

Breakthroughs

Feinberg School of Medicine Research Office

June 2020



By Will Doss

A disconnect between academia and community has hampered public health research for the past 20 years, according to [Ronald Ackermann, MD, MPH](#), senior associate dean for Public Health and director of the Institute for Public Health and Medicine ([IPHAM](#)).



Ronald Ackermann, MD, MPH

“Studies were accurate and thoughtful, but they weren’t really answering the questions on the ground,” says Ackermann, who is also director of the Center for Diabetes and Metabolism and a professor of [Medicine](#) in the Division of [General Internal Medicine and Geriatrics](#). “If we want to test solutions to problems that happen in hospitals, doctors’ offices and community settings, we need to fundamentally think about how we ask the research questions.”

Building equitable relationships with community leaders and framing research questions around residents’ priorities is the core principle of community-engaged research, and IPHAM, along with its affiliate Alliance for Research in Chicagoland Communities ([ARCC](#)) in IPHAM’s [Center for Community Health](#), have been leaders in the field. ARCC is supported by IPHAM and the Northwestern University Clinical and Translational Sciences ([NUCATS](#)) Institute.

“We’ve realized that a great deal of the research performed the traditional way cannot simply be repackaged for community consumption,” Ackermann says. “We want to develop interventions that can actually be applied, and now, we’re thinking about that from the get-go.”

A Flexible Model

Community engagement occurs on a spectrum: Some projects are fully community-led, wherein community leaders and stakeholders decide what research questions are asked, how interventions are designed and how results are interpreted and disseminated.

Other projects require “a lighter touch,” says Ackerman, with investigators consulting community members, sharing ideas and using their reaction to shape the study.

“The model can be tailored to virtually every type of investigation,” he says.

Aligning community resources with the goals of an investigation helps with implementation. For example, while nutritionists and health psychologists are skilled in testing a nutrition intervention, they may experience challenges if they expect community health centers to adopt the program.

“Soliciting input from community members is a good way to ensure that the intervention itself is realistic for the communities where it needs to be applied,” Ackermann says.

Further, establishing a dialogue between academics and community members — rather than helicoptering in and out to conduct a study — can help ameliorate suspicion and establish trust, according to [Jen Brown, MPH](#), lecturer of [Preventive Medicine](#) in the Division of [Public Health Practice](#) and director and co-founder of ARCC, which provides support and funding to develop partnerships between Chicagoland communities and Northwestern clinicians and scientists.



Jen Brown, MPH

Feet on the Ground *(continued from cover page)*

“For example, you can’t go into African American communities without acknowledging the injustice of the Tuskegee trials or Henrietta Lacks and working to get to know local communities’ issues, assets and history,” Brown says. “That’s especially important for a university like Northwestern, not located on the West or South Sides of Chicago, where you have more diverse communities.”

During the COVID-19 pandemic, ARCC has continued to support partners and hosted a [virtual town hall](#) to discuss fostering relationships remotely, dealing with changes in research protocols and how those changes impact community members, study participants and partner organizations.

“Discussions and decisions should continue to be driven by your principles of engagement, even when things are moving fast,” Brown said. “How are community members and organizations being involved in leading the decision-making that will ultimately impact them?”

Embedding in Communities

On the West Side, the Greater Humboldt Park Community of Wellness, a community-based healthcare coalition previously led by [Juana Ballesteros, RN, MPH](#), collaborated with [Ruchi Gupta, MD, MPH](#), professor of [Pediatrics](#) in the Division of [Academic General Pediatrics and Primary Care](#) to tackle a widespread issue: pediatric asthma.

The coalition used a community-based approach — supported by an ARCC seed grant — to more accurately understand pediatric asthma in this neighborhood. [Publishing](#) their findings in the journal *BMC Pediatrics*, the study found that while 25 percent of students had diagnosed asthma, an additional 16 percent had symptoms without a diagnosis, and a majority of students in both categories reported poor management of the disease.

“This survey was really telling for healthcare professionals implementing interventions, about how best to tailor their programs to really be effective,” says Ballesteros, who is now a manager of community public health outreach at the Illinois Department of Public Health and also adjunct lecturer of Preventive Medicine at Northwestern.

According to Gupta, community input and outreach was a major factor in the project’s realization.

“Community engagement is essential to truly understand health issues and developing sustainable solutions,” Gupta says. “It is also the most enjoyable part of research as you make real connections with people impacted by the conditions you hope to improve.”

Another project that flourished using the community-engaged approach — and also funded by an ARCC seed grant — was an intervention concerning the comorbidity of mental health and diabetes in Little Village, a majority-Hispanic neighborhood.

[Matthew O’Brien, MD](#), associate professor of [Medicine](#) in the Division of [General Internal Medicine and Geriatrics](#), and a community partnership including Universidad Popular, Enlace and St. Anthony Community Wellness Program, created a targeted survey to assess risk for diabetes among Hispanic community members. The group found that low income, adverse childhood experiences and discrimination exacerbated diabetes and depression.



Matthew O’Brien, MD

By engaging with community health leaders known as *promotoras*, or health promoters, the group led an intervention to promote healthy lifestyles, leading to clinically significant weight loss and greater confidence and self-efficacy amongst participants.

“Rather than bringing our ideas and programs from the ivory tower, it was more impactful to empower communities to address pressing health issues themselves,” O’Brien says. “We were honored to assist in this community-driven effort.”

Building Relationships

ARCC serves as a critical link between academia and community, fostering relationships between Feinberg investigators and community leaders such as Melvin Thompson, executive director of the [Endeleo Institute](#), a non-profit member organization of the [Trinity United Church of Christ](#) in the South Side neighborhood of Washington Heights.



