

Unlocking the Secrets of Cancer Cells

New Cancer Biology Program Launched

If cells are the body's building blocks, then cell biology is the cornerstone of cancer research.

Cancer biology is the study of how normal cells become cancer cells. Investigators use cell culture, state-of-the-art animal models, and molecular, and biochemical approaches to understand how the underlying communication networks between cells and their environment go awry and instigate tumors. Specifically, this research investigates changes in cell growth, metabolism, damage, metastasis and survival that lead to cancer. It also includes cancer prevention, and the discovery and development of new drugs.

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DIRECTOR'S MESSAGE



Dear Friends,

At the UH Cancer Center, our ongoing efforts to recruit faculty have yielded impressive results. Pebbles Fagan, PhD, MPH, a National Cancer Institute expert in tobacco prevention and control and tobacco-related health disparities, will join us as the new program director for the Cancer Prevention and

Control Program this spring. Carol Boushey, PhD, MPH, an associate professor from Purdue University who specializes in nutrition and cancer prevention, will fill the position in the Epidemiology Program that Institute of Medicine inductee Suzanne Murphy, PhD vacated when she retired at the end of 2010.

Our Center's External Advisory Board (EAB), comprised of 13 administrators and physician scientists from other NCI Cancer Centers, spent two days earlier this year immersed in meetings with faculty and administrators, and listening to presentations from program and core leaders. The EAB members commended the Center's timely and thoughtful actions in response to specific suggestions offered during their previous visit. Their purpose is to help improve every aspect of the Cancer Center in preparation for the P30, a grant renewal through the NCI due in September, and we are extremely grateful for their time and expertise.

Once again, we thank you for your continued support. June 5th is National Cancer Survivors Day, a great inspiration and reminder to all of us about the importance of research in making progress against cancer. I would like to personally invite you to join us on June 11 for our educational event where we will honor and celebrate the lives of these courageous individuals.

Ciao,

A handwritten signature in black ink that reads "Michele Carbone".

Michele Carbone, MD, PhD
Director

Partners Unite for Research

The UH Cancer Consortium is a reality. The UH Board of Regents approved the collaboration between the Center and the largest health care partners in the state. Together, they will share a mission of bringing the most advanced cancer care to Hawai'i.

While each partner remains independent, the UH Cancer Center, The Queen's Health System, Hawaii Pacific Health, UH Manoa's John A. Burns School of Medicine and Kuakini Health System will share expertise, resources and technology. The alliance will help drive lab discoveries into the health care environment for the benefit of the patient. Though the consortium model is new to Hawai'i, it has been successfully implemented in other National Cancer Institute-designated centers for the same reasons: to enhance care and to build a framework for translational research.

The Consortium partners are already building a cancer-fighting arsenal. Take the case of Dr. Amy Powers, formerly of Beth Israel Deaconess Hospital in Boston, an affiliate of Harvard Medical School. Dr. Powers was being recruited by the UH Cancer Center as the new director of Pathology. Pathology services provide access to tissue and cell samples critical to supporting basic and clinical research. Coincidentally, The Queen's Medical Center was also seeking a pathologist. By joining forces, the two partners were capable of recruiting Dr. Powers to Hawai'i, where she now heads Pathology at the Center, while lending similar expertise at Queen's.



Consortium leaders (left to right): Art Ushijima, The Queen's Health System; Dr. Jerris Hedges, John A. Burns School of Medicine; Gary Kajiwara, Kuakini Medical Center. Not pictured: Chuck Sted, Hawai'i Pacific Health; Dr. Michele Carbone, UH Cancer Center

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In April, the UH Cancer Center announced the formation of the Cancer Biology Program. It will expand on the former Natural Products Program, bringing greater clarity to the Center's basic science research. Heading the program will be co-directors Drs. Reinhold Penner and Joe Ramos. "We have two talented and innovative scientists at the helm of Cancer Biology" said Dr. Michele Carbone, director of the UH Cancer Center. "Their roles will be critical to determining the direction of this program over the next decade."

Penner and Ramos will focus on facilitating the translation of basic science discoveries into new drugs and then ferrying these drugs into new clinical treatments. "Our primary goal is to unite the Center's basic and clinical researchers under a common inter-disciplinary theme. Collectively we can identify molecular mechanisms and targets in cancer, and study them in diverse ethnic populations with the goal of reducing cancer-related health disparities," said Penner. Drug discovery efforts that modulate the molecular targets and basic mechanisms under investigation will continue to be emphasized with the ultimate goal of developing novel diagnostic and therapeutic tools for clinical use.

