

FSM Research Newsletter

November 2008

Feinberg School of Medicine Office for Research
Northwestern University

NEW LAB ADVANCES ALS RESEARCH

LES TURNER ALS FOUNDATION SUPPORTS WORK OF P. HANDE OZDINLER, PHD

The Feinberg School of Medicine has strengthened its reputation as one of the nation's premier centers for research into the causes of amyotrophic lateral sclerosis (ALS) with the addition of a second Les Turner ALS laboratory, directed by P. Hande Ozdinler, PhD, assistant professor of neurology. The first laboratory is directed by Teepu Siddique, MD, the Les Turner ALS Foundation/Herbert C. Wenske Foundation Professor and director of the Neuromuscular and Neurogenetic Disorders Program. Both laboratories are funded with support from the Les Turner ALS Foundation, the Chicago area's only independent, publicly supported nonprofit organization devoted solely to the

elimination of ALS, better known as Lou Gehrig's disease.

Dr. Siddique's significant contributions to the field of ALS research inspired the foundation to support a second laboratory at Northwestern University. In 1993, Dr. Siddique co-discovered the first known cause of ALS—mutations in the SOD1 (superoxide dismutase) gene; in 2001 his lab discovered the ALSIN gene to be responsible for juvenile-onset ALS; and in 2008 his laboratory enabled investigators to explore how proteins are regulated in the nervous system, by building upon the findings of the X-ALS gene, which is involved in both ALS and ALS dementia.

neuroscience at Louisiana State University Health Sciences Center. Her interests in neuroscience and cell biology led her to



Jack Kessler, PhD, Boshes professor and chairman of neurology (center), poses with Hande Ozdinler, PhD (left) and Teepu Siddique, MD (right). Both Drs. Ozdinler and Siddique are director of labs that are funded with support from the Les Turner ALS Foundation.

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Dr. Ozdinler, who comes to the Feinberg School of Medicine from Harvard Medical School, will be leading the research lab that focuses on the cell biology of neurons that specifically die in ALS. These are the motor neurons in the cortex and the motor neurons in the spinal cord. Her work will focus on the corticospinal motor neurons that reside in the cortex and send out projections to the spinal cord. These neurons, together with spinal motor neurons, control our movements and progressively degenerate in ALS. The cellular and molecular mechanisms of their survival and death are not known.

For Dr. Ozdinler, the journey to become an ALS researcher began in her native Turkey. After completing an undergraduate degree and a master's in molecular



Dr. Ozdinler gave a tour of the Les Turner ALS Research laboratory located on the 10th floor of the Ward building on November 10, 2008.

biology and genetics in her homeland, she came to the United States, earning her PhD in cell biology, anatomy, and

Harvard Medical School, where she trained under the direction of Jeffrey Macklis, MD, a world-renowned expert on stem cell biology, and the first scientist to identify the molecular controls directing differentiation of corticospinal motor neurons. Drs. Ozdinler and Macklis developed new approaches to purify and culture these neurons, which then allowed them to dissect the mechanisms by which their morphology is regulated. They published their groundbreaking discovery in 2006 in *Nature Neuroscience* showing that

insulin-like growth factor (IGF-1) specifically enhances corticospinal motor neuron axon outgrowth both *in vitro* and *in vivo*. These results may help guide future efforts to use IGF-1 to enhance the outgrowth and

functional connectivity of damaged neurons.

MEET ROWLAND W. CHANG, MD



Professor, Departments of Preventive Medicine, Medicine, and Physical Medicine and Rehabilitation

What are your research interests?

My clinical research interests center on rehabilitative and preventive rheumatology. With colleagues from a number of departments and institutes at the Feinberg School, we pursue clinical epidemiologic and health services research focused on the outcomes of rehabilitation and orthopedic surgical

treatments and physical activity interventions for people with arthritis. This research also involves looking at the factors that determine functional limitation and disability in clinical and community populations with arthritis.

What are some of your current research projects?