Melvin Thompson

Inspired by a staffer’s experience caring for her mother with dementia, Thompson applied for an ARCC partnership development seed grant in collaboration with [Darby Morhardt, PhD](#), research associate professor at the [Mesulam Center for Cognitive Neurology and Alzheimer’s Disease](#), to develop educational programming about dementia in Washington Heights, which has one of the highest median ages among Chicago neighborhoods. “We had to educate people that this is a brain disease, not just getting older,” says Thompson, who is a member of the ARCC steering committee and the inaugural community partner member of NUCATS Executive Council.

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D'Aquila Named Director of NUCATS

[Richard D'Aquila, MD](#), the Howard Taylor Ricketts, MD, Professor of Medicine, has been named director of the Northwestern University Clinical and Translational Sciences (NUCATS) Institute, and senior associate dean for clinical and translational research, effective June 1.

D'Aquila succeeds Donald Lloyd-Jones, MD, ScM, chair and Eileen M. Foell professor of Preventive Medicine, who has led the NUCATS institute for eight years.

"I am incredibly proud of what the NUCATS team has achieved for the University and Feinberg over the last eight years. We have renewed the CTSA award twice during that time, providing almost \$75 million in critical funding to advance clinical and

translational science here at Northwestern and across Chicagoland," Lloyd-Jones said.

"I am honored to succeed Dr. Lloyd-Jones in leading the NUCATS Institute. Don has built an outstanding, world-class team, and I look forward to continuing to benefit from Don's sage counsel and the strength of the entire NUCATS Institute team to keep accelerating the upslope of our trajectory," D'Aquila said.

[Read more](#)



Faculty Share Expertise on Continuing COVID-19 Response Efforts

By Will Doss

Several recent editorials published by Feinberg faculty have explored the large and complex issues medicine is grappling with, from COVID-19's devastating impact on African-American communities to the difficulty in maintaining critical care standards in the face of an unprecedented pandemic. Here are a few.

COVID-19 and African-Americans

People who are African-American or black are contracting COVID-19 at dramatically higher rates and are more likely to die from the disease, an extremely sobering example of the consequences of health disparities, according to [Clyde Yancy, MD](#), the Magerstadt Professor, vice dean for Diversity and Inclusion and senior author of an editorial [published](#) in *JAMA*.

"I was not surprised to see disparities emerge as the COVID-19 pandemic erupted, but the pain we've felt is an unconscionable observation," Yancy said. "To see such an intense clustering of cases, including deaths, in just five neighborhoods on the South Side is the clarion call. One cannot look away and let this pass."

Listen to the Breakthroughs podcast "COVID-19 Deaths and Health Racial Disparities with Clyde Yancy, MD" [here](#).

Don't Abandon Rational Intensive Care

As hospitals mobilize to treat large numbers of COVID-19 patients, they face the challenge of treating a novel disease without firmly established treatment guidelines. While some clinicians have used novel or repurposed therapies, [Benjamin Singer, '07 MD, '10 GME](#), assistant professor of Medicine in the Division of Pulmonary and Critical Care, urges care providers not to abandon the tested principles of intensive care.

"Our view is that the ICU is already optimized to care for patients with severe viral pneumonia, including COVID-19, and that use

of novel or repurposed therapeutics should be avoided outside of controlled clinical trials or until there are signals from these trials," said Singer, first author of the editorial [published](#) in the *American Journal of Respiratory Cell and Molecular Biology*.

Using untested therapies on an ad-hoc basis prevents potential harms or benefits from being clearly recorded, defined and published in a peer-reviewed process, which may negatively impact the development of COVID-19 therapies in the long run, according to Richard Wunderink, MD, professor of Medicine in the Division of Pulmonary and Critical Care and senior author of the editorial. "We want to come out of this pandemic knowing better what works or doesn't work for COVID-19 patients," Wunderink said.

Maintaining Access to Reproductive Healthcare

As healthcare systems in the United States are stressed by hundreds of thousands of COVID-19 cases, it's imperative to maintain access to reproductive health procedures like abortion, according to [Katie Watson, JD](#), associate professor of Medical Social Sciences and senior author of an editorial [published](#) in the *New England Journal of Medicine*.

"Abortion care is obviously very time-sensitive, so when states try to close clinics under the pretense of saving PPE, patients denied care will either be forced into later procedures, risky self-induced procedures, travel to out-of-state clinics that heightens COVID-19 exposure risk for themselves and others during their trip, or continuing unwanted pregnancies," said Watson, who is also an associate professor of [Medical Education](#) and of [Obstetrics and Gynecology](#).

[Read more](#)

Committed to Improving Cardiovascular Health

Sadiya Khan, MD, assistant professor of Medicine in the Division of Cardiology and of Preventive Medicine in the Division of Epidemiology



[Sadiya Khan, '09 MD, '14 MS, '10 '12 GME](#), is an assistant professor of [Medicine](#) in the Division of [Cardiology](#) and of [Preventive Medicine](#) in the Division of [Epidemiology](#). Her lab studies the influence of obesity on the development of cardiovascular disease and utilizes various research methods to enhance cardiovascular risk prediction and identify novel therapeutic agents for cardiovascular disease prevention and treatment.

She is also a staff cardiologist at Northwestern Memorial Hospital and has a particular focus on heart failure with preserved ejection fraction and an interest in the use of genetic testing and risk communication with patients who are at-risk for cardiomyopathy, arrhythmia and vascular disorders. At the hospital, she also serves on the inpatient cardiology consult service and conducts weekly ambulatory clinic sessions.

