

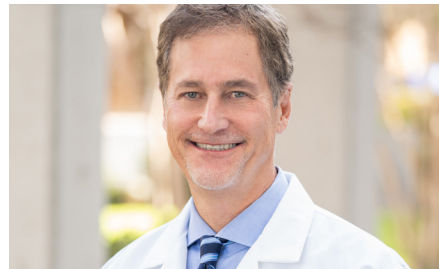
UCI Chao Family Comprehensive Cancer Center

Leading-edge research, technology and patient care



**Fighting cancer
on all fronts**

Director's Message



Richard A. Van Etten, MD, PhD
Director, Chao Family Comprehensive Cancer Center

With major plans for cutting-edge research and technology in the coming year, the UCI Chao Family Comprehensive Cancer Center will be expanding and enhancing its role as the only National Cancer Institute-designated cancer center based in Orange County.

We take that role seriously.

There are only 51 NCI-designated comprehensive cancer centers in the country, recognized for their resources and the excellence of their basic and clinical research, as well as unique programs that draw patients from across the region, even outside the country.

Meaning of NCI label

This designation must be renewed every five to six years, ensuring that patients are receiving care at an institution that has been thoroughly examined and found to meet the highest standards of care and research. That renewal is one of our major efforts in the coming year.

But what does all this mean for patients? Three main things:

Breadth and depth of expertise

Cancer is a complicated disease, with nine major subcategories of adult cancer, each broken down into many subtypes. We have experts in all the different categories, so our doctors see patients and conduct research in their area of expertise. For example, blood cancer includes leukemia, lymphoma and myeloma. Within that, my practice is focused exclusively on leukemia.

We are launching a hematopoietic stem cell transplant program this year to treat certain blood cancers. The treatment has also been shown to benefit people with non-cancerous conditions, including bone marrow failure, some forms of anemia and certain autoimmune diseases.

Research

NCI-designated cancer centers conduct clinical trials of experimental therapies that offer new hope for patients whose diseases are resistant to treatment or recur. Doctors in the community can run out of options fairly quickly. We are here for our patients and theirs with new possibilities. We also conduct basic research to crack open promising new territory in the treatment of cancer.

Advanced immunotherapy is a special focus. We are the only cancer center in our region to offer these promising treatments, which manipulate a patient's own immune system to fight their cancer. We're building a new lab on the Irvine campus to create engineered cells for this purpose.

Multidisciplinary approach

Our patients don't just work with a medical oncologist. Their care is coordinated with such experts as cancer and reconstructive surgeons, radiation oncologists, nutritionists, physical therapists and more in one location.

We are tremendously excited about our growth and the challenges ahead in fighting cancer.

Patient safety

In addition, during COVID-19 outbreak, we are working hard to ensure the safety of our patients who are undergoing consultations, treatments and surveillance. We are observing the most stringent disinfection practices along with safe-distancing measures, including greater separation between infusion stations. We also are adding weekend hours to accommodate all our patients.

Advancing the highest standards of care

1 of 51

National Cancer Institute-designated comprehensive cancer centers in the United States

