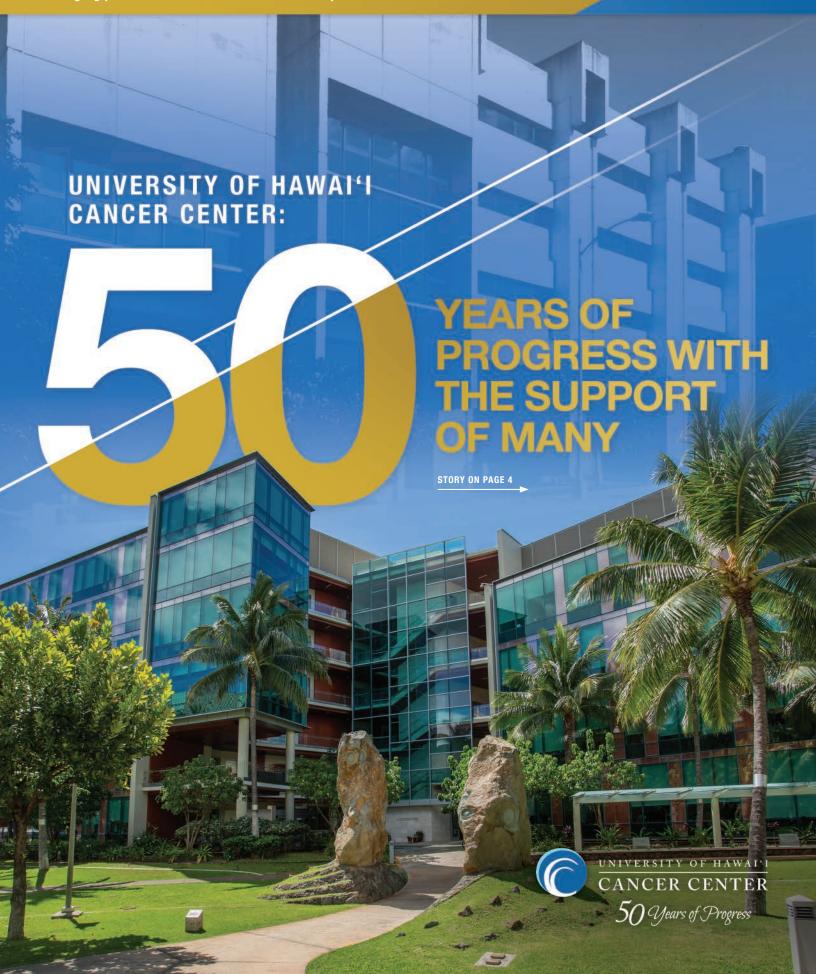
INNOVATIONS

Bringing you research news from the University of Hawai'i Cancer Center

SPRING 2021



DIRECTOR'S MESSAGE

This year marks a great time for reflection on the University of Hawai'i Cancer Center. It is the 50th anniversary of the origination of the UH Cancer Center, 25th anniversary of continuous designation by the National Cancer Institute, and five years since I was recruited as Director. Since the beginning, the Cancer Center has made remarkable progress with seminal discoveries about the incidence and causes of cancer in Hawai'i and across the Pacific, a better understanding of the origins of cancer outcomes disparities, particularly through the Multiethnic Cohort Study, progress in the identification of natural products from our environment for cancer prevention and treatment, and nationally recognized discoveries about cancer processes and gene-environment interactions that contribute to cancer development.

Over the past five years, while I have had the honor and privilege of leading the UH Cancer Center, we have expanded the reach of clinical trials, strengthened the Hawai'i Cancer Consortium, markedly increased our education, training and mentoring activities, and enhanced efforts at community outreach and engagement. To better serve our Native Hawaiian and Pacific Islander populations, we renewed our longstanding partnership with the University of Guam and established the Trans-Pacific Partnership for Cancer Prevention. We have also expanded opportunities for graduate and undergraduate student education.

The University of Hawai'i Cancer Center, with a focus on the cancers most important for the people of Hawai'i and the Pacific, has made major discoveries related to lung cancer susceptibility, the role of vaping in pulmonary diseases, the influence of obesity and visceral fat deposition on liver cancer and how environmental carcinogens affect cancer development. The Early Phase Clinical Research Center will bring access, for the first time, to novel anticancer Phase I treatments for the people of Hawai'i. An associated Organoid Generation Facility will allow Cancer Center scientists to study tumors in a more biologically relevant way, gaining a better understanding of how cancers arising in patients from differing racial and ethnic backgrounds respond to potential anticancer treatments.

