

TRANS PLAN TATION'S HOLY GRAIL

UCLA is pushing the boundaries of science to unburden organ recipients from lifelong dependence on immunosuppression.



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PHOTO: MARK SENNET

BREAKTHROUGHS AND NEWS FROM UCLA HEALTH.

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Patients, or the families of patients, quoted and/or photographed or pictured in this publication have given their consent to have their names and/or images used and their stories told.

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"I have the joy of seeing children who were very sick now grow up to have children of their own, free of the infection. It is wonderful to have lived long enough to maybe someday see myself become redundant."

— Dr. Yvonne J. Bryson, "No' Is Never Good Enough," p. 52

Telehealth Is Here to Stay

Delivering virtual care bridged the physical divide and expanded access during COVID-19, but it also shed light on health care disparities and the importance of improving access to online health tools for all populations.



PHOTO: JESSICA PONS

UCLA HEALTH HAS LONG BEEN A leader in innovative health care delivery. One of the greatest advances we've seen during the global pandemic is the rapid adoption of telehealth. As the pandemic forced us to physically distance and isolate at home, UCLA Health, like other hospital systems across the country, was able to pivot from in-person visits and consultations to provide virtual health care services.

These live-video telehealth visits became a critical component of the COVID-19 response. The use of digital technology gives our patients access to quality health care services and the ability to manage health care offered by UCLA Health physicians and other clinicians from the comfort of their own homes. In the past year, telehealth paved the way for our physicians and nurses to provide care for more than a half-million patients.

Prior to the pandemic, fewer than 1% of medical appointments at UCLA Health were virtual. But the practice took off in March 2020 after the Centers for Medicare and Medicaid Services expanded coverage for telehealth. By April 2020, as patients increasingly canceled in-person appointments, virtual visits surged to 55%. Now, that number is about 25%.

Using telehealth as a mode of care delivery bridged the physical divide and expanded access to care during COVID-19. It served our patients in all areas with the ability to talk to health care providers live, send and receive messages, provide remote patient health monitoring and increase ease of access to health care services. These virtual health care tools also shortened wait times to see providers and expanded the range of access to specialists who were located farther away.

While telehealth brought convenience during the pandemic, it also shed light on health care disparities and the importance of improved access to digital health tools for all populations. A quality virtual visit requires robust technology for effective communication between the patient and provider. Social determinants may hinder patients from accessing telehealth as they may not have the resources to afford technology or the tech savvy to use digital platforms. We recognize that there is more work to be done to address these challenges for our patients.

UCLA Health is committed to providing access to care for patients who need our services. Among the first health systems in the country to advance health equity in all patient populations, we are committed to being an equitable provider of comprehensive care. Through our community outreach efforts, we partner with

community organizations to bring health services to the doorsteps of those in need. These programs include our UCLA Mobile Eye Clinic, Student-Run Homeless Clinic and community giveaway events for school and wellness resources in partnership with the Los Angeles Lakers and Los Angeles Dodgers, among many other efforts. We also continue to expand our footprint, with four hospitals in Los Angeles and 250 community clinics in Southern California. We will continue to identify areas of need in our community and deepen our institutional commitment to advance inclusive excellence, equity and justice.

As we look ahead, the clinical and research strengths of UCLA Health and the David Geffen School of Medicine at UCLA position us to make a transformative impact on patient care. We actively participate in research and clinical trials to advance health care delivery, continually adjusting our processes and care-delivery pathways to ensure state-of-the-art care. We also partner with leading developers to create and integrate new products that can help our patients better manage health care needs.

I am hopeful about the future of health care delivery and remain inspired by the innovation, dedication and teamwork of the amazing physicians, nurses, support staff, students and volunteers at UCLA Health.

Johnese Spisso, MPA

President, UCLA Health
CEO, UCLA Hospital System
Associate Vice Chancellor, UCLA Health Sciences

DR. GERALD S. LEVEY 1937-2021

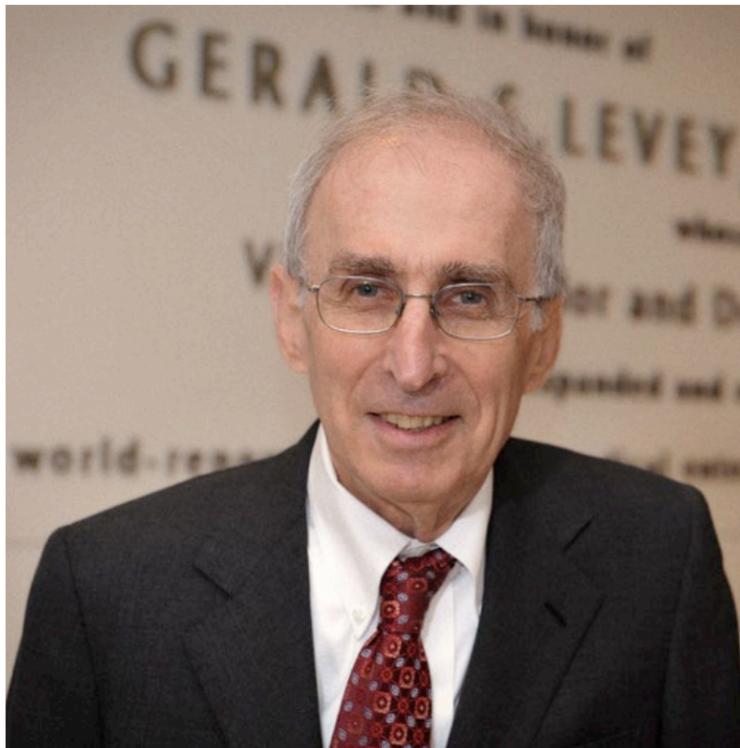


PHOTO: TODD CHENEY/UCLA PHOTOGRAPHY

Never Afraid to Do the Right Thing

By Elaine Schmidt and David Greenwald

“I’ve learned that people will forget what you said, people will forget what you did, but people will never forget how you made them feel.”

— Maya Angelou

THERE IS A PHOTOGRAPH of Gerald S. Levey, MD, that opens a window to the heart of the leader who took charge of UCLA’s medical enterprise eight months after the devastating Northridge earthquake and launched what then was the single largest building project ever undertaken by the University of California — construction of an entirely new and thoroughly modern hospital. In the picture, Dr. Levey, who died June 25, 2021, at the age of 84, is at a grill flipping

burgers during an annual barbecue for incoming medical students, a white cowboy hat on his head and an apron around his waist. He is looking directly into the camera, a playful smile tugging at the corners of his mouth.

That cowboy hat and quiet smile tell it all. Dr. Levey was a man of abundant humor, a raconteur prone to telling long-winded stories that often left him wheezing with laughter before he reached the punchline. He enjoyed

telling jokes so much that, while in college, he considered becoming a stand-up comic rather than a doctor.

This is how colleagues who worked with him during the 15-plus years of his deanship have described him: warm, fiercely intelligent, kind, decisive and eager for action, a leader who cared deeply for his colleagues, hospital staff and medical students, always making them feel they were a part of something larger than themselves. He loved to hear other people’s stories, so it’s not surprising that his two favorite musical genres were opera and country; in both cases, the songs tell tales.

Alan G. Robinson, MD, a now-retired senior administrator who worked with Dr. Levey at both the University of Pittsburgh, where Dr. Levey had been chair of medicine, and UCLA, remembers walking into Dr. Levey’s office one day to talk about a potentially contentious issue with one of the laboratories. Dr. Levey looked up from his computer, Dr. Robinson recalls, and “I described the issue and explained the corrective action that I tried to take. He listened to the story, and when I finished, he paused a moment and said, ‘Alan, never be afraid to do the right thing.’ That was the way Jerry lived his life: If his decisions always were to ‘do the right thing,’ then he wasn’t afraid of the consequences.”

Doing the right thing positioned Dr. Levey’s tenure to be one of remarkable achievement. It is a span of years that was crowned by the construction and opening of Ronald Reagan UCLA Medical Center to replace the 1950s-era UCLA Medical Center hospital, which was badly damaged in the Northridge quake; securing of a \$200 million endowment to the medical school from entertainment executive David Geffen, a gift that Dr. Levey said “absolutely changed the history of the medical school”; and the catapulting of the hospital and medical school into the top echelon of *U.S. News & World Report*’s annual rankings.

UCLA Chancellor Gene D. Block recalls his fondest memory of Dr. Levey. It was during their first one-on-one meeting after he became chancellor, in 2007, already 13 years into Dr. Levey’s tenure. “Before we talked all things UCLA, he carefully removed from his wallet pictures of his grandchildren,” Chancellor Block says. “That is where we started our relationship — Jerry chatting proudly about his grandchildren.”

There was, of course, much more to Dr. Levey than just the proud parent, grandfather and devoted husband who nurtured an enduring 58-year marriage to his wife, Barbara. “It is impossible to say in a short time what Jerry Levey means to UCLA,” Chancellor Block says. “He left us with a state-of-the-art hospital, an endowed medical school, five new research buildings and 100 endowed chairs. Many generations will reap the benefit of his vision, leadership and dedication.”

But buildings were only part of the picture. “Jerry didn’t focus exclusively on buildings; he knew that a successful enterprise is built on talented, dedicated people,” says John C. Mazziotta, MD (RES ’81, FEL ’83), PhD, vice chancellor of health sciences and CEO of UCLA Health. “He invested in recruiting and mentoring excellent people. Everyone at UCLA benefitted from his vision and ability to lead.”

Having a clear vision was at the core of Dr. Levey’s approach to leadership. Leonard Rome, PhD, was vice chair of the Department of Biological Chemistry and a member of the search committee for the new dean of the medical school. “We asked Dr. Sherman Mellinkoff, who had served for 24 years as the second dean of the school of medicine, what was the main job of a dean,” Dr. Rome recalls. “Sherm said it was ‘to make the dreams of the medical school faculty come true.’ That guidance perfectly fit Dr. Levey’s vision of leadership and led us to recommend him for the position.”

Dr. Levey had long desired to lead a major academic medical center. He arrived at UCLA in September 1994 from Merck & Co., where he had been senior vice president for medical and scientific affairs, with the sense that this was “a dream come true and the opportunity of a lifetime.”

“I soon came to realize, however, that the job I accepted would not be exactly the job I had expected,” he recalled in a Leadership letter published in this magazine in 2009, before his retirement the next year. “The job description and discussions leading up to taking the position hadn’t really contemplated the extent of the damage that was inflicted by the Northridge earthquake.” In addition, California in 1994 was in the midst of a recession, and managed care and dwindling government support were straining the hospital budget. “Put those factors together, and the challenges that lay ahead from

the moment Barbara and I set foot in L.A. became evident,” Dr. Levey recalled.

There was no choice but “to hit the ground running. And I did.”

To secure the funds necessary to build a new state-of-the-art hospital, as well as to advance new research facilities and to rejuvenate older ones, Dr. Levey became a fund-raising juggernaut. He cultivated personal relationships with Los Angeles’ business and philanthropy titans to raise more than \$2.5 billion — \$300 million of which was earmarked for the new hospital. It took 14 challenging years to get the hospital built.

“He was a great fundraiser,” says S. Andrew Schwartz, MD, a UCLA orthopaedic surgeon whose friendship with Dr. Levey began when they were neighbors and poker buddies. “He once told me, ‘Never ask for the money. Be patient; it will come.’”

Dr. Levey’s determined fundraising was evident from the moment he began his new position at UCLA. Dr. Mazziotta recalls his first meeting with the new dean, less than a week after he arrived in Los Angeles, to seek funds to complete construction of the UCLA Brain Mapping Center. “Keep in mind that, at the time, I was a mid-level neurology professor and nowhere on his radar,” Dr. Mazziotta says. “We shook hands, sat down and he asked me what was so urgent? I told him I needed to borrow \$1 million. There was a pause. He asked me how long it would be before the medical school was paid back. I said one year if there was no interest. Another pause. He asked where would I possibly find the million dollars? I said from donors. Pause. He asked why did I believe that was possible? I said, ‘Well, I’ve raised \$25 million already for the building, its equipment and faculty.’ Long pause. He said, ‘I think we’re going to get along just fine.’” Exactly 365 days later Dr. Mazziotta handed Dr. Levey a check for \$1 million. Dr. Levey thanked him, and then told Dr. Mazziotta: “Get back out there and raise more money.”

About 18 months before Ronald Reagan UCLA Medical Center was finished, Dr. Levey took a walk through the halls. “Despite the clutter of construction, it started to look like a hospital to me,

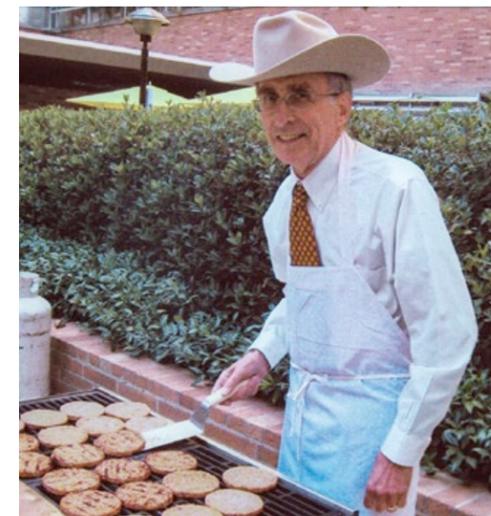


PHOTO: COURTESY OF UCLA HEALTH

and I knew it was going to really happen,” he recalled. “My eyes started welling up with tears. The project had been so hard, with such obstacles, and more than once I was deeply concerned that we might not complete [it]. But my consistent mantra was we must not and cannot fail, and our team did not.” On June 29, 2008, as Dr. Levey — dressed in a grey suit, white sneakers and blue Bruin cap — oversaw the massive undertaking, Ronald Reagan UCLA Medical Center opened.

“Moving into a new hospital is like orchestrating a symphony,” says Richard Azar, then director of transition planning for the new hospital and now chief operating officer for UCLA Health. “It is crucial that everything be perfectly coordinated.” When Dr. Levey arrived before dawn to rally the troops, “He told us, ‘This is it! This is our new house of healing. This is our new home. Cherish it. Love it.’”

At the conclusion of his valedictory letter, Dr. Levey summed up his career at UCLA with this assessment: “Did I accomplish everything I wanted to do? Most, but not all,” he wrote. “Have we left things in a better place than when we arrived? I will leave that for others to judge. What I do know is that I am thankful every day for the blessing of being able to do what I have done.” ●

Elaine Schmidt is a senior media relations officer in UCLA Health. David Greenwald is editor of U Magazine.

WHAT'S IN THAT COVID-19 VACCINE?

In all three versions available in the U.S., the ingredient list is more familiar — and simpler — than many people might expect.

Infographic by Stuart Briers
Reported by Kenneth Miller

AMONG FOLKS HESITANT TO GET A COVID-19 VACCINE, a common source of worry is what's in the shot. They may not believe claims that the jabs contain aborted fetal tissue or mind-controlling microchips, yet for anyone without a pharmacology degree, the actual ingredient lists — full of jawbreakingly polysyllabic substances — can be more intimidating than reassuring.

In reality, however, the three COVID vaccines available in the United States are full of surprisingly familiar stuff. For perspective, we spoke with Matthew Davis, PharmD, the antimicrobial stewardship/infectious diseases pharmacy lead for Ronald Reagan UCLA Medical Center and the Stewart and Lynda Resnick Neuropsychiatric Hospital.

"Each of these vaccines — the Pfizer-BioNTech, the Moderna and the Johnson & Johnson — contains a single active ingredient, along with a handful of other chemicals that play supporting roles," Davis explains. "The active ingredients are based on models that have been in development for many years. And the inactive ingredients are widely used in other medications, or as ingredients in food."

To understand the functions of those ingredients, it helps to know how the COVID-19 vaccines work. All three train the immune system to recognize and attack the SARS-CoV-2 virus, which causes COVID. They do this by targeting the virus's spike protein, which enables it to enter a cell. But they take different approaches.

The Pfizer and Moderna vaccines use custom-designed messenger RNA (mRNA) — a snippet of genetic code that instructs cells to temporarily manufacture SARS-CoV-2 spike protein. The

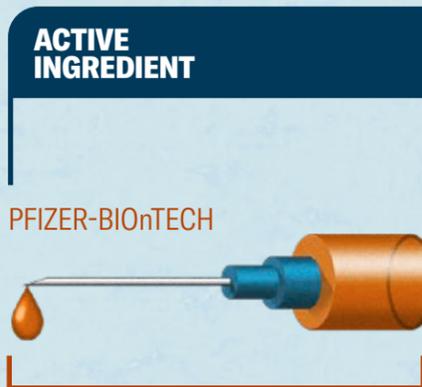
patient's immune system responds to this foreign protein by producing antibodies and other weapons that can destroy the virus itself in any future encounter. The mRNA breaks down and is eliminated from the body within a few days.

The Johnson & Johnson vaccine uses a modified and harmless version of a common cold virus (Adenovirus 26) as a vector, or vehicle, to deliver a bit of genetic code to a patient's cells. The virus can't replicate or cause illness; it disintegrates soon after entering the body. First, though, DNA triggers cells to produce the spike protein, which primes the immune system against SARS-CoV-2.

Contrary to some assertions, neither mRNA nor viral-vector vaccines change the body's own DNA; it's biologically impossible, as countless lab and clinical trials have shown.

"Both of these platforms are innovative, but they're not entirely new," Davis says. "Before they were authorized for COVID, mRNA vaccines were used experimentally for flu, Zika virus, rabies, and cytomegalovirus, with promising results. Viral-vector vaccines have been studied since the 1970s, and two have been approved [by U.S. and/or European authorities] for Ebola virus over the past decade."

The inactive ingredients in COVID-19 vaccines, he adds, have been in use for even longer. "You'll find them in products ranging from IV fluid to headache pills to soft drinks. In fact, there are more hard-to-pronounce chemicals in some snack cakes than there are in these shots." ●



PFIZER-BIOntECH

MESSENGER RIBONUCLEIC ACID (mRNA)

A snippet of mRNA delivers instructions for cells to make the spike protein found in SARS-CoV-2, the virus that causes COVID-19. The immune response to this protein teaches the body to attack the actual virus in case of exposure.

MODERNA



MESSENGER RIBONUCLEIC ACID (mRNA)

The Moderna vaccine, like Pfizer-BioNTech's, uses custom-designed mRNA to prime the immune system against COVID-19.

JOHNSON & JOHNSON



RECOMBINANT, REPLICATION-INCOMPETENT ADENOVIRUS TYPE 26 EXPRESSING THE SARS-COV-2 SPIKE PROTEIN

A disabled version of a common cold virus is used as a vector, or vehicle, for a piece of genetic code. This fragment of DNA triggers cells to temporarily produce coronavirus spike protein, which trains the immune system to recognize and attack SARS-CoV-2.



INACTIVE INGREDIENTS



SALTS

These chemicals help balance the acidity and alkalinity in the vaccine, preventing it from irritating the body's tissues.

- Potassium chloride: Used in medications to treat low potassium levels.
- Monobasic potassium phosphate: A common food additive and buffering agent.

— Sodium chloride: Ordinary table salt.

— Dibasic sodium phosphate dihydrate: Often used in packaged foods such as condensed milk and pudding.

SUGAR

Helps the other molecules maintain their shape during freezing.

- Sucrose: Also known as table sugar.



STABILIZERS

These ingredients work together to maintain the quality of the vaccine, and to prevent it from causing irritation.

- Acetic acid: The same chemical that gives vinegar its tang.
- Acid stabilizers: Used to control acidity in many common drugs.

- Tromethamine
- Tromethamine hydrochloride
- Sodium acetate: A salt used in IV fluid—and as a flavoring in salt-and-vinegar potato chips.
- Sucrose: Also known as table sugar.



STABILIZERS

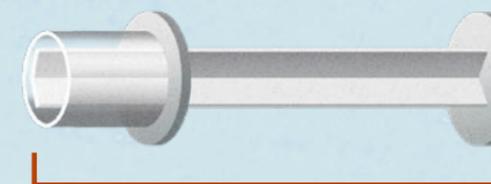
Prevent the vaccine's ingredients from separating in the vial.

- Ethanol: The same kind of alcohol found in wine, beer and distilled liquor.
- Polysorbate 80: An emulsifier used in many processed foods and cosmetics.
- 2-hydroxypropyl-β-cyclodextrin (HBCD): A sugar commonly used in pharmaceuticals.

SALTS

Help stabilize the ingredients and maintain pH balance.

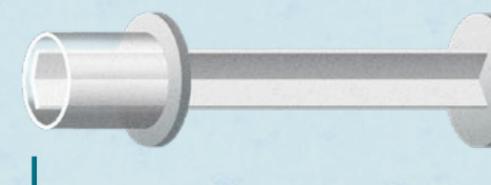
- Trisodium citrate dihydrate: A salt derived from citric acid.
- Sodium chloride: Table salt.



LIPIDS

These oily organic compounds are insoluble in water. They protect the structure of the mRNA and help it slip inside the patient's cells.

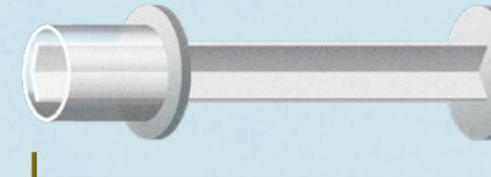
- ((4-hydroxybutyl)azanediyl)bis(hexane-6,1-diyl)bis
- 1,2-Distearoyl-sn-glycero-3-phosphocholine
- cholesterol



LIPIDS

Protect the structure of the mRNA and help it slip inside the body's cells.

- SM-102
- 1,2-dimyristoyl-rac-glycero-3-methoxypolyethylene glycol-2000 [PEG2000-DMG]
- cholesterol
- 1,2-distearoyl-sn-glycero-3-phosphocholine [DSPC]



pH BALANCERS

Prevent excessive acidity or alkalinity.

- Citric acid monohydrate: The organic acid that makes lemons taste tart.
- Trisodium citrate dihydrate: Also known as sodium citrate, this mildly alkaline chemical is often used as a flavoring in foods like Jell-O or lemonade mix.

WHAT THEY DON'T CONTAIN

Contrary to widespread rumors, none of these ingredients appear in any COVID-19 vaccines available in the U.S.

- Human tissues, including fetal cells
- SARS-CoV-2 (the virus that causes COVID-19)
- Preservatives
- Eggs
- Thimerosal, mercury or aluminum
- Microchips

G A M E O F C L O N E S

By Peter Katona, MD, Seth Freeman and John Speraw



AS ANYONE WHO FOLLOWS SPORTS KNOWS, a good coach constantly watches what the other team is doing and makes adjustments. The other team, if well coached, also will adjust accordingly. Blindly following a failed strategy doesn't win games.

Baseball players don't complain, "Hey, you collapsed the outfield and now you're sending them deep — which is it?" Basketball players don't whine, "You told us to crowd the basket; now you're telling us to shoot from outside — this is confusing." In volleyball, players don't grumble, "For the first set we ran the middle of the court and now you want us to set outside — do you even know what you are doing?"

So why are we carping about our public health leaders, especially the Centers for Disease Control and Prevention (CDC) and

its director, Dr. Rochelle Walensky, when they are trying to make real-time adjustments, often with incomplete data, to counter the relentlessly changing tactics of an ever-evolving deadly disease?