200+

cancer researchers, including globally renowned oncology specialists

1,100+

patients in interventional treatment trials since 2014

600+

journal publications by cancer center researchers since 2017

400%

increase in early-phase clinical trials since 2014

\$41 million+

research funding

105,000+

outpatient visits to UCI Health cancer clinics and infusion centers in FY 2019

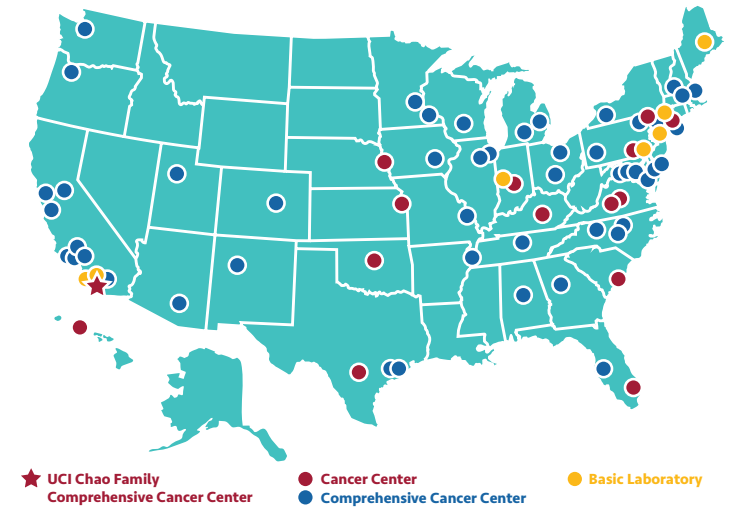
6,300+

new cancer patients in FY 2019

150+

infusion patients treated daily

National Cancer Institute-Designated Centers



A Cancer Center Designated by the National Cancer Institute

New Clinical Trials

Novel treatments for GI cancers



With two drug trials and fewer exclusion criteria, oncologist Dr. Fashid Dayyani

hopes to provide treatment to people with cancer of the stomach and lower esophagus who otherwise might have nowhere to turn.

Orange County is home to the nation's third largest population of Asian Americans, and they have a higher incidence of stomach cancer than their white and non-white Hispanic counterparts.

"It's super important that we try to bring novel treatments to the maximum number of eligible patients," Dayyani said.

The first clinical trial, which opened in August 2019, combines two chemotherapy drugs, irinotecan and TAS102, as a second line of treatment. The Phase 1b trial is for patients with stage IV stomach or lower esophageal cancer that has become resistant to standard chemotherapy.

Separately, each drug is known to have some limited activity against gastric cancers. Dayyani hopes that combining them will result in significantly greater effectiveness. In addition, neither drug is associated with neuropathy, the numbness or weakness

that is a common side effect of chemotherapy.

"Other second-line drugs cause neuropathy," Dayyani said. "The initial chemotherapy regimen already includes medications associated with significant neuropathy that can last for a year after stopping. It is crucial to provide a secondary regimen that treats the cancer without causing neuropathy."

His second study, now enrolling patients, is a Phase 2 clinical trial that combines the immunotherapy drug pembrolizumab with the targeted therapy medication cabozantinib.

Pembrolizumab is approved for use against PD-L1 positive tumors as a third-line treatment employed as a solo therapy. But it is also useful against many kinds of cancer because it activates the patient's own immune system, Dayyani said. Cabozantinib, a novel targeted agent also approved for certain cancers, works by cutting off blood supply to tumors and blocking receptors that signal cancer cells to spread, or metastasize, beyond the initial tumor site. Combining both may further improve anti-cancer activity.

"We know from some kidney cancer data that combining the two might be more effective than immunotherapy alone," he said.

"They might be able to overcome resistance to immunotherapy."

Only 50% to 60% of stomach and lower esophageal cancers are PD-L1 positive. Dayyani's study does not limit enrollees to that tumor characteristic, offering a new treatment to many patients who otherwise would be without options. In addition, he said, patients who enroll in either of these trials can switch to the other if results aren't being seen.

"Most trials are limited to a subset of patients based on a molecular profile," Dayyani said. "Now, if they are stage IV and a previous immunotherapy failed, we have a trial for them."

For more information, contact Dayyani at fdayyani@hs.uci.edu

Targeting stem cells to keep acute myeloid leukemia at bay



Oncologist Dr. Deepa Jeyakumar has launched a first-in-the-nation clinical trial combining two

recently approved drugs to prevent the recurrence of adult acute myeloid leukemia (AML) in patients with myelodysplastic changes or therapy-related AML. She is hoping for better, longer lasting results by

using the stem-cell drug glasdegib, which comes in pill form, and adding a chemotherapy regimen called Vyxeos (daunorubicin and cytarabine) that has shown improved overall survival and response rates in older patients. Both drugs are FDA-approved. She said glasdegib, which is currently given to patients who aren't healthy enough to undergo chemotherapy, targets what is known as the hedgehog pathway, and signals leukemia cells to die.