Khan is certified by the American Board of Internal Medicine in cardiovascular disease and internal medicine, and has received multiple awards for excellence in research, teaching and patient care. She is a member of the [Feinberg Cardiovascular and Renal Research Institute](#), the [Center for Epidemiology and Population Health](#), the [Northwestern University Clinical and Translational Sciences Institute \(NUCATS\)](#), and the [Simpson Querrey Center for Epigenetics](#). She has authored more than 50 peer-reviewed publications.

Q&A

What are your research interests?

I am a cardiologist whose research focuses on prevention of heart failure through studies of epidemiologic trends and drivers, risk prediction modeling, and molecular and genetic epidemiology. I have three key areas within my research theme: 1) cardiovascular disease trends and projections to inform prevention policies; 2) development, validation and implementation of risk prediction tools for heart failure prevention, including a focus on sex-specific risk enhancers such as adverse pregnancy outcomes; and 3) molecular epidemiology and genomics-first precision medicine approaches towards risk assessment to personalize prevention. I also explore the complex interplay of aging and the development of heart failure in mechanistic studies to identify key targets of accelerated and premature onset of heart failure.

What is the ultimate goal of your research?

The ultimate goal of my research is to equitably improve cardiovascular health across the life course and to advance our understanding of the mechanisms that underlie the development of heart failure. By doing so, I hope to contribute to reducing morbidity and mortality related to heart failure through these investigations, particularly among those disadvantaged populations who bear the greatest burden of disease and experience the worst outcomes. In particular, I am especially passionate about improving women's cardiovascular health and targeting key vulnerable periods, such as pregnancy and menopause.

How did you become interested in this area of research?

While there is a lot of focus on cardiovascular disease prevention among cardiovascular diseases, cardiovascular mortality related to heart failure is growing fastest among all cardiovascular subtypes. Further, individuals younger than 65 years have experienced the greatest increases in heart failure-related mortality in the past decade with significant and persistent disparities. In addition, prevalence of heart failure continues to increase and is expected to exceed eight million adults in the United States by 2030. Therefore, I have chosen to pursue a focus in the prevention of heart failure.

How is your research funded?

My research is funded from grants from the National Institutes of Health and the American Heart Association.

Where has your work been published?

We have recently published in a mixture of general internal medicine and cardiology journals: *JAMA*, *the Journal of the American College of Cardiology*, *the Journal of the American Heart Association*, *Circulation: Heart Failure* and more.

Who inspires you? Who are your mentors?

I feel incredibly grateful to have the support of my family as well as my colleagues, mentors and friends at Northwestern. I am so lucky to have been welcomed into the Northwestern community as an undergraduate in the [Honors Program in Medical Education](#) and was able to continue my training here in internal medicine and cardiovascular disease through the [Physician Scientist Training Program](#).

Finally, the amazing trainees that I get to work with at Feinberg inspire me every day in providing exceptional care for our patients and discovering innovative ways to improve cardiovascular health.

Studying the Impact of Metabolism on Physiological and Pathological Outcomes

Ram Prosad Chakrabarty, second-year student in the Driskill Graduate Program in Life Sciences (DGP)



Chakrabarty studies cellular metabolism in the laboratory of [Navdeep Chandel, PhD](#), the David W. Cugell, MD, Professor of [Medicine](#) in the Division of [Pulmonary and Critical Care](#) and of [Biochemistry and Molecular Genetics](#).

Q&A

Where is your hometown?

I grew up in Parameshwardi, a small, picturesque village in Bangladesh. Around the age of 14, I moved to Dhaka, the capital of Bangladesh, to complete my higher secondary and college educations.

What are your research interests?

I have a deep interest in studying the impact of metabolism on physiological and pathological outcomes. A few decades back, protein-based regulatory systems were thought to control all the important cellular decisions, while the metabolism was believed to be important just for providing energy and biosynthetic building blocks in response to signals from the nucleus. However, recent studies have shed light on the driving roles of metabolism in many important cellular decision-makings, which is fascinating.

This could have implications for disease: While the upsurge in non-communicable diseases such as cancer or neurodegenerative disease is generally attributed to pathogenic genetic variants, I find an alternative hypothesis equally, if not more, fascinating.

It suggests that changes in our diets, lifestyle, and environment in the new world, which can directly affect our metabolism and thereby gene expression, are responsible for the upsurge in these pathologies. Therefore, I think a deep understanding of metabolism would be instrumental in developing effective therapeutic approaches for these diseases.

What exciting projects are you working on?

In the lab of Professor Navdeep Chandel, I am currently working on the biology of L-2-hydroxyglutarate (L-2-HG), a very important cellular metabolite. Different studies have reported the association of deregulated production of L-2-HG with autoimmunity, developmental pathology and brain and kidney cancers. Our preliminary data show that L-2-HG level significantly rises upon an increase in mitochondrial NADH/NAD⁺ ratio in stem cells, regulatory T cells, human cancer cell lines and in the brain of a Leigh Syndrome mouse model.

We hypothesize that a low-level L-2-HG is necessary for normal physiological and developmental processes, whereas elevated L-2-HG level contributes to the pathophysiology of metabolic developmental disorders. Now, we are comprehensively testing our hypothesis by employing unique genetic approaches and pharmacological interventions in different cell culture and mouse models.

What attracted you to your program?

The program's interdisciplinary nature and top-notch research groups in the fields of metabolism and epigenetics were the primary attractive factors for me.