The CDC undoubtedly made some messaging and decision mistakes — most notably, ending mask requirements too soon — which didn't help. The agency is also still recovering from the severe loss of credibility it suffered in the last administration. But maybe a deeper problem is that we haven't really understood the game we are playing or the opponent we face.

A virus doesn't think up new ways of attacking humans. It doesn't have a brain. Some doubt that it is even a living thing. It's an opportunistic collection of parasitic protein molecules and genetic material that invades the cells of living organisms and

co-opts that host's genetic material to replicate. Inside a person, a virus can generate billions of new copies of itself, exact clones and close matches of the original. With so many replications, mutation inevitably occurs, creating new modified versions of the virus. Many of these variants will not be effective at infecting new hosts; they are biochemical screw-ups and will simply die out.

Except, every once in a while a new strain improves, in virus terms, its survivability. The Delta variant of Sars-CoV-2 is such a strain. It has learned to adapt to fluctuations in temperature, humidity and other environmental insults, not unlike a skilled sports team fine-tuning its offense and defense. It is more easily transmitted — scientist believe it is 50% more contagious than the UK strain of COVID that was infecting people in the winter of 2020 — and it now accounts for almost all new cases in the U.S. And it can be more lethal.

Some of these characteristics were already known from laboratory studies and clinical reporting when the CDC loosened its guidelines on mask-wearing. This move occurred last spring, a few months after the roll-out of mass inoculation in the U.S. — when Israel, then Germany and Spain, had just strengthened their mask requirements in the face of Delta.

It was frequently said at the time that the CDC and the administration had to give people something in return for getting vaccinated. If they are still going to have to wear a mask indoors with friends or in the grocery store, many argued, what is their motivation to get vaccinated? Evidently, radically lowering a person's risk of serious, painful infection or death was not sufficient incentive. Since, at the end of the day, what is going to get us out of the pandemic is widespread (probably over 80%) global vaccination, the CDC may have felt that enticing people to get vaccinated by reducing the mask requirements was worth the risk of more people going around mask-free.

But the problem now is that having loosened mask requirements, it becomes psychologically more difficult for people to re-adopt them, especially while keeping businesses open. Also, specifically absolving the vaccinated of the need to wear masks left many of the unvaccinated feeling a sense of shame when masked in public, if they were even honorable enough to follow the guidelines. From the beginning, some people bristled at the eminently sensible practice of wearing an appropriate mask during a respiratory disease epidemic — and wearing that mask properly, with a good fit covering both nose and mouth. And it has been cynically politicized by those who see an advantage in claiming that wearing masks is somehow launching us on a slippery slope toward the extinction of our basic freedoms.

So, do we need mask mandates for the unvaccinated in most circumstances and for the vaccinated in some? Of course. Mandates are the fairest way to protect everybody, most importantly children under 12 years of age and others who simply

cannot currently get vaccinated. When a 4-year-old girl died of COVID-19 this August in a Los Angeles emergency room, it was not her fault. It was a massive failure of those around her, particularly the larger non-compliant society in which, all too briefly, she lived.

During the current college football season, fans crowd stadiums to cheer the skilled competitors and the brilliant moves and countermoves of dueling coaches. Sadly, many of these same fans ignore the carefully considered moves and countermoves recommended by their public health coaches, sabotaging our team's best chances for success against the virus.

Like a volleyball match, competing against America's COVID-19 pandemic is a five-set game, and we are still in the third set. In the first sets, we did some things well and some things poorly,

“Like a volleyball match, competing against America's COVID-19 pandemic is a five-set game, and we are still in the third set.”

but in its most recent move, our opponent changed strategies, with devastating effect, gaining a powerful advantage against us. We need to adjust now, as we will again in the future, as we continue to successfully compete against newly emerging COVID clones. Ultimately, our path out of the pandemic is to get many, many millions more Americans vaccinated. Until then, masks are a critical tool.

Let's understand the opponent we are facing and the game we are playing and recognize that there are different strategies to achieve victory. If Americans get vaccinated and mask up, we may not win on the field, but we will win the competition against an opportunistic and dangerous disease opponent. ●

Dr. Peter Katona is clinical professor of medicine in the David Geffen School of Medicine at UCLA and adjunct professor of public health in the UCLA Fielding School of Public Health, and he chairs the UCLA COVID-19 Infection Control Working Group. Seth Freeman is an Emmy-winning television writer/producer, a playwright and a journalist who writes about technology, policy and public health. John Speraw is head coach for UCLA men's volleyball and Team USA's national men's volleyball team, and he was head coach for the 2021 U.S. Olympic volleyball team in Tokyo, Japan.

OPERA GIVES VOICE — AND BREATH — TO PATIENTS RECOVERING FROM COVID



"It's very interesting that we breathe every day, but we don't have any idea what we're doing," says Marcelo Olavarria, a patient in the opera-therapy program.

PHOTO: JOSHUA SUDOCK

WHEN HE WAS A PATIENT SEVEN MONTHS INTO HIS RECOVERY FROM COVID-19, Marcelo Olavarria particularly looked forward to Fridays. Other days of the week, he'd walk on an inclined treadmill to increase his lung function. But on Fridays, he could stay home and continue his therapy from the comfort of his easy chair — often with his eyes closed and a blissful smile on his face.

During those 30-minute home sessions, Olavarria, 78, learned breathing and relaxation techniques via Zoom from professional singers participating in a program offered by UCLA Health in partnership with LA Opera to help coronavirus patients recover their lung function.

"It's very interesting that we breathe every day, but we don't have any idea what we're doing," Olavarria said during his first session in May. "This brings so much

2021, was created after jazz vocalist Rondi Charleston learned of a breathing/singing course developed by the English National Opera to help COVID-19 patients deal with the anxiety of breathlessness. She teamed with two teaching artists from LA Opera Connects, which oversees community engagement and education for LA Opera, to teach the sessions. In addition to providing medical oversight for patients in the program, UCLA Health also is engaged in research to assess the program's effectiveness.

"It's a program that we hope people will adopt all over the country," Charleston says. "It's been such a joy to watch these long-haul patients taking their first deep breaths, some for the first time in a year, and to witness them grow their lung capacity and get so much joy out of singing and making music together."

"It's been such a joy to watch these long-haul patients taking their first deep breaths, some for the first time in a year, and to witness them grow their lung capacity and get so much joy out of singing and making music together."

attention to the physical elements of it, especially if you've been sick. I'm still on oxygen, but it's so wonderful to know what we have to do in order to get back to normal."

The program, which began as a six-week pilot but has been extended at least through the end of

The program is a well-tailored complement to the therapy that patients with respiratory problems already receive, says Ellen Wilson, executive director of therapy services for UCLA Health. "The whole idea is that singers do a lot of the same breath exercises that we do in



IMAGE: INSIDE EDITION, WITH PERMISSION

pulmonary rehab, and then some," she says. "It's really meant to be an adjunct to whatever formal treatment they're getting, and a fun way to work on lung capacity without it being so clinical."

Each class begins with warm-up and mindfulness techniques, followed by breathing exercises with visualization. "Imagine a technique where we're saying, 'Close your eyes, relax your shoulders down, lean in slightly and breathe in that rose,'" says Stacy Brightman, vice president of LA Opera Connects. "It's visualization that will help you achieve exactly what your therapist wants you to — a long, deep, calm breath."

The exercises help not only the lungs of patients recovering from coronavirus, but also "the mind and brain with the power of music and song," says Kristin Schwab, MD (RES '16, FEL '20), PhD '17, codirector of UCLA's Post-ICU Recovering Clinic and medical director of pulmonary rehabilitation. "My patients have absolutely loved it."

At the end of the session, participants are invited to sing — although singing experience, or even the ability to carry a tune — is not required.

COVID-19 survivor Jeff Sweat (right) works with LA Opera singer Nani Sinha to recover his lung function.

"We're making it very, very accessible," Charleston says. "The actual act of singing and making sound is a very basic function. This is not about making beautiful sounds. This is just about connecting to your breath and your body, and whatever sound comes out of you is wonderful."

For his part, Olavarria says the classes have helped him feel stronger and allowed him to express himself through music. "I'm extremely happy that UCLA Health has taken the time to offer this," he says. "It's very encouraging for those that are suffering from this condition."

—Courtney Perkes

For information about UCLA Health's cardiopulmonary rehabilitation program, go to: uclahealth.org/rehab/cardiopulmonary-rehab

To watch a CBS *Inside Edition* segment about UCLA Health's opera-therapy program, go to: tinyurl.com/Inside-Edition-Opera-Therapy

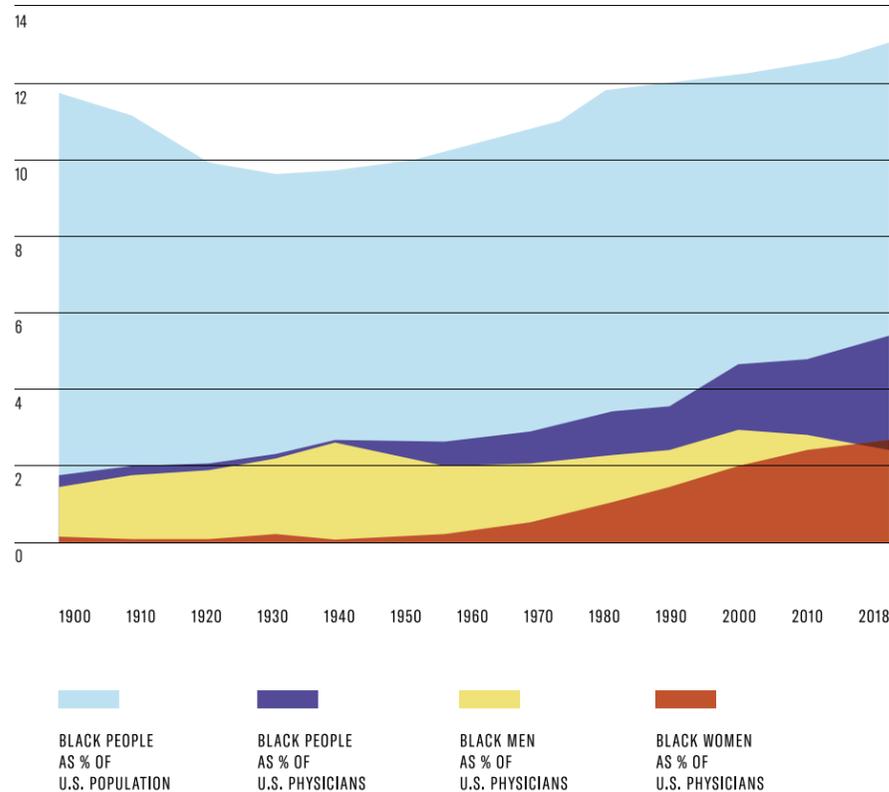
Proportion of Black Physicians in U.S. Increased Minimally in 120 Years

“These findings demonstrate how slow progress has been, and how far and fast we have to go.”

A UCLA STUDY FINDS that the proportion of Black physicians in the U.S. has increased by only 4 percentage points over the past 120 years, and that the share of doctors who are Black men remains unchanged since 1940. The research also spotlights a significant income gap between white and Black male physicians — a disparity that could reflect a combination of pay discrimination and unequal access for physicians to pursue careers in more lucrative specialties, writes Dan Ly, MD, PhD, assistant professor of medicine.

“These findings demonstrate how slow progress has been, and how far and fast we have to go if we care about the diversity of the physician

BELOW: Graph illustrating the proportion of Black people in the U.S. population overall and the percentage of physicians who are Black, 1900 through 2018.



workforce and the health benefits such diversity brings to patients, particularly minority patients,” he says.

Dr. Ly analyzed data from surveys administered by the U.S. Census Bureau from 1900 to 2018. The sample included about 150,000 physicians, including about 3,300 Black male physicians and 1,600 Black female physicians. He found that in 1900, when 11.6% of the nation’s population was Black, 1.3% of physicians were Black. In 1940, when 9.7% of the total population was Black, 2.8% of physicians were Black — 2.7% of whom were Black men and 0.1% of whom were Black women. By 2018, when 12.8% of the total population was Black, 5.4% of U.S. physicians were Black — 2.6% Black men and 2.8% Black women.

Although the percentage of Black women physicians increased 2.7 percentage points between 1940 and 2018, the proportion of physicians who are Black men during the same period has remained essentially unchanged, the study found.

“If medical leadership is serious about making the physician workforce more representative of the general population, much more effective policies need to be conceptualized and implemented,” Dr. Ly says.

Dr. Ly also found that, adjusted for inflation, the difference in median income between Black and white male physicians was about \$68,000 in 1960. Although that gap narrowed a bit by 2018, to \$50,000, the discrepancy was still troublingly wide, he says. “If this represents unequal access to specialties, sustained efforts need to be made in order to diversify specialties in medicine,” Dr. Ly says.

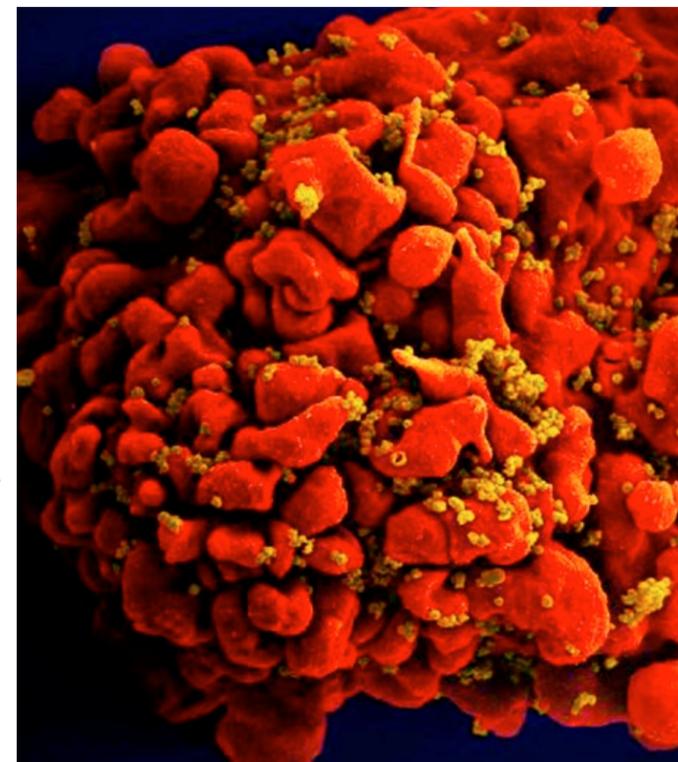
—Enrique Rivero

“Historical Trends in the Representativeness and Incomes of Black Physicians, 1900–2018,” Journal of General Internal Medicine, April 19, 2021

A NEW APPROACH PIONEERED AT UCLA TO TREAT HIV WITH chimeric antigen receptor (CAR) T gene therapy has yielded superior and longer-lasting results in mouse models than previous similar therapies, showing potential to not only destroy HIV-infected cells but also to create “memory cells” that could provide lifelong protection from infection with the virus that causes AIDS.

CAR T gene therapy is a type of immunotherapy that involves genetically engineering the body’s own blood-forming stem cells to create HIV-fighting T cells. CAR therapies have emerged as a powerful immunotherapy for various forms of cancer and show promise for treating HIV-1, the more prevalent of the two main forms of the virus. However, current applications of these therapies may not impart long-lasting immunity. Researchers have been seeking a T-cell-based therapy that can respond to malignant or infected cells that may reappear months or years after treatment.

Once genetically engineered stem cells that carry genes for CARs are transplanted into the body, they form specialized infection-fighting white blood



A T cell infected with HIV.

CAR T Gene Therapy Proves Powerful Weapon against HIV

cells, known as CAR T cells, that specifically seek out and kill cells infected with HIV. CD4 is a glycoprotein on the surface of immune cells that sends signals to other types of immune cells. Because HIV binds to CD4 molecules in order to infect cells in the body, the researchers previously created a CAR molecule containing part of the CD4 molecule to hijack that interaction.

When HIV would bind to the CD4 section of the

CAR molecule on T cells, other regions of the CAR molecule would signal the cell to become activated and kill the virus. That molecule, however, contained two parts, or “domains,” that still had the potential to allow HIV infection.

For the new study, the researchers — who included Irvin S.Y. Chen, PhD, professor of microbiology, immunology & molecular genetics; Otto O. Yang, MD, professor of medicine; Jerome

A. Zack, PhD, professor of microbiology, immunology & molecular genetics; and Scott Kitchen, PhD, professor of medicine — removed those domains while adding another one that makes the cells resistant to infection and allows for a more efficient and longer-lasting cell response against HIV than before. The improved CAR therapy engineers the body’s immune response to HIV rather than waiting for the virus — or parts of the virus — to induce a response, in much the same way vaccines prime one’s immune system to respond against a virus.

The new approach also leads to the production of a significant number of “memory” T cells that are capable of more potently and quickly responding to reactivated HIV. “Our study highlights the identification of a next-generation CAR molecule that protected cells from infection, targeted and reduced HIV burdens, and serves as an ideal developmental candidate for further clinical studies,” the researchers wrote.

—Enrique Rivero

“Robust CAR-T Memory Formation and Function via Hematopoietic Stem Cell Delivery,” PLOS Pathogens, April 1, 2021

Dr. Kelsey C. Martin Steps Down as Dean

AFTER SIX YEARS AS DEAN OF THE DAVID GEFFEN SCHOOL OF MEDICINE AT UCLA, Kelsey C. Martin, MD, PhD, stepped down in September to serve as director of the Simons Foundation Autism Research Initiative in New York City.

Dr. Martin was the first woman to lead UCLA's medical school — and among only a handful of female medical school deans nationwide — serving first as interim dean in 2015 before being appointed permanent dean in 2016.

Her time at UCLA began in 1999, when she joined the faculty as an assistant professor in psychiatry and biological chemistry, became chair of the Department of Biological Chemistry and moved up through a number of senior leadership roles.

Among her key priorities as dean was precision health. “How do we, in this modern world, where we have tools and technologies that allow us to gain so much information about individuals and about populations, leverage that to tailor health care to individual patients?” she said in an interview shortly after she became permanent dean.

“While I am looking forward to a new chapter ... I will deeply miss our work here together.”

“How do we make sense of all that information so that we can really develop a new kind of medicine?”

That vision came to fruition during her tenure when she helped to establish

the Institute for Precision Health at UCLA, as well as the Department of Computational Medicine and a master's program in genetic counseling.

The events over the many months of the COVID-19 pandemic also brought to the forefront concerns about racial disparities in health care, and issues of justice, equity, diversity and inclusion became another key focus for Dr. Martin.

“Our community's eternal well of creativity and altruism has carried us through an unimaginable global health crisis,” she wrote in a letter to the school of medicine community announcing her decision to step down. “You mobilized and solved problems and showed up for those in need. You asked pivotal questions and discovered new ways to identify and cure disease. You had the courage to be honest, with me and with each other.” Among the significant steps forward that emerged from that effort was creation of the Anti-racism Roadmap, a framework to guide how the school thinks about and implements change toward greater equity.

But the foundation of that effort began even before the pandemic gripped the country, and the world, with a program spearheaded by Dr. Martin called Cultural North Star,



Dr. Kelsey C. Martin during David Geffen School of Medicine at UCLA graduation in 2019.

which set forth a framework and set of shared values to guide decision-making, problem-solving and collaboration and foster an inclusive environment within the medical school.

Other achievements over the course of Dr. Martin's tenure include implementation of a new admissions process; redesign of the medical school curriculum; restructuring of the school's Global Health Program, with an enhanced focus on building partnerships in low- and middle-income countries; and creation of a new research theme for the school: Health Equity and Translational Social Science.

The foundation that Dr. Martin joined was established in 1994 to support basic-science research, which has been an important priority for

Dr. Martin throughout her career as a neuroscientist and as dean. In addition to the Autism Research Initiative, Dr. Martin will oversee the Simons Collaboration on the Global Brain and the Simons Collaboration on Plasticity and the Aging Brain.

“While I am looking forward to a new chapter dedicated to advancing transformational brain science, I will deeply miss our work here together and, above all, the incredibly passionate, brilliant and beautiful people who make up our [medical school] community,” Dr. Martin wrote in her letter. “As I reflect on my last six years as dean, I am filled with a resounding sense of admiration and gratitude for all that we have accomplished together.”

—David Greenwald

PHOTO: NICK CARRANZA



IMAGES: UCLA BROAD STEM CELL RESEARCH CENTER

Six of the children who received treatment at UCLA through the gene-therapy clinical trials.

Gene Therapy Offers Potential Cure to Children Born without Immune System

“For children with the condition, even day-to-day activities like going to school or playing with friends can lead to dangerous, life-threatening infections.”

AN EXPERIMENTAL FORM OF GENE THERAPY developed by a team of researchers from UCLA and Great Ormond Street Hospital in London has successfully treated 48 of 50 enrolled children born with a rare and deadly inherited disorder that leaves them without an immune system. Severe combined immunodeficiency due to adenosine deaminase deficiency, or ADA-SCID, is caused by mutations in the ADA gene that creates the enzyme adenosine deaminase, which is essential to a functioning immune system. For children with the condition, even day-to-day activities like going

to school or playing with friends can lead to dangerous, life-threatening infections. If untreated, ADA-SCID can be fatal within the first two years of life.

The investigational gene-therapy treatment involves first collecting some of the child's blood-forming stem cells, which have the potential to create all types of blood and immune cells. Next, using an approach developed by the research team, a new copy of the ADA gene is delivered into the stem cells by a modified lentivirus, or viral vector. The corrected cells are then returned to the child's body, where they are intended to produce a continual supply of healthy immune cells capable of fighting infection.

In three clinical trials, “50 patients were treated, and the overall results were very encouraging,” says Donald B. Kohn, MD, Distinguished Professor of Microbiology, Immunology & Molecular Genetics and a member of the Eli and Edythe Broad Center of Regenerative Medicine and Stem Cell Research at UCLA. “All the patients are alive and well, and in more than 95% of them, the therapy appears to have corrected their underlying immune system problems.”

The investigational gene therapy — a one-time procedure that the researchers say may provide lifelong results — is a welcome potential new treatment option for children with ADA-SCID, who otherwise must undergo once- or twice-weekly injections of the ADA enzyme until a matched bone marrow donor, usually a close family member, can be found. If no donor is available, patients require lifelong treatments, which are expensive and therefore out of reach for patients in many countries.

If the treatment receives Food and Drug Administration approval, it could become the standard of care for ADA-SCID, as well as for other genetic conditions, the researchers say.

—Tiare Dunlap

“Autologous Ex Vivo Lentiviral Gene Therapy for Adenosine Deaminase Deficiency,” *New England Journal of Medicine*, May 27, 2021

Breaking Down Barriers to Care for Patients with Metastatic Breast Cancer

TO IMPROVE HEALTH OUTCOMES FOR WOMEN WITH METASTATIC BREAST CANCER, UCLA researchers have published recommendations for California policymakers and patient advocates that include removing obstacles to health insurance, boosting participation in clinical trials and increasing access to palliative care. These are the most critical areas for improvement through policy changes, say researchers from UCLA's Jonsson Comprehensive Cancer Center and the UCLA Center for Health Policy Research.

