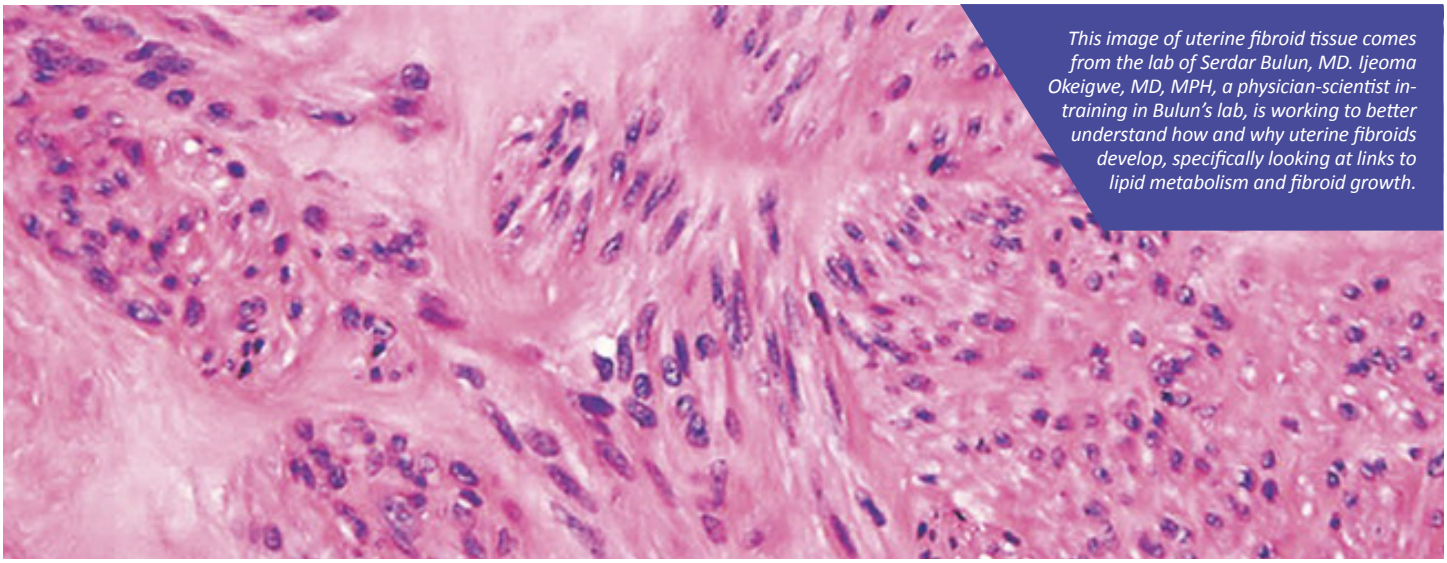
Breakthroughs

Feinberg School of Medicine Research Office

March 2017



This image of uterine fibroid tissue comes from the lab of Serdar Bulun, MD. Ijeoma Okeigwe, MD, MPH, a physician-scientist in-training in Bulun's lab, is working to better understand how and why uterine fibroids develop, specifically looking at links to lipid metabolism and fibroid growth.

Research from Next Generation of Physician-Scientists

Young physicians who formally engage in scientific research at Northwestern University Feinberg School of Medicine during a residency or fellowship program have something important in common—they want to impact human health beyond individual patient care. And they're in demand.

"Residents and fellows who pursue leading-edge research represent the next generation of great physician-scientists," said Eric G. Neilson, MD, the Vice President for Medical Affairs and the Lewis Landsberg Dean at Feinberg. "Northwestern is a top-tier destination for biomedical research, and we want to foster an environment that supports the development of our world-class trainees, both as clinicians and as scientists at the forefront of scientific discovery who will impact the field of medicine for years to come."

Feinberg is providing opportunities and breaking down barriers for trainees interested in research by providing strong graduate and training programs and by offering access to mentors, research space, equipment and datasets to help them explore important research questions.

Meet four aspiring physician-scientists with unique research goals and reasons for pursuing their careers at Feinberg.

Watch Video: Matt Feinstein, '11 MD, Physician-Scientist Training Program and cardiovascular disease fellow

Feinstein, who also attended medical school at Feinberg, was able to use pilot data from the Northwestern Medicine Enterprise Data Warehouse for a research project, which then became the basis for a five-year career development award.

He has recently published research on the higher rate of cardiovascular complications in individuals with HIV. Ultimately, he wants to develop ways to prevent these problems for those with HIV and translate findings to other inflammatory diseases as well.

"My mentor, Donald Lloyd-Jones, is pretty much responsible for helping my development as a physician-scientist and providing me with a positive role model of what it means to be a physician-scientist," he said.

Watch Video: Ijeoma Okeigwe, MD, MPH, second-year reproductive endocrinology and infertility fellow

Okeigwe always wanted to be a physician, but it wasn't until she began working with fibroid patients during residency that she discovered an interest in the science behind reproductive endocrinology.

Northwestern Medicine®

(continued on page 2)

Next Generation Physician-Scientists

(continued from cover page)

"My goal is to help identify therapeutics to help prevent fibroids from growing," she said. "That led me here to Northwestern, where we have some of the best experts in fibroid research."

She is conducting basic science research alongside her mentor, Serdar Bulun, MD, chair of the Department of Obstetrics and Gynecology, to better understand how and why uterine fibroids develop.

