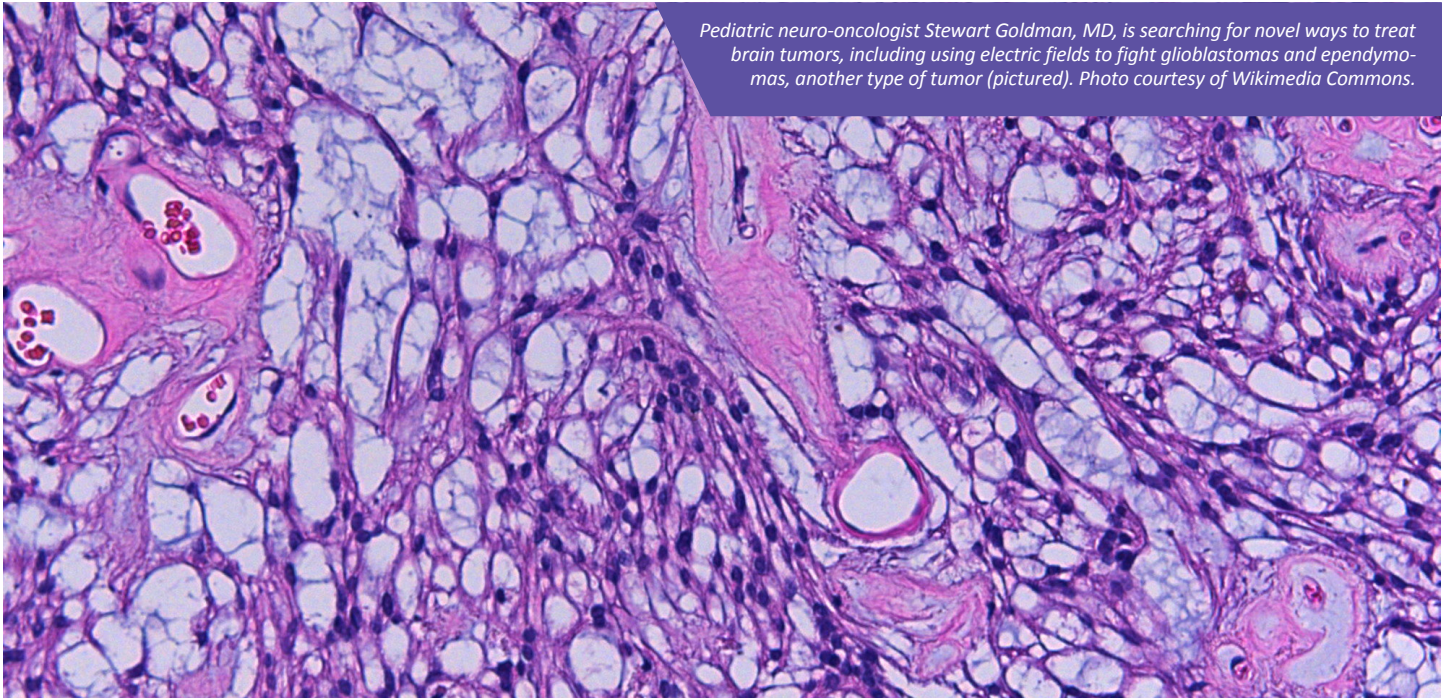


Breakthroughs

Feinberg School of Medicine Research Office

October 2016



Pediatric neuro-oncologist Stewart Goldman, MD, is searching for novel ways to treat brain tumors, including using electric fields to fight glioblastomas and ependymomas, another type of tumor (pictured). Photo courtesy of Wikimedia Commons.

Children Come First in Cutting-Edge Cancer Research

For [Stewart Goldman, MD](#), developing experimental cancer therapies is an essential part of his work as a leading pediatric neuro-oncologist. Some of his current research projects use electromagnetic force to target brain tumors and genome sequencing to develop precision medicine for individual patients and specific cancers. While developing and using evidence-based science and technology is critical to advance the treatment of pediatric cancer, Goldman is sure to keep the emotional comfort his young patients and their families need the highest priority.

“We shouldn’t forget that we are treating kids and what they go through and how it affects the quality of their lives,” said Goldman, head of Hematology, Oncology, Neuro-Oncology and Stem Cell Transplantation at [Ann & Robert H. Lurie Children’s Hospital of Chicago](#). “We’re treating a child, not a tumor. That’s a philosophical statement that’s pervasive in everything we do.”

Goldman and [Jin-Shei Lai, PhD](#), a professor of [Medical Social Sciences](#) and [Pediatrics](#), have taken a special interest in understanding what “quality of life” means for young cancer patients.

