

# Breakthroughs

Feinberg School of Medicine Research Office

May 2017



## Scientists Use Wearables to Track Patient Data

**By Sarah Plumridge**

From Fitbit trackers to sticky patches, Northwestern scientists and clinicians are using wearable technology to gather a wealth of novel information about patients and to devise innovative ways to treat and prevent disease.

[Bonnie Spring, PhD](#), Director of the Center for Behavior and Health in the Institute for Public Health and Medicine (IPHAM), predicts the use of wearables in research will explode in the near future. Spring and her team have used tracking technology for years, since “the age when palm pilots were cutting edge.” Now, nearly 15 years later, Spring is leading several trials using wearable devices and mobile applications to track behaviors.

In the Sense2stop study, Spring and her team are using wearable sensors to identify when people are most at risk to indulge in a bad habit, such as smoking.

“This is fairly cutting-edge, because we are capitalizing on the fact that people don’t need our help all of the time – they just need it when they are at risk. The problem is, they don’t know when that is, and neither do we,” says Spring, who is also a professor of [Preventive Medicine](#) and [Psychiatry and Behavioral Sciences](#).

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Spring and her collaborators are also currently testing the impact of a mindfulness intervention during times of stress. Subjects wear a chest strap that collects data on the patient’s respiration and heart rate. When the patient shows physiological signs of stress, the sensor detects it in real time, and sends an intervention to the person’s mobile phone. In addition to tracking stress alone, the team is also testing a suite of sensors to track stress signals related to smoking and overeating.

“We’re learning what the signals look like that predict when they are about to do those behaviors,” Spring says. “We’re trying to get people out of their stress state.”

Additionally, these trackers can allow clinicians to develop new treatment procedures, by giving scientists the tools to quickly learn how a person responds to and adapts to treatments.

“You can see early on whether or not something is working. We will be able to use the sensor technologies to get an early warning on how people are doing,” Spring says.

In another current trial focused on weight loss, Spring and her group are using a “stepped care” model, a way to deliver and monitor tiered treatments. A patient steps up to the next treatment tier as determined by the health professional. Patients in the study are given scales with Wi-Fi that tracks their weight loss progress. Instead of having to wait months

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## Wearables

(continued from cover page)

to know if the treatment is working, care providers can know within two weeks whether the patient is responding.

In addition to their use in prevention, wearable devices are also being used in rehabilitation. [Christine Pellegrini, PhD](#), adjunct assistant professor of Preventive Medicine, currently uses Fitbit activity trackers in a pilot study to track physical activity levels in patients who have had knee replacement surgery.

Pellegrini and her team are following two groups of patients for four months within the first year after their surgery. One group of patients will receive a Fitbit alone, while the other group will receive Fitbits for themselves and a buddy. Pellegrini hopes to learn if simply providing a wearable device will increase physical activity, as well as determining whether having a friend, spouse or coworker connected with them through the activity tracker app motivates patients to be even more active.

The activity trackers are potentially valuable for knee replacement patients, because though they to physical therapy after surgery, therapy alone may not provide the necessary motivation to lead a healthy, active lifestyle.

“We will be able to get an idea of overall physical activity and come up with potential recommendations for orthopedic surgeons and physical therapists. With the buddy system, we are looking at different social support constructs. Ultimately, we are looking to explore different options. Currently, there isn’t much on lifestyle and physical activity guidelines on a daily basis for these patients,” Pellegrini said.

At the [Shirley Ryan AbilityLab](#) in the [Center for Bionic Medicine](#), [Arun Jayaraman, PhD](#), associate professor of [Physical Medicine and Rehabilitation](#), uses wearable sensors and novel machine learning techniques for outcomes research in patients with physical disabilities.



*Arun Jayaraman, PhD, displays many of the wearable technologies used in his lab to help collect data from patients at the Shirley Ryan AbilityLab.*

Also a professor of [Medical Social Sciences](#) and [Physical Therapy and Human Movement Sciences](#), Jayaraman is currently conducting more than 20 studies at the lab, from gloves that measure the mechanics of wheelchair use for shoulder injury research to next-generation prostheses with advanced technology to prevent falls in amputees.

In collaboration with [John Rogers, PhD](#), the Louis Simpson and Kimberly Querrey Professor of Materials Science and Engineering, Biomedical Engineering and Neurological Surgery, Jayaraman is testing an adhesive skin device for an inpatient stroke study that monitors sleep, heart rate, stress, activity and more.

