The year was 1979, and a 10-year-old kid in New Jersey named Charles Rosser noticed that his parents were sad. As it turned out, someone had passed away. Rosser had never heard of the man, or the disease that killed him, but it made a big impression. Who was the guy and what was the disease?

“My earliest recollection of cancer was when John Wayne died,” said Rosser, who is now the director of clinical and translation research at the University of Hawai’i Cancer Center. It intrigued him that cancer had this power to affect people. He went to an encyclopedia to learn more, and in the ensuing years the young Rosser went on to become Dr. Rosser. During his last year at medical school, when he already had an interest in urology, his grandfather was diagnosed with prostate cancer. This prompted him to explore the cancer aspects of urology.

Dr. Rosser would go on to specialize in this area, and in January of this year, he left M.D. Anderson Cancer Center Orlando in Florida to become the newest faculty member at the UH Cancer Center.

Continued on page 4
Dear Friends,

Several months ago we met with University of Hawai‘i leaders and UH Cancer Center partners and supporters to discuss renewing our National Cancer Institute (NCI) designation, and the challenges of meeting the higher standards required to attain that renewal.

I am pleased to report that we unanimously decided that the NCI designation is critically important to the residents of Hawai‘i, and therefore, we need to do whatever it takes to renew our designation, known as the P30, in 2017.

This is an important decision made with input from new UH President David Lassner, members of the Board of Regents, leaders of our Hawai‘i Cancer Consortium partner hospitals, state legislators, and donors representing the philanthropic sector.

This renewal effort will be made even as funding becomes more difficult to secure. As we work together to generate additional economic resources, the University leadership has authorized me to go ahead with the required recruitment of additional researchers to meet the new P30 guidelines.

Drs. Patricia Blanchette and Brian Issell, and Marcus Tius, Ph.D., and our Chief Financial Officer Chip Ellis participated in the meeting and played a very important role in helping convince all the participants of the importance of the NCI designation to Hawai‘i. We are grateful to them and to President Lassner, who convened and chaired the meeting that produced this important decision.

As we move forward to strengthen the Cancer Center, I want to thank all of you for your support and dedication to our mission. You are a critical component of our success, and we need your continued support to remain one of the top cancer centers in the nation.

We will continue to search for new sources of revenue, including public, private and philanthropic sources. We will continue to develop licensing revenue and royalties from the technologies we create.

We will continue to search for the best investigators—people with funded research and curious, entrepreneurial minds.

We will continue to find new and effective ways to prevent, diagnose and treat cancer in an NCI-designated cancer center in Hawai‘i.

Aloha,

Michele Carbone, M.D., Ph.D.
Director
University of Hawai‘i Cancer Center

Greetings Friends and Supporters of the University of Hawai‘i (UH) Cancer Center,

As the incoming president of the Board of the Friends of the UH Cancer Center, I’m looking forward to my term and the opportunity to work with the administration, staff and researchers at the Cancer Center together with our stakeholders in the community in an effort to provide the finest cancer research and ultimately the best care available both to our community and cancer patients everywhere.

What does the UH Cancer Center and its National Cancer Institute (NCI) designation do for Hawai‘i? 1) It provides research important to our multiethnic population. 2) It supports and collaborates with community cancer clinicians to provide innovative clinical trials and new therapies for their cancer patients. 3) It conducts clinical trials and facilitates patient recruitment and counseling, disseminates the latest clinical trials information and drug alerts to participating clinicians, and provides patient data management and monitoring of study treatment and follow up. 4) It lessens the need for cancer patients to travel out of state for trials or treatment. 5) It potentially is the base for major research opportunities and the engine for biotechnology growth due to our central location in the Pacific Rim. It requires a tremendous amount of money, effort, and support to maintain our NCI designation and our growing research team. Much of the Cancer Center’s support comes through our NCI relationship; however the support of our stakeholders in Hawai‘i is all important.

Our stakeholders include our State Legislature, the University of Hawai‘i administration, including its president and the Mānoa Chancellor, the UH Board of Regents, the staff and researchers at the Cancer Center, and donors and supporters, who have given of their time and money to put our Cancer Center on the map.

