

Breakthroughs

Feinberg School of Medicine Research Office

September 2023



Feinberg Investigators Identify How a Residential Neighborhood Can Impact Health

By Olivia Dimmer

While it's well known that a person's lifestyle choices have profound effects on lifelong health, recent research has shown that a person's environment plays a major role in everything from life expectancy to pregnancy outcomes.

In 2022, Feinberg established research into social determinants of health as a priority. To better understand the impact of social determinants of health on health outcomes, Feinberg investigators have been leading studies that provide new insights into how a person's neighborhood can positively or negatively affect their health.

Segregation Shortens Life Expectancies for Black Residents

A study led by [Sadiya Khan, MD, MSc](#), the Magerstadt Professor of Cardiovascular Epidemiology in the Department of [Medicine, found that](#) Black residents living in highly segregated neighborhoods have significantly shortened life expectancies. [Published](#) in *JAMA Health Forum*, the study found that life expectancies of people in highly segregated areas are four years shorter on average compared to residents living in less segregated predominantly white neighborhoods.

The investigators examined 63,694 census tracts across the U.S. and found the national average life expectancy was 78 years old. In predominantly Black neighborhoods with high racial segregation, the average life expectancy was 75 years old, which is significantly lower than the average life expectancy of 79 years old in neighborhoods with low racial segregation.

"A common phrase is 'your zip code is more important than your genetic code,'" said Khan. "At a broader level, we've learned much about the health consequences of adverse social determinants of health, but we were trying to better understand on a local level what the implications of racial segregation are on life expectancy.

"By looking at this on the state or county level, you often don't get at the impact of segregation at the neighborhood level; this emphasizes the importance of the local environment in which one resides," Khan said. "Cook County is a great example of this, with significant variation in life expectancy from among the highest in a neighborhood like Streeterville compared with the lowest in the south side of Chicago."

Although previous research has examined life expectancy among racially segregated populations by state and county, this study is the first to analyze life expectancy by neighborhood. Residents in more segregated areas were more likely to lack a college education, live below the federal poverty line and be unemployed.

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Neighborhood *(continued from cover page)*

“For some time, we’ve studied neighborhood traits associated with health outcomes, but this is among the first studies associating segregation per se at the local level with health outcomes,” said senior author [Kiarri Kershaw, PhD, MPH](#), associate professor of [Preventive Medicine](#) in the Division of [Epidemiology](#). “The solution is less about the decision of where people live and more about changing the circumstances in which they live.”

Access to Green Space Slows Biologic Aging

While segregation in neighborhoods has shown to negatively impact life expectancy, being surrounded by green spaces was associated with a positive outcome, slower biological aging, according to a study [published](#) in *Science Advances*.

People who lived near more green spaces were biologically two and a half years younger, on average, than those who live near less greenness. The benefits of green spaces were not equal, however, as scientists found variations in race, sex and socioeconomic status.

“When we think about staying healthy as we get older, we usually focus on things like eating well, exercising and getting enough sleep,” said Kyeezu Kim, PhD, first author on the study and a postdoctoral scholar in Preventive Medicine. “However, our research shows that the environment we live in, specifically our community and access to green spaces, is also important for staying healthy as we age.”

The study is the first to investigate the effect of long-term exposure on urban green space and biological aging, specifically using DNA methylation-based epigenetic age. This refers to chemical changes in DNA that may influence various age-related health outcomes. Epigenetic age is a biomarker of aging associated with age-related disease and all-cause mortality.

The study involved more than 900 individuals residing in four cities across the U.S. and represents a subset of a larger-scale cohort study conducted in the U.S., the Coronary Artery Risk Development in Young Adults (CARDIA).

Using satellite imaging, investigators evaluated the 20-year exposure to surrounding green spaces, which allowed them to quantify the overall vegetation (greenness proportion) as well as the presence of major parks near the participants’ residences. To assess participants’ biological age, scientists analyzed their blood DNA methylation.

“Our study highlights that the natural environment, like green space, affects your health at a molecular level (changes in DNA methylation), which was detectable in blood,” said senior author [Lifang Hou, MD, PhD](#), chief of [Cancer Epidemiology and Prevention](#) in the Department of Preventive Medicine and senior author of the study. “Our research team has extensively investigated the molecular-level changes associated with various age-related health outcomes, including cardiovascular disease, cancer, cognitive function and mortality. This particular study contributes to our understanding of how the natural environment influences these health outcomes.”

Because there were disparities observed based on race, sex and socioeconomic status, more research is needed to investigate the role of social determinants of health in relation to the surrounding environment and healthy aging, Kim said.

“We believe our findings have significant implications for urban planning in terms of expanding green infrastructure to promote public health and reduce health disparities,” Kim said.

Perceived Neighborhood Safety Can Impact Maternal Health

Another Northwestern-led study found that pregnant people who report feeling unsafe in their neighborhood are more likely to experience depression during pregnancy and have a baby with a low birth weight. This study was [published](#) in *JAMA Network Open* and led by Julia Carter, a fourth-year medical student.

“There have been several studies about the association between neighborhood crime and adverse pregnancy outcomes, but very little on this more subjective concept of perceived neighborhood safety,” Carter said. “That’s what we wanted to explore: to see how one’s perception of safety, which is a different concept than actual reported neighborhood crime, could influence their own health. Poor neighborhood perception may influence health outcomes through a direct biological pathway by increasing levels of maternal stress, which is well-known to impact pregnancy outcomes.”

In the study, nearly 30,000 pregnant people from eight different states in the U.S. who participated in the CDC’s Pregnancy Risk Assessment Monitoring System (PRAMS) were asked about the perceived safety of their neighborhood. Roughly 78 percent reported they never felt unsafe in their neighborhood, 14 percent said they rarely felt unsafe, five percent sometimes felt unsafe and three percent always or often felt unsafe.

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Research Day 2023 Celebrates Scientific Discoveries and Collaboration

By Melissa Rohman

Feinberg investigators, students, trainees and faculty gathered to celebrate discovery and presented scientific research posters and abstracts at Feinberg's 17th annual [Lewis Landsberg Research Day](#) on Thursday, Sept. 14.

[Rex Chisholm, PhD](#), vice dean for scientific affairs and graduate education, welcomed attendees to the celebration and presented the Medical Faculty Council [Mentors of the Year](#) and [Tripartite Legacy Faculty Prize in Translational Science and Education](#) awards to three Feinberg faculty members.

"Research Day is one of the highlights of the scientific year on the Feinberg calendar, and it's a great opportunity for us all to share the fantastic science that we're all participating in and an opportunity to form new collaborations," said Chisholm, who is also the Adam and Richard T. Lind Professor of Medical Genetics and a professor of [Cell and Molecular Biology](#) and of [Surgery](#).

The keynote address was delivered by Craig B. Thompson, MD, former president and chief executive officer of Memorial Sloan Kettering Cancer Center from 2010 to September 2022. Thompson continues to oversee the Craig Thompson Lab at Sloan Kettering, which studies cellular metabolism and its role in disease and cancer.

"There's nothing more exciting than using a teamwork-based approach to see if what can be broken can actually be corrected using modern drug discovery and clinical trial science, and the ultimate goal is to get ahead of disease and prevent it," Thompson said.

Following the keynote, attendees explored more than 460 research poster presentations held across campus at the [Louis A. Simpson and Kimberly K. Querrey Biomedical Research Center](#), the [Robert H. Lurie Medical Research Center](#) and the [Northwestern Memorial Hospital Feinberg Pavilion](#).

Attendees had the opportunity to not only browse different posters and abstracts, but also speak with investigators of all career stages to learn more about their work.

Prophecy Agyare, a research study coordinator for the [Center for Applied Health Research on Aging](#), presented her research project which explored how social and economic instability can impact physical function and mental health outcomes in middle-aged adults.