More than 30,000 women in California are diagnosed each year with metastatic breast cancer that has spread to other parts of the body. Survival rates are low, and patients often face significant hurdles to care — particularly in the areas of health insurance, clinical trials and palliative care — that could be remedied through policy changes, the researchers say.

“Battling metastatic cancer is difficult enough for any person, and we should be breaking down the barriers that stand in the way of providing the best care possible,” says lead author AJ Scheitler, EdD, director of stakeholder relations at the health-policy research center. “Our work aims to offer state-level policy solutions that should be further explored.”

The recommendations draw, in large part, from a series of studies, interviews and social-media discussions with patients and caregivers in a 2020 study of barriers to care, which led to the identification of a variety of obstacles from high costs of care to a lack of support services.

Obtaining approvals for treatment from insurance companies is cited as a major stressor by both patients and health care providers, due primarily to the time requirements and complexity of the process and patient fears that switching insurance plans could reduce their coverage. Many respondents cite a lack of awareness and user-friendly information about clinical trials aimed at evaluating new medical treatments, difficulties getting to trial sites and confusion over whether or not the costs are covered by insurance. The authors further note that enrolling diverse racial and ethnic groups has been a persistent challenge.

Researchers recommend that because of the need for timely treatment, prior-authorization requirements and step-therapy procedures

should be eliminated altogether for metastatic cancers — and should be improved for other cancers. They also suggest increasing investment in programs that boost trial participation among Black and Latino patients and expanding insurance assistance to cover costs associated with trials, such as travel expenses.

Often misinterpreted as just end-of-life care, palliative care — including pain management, psychological and social support, nutrition guidance and functional rehabilitation — helps patients manage their symptoms and improve their quality of life. The team suggests policies that better integrate palliative care and support services with cancer treatment, provide palliative care training to clinicians and educate patients about the benefits of this type of care.

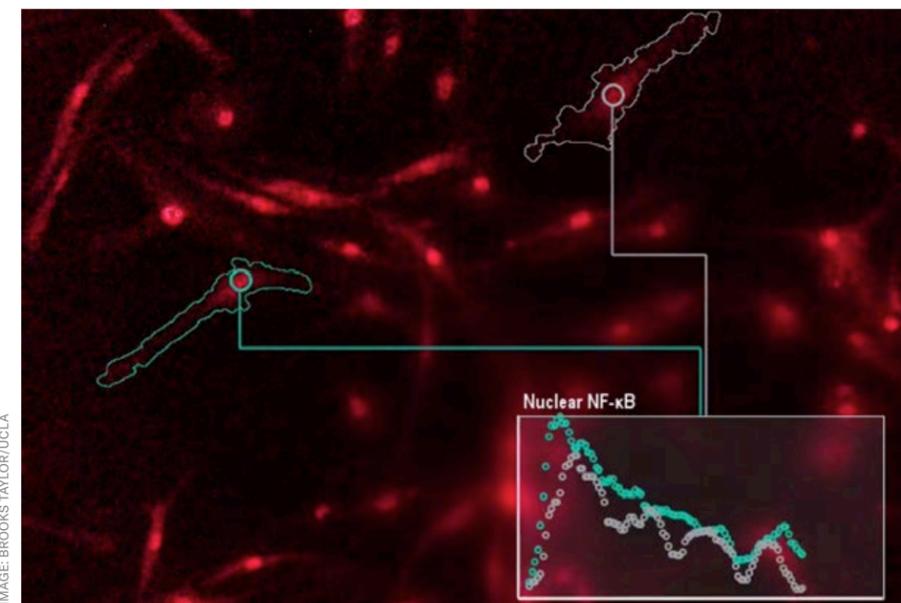
“Overall, the insights we gained from patients and others who had a wide variety of perspectives showed us that there’s a lot that can be done to improve the cancer care experience for this group. Removing the barriers to care is vital — and doable,” says co-author Riti Shimkhada, PhD, senior research scientist at the health-policy research center.

—Elaiza Torralba



“Using a Twitter Chat to Rapidly Identify Barriers and Policy Solutions for Metastatic Breast Cancer Care: Qualitative Study,” *JMIR Public Health and Surveillance*, Jan. 26, 2021

UCLA Scientists Decode the ‘Language’ of Immune Cells



Microscopy image of immune cells communicating with genes.

UCLA LIFE SCIENTISTS HAVE IDENTIFIED SIX “WORDS” that specific immune cells use to call up immune-defense genes, an important step toward understanding the language the body uses to marshal responses to threats. In addition, they discovered that the incorrect use of two of these words can activate the wrong genes, resulting in the autoimmune disease known as Sjögren’s syndrome.

“Cells have evolved an immune-response code, or language,” says Alexander Hoffmann, PhD, Thomas M. Asher Professor of Microbiology and director of the Institute for Quantitative and Computational Biosciences at UCLA. “We have identified some words in that language, and we know these words are important because of what happens when they are misused. Now we need to understand the meaning of the words, and we are making rapid progress. It’s as exciting as the discovery of the Rosetta Stone, which enabled archaeologists to read Egyptian hieroglyphs.”

Immune cells in the body constantly assess their environment and coordinate their defense functions by using words — or signaling codons, in scientific parlance — to tell the cell’s nucleus which genes to turn on in response to invaders like pathogenic bacteria and viruses. Each signaling codon consists of several successive actions of a DNA-binding protein that, when combined, elicit the proper gene activation, in much the same way that successive electrical signals through a telephone wire combine to produce the words of a conversation.

For the study, the scientists analyzed how more than 12,000 cells communicate in response to 27 immune-threat conditions and generated a list of more than 900 potential words. Using an algorithm originally developed in the 1940s for the telecommunications industry, they monitored which of the potential words tended to show up when macrophages responded to a stimulus, such as a pathogen-derived substance. They discovered that six specific dynamical features, or words, were most frequently correlated with that response.

The team then used a machine-learning algorithm to model

the immune response of macrophages. If they taught a computer the six words, they asked, would it be able to recognize the stimulus when computerized versions of cells were “talking?” They confirmed that it could. Drilling down further, they explored what would happen if the computer only had five words available. They found that the computer made more mistakes in recognizing the stimulus, leading the team to conclude that all six words are required for reliable cellular communication.

The researchers focused on words used by macrophages: specialized immune cells that rid the body of potentially harmful particles, bacteria and dead cells. Using advanced microscopy techniques, they “listened” to macrophages in healthy mice and identified six specific codons that correlated to immune threats. They then did the same with macrophages from mice that contained a mutation akin to Sjögren’s syndrome in humans to determine if this disease results from the defective use of these words. “Indeed, we found defects in the use of two of these words,” Dr. Hoffmann says. “It’s as if instead of saying, ‘Respond to attacker down the street,’ the cells are incorrectly saying, ‘Respond to attacker in the house.’”

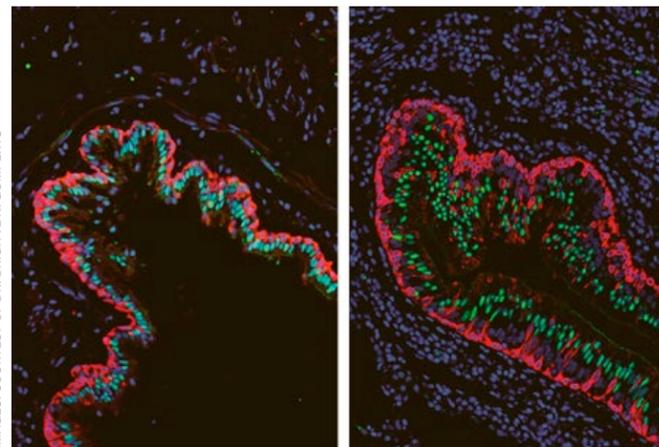
The findings, the researchers say, suggest that Sjögren’s doesn’t result from chronic inflammation, as long thought, but from a codon confusion that leads to inappropriate gene activation, causing the body to attack itself. The next step will be to find ways of correcting the confused word choices.

Many diseases are related to miscommunication in cells, but this study, the scientists say, is the first to recognize that immune cells employ a language, to identify words in that language and to demonstrate what can happen when word choice goes awry. Dr. Hoffman hopes the team’s discovery will serve as a guide to the discovery of words related to other diseases.

—Stuart Wolpert

“Six Distinct NF-κB Signaling Codons Convey Discrete Information to Distinguish Stimuli and Enable Appropriate Macrophage Responses,” *Immunity: Cell Press*, May 11, 2021

Molecular Analysis Identifies Key Differences in Lungs of Patient with Cystic Fibrosis



Healthy airways (left) show well-defined layers of ciliated cells (green) and basal stem cells (red). In airways affected by cystic fibrosis (right), the layers are disrupted, and scientists identified a transitioning cell type that combines properties of both stem cells and ciliated cells (red and green in the same cell).

A FIRST-OF-ITS-KIND MOLECULAR CATALOG OF CELLS in healthy lungs and the lungs of patients with cystic fibrosis (CF) reveals new subtypes of cells and illustrates how the disease changes the cellular makeup of the airways. The findings could help scientists in their search for specific cell types that represent prime targets for genetic and cell therapies for CF.

The catalog, developed by a team of researchers from UCLA, Cedars-Sinai and the Cystic Fibrosis Foundation, provides “valuable insights into the cellular makeup of both healthy and diseased airways,” says Dr. Brigitte N. Gomperts,

MD, professor of pediatrics and of pulmonary medicine and a member of the Eli and Edythe Broad Center of Regenerative Medicine and Stem Cell Research at UCLA. “If you can understand how things work in a state of

“The process is analogous to taking a smoothie and ‘un-blending’ it to discover all of the ingredients it contains.”

health, it becomes easier to see what cellular and molecular changes occur in a disease state.”

A progressive genetic disorder that affects more than 70,000 people worldwide, CF results from mutations to the CFTR gene. Cells

that contain the defective protein encoded by the gene produce unusually thick and sticky mucus that builds up in the lungs and other organs. This mucus clogs the airways, trapping germs and bacteria that can cause life-threatening infections and irreversible lung damage.

For the study, Dr. Gomperts and her research colleagues, who included Kathrin Plath, PhD, UCLA professor of biological chemistry and a member of the UCLA Broad Stem Cell Research Center, compared tissue samples taken from lungs removed from 19 transplant recipients with CF with samples taken from healthy lungs donated by 19 individuals who had died from other causes.

Researchers at the three institutions employed similar but distinct methods to break these tissues down and examine them

using a technology called single-cell RNA sequencing, which allowed them to analyze thousands of cells simultaneously and classify them into subtypes based on their patterns of gene expression — that is, which genes are turned on and off.

“The process is analogous to taking a smoothie and ‘un-blending’ it to discover all the ingredients it contains, and then measuring how much of each ingredient was used,” Dr. Plath says.

Using a novel computer-based bioinformatics approach to compare the gene expression patterns of the various cells, the team was able to create a catalog of the cell types and subtypes present in healthy airways and those affected by cystic fibrosis, including some previously unknown subtypes that illuminate how the disease alters the cellular landscape of the airways.

“We have made tremendous progress in the development of treatments for the underlying cause of cystic fibrosis, but many people cannot benefit from these medicines,” says John (Jed) Mahoney, PhD, head of the stem cell biology team at the Cystic Fibrosis Foundation Therapeutics Lab. “This research provides critical insight into how the disease alters the cellular makeup of the airways, which will enable scientists to better target the next generation of transformative therapies for all people with cystic fibrosis.”

—Tiare Dunlap

“Transcriptional Analysis of Cystic Fibrosis Airways at Single-cell Resolution Reveals Altered Epithelial Cell States and Composition,” *Nature Medicine*, May 6, 2021

Any Fracture Increases Risk for Future Breaks in Postmenopausal Women

CURRENT GUIDELINES FOR MANAGING OSTEOPOROSIS specifically call out hip or spine fractures for increasing the risk for subsequent bone breaks, but a UCLA-led study suggests that fractures in the arm, wrist, leg and other parts of the body should also trigger alarms. A fracture, no matter its location, indicates a general tendency to break a bone in the future at a different location, says Carolyn J. Crandall, MD '91 (RES '94), professor of medicine.

“Current clinical guidelines have only been emphasizing hip and spine fractures, but our findings challenge that viewpoint,” Dr. Crandall says. “By not paying attention to which types of fractures increase the risk of future fractures,

“Current clinical guidelines have only been emphasizing hip and spine fractures, but our findings challenge that viewpoint.”

we are missing the opportunity to identify people at increased risk of future fracture and counsel them regarding risk reduction. Postmenopausal women and their physicians may not have been aware that even a knee fracture, for example,

is associated with increased risk of future fractures at other locations of the body.”

The researchers examined records from 1993 through 2018 for more than 157,000 women aged 50 through 79 years. Data was sourced from the Women’s Health Initiative, a national study funded by the National Heart, Lung, and Blood Institute. The researchers found that among postmenopausal women, initial fractures of the lower arm or wrist, upper arm or shoulder, upper leg, knee, lower leg or ankle, and hip or pelvis were associated with an approximately three-to-six-fold increase in risk for subsequent fractures. That finding held for all of the age groups studied, with higher risks being more pronounced among non-Hispanic Black, Hispanic or Latina, and Asian Pacific Islander women than among non-Hispanic White women.

The authors noted some limitations to the study, including the fact that the fractures were self-reported by participants. However, earlier research has demonstrated that statistics for self-reported fractures is fairly accurate compared with statistics from medical records.

Also, the researchers did not have information



Frontal view of X-ray of the hand and wrist showing a distal radial fracture in a 60-year-old female patient.

about broken ribs, which may have led them to underestimate the risk for other fractures — it’s possible that the true effect could be even more pronounced than the results show — and bone-mineral density was measured for only a subset of participants, so the researchers could not investigate if the risk for future fractures was associated with bone density.

Although there is a need for more studies to understand why women of some ethnicities have a greater risk for a subsequent

fracture following an initial bone break, the researchers write that their findings “indicate that aggressive follow-up of postmenopausal women who experience initial fracture is indicated. Our results will inform counseling, future guidelines and the design of intervention trials regarding the selection of appropriate candidates for pharmacotherapy.”

—Enrique Rivero

“After the Initial Fracture in Postmenopausal Women, Where do Subsequent Fractures Occur?” *EClinicalMedicine*, May 5, 2010

Is Treatment for Pain Race-based?

PHYSICIANS PRESCRIBED OPIOIDS MORE OFTEN TO THEIR WHITE PATIENTS who complained of new-onset low-back pain than to their Black, Asian and Hispanic patients during the early days of the national opioid crisis, when prescriptions for these powerful painkillers were surging but their dangers were not fully apparent, a UCLA study has found.

The findings suggest that doctors may have commonly dispensed pain treatments unequally based on race and ethnicity. The study shows that physicians were more likely to prescribe non-steroidal anti-inflammatory drugs, or NSAIDs — a

less-powerful alternative — to their patients of color who came to them for back-pain care. “This appears to be a case of differential treatment of pain or bias by physicians, in which the

“This appears to be a case of differential treatment of pain or bias by physicians.”

pain of certain patients deserves opioids and the pain of others does not,” says Dan P. Ly, MD, PhD, assistant professor of medicine. “The fact that, in hindsight, more white patients developed dangerous long-term

opioid use doesn’t absolve physicians of this differential treatment.”

Dr. Ly examined nationwide medical-claims data from 2006 through 2015 for about 275,000 Medicare beneficiaries who were 66 years of age or older and were experiencing new-onset low-back pain. Approximately 81% of these patients were white, 6% were Black, 6% were Asian/Pacific Islander and 8% were Hispanic.

Focusing on how individual doctors prescribed opioids differently based on their patients’ race and ethnicity, Dr. Ly found that, on average, these drugs were dispensed to 11.5% of white patients, versus about 10% of Black patients, 9% of Asian/Pacific Islander patients and 10.5% of Hispanic patients.

Among patients who seemed to have severe or longer-lasting pain — measured as five or more visits to the doctor for back pain in a year — the differences were starker: 36% of white patients were prescribed opioids, versus about 30% of Black patients, 21% of Asian/Pacific Islanders and 24% of Hispanics. Physicians, Dr. Ly says, also tended to prescribe opioids sooner to their white patients.

Conversely, doctors prescribed NSAIDs to 25% of their Black patients, 25% of Asian/Pacific Islanders and 28% of Hispanics, but only to 24% of whites — again, with greater differences for patients with more visits for their back pain.

The study also found that white patients with new low-back pain were subsequently more likely to develop long-term reliance

on opioids than patients of Black, Asian/Pacific Islander or Hispanic origin. One possible reason for these prescribing discrepancies, Dr. Ly says, is that physicians may have had less confidence that patients of color would not misuse opioids, even though studies have shown no difference in rates of opioid misuse between patients of color and white patients.

It also is possible, he says, that patients of color may have asked for opioids less frequently than white patients, although there is no evidence for this. Dr. Ly noted that because this was an observational study, there may have been other, non-observable factors that contributed to prescribing discrepancies. The findings do not include results from physical exams, which may have influenced prescribing decisions, and over-the-counter medications were not included in the data.

—**Enrique Rivero**

“Association of Patient Race and Ethnicity with Differences in Opioid Prescribing by Primary Care Physicians for Older Adults with New Low Back Pain,” *JAMA Health Forum*, Sept. 10, 2021



IMAGE: ISTOCK

Vaping Just Once Increases Disease Risk in Nonsmokers



IMAGE: ISTOCK

THE RISK THAT BOTH TOBACCO AND ELECTRONIC CIGARETTES can pose to the health of regular smokers has been well documented, but a new UCLA study illustrates just how quickly vaping can affect the cells of even healthy younger nonsmokers. The findings show that a single 30-minute vaping session can significantly increase cellular oxidative stress, which occurs when the body has an imbalance between free radicals and antioxidants. Free radicals can cause damage to cells and antioxidants fight free radicals.

“Over time, this imbalance can play a significant role in causing certain illnesses, including cardiovascular, pulmonary and neurological diseases, as well as cancer,” says Holly R. Middlekauff, MD (RES ’89, ’92, FEL ’90, ’92), professor of cardiology and physiology.

E-cigarettes, devices that deliver nicotine with flavoring and other chemicals in a vapor rather than smoke, are seen by many as a safer alternative to regular cigarettes, but research by Dr. Middlekauff and others has demonstrated that

“We were surprised by the gravity of the effect that one vaping session can have on healthy young people.”

vaping is associated with a number of adverse changes in the body that can presage future health problems.

For the current study, 32 male and female study participants, who ranged from 21 to 33 years of age, were divided into three groups: 11 nonsmokers, nine regular tobacco cigarette smokers and 12 regular e-cigarette smokers. Dr. Middlekauff and her colleagues collected immune cells from each individual before and after a half-hour vaping session to measure and compare changes in oxidative stress among the groups. The researchers performed the same process during a control session in which participants spent 30 minutes

“sham-vaping,” or puffing on an empty straw.

They found that in nonsmokers, oxidative stress levels were two to four times higher after the vaping session than before. The same 30-minute exposure did not lead to an increase in oxidative stress among the regular cigarette and e-cigarette smokers, the researchers noted, most likely because their baseline levels of oxidative stress were already elevated. “We were surprised by the gravity of the effect that one vaping session can have on healthy young people,” Dr. Middlekauff says. “This brief vaping session was not dissimilar to what they may experience at a party, yet

the effects were dramatic.”

The results are especially troubling, the researchers say, because the popularity of vaping continues to increase, particularly among teens and young adults. According to a 2020 study, nearly one-in-three high school students reported that they had used an e-cigarette during the previous month.

There is still more to be understood about what exactly causes the changes in oxidative stress levels — if it is the nicotine or non-nicotine elements in e-cigarettes — the researchers say. Dr. Middlekauff and her team will continue to explore this question in future research. “While there’s a perception that e-cigarettes are safer than tobacco cigarettes, these findings show clearly and definitively that there is no safe level of vaping,” Dr. Middlekauff says. “The results are clear, unambiguous and concerning.”

—**Alana Prisco**

“Association of 1 Vaping Session with Cellular Oxidative Stress in Otherwise Healthy Young People with No History of Smoking or Vaping,” *JAMA Pediatrics*, Aug. 9, 2021

COVID WATCHDOG

UCLA's Dr. Otto O. Yang has been closely monitoring the evolution of SARS-CoV-2, the virus that causes COVID-19, and taking the long view of the impact it has been having on our lives.

Otto O. Yang, MD

Associate Chief, Division of Infectious Diseases

Professor of Medicine, Department of Microbiology, Immunology and Molecular Genetics

Since the onset of the COVID-19 crisis, Otto O. Yang, MD, has been among the most sought-after experts to talk about the pandemic and its implications for the future — his name has appeared more than 4,300 times since March 2020 in stories from news outlets in North America and Europe. Over the course of his more than 20 years at UCLA, he has focused his attention on HIV and the pursuit of immune therapies and vaccines against the disease, as well as other viral infections. So, when COVID-19 struck, he was well positioned to shift his attention to this new virus. “We jumped into the field early, when the pandemic first hit, and we published some of the very first data showing that antibodies against the virus tend to persist for only a short time after somebody has been infected,” he says. “We now are extending that work to look at antibodies in people who have gotten vaccinated.” Dr. Yang spoke with UCLA Health senior media relations officer Enrique Rivero in July, as the Delta variant was generating a resurgence of infections, hospitalizations and deaths throughout the country, about what is happening now with COVID-19 and what we may expect in the future.



In an issue over the summer of *The Atlantic* magazine, a writer made the statement: “We spent months building up shields against the virus, and we still don’t know how long we can expect that protection to last.” Should we be concerned about vaccine failure?

Dr. Otto Yang: We can look to what’s happened in Israel as a gauge for what’s probably going to happen elsewhere. They were the first country to really get a very high vaccination rate. And what they’re seeing now is that as the virus has continued to mutate, they are seeing more and more cases of infection. I take that as a sign that the antibodies are starting to fail; they don’t work as well against a variant as they do against the original sequence that was in the vaccine.

As the virus continues to mutate, it will become more infectious, because that is a property that is selected for the advantage of the virus, and it will become more resistant to immune responses — especially to antibodies that were directed against the first sequence. And, so, I think that that means that we can expect to see more and more vaccine failures, as they are seeing in Israel. Fortunately, our T cells, which is a different part of our immune response, are less affected, so people who are vaccinated probably will still be protected from serious illness or death.

Can we gauge its potential to become more virulent?

Dr. Yang: The ability of the virus to spread and its ability to cause illness and death are not necessarily linked to each other. And, in fact, with natural selection, what we would expect is that the virus will, hopefully, over time become less virulent because the best outcome for the virus is to spread easily but not kill its host. If it kills its host, it is killing its only source of a home, of survival. That is not to say that there may not be variants that are deadlier, but those would be evolutionary accidents and not a selected property of the virus.

What concerns you most about the variants, and how do we address that issue?

