

HOW IMMUNOTHERAPY BECAME THE NEXT BIG THING

The hottest direction in cancer research and therapy once was considered to be a backwater of scientific investigation.

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Photo: UCLA Health

A Decade of Care and Discovery

The opening of Ronald Reagan UCLA Medical Center 10 years ago marked a turning point in health care for the region and remains a cause for celebration.

Ronald Reagan UCLA Medical Center has turned 10 years old. The opening of this new hospital – and UCLA Mattel Children’s Hospital and the Stewart and Lynda Resnick Neuropsychiatric Hospital at UCLA – on June 29, 2008, was a singular event in the history of UCLA Health and the David Geffen School of Medicine at UCLA, one that launched a new era for patient care and medical research. But for all of its grand scale and cutting-edge technology, the heart of this facility is its humanity.

Before I turned to a career in science and medicine, I entertained thoughts of becoming an architect. It is no wonder, then, that the words of an architectural talent as brilliant as I.M. Pei, who, with his son C.C. Pei, was instrumental in the design of our new medical complex, resonate so profoundly with me. He said: “What is the true impact of space and light and nature on wellness? The principle objective is to create an environment of healing.”

“Environment of healing.” I have worked and spent time in many hospitals in many different places over the past 40-plus years, and nowhere do those words ring as true as they do here, at UCLA. When you enter Ronald Reagan UCLA Medical Center, no matter what is going on, there is an immediate sense of calm because it is so open and bright — an air of serenity that does not exist in other large hospital settings. A hospital can be a disorienting place, but here there are large windows and light and open views from just about everywhere, including from the patient rooms.

On the day of the move, when it was all over, I returned to the Center for the Health Sciences, the old hospital building where I trained and worked – days, nights, weekends and holidays for decades – and I spent an hour taking pictures of everything. I will sometimes look at those pictures today; the contrast between then and now is startling.

Apart from the building itself, it sometimes can be something as seemingly small as having staff wear standardized uniforms that makes a big difference in a patient’s comfort level. The

simple act of showing respect by requiring every caregiver to first ask permission before entering a patient’s room and then to introduce him- or herself and explain why they are there recognizes the humanity of the patient. Having different banks of elevators for different functions — visitor and staff elevators are separated from patient, service and transport elevators – helps to calm what otherwise can be a tumultuous environment. None of that was the case in the old UCLA Medical Center.

And people often don’t recognize that all of this — the public and patient-care spaces, the infrastructure, the technology — must be packaged within a structure that not only is designed and built to withstand time, but also must be strong and resilient enough to operate in the face of unexpected events — earthquake, fire, punishing weather, horrible accidents or other devastating disasters. A hospital is an anchor for public safety — once our doors have opened, as they did 10 years ago, they can never close. We must function, no matter what happens. We also are a place where individuals and their families come for care; thus, we cannot appear to be a fortress within the heart of the community.

Pei’s son, C.C., took his father’s words a step further. The architects’ goal for Ronald Reagan UCLA Medical Center and the Mattel and Resnick hospitals was, he said, “to create an environment that is cheerful, inspirational and intimate ... to design an environment for people, not just machines.” I think the goal of I.M. and C.C. Pei and everyone else who was involved in the enterprise of designing, building and launching this extraordinary hospital has been achieved.

Happy 10th birthday to Ronald Reagan UCLA Medical Center!

John C. Mazziotta, MD (RES '81, FEL '83), PhD
Vice Chancellor, UCLA Health Sciences
CEO, UCLA Health

After Two Years in Darkness and Pain, a Young Woman Sees Again



Rhianna Wilson spent her senior year of high school in and out of four San Diego hospitals, seeking relief for her vision loss, leg pain and excruciating headaches. At the age of 18, doctors diagnosed her with Ehler-Danlos syndrome, a rare genetic disorder marked by overly stretchy connective tissue. In Wilson's case, the disorder revealed itself in double-jointedness that led to four shoulder dislocations.

An MRI showed that the young woman had a small slippage of her brain into her spinal column, called a Chiari malformation. The lower part of Wilson's brain drooped exactly five millimeters below her skull, putting it at the upper limit of what doctors would consider normal slippage. Her doctors dismissed the aberration as too minor to be the source of her worsening vision loss, pain and headaches. Yet Wilson continued to suffer.

“I couldn’t see and I couldn’t drive,” Wilson says. “I lost the use of my legs. But because doctors couldn’t see my pain, to them it didn’t exist.”

Her local physicians encouraged Wilson’s parents to consider a seeing-eye dog and to enroll her in a school for the blind. Refusing to give up, her mother scoured the internet for a possible link between Ehler-Danlos syndrome and Chiari. Her research led the family to pediatric neurosurgeon Aria Fallah, MD, at UCLA Mattel Children’s Hospital.

“Rhianna was absolutely debilitated by these problems,” Dr. Fallah says. “She had gone from doctor to doctor and hospital to hospital with essentially normal-looking MRIs. So they’d been quite dismissive of her symptoms.”

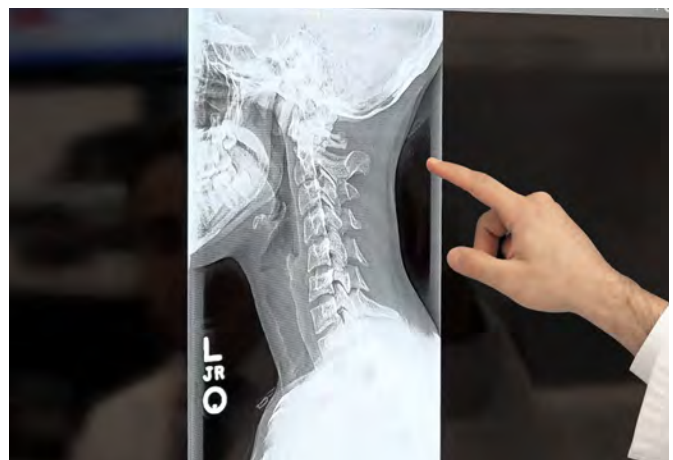
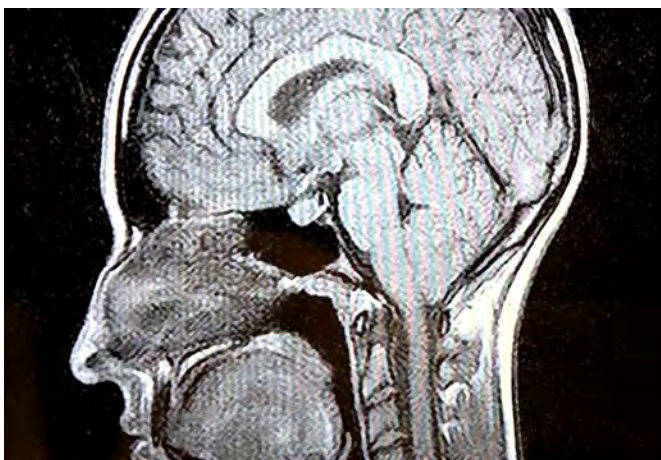
After Wilson told Dr. Fallah that her symptoms worsened after periods of standing, he referred her for an unconventional stand-up MRI. The scan revealed a diagnosis that previous doctors had missed. A large Chiari malformation — not visible on a traditional MRI during

which the patient reclines horizontally — extended nine millimeters into Wilson’s spinal column. The over stretchiness of her connective tissue — combined with an assist from gravity when she stood up — caused Wilson’s brain to sag, compressing her brainstem and spinal cord. This created her terrible pain and robbed her of the ability to see and walk.

Dr. Fallah removed Wilson’s top vertebra and the back bone of her skull, creating more space for her brain and relieving her symptoms. When Wilson opened her eyes after surgery, she could see again. In less than three weeks, she was living like a typical teenager: driving, hiking and enjoying the active social life she’d missed during her senior year.

Wilson’s case was unusual enough that she became the subject of a column in *The New York Times Magazine’s* “Diagnosis” column.

Today, Wilson is reclaiming her life and making up for lost time. She has re-enrolled in college and is working at a restaurant and mentoring two young girls, who are also living with Ehler-Danlos syndrome.



Opposite Page: Rhianna Wilson with pediatric neurosurgeon Dr. Aria Fallah at UCLA Mattel Children’s Hospital. **Top Left:** Wilson undergoes a stand-up MRI, which revealed the cause of her devastating symptoms. **Top Right:** The MRI scan reveals a diagnosis other physicians had missed, a large Chiari malformation. **Bottom Left:** MRI scan shows the Chiari malformation in Wilson’s brain, which is pulled down when she stands to press against her brain stem and spinal cord. **Bottom Right:** Dr. Fallah shows on X-ray where part of the bone at the back of Wilson’s skull and part of her top vertebra were removed to relieve her symptoms.

Photos: Courtesy of UCLA Health

How Colon Cancer Mutates to Escape Immune System

Cancer Genome Atlas, the Nurses' Health Study and the Health Professionals Follow-up Study. Because the cancers were sequenced at the DNA and RNA levels, researchers were able to make highly detailed assessments of the changes that were made to evade the immune system.

Among their findings was that more mutated cancers, called MSI-high (for high microsatellite instability), have more alterations of genes that interact with the immune system. That is significant because the 15 percent of colon cancers in this

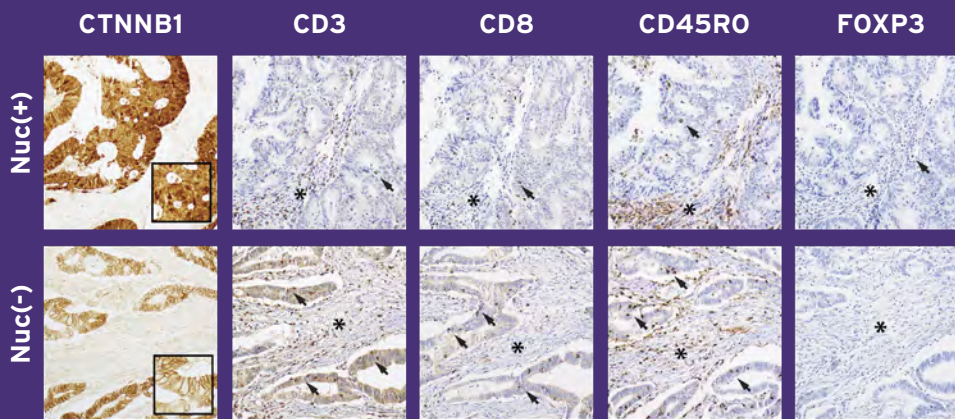
category currently can be treated with a type of immunotherapy that acts on a specific receptor, known as PD-1, located on cells in the immune system. This receptor normally functions as a brake to the immune system.

Immunotherapy releases this brake, allowing the immune system to attack cancer cells when it recognizes their high frequency of mutations as abnormal. Knowing how cancer cells change could help scientists further refine immunotherapy treatments for such cancers.

The study also shed light on the 85 percent of colon cancers that are not MSI-high. These cancers have fewer mutations and are not usually attacked by the immune system; instead, they have alterations in Wnt signaling, a pathway important in cell development. The study documents the extent to which Wnt-activating mutations were associated with the lack of an immune response in the tumor.

"The genetic data show that colon cancer is being attacked by the immune system from the start, even before immunotherapies based on an immune-checkpoint blockade have been given to patients," says Antoni Ribas, MD (FEL '98, '01), director of the cancer center's Tumor Immunology Program.

Researchers also showed that as Wnt signaling increases, immune infiltration in colon cancer decreases. This suggested that inhibitors of Wnt signaling could potentially stimulate immune infiltration so that the tumors could respond to immunotherapy.



Wnt signaling on a colon cancer tissue (positive staining for nuclear CTNNB1) is inversely correlated with immune infiltration (CD3, CD8, CD45RO, but not FOXP3 staining).

Image: Courtesy of Dr. Jonathan Nowak

A UCLA-led study has found how colon cancer alters its genes during development to avoid detection by the immune system, creating a specific genetic imprint in the process. This ability of cancer to change its genes — a process called immunoeediting — had never been described in colon cancer before; the new understanding could help researchers to develop new immunotherapies that target those genetic changes.

"By identifying the evolution of changes needed to escape the immune system, researchers should be able to design treatments that empower the immune system to outsmart the cancer," says Catherine Grasso, PhD, assistant professor of medicine at the David Geffen School of Medicine at UCLA. "We expect that in the future, we'll be testing new immunotherapies to prevent the development of colon cancer, while also using combinations of different agents to treat advanced cancers."

Investigators from UCLA's Jonsson Comprehensive Cancer Center, the Broad Institute, the Parker Institute for Cancer Immunotherapy and the Fred Hutchinson Cancer Institute used the genetic analyses of more than 1,200 colon cancers from the

 "Genetic Mechanisms of Immune Evasion in Colorectal Cancer," *Cancer Discovery*, March 6, 2018.

Men at Risk for Breast Cancer but Often Forego Genetic Tests

At least 10 percent of all cancers — still one of the leading causes of death among Americans — are caused by inherited mutations in genes such as BRCA1 and BRCA2. Parents with the cancer gene mutation have a 50 percent chance of passing it on to a son or daughter.

It is well-known that women with BRCA are at a very high risk for breast and ovarian cancers. Less known is that men with these mutations also are at risk for breast and other cancers. A new UCLA study has found that few men are screened for these genetic mutations; the researchers strongly recommend that they be screened.


“If a male has a BRCA mutation, his risk of breast cancer increases a hundredfold,” says Christopher Childers, MD, a resident in the UCLA Department of Surgery and the paper’s senior author. “BRCA mutations also put men at higher risk for often aggressive prostate cancers that occur at younger ages. These mutations also have been associated with other cancers, such as pancreatic cancer and melanoma,” he says.

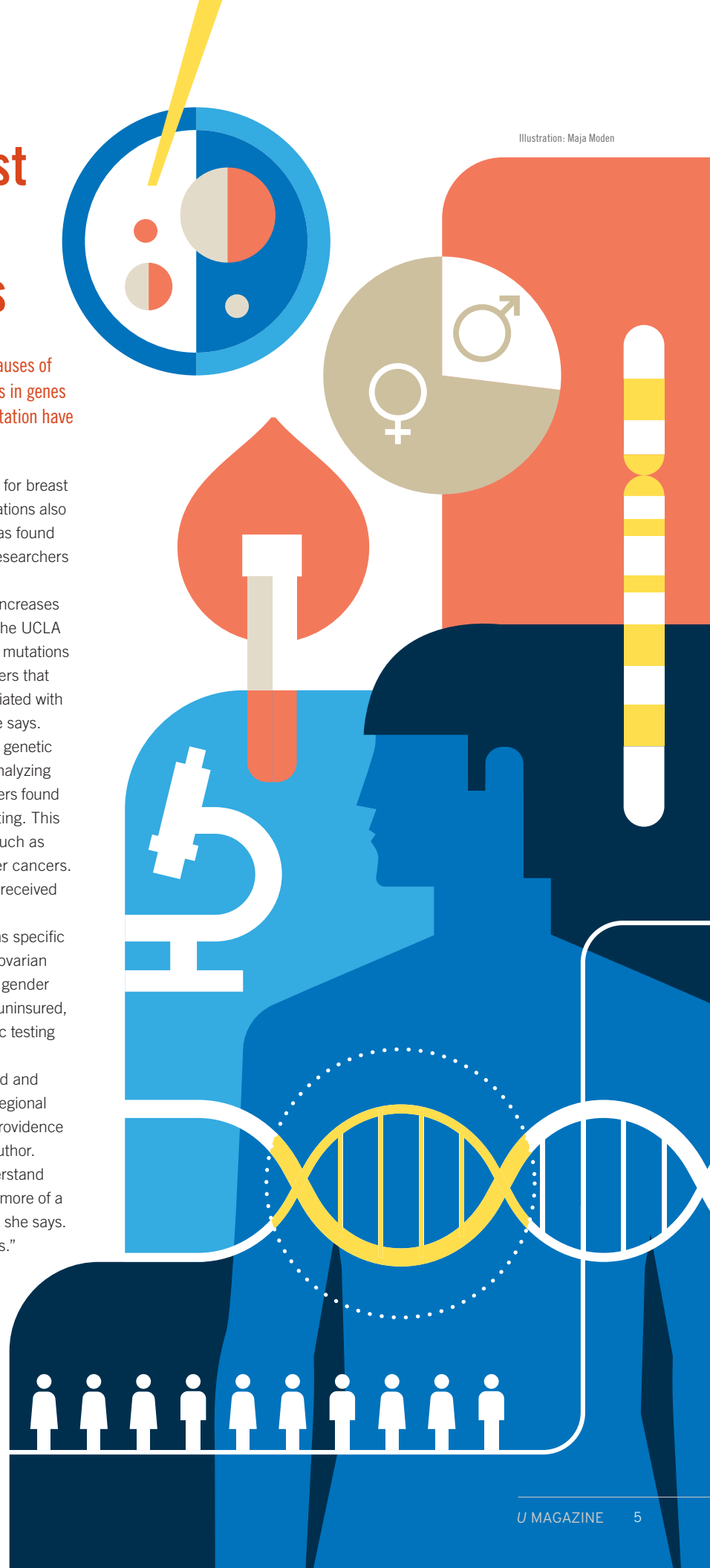
This may be the first national study to analyze the rates of genetic cancer testing for both men and women, Dr. Childers says. Analyzing data from the 2015 National Health Interview Survey, researchers found that nearly 2.5 million people underwent cancer genetic testing. This includes testing for genes related to breast/ovarian cancer such as BRCA, as well as those related to risk for colorectal and other cancers. Of the 2.5 million people, nearly three times as many women received testing compared with men — 73 percent vs. 27 percent.

The researchers also found that the disparity in testing was specific to breast/ovarian cancer. Men underwent testing for breast/ovarian cancer genes at one-tenth the rate of women. There was no gender disparity for colorectal or other cancer testing. Fewer Latinos, uninsured, non-citizens and residents with less education received genetic testing compared with the rest of the population.

The next steps are to determine why so few men are tested and to find ways to increase those rates, says Kimberly Childers, regional manager of the Clinical Genetics and Genomics program at Providence Health & Services Southern California and the paper’s lead author.

“Previous studies have shown that men don’t necessarily understand the importance of a breast cancer gene mutation — that it is more of a ‘feminine’ issue — but this couldn’t be further from the truth,” she says. “We hope this study will spur broad national educational efforts.”

 “National Distribution of Cancer Genetic Testing in the United States: Evidence for a Gender Disparity in Hereditary Breast and Ovarian Cancer,” *JAMA Oncology*, April 26, 2018.



