Search for ALS Cure a Richly Collaborative Venture

Hande Ozdinler is a neurological tailor.

Since first developing a technique to fit upper motor neurons with green fluorescent “jackets” three years ago, her lab has found new ways to potentially treat amyotrophic lateral sclerosis (ALS), a disease that leads to rapidly progressing paralysis and death usually within five years of the onset of symptoms.

Upper motor neurons serve as the start of movement, projecting information to the spinal cord through their axons, the long, branch-like part of the cell that sends impulses to other cells. The fluorescent protein coating that Ozdinler transfers to these neurons makes them visible to scientists.

“Because we can dress these neurons in green jackets from birth, we can see them — in animal models — as they age and become sick,” says Ozdinler, neurology. “Our latest discovery demonstrated an ability to selectively modify gene expression in the extremely small population of diseased upper motor neurons.”

continued page 2...

From left: Post-baccalaureate fellow Amiko Lagrimas and undergraduate researchers Carolyn Brooks and Eric Kim talk with Hande Ozdinler inside of her laboratory on the Chicago campus.
Like most of her published research, the finding was made possible with the work of postdoctoral fellows, PhD candidates, and undergraduate students working in Ozdinler’s lab.

“The youngest members of our lab work alongside postdocs and truly take ownership of a project,” says Ozdinler, a member of the Les Turner ALS Research and Patient Center at Northwestern Medicine. “The goal is to develop their investigative skillsets and help them grow into future scientists.”

Amiko Lagrimas, who joined the lab as an undergraduate in 2013, has already published research in PLOS ONE on the visualization of peripheral nervous system axons and cell bodies, with two more papers expected this summer.

Knowing that what I am doing allows me to contribute to ALS research and help my colleagues further their pursuit of a cure — it’s impossible to not feel good about that,” says Lagrimas, a post-baccalaureate fellow who plans to attend medical school. “I’m still engaged with research that began when I first started in the lab. It has been an amazing experience to see how the project’s grown, developed new angles, and yielded results that generate even more questions.”

Lagrimas is part of Ozdinler’s scientist pipeline. Undergraduate students working in her lab frequently receive summer grants from the University and continue their projects as post-baccalaureate fellows before pursuing advanced degrees.

“We know that admission committees really look for undergraduate research because it shows a willingness to work and contribute to the investigative process,” says Ozdinler. “Working in a lab right after graduation allows students to prepare a more solidified application package, something that’s hard to do when they are focusing on finishing their degree.”

Eric Kim, a second-year student studying biology and history, joined Ozdinler’s lab as a freshman.

“I’ve always found biology fascinating, and I wanted to see how the things I was studying in class actually applied to real life,” says Kim. “In addition to learning research basics and lab techniques, one of the biggest things I’ve realized is just how important collaboration is in scientific exploration.”

Kim is currently one of four undergraduates in Ozdinler’s lab — Carolyn Brooks, Santana Sanchez, and Daniel Heller are also working toward future publications.

“There’s a feeling that after the Ice Bucket Challenge — which raised an estimated $220 million globally — the philosophy of ALS research has changed to be even more collaborative,” Ozdinler says. “ALS is a complex disease, and to find a cure, researchers at every level need to work together toward that common goal.”

Ozdinler partnered with colleagues at Northwestern and the University of Florida on her most recent publication in Nature Gene Therapy. Former undergraduate and post-baccalaureate researcher Macdonell Stanford was a contributing author. The study showed, for the first time, that it’s possible to specifically modify gene expression in diseased upper motor neurons.

“This discovery provides evidence that lays a foundation for developing future gene replacement therapies to treat patients with ALS,” says Ozdinler. “It also highlights the importance of recruiting bright undergraduates into the research fold.”

Ozdinler’s lab is supported by the Les Turner ALS Foundation, Herbert C Wenske Foundation, ALS Association, Brain Research Foundation, Northwestern University Clinical and Translational Sciences Institute, the Weinberg College of Arts and Sciences, and National Institutes of Health.
Research Note: Interdisciplinary Research Expertise Makes ORD Team a Major Catalyst for Discovery

Northwestern’s impressive research strengths are diverse and they can be measured in different ways. One way is through the amount of annual sponsored research funding that the University receives. For example, over the past decade Northwestern has steadily increased both the total number of its research proposals and the amount of federal support for those proposals.

In 2015, we attracted a record-breaking $620 million in annual funding, doing so during a time of increased national competition for federal awards.

Frankly, due to political forces that impact budget allocations, the funds allocated to university research have barely changed over the past decade; at the same time, many more institutions are seeking that investment. Because of this, the federal government sometimes limits the number of proposals that an institution can submit to some programs. In other words, the government expects institutions to conduct the initial review for these limited submissions, which means we have to be more strategic in what we put forward.

There has also been a shift to more collaborative team projects by multiple funding agencies. Interdisciplinary teams need to work together in order to solve problems that our world currently faces, like cancer or climate change. This means a change from the traditional grant writing and proposal development practices.

