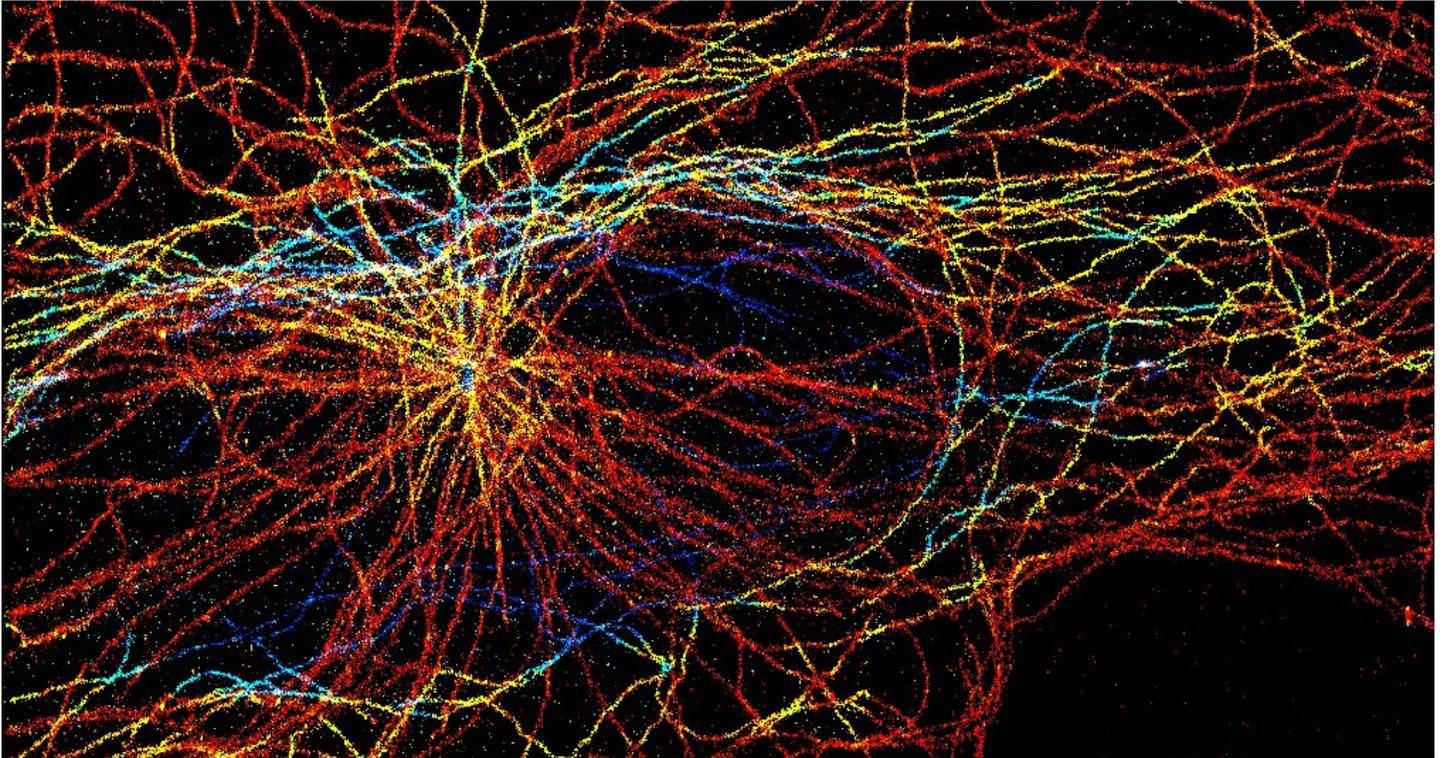


Breakthroughs

Feinberg School of Medicine Research Office

August 2014



This image depicts microtubules labelled with the dye Alexafluor-647 and was generated on the Nikon Stochastic Optical Reconstruction Microscope (N-STORM).

Next-Generation Imaging Advances with New Leadership, Big Ideas

Josh Rappoport, PhD, aspires to build Northwestern into a mecca for imaging technologies and collaborations.

As the director of the new Center for Advanced Microscopy at Northwestern University Feinberg School of Medicine, [Rappoport](#) has big plans for expanding the center by adding instrumentation, innovative imaging techniques, and talent.

“The idea is to have everything under one umbrella so that we maximize efficiency, integrate staffing, and have a single web-based portal for information and support,” says Rappoport, who arrived at Feinberg in March 2014. He is also a research associate professor of [Cell and Molecular Biology](#).

Rappoport’s goals for the center include enhancing advanced electron microscopy techniques, developing live fluorescence imaging, and collaborating with Nikon to develop super-resolution microscopy techniques. He also brings his experience in automated image processing and analysis to expand on computational imaging in the center.

Started in 2002, the facility has grown imaging at the medical school from a departmental core with three instruments to a university-wide imaging center with more than 15 instruments that caters to more than 180 labs.

(continued on page 2)

Advancing Next-Generation Imaging

(continued from cover page)

The center's management now consists of Dina Arvanitis, PhD, manager of the [Nikon Imaging Center](#), Lennell Reynolds, electron microscopy specialist, and Wilson Liu, MD, microscopy specialist. The growing team expects to add a new advanced electron microscopy specialist in the next few months.