Dr. Yang: The most concerning thing about the variants, like Delta, is that they will bypass the ability of vaccines to stop the spread of the virus. That means that the virus

will be free to spread through the population, and that even if vaccines prevent healthy, vaccinated people from getting severely ill, there’s going to be a large population of people in whom the vaccines don’t work or who haven’t gotten vaccinated, and they will remain at very high risk for getting severely ill and dying. While we may not see the same massive waves that we did before vaccines were available, I think we’re going to continue to see an increase in deaths and severe illnesses in the hospitals.

If someone had COVID-19 and recovered, do they need the two doses of Moderna or Pfizer? Will they need a booster?

Dr. Yang: When someone first encounters something foreign, like a new virus, the immune system takes some time to gear up to make a response. Over time, once the person recovers, that response becomes what’s called a memory immune response — the cells that produced antibodies or reacted against the virus now are built up in the body, and they are ready to go, ready to be activated quickly if the body is re-exposed. With COVID-19, it’s clear that a person who has been infected will have these memory responses, and they will have some protection for some amount of time. But lots of research, including ours at UCLA, shows that the immune responses start to go down over time and will probably reach the point that a person will be susceptible to getting infected again. So, yes, it remains important for people to get vaccinated. In terms of whether or not a

person needs one or two doses of these vaccines, some recent data that we published — which agrees with data from other groups, as well — shows that a person probably only needs one shot instead of two for these two-shot vaccine regimens. But it also is clear that the immune responses against this virus, for whatever reason, don’t last that long. And that’s, perhaps, not surprising because that’s a property of other coronaviruses as well.

Is it okay to mix different COVID-19 vaccines?

Dr. Yang: Scientifically, there’s no reason that there should be a disadvantage to mixing the vaccines, and there are potential positives from it. The two mRNA vaccines that currently are in use in the U.S., Pfizer and



PHOTO: JESSICA PONS

Moderna, are extremely similar in their design, so they’re probably, for the most part, interchangeable. The other vaccines — Johnson & Johnson, which is available in the United States, and AstraZeneca, which is not — are of a different type. They are adenovirus vaccines, and they are less potent than the mRNA vaccines. Because they are less potent, there may be an advantage to boosting those vaccines with one of the mRNA vaccines. Some countries are already doing this quite a bit.

How might the lessons learned from the creation of several COVID-19 vaccines in an impressively short time-frame inform future vaccine development?

Dr. Yang: While the process for getting a vaccine from the lab into the arms of people was remarkably quick, it is important to point out that the development of these vaccines was not quick. mRNA vaccines have been in testing for more than 20 years. These are what are called “platform vaccines.” That is a vaccine concept that’s based on a platform that can be modified to deliver whatever you want. This is very different than prior vaccines. The mRNA vaccines contain the insertion of a gene of interest, in this case the spike protein from

“THE ABILITY OF THE VIRUS TO SPREAD AND ITS ABILITY TO CAUSE ILLNESS AND DEATH ARE NOT NECESSARILY LINKED TO EACH OTHER.”

this virus, and so any protein from another virus that you want to target could be quickly shuttled in. It would be very quick to also use the same platform to make a vaccine against the variants. So, I think that the lessons learned are that this long-term investment in science and in developing these platforms has proven to be hugely beneficial, and this kind of investment should continue. We need to think long-term about these potential threats to our health and about strategies to invest in research that may have implications that we don’t necessarily immediately foresee.

What lessons are to be learned from the fact that highly effective vaccines are encountering resistance — and in some cases hostile resistance — among a portion of the population?

Dr. Yang: I think if you had asked me in 2019 what would happen to our society if a massive pandemic hit and people started dying, my prediction would have been that trust in scientists and physicians would markedly ramp up. I would have thought that would be especially true with successes we have had with the vaccines and our greater knowledge about how to effectively treat this disease. I would have predicted that people would have looked at these things and that confidence and trust in science and medicine would increase, and that political divisions would have been set aside because everyone would be united against a common enemy. And, of

course, I would have been completely wrong. This, to me, is a really crazy paradox, and I can’t explain it. It is a mystery to me how we can have these successes and, yet, so many people can disbelieve even that this is a serious illness and not have faith in the vaccines. Obviously, this points to deeper societal problems that are way above my pay grade. It is completely baffling to me.

From the experience of this pandemic, what concerns you most?

Dr. Yang: It really concerns me that something like this was able to spread so quickly. It seems like yesterday that there were these initial reports of this strange SARS-like infection in Wuhan, China, and that in just about three or four months, it was a worldwide pandemic. And the fact that something like that can happen so quickly because our world is so connected now is really concerning; it can happen again. And also it is very concerning to see the extreme disorganization of the public responses and government responses to the virus, and to see the massive failures and loss of life that have occurred as a result. In this country, we had at least three months of advanced warning before the virus

hit our shores, and yet, we were not prepared. We did not take care of simple things like mask manufacturing and distribution, public policies about distancing, even policies about simply wearing masks. We just did not have our act together. It’s really concerning that this happened this way, and it’s also really concerning that we don’t seem to be learning lessons, and it seems like it could happen again.

Even so, what gives you hope?

Dr. Yang: The demonstrated successes we’ve had with the platform vaccines that can be rapidly retooled and deployed for another virus, if it hits. As fast as it was to bring these vaccines out, I hope that it can be even faster next time. It also gives me hope that there are a lot of people in the public who have taken this very seriously, and that there may be some behaviors that become fairly routine, like masking, especially during the winter months. Another thing that gives me hope is that there has been a clear interest in infectious diseases and in infectious-disease research. I’ve personally been touched by quite a few donors who have donated to my research program, and that is completely new. In my previous 20 years at UCLA, I’ve had only one person who thought to give a donation to my research program. But now, many more people have been donating because they recognize the importance of what we are doing. These things are the silver linings within the cloud. ●

Wonder Woman

LILI YANG, PHD

Associate Professor of Microbiology,
Immunology & Molecular Genetics

Dr. Lili Yang seeks to understand the cellular and molecular mechanisms by which the immune system responds to attack by disease. Through her research, she hopes to develop effective therapies that will engineer the immune systems of patients suffering from cancer and other diseases by manipulating their own blood cells to fight their illnesses.

WHEN DID YOU FIRST START TO THINK ABOUT SCIENCE?

I was in middle school. We learned about physics, chemistry, but what interested me most was biology. The teacher gave us a microscope and told us to pick something to look at under the microscope. I picked a leaf, and when I looked at it under the microscope, it was stunning. When you are a child and you look at a leaf, you think, 'Oh, it's just a leaf,' but under a microscope you see the beautiful structures that make it a leaf, the machinery that makes it a leaf. Biology is beautiful; it is so much more than what you see from just the surface.

WHERE DOES YOUR INSPIRATION COME FROM?

I think from the translational aspects of my research. I hate to see people suffer, and one of the reasons I have focused on cancer is that almost everyone knows someone who has suffered from cancer. As a scientist, the idea that something I have discovered through my research can contribute or lead to better treatment, or maybe even to a cure, is what inspires me.

WHAT HAS BEEN YOUR GREATEST CHALLENGE?

The greatest challenge is to build a good research team. That is both fun and a challenge. We have to recruit and train good people, and it always is exciting to have new blood coming to join us. But one of the big challenges — this is true of any academic research lab — is that once someone is trained, they leave for someplace else as they move up their career ladder. And then you need to train new people. But it also is exciting for me to work with new people, and I learn a lot from them. Students today have been exposed to so much information, they have such a tremendous breadth of knowledge coming in. It is a learning experience for me, as well, and I love that.

WHAT IS YOUR MOTTO?

There is a quote from Jonas Salk that is etched into the floor at the entrance to the Salk Institute in La Jolla: "Hope lies in dreams, in imagination and in the courage of those who dare to make dreams into reality." That is really touching, and very powerful.

"AS A SCIENTIST, THE IDEA THAT SOMETHING I HAVE DISCOVERED THROUGH MY RESEARCH CAN CONTRIBUTE OR LEAD TO BETTER TREATMENT, OR MAYBE EVEN TO A CURE, IS WHAT INSPIRES ME."

TO WHICH SUPERHERO DO YOU MOST RELATE?

Wonder Woman. She has great skills, and she also is a leader.

WHAT DO YOU CONSIDER TO BE YOUR FINEST ACHIEVEMENT?

I think it is having built a research platform that has enabled us to make significant scientific discoveries and advance along translational paths. A significant reason why we came from Caltech to UCLA is because, in addition to excellent research facilities, here there is a world-class hospital and an opportunity to have clinical collaborations to translate our findings into practice to save people's lives. There are now clinical trials running based on discoveries we have made in our lab. And some of our biotechnology also has moved forward into development to get it into the market and make it available for patients in the future. Those are the things I am most proud of.

WHERE ARE YOU HAPPIEST?

In my work, I am happiest when I can make an impactful scientific contribution. I also am happy watching the members of my team grow to become solid and mature scientists and to then go out on their own to pursue their dreams. In my personal life, I am happiest when I am with my husband and our two daughters, spending time together, traveling together, being in the national parks, seeing nature and life in its original form.

WHAT ARE THE QUALITIES OF A GREAT SCIENTIST?

Curiosity is number one. And being persistent in pursuit of answers. It can be very frustrating to find that your hypothesis is totally wrong, but

you need to have the perseverance to carry your work forward, and also the openness to explore new directions to find answers.

WHO IS YOUR SCIENCE HERO?

My PhD mentor at Caltech, Dr. David Baltimore. He has made so many important discoveries, and he always seems to be ahead of the curve in his research, riding one new wave after another. Besides being a great scientist, he is a great man and a great mentor who has trained generations of new scientists.

WHAT IS YOUR GREATEST VIRTUE?

Perseverance. I find a direction I want to go, and I am pretty good at following it through. And I also am good at working with people.

WHAT IS YOUR GREATEST FAULT?

Sometimes I have too many things on my plate, and then I need to say I can't do it all. It is something I have to remind myself about, but I am getting better at knowing there are limits to what I can do.

WHAT DO YOU MOST VALUE IN YOUR COLLEAGUES?

I value their critical and a constructive feedback. It can be positive. It can be negative. But I always appreciate their honesty, and also their generosity for sharing their ideas and their support. The willingness to give constructive feedback and to be generous, those are the things I treasure most in my colleagues.

WHEN DON'T YOU THINK ABOUT SCIENCE?

When I play with my kids. Well, that is not always true. Sometimes they ask me scientific questions. They are 6 and 9 years old, and they both are getting some science-related projects in school, things like how does a bubble become a bubble? Or, how do the sun and the moon move in the sky? So, sometimes they ask me scientific questions. I can't totally get away from it.

IF YOU WERE NOT A SCIENTIST, WHAT WOULD YOU BE?

Something entrepreneurial, like



running a biotech start-up, taking scientific discoveries made by research scientists like me in the lab and turning them into products to help people.

WHAT IS YOUR MOST TREASURED POSSESSION?

These are not really possessions, but the projects I have done, the discoveries I have made, the students I have trained and the family that I have built.

WHAT KEEPS YOU UP AT NIGHT?

Thinking about new questions to explore and how to organize the resources to pursue them.

HOW DO YOU WANT TO CHANGE THE WORLD?

By exploring biology more deeply to understand the rules that govern biological systems and using that knowledge to develop therapies to treat disease.

WHAT IS YOUR DEFINITION OF HAPPINESS?

Having goals and achieving them. Making significant discoveries, helping my students to grow, raising my children — those things are my definitions of happiness.

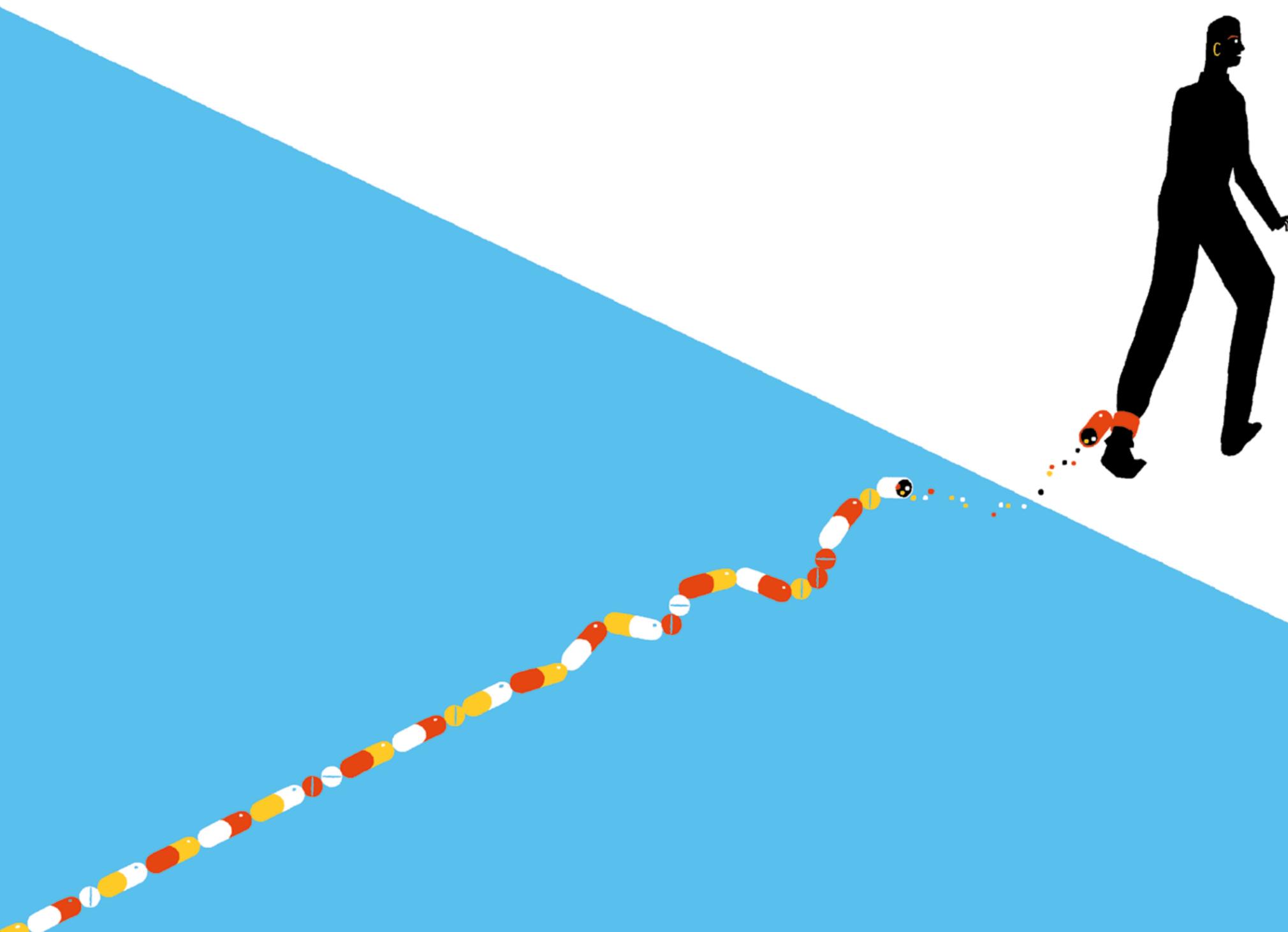
WHAT IS YOUR DEFINITION OF MISERY?

Failing at any one of those things. ●

TRANS PLAN TATION'S HOLY GRAIL

Two brothers, a courageous surgeon and a team of experts from across the medical spectrum push the boundaries of science to unchain organ recipients from the burden of lifelong dependence on immunosuppression.

By Sandy Cohen



Tom Macias is preparing for his brother's kidney-transplant surgery. Every day, for five days, he gives himself multiple shots of a powerful drug that will draw the cells of his bone marrow into his blood. The injections cause bone pain, a deep ache that awakens him in the middle of the night.

But his discomfort is nothing compared with that of his younger brother, Andrew, who is suffering from end-stage kidney disease. Tom has watched helplessly as Andrew's once-muscular frame withered and became frail under the burden of his illness. Now, it takes several sessions a week of dialysis to keep Andrew alive. The treatments sap what little strength he has left, leaving him depleted for the next 24 hours.

So, in addition to accepting the risks of surgery to donate one of his kidneys to his brother, Tom gives himself the shots and grits through the pain. If this works, Tom and Andrew — the first patients in a clinical trial for a new program being developed at UCLA that aims to liberate transplant recipients from the lifelong post-surgical necessity of immunosuppressive drugs — may find themselves at the forefront of a dramatic scientific achievement, the kind that can change the future course of medical care.

After five days of injections, Tom drives to UCLA's blood and plasma donation center. There, a technician connects him to a machine — a needle in each of his arms, one to draw his blood, now rich with stem cells that have been forced from his bone marrow, and the other to return it to his body after the stem cells have been separated out. After Andrew receives Tom's kidney in a surgery at Ronald Reagan UCLA Medical Center, those stem cells will be infused into Andrew's body.

The goal: To achieve "tolerance." By transplanting *both* a donor's organ and stem cells, the immune system of the recipient is primed to accept the new organ as its own — to recognize it as "self" — without rejection. And without rejection, there is no need for harsh immunosuppressive drugs to tamp down the attack the recipient's body would otherwise launch.

That, says UCLA renal transplant surgeon Jeffrey L. Veale, MD (FEL '06), "is the Holy Grail of transplant surgery."

UCLA IS NOT THE FIRST MEDICAL CENTER TO PERFORM THIS PROCEDURE. It is the fourth in the U.S., and the fifth in the world, to do so. But Dr. Veale and his colleagues hope to advance it further than the other centers have. While those centers have successfully performed this protocol on well-matched sibling donor-recipient pairs, like Tom and Andrew Macias, as well as with non-sibling pairs, it is Dr. Veale's goal to extend the procedure to transplants involving deceased donors. That is where the real difference will be made, say Dr. Veale and others involved in the project, noting that deceased donors accounted for more than 77% of the 22,800 kidney transplants that were performed in the United States in 2020.

It is a goal that has a lot of people in the field very excited. "There is an opportunity at UCLA to do something that's never been done before — to do a deceased-donor transplant using not just the deceased donor's organ, but also the deceased donor's stem cells to achieve tolerance," says Thomas Mone, CEO of the regional organ-donation nonprofit OneLegacy Foundation. "That is immensely more complex than doing this with a living donor, which is complex enough."

Mone's colleague, Gareth Hil, founder and CEO of the National Kidney Registry, agrees. "It's a very heavy lift. But UCLA may be able to crack the code to actually achieve it. It takes a lot of courage to try to do something like this," he says.

If, as its proponents hope, that goal can be achieved with a kidney, it could change transplant medicine on a massive scale, making the



"There's no words that I can say that would live up to what he's done for me," says Andrew Macias (right) of his brother, Tom (left), who donated his kidney for transplantation.

possibility of a transplant without the tether of lifelong immunosuppressive drugs a reality for recipients of other organs as well — from hearts and lungs and livers to composite-tissue allografts such as arm, leg or face transplants.

Reaching that goal "opens up a whole new world," Dr. Veale says.

Getting there is a long journey, one that already has taken Dr. Veale nearly six years, beginning with a pitch he made to Mone and OneLegacy Foundation to help fund his work. The organization committed close to \$2 million to support Dr. Veale's efforts.

And it takes a multidisciplinary team that engages dozens of experts from across diverse specialties such as nephrology, urology, hematology, radiation oncology and other departments. "It requires a lot of interplay between different divisions," says

"THERE IS AN OPPORTUNITY AT UCLA TO DO SOMETHING THAT HAS NEVER BEEN DONE BEFORE."

transplant nephrologist Erik L. Lum, MD (RES '09, '10). "This really demonstrates the strength of a place like UCLA. You can't do this just anywhere. It's a huge collaboration."

UCLA already is far along on its journey to achieve this ultimate goal. In collaboration with OneLegacy Foundation, the university has developed and applied for a patent for new technology to recover stem cells from a deceased donor. "This is something that no one else has ever done," Dr. Veale says. Though he is constrained from describing the procedure in detail, Dr. Veale says that university transplant surgeons hope to be able to employ this new process within the coming year, after it goes through all necessary reviews and approvals.

THE SCIENCE LEADING UP TO THE DEVELOPMENT OF THE TRANSPLANT-TOLERANCE APPROACH HAS BEEN EVOLVING FOR DECADES. Samuel Strober, MD, professor of immunology and rheumatology at Stanford University, has devoted his career to studying the science that could lead to transplant tolerance. He has, since the 1980s, focused on the process known as “mixed chimerism” — the blending of a donor’s and recipient’s immune systems through an infusion of the organ donor’s stem cells shortly after transplantation to prompt the recipient’s body to recognize, rather than reject, the new organ.

Solid-organ transplants have been successfully performed since the 1950s, but they have always required a lifelong regimen of powerful medications to prevent the recipient’s immune system from identifying the new organ as a foreign invader and attacking it. But these immunosuppressive drugs carry with them a number of serious potential complications, including increased risk of cancer, infection, diabetes, hypertension and heart disease. In the case of kidney transplants, immunosuppressive therapy carries an unfortunate irony; because these powerful medications are filtered through the kidneys, they eventually overwhelm and overtax the new organ that they are prescribed to protect. Even with the best drugs, about half of kidney transplants still are lost to chronic rejection in about 15 years, Dr. Strober says. For the patient, that means having to go back on dialysis or undergo a second — perhaps even a third — transplant.

The goal of the tolerance protocol is to extend the survival of the transplanted kidney by encouraging the immune system of the host to live in harmony with the new organ. The hope, Dr. Veale says, is “one kidney for life.”

Dr. Strober began exploring the possibilities of transplant tolerance with animal studies in the 1960s, eventually identifying the elements that have led to dramatic successes

Extending the transplant-tolerance protocol to deceased donors “is something that no one else has ever done,” says Dr. Jeffrey Veale.

PHOTO: ADAM AMENGUAL



for Stanford’s program, where patients who have undergone the transplant-tolerance protocol have survived without immunosuppression for 15 years.

“Because I have worked so long on it, I am highly motivated and very interested in seeing this approach expanded to large numbers of patients,” Dr. Strober says. “I view what we’re doing with the matched patients as a step toward working with a much larger pool of patients, the mismatched pairs.”

Dr. Veale wants to take that baton and run with it. He and Dr. Lum — who as a fellow at Stanford was a member of the team performing the first transplant-tolerance procedures — have worked closely with Dr. Strober, and with surgeons from Stanford, to design UCLA’s new approach.

Just as the transplant-tolerance protocol blends the immune systems of two distinct individuals, it also blends scientific disciplines that don’t ordinarily overlap. “Stem-cell transplants and solid-organ transplants are usually conducted independently of each other,” says bone marrow-transplant specialist Neil Kogut, MD, who was nearing retirement after a long career overseeing the bone-marrow-transplant program at Kaiser Permanente when he was recruited to work with Dr. Veale on UCLA Health’s transplant-tolerance protocol. “These are very separate worlds that the doctors and researchers in these fields occupy. This protocol is a unique opportunity to bring stem-cell transplantation and solid-organ transplantation together to try to achieve something very positive for transplant recipients. It is a unique synergy.”

ON THE DAY IN MARCH OF ANDREW’S TRANSPLANT SURGERY, THE BROTHERS AND THEIR WIVES ARRIVE BEFORE DAWN at Ronald Reagan UCLA Medical Center. Tom and Lettie had been engaged for nearly two decades before they wed just weeks before the surgery. “It was just because of everything that was going

down,” Tom says. “And, also, for Lettie to be able to be here with me.”