The last 50, 25 and 5 years have seen great progress. Stay tuned for more discoveries!!





Advisory to resume cancer screenings amidst ongoing COVID-19 pandemic

Since the start of the pandemic, there has been a reduction in cancer screenings here in Hawai'i. Although mammography rates have started to recover, there is still a significant reduction in colonoscopy screenings for colorectal cancer. This reduction is particularly important to the Native Hawaiian and Pacific Islander populations that have been found to have higher rates of colorectal and breast cancers than other racial/ethnic groups in Hawai'i.

To improve these rates, the UH Cancer Center and the Hawai'i Cancer Consortium have joined the National Comprehensive Cancer Network, the American Cancer Society, and other leading cancer organizations across the country to endorse the resumption of cancer screening and treatment during the ongoing COVID-19 pandemic. This coalition



Colon Polyp on Stalk: A large but benign polyp found on screening colonoscopy for colorectal cancer.

of 76 organizations released an open letter reminding the public that cancer still poses a major threat to people's health, but acting as soon as is safely possible can lead to better outcomes in the future.

Experts say that when cancer is discovered earlier, people have more treatment options available to them. The lack of screening could lead to a staggering number of what could have been preventable cancer deaths over the next 10 years. Everyone is encouraged to resume cancer screening activities as this is the key to cancer prevention and early detection.



Clinical Research Professional Certificate Program

The Clinical Research Professional (CRP) Certificate Program is a course designed to train Clinical Research Associates (CRAs) to work at the UH Cancer Center, our affiliated hospitals, or at other academic centers in support of clinical trials. The program provides students with scholarly knowledge in coordinating oncology clinical trials, basic statistical and epidemiologic methods, ethical and regulatory aspects of human subjects research, protocol development, and much more.

The inaugural CRP Certificate Program, in partnership with the UH Outreach College, took place August 26 through December 2, 2020. There were 31 participants in this program. The upcoming Fall CRP Certificate Program will be taking place August 25 through November 17, 2021. Enrollment will be limited to a maximum 40 participants. This program consists of 22 90-minute online lectures that will cover foundational knowledge, which will take approximately 33 hours to complete.

"The CRP course has benefited me in my professional career by providing me with continued education that has broadened my scope of clinical research, contributing to further professional growth for me in the field," said Sasha Madan, CRP Certificate Program graduate, and UH Cancer Center CRA.

Photo above of CRP Certificate Program graduates at UH Cancer Center (Left to right): Miles Miki, Sasha Madan, Rochelle Cadiente, Alanna Vance, Tara Smith, and Jamie Wong.

PIPCHE Transforms the Cancer Care Landscape of Guam

n 2020, the 17-year Pacific Island Partnership for Cancer Health Equity (PIPCHE) between the University of Hawai'i Cancer Center and the University of Guam (UOG) received another five-year funding from the National Cancer Institute (NCI) for a total of more than \$14M.

The overarching aim of the PIPCHE partnership is to promote cancer health equity and mitigate the impact of cancer on Pacific Island Populations (PIP) through increasing cancer research leadership and capacity in Hawai'i, Guam, and the U.S. Affiliated Pacific Islands. In Hawai'i and Guam, PIP are a highly underrepresented minority with disproportionately high rates of lung, colorectal, and oral cancers compared to other ethnic populations in the U.S. Limited knowledge of prevention, low rates of screening, and high risk behaviors such as tobacco and areca (betel) nut use contribute to cancer disparities among PIP.

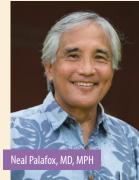
"PIPCHE has been truly transformational for research here at UOG. Before PIPCHE, there was zero cancer research and very little health-related research. Now we have multiple federal research grants studying cancer, child obesity, cardiometabolic health, and dementia," said Rachael Leon Guerrero, PhD, PDN, principal investigator, UOG.