The facility provides leading edge imaging technology from light, fluorescence, and in vivo imaging, including laser capture micro-dissection, digitally-controlled environmental chambers for live cell observation, computerized image analysis, and digital image manipulation. The center also serves as an instrument evaluation and testing site for new equipment, and as a learning center for staff, faculty, and students.

With the recent contract renewal of the Nikon Imaging Center, Rappoport and Arvanitis hope to expand on workshops offered to scientists, upgrade existing equipment, and add another laser scanner confocal, the most popular instrument in the facility.

"We hope to build the frequency of workshops and seminars that are offered to users," Arvanitis says. "When scientists have more familiarity with advanced imaging techniques and how to analyze their images, they can get more out of their data and experiments."

Since January the center has acquired three pieces of equipment and developed new industrial collaborations.

Nikon and ISS, a manufacturer of fluorescence and biomedical instrumentation, collaborated to create a microscope capable of performing fluorescence lifetime imaging microscopy (FLIM). FLIM allows scientists for the first time to decipher how molecular interactions and activities may direct normal and diseased biological functions.

In addition the center has acquired a Nikon structured illumination microscope (SIM) for live imaging. The center has built a new relationship with Okolab, a European manufacturer of incubators for time lapse experiments, to assess a microscope incubator that allows samples to be tested in different gas



Josh Rappoport, PhD, pictured here, serves as director of the state-of-the-art Center for Advanced Microscopy at Northwestern.

mixes at the same time.

"I think the key is to use our center as a conduit between the user base and the companies. We have the Nikon Imaging Center, and there are a wide variety of other companies that we have relationships with. To address campus needs, we work together with companies and users to develop and bring in leading-edge techniques and technologies," says Rappoport.

Rappoport plans to add correlative light-electron microscopy (CLEM). CLEM combines the capabilities of light microscopy and electron microscopy, providing scientists the ability to observe the biological structures and relationships in ultra-resolution with the same sample.

"Right now, we are really interested in doing electron microscopy and fluorescent microscopy on the same samples," says Rappoport. "By obtaining complimentary information from the different techniques, it allows us to do correlative studies."

Before arriving at Feinberg, Rappoport was a senior lecturer in molecular cell biology at the University of Birmingham in the United Kingdom, and co-director of the Birmingham Advanced Light Microscopy Facility. He earned his graduate degree from Mount Sinai Graduate School of Biological Sciences of New York University and completed post-doctoral studies at The Rockefeller University, also in New York.

His [lab](#) in England continues to investigate the process of endocytosis, or how cells internalize molecules, using live cell imaging strategies.

For Rappoport, coming to Northwestern gives him the opportunity to focus more on leading a core facility.

"I wanted to dedicate myself to a world-class facility in a leading medical research environment," he says. "I came to Northwestern to focus on what is most interesting and exciting for me, which is technique development and working together with a wide user base to develop and implement advanced technologies."

CONTENTS

MSTP Celebrates 50 Years	3
Faculty Profile: J. Julie Kim, PhD	4
Student Profile: Ted Cybulski	5
New Faculty and Staff Profile: Barbara Sutcliffe	6
In the News	7
Sponsored Research	8
Sponsored Research (ctd.) and Funding	9
High-impact Research	10
Events and NIH News	11

Medical Scientist Training Program Celebrates 50 Years

The Medical Scientist Training Program (MSTP) recently invited graduates back to the medical school to celebrate the program's 50th anniversary. The weekend also served to welcome the 14 members of the incoming class.

"It is great having alumni join us at this year's retreat," said Sara Fossum, a third-year graduate student in the lab of [Ann Harris, PhD](#). She presented on the regulatory roles of the gene EHF in the lungs. "Talking to alumni, I can get an idea of the different career paths that are available after I finish the program. Also, by talking to different physician-scientists, I get a broad perspective on research happening in other fields."

Since 1928, more than 250 MD/PhD students have graduated from the medical school. While the first MD/PhD student attended in the 1920s, the program started in 1964 when Northwestern became one of the three original universities to receive funding by the National Institutes of Health.



MSTP director Dane Chetkovich, MD, PhD, second from left, with poster session attendees.



A poster session followed the MSTP retreat in the Robert H. Lurie Medical Research Building's Ryan Family Atrium.



MSTP poster session attendees.



MSTP program administration.



MSTP poster session attendees.

Faculty Profile: J. Julie Kim, PhD

Susy Y. Hung Research Professor and Associate Professor
of Obstetrics & Gynecology-Reproductive Biology Research



Inspired by her mentors, [J. Julie Kim, PhD](#), Susy Y. Hung Research Professor and associate professor of Obstetrics & Gynecology-Reproductive Biology Research, strives to understand the role of progesterone receptors in uterine disease.

Progesterone is a hormone that helps the body prepare for and maintain a pregnancy, but can contribute to diseases of the uterus when key regulators go awry.

Before joining the medical school in 2003, Kim earned a bachelor's degree in microbiology at the University of Toronto, completed her graduate education in cellular and molecular biology at Laval University in Quebec, Canada, and her postdoctoral training in obstetrics and gynecology at the University of Illinois at Chicago.