Over the past three years we’ve had the benefit of watching our UH Cancer Center grow from a dream to a magnificent architectural achievement and finally a facility of which we can all be proud. The work of Center Director Dr. Carbone, his staff and researchers, our Hawai‘i Cancer Consortium partners, oncologists, and other healthcare professionals, is deserving of accolades. However, there have been distractions.

In the interest in keeping the UH Cancer Center moving forward and to maintain the best possible care and support for cancer sufferers throughout the state, I ask that all stakeholders and supporters make a special effort to consider the benefits that have been brought to us through the development and completion of the UH Cancer Center facility together with its NCI designation. We can succeed only through the combined support of everyone. Let’s keep our message and efforts positive, and do the best we can for any and every person affected by cancer in Hawai‘i.

Aloha,

Earl Stoner, Jr.
President
Friends of the University of Hawai‘i Cancer Center
PERSONNEL CHANGES AT CANCER CENTER

Since the last issue of Innovations, the UH Cancer Center has hired new employees to fill job vacancies and new positions. There have also been some promotions and position changes. With different start dates, some of these employees may have already been hard at work in their positions long before this publication. They are:

**ADMINISTRATION**

**Development:** Alison Brown-Carvalho – Administrative Assistant for Development;

**Communications:** Stacy Wong – Director of Communications and External Affairs;

**Facilities Management:** Eric Antolin – Building and Grounds Custodian II, Matt Hiramoto – position change from RCUH Research Lab Support Technician to UH Environmental Health and Safety Officer;

**Fiscal:** Nida Alimbuyuguen – Fiscal Support Specialist, Lydia Arakaki – Fiscal Specialist, Michelle Kau – promoted to Assistant Director, Erin Matsuda – Fiscal Administrator, Lesley Nakamura – Fiscal Administrator, Tina Tsubota – Fiscal Administrator;

**Grants Administration:** Kornelia Szauter, Ph.D. – Research Grants Coordinator;

**Human Resources:** Amber Chang – Human Resource Specialist, Corie Fulgencio-Arre – promoted to Director, Jason Schrunk – Human Resource Specialist;

**CANCER BIOLOGY PROGRAM**

Panneer Selvam Jayabal, Ph.D. – Junior Researcher, Ling Jin – Cell Biology Research Technician, Rebecca Kim – U54 Research Lab Technician

**CANCER PREVENTION AND CONTROL PROGRAM**

Jaymi Nakashima – Administrative and Fiscal Support Specialist, Thomas Wills, Ph.D. – named Interim Director for Research, Cancer Prevention and Control Program

**CLINICAL AND TRANSLATIONAL RESEARCH SERVICES**

Janet Belott – Clinical Research Administrative Assistant, Hideki Furuya, Ph.D. – Junior Researcher, Joanne Kha – Institutional Support Specialist

**CLINICAL AND TRANSLATIONAL RESEARCH PROGRAM**

Joanna Gaweka, Ph.D. – Junior Researcher, Charles Rosser, M.D., Ph.D. – Professor and Program Director

SPOTLIGHT:

on Dr. Patricia Blanchette

In January, Patricia Lanoie Blanchette, M.D., M.P.H., was named the UH Cancer Center’s associate director for administration and chief operating officer. She was formerly the chief executive officer of the University Clinical, Education, and Research Associates (UCERA), the faculty practice that supports the John A. Burns School of Medicine (JABSOM) and other clinical practices. Dr. Blanchette led UCERA from a challenging past to a strong present position with a positive future.

Since joining the Cancer Center, she has been forging ahead at top speed as she has assumed her many administrative responsibilities. Among her most recent pressing challenges was to facilitate the relocation of Cancer Center personnel from the Gold Bond Building and the former Cancer Center building on Lauhala Street next to The Queen’s Medical Center to the Cancer Center’s new facility in Kaka’ako. With tremendous support from the Center’s facilities management and IT staffs, both moves were completed by early July. Moving along, Dr. Blanchette has a myriad of challenges that require her attention.

Patricia Lanoie Blanchette, M.D., M.P.H.

