

20 BY 25



ONE STEP CLOSER

20By25 indicates the goal to achieve enrollment to clinical trials of 20 percent of individuals diagnosed with cancer each year in Hawai'i by 2025. Full article on page five. →



Expert medical imager joins the UH Cancer Center

John Shepherd, PhD

John Shepherd, PhD, joins the University of Hawai'i Cancer Center as a senior researcher in Epidemiology from the University of California, San Francisco (UCSF) School of Medicine. He was at UCSF in the Radiology Department for 19 years and is a National Institutes of Health Building Interdisciplinary Research Careers in Women's Health Fellow, a 2013 Fulbright Scholar, and a frequent consultant to the International Atomic Energy Agency (IAEA). He is most known for his expertise in quantitative X-ray imaging using machine learning for bone densitometry, body composition and mammography applications.

What are some of your research goals?

Ultimately, I want to reduce the burden of cancer on individuals. I approach this by studying risk factors for cancer using medical imaging.

Some examples of my work include using 3-dimensional optical scans of the body to measure body shape and how it relates to obesity and cancer risk. We do this by comparing body shape to fat, muscle and bone distributions that currently can only be measured using less accessible x-ray imaging scans. Another example is the use of screening mammograms to estimate not just if the person has cancer, but how likely she is to develop breast cancer in the future. The most exciting tool we use in these investigations is a type of artificial intelligence called "deep learning." Using deep learning, we are extracting so much more information from medical images than we could even five years ago.

How will your research be beneficial to the people of Hawai'i?

Women in Hawai'i have not been included in any of the U.S. breast cancer risk models because there has not been a large scale effort to collect screening mammograms. I am working with my colleagues at the UH Cancer Center to create the first Hawai'i and Pacific Islands Mammography Registry.

Our goal is to teach deep learning algorithms how to read mammograms to not only detect cancer but to identify the

women who will develop cancer in the next five years. This requires literally several hundred thousand mammograms to train the algorithms, but we end up with very accurate models to predict who is at high risk of breast cancer that are specific to our unique ethnically-diverse population of women in Hawai'i. Once identified, women at high risk can then work with their doctors to reduce their breast cancer risk and hopefully avoid getting breast cancer.

I also study obesity using X-ray and 3-D optical images, the kind that are used for fitting clothes and video games. Obesity is a strong risk factor for cancers in general including breast cancer and our 3-D optical methods are a very accessible and accurate way to assess a person's fat and muscle status.

What does it mean to you to join the UH Cancer Center?

There is lots of terrific work going on in the UH Cancer Center and I am honored to join the effort. I have been working with the Center on various projects for more than 10 years now. First, it was to develop a way to measure breast density in young girls with Gertraud Maskerinec, MD, PhD and Rachel Novotny, PhD. Later, I worked with Loic Le Marchand, MD, PhD and Unhee Lim, PhD on the Multiethnic Cohort Study to quantify body composition and cancer risk using dual-energy X-ray and MRI images. Many of my current projects were inspired by these collaborations. I hope to go much deeper into my research now that I am faculty at the Center.

Are you excited to move to Hawai'i?

I am a surfer and that should say it all! Cowabunga! But before coming, I was only really familiar with the Waikiki area. I am super excited about getting to know the people, culture, and food of all of Hawai'i. Since arriving, I have been enjoying swimming the length of Ala Moana Park, biking to work from Mānoa, and eating lots and lots of poke!

My wife Jessica and my three daughters, Hewson, Maggie and Sarah are just very honored and happy to be part of the UH Cancer Center 'ohana.



Ways of giving to help impact cancer research

Cancer impacts many of us including our families and friends. To address this, research is needed with philanthropic funds providing the foundation for this work. The UH Cancer Center uses these gifts in diverse ways, such as developing new therapies, discovering and studying plants from Hawai'i for potential cancer fighting properties, providing cancer education and promoting cancer prevention. The philanthropic dollars donated to the UH Cancer Center through the University of Hawai'i Foundation advance cancer research and lead to improvements in cancer care.

Philanthropic gifts have supported research on stomach cancer in local Asian populations, funded pilot studies with promising results leading to larger grants, and have allowed us to support summer cancer research student interns.

The Center's development staff is available to help potential donors explore philanthropic opportunities that are meaningful to them. This may be supporting research in cancers that are ethnically prevalent, in specific areas such as liver or breast cancers, or in supporting a promising new researcher.