Andrew and his wife, Deanna, have been married since 2017. He was already sick with kidney disease when they met, and he dreams of a day when she can see him as fit and healthy as he was in his football-playing days.

Lettie and Deanna were both at the family Christmas party in 2019 when Tom gave Andrew a small, red box with a unique gift inside. A few weeks earlier, Tom had learned he was a perfect match to donate a kidney to his younger brother. But he hadn’t told anyone other than Lettie.

Andrew shook the box, commenting on how light it felt. “Probably something from the 99 Cents Store,” he joked.

Inside, he found a note. “My dearest brother,” it read. “I found out I am a perfect match. I am giving you the gift of life.”

“Everybody started crying,” Tom says. “Andy was choking up as he was reading.”

Now, more than a year later, they are ready for surgery.

Tom is rolled on a gurney into Operating Room 19, on the second floor of the hospital, where H. Albin Gritsch, MD (RES ’91), John Jergens Chair in Kidney Transplantation and surgical director of UCLA’s kidney-transplant program, awaits. Dr. Gritsch and his team will remove Tom’s left kidney, which they will then bring to an adjacent operating room to be transplanted into his brother.

Working through four small incisions, Dr. Gritsch inserts a small camera and instruments to perform the procedure. The image from inside Tom’s body is displayed on a large screen. Maneuvering within the confines of the abdominal cavity, Dr. Gritsch points out other organs to his residents as one moves them aside to access the kidney. “It’s always surprising how tightly packed the organs really are, after you see them spaced out in illustrations,” he says. “Like a Rubik’s Cube.”

“I VIEW WHAT WE’RE DOING WITH THE MATCHED PATIENTS AS A STEP TOWARD WORKING WITH A MUCH LARGER POOL OF PATIENTS, THE MISMATCHED PAIRS.”



As the team works, nurses fill a tub with saline and ice to receive Tom's kidney. While it still is inside Tom's body, the surgeons sheathe the kidney in plastic and then pull the organ out through a 10 cm cut. As Tom's kidney rests in its chilly bath, the surgeon cuts away the plastic and inserts an IV with saline to flush away the blood. The organ, about the size of a mango, turns a pale tan.

Next door, in OR-18, Dr. Veale turns off the house music he has been listening to. Andrew is already prepped, an incision in his torso and his own kidney removed. The new kidney arrives, and Dr. Veale lifts it from the tub. "This is a good kidney," Dr. Veale says, with obvious delight. "It's big. Lotta horsepower with this kidney."

He trims some fat from the organ, fits it in place, and he and another surgeon begin suturing. Once the new organ's veins and arteries are connected, Dr. Veale removes the clamps and blood streams through, turning the kidney a deep pink. Within seconds, he confirms that the kidney is making urine. Andrew will no longer need dialysis.

In a nearby room, Lettie and Deanne look up from their phones when Dr. Veale comes in. "It went really well," he tells them. "The kidney pinked up nicely, and it made urine right away."

Now he has to tell the other members of the transplant-tolerance team that it all went well. "I have dozens of emails to send," he says.

Tom is discharged from the hospital the next day; Andrew will spend several more days recovering. Before leaving the hospital, Tom stops by his brother's room. It is the first time, he says, that he has really seen how sick Andrew was.

"He's my younger brother, and he looked 15, 20 years older than me," Tom says. "He looked frail as can be. I saw death on his face."

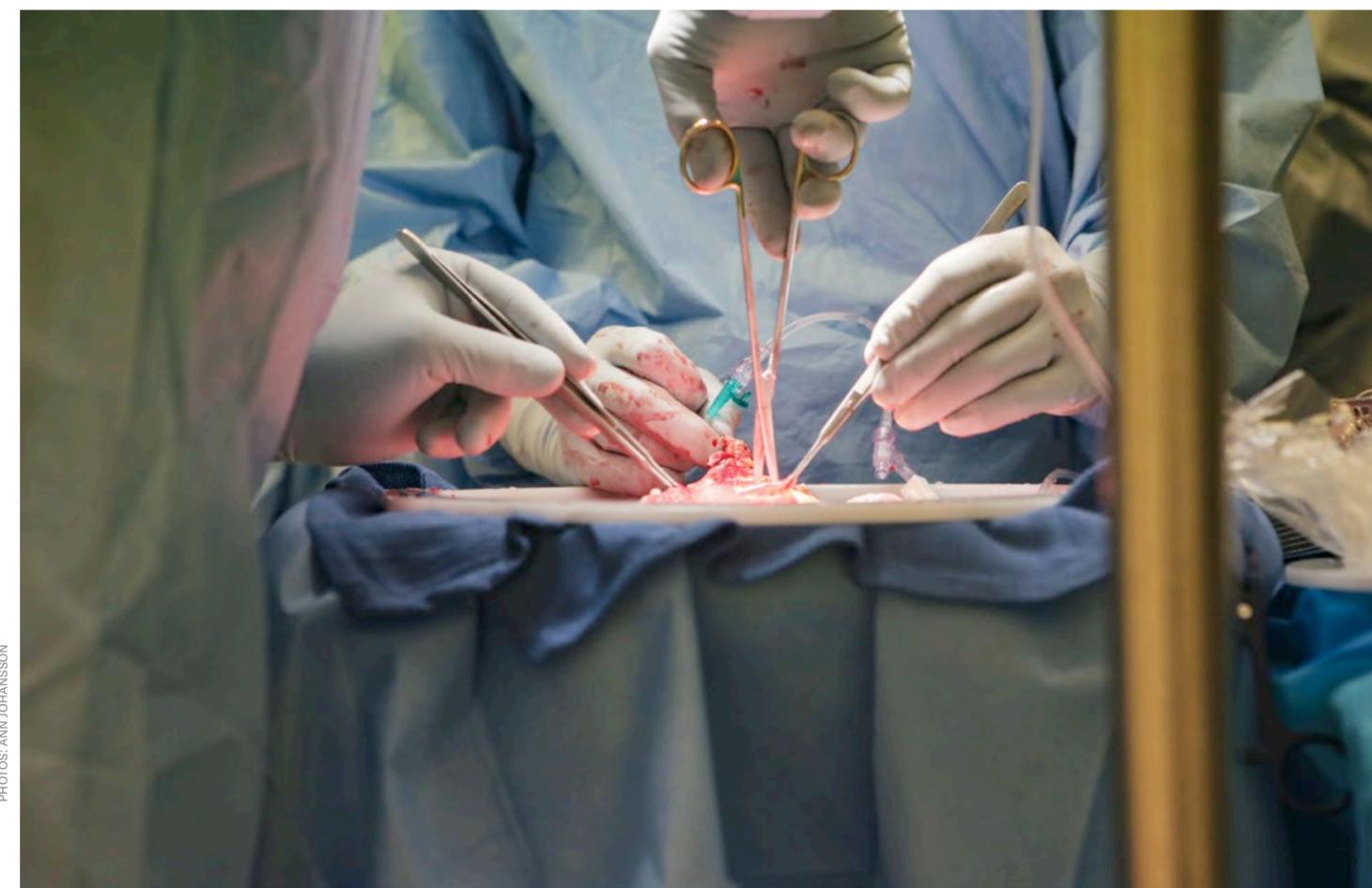
Now, perhaps, there is hope that Andrew can be healthy again.

THE SURGERY IS OVER, BUT ANDREW'S JOURNEY IS FAR FROM FINISHED. The day after the operation, Andrew begins a series of treatments called "total lymphoid irradiation" to kill off enough of his own stem cells to make room for the infusion of Tom's. Once used to treat Hodgkin's disease, the procedure now is employed primarily with post-transplant patients to help prevent graft-versus-host disease.

Andrew began meeting with radiation oncologist Ann Raldow, MD, MPH, weeks before his surgery. "Patients come in before their transplant, and we develop a radiation-therapy plan that is specific to their anatomy," taking care to

"MY DEAREST BROTHER, I FOUND OUT I AM A PERFECT MATCH. I AM GIVING YOU THE GIFT OF LIFE."

OPPOSITE PAGE: Andrew Macias and his wife, Deanna, share a final kiss before he is brought to the operating room to receive a new kidney from his brother, Tom. BELOW: After Tom's left kidney is removed, surgeons prepare it for transplantation to his brother.



avoid exposing the newly transplanted kidney to radiation, Dr. Raldow explains.

As part of his preparation, Andrew had nine tiny dots — radiation tattoos — inked onto his upper and lower chest, lower abdomen and pelvis, sides and shoulders. These will serve as guides to help the treating therapist align his body precisely during the procedure.

When Andrew arrives for the treatment, he is led to a room with a high-tech machine in the center. Andrew is weak, and he moves slowly. “I can feel things changing in my body,” he says.

A nurse helps him onto the machine’s platform, and two therapists strap his body in place. They align his torso using lasers and the tattoos as their guide. After technicians cover his body with a sheet and his face with a netting to keep his head and neck in position — the radiation beams begin just below Andrew’s neck — the treatment begins.

“IT’S NOT FOR THE FAINT OF HEART, THAT’S FOR SURE. BUT IF THIS IS THE PRICE I HAVE TO PAY TO HAVE A KIDNEY THAT I CAN KEEP FOR THE REST OF MY LIFE, I’M WILLING TO DO THIS 20 TIMES OVER.”

The procedure is painless. “It’s like getting a very targeted X-ray,” Dr. Raldow says.

Music from the ’70s rock band Bread plays in the treatment room. “His choice,” a tech says. Andrew is motionless in the machine as the techs close the heavy vault-like door to the room. The words “Beam in use” light up above the door and the machine begins rotating around Andrew’s body, circling his torso and moving lengthwise from his neck to his feet. In an adjacent room, doctors and nurses monitor a 3D rendering of the procedure on a computer screen.

Andrew will receive a total of 10 radiation treatments. Once that is complete, his immune system will be primed to receive the infusion of his brother’s stem cells.

Before that can take place, however, Tom’s stem cells must be processed to create a cocktail of his stem cells and T cells for the infusion. That work was done in the laboratory of Donald B. Kohn, MD, Distinguished Professor of Microbiology, Immunology and Molecular Genetics and of pediatric hematology-oncology. Over the course of his more than 30-year research career, Dr. Kohn has studied the therapeutic applications of blood stem cells. The opportunity to help develop UCLA’s transplant-tolerance protocol was tantalizing. “I’ve always thought this is exactly the direction in which transplantation needs to be going,” Dr. Kohn says. “If we can help guide the immune system to not reject the graft, as this does, that is a significant step forward. From here, we need to learn how to do this with heart transplants and liver transplants, and all the other transplants, to avoid the complications of immune suppression for our patients.”

When the day of the infusion comes, Deanna is by Andrew’s side as his brother’s stem cells are dripped into his vein. “The stem cells smell like garlic mixed with corn,” she recalls. “The nurse said he would be able to taste it, so they brought him some lollipops to suck on.”

It will take time to know how successful the procedure proves to be. If full mixed chimerism is achieved — if, as Dr. Lum explains, “a significant portion of Andrew’s blood and bone marrow are part Tom and part Andy” — and is sustainable, then Andrew’s new kidney will thrive without the need for immunosuppressive drugs.

THE SURGERY, RADIATION AND STEM-CELL INFUSION TOOK A LOT OUT OF HIM, and as Andrew recovers at home, he feels weak and exhausted. Between tracking his blood pressure and taking his pills, he’s on a strict schedule, and some days it takes all his energy just to keep up with it. He regularly has his blood drawn so his medical team can monitor his progress.

“It’s not for the faint of heart, that’s for sure,” Andrew says. “But if this is the price I have to pay to have a kidney that I can keep for the rest of my life, I’m willing to do this 20 times over. Overall, I’m happy,” he continues. “I just can’t wait to get to where I can do things, like go back to work and work on my yard and drive my muscle car around.”

Weeks pass. Andrew still feels frail, but he can tell he’s slowly getting stronger. And the doctors have good news: His blood tests show that chimerism is forming. Dr. Lum is cautiously optimistic. “It’s scary, but in a good way,” he says.

As Andrew continues to heal, he reflects on the profundity of the experience. He marvels



PHOTO: COURTESY OF MACIAS FAMILY



PHOTO: ADAM AMENGUAL

TOP: Tom Macias (left) and his younger brother, Andrew, in a photo from the mid-1960s.

BOTTOM: It has been a long journey for Andrew Macias, who says, “I just can’t wait to get to where I can do things, like go back to work and work on my yard and drive my muscle car around.”

at the support Deanna has provided throughout this journey, the way her parents have extended themselves and how his friends have kept up their presence in his life.

And he thinks about his brother, Tom, who gave a portion of himself so that Andrew could be healthy again. “There’s no words,” Andrew says, his voice cracking. “There’s no words that I can say that would live up to what he’s done for me. I’m a grandpa, and I want to be here for my grandkids and for my children and for my wife.”

Several more weeks pass, and on a classically sunny L.A. weekend, Andrew and Tom and their wives are enjoying a party with OneLegacy Foundation staff and supporters and more than two dozen UCLA Health doctors, nurses, coordinators and other clinical workers who have been involved in the transplant-tolerance procedure. Andrew looks healthier than he has in years. Doctors have taken him off of all but one immunosuppressive drug, and he looks forward to the day when he will be free of that, as well.

As the partygoers celebrate, a karaoke machine in the corner of the stage catches Andrew’s eye. He steps up, grabs the microphone and lets loose with Bon Jovi’s “Livin’ on a Prayer”:

*Oh, we’ve got to hold on, ready or not
You live for the fight when it’s all that
you’ve got
Woah, we’re half-way there
Woah, livin’ on a prayer
Take my hand, we’ll make it I swear
Woah, livin’ on a prayer. ●*

Sandy Cohen is a senior writer in UCLA Health Communications and a former national writer for *The Associated Press*. U Magazine news editor **Diya Chacko** contributed reporting to this article.

For more information about UCLA Health’s transplant-tolerance program, go to: tinyurl.com/UCLA-Transplant-Tolerance

To view a video of Tom and Andrew Macias’s transplant-tolerance journey, click on the link to this article at: uclahealth.org/umagazine

UCLA IN THE TIME OF AIDS:

In the Beginning

Forty years ago, when a UCLA physician published a three-page report first identifying the disease that would become known as AIDS, few imagined the devastating toll that would follow.

By Dan Gordon
Photos by Chantal Anderson

This is Part 1 of a two-part story chronicling UCLA's engagement with the HIV/AIDS epidemic over the past four decades. Part 2 will be published in the next issue of U Magazine, Winter 2022.

"I didn't feel sick, but I knew that something was up. I just didn't know what it was," says Tom Gillman.

W

hen Tom Gillman and his partner opened Hardware, a small clothing shop on Melrose Avenue in late-1970s Los Angeles, it was an instant hit. And having spent weeks at a time in New York's Fire Island Pines the previous six summers, their decision to open a seasonal shop there was a no-brainer.



In an era of rampant homophobia, Fire Island Pines was a gay mecca — a summer sanctuary where young gay men reveled on the beaches, boardwalks and at parties, unconstrained by the need to hide their identities. The two California men signed a three-year lease and opened Hardware @ the Pines in 1979, and with a well-heeled clientele that included fashion-industry leaders from all over the world, their first two summers were wildly successful.

But when Gillman and his partner arrived to prepare the business for its third season, just before Memorial Day weekend in 1981, something was amiss. A few stalwarts of the Pines community had died of unknown causes before the season began, and their absence was painfully conspicuous. “Throughout the Pines, there was a constant whisper of a ‘gay plague,’” Gillman recalls. That summer, thanks to his store’s close proximity to the site of the daily “tea dance” — a late-afternoon tradition in which hundreds of scantily clad revelers packed together and swayed to the thumping disco beat — Gillman remembers seeing several men who in prior years could be found in the center of the action suddenly taking to the sidelines.

“They watched all the fun, making sure they weren’t noticed,” Gillman says. “If our eyes met for a second, they would look away. They dressed differently from the usual tea dance drag — maybe wearing long pants or long-sleeved shirts instead of shorts and tank tops. They concealed their faces with hats. They were, of course, covering up their Kaposi’s lesions while not wanting to miss being a little part of the heaven that Fire Island Pines unabashedly was before 1981.”

On the other side of the country, Michael Gottlieb, MD, a 32-year-old immunologist a few months into his career at UCLA, was frustrated. Recruited from Stanford, where he had just completed his fellowship training, Dr. Gottlieb had transferred his laboratory research program to L.A. But in the new environment, the experiments weren’t working. Dr. Gottlieb, who preferred patient care, anyway, began to spend more time on clinical pursuits.

In early 1981, as part of his efforts to teach his UCLA trainees about immunology, Dr. Gottlieb asked one of his fellows to poke around the wards for a patient whose illness showed unusual immunological features. The fellow learned from a medical intern of a previously healthy 31-year-old gay man who had come to the emergency room with weight loss, candidiasis (thrush) and persistent, unexplained fevers that ultimately developed into *Pneumocystis carinii*, a pneumonia previously understood to present only in individuals with severely compromised immune systems.

The patient’s symptoms didn’t comport with anything Dr. Gottlieb had encountered, and he thought one curious case might be an anomaly. That was until a rheumatologist at the Wadsworth VA who was moonlighting at a hospital in the San Fernando Valley told Dr. Gottlieb about two strikingly similar cases involving young gay

men with the same rare pneumonia — both of them patients of a Sherman Oaks physician whose practice catered to the gay community.

At that time, few hospital laboratories had the capability to assay the health of a patient’s immune system. UCLA, on the other hand, had the Center for Interdisciplinary Research in Immunology and Disease, a federally funded facility that boasted the most state-of-the-art equipment available at that time. The chief of the lab was John L. Fahey, MD, who, while working for the National Institutes of Health (NIH) in the 1950s, made important discoveries that expanded scientific understanding of the human immune system. Now, Dr. Fahey turned his lab’s attention to the puzzle of the three young men with the baffling constellation of illnesses and discovered that they all had severely depleted CD4 T lymphocytes, a confirmation that their immune systems were profoundly weakened and no longer able to fight off infections that would not otherwise cause disease.

As word spread that Dr. Gottlieb was studying young gay men with a mysterious acquired immune deficiency, two more patients with the same cluster of symptoms were referred to UCLA.

On June 5, 1981, the *Morbidity and Mortality Weekly Report* of the U.S. Centers for Disease Control and Prevention (CDC) published a three-page report written by Dr. Gottlieb and four colleagues detailing the five cases. Titled simply “*Pneumocystis Pneumonia — Los Angeles*,” it was the first description of the disease that a year later would become known as acquired immune deficiency syndrome — AIDS.

Now the dam burst. The same day the report came out, a New York dermatologist contacted the CDC to report cases of Kaposi’s sarcoma (KS), an unusually aggressive cancer that forms masses in the skin, lymph nodes and other organs. Dr. Gottlieb began fielding calls from doctors from all over the country who wanted to know if their patients fit into the syndrome. By the end of the year, there were hundreds of confirmed cases in the United States.

The five cases of the yet unnamed syndrome first identified at UCLA presaged a global epidemic. Worldwide, approximately 80 million people have been infected by the human immunodeficiency virus (HIV), which was identified in 1983 as the agent that causes AIDS. HIV/AIDS has taken an estimated 36 million lives.

No one in 1981 could have predicted such a devastating toll. But Dr. Gottlieb, who still is on faculty at UCLA, knew he had stumbled onto something big. “It was a bombshell,” he says. “And within the medical center, there was quite a bit of talk after the report” — which Dr. Gottlieb and his colleagues followed up on six months later with a more in-depth article in *The New England Journal of Medicine* — “that UCLA was on the cutting edge of this new, devastating disease.”

This year, as the world has struggled to claw its way out of the worst pandemic in a century, the HIV/AIDS epidemic quietly marked its 40th anniversary. The story of the last four decades includes shameful chapters — including the lackluster initial government response, irrational fears



“It was a primitive time. People were shunned and felt isolated,” says Dr. Michael Gottlieb.

“UCLA WAS ON
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about transmission and ongoing marginalization and stigmatization of at-risk populations and the continuing failures of the U.S. health care system to meet the needs of communities of color and other underserved populations. But it also includes stories of humanity, perseverance and breathtaking scientific achievement. And in the 40 years since Dr. Gottlieb and his colleagues made their explosive report, UCLA has remained at the forefront of research and clinical advances that have transformed AIDS from a poorly understood disease associated with near-certain death to a treatable chronic illness for the nearly 38 million people currently living with HIV — even if sizable challenges remain.

By early 1984, many of the people Tom Gillman knew were dying of AIDS. So, when he started to experience unexplained weight loss and blood in his stool, he didn’t hesitate to call his doctor. “I didn’t feel sick, but I knew that something was up. I just didn’t know what it was.” But after his doctor did an examination, “he knew,” Gillman recalls. “His face was ashen. I had Kaposi’s.” The physician told Gillman that he was referring him to another doctor at UCLA, Ronald T. Mitsuyasu, MD ’78 (FEL ’84).

Dr. Mitsuyasu was starting his fellowship in hematology-oncology when Dr. Gottlieb reported the first cases. He recalls seeing his first AIDS patient in early 1982, and remembers the futility of the treatments. “Some of my more senior colleagues and mentors were saying this would pass, like any other viral

infection, and I shouldn't invest my career in this," he recalls. "But to me, we were dealing with a disease that was far more serious than anything I had encountered before, and it was going to be around for a while."

Dr. Mitsuyasu started seeing cancer patients with HIV, and he began a KS clinic in 1983. "The majority of patients were treated by practitioners in the community. We got the sickest ones and would do whatever we could to try to keep them alive. It was discouraging," he says. "We had very few successes and a lot of deaths."

Gillman would be one of the few early successes. "I was very nervous about that first visit," he says. "All of a sudden, I was involved in something that was beyond my control, something much bigger than just myself. Yeah, I was very nervous."

Around the time Gillman began coming to UCLA, Dr. Mitsuyasu was starting an experimental protocol of interferon alpha, one of the first drugs tested for AIDS-related KS, and he enrolled Gillman into the trial. The treatment, which aimed to rev up the immune system, required Gillman to give himself a shot twice a day. The side effects were unpleasant — "It was really rough on me," Gillman recalls — but after two six-week regimens, his KS lesions were gone.

While Dr. Mitsuyasu's sense that AIDS would prove intractable came from his clinical experience, a UCLA colleague, Irvin S.Y. Chen, PhD, reached the same conclusion based on his training in the University of Wisconsin laboratory of Howard Temin, PhD, a Nobel laureate for his discovery of reverse transcriptase — the enzyme that would prove an important target for AZT, the first successful AIDS drug. When Dr. Chen arrived at UCLA in 1982, it wasn't yet clear that a virus was the culprit in AIDS. That changed the next year with the identification of HIV, a retrovirus that reproduced using the reverse transcriptase enzyme. Because HIV turned out to be in the same family of viruses he had been studying, Dr. Chen became the first UCLA scientist to focus on HIV in the lab.

