

Partners *in* Discovery

CHANGING THE COURSE OF STROKE



Using Technology to Improve Outcomes FAST-MAG, TeleStroke and Neuroimaging

Apps and robots. iPhones and iPads. Cellular telemedicine. The flood of new technology that permeates our lives is now being used to improve diagnoses and outcomes for stroke, the fourth leading cause of death and the leading cause of adult disability in the United States.

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Chair's Column



John C. Mazziotta, M.D., Ph.D.
Chair, Department of Neurology
Stark Professor of Neurology
David Geffen School of Medicine at UCLA

"Most people will never know how much effort, how many contacts, and how tirelessly Tom worked to help people with disorders of the nervous system. I was privileged to see that and I will be forever impressed and inspired by his dedication."

Usually this column in the newsletter is about a program or a project in the UCLA Department of Neurology, but this column is about a person – Tom Sherak – who died on January 28, 2014 at the age of 68. The press has been filled with accolades about Tom Sherak, his accomplishments, his commitment to the entertainment industry, the City of Los Angeles, and support of philanthropic causes. He had an illustrious career with 20th Century Fox and Revolution Studios, and made his mark in Hollywood. From 2009 to 2012, Tom was the President of the Academy of Motion Pictures, and most recently was named the Los Angeles Film Czar by Mayor Eric Garcetti. Those facts and Tom's well-known generosity, sense of humor, and commitment to friendships were all written about extensively in the newspapers.

What wasn't in the newspapers was Tom's very personal and unwavering commitment to help solve neurological diseases, particularly multiple sclerosis. When I first became Chairman of the UCLA Department of Neurology, Tom arranged a meeting with me. He told me that he expected me to do everything conceivable to help patients with neurological diseases, in terms of their care, and to accelerate research to find better treatments and cures. This wasn't encouragement, it was his expectation—not just of me, but of the department. He also said that whatever was needed to fulfill those goals, he would provide, one way or another. Thus began a partnership of more than a decade. Whenever Tom called me to help solve a problem, I responded, and so did he when the situations were reversed. Most people will never know how much effort, how many contacts, and how tirelessly Tom worked to help people with disorders of the nervous system. I was privileged to see that and I will be forever impressed and inspired by his dedication.

Tom Sherak had his star installed on the Hollywood Walk of Fame just hours before his death. Tom and his family have their names in the halls of the UCLA Department of Neurology and in the hearts of all of us who work here. He was a great partner and a wonderful friend and I will miss him. The glow that is Los Angeles and the UCLA Department of Neurology will shine a little less brightly without him.

Art of the Brain Celebrates 14th Annual Gala, "The Art of Healing with Family Traditions"



ART OF THE BRAIN
UCLA NEURO-ONCOLOGY PROGRAM

Dr. Tim Cloughesy, Director of the UCLA Neuro-Oncology Program, with **Lyric Carlberg**, whose late father, Kevin, and **Kyle Spiegelman**, whose late father, Barry, were both patients. Lyric made lemonade and manned the "Lyric's Lemonade" table for Art of the Brain's sumptuous buffet-station feast, which featured donated food and beverages from supportive friends and local restaurants. Proceeds from Art of the Brain have helped Dr. Cloughesy develop one of the premier multidisciplinary research laboratories dedicated to eradicating brain cancer.



Photo: Tonya Wise

Roy Kaufman, UCLA Neurology friend and husband of Art of the Brain founder, Judi Kaufman, is flanked by **Matthew and Paul Weitzman**, who accepted the 2013 Judi Kaufman Founders Responsibility Award on behalf of the Lew Weitzman family. The 14th annual gala was held on October 5, 2013 at UCLA's Schoenberg Hall and spotlighted the talent, strength and courage of the renowned program's brain cancer patients and the healing power of art.



Photo: Tonya Wise

"We need to be better internists. We have to look at the whole picture, the whole patient."

Mary S. Easton Center for Alzheimer's Disease Research at UCLA Welcomes New Director



Dale E. Bredesen, M.D.
Augustus Rose Professor of Neurology
Center Director, Mary S. Easton Center
Director of Alzheimer's Disease Program
Director of Neurodegenerative Disease Research, David Geffen School of Medicine at UCLA

In January, the UCLA Department of Neurology and the Mary S. Easton Center welcomed a new Director, Dr. Dale Bredesen. A world-renowned scientist and expert in Alzheimer's disease and other neurodegenerative disorders, Dr. Bredesen is the Director of the Easton Center and the Alzheimer's Disease Program in the Department of Neurology. He is also the Augustus Rose Professor of Neurology and Director of Neurodegenerative Disease Research at the David Geffen School of Medicine at UCLA.

For Dr. Bredesen, coming to UCLA is a homecoming. He graduated from the California Institute of Technology (Caltech), where his work focused on the "machinery of the brain"—essentially, how it operates. He then completed his medical degree at Duke and residency and fellowship at UC San Francisco, where he was Chief Resident and studied with Nobel laureate Dr. Stanley Prusiner. Dr. Bredesen then served on the Department of Neurology faculty at UCLA for five years before departing in 1994 to lead the Program on Aging at the Burnham Institute in San Diego. In 1998, Dr. Bredesen became the founding President and CEO of the Buck Institute for Research on Aging in Marin County, California.