"As a leukemia doctor, I've had many patients who have trouble getting to remission or staying long enough in remission to go forward to a bone-

marrow transplant," said Jeyakumar. "We recently got approval to use both of these agents. Together they could be a more effective therapy to whack down leukemia and wipe out any leukemia stem cells in the bone marrow."

AML, a cancer of the bone marrow and blood, is the most common leukemia in adults and its incidence increases with age. It may occur in people with preexisting blood disorders and after chemotherapy for treatment of other cancers.

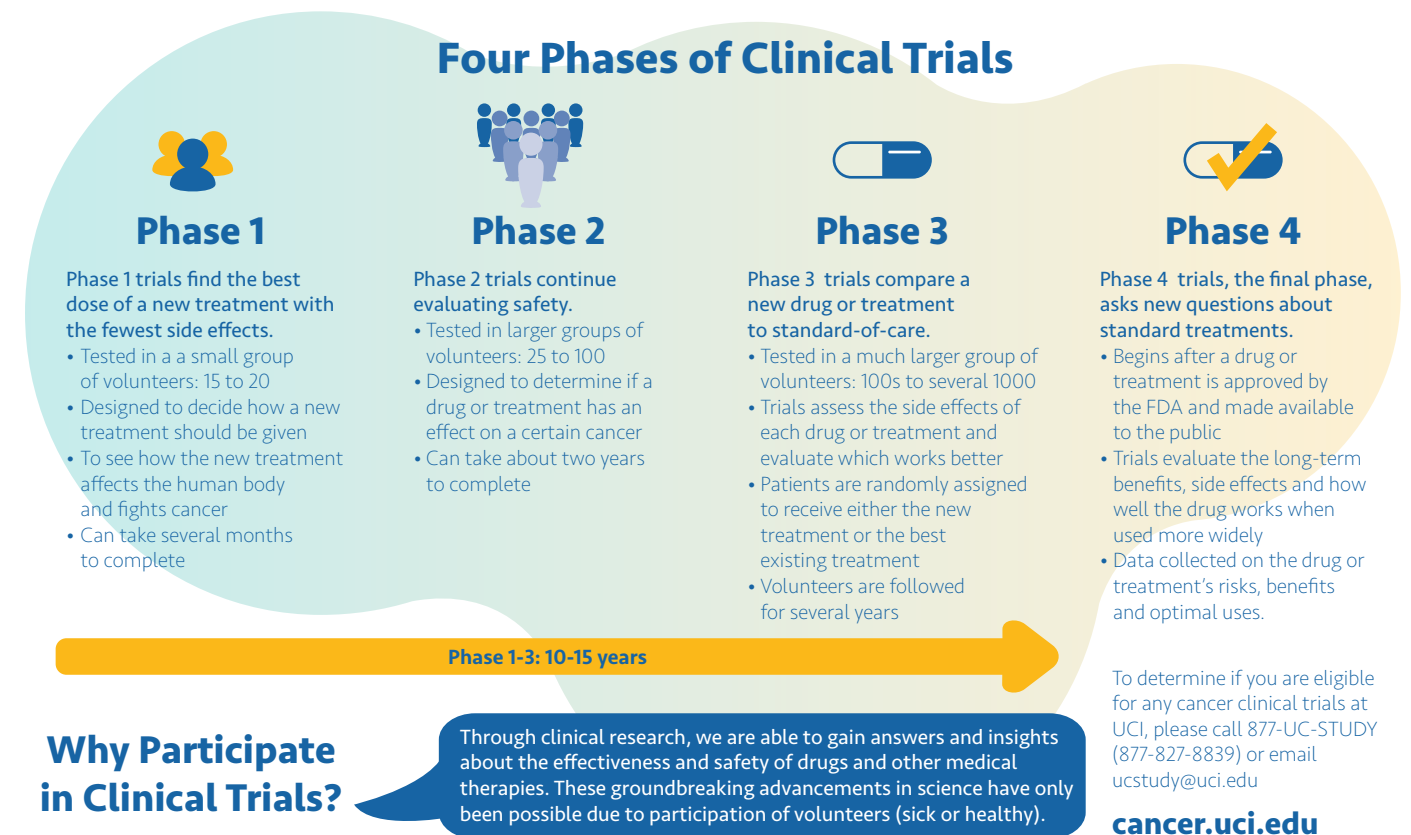
The Phase 2 clinical trial is studying patients whose AML evolved out of a prior blood problem or previous