Within a decade, Dr. Chen would become the founding director of the UCLA AIDS Institute, a milestone for the university that brought to bear the wide-ranging expertise of nearly 200 faculty from all parts of the campus — in sharp contrast to the early days, when there were many basic logistical hurdles that had to be cleared. "The university wasn't set up for this type of research, so there were all kinds of equipment and biosafety considerations to work out," Dr. Chen says. But making that investment was essential. "I knew from working with these kinds of viruses that they were very difficult to deal with," says Dr. Chen, who continues to head the institute.

The challenges were also substantial outside of the patient-care and laboratory settings. "It became very clear there was little public awareness of the disease, and no political leadership focused on HIV at the national level," Dr. Mitsuyasu says. He remembers joining with colleagues from other University of California campuses to lobby in Sacramento for funding from the

state — an effort that led to the establishment in 1983 of the University-wide AIDS Research Program, which gave the UC campuses a jump in HIV/AIDS scientific and clinical endeavors. The same year, Dr. Mitsuyasu, Dr. Gottlieb and Yvonne J. Bryson, MD, a pediatric-infectious-diseases specialist, developed a research and clinical program in HIV, which later became the Clinical AIDS Research and Education (CARE) Center.

It was not until the AIDS diagnosis of actor Rock Hudson in 1984 and his death the following year that the public's attention started to focus on the issue. As public awareness increased, so did research funding from the NIH. The CARE Center leaders were awarded a grant that made UCLA one of the first 14 centers in the country to have an AIDS evaluation and treatment unit, part of a network now known as the AIDS Clinical Trials Group (ACTG). With that, UCLA began conducting clinical trials of investigational drugs for HIV. One of the first involved the antiviral drug AZT, which showed benefits — bringing the first glimmer of hope, six years in.

As the epidemic unfolded, Roger Detels, MD, faced challenges of another type. An epidemiologist who was, at the time, dean of UCLA's school of public health, Dr. Detels approached Drs. Gottlieb and Fahey with a proposal for a clinical, social and behavioral study to learn more about the causes of the lethal new disease and how best to prevent its spread within the population then known to be at the highest risk — men who had sex with men. For the study, Dr. Detels recruited students from UCLA's Gay and Lesbian Association to anonymously fill out a questionnaire and allow their blood to be drawn to measure the level of their immune cells.

But Dr. Detels soon realized he would need to follow the students over time — potentially for years — which necessitated asking for their names and contact information. "There already was a high level of stigma against gay men, exacerbated to a huge extent by the appearance of this disease," Dr. Detels recalled years later. "These young men were scared, and their natural inclination was to stay below the radar." Nonetheless, of the 200 students who participated in the original study, 189 agreed to be followed. "That was, in my opinion, a colossal act of heroism," says Dr. Detels, who today is Distinguished Professor of Epidemiology in the UCLA Fielding School of Public Health.

The research, still under Dr. Detels' leadership, continues to this day as the UCLA site of the Multicenter AIDS Cohort Study (MACS). It has followed more than 2,000 participants and produced seminal findings on the epidemic. Later in the decade, Dr. Detels founded the UCLA/Fogarty AIDS Training and Research Program, which prepared many of the public-health leaders in the fight against HIV/AIDS in China, Southeast Asia and India. Today, many of those leaders are spearheading the response to the coronavirus pandemic in their countries and at the World Health Organization.

From the first days of the epidemic, misinformation was widespread, including fears that HIV could be spread merely through touching or sharing utensils with an

infected individual. Many health care providers refused to see HIV patients. "It was a primitive time," Dr. Gottlieb says. "People were shunned and felt isolated."

Gillman remembers that period in much blunter terms: "It was ... terrible," he says. "It was ... war. It was hate. It was secrecy. It was drama. It was heartbreaking."

When Dr. Mitsuyasu's clinic was located in the basement of the UCLA Center for the Health Sciences — a difficult-to-find location with no sign on the door and no windows inside — some wondered if it was for fear of UCLA becoming too associated with HIV/AIDS care. But for patients like Gillman, who half-jokingly refers to the basement space as "the dungeon," the discreet location had its benefits. "I wasn't out to everybody about my diagnosis," he says. "I didn't want to be written off."

Dr. Mitsuyasu remembers patients who went through the dying process alone because they hadn't come out to their family and friends. In some cases, patients took

him up on his offer to engage in frank discussions with their parents about what their HIV status meant. Dr. Mitsuyasu became skilled at preparing patients and their loved ones for death. "It was heartbreaking, but also rewarding, to be able to provide some comfort and help patients feel less isolated," he says.

The desperation for more attention and funding to address a disease that was killing so many so quickly led many of UCLA's AIDS clinicians and scientists to find common cause with the activists pushing for a more robust response. "Advocacy among patient groups is common now, but that really started with AIDS and members of the gay and lesbian community becoming organized and vocal," Dr. Mitsuyasu says. "At first, they were hesitant about our involvement, but we worked to convince them we were on the same side, and that we would advocate with them for more federal support for research and services."

LEFT: "Some of my more senior colleagues and mentors were saying this would pass, like any other viral infection, and I shouldn't invest my career in this. But to me, we were dealing with a disease that was far more serious than anything I had encountered before, and it was going to be around for a while," says Dr. Ronald T. Mitsuyasu.

RIGHT: "I knew from working with these kinds of viruses that they were very difficult to deal with," says Dr. Irvin S.Y. Chen.



Dr. Gottlieb felt that he had no choice but to enter the arena of political activism. “These early patients who were dying were my contemporaries,” he says. “Politically, there was a stigma associated with them, and so it was going to be an uphill fight. I felt I had to do what was necessary to plead with funders to take this seriously.”

Dr. Gottlieb had treated Rock Hudson before his death, and together with actress Elizabeth Taylor and Dr. Mathilde Krim, a researcher at New York’s Memorial Sloan-Kettering Cancer Center, he co-founded the American Foundation for AIDS Research (amfAR). The foundation would become a world leader in supporting AIDS research and prevention, treatment, education and advocacy.

Celebrity patients such as Hudson helped to put a recognizable human face on the disease, and celebrity

“There already was a high level of stigma against gay men, exacerbated to a huge extent by the appearance of this disease. These young men (who agreed to participate in his study and be followed over many years) were scared, and their natural inclination was to stay below the radar. That was, in my opinion, a colossal act of heroism,” says Dr. Roger Detels.



activists like Taylor became invaluable allies in the quest for funding. Taylor was among the luminaries in attendance at the grand opening of the CARE Center’s current location, on Pico Boulevard, where she announced the creation of an endowment fund to support the center. Dr. Bryson — together with Dr. Gottlieb and pediatric immunologist E. Richard Stiehm, MD — was instrumental in the founding of the Elizabeth Glaser Pediatric AIDS Foundation in 1988, in partnership with the prominent activist, her husband and friends who sought to publicize the issue of AIDS and children after she contracted HIV through a blood transfusion during childbirth and unknowingly passed it to her daughter and son. “Elizabeth Glaser was amazing. She was a fierce mother bear, determined to make a difference in her lifetime, to see something change,” Dr. Bryson says. “What she was doing, going to Washington and capturing people’s attention, was inspirational. No one was paying attention to children at that time.” After living with AIDS for 13 years, Glaser died in 1994, at the age of 47.

When Dr. Gottlieb was trying to make sense of the initial cluster of cases in early 1981, he consulted with Dr. Bryson, a pediatric virologist who was also new to the UCLA faculty. At the time, it was very unclear what they were dealing with. “It wasn’t like any virus I had ever seen, but I told Michael that I wouldn’t be surprised if it was, in fact, a virus,” Dr. Bryson recalls. “What I didn’t anticipate then was how it was also going to affect mothers and children.”

Soon it became clear that was the case — first, when children were referred to UCLA with unusual illnesses that, Dr. Bryson and colleagues learned, stemmed from HIV infections traced to blood transfusions at birth; and then, with the initial reports of perinatal transmission from HIV-infected mothers. “I would see these babies coming in and getting so sick, with most of them dying before they were 2 years old, and then their mothers would die,” says Dr. Bryson, now a Distinguished Professor of Pediatrics and Infectious Diseases. “It became personal for me.”

It was evident to Dr. Bryson that protecting infants from HIV infection required administering antiviral treatment to the HIV-infected mother during pregnancy and at delivery, and then immediately to the newborn. But the idea of offering HIV tests to pregnant women and giving antiviral drugs to those who were infected was controversial. “It was a fight at every turn,” Dr. Bryson says. “Yet, without this, these babies were doomed to die.”

Ultimately, Dr. Bryson’s argument prevailed, leading to a landmark 1998 study she led that found giving AZT to the HIV-infected mother reduced the rate of perinatal transmission from 23% to 8%; with the advent of combination antiretroviral therapy, the risk would drop to 1.5%. “When I started working on prevention of perinatal transmission, I thought the best thing I ultimately could do was make myself not needed anymore. It’s gotten close to that point,” Dr. Bryson says. “I’ve seen children from infancy who grow up and have healthy babies of their own.”



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“I would see these babies coming in and getting so sick, with most of them dying before they were 2 years old, and then their mothers would die. It became personal for me,” says Dr. Yvonne J. Bryson.

Today, Dr. Bryson’s research is focused on the potential for HIV cure in infants. As far back as 1995, a group led by Drs. Bryson and Chen reported the first case of an infant clearing HIV from his body by his first birthday. Because HIV has a viral reservoir that is latent, adult patients with undetectable viral loads continue to be treated with antiretroviral drugs for life. “But it seems to be different in infants,” Dr. Bryson says. “We want to know whether or not if we treat them very early they might not need the drugs forever, giving the immune system a chance to grow normally.”

Dr. Bryson’s early work in preventing prenatal HIV transmission came at a time when combination antiretroviral therapy was changing the paradigm of HIV/AIDS

treatment — providing the tools for AIDS to be treated as a chronic disease, and for patients to lead full lives. In Part 2 of this story, which will publish in the Winter 2022 issue of *U Magazine*, we highlight that transformation, as well as the formidable clinical, scientific and socioeconomic challenges that lie ahead. ●

Dan Gordon is a freelance writer and frequent contributor to *U Magazine*. UCLA Health senior writer *Jocelyn Apodaca Schlossberg* contributed reporting to this article.

For more information about the UCLA Clinical AIDS Research and Education (CARE) Center, go to: www.uclahealth.org/care-center

Responders work amidst the smoldering rubble of the World Trade Center following the 9/11 terrorist attack.

PHOTO: PORTER GILFORD / GETTY

THE LINGERING AFTERMATH OF 9/11

It has been 20 years since the Twin Towers fell, but for many of the responders who were present at Ground Zero, the health ramifications of that earthshattering day continue.

By
Lyndon Stambler



Three days after terrorists flew two jumbo jets into the World Trade Center on September 11, 2001, collapsing the Twin Towers and killing nearly 3,000 people, ABC News journalist Scott Shulman boarded a corporate jet in Los Angeles to fly to New York to cover the national tragedy.

For nearly two weeks he stayed at Ground Zero, working 12-hour shifts operating a satellite uplink truck to feed reports and images of the recovery efforts back to the network. “It was a smoldering pile,” Shulman says. “We were constantly breathing smoke, ash and dust.”

The crumbling skyscrapers spewed a toxic blend of jet fuel, glass, paint, concrete and steel that contained a host of known carcinogens — asbestos, beryllium and benzene, among others — that hung in the air for weeks.

Few knew the danger of breathing suspended particulate matter. “Today, every single recovery worker would be wearing an N-95,” Shulman says. “But nobody was wearing masks back then.”

The immediate death toll on 9/11 reached 2,977, including people on the two other planes that crashed into the Pentagon and in Shanksville, Pennsylvania. September 2021 marked the 20th anniversary of the event, and the toll in disrupted lives and misery continues to climb. Since that Tuesday morning in 2001, more than 110,198 responders, who came to Ground Zero from every state, and survivors, who were living, working or attending school within the “exclusion zone,” have enrolled in the Centers for Disease Control and Prevention’s World Trade Center Health Program. They suffer from a multitude of ailments that include chronic rhinosinusitis, pulmonary disease, gastroesophageal reflux disease (GERD), asthma, sleep apnea, post-traumatic stress disorder, anxiety, depression and cancer. Shulman is among them.

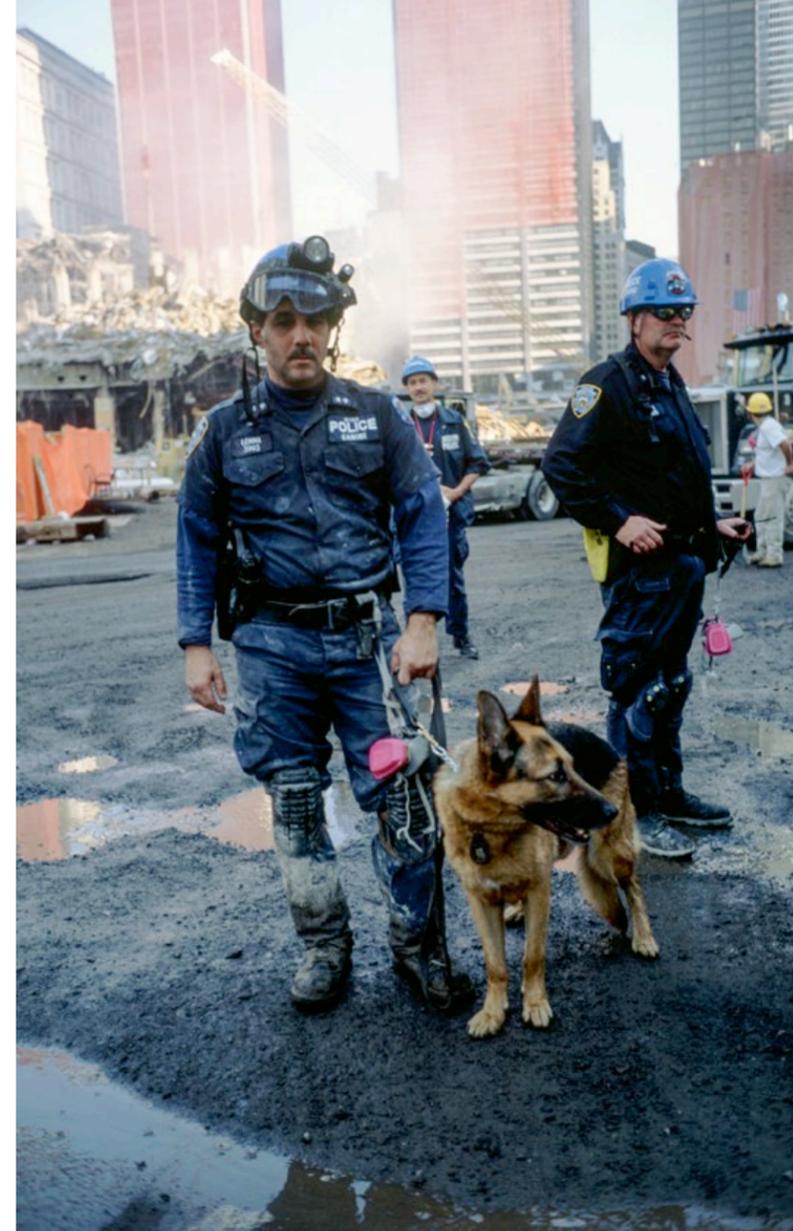
Of those who registered with the program, 4,343 have died.

Two decades later, doctors continue to learn new things about the lingering health impacts of 9/11 on people’s lives. “We’re still in prime time for learning what the long-term consequences are going to be,” says Russell G. Buhr, MD (FEL ’17), PhD ’19, assistant professor of pulmonary and critical care medicine, who has treated National Guardsmen who were at Ground Zero. “We still have a lot to learn. Whether it’s 9/11 or the wildfires of California, something like this will help us understand how to mitigate the health risks of other crises.”

Like thousands of others, Shulman’s 9/11 experience affected both his psyche and health. His seemingly endless sinus infections began a year after; they got so bad, that the infections eventually led to bone loss in his jaw and the loss of one of his teeth. “I basically had a sinus infection for 17 years,” says Shulman, who this year retired as an ABC Network news producer. “When I got one, I could feel it in my teeth.”



Scott Shulman at Ground Zero in New York City, September 2001.



More than 110,198 responders and survivors who lived, worked or attended school within the “exclusion zone” have enrolled in the Centers for Disease Control and Prevention’s World Trade Center Health Program. They suffer from such ailments as chronic rhinosinusitis, pulmonary disease, gastroesophageal reflux disease, asthma, sleep apnea, post-traumatic stress disorder, anxiety, depression and cancer.

Chronic rhinosinusitis, which affects 15% of the U.S. population, is the top certified condition of the WTC Health Program; 32,925 people registered for that condition.

Jeffrey D. Suh, MD ’03 (RES ’09), associate professor of head and neck surgery, began treating Shulman for sinusitis in 2018. He corrected Shulman’s deviated septum and performed endoscopic surgery to open up his sinuses. “With the massive amount of chemicals, pollutants, dust, mold — everything that would be in those buildings — it could make someone who already did have sinus problems worse, or someone who never had sinus problems start. It would definitely exacerbate things,” Dr. Suh says.

But Shulman’s problems were not limited to his sinuses. He also suffered pain and inflammation in his throat, and a persistent cough. “I knew by 2002 that my health was being affected, but I couldn’t put my finger on it,” he says.

Seeking answers, he underwent several medical exams and procedures. Finally, in 2017, a CT scan of his heart that he had while preparing for shoulder surgery led to a frightening finding: His lungs were filled with nodules. Doctors told him he had what appeared to be a rare inflammatory disease called sarcoidosis.

Shulman and his wife, Cipra, were terrified when they heard the news. “We didn’t know if I was living or dying when we saw these nodules in my lungs,” Shulman recalls. “We looked at each other — we didn’t know if it was leading to a cancer diagnosis or if it was going to get worse or better.”



PHOTO: JESSICA PONS

Twenty years after 9/11, "people are still dying from their exposure to the toxic dust," says Scott Shulman. "I've been very lucky."

He found his way to Joseph P. Lynch III, MD, Holt and Jo Hickman Endowed Chair of Advanced Lung Disease and Lung Transplantation at UCLA, who is an expert on sarcoidosis. Dr. Lynch confirmed the diagnosis and spent 90 minutes explaining the condition to the couple.

"He explained this weird disease, and how it could affect me," Shulman recalls. "Sarcoidosis can kill you if it gets into your heart. It's an auto-immune disease. It's your body trying to rid itself of these toxic dust remnants. It is stealthy, and odd, but it was incredibly comforting to know that Dr. Lynch was looking out for me."

Shulman is among six 9/11 patients Dr. Lynch has treated. Sarcoidosis, Dr. Lynch says, has been found at significantly higher rates among 9/11 responders than among the general population.

Dr. Lynch has used prednisone to treat sarcoidosis in the acute stage, and he has seen reversals. But if someone is diagnosed weeks, months or years later, ste-

"Sarcoidosis can kill you if it gets into your heart. It's an auto-immune disease. It's your body trying to rid itself of these toxic dust remnants. It is stealthy, and odd, but it was incredibly comforting to know that Dr. Lynch was looking out for me."

roids are ineffective. Fortunately for Shulman, although he showed typical findings of sarcoidosis, his case was "mild to moderate," Dr. Lynch says. "His lung function was around 85% of normal, his oxygen was normal and his lungs sounded clear. He never really felt short of breath. He would go on five-mile-plus hikes and exercise every day. His exercise capacity was above normal. He was pretty stable.

"I don't overtreat," Dr. Lynch says. "The most important thing I do is I keep people out of trouble."

THOUGH UCLA IS 3,000 MILES FROM THE SCENE OF THE EVENT, its medical experts have treated people suffering consequences of 9/11's aftermath.

Among them have been combat veterans of the post-9/11 wars in Iraq and Afghanistan, who continue to receive treatment through UCLA's Operation Mend and FOCUS: Families OverComing Under Stress. UCLA has also been pivotal in helping children of 9/11 responders and survivors cope with trauma and stress.

The UCLA-Duke National Center for Child Traumatic Stress was awarded federal funding on September 11, 2001, and it began operating the next month. The network led by UCLA-Duke began with 17 centers, but nine more were added within a year to support families in New York, Pennsylvania and Washington, DC, impacted by 9/11. Today, there are 140 centers, and the program just received \$40 million for five more years from the Substance Abuse and Mental Health Services Administration.

"September 11 really shook our concept of what is safe," says psychologist Melissa Brymer, PhD, director of terrorism and disaster programs for the UCLA-Duke National Center for Child Traumatic Stress. "It made us feel vulnerable in terms of how our lives could change so dramatically."

Dr. Brymer knows this from personal experience; her cousin was a NYFD battalion chief who was killed in the collapse of the second tower. And in her professional life in the years since, Dr. Brymer has unfortunately seen more than her share of trauma. She was the lead advisor to Newtown Public Schools in Connecticut following the mass shooting at Sandy Hook Elementary School in 2012, and her team also responded to Hurricane Katrina, the 2017 mass shooting during a music festival in Las Vegas and, most recently, the COVID-19 pandemic. “We have set up a national program to increase training of mental health providers in child trauma and in evidence-based trauma and grief interventions, whether it’s after natural disasters or a violent event. We really think about the current best practices of addressing all types of child trauma.”

Dr. Brymer emphasizes the importance of ensuring the people who are affected by a crisis such as 9/11 receive both physical and mental health treatment. “We’re 20 years out, and the data are showing that people are still not getting access to the services they need,” she says. “We need a longer timeline to make sure people are getting high quality health and mental health care and that we make these services accessible for all impacted.”

Dr. Buhr, a pulmonologist, also believes a long-term approach is needed. He is particularly concerned about the lag time between environmental exposure and the appearance of disease. “You breathe on average somewhere between five and 15 liters of air every minute of every day, awake or asleep, and everything in that air touches the inside of your lungs,” he says. “The world and the environment around us become a lot more important.”

This can be especially important for “those who care for us,” people like the Ground Zero responders and firefighters and frontline workers during the COVID-19 pandemic, Dr. Buhr says. “The exposures that people got on 9/11 offer a window into what happens if you get a huge dose of dust or toxic pollutant in a concentrated period of time. We can learn from events like 9/11 and use them as ways to improve health trajectories, whether it’s changing to building materials that are less toxic or disposing of bad stuff more carefully.”

LONG-TERM SURVEILLANCE IS ALSO CRUCIAL for physicians who treat cancer in responders. The rate of thyroid cancer, leukemia and prostate cancer has been significantly higher for police and 9/11 recovery workers than for the general population, according to a study of 29,000 responders.

Maie St. John, MD (RES ’05), PhD, chair of the UCLA Department of Head and Neck Surgery, treated a 9/11 firefighter who was in his mid-40s when he presented with tongue cancer. Dr. St. John cites a CDC study that found a 40% increase in diagnosis of head and neck cancers among first responders between 2009 and 2012. “More research is needed to untangle if it really was the first exposure or was it changes in personal habits, such as stress-induced smoking or multiple sexual partners,” Dr. St. John says. “But given that the first responders had higher rates than people who came later, there may be something to the initial exposure of toxic gases. The first responders inhaled debris clouds that had many known carcinogens.”