An international expert on neurodegenerative disease and, in particular, Alzheimer's disease, Dr. Bredesen had a

distinguished career in this field, to which his numerous national and international lectures and awards are a testament. He now brings this work to UCLA, with the expressed intent of moving his research into the clinic and improving the number of treatments that clinicians have to offer patients and their families dealing with neurodegenerative diseases. Dr. Bredesen has spent the last 14 years engaged in basic science research to better understand the biological balances and imbalances that lead to the progressive synapse, cell loss, and memory impairment in Alzheimer's disease, with a special focus on developing improved treatments that can slow the disease and reverse cognitive decline.

"I came back to UCLA for two reasons," Dr. Bredesen said. "First, the school has a stellar history in neuroscience, with clinical relevance in translational research; and second, because of the Easton Center, which offers patients access to both treatment and research, in addition to a strong patient support system, said Bredesen. "There is a dire need for a truly effective treatment for Alzheimer's disease, and no other institution is more prepared to develop this than UCLA. The basic neuroscience, the Easton Center, the clinical research and trials, the superb faculty, the innovative spirit, and the wonderful community relationship all make me enthusiastic to return to UCLA."

Dr. Bredesen's goal is to produce the first set of truly effective therapeutics for Alzheimer's disease. "We need to be better internists. We have to look at the whole picture, the whole patient," he explained. "We need to bring in molecular biology, for example; look at the patient's hormones; the types of food he or she eats; their levels of sleep; their energy and vitamin levels. Just as each brain is unique, so is the way each body deals with inflammation."

"It has been 108 years since the discovery of Alzheimer's disease. Our challenge is to break the dogma and reverse the hopelessness—to develop real treatments and cures. We need to get people to come in at the very beginning to get treatment early-on," said Dr. Bredesen.

"Thanks to combined training in basic science and clinical research, Dr. Bredesen is in a unique position to bring together many dedicated and experienced UCLA faculty who have interests in this vitally important set of disorders, which have reached epidemic proportions throughout the world," said Dr. John C. Mazziotta, Chairman of the UCLA Department of Neurology.

Please join the Department of Neurology in welcoming Dr. Dale Bredesen back to UCLA. His presence and leadership will bring exciting opportunities to the University.



“The technology allows us to provide high quality stroke care coupled with neurology expertise to immediately guide treatment decisions.”

Continued
from Cover

Each year, more than 790,000 Americans suffer a stroke, of which more than four out of five are ischemic, caused by a clot that blocks blood flow to the brain. Stroke patients have a much greater chance of surviving and avoiding long-term brain damage if they receive treatment within the first few hours after onset. Current therapies for acute (sudden) ischemic stroke are of extremely limited effectiveness, explains UCLA Neurology’s Dr. Jeffrey Saver, Director of the UCLA Stroke and Vascular Neurology Program and the UCLA Comprehensive Stroke Center. With only one FDA-approved treatment for acute ischemic stroke available: intravenous tissue plasminogen activator (tPA), a thrombolytic (clot-busting) drug that must be administered within three hours of experiencing symptoms, and only after neuroimaging has ruled out a hemorrhagic stroke (a brain bleed), Dr. Saver and his team decided to investigate alternate ways to deliver promising new drugs to threatened brain tissue.

Enter FAST-MAG (Field Administration of Stroke Therapy-Magnesium). This landmark multi-center, phase 3 clinical trial, for which Dr. Saver is the principal investigator, was designed to address the crucial factor of delayed time to treatment. Sponsored by the National Institutes of Health, FAST-MAG was the first pivotal trial to test field delivery of potential brain protective drugs by paramedics. The goal of FAST-MAG was to start treatment sooner than ever before. While prior trials tested drugs 2-12 hours after stroke onset, the FAST-MAG trial was the first study performed in the zero-to-two-hour window, when patients are most likely to benefit from neuroprotective interventions. The study tested magnesium sulfate, a promising and safe potential neuroprotective agent.

Dr. Saver, who is also the medical director of the UCLA Stroke Unit, led a major Southern California consortium to perform the trial that started in 2005 and just ended in 2014. Their team trained nearly 3,000 paramedics staffing 300 ambulances taking patients to 60 participating hospitals in Los Angeles and Orange Counties, with over 900 physician-investigators. The study enrolled 1,700 patients and

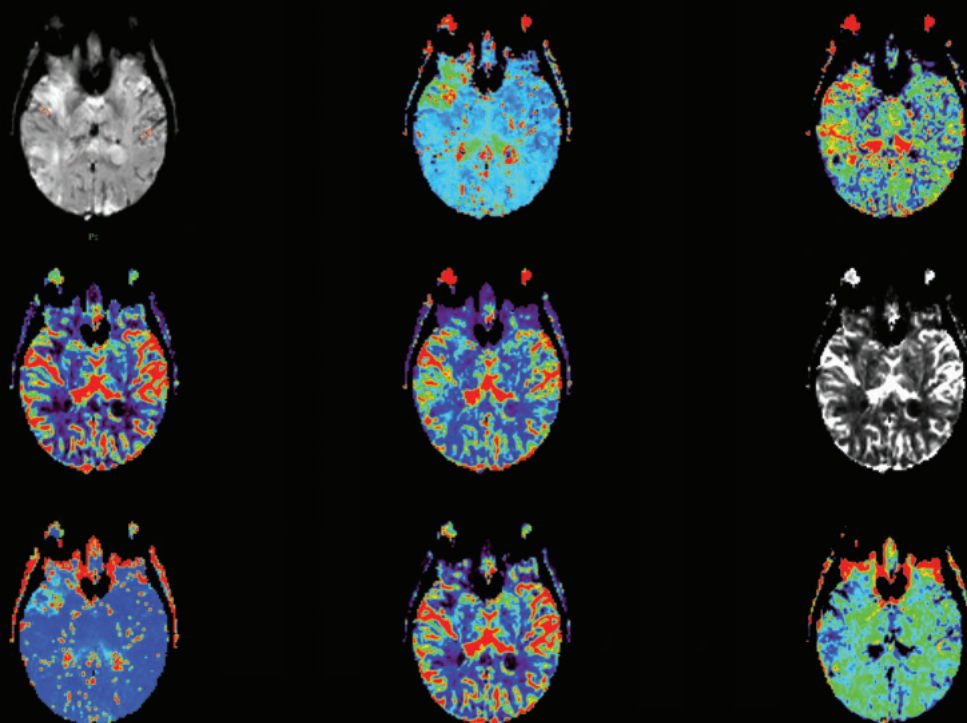
demonstrated the practicality of several prehospital tools designed by UCLA, including the Los Angeles Prehospital Stroke Screen (LAPSS), to identify patients for trial entry and the Los Angeles Motor Scale (LAMS) for pretreatment assessment of stroke severity. Other prehospital trial instruments included the Paramedic Global Impression of Change score to delineate prehospital deficit evolution, and physician-elicited, cell-phone informed consents to field-trial participation.