Good Cholesterol Compound Inhibits Growth of Lung Tumors

A compound that mimics the main protein in high-density lipoprotein cholesterol — HDL, or “good” cholesterol — significantly reduced the number of tumors in the lungs of mice, a team of UCLA researchers reports. The findings help explain the connection between HDL cholesterol and reduced cancer risk and suggest that a similar compound may be an effective therapy in humans.

Previous research, both in lab animals and humans, had suggested that higher HDL cholesterol levels were linked to reduced cancer risk. The team’s earlier work had found that small peptide “mimetics,” or mimics, of an HDL protein reduced tumor growth in mice, but it was not totally clear which immune and genetic mechanisms were responsible for the connection. The new study, says Srinivasa Reddy, PhD, professor in the Departments of Medicine and Molecular & Medical Pharmacology, set out to determine if and how the compound, called Tg6F, might alter the immune system both in the intestine and in a distant organ, in this case, the lung.

The team used a mouse model of lung cancer, injecting cancer cells into the tail veins of mice, explains Arnab Chattopadhyay, PhD, assistant project scientist in the UCLA Department of Medicine. The cancerous cells migrate to the lungs, where they grow into tumors. One group of mice was given Tg6F orally, starting the day after they were injected with cancer cells, along with their regular mouse food; another group of mice received



Representative pictures of lungs with tumors from mice fed normal diet (Chow) or normal diet that was supplemented with transgenic tomato extract containing Tg6F peptide (Chow+Tg6F).

Image: Courtesy of Dr. Arnab Chattopadhyay

an inactive version of the compound. After four weeks of treatment, the number of tumor nodules was significantly lower in the lungs of Tg6F-fed mice — on average 75 percent lower than controls, Dr. Chattopadhyay says.

The team also looked at how the compound was exerting its anti-cancer effects and found that Tg6F altered lipid metabolism in the small intestine, which in turn altered gene expression and the type of immune cells present in both the intestine and the lung. In particular, the Tg6F supplements increased the expression of genes in a pathway that boosts white blood cells patrolling for cancer and decreased gene expression in a pathway that facilitates cancer growth.

The findings, Dr. Reddy says, illuminate the mechanisms by which “good” cholesterol may reduce cancer risk and underscore how important the small intestine is in exerting immune effects in distant organs. These results suggest that oral compounds may have therapeutic value for treating lung cancer in humans. The team next plans to study if Tg6F also inhibits tumor growth in other organs of the body.



“Treating the Intestine with Oral ApoA-I Mimetic Tg6F Reduces Tumor Burden in Mouse Models of Metastatic Lung Cancer,” *Scientific Reports*, June 13, 2018.



Image: iStock

Public Mental Health Care for Older Californians Lags as Need Grows

California’s older adult population will increase 64 percent by 2035 and with it the need for more mental health services. Yet, the state’s public mental health system lacks adequate services specifically tailored to older adults, according to a study and other documents released by the UCLA Center for Health Policy Research.

Notably, the state has no systematic record of which local agencies used state mental health care funds to provide services for older adults or data to measure whether treatments worked. This is the state’s first evaluation of mental health services for adults 60 and older in the public mental health system. The study found that the mental health needs of older adults are often “lumped in” with those of all adults, although older adults’ needs can be very different based on their stage of life, says Janet Frank, adjunct associate professor of community health sciences and a faculty associate at the center.

As of 2014, the Mental Health Services Act of 2004 generated \$13 billion to fund delivery of public mental health services, according to

Gel Material May Help to Regrow Brain Tissue Following Stroke

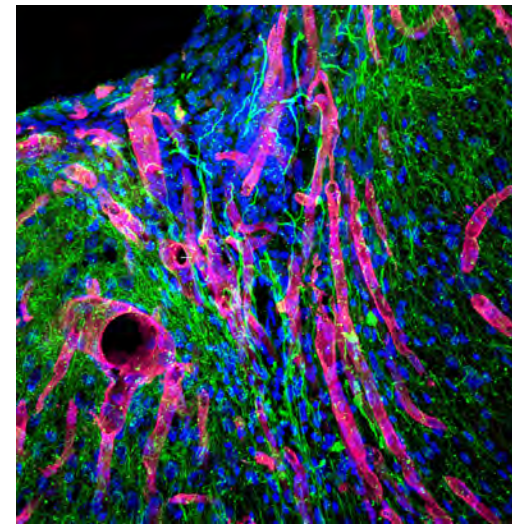
A new stroke-healing gel created by UCLA researchers has helped to regrow neurons and blood vessels in mice with brains damaged by strokes. “We tested this in laboratory mice to determine if it would repair the brain and lead to recovery in a model of stroke,” says S. Thomas Carmichael, MD (FEL ’01), PhD, professor and chair of neurology at the David Geffen School of Medicine at UCLA. “The study indicated that new brain tissue can be regenerated in what was previously just an inactive brain scar after stroke.”

The results suggest that such an approach could be used to treat people who have had a stroke, says Tatiana Segura, PhD, who collaborated on the research when she was a professor of chemical and biomolecular engineering at UCLA. Dr. Segura now teaches at Duke University. The brain has a limited capacity for recovery after stroke. Unlike other organs such as the liver and skin, the brain does not regenerate new connections, blood vessels or tissue structures after it is damaged. Instead, dead brain tissue is absorbed, which leaves a cavity that is devoid of blood vessels, neurons or axons — the thin nerve fibers that project from neurons.

To see if healthy tissue surrounding the cavity could be coaxed into healing the injury caused by stroke, Dr. Segura engineered a hydrogel that, when injected into the cavity, thickens to create a scaffolding to support the growth of blood vessels and neurons. Medications infuse the gel to stimulate the growth of blood vessels and suppress inflammation; inflammation results in scars and impedes functional tissue from re-growing.

Sixteen weeks following treatment, brain tissue had regenerated within the stroke cavities. In addition, new neuronal connections were established — a result that had not been seen before. The ability of the mice to reach for food improved, a sign of better motor behavior, although the exact mechanism for the improvement wasn’t clear. “The new axons could actually be working,” Dr. Segura says. “Or the new tissue could be improving the performance of the surrounding, unharmed brain tissue.”

The body eventually absorbed the gel, leaving behind only new tissue. The researchers designed the study to explore recovery in acute stroke — the period immediately following a stroke, which in mice lasts five days and in humans two months. Next, Drs. Carmichael and Segura plan to investigate whether or not brain tissue can be regenerated in mice long after a stroke injury. More than 6 million Americans are living with long-term effects of stroke, which is known as chronic stroke.



A photomicrograph showing new tissue growing in the stroke cavity in a mouse. Red tubes are blood vessels; green filaments are nerve fibers.

Image: Courtesy of UCLA Health

 “Dual-function Injectable Angiogenic Biomaterial for the Repair of Brain Tissue following Stroke,” *Nature Materials*, May 21, 2018

documents reviewed in the study. However, no money specifically is earmarked to develop a system of care for older adults. In contrast, children’s mental health programs do receive earmarked funding.

Mental health issues among older adults range from anxiety and depression to serious mental illness, and conditions can be complicated by dementia, the loss of thinking, remembering and reasoning skills that interfere with a person’s daily life. Most older adults receiving public mental health services have “aged into” the older adult category after receiving decades of mental health services, the study found. The authors say more information is needed about older adults who develop late-onset mental health problems and


how they find their way to public mental health services. Today, less than one-third of all older adults in the U.S. who need mental health care receive it, the study reports.

To analyze how and whether older adults in the public health system received mental health services, researchers reviewed more than 100 publications and reports. They also conducted six focus groups and 72 interviews at the state level and across six counties representing designated mental health regions; California’s differences in geography, population size and density; ethnic and racial diversity; income level; and the range of programs being developed for older adult mental health care.

The study’s authors made the following recommendations to improve delivery of public

mental health services to Californians who are 60 and older:

- Create an administrative structure dedicated to older adult mental health.
- Require mandatory and standardized data reporting.
- Standardize geriatric training for providers.
- Conduct outreach.
- Increase integration of services.

 “Older Californians and the Mental Health Services Act: Is an Older Adult System of Care Supported?” *UCLA Center for Health Policy Research*, January 25, 2018.

Present at the Creation

The 1994 Northridge earthquake significantly damaged UCLA's Center for the Health Sciences and paved the way for construction of the multihospital Ronald Reagan UCLA Medical Center. It took 14 years of planning and construction to complete the job, and Richard F. Azar was there most every step of the way.

Richard F. Azar
Chief Operating Officer
UCLA Health

From his first days at UCLA, Richard F. Azar was at the epicenter of the planning for and construction of Ronald Reagan UCLA Medical Center. He arrived in 1998, as principal project manager, and later was named director of transition planning. In that essential and complex role, Azar was responsible for overseeing the migration from the old UCLA Medical Center in the Center for the Health Sciences (CHS) to the new hospital that would open across the street on Westwood Plaza.

“Moving into a new hospital is like orchestrating a symphony,” Azar said at the time. “It is crucial that everything be perfectly coordinated.”

Ronald Reagan UCLA Medical Center opened its doors on June 29, 2008. At more than 1 million square feet, the new hospital complex — including UCLA Mattel Children's Hospital and the Stewart and Lynda Resnick Neuropsychiatric Hospital at UCLA — was, at the time, the single largest construction project ever undertaken by the University of California.

In the 10 years since it opened — from July 1, 2008, to June 30, 2018 — 252,662 inpatients

were admitted; 19,954 babies were born; 8,253 transplants were performed; and 412,363 patients were treated in the ER. Azar, who today is chief operating officer for UCLA Health, talked with David Greenwald, editor of *U Magazine*, about what went into the design and building of Ronald Reagan UCLA Medical Center.

Let's start by talking about some of the key conceptual elements that went into the design and construction of Ronald Reagan UCLA Medical Center. The bywords were natural light, openness, community space, patient-friendly. Where did those concepts that framed the development of the hospital come from?

Richard Azar: These were the guiding principles that the committee established for the direction in which it wanted to take this new hospital. The concept of creating a “healing environment” came from the UCLA leaders and clinical department chairs who were involved in the master planning. The interpretation of what is a healing environment came from the architect I.M. Pei: abundant natural light.

How did this approach differ from more traditional hospital design?

Azar: The goal was to create an environment that was patient- and family-centric. In the past, hospitals primarily were designed around functionality. Not that our hospital is not functional, but its design is about more than just function. It was designed to make our patients and their families — anyone who enters the building — more comfortable and calm, with broad open spaces and lots of natural light. Making every patient room private was a new concept in the late-'90s. I think every hospital that is being built new today incorporates private rooms in their designs. And there was the idea of bringing the outdoors indoors with larger, oversized windows and exterior spaces. The building's shape, with the semi-circular towers, allows for natural light while maximizing exterior views. Putting the patient experience at the forefront of the planning is really what drove a lot of the decisions that were made during the design process.

Ten years ago, when we spoke with the hospital and UCLA Health System leaders at that time, Dr. James B. Atkinson, the senior medical director of transition, called the new hospital "the right kind of building." What makes this the right kind of building?

Azar: The building where we came from — the Center for the Health Sciences — worked great for the 50 years we were there. It allowed for the synergies between research, education and clinical care. But that complex of buildings had 83 doors around its perimeter and there's about 26 miles of corridor. It was a very busy and chaotic place, and even before the Northridge earthquake, it was no longer conducive for the way we provide patient care today, with privacy, modern amenities and up-to-date IT infrastructure. Ronald Reagan UCLA Medical Center, on the other hand, reflects input and perspective from many different stakeholders: physicians, patients, nurses, managers and support staff — really, from just about everyone throughout every level of the organization. We heard about their own experiences and what worked, what didn't work and what can be done better. We looked at this building not just from the perspective of what



Richard F. Azar

Photography: Ann Johansson

was required by the various regulatory codes, but also from other perspectives, such as operational work flows, which led us to think about how things move around within the hospital — how patients and visitors and staff and material interact and move through the building. And the building was designed and constructed so that it can incorporate the latest in technology infrastructure. All of these elements were brought together around the concept of making the new hospital both efficient and patient-centric.

The opening of the hospital faced numerous delays. It originally was to open in 2004, but it wasn't completed and opened until 2008. What was the effect of those delays on the hospital when it finally did open?

Azar: Often a positive can come out of a negative. For example, a lot of the medical equipment that we purchased originally for the new hospital

“Putting the patient experience at the forefront of the planning is really what drove a lot of the decisions that were made during the design process.”

“Hospitals are very complex structures. There are many, many regulatory and building codes that don’t apply to other building types that must be adhered to in an acute-care facility.”

was analog-based. During the duration of the construction, analog equipment became digital, so, in large part due to the delays, we were able to stay on top of the changes and upgrade all of our medical equipment to the most current technologies and bring this facility into the digital age. That really put us at the forefront as a state-of-the-art facility.

Dr. Gerald S. Levey, the vice chancellor of UCLA medical sciences and dean of the David Geffen School of Medicine at UCLA at the time, said that he underestimated how complex a project this would be.

Azar: Hospitals are very complex structures. There are many, many regulatory and building codes that don’t apply to other building types that must be adhered to in an acute-care facility. The complexity is not necessarily what you see on the outside, or, in some cases, what you see on the inside, of the building. The complexity involves everything that largely is hidden from view — that which is above the ceilings and behind the walls that most people will never see. There is so much structural integrity — this hospital was built to withstand a magnitude 8.0 earthquake — and so many bells and whistles that keep this building functioning 24/7, 365 days a year. We have to be operational at all times; we can never shut down.

The hospital is now 10 years old. What are the challenges for the next 10 years?

Azar: Capacity is a significant issue. This is something we address on a daily basis. By closely monitoring our throughput — how we move our patients through our system safely and efficiently so that we can treat that next patient — we assess and evaluate on an hour-by-hour basis. In addition, we are now starting to replace all of our medical equipment. Since all of our medical equipment was new and installed at the same time, we are facing major capital investment to replace imaging, surgical and monitoring equipment, in addition to building systems.

When the new Ronald Reagan building opened, all the patients from the old hospital in CHS had to be moved to the new facility in a single day. It was an incredible accomplishment. What went into making it go so smoothly?

Azar: What made the move successful was years of detailed planning. It was definitely a team effort, a group of people who thought of every possible thing that could go wrong. And that’s what we planned out — not just the how, but also the what-ifs and the worst-case scenarios. Our

“There is so much structural integrity — this hospital was built to withstand a magnitude 8.0 earthquake — and so many bells and whistles that keep this building functioning 24/7, 365 days a year. We have to be operational at all times; we can never shut down.”



move-day committee was engaged for three-plus years prior to the move, with input from nursing, the emergency department, surgery, the clinical lab, radiology and more. Every department was represented on this committee, and the team was highly engaged and focused. In fact, we completed the patient move in one day without a glitch and ahead of schedule. The bulk of the move started at 7 am, and by around 2:45 pm, we were finished. There were tears of joy when it was all over. It was amazing, simply amazing.

There was some heavy-hitting architectural talent involved in this project.

Azar: Yes. I.M. Pei, the principal designer, and his son C.C. Pei. Perkins+Will were the executive architects, and RBB Architects, who were consulting architects, have done many hospital designs. It truly was incredible to watch the collaboration that went on among the three firms and the user groups over months and months of planning and discussion and their interpretation and thought processes that were leading to the creation of this great, legacy building. The collaboration was fantastic. And the end result was even more amazing.

Did it turn out as expected?

Azar: I truly believe so. The patient rooms are exactly how we wanted them to function. They provide appropriate space for safe patient care, while enabling

a friend or family member to stay in the room with the patient around the clock, which truly contributes to the healing process. Our interventional floor, where we co-located integrated operating rooms and interventional procedure rooms on one platform that share pre- and post-treatment recovery bays, has become the model for many other institutions.

What are your aspirations for this facility over the next five or 10 years?

Azar: Capacity will continue to be an issue, but my aspiration is that we will always be able to find ways to accommodate all patients who trust their care to UCLA Health and come to Ronald Reagan UCLA Medical Center and that we continue to create a place that our clinicians and staff are proud to call their home. Our facility was designed to be flexible and easily adaptable, so we are proactively ready for whatever changes we face in health care.



To download a PDF of *UCLA Medicine* magazine published when Ronald Reagan UCLA Medical Center opened, click on the link to this story at: uclahealth.org/u-magazine

“It truly was incredible to watch the collaboration that went on among the three firms and the user groups over months and months of planning and discussion, and their interpretation and thought processes that were leading to the creation of this great, legacy building.”

Reach for the Stars

Established in 2016, UCLA CAN REACH was created by UCLA researchers to improve the translation of evidence-based treatments for children with autism spectrum disorder (ASD) from the university to the community. CAN REACH offers training workshops and educational lectures to community providers and families, and it serves as a resource for parents and professionals on the most

up-to-date information on treatments and intervention strategies for children with ASD. The goal of UCLA CAN REACH is to make gold-standard treatments and information accessible to all.



To learn more about UCLA CAN REACH, go to:
uclacanreach.com



The mission of the UCLA CAN REACH Training Program is to “provide cutting-edge, empirically driven information, training and resources on autism spectrum disorder (ASD) to community professionals and parents to enhance the lives of individuals and families affected by ASD.”

Photos: Courtesy of UCLA CAN REACH



U inspire us

UCLA Health ranked #1 in Los Angeles and #7 nationwide. *U.S. News & World Report*

Here's to you, the patients, families, volunteers and communities who inspire us to be our best in all that we do. For 29 consecutive years, *U.S. News & World Report* has ranked UCLA Health among the best in its annual hospital rankings.

And while we are honored by that recognition, the greatest honor for our extraordinary health care team is delivering outstanding care — from the routine to the most complex — to you and your family at more than 170 primary & specialty care practices throughout Southern California.



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Dr. Plath's Pluripotential

Kathrin Plath, PhD
Professor, Biological Chemistry

ILLUSTRATIONS BY ROBERT BALL



We all start out as a single cell that gives rise to pluripotent cells that, given the right environment and the right cues, develop into all the different cell types in the human body. Dr. Kathrin Plath's research has advanced our knowledge about this process, and her contributions inform our understanding of human development and how stem cell technologies can be applied in regenerative medicine.

Dr. Plath steps into the *U* Magazine Spotlight

When did you begin to think about science?

In school, I was always good at math and sciences — chemistry and physics more so than biology. My mother is a chemist, so that might also have had something to do with it.

What was your first experiment?

My mother brought home some salts that I could use to grow crystals — blue crystals, green crystals. It wasn't that exciting, really, but I enjoyed it. In school in East Germany, science was taught very differently than it is here, not very hands-on. Now, I get to teach elementary school kids things like how to prep DNA. They find DNA very goopy; they like that. And I think they really do learn something. They realize that there is stuff inside of us that determines if we are going to be a tomato or a strawberry or a grasshopper or a person.