In brief, it is more important than ever to develop great research proposals, programs, and strategic alliances.

The Office of Research Development (ORD) at Northwestern manages the institutional process of selecting our most meritorious limited submission proposals and plays a vital part in helping our PIs identify and secure funding opportunities — with an emphasis on multi- and interdisciplinary research. ORD provides the expert guidance to support the development of large, complex proposals involving multiple investigators and partners, including academic institutions, industry, K-12 education institutes and significant amounts of funding. The office acts as a catalyst to build connections and teams that strengthen programs. This includes identifying collaborators within Northwestern and its medical affiliates, as well as outside the institution with national lab partners or other universities. In each instance, ORD is helping to launch, advance, or sustain our researchers’ careers, enabling these people to educate the next generation of scientists, produce knowledge, and make discoveries of potentially high societal impact.

ORD also helps increase the success of faculty in this competitive funding environment through a number of services. ORD identifies new funding opportunities on a weekly basis and disseminates these to faculty in a targeted manner to increase awareness. Faculty consultations are available to those looking for new funding opportunities, needing peer review of proposals prior to submission, or support in identifying collaborators. The team also supports faculty in preparing for site visits from external agencies.

ORD has made a huge impact on Northwestern research over the years, including through supporting multimillion dollar grant proposals.

The extensive number of University Research Centers highlights Northwestern’s exemplary interdisciplinary research strengths. But they also showcase the dedication and knowledge of our talented administrative teams, including our colleagues in ORD.

Vice President for Research

April is Spring Cleaning Month!
The Office for Research Safety (ORS) asks each research group to schedule a spring cleaning day in April.

Click here for the spring cleaning checklist.
Sanjiv Shah is a cardiologist at Northwestern Memorial Hospital and an associate professor at the Feinberg School of Medicine. He specializes in echocardiography and heart failure, a syndrome with several pathophysiologic contributors leading to the inability of the heart to keep up to the demands of the body.

There are two main types of heart failure: reduced ejection fraction (HFrEF, also known as systolic heart failure) and preserved ejection fraction (HFpEF, known as diastolic heart failure). In the former instance, the heart pumps too little oxygen-rich blood; in the latter, the muscle contracts normally but its ventricles do not properly relax, which can result in fluid retention in the lungs and the body, leading to congestive heart failure.

“The prevalence of HFpEF is increasing, with more than 3 million Americans currently afflicted,” says Shah, who is director of the Northwestern HFpEF Program as well as director for the University’s T1 Center for Developmental Cardiovascular Therapeutics. Today, about 50 percent of all heart failure patients have preserved EF; and this proportion and overall prevalence has been increasing over time, he notes. Once hospitalized with HFpEF, the 5-year survival rate is poor: just 35 percent.

Yet despite these numbers, clinical trial enrollment has proven challenging: Globally across six countries and 270 sites, only 2.6 patients per site were enrolled each year in TOPCAT, a large HFpEF clinical trial. Northwestern’s HFpEF program is a distinguished exception, enrolling 77 patients in the TOPCAT trial. Northwestern’s HFpEF Program, started by Shah in 2007, is the first and largest dedicated HFpEF program in the world, having cared for more than 1,500 patients with HFpEF, results in part attributable to innovative data analysis to identify these patients.

While the management of systolic heart failure has improved over the past 30 years, finding effective treatments and conducting clinical trials for HFpEF globally have proven more challenging. There is currently no diagnostic test for the condition. Because general practitioners, geriatricians, pulmonologists, as well as cardiologists, often care for HFpEF patients, this further complicates identifying trial candidates. Shah also says the condition’s lack of targeted therapies sometimes results in “therapeutic nihilism,” where clinicians feel that there are no viable treatments and so are less likely to refer patients to specialists or for trials — especially if they perceive competing health risks for the patient.

What was your earliest research project?

In the 7th grade I was an avid tennis player, so I tried to determine the relative efficacy of several vibration dampeners (shock absorbers) for tennis rackets. For a science fair, I devised a contraption in my basement that consisted of a tennis racket handle secured to a foot pump, which I used to fill my bike tires. The pump was on a spring-loaded mechanism. I had a tennis ball hanging by a string from the ceiling and I studied the various trajectories that occurred when the racket hit the ball. This study’s second part consisted of a pen secured to the racket’s head with the tip of the pen continuously marking a roll of cash register paper as it spun on a tape recorder mechanism. As the ball hit the racket, the “shock pattern” would be recorded on the paper, and I analyzed the differential shock patterns coming from the racket with each type of shock absorber.

Sounds quite inventive. How did you do in the science fair?

I came in second place to a descriptive project explaining how wood pulp is turned into paper. I still remember the tough loss, but I emerged determined to fight harder next time. That drive to succeed has been an important factor in my career.

What early experiences helped shape your interest in medicine?

