

C I T Y O F H O P E

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CITY NEWS

the **MIRACLE** of **SCIENCE** with **SOUL**  City of Hope.

VOL. 29 NO. 2 | FALL 2018

LAST RESORT TO  
SECOND CHANCE

PAGE 10

FIGHTING BACK  
AGAINST PTSD

PAGE 20

# The Road to Wellness

Six survivors describe their journeys  
from devastating diagnosis to remission  
and a new way of being.





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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

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*Your Thoughts, Your Wishes, Your Community*

Where those touched by cancer can be connected,  
survive and thrive together.



## LEADERSHIP MESSAGE

In this *City News* we celebrate the stories of heroes who have fought cancer and come home transformed, deepening their ties to loved ones, healing others and expanding their lives. Their strength, courage and grace inspire us to do more. To dream bigger dreams, to take bigger risks, to challenge the notion that we have reached the limit of what can be done. As health care undergoes its own transformation, City of Hope is pioneering innovations in cancer and diabetes that are changing the journey for these families and millions of others.

We are providing CAR T therapies to patients who need this most innovative and advanced treatment. We are offering leading-edge options in genetic testing through our Translational Genomics Research Institute. We are ensuring that patients receive the best care for their specific cancers through our commitment to personalized care and our pioneering work with ORIEN (Oncology Research Information Exchange Network), the world's largest cancer research collaboration devoted to precision medicine.

I hope that the stories in these pages brighten your own path. You make their journeys possible. On behalf of all the patients whose lives you touch, I thank you. Thank you to the many donors, advocates and supporters who help us push beyond perceived limits to bring tomorrow's discoveries to the people who need them today.

**ROBERT W. STONE**  
*President and Chief Executive Officer*  
*City of Hope*



# cityBUZZ



## South Bay Expansion

City of Hope continues to expand its top-ranked cancer care across Southern California, opening its latest facility, City of Hope | South Bay, in the new Providence Advanced Care Center in Torrance. For the first time, South Bay residents will have access to both the facility's leading-edge, quality cancer care and innovative clinical trials. At City of Hope | South Bay, patients will have access to top-notch surgical, radiation and medical oncology, with 20 exam rooms and infusion areas for chemotherapy patients, as well as three procedure rooms. Additionally, South Bay patients will soon have access to City of Hope's clinical trials and a Positive Image Center<sup>SM</sup>, the first one City of Hope is offering outside of its main campus in Duarte.







# Radiation Oncology Adds 9 Sites in SoCal

City of Hope added nine radiation oncology locations to City of Hope Medical Foundation through a joint venture with Vantage Oncology, a leading national radiation oncology network that is part of The US Oncology Network. The partnership will make significant enhancements to the sites' technology, equipment and facilities to improve the overall patient experience. City of Hope will now provide radiation oncology

services at locations in Glendale, Mission Hills, Riverside, San Bernardino, Santa Clarita, Sherman Oaks, Temecula, West Hills and Wildomar in addition to its sites in Duarte, Antelope Valley, Arcadia, Corona and South Pasadena. The nine locations are the most recent additions to City of Hope's growing clinical network, which extends the institution's reach by bringing premier care to patients closer to their homes.





# Celebrity Softball Game

City of Hope's Celebrity Softball Game is held each year in conjunction with the CMA Music Festival in Nashville, Tennessee. Country music's biggest stars take part in the event to help raise money to support City of Hope's lifesaving cancer research and treatment programs. This year's game took place on Saturday, June 9, at First Tennessee Park. Celebrities including Bobby Bones, Brandi Cyrus, Lauren Alaina, Tegan Marie, Marc Mariani, Lucas Hoge, Jay Cutler and Trent Harmon all stepped up to bat to help strike out cancer.



# Fred Claire Golf Classic

The second annual Fred Claire Celebrity Golf Classic was held on Aug. 20, at Oakmont Country Club in Glendale, California. At the event, which raised over \$210,000 for City of Hope's head and neck and thyroid cancer programs, Los Angeles Dodgers legend Tommy Lasorda was honored with a Celebration of Life award.





# COMMUNITY SCIENCE FESTIVAL

2018

Beckman Research Institute of City of Hope held its fourth annual Community Science Festival on Sept. 22. The free event took place at the City of Hope main campus in Duarte, California, and showcased innovative City of Hope research and hands-on science activities for kids of all ages.



## ThinkCure!

ThinkCure! weekend took place on July 14 and 15 at Dodger Stadium. This year's fundraiser fell during the annual Freeway Series showdown between Southern California rivals, the Dodgers and Angels. Over the years, Dodger fans and City of Hope's ThinkCure! have raised millions of dollars toward research grants, setting the stage for groundbreaking medical advances that aim to strike out cancer.







# Songs of Hope

Songs of Hope is a unique evening honoring songwriters and composers, with live music and a silent auction. The event brings together more than 300 music industry celebrities and professionals. This year, our 14th annual Songs of Hope benefit raised a record-breaking total of over \$400,000 for cancer research. Among the honorees was international expert in leukemia, lymphoma and bone marrow transplantation Stephen J. Forman, M.D., the Francis & Kathleen McNamara Distinguished Chair in Hematology and Hematopoietic Cell Transplantation at City of Hope, who was awarded the Songs of Hope Beverly and Ben Horowitz Legacy Award.





# newHOPE

NEW FACES • ADVANCING SCIENCE • BEGINNINGS

## Annette Walker

Annette M. Walker serves as president of City of Hope Orange County, driving the development and growth of a robust cancer network throughout Orange County. She served as president of strategy for Providence St. Joseph Health and chief executive of St. Joseph Health. In 2017, she was named one of the top 25 women in U.S. health care by *Modern Healthcare* magazine.



## Jeff Walker

Jeff A. Walker is City of Hope's chief operating officer, overseeing patient care and research operations for all City of Hope locations.

Prior to coming to City of Hope, Walker served as chief operating officer for The Ohio State University Comprehensive Cancer Center and the James Cancer Hospital, overseeing all administrative, operational and fiscal functions.



## Morganna Freeman, D.O.

Morganna Freeman, D.O., is a prominent authority on melanoma and a vigorous advocate for better patient care — especially among vulnerable populations.

Freeman specializes in the use of leading-edge immunotherapy for melanoma and is conducting further research into its potential in other skin cancers.



## Tanya Dorff, M.D.

Tanya Barauskas Dorff, M.D., serves as head of the genitourinary cancers program at City of Hope. She is an internationally recognized leader in prostate cancer.

She has been heavily involved in the design and conduct of trials related to PSA-recurrent prostate cancer, and leads City of Hope's joint effort with the Prostate Cancer Foundation to

develop novel immune-based strategies for prostate cancer.







# Lymphoma's Lessons

A 'last-resort' patient gets second chance with new CAR T cell therapy

BY ABE ROSENBERG

In August 2016, Caitlin Buchanan, a native of Anaheim Hills, California, wondered why a stubborn cough wasn't going away. Each month, another doctor offered a different diagnosis: a cold, an allergy, asthma, pneumonia. They treated her, but she didn't get better.

The doctor who finally got it right wasn't even looking for it.

Caitlin and her husband Brian were trying to conceive a child through in vitro fertilization. The IVF physician spotted something wrong and sent the Buchanans to a pulmonologist.

A few tests later, the answer came: primary mediastinal diffuse large B cell lymphoma, a rare, fast-growing blood cancer that strikes mainly young adults. In PMBCL lymphoma, cells build up between the lungs and behind the breast bone. One of Caitlin's lungs had partially collapsed.

"We were shocked," recalls Caitlin, "but after so many months, it was almost a relief, once we knew."

Caitlin overcame her shock and fear by shifting into "survival mode," doing what's necessary to get through each day.

Typical Caitlin, according to Brian.

"She's unyieldingly strong," he says.

Brian, meantime, displayed his own strength, taking time off from his family-owned HVAC company to be with Caitlin around the clock, at every



doctor's appointment and throughout each hospital stay, often for weeks and months at a stretch. "I wanted to be there for her," he says.

Six rounds of chemotherapy shrank the cancerous mass somewhat, but it grew back. More chemo failed to achieve a remission, leaving Caitlin ineligible for a lifesaving stem cell transplant.

"That was tougher to hear than the original diagnosis," she remembers. "I thought it was the end of the world."

But just when the Buchanans thought they'd run out of options, fate, science, the calendar and the U.S. Food and Drug Administration aligned perfectly. In December 2017, Caitlin was given axicabtagene ciloleucel, or "axi-cel" (commercially known as Yescarta), a CAR T cell treatment approved by the FDA just a few weeks earlier.

CAR T cells are immune cells taken from a patient, re-engineered to seek out and destroy cancer, then re introduced into the patient. City of Hope has been studying CAR T cells since the late 1990s, and later started treating patients in clinical trials with CAR T, and played a significant role in the approval of Yescarta, one of two CAR T cell therapies now FDA-approved for treating various blood cancers.

While City of Hope offers both approved therapies, it also applies its own proprietary CAR T technology in active preclinical and clinical programs across a range of hematologic cancers and solid tumors.

