

# CITY NEWS

VOL. 31 NO. 2 FALL 2021



## Facing COVID-19 Together





FROM THE OFFICE  
OF THE CEO

## LOOKING FORWARD

Dear Friends,

For most of us, the past year has been defined by the COVID-19 pandemic. The challenge of adapting to an utterly different way of living and working has put our hope to the test. Yet, as new vaccines – ours among them – begin to change lives and infection rates start to fall, hope is on the horizon.

In this issue of City News, you'll learn how City of Hope is transforming for the future, building momentum for our mission and turning hope into reality. We have never lost sight of our mission to help the people who need us, to provide extraordinary service and to deliver hope.

In this issue, you will read about our Arthur Riggs Diabetes & Metabolism Research Institute, which received an extraordinary \$100 million gift from Dr. Riggs, the center's former leader and one of the most remarkable scientists in our history.

Our expansion beyond Duarte continues, most notably with the beginning of development on our 11-acre cancer campus of the future in Orange County. We recently received a \$50 million gift from Lennar Foundation, the charitable arm of homebuilder Lennar Corporation, to build a 190,000-square-foot Lennar Foundation Cancer Center. We are incredibly grateful to them for this gift; the largest single contribution to City of Hope Orange County.

We are reaching more people and helping more patients in innovative ways beyond our hospital. The AccessHope™ subsidiary continues to expand, bringing our clinical expertise in cancer directly to employers and their people, with some 2 million members to date. We spotlight several examples of our leading-edge research and groundbreaking discoveries, including oncolytic virus pairing and a new treatment for pancreatic cancer.

These are just some of the things that make me so hopeful for our future. We will continue to bring our unique expertise to more people, in more ways, to save and improve more lives, thanks to our team of researchers, doctors, nurses and staff – and thanks to your generosity as donors and supporters. Thank you for helping us build a better future for the patients, families and communities we serve.

**ROBERT STONE**

*President and Chief Executive Officer  
Helen and Morgan Chu Chief Executive Officer  
Distinguished Chair  
City of Hope*

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City of Hope is transforming the future of health. Every day we turn science into practical benefit. We turn hope into reality. We accomplish this through exquisite care, innovative research and vital education focused on eliminating cancer and diabetes. © 2012 City of Hope

City News is published quarterly for donors, volunteers and friends of City of Hope.  
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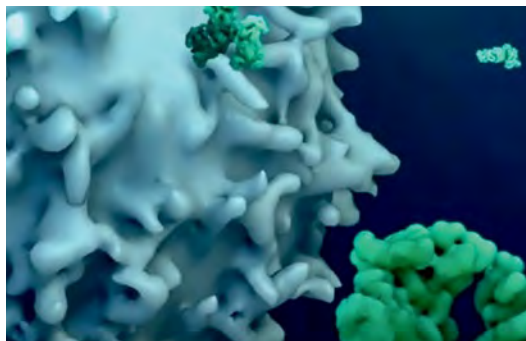
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FROM THE OFFICE  
OF PHILANTHROPY

## A SEASON OF MOMENTUM

Today, we find ourselves at a defining moment as we navigate a transition from the pandemic and take steps to expand the reach of our care more significantly than ever before. Our donor community is playing a vital role in keeping us moving forward on these ambitious pathways.

In this past year, we've marveled at the way our supporters and volunteers came together to ensure that critical research work and specialized care continued for patients and families who could not afford to wait. We saw an incredible outpouring of financial contributions, virtual fundraising celebrations and support for our first-ever virtual Walk for Hope.

Similarly, members of our community contributed equipment, furnishings and flooring to our Duarte campus transformation efforts that continued undeterred during the pandemic.

As Robert notes, we recently celebrated two longstanding philanthropic partners for their extraordinary gifts, which each in their own way reflect a commitment to City of Hope's vision for transforming the future of cancer and diabetes care:

- A historic gift of \$100 million made by our own renowned scientist Arthur Riggs, Ph.D., the Samuel Rahbar Chair in Diabetes & Drug Discovery, will fund the continued innovation of treatment and cures for diabetes. (See story on page 26.)
- A transformative gift of \$50 million from longtime philanthropy partner Lennar Foundation will advance our boldest effort ever to extend specialized treatment and research beyond our Duarte campus. (See story on page 19.)

It's been an extraordinary time and we are blessed to be in a season of momentum today because of you, our City of Hope family of supporters. Thank you for ensuring such a promising future for the patients and families we serve today, and will reach tomorrow.

**KRISTIN J. BERTELL**  
*Chief Philanthropy Officer*  
City of Hope

# cityBUZZ

## Still 'Walking' for Hope

City of Hope staff and supporters united stronger than ever for last year's annual Walk for Hope, held virtually for the first time. The total amount raised exceeded \$1.3 million.



## Real Tears at Virtual 44th BMT Reunion

More than a year after his transplant at City of Hope, Joseph Montañez, 8, finally met his bone marrow donor, Vanessa Flores, during the virtual 44th Bone Marrow Transplant Reunion on Oct. 16, 2020.



*An 8-year-old cancer patient meets his transplant donor for the first time.*





## Vaccinating the Local Community

City of Hope staff volunteered to administer COVID-19 vaccines at drive-thru clinics for local educators and other community members in partnership with the Duarte United School District. Over 4,000 people were vaccinated.



## Dining In for Health Justice

City of Hope's Health Justice Council hosted its inaugural Dine In for Health Justice, a month-long virtual event to raise awareness and funds for crucial health care issues facing minority communities.



## HHI *Spirit of Life*<sup>®</sup>

The Hardware/Homebuilding Industry group held a successful virtual *Spirit of Life*<sup>®</sup> event, which honored Lowe's executive VP, Bill Boltz (shown at right), and raised \$2.8 million. With Boltz is Joe McFarland, executive VP of Lowe's Stores.



The 2021 National Hardware/Homebuilding Spirit of Life Virtual Gala honored Executive Vice President Bill Boltz of Lowe's Companies.

# newHOPE

NEW FACES · ADVANCING SCIENCE · BEGINNINGS



## Edward S. Kim, M.D., M.B.A.

Senior Vice President and Physician-in-Chief, City of Hope Orange County Vice Physician-in-Chief, City of Hope National Medical Center

Edward S. Kim, M.D., M.B.A., joined City of Hope Orange County as senior vice president and physician-in-chief on Oct. 1, 2020. Kim also serves as vice physician-in-chief for City of Hope National Medical Center.

Kim, named a U.S. News & World Report "Top Doctor," is among the country's foremost experts in molecular prognostication for lung, head and neck cancers.

Before joining City of Hope, Kim held leadership and academic positions at the Levine Cancer Institute, Atrium Health in Charlotte, North Carolina, and at the University of Texas MD Anderson Cancer Center.

Kim received his M.D. from Northwestern University. He recently completed a Master of Business Administration at the University of North Carolina Kenan-Flagler School of Business.



## Gulden Mesara, M.B.A., M.S.

Senior Vice President, Chief Communications and Marketing Officer

Gulden Mesara, M.B.A., M.S., joined City of Hope as the new senior vice president, and chief communications and marketing officer on Sept. 15, 2020. In her role, she leads all enterprise internal and external communications and all brand and clinical marketing and digital channels, as well as creative services and events and visitor services. She serves as a member of the Enterprise Leadership Team.

Mesara brings significant experience in building and leading diverse, high-performing marketing and communications teams at global Fortune 100 companies, including Pfizer, Abbott, AbbVie and, most recently, Walgreens Boots Alliance.

She earned a Master of Business Administration degree from the Kellogg School of Management at Northwestern University. She also holds a Master of Science degree in public relations from the S.I. Newhouse School of Public Communication at Syracuse University, and a B.A. in political and administrative sciences from the University of Marmara in Istanbul, Turkey.



## Angela L. Talton, M.B.A.

Senior Vice President and Chief Diversity, Equity and Inclusion Officer

Angela L. Talton, M.B.A., joined City of Hope as senior vice president and chief diversity, equity and inclusion officer on Jan. 11. In this newly created position, Talton leads the development of a vision and strategy for advancing diversity, equity and inclusion, and ensuring accountability and commitment across the organization. She serves as a member of the Enterprise Leadership Team.

Most recently, Talton has successfully advised national clients through her firm, ALTalton Consulting. Previously, as chief diversity officer at Nielsen, she crafted a strategy focused on accountability, talent development, community outreach and supplier diversity that achieved measurable results.

Talton received her Master of Business Administration from the Kellogg School of Management at Northwestern University and her Bachelor of Science in business administration from the University of North Carolina at Chapel Hill.



## Terence M. Williams, M.D., Ph.D.

Professor and Chair, Department of Radiation Oncology

Terence M. Williams, M.D., Ph.D., joined City of Hope as professor and chair of the Department of Radiation Oncology on Jan. 1.

A radiation oncologist, Williams specializes in treating patients with thoracic and gastrointestinal cancers, with a particular emphasis on nonsmall cell lung cancer, pancreatic cancer and hepatobiliary malignancies. Prior to joining City of Hope, he held several leadership roles at The James Cancer Hospital and Comprehensive Cancer Center at The Ohio State University.

Williams' research focuses on caveolar endocytosis, DNA damage response pathways, DNA repair, and novel mechanisms of sensitization to radiation and other genotoxic therapies.

He received his M.D. and Ph.D. from Albert Einstein College of Medicine in New York, and completed his residency in radiation oncology and an internship in internal medicine at University of Michigan Medical Center.