Giving can be accomplished via many mechanisms. Gifts can be cash, bequests, donations of stock, IRA Required Minimum Distributions or other highly appreciated assets such as a home. The staff helps potential donors learn about the many opportunities and explore the programs that best fit his or her situation.

If you have been thinking about making a gift, or simply want to learn more about these giving opportunities, please contact Todd Cullison, UH Cancer Center's associate director of development at 808-356-5757 or todd.cullison@uhfoundation.org.

20BY25



ONE STEP CLOSER

The mission of the 20BY25 campaign is to educate cancer patients and their families about the value of cancer clinical trials, eliminate the fear about participation, and engage healthcare providers and community organizations in order to facilitate access and encourage enrollment to reduce the burden of cancer and move One Step Closer to cure.

“The University of Hawai‘i Cancer Center is unique in Hawai‘i. No one else provides the comprehensive access to clinical trials that our network provides. It is critical that we ensure that the people of this state receive the highest quality of cancer care. Community engagement is a priority in order to achieve the mission,” said Randall Holcombe, MD, MBA, UH Cancer Center director.

Nationally, 75 percent of children with cancer are enrolled on a clinical trial. It is the standard of care. However, nationally, only two to three percent of adults with cancer are enrolled on a clinical trial. This is due to many factors – a lack of knowledge and fear by patients and a lack of engagement by providers and healthcare organizations. Also, more than 95 percent of patients participating are White.

“These deficiencies can be addressed in Hawai‘i through education. Some may not be aware that today’s ‘standard’ treatment was a clinical trial five to 10 years ago, and today’s clinical trial will be standard care five to 10 years from now,” said Jessica Rhee, MD, MS, Clinical Trials Office medical director.

20By25 indicates the goal to achieve enrollment to clinical trials of 20 percent of individuals diagnosed with cancer each year by 2025. In Hawai‘i there are about 6,500 new cancer cases each year. Therefore, the goal is to enroll 1,300 patients per year onto a cancer clinical trial.

“Cancer patients should know that clinical trials provide the highest quality of care for patients because there is closer supervision and monitoring than with standard care. Patients always receive equal to or better than the standard of care, and patients have access to novel drugs or drug combinations that may improve the response to treatment, increase the chance of cure and prolong survival,” said Rhee. “With the correct information cancer patients can be empowered to be their own advocates.”



Phillip Allen Sharp, PhD

Nobel Laureate wins Weinman Award

Nobel Prize winner Phillip Allen Sharp, PhD, was honored with the Weinman Award for a major cancer research breakthrough at the Ninth Annual Weinman Symposium at the UH Cancer Center. Sharp's current research focuses on small ribonucleic acids (RNAs) and other types of non-coding RNAs.

A question-and-answer session with Sharp allowed local high school, graduate and postdoctoral students an opportunity to interact with the co-winner of the 1993 Nobel Prize in Physiology or Medicine.

"Having done research myself for the past few months at UH Mānoa, it was very interesting to see all of the professionals and what they had to say about their own fields," said Jessica Revilla, a Maryknoll School senior. "Attending this event motivates me to pursue further study in the field of biology."

The symposium was made possible by a generous donation from the Weinman Foundation. The funds are directed toward advancing innovation and collaboration in cancer research.

Postdoctoral fellow receives prestigious Italian scientists award

Angela Bononi, PhD, a UH Cancer Center thoracic oncology postdoctoral fellow, was one of five recipients of the prestigious 2017 Italian Scientists and Scholars of North America Foundation (ISSNAF) Awards for Young Investigators presented at the Italian Embassy in Washington, D.C.

"There are no words, neither in English nor in Italian, to express how much winning this ISSNAF award means to me," she said.

Bononi received the Hogan Lovells Award in Medicine, Biosciences and Cognitive Science for "Germline BAP1 mutations impair IP3R3-mediated Ca²⁺ flux to mitochondria and induce a Warburg effect."

ISSNAF awards young Italian researchers each year in five subjects. The winner in each category receives a \$3,000 prize. The 16 finalists, all Italian researchers younger than 40, were chosen through a rigorous selection process and presented their research projects to a panel of judges.

ISSNAF's mission is to promote scientific, academic and technological cooperation amongst Italian researchers and scholars active in North America and the world of research in Italy.