"CAR T cells are a major breakthrough," says Alex Herrera, M.D., the City of Hope oncologist who treated Caitlin.

"They're very effective for patients who are resistant to chemotherapy, and they're giving new hope to people who previously had no hope."

Before FDA approval of Yescarta in October 2017, this form of treatment was available only to a limited number of patients taking part in clinical trials, and it would take four to six weeks to alter the immune cells and mass produce enough of them for the patient.

With Yescarta, that time has been cut to two and a half weeks.

The first patient to receive Yescarta at City of Hope was a woman who achieved complete remission in 28 days. When she'd first arrived, "she was in very bad condition," says Elizabeth Budde, M.D., Ph.D., assistant professor in the Department of Hematology & Hematopoietic Cell Transplantation. "By the end of the therapy, other patients in the waiting room were commenting that they no longer recognized her. It was that dramatic."

So dramatic in fact, that many see CAR T cells as a "miracle" which may someday supplant chemo as the preferred treatment.

But that day, warns Herrera, is still a long way off.

## NOT A SURE THING

To begin with, axi-cel, like other CAR T cell treatments, doesn't work for everyone. Although the great majority of patients will initially have a significant response, the success rate hovers at 30 to 40 percent of patients who are still in remission after six to 12 months, and its long-term effectiveness is not yet known.

"Thirty to forty percent still isn't good enough, in my opinion," says Herrera. "My job is to improve on that and optimize the treatment."

Like other immunotherapies, axi-cel can also bring on a condition known as cytokine release syndrome. CRS symptoms include fever, nausea, headache, rash, rapid heartbeat, low blood pressure and trouble breathing. Most patients have a mild reaction, but sometimes it may be severe or even life-threatening.

CAR T cell treatment is considered a "last resort," given to patients for whom chemo has failed.

For Caitlin, the journey to the "last resort" could not have turned out better, starting with a doctor she calls a "perfect match."

She chose Herrera the same way many patients do, after watching his video on the City of Hope website. "I remember just crying and thinking,

'This is who I want.' I called right away."

Herrera was equally impressive in person, answering all questions and taking the time to explain everything. "He's so personable, always available and his relationship to his patients is so important to him," she says. "I felt so comfortable with him."

"Other doctors would take a day or more to answer an email," adds Brian. "Dr. Herrera answered Caitlin's first email in five minutes. Caitlin was blown away!"

The feelings were mutual.

## 'A WONDERFUL PERSON'

"She's a wonderful person, and so is Brian," says Herrera. "Seeing them when they come in is like visiting with friends. We have similar senses of humor, we connect on many levels and we really enjoy our time together."

Even so, walking into City of Hope on that first day was tough.

"I was having a hard time," Caitlin recalls, "Looking around at all those cancer patients. It got to me. I sat in the Starbucks [in the lobby] and cried. It was overwhelming."

Brian came to the rescue.

"What I tried to tell her," he says, "was how lucky all those people are to be in a place like City of Hope with all the research, all the clinical trials. It may look rough, but those folks are getting the kind of treatment that's putting them on the road to good health."

All remaining fears and doubts disappeared once the couple met the staff. "We couldn't be in a better place," Brian says.

Caitlin agrees.

"When you get bad news," she says, "you tend to go to your worst possible place."

"But stepping through those doors at City of Hope, as difficult and intimidating as it was at first, you see how hard everybody works, how much they care, how hopeful, they are, and you just can't help but feel hopeful, too. The staff is phenomenal!"

Caitlin's results with Yescarta were equally phenomenal: She spent 16 days in the hospital and though she did spike a fever — an expected result of the treatment — she generally avoided CRS symptoms and other problems.

Best of all, the CAR T cells did their job. Caitlin's 30-day scan showed a complete remission, as did a subsequent scan at three months.

People noticed her rapid improvement.

"She looks normal, not sick!" says Chona Gomez, R.N., the nurse coordinator who handled Caitlin's case. "I can't get over how beautiful she looks now."

Caitlin still can't get over her total turnaround, but she's embracing it: She's back at work, walking with a "bounce" in her step and looking forward to a bright future ... with a difference:

## FINDING A REASON

"I looked for a reason for all this madness I've been through," she says.

"I've now found my voice, and what I truly want to do. I'm going to nursing school! And I plan to be a CAR T cell mentor to other patients."

"She's sweet, and she's a fighter," says Gomez. "I think she'll make a wonderful nurse."

Brian couldn't be happier.

"The weight of the world is off our shoulders!" he says. "We are so relieved and grateful."

One last thing. Remember the IVF doctor? So, what about another try at starting a family?

"It's back on the table," says Caitlin.





# ‘Cancer Is an Inconvenience for Me’

Five-time survivor defiant in the face of cancer

Stacy Kimmel is not being flippant when she describes breast cancer as an inconvenience. But even if she were, having had five conversations with someone in a white coat saying, “You have cancer,” would give her permission.



“‘Cancer is an inconvenience for me,’ that’s how I thought about it,” said Kimmel, describing her reaction after first being diagnosed. “It was getting in the way of my daily life. I also knew it was potentially life-threatening, but it was an inconvenience for a 38-year-old with a child.”

Viewing cancer this way is an emotional reaction that could easily bend to darker thoughts — of losing everything, of not being around for her daughter. Kimmel is unwilling to do that.

“With a diagnosis like this you either keep fighting or you give up,” said Mike Chen, M.D., Ph.D., one of Kimmel’s physicians at City of Hope. “Stacy is a go-getter and she has a lot to live for. She’s a fighter.”

## CANCER, AGAIN

In 2006, Kimmel was driving cross country to a new job in Nashville, Tennessee, when she first felt a painful, burning sensation in her chest. When bloody discharge began leaking out of her breasts, Kimmel knew something was wrong.

Days later, she was diagnosed with Stage 0 ductal cell carcinoma, an early-stage cancer in cells lining the milk ducts of the breast. Despite the good prognosis, Kimmel felt she needed to be aggressive.

“I figured I’m young, I have a long life to live,” said Kimmel, who decided to undergo a bilateral mastectomy. “So, let’s just be as aggressive as possible.”

During the mastectomy, doctors in Nashville discovered the cancer was not local as they suspected, but had breached the ductwork.

“They saw that it was actually invasive,” said Kimmel. “It had gone past the ductwork and there was a big tumor.”

The mastectomy was successful, and for two years Kimmel lived a relatively normal life with no symptoms. But at 40, the overheated, swollen feeling in her breast area returned.

“I felt lumps under my armpit,” she said. “I figured it was just swollen lymph nodes, but they did an ultrasound and said, ‘No, you have cancer again.’”

## ‘LIKE RIPPLES ON A POND’

Months before her third cancer diagnosis, Kimmel had moved to Los Angeles to be closer to family. Soon afterward, she began to have painful visual auras. They would encroach her

visual field slowly, “like ripples on a pond,” she said.

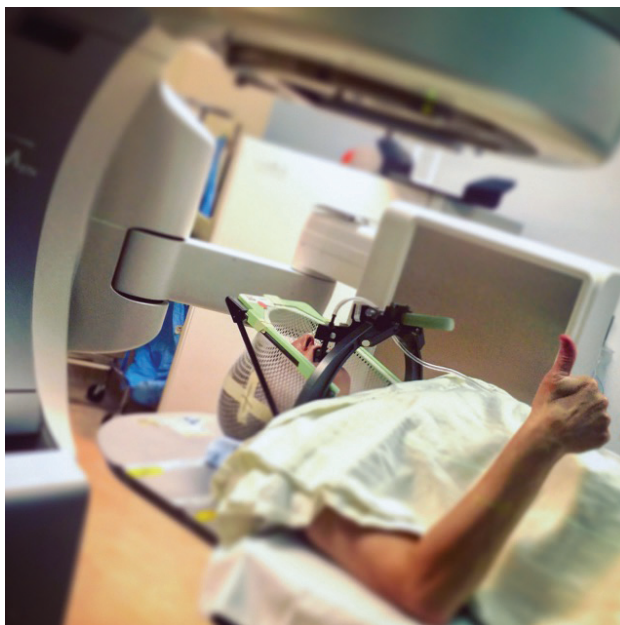
Her primary care doctor prescribed migraine medication, adding, according to Kimmel: “If they don’t work after a week, I want you to go to your oncologist and get a brain scan.”

“When he said that, I knew,” said Kimmel. “You can’t walk through this disease for as long as I have and not know there’s something wrong when you have certain symptoms.”

A week later, when the migraine medications proved impotent against her visual seizures, Kimmel got a brain scan. It revealed a lime-sized tumor — lodged in the occipital lobe, the visual region of the brain. The location explained the auras.

It was her third bout with cancer. The diagnosis was advanced metastatic breast cancer: Stage 4.

“Breast cancer always seemed external to me, like it was on the outside of my body,” she said. “Brain cancer? That changes everything.”



“She was very scared,” said Chen, an associate professor in the Division of Neurosurgery, and Kimmel’s neurosurgeon. “Luckily for her, even though the tumor was large, we knew we could go in and safely take it out.”