What has been your best experience at Feinberg?

Working with Professor Navdeep Chandel and his group has been one of the best experiences I have had so far at Feinberg. His book, *Navigating Metabolism*, which I came across in 2016, greatly enhanced my fascination with metabolism. Fortunately, after admission, I got the opportunity to do my first rotation in his lab, and received from him the most important lessons for performing causal, reproducible and robust experiments.

I also feel fortunate that I worked on a project with Greg McElroy, an MD-PhD student in the Chandel laboratory, during the rotation. Greg is a fantastic human and excellent researcher, and his guidance greatly helped me find my footing in a new research field. Similarly, the inclusive, diverse and friendly atmosphere at Feinberg has impressed me a lot.

So far, I have found everyone I interact with, including my classmates, advisors, labmates, TAs, staff and faculty, very open, friendly, and supportive. It appears to me that everyone at Feinberg is always ready to accept others for who they are and support them to advance in their lives and achieve their goals.

How would you describe the faculty at Feinberg?

At Feinberg, I have found all the faculty members I have interacted with to be highly accomplished researchers who have made original contributions in their fields. They are also excellent educators. I find them to be very open to new ideas, collaborative and caring about the students' success. I have been benefited greatly from my personal interactions with them.

What do you do in your free time?

In my free time, I usually listen to Indian folk and classical music and read books of different genres. I have special interests in medieval and contemporary Bengali literature, Indology, Platonic dialogues and political commentaries across the spectrum. I also try to keep abreast of the socio-political-cultural dynamics in Bangladesh, my home country. Sometimes, I watch movies and comedy shows, and I also try to follow major tennis and cricket tournaments.

What are your plans for after graduation?

I want to pursue a career in research. After my PhD, I hope to obtain a postdoctoral position in another excellent lab that works on metabolism. Then, I want to establish my laboratory so that I can continue enjoying the excitement of working together to discover something new and important. Also, I will continue to put my efforts toward raising public awareness about the importance of scientific research because, in democracy, the voters decide the future of science.

Applying Peptide Chemistry Knowledge to a Range of Projects

Mark Karver, PhD, director of the Peptide Synthesis Core and a member of the Simpson Querrey Institute



Q&A

Mark Karver helps scientists on the Evanston and Chicago campuses with all of their peptide needs — project design and consultation, synthesis, purification and mass-spectrometry, to name a few.

Where are you originally from?

I grew up in Hobart, Indiana, a relatively small city about an hour outside of Chicago.

What is your educational background?

I started my collegiate career at Butler University in Indianapolis, Indiana, majoring in chemistry and biology. After my junior year, I had the chance to do a Research Experiences for Undergraduates program funded by the National Science Foundation at the University of Southern California (USC). There, I worked in the laboratory of Professor Mark Thompson on organic light emitting diodes (OLEDs).

This research experience motivated me to pursue graduate school, and I enrolled in the chemistry PhD program at USC. During my first year at USC, I joined the laboratory of Professor Amy Barrios, working at the interface of inorganic chemistry and biochemistry, making and studying gold-based inhibitors of cysteine proteases and tyrosine phosphatases involved in autoimmune diseases.

After the lab moved to the University of Utah, I finished off my PhD in Salt Lake City while still remaining a student at USC, designing and synthesizing a thiol-reactive amino acid, which I incorporated into specific peptide sequences for use in screening as tyrosine phosphatase selective inhibitors. After graduating from the Barrios lab, I joined the Center for Systems Biology at Massachusetts General Hospital/Harvard Medical School, directed by Dr. Ralph Weissleder, where I worked with Dr. Scott Hilderbrand and Dr. Jason McCarthy as a postdoctoral fellow.

Please tell us about your professional background.

During my postdoctoral fellowship, my wife got a job in Chicago, so I had to start looking for opportunities back close to where I grew up, which was exciting, but turned out to be pretty difficult. After searching for around eight months, I finally received an offer from the Sigma-Aldrich Corporation, working in Milwaukee, Wisconsin. I worked as the product manager for chemical biology products for Aldrich Chemistry.

I was responsible for overseeing a range of products within this specialized category as well as searching for and bringing new innovative products to the market. I was in this role for two years before I found my current position at Northwestern as director of the Peptide Synthesis Core. My research experience with specialty amino acid and peptide synthesis coupled with my

newfound business experience allowed me to settle into my new Northwestern position nicely and I've enjoyed seeing the facility grow over the years, adding two new full-time technical staff members in the process.

Why do you enjoy working at Northwestern?

There are many things I enjoy about my job and about Northwestern and Simpson Querrey Institute (SQI) in particular. One of my favorite things about my position is the variety of researchers and projects with which we work. Last year, we worked with more than 30 different labs, mostly from Northwestern, with scientists from departments ranging from [Chemistry](#) and [Materials Science & Engineering](#) to [Urology](#) and [Orthopaedic Surgery](#).

Having the opportunity to work closely and collaborate with some of the great scientific minds like Professor [Samuel Stupp](#) and Professor [Chad Mirkin](#) among others is a unique perk of running a core facility at NU. I really enjoy working with graduate students and postdoctoral researchers as well. Seeing them grow and develop as scientists and getting a chance to be a part of their journey toward the next step in their career is a truly rewarding experience.

Running a chemistry laboratory on the 11th floor of a building in downtown Chicago is interesting as well, not something I ever would have imagined earlier in my career as a scientist.