"We use cancer research as a platform to bring equity and resiliency to the indigenous Pacific peoples. We work towards reciprocity, transparency, and accountability for each partner in every community. The investment has brought

(CONTINUED ON PAGE 5)



Rachael Leon Guerrero, PhD, PDN



UNIVERSITY OF HAWAI'I CANCER CENTER:

THE UH CANCER CENTER HAS REACHED A SIGNIFICANT MILESTONE — 50 YEARS OF PROGRESSIVE CANCER RESEARCH IN HAWAI'!!

This would not have been possible without the support of the Cancer Center's many key stakeholders, community partners, donors, study participants, researchers and staff members, and friends.

Auspiciously, the UH Cancer Center's Anniversary coincides with the 50th Anniversary of the signing of the National Cancer Act by President Richard Nixon on December 23, 1971. That legislation prioritized and confirmed the nation's commitment to making progress against cancer and giving momentum to the federal government dedicating billions of dollars to cancer research.

The concept of a cancer research center in Hawai'i began as early as 1963 when the National Cancer Institute recognized Hawai'i as an epidemiologic resource for cancer studies with a grant to the UH School of Public Health to study cancer risk among Japanese migrants. This was the start of population studies that was the forerunner of epidemiology studies that became a cornerstone of the UH Cancer Center's research.

CANCER RESEARCH HAS THRIVED AT THE UH CANCER CENTER UNDER ITS TWO PROGRAMS, CANCER BIOLOGY AND POPULATION SCIENCES IN THE PACIFIC, WHICH INCLUDES CANCER EPIDEMIOLOGY AND CANCER PREVENTION IN THE PACIFIC.

The Cancer Biology Program studies cancer cell development and spread, identification of targets on cancer cells as potential treatment sites using genetic and biochemical approaches, and translating basic science discoveries for the clinical setting. Breast, liver, thyroid, pancreatic and colorectal cancers continue to be studied due to their high incidence in Hawai'i.

YEARS OF PROGRESS WI THE SUPPORT

OF MANY

Two notable and successful research studies in the Population Sciences in the Pacific program, ongoing for a collective 45 years, are the Multiethnic Cohort (MEC) Study, in collaboration with the University of Southern California and the Pacific Island Partnership for Cancer Health Equity (PIPCHE), in partnership with the University of Guam. The MEC Study has provided significant discoveries on the risks for cancer and other chronic diseases and informed strategies to improve lives and prevent cancer and chronic diseases in vulnerable individuals. The PIPCHE promotes cancer health equity to lessen the impact of cancer on Pacific Island populations by increasing cancer research leadership and capacity in Hawai'i, Guam and the U.S. Affiliated Pacific Islands.

The UH Cancer Center participates in clinical research and as an NCI-designated cancer center, patients in Hawai'i are provided access to the latest cutting-edge treatments available. Clinical trials include therapeutic and non-therapeutic trials with state-of-the-art techniques and equipment, ranging from surgery, chemotherapy, radiation and the latest immunotherapy agents, all bringing advances to cancer care for Hawai'i's patients.

As the UH Cancer Center embarks on its next 50 years of progress in cancer research, we are humbled knowing that our journey has not been accomplished in a silo but with the shared vision and mission with our partners in Hawai'i, the Pacific and across the U.S. and the globe for a cancer free world.

Taken too soon, Alana's life continues to inspire

A lana Dung was with us for only three years, but her short life continues to affect others, decades after her death in 1997.

"Hawai'i's Little Girl" captured the hearts of Hawai'i residents when, a month before her second birthday, she was diagnosed with a rare leukemia. Thousands of islanders lined up at bone marrow drives across the state in an effort to save Alana's life.

In a Washington cancer research center soon after, Alana received her transplant from a bone marrow donor in Taiwan. She was well enough to return home, but she later suffered a relapse. Her immune system failed, and she died in her Nu'uanu home at age three.



ALANA WAS A COURAGEOUS AND SPIRITED FIGHTER TO THE END. WE ARE HOPEFUL THAT ALANA'S LIFE HAS BROUGHT TO THE FOREFRONT PUBLIC AWARENESS OF LEUKEMIA AND THE NEED FOR PUBLIC SUPPORT TO AID THOSE WHO ARE AFFLICTED WITH THIS DISEASE."

In a statement to the local press, her parents Stephen and Adelia said, "Alana was a courageous and spirited fighter to the end. We are hopeful that Alana's life has brought to the forefront public awareness of leukemia and the need for public support to aid those who are afflicted with this disease."