Who are your science heroes?

I should answer Gregor Mendel or Marie Curie, but I don't feel that way. My science heroes are probably my PhD advisor and my postdoc advisor because I have learned so much from them. Those guys are quite amazing and have taught me a lot.

Where are you happiest?

With my family and friends, being with people who I am close to and doing something together — going skiing or hiking or traveling together. We went to Hawaii, and I tried surfing for the first time!

What do you consider to be your finest achievement?

I don't think of my science like that. I feel like every paper contributes to the bigger goal a little bit. We make little steps with every paper, and I hope in the long run that everything together will achieve something that is useful for the greater public.

What do you appreciate most in your colleagues?

Honesty. I don't want to hear that I'm the greatest and the best. I want to hear constructive criticism.

What is your greatest fault?

Impatience. Sometimes I just can't wait. And I'm a fast driver, too. I can't deal with slow people driving in front of me.

What is your greatest virtue?

Tenacity. Fairness. I try to be fair to everyone.

When do you *not* think about science?

It's always there a little bit. I guess when I am doing something with friends or family is the least likely time that I think about it. But usually it's somewhere in the background.

If not a scientist, what would you be?

I wanted to become a mathematician when I got out of school. But my math teacher told me I wasn't good enough. I guess I would be a surgeon.

What is your most treasured possession?

What I really value is my cappuccino in the morning, so it would be our espresso machine at home. If I don't get it, I'm in a bad mood.

What keeps you up at night?

Writing grants and papers.

To which superhero do you most relate?

I actually never read superhero books, so I don't know them. I guess I know of Batman and Superman, but I don't know what they stand for.

Where does your inspiration come from?

I think from talking to colleagues or lab members or friends about science and about new ways of approaching our problems and what we could do differently or what are good questions.

What is your biggest 'aha!' moment?

I'm still waiting for it.

How do you want to change the world?

I don't want to change the world in a big way. I think in little steps. If I can contribute by educating students and friends or by interacting with people, or if my science makes little achievements, that's good enough for me.

What is your definition of happiness?

That I've done something as well as I can. That I've tried hard. That I did something productive.

What's your idea of misery?

Cooking. I don't like cooking — it stresses me out. Everyone says to me, "Well, you can do experiments in the lab, and cooking is just putting A and B and C together." It's not my cup of tea. I'm totally stressed when I have to cook.

What music do you listen to when you work?

I can't listen to music when I work. It distracts me and gets my mind off what I'm doing. When I'm not at work, I like to listen to classical music.



Dr. Plath's responses have been edited for length and clarity. To read a fuller transcript of her responses to these and other questions, click on the link to this article at: uclahealth.org/u-magazine



How Immunotherapy Became the Next Big Thing

By Lyndon Stambler • Illustration by Mark McGinnis

Once a stepchild of cancer research, immunotherapy is taking a leading role with new approaches to attack and kill tumors.

The story of today's hottest science in the battle against cancer was, up until fairly recently, one of "failure and futility." "Immunotherapy was considered to be a backwater of cancer research," says John A. Glaspy, MD '79 (RES '82, FEL '83), Estelle, Abe, and Marjorie Sanders Endowed Chair in Cancer Research at UCLA's Jonsson Comprehensive Cancer Center. "It was not prime time."

For some four decades, researchers who dedicated their lives to finding the key to unlock the immune system to battle cancer toiled in obscurity and struggled to get funding for their work as other scientists dismissed their efforts. Even though early animal studies showed some promising results, translating those findings to human trials was painstakingly slow. At oncology conferences, the sessions on immunotherapy usually were an afterthought, and few people bothered to attend.

"All of cancer research was focused on figuring out what was the difference between cancer cells and the tissues within which cancer arose and developing targeted treatments for those differences," Dr. Glaspy says. "So we focused on the cancer's biology and not on the biology of the host tissues."







Top: Dr. John Glaspy: “All of cancer research was focused on figuring out what was the difference between cancer cells and the tissues within which cancer arose and developing targeted treatments for those differences. So we focused on the cancer’s biology and not on the biology of the host tissues.”

Bottom: Dr. Antoni Ribas: “For many years, the majority of patients I treated would die within weeks to months because none of the therapies were working. We were just observing the cancer win the battle every time.”

Photos: Jessica Pons

That has changed. Today, the evidence is indisputable: The immune system can battle cancer. Sometimes, it just needs a little help. We can see videos, for example, that show a dark red T cell attacking and destroying a blue cancer cell, setting its membrane ablaze with poisonous proteins. With Food and Drug Administration (FDA)-approved treatments for 17 different cancers and more than 1,000 new clinical trials, immunotherapy has emerged as the most promising area of cancer research in many, many years — a tribute to persistent scientific and medical investigation. It has come so far, in fact, that on October 1, 2018, two cancer researchers — James P. Allison, PhD, of MD Anderson Cancer Center in Houston, Texas, and Tasuku Honjo, MD, PhD, of Japan’s Kyoto University — won the Nobel Prize in Physiology or Medicine for their work in immunotherapy.

Getting to such a landmark was not easy. Antoni Ribas, MD (FEL ’98, ’01), PhD, director of the Tumor Immunology Program at UCLA’s Jonsson Comprehensive Cancer Center, has been a leader in the drive to alter the direction of immunotherapy research. “Changing minds to get to this point has depended on understanding the biology,” he says.

Dr. Ribas always felt drawn to immunotherapy rather than chemotherapy. “The immune system was always puzzling to me, and it seemed promising,” says Dr. Ribas, who won the 2018 Lloyd J. Old Award in Cancer Immunology from the American Association for Cancer Research as a scientist whose “innovative research in cancer immunology has had a far-reaching impact on the cancer field.” In addition, Dr. Ribas is director of the Parker Institute for Cancer Immunotherapy (PICI) Center at UCLA, which is part of a consortium of 11 of the nation’s leading cancer centers that is focused on advancing new immunotherapies to turn cancer into a curable disease.

His explorations began in the early 1990s, when he spent three months in a San Diego lab researching tumor vaccines and immunotherapy. That led to his PhD dissertation on tumor immunology. In 1996, he came to UCLA, which was receptive to research in immunotherapy. Yet, in the early days, when he sat on a grant-review panel for the National Cancer Institute, colleagues routinely rejected applications for immunotherapy research. “They’d say, ‘It just doesn’t work,’” he says, with a hint of lingering sadness still in his voice.



Sean Parker

Photo: Courtesy of The Parker Foundation

WHY I GIVE

In 2016, entrepreneur and philanthropist Sean Parker and The Parker Foundation founded the Parker Institute for Cancer Immunotherapy with a \$250 million grant that was the largest contribution ever made to the field of cancer immunotherapy. The Parker Institute for Cancer Immunotherapy (PICI) Center at UCLA is among 11 leading centers nationwide brought together under the Parker umbrella to maximize the potential of cancer immunotherapy research.

“We are at an inflection point in cancer research, and now is the time to maximize immunotherapy’s unique potential to transform all cancers into manageable diseases, saving millions of lives. We believe that the creation of a new funding and research model can overcome many of the obstacles that currently prevent research breakthroughs.”

— Sean Parker

SCIENTISTS, AT LEAST SINCE THE LATE 19TH CENTURY, HAVE EXPLORED WAYS TO BOOST THE IMMUNE SYSTEM to fight cancer.

In the 1890s, a New York surgeon named William Coley injected patients with sarcomas with the *Streptococcus* bacteria, called “Coley’s Toxins,” to stimulate an immune reaction. Sometimes it worked; often it did not. Throughout most of the 20th century, surgery, radiation and chemotherapy dominated cancer treatments. That started to change in the 1970s, when bone marrow transplantation, which boosted T cells, was used to treat leukemia. In the 1980s, recombinant DNA technology enabled researchers to clone proteins such as interferon and interleukin-2, which mimic stimulants in the immune system. Interferon had success in treating hairy cell leukemia and kidney cancer. High-dose interleukin-2 had a modest impact in treating melanoma and kidney cancer, but it also had severe side effects. The few patients who did respond, however, had durable remissions, a positive sign.

“In those days, *some* benefit was the best we’d ever seen,” Dr. Glaspy says. The FDA approved the first monoclonal antibody, rituximab, in 1997, and UCLA has employed it since to treat lymphomas. But scientists had yet to realize that there were natural suppressors to turn off the immune system.

“We were focusing everything on making the immune system stronger. What we did not really appreciate was this whole area of the defenses that the cancer cells were using, the immune checkpoints, the brakes on the immune system,” says John M. Timmerman, MD, professor of medicine in the UCLA Division of Hematology & Oncology. “We were stepping our foot on the gas; however, as you know, you can step your foot on the gas all you want, but if the brake is on, the car won’t move.”

By the beginning of the 21st century, armed with powerful scientific tools, researchers gained a better understanding of how the immune system is regulated. Researchers came to understand that the immune system has accelerators and inhibitors, or “checkpoints,” to prevent it from attacking normal tissue. And cancer cells can take advantage by expressing proteins that activate those checkpoints.

The first breakthrough was the discovery, by a scientist then at UC Berkeley, of the immune checkpoint effect of a protein called CTLA-4. That led to the development of the first checkpoint inhibitor, a monoclonal antibody called ipilimumab,

which blocks the CTLA-4 receptor. Blocking CTLA-4 allowed the immune system to respond to cancers.

Drs. Glaspy and Ribas were involved in clinical trials of ipilimumab beginning in 2001. After trials involving 5,000 patients, the FDA approved the drug in 2011, which led to a 10 percent response rate in melanoma. More important, it encouraged investigators to look for additional checkpoints. Soon, scientists identified an even more potent checkpoint, the protein PD-1 and its ligand PD-L1, resulting in the development of several new monoclonal antibodies, including pembrolizumab and nivolumab, for treating advanced melanoma.

Treating melanoma was Dr. Ribas’s life’s work, but it had been a heartbreaking endeavor. “For many years, the majority of patients I treated would die within weeks to months because none of the therapies were working. We were just observing the cancer win the battle every time,” he says.

But in 2011, Dr. Ribas began clinical trials of pembrolizumab, and he immediately experienced a rare *aha!* moment. “We treated the first seven patients. These were patients with metastatic melanoma, melanoma spread throughout their bodies and multiple organs, some of them in the brain, liver, the bones, the lungs. These were patients who would have weeks to months of life expectancy.” After treatment, “six of the seven patients had positive responses!” The FDA approved pembrolizumab in 2014 for treatment of melanoma.

With the addition of several hundred other patients, it became clear that the response rate for melanoma — 40 percent — turned out to be a significant improvement. But it still left 60 percent of patients who didn’t respond. Dr. Ribas now is focusing on devising treatments, using several immunotherapy approaches for those patients.

The ability of cancer cells to resist assault mounted by the immune system remains an ongoing challenge. “Cancer cells are stupid, but they grow fast and they’re very strong,” Dr. Timmerman says. “Just like Darwinian selection, a few cancer cells will survive these treatments. It only takes one cell for the whole cancer to come back.”

THE DEVELOPMENT OF CHECKPOINT INHIBITORS REPRESENTED A PAYOFF AFTER DECADES OF FRUSTRATION. Unlike targeted treatments that work in one tumor type,

“Tumors were just melting away. There were almost no side effects. For those patients with Hodgkin’s lymphoma, it has been a complete lifesaver.”

the checkpoint inhibitors have proven effective in a broad array of cancers: lymphoma, lung, bladder, kidney, stomach, head and neck and some types of colon and endometrial cancers. “It is a more global potential solution,” Dr. Glaspy says.

Dr. Timmerman led the first trial of nivolumab, another anti-PD-1 antibody, in lymphoma in 2015, and he was astounded by the 87 percent response rate in Hodgkin’s lymphoma. “It was the most exciting thing I’ve seen in my career,” he says. “Tumors were just melting away. There were almost no side effects. For those patients with Hodgkin’s lymphoma, it has been a complete lifesaver.”

In 2012, Dr. Ribas approached Edward B. Garon, MD (FEL ’06), director of thoracic oncology at UCLA’s Jonsson Comprehensive Cancer Center, with the idea of testing pembrolizumab in patients with

non-small-cell lung cancer, which represents 85 percent of lung cancer cases. Twelve patients out of an initial cohort of 38 were enrolled at UCLA. The initial response rate was between 20-to-25 percent in patients whose disease had worsened after multiple prior therapies, which, Dr. Garon says, “was obviously not what we were used to seeing in this disease.”

When this trial was expanded to include a total of 550 patients with lung cancer, approximately 100 were treated at UCLA, requiring UCLA to overhaul its lung cancer clinical research team to run the study. Dr. Garon was the lead author when the findings were published in the *New England Journal of Medicine* in 2015. The study showed an approximately 20 percent response rate overall, and patients with a high expression of the protein PD-L1 had about a 40 percent response rate and lived much longer than other patients. More recently, he was part of a group that published a report in the *New England Journal of Medicine* in 2018 that showed the benefits of adding pembrolizumab to frontline chemotherapy in treating lung cancer. Today, patients with lung cancer who have a high-level of PD-L1 often receive pembrolizumab rather than chemotherapy, and those without a high-level of PD-L1 generally receive a combination of chemotherapy and pembrolizumab. This experience has served as a proof of concept that the management of a common malignancy such as lung cancer can be overhauled by immunotherapy, Dr. Garon says.

When she was completing her fellowship training at UCLA, Deborah Wong, MD (RES ’09, FEL ’13), PhD, got a firsthand look at Dr. Ribas’s research while working in his lab during the phase-1 studies of pembrolizumab. “I got to see the field of immunotherapy unfold,” says Dr. Wong, now an assistant professor of medicine with a specialty in head and neck cancers. “It’s really revolutionized treatments for patients with incurable cancer.”

Among Dr. Wong’s patients with head and neck cancers, the response rate to checkpoint inhibitor therapy is about 15 percent. But for those patients who do respond, the results are enduring, lasting two to three years, or more. “We know our immune system has memory, which is why the saying goes, ‘You never get the same cold twice,’” Dr. Wong says. “It’s this idea that, perhaps, the immune system can remember this particular cancer that the patient has is foreign and continue responding to kill off this cancer.”



Dr. John M. Timmerman (left): “Cancer cells are stupid, but they grow fast and they’re very strong. Just like Darwinian selection, a few cancer cells will survive these treatments. It only takes one cell for the whole cancer to come back.” Dr. Edward B. Garon (right): “Our hope, obviously, is that with continued understanding at the basic science level, and additional clinical testing, we will have more effective immunotherapies — ideally without a significant increase in toxicity.”

Photo: Jessica Pons



THE REVOLUTION OF CHECKPOINT INHIBITORS ALSO HAS PAVED THE WAY

for other immunotherapy treatments. CAR T-cell therapy (CAR stands for chimeric antigen receptor) received FDA approval in 2017 for treatment for two forms of blood cancers: acute lymphoblastic leukemia and diffuse large B-cell lymphoma. UCLA, which was involved in the CAR T-cell clinical trials, is one of the few centers in the country capable of administering CAR T-cell therapy, which involves genetically modifying a patient's T cells to add claw-like receptors that seek out and destroy the CD19 protein in those two blood cancers.

"Once the CAR T cells are infused back into the patient's veins, they migrate around the body, and whenever they encounter a cell that expresses CD19, it ignites an inflammatory reaction inside the cancer cells, eradicating them," explains Joshua P. Sasine, MD (RES '13, FEL '17), clinical director of UCLA's CAR T-cell program.

"It is like a GPS to find cancer cells," Dr. Ribas says.

Dr. Sasine notes that about one-third to two-thirds of the patients who receive the innovative new therapy are having durable remissions. "There are patients who had large volumes of tumors all over their bodies who are now, as far as we can tell, free

of cancer," he says. But it is not a perfect cure. While side effects most often mimic flu-like symptoms such as fever, mild nausea or malaise, Dr. Sasine does note that a significant percentage of patients — 10-to-30 percent — do experience serious and potentially life-threatening inflammation.

Last fall, UCLA treated a 40-year-old patient with a high-risk lymphoma that did not respond to chemotherapy. "We knew he was in trouble right away," Dr. Sasine says. Initiating CAR T-cell therapy, physicians extracted millions of white blood cells from the patient, which were sent to be genetically engineered and grown to a sufficient number to be infused back into the patient. In March 2018, he received the treatment. Although he experienced treatable inflammation, the patient's cancer was in remission within a month following therapy.

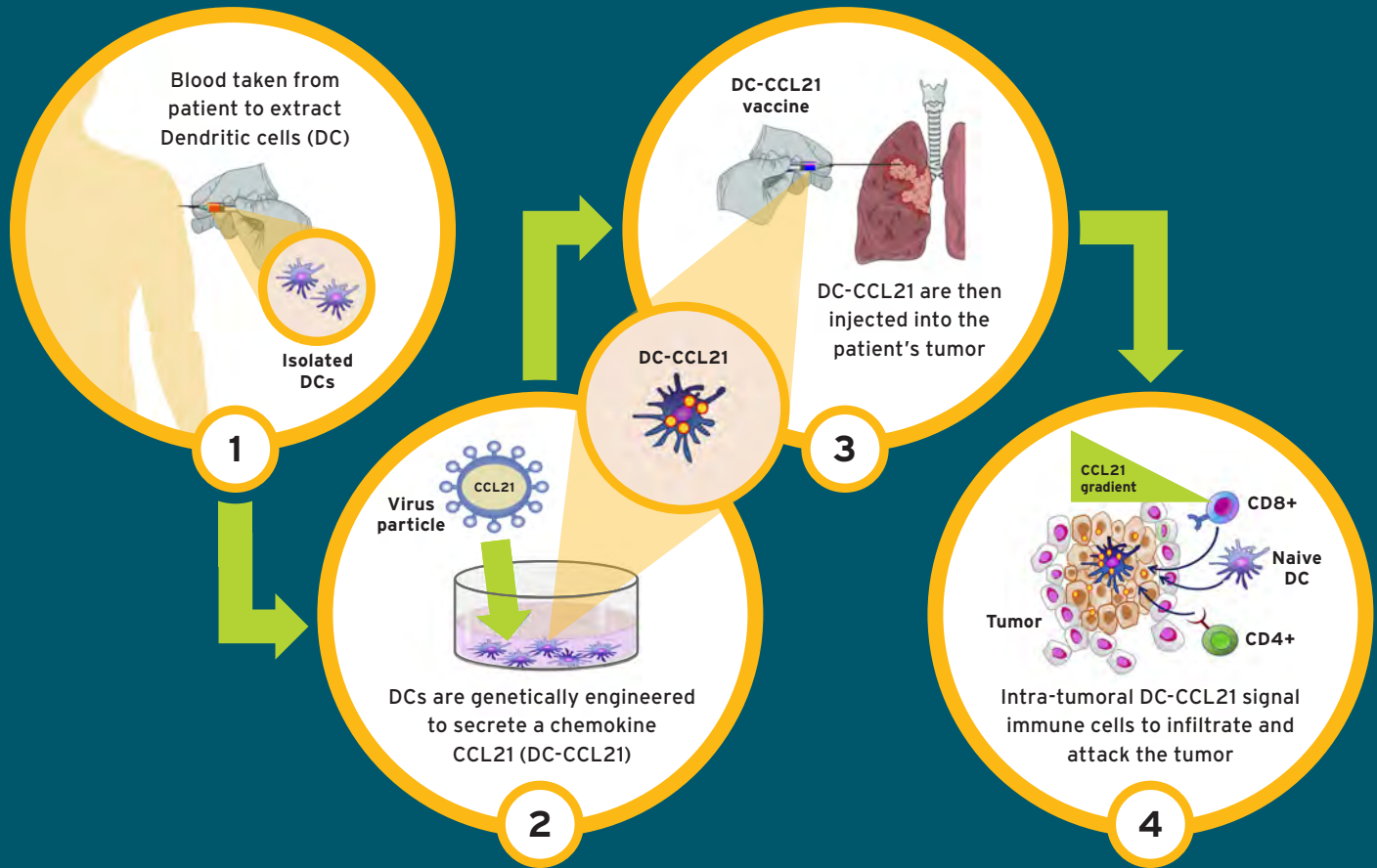
"The precision of CAR T-cell therapy really is limited only by the proteins that are expressed on the surface of the target cells. While that does impose more of a limit than we would like, it still is a degree of precision that we've never had before," Dr. Sasine says. "The ability to genetically engineer a cell to kill any other cell that expresses protein X, Y or Z is new. We've never had that degree of flexible accuracy."