A number of our recently published studies involved identifying and altering modifiable factors associated with the incidence of functional limitation and disability in patients with arthritis. For example, we recently published findings from a study that utilized data from national survey of U.S. community-dwelling residents aged 60 or older where we identified "regular vigorous physical activity" as a major protective factor in preventing disability in those subjects reporting arthritis. This has led to our current R01-funded study which tests the efficacy and cost-effectiveness of a tailored intervention designed to increase the physical activity of patients with rheumatoid arthritis and knee osteoarthritis.

We are also interested in studying health and health care disparities pertaining to persons with arthritis. For instance, we recently

published findings of a study exploring whether there are racial/ethnic disparities in arthritis-related hip and knee surgeries. That study looked at a national sample of African American, Hispanic, and white adults age 51 or older. The results showed that while African Americans under age 65 have similar age/gender adjusted rates of hip or knee arthritis surgeries, African Americans over 65 have significantly lower rates when compared with white patients of the same age. We concluded that national data documents lower rates of arthritis-related hip or knee surgery for older black versus white adults and that these differences occur in the Medicare-aged population.

Another recent study looked at racial and ethnic differences in the development of disability in older adults. We found that older African American adults and Hispanic adults interviewed in Spanish have higher risks for developing disability. Further, we concluded that this disparity was attenuated by health and socioeconomic differences, but not completely explained by these differences. We suggested that language- and culture-specific programs designed to increase physical activity and promote weight maintenance may reduce rates of disability in activities of daily living.

What is the ultimate goal of your research?

As revealed in the examples given, our research efforts ultimately seek to prevent arthritis-related functional limitation and disability. Our hope is that these studies lead to an effective health care system, public health, and public policy approaches that improve the health of people with arthritis across the full spectrum of age, gender, race, ethnicity, cultural background, and socioeconomic status.

VISUALIZATION SERVICES GROUP IN ACADEMIC AND RESEARCH TECHNOLOGIES

The Visualization Services Group of Academic and Research Technologies (A&RT, NUIT) assists researchers in achieving their scientific goals by bridging the gap between concept and implementation with visualizations techniques. Our professional staff has the expertise to engineer volume renderers across a wide range of disciplines; architect interactive and off-line visualization applications for the fields of biology, psychology, math and computer science, among others; and support the design and creation of computer animated features that enable Northwestern researchers to communicate ideas to non-expert audiences.

This quarter, the Visualization Services Group is working closely with researchers in the Theoretical Astrophysics group to build out three-dimensional artistic animated shorts on the life stages of binary star systems.

Additionally, Academic & Research Technologies (division of NUIT) provides programming and application support, consultation, and software license services for NU faculty researchers. The department, staffed with a unique group of software developers, media specialists, and discipline experts, supports researchers wishing to investigate new opportunities with cluster computing systems, shared data stores, advanced visualization and imaging technologies, and more.

To learn more about how the services group can help with your research efforts at the medical school, please visit <http://www.it.northwestern.edu/about/departments/at/> or contact Bob Taylor at bob-taylor@northwestern.edu or Joseph Paris at j-paris@northwestern.edu.

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At the Feinberg School, joined by research assistants Ashley Pawlisz and Krish Gavisherla, Dr. Ozdinler will build on this work. She will focus on the subtype-specific neuron populations in the cortex and investigate the cellular and molecular mechanisms that are important for their survival, differentiation, and cell-type specific degeneration in disease. "It is important to understand the cell-type specificity in neurodegenerative diseases," Dr. Ozdinler says. "We hope to make contributions to the understanding of the biology of the disease."

On November 10, the new lab was celebrated at a reception held in the atrium of the Robert H. Lurie Medical Research Center. In a presentation made at this event, Dr. Ozdinler spoke about hope, courage, and hard work and named the three important components of success: the scientific environment, financial support, and having the right person for the job.

During the reception, presented by the Les Turner ALS Foundation, Dr. Ozdinler told guests the importance of the word "impact." She indicated that with their impact some people shape our lives even in their absence. She thanked Les Turner for his continuing impact on the betterment of ALS patients' lives; her brother, whose his death from stroke at the age of 23 reshaped her focus to neuroscience; and Ataturk, the founder of modern-day Turkey, who with his vision and continuous impact gave her the courage to be who she is today as a woman scientist.