Q&A

What are your research interests?

I am interested in understanding sex steroid hormone activities in the female reproductive tract and why their actions are often aberrant in diseases of the uterus such as endometrial cancer and uterine fibroids. I am particularly interested in studying the influence of the AKT signaling pathway, which is hyperactivated in endometrial cancer due to prevalent PTEN mutations on progesterone receptor function. I am also interested in understanding the role of the PI3K/AKT pathway in uterine fibroids, which are benign tumors that grow in response to estrogen and progesterone, and which occur in more than 70 percent of premenopausal women.

What is the ultimate goal of your research?

The ultimate goal of my research is to use the information generated from the molecular mechanisms of progesterone receptor action in normal and diseased tissues to identify novel and efficient targets for the treatment of advanced endometrial cancer and uterine leiomyomas. Both of these uterine diseases have very little effective treatment strategies. For example, uterine fibroids are the main reason for hysterectomies in women, and there are no effective alternatives to surgery. Advanced endometrial cancer, unlike low-grade endometrial cancer, carries a poor prognosis, and very little can be done in such cases. The lack of knowledge of the biology of these diseases is, in my opinion, the main culprit.

What types of collaborations are you engaged in across campus?

I collaborate closely with the gynecologic oncology team, who provide the clinical expertise and tissue specimens for my projects in endometrial cancer.

I also collaborate with investigators on a program project for uterine fibroids: [Serdar Bulun, MD](#); [Debu Chakravarti, PhD](#); [Jian-jun Wei, MD](#); [Erica Marsh, MD](#); and Romana Nowak, PhD (UIUC). I am part of a cooperative program to build an entire female reproductive tract on a microfluidic platform (FemKUBE) which mimics a 28-day menstrual cycle in vitro with [Teresa Woodruff, PhD](#), Joanna Burdette, PhD (UIC), and [Mary Ellen Pavone, MD](#). I also have a project to study hormonal responses of the human endocervix in collaboration with [Tom Hope, PhD](#), in order to understand how hormones can influence HIV transmission in women. Finally, I am collaborating with [Seema Khan, MD](#), to study the role of anti-progestins for breast cancer prevention.

How is your research funded?

Currently, I have an R01 grant from the National Cancer Institute to study progesterone receptor/AKT crosstalk in endometrial cancer. I am also part of a P01 program grant from the Eunice Kennedy Shriver National Institute of Child Health and Human Development to study the role of AKT in uterine fibroids. The construction of the reproductive tract microphysiological system is funded by the National Center for Advancing Translational Sciences (UH2/UH3). Finally, the hormonal changes in the endocervix project is funded by the Gates Foundation.

Which honors are you most proud of, and why?

In 2012, I was awarded the Susy Y. Hung Endowed Professorship, which was an incredible and humbling moment for me. I am grateful to the Hung family as well Feinberg for granting me the professorship. This endowment represents my passion for scientific research and the people that enable me to do what I love the most.

Student Profile: Ted Cybulski

Medical Science Training Program (MSTP)



Ted Cybulski, a fifth-year MD/PhD student in the Medical Science Training Program (MSTP), studies computational and statistical techniques to design biological systems that solve problems in neuroscience in the laboratory of [Konrad Kording, PhD](#), associate professor of [Physical Medicine & Rehabilitation](#) and [Physiology](#).

Cybulski received his undergraduate degree in biological engineering from Massachusetts Institute of Technology.

Coming out of his undergrad full of questions, graduate school was a natural progression for Cybulski. He chose to pursue the MSTP program at Northwestern to hone his craft as a researcher and to become more grounded in the science landscape.

Q&A

What is your hometown?

I was actually born in Evanston Hospital, but I spent most of my early years just north of Detroit, Michigan.

What are your research interests?

In general, I'm drawn to the idea of modifying biological systems to solve problems that are otherwise pretty difficult. A parallel interest is using computational and statistical techniques to model biological systems. These approaches tend to complement each other, as we can try to design the biological systems that best solve our problems using those computational models. I currently apply those guiding principles to some neat problems in neuroscience.

What exciting projects are you working on?

Something that we're pretty excited about in the lab, and what my thesis work will center on, is using DNA polymerase, the protein that copies our genetic information, as a recorder for neural activity. Basically, if you could change how "faithfully" polymerases copy information when a neuron is active, you could get a readout of what the neuron was doing over time, much like an old ticker-tape.

Having a cheap, genetically-encoded recorder has the potential to open up completely new areas of neuroscience, as well as a number of other fields. We've talked to people interested in

using these types of sensors for environmental sensing, developmental biology, metabolite sensing, all sorts of scenarios where you want to sense a large number of things but it's not easy to constantly monitor all your sensors. There are a number of obstacles that remain in producing proteins that can do this kind of sensing and understanding their output, which are the problems that I work on. We've had a strong collaboration with several labs at Northwestern and in Boston around this idea over the past couple years, and we're excited about what will come of it in the future.

Why did you choose the MD/PhD program?

Medicine and the health sciences present some of the most pressing challenges to us as a society. Being able to see firsthand what problems are affecting people and having an intuition on how to solve them makes tackling them just a bit easier. That kind of perspective is what made MD/PhD programs appealing to me, and Northwestern's hasn't let me down yet.