# Hope Village Marks Topping Off

New five-story patient hotel is  
scheduled to open in January 2022

BY MICHAEL EASTERLING



HOPE VILLAGE  
AT CITY OF HOPE

*The Hope Village  
topping off is celebrated.*



**T**he bungalows of the legacy Parsons Village are being replaced with a new five-story, 147-room patient hotel: the new Hope Village. The structure, which had its “topping off” ceremony on Feb. 9, 2021, to celebrate the construction milestone of laying the final layer of concrete on the roof, will provide comfort for patients and their families to recuperate during their ongoing treatment.

While serving as a home away from home for patients who have received care at City of Hope, there will be some rooms available for visitors. Each of the rooms intended for patients will feature a kitchenette, and there will be laundry facilities available on every floor of the hotel. The hotel will also offer four VIP suites, a full-service restaurant, and numerous common areas that provide picturesque views of the San Gabriel Mountains.

The Center for International Medicine also will have offices located in Hope Village to

welcome international patients and provide coordination of their care.

Chief Medical Officer Vijay Trisal, M.D., the Dr. Norman & Melinda Payson Professor in Medicine, said this new Hope Village was designed with patients and their families at the center of the process.

“Hope Village offers a unique place where patients can recover with ease and confidence,” Trisal said. “We designed everything, from the beds and mattresses to the flooring, air filtration systems and kitchens, with our patients’ recovery top of mind.”

## BACK IN TIME — HOPE VILLAGE ORIGINS

The groundbreaking for the original Hope Village was in 1958, with the goal of making care more readily available to patients from all parts of the country. It was then known as Bloomenson Hope Village, honoring Abraham Bloomenson, an industrialist and philanthropist

from Duluth, Minnesota, who was a benefactor to City of Hope for many years.

As constructed, Bloomenson Hope Village consisted of 20 units and was considered a striking departure in hospital science at the time.

“Construction lasted close to a year and, just like today, great care was put into creating a place of healing for our patients in a beautiful park-like surrounding,” said Chief Executive and Interim Chief Operating Officer Vince Jensen.

After four months of pouring concrete at five-day intervals, the 108,000-square-foot hotel structure is now complete. The interior build-out of the guest rooms is nearing completion, along with the roof and exterior enclosure. An additional 9,000 square feet of covered exterior space is also part of the project.

Hope Village is the third of seven structures that are planned as part of the Duarte campus expansion. This building, along with the patient parking structure, is scheduled to open in early 2022.



# Facing COVID-19 Together

Stories of Selflessness and Courage  
During an Extraordinary Time

BY WAYNE LEWIS





**T**he pandemic shook the world in the last year-plus. But City of Hope faced the difficulties of the coronavirus outbreak while staying focused on its mission — and even building momentum — thanks to exceptional efforts and innovative thinking from every corner of its community.

Medical experts gave their all, day after day, to ensure patients received safe, top-quality cancer care. Researchers acted with urgency and agility to fight a new disease that posed special dangers to that patient population. Friends of the institution met these tough times with ingenuity and openhandedness.

“There are hundreds of examples of people going above and beyond,” said Vijay Trisal, M.D., City of Hope’s chief medical officer and Dr. Norman & Melinda Payson Professor in Medicine. “The challenges posed by the pandemic brought out the very best in our colleagues and supporters.”

Indeed, everyday heroes abound across City of Hope’s community. What follows is a curated collection featuring the few who stand in for the many: thousands of people so dedicated to transforming the future of health that no pandemic could stop them.

### CONTENDING WITH A NEW ENEMY, SPEED MATTERS

Numerous researchers pivoted to address the coronavirus, inspired by both society’s pressing need and the serious hazard COVID-19 represents for cancer and diabetes patients. They confronted the pandemic by drawing upon City of Hope’s ability to accelerate breakthroughs from lab bench to patients’ bedsides in cultivating approaches from immunotherapy to DNA vaccine to gene therapy.

One clinical trial led by Sanjeet Dadwal, M.D., chief of City of Hope’s Division of Infectious Diseases, began accruing participants in August 2020 to test the safety of leflunomide, an inexpensive anti-inflammatory for arthritis, as a treatment for cancer patients with COVID-19.

In another endeavor, viral immunologist Don Diamond, Ph.D., professor in the Department of Immuno-Oncology, began developing a coronavirus vaccine in March; by that November, an early safety trial had opened.

While Diamond built upon his work developing a vaccine against cytomegalovirus — potentially deadly to patients recovering from blood stem cell transplantation — redirecting a lab’s efforts is more complicated and difficult than one might even assume.

“It’s just phenomenal what Don’s lab has been able to do,” Trisal said. “To take a vaccine from hypothesis to Phase 1 trial in a matter of months is just unheard of. It’s not something that people can do in a traditional academic institution.”

“We felt passionately that City of Hope needed to continue fulfilling its research mission on behalf of cancer patients, despite all the challenges.”

— MIKE FITERMAN,  
CITY OF HOPE SUPPORTER

*Monece Orlina, R.N., dons PPE to safely continue her work as an infusion nurse at City of Hope’s Arcadia community practice site.*

“We’re grateful to have philanthropic partners who are profoundly sensitive to patients’ needs and passionate about fulfilling them.”

— VIJAY TRISAL, M.D.

## CARE, AND CARING, DURING A HEALTH CRISIS

City of Hope’s multidisciplinary team of medical professionals strived to make sure treatment continued despite the pandemic, resulting in no delays in surgery or appointments, and minimal impact on care through ongoing clinical trials. That required nimble implementation of telehealth, with the new Hope Virtual platform, and stringent measures to avoid transmission on campus and in clinics. Not to mention a lot of hard work.

When newly established coronavirus screening stations required staff, nurses and medical assistants from a number of units volunteered for months-long stints at testing locations. That willingness to step outside of one’s comfort zone for the greater good was widespread.

“The heroism was not just those who worked 18 hours a day — which so many people did,” Trisal said. “It was also important that our colleagues put themselves in a place of discomfort and uncertainty, stepping up to do something they weren’t trained to do. And they performed exceptionally well.”



City of Hope’s philanthropic partners, such as the Panda Cares Foundation, stepped up their efforts during the pandemic, donating everything from PPE to furniture to flowers.

There was a difficult tradeoff associated with one safety measure: As a rule, family and friends were not allowed to be with patients. "One of the most difficult parts in all of this is saying no to people at the front door or in the waiting room of the clinic," said Anne Ireland, D.N.P., M.S.N., R.N., AOCN, CENP, executive director of Clinical Network Sites & Outreach. "It's heartbreaking. In response, nurses stepped up to take a more personal role with patients."

Knowing the isolation felt by those without family close at hand, the medical team did all they could. In one case, that meant throwing a socially distanced birthday party for a hospitalized patient. Because details matter, the festivities included the patient's favorite, exotic cake. Some attendees came by to celebrate on their day off.

"I'm not sure anybody can fill the gap for patients who can't see their families," Trisal said. "But if there's anybody who could, it's City of Hope's nurses."

## EYES ON TARGET

With persistence and creativity, people across City of Hope's community strived to maintain the institution's traditional research and treatment focus on helping patients with cancer and diabetes. This important work also encompassed the efforts of donors and volunteers.

For instance, Mike Fiterman, a National Business Products Industry member and chairman of the board of Liberty Diversified International and grandson of the company's founder, and his wife, Linda, made a significant investment in the Priceman Lab through their family foundation. Their gift will support research, staff, equipment and more, led by Saul Priceman, Ph.D., assistant professor in the Department of Hematology & Hematopoietic Cell Transplantation. He is expanding upon City of Hope's pathbreaking work in CAR T cell therapy, which reprograms patients' immune cells to seek and destroy cancer, to address solid tumors.

"With the coronavirus, federal funding priorities shifted," Mike Fiterman said. "We felt passionately that City of Hope needed to continue fulfilling its research mission on behalf of cancer patients, despite all the challenges of a pandemic."

To keep up the momentum of volunteer efforts, 200 City of Hope events moved online as virtual experiences during the pandemic. These included the Holiday Benefit — a combined effort from volunteers representing industries including music, fashion, L.A. real estate and beauty — and Walk for Hope, the signature annual celebration supporting the Women's Cancers Program.

The pandemic even saw the launch of new philanthropic initiatives aimed at ensuring City of Hope cancer research carries on and moves forward, such as Dine In for Health Justice. Originating with the volunteer Health Justice Council, the month-long pilot raised awareness about health inequities affecting minority communities, as well as funds for City of Hope research tackling those inequities — which only grew starker with the pandemic.

## BRIGHTER DAYS AHEAD

The coronavirus outbreak couldn't derail City of Hope's drive to extend its research and care capabilities. With the ongoing Duarte campus expansion, the institution is preparing to offer top-notch cancer care to more patients than ever before and enhance research collaboration with improved facilities.



*Hematologist-oncologist Yulian Khagi, M.D., consults with nurse Nikole Hopkins-McIntyre, B.S.N., R.N.*

That effort benefited from the donation of 100 pieces of furniture by the Panda Cares Foundation, the charitable arm of Panda Express and a longtime supporter of City of Hope under the leadership of Andrew and Peggy Cherng. A \$1 million contribution from longtime supporter George Tsai, chair of furniture manufacturer Fairmont Designs, helped outfit patient lodgings at Hope Village, and the gift of flooring from Emmet Stephenson helped equip a series of meeting and collaboration spaces for staff.

"We're grateful to have philanthropic partners who are profoundly sensitive to patients' needs and passionate about fulfilling them," Trisal said. "Benefactors such as the Panda Cares Foundation, Emmet Stephenson and Fairmont Designs are ensuring that City of Hope can serve more people at Hope Village and elsewhere on campus."