Dr. Ozdinler's presentation at the reception summarized her work as a scientist and outlined plans for future research. She also spoke compellingly about the welcome and support she has received since joining the Feinberg School in October. "We have great minds, great scientists, and great resources here, and everybody is willing to contribute to the big picture," she says. "There is great spirit here...and great commitment. At Northwestern, it is all about the patients. I am so glad to be here."

GOODBYE CUFS, HELLO NUFINANCIALS

As of December 8, Northwestern will have a new PeopleSoft financial management system. The biggest changes are that CUFS numbers will no longer be used and many formerly paper-based processes will now be done electronically.

Business administrators will see some significant differences while research personnel will benefit from new, on-demand reports, online shopping, and electronic expense reimbursement requests.

Purchasing will not be available between November 27 and December 7. During the transition, purchase orders and non-emergency checks are unavailable. In addition, no new accounts (e.g. awards) will be set up between November 21 and December 7. OSR recommends that pre-spending accounts be set up before November 21.

OSR and ASRSP have already begun using InfoEd to manage proposal administration; researchers will see additional benefits with the post-award component of the system starting in December. In addition to new processes for some business functions, cost sharing and clinical trial policies will also change.

For more information, visit the Project Cafe web site at <http://cafe.northwestern.edu> or contact Project Cafe with your questions at projectcafe@northwestern.edu.

SPONSORED AWARDS



Rick McGee, PhD

Associate professor of medical education and faculty development

Project Title: Career Decision Making of Future Minority Biomedical Science Faculty

Sponsor: National Institute of General Medical Sciences

The study is designed to help us understand how students in the life sciences, especially those from underrepresented groups, view and make decisions about their future careers. Of particular interest to us is how students make decisions about academic careers as one option for young scientists. Although much research has been done on the factors that influence college student retention in the sciences in general, almost nothing is known about how those who actually enter PhD programs decide what to do with their PhD training. The multi-year study will use annual semi-structured interviews to follow the career thinking and planning of more than 250 students from across the U.S., beginning as juniors in college and continuing through their first years of PhD training or other postbaccalaureate activities. Qualitative research methods will be used to study the patterns and primary influences on student thinking and intentions across this diverse sample of future scientists.



Chyung-Ru Wang, PhD

Professor of microbiology and immunology

Project Title: The Role of MHC class Ib in T cell Development and Infectious Disease

Sponsor: National Institute of Allergy and Infectious Diseases

MHC class Ib molecules comprise the majority of the MHC class I family. However, much less is known of their role in immunity compared to classical MHC class Ia molecules. The goals of this project are to investigate the effect of thymic-selecting pathways on the *in vivo* function of MHC class Ib-restricted CD8⁺ T cells and to examine the relative role of various MHC class Ib-restricted CD8⁺ T cells in host defense against intracellular bacterial infection. Studies on this relatively uncharacterized segment of the mammalian immunologic repertoire may lead to improved methods for vaccination against infectious diseases.

[Click here for a list of recent FSM sponsored awards](#)

STAFF PROFILE: DAVID ZEMBOWER



Administrative Director, Feinberg Cardiovascular Research Institute

Where are you from? I was born in Brooklyn, NY. My father was in the Air Force so before I was six years old I lived in New York, New Jersey, Turkey, and Oregon. We moved to Orlando, Florida when I was 7, which is where I grew up and went to college. Since then I've lived in Atlanta, GA and Rochester, Minnesota, and finally landed in Chicago in 1995. So it's

hard to say exactly where I'm from.

What's your educational background? I have a bachelor's degree in chemistry from University of Central Florida, a PhD in organic chemistry from Georgia Tech, and a MBA from Kellogg. After I received my PhD, I worked as a postdoc at Mayo Clinic for four years. I guess you can say I liked school.

What is your role at the institute? My role is to manage the day-to-day business operations of the institute, and to help develop and execute the strategies for future growth and evolution of FCVRI. My professional background is in drug discovery and business development, so I bring a different (commercial) perspective to my job. Doug Losordo has a vision to create a world-class translational research enterprise within FCVRI, and I work with him to formulate the strategies to achieve that goal. As part of that effort I'm helping to build and streamline the clinical trials management group in FCVRI, and seeking ways to integrate our activities with similar groups around the medical school.