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

Last year we provided services directly to 12 different labs at Feinberg, helping them with whatever peptide-related needs they had for their research projects. Because of the diverse range of specialty departments at Feinberg, many of the researchers are far removed from their chemistry training — or choose to try to forget it — so I enjoy working with these individuals and helping them apply our peptide chemistry knowledge and skills to their exciting projects.

We have also had the opportunity to train a few undergraduate students and interns in peptide synthesis and purification that have since moved onto medical school or various graduate programs within Feinberg, which is always an enjoyable process.

What exciting projects are you working on?

About a month ago, we started working on a COVID-19 project in collaboration with the Stupp laboratory and the Pentelute laboratory at the Massachusetts Institute of Technology, which discovered a peptide that binds with high affinity to the spike protein of the SARS-CoV-2 virus. Peptides in general are difficult to use as therapeutic agents on their own due to their susceptibility to rapid enzymatic degradation in biological systems.

We're now helping the Stupp laboratory test their peptide amphiphile (PA) technology as a platform for enzymatic protection and therapeutic delivery of this peptide from the Pentelute laboratory. This could prove useful for patients with COVID-19.

NUCATS Corner

Clinical and Translational Sciences Institute



Virtual Studio Consultation, Real Results

The NUCATS Institute continues to offer virtual NUCATS Studios, which provide expert guidance to increase the competitiveness of grant submissions. If you are in the planning stages of an R, U, T or P-type award with significant scope of work and infrastructure needs, you may be eligible for a NUCATS Studio session. These one-hour consultations (taking place via Zoom) bring together investigators and leadership from NUCATS and our affiliates to identify relevant resources available to support and enhance the competitiveness of grant submissions. If you'd like to request a NUCATS Studio consultation, please [contact](#) our Research Navigator team.

75% More than 75% of investigators who have participated in a NUCATS Studio have had their grant funded.

COVID-19 NCATS Supplement Still Available

The National Center for Advancing Translational Sciences (NCATS) has issued two Notice of Special Interest announcements to highlight the urgent need for research on SARS-CoV-2 and the disease it causes, COVID-19. NCATS is particularly interested in:

- Projects that repurpose existing drugs or biologics (existing therapeutics) that have already begun or completed a Phase I clinical trial. [NOT-TR-20-012](#)
- Projects focusing on the use of informatics solutions to diagnose cases and the use of CTSA-supported core resources (for example, advanced scientific instruments, highly-specialized facilities and regulatory expertise) to facilitate research on COVID-19 and advance the translation of research findings into diagnostics, therapeutics and vaccines. [NOT-TR-20-018](#)

If you are interested in learning more about these opportunities, please email NUCATS Administrator [Keith Herzog](#).

Listen to the Latest Breakthroughs Podcasts

After listening to an [episode](#), you will be able to identify the research interests and initiatives of Feinberg faculty and discuss updates in clinical and translational research. If you would like to claim CME credit for listening to [Breakthroughs](#), visit the [Continuing Medical Education website](#). If you have additional questions about processing CME credits, please [contact](#) the Office of Continuing Medical Education.



[Wearable Device to Monitor COVID-19 Symptoms with John A. Rogers, PhD](#)



[COVID-19 Antibody Testing with Elizabeth McNally, MD, PhD](#)

More Breakthroughs podcasts [here](#).

Research in the News

U.S. News & World Report, May 11

[Kidney Failure Often a COVID-19 Complication](#)

Daniel Batlle, MD, was mentioned.

- This research was republished in *HealthDay* and *WebMD*.

Fox News, May 11

[Second Abbott coronavirus antibody test gets emergency use authorization](#)

- This research was also featured in *HealthDay*.

HealthDay, May 12

[Vigorous Exercise Safe for Those at Risk of Knee Arthritis](#)

Alison Chang, PT, DPT, MS, was mentioned.

CNN, May 13

[Thousands of people want to be exposed to Covid-19 for science](#) Seema Shah, JD, was mentioned.

WebMD, May 18

[More Vitamin D, Lower Risk of Severe COVID-19?](#)

NBC News, May 20

[PSA testing: Deadly prostate cancer cases rising as screening declines](#) Edward Schaeffer, MD, was mentioned.

Reuters, May 22

[Pregnant women with COVID-19 show placenta injury in small study](#) Jeffrey Goldstein, MD, PhD, was mentioned.

- This research was also featured in *HealthDay*, *CNN*, *Fox News* and others.

New York Times, June 11

[Covid-19 Patient Gets Double Lung Transplant](#)

Ankit Bharat, MD, was featured.

[More media coverage](#)

Sponsored Research

PI: D. Martin Watterson, PhD, the John G. Searle Professor of Molecular Biology and Biochemistry and professor of Pharmacology

Sponsor: National Institute on Aging

Title: Preclinical Development of a Novel Small Molecule Inhibitor of Alzheimer's Disease-Related Cognitive Impairment



Alzheimer's disease and related dementias (AD/ADRD) have a significant societal impact, yet there are no disease modifying interventions. Root causes of prior clinical trial failures provide instruction for plans to reinvigorate the AD/ADRD therapeutic discovery and development process. Specifically, a diversified portfolio of candidate therapeutic approaches is available based on clinical observations, genetic associations, pathology outcomes and biochemical mechanisms. However, many are neglected in terms of funding and technical pursuit. The prior emphasis on a pathology-based pathway can be avoided by retaining a therapeutic emphasis on discrete but complementary aspects of pathophysiology progression mechanisms.