Prehospital enrollment in the FAST-MAG trial succeeded in accelerating the start of neuroprotective therapy. The average time from stroke onset to the start of the study drug was 45 minutes, and three-quarters of patients were treated in the “golden hour,” the first 60 minutes after a stroke starts, when the threatened brain is most salvageable. Although magnesium sulfate as a specific agent was found to have neutral effects, the delivery platform created by FAST-MAG was a marked success. “The trial was a success in using the paramedic system and evolving telemedicine technology. We were able to open up an entirely new time window for the treatment of stroke, when there is the greatest possibility of success. The methods we developed and our consortium in Southern California can now be used to test the many promising drugs and devices in the development pipeline,” explains Saver.

The Next Wave

Dr. Saver believes that truly mobile televideo, utilizing specialized mobile telemedicine systems in ambulances, is the next wave of telemedicine. “We are helping develop and shape that next wave,” he says.

UCLA physician-investigators, including Drs. Saver and Latisha Ali, Director of the UCLA Telestroke Program, designed a novel assessment, the California Brief Stroke Scale (CABSS), a four-item mobile videophone test for use in ambulances to rate stroke severity and identify patients with large artery blockages quickly and accurately for direct routing to Comprehensive Stroke Centers.



MRI brain images from a patient with acute stroke use color-coding to depict different measures to help guide treatment.

UCLA Telestroke Network Partner Program

UCLA pioneered the development and deployment of telemedicine for acute stroke care. Established in 2009, the Telestroke Network Partner Program provides Emergency Departments at over 20 community hospitals in California live, two-way video consultation with stroke neurology experts at UCLA. This concept marries the use of medicine and technology to provide real-time patient care evaluation 24 hours a day to communities where local stroke experts are not available.

UCLA stroke experts use live video connections to help emergency physicians at participating community hospitals diagnose and assess patients who present with acute stroke, transient ischemic attack (TIA), and stroke-like conditions. According to Ali, the need for this service is evident; in 2012 the program provided 1,300 consults during the year – up from 174 in 2009. “The technology allows us to provide high quality stroke care coupled with neurology expertise to immediately guide treatment decisions,” she says.

When a possible acute stroke patient is evaluated in a network partner hospital, the ER contacts the UCLA hotline. “Within 15 minutes, we can be interviewing and counseling the patient and family, and performing the stroke-specific neurologic exam through a secure, two-way video connection,” Ali explains. The UCLA neurologist can also view local CT and other diagnostic images.

RONI the robot is the other part of the picture, Ali says. A Remote Presence Virtual + Independent Telemedicine Assistant, or RP-VITA, is the first FDA-approved, autonomous navigating robot. It remotely connects physicians from around the world with patients in hospitals and ICUs. Ronald Reagan UCLA Medical Center was among the first seven hospitals in the United States to use an RP-VITA.

During a stroke, the passing of a few minutes of time can mean the difference between preserving or losing brain function, directly impacting the level of disability post-stroke. By using an iPad interface, physicians are able to send RONI to a patient’s bedside. With the touch of a button RONI will drive himself to the patient’s room, automatically navigating through the busy hospital environment so the physician can help diagnose patients from a remote location.

Telemedicine is also used in training as well, Ali explains. “UCLA Neurology launched video telestroke at Olive View-UCLA Medical Center in order to help residents and fellows with case management.”

Stroke Imaging

UCLA has been a pioneer in neuroimaging. Dr. David S. Liebeskind, Director of the UCLA Stroke Imaging Program and Vascular Neurology Fellowship Program and Associate Director of the UCLA Stroke and Vascular Neurology Program, develops stroke imaging technology and practical clinical therapies.

“We have a unique capacity at UCLA to understand the techniques—angiography, CT, MRI, clinical changes in blood—and then apply what works from around the world,” Liebeskind says.

“Important advances in imaging analysis have been made in the last five years. The CT scan was developed at UCLA in the ‘70s and the MRI in the early ‘80s. Back then, they were looking at what new hardware was available. Today, the latest advancement is not a piece of equipment, but rather a change in the interpretation of images. We can now leverage such data to get more information.”