What has been your best experience at Feinberg?

My best experience so far has been watching my Feinberg classmates graduate at Navy Pier a few months ago. There are a lot of great things about Feinberg, but none better than putting me amongst a tremendous group of young researchers and clinicians. I couldn't be prouder of my medical school colleagues and I can't wait to see how they change the world while I'm finishing up here. I'm sure I will have similar feelings as my graduate school classmates move on.

What are your plans for after graduation?

The traditional answer, and the one I've always leaned toward, is a research-focused residency—then hopefully off to run a lab and practice medicine. However, there are so many ways to make an impact, both through traditional and non-traditional routes, and new opportunities are popping up all the time. Right now I'm working toward a career in academic medicine, but am open to whatever detours come my way.

What do you do in your free time?

My free time is mostly filled with dance and music. I've volunteered at the Chicago Independent Radio Project since I moved to Chicago, and I'll DJ there on spare nights off. Probably the neatest thing I'm involved in is PRISM, a high school mentorship program with the Northwestern MSTP and the Boys & Girls Club of Chicago. We write up medical- and science-inspired curricula and teach students about our field and why they should join us when they get older. It's worth every minute of my time.

Staff Profile: Barbara Sutcliffe

Program Assistant, Asher Center for the Study and Treatment of Depressive Disorders



Where are you originally from?

I was born in Hamilton, Bermuda and have lived in many places including Massachusetts, Pennsylvania, Nova Scotia, and Florida. I currently live on the northwest side of Chicago.

Please tell us about your professional background.

I've worked in a variety of industries including boating, real estate, talent, and most recently the pharmaceutical business.

At Northwestern I've worked in an administrative capacity with [Teresa Woodruff, PhD](#), chief of the Division of Obstetrics and Gynecology-Fertility Preservation and director of the Women's Health Research Institute, [Fred Turek, PhD](#), professor in the Ken and Ruth Davee Department of Neurology and the Department of Psychiatry and Behavioral Sciences, Susan Hall-Perdomo in the [Center for Sleep and Circadian Biology](#), and Dedre Gentner, PhD,

in the Spatial Intelligence and Learning Center.

Why did you choose to work at Northwestern?

I took a few classes at Northwestern, and it seemed to be a good environment and a stable employer. I applied for and was hired into Dr. Woodruff's lab as her assistant and lab manager; you name it, I did it! This August will be my tenth anniversary at Northwestern.

What is your role at Feinberg?

Currently, I work as the assistant to [Katherine Wisner, MD](#), Norman and Helen Asher Professor in the Department of Psychiatry and Behavioral Sciences and Obstetrics and Gynecology, and am responsible for the day-to-day operations of the [Asher Center for the Study and Treatment of Depressive Disorders](#).

How do you personally help investigators at Feinberg?

I assist investigators with the grant application process and support our research studies in various capacities.

What is your favorite part of the job?

I enjoy interacting with faculty, staff, and patients.

What do you like to do in your spare time?

I like to cook, bike, garden, knit and spend time with my friends.

Anything else we should know about you?

I am an avid supporter of the environment and will go out of my way to help animals, both domestic and wild. I found a fawn asleep in the parkway in front of my house a few weeks ago and managed, with the help of my neighbors, to reunite it with its mother. It was a great feeling to see them walking away together.

Welcome New Faculty



Thorsten Kahnt, PhD, joins as assistant professor in the Ken and Ruth Davee Department of Neurology.

Kahnt earned his Doctorate in Natural Sciences (PhD) degree from the Berlin School of Mind and Brain, Humboldt-Universität Berlin, Germany, and his master's degree in psychology from Freie

Universität Berlin. Prior to joining Northwestern as a visiting research scholar in 2013, he was a postdoctoral research fellow in the Laboratory for Social and Neural Systems Research at the University of Zurich.

Kahnt studies brain systems involved in learning, generalization, and decision-making using a combination of human psychophysics, computational models, fMRI, and advanced multivariate analyses techniques borrowed from machine learning.



Derek Wainwright, PhD, joins as assistant professor of Neurological Surgery.

He earned his Doctor of Philosophy degree in cell biology from Loyola University Chicago, and served as a postdoctoral scholar and fellow in the Department of Surgery at University of Chicago before becoming assistant professor

there in 2013.

Wainwright's lab utilizes DNA sequencing, gene expression profiling, proteomic analyses, flow cytometric methodology, and other techniques to pursue goals that are ultimately translatable for improving health and overall survival in patients with brain cancer. Although research is primarily focused on malignant glioma, with a special emphasis on glioblastoma, he is also interested in pursuing incurable pediatric brain tumors, as well as metastatic tumors that invade the brain/spinal cord.

Research in the News

USA Today July 28

Running any length or speed reduces risk of death
Clyde Yancy was quoted.

International Business Times July 24

Less sleep can cause stroke, diabetes, blood pressure: study
Phyllis Zee was quoted.

Huffington Post July 24

The night owl's guide to the perfect morning
Kelly Glazer Baron was quoted.

Yahoo! News July 23

Epidural during childbirth can cut postpartum depression risk
Katherine Wisner's study was featured.