Synaptic dysfunction is one example with diverse potential targets. Synaptic dysfunction underlies subtle amnesic changes occurring prior to the development of the classical histopathologic hallmarks. Deteriorated synaptic strengthening is associated with remodeling of various neurotransmitter systems, including cholinergic, noradrenergic, dopaminergic and serotonergic systems. The serotonergic system is both an underexplored therapeutic mechanism and is especially attractive considering that serotonin is more than a neurotransmitter. Further, clinical findings that 5-hydroxytryptamine receptor 2b (5-HT_{2b}R) expression is increased in AD patient brains and that AD patients respond to a non-selective 5-HT_{2b}R antagonist suggest the potential utility of optimized 5-HT_{2b}R antagonists in AD.

We developed a small molecule, MW01-8-071HAB (=MW071), that suppresses LTP defects as well as associative and spatial memory in models of amyloid-beta (A β) and tau elevation. Functional screens for off-target agonist and antagonist activity with 158 known GPCRs demonstrated that MW071 is a selective 5-HT_{2b}R antagonist. Importantly, MW071 lacks 5-HT_{2b}R agonist activity. Avoiding agonist activity is landmark. Approved drugs with 5-HT_{2b}R agonist activity have high risk for cardiac valve toxicity, resulting in withdrawal or black box warnings. Therefore, the promising efficacy in AD relevant models, a pharmacological profile that includes highly selective antagonist activity in the absence of agonist activity, and the availability of a back-up candidate (MW109) adds to the overall appeal of MW071 as a starting point. [Read more](#)

PI: Michelle Birkett, PhD, assistant professor of Medical Social Sciences and Preventive Medicine

Sponsor: National Institute on Minority Health and Health Disparities

Title: Simulation Modeling to Understand and Address HIV Disparities in Racial, Ethnic, and Sexual Minority Populations



Racial, ethnic and sexual minority populations are disproportionately impacted by infectious disease, particularly HIV. Individuals at the intersection of multiple of these marginalized identities are even more likely to be impacted by HIV – especially Black and Hispanic men who have sex with men. While there is growing evidence that the day-to-day life of racial and sexual minorities differs from majority populations, there is a limited understanding of how differences in neighborhoods, differences in places where time is spent and differences in the kinds of people connected with may impact disease spread and fuel disparities.

Moreover, there is even less comprehensive understanding of how public health strategies could be refined to specifically reduce health disparities. Simulation models that accurately replicate population dynamics by simulating the movement and interaction of millions of individuals allow researchers a toolbox to understand the underlying dynamics of disease transmission and identify potential targets for intervention.

This project joins two complementary teams of researchers in Chicago to build chiSTIG, a simulation model specifically derived to understand the social contextual dynamics which lead to disparities in HIV.

The first team, at Northwestern University, have been funded by the NIH to capture rich data on the social systems and physical spaces inhabited by racial and sexual minorities, and have utilized these data to understand how the social and sexual isolation of young Black men who have sex with men (BMSM) in Chicago drives disparities in HIV.

The second team, at the University of Chicago/Argonne National Laboratory, have built chiSIM, an extraordinarily powerful agent-based modeling (ABM) framework that simulates the interaction of 2.9 million Chicagoans across 1.2 million geo-located places to understand disease outbreaks and guide intervention development. chiSIM is a flexible system that has been used to understand prevention strategies for a number of infectious diseases. [Read more](#)

Welcome New Faculty

Igor Koralnik, MD, joined as chief of the Division of Neuro-Infectious Disease and Global Neurology in the Department of Neurology and professor of [Neurology](#). Since 2016, Koralnik had been Jean Schweppe Armour Professor of Neurology and Medicine at Rush University Medical Center, before which, he was professor of Neurology at Harvard Medical School. He is one of the first physicians to study the neurologic complications caused by the human immunodeficiency virus (HIV) and is a leading researcher in the investigation of the polyomavirus JC (JC virus), which causes progressive multifocal leukoencephalopathy (PML), a disease of the central nervous system that occurs in immunosuppressed individuals. He has also developed a global neurology program in Lusaka, Zambia.



Funding

NIH Director's New Innovator Award Program (DP2 Clinical Trial Optional)

[More information](#)

Sponsors: Office of Strategic Coordination (Common Fund)

Submission Deadlines: August 21

Upper Amount: \$1.5M in direct costs, plus applicable facilities and administrative costs

Synopsis: The [NIH Director's New Innovator Award Program](#) supports early stage investigators of exceptional creativity who propose highly innovative research projects with the potential to produce a major impact on broad, important areas relevant to the mission of NIH. For the program to support the best possible investigators and research, applications are sought which reflect the full diversity of the research workforce. Individuals from diverse backgrounds and from the full spectrum of eligible institutions in all geographic locations are strongly encouraged to apply. Applications in all topics relevant to the broad mission of NIH are welcome, including, but not limited to, topics in the behavioral, social, biomedical, applied and formal sciences and topics that may involve basic, translational or clinical research. The NIH Director's New Innovator Award Program is a component of the [High-Risk, High-Reward Research \(HRHR\) Program](#) of the [NIH Common Fund](#).

NIH Director's Pioneer Award Program (DP1 Clinical Trial Optional)

[More information](#)

Sponsor: Office of Strategic Coordination (Common Fund)

Submission Deadline: September 11

Upper Amount: \$1.5M in direct costs, plus applicable facilities and administrative costs

Synopsis: The [NIH Director's Pioneer Award Program](#) supports individual scientists of exceptional creativity who propose highly innovative research projects with the potential to produce a major impact on broad, important areas relevant to the mission of NIH. For the program to support the best possible investigators and research, applications are sought which reflect the full diversity of the nation's research workforce. Individuals from diverse backgrounds and from the full spectrum of eligible institutions in all geographic locations are strongly encouraged to apply. In addition, applications in all topics relevant to the broad mission of NIH are welcome, including, but not limited to, topics in the behavioral, social, biomedical, applied and formal sciences and topics that may involve basic, translational or clinical research. To be considered 'pioneering,' the proposed research must reflect substantially different scientific directions from those already being pursued in the investigator's research program or elsewhere. The NIH Director's Pioneer Award is a component of the [High-Risk, High-Reward Research \(HRHR\) Program](#) of the [NIH Common Fund](#).