"The exact mechanism through which fibroids continue to grow are not fully understood and currently in our lab we are starting to realize that there may be links to lipid metabolism, so that is an exciting area I am learning about."

Watch Video: Ravi Rajaram, MD, MSc, Physician-Scientist Training Program, general surgery resident

As a surgery resident, Rajaram had the opportunity to dedicate two years to conducting research. He also received a T32 grant to pursue a Master of Science in Health Services and Outcomes Research. Soon after that he decided to pursue the physician-scientist path.

At Feinberg, he is focusing on health services research, including federal health policy work and surgical outcomes research. This includes developing a mechanism to evaluate how to differentiate good hospitals from bad hospitals.

"In a lot of ways, it's easier to figure out what restaurant is good than it is to figure out what's a good hospital to get surgery from," Rajaram said.

He said his primary mentor Nathaniel Soper, MD, chair of Surgery and his research mentor, Karl Bilimoria, MD, MS, the John Benjamin Murphy Professor of Surgery, have been an important part of his success.

CONTENTS

Ravi Rajaram, MD, MSc, is developing a mechanism to evaluate how to differentiate good hospitals from bad hospitals as part of his training at Feinberg.

Watch Video: Joshua Waitzman, '15 MD, '13 PhD, Physician Scientist Training Program, second-year internal medicine resident

While Waitzman was in graduate school at Northwestern, he spent significant time in basic science labs, learning from and collaborating with top physician-scientists who became role models.

He is currently conducting basic science research to study the mechanisms that underlie kidney disease. He wants to apply this knowledge to the development of a treatment that will allow patients with kidney disease to maintain or regenerate their kidney function instead of going on dialysis.

"I really love the basic science approach to questions, taking something down to its fundamental parts and thinking about how we test hypotheses to take on a research question," Waitzman said.

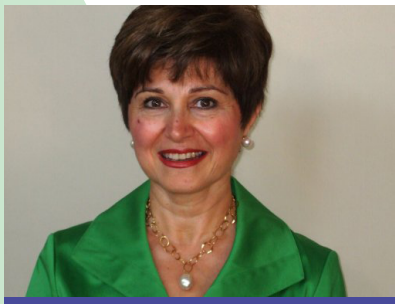
Housestaff Research Portal Website

Feinberg has launched a new online resource for residents and fellows who are interested inconducting research. The Housestaff Research Portal provides a roadmap for conducting research, including resources that span the entire research spectrum, from building a strong mentoring relationship to identifying funding sources, developing a hypothesis, disseminating research findings and planning for a career in research. Find out more:

- Explore the many ways for trainees to engage in research at Feinberg
- Browse our frequently asked questions regarding our research resources
- Find out how Feinberg helps trainees plan a career in research

Driving Clinical Advances in Prostate and Bladder Cancer

Maha Hussain, MD, FACO, FASCO, Genevieve E. Teuton Professor of Medicine



Watch Video

Hussain talks about her current clinical trials and some of the experiences that led her to study prostate cancer.

Through her clinical research and leadership roles, Maha Hussain, MD, FACP, FASCO, Genevieve E. Teuton Professor of Medicine in the Division of Hematology/Oncology, is dedicated to developing novel therapeutics and improving standards of care for patients with cancer.

Hussain, who joined Northwestern Medicine in September 2016, is the the Deputy Director of the Robert H. Lurie Comprehensive Cancer Center, as well as the center's associate director for clinical research, where she oversees all cancer-related clinical trials. She is also an active physician and investigator, with research focused on integrating scientific advances into clinical trials for prostate and bladder cancer.

Q&A

What are your research interests?
I am a medical oncologist with a focus in genitourinary malignancies, particularly prostate and bladder cancers. My research centers on novel therapeutic interventions and the design and conduct of clinical trials, including federally-sponsored, multicenter, investigator-initiated clinical trials.

In my clinical research, I'm particularly focused on the evaluation and integration of biomarkers into clinical trials, to maximize the chances for therapeutic benefits.

What is the ultimate goal of your research?
My main goals are to change the standards of care and improve the quality and quantity of life of surviovorship for patients with prostate and bladder cancer. For example, I have been fortunate to have had the opportunity to impact the standards of care for patients with metastatic hormone-sensitive and castration-resistant prostate cancer.

How did you become interested in this area of research?
The major factor in my decision to become an oncologist, as well as a clinical investigator with a focus on genitourinary oncology, was my experience in caring for patients with cancer and interactions with clinical investigators during my training at Wayne State University. While working at the VA hospital, I met many patients with advanced cancers, including prostate cancer, and at the time there was not much to offer them. I had firsthand experience with what patients and their families had to go through — from the emotional and physical aspects of the diagnosis, to treatment and downstream effects. With rapidly expanding science and discovery, there were great opportunities to impact patients' outcomes.

I am, first and foremost, a physician; the opportunity to care for patients with cancer and help their families throughout the course of the disease, and to contribute to the development of impactful therapies, are things I very much value and am passionately committed to.

What types of collaborations are you engaged in across campus (and beyond)?
I firmly believe in Team Science and collaborations. This is reflected by my current clinical research collaborations with faculty investigators at the Robert H. Lurie Comprehensive Cancer Center and several other academic institutions across the country that are focused on therapeutic clinical trials in prostate and bladder cancers. I continue to partner with translational and basic scientists and other clinical investigators both institutionally and nationally to better inform the clinical research that I conduct.