NATURAL PRODUCTS AND EXPERIMENTAL THERAPEUTICS

Christine Brotherton-Pleiss – Medicinal Chemistry and Organic Synthesis Research Specialist, Tammy Jo Harrison – Administrative and Fiscal Support Specialist

**SHARED RESOURCES**

Christine Farrar, Ph.D. – Assistant Specialist and Faculty Director, Microscopy, Imaging and Flow Cytometry Shared Resource
Makawalu Vortex Dedication

Standing prominently at the entrance of the University of Hawai‘i Cancer Center is the Makawalu Vortex, a basalt sculpture and earthwork designed by Kalihi born artist Jerry Vasconcellos. This artwork, dedicated on June 19, was designed to serve as a physical manifestation of the core mission of the UH Cancer Center—to ease suffering, to comfort, to heal, and to discover. Makawalu or “many eyes” encourages all to see with multiple perspectives including the spiritual, physical, temporal, and environmental. The two pōhaku (stones), quarried in Kailua, also represent a vortex that draws energy from the surrounding environment and radiates that energy outward.

The Makawalu Vortex is the newest addition to the University of Hawai‘i’s Kaka‘ako Campus, which is anchored by the UH Cancer Center and the John A. Burns School of Medicine. The Hawai‘i State Foundation on Culture and the Arts commissioned the artwork to fulfill the objectives of the Arts in Public Places Program. The Makawalu Vortex was selected from among 250 proposals and is the artistic symbol of the UH Cancer Center, with its inherent message to strive for excellence and healing energy.
NEW OFFICERS AND MEMBERS OF THE FRIENDS BOARD

The Board of the Friends of the University of Hawai’i Cancer Center elected Earl Stoner, Jr. as president and Adelia Chung as vice-president and secretary. Jason Nagai continues as treasurer. New board members who have joined the organization are Jamie Chuck, Troy Nakamura, Penny Rogers, and Anne Marie Rizzo.

A practicing attorney in California and Hawai’i, Chuck formed her own law firm, where she currently practices. Besides the UH Cancer Center, Chuck is a member and volunteer for the Hawai’i Foodbank, Hawai’i Foundation for Chinese Culture and the Arts, Chicago Chinatown Museum Foundation, Chicago Salvation Army, and Celiac Disease Foundation.

Nakamura is a retired vice president of community relations for the Hemmeter Investment Company, where she was involved with charitable contributions and hotel grand opening events. She has been a supporter and volunteer of the American Cancer Society in Hawai’i and Washington for several decades and was actively involved in community service with the South Whidbey Lions Club in Washington. Nakamura has been a supporter of the UH Foundation and in particular, the UH Cancer Center.

A career Foreign Service Officer with the U.S. Department of State’s diplomatic service in Consular Services, Rogers’ job requires her to take care of U.S. citizens abroad as charged by law. Her work assignments have taken her to distant corners of the world including Brazil, Guinea Bissau, England, Scotland, Japan, Australia, Canada, Bahamas, Germany, Hungary, Romania, and Switzerland.

Anne Marie Rizzo is Vice President of Philanthropy for Child & Family Service, one of the largest social service nonprofits in Hawai’i. She is a Certified Fundraising Executive with more than twenty years of fundraising experience for organizations such as the American Cancer Society, the Jimmy Fund at the Dana-Farber Cancer Institute, and the University of Hawai’i Foundation. She launched her own company, Fundraising Directions, and serves as Board member and Chair of the Education Committee of Hawai’i Gift Planning Council.

INCREASING ENERGY COSTS OVER THE YEARS HAVE MADE INTERISLAND AIRFARES INCREASINGLY PROHIBITIVE. FOR MANY NEIGHBOR ISLAND PATIENTS, TRAVEL TO HONOLULU TO SEE THEIR CANCER SPECIALISTS OR RECEIVE TREATMENT POSES A FINANCIAL HARDSHIP.

In October 2012, the Friends of the UH Cancer Center established the Tickets for Cure Program. With an initial allocation of $5,000 per year for two years, the program has provided up to three free roundtrips per year per patient from a neighbor island. The patient must be a clinical trial participant of the UH Cancer Center who flies to Oahu for care. Financial support is for study-related trips for treatment, hospitalizations, follow up physician visits, and x-rays and other tests.

The only other requirement of the Tickets for Cure Program is financial need. Submission of financial papers is not required, but the individual’s oncologist must identify the patient as financially challenged and stipulate that interisland travel support would be beneficial.