Meanwhile, Lennar Foundation made a transformative gift of \$50 million in support of City of Hope's new comprehensive cancer campus and network of care in Orange County. Lennar Foundation Cancer Center will open in 2022. (See full article on page 19.) The Stanley W. Ekstrom Foundation gave \$1 million to help establish a new Precision Prevention and Early Detection Program in Orange County.

To accelerate progress in City of Hope's work to cure type 1 and type 2 diabetes, research pioneer Arthur Riggs, Ph.D., Samuel Rahbar Chair in Diabetes & Drug Discovery, gave \$100 million, the largest single donation in City of Hope history, to support investigations at the newly renamed Arthur Riggs Diabetes & Metabolism Research Institute. (See full article on page 26.)

With these sorts of inspiring actions, City of Hope's community can look ahead with optimism.

"We're well-positioned for the future thanks in great part to the commitment and generosity of our donors and volunteers," said Kristin Bertell, City of Hope's chief philanthropy officer. "Coming out of this darkness, our best days are ahead."

**A**rtist/photographer Sara Munis was only 33 when a blessed time of her life abruptly changed into something much different.

For several years, she and her high school sweetheart husband Brandon had tried to have a child, without success. Their prayers were answered in late 2016 when healthy, happy August was born. It was a blissful event for the young couple living a storybook life in rural Ridgecrest, California, a small town in northeastern Kern County adjacent to the Naval Air Weapons Station China Lake.

When August was a few months old, Munis began feeling ill.

First came a severe flu that dramatically lowered her blood pressure. "I never felt right after that," she recalled.

Next, the pain came, accompanied by bleeding.

Their small local hospital did an ultrasound and MRI (magnetic resonance imaging). One doctor, upon reading the images, told Munis, "You've got to get out of here!"

They hurried to a better-equipped medical center, where a CT (computed tomography) scan and colonoscopy revealed a grim diagnosis: Stage 4 colon cancer that had spread to the liver.

"I was at a total loss," said Brandon. "We'd always been such healthy people. Sara's a vegetarian. She's run half-marathons!" Indeed, the Munises are the quintessential outdoorsy types, enjoying kayaking, yoga, camping and the beach.

Nor did heredity offer an explanation. No one in Munis' family had ever had colon cancer.

Munis admits, "It was scary," while adding, "but I'm stubborn. I decided we were going to beat this!"

More than 149,500 Americans are diagnosed with colorectal cancer every year. Most are considerably older than Munis, though doctors are seeing a growing number of younger patients. They're not sure why.

At Stage 4, the five-year survival rate is about 14%. Nevertheless, colon cancer is no longer the universally fatal blow it once was.

"We are curing 30-40% of Stage 4 colon cancers that spread to the liver," said Yuman Fong, M.D., City of Hope's Sangiacomo Family Chair in Surgical Oncology. He's not the least bit hesitant to use the "cure" word shunned by many fellow oncologists.

Years ago, many surgeons would abruptly end a colon operation if tumors were detected in the liver; it was assumed that the cancer had spread everywhere. Now, however, Fong and others understand that the liver serves as an effective barrier, preventing most, if not all, cancer cells from spreading further.

Munis began chemotherapy at her local hospital to shrink her tumors as much as possible prior to surgery. She made good progress, but her search for the right surgeon proved frustrating. Doctors at one facility said she'd need three to four procedures ... with no guarantees. Another institution refused to operate at all, believing her disease too far advanced.

# A Baby, a Pandemic — and Cancer

Sara Munis juggled all three after a shocking diagnosis

BY ABE ROSENBERG

*Sara Munis kayaks with son August. August was just 10 months old when Munis received the shocking diagnosis of Stage 4 colon cancer that had spread to her liver.*

Brandon remembers he and his wife were "close to giving up hope" when a friend familiar with Fong and City of Hope encouraged the couple to make one last call. They expected to be disappointed again.

"I didn't want to go," Munis remembered. "I just thought they'd say no."

Nobody said no.

"We met with a resident," said Brandon, "and told him our story. He smirked and told us, 'You're gonna hear some good news!'"

Then Fong came in the room.

"He drew this picture," said Munis, "and showed us exactly what he was going to do, his whole plan. It was pretty amazing."

Fong's plan began weeks before the actual surgery, scheduled for June 2018.

The human liver can regrow after some — but not too much — is surgically removed. To ensure that enough regrowth would happen, doctors did a portal vein embolization: By blocking blood flow to one



Survivor Sara Munis discusses her experience with colon cancer.

“Even when we can’t ‘cure’ someone, we have strategies to help them live a long life.”

— YUMAN FONG, M.D.

side of Munis’ liver, the other side was induced to start growing.

By the date of her surgery, Munis’ liver had expanded sufficiently to make it easier and safer for Fong to excise the diseased parts. During that same operation, colorectal surgeon Kurt A. Melstrom, M.D., removed the tumors in Munis’ colon.

Everyone had high hopes. However, later scans revealed some lingering cells in Munis’ lymph nodes. Munis went on “maintenance chemo” to try to hold off a recurrence.

But the cancer did return, this time in her right adrenal gland. Once again though, while some physicians would label Munis “terminal” at this point, Fong and his team would not.

“Even when we can’t ‘cure’ someone,” Fong explained, “we have strategies to help them live a long life.”

In October 2020, Munis had robotic surgery to remove the diseased gland. Clayton S. Lau, M.D., City of Hope’s Pauline & Martin Collins Family Chair in Urology, did the surgery, with Fong in the room to lend support.

Though they met face-to-face only once, on the day of the surgery, Lau identified with Munis and her family.

“When I looked at her,” he explained, “being the father of two daughters, I could see myself in her shoes. I really felt for her family.

“I was determined to make them as whole as possible.”

That determination continues with Munis’ follow-up care, even more challenging now. The Munises moved to Colorado when Brandon got a new job. Trips to City of Hope became much more difficult. And now, with COVID-19 raging, it’s unwise to travel at all.

But here, too, there’s a plan. Telemedicine technologies enable City of Hope to coordinate Munis’ ongoing chemo regimen with local oncologists near her new home. Going forward, Fong expects up to two-thirds of City of Hope’s patients will benefit from some form of “distance” medicine. “It’s totally doable,” he said.

“It’s one good thing to come out of the pandemic,” he continued. “Telehealth has matured. I can communicate with a patient just like a real in-person visit. A barrier has been broken.” (Not totally: Many states still restrict telemedicine in some manner. Fong hopes those barriers come down soon.)

Both doctors also note that, as a center dedicated to cancer and diabetes, City of Hope is uniquely positioned to provide clinical care during the COVID-19 pandemic. While other hospitals are delaying screenings, surgeries and other procedures, City of Hope is continuing to provide world-class care in a safe environment.

For now, Munis remains positive, grateful to City of Hope and happy that no further traces of cancer have appeared, though more challenges may come. She’ll deal with them. “I’ve got a son to raise.”

August, now 4 years old, asks lots of questions about Mommy’s health and offers lots of hugs to cheer her up.

“He has a kind little heart,” said Brandon.

Ever the artist, Munis sees her situation much as one appreciates a fine painting. She wrote on her blog:

*It is easy to focus on the flaws or errors present They can be distracting and control the movement of the eye*

*However, if the viewer is able to look beyond the flaws*

*Or accept them as part of the image*

*Beauty can be found.*

# Brain Storm

A new study finds a link between the severity of COVID-19 infection and the so-called 'Alzheimer's gene'

BY SAMANTHA BONAR

It has been over a year since the world started hearing about SARS-CoV-2, the virus that causes COVID-19. Scientists are still discovering new things about the virus, including whether genetics might play a role in how it affects people. One study found that people who carry ApoE4, a genotype that has been found to increase the risk for Alzheimer's disease, had higher rates of severe COVID-19 infection and hospitalization. While the study found an association, it could not provide an explanation for it.

This interesting observation led to research conducted by City of Hope's Yanhong Shi, Ph.D., co-led by Vaithilingaraja Arumugaswami, Ph.D., of the UCLA Broad Stem Cell Research Center. The team confirmed the findings that the same gene that increases the risk for Alzheimer's disease can increase the susceptibility to and severity of COVID-19 — but they also came up with an explanation: The gene makes it easier for SARS-CoV-2 to attack brain cells. This could help explain why some COVID-19 patients exhibit neurological side effects while others do not, and why those suffering from Alzheimer's disease appear to be more susceptible to severe side effects from coronavirus infection.

At the beginning of the study, the team was interested in SARS-CoV-2's effects on the brain. Due to the fact that COVID-19 patients often lose their sense of taste and smell, the team theorized that the virus had an underlying neurological effect.

The team first created brain cells in the lab using induced pluripotent stem cells (iPSCs), which are a kind of stem cell that can become virtually any type of cell. The newly created neurons and astrocytes, a type of brain cell, were then infected with SARS-CoV-2. They found that both cell types were susceptible to infection.

Next, the team used iPSCs to create brain organoids, which are 3D tissue models that mimic certain features of the human brain. They created one organoid model that contained astrocytes and one without them. They infected both brain organoid types with the virus and discovered that those with astrocytes boosted SARS-CoV-2 infection.

The team then went on to study the effects of ApoE4 on susceptibility to SARS-CoV-2. They did this by generating neurons from iPSCs "reprogrammed" from the cells of an Alzheimer's patient that contained ApoE4. Using gene editing, the team modified some of the iPSC-created ApoE4 cells so that they contained ApoE3, which is a genotype that is considered neutral. The ApoE3 and ApoE4 iPSCs were then used to generate neurons and astrocytes.

The results were astounding. The ApoE4 neurons and astrocytes both showed a higher susceptibility to SARS-CoV-2 infection compared to the neutral ApoE3 neurons and astrocytes. Moreover, while the virus caused damage to both ApoE3 and ApoE4 neurons, it appeared to have a slightly more severe effect on ApoE4 neurons and a much more severe effect on ApoE4 astrocytes compared to ApoE3 neurons and astrocytes.