He explains that what is new is the post-processing of information. “We take the information and look at it differently; we look at time in the course of stroke. The goal of treatment is to change the course of stroke and we use images to make outcomes better. We are now able to apply precision medicine.”

Previously, treatment was not personalized. According to Liebeskind, the explosion of data is enabling us to learn how each individual is different and how stroke neurologists can change the course of treatment. “It’s about new methods of synthesizing information in terms of who that particular patient is,” he says. “Imaging is a novel dimension that can yield new insights.”

Liebeskind references his colleague, Fabien Scalzo, Ph.D., visiting Professor in the Department of Neurology, who exploits computer vision and machine learning in order to build predictive models about stroke patients. “These computational tools allow us to make data available in real time in order to understand the likely outcome of treatment and to eliminate harm. Thanks to advances in technology, we are able to process and automate vast amounts of data from around the world; and we can target extremely important clinical problems.”

Stroke is not just one disorder, Liebeskind explains. “You may have a hundred different outcomes. That’s why it’s important to drill down in order to help individual patients.”

UCLA NEUROLOGY:

PIONEER AND WORLD LEADER

IN SURGICAL MONITORING TECHNIQUES

The operating room (OR) has not always been as technologically advanced as it is today. UCLA Neurology is responsible for many of the surgical monitoring devices and techniques which contribute to the highly advanced operating rooms nationwide. Many patients and their families are unaware of the extraordinary lengths UCLA takes to provide crucial protection for the nervous system during surgery, preventing post-operative complications.

Marc Nuwer, M.D., Ph.D.

Department Head, Clinical Neurophysiology

Program Director, Clinical Neurophysiology Training Program

Professor and Vice Chair,
Dept. Neurology, David
Geffen School of Medicine at
UCLA

There was no practical way to monitor sensory or motor nervous system pathways in the OR until the 1970s, when UCLA neurologist Dr. Marc Nuwer undertook a systematic study of the problems preventing OR monitoring. Obstacles included the fact that the field of clinical testing of sensory evoked potentials (SEPs) was new. SEPs, used routinely today, are a useful, non-invasive means of confirming and localizing sensory abnormalities, identifying silent lesions, and monitoring changes during surgical procedures. In the 1970s, however, anesthesia prevented the recording of SEPs in the OR. In addition, the operating room was a noisy electrical environment, which interfered with the recording of tiny signals that measured just billionths of volts. Commercial equipment was not available to meet these challenges. Leading physicians in the field of neurophysiology thought that these barriers were insurmountable.

Dr. Nuwer and his team viewed these clinical and engineering problems as opportunities for progress. Pioneers who developed, built, and programmed their own new equipment for use in the OR, they began a systematic study to identify adequate techniques for recording sensory signals in the OR.

Once a series of studies showed practical ways to overcome technical, anesthetic, and clinical problems, SEPs could be offered at UCLA as a regular service for surgical patient care and Dr. Nuwer became the first neurologist to establish an intraoperative clinical evoked potential monitoring service. However, there were more problems on the horizon.

At that time, there was no generally accepted way to bill insurance companies for SEPs, nor were there established guidelines for the use of these studies. Dr. Nuwer became involved in the establishment of intraoperative neurophysiological monitoring (IOM) as a clinical discipline. A series of teaching symposia, as well as lectures at national neurology and surgery meetings, were created to introduce physicians to these techniques and educate them about their merits. Several technical and clinical publications defined ways to carry out the tests and some of the clinical outcomes. A textbook describing these and related techniques, published in 1986, was widely regarded as "the bible of the field," leading to the development of regulations for insurance carriers.

Dr. Nuwer organized a large multicenter study—today considered key to establishing the clinical usefulness of IOM—to determine if the techniques actually helped

patients. Outcomes were assessed for 184 surgeons over seven years. More than 100,000 surgeries were included, half of which were conducted with monitoring. The study showed that monitoring reduced the risk of post-operative paraplegia by 60%.

The techniques expanded beyond the initial spinal cord monitoring. As opportunities arose, Dr. Nuwer and his team were among the first to apply the techniques and educate other physicians about them. In order to help make the techniques available to other medical centers, UCLA started an IOM training program that is now the leading program of its kind in the nation. Former trainees staff programs at many academic medical centers in California and the southwestern United States and travel to peer Midwest and East Coast institutions, such as the Mayo Clinic and Massachusetts General Hospital. Other former trainees have set up programs in a range of community hospitals, including many in the Kaiser Permanente system.

OR monitoring has expanded to include techniques of electroencephalography, which had been used in the OR in a limited way decades earlier, and electromyography (EMG) for following muscle and nerve signals. Motor pathways can be monitored in addition to sensory pathways, and spinal surgery can be simultaneously monitored with techniques that look at sensory pathways, motor pathways, and peripheral EMG pathways, providing a comprehensive look at nervous system function during spinal cord surgery.

Many surgical services use IOM: orthopedics for spine and hip surgery and other procedures risking nerve damage; neurosurgery for spinal decompressions, tumors, and fractures, as well as for intracranial vascular, tumor, epilepsy, and nerve decompression cases; vascular surgery for carotid endarterectomy and procedures around the aorta; cardiothoracic surgery for open heart surgery and thoracic aortic procedures; radiology when occluding a carotid artery or some of its selective branches. Many other uses also have been developed.

Thanks to the work of the Department of Neurology to protect the nervous system from damage during surgery, UCLA is widely known for its leadership in the world of intraoperative monitoring and is a leading center for clinical services, teaching, research, and IOM health policy. Protecting our patients and helping to ensure the greatest odds of a successful surgery without complications is the mission of this dedicated team.