“Patient monitoring allows clinicians to know what happens when a patient gets a medication or goes to physical therapy,” Jayaraman says. “We can use the data from the monitors to quantify a patient’s medication or their surgical or therapeutic intervention.”

A large part of his team’s time is spent on customizing monitors to different patient populations. Jayaraman stresses the limitations of commercial sensor technology, which is usually calculated to pick up simple patterns in healthy, young individuals.

“It takes a lot of time and work to develop advanced machine learning techniques,” Jayaraman says. “There is a lot of over- or under-prediction of performance in devices such as Fitbits, and for the average person, an approximate calculation is okay, but for patients where physicians may want to change a drug dosage, therapy plan or gauge whether surgery is needed, it’s important to have accurate and precise data.”

Jayaraman envisions a future where wearables will “talk” to robots to assist or protect patients. With newly-developed sensors becoming ever-smaller, Jayaraman predicts they will eventually become non-contact sensors, which in the future would be able to sweep a room and pick up detailed data on all of the people moving within.

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# Revealing Metabolic Changes in Tumor Cells

Issam Ben-Sahra, PhD, assistant professor of Biochemistry and Molecular Genetics



While a graduate student at the University of Sophia-Antipolis in Nice, France, [Issam Ben-Sahra, PhD](#), assistant professor of [Biochemistry and Molecular Genetics](#), became interested in studying the role of metabolic changes on cancer cells and tumor growth. This work has driven him to further study the regulation of metabolic pathways in cancer, specifically understanding the impact of mTOR-stimulated pathways.

Before joining Northwestern in 2016, Ben-Sahra completed a postdoctoral fellowship at Harvard School of Public Health where he studied how the protein complex mTORC1 drives anabolic cell growth and proliferation. He is also a member of the [Robert H. Lurie Comprehensive Cancer Center of Northwestern University](#).

## Q&A

### What are your research interests?

My research interests lie in the field of cancer biology and metabolic pathways. My lab seeks to define the key molecular links between oncogenic events and cellular metabolism. In particular, we pursue to identify novel connections between oncogenic signaling and metabolic pathways required for nucleotide synthesis.

### What is the ultimate goal of your research?

Deciphering the interplay between oncogenic processes and metabolic pathways that contribute to metabolic reprogramming in a given setting may serve as a critical factor in determining therapeutic targets that yield maximal drug efficacy with minimal deleterious effect on normal cells. The goal of my research program is to facilitate further progress in the exploitation of atypical metabolic features in cancer as a means of therapeutic intervention.

### How does your research advance medical science and knowledge?

My lab is focused on the regulation of nucleotide synthesis by oncogenes. Decoding how nucleotide metabolism is rewired in specific types of cancer can improve our understanding and therapeutic strategies to more specifically eradicate cancer cells.

### How did you become interested in this area of research?

I am fascinated by all sciences, especially mathematics, astronomy and biochemistry. I was always interested in understanding how cancer cells or proliferative cells alter their metabolic program to maintain cell autonomous proliferation. When I was a graduate student, I became interested in studying the role of metabolic stress-inducing agents in cancer cell survival. My PhD work elucidated the role of metabolic perturbations on cancer cell viability, and we were among the first to uncover the anti-cancer properties of the anti-diabetic drug metformin. Indeed, we demonstrated that metformin inhibits prostate cancer cell growth and proliferation through alteration of cellular metabolism. This work led me to dive in further into the regulation of metabolic pathways by signaling pathways in cancer.

### How is your research funded?

My research is funded by the K99/R00 grant from the National Institute of Health and National Cancer Institute (NIH/NCI). This is a grant that helped me get the opportunity to obtain a faculty position and start my own lab at Northwestern University.

### What are some of your personal hobbies/interests?

When I have some spare time, I read about astronomy and new discoveries in this field. I am fascinated by the immensity of our universe (or multiverse) and the opportunity of finding Earth-like planets where different forms of life could have spread.



# Insights From Computational Research Day

Northwestern's 4th annual Computational Research Day brought together more than 350 faculty members and students to showcase innovative research projects, share recent insights and tools, and strengthen the computational research community throughout the university.