"Our study provides a causal link between the Alzheimer's disease risk factor ApoE4 and COVID-19, and explains why some (e.g., ApoE4 carriers), but not all, COVID-19 patients exhibit neurological manifestations," said Shi, the Herbert Horvitz Professor in Neuroscience at City of Hope. "Understanding how risk factors for neurodegenerative diseases impact COVID-19 susceptibility and severity will help us to better cope with COVID-19 and its potential long-term effects in different patient populations."

In the last part of the study, the researchers tested the antiviral drug remdesivir to see if it inhibited virus infection in neurons and astrocytes. They discovered that the drug was able to successfully reduce the viral level in astrocytes and prevent cell death. It was also able to rescue neurons from neurodegeneration.

The team's next step is to continue studying the effects of the virus to better understand the role of ApoE4 in the neurological manifestations of COVID-19. Many people infected with COVID-19 have recovered, but long-term neurological effects, such as severe headaches and loss of taste and smell, are still seen months after in some.

**"Our study provides a causal link between the Alzheimer's disease risk factor ApoE4 and COVID-19 ..."**

— YANHONG SHI, PH.D.

"COVID-19 is a complex disease, and we are beginning to understand the risk factors involved in the manifestation of the severe form of the disease," said Arumugaswami. "Our cell-based study provides a possible explanation as to why individuals with Alzheimer's disease are at increased risk of developing more severe COVID-19 symptoms."

The full results of the study, which was funded by grants from the California Institute of Regenerative Medicine and the National Institute of Aging, were published in Cell Stem Cell.





# Viral Attack

Researchers unleash cancer-killing virus on colon tumors

BY ZEN VUONG

*City of Hope scientists have combined two potent immunotherapies — an oncolytic virus and CAR T cell therapy — to target and eradicate solid tumors.*





**A** cancer-killing virus that City of Hope scientists developed could one day improve the immune system's ability to eradicate tumors in colon cancer patients, reports a recent study in *Molecular Cancer Therapeutics*, a journal of the American Association for Cancer Research.

The preclinical research is a first step to showing that City of Hope's oncolytic virus CF33 can target hard-to-treat tumors that "handcuff" the immune system and keep T cells from activating the immune system to kill cancer cells. More specifically, the researchers demonstrated in mouse models that CF33 appears to increase PD-L1 expression in tumor cells and causes them to die in a way that stimulates an influx of activated immune cells.

"CF33 is a safe, innovative virus City of Hope developed that can become a gamechanger because of how potent it is and because of its ability to recruit and activate immune cells," said Susanne Warner, M.D., a surgical oncologist at City of Hope and senior author of the study. "Our oncolytic virus trains the immune system to target a specific cancer cell. Preclinical models show that a combination treatment of oncolytic virus CF33 with anti-PD-L1 checkpoint inhibition leads to lasting anti-tumor immunity, meaning if a similar cancer cell ever tries to regrow, the immune system will be ready and waiting to shut it down."

Colorectal cancer is the third leading cause of cancer-related deaths in the United States and is expected to cause 52,980 deaths in 2021, according to the American Cancer Society. City of Hope researchers are excited about the potential of CF33 to enhance colon cancer treatment and point out that CF33 has been effective preclinically against a wide variety of cancers.

Yuman Fong, M.D., the Sangiacomo Family Chair in Surgical Oncology at City of Hope, and his team created oncolytic virus CF33 and expect to open a clinical trial to test the safety of this treatment in human patients this year. This treatment addresses a problem in cancer: Most solid tumors do not respond to checkpoint inhibitors because the "uncloaked tumor cell" still isn't recognized by the immune system, Fong said.

"CF33 selectively infects, replicates in and kills cancer cells. This study demonstrates that a designer virus we created to infect a wide variety of cancers can make tumor cells very recognizable to the immune system," Fong said. He, Warner and other City of Hope physician-scientists are working on turning "cold tumors" resistant to treatment into "hot tumors" that can be killed by a well-trained immune system.

The U.S. Food and Drug Administration has approved only one oncolytic virus thus far: T-VEC, which is a local immunotherapy treatment that kills melanoma cells.

To confirm their hypothesis, City of Hope scientists tested four groups: control with no treatment, anti-PD-L1 alone, CF33 alone, and a combination of CF33

and anti-PD-L1. Results indicated that a combined treatment of City of Hope's oncolytic virus and anti-PD-L1 appeared to be most effective. It also increased CD8+ T cells, which are immune cells that remember previous diseases and are trained to kill them if they are reintroduced later. In other words, the models developed anti-tumor immunity. This means that animals cured of their cancer were effectively immune to future tumor growth.

Fong and colleagues have demonstrated CF33's anti-tumor immune efficacy against triple-negative breast cancer cell lines, in brain tumor cells, in liver cancer models, and in pancreatic, prostate, ovarian, lung, and head and neck cancer. Moreover, a recent City of Hope-led study found that CF33 could be combined with chimeric antigen receptor (CAR) T cell therapy to target and eliminate solid tumors that are otherwise difficult to treat with CAR T therapy alone. City of Hope has licensed CF33 to Imugene Limited, a company developing novel therapies that activate the immune system against cancer.

Notably, the CF33 virus may be tracked by noninvasive PET (positron emission tomography) scanning. "If we can perfect the technique, we can give someone a viral injection and watch it work — see where it goes and identify cancer cells that we didn't even know existed," Warner said. "Doctors would have real-time data and know if we should give a patient a higher dose or where to direct the treatment based on tumors that have not yet been killed."

**"If we can perfect the technique, we can give someone a viral injection and watch it work."**

**— SUSANNE WARNER, M.D.**

What Warner describes is a developing field called theranostic precision medicine, meaning doctors are able to give patients therapies and concurrently diagnose them to provide the most appropriate treatment for that patient. It is one of many precision medicine approaches City of Hope is developing and offering to patients.

The next step for the current study is to test the innovative CF33 virus platform in different solid tumor models.



# HOPE IS GROWING

City of Hope is bringing its lifesaving cancer care to even more locations.

No matter where you live or who you are, you should have access to world-class cancer care. That's why we're proud to announce we're adding seven new locations to our clinical network — expanding our reach and helping more cancer patients. Whatever hope means to you, it means the world to us to bring it a little closer to home. **Discover our locations at [CityofHope.org/NearYou](https://www.cityofhope.org/nearyou)**





# A Gift of Hope

BY JAY A. FERNANDEZ



A virtual topping off ceremony for Lennar Foundation Cancer Center at City of Hope Orange County was held June 3.



Jon M. Jaffe is co-chief executive officer and co-president of Lennar Corporation, CIA Advisory Council member and longtime friend to City of Hope.

City of Hope's effort to bring specialty cancer expertise, research and care to Orange County received an extraordinary boost recently: Lennar Foundation, the charitable arm of homebuilder Lennar Corporation, has made a transformative gift of \$50 million in support of City of Hope's new comprehensive cancer campus and network of care in Orange County. With construction already underway, Lennar Foundation Cancer Center is set to open in Irvine in 2022.

This commitment — the largest gift yet to City of Hope Orange County — is the culmination of Lennar's long history of support and involvement with City of Hope through its construction and homebuilding industry group.

The Miami-based Lennar Corporation is a member of City of Hope's Construction Industries Alliance (CIA), which was founded in 1974. The CIA has since grown to comprise representatives from the homebuilding, construction and service industries who have worked to raise tens of millions of dollars in support of City of Hope's groundbreaking cancer treatment and research.

"We have our wonderful tradition of industry support and alliances to thank for this gift and, in particular, the vision of Jon Jaffe and the executive team at Lennar Corporation," said Chief Philanthropy Officer Kristin Bertell.

Jon M. Jaffe, co-chief executive officer and co-president of Lennar Corporation, CIA Advisory Council member and longtime friend to City of Hope, was instrumental in shepherding the \$50 million gift. Together with other Lennar leaders, Jaffe has been a strong advocate of City of Hope's pioneering research and patient care for years. An Orange County resident, Jaffe was awarded City of Hope's highest honor, The Spirit of Life® Award, in 2004. (The annual Spirit of Life gala, at which hundreds of industry peers gather to raise money for City of Hope and celebrate the year's honoree,

took place virtually on May 20; this year, Leonard Miller, president and CEO of the New Home Company, received the award.)

The \$1 billion City of Hope Orange County initiative includes a specialty hospital and two outpatient treatment centers — one in Newport Beach that opened in January 2020 and the new 190,000-square-foot Lennar Foundation Cancer Center that will be located on 11 acres at FivePoint's Great Park. The Irvine campus will bring together some of the nation's top health care innovators in service of City of Hope's unique blend of specialized cancer expertise, bench-to-bedside research innovation and patient-centered care.

"This is the start — and it is a monumental start — to show the nation that our work in Orange County will catalyze incredible achievements in health care," said City of Hope President and CEO Robert Stone, the Helen and Morgan Chu Chief Executive Officer Distinguished Chair. "This partnership supports a system of care delivery that provides state-of-the-art treatments, the latest scientific and medical discoveries, and unprecedented access that will serve as a model across the country."

A portion of Lennar Foundation's gift is also dedicated to furthering clinical translational research collaborations between City of Hope and the University of Miami's Sylvester Comprehensive Cancer Center on precision medicine approaches to cancer that will help eliminate health inequities.

"City of Hope is a leader in the treatment of and race to find a cure for cancer," said Jaffe. "It's gratifying to know that, with this gift, we will make a positive impact by expanding access to care and advancing the research that will treat, prevent and, ultimately, eliminate cancer. We hope this contribution will encourage other philanthropic leaders to support City of Hope in the fight."