Hole-in-One for Ataxia Research

When Suzanne Coglitore, founding member of the Rochester Ataxia Foundation (RAF), learned of UCLA Neurology's 40-plus years of dedication and commitment to the care of patients with ataxia, she had one question: how can we help? The RAF held its 2nd annual golf tournament to support ataxia research in the Department of Neurology at the David Geffen School of Medicine at UCLA. The RAF graciously hosted UCLA clinician and scientist, Brent Fogel, M.D., Ph.D., who shared the details of his ataxia research with patients, families and caregivers before hitting the green. Over 300 attendees and 50 volunteers participated this year. A big thanks to Ms. Coglitore, her fellow Rochester Ataxia Foundation Board members, the golf tournament volunteers, and participants for helping the UCLA Department of Neurology get closer to a cure.

Meet Our Fellows

Matthew Ashley, M.D., J.D.



Injuries to the human brain are devastating, and Dr. Matt Ashley is determined to make a difference in how UCLA patients receive treatment. "Brain injury is a place where people fall out of the system," says Dr. Ashley, who is completing a UCLA Neurology Fellowship in Neurorehabilitation. He is interested in helping patients with brain injury in more ways than just rehab. "We have to help patients navigate the system. Systems-based issues and long-term aspects of patient care are important. How do these challenges impact patients and their access to care?"

Dr. Ashley, who attended Southern Illinois University Medical School, completed his internship at UC Irvine, and neurology residency at UCLA, first trained as an attorney. However, he was inspired to study medicine—in particular, neurology, by stroke and head trauma. "They are the leading causes of disability in young patients and can happen to us at any time of day. Your ability to advocate for yourself is compromised, which causes a situation ripe for disaster and can create barriers to getting the right kind of care. Impaired judgment can significantly interfere with daily life."

Everyday, Dr. Ashley works tirelessly in the rehab unit, UCLA's acute rehab facility, which treats patients predominantly from neurology and neurosurgery, but also from various other specialties. "Our emphasis is on improving functional mobility, activities of daily living and developing plans for patients to transition home safely," Dr. Ashley explains. "By the time most of these patients leave, they're speaking in sentences and walking, maybe with assistance."

The experience is personally meaningful to him. "I grew up around neurorehab. My uncle had a ruptured aneurysm and I have two friends who had TBI (traumatic brain injury). I've seen it from a couple of angles."

Although Dr. Ashley, a native of Bakersfield, CA, studied cognitive science in college, he knew he didn't want to do basic-science research. The question was whether to specialize in neurology or physical medicine. A neurology residency and fellowship in neurorehabilitation seemed to fit the bill.

"UCLA is very well regarded in this area. There are only a few programs like this in the country, and it was the reason I did my residency here in the first place," says Dr. Ashley. "UCLA was a natural progression for me."

Neuroscience runs in the family. His wife, Jessica Ashley, Ph.D., does research on TBI, the brain, and cognitive sciences. The couple met in college and moved to Illinois together to pursue their education. They have two sons: Finn, 5, and Cole, 2. When not caring for his patients and his kids, Dr. Ashley enjoys playing soccer. There is no challenge too high for Dr. Ashley; he recently climbed Mount Kilimanjaro with a friend.



Pictured here on the day of the tourney, left to right: **Pamela Smith** of RAF; **Dr. Brent Fogel** of UCLA; **Suzanne Coglitore** of RAF; and **Meredith McDaniel**, guest speaker.

The Power of Philanthropy

First Tom Sherak MS Ride for Hope Held in May 2013

"Tom gave us all hope. He continues to inspire us, and we pledge in his memory to continue his fight against MS with equal energy and determination."

UCLA support group The MS Hope Foundation, which was renamed The Tom Sherak MS Hope Foundation upon the recent death of Tom Sherak, its founder and beloved friend of UCLA Neurology, held its first Ride for Hope on May 19, 2013.

The Ride for Hope, which drew nearly 700 riders, was sponsored by KLOS/KABC and kicked off an opportunity drawing for a 110th Anniversary limited edition Harley Davidson Road King Classic, valued at \$22,000. In conjunction with the ride, memorabilia from the hit show, "Sons of Anarchy," was auctioned online to raise money for the MS Hope Foundation.

Tom Sherak was the man who made all this happen. The foundation that now bears his name is a game-changing, action-oriented, nonprofit organization that responds, with immediacy, to the needs of people with Multiple Sclerosis by supporting innovative, person-to-person programs and services, and funding cutting-edge research.

"Tom gave us all hope. He continues to inspire us, and we pledge in his memory to continue his fight against MS with equal energy and determination," said Annis Kishner, president of The Tom Sherak MS Hope Foundation Board. "Tom was our inspiration and, while he might not agree, our leader. He continually rallied us to step up our efforts to fight this incapacitating condition that plagues not only his daughter, but millions worldwide. We will miss his spirit of optimism that we can make a difference in the lives of those who suffer daily."

We couldn't say it any better. We will miss him, too, and our hearts go out to his family. In memory of Tom Sherak, the 2nd Annual MS Ride for Hope will be held in fall, 2014.



Pictured here on the day of the ride, left to right: **Ron Perlman**, star of "Sons of Anarchy;" **Madeline Sherak**; **Peter Tilden** of KLOS/KABC; **Lauren French**; **Marco Radlovic** of KLOS/KABC; and the late **Tom Sherak**.