In my lifetime, there has been tremendous progress in prostate cancer, and that progress happened because of partnerships between basic/translational scientists and clinical investigators.

Where have you recently published papers?
I have published my research in the *New England Journal of Medicine, Journal of Clinical Oncology, Lancet Oncology, JAMA Oncology, Cell,* the *Cancer, Journal of the National Cancer Institute, Clinical Cancer Research* and *PLoS One*, among others.

(continued on page 9)

Research Retreat 2017

Nearly 300 principal investigators from Northwestern University Feinberg School of Medicine gathered at the Fairmont Hotel for a day of discussion and brainstorming to generate transformative ideas that will help guide the Feinberg research enterprise for the next five years.

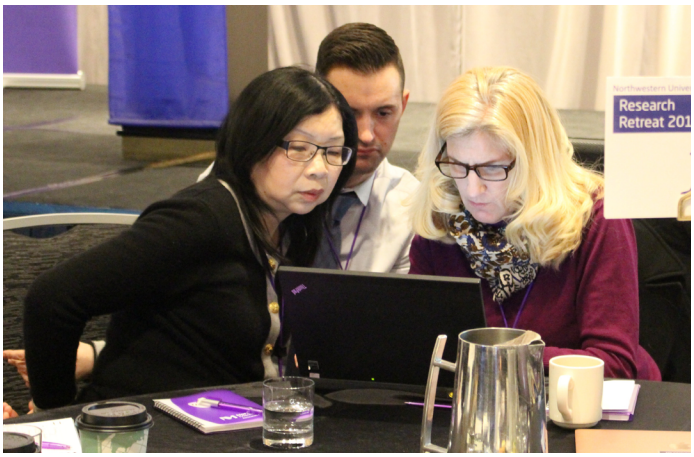
"My vision is to solidify our place as an elite medical school and we are on our way," said Eric G. Neilson, MD, vice president for Medical Affairs and Lewis Landsberg Dean of the Feinberg School of Medicine.

Over the course of nearly eight hours and three rounds of discussion, the scientists worked together to put forth impactful and strategic research ideas for Feinberg leadership to consider. Infrastructure needs were also addressed.

During each round of active tabletop discussion, facilitators recorded ideas into a web-based application. The ideas were projected onto screens around the room. After each round of discussion, the ideas were refined, voted upon and ranked.

Some ideas that rose to the top during the final ranking process included:

- Focusing on epigenetics/genomics/metabolics and environmental research in pediatric and adult disease
- Developing a lung health center or institute
- Creating sustained partnerships with communities for research



Chyung-Ru Wang, PhD and Karla Fullner Satchell, PhD, professors of Microbiology-Immunology, input ideas into a web-based application with guidance from a facilitator.

- Focusing on big data and computational biology
- Becoming a world leader in myocardial biology

The hundreds of thoughts and suggestions generated during the retreat were recorded for future use and review. The event was managed by Learning & Organization Development staff from the Northwestern University Office of Human Resources, with support from Northwestern Information Technology. The retreat was hosted by Dean Neilson and Rex L. Chisholm, PhD, vice dean for Scientific Affairs at Feinberg.

See more pictures from the retreat.

Paller Receives Top Dermatology Award

Amy Paller, MD, the Walter J. Hamlin Professor of Dermatology and professor of Pediatrics, is the 2017 recipient of the Stephen Rothman Award, the Society for Investigative Dermatology's highest award.

It is presented annually for distinguished service to investigative dermatology, in particular for outstanding research contributions and mentoring of the next generation of dermatologists and researchers.

"I am especially proud to be the 50th anniversary recipient and only the fourth woman to be honored by this award in its history, with the last female awardee a decade ago," Paller said.

One of the previous three female recipients was Ruth K. Frienkel, MD, one of Paller's mentors and the first full-time dermatologist/investigative dermatologist at Northwestern. Frienkel received the award in 1994; she passed away in 2014.

A leader in keratinocyte biology and genetics research, Paller is the director of Northwestern's Skin Disease Research Center. She has also been the leader of the Pediatric Dermatology clinical trials unit for more than 20 years; among her almost 400 peer-reviewed articles are trailblazing studies that have brought new therapies for patients with inflammatory and genetic skin disorders.

Paller has had continuous NIH funding for the more than 25 years and currently serves on Council of the National Institute of Arthritis, Musculoskeletal and Skin Disease. She served as president of the Society for Investigative Dermatology 2007 to 2008.

Investigating New Drug Treatments for Abnormal Heart Rhythms

Lisa Wren, Driskill Graduate Program in Life Sciences

Lisa Wren, a third-year student in the Driskill Graduate Program in Life Sciences (DPG) and the Masters of Clinical Investigation program, studies cardiac arrhythmia mechanisms in the laboratory of Al George, MD, chair of the Department of Pharmacology.

Wren earned her undergraduate degree from the Jackson State University in Jackson, Miss. Her love for cardiovascular research began in high school and her goal is to become a cardiovascular research scientist who helps to bridge the communication disconnect between the medical community and the public.

Q&A

Where is your hometown?

I am from Florissant, Mo., in the St. Louis North County area. It's about 30 minutes north of downtown St. Louis.

What are your research interests?