- Wisner's research was also featured on CNN.com and CBS News.

The Philadelphia Inquirer July 17

Study finds many flu patients not treated appropriately
Michael Ison was quoted.

Washington Post July 16

Studies see new risks for cholesterol drug niacin
Donald Lloyd-Jones was quoted.

- Lloyd-Jones was also quoted in the Associated Press, *USA Today*, *US News & World Report*, the *Boston Globe*, MSN Money, FOX News, and NBC News.

TIME Magazine July 15

Treating breast cancer with a gel? It may be possible
Seema Khan's research was featured.

- Khan's research was also featured on NBC News and Fox News.

CBS Chicago July 8

Improved treatments for gunshot victims saving lives
Marie Crandall was quoted.

National Public Radio July 2

A misspent youth doesn't doom you to heart disease
Bonnie Spring's research was featured.

- Spring's research was also featured on MSN.com and Yahoo! News.

MSN Healthy Living July 2

Brisk walking may help curb Parkinson's symptoms
Daniel Corcos was quoted.

[More media coverage](#) available online.

Northwestern University

NUCATS
Clinical and Translational Sciences Institute

NUCATS Corner

Funding Opportunities for Northwestern Researchers

NUCATS connects researchers to a wide variety of funding opportunities to meet the special needs of each phase of the clinical and translational research continuum.

NUCATS [Voucher and Pilot Data Program](#) is a new funding mechanism designed to accelerate research by providing rapid, targeted funding to address small but critical gaps in clinical and translational research work that is otherwise at present not funded by other sources. The funding is targeted at junior faculty who have not yet established a significant funding base; projects involving critical steps in the device and drug development pathway or in the dissemination and implementation in community settings; and needs that are too small to be suitable for conventional research. The NUCATS Institute also works closely with the Office of Research Development, which assists with finding funding opportunities for Northwestern researchers.

The new [NU-Interdisciplinary Program 1-2-3](#) consists of 3-tiers of non-sequential, seed funds that will support [Ideas \(1\)](#), [Innovative Initiatives \(2\)](#), and [Innovative Initiatives Incubators \(3\)](#). The program provides funding and guidance to bring together new teams and shepherd "big science" from the inception of an idea to securing external funding and possible maturation into a University Research Center. It focuses on interdisciplinarity work, innovation, and societal impact. In addition to funds, the program will provide project management, assistance in identifying funding opportunities, proposal development, and team-science guidance.

[Explore the available resources](#) and assistance today.

Sponsored Research



PI: Ravi Kalhan, MD, MS
Associate Professor of
Medicine-Pulmonary and
Preventive Medicine

Sponsor: National Heart, Lung, and Blood
Institute (NHLBI)

Title: “Lung Function Decline and Disease
Risk from Young Adulthood to Middle
Age”

Chronic obstructive pulmonary disease (COPD) is the third leading cause of death in the United States and accounts for a high proportion of direct and indirect medical costs. Despite the burden posed by COPD, little is known about early-life predictors of incident COPD other than cigarette smoking. To date, only smoking cessation has been shown to alter the natural history of lung function decline, and although smoking cessation programs have had success in reducing this major modifiable risk factor, a large proportion of individuals still smoke, and the risk of death attributable to COPD is still increasing.

Disease modification with pharmacotherapies has been elusive in COPD, but most clinical trials have been in individuals with moderate to severe, rather than early, disease. This may be related to the long subclinical phase of COPD: it is often diagnosed after patients develop respiratory symptoms, typically occurring when the forced expiratory volume in one second (FEV1) is below 50 percent of predicted. This results in underdiagnosis and has limited investigation into early disease. This poses a striking contrast with cardiovascular disease, where focus is placed on identifying and treating modifiable risk factors before the onset of overt disease, resulting in improved overall health.

Although COPD is well-recognized as an obstructive lung disease, there is growing recognition that restrictive spirometric impairments (characterized by low FEV1 and forced vital capacity (FVC), but preserved FEV1/FVC ratio) are frequently associated with other common diseases, including heart failure and diabetes, and associated with impaired health status. In addition, a significant number of individuals diagnosed with COPD exhibit a pattern of lung function impairment consistent with restriction rather than obstruction: Among the first 2,500 smokers participating in the NHLBI-sponsored COPDGene® study, nine percent had spirometric restriction associated with several potential etiologies beyond just increased body mass index. This reinforces prior observations that obesity alone seldom results in significant spirometric impairment.

Establishing distinct phenotypes of COPD has risen as a priority and acknowledges the tremendous heterogeneity in disease manifestations. Recent focus on particular disease phenotypes in established COPD has allowed for the testing of more personalized therapies, be it a phenotype characterized by chronic bronchitis and recurrent exacerbations, or upper-lobe predominant emphysema. There is no information, however, about how individuals at risk for future lung disease diverge into varying phenotypes through a subclinical phase from young adulthood.

Addressing lung disease and its divergent phenotypes—such as those who develop COPD versus spirometric restriction—from young adulthood forward would open the opportunity to move beyond personalized therapy for established disease, and consider personalized preventive therapy for lung disease. In this project, Kalhan’s team will evaluate factors in young adults associated with development of both COPD and spirometric restriction during an age range where incidence increases dramatically. These investigations will enhance understanding of the subclinical phase of common lung diseases.