Angela Bononi, PhD and Vito Campese, MD, president of ISSNAF.



UH Cancer Center advances research on movement and spread of cancer cells

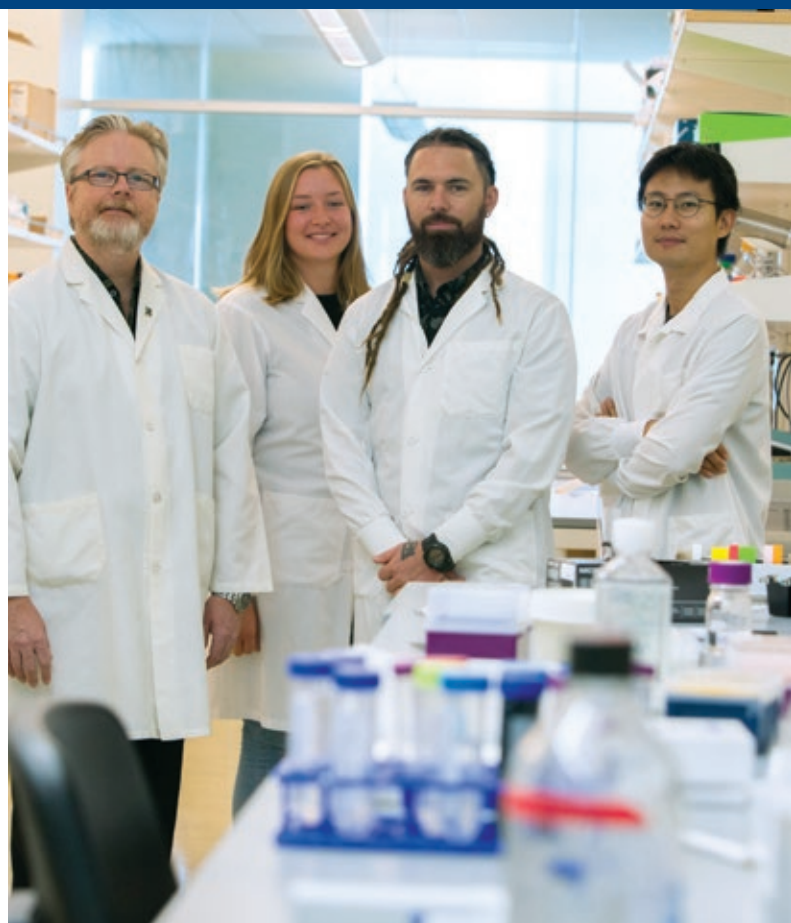
A team of UH Cancer Center researchers has identified how some cancer cells are made to move during metastasis. The research, led by Joe Ramos, PhD, deputy director and researcher at the UH Cancer Center, provides a better understanding of how cancer spreads and may create new opportunities for cancer drug development.

Metastasis, the spread of disease from one part of the body to another, causes the deaths of 90 percent of cancer patients. Metastasis is driven by a set of mutant proteins called oncogenes, which cause cancer cells to multiply uncontrollably and promote their ability to move. How oncogene activity specifically directs increased movement and metastasis is highly complex and remains largely unknown.

Ramos and four collaborators in the Center's Cancer Biology Program investigated how these oncogenes and related signals lead to dysregulation of normal processes within the cell and activate highly mobile and invasive cancer cell behavior.

The findings, published in *Proceedings of the National Academy of Sciences*, define a mechanism in which the oncogenes turn on a protein called RSK2 that is required for cancer cells to move. The RSK2 protein forms a signaling hub, which includes proteins called LARG and RhoA, that activates movement of the cancer cells.

These results significantly advance the understanding of how cancer cells are made to move during metastasis and may provide more precise targets for drugs to stop cancer metastasis in patients where there are oncogenic mutations.



Left to right: Joe Ramos, PhD, Vera Schwarzler, Brien Hauk, BS, Won Seok Yang, PhD.

The work was done in collaboration with UH Cancer Center researchers Michelle Matter, PhD, Ling Jin, Won Seok Yang, PhD and Geng-Xian Shi, PhD.

Multiethnic Cohort Study awarded \$15 million

The Multiethnic Cohort (MEC) study received renewal of its National Cancer Institute (NCI) funding, through a new five-year \$15 million award.