treatments, such as chemotherapy. The two-year trial is expected to expand to the four additional cancer centers in the University of California's Cancer Consortium in coming months.

"This study is a really exciting opportunity to change the landscape of a very difficult-to-treat disease," Jeyakumar said.

The Phase 2 trial is now enrolling patients. For more information, contact Jeyakumar at djeyakum@hs.uci.edu

Understanding Clinical Research



Basic Research

Optical Biology Core

Technology enables discovery at the UCI Optical Biology Core (OBC). Consequently, OBC's mission is to provide biomedical researchers with the best conventional microscopy platforms available, as well as to develop and introduce novel optical methods that foster new discoveries.

One of OBC's newest microscopy platforms is the Zeiss Lightsheet Z.1 microscope. It uses two objective lenses perpendicular to each other to excite and detect the sample and create time-lapse

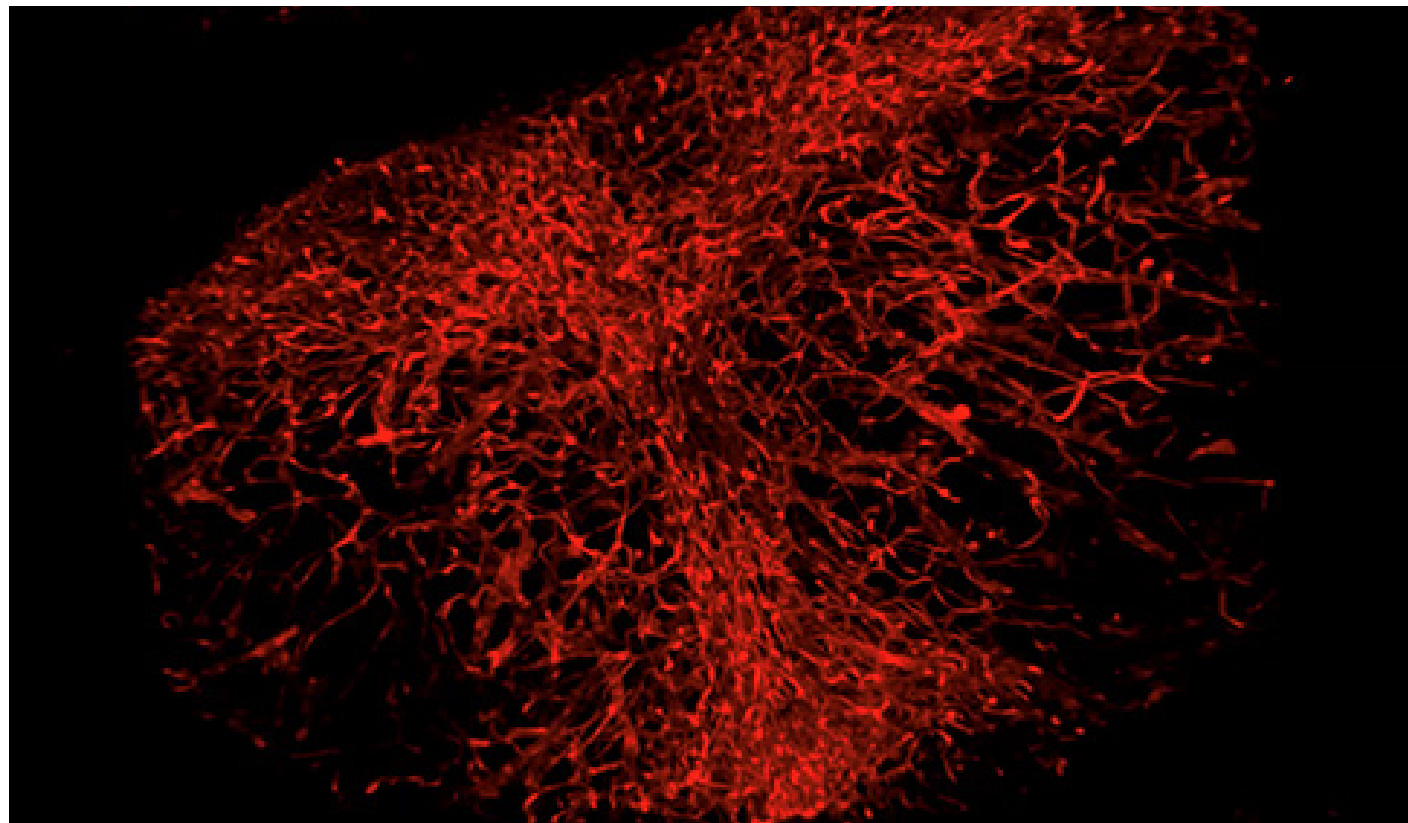
images with incredible vibrancy. The picture below showcases the microscope's ability to pick up the vasculature of a cleared lymph node stained with tomato-lectin.