Soon after the surgery, and a series of radiation treatments, Kimmel recovered, but a year later, she suddenly had insatiable thirst and diabetes symptoms. Something was off with her hormones and a brain scan eventually revealed a tumor in her pituitary gland. A year after that tumor was removed, a lesion cropped up in the same area where Kimmel’s first brain tumor had formed.

It was three dizzying developments in two years.

“Stacy has been through several brain surgeries,” said Chen. “But in looking at each problem individually, at that time, we knew we could deal with it.”

## UNUSUAL CANCER

The cancer cells wending their way through Kimmel’s system, beginning on that drive to

Nashville, behaved unusually.

When it was first discovered in her breast, the tiny cancer cluster tested estrogen-positive, meaning its growth was fed by the hormone, estrogen. Yet, despite aggressive treatment, including the mastectomy and hormone therapy, the cancer returned.

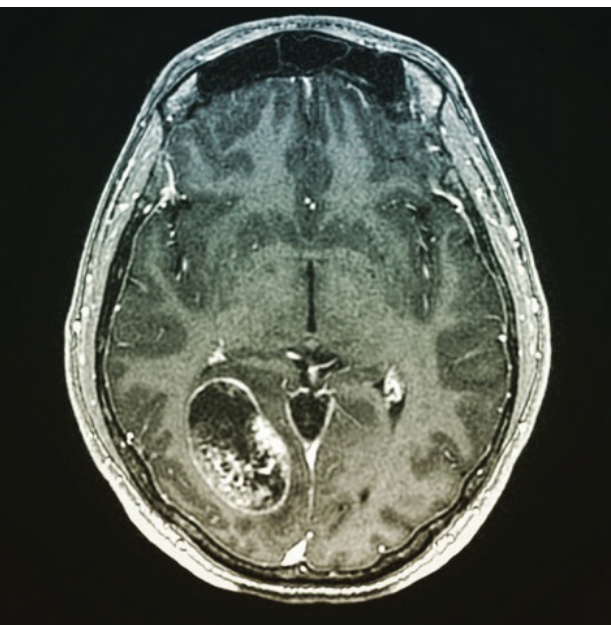
Testing on tumor cells that eventually burrowed into Kimmel’s brain revealed yet another rarity: The cells were estrogen-positive. According to Joanne Mortimer, M.D., a breast cancer oncologist and the Baum Family Professor in Women’s Cancers at City of Hope (and Kimmel’s oncologist), estrogen-fed breast cancer cells almost never spread to the brain.

Later, when cancer cells migrated to Kimmel’s brain a second time, they tested HER-2 positive. HER-2 positive breast cancer cells overproduce a protein involved in cell growth.

Kimmel’s cancer was remarkable for how it deviated from almost everything understood about how breast cancer behaves.

“I’ll bet I haven’t seen two people like her,” said Mortimer. “She had a three-millimeter cancer that was treated with mastectomy. She should never, ever, ever have seen it come back again.

“It’s highly unusual that she did recur, but sometimes cancers behave atypically, and hers was atypical at so many levels.”



## FIFTH CHANCE AT LIFE

Now, 12 years since she was first diagnosed, Kimmel takes each difficult chapter in her cancer story in stride. She gets a boost from her faith that however the next chapter unfolds, there will be an option for her at City of Hope.

“What I respond to most is the passion of the physicians and researchers, the people connection here,” Kimmel said. “There is no doubt they’ve saved my life multiple times.

“I mean, I’ve had not a second chance, a third chance, a fourth chance, but a fifth chance at life. Who can say that?”

*Facing page:*

*Five-time cancer survivor Stacy Kimmel*

*This page, left:*

*Kimmel prepares to receive radiation.*

*This page, right:*

*A scan showing the lime-sized tumor in Kimmel’s brain*




A full-page photograph of a man, Robert Danforth, standing in a field of dry, golden-brown brush. He is wearing a wide-brimmed olive-green hat, dark sunglasses, and a long-sleeved olive-green shirt with a circular pattern. He has his hands clasped over a wooden walking stick. The background is a hazy, sunlit landscape with distant hills and some buildings visible through the trees.

# *On the Road Again*

After a fatal diagnosis,  
Robert Danforth is back  
on the hiking trail.





**R**obert Danforth was the man you'd call when something went wrong on a construction project — someone who could fix any problem from electrical to cabinetry. When his mother's health began to fail, he was the one his family counted on to be the caregiver.

And he was strong. The big guy on the work site who could lift things no one else could. An outdoorsman who loved to hike challenging trails.

Then something went wrong in Danforth's life. Melanoma. The prognosis was fatal — until he met his match when it comes to fixing problems: Kim Margolin, M.D., a medical oncologist at City of Hope.

"The first indication was a little black spot on the side of my face," he recalled. "A surgeon took it off and everyone said, 'Great! No problem.'"

He went for regular mole checks, and there was no sign of cancer. But the area grew painful and began to twitch. His doctors took biopsies. They all came back negative. Then his face began to swell, and his surgeon finally said:

"We're going to get you to City of Hope."

That's where scans told the real story. His melanoma had metastasized to the facial nerve, and he would have to lose an eye.

"Emotionally, I just went numb," Danforth said. "Then one day I was out hiking, and somebody asked, 'How are you doing?' It just caught me off guard, and I started to cry."

He had extensive surgery and reconstruction — performed by renowned surgeons Ellie Maghami, M.D., The Norman and Sadie Lee Foundation Endowed Professor in Head and Neck Cancer, and Robert S. Kang, M.D. — followed by radiation. But shortly after, a scan revealed that the cancer had metastasized to his brain and lungs. Even with treatment, his chances of living a year were less than 20 percent.

That's when he met Margolin, who enrolled him in her trial for melanoma patients with brain metastases. The groundbreaking results were published in August in the *New England Journal of Medicine*.

Danforth was given a combination of the immunotherapy drugs, Yervoy (ipilimumab) and Opdivo (nivolumab). Today, like 55 percent of the study's subjects, he has defied the deadly odds of this disease.

"The cancer in my lungs is in remission," he said, "and the cancer in my brain is completely gone."

His journey was not without challenges — he developed immunotherapy complications and had to go on steroids for so long that he lost much of the strength in his legs, adding to the challenges of hiking and driving with the loss of depth perception and balance resulting from the loss of his left eye. But his determination to get back on the trail and his steady efforts paid off, and now, three mornings a week, he and a friend climb the steep Mt. Wilson Trail in Sierra Madre, California. He's getting his strength back, and a hiking stick helps make up for the lack of depth perception and the dangers of toppling from the trail.

He also bought what he calls his "yay-I-survived-cancer" toy.

"It's a ruby red pickup truck. And when the sun hits it, it looks like those 'no place like home' ruby slippers."



A man with a beard and mustache, wearing a bright blue Arcteryx jacket and khaki pants, is leaning against a large, textured rock. He is smiling and looking off to the side. The background is a clear, bright blue sky.

# ‘I Had My Third Life’

Contemplating cancer  
with a poet and patient

BY STEPHANIE SMITH

Sunil Dutta stared at a scan of his lungs. Hundreds of tiny nodules melded together into a snow-white mass — each pockmark occupying what was once healthy tissue. A normal lung scan is mostly dark gray hues, with a few white spots indicating abnormalities.

This was something entirely different.



"The scan was so full of white dots it appeared there was no room left inside my lungs," said Dutta, a writer and poet diagnosed with lung cancer in 2016. "It was diffuse light coming out of brighter white. I thought, 'How am I breathing?'"

There were "innumerable" cancerous nodules in his chest, according to the description in Dutta's medical record. So many, in fact, that during an earlier X-ray, technicians had stopped trying to count them.

For several minutes, the pulmonologist interpreting his scan spoke elliptically about Dutta's condition, avoiding specifics.

"I had to ask him, 'Hey doctor, is this metastatic cancer? Because that's how it looks,'" said Dutta, who has a science background. "He seemed shocked, but he did tell me they could keep me comfortable, so I guess he didn't have much hope."

## MUTATION

Dutta had been coughing — a ragged, nagging cough he first assumed was a bad cold. But after several weeks, the cough still grated and he started to feel weak. Normally he could run three to five miles. One morning he struggled to make it 100 yards.

"I realized something was wrong," he said. It was a whirlwind, considering he had always been healthy and never smoked.

A biopsy performed later revealed the first glimmer of positive news: Dutta's cancer was driven by a genetic mutation called EGFR, epidermal growth factor receptor. EGFR is a protein on cell surfaces that regulates growth and division. When the receptor is abnormal, as in Dutta's case, cells can grow unchecked.

"The doctor was hoping I would have that mutation because the lungs were really bad," he said.

For lung cancer patients, an actionable mutation is good news. It means a drug may be available to target it.

## BARELY BREATHING

Dutta was diagnosed with Stage 4 lung cancer (the cancer had migrated to his bones) on June 10. By the evening of July 3, he was bedridden.

"His breathing was so bad that night," said his wife, Wes. "He was really, really out of it. It was scary."