Left: Dr. Deborah Wong: "We know our immune system has memory, which is why the saying goes, 'You never get the same cold twice.' [In immunotherapy] it's this idea that, perhaps, the immune system can remember this particular cancer that the patient has is foreign and continue responding to kill off this cancer."

Right: Dr. Joshua P. Sasine: "The precision of CAR T-cell therapy really is limited only by the proteins that are expressed on the surface of the target cells. While that does impose more of a limit than we would like, it still is a degree of precision that we've never had before."

Photos: (Dr. Wong) Jessica Pons; (Dr. Sasine) Ann Johansson

How the DC-CCL21 vaccination works



A patient's dendritic cells (DCs) are stimulated to develop from their own blood cells and then strengthened with CCL21, which attract other cancer-fighting immune cells. The enhanced DCs are injected into the tumor, alerting the immune system to find and fight the cancer cells.

Graphic: Courtesy of Dr. Steven M. Dubinett

ON THE HORIZON

Beyond CAR T cells and checkpoint inhibitors to turn the body's own immune system against cancer, UCLA is working to bolster the arsenal of weapons in the fight, testing combinations of drugs, studying tumor biopsies and pioneering new treatments.

Dr. Antoni Ribas, for example, received a \$20 million grant from the California Institute for Regenerative Medicine (CIRM) to use stem cells to treat cancer. His team will genetically modify a patient's blood-forming, or hematopoietic, stem cells and T cells and add receptors to redirect them to biomarkers for melanoma and other forms of resistance-prone cancers. Dr. Ribas recently treated the first patient

with this new approach; he says he will have a better idea of its potency after treating six or seven patients.

Steven M. Dubinett, MD (RES '84), director of the UCLA Lung Cancer Research Program at the UCLA Jonsson Comprehensive Cancer Center, has long studied inflammation and immunology in lung cancer. He is experimenting with a novel treatment by genetically modifying a person's own dendritic cells — the most potent antigen presenting cells — and injecting them back into a patient's tumor. The goal of the clinical trial, which is supported by a \$12 million grant from CIRM, is to more effectively present a patient's own tumor antigens to their

immune system. A checkpoint inhibitor also will be given in an effort to enhance the power of the immune system to destroy the tumor.

And Sherie L. Morrison, PhD, Distinguished Research Professor of Microbiology, Immunology and Molecular Genetics, together with Dr. John M. Timmerman, is studying antibody-interferon fusion proteins, which can target interferon to tumors to help shrink tumors and sensitize them to the effects of checkpoint inhibitors and CAR T cells.

— Lyndon Stambler

To which Dr. Timmerman adds: “We’ve turned the body’s natural killers into something that’s going to target the patient’s lymphoma or leukemia. When these cells are given back to the body, they are a living therapy; they circulate through the body and hunt down these tumors and attack them wherever they are.”

Such successes have made it impossible for the medical community to ignore immunotherapy. “One can no longer say immunotherapy is not going to have a role,” Dr. Glaspy says. “It does have a role. And it is not an insignificant role. Whether or not it will be 20 percent or 80 percent of the ultimate solution — stay tuned.”

While there are many obstacles that still need to be overcome — immunotherapy can lead to inflammation in the lungs, liver, kidneys, colon, brain, and even the heart — the benefits of treating the cancer with immunotherapy most often outweigh the risks of the autoimmune toxicity. “Our hope, obviously, is that with continued understanding at the basic science level, and additional clinical testing, we will have more effective immunotherapies — ideally without a significant increase in toxicity,” Dr. Garon says. “We’ve been fortunate at UCLA to have a wealth of investigators who put seminal work into this area that hopefully will continue to expand even further over the coming years.”

FOR ALL THE PROMISE OF IMMUNOTHERAPY,

cost of treatment remains a not-inconsequential issue. The price tag for CAR T-cell therapy to treat lymphoma is about \$373,000, and it is \$475,000 to treat leukemia. That doesn’t include hospitalization, follow-up care and autoimmune toxicity management. Checkpoint inhibitors, which require infusions every three weeks, cost about \$20,000 per dose. In a practical sense, “It is going to have to morph into something that is a lot cheaper and more accessible for the broader population,” Dr. Glaspy says.

Still, “It is hard to put a price on keeping people alive and getting people to live normal lives after having had a metastatic cancer,” Dr. Ribas says.

The science of immunotherapy is fascinating, but the evolution of this revolutionary treatment modality from fringe to mainstream medicine is all about helping patients. One of the many beneficiaries of the new immunotherapy era is Wayne Parker, 61, a retired electronics technician with the U.S. Postal Service, who found a mole on the back of his neck

in October 2017. The Salem, Oregon, resident was diagnosed with Stage IV metastatic melanoma. Tumors had spread to his liver and lymph nodes. His prognosis was dire. Oncologists in Oregon recommended surgery on his liver and lymph nodes.

Instead, Parker (no relation to Sean Parker, founder of the Parker Institute for Cancer Immunotherapy) sought a second opinion, from Dr. Ribas. In November 2017, Dr. Ribas told Parker that surgery would be futile. Instead, he enrolled Parker in a clinical trial combining pembrolizumab with an immune-activating molecule injected into his lymph nodes. In January 2018, Parker began treatments every three weeks, driving his motor home more than 900 miles south, to Los Angeles, to get injections, 30-minute infusions and biopsies. Initially, he experienced side effects: 24 hours of nausea, sudden diarrhea and intense shivering. The side effects subsided, and within a few weeks, his tumors started to shrink. By August, a CT scan revealed that Parker’s tumors had all but disappeared.

“When Dr. Ribas said, ‘You’re in remission,’ that was like a million bucks right there,” Parker says.

Such treatments were unimaginable just a few decades ago. No longer. “We are using a host of approaches to attack cancers from many different angles,” Dr. Timmerman says. “Momentum is growing faster and faster toward finding cures for so many different kinds of cancers.”

Lyndon Stambler is a freelance writer and associate professor of journalism at Santa Monica College.



“Pembrolizumab for the Treatment of Non-Small-Cell Lung Cancer,” *New England Journal of Medicine*, May 2015

“Pembrolizumab Plus Chemotherapy in Metastatic Non-Small-Cell Lung Cancer,” *New England Journal of Medicine*, May 2018



To view a video about CAR T-cell therapy, click on the link to this article at: uclahealth.org/u-magazine

“One can no longer say immunotherapy is not going to have a role. It does have a role. And it is not an insignificant role. Whether or not it will be 20 percent or 80 percent of the ultimate solution — stay tuned.”

The Prize

By Kathy Svitil

For his groundbreaking research on gene expression, Dr. Michael Grunstein wins the “American Nobel,” the Albert Lasker Basic Medical Research Award

The biography of Michael Grunstein, PhD, that is posted online by the UCLA Department of Biological Chemistry offers a lengthy list of awards and honors that he has received throughout the long arc of his career in science. But the one that he received in New York this fall — the 2018 Albert Lasker Basic Medical Research Award — is unique.

The Lasker Award is known as the “American Nobel” — its recipients often go on to win the Swedish prize. Eighty-eight Lasker winners (including one of the two recipients of the 2018 Nobel Prize in Physiology or Medicine) have been awarded Nobels since the Laskers were first given in 1945 to recognize researchers, clinical scientists and public servants who have made major advances in the understanding, diagnosis, treatment, cure or prevention of disease. Dr. Grunstein, Distinguished Professor of Biological Chemistry at the David Geffen School of Medicine at UCLA, received the award for his groundbreaking research that revealed the vital role of histones, the proteins around which DNA molecules are coiled for more efficient storage — he playfully refers to histones as “packing material” — in regulating gene activity in living cells. He shared the award with another

scientist, C. David Allis, PhD, of The Rockefeller University, who conducted parallel but separate research.

If DNA is the thread from which the tapestry of life is woven, then histones, while present in every type of organism with a nucleus (the so-called eukaryotes), were thought to be little more than the spools that hold that thread — useful and necessary accessories but with no greater role in the grand design. But Dr. Grunstein’s work with lowly yeast revealed that histones, far from being a bit player, help control which genes are turned off or on. His research, and that of Dr. Allis, ultimately led to the realization that hundreds of diseases, including cancers, neurobiological disorders and congenital heart disease, are linked to malfunctions in the histone machinery — malfunctions that might be repaired, leading to new treatments for those conditions.

Dr. Grunstein arrived at UCLA in 1975, and he spent decades in his campus lab conducting his histone research. But he was not originally motivated by a desire to rewrite texts on the subject. “I went into the field thinking that a whole field is working on the regulation of gene activity [and] I didn’t want to go in the same direction that many already were pursuing,” he says.



“Pursuing my own
direction appears to
have been a recurrent
theme in my life,” says
Dr. Michael Grunstein.

Photo: Jessica Pons





Dr. Michael Grunstein accepted the 2018 Albert Lasker Basic Medical Research Award during a ceremony in New York City.

Photo: Kate Milford/Albert and Mary Lasker Foundation

DR. GRUNSTEIN WAS BORN IN ROMANIA IN 1946, the child of Holocaust survivors. When he was 6 years old, his family settled in Montreal, Canada. His parents, like most immigrants, labored to build a successful life. His mother sewed in a factory until rheumatoid arthritis forced her to stop in her mid-40s; his father worked seven days a week, running a tire shop and then a taxi company. “It was a tremendous amount of work,” Dr. Grunstein recalls. “He’d have to get up in the middle of the night in the Montreal winter to retrieve a car that somebody had left in a ditch. That was not uncommon, and I or my mother would sometimes accompany him. Their experiences during the war and in the period after immigration affected me tremendously. As I was growing up, I didn’t want to have anything to do with that. What I really wanted to do was play baseball and be normal.”

In high school, his passion was for plays, not science. “I would find and read every play I could by different playwrights,” he recalls. Even then, he was something of a contrarian: “I had two good friends who were each focused on their own intellectual problems and goals, and I was drawn to the written play, which required the reader to fill in the blanks left by the playwright. Pursuing my own direction appears to have been a recurrent theme in my life.”

After high school, Dr. Grunstein attended McGill University. He worked a number of jobs between semesters to help pay for college, often in various

research facilities. Each job sparked new interests — biology, immunology, genetics. “I realized the fun that you could have doing research, and I decided to apply to graduate school,” he says. “I only applied to one place: the Institute of Animal Genetics at the University of Edinburgh. Fortunately, they accepted me, because I didn’t have a plan B.

“My parents were self-educated and well-read, but they had no idea what I was doing,” Dr. Grunstein says. “The main thing my father saw was that when I worked in the labs during the summers, it was clean. He worked in his tire shop before he started the taxi company, and when he came home, he would cough up bits of rubber from the tire retreading process. He saw me working in very clean, respectable conditions. I think he thought that was better.”

After postdoctoral studies at Stanford University, Dr. Grunstein came to UCLA as an assistant professor. He initially intended to study the gene structure of immunoglobulin proteins, immune system molecules that attack invading pathogens and viruses. It was a hot subject at the time, but it was generating a new field, one populated by some very large labs. Nor did he want to study another booming topic of the time, gene transcription, the process by which the genetic material encoded in our DNA is copied into RNA. He wanted to chart his own path — to again do something different. That led him to histones.

HISTONES WERE FIRST DISCOVERED IN THE LATE 19TH CENTURY, although their role as the building blocks of the chromosome wasn’t revealed until the 1970s. The DNA/histone complex is known as a nucleosome. From the pioneering work of Roger Kornberg, PhD, at Stanford University, it was known that every nucleosome consists of two copies each of four different histone molecules — dubbed H2A, H2B, H3 and H4 — linked together to make a larger protein spool around which the long strand of a DNA molecule winds. Collections of nucleosomes, strung together like beads, make a compound called chromatin. Chromatin can be further classified as either euchromatin (a form that is loosely packed, allowing cellular machinery to access and transcribe genes) and heterochromatin (tightly packed and not transcribed).

The genetic sequences of the histone proteins have changed little over the 2 billion years of eukaryote evolution. In plants and mammals, the sequences of the H4 protein differ by just two out

of 102 amino acids, or one change per billion years. “That put off a lot of people about histones, because if that’s the case, then any change you make should be lethal, and then you can’t study histone function very easily,” Dr. Grunstein says. He, however, was intrigued. “People thought that histones are so incredibly conserved that they must be boring. Whereas I thought, “They’re so conserved, every amino acid must be important.”

In the 1960s, Vincent Allfrey, PhD, a researcher at The Rockefeller University, discovered that RNA synthesis (gene expression levels) was higher in cells whose histones were studded with chemicals called acetyl groups. He suggested that the changes in histone structure produced by these so-called acetyl modifications might be involved in switching genes on and off. The problem was that there was no way to tell if the modifications were actually the result or the cause of gene transcription.

Two decades later, in the 1980s, Dr. Grunstein and his team used yeast to help uncover the regulatory role of histones in living cells. For one key study, the team created a yeast strain in which cells were depleted in the H4 histone and in nucleosomes. “When we did that, you’d think everything would go wrong,” he says. Instead, “Every gene we looked at that should have been repressed was activated.” That showed that nucleosomes normally prevent the cell’s transcription machinery from making RNA from DNA. Through other experiments, the team discovered that deleting a section of the tail (or N-terminus) of the H4 histone resulted in the activation of genes in heterochromatin that had otherwise been repressed. This was due to an interaction between the histone H4 N-terminus and a known repressor, an interaction that was regulated by the acetylation state of one of the H4 N-terminal amino acids. Independently, Dr. Allis identified an enzyme that added acetyl groups to histone N-termini, and this enzyme was a known protein involved in transcription. This cemented the link between these modifications and gene regulation.

“Once scientists began to check the box next to the idea that histones are a player in gene regulation, it became clear that some of this machinery was altered and very dysfunctional in human cancers,” Dr. Allis says. “That spawned the idea that maybe that’s something that can be reversed. Researchers now have begun to develop small molecule

inhibitors to target these machines that operate on the histone proteins, and that’s led to FDA-approved drugs and novel cancer therapies.”

In the beginning, Dr. Grunstein had no idea that his work eventually might lead to such clinical advances. “We thought of it as basic research at its most primitive,” he says. “We had no feeling that it would be taken up by the pharmaceutical industry and become clinically significant. It was just fun to do.”

Ultimately, however, he’s not all that surprised at the outcome. “Science is looking for the truth,” he says. “That’s what it’s all about. Determining how biological mechanisms work leads to medical advances that you never would have thought of.”

NOW IT IS UP TO DR. GRUNSTEIN'S SUCCESSORS TO CARRY FORWARD

the work that he pioneered. He retired in 2016, and, among other pursuits, he has taken up boxing. He has Parkinson’s disease, and the coordinated and controlled movements of boxing help with his symptoms. Three times a week, he goes to a gym for lessons. Sometimes, his wife Judith accompanies him.