"Imaging intact whole organs would not be possible without it,"

says Katiana Khouri, a doctoral student of cancer center researcher Bernard Choi, PhD. "We have developed a method to map the microvasculature in 3-D of the

entire cerebrovasculature to compare normal and diseased states. This is expected to contribute to a mechanistic understanding of vascular diseases and evaluation of treatment and prevention strategies," Khouri said.

For more information about using the Lightsheet Z.1 and other platforms, contact Adeela Syed at adeelas@uci.edu or 949-824-3856.



Zeiss Lightsheet Z.1 Microscope: vasculature of a cleared lymph node stained with tomato-lectin

Basic & Translational Research



Cancer Center researchers collaborate to perform basic cancer research to understand how cancer cells differ from normal cells and to provide answers on how cancer cells develop, grow and spread.



Through this work, promising molecules, gene targets or biomarkers are discovered, which then move to transitional research for further testing of potential drugs for cancer treatment.



Target cells or tissues are first tested in vitro (meaning "in glass") and then in vivo ("in living organisms") to collect information about the drug works.

Mass Spectrometry Technologies

The UCI High-End Mass Spectrometry Facility brings emerging mass spectrometric technologies to UCI.

These make proteomic analysis available for studying focused and proteome-wide expression, identification, quantification and structural interrogation of proteins and protein complexes.

The facility provides many resources to conduct small- and large-scale proteomics experiments.

The facility assists UCI campus and medical center investigators, and also offers services to other academic, nonprofit, and commercial institutions.

One of the newest devices is the Orbitrap Fusion Lumos Tribid Mass Spectrometer (Lumos™).

This high-performing analytical tool measures the mass-to-charge ratio of one or more molecules present in a sample.