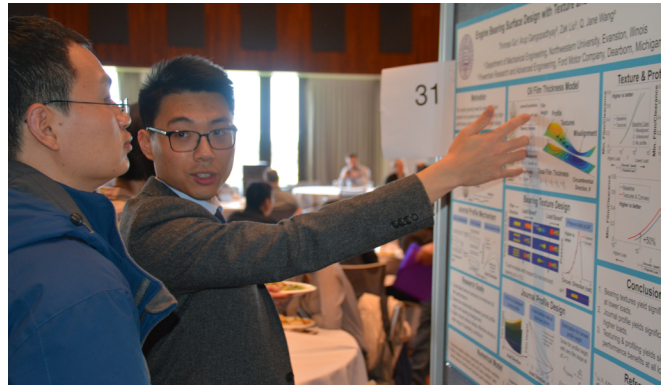
The event, co-sponsored by Feinberg and hosted by Northwestern Information Technology on the Evanston campus, featured presentations, a poster competition, workshops, software demos and group discussions, all centered on leveraging computational methods to answer complex research questions.

[Rex Chisholm, PhD](#), vice dean of Scientific Affairs and Graduate Education, kicked off the conference with an opening address discussing the [Northwestern Medicine Enterprise Data Warehouse](#), which currently holds more than 40 terabytes of clinical and research data.

"We are in a completely different world today, where instead of paper records, everybody's health is now captured in an electronic record," said Chisholm, also the Adam and Richard T. Lind Professor of Medical Genetics. "The ability to put that data together in a single place and start to think about big data approaches to identifying patterns in that collection of data is a major game-changer."

[Elizabeth McNally, MD, PhD](#), director of the Center for Genetic Medicine, delivered a keynote address on human genome sequencing and echoed the opportunities offered by computational research. "This really is an area where there has been a lot of need for big data analysis — and it's definitely not shrinking anytime soon," said McNally, also the Elizabeth J. Ward Professor of Genetic Medicine.

In addition to biomedical research, the conference also highlighted the use of computing in a wide range of other disciplines, from economics and engineering to applied physics and the social sciences. A guest keynote address was delivered by Desmond Patton, PhD, MSW, assistant professor at the Columbia University School of Social Work, who presented on his research into innovating gang violence prevention through qualitative analysis and natural language processing of social media data. The speakers were followed by a poster session and poster awards ceremony.



*The annual Northwestern Computational Research Day and poster session was held April 18 on the Evanston campus.*



*Elizabeth McNally, MD, PhD, director of the Center for Genetic Medicine, delivered the keynote address at Computational Research Day, on human genome sequencing.*

Yoonjung Yoonie Joo, a [Health and Biomedical Informatics](#) PhD student in the Driskill Graduate Program ([DGP](#)), received second-place for "Phenome-wide Association Studies of Polycystic Ovary Syndrome (PCOS)," her research with principal investigator [M. Geoffrey Hayes, PhD](#), associate professor of [Medicine](#) in the Division of [Endocrinology](#). The first-place prize was awarded to Shannon Brady, in the Weinberg College of Arts and Sciences, with third-place going to Jamilah Silver, in the School of Education and Social Policy.



## Spotlight on Nanotechnology Research

The Big Ten Network recently visited the lab of [C. Shad Thaxton, MD, PhD](#), associate professor of Urology, to showcase his work in nanotechnology. The focus of Thaxton's lab is to control the synthesis of structures that naturally interface with biological systems to develop exquisitely targeted, practical, safe, and effective nanoparticle therapeutics, imaging agents, and biosensors. [Watch the video.](#)

## Investigating the Roles Alpha-Catenin Play in Cell-Cell Adhesion

### Megan Novak, Driskill Graduate Program is Life Sciences



Megan Novak, a fourth-year student in the Driskill Graduate Program in Life Sciences (DGP), studies dysregulated cell-cell adhesion in cancer progression in the laboratory of [Carl Gottardi, PhD](#), associate professor of Medicine in the [Division of Pulmonary and Critical Care](#).

Novak earned her undergraduate degree in Chemistry from Furman

University. She plans to work in higher education advising, specifically with STEM students to help them learn to translate their quantitative, analytical and critical thinking skills into skills that are broadly applicable for any career.

## Q&A

### Where is your hometown?

I lived all over growing up, but I have now officially lived in Chicago long enough that I call it home. There's nothing quite like flying into Chicago over Lake Michigan. Every time I see the skyline from that perspective, I think to myself that I live in such an incredible, beautiful city.