Her study, which included 379 middle-aged patients at ambulatory health centers across Chicago, found that patients who identified as socially unstable were more likely to have chronic conditions, depression and anxiety symptoms, greater fatigue and worse physical function than patients who did not.

"We were looking at middle-age life factors, so things that one does in your daily life, like sleep, diet, stress and exercise, which contribute to memory and cognitive skills," Agyare said. "Looking at factors during your middle age is really important because if we can see what is associated with cognitive decline earlier on in life, it can help people who are doing research on Alzheimer's or dementia to address these things during middle-age, which can encourage more preventive care."

For her research project, third-year medical student Rachelle Liu aimed to identify perceived determinants of food allergies among children and adults in the U.S. Liu and her team administered a cross-sectional survey to patients and caregivers, resulting in nationally representative data for more than 38,000 children and 40,000 adults. According to their results, in adults and children with a physician-confirmed food allergy, the determinant most perceived to be associated with development of a food allergy was eating too much of the allergenic food, followed by genetics and family history, antibiotic use and eating too little of the allergenic food.

"I think it's really important to understand what people think so we can guide future education, the messaging around future treatments, current therapies, how parents introduce food to their children... it's really a foray into thinking about what people think," Liu said.

Ivan De La Riva-Morales, MD, a resident in pathology, presented his research project which investigated the histological and biochemical alterations of orchiectomy specimens in transgender patients who have undergone gender-affirming orchiectomies, or surgical removal of the testes.

By studying histological sections from gender-affirming orchiectomies performed at Northwestern Memorial Hospital from 2018 to 2022, his team found that all testes from gender-affirming orchiectomies exhibited significantly reduced spermatogenesis and did not contain any known biomarkers for testicular cancer.

Research Day 2023 *(continued from page 3)*

"There is no evidence of neoplasms or increased risk of neoplasms in these cases, and there is no strong correlation between the types of [hormone] therapies and the degree of testicular atrophy," De La Riva-Morales said.

AWARDS

Each year, awards are given for excellence in basic science, clinical and public health and social sciences research. [Review the list of awardees.](#)

Additionally, faculty awards are presented annually to three awardees: two Mentor of the Year and the Tripartite Legacy Faculty Prize in Translational Science and Education.

This year [Judith Moskowitz, PhD, MPH](#), professor of Medical Social Sciences, and [Daniela Ladner, MD, MPH](#), the John Benjamin Murphy Professor and vice chair of research and innovation in the Department of Surgery were presented with Mentor of the Year awards.



Moskowitz, above, and Ladner, below.

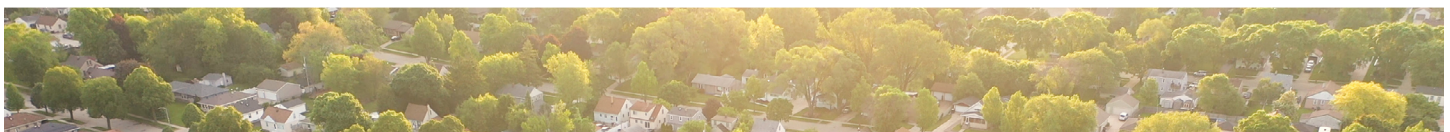
The Tripartite Prize was presented to [David Cella, PhD](#), professor of Medical Social Sciences, director of the Center for Patient-Centered Outcomes within the Institute of Public Health and Medicine and the Ralph Seal Paffenbarger Chair Emeritus in the Department of Medical Social Sciences.



The Alliance for Research in Chicagoland Communities' (ARCC) Annual Award was presented to Teen Mental Health Services within Public Libraries Partnership. This is a partnership between the Oak Park Public Library (lead: Robert Simmons, MA) and Northwestern University (lead: [Ashley Knapp, PhD](#), assistant professor of [Psychiatry and Behavioral Sciences](#) and of [Preventive Medicine](#)). Read more [about the award](#).



Mark your calendars for Research Day 2024: Thursday, September 12.



Neighborhood *(continued from page 2)*

The findings highlight the influences of individual- and community-level social determinants of health, Carter said.

"This study has a zoomed-in, specific focus on perceived neighborhood safety and pregnancy outcomes, but our findings are relevant to a broader scope of social determinants of health in general," Carter said. "Addressing these issues must take place beyond the clinic and the hospital. It's really important to recognize these factors that could be playing a role in the patient's health."

Future work is still needed to see what interventions would be helpful in addressing these disparities, said [Lynn Yee, MD, MPH](#), the Thomas J. Watkins Memorial Professor of [Obstetrics and Gynecology](#) and senior author of the study.

"Our team was struck by these findings, particularly the relationship of low perceived neighborhood safety to the significantly increased risk of perinatal depression. We know there is a maternal mental health crisis in the U.S., and our work speaks to the importance of not just addressing

mental health in the clinic and via direct patient care, but by developing interventions on a community and societal level, too," Yee said. "The growing body of literature on adverse community and neighborhood social determinants of health, such as neighborhood safety, represents a call to action – we need social policies that better support the health of pregnant people and their families."

Moving Forward

All these study findings could help inform policy decisions to improve overall health in the U.S. Social determinants of health are beyond individual level issues like blood pressure or cholesterol, Khan said.

"...Without tackling [social determinant of health] on a bigger level, making sure there's equity in terms of educational opportunities, employment and a healthy environment without air pollution or excessive heat exposure at the local level where people are born, live and grow, we are going to miss a large part of what's already happened before people walk into our clinics."

Feinberg Receives Record-Breaking Research Funding in 2023

By Haleigh Ehmsen

Feinberg principal investigators secured [\\$706 million](#) in research funding and awards during the 2022-23 fiscal year, which is a nearly nine percent increase over the previous year, and the largest amount in the school's history. More than 70 percent of Northwestern University's total research funding dollars come from Feinberg; this year the University received more than \$1 billion in research funding.

The all-time high research funding supports research projects with transformative potential in basic science, clinical research and translational developments. In the last academic year, Feinberg faculty members published 328 research articles in the most prominent and prestigious journals, an increase of 257 percent from 2011.

Recent published breakthroughs from Feinberg investigators included discovering why [some cells become resistant to cancer therapies](#); explaining how [mitochondria regulate cellular signaling](#) for proper lung development; uncovering the [molecular underpinnings of inflammation](#); and [developing new, targeted cancer treatments](#).

"Due to the creativity and hard work of our faculty we had another stellar year of continued growth and funding," said [Rex Chisholm, PhD](#), vice dean for scientific affairs and graduate education and the Adam and Richard T. Lind Professor of Medical Genetics. "Our year-over-year growth is quite remarkable, and we are excited to see this funded research come to fruition in laboratories and eventually in clinical spaces."

"This incredible milestone speaks to the work of our faculty and their dedication to improving human health," said [Dean Eric G. Neilson, MD](#), vice president for medical affairs and Lewis Landsberg Dean. "I want to extend my gratitude to the faculty who are passionately pursuing research in their fields for the betterment of all humankind and contributing to this record-breaking funding year."



Roughly 28 percent of awarded funds were allocated towards basic science department funding and 72 percent towards clinical department funding. Of the total, \$477 million was awarded from the National Institutes of Health (NIH), a more than six percent increase in funding from the NIH over the previous fiscal year. Individual grant awards included 73 individual research fellowships (F awards), 66 career development awards (K awards) and 30 training grants (T awards).

Over the last 11 years, Feinberg's NIH portfolio has grown by 129 percent, from \$208 million to \$477 million per year. At the same time, the medical school's overall research portfolio has grown by 124 percent.

Approximately 6,658 clinical trials and research studies were conducted at Feinberg in the 2022-2023 academic year, led by 694 principal investigators. Additionally, a total of 40 patents and six new start-up companies were established within the last fiscal year alone.

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Campus Events and Opportunities

Third Coast Center for AIDS Research 2023 Symposium

October 16, 10:30 a.m. to 6:00 p.m.