What's a typical day like for you? There really isn't a typical day. As administrative director I need to address issues that come up throughout the week (what many refer to as "putting out fires"), but I spend a lot of time planning ways to prevent fires from starting. I try to spend as much time on long-term strategy as possible, which is the most interesting aspect of my job. There is tremendous long-term potential in the research being performed at FCVRI, and I try to help our investigators think of alternative ways to capitalize on their research interests and use resources available both inside and outside Northwestern.

Why did you choose to work here? I started talking with Doug Losordo several months after he arrived at Northwestern, and was really impressed with his vision and passion for what he wanted to create at FCVRI. I felt it was an excellent opportunity to use my background in R&D and business management to create something new and exciting.

What do you like/dislike about your job? I really like the wide range of scientific research that I'm exposed to here

at the medical school, and the smart, talented people I get to interact with every day.

What are your hobbies? Any favorite books/movies? My hobbies include stock investing, reading, music, and watching movies. I tend to read classic fiction (Hemingway, Vonnegut, Steinbeck, etc.), and occasionally find a more current author that I enjoy (Cormac McCarthy, Martin Amis). It's difficult to find an author I really enjoy, which is why I read a lot of short stories (less time invested if it turns out to be unenjoyable). For movies I have pretty eclectic tastes, running from traditional classics (*Casablanca*, *The Hustler*, *Cool Hand Luke*) to cult classics (*Repo Man*, *Clockwork Orange*, *Big Lebowski*), to anime (especially the films by Hayao Miyazaki). I'll watch pretty much anything except romantic comedies (blah) or musicals. A musical romantic comedy would be my worst nightmare (it would take a team of wild horses to drag me to see *Mama Mia!*).

How do like to spend your free time? I enjoy coaching my son's soccer team (even though I'm personally horrible at soccer), exercising at the gym (I should do it much more often), and cooking.

ANIMAL RESEARCH CORNER



Have you noticed some new faces in your animal areas?

The Center for Comparative Medicine has recently implemented some personnel and responsibility shifts on both campuses in an effort to better meet the needs of the research community at Northwestern.

On the Evanston campus, the following changes have occurred.

Bob Williams, facility manager of Pancoe and Hogan, will oversee the operations and staffing of the Lurie cage wash area in addition to his regular managerial responsibilities on the Evanston campus.

Rob Wortman, supervisor of the Hogan building, has moved to the Chicago campus to assume the supervisory position in the Lurie sub-basement.

Romulo Trovela, supervisor of Pancoe, will assume the supervisory responsibilities of both the Pancoe and Hogan buildings.

On the Chicago campus, the following changes have occurred.

Mike Ostrowskyj, formerly a group leader in Lurie, has accepted an assistant manager of quality assurance and training position and will move to the Searle building to join the training team.

Giovanni Pompilio, supervisor of the Lurie basement, will assume the supervisory position in the Lurie cage wash area.

Carolyn Pelham, supervisor of the Lurie sub-basement, will assume the supervisory position in the Lurie basement.

Tyrone Land, group leader in the Lurie sub-basement, will move to the basement and assume group leader responsibilities there.

Although personnel are moving around, the facility contact phone numbers will remain the same (i.e. the Barrier supervisor phone number will remain the same). If you see a new face in CCM, please stop, say hello, and introduce yourself. Remember, the staff of CCM is your best resource in the animal facility. The more they know about you and your research, the better able they are to assist you.

STUDENT PROFILE: KATE MEYER



Northwestern University Interdepartmental Neuroscience (NUIN) PhD Program — Jill Morris Lab at Children's Memorial Research Center (CMRC)

What are your research interests? My primary interests are in the molecular and genetic underpinnings of psychiatric disease, especially those with a neurodevelopmental origin. I find it fascinating that very subtle abnormalities that occur during brain development can have profound effects on brain function.