While his lung function flagged, a good friend who had been treated for breast cancer at City of Hope began an urgent correspondence with her oncologist.

She explained Dutta's condition and asked for help. Her physician connected her with Ravi Salgia, M.D., Ph.D., an oncologist and leading lung cancer expert.

"My friend called and said, 'The doctors want you to go to the hospital right away,'" said Dutta. "I was in so much pain I said, 'Let's talk about it later.'"

"By the time I woke up the next morning, I thought, 'I can't take this anymore. I will go to the hospital.'"

## TUMOR REDUCED BY HALF

It was the 4th of July 2016 when Dutta arrived at City of Hope. It was quiet. He was one of the only patients admitted that day.

"I remember distinctly that Sunil was incredibly short of breath and having a hard time speaking," said Salgia, the Arthur & Rosalie Kaplan Endowed Chair in Medical Oncology and chair of the Department of Medical Oncology & Therapeutics Research. "We quickly realized that we couldn't wait to start treating his lung cancer."

Salgia and his team soon confirmed EGFR was driving the cancer, and Dutta was given an EGFR-inhibiting drug called erlotinib. Within a few days he felt better, and had regained enough strength to go home.

A follow-up scan performed soon after discharge was a marked contrast to the one he'd had months earlier. Instead of lungs riddled with white spots, there were several large pockets of gray.

"He responded beautifully to the therapy," said Salgia.

For several months, Dutta got back to more and more vigorous activity. But by June 2017, his breathing began to falter.

A few days later, a scan showed the cancer was growing again. It appeared the cancer cells that had been tamed by erlotinib had now outwitted the drug.

"Cancer came really aggressively, all the gains that were made were gone," said Dutta. "I thought, 'OK, I've got a few more months of happy, peaceful existence.'"

Dutta had decided that undergoing more grueling courses of chemotherapy and radiation was not worth a few extra months of life. But Salgia said he still had options. They could perform tests to get at the true nature of the cancer, and find out if these new tumor cells expressed an altered mutation that could be targeted.

"Lung cancer is no longer just lung cancer in my mind," said Salgia. "Lung cancer is really many diseases that arise in the lung, so it's important for us, as we consider therapies, to dive deeper."

City of Hope is part of ORIEN (Oncology Research Information Exchange Network), the world's largest cancer research collaboration devoted to precision medicine. As a member, City of Hope has access to a vast collection of data, helping doctors match patients to targeted treatments.

Salgia suggested a sensitive, less invasive test called a liquid biopsy. It involves extracting a blood sample to detect markers and mutations expressed by tumors.

Dutta was tested almost a year to the day after his initial diagnosis. While he awaited results of the biopsy, the same sequence of events that occurred the year before happened again.

Again, he was admitted to the hospital in pain and — again — according to the test results, Dutta had a targetable mutation.

"I literally had my third life," he said with a smile.

## STABLE AND SHRINKING

In a nondescript exam room at City of Hope in early February 2018, Salgia rests a stethoscope on Dutta's chest.

"Take a deep breath," says Salgia. Dutta lets out a few coughs before his breathing returns to normal.

"Is your breathing OK?" asks Salgia.

"Breathing is OK," replies Dutta.

The call and response of a typical doctor's appointment continues with Salgia's questions about nausea, fatigue, eating — followed by Dutta answering that, "All is well."

Eventually, Salgia pivots the conversation to results of a recent computed tomography scan.

"You have no evidence of disease in the brain, which is great," he says. "And the CT of the chest looks fantastic."

Dutta, who has been listening intently, asks of his scan: "Is it stable or is there some reduction ...?"

"Stable and shrinking," replies Salgia. "I'm happy."







# Baby Steps

One family pulls together after toddler's devastating cancer diagnosis

BY ABE ROSENBERG





"They saved my baby's life!"

Nancy Escobar is crying.

She's remembering the many trials she and her family have gone through, all the while keeping a close eye on 3-year-old Izabella a few feet away.

Izabella is laughing and scribbling in her new coloring book, navigating piles of donated toys, cackling with delight at a video playing on the TV, blowing kisses at a visitor and getting bear hugs from Daddy. Typical toddler.

But not really. More like a miracle child who almost didn't make it.

"She was a normal baby," recalls Nancy, glancing frequently at her smartphone screen containing volumes of notes she's kept meticulously from the start. "Always laughing, smiling, eating. Normal."

Until she wasn't.

"When she was 9 months old she got a fever," says her father Juan Navarro. "She also had a rash on her neck, and her left eye was swollen. She was tired all the time."

Doctors at the local emergency room treated Izabella with antibiotics and sent her home. The fever persisted. Izabella's parents (Nancy's a medical assistant; Juan's a pharmacy technician) were equally persistent. They wanted answers.

## AGGRESSIVE LEUKEMIA

A blood test at Miller Children's Hospital in Long Beach, California revealed the bad news: acute myeloid leukemia, and a very aggressive case of it.

The diagnosis "just knocked me out," a tearful Juan says. Although AML does target kids under 2, it's rare, striking only a few hundred each year.

Izabella endured five rounds of chemotherapy over the next six months, spending virtually all that time in the hospital. Mom and Dad stayed by her bedside around the clock; both parents gave up their jobs.

Remission came, but didn't stay. Izabella's condition grew worse rapidly, disease and inflammation blocking her brain pathways and compromising 90 percent of her body, from her skin to her bone marrow to her sinuses to her central nervous system.

Her parents were informed that Izabella's chances for survival were very low. It was remotely possible, doctors said, that a bone marrow transplant might help, but few institutions performed the procedure on children this young, and almost no one would do it on a child so severely ill.

Enter City of Hope.

## A HIGH-RISK OPTION

"We have a tendency to offer high-risk options when others won't," says City of Hope pediatric oncologist Nicole Karras, M.D., who treated Izabella. "We know they can benefit patients, so we try."

What they also know is that few institutions can match City of Hope's experience when it comes to bone marrow transplantation: over 14,000 transplants and the broadest cancer research portfolio. It's a track record that provides the confidence to take those calculated risks.

While technically not a "children's" hospital,

City of Hope is decidedly kid-friendly with a growing pediatric staff, many of whom have been there for 20 years or more. It's a point of pride that the pediatrics team claims it can treat any kind of tumor in children and young adults up to age 23.

And it's done, like everything else at City of Hope, with the entire family in mind.

"We have a great multidisciplinary team here," says City of Hope pediatric clinical social worker Christina Cabanillas, L.C.S.W. "Social workers, psychologists, occupational and recreational therapists, spiritual care experts, even a school coordinator," all working together to support the young patient, but also tailored to address the needs of the parents.

Even after the child goes home, the care continues with City of Hope's Childhood Cancer Survivorship Program, a critical follow-up system designed to help prevent treatment-related complications.

"Right at our first meeting I was struck by Juan and Nancy's incredible courage," recalls Cabanillas. "They were so devoted to Izabella. They would do anything for her, always putting her needs before their own."

The first priority was getting Izabella well enough for the transplant. New rounds of chemo helped. So did a course of radiation, along with anti-inflammatory drugs.

A donor was found and in December 2017, Izabella got her transplant. But she wasn't out of the woods yet. A recurrence developed almost immediately. Other complications, including graft-versus-host disease, cropped up. Karras and her team fought back, and here again, being located at an adult-oriented cancer center made a difference.

## AN ADULT MEDICATION

"We gave her a medication called ruxolitinib, which is currently only approved for adults," says Karras. "This was to treat her GVHD while maintaining a graft-versus-leukemia response."

It all worked out incredibly well for Izabella. After 52 days in the hospital, Juan and Nancy took their baby home. Two hundred and fifty days later, Izabella remained disease-free.

"This is unique," marvels Karras. "Never before have I seen a case so aggressive, with so many recurrences, become totally disease-free."

At age 3, Izabella doesn't really remember being sick.

"I'll show her a picture from those days," Nancy says. "And she'll stare at it, then look up at me. I think she recognizes herself, and she understands that something happened to her."

Something's happened to Mom and Dad, too.

Their profound faith has been validated and they are forever grateful to City of Hope, where they say, "we were treated like family."

And these days, looking at that smartphone journal is a much different experience.

"Every time I update it," Nancy says, the tears coming back, "I'm reliving those moments. And I look, and I see my baby's alive!"

"It's a miracle."





# ‘I’m Gonna Fight Like Hell to Stay’

## Overcoming cancer-related post-traumatic stress

BY STEPHANIE SMITH

*Ian MacLeod*

On a recent evening, Ian MacLeod double-clicked an audio file saved on his laptop. The voice that emerged from the recording was ragged and whisper-thin — one he had not heard in years. It was his own.

“Oh my gosh, it’s so hard,” said the voice, thick with emotion, recorded in 2013 as MacLeod lay alone in his hospital room. “I’m discouraged. I know this will pass but it is so hard.”

Several seconds go by as MacLeod breathes into the microphone. The sound feels heavy — as if breath itself could hold weight. He is waiting for news about whether his brother, Adam, is a match for a bone marrow transplant.