Volunteer Faculty

Robert Freundlich, M.D.



Neurologist Robert Freundlich is the proud 2013 recipient of the coveted Department of Neurology Golden Hammer Award for Resident Teaching. "I enjoy the residents. They're great, but if I can point something out to them, I will. They are incredibly smart," he says.

Dr. Freundlich spends every Friday in the neuromuscular clinic at Olive View-UCLA Medical Center. He also provides inpatient consultation services from four to seven weeks a year, during which time he is available to the residents 24/7. He takes phone calls at night and is on call for residents on Saturdays and Sundays. "It's harder today for residents, in terms of who to ask about things. They don't realize how approachable faculty members are," he explains. "You can no longer do a neurology residency in three years—the volume of knowledge is so much more now and so many things are treatable now that weren't years ago."

"When I am the attending neurologist, I bring in articles for the residents to read," Dr. Freundlich says. He believes that on their first day, residents should ask for a collection of the 10 best articles from each subspecialty. "For example, all residents love stroke, but many have never read the *New England Journal of Medicine* article on the original tPA study, done in 1995. So I bring in an article every day from the *New England Journal of Medicine*, *Neurology* or *Continuum*. I underline the salient points, because the residents have time constraints and you want to be efficient."

A UCLA Neurology faculty member and general neurologist since 1985, Dr. Freundlich is board certified in Neurology, Clinical Neurophysiology, Pain Medicine, Neuromuscular Medicine, and Epilepsy, and practices in Encino. A graduate of Johns Hopkins University, he came to medical school at UCLA (Class of '81) because his brother, who was at business school at USC, told him California was the "promised land." After that, he never left Westwood.

Dr. Freundlich is first and foremost a family man. In his spare time he watches sports with his wife, Jill (B.A. '83), a securities lawyer who played on the UCLA National Championship Tennis Team ('81). They are truly Bruins at heart. While he has traveled extensively to exotic destinations such as Easter Island, recent vacations have been spent visiting the couple's daughter Ariel, 16, at camp in Wisconsin. Ariel, now a 10th-grader at Marlborough School, would like to be a neurologist.

In Memoriam

The Department of Neurology is sad to report the passing of three very supportive donors.

Mary Ellen O'Connor Davis

known as M.E., longtime friend of the Department of Neurology and 1954 UCLA graduate, passed away on June 23, 2013. A pioneering journalist who served as the first female editor of UCLA's *The Daily Bruin* and the *Tacoma Star*, Mrs. Davis graduated from the UCLA School of Law but opted for a career in journalism.

A founding member of The UCLA Foundation, Mrs. Davis devoted much of her adult life to helping financially disadvantaged young people. Predeceased by her beloved husband, Frederick Weyerhauser Davis, Mrs. Davis played an active role in the decisions of the Edwin W. and Catherine M. Davis Foundation, which bears the names of Mr. Davis's parents. The foundation has supported many UCLA Neurology programs in neuro-repair and rehabilitation. The Department pays tribute to an extraordinary woman—wife, mother, grandmother, great-grandmother, friend, journalist, and caring philanthropist.

Kory Lewis Hunter

passed away on May 18, 2013 at his home in Palos Verdes Estates, after a 22-month battle with brain cancer. He was 43 years old. Our hearts and thoughts are with his beloved wife, Rory; their children, Ethan, Dylan and Kailey; his parents, Jim and Joanne Hunter; and the rest of their extended family. Kory met Rory at a church youth group while in high school and followed her to San Diego while she attended UC San Diego. The rest is history. He is remembered as a loving and devoted husband, father and son; an avid and accomplished skier and hiker; a selfless volunteer; and a man of great faith. Kory continued to care about others despite his illness, and the Department of Neurology salutes him.


Robert M. "Bob" Shirilla

passed away unexpectedly on January 9, 2013 at his home in Colorado Springs. A magna cum laude graduate of UCLA ('71) with a degree in economics, Mr. Shirilla earned his MBA with honors at Harvard Business School. As senior partner with Stanton Chase International for many years, he managed the company's consumer goods practice in 35 countries, moving from California to Colorado in 2004. Mr. Shirilla, a retired colonel in the United States Army, also served as a professor of management at Colorado State University. He is remembered as an active member of his community and an avid runner, who participated in 45 marathons in four years.

You Can Make A Difference!

The Department of Neurology at the David Geffen School of Medicine at UCLA is an academic department dedicated to understanding the human nervous system and to improving the lives of people with neurological diseases.

The Department of Neurology has many pressing needs to continue our mission. You can direct your charitable gifts of cash, securities, real estate, art, or other tangibles to our greatest needs, under the direction of Dr. John Mazziotta, Chair of the Department, or to specific research, training, laboratories, or programs of specific physicians or diseases. For more information please contact Patricia Roderick, Senior Director of Development, UCLA Department of Neurology, (310) 267-1837 or proderick@support.ucla.edu.



MEET
A
SCIENTIST

Melissa J. Spencer, Ph.D.

Professor of Neurology

UCLA researcher and Professor of Neurology Melissa Spencer researches muscular dystrophy—in particular, limb-girdle muscular dystrophy Type 2A (LGMD2A), or calpainopathy, caused by a mutation in the gene calpain 3, predominantly expressed in skeletal muscle. Those suffering from this orphan disease—about one in 200,000 people—exhibit progressive muscle weakness and eventually become wheelchair bound.