### What are your research interests?

I study cell-cell adhesion – basically the molecular “velcro” that keeps cells sticking together. Cell-cell adhesion provides structural support, creates important barriers (i.e. your skin), and is important for a number of cellular processes, including cell signaling. This cell-cell adhesion is often dysregulated during cancer progression. Cancer cells stop “sticking” to an adjacent cell, which is dangerous because this allows the cancer cell to leave the primary tumor and metastasize to somewhere else in the body.

I study one particular protein involved in cell-cell adhesion, called alpha-catenin. We know a lot about alpha-catenin's role at the cell-cell junction, but there is evidence that it can be found in other parts of the cell, where it plays additional roles. My research goal is to learn what alpha-catenin does when it leaves its day job at the junction, and goes on to a second, part-time job, in other parts of the cell.

### What exciting projects are you working on?

Most of the experimental methods I use during my PhD studies involve the use of the microscopes at the [Center for Advanced Microscopy](#) on the Feinberg campus. I love live cell imaging and watching proteins move around within the cell. One particularly cool experiment I recently did for a paper revision involved adding a fluorescently-tagged membrane phospholipid into a part of the cell where that lipid is not normally found. Using time-lapse live cell imaging, I was able to watch my protein of interest (tagged with a different colored fluorophore) get recruited to the site where this phospholipid was exogenously added. This experiment showed that the phospholipid was sufficient to recruit my protein of interest. I was also able to introduce point mutations into my protein of interest that reduced this recruitment to the newly added phospholipid, suggesting that these amino acids contribute to the interaction between my protein and the phospholipid.

### What attracted you to the PhD program?

I was an undergraduate chemistry major with a strong interest in biology, so I was really drawn to the integrated science programs where I could complete rotations in different fields before choosing a thesis lab. I also knew that I did not want to run my own lab after graduation, so I looked for an institution that supported a variety of careers after completing a PhD. Northwestern has so many certificate programs and master's programs to support professional development beyond bench research – teaching, business management, clinical investigation, and science law to name a few – that I felt I would be well-supported no matter what career path I chose.

### What do you do in your free time?

As a self-admitted foodie, I love trying new restaurants in Chicago. I recommend the poutine at Fork in Lincoln Square, cocktails at The Sixth in Ravenswood and a date night meal at Table, Donkey, & Stick in Logan Square. I also can't wait for summer to arrive so I can get back to playing beach volleyball with friends at North Avenue beach and going to free concerts in Millennium Park.

### What are your plans for after graduation?

I am searching for career advising jobs within higher education. I find that many students are overwhelmed by the process of career exploration and job searching, and that I really enjoy breaking down this process into achievable steps that will allow students to identify and pursue a job they are passionate about. I am particularly interested in working with STEM students, and helping them learn to translate their quantitative, analytical and critical thinking skills into skills that are broadly applicable for any career.

Connect with Megan on [LinkedIn](#).

# Continuously Improving Data Approaches

Keith Herzog, assistant director of evaluation, Northwestern University Clinical and Translational Science (NUCATS) Institute



Keith Herzog joined Northwestern University in 2016, after spending more than a decade at The University of Michigan's ADVANCE program, which aims to improve the campus environment for faculty.

## Why did you choose to work at Northwestern?

My family was thrilled to relocate to Chicago and I feel fortunate to have found a professional home within the Feinberg School of Medicine.

My role at NUCATS affords me unparalleled opportunities to engage with talented and dedicated colleagues within a world-class academic medical school environment and to support our mission to accelerate the speed and improve the efficiency and effectiveness of clinical and translational research at Northwestern University and beyond.

## What is your favorite part of the job?

The best part of my position is working collaboratively with colleagues both within and outside the NUCATS Institute to implement our team-based, data-driven approach to evaluation, continuous improvement and strategic management.

## What exciting projects are you working on?

I am incredibly fortunate to work closely with NUCATS Institute colleagues including [Kristi Holmes, PhD](#), director of evaluation, Andrea Minogue, administrative director and Pearl Go, data analyst.

We develop strategic management plans for institute initiatives and programs implement robust engagement tracking and automated reporting systems (e.g., dashboards), and deploy common data collection workflows and instruments for program evaluation and process improvement initiatives.

## What do you like to do in your spare time?

I enjoy spending time with my family, including two cats and two dogs. I love exploring Chicago's amazing architecture, neighborhoods, restaurants and theatres as well as volunteering at a local animal shelter, managing the website for a national Broadway theatre podcast and listening to current and classic Broadway cast albums. Also, we are making our way through the Atlas Obscura Chicago recommendations!

Connect with Keith on [LinkedIn](#).