STIRRING HAWAI'I TO ACTION

Alana's courage inspired a local best-selling children's book, a stage musical, and more than 30,000 of her neighbors to be added to Hawai'i's bone marrow registry, which until then had 16,000 names. The foundation bearing her name supports research to improve the quality of life for children with serious illnesses, and assists organizations working to eliminate suffering from terminal illnesses.

 $To \ support\ this\ effort, contact\ lynne. wooddell @uhfoundation.org\ or\ 808-356-5757.$



Now Alana's impact will reach even further. The Alana Dung Foundation recently donated to the University of Hawai'i Cancer Center for the development of its Early Phase Clinical Research Center (EPCRC) and Organoid Generation Facility. The EPCRC will be the first in the state and allow cancer patients to participate in Phase 1 clinical trials without travel to the mainland. The organoid generation facility will provide an invaluable resource to the biological study of cancers in minority populations with significant cancer disparities in Hawai'i and the Pacific.

NEW HOPE FOR HAWAI'I'S CANCER PATIENTS

Access to early phase clinical trials in the state means some patients may receive innovative cancer treatments at home in Hawai'i. "My family and I are excited to carry on Alana's legacy with support for the new Early Phase Clinical Research Center," says Spencer Dung, Alana's brother. "It will provide the people of Hawai'i an opportunity to receive innovative and cutting-edge treatments here at home, an opportunity Alana didn't have."

Already, the UH Cancer Center has raised 70 percent of funds needed to build the EPCRC, thanks in part to Alana and her family. Soon, with a little more help, Hawai'i will take another step toward relieving the suffering caused by this terrible disease.

PIPCHE Transforms the Cancer Care Landscape of Guam (Continued from page 3)

forward indigenous Pacific researchers and scientific leaders, relevant Pacific-based interventions addressing disparities, and has increased the capacity for both institutions to understand and achieve cancer health equity in the Pacific," added Neal Palafox, MD, MPH, principal investigator, UH Cancer Center.

Besides continued emphasis on research and education in the current grant, there are three funded research projects with specific goals: 1) to compare levels of areca nut-specific compounds to assist with cessation efforts; 2) to develop culturally-grounded evidence-based tobacco and areca nut prevention programs for middle school youth; and 3) to examine risk factors associated with liver disease and cancer.

ETO COLA WORKING TO FIND THE CURE

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If you'd like to learn more about the Friends and support us with a donation, please visit https://friendsofuhcc.org.

President's Message

Aloha, friends and supporters of the UH Cancer Center!

As 2021 rolls along, hopes to return to a new normal brighten with the COVID vaccines, the result of science and research at their best. With the 50th Anniversary of the University of Hawai'i Cancer Center, the Friends celebrate our own milestone—40 years of service to support the UH Cancer Center, also science at its best!

The Friends' journey started in 1981 when the Pacific Foundation for Cancer Research was incorporated by three dedicated women. In August of 1984 the board raised \$100,000 to fund a "Tumor Colony Counter" at the Cancer Research Center of Hawai'i, renamed the University of Hawai'i Cancer Center. That success was followed by years of sponsoring events that raised substantial funds to support cancer research.

In 1991 the corporate name was changed to Friends of Cancer Research in Hawaii, and strong efforts to reduce cancer-related death and suffering by promoting cancer research and education continued. In 2010, the organization's name was changed to Friends of University of Hawai'i Cancer Center to reflect that primary focus, and from then until now, the Friends have not wavered in our original goals.

We stand on the shoulders of those who came before us and are so grateful for their foresight and persistence. Through the past 40 years the Friends have seen the UH Cancer Center weather many challenges, but have always recognized its inherent value and potential, and are so incredibly proud to see what it is presently accomplishing as well as its eminent position as one of only 71 National Cancer Institute-designated cancer centers.

Our work continues, as this recent legislative session presented bills which threaten the UH Cancer Center's established funding and autonomy, so our efforts to protect and support this precious resource is needed as much as ever. Thank you to all of you who have supported the Friends and Cancer Center over the past 40 years. We look forward to many more years of partnership with you to support UH Cancer Center in its mission to eradicate cancer.