“I’m exhausted and tired and my morale is not very high,” said MacLeod on the recording. “I have to believe that Adam is a full match. I have to believe this is temporary ... but you lose a little bit of hope.”

As he recorded his struggle, MacLeod was dealing with a new definition of self: 34 years old, marathon runner, husband, father of two — cancer patient. The latter came after MacLeod was diagnosed with acute myeloid leukemia, or AML.

“You can hear the fear,” says MacLeod as he pushes pause on another recording. Listening to the voices of his past, he admits, makes him feel vulnerable. It is, perhaps, a little too real.

“All of a sudden you’re back in it,” he says. “You’re in the room, you can smell the hand soap, you feel the air conditioning. It takes you back.”

MacLeod sits with the emotions he felt then, and feels now.

“All my senses were off,” he muses after a long pause. “My will to live was mute.”





## STUCK IN THIS BODY AND IT'S SICK

MacLeod was doubled over in pain.

It seemed to happen overnight. One day he was healthy — the next, he had sharp pain in his abdomen. Blood tests performed by his primary care doctor were conclusive. MacLeod had leukemia.

"I remember the first night, sleeping in my bed at home when I was diagnosed, thinking how claustrophobic I was because I'm stuck in this body and it's sick," he says.

Almost as quickly as cancer had entered his vocabulary, MacLeod was in treatment. He was diagnosed on a Tuesday in July 2013, and admitted to City of Hope that Friday. By the following Monday, he did his first round of chemotherapy.

Because his cancer was aggressive, and because he had two mutations in

his DNA that were drivers of that aggression, MacLeod was told he needed a bone marrow transplant. His chances of finding a viable match for the transplant were dim: 25 percent.

His hopes hinged on one person: his brother, Adam.

MacLeod's family waited for days after Adam's blood work was completed to get the results. It was a period in which time felt like it was crawling.

"In my mind, we were screwed," says MacLeod's wife, Shannon.

"I figured there is no way we're going to be a full match. We were going to have a problem."

The day the results came in, it was a warm, balmy day outside. Yet, when former City of Hope hematologist Alan Skarbnik, M.D., strode into the hospital room, it was as if he was cutting through thick fog. MacLeod and his wife were, as he describes it, "on pins and needles."

Skarbnik pulled out a large piece of scratch paper and a green Sharpie. He began sketching out genetic code.

"We were sitting there waiting, kind of like, 'Well?'" recalls MacLeod. "Then he said, 'It's a full match. All ten points. Full match.' And I thought, 'Praise God. Praise God.'"

The family was elated, filled with hope. But finding a match was only the beginning of the journey. There was darkness lurking around the corner.

## THE TRUTH WILL SET YOU FREE

MacLeod sits at the edge of a hospital bed, a thin film of paper crinkling beneath him. He is hunched over his smartphone, an earbud dangling out of one ear.

MacLeod is about to get a bone marrow biopsy — a painful tissue extraction that will reveal, four years since he was diagnosed with leukemia, whether his system is holding cancer at bay. Or whether it's back.

He is in remission, but it will take five years of follow-ups like these before he can breathe easy.

"This will be, I don't know, the eighth or ninth time I've gotten a biopsy," says MacLeod, 38, his voice thick with the effects of a sedative. "This day always comes with a mixed bag of feelings. It's reflective of the life that I'm living, which is really, really difficult and really, really beautiful."

Like a pendulum, he has swung from celebrating being alive to occasionally being gripped by fear and anxiety. And for a time, he suffered with a condition called cancer-related post-traumatic stress. About one out of five cancer patients experience symptoms of post-traumatic stress for months after diagnosis, according to a recent study in the journal *Cancer*, and some suffer for years.

"When we hear about PTSD, we often think about trauma from a war or from a physical or sexual assault," said Marinel Olivares, L.C.S.W., the clinical social work lead at City of Hope. "Cancer patients who have gone through a difficult illness or treatment can also experience PTSD."

It is a second journey for many following of the trauma of diagnosis and treatment — a sense of dread that appears at unexpected times. Remission, it would seem, is the end. Catharsis. But certain reminders can bring patients back, with vivid clarity, to the traumas of cancer.

"I walk around the halls and I see pain," says MacLeod on his way to the bone marrow biopsy.

These halls hold memories — of chemotherapy rounds that drained him, of radiation that seared his skin, of the transplant that nearly killed him.

"They'd wheel me through the hallway, and everybody would look at me," he says, gesturing outside the exam room. "I could see it in their eyes: 'Oh, dead man walking. Dead man walking.' I would be on my way to radiation thinking like, 'Yeah, I'm a dead man walking.'"

Thoughts about those radiation treatments sometimes come back unexpectedly — and powerfully. Through other trying moments during treatment — going into a coma, losing his ability to walk and talk, almost dying — MacLeod clung to the idea that he would survive.



It made sense considering who he was before cancer: a person his wife describes as an eternal optimist, someone who saw life through the lens of vibrant colors.

"But after radiation, he went from seeing color to only black and white," she says. "When he got the radiation, it took something away from him."

It was the side effects of radiation treatment, being sequestered in a hospital room for weeks, and seeing his family draped in yellow robes and masks that sent MacLeod to a dark place. He stopped having conversations. He stopped listening to music.

"It was as if he had to go inside himself in order to survive it," says Shannon. "He was a shell of detachment."

MacLeod says for the first year following treatment, he could not drive. Being in confined spaces brought back memories of those hospital rooms; and of being enclosed in CT scanners during radiation treatment. Lately, it is the specter of the periodic bone marrow biopsy that can lure MacLeod to a dark emotional space, along with the wait for results.

"With the biopsy, especially at the beginning, it was horrible because my mental, emotional, spiritual capacities were broken," says MacLeod. "They were shattered in trauma and PTSD. Even four years later, that still happens."

"Although most patients do not develop the full syndrome of post-traumatic stress disorder, some may experience it at the time of diagnosis, during procedures, hospitalization or some aspect of treatment," says Jaroslava Salman, M.D., assistant clinical professor of psychiatry in the Department of Supportive Care Medicine at City of Hope. "This can lead to anxiety, intrusive memories and 'anniversary reactions,' which is heightened anxiety around the anniversary of cancer-related events."

Salman says that for most patients, these symptoms will subside. For others, treatment may be necessary.

## EMBRACING PAIN

"Knock, knock!"

The nurse practitioner who will perform MacLeod's bone marrow biopsy walks into the room. Minutes later, as MacLeod lays face down across the exam table, she jabs a hollow needle deep into his hip bone and mines his marrow for a sample. MacLeod feels pain darting along his spine.

Shannon, who is watching from a corner of the room, winces.

"It's horrible," she says. "It's intense to see someone that you love in pain."

But the pain is something MacLeod has, over time, come to embrace. It is analogous to the pain of having had cancer.

It took years, but he now accepts that cancer always will be part of his life. Acknowledging his feelings around cancer, rather than trying to avoid them — being in the moment, whether that moment is agonizing or blissful — is how MacLeod has climbed out of the abyss of cancer-related trauma.

MacLeod says a former psychiatrist at City of Hope, Sangeeta Awasthi, M.D., suggested a mindfulness program at UCLA that helped steer him away from thoughts and feelings related to the past; and instead stay in the present.



Here and below: MacLeod (right) and his brother

"I thought the further away I moved from diagnosis, that I would just forget and get back to life," he says. "But it's actually the opposite. I feel like the further I get away from diagnosis, the more I'm trying to embrace it."

He continues: "I'm lucky enough to have that hindsight of knowing what it's like to almost die. I now understand that focusing on the past and the future doesn't pay you dividends."

"It's almost unfair how much I have to hurt at times, but I wouldn't have it any other way."

This attitude is now an intrinsic part of MacLeod's thinking — an awareness, an honesty about his life, that developed because of cancer.

Sitting at the edge of the exam table after his biopsy, MacLeod is ebullient. He got through it. He's still here. He's alive.

"I'm a walking miracle. I'm not supposed to be here," he says. "The other miracle is I'm thriving. Not just surviving, but thriving."

"And that delineation is so warm, because I feel like my life is better now than it was before I got cancer. I like this version much better. This one has meaning and purpose."

## '100% DONOR'

The lyrics of the background music playing during MacLeod's biopsy reflect the spirit of his new journey. And the notion of not stopping, not bending to cancer, echoes the tone of later entries in MacLeod's audio diary.

"You have to cleave onto the new day. You have to move forward. You have to work and fight," says one of the recordings. "Everything is within myself to get better. I'm not going to give up."

"Here's to a new day, here's to new hope and here's to a new fight."

Two weeks later, MacLeod texts the results of his bone marrow biopsy to a friend: "Perfect, no leukemia, 100% donor."





# A Model of Excellence in Patient Care: The Biller Center Turns 10 ▶

Over a decade ago, visionary philanthropists Sheri and Les Biller were instrumental in launching City of Hope's efforts to transform the cancer experience for patients and caregivers. Recognizing that meeting the emotional, spiritual and psychosocial needs of patients and families is critical to healing, the Billers made generous leadership gifts to establish and endow the Sheri & Les Biller Patient and Family Resource Center. The center is the first of its kind in the nation and serves as a model of humanistic, patient-focused care. According to Matthew Loscalzo, L.C.S.W., executive director, "The convergence of values, vision and compassion resulted in the creation of a physical space that represents a unique way to provide integrated supportive care using a strengths-based model of health and wellness for patients, families and staff."