The Friends recently expanded their participation guidelines and now allow an unlimited number of roundtrips per year based on availability of funds, and travel for a companion in the case of individuals who are unable to travel alone.

The Friends encourage anyone interested in supporting the Tickets for Cure Program or to learn more about the organization at http://www.uhcancercenter.org/help/friends-of-the-uh-cancer-center or call the UH Cancer Center at 586-3010.
UH CANCER CENTER SENIOR DIVISION SCIENCE FAIR WINNERS

The Friends of the UH Cancer Center again sponsored three UH Cancer Center senior division awards in the 2014 annual Hawai‘i State Science and Engineering Fair.

This year’s winners and their cash prizes were: First Place - Keanu Pinner, sophomore at Hilo High School ($300), Second Place - Katriel Wong, junior at Kaiser High School ($200), and Nathan Lee, senior at Kamehameha School Kapalama ($100).

Pinner’s goal was to learn which parts of the kavalactones and phytochemicals flavokavains A and B are active ingredients in kava and which part of the kava plant is most toxic to HepG2 liver cells.

In her project, Wong employed in vitro cell culture models to investigate the molecular mechanism of the anti-breast cancer function of a type of Chinese bamboo extract. The extract was found effective in blocking the cell growth signaling pathway of two different types of breast cancer cell lines but not in a normal breast tissue cell line.

Lee screened natural products for compounds that showed potential anticancer activity. The compounds interfered with the role of the protein RSK2 in cancer cell migration, and have the potential to be developed into drugs that help control or prevent cancer metastasis.

EXCELLENCE IN RESEARCH AWARDS ACKNOWLEDGE CANCER CENTER’S SCIENTIFIC ACHIEVEMENTS

For the past two years, the Friends of the UH Cancer Center have recognized the scientific accomplishments of Cancer Center researchers with the Excellence in Research Award, which carries a cash prize of $1,000. These very competitive awards have been presented to a maximum of two researchers per month for papers written about the findings of their research studies.

These papers had been published in prestigious and high impact scientific journals such as Nature, Cell, Science, American Journal of Public Health, American Journal of Epidemiology, Cancer Research, and others. Impact Factor is a score given to each journal based on the number of times its papers are cited by subsequent research. Theoretically, the better the papers, the more often they are cited, so better journals are scored higher.

The Friends recently revised their competition guideline. Now a maximum of four awards will be given per year with a purse of $4,500 per winner. No less than 80 percent of an award must be used for research, and the remainder up to 20 percent may be expended as the researcher desires. No award winner will be eligible for a second award within any two-year period. Winners are required to give a brief presentation about their papers to the Friends’ Board of Directors in easily comprehensible non-technical language. All published papers will be recognized for one year from the date of publication.

David Ward, Ph.D., a noted scientist in his own right, reviews all entries, and determines the winners. The first competition under these new guidelines will occur soon.

Top right photo: Congratulations to First Place winner Keanu Pinner!
Bottom right photo: Third Place winner Nathan Lee explained his finding to an attentive audience.

Past winners of Excellence in Research Awards
Chemotherapy, radiation, morphine, hospice. These words were pretty foreign to me just over a year ago.

In all of my 50 plus years, I had been removed from the world of cancer, either by fate or denial. Then in 2012, my dad, George Edward Santos, was given six weeks to six months to live. I was overwhelmed with sadness when he called to tell me the news. I asked him, “Do you want to take a trip dad? Anywhere in the world.” He replied, “No Drew, I love you but need some time to get things together.” Due to a divorce these words had not been spoken for most of my life until a visit to his home to meet his new wife turned into weekends together and then trips to Napa, Australia, and Europe, to name a few. We had become friends. I dare say, my dad was one of my best friends.

Sadly he only lived for six more weeks. I remember him saying, “I didn’t think it would happen this fast.” Wow! Me neither. Seeing my dad’s life pass before my eyes, when he was supposed to have so many years left changed my life, a life that now included cancer.

The most recent winners under the previous guidelines were awarded in January and February. January’s winner was Erin Bantum, Ph.D., and her co-authors for their publication in the *Journal of American Medical Internet Research* titled, “Surviving and Thriving with Cancer: Results from a Randomized Controlled Trial of an Online Health Behavior Change Program.”