## Q&A

### Where are you originally from?

I am originally from Houston, Texas.

### What is your educational background?

I have a bachelor's degree in political science, English literature and business administration foundations from the University of Texas at Austin, as well as advanced training in political science and quantitative methods at the University of Michigan.

### Tell us about your professional background.

I joined the Northwestern University Clinical and Translational Sciences (NUCATS) Institute last year as the assistant director of evaluation. Prior to joining the Feinberg community, I worked as a research and evaluation manager and survey specialist for the University of Michigan ADVANCE Program.

During my more than ten years in this role, I honed my skills as a data analyst and a quantitative and qualitative researcher through: administering surveys and conducting interviews and focus group studies to evaluate the impact and effectiveness of institutional policies and practices, reporting on institutional key performance indicators and presenting complex research findings to diverse audiences.

# Research in the News

## ***The Associated Press, April 3***

[A 'Sci-fi' cancer therapy fights brain tumors, study finds](#)

Roger Stupp was quoted.

► This research was also featured in *The Washington Post* and *U.S. News & World Report*.

## ***WebMD, April 18***

[Stem cells for knees: Promising treatment or hoax?](#)

Donald Lloyd-Jones was quoted.

## ***CNN, April 18***

[Should you take statins? Two guidelines offer different answers](#)

Feinberg School of Medicine was mentioned.

## ***HealthDay, April 20***

[Is it wise to take a steroid for a sore throat?](#)

Jeffrey Linder was quoted.

## ***Reuters, April 20***

[VA may top other hospitals in quality but not patient satisfaction](#)

Karl Bilimoria was quoted.

## ***The New York Times, April 21***

[Matchmaker, matchmaker, roll me a joint](#)

John Franklin was quoted.

## ***Chicago Tribune, April 21***

[At-home genetic test helps pick the right drugs to treat pain](#)

Rex Chisholm was quoted.

## ***TODAY, March 22***

[Why your UTI may lead to kidney infections and how to avoid them](#)

Sarah Flury was quoted.

[More media coverage available online.](#)

Northwestern University

# NUCATS

Clinical and Translational Sciences Institute

## NUCATS Corner

### 5 Ways Statisticians Can Help Your Research

[The Biostatistics Collaboration Center's](#) (BCC) statisticians can help research teams from the initial idea for a research project, through the publication of the final manuscript.

The master's and doctoral-level statisticians are available for a single consultation, assistance with specific portions of a research project or as co-investigators for studies.

Here are five ways the BCC statisticians can help with your research study:

1. They help research teams design studies that are statistically sound and promote reproducible research.
2. During grant and contract proposal writing, statisticians will advise on experimental design, formulating a hypothesis and sample size calculation and even assist with writing the statistical section of the grant.
3. When it's time to analyze data, they are available to help identify the best analysis method that will provide sound analysis.
4. Once all the data is collected, they will work with you to interpret the results in a meaningful way.
5. Finally, as you prepare your manuscript or support, statisticians will write the statistical methods and statistical analysis portions and help with manuscript review.

To get started, [schedule an initial consultation](#).



# Sponsored Research



**PI: Irina Budunova, MD, PhD, associate professor of Dermatology and Urology**

**Sponsor: National Institute of Allergy and Infectious Diseases**

**Title: “REDD1 dissociates the therapeutic and adverse effects of glucocorticoids in skin”**

Glucocorticoids remain the most commonly used anti-inflammatory drugs in dermatology. Their use, however, is limited by the development of side effects, particularly skin atrophy. Buduniva's team discovered that REDD1 is causatively involved in skin atrophy. They plan to test the novel concept of safe anti-inflammatory therapy in which glucocorticoids are combined with REDD1 inhibitors.

Her team proposes to explore the role of REDD1 in skin inflammation using chronic murine models of dermatitis; to determine the effect of REDD1 on major steps in GR activation; and to seek for pharmacological inhibitors among FDA-approved and experimental drugs using bioinformatics approach.

This highly innovative program will strongly impact her team's understanding of major catabolic/anabolic pathways in skin and the results could be advantageous for the skin diseases as well as for various visceral inflammatory diseases treated by glucocorticoids as they induce atrophy in numerous tissues including muscle and bone.