COPD is characterized by the presence of multiple comorbid health conditions, including cardiovascular disease. Even among patients who do not meet spirometric criteria for COPD, low lung function is associated with cardiovascular death. Recently it has been documented that extent of emphysema and degree of airflow limitation are cross-sectionally associated with reduced left ventricular filling in a population with relatively early disease. The concurrent evolution of lung and heart dysfunction from young adulthood into middle age, however, has not been investigated.

Kalhan’s preliminary data indicate a divergence in cardiovascular associations depending on pattern of lung function impairment. Individuals with subclinical COPD have signs of reduced left heart filling but individuals with subclinical restriction have signs of left ventricular hypertrophy.

The team will investigate these associations further and elucidate the phenotypic divergence in cardiopulmonary disease from young adulthood onward, evaluate whether particular biochemical markers indicate risks of different lung-heart phenotypes, and investigate the underlying lung and intrathoracic vascular structural alterations that explain these phenotypes. Investigating the concurrent evolution of lung and heart dysfunction from young adulthood to middle age will allow for a greater understanding of why heart and lung disease co-exist, open opportunities for future investigation of precise biologic mechanisms, and ultimately allow for greater focus on targeting prevention strategies for these chronic health impairments.

(continued on page 9)

Sponsored Research

(continued from page 8)



PI: Chyung-Ru Wang, PhD
**Professor of Microbiology-
 Immunology**

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

**Title: "The Regulation and Function of
 CD1d-Restricted T Cells"**

Natural killer T (NKT) cells are a unique T cell population with potent immunomodulatory functions. Many of these cells recognize glycolipid antigens presented by the MHC class I-like molecule CD1d.

Recent studies have shown that T cell fate and function are tightly regulated by cellular metabolism. Unlike conventional T cells, NKT cells constitutively express T cell activation markers and rapidly produce cytokines upon stimulation, but lack memory responses. These unique features suggest that NKT cells may have distinct metabolic needs for their development and function.

Collaborating with [Navdeep Chandel, PhD](#), the David Cugell, MD, Professor in Medicine-Pulmonary and Cell and Molecular Biology, Wang will investigate the effect of mitochondria dysfunction and mitochondrial reactive oxygen species (ROS) on the development and function of NKT cells using two novel mouse models that have mitochondrial metabolic genes conditionally deleted in T cells. In addition she proposes a study of the bioenergetic profiles of NKT cells at resting conditions and during activation to test the hypothesis that the lack of apparent NKT memory responses may be, in part, due to the inability of NKT cells to increase mitochondrial metabolism. Collectively, these studies will provide information on whether metabolic manipulation can enhance the immunotherapies that target NKT cells.

Clinical Research Training Online

Join NUCATS for Clinical Research Coordinator Basic Training Online. The course, "A Practical Introduction to the Clinical Research Coordinator (CRC) Role," is a weekly online class that starts October 2 and runs on Thursdays through October 30.

Registration is required, and the cost of the class is \$499 per person. The registration deadline for the fall class is September 29.

To learn more about CRC Basic Training Online, read course reviews, and register for classes, visit [Research Support Staff Training](#) online.

Funding

Large Pragmatic Studies to Evaluate Patient-Centered Outcomes

[More information](#)

Sponsor: Patient-Centered Outcomes Research Institute (PCORI)

Submission deadline: October 1 LOI/November 1 Application
Upper Amount: \$90 million

Synopsis: PCORI seeks to fund pragmatic clinical trials, large simple trials, or large-scale observational studies that compare two or more alternatives for addressing prevention, diagnosis, treatment, or management of a disease or symptom; improving system-level approaches to managing care; or for eliminating health or healthcare disparities.

Proposals must address critical clinical choices faced by patients, their caregivers, clinicians, and/or delivery systems. They must involve broadly representative patient populations and be large enough to provide precise estimates of hypothesized effectiveness differences and to support evaluation of potential differences in treatment effectiveness in patient subgroups.

For this solicitation, PCORI requires that relevant patient organizations, professional organizations, and/or payer or purchaser organizations be included as partners and actively participate in the study.

Translational Programs in Lung Diseases (P01)

[More information](#)

Sponsor: United States Department of Health and Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute

Submission deadline: September 22
Upper Amount: \$8.75 million

Synopsis: This opportunity invites submission of Program Project (P01) applications from institutions and organizations that will perform collaborative, translational research with the goal of using mechanistic research as the basis for the rational design of clinical applications to improve prevention, diagnosis and/or treatment of lung diseases and sleep disorders.

[View more funding opportunities](#)

High Impact Factor Research

May and June 2014

Bensmaia SJ, **Miller LE**. [Restoring sensorimotor function through intracortical interfaces: progress and looming challenges](#). *Nature Reviews Neuroscience*. 2014 May;15(5):313-25.

Brooks YS, Ostano P, Jo SH, Dai J, **Getsios S**, Dziunycz P, Hofbauer GF, Cervený K, Chiorino G, Lefort K, Dotto GP. [Multifactorial ER \$\beta\$ and NOTCH1 control of squamous differentiation and cancer](#). *Journal of Clinical Investigation*. 2014 May 1;124(5):2260-76.