Learning about the cardiovascular system was always my favorite topic in the health, human physiology and biomedical research classes that I took in high school. This interest drove me to my first research experience in the cardiovascular research field, and I have loved it ever since. When I completed my freshman year at Jackson State University, I started a research internship at Washington University in St. Louis and began to study cardiac ion channels. Through this experience I realized that I was more fascinated with the idea of studying the heart through research rather than the idea of becoming a clinician. I am interested in abnormal heart rhythms (arrhythmias) and the mechanisms responsible for causing them. I am also interested in how pharmacological agents can be used to treat some of these complex arrhythmia syndromes. Doing the experiments and collaborating with colleagues at research conferences in the field really ignites my interest.

What exciting research projects are you working on?

I work as a graduate student in the laboratory of Al George, MD, chair of the Department of Pharmacology, where I study cardiac arrhythmia mechanisms. It has recently been shown that mutations in calmodulin, a calcium sensing protein and regulator of the cardiac conduction system, can induce very severe arrhythmias in infants and children, thus potentiating the risk of sudden cardiac death. Although there are three different calmodulin genes (*CALM1*, *CALM2*, and *CALM3*) that are translated into the exact same protein sequence, a point mutation in the *CALM1* gene may produce a different arrhythmia phenotype than if the same point mutation was introduced in the *CALM2* gene, for reasons yet unknown. Therefore, we seek to understand what drives one clinical arrhythmia phenotype over the other and to identify any potential modifiers that influence this genotype-phenotype relationship. This work may potentially explain new pathways that lead to abnormal heart rhythms, discover modifier genes that could reveal new therapeutic targets, establish models that can be used to investigate disease pathogenesis of those affected with calmodulin mutations and test new therapies.

What attracted you to the DGP?

I really liked the idea of interdisciplinary research. As a student, having the intellectual freedom and opportunity to collaborate with other labs across various disciplines is very attractive to me. I also liked that I was able to do a dual degree program to learn more about translational research. I am in the Masters of Clinical Investigation program as well and it adds a great clinical research perspective to the basic laboratory research that I do for the DGP. Northwestern also has some great mentors who are experts in their respective fields, so knowing that I would be trained by the best was definitely a deciding factor. I also did a post-baccalaureate program at the University of Chicago before I started graduate school, and I knew I wanted to stay in Chicago. There is always something for me to do here in the city, and I like having those options to explore.

What has been your best experience at Feinberg?

Some of my favorite experiences at Feinberg would probably be having the opportunities to travel with my principal investigator, Al George, to different research conferences that strongly focus on heart rhythm disorders. I was able to travel and present my research at the Heart Rhythm Society conference in San Francisco last May and recently at the Gordon Research Conference: Cardiac Arrhythmia Mechanisms conference in Ventura, Calif. It's such a great learning experience to attend seminars and network with leading experts in the field. Attending these conferences also exposes some areas of my training that I could focus on to strengthen my skills as a trainee. Being a young scientist, I also appreciate the opportunity to present my work and receive feedback from my peers.

Connect with Lisa on LinkedIn.

Creating More Efficient Ways to Collect, Measure and Analyze Data

Arianne Kelly, Research Data Analyst in the Office for Research

Arianne Kelly, MBA, is a Research Data Analyst in the Office for Research. The Research Analysis Group provides summary data and reporting, in support of strategic decision making within the Feinberg.

Originally from Dayton, Ohio, Kelly earned both her bachelors degree and a master's in business administration from the University of Toledo.

Q&A

What is your educational background?
I attended the University of Toledo for undergraduate and graduate school, where I double majored in international business and marketing earning a bachelor of business administration and later received my MBA, specializing in finance.

Please tell us about your professional background.
I have been at Feinberg for nearly six years. Though I am presently in the Office for Research, I have held previous roles in Hematology/Oncology and the Institute for Public Health and Medicine. Before coming to Northwestern, I was a student and worked as a research assistant at the University of Toledo. One cool experience I had prior to Northwestern was spending a summer in Okinawa, Japan, as a camp counselor.

Why did you choose to work at Northwestern?
I always wanted to live in Chicago and work within the realm of higher education. Northwestern is not only one the best universities in the country but we also have an invaluable bond with Northwestern Memorial, one of nation's foremost hospitals. Every day, I feel so fortunate to be a part of such a great institution.

What is your favorite part of the job?
The best part of my job is constantly learning new things, how to create dashboards, more efficient ways to gather and analyze various data sets in order to help others and also providing standard reporting for the medical school and individual units within FSM. I enjoy being a resource for other administrators who are working to further the advance research at Feinberg.

What exciting projects are you working on?
Most recently, Jeff Weiss, PhD, director for research analysis, and I have made some extensive updates to the quarterly research administration dashboard that we provide, largely based on feedback, to make it more meaningful and useful to the Feinberg departments. This revised dashboard was distributed for Q1FY17 and has received positive feedback. We also plan to make some updates to our research analysis webpage, to include additional useful content.

What do you like to do in your spare time?
In my spare time you can usually find me at the dog park/beach with my goldendoodle, Cruz. I also enjoy hunting down vintage cameras, cooking, viewing real estate and reading.

Anything else we should know about you?
I come from a large family. I studied German all through undergrad and once spent a summer in Europe.

Connect with Arianne on LinkedIn.