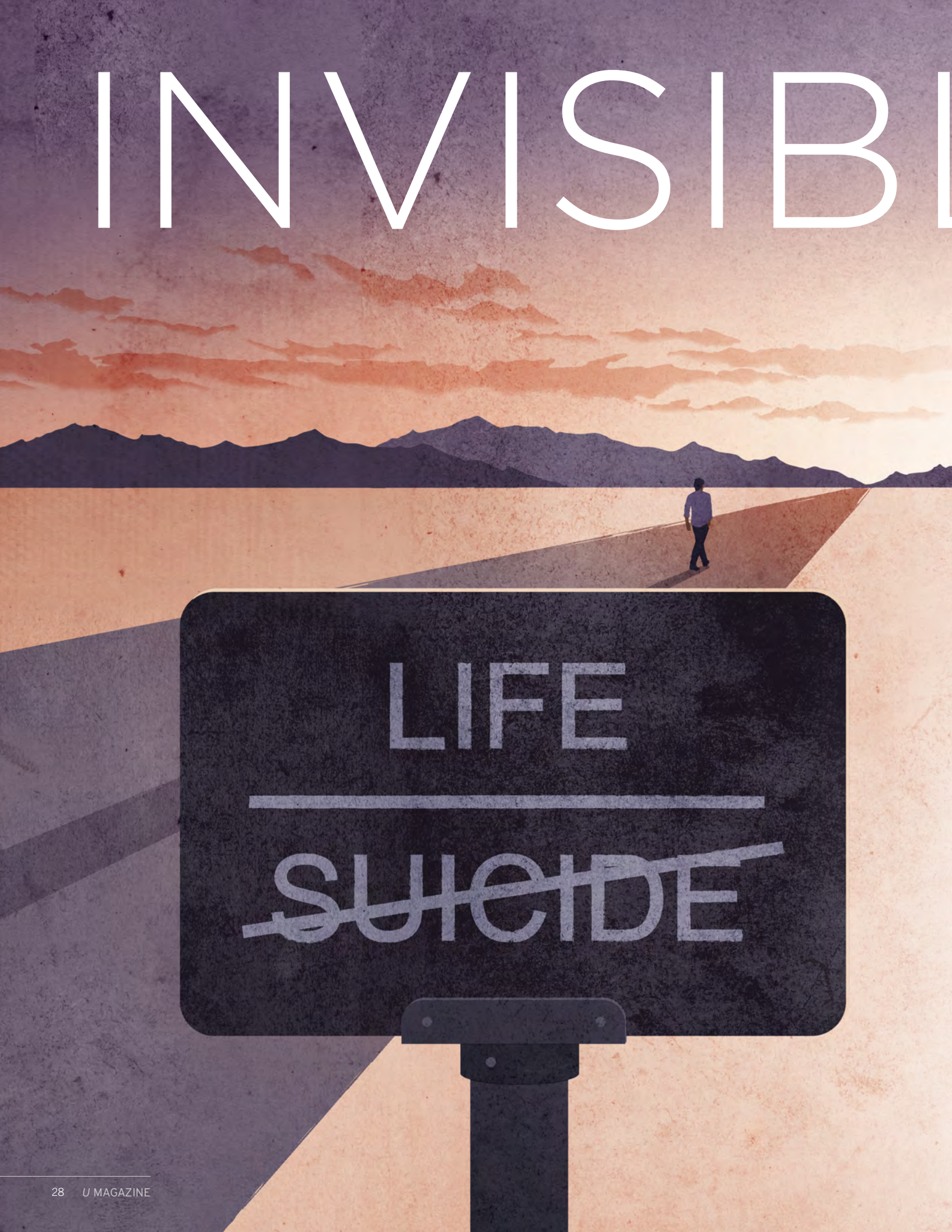
Dr. Grunstein acknowledges that he’s not going to win any bouts as a pugilist. Yet, there are other joys for him to experience, the most prominent of which is the pleasure of seeing the study of chromatin evolve as new technologies are developed and new questions are asked by new generations of scientists. One of Dr. Grunstein’s former post-docs, Siavash K. Kurdistani, MD, is among those continuing that story at UCLA, where he is chair of the Department of Biological Chemistry and conducts histone-related research.

Asked which of his accomplishments makes him most proud, Dr. Grunstein offers a simple answer: “Our role in the study of histone function. This has become a field in which histone modifications and histone protein interactions with other factors provide a novel level of gene regulation. That this area has been recognized by a Lasker Award is very humbling, and it makes me very happy.”

Kathy Svitil is director of research communications at the California Institute of Technology.

“Science is looking for the truth. That’s what it’s all about. Determining how biological mechanisms work leads to medical advances that you never would have thought of.”

INVISIBLE



LE PAIN

BY DAN GORDON • ILLUSTRATION BY SAM WARD

It is time for a necessary and serious conversation about depression and suicide.

For the millions of viewers who vicariously thrilled to the foods, cultures and people of the world through the exotic journeys of Anthony Bourdain, the news that the 61-year-old celebrity chef, author and storyteller had chosen to end his life hit like an emotional punch in the gut. At the time of his death, Bourdain stood atop the pinnacle of his career, documenting his globetrotting adventures on CNN's *Parts Unknown*. But more than that, to the viewer whose everyday reality was far more mundane, Bourdain appeared to be alive in the best sense of the word — endlessly curious about cultures, food and the human spirit and seeming to savor each moment as he quenched his sizable appetite with engaging company in remote locales. What remained invisible to most in the general public was Bourdain's years-long struggle with emotional pain, dark moods and suicidal tendencies.

News of Bourdain's death, on June 8, 2018, came just three days after another global icon, fashion designer and businesswoman Kate Spade, ended her life at the age of 55. Their twin passings left millions of admirers to confront the reality that a public persona can mask private demons and that fame and fortune do not preclude individuals from sinking to such a level of despair.

Like those of other public figures before them, the deaths of Bourdain and Spade cast a harsh spotlight on suicide, sparking a national conversation on the issue in the news media and among friends, family and colleagues. But is it the right conversation? Do celebrity suicides raise much-needed awareness about the factors that drive tens of thousands of less-known people in communities across the U.S. to take their lives each year? Do such deaths point to warning signs that can be used to prevent these

tragic deaths? How can we effectively address the stigma that continues to prevent many people from being forthcoming about their struggles and seeking potentially lifesaving care? Or, are we overly focused on the sensational aspects of celebrity loss while missing opportunities to engage in meaningful discussions and actions that could reduce suicide's societal toll?

UCLA experts — including leaders of an ambitious campus-wide initiative to tackle depression and a center that is at the forefront of the national effort to address suicide among youth — say much more needs to be learned about what leads people to take their lives and how such actions can be averted. This much is clear: Suicide is on the rise. In the same week that Bourdain and Spade died, the U.S. Centers for Disease Control and Prevention (CDC) released a report showing that between 1999 and 2016, suicide rates rose in every state but one — Nevada, where the rate declined by 1 percent. In half of the country, suicide among individuals ages 10 and older increased by more than 30 percent. The CDC reported that rates are up across all age, racial and ethnic groups and among both males and females.

Suicide is now the 10th leading cause of death in the U.S. overall and the second leading cause of death among people ages 15 to 34, bringing immeasurable pain to families and communities. And for every completed suicide, there are many more attempted suicides. "This is a public health crisis," says Joan Asarnow, PhD, professor of psychiatry and biobehavioral sciences, co-director of UCLA's Youth Stress and Mood Program and a leading national expert on depression and suicide prevention among youth. "We are losing about 45,000 people each year to suicide in the U.S., and about a million people worldwide — and what's alarming is that it seems to be increasing across the board."

“This is a public health crisis. We are losing about 45,000 people each year to suicide in the U.S., and about a million people worldwide – and what’s alarming is that it seems to be increasing across the board.”

ACROSS THE UCLA CAMPUS, MORE THAN 100 FACULTY EXPERTS from more than two dozen departments are participating in the Depression Grand Challenge (DGC) — established in 2015 as the largest university-led grand challenge, with an anticipated budget of \$525 million for the first decade of its planned 35-year duration. The centerpiece is a 100,000-person study to learn about the genetic and environmental factors contributing to depression, along with the molecular mechanisms and brain circuitry that characterize the condition. A treatment center will use innovative technologies to offer the most effective therapies based on the project findings. The grand challenge also involves a research, outreach and education program aiming to eliminate the stigma associated with the world’s leading cause of disability.

“Such a profound problem requires unprecedented solutions,” says Nelson Freimer, MD, Maggie G. Gilbert Professor of Psychiatry and director of the DGC and the UCLA Center for Neurobehavioral Genetics. “The Depression Grand Challenge is unprecedented.”

Given the strong correlation between depression and suicide, learning more about the causes of depression and how it can be more effectively treated undoubtedly would contribute to reducing the number of individuals who choose to end their lives. But many questions still would remain. For most people, depression never leads to suicide; moreover, in many suicides, clinical depression isn’t the primary factor. In fact, the CDC report found that more than half of all suicides in 27 states that use the CDC’s National Violent Death Reporting System involved people with no diagnosed mental health condition. Dr. Freimer points out that this doesn’t mean these individuals didn’t have one. “We have evidence that the majority of people with depression, for example, have never been diagnosed,” he says. Not surprisingly, the CDC report found that the group of never-diagnosed people who take their lives consists disproportionately of men and racial/ethnic minorities — groups less apt to seek mental health services than women and non-minorities.

Nonetheless, Dr. Freimer says, there are many routes to suicide beyond mental illness. Other common contributors include relationship problems, life stressors, social isolation, employment and financial trauma, substance misuse and abuse and chronic pain or illness. Risk factors can vary widely depending on age, sex and other characteristics. For example, the Suicide Prevention Resource Center notes that among LGBTQ youth, discrimination in the form of bullying, violence and family rejection is associated with high suicide risk; among middle-aged men, stress stemming from unemployment and divorce are common risk factors.

Exactly what is driving the mounting suicide rate is less apparent. “The evidence that suicide is increasing is indisputable,” Dr. Freimer says. “But I don’t think we have a good understanding of why this is occurring.”

A number of societal trends are widely believed to play a part. Michelle G. Craske, PhD, professor of psychology in the UCLA Division of Life Sciences and professor of psychiatry and biobehavioral sciences in the Jane and Terry Semel Institute for Neuroscience and Human Behavior at UCLA, points out that depression, a leading suicide risk factor, is on the rise. “This may be partly due to people’s greater willingness to talk about it, but epidemiological studies suggest that there is an actual increase unrelated to that, and it’s not clear

Between 1999 and 2016, suicide rates rose in every state but Nevada, where the rate declined by

1%

Suicide ranks as the **#10** cause of death among the overall U.S. population

In half of the country, suicide among individuals ages 10 and older increased by more than

30%

Suicide ranks as the **#2** cause of death among people ages 15-34

why,” says Dr. Craske, who directs the UCLA Anxiety and Depression Research Center and is a member of the DGC’s executive committee.

Dr. Craske cites other likely contributors, including the rise in opioid addiction. The CDC has found that suicides from opioid overdoses nearly doubled from 1999 to 2014 and that many people who were determined to have died from an unintentional opioid overdose had suicide risk factors, including depression and financial woes. Research also has found an association between economic crises and increased suicides, suggesting that the Great Recession that started a decade ago, along with growing wealth inequality and a fraying social safety net, could be factors in the increase. “There’s a terribly vicious cycle between poverty and depression, where it’s hard to improve your situation when you’re feeling depressed about it and lacking motivation or hope that anything could be different, which can lead to further stress,” Dr. Craske says.

She and other experts suspect that growing levels of social isolation and a reduced sense of community in much of the country also might be contributing, although there needs to be more research to better understand the connection, if any, and the dynamics at play. Paradoxically, Dr. Craske notes, technology and social media could be fueling the feelings of loneliness by reducing face-to-face interactions and increasing stress, while reminding people of things they don’t have and activities or groups of which they aren’t a part.

The latter is a particular concern for the younger generation. “In general, there seems to be less community closeness and support for kids than there used to be, and I worry about the consequences of that,” says Jeanne Miranda, PhD, professor of psychiatry and biobehavioral sciences and co-director, with Dr. Asarnow, of the UCLA Youth Stress and Mood Program. “There also appears to be greater pressure on certain groups of kids to succeed, and bullying continues to be a major concern.”

Dr. Miranda also notes that the rate of suicide among sexual- and gender-minority (SGM) youth is four times greater than for non-SGM youth and two times greater among youth who are questioning their sexual identifies compared with non-SGM youth. Compared with SGM youth who did not attempt suicide, those who did had experienced higher levels of victimization due to their sexual orientation. “Problems such as negative beliefs

and feelings about one’s sexual orientation that are internalized because of society’s negative views are a part of normative developmental processes for many of these youth, and suicide attempts often are associated with how identifiable the youth is as SGM, especially by parents,” Dr. Miranda says.

Suicide prevention experts also cite the proliferation of firearms as a likely factor in the rising suicide rates and point to the importance of ensuring that people who are at risk don’t have easy access to lethal means to carry out the act. The CDC report found that across all groups, the most common method used by people taking their lives involved firearms. “If someone is contemplating suicide and there’s a gun on the table, he or she is much more likely to end up dead,” Dr. Asarnow says.

WHEN SUICIDE IS IN THE NEWS, as it was following the deaths of Bourdain, Spade and other well-known individuals, the increased discourse often is a mixed bag. “Certainly it offers an opportunity both for better education of the population and the promotion of more resources for mental health and suicide prevention,” Dr. Freimer says. “But often the focus is on the grieving for the well-known individual, without addressing the factors leading to increased suicide and the need to develop effective prevention tools, including early detection and treatment. And with celebrities, because the details tend to be private, it’s hard to get an appreciation of what led to it, and so some people will think, ‘If this could happen to someone who had everything going for them, what chance do I have?’”

The heightened attention also has the potential to increase suicide risk among vulnerable populations. Researchers have documented a contagion effect, particularly among adolescents. “We know that exposure to peers who have attempted suicide or engaged in self-harm, as well as exposure through the media — including from a movie featuring suicide — has been associated with higher suicide rates or visits to emergency departments for suicidality,” Dr. Asarnow says. Her own research has found that children who make multiple suicide attempts are more likely to have known someone who died or attempted suicide.

When the Netflix drama series *13 Reasons Why* — a show that depicts a teenage girl’s suicide and the events that preceded and followed the death in graphic detail — debuted last year, it was met



Top: Dr. Joan Asarnow: “Treatments for self-harming youth who have a strong family focus tend to have the greatest impact. Parents can function as seatbelts — a buffer before the child starts to act on feelings of self-harm.”

Bottom: Dr. Nelson Freimer: “Often the focus is on the grieving for the well-known individual, without addressing the factors leading to increased suicide and the need to develop effective prevention tools, including early detection and treatment.”

Photos: Ann Johansson



Top: Dr. Michelle Craske: “People tend to be uncomfortable around others who are depressed or to think that depression is something a person should be able to ‘get over,’ rather than viewing it as a disease. That stigma keeps people isolated and makes them less likely to come forward for help.”

Bottom: Dr. Jeanne Miranda: “We have effective treatments for decreasing depression and suicidality, but much more research is needed on prevention. Ideally, we want to be able to intervene earlier, to help kids not get to that crisis point.”

Photos: Ann Johansson

with considerable backlash from commentators in the mental health community for its portrayal. A research letter published in *JAMA Internal Medicine* found that internet searches around the term “suicide” spiked in the weeks after the show first aired. Given research showing that exposure to suicide in film and the media can contribute to increased suicidal behavior, particularly in teenagers, Dr. Asarnow noted that the potential for harm could have been reduced by providing information on suicide prevention resources and encouraging teens who are suffering to reach out to their doctors, school counselors, family members or others who can support them. She noted that a group of leading experts in suicide prevention, working in collaboration with suicide prevention organizations, journalism schools and media outlets, has developed recommendations for best practices to report on suicide deaths to reduce the potential to negatively influence behavior.

Elana Premack Sandler, LCSW, MPH, an associate professor at the Simmons College School of Social Work in Boston, Massachusetts, who worked with the Suicide Prevention Resource Center on guidelines for developing suicide prevention programs, says that too often media coverage of suicides involving well-known people sensationalizes the death to the point of overshadowing the individual’s life. From the standpoint of suicide prevention, Sandler says, the best coverage avoids sensationalistic language, descriptions of methods and language such as “committed suicide” that criminalizes the act. “Focusing on the life gives a more accurate picture of mental illness and allows room for discussion of the fact that many people go through these struggles without it leading to suicide,” Sandler says. Coverage always should be accompanied by information about resources for people feeling suicidal, such as the National Suicide Prevention Lifeline, the Crisis Text Line and others, she adds.

When presented responsibly and to promote ways for people to seek help and reach out to others in need, coverage of suicide can be constructive. “In general, it’s good when suicide is being talked about and not treated as taboo,” Sandler says. “Sometimes people are afraid to bring it up, but if we normalize these issues, we can make it more accessible to seek help. By asking whether or not someone is feeling suicidal — or even saying, ‘I’m thinking about you and I care about you’ — we communicate that we

are available to that person and that it’s OK to discuss it, which can be lifesaving.”

Dr. Craske believes that reducing the stigma around depression and suicidality, as UCLA’s DGC has set out to do, is a critical suicide prevention strategy. “People tend to be uncomfortable around others who are depressed or to think that depression is something a person should be able to ‘get over,’ rather than viewing it as a disease,” she says. “That stigma keeps people isolated and makes them less likely to come forward for help. As a result, many walk around with suicidal thoughts, and no one around them knows.”

“We need to use these times of national discussion not only to talk about suicide prevention, but also to increase the percentage of people who seek mental health care more broadly,” Dr. Freimer adds. “That would certainly have an impact on suicide.”

It’s not just stigma that keeps many people from coming forward. “We don’t have good access to mental health services in this country, and too many people are receiving care that is not evidence-based,” Dr. Asarnow says. “Our estimates suggest that 13-to-20 percent of children in the United States experience a mental disorder each year. There are effective treatments, but they aren’t being implemented within broad public health policies.” One goal of the UCLA Youth Stress and Mood Program is to work to bring treatments with demonstrated effectiveness into the places where people receive care in their communities.

HEALTH SYSTEMS CAN, AND SHOULD, DO MORE by ensuring that all patients are screened for depression and that health professionals routinely ask about suicide rather than waiting until patients bring it up, Dr. Freimer says. “Given the state of our knowledge right now, that’s probably the most important way we can make an impact on suicide rates,” he says. Toward that end, UCLA’s DGC has focused on assessing not just for depression and anxiety, but also for suicidality — and then ensuring that a process is in place so that when early signs are detected, patients receive the follow-up care they need.

Separately, in partnership with colleagues at Duke University, Dr. Asarnow heads the Center for Adolescent Suicide, Self-Harm & Substance Abuse Treatment and Prevention (ASAP) Center, which takes a trauma-informed approach to caring for youth who present with suicidality, self-harm and

WHY THEY GIVE

substance abuse. The ASAP Center is part of the National Child Traumatic Stress Network, funded by the U.S. Substance Abuse and Mental Health Services Administration to raise the standard of care and increase access to services for children and families who experience or witness traumatic events. The center has worked with health systems across the nation to implement initiatives designed to improve care and outcomes for this population — including a strategy for delivering an enhanced mental health intervention in emergency departments, given that as many as half of patients in these settings fail to receive follow-up outpatient treatment, Dr. Asarnow says.

Dr. Asarnow's group also recently received funding for a large National Institute of Mental Health clinical trial in conjunction with the national Zero Suicide Initiative, a commitment among health care systems to close gaps and ensure that suicidal patients don't fall through the cracks. The study identifies at-risk youth within the health system and offers evidence-based care approaches commensurate with their level of risk, including technology-enhanced services. For high- and intermediate-risk patients, the treatment includes dialectical behavioral therapy (DBT) — a cognitive-behavioral therapy focusing on treatment engagement and reducing self-harm and suicide attempts by teaching skills for enhancing emotion regulation, distress tolerance and building a better life. Dr. Asarnow and her colleagues recently published the results of a randomized clinical trial, showing the first evidence of DBT's efficacy in decreasing repeated suicide attempts in adolescents and the second demonstration that DBT is an effective treatment for reducing self-harm behaviors among high-risk adolescents.

DBT is one of several evidence-based therapies offered by the UCLA Youth Stress and Mood Program, all of which are family-centered. "Treatments for self-harming youth who have a strong family focus tend to have the greatest impact," Dr. Asarnow says. "Parents can function as seatbelts — a buffer before the child starts to act on feelings of self-harm. We have to build a society of support for our children, including not only parents, but also schools and health care providers."