Mahalo,

Monica McLaren

MONICA MCLAREN

President, Friends of the UH Cancer Center



Spencer Dung Joins the Friends

The Friends are excited to welcome Spencer Dung to the board. Spencer is the Managing Director at Westpac Wealth Partners, which provides financial guidance to community members, business owners, and non-profit entities. Spencer already has a wealth of community service experience, a passion born from the personal tragedy of losing his sister to leukemia. As an informed and dynamic young professional, the Friends are eager to leverage Spencer's perspectives and skills to energize and to help us move in impactful and innovative directions. His ability to connect to, motivate and communicate with diverse people will serve us well, as will his knowledge of fundraising and financial planning. Welcome to the Friends, Spencer!

The Friends' Graduate Fellowship



Besides supporting community education about the University of Hawai'i Cancer Center's invaluable work, the Friends' mission is also to support the UH Cancer Center's internal educational needs. In the past we have financially supported the Cancer Center's summer interns, who are high school and college students that work with UH Cancer Center researchers on research projects, providing those students invaluable experience and inspiration. The success of that program has resulted in the recent award of a \$1.3M grant to support the summer internship program. Now the Friends are very excited to support a different educational program.

We are proud to announce in partnership with Clinical Labs of Hawaii the creation of the "Friends of the UH Cancer Center and Clinical Labs Fellowship." This position at the UH Cancer Center will support a graduate student through three years of cancerfocused research work.

Currently funding for graduate students can be difficult to come by and usually derives from grants to the faculty mentor. This can create some instability for the student and limits the number of students that the outstanding faculty at the UH Cancer Center can support. By creating a three-year graduate fellowship that supports a single student, we will enable the Cancer Center to train the next generation of scientists. The goal is to provide the graduate student fellow with hands-on research experience in cancer biology and population sciences along with innovative training and mentorship experiences as he or she works to obtain a doctoral degree. The fellow will be chosen through a competitive selection process and the program will start in July 2021.

Educational programs such as these are vital to grow the next generation of medical professionals, who will advance research and the treatment of cancer. The Friends are proud to provide this multi-year award to support a graduate student's stipend throughout his or her program. We know it is a great investment in a better future for us all!

WESTERN DIGITAL PARTNERS WITH THE UH CANCER CENTER

The latest research by John Shepherd, PhD, UH Cancer Center researcher and professor of epidemiology and population sciences, includes using artifical intelligence (AI) to study biomarker patterns in mammograms for breast cancer in women in Hawai'i and the Pacific.

Western Digital has partnered with the University of Hawai'i Cancer Center to provide storage platforms that are needed in order to scale and store critical research data that will help to improve the accuracy of cancer detection from mammography scans.

Statistically, Native Hawaiian women have the most cases of breast cancer compared to nearly every other ethnic group. The Hawai'i Pacific Islands Mammography Registry was created as the first mammography database to focus on women in Hawai'i, including Native Hawaiians and Pacific Islanders.

Utilizing AI to detect breast cancer is essential because the human eye can only see 256 levels of shades out of a mammogram's 65,000, whereas AI can see all 65,000 shades of the mammogram and compare thousands of variables' relevance to cancer outcomes at the same time.

"Because of the uniqueness of Hawai'i, we have this really broad demographic of ethnicities, races, BMIs, and cultures, and if you train an AI model with that broad amount of data, it should deliver models that are useful anywhere else in the world," said Shepherd.





RESEARCHER STUDIES THE ASSOCIATION BETWEEN GENETICS AND COVID-19 SUSCEPTIBILIY

At the start of the COVID-19 pandemic, UH Cancer Center Associate Professor Maarit Tiirikainen, PhD, began working with LifeDNA to better understand why some individuals or populations are more prone to the virus than others. The study seeks to determine whether this can be explained by genetic differences. Since the project was established, Tiirikainen and collaborators have formed a hospital-based cohort of DNA samples from 34 patients to study host genetics and severe cases of COVID-19. They have also formed a crowd-based cohort of over 400 participants using a COVID-19 symptom study application that will track any changes in symptoms, viral testing, and vaccination status. This cohort will enable the study of genetics and COVID-19 susceptibility.

This "COVID-19 Genetic Disparity Study" has received a \$50,000 grant from the Hawai'i Community Foundation that will be used to provide funds for genotyping and studying genetic associations. Tiirikainen is in the process of selecting 60 genetic variants to investigate, and researchers will begin genotyping in the fall of 2021.