“Stew and I have been collaborating for more than a decade to study quality of life for children with cancer, particularly brain tumors. We have developed one of the first instruments measuring quality of life for childhood brain tumor survivors using modern test theory,” Lai said. “We also received funding from the National Cancer Institute to develop fatigue and cognition item banks that can be administered using computerized adaptive testing, producing precise estimations of fatigue and cognition. Stew has always been an energetic supporter of bringing patient reported outcomes into clinical practice, and I am very lucky to know him and work with him.”

The team has developed many tools to help quality of life for children, such as SyMon-SAYS, a symptom monitoring and reporting system, in which children answer a few questions on their phone, computer or tablet. If their scores change by a significant amount, it alerts Goldman’s team to check in on the child.

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Children Come First

(continued from cover page)

“It’s a way to find out if we can use early intervention to give better care,” said Goldman, who is also director of the Clinical Trials Research Center at the Stanley Manne Children’s Research Institute, a member of the [Robert H. Lurie Comprehensive Cancer Center of Northwestern University](#) and the Meryl Suzanne Weiss Distinguished Professor in [Hematology, Oncology & Stem Cell Transplantation](#) in the Department of Pediatrics at Feinberg.

In the ongoing search for novel ways to treat brain tumors and offer better care, Goldman has several investigations underway. One study involves tumor-treating electric fields, an FDA-approved electromagnetic field therapy to treat recurring glioblastoma and ependymoma. He hopes to conduct the first pediatrics trial of the treatment, with children wearing a specialized cap with alternating electrical fields.

Another area of Goldman’s research is tied to developing precision medicine for pediatric cancer patients through genomics and proteomics. In a collaboration with [Neil Kelleher, PhD](#), faculty director of Northwestern Proteomics, along with [Shannon Haymond, PhD](#), [Elizabeth Perlman, MD](#), [Nobuko Hijiya, MD](#), and Lai, Goldman is investigating proteomic variants that may have an effect on the toxicity of chemotherapy agents and correlations with quality of life for children with leukemia. The findings could help physicians readjust treatments.

“Precision medicine means precision proteomics, and in glioblastoma almost one-third of kids have a mutation in the gene for a particular protein called histone H3.3,” said Kelleher, a professor of [Medicine](#) and [Biochemistry and Molecular Genetics](#), and of Chemistry in the [Weinberg College of Arts and Sciences](#). “Working with collaborators like [Amanda Saratsis, MD](#), we have several proteomics projects in this area and in other hematological cancers that affect children.”



In addition to his research activities, Stewart Goldman, MD, heads the Center for Cancer & Blood Disorders at Ann & Robert H. Lurie Children’s Hospital of Chicago where as a neuro-oncologist, he specializes in the treatment of pediatric brain tumors. Click [here](#) to learn more.

Most recently, Goldman’s team conducted a phase I trial testing p28, a protein that enters cancer cells and binds to both mutant and normal p53 proteins, which are important regulators of the cell cycle, DNA repair, development and other signaling pathways. The results, [published](#) in the journal *Neuro-Oncology*, show that administering p28 to patients may be a promising anticancer therapy in combination with other agents.

Following up on those findings, Kelleher’s group is mapping the exact proteoforms of p53 using top-down proteomics to better understand the biology and effects of treatment, while Goldman is planning to conduct a phase II trial with p28 and other therapeutics.

“My goal now for p28 is to get this drug to a phase II clinical trial and use it along with radiation and ultimately in combination with chemotherapy,” Goldman said. “In mouse studies, p28 has a very short half-life in the serum but in the tumor it lasts for days.”

Goldman’s work may have applications beyond pediatrics.

“Stew’s focus on pediatric developmental therapeutics is highly integrated and synergistic with our adult programs,” said [Frank Giles, MD](#), chief of [Hematology/Oncology](#) and deputy director of the Lurie Cancer Center.

Goldman has spent nearly two decades at Feinberg and has published tens of dozens of cutting-edge journal articles, but he thinks the best is yet to come.

“It’s an exciting time at Lurie Children’s to be partners with the Lurie Cancer Center and the Feinberg School of Medicine,” Goldman said. “Doing drug development and investigating how we can get the best possible therapies using proteomics is really going to give us the ability to do true precision medicine. It’s not just about what mutations are out there in the genome that will help us pick and track our targets. I think combining the information we get from targeted proteomics in combination with other areas will make an exciting difference in how we treat children.”

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How HIV Moves in Cells

Mojgan Naghavi, PhD, Microbiology-Immunology



Through her research, [Mojgan Naghavi, PhD](#), associate professor of [Microbiology-Immunology](#), investigates how microtubules, regulators of microtubule dynamics and microtubule motor proteins, function to enable HIV-1 movement in an infected cell. In one [recent study](#), her lab infected cells with fluorescently tagged HIV to track the virus from the time it entered the cell, all the way through to the nucleus, where the virus replicates.

Her team also explores how and why HIV infection induces neuronal damage, in the hope of helping to develop potential new approaches to treat HIV-associated dementia.

Q&A

What are your research interests?