The Third Coast Center for AIDS Research 2023 Symposium will feature Chicago investigators advancing HIV science. The event will showcase the work of investigators based at local institutions including Northwestern University, RUSH University, University of Chicago and University of Illinois at Chicago. The event will also offer opportunities for cross-disciplinary scientific engagement. The symposium will conclude with an engaging poster session and reception with beverages and hors d'oeuvres.

**Prentice Women's Hospital
Prentice Harris Family Atrium
250 E. Superior St., Chicago**
[More information](#)

2023 One Book Keynote With Michelle Zauner in Conversation with History Professor Ji-Yeon Yuh

October 18, Noon to 1:00 p.m.

Join us for the One Book lunch keynote with Michelle Zauner, author of the New York Times bestseller *Crying in H Mart*. Zauner will be joined in conversation with One Book faculty chair and history professor Ji-Yeon Yuh. A book signing and buffet lunch will follow the keynote conversation in Potocsnak Family Atrium. [Registration is required.](#)

**Robert H. Lurie Medical Research Center
Hughes Auditorium
303 E. Superior St., Chicago**
[More information](#)

Chicagoland K Day Event

October 25, 2:00 to 6:00 p.m.

K Day will feature talks and small group discussions on topics such as: work-life integration and resilience, how to build a mentoring team and navigating career development. End the event with a social hour while connecting with other attendees over beverages and appetizers. This event is ideal for early career faculty or postdocs who are pursuing or working towards a clinical or translational K award. [Registration is required here.](#)

**Robert H. Lurie Medical Research Center
Hughes Auditorium
303 E. Superior St., Chicago**
[More information](#)

Confessions of a Cockney Temple Dancer

October 26, 7:30 to 9:30 p.m.

We all present different faces to the world, but some are more different than most. In this funny and visually stunning one-person show, Shane Shambhu reveals the secret life he kept from his school friends while growing up in the cultural melting pot of East London while training in the Indian performing art of Bharatanatyam. Combining physical theatre, spoken word, Indian dance, film, and an original score, this coming-of-age story draws on creator Shane Shambhu's lived experience, capturing the multiple identities that the children of migrants develop growing up in the UK, showing one face at home and another to the outside world.

**Abbot Hall, Wirtz Theater (Room 203)
710 N. Lake Shore Dr., Chicago**
[More information](#)

Research in the News

***The Washington Post*, August 1**

[Infant Peanut Exposure Can Prevent Allergies, But Parents Worry](#)
Ruchi Gupta, MD, MPH, was featured.

***ABC 7 Chicago*, August 5**

[Back to School: How Parents Can Help Kids Manage Stress, Anxiety](#)
Ellen Astrachan-Fletcher, PhD, was featured.

***TIME*, August 11**

[Celebrities Are Getting Full-Body Health Scans – Should You?](#)
Jeffrey Linder, MD, MPH, FACP, was featured.

***USA Today*, August 19**

[Dads Develop Postpartum Depression, Too, And It Can Impact Their Child's Mental Health](#)
Sheehan Fisher, PhD, was featured.

***CBS Chicago*, August 23**

[Heat Stroke vs. Heat Exhaustion: Know the Difference and How to Avoid Both](#)
Javier Guevara, MD, FAAP, was featured.

***Chicago Tribune*, August 25**

[Chicago COVID-19 Cases and Hospitalizations on the Rise; Northwestern Team Warns of Undiagnosed Long-COVID Consequences](#)
Igor Koralnik, MD, was featured.

Expanding Access to Mental Health Resources and Disability Services for Children and Families

Heather Risser, PhD, assistant professor of Psychiatry and Behavioral Sciences



Heather Risser, PhD, is an assistant professor of [Psychiatry and Behavioral Sciences](#) and associate director of the [Mental Health Services and Policy Program](#).

Risser's research focuses on violence prevention, child welfare, parenting and access to parenting and mental health

promotion services for underserved children and families. She leads the [Family CARE \(Coaching, Advocacy, Resources and Evaluation\) Parenting Lab](#) at Feinberg, which strives to maximize parent and child wellbeing by identifying specific disparities in care access as well as developing targeted programs that address parent and child needs through conducting community-engaged research. Risser is also a principal investigator for Illinois Department of Children and Family Services (DCFS) and her team supports DCFS to implement decision-support strategies and outcomes measurement.

What are your research interests?

I'm passionate about children's mental health. My research examines opportunities for parents and community partners to promote children's mental health, heal from violence, improve access to disability services and lead healthier lives.

What is the ultimate goal of your research?

Right now, there are so many barriers preventing parents from accessing services for their children. Sometimes the services they can access aren't the right fit because they weren't created with community needs in mind. By treating parents as equal partners in the research process, we hope to shift what and how services are provided to truly meet families' needs.

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

Across campus I am part of the Disability Health Service Research workgroup. Everyone in this group is doing important work around increasing service access for people living with disabilities. As the parent of a child with disabilities, I know firsthand how important it is for parents to get developmentally relevant resources to support their children. The Chicagoland Autism Connection and the National Association for Down Syndrome are community partners in this work.

I am thrilled to work with Emily Miller at Alpert Medical School of Brown University and [Sheehan Fisher, PhD](#), at Feinberg to provide perinatal depression prevention services for expectant parents and the staff at Prentice Women's Hospital NICU to provide support to parents.

Beyond campus, I have been fortunate to be a member of the Collaborative on Healthy Parenting in Primary Care sponsored by the National Academies of Sciences, Engineering and Medicine; the Clinical and Translational Science Awards Engaging Individuals with Disability in the Research Process Workgroup; and the National Partnership to End Interpersonal Violence.

How is your research funded?

Some of my work has been funded by the Agency for Healthcare Research and Quality and the Substance Abuse and Mental Health Services Administration, but the bulk my work has been funded by state grants administered by the Illinois Department of Children and Family Services, the Illinois Criminal Justice Information Authority and the Illinois Department of Human Services. I'd like to acknowledge the Ken and Ruth Davee Award for Innovative Investigations in Affective Disorders, which funded preliminary data collection that led to first National Institutes of Health application getting scored.

Where have you recently published papers?

My research has been published in [Clinical Psychology Review](#), [the Journal of Adolescent Health](#), [the Journal of Pediatrics](#) and others.

Who inspires you? Or who are your mentors?

More people than I have space to list, but my mentors include [Katherine Wisner](#), [Tina Boisseau](#), [Rick McGee](#), Sheehan Fisher, [Stew Shankman](#) and [Jason Washburn](#). I want to acknowledge the work of Zoe Vanella and Kevin Allen in Psychiatry and Behavioral Sciences research administration, Jason Hawkins (Sponsored Research Officer) and Elizabeth Rischall (Accounting Services for Research and Sponsored Programs). I can only do what I do because of their expertise and dedication to the research enterprise. I also want to acknowledge the incredible contributions of the current and former students and staff that support our projects at every stage of the research cycle.

I admire the outstanding members of the Disability and Health Services Research workgroup; the dedicated members of the Northwestern Medical [Women's Faculty Organization](#); the innovative faculty and staff in [NUCATS](#); [Bonnie Spring's](#) vision for [teamscience.net](#); the experience and generosity of the faculty and staff in the Department of Psychiatry and Behavioral Sciences; the amazing providers at the Prentice Neonatal Intensive Care Unit and across Lurie Children's Hospital; and the impactful work of the [Center for Community Health](#) and the [Alliance for Research in Chicagoland Communities](#).

Understanding Cancer Development to Improve Clinical Care

Irena Gushterova, third-year PhD student in the Driskill Graduate Program



After completing her undergraduate degree in biochemistry at the University of Tampa, her master's degree in biotechnology at Columbia University and working as a research associate at Massachusetts General Hospital in Boston, Gushterova joined Northwestern as PhD candidate and works in the laboratory of Lillian Eichner, PhD, assistant professor of [Biochemistry and Molecular Genetics](#).

Where is your hometown?