[Read more about this project.](#)



**PI: Atique Ahmed, PhD, assistant professor of Neurological Surgery**

**Sponsor: National Institute of Neurological Disorders and Stroke**

**Title: “Cellular plasticity and equilibrium in GBM progression”**

Glioblastoma multiforme (GBM) is the most common adult primary brain tumor with median survival less than 14 months. This is partly because almost all GBM eventually recur and recurrent disease is more aggressive as well as resistance to conventional therapy. A growing body of evidence points to cancer stem cells (CSCs) as the culprit behind persisting uncontrolled growth in several human malignancies, including GBM.

It is hypothesized that CSCs in GBM (GSCs), with similar characteristics as normal tissue stem cells, are resistant to anti-cancer therapeutics and thus instrumental in initiating clinical relapse. Ahmed's team developed models for anti-glioma chemotherapy-induced recurrent GBM by using patient-derived xenograft (PDX), and investigated the evolutionary path to recurrence. Their data demonstrated that in the recurrence model, the equilibrium shifted toward a more stem-like state and therapy-induced interleukin 8 (IL8)-regulated epigenetic plasticity is critical for this change. Based on this, they hypothesize that cellular plasticity-mediated fate equilibrium shift towards a more stem-like state is responsible for the aggressiveness of recurrent GBMs and their resistance to conventional therapy.

[Read more about this project.](#)

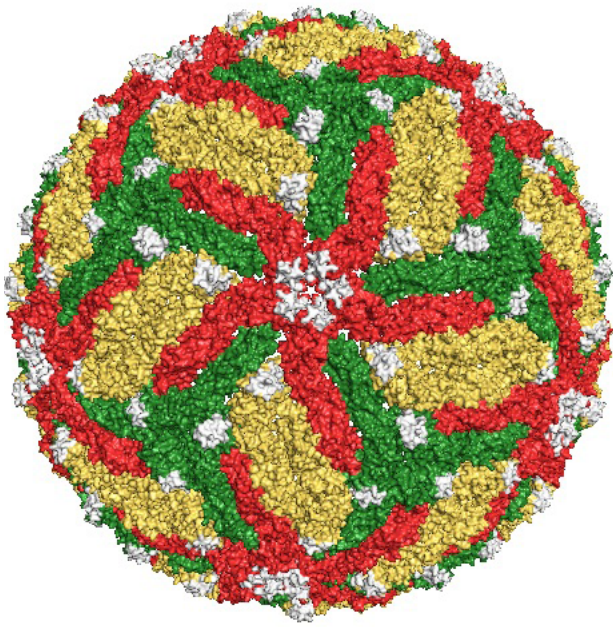


## Welcome New Faculty

Steven Lubbe, PhD, MSc, joins as assistant professor of Neurology and Genetic Medicine. His area of expertise focuses on using whole exome or genome-sequencing data from patients with Parkinson's disease and movement disorders to identify novel genes associated with diseases. Lubbe's research interests also include the proposed genetic link between Parkinson's disease and malignant melanoma, as well as the role pigmentation, in general and in the brain, plays in Parkinson's disease etiology.

Previously, he was a Research Associate at the UCL Institute of Neurology, London. Lubbe earned his PhD in Cancer Genetics from the Institute of Cancer in United Kingdom and his Masters of Science in Medicine from the University of Witwatersrand in South Africa. He has published more than 36 peer-reviewed journal articles.





Mapping of a principal neutralizing epitope (shown in white) on the surface of Zika virus. Credit: Chris Nelson from Zhao et al., 2016, *Cell* 166, 1016-1027.

## Battling Infectious Diseases with 3-D Structures

An international team of scientists, led by Northwestern University Feinberg School of Medicine, has determined the 3-D atomic structure of more than 1,000 proteins that are potential drug and vaccine targets, to combat some of the world's most dangerous emerging and re-emerging infectious diseases.

These experimentally determined structures have been deposited into the World-Wide Protein Data Bank, an archive supported by the National Institutes of Health (NIH), and are freely available to the scientific community. The 3-D structures help expedite drug and vaccine research and advance the understanding of pathogens and organisms causing infectious disease.

"Almost 50 percent of the structures that we have deposited in the Protein Data Bank are proteins that were requested by scientific investigators from around the world," said Feinberg's [Wayne Anderson, PhD](#), director of the project. "The NIH has also requested us to work on proteins for potential drug targets or vaccine candidates for many diseases, such as the Ebola virus, the Zika virus and antibiotic-resistant bacteria. We have determined several key structures from these priority organisms and published the results in high-impact journals such as *Nature* and *Cell*."