Amrish Sharma, Ph.D., and Wen-Ming Chu, Ph.D., shared the honors for February. Sharma and his co-authors’ paper titled, “Targeted Deletion of RasGRP1 Impairs Skin Tumorigenesis,” appeared in *Carcinogenesis*. Sharma’s work with the late Patricia Lorenzo, Ph.D., who was his mentor as a graduate assistant, was the basis for the publication. Sharma is now a postdoctoral fellow at M.D. Anderson Cancer Center in Houston.

“Gialpha proteins exhibit functional differences in the activation of ERK1/2, Akt and mTORC1 by growth factors in normal and breast cancer cells,” is the title of Chu’s and his co-authors’ paper that was published in *Cell Communication and Signaling* 2014.

I soon discovered I was not alone in this fight against cancer. In my company alone, three of my employees’ immediate family members were diagnosed with cancer. And just a month after saying goodbye to my dad, one of my own employees was diagnosed with inoperable cancer near the heart.

That is why I was driven to start a non-profit organization to raise money for cancer research and awareness. I felt that life would not have meaning if I did not make an effort to give back and help find a cure for this horrible disease. As fate would have it, I received the Mission for Life booklet in the mail from the UH Cancer Center. I read it cover to cover and then announced to my employees that we would raise money for the UH Cancer Center with a non-profit organization called CoolingCancer.org. I am very proud that in just a few short months, we have already raised over $25,000 locally to support cancer research at the UH Cancer Center and look forward raising more in the months and years to come.

CoolingCancer.org held its annual golf tournament on August 29 at Hoakalei Country Club to raise funds to benefit the UH Cancer Center.

*If you would like more information on how you can support cancer research, please contact Dave Mori, UH Foundation Development Officer for the UH Cancer Center, at (808) 356-5757.*
Support the UH Cancer Center Through Foodland’s Annual Give Aloha Matching Gifts Program

Throughout September, Foodland is providing customers an opportunity to make a donation to the UH Cancer Center through its annual Give Aloha Program. Customers may make donations to the Cancer Center at any Foodland or Sack ‘N Save store when checking out at the register.

Donors must present their Maika‘i card at the time to ensure that their donation is matched by Foodland and partner Western Union Foundation. Donors need to identify the UH Cancer Center by name or its organization code number 77583 when designating the Cancer Center as the recipient of their donation.

The Friends of the University of Hawai‘i Cancer Center sponsor the Cancer Center’s participation in the Give Aloha Program. Donations made to the Cancer Center support cancer education programs for the public, start up funds for newly recruited researchers, and research initiatives for which no other source of funding is available.

Quest for a Cure Event on October 7 at the UH Cancer Center

The Quest for a Cure: Progress in Cancer Research event will be held for the very first time at the University of Hawai‘i Cancer Center’s new facility in Kaka‘ako.

You are invited to attend this free event on Tuesday, October 7 from 10 a.m. to 12 p.m. at the UH Cancer Center’s Sullivan Conference Center.

The Cancer Center has thrived with support from you, our community, and we would like to offer you this opportunity to visit us and to share with you who we are, what we do, and the exciting cancer research we are conducting right in your backyard.

Come meet and hear from our Cancer Center Director Dr. Michele Carbone and our program directors, who will update you about their programs and highlight some of the research being conducted by our scientists and staff.

A light lunch and tours of the Cancer Center will be provided. This event is generously supported by the Friends of the UH Cancer Center.

In its fourth year, the Quest for a Cure continues to emphasize the impact that cancer research has had on improving the survival and quality of life of individuals afflicted with cancer. Today in the U.S. there are more than 13 million people who are survivors of cancer.

With your support, Hawai‘i has been fortunate to have the only National Cancer Institute designated cancer center in the Pacific. Our Cancer Center’s research discoveries have contributed in a major way to the global understanding of cancer. This knowledge in turn has helped to reduce the burden of cancer on society through the development of innovative strategies to prevent, detect, treat, and control cancer.

For more information, contact Sharon Shigemasa at 586-3010.

Summer Internships: A Hands On Cancer Research Experience

Beginning this May, the largest class of summer interns since the program’s inception descended upon the Cancer Center’s Kaka‘ako campus. These interns came with bright, inquisitive minds to be mentored and engage in real life cancer research with professional researchers.