UH CANCER CENTER RECOGNIZES COMMUNITY PARTNERS AT 3RD ACCRUAL EVENT

This year's 3rd Annual Cancer Clinical Research UH Cancer Center Accrual Leaders (ACCRUAL) event was held virtually, honoring dedicated physicians, nurses, and research administrators for their efforts in enrolling cancer patients onto clinical trials and furthering clinical research.

The UH Cancer Center coordinates clinical trials for patients with the help of Hawai'i Cancer Consortium members and community oncology practices. The awardees are recognized for reviewing the validity and feasibility of the clinical trials, monitoring data safety, facilitating clinical trials, and successfully enrolling patients onto interventional clinical trials.

Once patients are enrolled, these dedicated professionals provide monitoring of their patients' health and disease status during active therapy and beyond, while ensuring adherence to clinical trial protocols. These efforts contribute to the UH Cancer Center's 20BY25 campaign goal of increasing clinical trial enrollment to 20 percent of all individuals with newly diagnosed or relapsed cancer by the year 2025.

Many of Hawai'i's cancer patients are currently underrepresented in national clinical trials, but as more are enrolled, researchers will have a better understanding of their overall cancer risks and develop more patient-specific treatments.

AWARD RECIPIENTS



THERAPEUTIC ACCRUALS PLATINUM AWARD

Jared Acoba, MD

Hawai'i Oncology, Inc



THERAPEUTIC ACCRUALS GOLD AWARD Yoshihito David Saito, MD Hawai'i Oncology, Inc



NON-THERAPEUTIC ACCRUALS
PLATINUM AWARD
Erin Capps, MD
The Queen's Medical Center



NON-THERAPEUTIC ACCRUALS GOLD AWARD Jami Fukui, MD UH Cancer Center/Hawaii Pacific Health



APRN ACCURALS PLATINUM AWARD

Christa Braun-Inglis, APRN, FNP, AOCNP

UH Cancer Center/Hawaii Pacific Health



MOST REVIEWED PROTOCOLS PLATINUM AWARD
Keith Terada, MD
University Health Partners of Hawaii



MOST REVIEWED PROTOCOLS GOLD AWARD

lan Pagano, PhD

UH Cancer Center

RESEARCH STAFF AWARD Sharon Tamashiro, RN The Queen's Medical Center Robyn J. Morse

Hawaii Pacific Health

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Kapi'olani Medical Center

Valerie Ferguson Kealohilani Harvest-Castro Adrienne Mendiola Yvonne Mina Straub Medical Center

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The Queen's Medical Center

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Patient Advocacy Committee: A Voice for Cancer Patients and Caregivers

The goal of the UH Cancer Center's Patient Advocacy Committee (PAC) is to empower cancer patients with knowledge and understanding of clinical trials. PAC members provide feedback from a patient and caregiver perspective to the Community Research Advisory Board, comprised of oncology physicians, nurses, pharmacists, clinical research assistants, and other health care professionals. They identify language that could be confusing or intimidating to a patient, such as acronyms and medical terminology. Based on PAC recommendations, consent forms may be updated or information may be relayed to the UH Cancer Center's Clinical Trials Office staff so they can be mindful of the issues when explaining a trial to a patient and caregiver.

Lynda Asato experienced a third bout of breast cancer in 2017, and her oncologist recommended she participate in a clinical trial through the UH Cancer Center. Asato joined the PAC in 2019, and states, "... I look at factors like costs—financial and time spent—and other hardships like lack of accessibility or language barriers."

At age 33, Joanne Hayashi was diagnosed with breast cancer. When she learned about the PAC, she wanted to become more involved in supporting the UH Cancer Center's work. She became a PAC member because . . . it is important for cancer patients and caregivers to have a seat at the table when





it comes to deciding what kinds of trials are being conducted in Hawai'i and how that information is communicated to the patient community."

During the pandemic, both PAC members remained actively involved in the clinical trial and consent review process. Asato and Hayashi would like to see more members join the PAC to diversify its representation, by recruiting individuals from different racial, ethnic, and gender backgrounds, who have differing experiences with cancer. Their hope is to increase clinical trial participation of Hawai'i's unique population and improve outcomes for cancer patients.

To learn about becoming a PAC member, call the Clinical Trials Office at (808) 564-3970 or email CTOadmin@cc.hawaii.edu.