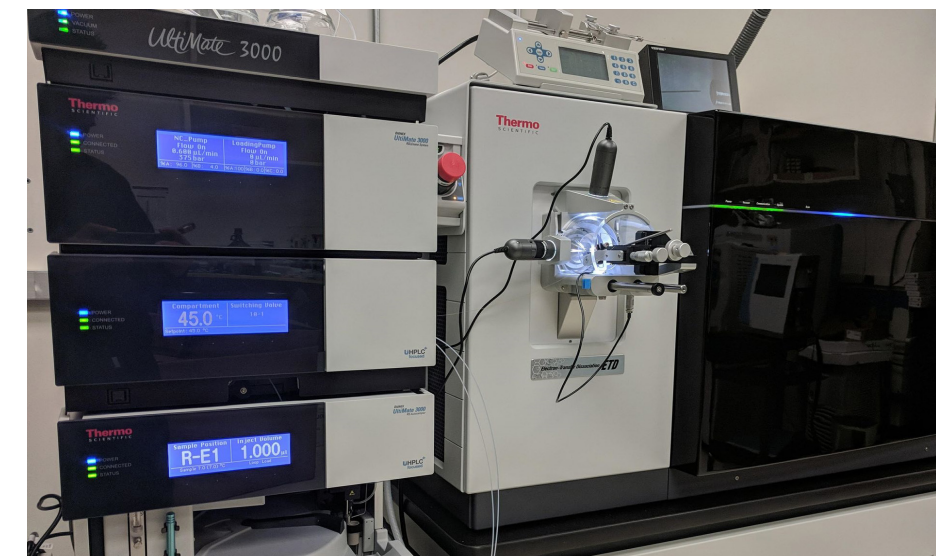
The facility's technologies are enabling

"advanced proteomic studies that will impact cancer research beyond genomics,"

says Lan Huang, PhD, a professor of physiology and biophysics.

They will also allow the development and application of systems strategies to biology and disease, facilitating "the ultimate goal of predictive, preventive and personalized medicine," Huang said.

To learn more, contact Clinton Yu at clinton.yu@uci.edu or 949-824-6172.



Clinical Care

Feeling your best when you have cancer

Receiving a cancer diagnosis can turn a person's life upside down. The ensuing treatment and recovery often taxes an individual on every level: physically, mentally, emotionally and spiritually.

Our UCI Health Cancer Support and Survivorship Services program is designed to support cancer patients throughout their journey, providing care that improves quality of life and lessens the burden of cancer.

"Our program is a multidisciplinary approach to help patients cope with symptoms related to the cancer and the treatments for cancer," said UCI Health medical oncologist Dr. Paul H. Coluzzi.

"We promote quality of life for patients during and after their treatment with symptom management, survivorship services and psychosocial support."

Coluzzi said most of these services are typically covered by health insurance.

Research indicates that this kind of care has improved survival for some patients. At least five randomized trials, which were rigorously conducted at high-quality institutes, show that when patients are asked proactively about their symptoms, doctors are able to intervene sooner.

"This complements what we already know happens when we support patients through psychosocial counseling and support groups," Coluzzi said. "We also know that good symptom management improves cancer survival."

As many as 30% to 40% of patients experience some type of symptoms related to their cancer or cancer treatment, and for as long as 10 years after treatment. Traditional oncology services focus mainly on the anti-cancer treatments.



Coluzzi said many patients are reluctant to tell their oncologists about cancer-related side effects, such as depression, pain or fatigue.

"They don't want the doctor to lose their focus on the cancer treatment," he said. "They are willing to put up with symptoms. The message of our program is that they don't have to."

» ucihealth.org/cancersupport

UCI Health cancer center locations

UCI Health Chao Family Comprehensive Cancer Center
101 The City Drive South, Building 23
Orange, CA 92868
714-456-8000

UCI Health Cancer Center — Newport
1640 Newport Blvd.
Suites 400 and 450
Costa Mesa, CA 92627
949-999-2400

UCI Health Pacific Breast Care Center
1640 Newport Blvd., Suite 200
Costa Mesa, CA 92627
949-515-3544

UCI Health — Yorba Linda
18637 Yorba Linda Blvd.
Yorba Linda, CA 92886
714-790-8600

UCI Health — Yorba Linda Infusion Center **OPENING SPRING 2020**
18629 Yorba Linda Blvd.
Yorba Linda, CA 92886
714-456-8000



Community Outreach and Engagement Initiatives

Comprehensive cancer centers are charged with translating research and providing care to their communities, ensuring that each National Cancer Institute-designated center meets the needs of its community.

The Community Outreach and Engagement (COE) office opened in August 2018. Its mission is to eliminate cancer health disparities and promote health equity by partnering with people, communities and institutions to advance cancer prevention and control, and decrease the burden of cancer in Orange County and beyond.