Our research focuses on infection by Human Immunodeficiency Virus type 1 (HIV-1), a retrovirus and causative agent of acquired immunodeficiency syndrome (AIDS). In addition to suppressing the immune system, rendering victims susceptible to opportunistic infections, HIV-1 can cross the blood-brain barrier and cause serious damage to the central nervous system, ultimately leading to HIV-associated dementia.

Our research has had a long-term focus on host factors that regulate HIV-1 infection in a variety of cell types, including microglia and primary neurons. Our early work discovered that the neuronal protein FEZ-1 regulates early HIV-1 infection. We have since gone on to show that FEZ-1 acts as a microtubule (MT) motor adaptor protein that associates with HIV-1 capsids and regulates inward movement of viral particles to the nucleus. We have also uncovered fundamental aspects of how HIV-1 regulates MT behavior to facilitate infection and the host factors involved. This includes MT plus-end binding proteins and actin-MT cross-linkers involved in initiating virus transport. Moreover, we discovered that HIV-1 infection was regulated by PDZD8, a poorly understood protein whose biological function was unknown prior to our discovery of its role in regulating MT stability. Beyond HIV-1, we have also discovered how neurotropic viruses such as Herpes Simplex Virus type 1 (HSV-1) exploit MTs to facilitate their replication.

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

Our long-time collaborator is [Derek Walsh, PhD](#), in the Department of Microbiology-Immunology here at Northwestern. Together with his lab, we have discovered how HSV-1, the causative agent of cold sores, corneal blindness and encephalopathy, exploit MTs to facilitate their replication. We also collaborate with Stephen Goff, PhD, another retrovirologist, as well as cell biologists Gregg Gundersen, PhD, and Richard Vallee, PhD, at Columbia University to understand how HIV and HSV-1 hijack host MT network and MT motors for their movement in infected cells. We are doing this as part of an NIH-funded Program Project Grant (PPG) between our five labs.

How did you become interested in this area of research?

I became interested in HIV as a student at Karolinska Institute in Stockholm, Sweden. At that time, in the early 1990s, we knew very little about the virus and with the lack of combination antiretroviral drugs currently available to keep HIV infection under control, AIDS was a major cause of death globally. I really wanted to get involved in trying to understand this new disease and try to make a contribution. I later became interested in HIV motility in infected cells when I discovered a number of MT regulatory host factors that could regulate HIV infection during my postdoctoral training at Columbia University.

How is your research funded?

Our research is funded by National Institute of General Medical Sciences, awards R01GM101975 (Characterization of the antiviral and nuclear functions of FEZ-1 and NEK-1) and P01GM105536 (Microtubule networks and virus trafficking), as well as National Institute of Allergy and Infectious Diseases, award T32 AI007476 (Immunology and Molecular Pathogenesis Training Program). We are also supported by Northwestern University and NUCATS start-up awards.

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First Nemmers Prize in Medical Science Lecture

Huda Zoghbi, MD, a Howard Hughes Medical Institute investigator and professor of Pediatrics, Molecular and Human Genetics, Neurology and Neuroscience at Baylor College of Medicine, presented a lecture about her research on Rett syndrome, as the [first recipient](#) of the Mechthild Esser Nemmers Prize in Medical Science at Northwestern University, on September 20. Watch a video of the lecture [here](#).

Throughout the day, Zoghbi toured labs and met with faculty and graduate students at the medical campus.

“Dr. Zoghbi and her collaborators have unraveled the genetic underpinnings of a number of devastating neurological disorders,” said [Rex Chisholm, PhD](#), vice dean of Scientific Affairs and Graduate Education. “These discoveries have provided new ways of thinking about common neurological diseases including autism, intellectual disability and Parkinson’s disease, and the hope is that this will lead to better treatments.”

The prize is awarded to a physician-scientist whose body of research exhibits outstanding achievement in their discipline as demonstrated by works of lasting significance.

Daniel I. Linzer, PhD, provost of Northwestern University, welcomed faculty, students and staff to the Mechthild Esser Nemmers Prize in Medical Science Lecture and gave a brief history of the four [Nemmers Prizes](#).

“These prizes have become some of the most eminent prizes in their disciplines,” Linzer said.

Zoghbi led the audience through her journey as a clinician observing patients with symptoms of Rett syndrome to her laboratory discoveries and the hopes she has in the future to develop therapeutics. Her lab identified a gene called MECP2 responsible for Rett syndrome, a developmental and neurological disorder that leads to severe motor and cognitive functions.