# Building a Royal Legacy of Giving

BY JAY A. FERNANDEZ

Few friends of City of Hope have found as many different ways to contribute, over as many years, as Bryan Isaacs. Over four decades, Isaacs has supported the hospital as fundraiser, board member, diplomatic envoy, donor and all-around cheerleader. It's a passion for giving born during his childhood in the 1940s.

"I came from a very poor family in South Wales," said Isaacs, who lived with his grandparents during World War II. "My grandparents had barely two cents to rub together, but my grandfather always found somebody more needy than he was. And that made a huge impact on me."

Isaacs' relationship with City of Hope began in 1982, when he was serving as chairman of the British-American Chamber of Commerce. Along with philanthropist and City of Hope supporter Norman Lee (who later served on the board of directors from 1985 to 1987), Isaacs helped persuade Queen Elizabeth II and Prince Philip to come to City of Hope in February 1983 for the dedication of

a new pediatric research center that Lee and his wife, Sadie, were funding through their foundation. The royal visit amplified City of Hope's reputation internationally.

In the years that followed, Isaacs was instrumental in introducing the Chinese communities in Los Angeles, Hong Kong and Taiwan to City of Hope, and he served on the board of directors from 1990 to 2000. After retiring, he helped launch a fundraising chapter in the Coachella Valley called "Gems of the Desert."

*"Until you step foot inside the doors of City of Hope, you don't realize what a different institution it is ... 'This is like no other place I've ever visited.'"*

— BRYAN ISAACS

But Isaacs also had a more personal connection. Not long after his introduction to City of Hope in 1983, his wife, Helga, was diagnosed with tongue cancer. At the time, City of Hope did not have a head and neck division, so she was referred to UCLA where she achieved a full recovery. Twenty-five years later, complications from the original radiation treatments developed into difficulty swallowing and speaking. This time, Helga came to City of Hope and Isaacs was suddenly engaging the hospital from the patient side. "I saw it very close up and experienced the kindness shown by a variety of doctors in the head and neck divisions," he said.

During this period, Isaacs had become co-chairman of the Lees' foundation, which in 2015 endowed The Norman and Sadie Lee Foundation Endowed Professorship in Head and Neck Cancer at

City of Hope, first awarded to Ellie Maghami, M.D., chief of head and neck surgery at the hospital. When Helga passed away Jan. 3, 2020, Isaacs made a \$500,000 gift to City of Hope to establish the Bryan and Helga Isaacs Fund under the direction of Maghami to further research in head and neck oncology. "My hope is that City of Hope will treat the many patients who suffer the same manifestations of postradiation damage [that Helga did]," Isaacs said.

After becoming an accountant in 1961, Isaacs moved to Paris, then Geneva, where he met Helga. In 1964, they relocated to Houston, where Isaacs worked for Ampex, the company that invented the reel-to-reel tape recorder. By 1970, they had resettled in California after Isaacs switched to the international tax firm KPMG, for which he worked until he retired in 1999. Isaacs now lives in La Quinta, California, where his two daughters and two granddaughters recently visited to celebrate his 82nd birthday.

As a legacy contributor, Isaacs trusts that City of Hope will keep its focus on "retaining and recruiting truly outstanding research scientists." And for new generations of prospective supporters, he notes that nothing is as effective as visiting the campus — virtually, for the time being — to witness the groundbreaking work being done to combat cancer and diabetes. "Until you step foot inside the doors of City of Hope, you don't realize what a different institution it is. I make a career now of referring people to City of Hope, and every single person comes back with a comment like, 'This is like no other place I've ever visited.'"

*Bryan and Helga Isaacs*



# A Family Tree With Deep Philanthropic Roots

BY JAY A. FERNANDEZ



*Family tree with deep philanthropic roots*

**F**ans who follow Josh Flagg, the 35-year-old celebrity real estate agent and star of Bravo's "Million Dollar Listing Los Angeles," were treated to something different on his social media feeds last summer. Amid posts highlighting luxury home transactions appeared heartfelt tributes to his maternal grandmother, Marjorie Platt, who died in July at age 98.

Flagg recalled with pride her life as a prominent member of the Los Angeles social circuit and devoted philanthropist who, with her husband Herman, supported a number of local Jewish charitable institutions and community causes, including Sinai Temple, American Jewish University and City of Hope.

"Growing up, I always heard about City of Hope from both sides of my family," said Flagg, who was deeply attached to both sets of grandparents — the Platts and his father's parents, Edith and Eric Flagg. He was enchanted by stories of their dedicated fundraising activities, especially the Regal Ball, the annual black-tie gala hosted by the Flaggs at the Beverly Hilton for many years in support of City of Hope.

Unable to visit City of Hope during the pandemic lockdown, Flagg has relied on family stories and a trove of memorabilia he keeps in his home — awards, documents, photos, video footage — to get a sense of his family's ties to the organization. City of Hope archivist Susan Yates confirms that Flagg's family is deeply entwined with the medical center's history — particularly through

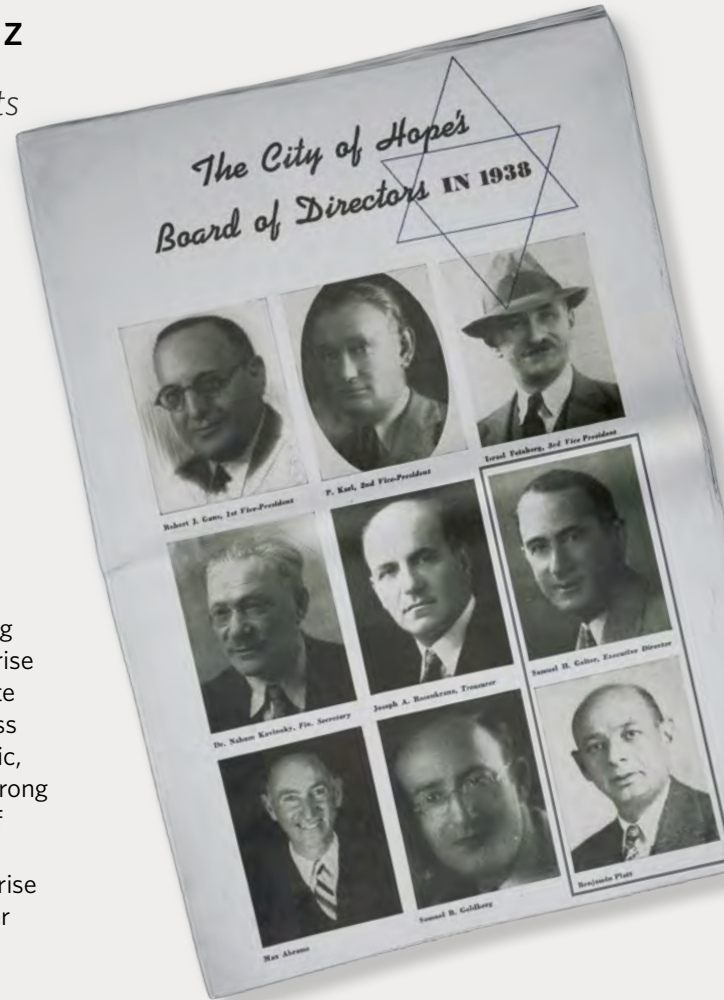
their industry-based volunteerism and fundraising, which both the Platts and the Flaggs committed to for decades.

It was under the leadership of City of Hope board member Benjamin Platt, Flagg's great-grandfather, that a new era of philanthropic support from the business community began. In 1933, together with Joseph Zukin and Louis Tabak, Platt co-founded the Merchants Club, a committee of business leaders recruited to raise funds for City of Hope, which was a tuberculosis sanatorium at the time. The Merchants Club was originally drawn from the manufacturing and apparel industries, but eventually gave rise to a thriving nationwide network of corporate philanthropy groups, spanning food, business products, hardware, home furnishings, music, film and more. More than 25,000 people strong today, these groups have raised hundreds of millions of dollars for City of Hope and have proved critical in the evolution of the enterprise to becoming the top-ranked National Cancer Institute-designated comprehensive cancer center it is today.

**"Growing up, I always heard about City of Hope from both sides of my family."**

— JOSH FLAGG

When the Flaggs arrived in Los Angeles, they too became involved in City of Hope through the Merchants Club. They had survived World War II as resistance fighters in Holland. In Los Angeles, they built a successful women's



*Benjamin Platt, shown with other City of Hope board members along with Samuel Golter, executive director of the tuberculosis sanatorium. Courtesy of City of Hope Archives*

sportswear line, Edith Flagg Inc., which grew famous for popularizing the use of polyester in women's fashion.

For his part, Josh Flagg is enthusiastic to learn more about City of Hope and his family's connections to the place. "I would love to come for a visit when conditions allow it," he said.

Susan Dolbert, senior vice president of philanthropy, expressed her appreciation in getting to know Flagg and his family's City of Hope stories. "From City of Hope's earliest days, our community of supporters and volunteers have shaped our mission and who we are. Our ability to deliver leading-edge cures and scientific innovation to people with cancer and diabetes today is a direct result of the dedicated work of the Platts, the Flaggs, and their friends and associates over decades. We are so grateful."

*Josh Flagg*



*Edith and Eric Flagg, Lee Graff and friends at the Regal Ball. Courtesy of City of Hope Archives*



# Comprehensive Cancer Care

This year marks the 50th anniversary of the National Cancer Act of 1971, which led to the creation of a nationwide network of comprehensive cancer centers. Fifty years later, the act and the institutions it helped bring about remain a powerful force in the ongoing battle to end cancer.