Welcome New Faculty

Jason Ong, PhD, joins as associate professor of Neurology in the Division of Sleep and Circadian Medicine and Psychiatry and Behavioral Sciences. His research looks at improving sleep for patients who suffer from insomnia or other sleep disorders using non-pharmacological interventions. His team uses innovative approaches such as patient perspectives and mind-body-focused interventions. Previously, he was an associate professor of Behavioral Sciences at Rush University Medical Center. Ong earned his PhD in Psychology from Virginia Commonwealth University. He then completed a clinical internship in health psychology at Rush University and a postdoctoral fellowship at Stanford University School of Medicine. He is the principal investigator on three National Institutes of Health grants and co-investigator on several others. He has published more than 36 peer-reviewed journal

Research in the News

U.S. News & World Report, February 6, 2017

Dive Into Global Health Issues During Med School
Joel Shalowitz was quoted.

The Huffington Post, February 6

This Is What it Actually Means To Get A Good Night's Sleep
Sabra Abbott was quoted.

► This research was also featured in *Fox News* and *Yahoo!*

U.S. News & World Report, February 6, 2017

Even a Little Exercise Can Help With Arthritis, Study Says
Northwestern University was mentioned.

NPR, February 6, 2017

Not Getting Enough Sleep? Camping In February Might Help
Phyllis Zee was quoted.

► This research was also featured in *HealthDay, U.S. News and World Report, WebMD* and *CBS News*

Chicago Tribune, February 6

How long has your doctor been on duty? Groups protest idea of 28-hour shifts
Karl Bilimoria was quoted.

Crain's Chicago Business, February 9

Parents of preemies will soon have an app, courtesy of Prentice doc
Craig Garfield was quoted.

TODAY, February 10

Brain Power TODAY: Scientists study the healing power of sex
Lauren Streicher was quoted.

U.S. News & World Report, February 10

College Students Seem to Take Longer to Recover From Concussion
Prakash Jayabalan was quoted.

► This research was also featured in *HealthDay*

Chicago Tribune, February 14, 2017

Northwestern doctor appointed to prevention task force
Melissa Simon was mentioned.

Reuters, February 28, 2017

Family-reported errors may go undocumented on hospital records
Irini Kolaitis was quoted.

More media coverage available online.

Northwestern University
NUCATS
Clinical and Translational Sciences Institute

NUCATS Corner

Team Science Workshop Coming to Northwestern

Interdisciplinary teams are invited to participate in a Team Science Training Workshop developed by Maritza Salazar, PhD, and Theresa Lant, PhD, May 18 to 19. The training is funded by NSFSciSIP, Award #1262754 – BRIDGES: Building Resources through Integrating Disciplines for Group Effectiveness in Science.

The training is divided into two 90-minute training sessions that include a session on communication that is open to the entire team. The strategic team mapping session is for team leaders only. Teams that participate must be formally established and meet all eligibility criteria listed online.

Contact Katya Klyachko, team science program administrator, with questions or to enroll. The workshop is limited to seven teams.

If you are interested in team science training for a newly formed team or would like assistance in forming a multidisciplinary team, NUCATS Team Science Program can help.

In the seminar Head Ecorche: The Anatomy of Portraiture, students learn to construct their own anatomical sculpture using a life-size artificial skull. Learn more.

Sponsored Research

PI: Zachary Smith, MD, assistant professor of Neurological Surgery

Sponsor: National Institute of Neurological Disorders and Stroke

Title: "Radiographic markers of clinical function in Cervical Spondylotic Myelopathy"

Cervical spondylotic myelopathy (CSM) is a common degenerative condition of the cervical spine that leads to pain and progressive spinal injury. Primary drivers of clinical injury in CSM include forward head posture (a biomechanical process) and spinal compression (a neuromechanical process). Smith seeks to define clinically-relevant radiographic biomarkers, using standard X-ray and magnetization transfer-MRI images, to investigate the role of head posture and spinal compression in CSM patients and age-matched controls. These biomarkers will then be directly correlated to anatomically-specific tests of clinical function, including pain, disability, strength and coordination. The long-term goal is to develop standardized radiographic values and thresholds that can be used to identify appropriate surgical candidates and predict prognosis.

More information

PI: Linda Van Horn, PHD, RD, professor of Preventive Medicine

Sponsor: National Heart, Lung, and Blood Institute

Title: "Metabolic Pathways Underlying the Contrasting Sodium-BP and DASH/ OmniHeart-BP Relationships"

Van Horn's project aims to qualitatively advance knowledge on urinary metabolic phenotypes and biochemical pathways associated with the direct effect on blood pressure (BP) of high sodium (Na) intake and the inverse BP effect (BP reduction) of the DASH/OmniHeart-like eating pattern. Her team plans to quantify key metabolites related to these contrasting BP influences and use state-of-the-art chemometrics, statistical spectroscopy, computational network and pathway modeling tools to identify and map de novo pathways associated with Na-BP and DASH/OmniHeart-BP. They will then test and validate the INTERMAP derived metabolites and pathways using available data and samples from the INTERMAP China Prospective Study, the Urinary Sodium Study (USS), and the OmniHeart Trial. The goal is to develop more focused and effective strategies for population- wide BP lowering through improved non-pharmacologic approaches, primarily nutritional, as well as to identify new targets for drug intervention.