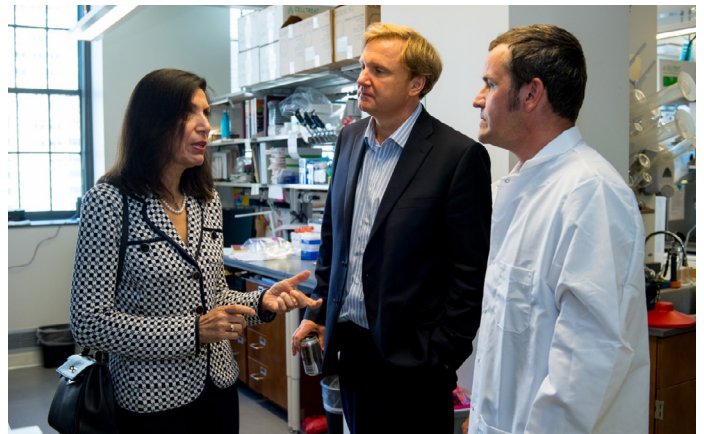
Through experiments using mouse models, manipulating the levels of expression of the gene and observing its effects on inhibitory and excitatory neurons, Zoghbi has been able to provide new insights on a large class of neuropsychiatric disorders.

“This is really helping us understand some of the more common psychiatric disorders,” she said. “Nobody would have thought that Rett would be one of the most common genetically defined causes of syndromic autism.”

Zoghbi said future directions toward translation include looking for drugable targets and small molecules for normalizing MecP2 protein levels. Watch her entire lecture [here](#).



Huda Zoghbi, MD, recipient of the inaugural Mechthild Esser Nemmers Prize in Medical Science at Northwestern University, gave a presentation on her research journey studying the neurological disorder Rett syndrome.



Zoghbi met with Dimitri Krainc, MD, PhD, chair of Neurology, and toured his laboratory during her visit to Northwestern.



Current Feinberg students had the opportunity to learn from Zoghbi during a luncheon.

Improving Outcomes and Care for GI Patients

Salva Balbale, Health Sciences Integrated PhD Program



Salva Balbale, a third-year student in the [Health Sciences Integrated PhD Program](#) (HSIP), studies ways to enhance the quality and delivery of care for patients with chronic gastrointestinal (GI) disorders.

Balbale earned her undergraduate and masters degrees from the University of Illinois at

Urbana-Champaign. Through her graduate studies and work in the field, she became enthusiastic about finding ways to improve care delivery and outcomes in GI disorders, a clinical area where health services research remains a relatively new concept. Encouraged by the HSIP faculty at Northwestern, Balbale decided to pursue her PhD.

Q&A

Where is your hometown?

I daresay my hometown is Chicago. I was born in Karachi, Pakistan, but spent my childhood split between Abu Dhabi in the United Arab Emirates and the Chicago suburbs. I also lived in Champaign-Urbana for a while, and have been back in Chicago since 2011.

What are your research interests?

My main research interests include evaluating and enhancing the quality and delivery of healthcare for patients with chronic GI disorders. These disorders – including gastroesophageal reflux disease, inflammatory bowel disease (IBD) and pancreatitis – are increasingly prevalent and complex, resulting in substantial morbidity, psychosocial challenges and healthcare costs. Despite the growing burden of these disorders, persistent gaps exist in the delivery of GI care and subsequent patient outcomes. My aim is to better understand these gaps and develop innovative, patient-centered strategies to improve care for individuals with these disorders.

What exciting projects are you working on?

My doctoral research involves optimizing the use and delivery of opioid analgesics in chronic GI care. Pain is a common symptom across many GI disorders and can significantly decrease quality of life. Opioids are often used for pain management in this area; however, high rates of opioid misuse and abuse have been documented among individuals with chronic GI disorders. These patterns are problematic,

particularly given the broader opioid epidemic in the United States. My work is centered on characterizing current trends in GI care regarding opioid use and identifying strategies to minimize inappropriate opioid use in this care setting.

I am also working with Drs. [Itishree Trivedi](#) and [Laurie Keefer](#) within the Division of [Gastroenterology](#) to improve care for young adults with IBD who transition to adult GI care. Young adults represent a significant proportion of IBD patients, yet they experience a range of poor clinical outcomes compared to older IBD patients, including missed clinic visits and increased emergency care use and healthcare costs. Our aim is to describe the unique needs of this subset of patients and develop a tailored quality improvement framework to more seamlessly integrate young adults into adult GI care.

What attracted you to the PhD program?

I was enthusiastic about finding ways to improve care delivery and outcomes in a clinical area where health services research remains a relatively new concept. The HSIP faculty members appreciated my ideas and continue to work with me to ensure that my doctoral studies align with my interests while enhancing my research toolkit. The program gives me the opportunity to build my knowledge and skills within health services and outcomes research and apply it to an area that I am especially passionate about. The program also allowed me to connect with leading faculty across the Northwestern community, with unique expertise, who've mentored me. These attributes made the program particularly attractive to me.

What has been your best experience at Feinberg?

My best experience at Feinberg has been the opportunity to be part of an institution that supports my research ideas and enables me to conduct research that may one day drive meaningful, positive change in the lives of individuals with chronic diseases. I am surrounded by an incredibly inspiring group of people – from peers and students to faculty and staff – who challenge me every day to be the best researcher I can be.