Castro M, King TS, Kunselman SJ, Cabana MD, Denlinger L, Holguin F, Kazani SD, Moore WC, Moy J, Sorkness CA, **Avila P**, Bacharier LB, Bleecker E, Boushey HA, Chmiel J, Fitzpatrick AM, Gentile D, Hundal M, Israel E, Kraft M, Krishnan JA, LaForce C, Lazarus SC, Lemanske R, Lugogo N, Martin RJ, Mauger DT, Naureckas E, Peters SP, Phipatanakul W, Que LG, Sheshadri A, Smith L, Solway J, Sullivan-Vedder L, Sumino K, Wechsler ME, Wenzel S, White SR, Sutherland ER; National Heart, Lung, and Blood Institute's AsthmaNet. [Effect of vitamin D3 on asthma treatment failures in adults with symptomatic asthma and lower vitamin D levels: the VIDA randomized clinical trial](#). *JAMA- Journal of the American Medical Association*. 2014 May 28;311(20):2083-91.

Eren M, **Boe AE**, **Murphy SB**, **Place AT**, **Nagpal V**, **Morales-Nebreda L**, **Urlich D**, **Quaggin SE**, **Budinger GR**, **Mutlu GM**, **Miyata T**, **Vaughan DE**. [PAI-1-regulated extracellular proteolysis governs senescence and survival in Klotho mice](#). *Proceedings of the National Academy of Sciences USA*. 2014 May 13;111(19):7090-5.

Fontebasso AM, Papillon-Cavanagh S, Schwartzentruber J, Nikbakht H, Gerges N, Fiset PO, Bechet D, Faurý D, De Jay N, Ramkissoon LA, Corcoran A, Jones DT, Sturm D, Johann P, **Tomita T**, **Goldman S**, Nagib M, Bendel A, Goumnerova L, Bowers DC, Leonard JR, Rubin JB, **Alden T**, Browd S, Geyer JR, Leary S, Jallo G, Cohen K, Gupta N, Prados MD, Carret AS, Ellezam B, Crevier L, Klekner A, Bognar N, Hauser P, Garami S, Myseros J, Dong Z, Siegel PM, Malkin H, Ligon AH, Albrecht S, Pfister SM, Ligon KL, Majewski J, Jabado N, Kieran MW. [Recurrent somatic mutations in ACVR1 in pediatric midline high-grade astrocytoma](#). *Nature Genetics*. 2014 May;46(5):462-6.

Grosswendt S, Filipchuk A, **Manzano M**, Klironomos F, Schilling M, Herzog M, **Gottwein E**, Rajewsky N. [Unambiguous Identification of miRNA:Target Site Interactions by Different Types of Ligation Reactions](#). *Molecular Cell*. 2014 Jun 19;54(6):1042-54.

Jampol LM, Bressler NM, Glassman AR. [Revolution to a new standard treatment of diabetic macular edema](#). *JAMA- Journal of the American Medical Association*. 2014 Jun 11;311(22):2269-70.

Kim JY, **Banerjee T**, **Vinckevicius A**, Luo Q, **Parker JB**, **Baker MR**, **Radhakrishnan I**, **Wei JJ**, **Barish GD**, **Chakravarti D**. [A Role for WDR5 in Integrating Threonine 11 Phosphorylation to Lysine 4 Methylation on Histone H3 during Androgen Signaling and in Prostate Cancer](#). *Molecular Cell*. 2014 May 22;54(4):613-25.

Lane AA, Chapuy B, Lin CY, Tivey T, Li H, Townsend EC, van Bodegom D, Day TA, Wu SC, Liu H, Yoda A, Alexe G, Schinzel AC,

Sullivan TJ, Malinge S, Taylor JE, Stegmaier K, Jaffe JD, Bustin M, te Kronnie G, Izraeli S, Harris MH, Stevenson KE, Neuberg D, Silverman LB, Sallan SE, Bradner JE, Hahn WC, **Crispino JD**, Pellman D, Weinstock DM. [Triplexing of a 21q22 region contributes to B cell transformation through HMG1 overexpression and loss of histone H3 Lys27 trimethylation](#). *Nature Genetics*. 2014 Jun;46(6):618-23.

Pahor M, Guralnik JM, Ambrosius WT, Blair S, Bonds DE, Church TS, Espeland MA, Fielding RA, Gill TM, Groessl EJ, King AC, Kritchevsky SB, Manini TM, **McDermott MM**, Miller ME, Newman AB, Rejeski WJ, Sink KM, Williamson JD; LIFE study investigators. [Effect of structured physical activity on prevention of major mobility disability in older adults: the LIFE study randomized clinical trial](#). *JAMA- Journal of the American Medical Association*. 2014 Jun 18;311(23):2387-96.

Poor TA, Jones LM, Sood A, Leser GP, Plasencia MD, Rempel DL, Jardtetzky TS, Woods RJ, Gross ML, **Lamb RA**. [Probing the paramyxovirus fusion \(F\) protein-refolding event from pre- to postfusion by oxidative footprinting](#). *Proceedings of the National Academy of Sciences USA*. 2014 Jun 24;111(25):E2596-605.