Dr. St. John also advocates for more research to identify biomarkers for head and neck cancers, which are often first noticed by dentists or by people who find



PHOTOS: ISTOCK / GETTY IMAGES

TOP: Aerial view of the 9/11 Memorial park in New York City, December 2015.

BOTTOM: Vicente Benavidez, who spent four months removing asbestos from Ground Zero, has blood drawn for testing at the World Trade Center Worker and Volunteer Medical Screening Program.

“Just as we all have experienced during the COVID-19 pandemic, 9/11 is a similar kind of event in terms of the emotional loss, the human loss, as well as its continuing fallout.”

a lump. “Just as we all have experienced during the COVID-19 pandemic, 9/11 is a similar kind of event in terms of the emotional loss, the human loss, as well as its continuing fallout,” she says. “We need to continue to think about what we can do to identify biomarkers and make sure we have long-term monitoring of disaster survivors and responders.”

Prostate cancer typically affects older men. But urologic oncologist Nicholas M. Donin, MD (FEL ’17), whose wife was an undergrad at NYU on 9/11 and witnessed the collapse of the first tower, cites a peer-reviewed study in 2019 that appears to indicate an increased risk of aggressive prostate cancer among first responders.

“There are signs that suggest that the carcinogens present in WTC dust could promote a pro-inflammatory state that could then initiate development of prostate cancer,” Dr. Donin says.

He notes that research has revealed similar findings in rats exposed to the dust. The findings suggest, though more research still is needed, that not only might the toxic agents present in the dust at Ground Zero have led to development of prostate cancer, but also to particularly aggressive forms of the disease, Dr. Donin says.

The medical lessons learned from 9/11 will continue for decades. Dr. Lynch notes the voluminous post-9/11 medical literature that has come out focusing on lung diseases. First responders not only had greater severity of symptoms, but also multiple resulting medical conditions, from asthma to sinusitis to sarcoidosis to rare forms of bronchitis, pneumonia and cancer.

IN THE YEARS SINCE 9/11, Shulman has battled for his health. He feels that he has been relatively lucky; he knows others who lost their fights and have died as a consequence of their exposure at Ground Zero.

His battle has often been difficult, with numerous bureaucratic hurdles to overcome to receive the care he needs — and he believes deserves.

“This has been a real emotional burden on my wife and me,” he says. “The hardest thing for me has been what I’ve put my wife through. She’s my best friend. My health is paramount to her, and her health is paramount to me.” When he and Cipra together looked at the scans that revealed the sarcoidosis nodules in his lungs, “It was more painful for me to watch her reaction than it was for me to think about myself in that moment.”

In January 2018, Shulman presented his case to a CDC panel, which would review his medical records and decide if his health conditions were related to his exposure at Ground Zero. If the panel decided in his favor, his care would be covered by the WTC Health Program. A few months later, Shulman was accepted into the WTC Health Program for three 9/11-related conditions: interstitial lung disease (sarcoidosis), rhinosinusitis and GERD, the cause of his painful reflux.

“Oh my God, I cried,” Shulman says of the moment he received the notice. “I couldn’t believe it. It felt like this incredible validation, after 17 years, that what I was going through was due to my exposure.”

These days, Shulman walks several miles a day and rides his bike to keep his lungs strong, and he says that he is doing much better. He feels that now, under the care of physicians like Dr. Lynch and Dr. Suh at UCLA, his health concerns finally are receiving appropriate attention.

“My wife and I have peace of mind,” he says.

In addition to his doctors, Shulman also credits 9/11 advocates who have lobbied Congress to fund relief programs for responders and survivors. The Memorial Glade dedicated in 2019 at the 9/11 Memorial & Museum on the site of Ground Zero recognizes those responders, recovery workers and survivors who, like Shulman, have suffered “long after September 11, 2001 from exposure to hazards and toxins that hung heavy in the air.”

“People still are dying from their exposure to the toxic dust,” Shulman says. “I’ve been very lucky. Maybe I’m suffering from something that makes me cough or makes me feel that I’m not 100% healthy. But I’m still alive.” ●

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

IT WAS A VERY DIFFERENT TIME FOR WOMEN WHEN Yvonne J. Bryson, MD, entered medical school at the University of Texas more than 50 years ago. She was one of just 13 women in her class of more than 100 students at UT Southwestern in the mid-1960s — an “experiment” by the medical school, she calls it.

The campus environment for her and her female classmates was none too welcoming. “I didn’t know that women were not supposed to go into medicine and science,” she says. “We were told that we were taking up another space that should have been for a male.” This attitude only intensified her determination. “We just wanted to be doctors, so we did not pay attention,” she says. “I guess I never take ‘no’ for an answer.”

It is a trait that has served her well through the course of her long career as a pediatric infectious-diseases specialist and one of the world’s leading researchers and clinicians in the ongoing fight against HIV/AIDS.

Dr. Bryson credits her tenacity to her upbringing. She grew up in a family that emigrated from Dublin, Ireland, and her mother and father were keen to teach their children the importance of self-reliance. “My sisters and I were taught that despite being female, we could aspire to do anything,” she says.

That inspired “an incredible curiosity to seek answers and solutions when faced with new challenges.” But it was not science or medicine that first drew her attention. “From childhood, I loved ballet,” Dr. Bryson

‘No’ Is Never Good Enough

By Leo Smith



Dr. Yvonne J. Bryson says she was imbued at an early age with “an incredible curiosity to seek answers and solutions when faced with new challenges.”

says. “I wanted to be a prima ballerina.” She did choreography and danced in summer musicals and opera performances in Dallas and was offered a scholarship to the prestigious Julliard School in New York City. But her parents thought she was too young, and they persuaded her to put it off until after college “if that was still my dream.” At university, she studied teaching and biology, and she also taught dance. Though she ultimately did not pursue her earlier ambition, it helped to build the foundation for her future career and successes. “The passion and dedication you learn from dance apply in medicine as well,” she says.

When she entered medical school at UT, she was immediately drawn to infectious diseases. Dr. Bryson earned her MD in 1970, and after completing her residency

and fellowship training, joined the faculty of UCLA, where the focus of her work became viral infections and, specifically, perinatal transmission of infections from mother to child.

Her early reputation was built on her work to treat and prevent mother-to-child transmission of herpes simplex virus. “It can cause devastating disease in the newborn, but it is something that can be prevented if we know the status of the mother,” Dr. Bryson says.

Then came the early-80s and AIDS. “Yvonne was an expert in herpes virus, and we had early suspicions that AIDS was a viral illness,” recalls Michael Gottlieb, MD, a UCLA immunologist who, in 1981, was the first physician to describe the syndrome that would become known as AIDS.

“He wanted to know if I thought it was a virus,” Dr. Bryson recalls. “I said yes, it could be a virus, but

it was like no virus I had ever seen before.” She and Dr. Gottlieb became close colleagues, and “her words of encouragement helped me keep going” through a number of difficult periods, Dr. Gottlieb recalls.

It was not long before Dr. Bryson started to see newborns and young children infected with HIV coming to UCLA and other Los Angeles hospitals. “I saw infants and mothers dying. That is something that you must investigate. It took an emotional toll on all of us,” she says. “I wanted to know what we could do about it. Why did one mother transmit the infection and another mother didn’t?”

Her determination to find answers when faced with new challenges drove Dr. Bryson to dig deeper. “We needed screening for mothers with HIV antibodies to see who was at risk, treatment of mothers during gestation and delivery and prophylaxis to the infant.” It was an enormous undertaking, but she eventually became a significant voice influencing the Centers for Disease Control and Prevention to recommend use of the antiviral drug zidovudine — what became known as AZT — to reduce perinatal transmission of HIV. Before that, one-in-four babies born to HIV-infected mothers were infected. Now, she says, the rate of maternal transmission is less than 1.5%.

In 2014, Dr. Bryson made headlines when she and a colleague in Long Beach treated an HIV-positive baby with a course of antiretroviral drugs, and six days later the virus could no longer be detected. “It’s the earliest I’ve ever seen the

virus disappear,” Dr. Bryson said in a television interview after. “It means with early treatment we might be able to nip the virus in the bud.”

Today, Dr. Bryson continues her work to eliminate pediatric AIDS and develop new therapies to bring about remission and cure for HIV. And she co-chairs a National Institutes of Health multi-country study to treat high-risk babies early, before they are identified as infected.

“We’ve made great strides,” Dr. Bryson says. “I have the joy of seeing children who were very sick now grow up to have children of their own, free of the infection. It is wonderful to have lived long enough to maybe someday see myself become redundant.” ●

Leo Smith is managing editor for UCLA Health Communications.

AWARDS & HONORS

Dr. Denise R. Aberle (RES ’85), professor of radiology and bioengineering and vice chair for research in the Department of Radiological Sciences, was elected to the National Academy of Medicine.

Dr. Benjamin E. Bonavida, Distinguished Research Professor of Microbiology, Immunology and Molecular Genetics, received the lifetime achievement award from the American Society of Transplantation.

Dr. S. Thomas Carmichael (FEL ’01), Frances Stark Professor of Neurology, chair of the Department of Neurology and codirector of the Eli and Edythe Broad Center of Regenerative Medicine and Stem Cell Research at UCLA, was elected to the Association of American Physicians.

Dr. Amander Clark, professor of molecular, cell and developmental biology and a member of the Eli and Edythe Broad Center of Regenerative Medicine and Stem Cell

Research at UCLA, was elected vice president of the International Society for Stem Cell Research.

Dr. Gabriel Danovitch, John J. Kuiper Professor of Nephrology and Renal Transplantation and medical director of the UCLA Kidney Transplant Program, received the lifetime achievement award from the American Society of Transplantation.

Dr. Robert Ettenger, Distinguished Research Professor Emeritus of Pediatric Nephrology, received the lifetime achievement award from the American Society of Transplantation.

Dr. Marco Giovannini, professor-in-residence of head and neck surgery and a member of the UCLA Jonsson Comprehensive Cancer Center, received the 2021 Friedrich von Recklinghausen Award from the Children’s Tumor Foundation.

Dr. Josephine B. Isabel-Jones, professor emerita of pediatrics, received the Carole E. Goldberg Emeriti Service Award.

Dr. Anusha Kalbasi (MD ’11), assistant professor

of radiation oncology and a researcher at the UCLA Jonsson Comprehensive Cancer Center, was selected as a NextGen Star by the American Association for Cancer Research.

Dr. Donald Kohn, Distinguished Professor of Microbiology, Immunology and Molecular Genetics, director of the UCLA Human Gene and Cell Therapy Program and a member of the Eli and Edythe Broad Center of Regenerative Medicine and Stem Cell Research at UCLA and the UCLA Jonsson Comprehensive Cancer Center, received a career achievement award from the International Society for Cell & Gene Therapy.

Dr. Kenneth L. Lange, Rosenfeld Professor of Computational Genetics, was elected as a member of the National Academy of Sciences.

Dr. Carol M. Mangione, Barbara A. Levey, MD, & Gerald S. Levey, MD Professor of Medicine and Public Health and chief of the Division of General Internal Medicine and Health Services Research, was elected to the National Academy of Medicine.

Dr. Gatien Moriceau, assistant adjunct professor of medicine and a member of the Jonsson Comprehensive Cancer Center, received the Melanoma Research Alliance Young Investigator Award from the Melanoma Research Alliance.

Dr. Elizabeta Nemeth, professor of medicine and director of the Center for Iron Disorders, received the 2021 William Dameshek Prize from the American Society of Hematology.

Dr. Warwick J. Peacock, professor emeritus of neurosurgery, received the Dickson Emeritus Professorship Award.

Dr. Cristina Puig Saus, adjunct assistant professor of medicine and hematology-oncology and senior fellow at the Parker Institute for Cancer Immunotherapy, received the Leveraged Finance Fights Melanoma-MRA Young Investigator Award from the Melanoma Research Alliance.

Johnese Spisso, MPA, president of UCLA Health and CEO of UCLA Hospital System, was named 2021 Hospital CEO or President of the Year by the *Los Angeles Business Journal*.

IN MEMORIAM

Dr. Esther F. Hays, professor emeritus in the Department of Medicine and associate dean emeritus of academic planning, died June 10, 2021. She was 94 years old. Dr. Hays conducted research in hematology and oncology, with a particular focus on leukemia, and later in her career on HIV/AIDS. As associate dean, she served as UCLA’s liaison to the UCR/UCLA Program in Biomedical Sciences, an innovative medical-education program, and she was instrumental in the establishment of the UCLA AIDS Institute. Upon her retirement in 1993, the institute established a fellowship in her name to support graduate students doing research in HIV/AIDS.

Dr. George S. Smith (MD ’61, RES ’65), professor emeritus of pathology, died on June 17, 2021. He was 85 years old. Dr. Smith was a lifelong Bruin, earning his BA and MD degrees and completing his residency in pathology at UCLA. He joined the UCLA Department of Pathology as an assistant professor in 1965 but took a military leave to join the Atomic Bomb Casualty Commission in Hiroshima, Japan. Dr. Smith served as the chief of hematology, director of the clinical laboratories and the blood bank, as well as acting and interim chair of the Department of Pathology and Laboratory Medicine, from 1989 to 1994, before retiring in 1999. His pioneering research in histocompatibility testing led him to establish the UCLA Blood Bank in 1975.

DAVID GEFFEN SCHOOL OF MEDICINE AT UCLA CELEBRATES 70 YEARS

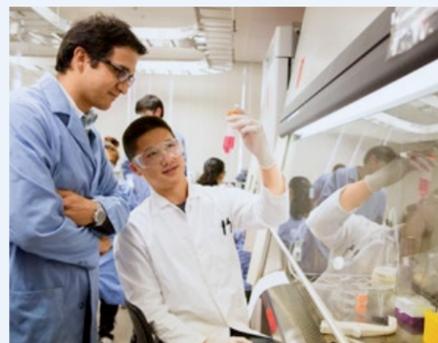
2021 marks a milestone year for the David Geffen School of Medicine at UCLA, providing an opportunity to reflect on the incredible journey that has brought the school to the present moment. In 1951, UCLA was a burgeoning new university and had just named its first chancellor when the medical school was born. The inaugural medical school class consisted of 28 students, who attended courses in the old Religious Conference Building on Le Conte Avenue. By the time they graduated in 1955, the medical school had experienced tremendous growth. From humble beginnings it has risen to become the youngest top medical school in the nation.

“The birth of the medical school signaled what we, together, can do to improve the health of our communities and the world,” says Dr. Clarence H. Braddock III, executive vice dean for education and Maxine and Eugene Rosenfeld Endowed Chair in Medical Education. “Our first community members sparked the spirit of innovation and discovery that we carry to this day. We are proud to celebrate this monumental journey.”

PHOTOS: COURTESY OF UCLA HEALTH



Changes in surgical classroom training over the years.

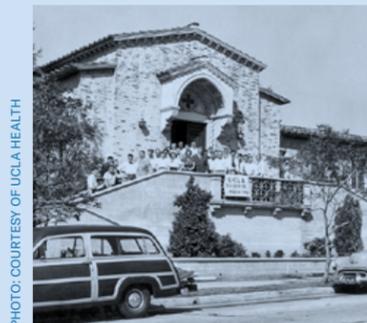


Laboratories then and now.

PHOTOS: COURTESY OF UCLA HEALTH

THEN & NOW

HERE ARE JUST A FEW OF THE CONTRIBUTIONS, BREAKTHROUGHS, PEOPLE AND MILESTONES THAT HAVE SHAPED THE DAVID GEFFEN SCHOOL OF MEDICINE INTO THE LEADING INSTITUTION IT IS TODAY.



The first UCLA medical students and faculty outside the Religious Conference Building.

PHOTO: COURTESY OF UCLA HEALTH

1951 THE DOORS OPEN

Classes began on September 20, 1951, for the medical school's first students — two women and 26 men — taught by 15 faculty members. Since it took several years to build the new school, scientists conducted research in Quonset huts scattered across the campus that had been used as temporary housing during World War II.



The late Dr. Paul Terasaki.

PHOTO: COURTESY OF UCLA HEALTH

1964 TISSUE TYPING

Dr. Paul Terasaki (PhD '56) developed the tissue-matching test that paired organ-transplant recipients with compatible donors and transformed the field of organ transplantation. The test is still the international standard for tissue typing.

PHOTO: COURTESY OF UCLA HEALTH



Students in the early years at the Charles R. Drew University of Medicine and Science.

1978 CONNECTING WESTWOOD TO SOUTH LOS ANGELES

Charles R. Drew University of Medicine and Science in South L.A. and the UCLA School of Medicine established the Charles R. Drew/UCLA Medical Education Program to train health care leaders to advance humanistic health in under-resourced communities.

1981 AIDS RESEARCH

UCLA physicians reported and described the first cases of AIDS, a discovery that led to the formation of the UCLA AIDS Institute and the school's standing as a world leader in AIDS research.

PHOTO: COURTESY OF ERAKA BATH

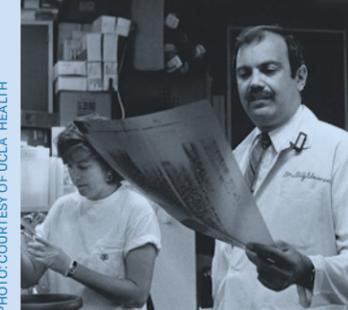


The late Dr. Patricia E. Bath.

1988 NEW VISIONS

UCLA ophthalmologic surgeon Dr. Patricia E. Bath invented the Laserphaco Probe, a device and technique that ushered in the laser era of cataract surgery. She was the first Black woman to receive a medical patent and the first woman to serve on the UCLA Stein Eye Institute faculty.

PHOTO: COURTESY OF UCLA HEALTH



Dr. Dennis J. Slamon.

1998 PRECISION CANCER TREATMENT

Dr. Dennis J. Slamon (FEL '82), Bowyer Professor of Medical Oncology, identified the HER2/neu oncogene, which led to the development of the breast-cancer drug Herceptin. By targeting a specific genetic alteration, this precision medicine breakthrough helped save the lives of millions of women.

PHOTO: COURTESY OF UCLA HEALTH



David Geffen.

2002 A TRANSFORMATIONAL GIFT

Entertainment executive and philanthropist David Geffen donated \$200 million to the medical school. At the time, it was the largest single gift to a school of medicine in U.S. history. The unrestricted gift helped propel the school, which was renamed in his honor, to its current status as a world-class institution for education and research.

2008 THE FUTURE OF MEDICINE, NOW OPEN

Ronald Reagan UCLA Medical Center, designed by renowned architect I.M. Pei, opened its doors on June 29, 2008, replacing the Center for Health Sciences, which was structurally weakened by the 1994 Northridge earthquake.

PHOTO: COURTESY OF UCLA HEALTH



David Geffen Medical Scholarships recipients.

2012 GAME-CHANGING SCHOLARSHIP

David Geffen gave \$100 million to establish the David Geffen Medical Scholarships, enabling approximately 25% of UCLA medical students to graduate debt-free. In 2019, he gave an additional \$46 million, opening the door for 120 additional students to benefit from the scholarships.

PHOTO: COURTESY OF UCLA HEALTH



Medical student Natalie Chapkis helps during the COVID-19 pandemic.

2020 MEETING THE MOMENT

During the COVID-19 pandemic, UCLA medical students rose to the occasion and formed the LA COVID Volunteers, providing free child care, grocery runs and personal protective equipment to essential workers and their families. They also delivered more than 50,000 face shields to UCLA Health and community partners in need.

A Heart for Philanthropy



PHOTO: COURTESY OF THE KAGAN FAMILY

Katherine Kagan.

IT HAS BEEN SAID THAT CHARITY BEGINS AT HOME, but it should not end there. Family and good friends Dr. Benjamin Kagan, his wife Katherine Kagan, Bernard Sidell and Pescha Sidell, Dr. Kagan's sister, took this to heart when they established the Sidell-Kagan Foundation in 1966. The foundation initially funded a broad range of medical and clinical research, but it narrowed its focus to supporting Alzheimer's disease (AD) research when Dr. Kagan was diagnosed with the disease in 1995.

Dr. Kagan, who formerly served as the chair of the Department of Pediatrics at Cedars-Sinai Medical Center, was treated for AD at UCLA by Dr. Jeffrey L. Cummings, then director of the Mary S. Easton Center for Alzheimer's Disease Research at UCLA, and director of the Deane F. Johnson Center for Neurotherapeutics at UCLA. Dr. Kagan received the only drug approved at the time to help slow AD progression. The Kagans

were so impressed with the treatment that they decided to fund studies on the diagnosis and treatment of patients with AD and other dementias and related neurological disorders. In May 1996, the Sidell-Kagan Foundation gave \$2.2 million to the UCLA Department of Neurology, and it has made additional gifts, ranging from \$270,000 to \$400,000, every year since to specifically fund UCLA clinical trials in AD.

"We are deeply grateful to the Sidell-Kagan Foundation for their generous and enduring support for more than two decades, which has made the Kagan Program a preeminent and exemplary model for other clinical trial programs," said Dr. Keith Vossel, director of the Mary S. Easton Center for Alzheimer's Disease Research at UCLA, and director of the Katherine and Benjamin Kagan Alzheimer's Disease Treatment Development Program at UCLA.

Dr. Kagan, who died

from a heart attack in 1997, was fortunate to have dramatically benefited from his treatment. Mrs. Kagan was devoted to her husband and to providing a special quality of life for him. Ahead of her time, she modified their single-level home to accommodate her husband's disability and diminishing mental capacity. The home featured a wheelchair-accessible swimming pool, a disabled-accessible bathtub, and even an independent generator to support medical equipment in case of a power failure.

Mrs. Kagan also was passionate in her desire to help researchers develop better treatments for AD. The Sidell-Kagan Foundation, which the Kagans headed, committed long-term funding for AD research and established the Katherine and Benjamin Kagan Alzheimer's Disease Treatment Development Program at UCLA.

Funding from the Sidell-Kagan Foundation enables the UCLA Department of Neurology to recruit and retain preeminent physicians and researchers and pursue the most rigorous and scientifically sound studies that are on the leading-edge of Alzheimer's therapeutics. The program provides access to the latest experimental therapies and offers eligible patients participation in various memory and dementia research studies. In addition to helping advance clinical trials in AD, UCLA is able to significantly enhance its outreach activities, community engagement and education in the community. The program also provides

important transportation coverage for those living farther away from the Westwood campus. These activities and initiatives are essential to providing full access to advanced studies in Alzheimer's diagnosis and therapeutics to the diverse population of greater Los Angeles.

After Mrs. Kagan's death in 2000, the foundation continued its commitment to funding clinical trials for AD under the leadership of foundation president Jeannette Hahm Lewis and Jodi Behrman, CFO of the Sidell-Kagan Foundation. Since 1996, the Sidell-Kagan Foundation has followed its passion and has given UCLA gifts in excess of \$12 million, enabling the Katherine and Benjamin Kagan Alzheimer's Disease Treatment Development Program at UCLA to become a world leader in therapeutic investigations for AD.

"Mrs. Kagan enjoyed seeing her philanthropy going directly to those for whom it was meant," said Hahm Lewis. "She loved getting to know the people whom she helped, including doctors, researchers and nursing staff, and once described it as 'the gift I get.' That in itself is so meaningful." ●

For more information, contact Christopher Carbado at: 310-562-6498

UCLA Honors Arline and Henry Gluck with Fiat Lux Award



PHOTO: COURTESY OF THE GLUCK FAMILY

Henry and Arline Gluck.