How would you describe the faculty at Feinberg?

The faculty members at Feinberg are supportive, collaborative and approachable. I have been fortunate to work with an excellent group of mentors who are not only dedicated to my success in the PhD program and beyond, but also have become more like a family to me. Although increasingly diverse in their individual research expertise, I have found the faculty to share an enthusiasm for both optimizing students' development and conducting research that truly makes an impact.

Connect with Salva on [LinkedIn](#).

Navigating Large Data Sets to Improve Research

Daniel Schneider, MS, Manager of Research Analytics, Northwestern University Clinical and Translational Sciences Institute (NUCATS)



Q&A

Where are you originally from?

I'm originally from the Chicagoland area. I grew up on in Western Springs, a southwest suburb of Chicago.

What is your educational background?

I attended undergrad at the University of Illinois in

Urbana-Champaign, majoring in biology. Afterwards I pursued a master's degree in computational biology and bioinformatics at Northwestern University.

Tell us about your professional background.

Prior to Northwestern, I worked at the University of Chicago in the division of Human Genetics, where I worked as a laboratory technician looking to find a genetic correlation to asthma. I would extract DNA samples, perform PCR amplification, as well as sequence targeted areas of the human genome to find potential mutations. Over time I took on more and more responsibilities developing computer programs to help analyze the human genome. We would identify regions of the genome that showed a certain amount of linkage to asthma phenotypes and then apply gene prediction software as well as identify particular regions that had been evolutionary conserved. These analyses prompted me to go back to school and pursue a degree in bioinformatics.

Why did you choose to work at Northwestern?

As a prerequisite for completing my master's degree I had to complete a series of independent research studies. For one of these research studies I had the privilege of working with the [dictyBase](#) team at Northwestern, developing new gene prediction algorithms. The dictyBase group happened to also be on the same floor as the [Enterprise Data Warehouse](#) (EDW) and when I graduated I learned a research analyst position had opened up. I hadn't spent a lot of time working with medical informatics at the time but was fascinated with the possibility of connecting the medical record to our individual genomic data and thought it would be a good opportunity. Over time I gathered more technical knowledge and experience and was promoted to manager of research analytics, which is the position I hold today.

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

The research analyst group within the EDW helps investigators navigate and extract the vast amounts of data that resides within the electronic medical record that is being stored within the EDW. Once we have identified what data is of interest to the investigator, we are then able to manipulate this data into whatever format best suits the analytical needs of the investigator. We release this data in a myriad of ways, be it large-scale interactive dashboards to raw csv data extracts. We also provide this data to the end user in a secure HIPAA compliant manner that allows us to track when the data is being downloaded and by whom.

What is your favorite part of the job?

The best part of my job is the amazing team of individuals I get to work with on a daily basis. We have people from many different backgrounds, with different technological skillsets and experiences, that collectively help us solve some very challenging and complicated problems. There is no way one person can keep up with the exponential growth of technology these days, but as a group we can each contribute a specific expertise to handle these challenges as one.

Another perk of this job is the variety of different research projects we get the opportunity to be involved with. Every week we get introduced to a different domain area. The constant variety of work keeps us on our toes and expands our knowledge in the different subject areas for which we have successfully pulled data.

What exciting projects are you working on?

We are currently engaged in a multitude of exciting projects. One that first comes to mind is a project we are involved in with Matthew Feinstein, looking at the correlation of cardiovascular phenotypes in patients who are HIV positive. We have extracted many different data points from the electronic medical record to help identify these phenotypes as well as help identify cases and controls that we can then compare.

Another exciting project we have been involved with is the Chicago Area Patient Centered Outcomes Research Network (CapriCorn). CapriCorn is a large network of patient-centered outcomes. It brings together 11 different healthcare institutions and partner institutes within the Chicagoland area as one unified network. The role of the EDW is to extract a large cohort of Northwestern patients as well as their corresponding diagnoses, labs, vitals, medications and procedure data in a de-identified manner to then be combined with the other 11 institutions.

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Research in the News

CBS News, September 5

[Lasting Childbirth Pain Could Have Serious Side Effects](#)

Katherine Wisner was quoted.

Reuters, September 13

[Children's Hospital Lose Money on Kids with Medicaid](#)

Matthew Davis was quoted.

Yahoo!, September 15

[Autonomous Wheelchair Could Change the Lives of Motor-impaired Users](#)

Brenna Argall was quoted.

► This research was also featured in *Crain's Chicago Business*

Huffington Post, September 15

[Researchers Would Love to Know Why Some Older People Have Such Excellent Memories](#)

Emily Rogalski was quoted.

Fox News (National), September 16

[Clinton's Diagnosis: Is 'Non-contagious Bacteria Pneumonia' real?](#)

Richard Wunderink was quoted.