"We work with parents on ways to tune in, notice their child's moods and know how best to respond," Dr. Miranda adds. "And we work with the kids to better understand their own moods,

to have a safety plan for when they begin to experience thoughts of suicide or self-harm and to be open in sharing what they need from their parents at those times."

The approaches developed and studied at the UCLA Youth and Stress Mood Program are saving lives, but Dr. Miranda is quick to point out that she and other professionals involved in suicide prevention are aiming higher. "We have effective treatments for decreasing depression and suicidality, but much more research is needed on prevention," she says. "Ideally, we want to be able to intervene earlier, to help kids not get to that crisis point."

Dr. Freimer notes that just as there is evidence of genetic contributions to mental health conditions such as depression, schizophrenia and autism spectrum disorder, there are suggestions of a distinct genetic contribution to suicide. Through the research efforts aiming to unravel the genetic and environmental contributors to depression, DGC researchers hope also to learn about the specifics of what leads some individuals to be at high genetic risk for suicide.

The DGC has already begun using advanced technology to continuously record sleep, social interactions, voice quality and other characteristics of at-risk research subjects. "It would be extremely helpful to our prevention efforts if we could learn more at the micro level about what's happening biologically and psychologically that puts people over the tipping point to where they want to end their life," Dr. Craske explains.

DGC leaders also believe the massive research effort will lead to better depression treatments — including new medications as well as new psychological and neuromodulatory approaches. That would represent a boon for the millions who don't benefit sufficiently from current depression therapies. But when it comes to preventing suicide, Dr. Asarnow notes, it's only one of many necessary steps.

"Depressive illness has to be treated, but we also have to go beyond depression," she says. "The most effective suicide prevention approaches help people to build a life they want to live."

Dan Gordon is a regular contributor to *U Magazine*.



"Internet Searches for Suicide Following the Release of 13 Reasons Why," *JAMA Internal Medicine*, October 2017

When UCLA launched the Depression Grand Challenge in 2015, it was with the bold goal of cutting the burden of depression in half by 2050 and eliminating it by the end of the century. It is an ambitious task — one that requires support from many fronts.

"UCLA's Depression Grand Challenge is an effort to try to change the world," says donor Robina Riccietello, a member of the UCLA Depression Grand Challenge Leadership Council. "Trying to find good treatments and, eventually, a cure for depression is one of the most impactful ways UCLA can affect the lives of human beings around the world."

The success of the Grand Challenge can have dramatic outcomes for families who have suffered the devastating — and sometimes fatal — consequences of depression, families like those of Hillary Hartman and Dana Jacobs. "If our sister Andrea was alive today, she would tell you that she suffered from depression since kindergarten," says Hartman, a donor to the Grand Challenge. "It has been 21 years since she committed suicide. UCLA's ambitious goal to eradicate depression gives us hope that one day, those who suffer will not turn to suicide to find relief from their pain."



Dr. Nanthia Suthana (left) and her team are the first researchers to blend virtual reality with a surgically implanted prosthesis to reveal what happens in the brain when people create memories.

Photo: Mashable

Virtual Traveler

By Veronique de Turenne

When Nanthia Suthana, PhD '09 (FEL '12), was an undergrad at UCLA, she took a year off from school to travel through Europe and try to make sense of the rest of her life. "There I was, a 19-year-old well out of her comfort zone and in a new and strange cultural world," she says. "As I traveled to other countries, the language barrier added to a profound sense of dislocation. I can still vividly picture myself getting off of a plane and walking around the streets of each new city, trying to remember where I am and figure out where I'm going."

She was subsisting on an itinerant student's limited budget and couldn't afford most diversions that cost money, so Dr. Suthana filled much of her free time with reading. That's how she came across the famous case of Patient H.M., a man with epilepsy who, in 1953, underwent experimental brain surgery to deal with his severe seizures. The procedure, a bilateral medial temporal lobectomy, successfully controlled the epilepsy, but the patient was left unable to form new memories.

"The case study of Patient H.M. totally fascinated me. Ever since then, I knew that I wanted to pursue neuroscience," says Dr. Suthana, who returned to UCLA to complete her undergraduate degree and then earn her doctorate and complete a postdoctoral

fellowship in neurophysiology. "It put me on the path that I am on to this day."

That path finds Dr. Suthana — now assistant professor-in-residence of psychiatry and biobehavioral sciences and holder of the Ruth and Raymond H. Stotter Chair in Neurosurgery — occupying a spare and somewhat clinical space on the fourth floor of the Edie & Lew Wasserman Building in UCLA's Stein Plaza. There, in what is known as the "VR Stadium," she is working with a volunteer who, like Patient H.M., has epilepsy. He is wearing a black motion-capture bodysuit and cap studded with reflective markers to track his movements, and he has just donned a virtual reality (VR) headset.

With his eyes locked on the images that now surround him, the man is virtually transported from this room to an entirely different location. As he views his new surroundings and moves around the room, electrodes implanted deep in his brain track and, when necessary, adjust his neural activity, all the while sending out a constant stream of data that map the inner workings of the man's brain.

DR. SUTHANA STANDS AT THE FOREFRONT OF AN EXCITING NEW FIELD OF RESEARCH. By integrating the emerging field of virtual reality with the data from the implanted electrodes, she is a pioneer of research into how the brain creates and encodes memories. "It's only because of this specific brain implant" — a radical treatment for drug-resistant epilepsy called

the Responsive Neurostimulator — “that we can now use virtual reality, combined with motion tracking, to study memory,” Dr. Suthana says. That is because the implant makes visible the electrical activity in a person’s brain, constantly monitoring brainwaves to detect an impending seizure and then sending pulses to re-set the neurons and avert the attack.

Because the epilepsy implants sit in the region of the brain that is associated with memory, Dr. Suthana and her colleagues have been able to take the real-time data produced by the implants several steps further. With the use of VR, they place their study participants in unfamiliar surroundings. As the volunteers explore, memorize and perform tasks in these new spaces, the researchers log and analyze their brain activity. “The idea of combining patients with brain implants, motion tracking and virtual reality memory tasks has never been done before,” she says. The hope is that the resulting data will reveal the mechanisms involved in the making and encoding of memories at a cellular level.

“Without our memories, each of us would be lost in time and cut off from other people,” Dr. Suthana says. “At UCLA, we are the first to blend virtual reality with a surgically implanted prosthesis to reveal what happens inside the brain when we create more naturalistic memories.” The ultimate goal, she says, is to develop therapeutic tools that could restore

lost memories to people suffering from Alzheimer’s disease, traumatic brain injury and other disorders.

In 2015, with help from colleagues in the disciplines of neuroscience, neurosurgery, computer science, bioengineering and physics, Dr. Suthana created the VR Stadium. The tools allow her team to collect data from which they can extrapolate not only how memories are formed, but also the pathways the brain uses to recall information in order to navigate new environments.

“All of our daily memories are visually linked to space — the setting in which they are created,” Dr. Suthana says. “When you forget where you left your keys or parked your car, you automatically try to visualize where and when you last saw them. The same principle holds true for complex tasks, like navigating a grocery store or” — as Dr. Suthana discovered during her undergraduate travels abroad — “learning your way around a new city. We take these basic functions for granted — the ability to remember a friend’s face, your wedding day or spouse’s birthday. When someone loses these memories, it devastates their quality of life.”

Veronique de Turenne is a freelance writer in Los Angeles.



To watch a video about Dr. Nanthia Suthana and her work with VR and memory, click on the link to this article at: uclahealth.org/u-magazine



Top: Dr. Nanthia Suthana’s interest in brain science began when she was a student traveling abroad and encountered the story of a man who underwent experimental brain surgery to address his seizures. **Middle and Bottom:** Dr. Suthana works with a patient wearing a motion-capture suit in the VR Stadium.

Photos: (Dr. Suthana) Ann Johansson; (VR Stadium) Mashable

Awards & Honors

Dr. Olujimi Ajijola (FEL '13, '14), assistant professor in the Departments of Medicine and Molecular, Cellular and Integrative Physiology, was selected as a New Voice in Sciences, Engineering and Medicine, a new initiative from the National Academies of Sciences, Engineering and Medicine.

Dr. S. Thomas Carmichael (FEL '01), chair of the UCLA Department of Neurology, received the 2018 Bernard Sanberg Memorial Award for Brain Repair.

Dr. Judith Currier, chief of the UCLA Division of Infectious Diseases, was named chair of the National Institutes of Health-funded AIDS Clinical Trials Group, the largest clinical trials network focused on HIV.

Dr. Daniel Geschwind (RES '95, FEL '97), distinguished professor of neurology and psychiatry and biobehavioral sciences, was awarded the Amgen Early Innovator Award.

Dr. Willy Hugo, adjunct assistant professor of medicine and dermatology and a member of the UCLA Jonsson Comprehensive Cancer Center, was named a NextGen Star by the American Association of Cancer Research.

Dr. Antoni Ribas (FEL '98, '01), professor of medicine, surgery and molecular and medical pharmacology and director of the Tumor Immunology Program in the UCLA Jonsson Comprehensive Cancer Center, was named among “Great Immigrants” by the Carnegie Corporation of New York.

Dr. Nina L. Shapiro, director of pediatric otolaryngology and professor of head and neck surgery, published *Hype: A Doctor’s Guide to Medical Myths, Exaggerated Claims, and Bad Advice — How to Tell What’s Real and What’s Not* (St. Martins Press, 2018).

Dr. Susan Smalley, professor emerita in the Department of Psychiatry and Biobehavioral Sciences and founder of the Mindful Awareness Research Center at UCLA, was honored by the women’s rights organization Equality Now.

Dr. Anna Wu, professor of molecular and medical pharmacology, was among scientists honored at the Suffrage Science awards celebrating women in science.

In Memoriam

Dr. Sydney M. Finegold, emeritus professor of medicine and microbiology, immunology and molecular genetics, died on September 17, 2018. He was 97 years old and continued to conduct research until poor health forced him to retire fully at the age of 96. Dr. Finegold was founding chief of the Division of Infectious Diseases at the VA Greater Los Angeles Health System. He is

internationally famous for his work in the recognition and management of anaerobic bacterial infections. In 1983, Dr. Finegold received the William S. Middleton Award, the highest honor awarded annually to senior VA biomedical research scientists.

Dr. W.N. Paul Lee, division chief emeritus of pediatric endocrinology, died June 18, 2018. He was 74 years old. Dr. Lee was a creative clinician and scientist whose research contributed to the areas of metabolic profiling, functional biochemistry and metabolic control analysis. As a teacher, he was a generous mentor to numerous trainees.

Return of the Class of '98

While Dr. Joseph Copeland may have received his MD from UCLA in 1999, after taking time off between his third and fourth years of medical school to work with the Centers for Disease Control and Prevention in Botswana, he feels more at home with the students he started out with — the Class of 1998.

My class always seemed like an exceptional group of people, and I've been meeting with my small study group at least every five years," Dr. Copeland says. "As we approached our 20th anniversary, it seemed like we were long overdue for a big get-together."

Dr. Copeland started to make calls and send out emails. After many rounds of phone tag and back-and-forth emails — usually following Dr. Copeland's long nights in the ER where he works in Vancouver, Canada — his efforts paid off in June, when nearly half of the class returned to Westwood for their platinum celebration.

The weekend kicked off for some with a tour of the Center for Advanced Surgical & Interventional Technology (CASIT), a dry lab for surgeons and trainees to practice and rehearse operations virtually, using advanced surgical simulators. During the tour, Christina Yeon, MD '98 (RES '01, FEL '04), reminisced with her husband about how at one point in her medical school training, she thought about becoming a surgeon. Now a medical oncologist/hematologist for the City of Hope in Pasadena, California, Dr. Yeon says the CASIT experience was an educational highlight of the weekend. "Many of my patients have laparoscopic and/or robotic surgeries, and it was fun to touch and try these tools in the lab," she says.

There also were tours of Geffen Hall, the new medical school building, and the Center for the Health Sciences, the old hospital and medical school building where the Class of '98 received its training. At Geffen Hall, five current medical students guided



the alumni through the school's new state-of-the-art, computer-based, group teaching labs and lecture rooms, giving them a peek into today's modernized medical education. "It's clear that technology is changing many aspects of medical training, mostly for the better," Dr. Copeland says. "At the same time, medicine remains an art with a human touch, so I'm glad to hear technology is an aid and not a substitute for patient-centered care."

Wrapping up the day, Drew Weil, director of operations for Ronald Reagan UCLA Medical Center, guided a small group tour of the hospital, which is celebrating its own 10-year anniversary. Construction of the facility broke ground just a year after the Class of '98's graduation. Several classmates recalled touring the facility during their last gathering 10 years ago, and they were amazed by the many additions and improvements that have since been made.

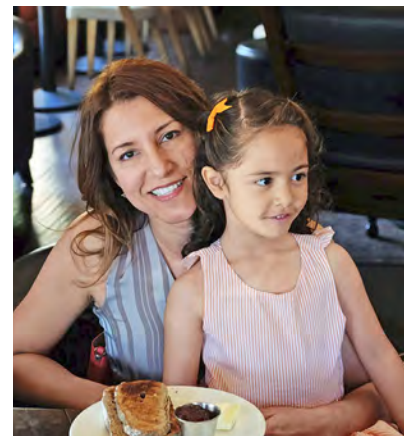
The reunion's grand finale was a farewell dinner for classmates and their families at the UCLA Meyer and Renee Luskin Conference Center. With more than 70 guests in attendance, the greetings were endless. "Twenty years have gone by, and I still feel bonded to these people. It's as if no time has passed at all," said Felicia Garcia, MD '98, who came from Maryland to attend the reunion. "It was great to hear where everybody had landed and what they had accomplished. I felt very proud to be a part of it all."

After months of planning, Dr. Copeland reflects on the importance of coming back to campus and reconnecting with the former classmates with whom he studied. "It's easy to get overtaken by the day-to-day challenges of career and family life," he says. "The onslaught of work in medicine can be a little overwhelming. I think it's important to check in with your peers and see all of the different things they are doing. For me, it's really reaffirming. My classmates are an extraordinary group of people. UCLA took the best and the brightest and put them through a four-year crucible to become expert clinicians, educators and researchers. We've scattered back out in the world to do the things we were trained to do. That experience together at UCLA has marked us as members of a unique tribe. After 20 years, the bond still feels strong."

The Class of 1998 International Health Scholarship

In addition to gathering for their reunion weekend, Dr. Copeland and his classmates made a push to increase funding for their class's medical education scholarship in support of global health. The Class of '98 Scholarship in International Health was instated upon their graduation to help fund students traveling abroad on global health electives offered by the World Health Organization in conjunction with the David Geffen School of Medicine at UCLA.

Scholarship recipients from this past academic year, Paola Perez, MD '18, and Monique Maher, MD '18, talked during the reunion dinner about their experiences in Mozambique and Malawi this past spring. After hearing the new graduates' stories and learning about the impact of these electives on the students and the communities where they worked, Dr. Anurag Relan — who, like Dr. Copeland, began with the Class of '98 but completed



Opposite Page: The Class of '98 shows off its class photo during the class reunion.

Top: Christina Hanna (left) explains some of the equipment in the Center for Advanced Surgical & Interventional Technology to Dr. Christina Yeon of the Class of '98. **Middle Left:** Dr. Irene Valencia at commencement in 1998. **Middle Right:** Dr. Valencia with her daughter Hannah Delgado at the class reunion brunch. **Bottom Left:** Dr. Donna White Carey during graduation. **Bottom Right:** Dr. White Carey today.

Photos: Courtesy of UCLA Medical Alumni Association and members of the Class of '98

his MD in '99 after taking time for a master's in public health — was inspired to make a contribution to the fund. "So much of where we all are today stems from the great education and experience at UCLA," Dr. Relan (FEL '02) said. "Donating to the scholarship fund felt like a great way to acknowledge this."

Focusing on Whole Health at The Wonder of Women Summit



Top Left: (From left) Event chair Cece Feiler; Tipper Gore, former Second Lady of the United States; Vicky Goodman, founder and president of The Friends of the Semel Institute; event chair Terry Hyman Hamermesh; and Dr. Nancy Glaser, founding chair of the Resnick Neuropsychiatric Hospital Board of Advisors. **Top Center:** (From left) Candice Bergen, Diane English and Lisa Kudrow. **Top Right:** Dr. Wendelin Slusser, associate vice provost for the UCLA Healthy Campus Initiative, got everyone moving with stretching and breathing exercises to underscore the connections between physical health and emotional well-being. **Bottom Left:** Golden Globe and Academy Award-winning actress Goldie Hawn shared her personal story about identity, self-discovery and finding her path to happiness, which led her to create The Hawn Foundation and MindUP, a global program to help children self-regulate, understand their emotions, reduce stress, increase empathy and boost academic performance, and which now serves more than 5 million children. **Bottom Center:** (From left) Mental health advocate Gail Kamer Lieberfarb spoke with The Honorable Nancy Rubin, former U.S. Ambassador to the United Nations' Commission on Human Rights, and Tipper Gore about mental health and human rights in a national and international context. **Bottom Right:** (From left) Dr. Edythe London, Talinda Bennington, Dr. Barbara Van Dahlen and Anna Shinoda.

Photos: Thomas Neerken Photography

Nearly 400 guests gathered at the UCLA Meyer and Renee Luskin Conference Center on May 2, 2018, to attend the inaugural **#WOW The Wonder of Women Summit**, which brought together thought leaders and trailblazers in science, health and culture for a day of learning and connection. Presented by The Friends of the Semel Institute and the Resnick Neuropsychiatric Hospital Board of Advisors, the event was kicked off by co-chairs Cece Feiler and Terry Hyman Hamermesh. Resnick board member Lisa Kudrow of *Friends* fame served as emcee. Speakers and panelists focused on topics related to women's mental and physical health in a global

environment, and proceeds from the event benefited mental health education, research and clinical care programs at UCLA.

During the morning program, Johnese Spisso, MPA, president of UCLA Health, CEO of the UCLA Hospital System and associate vice chancellor for UCLA Health Sciences, delivered welcoming remarks, and media entrepreneur and global speaker Mallika Chopra led a group meditation. British entrepreneur and TV host Poppy Jamie, one of *Forbes'* "30 under 30," addressed the theme of social well-being and introduced Happy Not Perfect, her app designed as a "mind refresh" to help build inner fulfillment.