More information

Research Day Keynote Speaker

The 13th Annual Lewis Landsberg Research Day will be held Thursday, April 6,at 1 p.m., kicking off with a keynote presentation from Charles L. Sawyers, MD, chair of the Human Oncology and Pathogenesis Program at Memorial Sloan Kettering Cancer Center.

The keynote will be held in the Robert H. Lurie Medical Research Building, John Hughes Auditorium. His keynote presentation is entitled, "The Changing Landscape of Cancer Drug Resistance."

Sawyers studies mechanisms of cancer drug resistance with an eye toward developing novel therapies. He co-discovered the antiandrogen drug enzalutamide, which was approved by the FDA in 2012 for treatment of advanced prostate cancer.

Sawyers received a BA from Princeton University in 1981 and an MD from Johns Hopkins University School of Medicine in 1985, followed by an internal medicine residency at UCSF.

He became a Howard Hughes Medical Institute Investigator in 2002 while at UCLA, then moved to Memorial Sloan Kettering Cancer Center in 2006, where he currently serves as chair of the Human Oncology and Pathogenesis Program.

Sawyers is a member of the National Academy of Sciences, the Institute of Medicine and the American Academy of Arts and Sciences.

Read more about Sawyers career and research. Check out the entire Research Day schedule of events, which includes a poster session and awards ceremony.

Driving Clinical Advances in Prostate and Bladder Cancer

(continued from page 3)

Which honors are you most proud of and why?
Throughout my career, I have been honored to receive institutional and national awards. But perhaps the three most recent awards are the ones of which I feel especially proud. I was named the "2015 Giant of Cancer Care in Genitourinary Cancer" by OncLive and received the "2016 Faculty Mentor of the Year" in the Hematology/Oncology Fellowship Program when I was at the University of Michigan. The third honor was being elected to be a member of the Board of Directors of the American Society of Clinical Oncology.

All these awards reflect my mission to impact care and outcomes for cancer patients, through outstanding medicine, research, advocacy, and mentorship and training of the next generation of medical oncologists.

Osher Research Day

Judy Moskowitz, PhD, director of research at the Osher Center, presented findings from ACU-HEART, a study evaluating acupuncture therapy after mitral valve surgery for reducing post-operative atrial fibrillation and symptoms like nausea.

Faculty, students and staff gathered to share recent discoveries in the field of integrative medicine, discuss ongoing research opportunities and network with like-minded scientists and physicians at the first annual Osher Center Research Day.

The Osher Center for Integrative Medicine at Northwestern University focuses on an approach to care that melds conventional medicine with complementary therapies, such as nutrition, supplements and mind-body practices. Read more.

Funding

Whitehall Foundation Research Grants

More information

Sponsor: The Whitehall Foundation

Submission deadline: April 15

Upper Amount: $75,000 per year

Synopsis: The Foundation is currently interested in supporting scientists working on basic research in neurobiology. The Foundation emphasizes the support of young scientists at the beginning of their careers and productive senior scientists who wish to move into new fields of interest. Consideration is given, however, to applicants of all ages.

FY18 Precision Trauma Care Research Award

More information

Sponsor: Department of Defense Congressionally Directed Medical Research Programs

Submission deadline: March 17 (pre-application)

Upper Amount: $1,500,000 (direct plus indirect costs) for each phase

Synopsis: Focus areas include improving the characterization of traumatic brain injury (TBI), understanding the factors that influence and/or inform patient responsiveness to TBI therapeutic interventions, understanding the role of environmental and physiological factors impacting injury outcomes, developing material and knowledge products to assist medical and nonmedical care providers in administering individualized combat-related or trauma-induced injury care.

Harrington Scholar-Innovator Program

More information

Sponsor: Harrington Discovery Institute

Submission deadline: April 5

Upper Amount: $100,000 guaranteed, opportunity to qualify for up to $700,000 over two years

Synopsis: The Harrington Scholar-Innovator Award recognizes physician-scientist innovators throughout the U.S. whose research has the potential to change standard of care. The Scholar-Innovator Award provides research and drug development support to help bridge the gap between basic discovery and the clinic.

View more funding opportunities

Keeping Score of CiteScore

For many years, a key metric to determine the quality of an academic journal has been the Journal Impact Factor by Clarivate Analytics (formerly Thomson Reuters). In December 2016, Elsevier introduced a comparative metric called CiteScore, which is part of a family of journal-based metrics.

How is it calculated?

The 2015 CitesScore is calculated by dividing the total number of citations in 2015 to documents published in the three previous years, by the number of documents published in those same three years.

How does CiteScore differ from Journal Impact Factor?

Though CiteScore is similar to the Journal Impact Factor (JIF), the two differ in some key areas: timeframe and citable items.

Timeframe. The JIF counts documents (in denominator) and citations (in numerator) over a two-year period, whereas CiteScore uses a three-year timeframe. Elsevier explains that the wider citation window allows for a fairer evaluation of all fields, including those that take longer to accumulate citations. Clarivate Analytics would point to their five-year impact factor in response to this, which is included in the Journal Citation Reports.

Citable items. Both the JIF and CiteScore cast a wide net for their numerator by counting all the citations made to a journal title. However, they differ greatly in what they include in the denominator. JIF counts only documents published in the journal that are considered substantive and scholarly – namely articles, reviews and proceedings papers. Whereas, CiteScore counts all document types in the denominator, including editorials, letters to the editor, etc. Journals that have more diversity in document types (i.e. fewer articles and reviews) are more likely to have a lower CiteScore when compared to JIF.