My parents are both physicians who practiced medicine in an academic environment. My father is a physician-scientist and medical educator, so his career definitely served as a role model. I was always an educator at heart in my training years, though. It was not until I became a cardiology fellow at UCSF that I really began to pursue a research-oriented path. My co-fellows at UCSF were outstanding, and it was the interaction with them and
What about cardiology especially appeals to you?

I really love cardiovascular physiology, and that as cardiologists we can see changes in physiology right before our eyes — on an echocardiogram, heart MRI test, or in the cardiac catheterization laboratory where we make invasive measurements of pressures within the heart. The fulfillment of the work I do comes from helping sick patients in need, educating trainees at all levels, and performing diverse types of research. I also enjoy attending specialized scientific symposia and advisory board meetings with other heart failure experts. I learn a tremendous amount from these sessions where our discussions can shape our field through clinical trials and other research studies.

Did you ever consider an alternative career?

I really wanted to be an actor when I was a Northwestern undergraduate, during which time I took theater classes. Several of my college friends were pursuing their Hollywood dreams, and I felt like it was the right time for an Indian-American actor to make it in Hollywood. But I wasn’t brave enough to give up my guaranteed admission into Feinberg — I was an HPME student — and I didn’t have much acting talent!

You’ve described heart failure disease as a “complex, heterogeneous clinical syndrome.” In lay terms, what does that mean?

Congestive heart failure is a syndrome, not a particular disease. It’s the end result of a variety of heart diseases, and a leading cause of death and hospitalization as we get older. We have typically treated heart failure using a one-size-fits-all approach; however, we now know that heart failure is heterogeneous and that we will likely be more successful with novel therapies if we match the mechanism of action of a new treatment to a particular type of heart failure patient who is most likely to benefit.

Your research is addressing this heterogeneous challenge by deploying data analysis to better understand heart problems.

You’ve used “phenomapping” to gain greater clarity about different kinds of heart disease. Can you connect the dots for us?

I think an analogy to cancer is helpful. These days, a tumor is removed, the tumor cells are analyzed, and the specific cellular and genetic abnormalities can be targeted with specific medications. We’d like to do the same in cardiology, but we don’t have access to heart biopsy tissue in most cases. Thus, we need to use indirect methods to figure out how to target medications to particular patients. Fortunately, we have laboratory and imaging tests that we use to obtain extensive data about how the heart and blood vessels are functioning in heart failure patients. Phenomapping is the use of machine learning methodologies to analyze the large amount of data to find patterns within the data that might identify groups of patients that are likely to respond to specific therapies.

You’ve said, “The future of clinical medicine will be humans and machines working together.”

What’s the potential of machines to advance medical science?

Machines can help us in many ways, and are already revolutionizing many industries: think of self-driving cars or voice recognition. Examples of promising ways that machine learning can help us in the future are 1. scouring electronic medical records to identify patients for clinical trials or helping diagnose rare diseases earlier; and 2. probing fundamental disease biology by integrating data from multiple sources — electronic medical records, imaging tests, and various “-omics,” such as genomics, transcriptomics, proteomics, metabolomics, etc. Then finding patterns within that data to help us understand disease mechanisms and target therapies to specific patients. Machines may identify novel patterns within patient-level data that make clinicians say “Aha!” This can result in discoveries of novel disease patterns that may help lead to new disease classifications and therapy. Basically, machine learning may function like corrective lenses that allow clinicians to see more clearly so that they can prevent, diagnose, and treat diseases and clinical syndromes more effectively.

What do you see as the key challenges to integrating technology — including data analysis — into mainstream clinical practice?

Medicine today is a very fast-paced environment, and physicians tend to stick with what they know. Big data analytics must be understandable to the end-user — the physician and the healthcare team — and must be lightening fast to keep pace with the clinical environment. Once these things happen, and there is seamless integration within the medical record, for example, I think that clinicians will use these tools. In cardiology, we have embraced a large variety of cutting-edge technologies over the last 50 years. I fully expect that the same will occur with machine learning and big data analytics.

Grant support for Dr. Shah’s research includes funding from the National Institutes of Health and the National Heart, Lung and Blood Institute (R01 HL107577, R01 HL127018), AHA Go Red for Women Network grant, AHA Cardiovascular Genome-Phenome Study grant, and Novartis.
NSF CAREER Award for Brenna Argall

Brenna Argall, electrical engineering and computer science and physical medicine and rehabilitation, has been awarded a National Science Foundation Early Career Development (CAREER) Award. Argall will use the award to help people with a variety of disabilities who can benefit from robotic devices.

“A significant paradox exists,” says Argall. “The more severe a person’s motor impairment, the more challenging it is for him or her to operate the very assistive machines meant to enhance quality of life. We are spearheading a new area of research at the intersection of autonomous robots and rehabilitation, incorporating robotics autonomy and intelligence into assistive machines, offloading some of the control burden from the user to the machine.”