The COE office has established a Community Equity Board of local leaders and patient advocates to ensure the community's needs are informing the cancer center's research. The board's purpose is to help guide research and clinical care. For a list of members, please visit cancer.uci.edu/advisory-boards.asp

Sora P. Tanjasiri, DrPH, MPH, associate director for Cancer Health Disparities and Community Engagement, cited the following projects underway to achieve COE goals:

- Advancing Care Together (ACCT) for Low-Income Asian Americans and Latinx

ACCT seeks more effective and efficient cancer care for Latinx, Vietnamese, Korean and Chinese Medi-Cal beneficiaries, especially for the most prevalent cancers — malignancies of the breast, cervix, colon and rectum, liver and stomach. The goal is to create a hub-and-spoke model that connects patients with complex cancers to the cancer center, and patients with low and moderately complex cancers to community organizations, the county's Medi-Cal managed-care program, federally qualified health centers, as well as to primary and specialty care providers.

- American Cancer Society, WER Cancer Control Collaborative Project (CCCCP) Grant

UCI Health Family Health Center-Santa Ana, the cancer center and CHOC Health Alliance are working together to increase HPV vaccination rates by 30% to 80% among boys and girls ages 11 to 13 in a pilot project funded by the American Cancer Society, Western Region.

- Cancer Navigation for Vietnamese Americans (CANVAS)

The long-term goal of this pilot project is to decrease breast cancer mortality in Vietnamese American women. CANVAS will seek to address the unique psychosocial needs of Vietnamese American

women with breast cancer, using community-based participatory research (CBPR) processes.

Vietnamese community outreach

Cancer is the leading cause of death among Asian Americans in California. There is a pressing need to improve resources and outreach to decrease cancer-related morbidity and mortality among Orange County's Vietnamese populations. The cancer center is dedicated to providing culturally competent and linguistically accessible support to better serve our Vietnamese community. Through the COE office, the cancer center established a dedicated telephone line to a Vietnamese-speaking nurse to help navigate care. To reach a Vietnamese-speaking nurse who can help schedule appointments and answer general cancer services questions, please call 714-719-5612.



Grants and Awards

More than \$600,000 in grant funding raised by the 2019 Anti-Cancer Challenge has been awarded to 15 research projects proposed by cancer center faculty members. These funds will support a wide range of pilot projects, including studies on:

- The higher risk of stomach cancer among Asians in Orange County

- Reactivating the body's tumor suppressor protein, P53
- Improving the emotional, physical, educational and occupational function of adolescents after cancer treatment
- Evaluating a new optical laser imaging technology in the diagnosis of melanoma

Since the inaugural Anti-Cancer Challenge, more than \$1,662,500 has been distributed to high-risk projects and team funds.



Events

Due to the safety guidelines imposed by local, state and federal health authorities to contain the spread of the virus causing the current COVID-19 pandemic, all events scheduled for this spring and early summer have been canceled or postponed.

UCI Anti-Cancer Challenge

STOP AT NOTHING TO END CANCER

JOIN THE ANTI-CANCER CHALLENGE

When you ride, run, walk or volunteer, you contribute to finding cures for a disease that touches us all. **100 percent** of participant proceeds go directly to breakthrough cancer research at the UCI Chao Family Comprehensive Cancer Center — the only National Cancer Institute-designated comprehensive cancer center in Orange County.