Comparison. Below is a side-by-side comparison of several top journals based on JIF. For example, the high impact journal JAMA, has a JIF of 37.68, and a CiteScore of 6.75 in 2015.

JCR Rank	CiteScore Rank	Source Title	Journal Impact Factor 2015	CiteScore 2015
1	1	CA- A Cancer Journal for Clinicians	137.578	66.45
2	91	New England Journal of Medicine	59.558	12.50
3	168	Nature Reviews Drug Discovery	47.120	9.15
4	243	The Lancet	44.002	7.72
9	60	Nature	38.138	14.38
11	323	JAMA – Journal of the American Medical Association	37.684	6.75
16	80	Science	34.661	13.12
1880	1673	PLoS One	3.057	3.32

Timely Release. Both the JIF and CiteScore are based on data from the previous full year (i.e. we're currently working with 2015 data for both JIF and CiteScore). Official scores for 2016 for JIF will be released in the summer, and CiteScore in the spring. However, CiteScore keeps up a CiteScoreTracker which calculates the current year's scores (i.e. 2016) on a monthly basis prior to the official upcoming release.

Availability. CiteScore is made freely available (see here), while Journal Citation Reports is available through subscription. Galter Health Sciences Library provides quick access to both from our website.

Range. In 2015 there were almost twice as many journals with a CiteScore (22,044 journals) when compared to JIF (11,985 journals).

Review of Quality: Both Elseiver and Clarivate Analytics have an ongoing journal evaluation process (see Elsevier's here, and Clarivate's here and here), though it's difficult to tell how much they differ in their methods.

High Impact Factor Research

Billon P, Li J, Lambert JP, Chen Y, Tremblay V, **Brunzelle JS**, Gingras AC, Verreault A, Sugiyama T, Couture JF, Cote J. Acetylation of PCNA Sliding Surface by Eco1 Promotes Genome Stability through Homologous Recombination. *Molecular Cell.* 2017 Jan 05;65(1):78-90.

Ferrell BR, Temel JS, Temin S, Alesi ER, Balboni TA, Basch EM, Firn JI, **Paice JA**, Peppercorn JM, Phillips T, Stovall EL, Zimmermann C, Smith TJ. Integration of Palliative Care Into Standard Oncology Care: American Society of Clinical Oncology Clinical Practice Guideline Update. *Journal of Clinical Oncology.* 2017 Jan;35(1):96.

Forouzanfar MH, Liu P, Roth GA, Ng M, Biryukov S, Marczak L, Alexander L, Estep K, Abate KH, Akinyemiju TF, Ali R, Alvis-Guzman N, Azzopardi P, Banerjee A, Barnighausen T, Basu A, Bekele T, Bennett DA, Biadgilign S, Catala-Lopez F, Feigin VL, Fernandes JC, Fischer F, Gebru AA, Gona P, Gupta R, Hankey GJ, Jonas JB, Judd SE, Khang YH, Khosravi A, Kim YJ, Kimokoti RW, Kokubo Y, Kolte D, Lopez A, Lotufo PA, Malekzadeh R, Melaku YA, Mensah GA, Misganaw A, Mokdad AH, Moran AE, Nawaz H, Neal B, Ngalesoni FN, Ohkubo T, Pourmalek F, Rafay A, Rai RK, Rojas-Rueda D, Sampson UK, Santos IS, Sawhney M, Schutte AE, Sepanlou SG, Shifa GT, Shiue I, Tedla BA, Thrift AG, Tonelli M, Truelsen T, Tsilimparis N, Ukwaja KN, Uthman OA, Vasankari T, Venketasubramanian N, Vlassov VV, Vos T, Westerman R, Yan LJL, **Yano Y,** Yonemoto N, Zaki MES, Murray CJL. Global Burden of Hypertension and Systolic Blood Pressure of at Least 110 to 115 mm Hg, 1990-2015. *JAMA.* 2017 Jan;317(2):165-182.

Goodman AM, Hogan NJ, Gottheim S, Li C**, Clare SE**, Halas NJ. Understanding Resonant Light-Triggered DNA Release from Plasmonic Nanoparticles. *ACS Nano.* 2017 Jan 24;11(1):171-179.

Jonas DE, Amick HR, Feltner C, Weber RP, **Arvanitis M**, Stine A, Lux L, Harris RP. Screening for Obstructive Sleep Apnea in Adults: Evidence Report and Systematic Review for the US Preventive Services Task Force. *JAMA.* 2017 Jan 24;317(4):415-433.

Liang K, Volk AG, Haug JS, **Marshall SA, Woodfin AR, Bartom ET**, Gilmore JM, Florens L, Washburn MP, Sullivan KD, Espinosa JM, Cannova J, Zhang J, Smith ER, **Crispino JD, Shilatifard A.** Therapeutic Targeting of MLL Degradation Pathways in MLL-Rearranged Leukemia. *Cell.* 2017 Jan 12;168(1-2):59-72.e13.

Liu X, Zhao B, Sun L, Bhuripanyo K, Wang Y**, Bi Y, Davuluri RV**, Duong DM, Nanavati D, Yin J, Kiyokawa H. Orthogonal ubiquitin transfer identifies ubiquitination substrates under differential control by the two ubiquitin activating enzymes. *Nat Communications.* 2017 Jan 30;8:14286.