NIDDK Centers for Diabetes Translation Research (P30 Clinical Trial Optional)

[More information](#)

Sponsor: National Institute of Diabetes and Digestive and Kidney Diseases

Letter of Intent: September 20

Submission Deadline: October 20

Upper Amount: \$400K per year for a maximum project period of five years; The National/Regional Resource Core and National Enrichment Program may also contribute an additional \$200K beyond the 400K cap

Synopsis: Applications that propose a Center for Diabetes Translation Research (CDTR) to advance research along the spectrum of diabetes T2-T4 translational research (i.e., bedside to clinical practice and community settings, dissemination and implementation) are sought. The purpose of this program is to accelerate innovation of diabetes translation to maximize positive impacts of research on population health through activities and core services that offer specialized expertise, tools, education and support. An emphasis on novel methods and research to address health equity and reduce diabetes-related health disparities is encouraged. Novel research cores designed to improve other aspects of person-centered, community and population health are also encouraged with justification for how such strategies may be adapted to meaningfully inform disparity-reduction approaches. CDTRs are based on the core concept that shared resources aimed at fostering productivity, synergy and novel research ideas among the funded investigators are supported in a cost-effective manner.

Clinic Testing Therapeutic/Indication Pairing Strategies (U01 Clinical Trial Required)

[More information](#)

Sponsor: National Center for Advancing Translational Sciences (NCATS)

Submission Deadline: Standard dates apply; October 5

Amount: \$3M

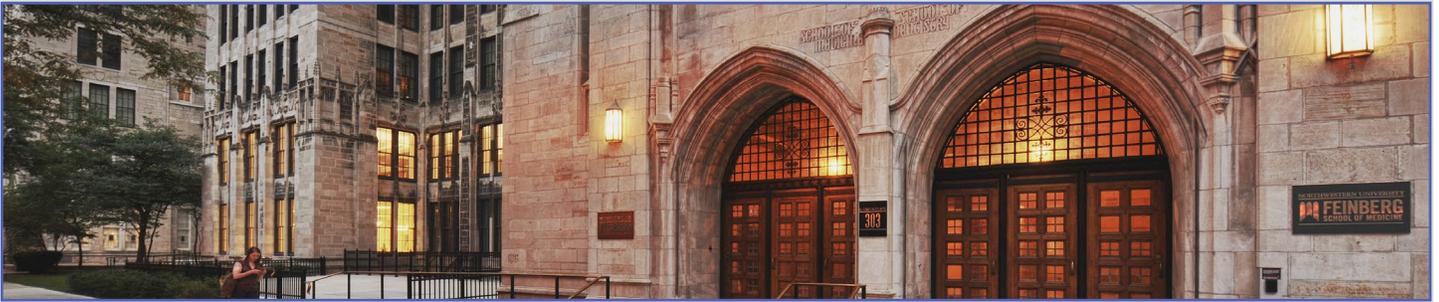
Synopsis: NCATS seeks applications for support of clinical studies to repurpose existing drugs or biologics (therapeutics) that have already completed at least a Phase I trial for a different indication by the time an award is made. The hypothesis for proposed studies must be developed using innovative processes to identify the therapeutic/indication pair. Examples include independent crowdsourcing strategies or computational algorithms. Projects should be supported by scientific evidence that modulation of a therapeutic target will have a positive impact on the disease/condition.

The U01 award may be used for Phase I and/or Phase II clinical trials for a new therapeutic use to establish substantial evidence of efficacy and to establish evidence of safety for the new use.

[View COVID-19 funding opportunities](#)

[View more funding opportunities](#)

Predatory Publishing: Recognize the Red Flags



By Annie Wescott, Research Librarian

What is a Predatory Journal?

Predatory journals are a pervasive problem in academic publishing. Predatory publishers mimic the open access model with the intent of making money off unsuspecting authors. Open access aims to make research more widely available by removing financial barriers on the user-side. To do this, most open access journals charge fees to the publishing author, which are used to ensure quality standards are met by the journal. In the case of a predatory journal, an author will pay a fee but will not reap the benefits of the open access model as submissions will not undergo rigorous peer review or have the enhanced impact the open access model offers.

The apparent ease of publication standards and quick turnaround of publications is especially attractive to early-career researchers who need to publish as a requirement for tenure or career advancement. Authors who publish with predatory journals not only risk not reaching their key audience, but also risk losing their copyright to a predatory publisher. Learn to recognize the red flags of predatory publishing.

Email Solicitation

One of the first red flags are emails soliciting manuscripts. If you receive a questionable email, read it closely for hints of a predatory publishing model. Be wary of flowery or overly formal language, flattery toward your work and grammatical errors. Check if the email is from a publisher-specific email address or a generic email account anyone could create.

Journal Titles, Scope and Fees

Predatory journals often use titles that are similar to well-known, highly respected journals. Another feature of predatory publishing houses and journals is an incredibly broad scope. A wide range of coverage may indicate the journal is not particular about the kind of articles it publishes. You should also pay close attention to the journal's description of its peer review process and fees.