The prestigious CAREER award recognize outstanding research and education by junior faculty. Specifically, it supports those who are building their professional foundation to serve as lifelong leaders who integrate education and research.

The $525,000 grant will bolster Argall’s efforts to study algorithmic approaches that enhance autonomous robots.

The advances can help patients with various disabilities, including spinal cord injuries, traumatic brain injuries, stroke survivors, amyotrophic lateral sclerosis (ALS), multiple sclerosis, and Parkinson’s disease.

Read more.

Northwestern University Ranked Among Top Fulbright Producers

Northwestern is again among the top producers of Fulbright scholars. Students use Fulbright awards, one of the world’s most widely recognized and respected international exchange programs, to study, teach or conduct research.

The University has ranked among the top 10 research schools producing Fulbright grant winners for 11 consecutive years. This year, Northwestern is tied with Yale for third with 26 winners. Harvard had 31 winners and the University of Michigan had 29.

Northwestern’s newest Fulbright scholars are currently in the field, lending their talents in diverse ways, from tutoring North Korean defectors to researching solar energy and hazardous medical waste. They serve all around the world, from South Africa and Germany to South Korea, Russia, Morocco, Peru, Vietnam, and Jordan.

To learn more about Northwestern’s Fulbright winners and to see where they are making a difference, read more.
Morris Lauded for Du Bois Book


The honor is part of the AAM’s PROSE Awards, which recognize the best works in professional and scholarly publishing.

“The Scholar Denied is a groundbreaking volume that rewrites our understanding of the founding and organization of one of America’s most important disciplines in the social sciences,” says Ilene Kalish, executive editor at New York University Press and social work judge for the 2016 PROSE Awards. “Through meticulous and compelling research, Aldon Morris shows how race and racism worked to deny the accolades of scholarship to a sociologist who managed to produce field-defining research that, even a hundred years later, has much to tell us about race, class, and opportunity.”

Harel, Rondinelli Honored with Presidential Early Career Awards

Chemist Elad Harel and materials scientist and engineer James Rondinelli have been awarded the Presidential Early Career Award for Scientists and Engineers (PECASE). President Barack Obama announced the recipients of the prestigious honor on February 18.

The PECASE is the highest distinction bestowed by the United States government on science and engineering professionals in the early stages of their independent research careers.

Harel was recognized for his pioneering work on the development of powerful optical techniques to probe the structure and dynamics of complex chemical systems at the extremes of time, space, and energy. This research addresses some of the most pressing and challenging problems in chemical physics. As well, he was honored for his commitment to cross-disciplinary research and education, his unwavering support of undergraduate and graduate students, and his overall leadership in the scientific community.

Rondinelli was recognized for his seminal research contributions in computational condensed matter physics and novel materials design approaches. He provided the first-ever methodology for predicting the relationship between strain and octahedral rotations in complex oxides, paving the way for the design of many-body quantum properties in ways previously considered impossible.

Harel and Rondinelli will be invited to the White House this spring to meet President Obama and attend an awards ceremony.

Learn more.
OR Administrative Changes Keep Pace with Brisk Growth

With more than $620 million in annual sponsored funding and nearly 50 University Research Centers, Northwestern’s research enterprise continues its impressive growth. Given these developments, the Office for Research is aligning its resources to best manage this robust activity.

As a result, Meg McDonald, assistant vice president for research, has changed the focus of her role effective March 15 to concentrate on supporting the University Research Centers and research communications. She will also assume increased responsibilities in building and enhancing relationships between Northwestern and external research partners, including Argonne National Laboratory, UILabs, and the Art Institute of Chicago, among other institutions and organizations. She will continue to work with Northwestern schools and departments on financial aspects related to faculty startups and retention.

Ann Adams, associate vice president for research, is increasing her operational portfolio to include direct responsibility for finance and human resources for the Office for Research. Effective March 15, Anne Martin, director of finance, and Claire Landis, associate director of administrative services, report directly to Adams. In addition, Adams will continue to oversee the Institutional Review Board Office; the Institutional Animal Care and Use Committee Office; the Office for Research Integrity; the Conflict of Interest Office; the Office for Export Controls and Compliance; and the Office for Research Information Technology.

Faculty Rising Stars Recognized with Sloan Fellowships

Four Northwestern scholars — T. David Harris, Yevgenia Kozorovitskiy, Mar Reguant and James Rondinelli — have each received a prestigious Sloan Research Fellowship for 2016 from the Alfred P. Sloan Foundation.

The Northwestern colleagues are among 126 outstanding early career scientists and scholars being recognized for their achievements and potential to contribute substantially to their fields. The recipients were chosen from 52 colleges and universities in the United States and Canada.

Harris was selected as a Sloan Research Fellow in chemistry. His research program focuses on using synthetic inorganic chemistry for the construction of functional inorganic molecules and materials, with an emphasis on compounds that exhibit interesting magnetic properties.