Mc Donald JM, Krainc D. Lysosomal Proteins as a Therapeutic Target in Neurodegeneration. *Annual Review of Medicine.* 2017 Jan 14;68:445-458.

Minami CA, Barnard C**, Bilimoria KY**. Management of a Patient With a Latex Allergy. *JAMA.* 2017 Jan 17;317(3):309-310.

Park DJ, Ku JC, Sun L, Lethiec CM, Stern NP, Schatz GC, **Mirkin CA**. Directional emission from dye-functionalized plasmonic DNA superlattice microcavities. *Proceedings of the National Academy of Sciences of the United States of America.* 2017 Jan 17;114(3):457-461.

Peek CB, Levine DC, Cedernaes J, Taguchi A, Kobayashi Y, Tsai SJ, Bonar NA, **McNulty MR, Ramsey KM, Bass J.** Circadian Clock Interaction with HIF1alpha Mediates Oxygenic Metabolism and Anaerobic Glycolysis in Skeletal Muscle. *Cell Metabolism.* 2017 Jan 10;25(1):86-92.

Rines AK, Chang HC, Wu R, Sato T, Khechaduri A, Kouzu H, Shapiro J, Shang M, Burke MA, Jiang X, Chen C, Rawlings TA, Lopaschuk GD, **Schumacker PT,** Abel ED, **Ardehali H**. Snf1-related kinase improves cardiac mitochondrial efficiency and decreases mitochondrial uncoupling. *Nat Communications.* 2017 Jan 24;8:14095.

Schleimer RP. Immunopathogenesis of Chronic Rhinosinusitis and Nasal Polyposis. *Annual Review of Pathology.* 2017 Jan 24;12:331-357.

Sopper S, Mustjoki S, White D, Hughes T, Valent P, Burchert A, Gjertsen BT, Gastl G, Baldauf M, Trajanoski Z, **Giles F,** Hochhaus A, Ernst T, Schenk T, Janssen JJ, Ossenkoppele GJ, Porkka K, Wolf D. Reduced CD62L Expression on T Cells and Increased Soluble CD62L Levels Predict Molecular Response to Tyrosine Kinase Inhibitor Therapy in Early Chronic-Phase Chronic Myelogenous Leukemia. *Journal of Clinical Oncology.* 2017 Jan 10;35(2):175-184.

Surmeier DJ, Obeso JA, Halliday GM. Selective neuronal vulnerability in Parkinson disease. *Nature Reviews: Neuroscience.* 2017 Jan 20;18(2):101-113.

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

Friday, March 17

"Autotaxin and LPA: New players in mucosal immunity"

Presented by Dr. Steven N. Georas, MD, professor of Medicine, Environmental Medicine. Microbiology and Immunology at the University of Rochester Medical Center.

Time: Noon to 1 p.m.
Location: Prentice Women's Hospital, 3rd Floor, Canning Auditorium, 250 E. Superior
Contact: Justin Dell Phillips
More infromation

Friday, March 31

"Defective Inflammation Resolution in Atherosclerosis: Mechanisms and Therapeutic Opportunities"

Ira Tabas, MD, PhD, Richard J. Stock Professor and vice-chair of Research, Department of Medicine, professor of Pathology & Cell Biology in Physiology and Cellular Biophysics, Columbia University

Time: Noon to 1 p.m.
Location: Lurie Medical Research Building — Searle 303 E. Superior St.
Contact: Kari Lynn LeBeau
More information

Thursday, April 6

13th Annual Lewis Landsberg Research Day Keynote

"The Changing Landscape of Cancer Drug Resistance" presented by Charles L. Sawyers, MD, chair, Human Oncology and Pathogenesis Program, Memorial Sloan Kettering Cancer Center

Time: 1:00 p.m. to 2:00 p.m.
Location: Robert H Lurie Medical Research Center, 303 E. Superior, Hughes Auditorium
Contact: Erin Spain
More information

More Events

NIH News

2016 By the Numbers

The NIH has recently released its updated numbers for fiscal year 2016. Over the past year, NIH grants supported almost 2,400 research organizations, including higher education, independent hospitals and research institutes.

It received 54,220 competing research project grant applications in fiscal year 2016, a steady increase.Of these, 30,106 were applications for R01-equivalent grants Although, organizations have seen increased support for research project grants (RPG) in 2016 totaling $17,137,754,907, for competing and noncompeting grants, the average size of awards continued to increase to $499,221, a historical high for both competing and non-competing awards.

The success rate for competing fiscal year 2016 RPG applications was 19.1 percent compared to 18.3 percent in FY 2015. The 2016 success rate for competing R01-equivalent applications was also slightly higher than last year (19.9 percent compared with 18.9 percent in 2015).

Success rates continue to remain far below the 30 percent levels we saw 15 to 20 years ago, during the NIH doubling; the low success rates reflect the hyper-competitive environment we continue to face. Read more in a blog post from Michael Lauer, MD, NIH's deputy director for extramural research.

Watch Videos About NIH Peer Review Process

NIH's Center for Scientific Review posted recordings of their most recent webinar series on peer review, including:

8 Ways to Successfully Navigate NIH Peer Review and Get a Fellowship Grant

8 Ways to Successfully Navigate NIH Peer Review and Get a R01 Grant

NIH Peer Review Briefing for Basic Research Applicants and Reviewers

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