I am originally from Skopje, Macedonia but have lived in the U.S. for the past 12 years. In the U.S., I consider Naples, Florida to be my hometown.

What sparked your interest in science or medicine?

Since I was a child, I always enjoyed learning about how things work and wondered about the unknown. The first time I found science very intriguing is when I studied about how the discovery of DNA has revolutionized our understanding of life. Naturally, my fascination with DNA ignited my curiosity to delve deeper into the world of science. However, what truly cultivated my love for science is the strong support and guidance I have received from both my family and mentors throughout the years.

What are your research interests?

I have a long-standing passion for studying the complex processes underlying cancer development. When I was introduced to translational research, I recognized how challenging it is to translate genomic findings into effective clinical care. Since then, I've developed a passion in applying multidisciplinary approaches to uncover how genomic alterations contribute to tumorigenesis, with the goal of identifying novel therapeutic targets.

What are you currently working on?

My thesis project in Dr. Eichner's lab focuses on characterizing and defining the role of the Class IIa Histone Deacetylases (HDACs) as transcriptional regulators in LKB1 mutant non-small cell lung cancer (NSCLC). There is a lack of understanding how LKB1 loss leads to a unique transcriptional signature that is clinically observed in lung tumors. Our preliminary data suggests that the Class IIa HDACs are key effectors downstream of LKB1 loss. I apply different genomic approaches on both lung cancer cell lines and genetically engineered mouse models of lung cancer to identify how the Class IIa HDACs contribute to the LKB1-specific transcriptional program. Overall, our goal is to gain a better understanding of the mechanism that underlies LKB1-dependent transcriptional deregulation and identify specific weaknesses that may pave the way for new therapeutic strategies for NSCLC patients.

What is a defining moment in your education at Feinberg thus far?

I am very grateful that at Feinberg I am a part of a very supportive, interdisciplinary and collaborative research environment. That has been crucial in facilitating my professional growth, providing me with opportunities to enhance the quality and scope of my research endeavors. I am eager to continue to make the most of my time here as a PhD student and use it as a stepping stone toward becoming a well-rounded scientist.

What do you hope to do with your degree?

I am not set on a particular path. I would like to try a position in a biotech start-up environment and/or in biotech venture capital. Overall, I like to stay open-minded, embrace the uncertainty and take on any new experiences.

New Faculty

[Andrea E. Spencer, MD](#), joined Feinberg in March as associate professor of [Psychiatry and Behavioral Sciences](#) in the [Division of Child and Adolescent Psychiatry](#). She is also vice chair for research in the Pritzker Department of Psychiatry and Behavioral Health at Ann and Robert H. Lurie Children's Hospital of Chicago. Her research mainly currently focuses on developing and testing innovative methods to improve and reduce disparities in ADHD treatment and outcomes. Her research has been supported by the National Institute of Mental Health, Gordon and Betty Moore Foundation, Charles H. Hood Foundation and Klingenstein Third Generation Foundation. She is a bilingual medical provider (Spanish/English) and strives to conduct research studies and develop interventions in multiple languages. Spencer received her bachelor's degree in music from Yale College in 2003 and her medical degree from Harvard Medical School in 2008.



Providing Regulatory Support for Clinical Research

Ashley Bowman, senior regulatory coordinator for NUCATS



Ashley Bowman is senior regulatory coordinator for the Northwestern University Clinical and Translational Sciences Institute (NUCATS).

Bowman graduated with a bachelor of science in community health from the University of Illinois at Urbana-Champaign, and went on to earn a master's in healthcare administration from Purdue University Global.

She previously served as a senior regulatory coordinator at Bluhm Cardiovascular Institute and worked in clinical operations research at Hollister Incorporated. Her passion for the clinical administrative environment led her back to Northwestern to join NUCATS.

In her current role, Bowman bridges the gap between ethics, medical research and human impact.

Where is your hometown?

Chicago

What led you to Northwestern?

A growth opportunity led me to Northwestern. I decided to leave another large medical institution in Chicago for job growth and a shift in culture and work environment. Upon being exposed to the Northwestern culture, it truly felt like a fantastic work home and as far as research, I knew that Northwestern has been eager to break through barriers in the clinical trial research realm.

What are you currently working on?

Within NUCATS Center for Clinical Research (CCR) Regulatory Unit, we are in the process of continuing to build trusting relationships amongst different departments and study teams as we open more clinical trial research studies. I am currently overseeing study maintenance for my assigned studies, delegating study tasks to my team and meeting with leadership as we discuss FY24 CCR Regulatory plans.

How does your work support the research enterprise at Feinberg?

The regulatory unit assists investigators with meeting essential regulatory activities, training and general support to Feinberg research staff. My regulatory team consists of five regulatory coordinators who each oversee a variety of studies across departments within Feinberg. Our regulatory study support allows for the PI and study team to effectively screen and enroll patients across the Northwestern campus and Chicagoland area.

Why do you enjoy working at Northwestern?

I enjoy working at Northwestern because I truly feel that the work I do is recognized. I am apart of a team that enjoys the work that they do, and I push myself to perform my best since I am working amongst a great group of individuals. While there are many factors that impact my job satisfaction, my regulatory background and research experiences have been a great contribution that has allowed for me to excel in my role here on the NUCATS CCR team.

Breakthroughs Podcast

How AI Can Improve Healthcare Delivery with Mozzi Etemadi, MD, PhD

Mozziyar "Mozzi" Etemadi, MD, PhD, is supporting the transformation of healthcare delivery and patient care at Northwestern Medicine by bringing engineers into direct contact with clinical providers. In this episode, he talks about the explosion of artificial intelligence in healthcare in recent years and how Northwestern Medicine is using this technology to improve healthcare delivery and patient care.

[Listen to the episode.](#)



NIH News

The FY 2024 Loan Repayment Program Cycle is Here: New Features and Expanded Program

Applications for Fiscal Year (FY) 2024 NIH Loan Repayment Program (LRP) opened on September 1. LRPs can repay up to \$100,000 of qualified educational debt for those who are eligible and agree to perform NIH mission-relevant research. The deadline to submit an application is November 16. The LRPs help recruit and retain highly qualified health professionals to careers in biomedical or behavioral research. Several different extramural LRP categories are available, so please review to see which may be the right fit for your research. The process of applying for and managing an LRP awards is now simpler and more cybersafe. There are two new portals that can be accessed through eRA Commons. The LRP Participant Portal allows rewardees to see their student loans as well as payment and verification history. Research supervisors can use their portal to verify an LRP awardee's research service by answering a series of questions about LRP recipients under their supervision, including their research hours and ensuring they are fulfilling other necessary requirements.

NIH selects Dr. Jeanne Marrazzo as director of the National Institute of Allergy and Infectious Diseases

Jeanne Marrazzo, MD, has been named director of NIH's National Institute of Allergy and Infectious Diseases (NIAID). Dr. Marrazzo is currently the director of the Division of

Infectious Diseases at the University of Alabama at Birmingham. As NIAID director, she will oversee NIAID's budget of \$6.3 billion, which supports research to advance the understanding, diagnosis and treatment of infectious, immunologic and allergic diseases. NIAID supports research at universities and research organizations around the United States and across NIAID's 21 laboratories. NIAID also has a unique mandate to respond to emergency and re-emerging public health threats at home and abroad. The NIAID research response to outbreaks of infectious diseases, from HIV to Ebola to COVID-19, has led to new therapies, vaccines, diagnostic tests and other technologies.

NIH establishes Maternal Health Research Centers of Excellence

The National Institutes of Health has awarded \$24 million in first-year funding to establish Maternal Health Research Centers of Excellence. Part of NIH's Implementing a Maternal Health and Pregnancy Outcomes Vision for Everyone (IMPROVE) initiative, the centers will develop and evaluate innovative approaches to reduce pregnancy-related complications and deaths and promote maternal health equity. The grants are expected to last seven years and total an estimated \$168 million. Research centers will partner with community collaborators, such as state and local public health agencies, community health centers and faith-based organizations. Additionally, the research centers will support training and professional development of maternal health researchers, including those from backgrounds underrepresented in the biomedical research workforce.