In 2018, the Biller Patient and Family Resource Center celebrates its 10th anniversary of helping people through their cancer journey. It has served over 200,000 patients and families through more than 25 innovative programs, in conjunction with traditional clinical care. The 125 staff members in the Department of Supportive Care Medicine reach nearly 24,000 people annually through a wide array of services, including couples' counseling, patient navigation, art and music therapy, yoga, nutritional planning, psychosocial therapy, Child Life, pastoral care, bereavement support, and many other services that enhance the health and quality of life for people affected by cancer. Services are provided free of charge to patients, thanks to the generous support of donors.

A critical part of the center's mission is conducting research to better understand the impact of psychosocial programs and share best practices with other hospitals. In addition to donor and foundational support, the team has received over \$7 million in grants from the National Institutes of

Health and trained over 1,600 health care providers at approximately 200 institutions. Research shows that supportive care decreases medical costs, enhances quality of life for patients and caregivers, and even extends life for some patients.

In April 2017, William Dale, M.D., Ph.D., the Arthur M. Coppola Family Chair in Supportive Care Medicine, joined the Department of Supportive Care Medicine from the University of Chicago. "As the crown jewel within the Department of Supportive Care Medicine, the Biller Center provides the centerpiece for City of Hope's unique approach to caring for cancer patients and their families."

Reflecting on the fact that many health care providers lack the training to offer supportive care, Sheri and Les Biller provided a \$1 million gift in 2018 to create a national supportive care training program that greatly expands upon past efforts to replicate our model at other hospitals. This three-year initiative will educate more than 1,500 health professionals from health systems around the nation in City of Hope's model of holistic, compassionate care. Select City of Hope community practice sites will also participate in an expanded training and service delivery program.

"Seeing the center become a national leader in supportive care has been immensely rewarding, and our passion for the cause remains as steadfast as ever," says Sheri Biller, former president of City of Hope's Board of Directors. "We look forward to the center's next 10 years as it continues developing innovative programs, promoting the necessity of supportive care, and training health care providers nationally and internationally in its renowned supportive care model."



# ‘THE MOMENT THAT CHANGED MY LIFE’:

## RESEARCHER LINDA MALKAS ON INSPIRATION AND INNOVATION

BY CITY OF HOPE

Linda Malkas, Ph.D., dean of translational research, the M.T. & B.A. Ahmadiania Professor in Molecular Oncology and associate chair in the Department of Molecular and Cellular Biology at City of Hope, never envisioned a life in cancer research for herself — she wanted to be an astronaut. But after attending engineering school, her plans changed. She abandoned her interest in going into space, and instead decided to “follow the science,” as she puts it.

Malkas went on to receive her B.A. in chemistry and Ph.D. in biochemistry from the City University of New York, completed her postdoctoral studies at the Worcester Foundation for Experimental Biology in Massachusetts and held faculty positions at the University of Maryland School of Medicine before landing at the Indiana University School of Medicine. It was there that a little girl named Anna would change the course of her career forever.

“She died when she was only 9 years old from neuroblastoma, a children’s cancer that affects only 600 kids in America each year,” Malkas said. “I met Anna’s father when she was at her end stages. I sat him down for two hours in my office and showed him all of my data on this protein I had been studying in cancer cells.”

At the time, Malkas was researching breast cancer, studying a protein found in cancer cells but not normal cells. Malkas eventually took Anna’s father, Steve, and his wife, Barbara, to see her lab, where they could see firsthand the work that she did.

“[Steve] asked if I could do something about neuroblastoma and he wrote my lab a check for \$25,000,” Malkas said. “That was the moment that changed my life — my fork in the road. I knew I wanted to do something special for that little girl.”

### FOLLOWING THE SCIENCE

During her time at Indiana University, Malkas uncovered five small molecules that attack breast cancer cells but do not damage normal cells. It was an important discovery, especially since the therapies available currently cannot distinguish between cancerous and normal cells, resulting in the destruction of healthy cells.

Soon after her research into neuroblastoma began, City of Hope contacted Malkas and asked her to come and review their programs. Malkas joined the team in 2012.



In a Town & Country podcast, Malkas said of City of Hope, “I call it the field of dreams. Because if you can dream of a therapeutic, be it a cellular, biologic or small molecule, you can make it right on campus, and give it to a patient.” That ability to speed drugs from the research to the treatment phase is unique to City of Hope, and is fueled by the generosity of more than 100,000 donors.

### INNOVATION EVERYWHERE

City of Hope has evolved from a mission to treat tuberculosis over 100 years ago to the comprehensive cancer and diabetes hospital it is today. After making numerous breakthroughs in both diabetes and cancer research, City of Hope will continue to make strides.

Recent innovations at City of Hope include the development of CAR T cell therapy, which involves genetically modified immune cells that attack cancer from the inside.

“We’re going to push the frontier on what it is to treat disease,” said Malkas regarding City of Hope’s immunotherapy program. “The advances in immunotherapy at City of Hope are one of our greatest contributions to cancer treatment.”

### THE FUTURE OF CANCER CARE

Malkas is looking toward the future of cancer care, which includes a more personalized approach to cancer. “We’re moving away from thinking of cancer as a singular disease,” she said, citing the importance of having different treatment approaches for different types of cancer and for different patients. Malkas’s new approach includes looking at the molecular mechanism of each person’s cancer, which, she said, “is almost as individual as their fingerprint.”

“For the past century, we’ve thought of cancer as a single disease, focusing on finding a magic bullet that could be used to ‘cure’ cancer,” Malkas said in her address. “We were so naïve. Today, we’re thinking of cancers (plural) in ways we never thought about before.”

### IN MEMORY OF ANNA

Throughout Malkas’s career, Anna’s memory has fueled her. Malkas and her team have developed a drug that targets a protein in all cancers — including the cancer that claimed young Anna. Malkas named the drug “AOH1996,” for Anna Olivia Hailey, born in 1996.

AOH1996 is going into clinical trials next year, and Malkas credited City of Hope’s unique model for building the future for cancer therapeutics that led to its creation, saying, “We have the resources of people, the infrastructure for drug discovery and a credible regulatory understanding of what it takes to make a drug.”

“We were too late to help Anna, but we could help others like her,” Malkas said. “I always say when you see me, there’s a small 9-year-old girl sitting on my right shoulder. She’s my touchstone.”

Malkas shared Anna’s story at the 2018 Town & Country Philanthropy Summit in New York, as part of her presentation on “The Future of Cancer Care.” The summit, now in its fifth year, covered several topics surrounding the important work of giving, including, “Activism: The New Philanthropy,” “The Role of the Personal Crusade in Philanthropy” and “Making Philanthropy a Family Tradition.”





# THE WANEEK FAMILY PROJECT TO CURE TYPE 1 DIABETES: NEARLY TWO YEARS IN

BY CITY OF HOPE

From left to right: Rama Natarajan, Ph.D.; Defu Zeng; Bart Roep, Ph.D.; Fouad Kandeel, M.D., Ph.D.; Arthur Riggs, Ph.D.; Debbie Thurmond, Ph.D.

Last year, City of Hope introduced its groundbreaking Wanek Family Project for Type 1 Diabetes. This project, created through the generosity of the Wanek family and other like-minded visionaries, seeks to cure type 1 diabetes in a six-year window.

In the first year, we launched 16 projects cutting across multiple disciplines, including immunology, endocrinology, cellular therapeutics, nutrition and metabolism. Now, nearly two years in, we are pleased with our progress and more optimistic than ever about finding a cure.

## HERE'S WHERE WE ARE SO FAR

The Wanek team hit the ground running by redefining the disease itself. Textbooks have always described diabetes as a flaw in the immune system, but this may not be correct. Our researchers have found that diabetes is actually a disease of the beta cell. Beta cells, when stressed, send faulty signals to the immune

system, and immune cells then read these signals as a threat and attack the beta cells just as they would cancer cells or infection.

This insight comes on the heels of research revealing that, even in patients with advanced disease, beta cells can be hibernating in pancreatic islets, essentially turning into stealth mode, to escape the immune system's notice. We are already figuring out ways to jump-start these beta cells once the immune attack has been countered.

A member of the Wanek Project team is working to awaken these hibernating cells with a series of proteins found in beta cells that are abnormally low in patients with diabetes. She has shown that adding these proteins to beta cells improves their function, longevity and resistance to attack.

Another team member is validating a genetic signature, or biomarker, that appears when transplanted beta cells are starting to die after a transplant. This biomarker tells us when to rush in to suppress the immune response to rescue

remaining cells.

Additionally, researchers are working furiously to build beta cells from scratch so that we no longer have to rely on the short supply of islets available for transplantation. This would involve growing a limitless supply of beta cells from stem cells in our lab and infusing these into our patients.