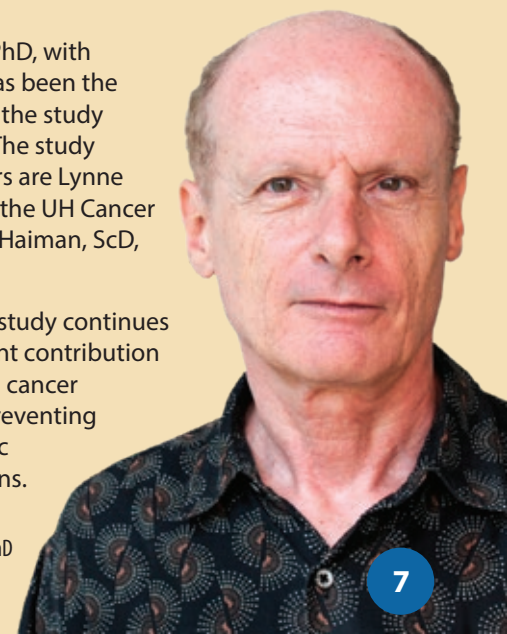
The MEC study is one of the largest and most ethnically diverse of its kind. Its cohort (a designated group that is followed over decades) is comprised of 215,000 men and women of African American, Japanese, Latino, Native Hawaiian and Caucasian origin. The study is uniquely representative of the disease experience of U.S. ethnic/racial minority populations and is made possible by the racial and ethnic diversity that exists in Hawai'i and California.

2018 marks the 25th anniversary of the MEC study, a research project that is jointly conducted by the UH Cancer Center and the Norris Comprehensive Cancer Center at the University of Southern California (USC), Los Angeles.

Loïc Le Marchand, MD, PhD, with the UH Cancer Center has been the principal investigator of the study since September 2012. The study co-principal investigators are Lynne Wilkens, DrPH, MS, with the UH Cancer Center and Christopher Haiman, ScD, with USC.

The mission of the MEC study continues to be making a significant contribution to the goal of correcting cancer health disparities and preventing cancer and other chronic diseases in all populations.

Loïc Le Marchand, MD, PhD





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U.S. Senator Mazie Hirono receives Courage Award

“I’m plugging away, not fading away. My voice remains strong!” These inspiring words were spoken by U.S. Sen. Mazie Hirono, who was presented with the 2018 Courage Award at the Hawai'i Comprehensive Cancer Coalition (HCCC) Summit held in February 2018 at the Hilton Hawaiian Village.

On behalf of Gov. David Ige, Lt. Gov. Douglas Chin, proclaimed February 21st as Cancer Awareness Day in Hawai'i to honor those who battle cancer every day. Sen. Hirono was also recognized for her bravery and willingness to continue to serve in Congress while battling Stage IV kidney cancer.

In May 2017, Sen. Hirono decided to go public with her diagnosis. Hirono revealed to the more than 70 Summit participants, “I do not consider myself courageous or brave. I just got on with it. And I made the decision with my husband to be very forthcoming about what I have, realizing that there are people in our country and in our state who face this kind of challenge in their lives every day.”

U.S. Sen. Brian Schatz, U.S. Rep. Colleen Hanabusa, as well as Hawai'i senators Roslyn Baker and Josh Green were in attendance to recognize Sen. Hirono for her advocacy efforts and to share their personal experiences with cancer. A written statement prepared by U.S. Rep. Tulsi Gabbard was shared with the audience.



From left to right: Paula Higuchi, MSW, Brenda Hernandez, PhD, MPH, Shane Morita, MD, PhD, Randall Holcombe, MD, MBA, Sen. Mazie Hirono.

In addition to the recognition there was a lively panel discussion moderated by journalist Yunji de Nies. The topics considered the challenges and opportunities that affect change for cancer care in Hawai'i. The speakers and panelists included:

- Randall Holcombe, MD, MBA, UH Cancer Center director,
- Robert Hirokawa, PhD, CEO, Hawai'i Primary Care Association,
- Virginia Pressler, MD, MBA, Hawai'i State Department of Health director,
- Shane Morita, MD, The Queen's Medical Center surgical oncologist and HCCC chair,
- Ranjani Starr, PhD, Department of Health epidemiologist, and
- Brenda Hernandez, PhD, MPH, UH Cancer Center researcher and HCCC incoming-chair.

The UH Cancer Center has been an active member of the HCCC since 2002.