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Members of the Northwestern University Clinical and Translational Sciences (NUCATS) Institute who cite the Institute's NIH grant can [email the NUCATS Communications team](#) to have their work further amplified.

Our daily Tweets, weekly NUCATS Minute, monthly newsletter, annual Impact Report and digital news center provide a range of communication channels that reach a broad research community throughout Chicago, Evanston and the national CTSA consortium.

Read the [latest news](#) from NUCATS or visit the [article archive](#) for older highlights.

Science in Translation Podcast

The Institute recently completed its first season of Science in Translation, a podcast featuring Feinberg scientists who are dedicated to accelerating how fast they can move a transformational finding in a lab into a treatment, cure, or solution that will improve human health. Scientists also share how tools and resources available through NUCATS have benefited their careers. Browse all our episodes [here](#).

Annual Impact Report

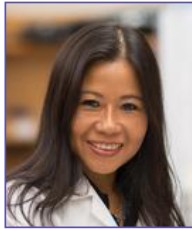
Since launching in 2008, the NUCATS Institute has made an undeniable impact on the scientific landscape. We have supported more than 3,000 academic publications and annually, we facilitate more than \$1 million in competitive pilot research projects that seed new NIH applications. Our annual [Impact Report](#) captures the biggest news each year.

Sponsored Research

PI: [Jennifer Wu, PhD](#), **Mary and Patrick Scanlan**
Professor and professor of Urology and
Microbiology-Immunology

Sponsor: National Cancer Institute

Title: Pathway-guided treatment of immune checkpoint inhibitor therapy-induced colon toxicity



Development of immune-related adverse effects (irAEs) is one of the significant challenges of current approved cancer therapy with immune checkpoint inhibitors (ICIs) of targeting anti-CTLA4 and/or anti-PD1/PDL1. Immune-mediated enterocolitis or inflammatory bowel disease is one of the most frequent and problematic irAE associated with ICI therapy (simplistically termed “ICI-colitis” in the grant). The development of severe ICI-associated enterocolitis is the most frequent cause of ICI therapy cessation and significant morbidity, which inevitably impedes the clinical benefits of ICI therapy. The underlying mechanism of ICI-colitis remains poorly understood. Due to the lack of mechanistic understanding, current treatment of ICI-colitis was empirically adopted from the approaches for the idiopathic inflammatory bowel diseases (IBD), using corticosteroids as the 1st line treatment and targeted anti-TNF α or anti- α 4 β 7 integrin as the 2nd line treatment for corticosteroid failures. For patients with severe ICI-colitis, this approach frequently resulted in a significant delay in resuming ICI therapy or forced permanent cessation of ICI therapy, owing to the complications of corticosteroid use itself. Clearly, it is imperative to understand the molecular and cellular pathways of ICI-colitis to guide a more scientific and effective management and to achieve better clinical outcomes.

In our preliminary studies with colon biopsies from a small cohort (n=18) of ICI-colitis patients, we discovered that ICI-colitis presented two subtypes by molecular pathology and the associated responsiveness to corticosteroid treatment. One subtype has the signature of CD8 T-cell cytotoxicity in the colon and responsiveness to corticosteroids, whereas the other subtype has the molecular signature of the idiopathic IBD and is refractory to corticosteroids but responsive to the second line treatment. The former type was associated with elevated tumor-secreted circulating soluble NKG2D ligand sMIC in the colon and elevated serum IL-18. Notably, we have established unique animal models to recapitulate the sMIC-associated ICI-colitis subtype.

With our novel clinical findings and unique animal models, the objectives of this proposed study are: 1) to establish clinically achievable biochemical parameters that can be used to guide a more effective treatment of ICI-colitis through leveraging a larger cohort of archived clinically-annotated ICI-colitis patient samples; 2) to understand the cellular and molecular mechanisms underlying the subset of ICI-colitis associated with elevated circulating sMIC and IL-18; and 3) to explore more beneficial treatments for sMIC-associated ICI-colitis preclinically. Through the perpetual dialogue between human samples and mouse models, we anticipate that our study will provide the rationales for multi-institutional large cohort clinical trials to validate the parameters for guiding a more effective ICI-colitis management and for a more beneficial therapy to treat ICI-colitis in a subset of patients.

[Learn more about this project.](#)

PI: [Peiwen Chen, PhD](#), **assistant professor of Neurological Surgery**

Sponsor: National Institute of Neurological Disorders and Stroke

Title: Targeting macrophage reprogramming in glioblastoma



Glioblastoma is the most lethal form of primary brain cancer in adults with a median survival of approximately 14-16 months following diagnosis. In contrast to glioma cells, components of the tumor microenvironment (TME) of glioblastoma are genetically stable and are considered as the promising therapeutic targets. Tumor-associated macrophages (TAMs) are the most abundant cell population in the TME, which account for up to 50 percent of total cells in the entire glioblastoma tumor mass. Macrophages exhibit a spectrum of functions that span from an anti-tumor (known as M1) to a pro-tumor (known as M2) phenotype. TAMs are usually skewed toward a pro-tumor phenotype in glioblastoma. Given the predominance of these cells in glioblastoma, therapeutic strategies for their reprogramming to an anti-tumor phenotype is desirable. G protein-coupled receptors are a large family of receptors that are prominent pharmacological targets in biomedicine.

Our preliminary data shows that G protein-coupled receptor 183 (GPR183) is highly expressed by TAMs in glioblastoma and may be involved in TAM pro-tumor phenotype polarization. In this proposal, we will investigate whether and how GPR183 contributes to TAM pro-tumor phenotype polarization, reveal how such polarized TAMs promote tumor progression and develop potential therapeutic strategies targeting TAM reprogramming in glioblastoma. To achieve these goals, we propose the following specific aims: Aim 1. Clarify the role and underlying mechanism of GPR183 in TAM reprogramming in glioblastoma; Aim 2. Determine how GPR183-regulated TAM reprogramming promotes glioblastoma progression; and Aim 3. Basic to translational study: targeting TAM reprogramming using tumor samples and models from glioblastoma patients.

We propose to employ integrated strategies combining gain-and loss-of-function approaches, in vitro and in vivo systems, as well as proteomic and transcriptomic analysis to test each aim. Together, this project will uncover novel mechanisms for TAM reprogramming and reveal new immunotherapeutic strategies for glioblastoma.

[Learn more about this project.](#)

Funding

The Feinberg School of Medicine has increased seed funding up to \$50,000 for application preparation to initiate new multi-investigator program project or center grant applications involving Feinberg faculty. [Learn more on the website here.](#)

National Centers for Translational Research in Reproduction and Infertility (NCTRI) (P50 Clinical Trial Optional)

[More information](#)

Sponsor: NIH, Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)

Letter of intent: October 29

Deadline: November 29

Upper amount: \$200,000 over two years

BrightFocus provides research funds for U.S. and international researchers pursuing pioneering research leading to greater understanding, prevention and treatment of glaucoma. The standard award provides significant funding for researchers who have already generate some amount of preliminary data, but are often required to demonstrate additional, significant progress before they can apply to governmental or industrial funding agencies.

CART Fund Grants – Alzheimer's

[More information](#)

Sponsor: Coins for Alzheimer's Research Trust CART

Letter of intent: December 1

Deadline (for selected finalists): February 9

Upper amount: \$300,000 over two years

The goal of CART is to encourage exploratory and developmental Alzheimer's Disease (AD) research projects within the United States by providing support for early and conceptual plans of those projects that may not yet be supported by extensive preliminary data but have the potential to substantially advance biomedical research. Full-time faculty at U.S.-based public and private institutions are eligible.