## Funding

### NIH Director's Pioneer Award Program

[More information](#)

**Sponsor:** National Institutes of Health

**Submission deadline:** Sept. 1, 2017, by 5:00 p.m. local time of applicant organization

**Upper Amount:** \$700,000 per year

**Synopsis:** To be considered pioneering, the proposed research must reflect ideas substantially different from those being pursued in the investigator's research program or being pursued elsewhere. The Pioneer Award is not intended to expand a current research program's funding in the area of the proposed project. While the research direction may have as its foundation the applicant's prior work and expertise, it cannot be an obvious extension or scale up of a current research enterprise which could be anticipated to be competitive as a new or renewal R01 application.

### Investigators in the Pathogenesis of Infectious Disease

[More information](#)

**Sponsor:** The Burroughs Wellcome Fund

**Submission deadline:** May 26, 2017, Noon CT

**Upper Amount:** \$500,000 over five years

**Synopsis:** The Investigators in the Pathogenesis of Infectious Disease program provides opportunities for assistant professors to bring multidisciplinary approaches to the study of human infectious diseases. The goal of the program is to provide opportunities for accomplished investigators still early in their careers to study what happens at the points where the systems of humans and potentially infectious agents connect.

### Damon Runyon Innovation Award

[More information](#)

**Sponsor:** Damon Runyon Cancer Research Foundation

**Submission deadline:** July 6, 2017

**Upper Amount:** \$150,000 per year, for two to four years

**Synopsis:** The Damon Runyon-Rachleff Innovation Award is designed to provide support for the next generation of exceptionally creative thinkers with "high-risk/high-reward" ideas that have the potential to significantly impact our understanding of and/or approaches to the prevention, diagnosis or treatment of cancer.

The Innovation Award is specifically designed to provide funding to extraordinary early career researchers who have an innovative new idea but lack sufficient preliminary data to obtain traditional funding. It is not designed to fund incremental advances. The research supported by the award must be novel, exceptionally creative and, if successful, have the strong potential for high impact in the cancer field.

[View more funding opportunities](#)

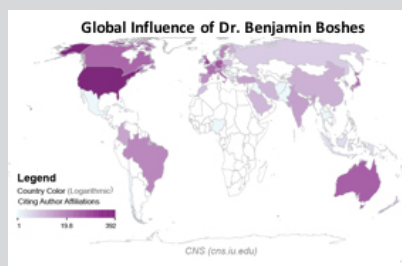
# A Lasting Legacy: Research Continues to Inform Practices for Many Years



By Karen Gutzman, Ramune Kubilius and Corinne Miller

Northwestern Medicine is home to renowned researchers and physicians. Their work pushes the bounds of knowledge and their leadership transforms their profession. Long after their time here has ended, history clearly remembers their contributions.

Publication analyses can show us how historical works continue to have influence today: informing research, providing context and guiding discovery. One such example is the work of Dr. Benjamin Boshes, a prominent psychiatrist and former chair of the Department of Neurology and Psychiatry at Northwestern University from 1951 to 1969 and the Department of Neurology from 1969 to 1975. Boshes received all of his degrees from Northwestern (BS 1929; MD 1931; MS 1934; PhD 1938). He contributed to the war effort with his work on the effects of flight on the brain and served in World War II as a consultant to the Selective Service and then a Lieutenant Colonel in the Mediterranean Theater of Operation where he was the chief of neurology and



Color represents number of citing author country affiliations based on data from 1970 to present in Elsevier's Scopus database.

psychiatry for the Fifth Army.

Boshes published his first peer-reviewed article in 1934 and his last publication in 1981; in total he published over 106 documents indexed in Elsevier's Scopus database. Although he passed away almost 33 years ago, in 1984, Boshes' work continues to be cited. Since 1970, as far back as Scopus's cited reference data goes, his works have received over 900 citations from authors in 53 countries and 11 languages.

His most highly cited work (Logemann JA, Fisher HB, Boshes

B, Blonsky ER. Frequency and cooccurrence of vocal tract dysfunctions in the speech of a large sample of Parkinson patients. *J Speech Hear Disord.* 1978;43(1):47-57.) received 28 citations in 2016 and continues to be of interest in today's scholarly landscape.

Boshes was a prolific writer, appealing to his audience with common sense and deep understanding for his patients. He wrote about emerging treatments in neurology in the *Quarterly Bulletin of the Northwestern University Medical School* in 1954:

"This new approach to neurology is what we must teach our students; a living dynamic science, with a plan of care for each patient, not a label. It must be neurology integrated with medicine, surgery and other disciplines."