We are also on our way to opening a clinical trial with a procedure that has shown the potential in early studies to cure established type 1 diabetes. The procedure is called mixed chimerism via hematopoietic cell transplantation. Mixed chimerism is achieved when the immune systems of a patient and a donor are combined and stabilized to avoid the attack on newly introduced insulin-producing cells.

So, while the clock continues to tick on this important project, our exemplary Wanek Project team will continue to work passionately and committedly until we find a cure for type 1 diabetes patients everywhere. We don't just want a cure soon. We want a cure now.



# Researcher's Ovarian Cancer Discovery Takes On Special Meaning

Ovarian cancer is the deadliest of the reproductive cancers.

Typically, it strikes postmenopausal women, but one very rare form — small cell carcinoma of the ovary, hypercalcemic type (SCCOHT) — targets young women and girls, killing two-thirds of these patients within two years.

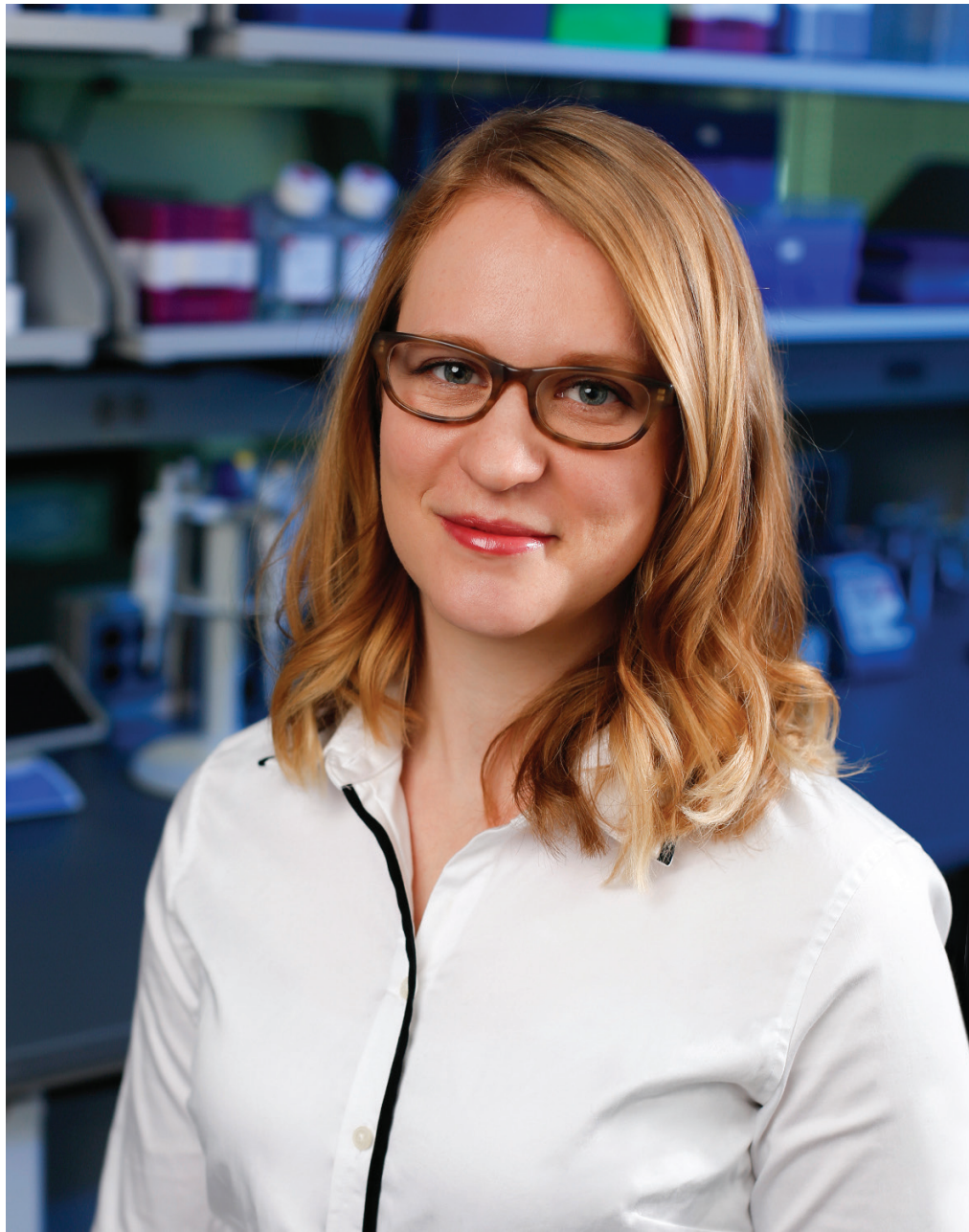
"I am a young scientist, age 30, and these women are even younger than I am," said Jessica Lang, Ph.D., a postdoctoral fellow in the Will Hendricks Lab within the Integrated Cancer Genomics Division at Translational Research Institute (TGen), an affiliate of City of Hope. "They may have kids of their own — they may be kids themselves. Because this is a reproductive cancer, they may never have the ability to bear children, if they do survive this cancer at all."

Lang's research has taken on special meaning this year as she anticipates the birth of her first child — a daughter.

These women receive their diagnosis when they are in the prime time of their lives: launching their careers, starting their families and exploring the world," she said. "We want to find effective treatments for these young women that will give them hope to live a long life — or even to have a fighting chance."

Now, there is hope: The results of a study published earlier this year by TGen researchers in the journal *Clinical Cancer Research* suggest an existing leukemia drug, ponatinib, shows promise against SCCOHT. Lang was co-lead author on the study with Will Hendricks, Ph.D.

Additionally, Sunil Sharma, M.D., TGen's deputy director of clinical sciences



Jessica Lang, Ph.D.

**"Because this is a reproductive cancer, they may never have the ability to bear children, if they do survive this cancer at all."**

"Whether the drug they developed leads to another amazing discovery, or it becomes a first line ovarian cancer treatment, we truly believe what they're doing will move the needle and we couldn't be more proud to support an institute located here in Arizona."

and director of applied cancer research and drug discovery, helped develop a drug, selicicic, that also shows promise against SCCOHT.

## AN EARLY INSIGHT

From discovery of the driver for this cancer to development of a possible treatment, TGen has been leading the charge against SCCOHT.

In 2014, TGen led an international team that identified a mutation in the SMARCA4 gene that causes SCCOHT. The American Society of Clinical Oncology recognized the discovery as one of the year's biggest cancer research breakthroughs in its publication, *Clinical Care Advances* 2015.

Now, the team is on the verge of testing these promising treatments in clinical trials, thanks to support from Colleen's Dream Foundation, an Arizona-based nonprofit founded by Nicole Cundiff and her husband, Billy, a veteran kicker in the NFL. Colleen's Dream recently awarded TGen \$450,000 to fund a clinical trial for these new ovarian cancer treatments.

"The research being done at TGen is some of the most exciting we've ever seen," said Nicole Cundiff, CEO of Colleen's Dream Foundation.



# supportingHOPE

INDUSTRY GROUPS • CHAPTER + REGIONAL NEWS • EVENTS



From right: Tony Markel and his wife Betsy, son-in-law Tom Phelan, daughter Diana Markel Phelan, sister-in-law Denise Stout and brother Gary Markel

## One Family's Steadfast Commitment to Finding a Cure

In May, Anthony "Tony" Markel was joined by family and friends to celebrate the dedication of the Anthony F. Markel Family City of Hope Museum. Highlighting over 100 years of medical innovations, this interactive museum honors Tony and his family's generosity, as well as their deep commitment to accelerating cancer breakthroughs.

As donors to City of Hope, Tony and his wife Betsy, along with his daughters Diana and Melinda and their families, are deeply committed to finding better treatments for ovarian and peritoneal cancer so that other families don't have to suffer the pain of losing a loved one.

Tony's relationship with City of Hope began in 2006 when he received The *Spirit of Life*® Award from the National Insurance Industry Council. Little did he know how this relationship would evolve over the next 12 years.

In 2007, Tony's first wife Sue was diagnosed with ovarian cancer. While she received treatment near their home in Virginia, she and Tony both sought

counsel from the talented doctors at City of Hope.

Over the course of her treatment, the couple developed a strong relationship with physician and former CEO, Michael A. Friedman, M.D. Together Tony, Sue and Dr. Friedman established the Markel-Friedman Accelerator Fund for Ovarian/Peritoneal Cancer Research to support innovative investigations that are poised to benefit patients quickly.

Sue lost her battle to ovarian cancer in 2008, a loss which cemented Tony and his family's dedication to finding a cure. In the years that followed, Tony has continued to expand his involvement and advocacy including, chairing City of Hope's first comprehensive campaign which exceeded its \$1 billion goal.

Through their visionary philanthropy and their relentless commitment to fight ovarian and peritoneal cancer, and now with the naming of the Anthony F. Markel Family City of Hope Museum, Tony and his family have left an indelible mark on City of Hope.