HEAL Initiative: Novel Targets for Opioid Use Disorders and Opioid Overdose (R01 Clinical Trial Not Allowed)

[More information](#)

Sponsor: NIH, National Institute on Drug Abuse, National Institute on Aging, National Institute of Allergy and Infectious Diseases, Eunice Kennedy Shriver National

Institute of Child Health and Human Development, National Center for Complementary and Integrative Health

Letter of intent: January 1

Deadline: February 1

Upper amount: Up to \$400,000 over a maximum five year project period

There is an ongoing opioid use and overdose crisis in the United States. Opioids that are often prescribed for the treatment of pain can lead to opioid misuse and Opioid Use Disorders (OUDs). This program announcement is specifically focused on the identification of novel targets and preclinical validation of small molecules and biologics for treating OUDs, opioid overdose and opioid-polysubstance use comorbidities. The main focus of research activities to be supported through this funding opportunity is the identification of novel drug targets and their validation through the development of probe molecules that modulate those targets.

Research on Autism Spectrum Disorders (R03 Clinical Trial Optional)

[More information](#)

Sponsor: NIH, National Institute of Mental Health (NIMH), Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), National Institute on Deafness and Other Communication Disorders (NIDCD), National Institute of Environmental Health Sciences (NIEHS)

Deadline: March 17

Upper amount: \$100,000 over two years

The purpose of this funding opportunity is to encourage research grant applications to support research designed to elucidate the etiology, epidemiology, diagnosis and optimal means of service delivery in relation to Autism Spectrum Disorder (ASD). Basic research into the pathophysiology of ASD, including research on brain mechanisms, is of special interest. Also of high priority are clinical and applied investigations that may lead to the development of new treatments and interventions. Areas of interest include epidemiology; screening, early identification and diagnosis; genomic studies; brain mechanisms; shared neurobiology of ASD with Fragile X Syndrome; cognitive science; communication skills; and services research.

Read more about the highlights of our educational programs, innovative research and discoveries, and our outstanding students, faculty and staff in the [Feinberg News Center](#).

Advancing Health Equity Through Collaborative Literature Reviews

By Q. Eileen Wafford, Mst, MLIS, AHIP, Research Librarian

Amidst growing awareness of health disparities and the pressing need to address them, [Galter Health Sciences Library and Learning Center](#) has emerged as a resource in advancing health equity research. Galter librarians collaborate with students, faculty, staff and affiliated investigators at Feinberg to tackle systemic disparities and drive positive change in healthcare for all through evidence synthesis projects such as systematic and scoping reviews.

Galter's [Systematic and Scoping Review Service](#) provides members of Feinberg with consultative or full-collaborative support from a librarian on a review. When it is feasible to support teams as full collaborators, librarians will work alongside teams from the start of the process to assist with search methodologies and protocol development. Upon protocol completion and registration on an online platform such as [PROSPERO](#), librarians perform tasks that include conducting the search on various databases, providing documentation and reviewing the manuscript before submission.

The following examples spotlight collaborative reviews and evidence synthesis projects with Galter librarians, all centered around advancing health equity.

Readiness Assessments for Gender-affirming Surgical Treatments

The review team leveraged the skill and knowledge of a research librarian at Galter to conduct a systematic scoping review to examine gender-affirming surgeries. After review studies were generated from a search of [PubMed](#), the [Cochrane Library](#), [PsycINFO](#), [CINAHL Plus with Full Text](#), [Scopus](#) and [ProQuest Dissertations and Theses Global](#), the team found a reduction in stigma against transgender and gender-diverse individuals as well as the evolution in ethical focus, moving from a “do no harm” approach to prioritizing the fundamental principle of patient autonomy. While progress has been made, the authors found that more needs to be accomplished to reduce the barriers to accessible and affordable gender-affirming healthcare.

Citation: Amengual, Travis, Kaitlyn Kunstman, R. Brett Lloyd, Aron Janssen, and Annie B. Wescott. “[Readiness assessments for gender-affirming surgical treatments: A systematic scoping review of historical practices and changing ethical considerations.](#)” *Frontiers in Psychiatry* 13 (2022): 1006024.

Tools to Measure the Impact of Structural Racism and Discrimination on Gastrointestinal and Hepatology Disease Outcomes

This scoping review by Liu et al. assessed measures of structural racism and discrimination (SRD) in gastrointestinal and liver studies. The team followed the [Preferred Reporting Items for Systematic Reviews and Meta-Analyses scoping reviews \(PRISMA-ScR\)](#) guidelines and worked with Galter research librarians to develop and apply a comprehensive search strategy across various databases. The resulting review found incorporating

measures of SRD and implementing interventions that address this understudied determinant of health is essential to achieve health equity in gastrointestinal and hepatology disease outcomes.

Citation: Liu, Joy J., Nicole DeCuir, Leila Kia, Jonna Peterson, Corinne Miller, and Rachel B. Issaka. “[Tools to Measure the Impact of Structural Racism and Discrimination on Gastrointestinal and Hepatology Disease Outcomes: A Scoping Review.](#)” *Clinical Gastroenterology and Hepatology* (2022).

Housing Instability and Adverse Perinatal Outcomes

A Galter research librarian collaborated with the review team to apply a [comprehensive search strategy](#) to the PubMed, Embase, Cochrane Library and Scopus databases. This review uncovered a connection between housing instability and adverse pregnancy outcomes, emphasizing the necessity for further evaluation and research to standardize the definition of housing instability as a social determinant of perinatal health and to develop interventions that address housing instability during pregnancy.

Citation: DiTosto, Julia D., Kai Holder, Elizabeth Soyemi, Molly Beestrum, and Lynn M. Yee. “[Housing instability and adverse perinatal outcomes: a systematic review.](#)” *American journal of obstetrics & gynecology MFM* 3, no. 6 (2021): 100477.

Food Insecurity Among Asian Americans

Few studies have explored the disparities in food insecurity and coping strategies among Asian Americans. In their published [protocol](#), Ro et al. describe their goal to conduct a comprehensive scoping review with the assistance of a Galter research librarian to understand this topic, build momentum for future research and stimulate policy action to address food insecurity in the Asian American population and among Asian origin groups.

Citation: Ro, Suji, Nhat-Ha Pham, Victoria N. Huynh, Q. Eileen Wafford, and Milkie Vu. “[Food insecurity among Asian Americans: A scoping review protocol.](#)” *Plos one* 18, no. 7 (2023): e0287895.

Collaborating with Galter librarians in health equity research-related literature reviews enhances studies' quality, rigor and inclusivity. Investigators can ensure a more comprehensive, accurate and impactful representation of health disparities and equity issues by engaging librarians in various stages of the research process, from search strategy development to data synthesis. You can learn more about reviews by attending one of the following classes:

- [Conducting a Systematic Review: Part 1 - Planning the Process](#)
- [Conducting a Systematic Review: Part 2 - Tools & Resources](#)
- [Conducting a Scoping Review](#)

You can also reach out to your [liaison librarian](#) for more information.

High-Impact Factor Research

Fantus RJ, **Brannigan RE**, Davis AM. [Diagnosis and Management of Priapism](#). *JAMA*. 2023;330(6):559-560.

Foltman M, Mendez I, Bech-Serra JJ, de la Torre C, **Brace JL**, **Weiss EL**, Lucas M, Queralt E, Sanchez-Diaz A. [TOR complex 1 negatively regulates NDR kinase Cbk1 to control cell separation in budding yeast](#). *PLoS Biology*. 2023;21(8):e3002263.

Giladi N, Alcalay RN, Cutter G, Gasser T, Gurevich T, Hoeglenger GU, Marek K, Pacchetti C, Schapira AHV, Scherzer CR, **Simuni T**, Minini P, Sardi SP, Peterschmitt MJ. [Safety and efficacy of venglustat in GBA1-associated Parkinson's disease: an international, multicentre, double-blind, randomised, placebo-controlled, phase 2 trial](#). *Lancet Neurology*. 2023;22(8):661-671.