Editorial Board

Do you recognize any members of the journal's editorial board? If the journal is in your topic area, you should expect to recognize names in your field. Most people who serve on editorial boards will highlight this work on their CV, online profiles, or personal websites. Search for these profiles to see if they mention their work on the journal.

Publication Timeline

Contracted timing is another red flag when it comes to predatory practices. Not only is a quick turnaround monetarily beneficial for the journal, this tactic also preys on the pressure to publish for early career and tenure track researchers. The average publication process for a reputable journal takes several months. Be suspicious of any publisher that claims to publish work in 30 days or less.

Inclusion in Databases

Many of the most well-known databases, including PubMed (MEDLINE), Scopus (Elsevier), and Web of Science (Clarivate), have review processes for journal acceptance. A journal needs to show a record of publication and meet other strict criteria to be indexed in highly regarded databases. While newer journals might take a year or so to be included, predatory journals will never make the cut.

Industry Membership

It is always helpful to check open access industry membership lists before choosing an open access journal. A journal must comply with specific publication standards and quality assurance measures to be accepted for membership, which most predatory publishers are unable to achieve. A few good options to check are the [Directory of Open Access Journals \(DOAJ\)](#), the [Committee on Publication Ethics \(COPE\)](#), and [Open Access Scholarly Publishers Association \(OASPA\)](#).

The resource [Think. Check. Submit.](#) provides helpful checklists for identifying potentially predatory journals. Visit our GalterGuide on [Navigating the Publishing Process](#) to learn more about predatory journals and how to select a journal that is right for you and your research.

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High-Impact Factor Research

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Feet on the Ground *(continued from page 2)*

At the same time, Woodson Regional Library in Washington Heights was undergoing renovation, and Thompson, in collaboration with Morhardt and others, spearheaded an effort to establish the library as a community health hub specializing in dementia.

Now, Woodson library staff are trained to recognize and accommodate patrons with dementia, along with providing monthly educational programming about the disease, caregiving and managing associated finances.

“Both the partnership and research grants from ARCC afforded me the opportunity to serve as a community bridge and the deference and priority they provided the community was really impactful,” Thompson said. “Sometimes researchers come for one thing, and something else — like this library — will emerge in a conversation, and ARCC didn’t have any agenda. Whatever came from the community, that’s what ARCC focused on.”

Candace Henley, founder of the [Blue Hat Foundation](#), which provides colorectal cancer education and screening to minority and underserved populations, serves on the ARCC Steering Committee.

She is the first member representing a patient advocacy organization and brings a focus of patient engagement in the design and conduct of clinical trials.



Candace Henley

“We can’t advocate for people to be screened for colon cancer and not include advocating for physicians to offer clinical trials,” she says. “We need to participate in research and clinical trials or we will be left behind in precision medicine. If we’re not at the table, then we’re missing out.”

These projects represent the power of community-engaged research, but there is still plenty of work to do, according to Brown.

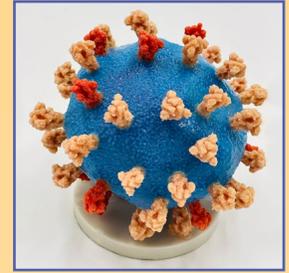
“In Chicago, your zip code is a better predictor of health than your genetic code,” she says. “If we can acknowledge that, and focus on research that engages and is driven by communities most experiencing these inequities, we can produce change while producing knowledge.”

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NIH News

3D Printing the Novel Coronavirus



Credit: 3D Print Exchange, NIAID, NIH

A dedicated team from the National Institute of Allergy and Infectious Diseases (NIAID) at the [NIH 3D Print Exchange](#) (3DPX) in Rockville, Maryland, has created a 3D-printed physical model of SARS-CoV-2, the novel coronavirus that causes COVID-19. This model shows the viral surface (blue) and the spike proteins studded proportionally to the right size and shape. These proteins are essential for SARS-CoV-2 to attach to human cells and infect them. Here, the spike proteins are represented in their open, active form (orange) that’s capable of attaching to a human cell, as well as in their closed, inactive form (red).

The model is about five inches in diameter and takes more than five hours to print using an “ink” of thin layers of a gypsum plaster-based powder fused with a colored binder solution. When completed, the plaster model is coated in epoxy for strength and a glossy, ceramic-like finish. For these models, NIAID uses commercial-grade, full-color 3D printers. However, the same 3D files can be used in any type of 3D printer, including “desktop” models available on the consumer market.

More importantly, perhaps, is the 3D model’s potential to serve as an accessible educational conduit to be shared among scientists and the public. Observers of the model would be able to hold the plaster virus and closely examine its structure. In addition to this complete model, scientists are also populating the online 3D print exchange with atomic-level structures of the various SARS-CoV-2 proteins that have been deposited by investigators around the world into protein and electron microscopy databanks. The number of these [structures and plans](#) currently stands at well over 100 and counting.

COVID-19 Information for NIH Applicant and Funding Recipients

The National Institutes of Health (NIH) has a dedicated COVID-19 [webpage](#) to provide guidance and information to NIH applicants and funding recipients. The webpage is [updated regularly](#) with proposal submission and award management information, COVID-19 funding opportunities, FAQs and more.

Notice: Changes to Research Training Grant, Fellowship and Career Development Award Applications

The NIH and the Agency for Healthcare Research and Quality have recently announced changes to forms and instructions for research training grant, fellowship and career development award applications for due dates on or after May 25, 2020.

[See the notice here](#)