Kozorovitskiy, neurobiology, was selected as a Sloan Research Fellow in neuroscience. She studies how the brain’s neural circuitry develops. Her research focuses on decoding neuromodulation and neural circuit design principles.

Reguant was selected as a Sloan Research Fellow in economics. Her scholarship concentrates on industrial organization, particularly the energy and environmental markets. Reguant’s research uses high-frequency data to study the impact of auction design and environmental regulation on electricity markets and to quantify the impact of carbon trading on energy-intensive industries.

Rondinelli, materials science and engineering, was selected as a Sloan Research Fellow in physics. Rondinelli applies quantum mechanical and computational physics approaches to design new materials atom-by-atom. His passion is to manipulate materials at their fundamental electronic level, pushing electrons in inorganic compounds to do new things in dynamic environments.

Learn more.

Northwestern Named ‘Great Workplace’

For the second consecutive year, Northwestern has been recognized for supporting its employees at work and at home. The World at Work Alliance for Work-Life Progress awarded the University a 2016 Seal of Distinction for workplace strategies that help faculty, staff and students achieve quality work-life balance.

“The honor is a ringing endorsement of our efforts to ensure that Northwestern is a truly great place to work,” says Pamela S. Beemer, vice president of Human Resources. “When talented individuals are supported in their work/life needs, they are more able to be fully productive and to solve workplace problems, as well as to work more effectively and efficiently.” Read more.
Northwestern Institute Launches New Era of LGBT Health Research

The Institute for Sexual and Gender Minority Health and Wellbeing (ISGMH) has become the first university-wide research institute in the United States focused exclusively on LGBT health. Sexual and gender minorities include lesbian, gay, bisexual, transgender, queer and gender-non-conforming people — anyone whose sexual or gender identity does not confirm to social majority categories of sexual orientation and gender.

“We now have an extraordinary window of opportunity to conduct innovative research on the most important health concerns and needs of LGBT populations, to train scientists and clinicians in the best practices to meet those needs, and to profoundly lower barriers to healthcare and eliminate inequities in health outcomes,” says ISGMH Director Brian Mustanski, medical social sciences.

The institute’s research will focus on understanding the drivers behind health inequities involving sexual and gender minorities and also on developing new programs to address those inequities with interventions that are rigorous and evidence-based. ISGMH is among the newest of Northwestern’s 49 University Research Centers.

Read more.

Northwestern Team Awarded $3.2 Million Energy Grant

Adilson E. Motter and Takashi Nishikawa, both physics and astronomy, have been awarded a $3.2 million Network Optimized Distributed Energy Systems (NODES) grant from the US Department of Energy’s Advanced Research Projects Agency (ARPA-E). They will use the award to develop a new frequency-based load control architecture for power grids that integrates increased portions of electricity generation from renewable sources.

The ARPA-E NODES project follows previous work in this area. In 2013, Motter and Nishikawa received Institute for Sustainability and Energy at Northwestern funding that enabled them to develop a modeling framework to simulate and potentially reduce the frequency of cascading failures.

The ARPA-E NODES program’s goal is to improve the overall efficiency and reliability of the US electric grid, while increasing renewable energy use.

“Some of the clearest forms of energy have the inconvenience of being intermittent — it’s not always sunny or windy,” says Motter, the grant’s principal investigator. “The challenge is to develop a solution while keeping the system stable.”

Read more.

Hockberger Named Assistant Vice President for Research

Phil Hockberger, executive director of research facilities, has been named assistant vice president for research, effective March 15.

In this new role, Hockberger will continue to oversee the University’s portfolio of shared and core facilities as well as manage the Office for Research (OR) computing facilities, space and construction initiatives, high-end instrumentation, and regional partnerships.

“Phil continues to do a fantastic job running our Core Facilities, and has played an ever-larger role in managing research space,” says Jay Walsh, vice president of research.

Hockberger joined OR as director of core facilities in 2009. Since June of 2014 he has been the executive director of research facilities.

“As Northwestern’s research enterprise continues to grow, facilities and cutting-edge instrumentation will remain vital to our progress,” says Hockberger. “I look forward to continuing to provide support in this area during this exciting time in Northwestern’s history.”

In his expanded role, Hockberger will oversee the growing OR footprint. He will lead expansion efforts in the J Wing of the Technical Institute and also be responsible for OR space allocation at the Louis A. Simpson and Kimberly K. Querrey Institute for BioNanotechnology in Medicine.

Hockberger also will act as a liaison between Facilities Management and Northwestern’s research community. As such, he will work to inform investigators about current and pending construction initiatives on the Evanston and Chicago campuses.
NUCATS Grant to Improve Childhood Health through Collaborative Science

Chronic childhood illnesses—such as asthma, hypertension, diabetes, obesity, cancer, mental illness, and substance abuse—are antecedents of chronic illness in adults. Yet, research focused on younger individuals frequently lags.

The Northwestern University Clinical and Translational Sciences (NUCATS) Institute was recently awarded a Multidisciplinary Training Program in Child and Adolescent Health (TL1) to help address this need.