BY ABE ROSENBERG

**F**ive years ago, when Steve McGrew of Spokane, Washington, was diagnosed with prostate cancer, his physician could offer only a few options. McGrew didn't like any of them, so he asked what he should do next. The doctor, sensing his own limitations, said simply, "Look farther."

McGrew did exactly that. He went to a larger facility for more advanced treatment.

He's glad he asked the question, because not long afterward, a routine exam turned up an unexpected malady: mesothelioma.

This time the advice was even less encouraging. His doctor suggested palliative care.

"I think he was overwhelmed," recalled McGrew. "He'd probably never even seen mesothelioma before."

But McGrew looked farther and found what he needed at City of Hope.

"In a place like City of Hope," he explained, "there's so much information available. It's like standing on a street corner in New York City. Everything passes by!"

"Looking farther" is what City of Hope and other comprehensive cancer centers do best. Guided by standards laid down by the National Cancer Institute (NCI), these top-of-the-line, all-in-one facilities combine the highest levels of research, trials and treatment, attracting world-class physicians and scientists who collaborate across disciplines to create an atmosphere where breakthroughs happen and lives are saved.

Before 1937, there was little coordination in cancer care. The National Cancer Act of 1937 addressed that gap, earmarking the first significant federal money for cancer and creating the NCI, tasked with conducting research and training on the causes, diagnosis and treatment of cancer.

Then in 1971, President Richard Nixon declared a "war on cancer" and signed an expanded National Cancer Act, increasing the NCI's

budget, authority and responsibilities, which now included the creation of NCI-designated cancer centers across the country: They would receive the bulk of federal attention and funding.

This was a critical change, says Steven T. Rosen, M.D., City of Hope's chief scientific officer, director of its comprehensive cancer center and the Irell & Manella Cancer Center Director's Distinguished Chair. It served to "centralize resources of committed individuals." Rosen, America's longest-serving comprehensive cancer center director (seven years at City of Hope, 25 at The Robert H. Lurie Comprehensive Cancer Center of Northwestern University in Chicago), says this coming together of people and dollars "was instrumental to our many remarkable strides, in every area, over the past 10 to 15 years."

The NCI delineated three types of eligible facilities: basic (laboratory) cancer centers, clinical cancer centers and comprehensive cancer centers.

The comprehensive cancer centers were given the broadest, most ambitious mission. To qualify as "comprehensive," a cancer facility must demonstrate the highest achievements in research, clinical care, education and community contributions.

It's a rigorous standard not easily achieved nor maintained. NCI-designated centers go through a tough review process every five years. Only those conducting the most promising cancer research are awarded comprehensive status. Out of some 1,500 cancer facilities across the U.S., barely 4% receive NCI designation. City of Hope is one of only 51 comprehensive cancer centers, earning the designation in 1998.

Those standards benefit patients, the medical community and the entire country in many ways:

**EXPERTISE** — Where typical oncologists may not know about the latest innovations, at a comprehensive cancer center you'll "very likely be seen and evaluated by what I call a super-specialist — an expert in your particular

cancer," explained Michael Caligiuri, M.D., president of City of Hope National Medical Center, his fourth comprehensive cancer center. "They have seen everything, treated everything and know all the challenges for the particular cancer within their expertise."

**CLINICAL TRIALS** — All new cancer treatments begin as clinical trials, many of which take place at comprehensive cancer centers. Each year, thousands of patients who've run out of conventional options gain new hope and, frequently, longer lives, by participating in those trials which, thanks to the work at comprehensive cancer centers, are no longer viewed as simply "experiments."

"Clinical trials," declared Rosen, the Morgan & Helen Chu Director's Chair of the Beckman Research Institute, "are now the vehicle for receiving the latest treatment." In fact, Rosen pointed out, some 20% of all City of Hope patients enter a clinical trial at some point.

Such was the case for McGrew's mesothelioma, as well as for Nathan Dotson of Newport Beach, California, who enrolled in a clinical trial to treat his prostate cancer.

"I am a big believer in comprehensive cancer centers such as City of Hope," explained Dotson. "I would have never heard about the specific clinical trial that I am participating in had it not been for the phone call that I made to City of Hope. I wonder how many patients just miss out."

**COLLABORATION** — Comprehensive cancer centers attract the best and the brightest among scientists and physicians, who are then encouraged to reach across disciplines, talk to each other, work together and come up with new solutions, making their institution much greater than the sum of its parts.

More than an opportunity, collaboration is built into the core mission. Through the use of NCI-funded Cancer Center Support Grants (CCSG), centers are encouraged to create a collaborative



*Immunologist Charles Todd, Ph.D., in his research lab at City of Hope in 1971, the year President Nixon signed an expanded National Cancer Act*

atmosphere, because, as the NCI website says, “a culture of discovery, scientific excellence, trans-disciplinary research and collaboration yields tangible benefits extending far beyond the generation of new knowledge.”

“Grant money used to go mostly to individual labs,” recalled Caligiuri, the Deana and Steve Campbell Physician-in-Chief Distinguished Chair. “There was no incentive to collaborate. But these CCSGs changed that thinking and also helped institutions build a collaboration infrastructure.”

**PUBLIC HEALTH** — Comprehensive cancer centers engage heavily in population studies, education and community outreach, making a strong contribution to the knowledge base, broadening the tool kit for preventing, diagnosing, treating and ultimately curing cancer, and training the next generation of scientists to continue this work.

Fifty years into the “war on cancer,” the experts unanimously feel the 1971 National Cancer Act changed the landscape

dramatically for the better, though they do see room for improvement, especially regarding data- and resource-sharing, not only within institutions, but across the entire cancer and scientific community.

But there’s no denying that NCI-designated comprehensive cancer centers bring world-class care to patients and much pride to the professionals who work there.

“It’s a badge of honor,” said Caligiuri. “One we never want to lose.”



# New Hope in OC

*Meet renowned oncologist Edward S. Kim, M.D., M.B.A., the new physician-in-chief for City of Hope Orange County.*





Edward S. Kim, M.D., M.B.A., is the new senior vice president and vice physician-in-chief of City of Hope National Medical Center and physician-in-chief of City of Hope Orange County. A nationally renowned clinician and U.S. News & World Report “Top Doctor,” Kim is helping fulfill the promise of enhanced local access to our cancer breakthroughs and leading City of Hope Orange County’s esteemed team of clinicians. In an interview for City News, Kim shares his background and career highlights.

BY MICHAEL EASTERLING

**City of Hope:** Welcome to City of Hope! Tell us, why did you decide to join the organization?

**Kim:** Thank you! I am thrilled to be here, because my appointment to City of Hope Orange County is the culmination of my career thus far. I was so inspired by City of Hope’s plans to take the scientific and research expertise of the main campus in Duarte and build a cancer campus of the future and regional network of care in Orange County that I’ve moved my entire family here from Charlotte, North Carolina. They’re happy about it because it is Southern California! Plus, by getting to work with some incredible leaders — Robert Stone, Annette Walker, Michael Caligiuri, the OC expansion team and the scientists and researchers — we will change the way cancer care is delivered. Who could pass that up?

**City of Hope:** Tell us about your roles and responsibilities.

**Kim:** In my role as vice physician-in-chief for City of Hope National Medical Center, I work directly with the physician leaders and department chairs to continue our push for breakthroughs in treatments and prevention. As City of Hope Orange County’s physician-in-chief, I am responsible for bringing City of Hope’s world-renowned care and pioneering research into a community with growing needs. City of Hope Orange County will be a green field of innovation, providing an opportunity to test new care innovations and partner with like-minded individuals and organizations who share our vision. I will work with the Orange County team and clinical/research subject matter experts throughout the organization to implement programs that innovate the care model and cross-sector collaborations in Orange County that will benefit our entire organization and, more importantly, our patients and their families.

**City of Hope:** What was your career background prior to coming to City of Hope?

**Kim:** After completing medical school at Northwestern University, I finished my fellowship at the University of Texas MD Anderson Cancer Center, where I also served as a tenured associate professor in the Department of Thoracic/Head and Neck Medical Oncology. I spent eight years there at the Levine Cancer Institute affiliated with Atrium Health, where there was an opportunity to help build a new cancer center in Charlotte, North Carolina. There, I served as chair of solid tumor oncology and investigational therapeutics, the Donald S. Kim Distinguished Chair for cancer research, and clinical trials office medical director. Recently, I completed my master’s in business administration at the University of North Carolina Kenan-Flagler School of Business.

**City of Hope:** What are some areas you’d like to focus on in your role here?

**Kim:** For me, cancer treatment has always been about prevention. The

way you can impact a population the most is by preventing cancer in the first place. Prevention will be a key part of the Orange County regional network. I am also an advocate for more diversity in clinical trials so that cancer research produces results that are more effective for the entire population. So, I’ll serve as a champion and advocate for helping patients with cancer and their families gain access to state-of-the-art research so we can translate it into targeted therapies for the genetic differences that may affect how well a patient responds to treatment.

**City of Hope:** What are the most memorable highlights of your career?

**Kim:** I’ll give you two. The first is marrying my wife, Florence, and having our two kids, Elyssa and Alex, as I feel the career has to complement the family. Second, I’ve been very lucky to be involved with some novel clinical trials, projects and mentors. The BATTLE study we conducted at MD Anderson in the mid-2000s with Waun Ki Hong as my mentor was the first time we conducted a personalized medicine study, which established a new standard for precision medicine. It led the way in personalizing medicine — getting biopsies from patients and testing their tumors to analyze their genomics. Next, I developed a new cancer center in Charlotte, which delivered clinical trials and genomics testing across 26 different sites across two states, with Derek Raghavan as a mentor.