WHEN
SATURDAY, OCTOBER 3, 2020
 ALDRICH PARK, UCI CAMPUS

FOR MORE INFORMATION AND TO REGISTER, VISIT:
 ANTI-CANCERCHALLENGE.ORG

UCI BRILLIANT FUTURE

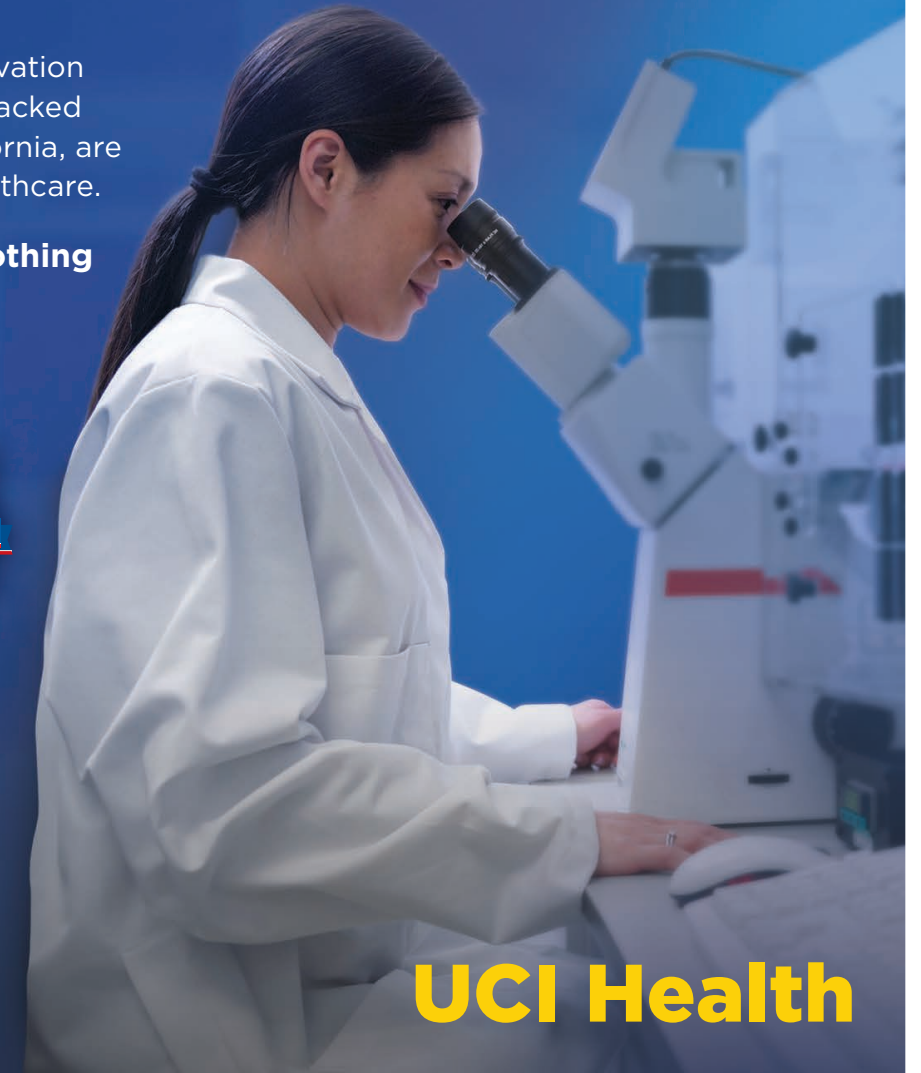
WE DON'T JUST PRACTICE MEDICINE.
 WE CREATE IT.

STOP AT NOTHING

TO REDEFINE WHAT'S POSSIBLE.

Our groundbreaking innovation and lifesaving research, backed by the University of California, are shaping the future of healthcare.

ucihealth.org/stopatnothing



UCI Health

UCI Health

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Orange, CA 92868-2990

CONNECT WITH US

ucihealth.org



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SUPPORT UCI HEALTH

Few things in life matter more than your health. As Orange County's only academic medical system, UCI Health is pushing the frontiers of life-saving research while improving health and wellness in our community and beyond.

We couldn't do it without you. With your partnership, we will make new medical breakthroughs, redefine patient treatment and the teaching of personalized healthcare, and empower our communities for mental and physical health. Become an active partner in charting UCI Health's future path.

To support the expansion of UCI Health, thank a provider or honor the memory of a loved one, visit ucihealth.org/makeagift or call 714-456-7350. Gifts to UCI Health support UCI's Brilliant Future campaign.

BRILLIANT FUTURE
THE CAMPAIGN FOR **UCI**