Sanchez-Padilla J, **Guzman JN**, **Ilijic E**, **Kondapalli J**, **Galtieri DJ**, **Yang B**, Schieber S, Oertel W, **Wokosin D**, **Schumacker PT**, **Surmeier DJ**. [Mitochondrial oxidant stress in locus coeruleus is regulated by activity and nitric oxide synthase](#). *Nature Neuroscience*. 2014 Jun;17(6):832-40.

Sanna T, Diener HC, **Passman RS**, Di Lazzaro V, Bernstein RA, Morillo CA, Rymer MM, Thijs V, Rogers T, Beckers F, Lindborg K, Brachmann J; CRYSTAL AF Investigators (includes **Bernstein RA**). [Cryptogenic stroke and underlying atrial fibrillation](#). *New England Journal of Medicine*. 2014 Jun 26;370(26):2478-86.

Small EC, Xi L, Wang JP, **Widom J**, **Licht JD**. [Single-cell nucleosome mapping reveals the molecular basis of gene expression heterogeneity](#). *Proceedings of the National Academy of Sciences USA*. 2014 Jun 17;111(24):E2462-71.

Wallia A, **Molitch ME**. [Insulin therapy for type 2 diabetes mellitus](#). *JAMA- Journal of the American Medical Association*. 2014 Jun 11;311(22):2315-25.

Walch M, Dotiwala F, Mulik S, Thiery J, Kirchhausen T, **Clayberger C**, **Krensky AM**, **Martinvalet D**, **Lieberman J**. [Cytotoxic Cells Kill Intracellular Bacteria through Granulysin-Mediated Delivery of Granzymes](#). *Cell*. 2014 Jun 5;157(6):1309-23.

Wang JX, **Voss JL**. [Brain Networks for Exploration Decisions Utilizing Distinct Modeled Information Types during Contextual Learning](#). *Neuron*. 2014 Jun 4;82(5):1171-82.

Xu Y, **Gao XD**, Lee JH, **Huang H**, Tan H, Ahn J, **Reinke LM**, **Peter ME**, Feng Y, **Gius D**, **Siziopikou KP**, Peng J, Xiao X, **Cheng C**. [Cell type-restricted activity of hnRNPM promotes breast cancer metastasis via regulating alternative splicing](#). *Genes & Development*. 2014 Jun 1;28(11):1191-203.

Zhang A, Xu M, Mo YY. [Role of the lncRNA-p53 regulatory network in cancer](#). *Journal of Molecular Cell Biology*. 2014 Jun;6(3):181-91.

Calendar

Wednesday, August 13

Science Communication: Deficits, Dialogues, and Deniers

Presented by Bruce Lewenstein, PhD, Cornell University.

Time: Noon to 1 p.m.

Location: ITW Classroom, Ford Motor Company Engineering Design Center
2133 Sheridan Road (Evanston campus)

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

Wednesday, August 20

Distinguished Summer Lecture Series in Inorganic Chemistry

“Molecular Imaging approaches to Discovery and Understanding of Inorganic Chemistry in the Brain,” presented by Christopher Chang, PhD, University of California-Berkeley

Time: 4 to 5 p.m.

Location: Technological Institute — Rm L211
2145 Sheridan Road (Evanston campus)

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

Thursday, August 28

IRB Brown Bag Session

“Genetic and Genomic Research,” presented by Sharon Aufox, MS, CGC, assistant professor, the NUGene Project.

Time: Noon to 1 p.m.

Location: 7th Floor, Rubloff Building — Rm. 750
750 N. Lake Shore Drive. (Chicago campus)

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

[More Events](#)

Event organizers are encouraged to submit calendar items on [Plan-It Purple](#) for consideration. Please contact the [Research Office](#) with further questions.

NIH News

NIH Deputy Director for Extramural Research Sally Rockey, PhD, [blogged](#) about the difference in how multi-PI applications compare to single PI applications. “For most years, and overall, there doesn’t seem to be a trend indicating that multi-PI applications are more (or less) likely to be awarded than single PI applications,” she concluded.

The NIH has [funds](#) available for administrative supplements to support diversity and re-entry into the research workforce. Supplements are available for program directors or principal investigators holding specific types of NIH research grants to improve the diversity of the research workforce by supporting and recruiting students, post doctorates, and eligible investigators from groups that have been shown to be underrepresented in health-related research.

Office of Research Infrastructure Programs is soliciting comments from the community on the Shared Instrumentation Grant Program (S10), to better achieve its goals, and in particular to widen the program’s outreach to address the needs of various groups of NIH-supported investigators for access to advanced instruments across a broad spectrum of technologies and diverse areas of science; to ensure optimal instrument operation for the benefit of the NIH-supported investigators; and to enhance program cost-effectiveness in awarding and maintaining shared instruments. [Read more.](#)

NIH is soliciting comments from a broad pool of stakeholders in the complementary and integrative medicine research (including natural products, probiotics, and mind/body approaches) and business communities as well as other health care professionals and product distributors that may assist NCCAM staff with enriching the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) research programs. [Read more.](#)

Follow Feinberg Online

