the prevention of opioid use disorder (OUID), or as a compliment to medication-assisted treatment of OUID have also been announced. Several new funding opportunities have already been listed (RFA-NS-18-042, RFA-NS-18-043, NOT-NS-18-058, NOT-NS-18-057, RFA-DA-19-016, RFA-DA-19-017), with more to follow in the coming months. A funding opportunity related to opioid abuse research has been included in this month's Breakthroughs Funding section. Learn more about this opportunity.

Changing the Culture of Science to End Sexual Harassment

In a report by the National Academies, a project funded by NIH and other government science agencies, it was concluded that there is no evidence that current policies, procedure and approaches have significantly reduced sexual harassment in academic sciences, engineering and medicine. Francis Collins, MD, PhD, NIH director, issued a statement describing NIH's commitment to address sexual harassment wherever NIH-funded activities take place. Additionally, in order increase transparency, NIH launched an anti-sexual harassment website that outlines continued efforts to counter this issue. Read Collins' full statement here.

NIH Resources: Research Performance Progress Reports

A new resource provides a quick look at the annual, interim and final Research Performance Progress Reports (RPPRs), including information such as due dates and how to access RPPR links. It also charts what happens to the interim RPPR when a Type 2 competing renewal application is submitted. Check out the guide here.

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