## Loyal donors make City of Hope beneficiary of fundraising event for more than a decade

Prominent business owners and generous philanthropists Andrew and Peggy Cherng believe that good fortune is best when shared. This belief is the inspiration behind the Panda Cares Foundation, the philanthropic arm of the Cherngs' Panda Restaurant Group.

Since 2007, Panda Cares Foundation has partnered with City of Hope, contributing nearly \$2 million to help fund pediatric research and care through their annual Charity Golf Invitational.



This year marks the 20th anniversary of this special event, which has raised more than \$13.6 million since its inception to benefit health and education for underserved children around the Southern California region. Last year alone, Panda Cares Foundation rallied a record-breaking \$2.5 million through the day-long golf tournament and celebration dinner.

This year, the 2018 Panda Cares Charity Golf Invitational was held in Carlsbad, California, on Sept. 13. City of Hope was proud to once again be among the beneficiaries of this effort to impact the lives of children through research and care.

The Panda Cares Foundation, through which the Cherngs make private philanthropic contribution, made a generous \$2.5 million gift in 2014 to establish the Cherng Program in Natural Therapies Fund, which provides resources to explore the cancer-fighting potential of foods and other plant-based ingredients.



# Living, Thriving and Sharing His Blessings

Manuel Espinosa, one of six children of parents who emigrated from Mexico, is devoted to three things — his faith, his family (wife Adriana, and children Julian and Cristian) and the U.S. Army. After participating in ROTC at University of California Santa Barbara, he was commissioned as an officer and served around the world for 27 years, until the day in October 2013 when he was diagnosed with acute lymphoblastic leukemia.

Due to the severity of his diagnosis, he and his family left Hawaii, where he was posted, and returned home to his extended family in Southern California. Within a week, he was admitted to City of Hope. Under the treatment of Margaret O'Donnell, M.D., he received chemotherapy, and was cancer-free within a month of being admitted. He received additional chemotherapy, radiation treatment and then a stem cell transplant the following year.

The mental toughness he learned in the Army kept him in good stead as he faced his illness. "But once the initial shock of the diagnosis was passed, what I thought about was my family. They gave me the incentive to fight. My children were so young, and I had a lot of work ahead of me. That incentive, along with the superb treatment I received at City of Hope helped me win this battle."

According to Espinosa, "The name — City of Hope — says it all. The minute I stepped



*Adriana and Manuel Espinosa with their sons Julian and Cristian*

in the doors, I experienced purpose, urgency, professionalism, understanding, and a genuine feeling of care and concern from all staff. The nurses were just fantastic, although I might have been a bit hard to deal with sometimes!"

Espinosa shares, "I come from a humble background and my parents raised me to get an education, give back and live a good life." Leaving a gift by naming City of Hope as a beneficiary of his life insurance policy is just one way he is giving back. "I'm thankful that because of the Army, I was able to afford the care I needed, and

now I'm in a position to offer this gift."

Due to side effects of his treatment, Espinosa retired from the Army in 2015 at the rank of colonel, and feels blessed to be able to devote himself to his children, now 10 and 13, and his wife of over 30 years. "City of Hope gave me my life back. With young children, I am taking advantage of this blessing I was given. I'm not just living, I'm thriving."

Learn about easy ways to create your legacy of hope at [myplanwithcoh.org](http://myplanwithcoh.org).

## Advancing Innovative Research for Generations

Establishing an endowed chair at City of Hope has an incredible impact on the future of science. An enduring gift, it supports a stream of talented faculty as they pursue novel research and bring new discoveries closer to the lives of patients.

That is why Dr. Victoria Mann Simms and Ron Simms of the Simms/Mann Family Foundation chose this powerful giving tool when they decided to endow a chair in Systems Biology with Jianjun Chen, Ph.D., as its first holder. They wanted to ensure that their support would have broad, long-lasting impact.

One of City of Hope's newest faculty members, Chen is a leader in the use of systems biology to address disparities in therapeutic options for complex, difficult-to-treat cancers.

The Simms/Mann Family Foundation's generosity will allow him and the renowned researchers who will follow in his footsteps, to redefine the way the world understands and



*Ron Simms and Dr. Victoria Mann Simms*

treats acute leukemia and other cancers.

"We are hopeful that Dr. Chen's new research, in

collaboration with other City of Hope scientists, will further the translation of his basic research in systems biology to advance cancer treatments and lead to the discovery of potential cures," noted Victoria and Ron.

By establishing the Simms/Mann Family Foundation Chair in Systems Biology, the Simms are building on their history of promoting leading-edge science that focuses on caring for the whole person.

Chen's prestigious position also highlights the importance of a field that studies the interplay between smaller systems within an organism and their impact on an individual's overall health, which matches the Simms/Mann Family Foundation's focus on supporting work in areas that are particularly innovative and integrative. Says Victoria, "Ron and I have long believed in the power of medicine to change communities and the world."





# TRANSFORMATIVE PHILANTHROPY ACCELERATES WIDE-RANGING CHANGE

*Toni (right) and Emmet Stephenson*

Toni and Emmet Stephenson have created a model of transformative investment at City of Hope. They, along with their daughter Tessa Stephenson Brand, established the Toni Stephenson Lymphoma Center at City of Hope to propel lifesaving lymphoma research, treatments and care.

Attracting blood cancer experts to City of Hope, the Toni Stephenson Lymphoma Center is well-positioned to address the most advanced cases of lymphoma. Toni herself came to City of Hope to find a reprieve from lymphoma after it spread to the spinal fluid around her brain, despite treatment. In the same way, patients and families now turn to the Toni Stephenson Lymphoma Center looking for hope after they have been told they have no options left.

"They encouraged [me] that there was always

something else that could be done [for treatment]," said patient Aza Khachikyan, who was treated for Hodgkin's lymphoma at the center. "I had never experienced that before with any other doctor or hospital."

Desiring that their impact outlive their own involvement and the funds they contribute, Emmet and Toni champion a unique approach to philanthropy that includes investing in infrastructure that will generate even more support.

Their gift has sparked numerous individual donors to contribute and made it possible to secure additional funding for promising projects. This includes a renewal of the highly selective National Cancer Institute Specialized Program of Research Excellence for lymphoma, which provides \$12.5 million over the next five years for

a series of innovative research initiatives. Since the naming of the center in 2014, individual gifts to the Toni Stephenson Lymphoma Center total more than \$5.5 million and range from as little as \$1 to \$400,000.

The Stephenson family was recently honored as one of *Town & Country's* Top 50 Philanthropists, an endorsement of their generosity as well as their capacity to translate their entrepreneurial mindset to philanthropic investments.

"The goal is to accelerate the rate of gain in knowledge and rapidity of research in order to get on top of this and beat it sooner rather than later," said Emmet. "I've always felt that you have to be different to be outstanding. If you do something like everybody else, you're going to just be average."



# CITY NEWS

# PICTURE

# *the* PAST



Patients have always been a powerful motivating force at City of Hope. California Governor Goodwin Knight signed up the first member of City of Hope's Little Helpers in 1954 - his 2-year-old granddaughter, April Eaton. The Little Helpers auxiliary specifically raised money to help fund the recently completed children's wing at City of Hope.

PHOTO COURTESY OF CITY OF HOPE ARCHIVES



# NO SHAVER

Every year, City of Hope hosts a NoShaver fundraising and awareness campaign in November to support the pioneering prostate cancer research and clinical trials with promising new therapies.

NoShaver is a month-long journey during which participants forgo shaving in order to evoke conversation, encourage testing for early detection and raise critical funds to continue leading-edge prostate cancer research conducted at City of Hope.

Prostate cancer is the second most common cancer among men in the United States and the most common cancer in men over 50 — about one out of seven men will be diagnosed with prostate cancer.

GROW IT.  
SHOW IT.  
KNOW IT.

ABOUT  
**1 in 7**  
MEN

WILL BE DIAGNOSED  
WITH PROSTATE CANCER DURING  
HIS LIFETIME.

Join the campaign at [CityofHope.org/NoShaver](http://CityofHope.org/NoShaver).

# NO SHAVER

BENEFITING PROSTATE CANCER RESEARCH



City of Hope®



## HOW TO REACH US

**CITY OF HOPE  
MEDICAL CENTER**  
800-423-7119

**PATIENT REFERRAL LINE**  
(for patient-referral inquiries)  
800-826-4673

## TO MAKE A GIFT

Or to speak with someone about the impact of philanthropic support at City of Hope, contact our

**PHILANTHROPY OFFICE**  
800-667-5310

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## Getting well takes more than good medicine



**Cancer patients need — and deserve — more than just medical care.** City of Hope's Recreation Therapy Department offers pet therapy, group and individual therapy and special events to foster well-being in patients. These programs offer a welcome distraction from illness, help manage symptoms, and lower stress and anxiety levels.

A simple way to help us provide this compassionate care is by leaving a gift to City of Hope in your will. To learn more, please download our publication, *Fundamentals of Wills and Trusts*, at [planwithcoh.org](http://planwithcoh.org) or contact us at **800-232-3314** or [plannedgiving@coh.org](mailto:plannedgiving@coh.org).