Reuters, September 16

[Early Menopause Tied to Heart Risk and Early Death](#)

Teresa Woodruff was quoted.

► This research was also featured in *Fox News, Yahoo!, HealthDay and Chicago Tribune*

[More media coverage available online.](#)



Video: Build Better Bones with 3-D Printing

A Northwestern University research team has developed a 3-D printable ink that produces a synthetic bone implant that rapidly induces bone regeneration and growth. This hyperelastic "bone" material, the shape of which can be easily customized, one day could be especially useful for the treatment of bone defects in children. The findings were published in the journal *Science Translational Medicine*.

[Watch video.](#)

Northwestern University

NUCATS

Clinical and Translational Sciences Institute

NUCATS Corner

Successfully Navigate the Research Enterprise

NUCATS and the [Faculty Affairs Office](#) is helping early career faculty and postdoctoral fellows navigate the independent phase of their research careers. This includes linking them with the numerous resources and services available at Northwestern through a twice-monthly seminar series.

During each session of "[Navigating the Research Enterprise](#)" (formerly the "First Mondays" series), attendees will learn key skills needed to succeed as investigators. The series is led by the vice dean for academic affairs and the associate dean for professional development and includes individuals from departments and programs across the university who support investigators. A major focus of the series is understanding how NIH works, successful approaches to obtaining funding and developing a career advancement plan.

Upcoming topics include:

- Individual career advancement plans
- NIH funding opportunities
- Grant review process

Click [here](#) to see the full seminar schedule for the 2016-2017 academic year.

The seminars are held on the second and fourth Mondays of the month from October through March and are free. It is not necessary to attend all seminars. Click [here](#) to RSVP for an upcoming event.

Sponsored Research



PI: David Walega, MD, associate professor of Anesthesiology

Sponsor: National Institute on Aging

Title: “Stellate Ganglion Blockade for the Management of Vasomotor Symptoms”

Vasomotor symptoms (VMS) such as hot flashes and night sweats affect 80 percent of women during the menopausal transition and are an important clinical

target due to their pervasiveness, persistence association with adverse health outcomes and ineffective non-hormonal treatment options. Though hormone therapy is effective in reducing VMS, use has declined due to safety concerns brought out by the Women’s Health Initiative.

In this study, Walega and colleagues will test stellate ganglion blockade (SGB), which have been used for decades in pain management, as a potential new approach to VMS treatment in a randomized, single-site, sham-controlled clinical trial. Located in the cervical spine region, stellate ganglia are part of the sympathetic nervous system. Anatomic studies reveal connections between this ganglion and thermoregulatory regions of the brain.

The team will also be studying mechanism of action with functional brain imaging and sympathetic tone monitoring.

[Read more about this project.](#)



PI: Praveen Thumbikat, PhD, O’Connor Family Research Professor of Urology

Sponsor: National Institute of Diabetes, Digestive and Kidney Diseases

Title: “Mast Cells in Male Pelvic Pain and Lower Urinary Tract Dysfunction” and “Lipoteichoic Acid Mediated Immune Modulation of Chronic Pain”

In the first project, investigators will attempt to define the mechanism behind chronic pelvic pain syndrome, a debilitating medical condition that affects nearly two million people annually. In previous studies, they identified mast cell tryptase and its cognate receptor protease activated receptor-2 (PAR2) as important players in the disease pathogenesis.

Here they will identify factors underlying PAR2-mediated peripheral sensitization, examine how peripheral mechanisms feed into the maintenance of chronic pelvic pain and perform proof of concept pilot studies in human patients to see if therapeutic intervention can reduce mast cell tryptase and influence chronic pelvic pain.

In the other project, Thumbikat and colleagues will use components of prostate commensal bacteria to develop gold nanoparticle based therapeutics to modulate immune response and ameliorate pelvic pain.

[Read more about the mast cell project](#) and [the prostate bacteria project.](#)



Welcome New Faculty

Victoria Villafior, MD, joins as associate professor of Medicine in the Division of Hematology/Oncology. Her area of expertise is in the treatment of upper aerodigestive malignancies (lung, esophageal/GEJ, and head and neck cancers). Prior to her arrival, her research interests were primarily focused in improved delivery of concurrent chemoradiotherapy as well as use of targeted and immune therapies. She continues to be interested in developing immune and targeted therapies as well as improved chemoradiotherapy treatments for upper aerodigestive malignancies. She comes from the University of Chicago where she was also an associate professor of Medicine. Villafior earned her medical degree from Rush University Medical Center. She also completed her postdoctoral training at Rush University Medical Center, focusing on Hematology/Oncology. She has published more than 36 peer-reviewed journal articles.

How HIV Moves in Cells

(continued from page 3)

Where have you recently published papers?

We recently published some of our work showing how FEZ-1 binds to HIV cores and regulates the movement of viral particles towards the nucleus in *Nature Communications*. In collaboration with Dr. Walsh we also uncovered how HSV-1 regulates MT dynamics to initiate their intracellular transport during early infection. This work was recently published in the *Journal of Cell Biology*.