Goyal Y, Busch GT, **Pillai M**, Li JX, Boe RH, **Grody EI**, Chelvanambi M, Dardani IP, Emert B, **Bodkin N**, **Braun J**, Fingerman D, Kaur A, Jain N, Ravindran PT, Mellis IA, Kiani K, Alicea GM, Fane ME, **Ahmed SS**, Li HY, Chen YQ, **Chai CD**, Kaster J, Witt RG, Lazzano R, Ingram DR, Johnson SB, Wani K, Dunagin MC, Lazar AJ, Weeraratna AT, Wargo JA, Herlyn M, Raj A. [Diverse clonal fates emerge upon drug treatment of homogeneous cancer cells](#). *Nature*. 2023;620(7974):651.

Gritsina G, Fong KW, Lu XD, Lin ZY, Xie WQ, Agarwal S, Lin D, Schiltz GE, Beltran H, Corey E, Morrissey C, Wang YZ, **Zhao JC**, Hussain M, Yu JD. [Chemokine receptor CXCR7 activates Aurora Kinase A and promotes neuroendocrine prostate cancer growth](#). *Journal of Clinical Investigation*. 2023;133(15).

Han S, Lee M, Shin Y, **Giovanni R**, **Chakrabarty RP**, **Herrerias MM**, **Dada LA**, **Flozak AS**, **Reyffman PA**, **Khuder B**, **Reczek CR**, Gao L, Lopéz-Barneo J, **Gottardi CJ**, **Budinger GRS**, **Chandel NS**. [Mitochondrial integrated stress response controls lung epithelial cell fate](#). *Nature*. 2023;620(7975):890-897.

Huang X, **Zhang X**, **Machireddy N**, **Evans CE**, **Trewartha SD**, Hu G, Fang Y, Mutlu GM, Wu D, **Zhao YY**. [Endothelial FoxM1 reactivates aging-impaired endothelial regeneration for vascular repair and resolution of inflammatory lung injury](#). *Science Translational Medicine*. 2023;15(709):eabm5755.

Jain S, Pei LM, Spraggins JM, et al (including: **Kelleher NL**, **Arvantitis C**, **Caldwell M**, **Henning N**, **Su P**, **Scholten D**, **Wei JJ**, **Weimer A**). [Advances and prospects for the Human BioMolecular Atlas Program \(HuBMAP\)](#). *Nature Cell Biology*. 2023;25(8):1089-1100.

Jordan E, Kinnamon DD, Haas GJ, Hofmeyer M, Kransdorf E, Ewald GA, Morris AA, Owens A, Lowes B, Stoller D, Tang WHW, Garg S, Trachtenberg BH, Shah P, Pamboukian SV, Sweitzer NK, Wheeler MT, **Wilcox JE**, Katz S, Pan S, Jimenez J, Fishbein DP, Smart F, Wang J, Gottlieb SS, Judge DP, Moore CK, Mead JO, Hurst N, Cao J, Huggins GS, Cowan J, Ni H, Rehm HL, Jarvik GP, Vatta M, Burke W, Hershberger RE. [Genetic Architecture of Dilated Cardiomyopathy in Individuals of African and European Ancestry](#). *JAMA*. 2023;330(5):432-441.

Kalinsky K, Accordini MK, Chiuhan C, Mundi PS, Sakach E, Sathe C, Ahn H, Trivedi MS, Novik Y, Tiersten A, Raptis G, Baer LN, Oh SY, Zelnak AB, Wisinski KB, Andreopoulou E, **Gradishar WJ**, Stringer-Reaser E, Reid SA, O'Dea A, O'Regan R, Crew KD, Hershman DL. [Randomized Phase II Trial of Endocrine Therapy With or Without Ribociclib After Progression on Cyclin-Dependent Kinase 4/6 Inhibition in Hormone Receptor-Positive, Human Epidermal Growth Factor Receptor 2-Negative Metastatic Breast Cancer: MAINTAIN Trial](#). *Journal of Clinical Oncology*. 2023;41(24):4004-4013.

Kittleston MM, Sharma K, Brennan DC, Cheng XS, Chow SL, Colvin M, DeVore AD, Dunlay SM, Fraser M, Garonzik-Wang J, Khazanie P, Korenblat KM, **Pham DT**. [Dual-Organ Transplantation: Indications, Evaluation, and Outcomes for Heart-Kidney and Heart-Liver Transplantation: A Scientific Statement From the American Heart Association](#). *Circulation*. 2023;148(7):622-636.

Konde V, Najeed M, Loomba N, Brown J, Winder DG, Grueter BA, **Patel S**. [Synaptic and cellular endocannabinoid signaling mechanisms regulate stress-induced plasticity of nucleus accumbens somatostatin neurons](#). *Proceedings of the National Academy of Sciences of the United States of America*. 2023;120(34):e2300585120.

Kondo T, Dewan P, Anand IS, Desai AS, Packer M, Zile MR, Pfeffer MA, Solomon SD, Abraham WT, **Shah SJ**, Lam CSP, Jhund PS, McMurray JJV. [Clinical Characteristics and Outcomes in Patients With Heart Failure: Are There Thresholds and Inflection Points in Left Ventricular Ejection Fraction and Thresholds Justifying a Clinical Classification?](#) *Circulation*. 2023;148(9):732-749.

Mann JR, **McKenna ED**, Mawrie D, **Papakis V**, **Alessandrini F**, Anderson EN, **Mayers R**, **Ball HE**, **Kaspi E**, **Lubinski K**, Baron DM, **Tellez L**, Landers JE, Pandey UB, **Kiskinis E**. [Loss of function of the ALS-associated NEK1 kinase disrupts microtubule homeostasis and nuclear import](#). *Science Advances*. 2023;9(33):eadi5548.

McLaren PJ, Porreca I, Iaconis G, et al. (including **Kim EY**, **Walter M**, **Simons LM**, **Nam K**, **Hultquist JF**, **Wolinsky SM**). [Africa-specific human genetic variation near CHD1L associates with HIV-1 load](#). *Nature*. 2023;620(7976):1025-1030.

Meador KJ, Cohen MJ, Loring DW, Matthews AG, Brown C, Robalino CP, Birnbaum AK, Voinescu PE, Kalayjian LA, **Gerard EE**, Gedzelman ER, Hanna J, Cavitt J, Sam M, French JA, Hwang S, Pack AM, Pennell PB, Grp MI. [Cognitive outcomes at age 3 years in children with fetal exposure to antiepileptic medications \(MONEAD study\) in the USA: a prospective, observational cohort study](#). *Lancet Neurology*. 2023;22(8):712-722.

Moritz L, Schon SB, Rabbani M, Sheng Y, Agrawal R, Glass-Klaiber J, Sultan C, **Camarillo JM**, Clements J, Baldwin MR, Diehl AG, Boyle AP, O'Brien PJ, Ragunathan K, Hu YC, **Kelleher NL**, Nandakumar J, Li JZ, Orwig KE, Redding S, Hammoud SS. [Sperm chromatin structure and reproductive fitness are altered by substitution of a single amino acid in mouse protamine 1](#). *Nature Structural & Molecular Biology*. 2023;30(8):1077.

Opal P. [Spinocerebellar ataxia type 1: It's not just about Purkinje cells](#). *Neuron*. 2023;111(16):2461-2462.

Qi R, Sammler E, Gonzalez-Hunt CP, Barraza I, Pena N, Rouanet JP, Naaldijk Y, Goodson S, Fuzzati M, Blandini F, Erickson KI, Weinstein AM, Lutz MW, Kwok JB, Halliday GM, Dzamko N, Padmanabhan S, Alcalay RN, Waters C, Hogarth P, **Simuni T**, Smith D, Marras C, Tonelli F, Alessi DR, West AB, Shiva S, Hilfiker S, Sanders LH. [A blood-based marker of mitochondrial DNA damage in Parkinson's disease](#). *Science Translational Medicine*. 2023;15(711):eabo1557.