Ramos says one of the biggest challenges he and Penner face will be to find creative ways to bring individual research efforts together into 'a sum that is greater than its parts.' He says they will address this through the creation of multi-disciplinary groups that focus on specific cancers such as breast or liver cancer. "These teams will interact on a

regular basis and support discussion on how best to move basic science discovery into the clinic."

Both directors agree that their most important job will be to nurture collaborations and provide support to their colleagues. "We can ensure continued growth and perpetuation of research excellence by providing

resources and mentorship to the program's investigators," said Penner. Ramos adds "Our hope is that by building bridges between our multi-disciplinary, world-class investigators, the Cancer Biology Program will make important contributions to alleviating the suffering caused by cancer in Hawai'i and around the world".

About the Co-Directors



Reinhold Penner, MD, PhD, MS, is internationally-recognized for his seminal research on ion channels in cell biology.

With expertise in immunology, neuroscience and cardiovascular research, he has published extensively. He is also active in drug discovery programs, and is listed as an inventor on ten patents and patent applications, several of which have been licensed.

Penner also serves as the Director of the Queen's Biomedical Research Center at the Queen's Medical Center and is a clinical professor of cell and molecular biology at UH's John A. Burns School of Medicine.

"My personal research interests are balanced by my desire to contribute to the growth of inter-disciplinary, translational research at the UH Cancer Center," he said. "The Cancer Biology Program will build on our core strengths in biomedical and oncology research while fostering new collaborations with our clinical partners."



Joe Ramos, PhD is an expert on signal transduction and adhesion. Since coming to the UH Cancer Center in 2004, he has used insights from his

research to identify novel molecular targets and drugs to better fight cancer invasion and metastasis, particularly in glioblastoma and neuroblastoma.

"In glioblastoma, infiltration of tumor cells into the normal tissue and eventual dissemination throughout the brain is a central challenge to successful treatment that remains unmet," he explained. "It is imperative to identify new approaches to specifically attack and prevent glioblastoma cell invasion."

Ramos currently serves on several national and international grant review boards. His work has been supported by the National Institutes of Health, the American Cancer Society, and the U.S. Department of Defense. He received his doctorate from the University of Virginia and did his post-doctoral research at The Scripps Research Institute in San Diego.

Foods Linked to Preventing Anal Cancer

A recent study published in the Journal of the American Association for Cancer Research by investigators from the UH Cancer Center found that several common dietary micronutrients are linked to acquiring and clearing anal human papillomavirus (HPV) infections in women. Anal HPV infections are the cause of most anal cancers. Historically, anal cancers were uncommon but there has been a recent substantial rise in occurrence. Anal cancers are more common in women—nearly 6,000 cases were reported in the US in 2009.

HPV infections are known to be the culprit behind most cervical cancers. In some women, the prevalence of anal HPV infections may be as high as cervical HPV infections, but anal infections appear to clear more rapidly. This information led investigators to believe that differences in the availability of dietary micronutrients in the anus, affected the course of HPV infections, and the risks for anal cancer.

The study followed 279 women for 16 months. Participants were tested for cervical and anal HPV infections, and blood nutrient levels. The study found a 40 to 60 percent reduction in risk

for anal HPV infections in women with high levels of trans-B*carotene and cis-Beta-carotene, trans-zeaxanthin, trans-anhydro-lutein. (The trans-, cis-, y+, or beta

prefixes indicate a different isomer or molecular structure of these micronutrients.) Some common foods that contain these nutrients are carrots, dark green leafy vegetables, and egg yolks.

The study also found that in women with persistent anal HPV infections lasting over 150 days, certain micronutrients including

Beta-tocopherol, and y+tocopherol were associated with clearing infections. Foods with the highest concentrations of tocopherols include vegetable oils, nuts, seeds, and whole grains.

Results indicate that micronutrients obtained through diet may have a significant influence on anal HPV infections. Dr. Marc Goodman states, “We are excited

about the public health implications of our study. Although vaccines are currently available to help prevent anal cancers, it may be some time until the benefits of vaccine prevention strategies are realized.”

Results indicate that micronutrients obtained through diet may have a significant influence on anal HPV infections.



New Faces

Two accomplished scientists recently joined the Cancer Center. Pebbles Fagan, PhD, MPH, was hired as the new director of the Cancer Prevention and Control Program, and nutritionist Carol Boushey, PhD, MPH, joined the Epidemiology Program.