UCLA Medical Center Boards Pass the Gavel



Left: William E. Simon, Jr. (right, with Johnese Spisso, MPA, president of UCLA Health and CEO of the UCLA Hospital System and associate vice chancellor of UCLA Health Sciences) concluded his 2016-2018 term as chair of the Ronald Reagan UCLA Medical Center Board of Advisors. In addition to his expert leadership as chair, Simon's commitment to UCLA Health reaches beyond the board as the founder, with his wife Cindy, of UCLA Health Sound Body Sound Mind. Todd Katz succeeded Simon as chair. **Right:** Peter Darley Miller's two-year term as chair of the UCLA Medical Center, Santa Monica Board of Advisors concluded this year. Miller (left, with Johnese Spisso) led the board by example through his extensive volunteer involvement with the Venice Family Clinic's street medicine program. Kathy Volz succeeded Miller as chair.

Photos: Nora Bok



For more information, contact Nora Bok at:
310-267-0050

Panels included a discussion moderated by Kudrow about the influence of media on social change, featuring actress Candice Bergen, star of *Murphy Brown*, and the show's creator, writer and producer Diane English. Dr. Robin Berman, associate professor of psychiatry and biobehavioral sciences and Resnick board member, moderated another panel about women's health, featuring Dr. Sheryl Ross, an award-winning OB/GYN and author; Dr. Ava Shamban, board-certified dermatologist, author and researcher; and Dr. Gail Wyatt (PhD '73), director of the UCLA Sexual Health Program and of the Center for Culture, Trauma, and Mental Health Disparities.

Dr. Karol E. Watson (RES '92, FEL '97, PhD '98), director of the UCLA Barbra Streisand Women's Heart Health Program and a national leader in the field, spoke about the role of external factors in heart health, such as stress and sleep disruption. "You cannot take care of your heart unless your mind, spirit and soul are well," she said. Amanda Daniels, who co-founded the first peer-led support group in Los Angeles for women living with heart disease, also shared her personal and inspirational story.

The summit concluded with a heartfelt discussion between Dr. Edythe London, a leading researcher at the Jane and Terry Semel Institute for Neuroscience and Human Behavior at UCLA, and special guests Talinda Bennington, champion for 320 Changes Direction, named in memory of her husband, singer Chester Bennington of Linkin Park; Dr. Barbara Van Dahlen, president of the nonprofit she founded, Give An Hour, that provides free mental health services to the military and veteran community; and Anna Shinoda, author, mental health advocate and passionate supporter of 320 Changes Direction. Bennington shared insights from her deeply personal experience of love and loss, and the panel addressed the meaning of resilience and the need for a shift in culture to support people who are suffering emotionally. "It's an extremely exciting time to be in brain research and a great time for activism to change the conversation and reduce the stigma," Dr. London said.



Top: (From left) Drs. Ava Shamban, Sheryl A. Ross, Robin Berman and Gail Wyatt. **Bottom Left:** Dr. Karol E. Watson (left) and Laurie Gordon. **Bottom Right:** (From left) Dr. Kelsey Martin, dean of the David Geffen School of Medicine at UCLA and Gerald S. Levey, M.D., Endowed Chair, talked with three experts on brain health in women: Shari Staglin, philanthropist and co-founder of the nonprofit One Mind; Dr. Susan Bookheimer, professor of psychiatry and biobehavioral sciences and Joaquin M. Fuster Chair in Cognitive Neuroscience; and Dr. Nanthia Suthana (PhD '09, FEL '12), assistant professor-in-residence of psychiatry and biobehavioral sciences and holder of the Ruth and Raymond H. Stotter Chair in Neurosurgery.

Photos: Thomas Neerken Photography



For more information, contact Karen Colimore at:
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Taste for a Cure Raises Money for Cancer Research

The **UCLA Jonsson Cancer Center Foundation (JCCF)** held its 23rd annual Taste for a Cure event on April 27, 2018, at the Beverly Wilshire hotel. Gordon Ramsay, multi-Michelin-starred chef and star of FOX's *Master Chef* and *Hell's Kitchen*, hosted the Italian-themed evening. Matt Iseman and Akbar Gbaja-Biamila, hosts of NBC's *American Ninja Warrior*, presented Paul Telegdy with the Gil Nickel Humanitarian Award, named in memory of Gil Nickel, proprietor of Far Niente Winery and Nickel & Nickel and Dolce wineries, who lost a courageous battle against melanoma in October 2003. A highlight of the evening was a performance by Kelly Clarkson, three-time Grammy Award-winner and coach on NBC's *The Voice*.

"This is a monumental year for the foundation, as we welcome Dr. Michael Teitell as JCCF president and director of the Jonsson Comprehensive Cancer Center and celebrate our 23rd anniversary of Taste for a Cure," said Randy Katz, JCCF chairman. Katz noted that the annual event was established to raise money for highest-priority cancer research that has led to 11 U.S. Food and Drug Administration approvals of new therapies over the past four years.

Katz went on to say that "we are excited to present Paul Telegdy with the Gil Nickel Humanitarian Award in recognition of his dedication to inspiring those who battle with this disease. Through his platform at NBC, he has worked to shift the narrative around the cancer struggle from one of anger and defeat to that of encouragement and bravery."

Telegdy, co-chairman of NBC Entertainment, is an active philanthropist dedicated to supporting the JCCF and its mission. He also oversees the annual global philanthropic event Red Nose Day, organized by Comic Relief and broadcast across NBC Universal to raise awareness and funding to end child poverty in the United States and around the world.

Dana Walden and Gary Newman, co-chairmen and CEOs of FOX Television Group; Joe Cohen, co-head of television for Creative Artists Agency; Jay Sures, co-president of United Talent Agency; Jon Holman, president of The Holman Group; and Larry Maguire, president of Far Niente Winery served as event co-chairs. Delta Air Lines and Modern Luxury's *Angeleno* magazine were event partners.

Guests enjoyed wine tastings, Italian-inspired gourmet cuisine with a unique twist and a live auction.



Top: (From left) Gordon Ramsay, Dana Walden and Paul Telegdy. **Middle:** (From left) Taste for a Cure co-chairs Jon Holman, Joe Cohen, Larry Maguire, Dana Walden and Gary Newman. **Bottom Left:** Honoree Paul Telegdy (left) and singer Kelly Clarkson. **Bottom Right:** Richard Azar (left), chief operating officer for UCLA Health, and Johnese Spisso, MPA, president of UCLA Health and CEO of the UCLA Hospital System.

Photos: Getty Images for UCLA Jonsson Cancer Center Foundation



For more information, contact Jacqueline Farina at:
310-794-7643



(From left) Drs. David Shackelford, Heather Christofk, Orian Shirihai, David Nathanson and Michael Teitell.

Photos: Reed Hutchinson

Using Metabolism to Drive Breakthroughs in Cancer Research

Three diverse UCLA scientists introduced their innovative research and drew the connection between metabolism and cancer at “**Breakthroughs in Cancer Research: Harnessing the Metabolism for Diagnosis, Prevention, and Treatment.**”

Dr. Orian Shirihai, professor of endocrinology and director of the UCLA Metabolism Research Theme, welcomed guests to the event at the California NanoSystems Institute at UCLA on April 17, 2018.

Dr. Shirihai shared that the goal of researchers is to identify the mechanisms that can block cancer from using the body’s energy to grow. He added that some researchers are good at identifying the cells that import nutrients and energy, while other scientists are good at understanding how cancer grows. As a result, cross-disciplinary teams are needed to advance studies and improve therapies. The evening’s speakers included:

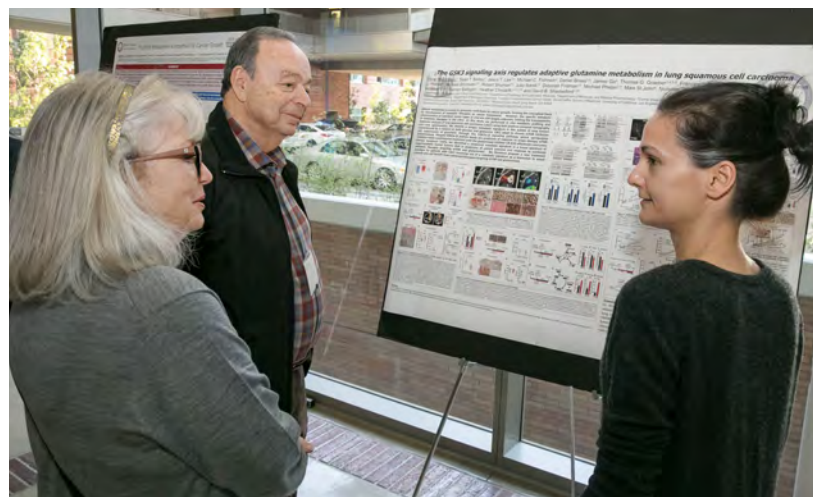
- Dr. Heather Christofk, director of basic and translational research at the UCLA Jonsson Comprehensive Cancer Center, co-director of the UCLA Metabolomics Center and associate professor of biological chemistry and molecular and medical pharmacology, shed light on how scientists can use viruses to pinpoint pathways within cancer cells that can be interrupted to stop tumor growth.
- Dr. David Shackelford, associate professor in the UCLA Department of Pulmonary and Critical Care Medicine, shared his research findings on using nutrients to image and track lung cancer and deliver personalized treatments to patients.

- Dr. David Nathanson (PhD ’11, FEL ’13), assistant professor of molecular and medical pharmacology, explained how doctors can use a brain tumor’s ability to hide its signaling pathways to starve the tumor of its fuel, making it vulnerable and receptive to new treatments.

Following the presentations, Dr. Michael Teitell (PhD ’91, MD ’93), Lya and Harrison Latta Endowed Chair in Pathology, director of the UCLA Cancer Research Theme, director of the UCLA Jonsson Comprehensive Cancer Center, president of the UCLA Jonsson Cancer Center Foundation and chief of the UCLA Division of Pediatric and Neonatal Pathology, facilitated a question-and-answer period.



For more information, contact Laurel Zeno at: 310-825-1980



Dr. Milica Momcilovic (far right), a member of Dr. David Shackelford’s lab, shares research information with UCLA supporters Nanette and Burton Forester.

Photos: Reed Hutchinson

Giving Back to Change Lives



(From left) Ralph, Shirley and Peter Shapiro.

Photo: Courtesy of the Shapiro family

For the family of **Shirley and Ralph Shapiro**, longtime supporters of UCLA, a key philanthropic priority is to improve the lives of people with disabilities. The Shapiros' recent gift of more than \$2 million, which they donated with their children Alison and Peter Shapiro, will further this important work, funding endowed chairs in the UCLA Department of Pediatrics in the David Geffen School of Medicine at UCLA.

"We are humbled by the generosity of the Shapiro Family and proud to continue collaborating with them to accelerate innovation in children's health and improve the lives of children facing developmental and behavioral challenges," said Dr. Sherin U. Devaskar, Mattel Executive Endowed Chair in Pediatrics and physician-in-chief of UCLA Mattel Children's Hospital. "The endowed chairs the Shapiros have funded will enable UCLA to recruit and retain faculty in the field and are testaments to the Shapiro family's philanthropic leadership

in providing enhanced care and services for individuals with disabilities."

Through their more than 50 years of support, the Shapiros' generosity has benefited numerous areas across the UCLA campus, including the Center for Cerebral Palsy at UCLA, which is one of few clinics nationally that cares for cerebral palsy patients throughout their lives. This gift builds upon one of the Shapiros' existing chair endowments and will create three additional term chairs, which will benefit appointed faculty for five-year terms. The original Shapiro Family Term Chair in Developmental and Behavioral Pediatrics and Cerebral Palsy, currently held by Assistant Clinical Professor Dr. Irene Koolwijk, strengthens teaching of the next generation of physicians and researchers. The Peter Shapiro Term Chair for Enhancing Children's Developmental and Behavioral Health will support faculty leadership and advocacy activities.

The gift also will advance clinical care through the Alison Shapiro Term Chair for Children's Cognitive Development and further research through the Ronald and Susan Cohen Term Chair in Childhood Development and Cerebral Palsy. The latter was funded through a partnership with the Shapiros and United Cerebral Palsy of Los Angeles to honor Ronald Cohen, who is retiring after more than 30 years as the United Cerebral Palsy of Los Angeles president and CEO.

"Society has a responsibility to care for the most vulnerable individuals and families," said Peter Shapiro, president of the Shapiro Family Charitable Foundation, which he founded with his parents and sister. "Our partnership with UCLA empowers faculty and students with the knowledge to meet that need."

Ralph Shapiro has served on many UCLA advisory councils, and he was a longtime member of The UCLA Foundation Board of Directors. He earned his bachelor's degree in business administration and his law degree from UCLA. Shirley, who received her bachelor's degree from UCLA, serves on the boards of UCLA Women & Philanthropy, the UCLA School of the Arts and Architecture and the Fowler Museum at UCLA.



For more information, contact Molly Moursi at:
310-267-1826

UCLA Semel Institute Introduces the New Max Gray Fellows in Mood Disorders

Laurie Gordon and the Jane and Terry Semel Institute for Neuroscience and Human Behavior at UCLA hosted the third annual salon for the **Max Gray Fund for Treatment of Mood Disorders** on April 17, 2018, at Ronald Reagan UCLA Medical Center. Gordon established the Max Gray Fund, which advances the training of postdoctoral fellows in the treatment of mood disorders, in 2014. To date, the fund has raised more than \$655,000, enabling the Semel Institute to support nine postdoctoral Max Gray Fellows in Mood Disorders.

Following the welcoming of guests by Gordon and Dr. Peter C. Whybrow, director of the Semel Institute and Judson Braun Chair in Biological Psychiatry, the 2017-2018 Max Gray Fellows in Mood Disorders — Drs. Joshua Tompkins, Adult Mood Disorders Clinic, and Kara Tabor-Furmark, Child and Adolescent Mood Disorders Clinic — were introduced. The fellows shared their experiences with the fellowship and how they will utilize the training at UCLA

as they move forward in their careers. In addition, supervising faculty members Drs. Michael Gitlin (RES '79) and David Miklowitz (PhD '85)

discussed the progress in mood disorders fellowship training and expansion of care, made possible through the Max Gray Fund.

Dr. Thomas B. Strouse (RES '91), medical director of the Stewart and Lynda Resnick Neuropsychiatric Hospital at UCLA and Maddie Katz Chair in Palliative Care Research and Education, moderated a panel discussion among the Max Gray Fellows and their supervising faculty.



Laurie Gordon (left) and Dr. John C. Mazziotta (RES '81, FEL '83), vice chancellor of UCLA Health Sciences and CEO of UCLA Health.

Photo: William Short



For more information, contact Dorin Esfahani at: 310-267-1838

UCLA Takes on Depression

UCLA's Challenge to End Depression event took place on May 14, 2018, at UCLA for the **UCLA Depression Grand Challenge** (DGC). UCLA faculty members from the DGC Executive Committee — Dr. Nelson Freimer, Maggie G. Gilbert Professor of Psychiatry; Dr. Jonathan Flint, Wilder Chair in Psychiatry and Neuroscience; and Dr. Michelle Craske, distinguished professor of psychology — talked about their important work and how they personally came to dedicate themselves to curing depression. They discussed the research progress of the DGC since its launch in 2015, as well as treatment advances provided through the Innovative Treatment Network, a component of the DGC. They also shared how the DGC is addressing the mental health needs of UCLA students. UCLA Chancellor Gene D. Block opened the event, covering the background of the UCLA Grand Challenges and how the university is uniquely positioned to address the global health issue of depression.

Laurie Gordon, a member of the DGC Leadership Council, introduced faculty speakers. Shari Staglin, a council member, and Garen Staglin, co-chair of the DGC Leadership Council, announced a \$1 million mini-campaign to launch the DGC 100,000-Person Study in the UCLA Health system to identify genetic and environmental factors associated with depression. The Staglins announced their commitment of \$100,000, and the evening raised \$575,000, including a contribution from Laurie and Steven Gordon. Further gifts post event achieved the \$1 million goal.



Top Left: Laurie Gordon (left) and Robina Riccitiello, members of the UCLA DGC Leadership Council. **Top Right:** (From left) Shari Staglin, Dr. Nelson Freimer and Garen Staglin. **Bottom:** (From left): May and Richard Ziman, UCLA Chancellor Gene D. Block and Mrs. Carol Block, and Gail Kamer Lieberfarb.

Photos: Todd Cheney/UCLA Photography

On April 26, 2018, Jan and Bill Mitchell hosted a similar event in Menlo Park, California, for Northern California UCLA alumni and DGC donors.



For more information, contact Dorin Esfahani at: 310-267-1838

Music and Philanthropy Advance Autism Care

When Roger Daltrey and Pete Townshend of The Who joined other legendary rock artists to take the stage at a private event in 2016, they were literally playing it forward. Proceeds from the **WHO Cares about the Next Generation** fundraiser, hosted by Jordan Kaplan and Rebecca Rothstein, have been used to support the UCLA CAN REACH Training Program. This innovative program, directed by Dr. Amanda Gulsrud (PhD '07), and co-founded by Drs. Stephanny Freeman (PhD '97, FEL '00) and Tanya Paparella (PhD '00, FEL '01), provides community professionals and parents with leading-edge best-practice information and training regarding treatment for individuals with autism spectrum disorder. Thanks to the generosity of Kaplan and Rothstein, all seminars are free for attendees.

"I know the commitment UCLA has to helping people with autism, and Jordan and I want to be sure everyone has access to these advanced treatments and information," Rothstein said.

More than 150 educators, 100 parents and 375 allied professionals have attended CAN REACH clinical training




UCLA CAN REACH leadership with local preschool teachers at the 2018 CAN REACH Summer Teacher Workshop for preschool special educators.

Photo: Wha "James" Yang

workshops, teacher trainings and educational lectures for parents since the program's inception in 2017. Summer workshops have been attended by more than 80 preschool educators across 10 districts in the Greater Los Angeles Area. Participants said that they loved the passion of the professionals involved in CAN REACH and gained an enormous amount of valuable information.

The WHO Cares about the Next Generation fundraiser also funded the UCLA Daltrey/Townshend Teen and Young Adult Cancer Program, which was the first hospital program established in the United States by Teen Cancer America, a nonprofit founded by Daltrey and Townshend.

 For more information, contact Jillian Flannery at: 310-267-5573

 To learn more about the UCLA CAN REACH Training Program, go to: uclacanreach.semel.ucla.edu

Building Connections between Art and Neuroscience at Hammer Museum

On May 9, 2018, guests gathered at the **Hammer Museum** to hear a conversation between Dr. Eric Kandel of Columbia University and Los Angeles artist Kerry Tribe. Beginning with a cocktail reception, the event featured presentations from the two trailblazers, who find commonality at the intersection of art and neuroscience.