There are so many devastating psychiatric diseases that appear to stem from such abnormal events, and there is a great deal of research being done to elucidate the molecular mechanisms that underlie these diseases. These studies are constantly revealing the complexity of the human brain and the many ways in which developmental abnormalities contribute to psychiatric disease. There is still so much to be discovered in this area that I think I will always have an intense interest in it.

What exciting projects are you working on? My thesis work investigates the role of *Disrupted-in-Schizophrenia 1 (DISC1)*, a schizophrenia susceptibility gene, in brain development. *DISC1* was originally discovered as a novel gene that was disrupted in a large Scottish family with several members who suffered from major psychiatric illness. Since then, several groups have been trying to decipher the role of *DISC1* in brain development and function. My research looks at how *DISC1* loss-of-function impacts the development of the hippocampus. By better understanding the effects—however subtle—that alterations in *DISC1* have on

brain development, we hope to gain important insight into the neurobiological underpinnings of schizophrenia.

What attracted you to the NUIN program? One of the first things that attracted me to NUIN was the quality and diversity of the research being done. As I started my laboratory rotations during my first year, I had a seemingly unending list of labs that I was interested in working in. Even after choosing my laboratory, though, I have been able to collaborate with and learn from several of the labs in the NUIN program. It is great to be in a program that does such high-quality work in so many areas of neuroscience.

How often do you have to travel between CMRC and the two NU campuses? During my first two years in the program, I traveled between the two campuses a lot to attend classes and to teach. Now, I mostly travel to Evanston or Chicago if there is a seminar or other event that I am interested in attending. Occasionally, I will go see another lab to learn a technique or borrow materials. Traveling downtown is especially easy since there is a shuttle right from CMRC to the Chicago campus.

What has been the best (or worst) experience so far? One of the best experiences in general has been interacting with all of the other students in the program. The NUIN retreat is always a lot of fun—especially during the first year when you are meeting many of your classmates for the first time. The CMRC is kind of tucked away from the rest of NU, but the graduate students here have had a lot of fun interacting and organizing social events.

How would you describe the faculty at FSM? The faculty members are extremely knowledgeable and very open to collaboration. One thing that has continued to impress me is that so many of them are willing to take time out to help students with their research. I personally have had a few instances where I needed advice or help in an area outside of our lab's expertise, and I have always found the faculty members to be extremely generous and helpful in that respect. In addition, many of the courses I have taken involved a different faculty lecturer every week, and I was always impressed with their breadth of knowledge and their ability to communicate well with the graduate students.

What do you like to do for fun? I love living in Chicago—there is so much to do and to see! I currently live in Lakeview, so I have had a lot of fun going to Cubs games and going out with friends in the area. I also like exploring the many restaurants of the city and going to concerts and other fun events that are always going on. I am active and love being outdoors, so the beach is always a great place to go during the summer. I am also a big sports fan, so any chance I get to watch a Chicago team (except the Sox!) I will usually take advantage of it.

What are your plans after graduation? I plan to continue doing research in psychiatric disease and neurodevelopment after I graduate. I will be applying for postdoctoral positions in the academic setting. After that I am not sure!

WELCOME NEW FACULTY

Joseph Kang joins as assistant professor of preventive medicine. He received a MS in biostatistics and a PhD in statistics. Prior to joining FSM, he worked on research covering application of causal inference to behavioral health research and development of a NIH grant proposal on causal inference for estimating the effect of a treatment measured with an error at the Pennsylvania State University.

Daniela Ladner joins as assistant professor of surgery – transplant. She holds a master of public health degree from Harvard School of Public Health in Boston. One of her current research projects is titled, "How does gender and race matching in pediatric African-American liver transplant recipients improve graft survival?"

Juned Siddique joins as assistant professor of preventive medicine. He holds a master of sciences degree in statistics from George Washington University and a doctor in public health degree from the department of biostatistics from the University of California-Los Angeles.

2009 NIH LOAN REPAYMENT PROGRAMS

Applications are due for the 2009 NIH Loan Repayment Programs (LRPs) on December 3, 2008. Highly-qualified health professionals who are or will be pursuing biomedical or behavioral research are invited to visit www.lrp.nih.gov to learn more about the programs and apply online.