Who inspires you?

There are a number of people who inspire me, but I would have to say that my former postdoctoral mentor, Stephen Goff, is one who springs to mind immediately. He works on diverse subjects, yet manages to make groundbreaking contributions to each field. He has an enduring passion for science. He is incredibly successful, and at the same time, he is hugely supportive and helpful towards young researchers establishing their own groups, making him truly inspirational.

Navigating Large Data Sets

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What do you like to do in your spare time?

I like to stay connected to the artistic and musical communities in the city. I perform and record my own music across the city when I have time and have found it to be a great mental balance to the more technical mindset of the world of research analytics. I also enjoy reading as much as possible, be it fiction or nonfiction.

Anything else we should know about you?

I am extremely excited to continue forging new growth and development between the research analytic team and researchers at the Feinberg School of Medicine. Some of our upcoming goals for the next year are extracting discrete data elements from healthcare text notes via natural language processing as well as expanding analysis of research datasets utilizing the embedded R statistical software within Microsoft SQL Server 2016.

Connect with Dan on [LinkedIn](#).

Funding

Nutrition Obesity Research Centers

[More information](#)

Sponsors: National Institute of Diabetes and Digestive and Kidney Diseases

Submission deadline: Nov. 23

Upper amount: \$750,000 per year, for up to five years

Synopsis: The objective of the Nutrition Obesity Research Centers program is to bring together basic science, clinical and translational investigators to enhance and extend the effectiveness of research related to nutritional sciences and/or obesity. Applicants are invited to propose core centers that are part of an integrated and existing program focusing on research of this kind.

Preterm Birth Initiative

[More information](#)

Sponsors: Burroughs Wellcome Fund

Submission deadline: Dec. 1

Upper amount: \$150,000 per year, for four years

Synopsis: This initiative was created to increase the understanding of the biological mechanisms underlying parturition and spontaneous preterm birth using creative basic and translation science methods. Molecular and computational approaches such as genetics/genomics, immunology, microbiology, evolutionary biology, mathematics, engineering and other basic sciences hold enormous potential for new insights independently or in conjunction with more traditional areas of parturition research such as maternal fetal medicine, obstetrics and pediatrics.

Large Health Services Research Demonstration and Dissemination Projects for Combating Antibiotic-Resistant Bacteria

[More information](#)

Sponsors: United States Department of Health and Human Services and Agency for Healthcare Research and Quality

Submission deadline: Jan. 25

Upper amount: \$500,000 per year, for five years

Synopsis: Antibiotic resistance, which has been noted since soon after the discovery of penicillin, is now becoming a national threat. This opportunity provides funding to conduct R18 research projects focused on combating antibiotic-resistant bacteria in the following ways: by promoting appropriate antibiotic use, reducing the transmission of resistant bacteria and preventing healthcare-associated infections in the first place.

[View more funding opportunities](#)

Investigators Find Success with the DigitalHub



One year ago, Galter Health Sciences Library debuted Northwestern Medicine's institutional repository, [DigitalHub](#), and it has grown to be an important tool for Northwestern Medicine faculty and scientists. The DigitalHub provides a portal to make scholarly output publicly available and also provides a means to track views and downloads. It has benefitted scientists by offering persistent, citable identifier (DOI), metrics for deposited items, management of licensing with a wide range of rights statements, and enhanced discoverability with machine-readable metadata.

Success Stories

One of the most popular scholarly works deposited in DigitalHub is a [user guide](#) for StatTag, a free plug-in for conducting reproducible research and creating dynamic documents using Microsoft Word and Stata statistical software created by [Leah Welty, PhD](#), and Luke Rasmussen. Future versions will work with SAS and R.

With multiple views and downloads, [Statistical Considerations in Basic Science Sex Inclusive Research](#) by [Denise Scholtens, PhD](#), and [Leah Welty](#), both associate professors of [Preventive Medicine](#) at Feinberg, is another popular work deposited in DigitalHub. This guide includes an explanation of five scenarios pertaining to the sex of the cells to be used in the experiment along with a description of how an investigator should plan the experiment.

DigitalHub is also another home for the [Pediatric Neurology Briefs](#), an open access continuing education service designed to expedite and facilitate the review of current scientific research and advances in child neurology and related subjects. The DigitalHub team is working with [John J. Millichap, MD](#), editor and assistant professor of [Pediatrics](#) and [Neurology](#) to host the complete archives.

DigitalHub has also partnered with [Science in Society](#), the university's research center for science education and public engagement, to host the gallery from its annual [Scientific Images Contest](#). DigitalHub assigns [Digital Object Identifiers](#)

(DOIs) for all the objects deposited, which provides secure and long-term preservation, easy citation and persistent access.