You can always reflect fondly on the past, but it’s more important to see how it shapes your future. Each tumor in every patient is different, and we need to study the characteristics of the tumor as deeply as we can to find the best personalized treatment. That’s really one of the highest goals in oncology, and it’s one that we will all continue to pursue.

**City of Hope:** How will the OC expansion transform the way cancer care is delivered?

**Kim:** The City of Hope Orange County expansion is creating a national model that redefines the traditional boundaries of a bench-to-bedside comprehensive cancer center like the campus in Duarte. This means we’re speeding our highly specialized care, academic research and scientific breakthroughs to Orange County so that people no longer need to commute two hours each way.

**City of Hope:** What kind of team will you be building in Orange County?

**Kim:** As plans continue to be finalized for Orange County, I’m building a team focused on care innovations and coordinating the roster of physicians. Attracting the talent is the easy part — City of Hope’s reputation extends well beyond Southern California, and there will be many who want to be part of this ambitious initiative. The focus will be on shaping a team that has the expertise and knowledge, but who can also thrive working in the startup green field environment in Orange County. We’ll be recruiting candidates who want to help us build the future of cancer care.

“I’ll serve as a champion and advocate for helping patients with cancer and their families gain access to state-of-the-art research.”

— EDWARD S. KIM, M.D., M.B.A.

# Honoring a Pioneer

Diabetes research center is renamed for Arthur Riggs

BY LETISIA MARQUEZ

*City of Hope renames the Diabetes & Metabolism Research Institute to honor pioneering diabetes researcher Arthur Riggs, Ph.D.*



**C**ity of Hope has renamed its preeminent diabetes research center the Arthur Riggs Diabetes & Metabolism Research Institute in honor of its longtime director and research pioneer Arthur Riggs, Ph.D., the Samuel Rahbar Chair in Diabetes & Drug Discovery.

Riggs' scientific achievements include developing the technology that led to the creation of the first synthetic human insulin — a breakthrough that enabled mass production of insulin for people with diabetes. That discovery, which made possible the launch of a \$500 billion global biotech industry, was followed by numerous firsts in the field of biomedical science. Today, synthetic insulin is used by hundreds of millions of people.

Riggs also developed recombinant DNA technology capable of producing humanized monoclonal antibodies that are the foundation of modern treatments for cancer, autoimmune diseases, blindness and a host of other diseases. These therapies include trastuzumab (commercial name: Herceptin), rituximab (commercial name: Rituxan), pembrolizumab (commercial name: Keytruda) and many others that are some of the world's most widely used cancer drugs.

A fan of science fiction since childhood, Riggs said, "I'm disappointed that I never quite made it as a space-traveling scientist. But in my field, I've been able to do things that are just as exciting. When I sit back and think about it, I just continue to be amazed at what the field has done in general and that I've been able to be part of it. It's absolutely incredible."

"Dr. Riggs has been essential to the institute's growth and accomplishments over five decades as a researcher, discoverer, mentor and major donor," said Robert Stone, president and CEO of City of Hope and the Helen and Morgan Chu Chief Executive Officer Distinguished Chair. "His contributions to biomedical research have transformed the

**"... one day, probably sooner than most think, we'll create a world without diabetes."**

— ARTHUR D. RIGGS, Ph.D.

lives of countless people living with serious diseases, and his mark on City of Hope is an indelible one that will continue on in the institute that now bears his name."

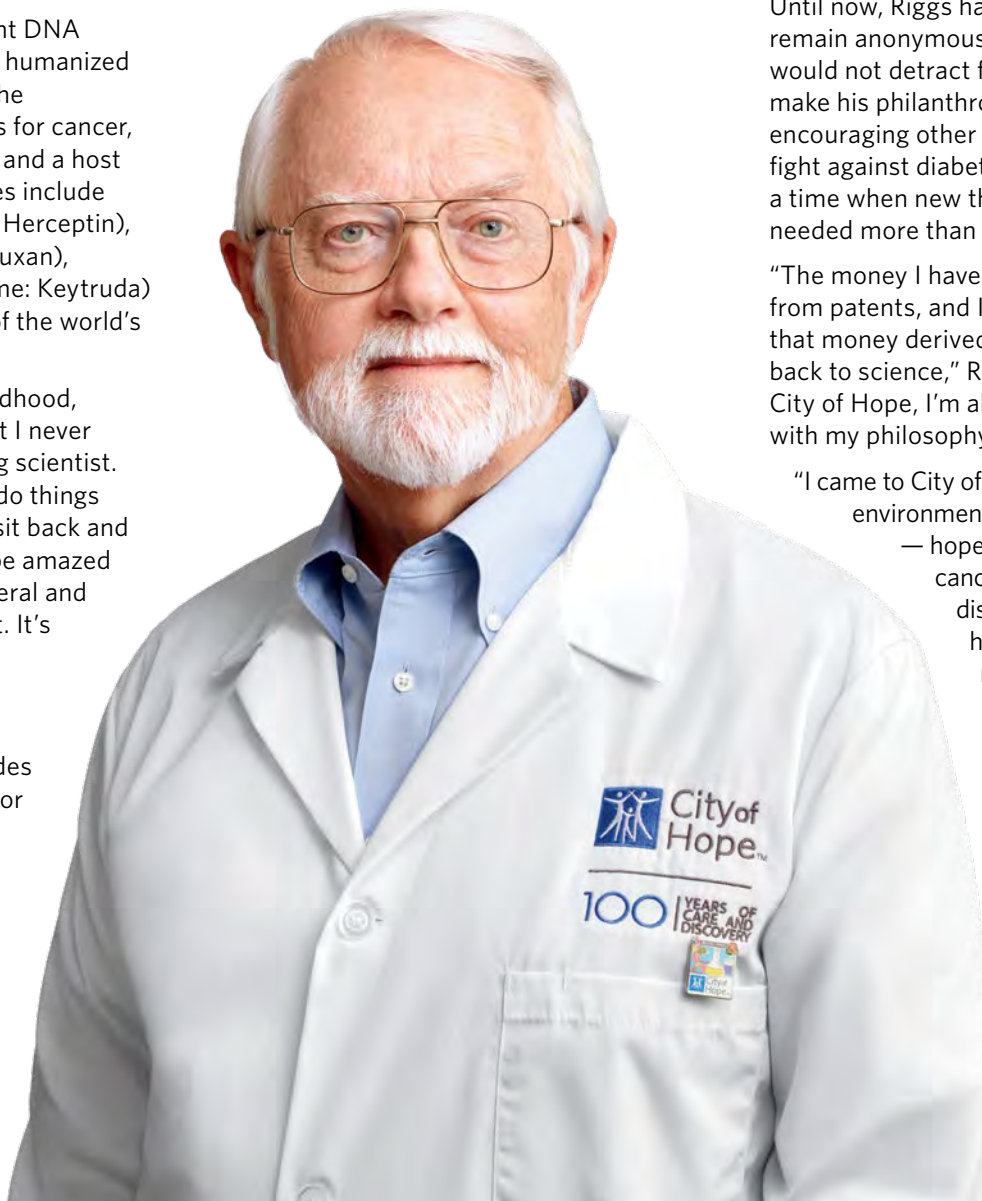
At City of Hope, in addition to dedicating himself to scientific pursuits, Riggs has quietly contributed nearly all of the wealth from his discoveries to support leading-edge research toward the development of new treatments for the betterment of human health.

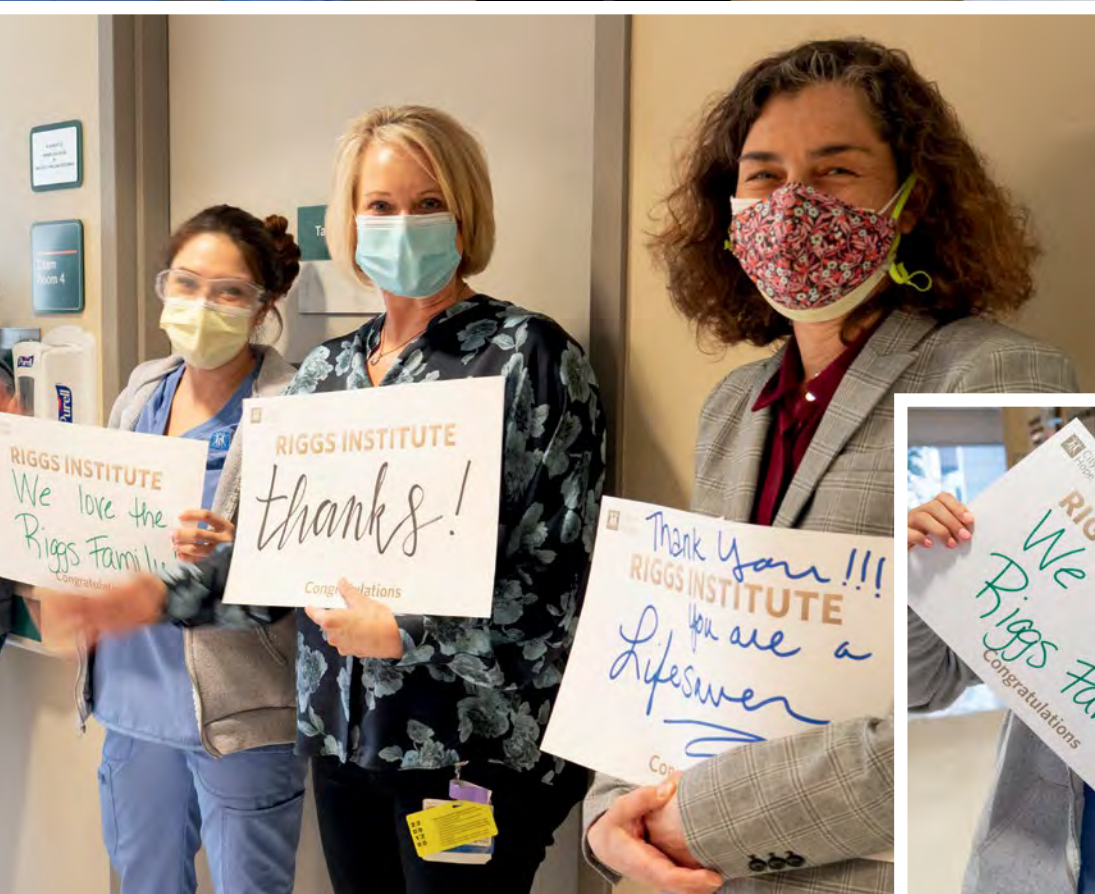
Over the last 30 years, Riggs has donated more than \$310 million to City of Hope. His generosity culminated in a gift of \$100 million in January that will help fund the continuation of research that has been his passion for more than half a century.