IN 2017, A GIFT FROM ARLINE AND HENRY GLUCK enabled UCLA Health to equip an ambulance with a mobile computed tomography imaging device to treat stroke patients prior to their arrival at a hospital, and to create the UCLA Health Arline and Henry Gluck Stroke Rescue Program. Recognizing that stroke disproportionately affects people of color, the Glucks have championed the program's expansion to underserved areas of Los Angeles County.

"We are endlessly grateful for Arline and Henry's commitment to excellence, their service to UCLA and their visionary founding of the UCLA Health Gluck Stroke Rescue Program."

For their leadership and dedication to UCLA and the broader community, the couple were honored with the university's Fiat Lux Award in a virtual ceremony on June 24, 2021. The Glucks are only the second recipients of the award, first presented to Renee and Meyer Luskin in 2012.

"It gives me great pleasure to

honor Arline and Henry Gluck, two people who have been enthusiastic ambassadors for and devoted supporters of UCLA and our health system," said UCLA Chancellor Gene D. Block. "We are fortunate to count the Glucks among our friends and thank them deeply for their leadership, advocacy and generosity."

The virtual ceremony was attended by family and friends of the Glucks, UCLA and UCLA Health leadership, David Geffen School of Medicine at UCLA faculty and UCLA Health System Board members.

"We are endlessly grateful for Arline and Henry's commitment to excellence, their service to UCLA and their visionary founding of the UCLA Health Gluck Stroke Rescue Program," said Johnese Spisso, MPA, president of UCLA Health, CEO of the UCLA Hospital System and associate vice chancellor of UCLA Health Sciences. "Their work to ensure a more healthy and equitable society is an inspiration to the campus and our community." ●

For more information, contact Ellen Haddigan-Durgun at: 310-206-3878

CHANGING STROKE TREATMENT IN LOS ANGELES COUNTY

Stroke continues to be the number one cause of serious disability and the number two cause of death worldwide. For stroke victims, time lost is brain lost. For every passing minute, lack of blood flow to the brain causes 2 million valuable brain cells to die. The earlier the patient is conclusively diagnosed and receives treatment, the more likely they are to make a meaningful recovery from the devastating effects of the disease. Thanks to Arline and Henry Gluck, whose gift established the UCLA Arline and Henry Gluck Stroke Rescue Program, UCLA Health can now bring the hospital to the patient through its mobile stroke unit (MSU).

The MSU is one of the key components of UCLA Health's vision to improve patient outcomes and provide service to the community. A shared regional resource of L.A. County, it is the result of a partnership among UCLA Health, the L.A. County Department of Emergency Medical Services and Department of Health Services, with support from the L.A. County Board of Supervisors. L.A. was one of seven cities that participated in a national clinical trial of MSUs. Results of the study demonstrated that faster care enabled by these specialized stroke ambulances improved stroke outcomes and confirmed that early stroke intervention is crucial to recovery and reducing the risk of disability, resulting in a better quality of life. ●

Son's Musical Gift in Tune with Parents' Duchenne Giving

By Marina Dundjerski



PHOTO: SCOTT JONES

(From left) Cathy, Cooper and Scott Jones.

FIFTEEN YEARS AGO, Cathy and Scott Jones received news that no parent wants to hear: Their 4½-year-old son, Cooper, was diagnosed with Duchenne muscular dystrophy (DMD), a devastating genetic disease that primarily affects boys and leads to a short life expectancy.

"That was an awful day," Cathy Jones recalls. "But things were a lot different then," noting that much more is now known about DMD and that Cooper, now 19 years old, is continuing to beat the odds while additional, promising scientific advances are on the horizon.

Early on, Cooper received his medical care at a children's hospital in the Midwest, where the South Bay couple joined a DMD parent support group and became close to another couple with a son being treated at the same hospital. When that couple — Dr. Stanley Nelson, UCLA professor of human genetics, and Dr. Carrie Miceli, professor of microbiology, immunology and molecular genetics — created a center for DMD at UCLA, the Joneses were thrilled to bring

Cooper there for treatment. In 2007, the Center for Duchenne Muscular Dystrophy at UCLA was established, with Drs. Nelson and Miceli and colleague Dr. Melissa Spencer as co-directors.

"They actually really get it and can relate personally to other parents of children with Duchenne," Scott Jones says. "They have a sense of extreme urgency, like we do. When it's your kid's life, it gives you fire under your skin. We are in awe of them. I don't understand how they can do it — they are probably thinking of this 24/7."

DMD impairs production of the protein dystrophin, which is required for healthy muscle function. The Center for DMD at UCLA builds collaborations among UCLA scientists and clinicians and aims to improve access and care while advancing leading-edge drug discovery and clinical trials. Funding has come from research grants and private philanthropy. The Jones family, grateful for Cooper's new clinic, has been helping bring attention and charitable dollars to the center since its start.

Retired international models who later built and sold a medical-records and legal-services company, the Joneses have been responsible for more than \$280,000 donated to the center, and they volunteer their time and in-kind support to the center's annual fundraising events. Over the last three years, they have taken their support to a new level — with Cooper at center stage. In 2019, the Jones family opened their backyard for Cooper Fest, an annual Hawaiian-themed fundraiser that showcases Cooper's musical talents and songwriting and is supported by South Bay musicians and residents. The July 10, 2021 fest featured performances by Cooper and friends, including Pennywise singer Jim Lindberg (a Bruin who went to high school with Cooper's father) and a video shout-out to Cooper from Cyndi Lauper. The event raised more than \$30,000 for Cooper's Cure, a charitable organization created by the family that donates all proceeds to UCLA's Center for DMD.

While Cooper recently began using a wheelchair, he still has use of his arms. He realized his love of music several years ago, and during the COVID-19 pandemic, he was challenged by his mentor, Lindberg, to write songs and perform them at Cooper Fest. For using music to inspire others, Cooper was awarded the Center for Duchenne Muscular Dystrophy at UCLA's Meyer-Whalley Instrument of Change Award.

"I'm proud of him that

he's doing this," Cathy Jones says. "The main thing he wants to show people is that he's more than his disability — that's not what defines him at all."

Cooper is hopeful that new genetic medicine may preserve his muscle strength and allow him to continue playing, and he often quips that he "hopes the science will catch up" to him. He has donated tissue to the UCLA Center for DMD and has been among the most active participants in the center's research.

"It's been 15 years, and we are so close; we're really at the edge of the cliff for a possible cure," says Scott Jones.

Until then, the Jones family will continue to encourage others to donate to the cause. "Every little bit helps," Cathy Jones says. "Small money helps keep things running while people are writing the big grants. The small money helps get the big money. That's the bottom line."

And while Cooper waits for the science to catch up to him, he will be writing and recording new music while attending California State University Long Beach. Says Cooper, "Everyone has been through difficult situations that may have seemed impossible to overcome. It is crucial that you stay strong and stay motivated, you will be surprised to find that nothing can stand in your way." ●

Marina Dundjerski is a freelance writer in Los Angeles.

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Wonder of Women Summit Raises Support for Mental Health Awareness

By Sandy Cohen



PHOTO: LEO SMITH

Dolly Parton.

WITH A HEADLINING PERFORMANCE

by singer-

songwriter Dolly Parton, the Friends of the Jane and Terry Semel Institute for Neuroscience and Human Behavior at UCLA and the UCLA Stewart and Lynda Resnick Neuropsychiatric Hospital Board of Advisors presented the Wonder of Women Summit—#WOW2021: Whole Health Includes Mental Health—to raise awareness and reduce the stigma of mental illness.

Hosted by actress-writer-producer and Resnick board member Lisa Kudrow, the online fundraising event took place via Zoom on May 13, 2021, and featured writer-director-actress Mindy Kaling, writer-director Ava DuVernay and Major League Soccer great Landon Donovan, who spoke with UCLA Health experts about depression, anxiety and the importance of discussing emotions and mental health.

"We need to not only talk about it, but listen, with kindness and compassion," said Kudrow. "That's how

we'll erase the stigma of mental illness, so people will reach out and get the help they need."

Johnese Spisso, MPA, president of UCLA Health, CEO of the UCLA Hospital System and associate vice chancellor of UCLA Health Sciences, opened the 90-minute event that also honored Vicky Goodman, founder and president of the Friends of the Semel Institute for Neuroscience and Human Behavior at UCLA, and Dr. Nancy Glaser, founding chair and an inaugural member of the Resnick Neuropsychiatric Hospital Board of Advisors.

Kaling, who talked about the challenges of parenting during the pandemic with Dr. Robin Berman, associate professor of psychiatry and biobehavioral sciences and author of *Permission to Parent: How to Raise Your Child with Love and Limits*, said she has a history of social anxiety that affects her approach to parenting. "Anxious people have a hard time helping kids to tolerate uncertainty because they have such trouble tolerating

uncertainty," Kaling said. As a single mom juggling multiple Hollywood projects, Kaling said she's become "comfortable with transitioning among different panics," be they child-related or work-oriented. "I used to spiral from them a lot more," she said, adding that she's gotten better at "letting the transitioning of panics happen, but not riding the wave of them."

For UCLA alumna DuVernay, resilience and positive outlook come from "a deep and abiding faith in a power higher than myself, and having been taught to embrace and love life as its own living, breathing entity." Raised to appreciate community and connection with other human beings, DuVernay said this has sustained her during professional and personal challenges. She also began meditating during the quarantine, has a robust gratitude practice and takes solace in art in its many forms.

"I think part of the problem is that people aren't aware that this is depression they're feeling."

Celebrated as one of the greatest United States men's soccer players, Donovan said he's faced depression many times throughout his life. He's spoken publicly about these struggles in recent years in the hope of encouraging more openness about mental health in professional sports. Donovan told Dr. Michelle Craske,

director of the UCLA Anxiety and Depression Research Center, that for him, managing depression is about connection and compassion. When he's feeling low, he talks to his wife about it, which he said almost always lightens his mood. Meditation also helps bring him back into the moment and away from swirling negative thoughts. "I think part of the problem is that people aren't aware that this is depression they're feeling," he said. "We're taught from an early age not to show emotion." In his big picture, idealistic view of the world, he hopes that "we can get to a place where people are just OK expressing themselves without judgment."

Parton, who quipped that she thought "WOW" stood for "Weird Old Women," closed the show with a performance of her 1977 track "Light of a Clear Blue Morning."

The event raised more than \$780,000 for advancing psychiatric research and clinical innovation at UCLA. ●

Sandy Cohen is a senior writer in UCLA Health Communications.

To watch the complete #WOW2021: Whole Health Includes Mental Health program, go to: tinyurl.com/WOW-Summit

For more information, contact Lauren Bayans at: 310-560-4287

Gift from Carol and Jim Collins Applies Precision Medicine to Alzheimer's Research

By Nancy Sokoler Steiner



PHOTO: TODD CHENEY/UCLA

Jim and Carol Collins.

THE RECENT CONTRIBUTION TO UCLA of \$500,000 from Carol and Jim Collins continues a lifetime of giving by the couple. The gift will create a laboratory space, located in the Reed Neurological Research Center, dedicated to the study of precision medicine in treating Alzheimer's disease.

"My parents previously funded the Alzheimer's and Dementia Care Program Caregiver's Support Group to help families with loved ones dealing with these difficult conditions," says daughter Cathy Hession, president of the Carol and James Collins Foundation. "Now they're supporting efforts to arrest Alzheimer's and dementia earlier in the process. We know precision medicine is the wave of the future and are pleased to create a space where researchers can collaborate and benefit from the synergy of working together."

The couple made their first donation to UCLA in

1963; one could say UCLA runs in their blood. Carol grew up in Westwood and attended the UCLA Lab School — at the time called University Elementary School — and accompanied her father to UCLA football games. She and Jim met as UCLA sophomores. On their first date, they attended the wedding of one his fraternity brothers to one of her sorority sisters. Arriving home afterward, Carol told her mother, "I am going to marry that man!" The couple wed in 1950.

"When you graduate from UCLA, your heart is there forever," Jim Collins says. Carol agrees. "I'm so proud of everything UCLA has accomplished. It's the best university in the world."

Their commitment to giving began early. Jim, who built an international food corporation, championed UCLA's business school even before it became the Anderson School of Management, including serving on its Board of

Advisors. Having been on the track team, Jim also supported many sports initiatives, including the renovation of Pauley Pavilion. He served as president of the UCLA Alumni Association, chaired the 1982 UCLA Campaign for six years and served on the executive board of The Centennial Campaign for UCLA. Carol served on the boards of UCLA's Women & Philanthropy and Lab School. Through their foundation, they also focus on creating quality educational opportunities.

In recent years, the couple has focused their support on geriatrics. In 2019, they gave a \$5 million gift to the David Geffen School of Medicine at UCLA to expand geriatric care and training. Prior to that, they donated \$1.25 million to the Alzheimer's and Dementia Care Program and \$1 million to the Alzheimer's Risk Reduction Initiative. The Collinses also created the James and Carol Collins Endowed Chair in Geriatric Medicine, as well as the Carol and James Collins Chair in the UCLA Department of Neurology.

In 2016, Carol and Jim were awarded the UCLA Medal, the university's highest honor, by Chancellor Gene D. Block in recognition of their extraordinary achievements that demonstrate the highest ideals of UCLA.

"Dad would say that when you have experienced good fortune, you have great

responsibility to give back," Hession says. "My parents thought it was important to model that for their children. They also wanted to set an example for folks around them professionally and socially, in the hopes that those in a position to give would be inspired to do so."

She notes that in addition to their personal giving, the couple's children and grandchildren participate with them in foundation meetings and approve foundation gifts as a family.

"Funds donated to UCLA impact so much good work, whether it be through supporting students, physicians, artists or scientists," says Hession, who serves on the UCLA Geriatrics Board of Advisors. "UCLA is addressing all the pressing issues like climate change and homelessness and leading the way in research and development. We know that when we donate to UCLA, it is incredibly impactful and well spent." ●

Nancy Sokoler Steiner is a freelance writer in Los Angeles.

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UCLA Nurses Honored



PHOTO: MARY KATERI TOBIAS

(From left) Nurses Theresa Nicholson and Gilbert Barco; administrative specialist Erick Ascencio; nurse Adam Fronczek; administrative specialist Araceli Rojas-Herard; and UCLA Health Chief Nurse Executive Karen Grimley.

In the face of a global pandemic, UCLA Health nurses demonstrated incredible resilience, bravery and compassion. To honor these dedicated clinicians during National Nurses Week, UCLA philanthropic partners contributed \$125,000, including a lead gift of \$50,000 from fashion designer John Elliott. "Coming from a family of health care professionals, supporting those who put others before themselves was important to me, and this philanthropic partnership with UCLA helped our family find a new sense of clarity," said Elliott. The funding made Nurses Week, which begins each year on May 6 and ends on May 12, Florence Nightingale's birthday, special for UCLA Health's 4,200 nurses. Recognition events included complimentary breakfast and beverages in the hospital cafeterias, a pizza party, sweet treats from local bakeries, flowers delivered to the nursing units and awards recognizing outstanding service. Due to COVID-19 restrictions, UCLA nurses not only provided medical care to patients, but also offered comfort when visits from family and friends were restricted. ●

For more information, contact Lori Gremel at: 310-869-2774

Advancing Research and Education

The Berdakin family has committed \$500,000 to the UCLA Jonsson Cancer Center Foundation to establish the Berdakin Research Fund for Thoracic Oncology. This gift will expand the efforts of Dr. Edward B. Garon (FEL '06) to improve the efficacy of immunotherapy in patients with lung cancer. "This project represents a crucial step toward developing a new treatment model that is customized to each individual," said Dr. Garon. "I am tremendously grateful to the Berdakin family for its partnership in our mission to provide more effective therapies to patients in need."

In addition, the Berdakin family contributed \$500,000 to establish the Berdakin Fellowship in Interventional Pulmonology, a specialty using advanced, minimally invasive procedures to diagnose and treat both malignant and nonmalignant disorders of the lungs and airways. The UCLA Interventional Pulmonology Program is one of only a few comprehensive interventional-pulmonology services in the country. "We appreciate the generosity of the Berdakin family, which will enable us to train the next generation of physicians who will be leaders in the field," said Dr. Scott Oh, co-director of interventional pulmonology. "Philanthropic support allows us to purchase leading-edge equipment and advance research as we seek to develop new and better treatment options." ●

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In Memoriam

Executive, philanthropist and community leader Gerald H. Oppenheimer died peacefully on May 4, 2021. He was 98 years old. Oppenheimer was born in Kansas City, Missouri, on July 11, 1922. He

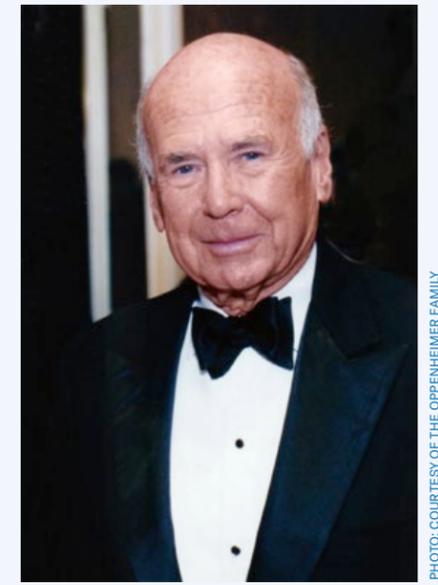


PHOTO: COURTESY OF THE OPPENHEIMER FAMILY

Gerald H. Oppenheimer.

began his career at the age of 18, founding an aviation-components business. During the Korean War, he piloted F84 jets for the Strategic Air Command, flying 21 combat missions. He found later success in the banking, automotive and software-technology industries. He began actively supporting nonprofits in the early 1980s, and for almost six decades UCLA Stein Eye Institute was the recipient of Oppenheimer's skill and philanthropic giving. After the death of his stepfather, Dr. Jules Stein, and his mother, Doris Stein, he took an active role in promoting their legacy at UCLA. He helped establish the Doris Stein Eye Research Center and the Edie & Lew Wasserman Building, which transformed Stein Eye Institute into a vision-science campus at UCLA. Oppenheimer served on the UCLA Foundation Board of Trustees, the Board of Governors and Stein Eye Institute Board of Trustees. In 1989, he received the University Service Award from UCLA and extended his giving to numerous areas of the campus, as well as to community organizations focused on those in need, veterans and the arts. He is survived by his wife, Gail, his sons, Bill and Mark, stepchildren Britt, Pablo and Alyce, along with 10 grandchildren, 13 great-grandchildren and one great-great grandchild. ●



EPILOGUE

Second Sight

“It was crazy, like someone had turned all the lights back on. ... I couldn’t wait to pick up my cameras again.”

By Mark Sennet

GROWING UP, I NEVER IMAGINED MYSELF BEING A PHOTOGRAPHER. What I really wanted was to be a cowboy. I was a city-slicker kid from Long Island who, during the summers as a teenager, worked on a ranch in Arizona. I milked cows in the morning and mended fences in

the afternoon, rode horses, broke mustangs and helped to round up and brand the cattle. Yippie-yo-ki-yay! I loved it.

But by age 19, I knew this wasn’t really a way for a Jewish boy from New York to make a living, and I needed to find some direction for my life. I was dyslexic and couldn’t see myself going to college, and I didn’t want to go into my parents’ business, so my dad and I made a list of possible jobs for me. Photography didn’t even make the cut. I’d never picked up a camera in my life.

For some reason I still don’t fully understand, my dad bought me a camera. That was cool; I grabbed that Pentax and enrolled in a technical school, the New York Institute of Photography. And I really took to it. I got myself a police scanner and started to hang out with the cops in the city. New York was a pretty violent place in the ’70s, and any time there was a shoot-out

or a fire or something big happening, I was there, muscling my way into the middle of it, taking pictures. What chutzpah. And, I was getting paid for it!

That is how my career started. And it has been a wonderful career. I went from street photojournalism and selling my pictures to gritty wire services and British tabloids to being on staff at *Life* and *People* magazines, having adventures and traveling all over the world to photograph presidents, royals, sports legends and iconic celebrities.

Then, the world started to get blurry.

I was in London in 2011 photographing the wedding of Prince William and Kate Middleton when I realized that I could not focus my right eye. Looking through the camera lens, I didn’t know if I was getting the shots, if they were sharp or if I was cropping them right. I switched the camera to autofocus and, with the help of an assistant, got through it, but it freaked me out.

The problem continued to get worse over the years, and I started to shift my career from photography toward writing and producing motion pictures. Sometimes I’d be asked to take out a camera and get some pictures on a set, but I was embarrassed, afraid that they wouldn’t come out right.

I was in a panic, feeling like a child, not knowing what to do.

And there was a great deal of sadness, too. Photography had been my life for more than 40 years. If I could no longer be a photographer, then what was I? Cataracts and glaucoma were robbing me not just of my vision, but also of my sense of self. Eye problems run in my family; both my mother and uncle went blind from glaucoma. But I was in denial.

COVID brought me to the realization that I needed to do something. I was still doing some photography, and I went to Big Sur to photograph a gay couple who had been unable to get married in Los Angeles because of the pandemic. I was worried that I wouldn’t be able to get what I wanted in the photo, so a friend came with me to help. He brought a beautiful, old 4x5 camera, and together we set up the photograph with the couple, the priestess and friends — everyone wearing masks — against the backdrop of the rugged coast and blue Pacific. The photograph was sensational, and the experience — feeling the wind, breathing the smell of the ocean, being in such a beautiful setting — made me realize I was cheating myself. I hadn’t had that much fun or felt that creative in a long time, and I truly missed it.

My wife, Pam, who is a nurse at UCLA, directed me to UCLA eye surgeon Dr. Mitra Nejad (MD ’12, RES ’16). In 2020, Dr. Nejad performed two surgeries to remove the cataracts that were clouding my eyes.

What a difference. What an awakening. When I stepped outside afterward, it was crazy, like someone had turned all the lights back on. Everything was in focus. Everything was bright. The colors were beautiful. It was like a whole new day, and I couldn’t wait to pick up my cameras again.

With clear eyes, I look at the thousands upon thousands of photographs I have taken over the decades of my career, and they have fresh meaning for me. And I think about the photographs that I will take in the future.

I think now when I look through the lens of a camera, I will see the world in a different way, and my photography will be very different from what I have done before. Whether it was street photography or the work I did for *Life*, my pictures were primarily about people. Now, I think, I want my photographs to be more artistic, quieter, more fluid. Perhaps I will explore ways to blend my photographic images into other mediums, like painting.

In a sense, the restoration of my sight also has restored my life. While I may not have survived a life-threatening illness, as a visual artist I have been given a new life. I can think about being creative again in ways that I couldn’t before. I feel that old chutzpah coming back, the urge to again get in the middle of things.

It is a new beginning. And it’s wonderful. ●



Mark Sennet has photographed such icons as Muhammad Ali, Ronald and Nancy Reagan, Barbra Streisand, Andy Warhol and Paul Newman. In appreciation for his vision-restoring surgery, he auctioned a selection of his images and donated the proceeds to the UCLA Stein Eye Institute.

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