Dr. Kandel gave an overview of his Nobel Prize-winning research, focused on the sea slug *Aplysia*, in which he discovered the central role synapses play in memory and learning. His recent research builds on the concept that art is incomplete without the direct involvement of the viewer (called the beholder's share), and the cognitive psychology of visual perception. "Successful

abstract art recruits you to fill in the details," Dr. Kandel said. "Art invites the viewers' participation and is complete when people see it and respond to it." He currently seeks to develop a cognitive neuroscience of the brain activity behind the beholder's share. "It's a completely different dimension of creativity that perhaps someday we'll be able to understand neurobiologically," he said.

Tribe, whose work lies at the intersection of art, medicine and neuroscience, shared details about the process she used to create some of her installations. Tribe explained that the notion of the beholder's share is critical to her work and practice.

The evening was hosted by Dr. Kelsey C. Martin, dean of the David Geffen School of Medicine at UCLA and Gerald S. Levey, M.D., Endowed Chair; Dr. Eric Esrailian (FEL '06), The Lincy Foundation Chair in Clinical Gastroenterology and co-chief of the UCLA Vatche and Tamar Manoukian Division of Digestive Diseases; and Dr. S. Lawrence Zipursky, Jerome J. Belzer Chair for Medical Research and Distinguished Professor in Biological Chemistry.

 For more information, contact Karen Colimore at: 310-267-0496



(From left) Drs. Kelsey C. Martin and Eric Kandel, Dr. Martin's mentor when she was a postdoctoral researcher at Columbia University, and The Honorable Vicki Reynolds, former mayor of Beverly Hills.

Photo: Reed Hutchinson

Tour de Pier Continues to Exceed its Fundraising Goals

The **6th Annual Skechers Tour de Pier**, held May 20, 2018 on The Strand overlooking the Manhattan Beach Pier, has once again broken previous records by raising \$1.35 million for cancer research and services. Proceeds benefit three cancer charities, two of which provide significant support for cancer studies at UCLA: the Hirshberg Foundation for Pancreatic Cancer Research and the Uncle Kory Foundation for brain cancer investigations.

“We are thrilled to share that together we raised \$1.35 million, bringing our six-year total to more than \$5.5 million,” said Hirshberg Foundation founder Agi Hirshberg. “We are overwhelmed with gratitude for everyone who shared their time, talents, dedication and passion to make Tour de Pier 2018 one for the record books. An immense thank you to all those who cycled, volunteered, cheered and donated to our event.”



Left: Agi Hirshberg (second from the right) with cyclists from UCLA. Right: Tour de Pier co-founders Lisa Manheim (left) and Heath Gregory (right) with Tyus Edney and fitness instructor Angela Bennett.

Photos: Steve Gaffney

Sponsored in part by UCLA Health, the event featured approximately 2,000 stationary cyclists who rode for one-to-five hours individually or as part of a team. Lively music and fitness instructors kept riders motivated.

UCLA radiology staff members rode in shifts at the event as part of the UCLA Radiology Gold team. They were joined by Ric McGill, director of UCLA Radiology, for the UCLA Health partnership with the Los Angeles Lakers; Dr. S. Thomas Carmichael (FEL '01), chair of the UCLA Department of Neurology and Frances Stark Chair in Neurology; Dr. Timothy Cloughesy (RES '91, FEL '92), director of the UCLA Neuro-Oncology Program; Dr. David Nathanson (PhD '11, FEL '13), assistant professor of molecular and medical pharmacology; and Dr. Robert Prins (FEL '02), associate professor in the UCLA Department of Neurosurgery.

UCLA's Joe Bruin mascot and the UCLA cheer squad helped motivate the crowd, while UCLA Basketball legend and former NBA player Tyus Edney rode on the main stage. The event also included a Health and Fitness Expo, with interactive booths, music and entertainment and samplings of healthy food and beverages.

 For more information, contact Liz Naito at: 310-206-6749

Bringing Awareness to Food Allergies



(From left) Food Allergy Salon attendees Dr. Rita Kachru, Mark Jaffe, Eric Reid, Debbie Adler, Dr. Callene Momtazee (RES '05, FEL '06), Dr. Manish Butte and Dr. Maria Garcia-Lloret (RES '00, FEL '98, '03).

Photo: Don Ponturo


The **UCLA Food Allergy Program**, which benefits both children and adults, took center stage on June 2, 2018, when the UCLA food allergy community came together for Food Allergy Family Day. Highlights of the event included patient stories, informational booths, crafts, therapy dogs, face painting, music and non-allergenic snacks.

The event served as an opportunity for the families of patients with food allergies to connect and learn and build visibility for the program, which advances research that leads to improved treatments. On June 5, 2018, the UCLA Food Allergy Program continued to spread awareness and celebrate its accomplishments at a Food Allergy Salon event, where supporters and advocates heard an update on advances made in food allergy research and treatment at UCLA over the past few years and the future goals of the program. Parents of children with food allergies were in attendance and shared stories about the life-changing resources provided by this program and the innovative research it undertakes.



The Reid family at the UCLA Food Allergy Family Day.

Photo: Molly Moursi

 For more information, contact Molly Moursi at: 310-267-1826

A Breath of Lung Health

“A Breath of Lung Health: Determining the Future of Advanced Lung Diseases” was held on June 11, 2018, at the Luxe Sunset Boulevard Hotel. The event was hosted by Dr. Eric Esrailian (FEL '06), The Lincy Foundation Chair in Clinical Gastroenterology and co-chief of the UCLA Vatche and Tamar Manoukian Division of Digestive Diseases; Linda and Michael Keston; William Pierpoint; and Robin and Jeffrey Raich. It celebrated the advances made in lung health research in the laboratory of Dr. John Belperio, Guitiara Pierpoint Endowed Chair in Interstitial Pulmonary Fibrosis, and highlighted the future goals of this pioneering work.

During the event, Dr. Esrailian announced a goal to raise an initial \$5 million for a lung health fund that will provide vital resources for innovation in lung health research. This funding will have the power to transform therapies for diseases such as idiopathic



(From left) Dr. Joseph P. Lynch III, Michael Keston, Dr. John Belperio, William Pierpoint, Drs. Eric Esrailian and Steven Dubinett, and Jeffrey Raich.

Photo: Reed Hutchinson

pulmonary fibrosis, sarcoidosis, chronic obstructive pulmonary disease, airway diseases and interstitial lung disease, as well as transplant rejection. Co-hosts Linda and Michael Keston, Robin and Jeffrey Raich and William Pierpoint are lead donors to the initiative, and more than \$3 million already has been committed, thanks to their pledges and fundraising efforts. Pierpoint also shared his personal story and why he supports this important work.

UCLA leadership attendees included Dr. John C. Mazziotta (RES '81, FEL '83), vice chancellor of UCLA Health Sciences and CEO of UCLA Health, and Dr. Kelsey C. Martin, dean of the David Geffen School of Medicine at UCLA and Gerald S. Levey, M.D., Endowed Chair.



For more information, contact Lauren Davis at: 310-267-1844

Altering the Course of Cardiovascular Research at UCLA



(From left) Dr. William Suh; Ruby Maillan, a TAVR recipient; and Dr. Yibin Wang.

Photo: William Short

On June 19, 2018, Dr. Yibin Wang, chair of the UCLA Cardiovascular Theme, welcomed guests to the “Healthy Vessels for Healthy Living” event, part of a quarterly series of community presentations highlighting the latest research in cardiovascular medicine. Dr. Kristina Bostrom (RES '95, FEL '98), Maud Cady Guthman Chair in Cardiology and chief of cardiology at the VA West Los Angeles Medical Center, opened the program with an overview of heart valve disease and discoveries made at UCLA that have altered the course of cardiovascular research.

One advance, presented by featured speaker Dr. William Suh (RES '05), director of the transradial catheterization and interventions program at UCLA, is minimally invasive transcatheter aortic valve replacement (TAVR) for patients who are at moderate or high surgical risk. The UCLA program has performed more than 500 valve replacement procedures, providing an alternative to open heart surgery for frail patients with aortic stenosis, the most common heart valve disease.

Dr. Deena Goldwater, who holds joint appointments in the UCLA Divisions of Cardiology and Geriatrics, spoke about her research on resilience and how it contributes to optimal quality of life in older adults with cardiovascular disease. Her focus is on interventions such as physical rehabilitation, stress management or medication administration to facilitate resilience and recovery. Dr. Tzung Hsiai (PhD '01), professor of medicine and bioengineering, spoke about regeneration as the next frontier in cardiovascular medicine. While the human heart is unable to regenerate new muscle when damaged, zebrafish can regenerate damaged cardiac muscle. His research explores these regenerative abilities and hopes it will yield clues for improving therapy after human heart attacks.



For more information, contact Michelle Jacobson at: 310-267-1213

Gifts

The **Beneventures Foundation, Inc.** has pledged \$300,000 over three years to support the Center for Community Health in the Jane and Terry Semel Institute for Neuroscience and Human Behavior at UCLA. This gift will fund education, training, research and cross-campus community engagement activities aimed at strengthening prevention of campus-based sexual violence and sexual assault.

Joan and Jerome Snyder, supporters of UCLA and the UCLA Stein Eye Institute for nearly 40 years, have made a \$1 million pledge to establish an endowed chair in vision science, which will provide funding for teaching and research activities of an esteemed scientist and vision-science faculty member in the Department of Ophthalmology. This is the Snyders' third endowed chair at Stein Eye. They established the Jerome and Joan Snyder Chair in Ophthalmology in 2008 and the Joan and Jerome Snyder Chair in Cornea Diseases in 2013. Through these gifts, the Snyders' commitment to UCLA supports three pillars of the mission of the David Geffen School of Medicine at UCLA: research, education and clinical care.

Diane and David Steffy have made a contribution to the Eli and Edythe Broad Center of Regenerative Medicine and Stem Cell Research at UCLA to establish the Stem Cell and Brain Aging Research Fund, under the joint direction of Drs. Owen Witte and S. Thomas Carmichael (FEL '01). This gift supports an interdisciplinary team of scientists and clinicians who are experts in the fields of neuropathology, neurology and stem cell, vascular and developmental biology. This collaboration has initiated unprecedented studies to explore how aging affects the billions of cells found in the human brain and aims to yield a deeper understanding of Alzheimer's disease progression. This innovative approach also could lead to the development of novel therapeutic strategies to prevent and combat degeneration.

UCLA Mattel Children's Hospital has received a \$100,000 grant from **The Music Man Foundation** to expand its music therapy program. The funds

will enable the creation of two new music therapy fellowship positions to help serve the needs of pediatric patients in the hospital, as well as support research on the clinical benefits of music therapy for premature infants in the neonatal intensive care unit. Music therapy has been shown to benefit patients in a number of ways, from promoting the relaxation response to aiding in cognitive development.

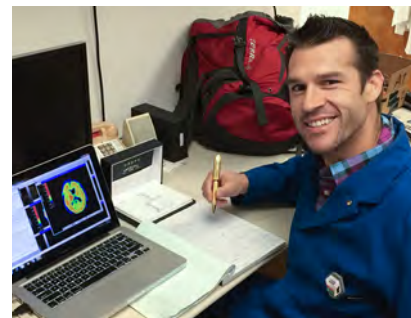


Dr. Joaquin Fuster.

Photo: Courtesy of Elisabeth Fuster.

Faculty Giving Back

Joaquin Fuster, MD, PhD, UCLA Distinguished Professor of Cognitive Neuroscience, pledged \$300,000 from the Fuster Family Trust to establish an endowed lectureship in the Jane and Terry Semel Institute for Neuroscience and Human Behavior at UCLA and the Department of Psychiatry and Biobehavioral Sciences in the David Geffen School of Medicine at UCLA. To be named the Fuster Endowed Lectureship on Cognitive Neuroscience, the endowment will be used to invite national and international scholars in cognitive neuroscience to lecture at UCLA in order to advance research and education in this field. This is the second legacy gift to the university from Dr. Fuster, who has served UCLA for more than 60 years, and his wife Elisabeth. In 2003, they endowed the Joaquin M. Fuster Chair in Cognitive Neuroscience, which currently is held by Dr. Susan Bookheimer.



Dr. Brendon Villegas during his PhD neuroscience studies at UCLA.

Photo: Courtesy of Dr. Brendon Villegas.

Dr. Brendon Villegas (PhD '17), a postdoctoral research scholar in the lab of Dr. Claudio Scafoglio at UCLA, has successfully participated in a number of reality shows, including *Big Brother*, where he met his wife Rachel. Dr. Villegas and his wife competed on *The Amazing Race* twice, placing third both times. The couple most recently competed on *Fear Factor* and were victorious once again. Dr. Villegas has donated the *Fear Factor* winnings of \$50,000 to support the important work in Dr. Scafoglio's lab, where Dr. Villegas helps to develop novel imaging agents for the early diagnosis and treatment of lung cancer. For Dr. Villegas, who lost a friend to lung cancer, the work is personal. The lab's research includes growing 3D lung tissue cultures outside of the body to characterize pre-malignancies and test treatments. This promising research has the potential to transform the way lung cancer is detected and treated and, ultimately, increase survival rates for this devastating disease.



For more information, contact
Health Sciences Development at:
310-206-6484

In Memoriam

Television producer and UCLA friend **Paul Junger Witt** died on April 27, 2018. He was 77 years old. His generosity to UCLA included gifts to the UCLA Jonsson Cancer Center Foundation, the UCLA Vatche and Tamar Manoukian Division of Digestive Diseases, the UCLA Institute of Urologic Oncology and the Emmett Institute on Climate Change and the Environment.

Witt was born in New York City and graduated from the University of Virginia. He joined forces

with producer Tony Thomas, son of the late Danny Thomas, to form Witt/Thomas Productions, producing such shows as *Blossom* and the original *Beauty and the Beast* series. In 1983, Witt married writer-producer Susan Harris, creator of NBC's *The Golden Girls*, and the company expanded as Witt/Thomas/Harris Productions, producing the popular sitcoms *Soap*, *Benson*, *The Golden Girls*, *Empty Nest* and many more. In addition to his TV work, Witt produced films, including *Dead Poet's Society*,

which earned Oscar nominations for best picture, best actor and best director, and won for best original screenplay.

As a dedicated environmentalist, Witt served as a member of the California State Park and Recreation Commission for 16 years. He is survived by his wife Susan Harris and five children

EPILOGUE

Dana Gilliam (right) received a life-saving kidney transplant from his son Brian (left). Together, they celebrated Dana's being honored as Laker for a Day in February 2018.

Photos: Courtesy of the Los Angeles Lakers



A Blessed Man

By Dana Gilliam

ON AUGUST 9, 2017, AT 70 YEARS OF AGE, I RECEIVED A SECOND CHANCE AT LIFE. THAT IS WHEN I UNDERWENT A KIDNEY TRANSPLANT AT UCLA. MY SON BRIAN WAS THE DONOR.

Whether or not to allow him to donate was a difficult choice for our family to have to make. I learned nearly 25 years ago that I had just one functioning kidney, but it worked well enough until it began to slow down about five years ago. Now it was failing. Our other son Wade had had a benign tumor removed from one of his kidneys in 2015. My father had kidney cancer when he was in his 40s; he died at age 67, after surviving on hemodialysis for the last 3-1/2 years of his life. Brian wanted to donate, but my wife and I worried that with our family's history of kidney disease, he might need both of his organs.

More than two years had passed since I'd begun dialysis — reluctantly, but I was in pretty bad shape so had little choice — and I wasn't improving. It didn't look like I had a lot of time left. I was put on the transplant list and began the process at UCLA. At my first meeting, I learned that there is a 10-year waiting list for a donor kidney from a cadaver. For someone my age, it seemed I would need to have my own living donor if I hoped to survive. Over the next 18 months, I found one person who was willing to donate a kidney. He had filled out all the paperwork, but then he died unexpectedly. I found that my brother-in-law was a match, but his doctor told him that he was too old to be a donor. I figured that there was no hope and that I would just continue on dialysis until the end. And I was starting to deteriorate. I was undergoing more than 11 hours of peritoneal dialysis every night, and it still wasn't doing the job. My doctors added an additional manual session during the day. At this point, I was hooked up to a dialysis machine for more than half of every single day of my life.

Brian and his wife Roxanne called one evening and told me that he wanted to donate one of his kidneys. I really didn't know what to say. Was it okay with Roxanne? How did his two boys, Jacob and Sean, feel about it? What if he needed it himself? Brian said it was fine with his family, and he reassured me that before he would be allowed to donate an organ he would be thoroughly checked out from top to bottom. How could I say no? Yes! I wanted to live!

We started the process right away at UCLA. Brian and I went through many, many tests before UCLA gave us the OK to proceed with the transplant. We met with our surgeons; Brian's was Dr. Albin Gritsch (RES '91) and mine was Dr. Jeffrey Veale (FEL '06). We also met with Dr. Gabriel Danovitch, the medical director of the transplant team, before and after the surgery.

Brian is such an honorable man, and not once did he waver in his commitment. On August 9, 2017, I received his kidney. Brian recovered well and was able to return to work in just a few weeks. I am still recovering, but I feel well. My new kidney is working great! My son and I have both been so blessed by this experience. My blessing is quite obvious — I am alive and regaining my strength and health. Brian's blessing is an internal one, but he wants to share it with the world. What better blessing can a person receive than to save another's life! He has now become part of an organ donation program through UCLA. We both want to keep the blessings coming. We want the world to know not to be afraid to donate an organ. The outcome far outweighs the fear.

I am grateful to so many people. Everyone at UCLA who was involved in our care — before, during and after the surgery. I am also grateful for the Lord's blessing throughout this whole experience. Most of all, I believe I would not be alive today if it were not for Brian and his unselfish love for his Dad. To paraphrase a scripture: No greater love could Brian have than to give of his kidney for me. Thank you from a deeply grateful man.



To watch a video about Dana Gilliam as Laker for a Day, click on the link to this article at: uclahealth.org/u-magazine



Dana Gilliam (at home with his grandson Jacob, top) is retired after working in the food-service industry for more than 30 years. He and his wife Tanya live in Los Alamitos, California, where he enjoys cooking and tinkering in his garage.

Photos: Courtesy of Brian Gilliam



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U.S. News & World Report's
Best Hospital Survey ranks
UCLA No. 1 in Los Angeles
and No. 7 in the nation.



Photo: Ellen Jaffe/Albert and Mary Lasker Foundation

Dr. Michael Grunstein, distinguished professor of biological chemistry in the David Geffen School of Medicine at UCLA (left), and Dr. David Allis, of Rockefeller University (right), shared the 2018 Albert Lasker Basic Medical Research Award for their discoveries illuminating how gene expression is influenced by chemical modifications of histones — the proteins that package DNA within chromosomes. They are pictured with Dr. Claire Pomeroy, president of the Albert and Mary Lasker Foundation.