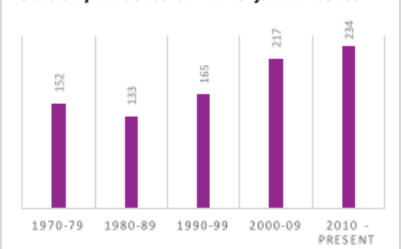
Want to learn more about the Feinberg School of Medicine's notable researchers? Then take time to enjoy Galter Library's upcoming summer exhibit on Northwestern notable researchers in the McGaw Pavilion lobby from July to September 2017. This exhibit is a joint effort from Galter Library's Special Collections and the Metrics and Impact Core. If you need assistance with your own publication summary, begin by contacting your liaison librarian.

Resources used:

Boshes B. *The Department of Nervous and Mental Diseases, Northwestern University Medical School. Quarterly Bulletin of the Northwestern University Medical School.* 1954;28(1):92-97. PMC3803215

Dr. Benjamin Boshes, expert on aging's effect on brain: [Obituary]. *The New York Times (Late Ed.).* 1984 Apr 22: Sect. A:22.

Scholarly Influence of Dr. Benjamin Boshes



Bars represent number of citing documents over time based on data from 1970 to present in Elsevier's Scopus database.



# High Impact Factor Research

Bakker R, Carthew RW. [MicroRNAs Make a Difference in Cardiovascular Robustness](#). *Developmental Cell*. 2017 Mar 27;40(6):515-516.

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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, May 16

## Interrogating Dysregulated Cytokine-Signaling Networks in Myeloproliferative Neoplasms

**Man-Wah Tan, PhD, Director, Infectious Diseases Department, Genentech Inc., will discuss the discovery of broadly neutralizing antibodies for the treatment of severe influenza infections and the engineering of an antibody-antibiotic conjugate to treat severe *S. aureus* bacteremia.**

**Time: Noon**

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

**Contact: [ahauser@northwestern.edu](mailto:ahauser@northwestern.edu)**

[More information](#)

Wednesday, May 17

## DigitalHub: Preserving and Sharing Your Work Using NM's Repository

**This class provides an overview of DigitalHub, Northwestern Medicine's open access repository, and provides hands-on instructions to individuals interested in curating their scientific and scholarly work.**

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

**Location: Ward Building, Galter Library, 303 E. Chicago Avenue**

**Contact: [violeta.ilik@northwestern.edu](mailto:violeta.ilik@northwestern.edu)**

[More information](#)

Monday, May 22

## 2017 Feinberg Commencement

**Class of 2017 Commencement and reception**

**Time: 2:45 p.m. to 5:00 p.m.**

**Location: Grand Ballroom, Navy Pier  
600 East Grand Avenue, Chicago, Illinois**

**Contact: [j-langland@northwestern.edu](mailto:j-langland@northwestern.edu)**

[More information](#)

## NIH News

### Wednesday Lecture Series

The NIH Director's Wednesday Afternoon Lecture Series, colloquially known as WALs, is the highest-profile lecture program at the NIH. Lectures occur on most Wednesdays from September through June from 3:00 to 4:00 p.m.

Check out [upcoming speakers](#) and [watch webcasts](#) of previous lectures.

### Certificates of Confidentiality for NIH Grants

New legislation passed through the 21st Century Cures Act contains provisions to improve clinical research and privacy through certificates of confidentiality.

Currently, certificates of confidentiality (CoCs) are provided upon request to researchers collecting sensitive information about research participants. Soon, CoCs will be automatically provided for NIH-supported research, as set forth in the 21st Century Cures Act. Dr. Michael Lauer, the NIH's Deputy Director for Extramural Research, explains this change in his blog "[Open Mike](#)."

### Building a Diverse Biomedical Workforce

The NIH's Diversity Program Consortium launched in 2014 with novel intent to "use evidence-based strategies to enhance diversity in the biomedical workforce, using specific 'hallmarks of success' to measure change and evaluate impact at three distinct levels: students, faculty, and institutional environment." Hannah Valentine, MD, the NIH's first permanent Chief Officer for Scientific Workforce Diversity, explains the consortium's Building Infrastructure Leading to Diversity (BUILD) program, and how it is designed to intervene on the issues that affect entry and advancement during training. [Read her in-depth blog post](#).

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