Dr. Fagan most recently worked as a Health Scientist at the National Cancer Institute's Tobacco Control Research Branch of the Behavioral Research Program in the Division of Cancer Control and Populations Sciences. Her masters was received at Tulane University School of

Public Health and Tropical Medicine and she obtained her doctoral degree in community health from Texas A&M University. She is committed to building support for innovative initiatives and strategies to reduce tobacco use in the U.S. and other countries.



Dr. Boushey was most recently associate professor in the Department of Foods and Nutrition at Purdue University. She received her masters in public health nutrition at UH Mānoa and previously worked in the Center's Epidemiology Program, the Waianae Coast Comprehensive Health Center,

and the UH School of Public Health. Dr. Boushey received her doctoral degree in nutritional sciences from the University of Washington, specializing in nutritional epidemiology.



Community partners attend a preview of the new UH Cancer Center.

BUILDING A PLACE FOR DISCOVERY

Amidst the building crews, cranes, and supplies, the completed foundation of the new University of Hawai'i Cancer Center is now visible and walls are beginning to rise. Opening in early 2013, the facility will create an environment where scientists and physicians from complementary disciplines can collaborate to find new and better ways to battle cancer.

Some of those collaborators got a preview of the future when they attended a recent media briefing on construction progress. "We are on the brink of a new era for cancer research," Dr. Virginia Hinshaw, Chancellor of UH Mānoa told the group. "This facility will not only help us reduce the burden of cancer globally, it will serve the people of Hawai'i for generations to come."

Members of the media donned hard hats as they mingled with healthcare and construction partners behind the site perimeter fence. Unfurling maps, they listened as project architect Jeff Nakamura described his vision of what will be 'one of the most personally gratifying projects' of his career. Building features include labs equipped with the most advanced technology, naturally-lit and open workspaces, public and private meeting rooms and tropical landscaping to enhance tranquility and a connection to the outdoor environment.

As guests departed, several noted the impressive progress. "It appears we will deliver an optimal facility for scientific discovery and collaboration," said Dennis Hirota, vice chair of the UH Board of Regents.

Friends Join Board

Heather Haynes Drood, MD, an internist from Maui, and **Rachel A. Hanlon**, a senior vice president with First Hawaiian Bank, were recently welcomed as new directors to the Friends of the UH Cancer Center Board.



Dr. Drood received her medical degree from Georgetown University School of Medicine. She currently practices at Kula Clinic and is also medical director of the UH Maui Campus Health Center.

Drood's community work includes the Hui No Ke Ola Pono Women's Health Program in the Breast & Cervical Cancer Screening Program, which is a part of the Native Hawaiian Health System. She is also pursuing a masters degree in public health from UH Mānoa.



Ms. Hanlon arrived in Hawai'i before graduating from college. Drawn to the islands, she returned to earn her masters of business administration degree from Chaminade University.

Ms. Hanlon has been associated with First Hawaiian, Inc. since 1989. She is currently Senior VP, Manager, and Private Banker of the Wealth Management Office, East Honolulu Region.

Reaching Maui

Nearly 100 Maui residents attended "New Frontiers: Unraveling Cancer in Hawai'i" at UH Maui College. A panel of experts from the Cancer Center addressed cancer biology and the role of genetics, nutrition and other factors in cancer prevention. This was the first in a series of neighbor island educational events hosted by the Center with support from the Friends of the UH Cancer Center. Maui resident Earl Stoner, a Friends Board member, and Cordy MacLaughlin of UH Maui College co-hosted with Tamar Goodfellow moderating an active panel discussion. Jennifer Spotts-Mabellos presented a cancer survivor's perspective.

Ranpirnase Offers Promise for Mesothelioma



Masaki Nasu, a postdoctoral candidate and lead author on a manuscript titled "Ranpirnase interferes with

NF- κ B pathway and MMP9 activity, inhibiting Malignant Mesothelioma cell invasiveness and xenografts growth," was notified of its acceptance for publication in the journal *Genes & Cancer*. The paper provides new information on the mechanism of action and logic of using the drug Ranpirnase (Onconase) to treat malignant mesothelioma. Results of the study demonstrated that Ranpirnase inhibits mesothelioma tumor growth in cell culture.

Planting Seeds of Knowledge

Members of the Hawai'i Science Teacher's Association were trained during a recent workshop conducted by the UH Cancer Center, as part of an ongoing partnership. Presentations by faculty included opportunities for discussion and a tour of the Center's laboratories.