Until now, Riggs has insisted that his gifts remain anonymous so that any attention would not detract from his work. He elected to make his philanthropy public now in hopes of encouraging other donors to join City of Hope's fight against diabetes and cancer, especially at a time when new therapeutic discoveries are needed more than ever.

"The money I have acquired has come largely from patents, and I have the general idea that money derived from science should go back to science," Riggs said. "So, in giving to City of Hope, I'm able to behave consistently with my philosophy."

"I came to City of Hope because the environment here offers exactly that — hope for people with diabetes, cancer and many other serious diseases," added Riggs, who has been at the institution for more than 50 years. "I believe in the promise of our work at City of Hope so strongly that one day, probably sooner than most think, we'll create a world without diabetes. Yet, we will realize the full potential of this important work only through the generosity of many other donors who will choose to join us."





City of Hope employees, including Chief Philanthropy Officer Kristin Bertell and Executive Vice President and Chief Transformation Officer Debra Fields, lower left, hold signs celebrating Arthur Riggs, Ph.D., and the renamed Riggs Institute. Jane Riggs, Arthur's wife, is in the center, top left.

In 2014, City of Hope established the Diabetes & Metabolism Research Institute, integrating basic, translational and clinical research with innovative care and comprehensive education.

The work done there has resulted in exciting developments in cell transplantation, gene regulation and immune tolerance, and in gaining systemic understanding of diabetes as a complex, multifaceted disease.

"We've become one of the best diabetes research institutes in the world," Riggs said. "I've got to be in the best occupation in the world. It's intellectually exciting. We're trying

to solve puzzles and cure disease. When you have the opportunity to do something important and you're at the forefront of the field, what could be better?"

Indeed, the Arthur Riggs Diabetes & Metabolism Research Institute is one of the world's foremost scientific organizations dedicated to investigating the biology of diabetes and its treatment. It houses seven departments, as well as the The Wanek Family Project for Type 1 Diabetes, and continues Riggs' work under its newly appointed director, Debbie C. Thurmond, Ph.D., the Ruth B. &

Robert K. Lanman Chair in Gene Regulation & Drug Discovery Research.

"It has been a humbling honor to assume responsibility for this institute that Dr. Riggs so purposefully and painstakingly built," Thurmond said. "It's entirely fitting that it should carry his name as we carry on the work he began — for the benefit of people with diabetes. His philanthropy is an extension of the generosity of spirit he has shown to me and everyone else who has ever walked through these doors, and his impact will be with us for many years to come."



# Urine Test Could Detect Cancer

DNA strands could indicate hard-to-detect malignancies

BY STEVE YOZWIAK

*Transparent tumor tomography shows a tumor's "microenvironment." Triptolide, made from the thunder god vine, helps penetrate the protective cocoon that surrounds pancreatic tumors.*

**U**rinalysis has long been a staple of physical exams to detect and manage a number of diseases and disorders, but not cancer. What if it were that easy, though, and cancer was detected in its very earliest stages, when the disease responds more favorably to treatment and improved outcomes are more likely?

That was the question posed by scientists at City of Hope's Translational Genomics Research Institute (TGen), who have found a way of zeroing in on early-stage cancer by analyzing short strands of cell-free DNA in urine. Their study's findings were published recently in the scientific journal *Science Translational Medicine*.

Previous thought once held that DNA fragments in urine were degraded at random and were too short to provide any meaningful information about a disease as complex as cancer. But TGen and City of Hope researchers, and their colleagues from Baylor University and Phoenix Children's Hospital, found that these DNA fragments are not random at all, and can clearly indicate a difference between healthy individuals and those with cancer.

"There are many steps between where we are now and where we want to go — detecting cancer from a urine sample — but without doubt this is an encouraging first step," said Muhammed Murtaza, M.B.S., Ph.D., an associate professor and co-director of TGen's Center for Noninvasive Diagnostics and the study's senior author.

Collecting a urine sample may even eliminate a lab visit, given that the sample could be collected at home and mailed in for analysis.

By studying tissue samples from children with various cancers, whose malignancies often move extraordinarily fast, and adults with pancreatic cancer, whose early detection is critical to their disease outcomes, researchers mapped the DNA fragmentation profiles in their urine.

"We found that certain regions of the genome are protected from fragmentation in urine from healthy individuals, but the same regions are more fragmented in patients with cancer," Murtaza said.

The fragmentation profiles were remarkably similar across multiple individuals — the length of the DNA fragments were similar, the regions of the genome where the fragmentation occurred were consistent — and informed researchers what type of cells contributed the fragments.

Ajay Goel, Ph.D., M.S., chair of the Department of Molecular Diagnostics and Experimental Therapeutics and associate director of basic science at City of Hope's comprehensive cancer center, is one of the study's authors. He is a leading expert in developing early-detection blood tests for colon, pancreatic and ovarian cancers.

"If the study results come to fruition, our urinalysis technology would be a remarkable breakthrough in the detection of many cancers, especially pancreatic cancer," Goel said. "If [pancreatic] cancer is detected early, it could substantially lower the mortality rate for what is currently the third leading cause of cancer death in the U.S."



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*Farren Brown, blood donor*

# Vaccine Bookends

BY STEPHEN J. FORMAN, M.D.

**O**n a Friday night, the week before Christmas, I stood in line with nurses, physicians and other health care staff at City of Hope, waiting to receive our first doses of the coronavirus vaccine. We all recognized the historical moment we were experiencing and the scientific achievement it represented that provided hope for all of us, beginning with staff and hopefully soon for our at-risk patients, too. The significance of the moment was further magnified by the fact that the line we were in was directly across from the City of Hope COVID-19 isolation unit. As we stood there, we all could see the rooms of the patients who were struggling to survive the infection. Their families were sitting outside the windows of the rooms, visiting their loved ones as best they could, even on that cold night.

But as I stood there observing and reflecting on the meaning of that moment, I recalled standing in another, much longer line 66 years ago at a local elementary school to receive the first polio vaccine, invented by Jonas Salk. Along with hundreds of other children, little boys in white T-shirts and little girls in crisp dresses, I stood in line for what, unbeknownst to me, was another historically important moment in the health history of the world.

Polio was first recognized in the United States in 1892 and even affected one of our presidents, Franklin Delano Roosevelt. At that time, polio was seasonal, occurring mainly in summer. Even as children, we were aware of people who had died, or become paralyzed, some of whom needed iron lungs to help them breathe. Despite the often-sweltering southern summer heat, most cities closed community swimming pools, as it was thought that it was in this setting that the virus spread, especially among children. We all knew which houses in the neighborhood had someone living there who had been infected and was quarantined.

Vaccine development for polio had been attempted for 30 years and was enhanced by the Nobel Prize-winning work of John F. Enders,

Thomas H. Weller and Frederick C. Robbins, who discovered how to grow polio and other viruses in the laboratory.

In the summer of 1952, there was a frighteningly large surge in cases in the country, but the first vaccine tests were being conducted, which gave hope for a prevention strategy for adults and children. Salk gave the test vaccine to his own family. It was a national effort and, even

as children, we dropped coins in small metal boxes for the March of Dimes to support polio research.

After getting the COVID-19 vaccine, I walked out to the parking lot with a group of nurses. It was the change of shift in the hospital, always a magical moment when the care of a patient is handed from one nurse to another. They were talking with considerable pride about a City of Hope scientist, Don Diamond, who, building on the work he had done over a decade to develop a cytomegalovirus (CMV) vaccine to protect transplant patients, had developed a new COVID-19 investigational vaccine. He and his group had worked night and day to take what they had learned and accomplished for CMV to develop a new vaccine, which is now already in a Phase 1 clinical trial. Many of the initial clinical trial volunteers were City of Hope staff. (I tried to volunteer, but was too old!)

As in so much of translational science, we take what we learn in one scientific discipline and apply it to a new health problem. Even the current COVID-19 vaccines that we are getting were developed based in part on HIV vaccine and immunology research. At City of Hope, who

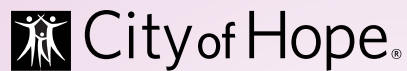
would have imagined that basic science work done in the early days of the bone marrow transplant program by Art Riggs and John Zaia to study CMV infection would give hope that we could also prevent COVID-19 infection and save lives? As Dr. Riggs said then, the goal of that research was to eliminate CMV.

By 1994, polio had disappeared in the U.S. and, hopefully, with our efforts as caregivers and scientists, working together here and with scientists around the world, we will eliminate COVID-19, too.



Children line up to receive the polio vaccine, top. City of Hope employees wait to receive COVID-19 vaccines, bottom.

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*Aiden Anderson, a pediatric patient at City of Hope*



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