The novel training program seeks to promote interactions among mentors and trainees in both pediatrics and engineering to encourage creative thinking and new approaches to child-health research problems. The program's goal is to address the need for well-trained researchers by attracting talented trainees, equipping them with the tools to succeed, and retaining their commitment to be independent investigators.

The TL1 grant will support postdoctoral fellows in a dynamic, multidisciplinary environment that produces investigators prepared to apply translational scientific approaches to challenges in child and adolescent health research. The NUCATS TL1 program is accepting research proposals through April 15. Learn more.

Innovative Academic Programs in Qatar to Continue Through 2028

Northwestern will continue to offer journalism and communication programs—supported by liberal arts courses—in Doha, Qatar, through 2027-28.

Established in 2008, NU-Q enrolls approximately 210 students from Qatar, the Middle East, and elsewhere.

“The success of the graduates of NU-Q is a testament to the terrific work being done by our faculty and staff in Qatar,” says Provost Dan Linzer.

NU-Q students receive an education comparable to that on the University's home campus in Evanston and Chicago. Graduates of the program have gone on to careers in journalism, filmmaking, private industry, and government offices in the region.

In addition, research advances by NU-Q faculty include longitudinal studies of media use and its impact in the Middle East, as well as a forthcoming comprehensive study of media industries in the region. Read more.

Northwestern’s Qatar campus, established in 2008, enrolls approximately 210 students from the Middle East and elsewhere. The University has announced that NU-Q will continue its instructional programs, research, and service activities through at least 2027-28.

Drug Discovery Symposium Submissions Due April 8

The Center for Molecular Innovation and Drug Discovery is hosting its 20th Annual Drug Discovery Symposium on April 20 at the Robert H. Lurie Medical Research Center on the Chicago campus.

The event brings together students, staff, faculty, and industry members to discuss the field's latest groundbreaking research.

This year's event will begin at 1 p.m. with a talk by Alfred George, chair of pharmacology. Afterward, keynote speaker Barbara Slusher, neurology and psychiatry at Johns Hopkins University, will share her insights. Slusher is also director of the Brain Science Institute NeuroTranslational Drug Discovery Program, and founder and president of the Academic Drug Discovery Consortium.

A poster session featuring the work of students and postdoctoral fellows from Chicago's scientific community will immediately follow the keynote lecture.

The deadline for poster session submissions is April 8. Learn more and register.
Kellogg Launches Groundbreaking, Interdisciplinary Trust Project

The Kellogg School of Management has launched The Trust Project, a cross-disciplinary showcase that shares decades of research about this complex subject to benefit academics and business leaders alike.

The project’s rollout features nearly 30 brief videos about trust, conveying the diverse expertise of Northwestern scholars as well as business practitioners. The videos appear on the project website.

“The goal is to advance the level of discussion on trust,” says Kent Grayson, marketing, who is the initiative’s faculty coordinator. The project emphasizes that understanding trust and how it functions has become increasingly vital, especially as trust underpins an array of social institutions. As technology and globalization continue to erase traditional boundaries among people, organizations, and markets, trust assumes a central role in many different interactions.

The Trust Project brings together Northwestern thought leaders from across disparate fields, including sociology, medicine, philosophy, economics, and marketing.

Learn more.

Science Café: Gravity Has a Story to Tell

Virtually everything we know about the universe has been discovered from the study of photons — light in its myriad forms from radio waves, to visible light, to x-rays, and beyond. At the dawn of the 21st century, advanced technology is providing new access to the cosmos through the detection of ripples in the fabric of spacetime itself.

These ripples, called gravitational waves, carry information not in the form of light or particles, but in the form of gravity itself. Researchers — including Shane Larson, physics and astronomy, who was involved in their recent discovery — have concluded that the detected waves were produced during the final fraction of a second of the merger of two black holes 1.3 billion light-years away.

Gravitational waves confirm a major prediction of Albert Einstein’s 1915 general theory of relativity. Larson’s talk will explore the modern description of gravity, what gravitational waves are and how scientists measure them, and what we hope to learn from their detection.

Northwestern’s Science Café featuring Larson occurs on March 23 from 6:30 to 8 p.m. at the Firehouse Grill in Evanston. Because a large audience is expected, advance tickets must be reserved.

Research Day

April 7

The 12th Annual Lewis Landsberg Research Day will take place April 7 on the Chicago campus.

Hosted by the Feinberg School of Medicine, Research Day is a University-wide event that promotes faculty and trainee development. Participants share exciting research and engage in conversation with colleagues. Junior faculty members are especially encouraged to submit research abstracts and to exchange ideas through peer-to-peer networking.

Research Day also provides an opportunity to learn about the University’s research cores and how these facilities provide valuable support for clinical and basic science research.

Learn more.

Do you want to be a podcaster?