Spencer and her team have researched this disease for a decade and, through these efforts, realized that the disease mechanisms underlying LGMD2A are novel, which means that many of the therapies that have shown promise for other muscle diseases will not likely be available to patients with LGMD2A. Thus, with fewer therapeutic options available, Spencer identified a need to develop novel compounds that target pathways specific to LGMD2A.

Spencer's interest in muscular dystrophy began through her thesis studies on calpains in Duchenne Muscular Dystrophy, a rare neuromuscular disease affecting children. When the gene for LGMD2A was discovered to be of the same family as the one she studied for her thesis, it created the opportunity to understand calpains in a different muscle disease. Spencer's work in Duchenne continues, and she is one of three co-directors of the Center for Duchenne Muscular Dystrophy (CDMD) at UCLA. The Department of Neurology has worked side by side with this multi-departmental center to improve clinical care and translational research in neuromuscular diseases.

The work on LGMD2A involves a variety of approaches, but Spencer is excited about her ability to collaborate with other departments here at UCLA. As a part of this collaboration they collect patients' mutation-specific skin cells, which are reprogrammed into muscle. "The culture models will enable us to study human cells and learn much more about how specific mutations cause disease. They are also a valuable resource for researchers," she says.

Spencer believes that philanthropy is crucial to advancing science. "I am so appreciative of private support. It enables us to undertake riskier endeavors that are necessary for discovery. When it comes to funding from public sources, muscle disease is underfunded."

To that end, Spencer is also excited about a new avenue of research, made possible by a generous donation. This effort aims to identify an FDA-approved drug that can be repurposed for LGMD2A. The discovery by the Spencer lab of a pathogenic pathway in LGMD2A enabled the search for FDA-approved drugs using high-throughput screening, a method that employs robots to screen libraries of drugs. "We came up with a pathway, and now there is potential for treatment," she explains. "If we get a hit, we can take it to clinical trials."

With a rare disease, in order to realize successful clinical trials, it is critical to have large numbers of patients. "Our work to improve clinical care has resulted in an increasing number of patients who are attracted to UCLA for care and to participate in clinical trials," says Spencer.

Despite the fact that Spencer is a scientist, her interest in the dystrophies goes beyond work. "It's personal. I'm here to find a solution for the patients," she says. "Science can guide you, but my interests are not purely scientific. I see the human cost and want to help improve the lives of these families."

Why I Do This



S. Thomas Carmichael, M.D., Ph.D.

Professor of Neurology, Vice Chair for Research and Programs
Department of Neurology
David Geffen School of Medicine at UCLA

“We’re looking at new cell therapies, such as stem/progenitor cells, along with new drugs to promote plasticity, and brain modulation devices to enhance the response to physical therapy.”

“Neurology is the most fascinating medical specialty,” says neurologist and neuroscientist S. Thomas (Tom) Carmichael. “It has a philosophical grounding, because the essence of self is involved in neurological diseases—both in research and in patient care.” Carmichael, who has been a UCLA faculty member since 2001, is an attending physician in the Neurorehabilitation and Stroke clinical services at UCLA and does research that focuses on how the brain repairs from injury. Specifically, the Carmichael lab studies the molecular and cellular mechanisms of neural repair after stroke and other forms of brain injury, concentrating on the processes of axonal sprouting and neural stem cell responses, and on neural stem cell transplantation.

Carmichael explains that there are no drugs for stroke recovery. “Medical care for stroke recovery has been at its current state for decades. There is research on robotics, cell therapies and neural repair drugs, but at present we have no medical therapies for stroke recovery other than physical rehabilitation approaches. Medical systems of care for acute stroke, such as in the immediate hospital admission, have improved and include reperfusion therapies (medical treatments that restore blood flow through blocked arteries). However, until the late 1990s, neuroplasticity—the forming of new circuits—was thought to be limited. It was thought that the adult brain did not self-repair.” Now we know that is not true—the human brain has an amazing capacity in many ways to heal itself.

According to Carmichael, there is a clear and pressing need for translational neuroscience so that patients can move more rapidly through the hospital to neurorehabilitation. “The next 10 years will be exciting,” he says. “We’re looking at new cell therapies, such as stem/progenitor cells, along with new drugs to promote plasticity, and brain modulation devices to enhance the response to

physical therapy. To implement these, we need a better understanding of physical therapy, in terms of intensity, dose and duration. We also need trained therapists and rehabilitation places that will be comfortable with intensive medical interventions.”

In addition to his research, Carmichael spends time in clinic weekly and is immersed in the neurorehabilitation unit. He lectures to undergraduates and mentors graduate students and postdoctoral fellows in his lab. The best part of his job is teaching graduate students. “They are energetic, edgy and questioning,” he says.

Carmichael has always had an interest in brain repair. “We are applying creative and novel approaches, personally and through collaboration, to therapies that might benefit patients.” He was inspired by his professor, neuroscientist Dr. Thomas A. Woolsey, at Washington University School of Medicine, where he completed a neurology residency in 1998, serving as chief resident. “Tom Woolsey told me that if I ever wanted to study how stroke changes brain circuitry, to let him know. I did a project for him while I was a resident in neurology and that set the course.”

As a Howard Hughes Medical Institute postdoctoral fellow at UCLA from 1998 to 2001, Carmichael studied the mechanisms of axonal sprouting, with a clinical emphasis on neurorehabilitation and stroke. He received his M.D. and Ph.D. degrees in medicine in 1992 and 1994 from Washington University School of Medicine.