The NIH LRPs allow scientific investigators to remain in the research workforce, achieve research independence, and focus their efforts on advancing the health of the nation without regard to student loan debt. Each year, some 1,600 research scientists benefit from the more than \$70 million NIH invests in their careers through the LRPs. The extramural LRPs include Clinical Research, Pediatric Research, Health Disparities Research, Contraception and Infertility Research, and Clinical Research for Individuals from Disadvantaged Backgrounds.

UPCOMING EVENTS

Women's Health Research Monthly Forum "Sex Differences in the Biology of Depression"

Jackie Gollan, PhD, Assistant Professor of Psychiatry and Behavioral Sciences and Director of Stress and Depression Laboratory

Tuesday, November 18, 2008, Noon – 1 p.m.

250 E. Superior St., Prentice Women's Hospital,
3rd floor, Room L South

For more information, e-mail iwhr@northwestern.edu or call 312/503-1385.

Sponsored by Institute for Women's Health Research

NUCATS Distinguished Innovator Lecture Come learn about the life of a physician entrepreneur!

Rodney Perkins, MD, Chairman and CEO, EarLens Corporation
Wednesday, November 19, 2008, 4 – 5 p.m.

303 E. Superior St., Lurie Medical Research Center,
Hughes Auditorium

For more information, visit www.nucats.northwestern.edu/events/distinguished.html or call 312-503-1706.

Sponsored by Northwestern University Clinical Research and Translational Sciences Institutes

The Next Generation of Biomedical Research: Implications for the Future of Health Care

Mary J. C. Hendrix, President and Scientific Director, Children's Memorial Research Center

Wednesday, December 10, 2008 at 5:30 p.m.

303 E Superior St., Lurie Medical Research Center,
Baldwin Auditorium

Free admission for students. For more information, visit <http://c2st.org/programs.html#biomedical-research> or call 312-503-0891.

Sponsored by Chicago Council on Science and Technology

The CBC/IGSB Seminar: High-Throughput Cellular Screening

Monday, December 15, 2008, 10:00 a.m. - noon

2220 Campus Dr., Cook Hall, Room 3118

For more information, visit <http://www.igsb.org> or e-mail asolomon@uchicago.edu

Event organizers are encouraged to submit calendar items on [Plan-it Purple](#). For more events, visit www.feinberg.northwestern.edu/research/calendar/.

FUNDING OPPORTUNITIES

Dennis W. Jahnigen Career Development Scholars Awards American Geriatrics Society (AGS)

<http://www.americangeriatrics.org/specialists/jahnigen/apply/>

Application Deadline: 12/09/2008

Amount: \$150,000. Each grant will provide two-year support of \$75,000 per year for salary and fringe benefits and the costs of doing research.

Synopsis: These awards support junior faculty in the specialties of anesthesiology, emergency medicine, general surgery, gynecology, ophthalmology, orthopaedic surgery, otolaryngology, physical medicine and rehabilitation, thoracic surgery, and urology. The awards are intended to allow individuals to initiate and ultimately sustain a career in research and education in the geriatrics aspects of their discipline.

Fall 2008 Pilot Grant Competition

The Northwestern University Clinical and Translational Sciences Institute (NUCATS)

<http://www.nucats.northwestern.edu/pilots/ctipilot.html>

Application deadline: 12/05/2008

Amount: Awards will be one-time and for a maximum of \$50,000. Five awards annually over two funding cycles.

*Synopsis: The common theme of this competition is that all proposals should address significant unmet needs that have direct bearing on clinical problems. Pilot awards will provide seed funding exclusively for novel, high-risk ideas and ideally foster new interdisciplinary and cross-NU collaborations. Expectation is that these awards will provide data to support subsequent proposals to external funding sources. With rare exceptions (drug discovery/development being one) the program looks for *brand new* projects that have received no other funding.*

For more funding opportunities, visit:

www.feinberg.northwestern.edu/research/funding-opportunities/

Your feedback and suggestions are always welcomed!

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