DigitalHub and Persistent Identifiers: DOI and ARK

There have been several upgrades and enhancements to the DigitalHub infrastructure and service since its launch. One of the most popular features is the partnership with California Digital Library to assign persistent unique identifiers – DOIs and [Archival Resource Keys](#) (ARKs) – to all of the open access scholarly works deposited into DigitalHub. This ensures reliable data management, data sharing and citation tracking. A “persistent identifier” will not change if the item is moved or renamed, and thus provides for reliable referencing of scholarly works for future access by humans and software. [Read more](#) about how DOIs and ARKs can benefit you and your research.

Upcoming DigitalHub Information Sessions and Celebration

On Wednesday, October 26, from 2 to 4 p.m. in the Learning Resources Center, Galter Library will host sessions that highlight and feature DigitalHub. From 2 to 3 p.m., Galter experts will feature background and helpful tips in the session, DigitalHub: Preserving and Sharing Your Work Using NM's Repository. [Register](#) for the class.

From 3 to 4 p.m., several Northwestern Medicine colleagues who have used DigitalHub in exciting ways will present about their experiences. Following the presentations, join the DigitalHub team for first anniversary celebratory refreshments in the Galter Library atrium.

Help using DigitalHub

Need help using DigitalHub? Want to upload large datasets? Have questions about what the repository will accept or how you can use it to share your research more widely? [Contact us](#) at any time.

High Impact Factor Research

Beguelin W, Teater M, Gearhart MD, Calvo Fernandez MT, Goldstein RL, Cardenas MG, Hatzi K, Rosen M, Shen H, Corcoran CM, Hamline MY, Gascoyne RD, Levine RL, Abdel-Wahab O, **Licht JD**, Shaknovich R, Elemento O, Bardwell VJ, Melnick AM. [EZH2 and BCL6 Cooperate to Assemble CBX8-BCOR Complex to Repress Bivalent Promoters, Mediate Germinal Center Formation and Lymphomagenesis](#). *Cancer Cell*. 2016 Aug 8;30(2):197-213.

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Help Feinberg Track Journals

The Feinberg Research Office regularly tracks research published by Feinberg investigators. The citations are used on web pages, in newsletters and social media, for internal reporting and more. To more accurately track these journals, the Research Office asks that Feinberg investigators use the following institution name in the address field when publishing in peer-reviewed journals: "Northwestern University Feinberg School of Medicine."

Calendar

Tuesday, October 18

Lectures in Life Sciences

Charles Serhan, PhD, professor of Biological Chemistry and Molecular Pharmacology at Harvard Medical School, to present, "Bioactive mediators, pathways and cellular targets critical in inflammation."

Time: 3:30 p.m.

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

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

Tuesday, October 25

Microbiology-Immunology

Seminar Series

R. Keith Reeves, PhD, Harvard Medical School, will present recent findings from his lab exploring the reciprocal interaction between natural killer cells and HIV and SIV infections.

Time: Noon – 1 p.m.

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

Contact: Pablo Penaloza-MacMaster
ppm@northwestern.edu
[More information](#)

Friday, October 28

Feinberg Cardiovascular Research

Institute Seminar Series

Sharlene Day, MD, associate professor of Internal Medicine and Molecular and Integrative Physiology at the University of Michigan, will speak on myosin binding protein C mutations in hypertrophic cardiomyopathy.

Time: Noon – 1 p.m.

Location: Robert H Lurie Medical Research Center
Searle Seminar Room
303 E. Superior

Contact: Kari Lynn LeBeau
k-lebeau@northwestern.edu
[More Information](#)

NIH News

Update on Scientific Plan for Cancer Moonshot

The Cancer Moonshot Blue Ribbon panel, a team of experts across disciplines, shared their recommendations September 7 with the National Cancer Advisory Board and the public.

The research recommendations define 10 approaches for achieving the Cancer Moonshot's goal of making a decade's worth of progress in cancer prevention, diagnosis and treatment in five years.

Building Better Clinical Trials through Transparency

In an essay [published](#) in the *Journal of the American Medical Association*, authors from NIH provide an overview on how recent reforms and new initiatives fit into their broader goals of building a better clinical trial enterprise. Highlights from the essay include:

Enhancing clinical trial registration and summary results information

On September 16, NIH announced a [new policy](#) to improve the accessibility of information on clinical trial availability and on the outcomes and results of completed trials. This policy will complement a new federal [regulation](#) that was also released on September 16, which details the requirements for submitting registration and summary results information

NIH has made available a number of resources to help explain the changes and will be rolling out more over the upcoming months. Find more information [here](#).

Changes to clinical trial applications

A new [policy](#) issued on September 16 requires that the research community submit grant applications requesting support for clinical trials in response to clinical trial-specific funding opportunity announcements.

Clinical trial protocol template

NIH, in collaboration with the FDA, is developing a clinical trial protocol template to expedite both NIH and federal regulatory oversight processes.