Carmichael and his wife, Diana, who does strategic planning for academic medical centers, are the proud parents of two sons, Chap and Grant (pictured above).



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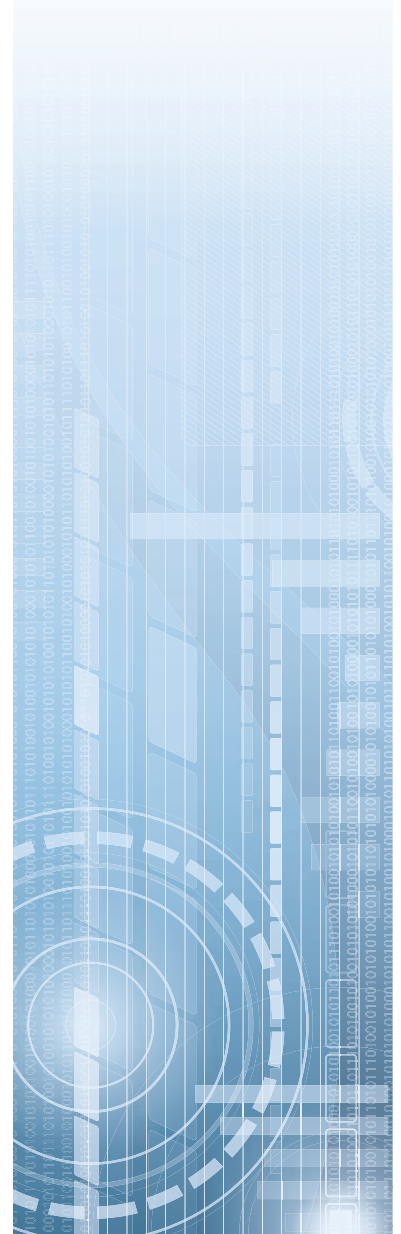
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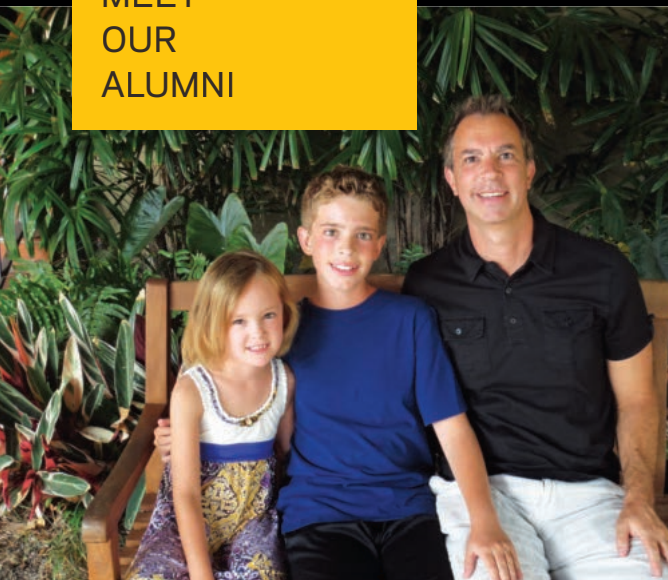
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MEET OUR ALUMNI



Rob Lenz, M.D., Ph.D.

Alumni of the UCLA Department of Neurology utilize their training in a variety of different ways. While many treat patients, others apply their expertise in research and industry.

Some, like Rob Lenz, who completed his neurology residency at UCLA in 2004, go on to work for industry after residency training. Dr. Lenz, who holds M.D. and Ph.D. degrees, has served as executive medical director of global development for Amgen since November 2012. Prior to that, he was a divisional vice president with Abbott Laboratories in Illinois. "I had planned to stay in academia," says Lenz, who focused his studies on neuropsychiatry. "I thought I would do academic research; instead, I followed a very different path."

He chose UCLA Neurology for his residency for several reasons, including Southern California's temperate climate. "UCLA had a commitment to fourth-year residents to free up their time so that they would have dedicated time to do research. No other program promised that. Dr. Jeffrey Saver sparked my interest in doing clinical research instead of basic science. There was a commitment, through clinical trials, to demonstrate which treatments were effective. It inspired my interest in clinical research and rapid translational research," Lenz explains.

According to Lenz, neurology is challenging because, although neurologists diagnose, there is no therapy for many devastating diseases. "I wanted to be involved in quick translational research," he says.

Lenz, who comes from a long line of educators and physicians, says that teaching is

the single thing he loves most. While at UCLA, he received the Augustus Rose Award, the highest honor accorded to a neurology resident physician.

Lenz received his medical degree from the University of Maryland. A graduate of Dickenson College in Pennsylvania, which is known for language studies, he majored in chemistry and French and was able to study in Toulouse, France, and still do pre-med.

At Amgen, Lenz currently is involved with developing treatments for migraine, and previously focused on Alzheimer's disease and multiple sclerosis. He travels internationally to meet with regulatory authorities and to engage with thought leaders in countries such as China, Japan, and South Africa, in order to get a global perspective on the diseases for which Amgen is trying to develop treatments. "At Amgen, there is a singular mission—to serve patients by transforming the promise of science and biotechnology into life-saving or health-restoring therapies. What is exciting is that everyone on the team is working together to develop a treatment across several neurological illnesses," he says.

Lenz is pleased that his position with Amgen brought him back to California, where he lives on a lake, surrounded by hills—an ideal environment in which to paddle board, hike, and spend time with his daughter Lauren, 6, and son Carson, 11.