Award-winning radio and Internet news veteran Charlie Meyerson (WXRT, WBEZ, Chicago Tribune, Crain’s Chicago Business) has been fighting “tuneout” his entire career. Now that everyone’s competition — whether you’re peddling news or shoes — is a click away, that mindset is more important than ever. On March 29, Meyerson will share real-world data demonstrating just how hard it is to get and keep an audience’s attention, and he’ll share tips to keep that audience around — whether you’re writing an essay or launching a podcast. Click here to learn more about this Ready, Set, Go event.
**Discoveries**

Fabían Bustamante, computer science, is exploring ways to better understand the systems challenges for inflight WiFi. This line of inquiry could lead to new approaches for improving current consumer service. Research could potentially revolutionize the antiquated communication services that support the global air-traffic management system. Learn more.

Yan Chen, computer science, has created a dynamic detection system that could protect smartphones from malicious content, like harmful ads one might encounter when interacting with apps. Learn more.

A new combination of drugs provides an effective and well-tolerated therapy for patients with recurrent metastatic breast cancer who are resistant to more common therapy, according to a new study by Massimo Cristofanilli, medicine: hematology/oncology. Learn more.

When your biological, or epigenetic, age is older than your chronological age, you are at increased risk for developing and dying of cancer, reports a new study by Lifang Hou, preventive medicine. The bigger the difference between the two ages, the higher the risk of dying of cancer. A person's epigenetic age is calculated based on an algorithm measuring 71 blood DNA markers that could be modified by environmental factors. Learn more.

New Northwestern Medicine research has revealed a surprising phenomenon behind the production of red blood cells. As immature cells differentiate into mature red blood cells, their nuclei and the genetic material inside them – called chromatin – condense, a process that scientists did not fully understand until now. In a paper published in *Developmental Cell*, a team led by Peng Ji, pathology, showed that a large opening forms on the nuclear membrane of immature red blood cells, allowing histones – proteins in the chromatin – to release from the nucleus and degrade. Learn more.

Prostate cancer may be more aggressive in men who are deficient in vitamin D, new research by Adam Murphy, urology, suggests. The study of nearly 200 men having their prostate removed found those with low vitamin D levels were more likely to have rapidly growing tumors than those with normal levels of the “sunshine” vitamin. Learn more.

A groundbreaking intravaginal ring developed by Patrick Kiser, biomedical engineering and obstetrics and gynecology, protects women against HIV as well as sexually transmitted disease and unplanned pregnancy. Now, he and his team have designed a new model of the ring that better controls the rate of drug release, enabling the delivery of a more diverse array of drugs for extended durations. Learn more.

Newly discovered phenolphthalein, a molecule that helps to bring new discoveries, could be a key tool in the fight against prostate cancer, says a new study by Alan Peaceman, obstetrics and gynecology, pathology, and chemistry. The molecule helps to bring new discoveries, which could lead to new treatments for the disease. Learn more.

Heather Schoenfeld, legal studies and human development and social policy, is investigating why states seek prison reform and how these efforts might help the United States reverse mass incarceration. Learn more.

A new study led by Sandra Waxman, psychology, provides the earliest evidence for strong overlap in infants’ attention to objects and events. The research also raises the possibility that by 24 months, infants’ attention may already be shaped subtly by the attention patterns of adults in their cultural communities. Learn more.

**Honors**

Ryan Dohoney, music studies, and Mary Weisman, anthropology, have received The Alumnae of Northwestern University Award for Curriculum Development. The pair will spend the summer developing two new undergraduate courses designed to draw connections and insights between historical and modern traditions in music and art.

Thomas Gibbons and Felicity Vabulas, both School of Professional Studies, have been recognized for their extraordinary leadership and excellence in teaching by UPCEA, the association for leaders in professional, continuing, and online education.

Dieter Isheim, materials science and engineering, has been awarded a 2016 AIME Champion H. Mathewson Medal from the Minerals, Metals, and Materials Society for his atomic-scale characterization of high-performance materials, internal interfaces, and phase transformations.

Mark Hersam, materials science and engineering, chemistry, medicine and director of the Materials Research Science and Engineering Center, has been named one of five 2016 US Science Envoys. The MacArthur Fellowship winner will engage Eastern European citizens and government officials to develop partnerships, improve collaboration, and forge mutually beneficial relationships between other nations and the United States to increase scientific cooperation and economic prosperity.

Peter Slevin, journalism, has been named a finalist for a prestigious 2016 PEN Literary Award, which honor the best in new literature. Slevin’s biography of first lady Michele Obama is one of five biographies in contention for the PEN/Jacqueline Bograd Weld Award.

The Minerals, Metals, and Materials Society (TMS) has recognized Bruce Wessels, materials science and engineering, with its highest honor, induction into the TMS Class of Fellows.
Spotlight: Research in the News

Alice Eagly, psychology, was quoted in Glamour regarding research on why men may prize intelligence in a mate. “The findings are an indication of change toward valuing gender equality — that gender equality is arriving and that people are adjusting their relationships and behaviors to take greater equality into account.”