The teachers were provided with curricula for middle and high school students, developed by the National Institutes of Health's Office of Science Education, designed to be incorporated into their classroom.

Celebrating Life: A Personal Perspective

By Diane Ono, vice-president and secretary, Friends of the UH Cancer Center



Diane Ono and daughter Mari Galiher.

On June 5th, National Cancer Survivors Day, and throughout June the lives of all individuals diagnosed with cancer are celebrated and honored. Today there are more than 12 million cancer survivors in the nation because of research. With research there is progress.

My name is Diane Ono. My husband Gary Galiher and I have had a very personal experience with cancer treatment and clinical trials. In 1997, our four-year old daughter Mari was diagnosed with acute lymphocytic leukemia. I was shell-shocked and devastated when the oncologist explained our daughter's diagnosis. It was hard to believe the words coming out of his mouth. However, I decided that I would follow every step and aspect of her treatment to ensure her remission and cure.

Many call it a medical miracle that childhood leukemia, which was almost always fatal 30 or 40 years ago now has a cure rate of 85% or more. These phenomenal cure rates were accomplished through clinical trials. Today, participation in a clinical trial

is the standard of care for a child with cancer. Among adult cancer patients, however, only 3% participate in clinical trials. Curing childhood leukemia is the story of many committed scientists, including laboratory researchers and physicians working collaboratively to involve children in clinical trials.

Our daughter's oncologist offered us what he thought was the best treatment option at the time—the opportunity to participate in a clinical trial administered by the UH Cancer Center. Looking back, I would like to share some important lessons our family learned from our daughter's diagnosis and treatment that followed.

Our first lesson was that you must be the best advocate. Ask your oncologist what is available, which studies you qualify for, and which he recommends for you and why. The Cancer Center can also provide information on studies for which you may qualify.

Participation in a clinical trial will mean that a medical professional will explain the treatment protocol, the roadmap (detailed treatment plan and schedule), and the informed consent that requires your signature. Because this process can be overwhelming, it is a good idea to have a family member or friend with you to listen and ask questions. If you do not understand something, don't be afraid to ask questions or have things repeated. There is no such thing as a dumb question.

Stay organized. I used a binder and marked important dates on my daughter's roadmap. Sometimes treatment has to be postponed due to infection or other problems. By staying organized, you will know that you received all of the treatment set forth for your study.

Participating in a clinical trial may mean that you will be more closely monitored than someone not on a study. You will have certain tests such as blood tests, x-rays or other procedures that must be administered according to schedule. Your doctor will provide your medical data to the lead investigator of the study so that it can be compared with other study participants in the U.S. or other countries.

Participation in a clinical trial may not only help extend your quality of life, it will also help medical research find the best possible treatments and potential cures for this devastating disease. Today Mari is 18 and a freshman in college. I am still helping others with cancer, and I hope our personal perspective will assist you as you go forward in your treatment.

Diane Ono has been a tireless advocate of the University of Hawai'i Cancer Center. She and her husband Gary were recently recognized as University of Hawai'i 2011 Distinguished Alumni Award honorees. They share a deep commitment to the community and believe in the university's role in educating both the people of Hawai'i and conducting exceptional and exciting research.



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A Cancer Center Designated by the National Cancer Institute

Innovations is a community publication of the University of Hawaii Cancer Center, produced quarterly with support from the Friends of the UH Cancer Center. If you have comments or suggestions, please call 808-586-3010 or visit www.uhcancercenter.org.

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In honor of National Cancer Survivor's Day
the University of Hawaii Cancer Center presents

QUEST FOR A CURE: PROGRESS IN CANCER RESEARCH



Saturday, June 11 • 8:30 to 10 a.m.
Hilton Hawaiian Village

*with host Keahi Tucker
of Hawaii News Now*

An event for anyone whose life has been touched by cancer.

Hear from leading experts on the most promising research, new therapies to combat cancer and how science has vastly improved survival.

Cost is \$10 with breakfast included. Proceeds benefit programs of the UH Cancer Center.

This event is made possible with generous support from the Friends of the UH Cancer Center. Presented in partnership with the Hawaii Comprehensive Cancer Control Coalition's Quality of Life Cancer Survivorship Conference.

To register, call the UH Conference Center at 808-956-8204.

Or visit www.manoa.hawaii.edu/uconferencecenter/

Space is limited so please register by June 7.



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