Quardokus EM, Saunders DC, McDonough E, Hickey JW, Werlein C, Surrrette C, Rajbhandari P, Casals AM, Tian H, Lowery L, Neumann EK, Björklund F, Neelakantan TV, Croteau J, Wiblin AE, Fisher J, Livengood AJ, Dowell KG, Silverstein JC, Spraggins JM, Pryhuber GS, Deutsch G, Ginty F, Nolan GP, Melov S, Jonigk D, **Caldwell MA**, Vlachos IS, Muller W, Gehlenborg N, Stockwell BR, Lundberg E, Snyder MP, Germain RN, **Camarillo JM**, **Kelleher NL**, Börner K, Radtke AJ. [Organ Mapping](#)

(continued on the next page)

High-Impact (continued from previous page)

Antibody Panels: a community resource for standardized multiplexed tissue imaging. *Nature Methods*. 2023;20(8):1174-1178.

Rahi A, Chakraborty M, Agarwal S, Vosberg KM, Agarwal S, Wang AY, McKenney RJ, Varma D. [The Ndc80-Cdt1-Ska1 complex is a central processive kinetochore-microtubule coupling unit.](#) *Journal of Cell Biology*. 2023;222(8)

Ren XS, Manzanares LD, Piccolo EB, Urbanczyk JM, Sullivan DP, Yalom LK, Bui TM, Lantz C, Najem H, Dulai PS, Heimberger AB, Thorp EB, Sumagin R. [Macrophage-endothelial cell crosstalk orchestrates neutrophil recruitment in inflamed mucosa.](#) *Journal of Clinical Investigation*. 2023;133(15).

Siddiqi T, Maloney DG, Kenderian SS, Brander DM, Dorritie K, Soumerai J, Riedell PA, Shah NN, Nath R, Fakhri B, Stephens DM, Ma S, Feldman T, Solomon SR, Schuster SJ, Perna SK, Tuazon SA, Ou SS, Papp E, Peiser L, Chen Y, Wierda WG. [Lisocabtagene maraleucel in chronic lymphocytic leukaemia and small lymphocytic lymphoma \(TRANSCEND CLL 004\): a multicentre, open-label, single-arm, phase 1-2 study.](#) *Lancet*. 2023;402(10402):641-654.

Stamm B, Royan R, Giurcanu M, Messe SR, Jauch EC, Prabhakaran S. [Door-in-Door-out Times for Interhospital Transfer of Patients With Stroke.](#) *JAMA*. 2023;330(7):636-649.

Suresh RV, Dunnam C, Vaidya D, Wood RA, Bochner BS, MacGlashan DW, Jr., Dispenza MC. [A phase II study of Bruton's tyrosine kinase inhibition for the prevention of anaphylaxis.](#) *Journal of Clinical Investigation*. 2023;133(16).

Talyzina A, Han Y, Banerjee C, Fishbain S, Reyes A, Vafabakhsh R, He Y. [Structural basis of TFIIIC-dependent RNA polymerase III transcription initiation.](#) *Molecular Cell*. 2023;83(15):2641-2652.e7.

Templeton CW, Laimins LA. [p53-dependent R-loop formation and HPV pathogenesis.](#) *Proceedings of the National Academy of Sciences of the United States of America*. 2023;120(35):e2305907120.

Tsuboyama K, Dauparas J, Chen J, Laine E, Mohseni Behbahani Y, Weinstein JJ, Mangan NM, Ovchinnikov S, Rocklin GJ. [Mega-scale experimental analysis of protein folding stability in biology and design.](#) *Nature*. 2023;620(7973):434-444.

van de Vegte Y, Eppinga RN, van der Ende MY, et al. (including Cornelis MD). [Genetic insights into resting heart rate and its role in cardiovascular disease.](#) *Nature Communications*. 2023;14(1).

Varberg KM, Dominguez EM, Koseva B, Varberg JM, McNally RP, Moreno-Irusta A, Wesley ER, Iqbal K, Cheung WA, Schwendinger-Schreck C, Smail C, Okae H, Arima T, Lydic M, Holoch K, Marsh C, Soares MJ, Grundberg E. [Extravillous trophoblast cell lineage development is associated with active remodeling of the chromatin landscape.](#) *Nature Communications*. 2023;14(1).

Wang ML, Jurczak W, Zinzani PL, Eyre TA, Cheah CY, Ujjani CS, Koh Y, Izutsu K, Gerson JN, Flinn I, Tessoulin B, Alencar AJ, Ma S, Lewis D, Lech-Maranda E, Rhodes J, Patel K, Maddocks K, Lamanna N, Wang Y, Tam CS, Munir T, Nagai H, Hernandez-Ilizaliturri F, Kumar A, Fenske TS, Seymour JF, Zelenetz AD, Nair B, Tsai DE, Balbas M, Walgren RA, Abada P, Wang C, Zhao J, Mato AR, Shah NN. [Pirtobrutinib in Covalent Bruton Tyrosine Kinase Inhibitor Pretreated Mantle-Cell Lymphoma.](#) *Journal of Clinical Oncology*. 2023;41(24):3988-3997.

Watson K, Oberman M. [Abortion Counseling, Liability, and the First Amendment.](#) *New England Journal of Medicine*. 2023;389(7):663-667.

Xia JY, Hepler C, Tran P, Waldeck NJ, Bass J, Prindle A. [Engineered calprotectin-sensing probiotics for IBD surveillance in humans.](#) *Proceedings of the National Academy of Sciences of the United States of America*. 2023;120(32):e2221121120.

Yang Y, Li C, Palmer LC, Stupp SI. [Autonomous hydrogel locomotion regulated by light and electric fields.](#) *Science Advances*. 2023;9(31).

Yoo SGK, Chung GS, Bahendeka SK, Sibai AM, Damasceno A, Farzadfar F, Rohloff P, Houehanou C, Norov B, Karki KB, Azangou-Khyavy M, Marcus ME, Aryal KK, Brant LCC, Theilmann M, Cifková R, Lunet N, Gurung MS, Mwangi JK, Martins J, Haghshenas R, Sturua L, Vollmer S, Bärnighausen T, Atun R, Sussman JB, Singh K, Saeedi Moghaddam S, Guwatudde D, Geldsetzer P, Manne-Goehler J, Huffman MD, Davies JJ, Flood D. [Aspirin for Secondary Prevention of Cardiovascular Disease in 51 Low-, Middle-, and High-Income Countries.](#) *JAMA*. 2023;330(8):715-724.

Yun S, Yang B, Anair JD, Martin MM, Fleps SW, Pamukcu A, Yeh NH, Contractor A, Kennedy A, Parker JG. [Antipsychotic drug efficacy correlates with the modulation of D1 rather than D2 receptor-expressing striatal projection neurons.](#) *Nature Neuroscience*. 2023;26(8):1417-1428.

Zheng B, Gold S, Iwanaszko M, Howard BC, Wang L, Shilatifard A. [Distinct layers of BRD4-PTEFb reveal bromodomain-independent function in transcriptional regulation.](#) *Molecular Cell*. 2023;83(16):2896-2910.e4.

Featured Core

Nervous System Tumor Bank

The Northwestern University Nervous System Tumor Bank (NSTB) provides investigators with high-quality patient-derived biospecimens to support preclinical and translational neuro-oncology research. NSTB offers a comprehensive platform for biospecimen and data banking, including protocol and informed consent tracking, sample annotation, inventory management, and integration with sample processing and analysis technologies. NSTB works closely with operating room teams and the Department of Pathology to collect brain and spinal cord tumors in a timely and efficient manner.

The NSTB is funded in part through the [Robert H. Lurie Comprehensive Cancer Center of Northwestern University](#)'s NCI P50 SPORE grant in Brain Tumor Research, as well as through the generous support of the [Lou and Jean Malnati Brain Tumor Institute](#) of the Lurie Cancer Center.

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Location:
Simpson Querrey 6-500, 303 E. Superior St.