Teenage boys with a better understanding of the effectiveness of birth control were 72 percent more likely to live with future children, according to research led by Craig Garfield, pediatrics and medical social sciences. The study, which also found that it was possible to identify young males likely to become teen fathers, was featured by HealthDay News.

Marijuana use is sending Colorado tourists to hospital emergency rooms at an increasing rate, according to a new study by Howard Kim, a postdoctoral fellow in emergency medicine. The same isn’t true of Colorado residents, however, suggesting that marijuana dispensaries need to do a better job of educating people buying their product, says Kim. The research was featured by CNN, NPR, Los Angeles Times, and other national news publications.

Moral symbols — such as a religious poster hanging on a cubicle wall, or an ethical quote embedded in an email signature — can keep employees from getting pulled into an employer’s dishonest business practices and can even discourage the employees’ superiors from engaging in nefarious acts, according to research co-authored by Maryam Kouchaki, management and organizations. The findings were featured by numerous media publications, including Chicago Tribune and Washington Post.

USA Today featured news that Kate Masur, history, will help the National Park Service develop a way to commemorate the US Reconstruction era. Masur has compared the era to the Vietnam War, “a period that is complicated in our national memory,” and which, as a result, is difficult to commemorate.

Julio M. Ottino, dean of the Robert R. McCormick School of Engineering and Applied Science, and Gary Saul Morson, Slavic languages and literature, wrote about building a bridge between engineering and the humanities. Their essay appears in The Chronicle of Higher Education.

Marc Walton, a senior scientist at the Northwestern University-Art Institute of Chicago Center for Scientific Studies in the Arts, was featured in numerous global publications, including the Economist, for his research findings on ancient lifelike mummy portraits.

InfoEd Proposal Workflow Goes Live on March 17

The initiative to streamline proposal and award processing in the Office for Sponsored Research (OSR) takes a major step forward with the implementation of Proposal Workflow in InfoEd on March 17.

Key features of the new Proposal Workflow process using InfoEd include:

- Updated process flows within InfoEd PD for administrative shell and final proposal review and submission
- New statuses to accommodate the new system-based process flows
- Visual proposal workflow map to allow users to see which proposals are in each status
- Action items with associated email notifications to facilitate handoffs between statuses
- Action item list to enable users to quickly see all open items assigned to them

Proposal Workflow aims to improve the quality, efficiency, and transparency of proposal development and submission, as well as to provide relevant metrics to facilitate organizational decision-making. The initiative’s next phase will focus on developing and refining metrics.

Additional information about the Proposal Workflow release and training opportunities is available on the OSR website.

Enterprise Data Warehouse Topic of Today’s IRB Brown Bag

Learn more about the Northwestern Medicine Enterprise Data Warehouse (EDW) at the March 16 Institutional Review Board (IRB) Office brown bag session.

The EDW serves as a comprehensive, integrated data repository for the purposes of research, clinical quality, healthcare operations, and medical education.

Daniel Schneider, senior data analyst at the Northwestern Clinical and Translational Sciences Institute, will provide insight into the EDW and the requirements for using it.

Today’s discussion begins at noon in Rubloff 750 on the Chicago campus.

Take Our Daughters and Sons to Work Day is April 28

Registration will be open from March 30 through April 13.
Proposal and Award Report: Through January 2016

The total amount of award funding that Northwestern received this fiscal year, through January, is $134.7 million, a 2 percent decrease ($2.5 million) compared with January 2015. The number of awards to date (837) represents a 1 percent increase compared to last year.

The dollar volume of awards from federal agencies increased 7 percent ($6.4 million). Awards from industrial sponsors declined about 31 percent ($9.2 million). Foundation funding is down 9 percent ($0.8 million), while voluntary health organization funding decreased 33 percent ($1.6 million).

The dollar volume of proposals submitted through January is $1.019 billion, a decrease of 4 percent compared to last year. The number of proposals submitted (1,440) is down 5 percent.

The dollar volume of proposals submitted to federal agencies decreased 1 percent ($7.6 million), while proposals to industrial sponsors was down 44 percent ($18 million). Proposal activity to voluntary health organizations is down 23 percent ($7.4 million) and foundation proposals declined by 42 percent ($14.4 million).

Click here to access the full report.

Back on Earth
Astronaut Scott Kelly was all smiles when he arrived in Houston on March 3 after his yearlong mission aboard the International Space Station. Now that he’s back on Earth, researchers involved with 10 NASA-funded studies will begin the process of analyzing their data. Relying on biological samples collected from Scott and his twin brother, Mark, during the past year, Northwestern researchers will use DNA sequencing to identify the microbes inhabiting each twin’s gastrointestinal tract. By analyzing various biological changes, NASA hopes to learn how living in space for a long period of time — as would occur on a mission to Mars — affects the human body. Learn more.