The program is a full-time experience that aims to enhance students’ skills in research practices, analytical thinking, presentations, and ethics, while nurturing their interest in potential careers in cancer research. This year 31 interns were selected—12 high school and 20 college undergraduates—through a highly competitive process.

The program is funded by the Center to Reduce Cancer Health Disparities Continuing Umbrella of Research Experiences (CURE) grant from the National Institutes of Health and the Meiji Yasuda Company of Japan. Stipends are $2,000 for high school interns for 200 hours of work, while undergraduates receive $3,000 for 300 hours.

Interns are matched with a researcher, and work on a small project together with his or her staff related to a larger project conducted by the research team. At the conclusion of their research experiences, interns give presentations about their projects to their peers, mentors, and others interested in their research.

Top photo: Maisel Caliva in Joe Ramos’ lab talked about the lab’s work.
Left photo: Interns visiting Dr. Michele Carbone’s lab heard David Larsen explain the lab’s research.
Dr. Charles Rosser, a researcher developing a new test for bladder cancer, has won the fifth annual Weinman Innovator Award for Translational Research. The award of $50,000 recognizes leading edge cancer research that has the potential to advance to pre-clinical or clinical trials. Dr. Rosser is a urologist who holds both M.D. and M.B.A. degrees, and he joined the Cancer Center in early 2014 from MD Anderson Cancer Center Orlando in Florida.

He won this year’s award for his work on a new urine-based test that uses 10 biomarkers to detect bladder cancer. This combined panel of biomarkers has demonstrated a greater than 85 percent accuracy rate in detecting bladder cancer in early studies.

Accurate detection of bladder cancer is important because bladder cancer has a high recurrence rate, making it one of the most prevalent cancers in the U.S. Dr. Rosser’s work was selected for its potential to eventually save lives and money. The award will be used to advance development of the technology.

“This project was deemed to be the most significant translational research project proposed, and if it can be fully implemented, it would have profound implications for millions of bladder cancer patients worldwide,” said Dr. Michele Carbone, director of the Cancer Center.

The Weinman Innovator Award was established in 2010 and is funded through the endowed Weinman Foundation Fund for Innovation, provided by Virginia and Barry Weinman of Honolulu. The award was announced during the Weinman Symposium in May.

Weinman Symposium Poster Session Winners

Two young researchers at the University of Hawai’i Cancer Center have won awards for the scientific posters they created for the Weinman Symposium in May.

The awards are the first ever given as part of the symposium, which brings together Nobel laureates and other top scientists to discuss scientific research and its impact on people with cancer.

Award winners Travers Ching and Michelle de la Vega were judged on the quality of research they conducted, and the presentation of that research. Each received a certificate and $1,000.

Ching is a doctoral student in molecular biosciences and bioengineering at UH, and a graduate research assistant for Lana Garmire, Ph.D., in the Epidemiology program.

de la Vega is a post-doctoral researcher for Michelle Matter, Ph.D., in the Natural Products and Experimental Therapeutics Program.

High school: Maveric Abella, Reid Akana, and Kyle Yoshida (Kamehameha); Laica Arcibal (Waianae); Liam Arnade-Colwill and Taylor Sihavong (Punahou); Francis Cabudil, Alexis Mercado, and Leanna Truong (Waipahu); Melissa Gozun (Damien); and Jhanniene Vinluan (Maryknoll).

Undergraduate: Lucia Amore, Elia Bruno, Victoria Chang, Nicole Chong, Jayden Galamgam, Sadie Karratti-Abordo, Jaymes Lonzanida, and Bryce Tanaka (U H Mānoa); Charlene Caolli (Manhattanville College); Bolin Chang (Lehigh University); Joseph Choy (Santa Clara University); Vanessa Freitas (Gonzaga University); James Ha (Caltech); Duk Kim (UH Hilo); Kaylai Nakamura (University of Colorado Denver); Kenton Nakamura (University of Washington); Lindsay Sagaran (NYU); Jaime Wong (Willamette University); and Jon Yoshida (Seattle University).

Visit http://www.uhcancercenter.org/education-outreach/professionals-students/highschool-undergraduate to learn more about the Cancer Center’s internship program.
Metabolomics Shared Resource Primed to Support Cancer Researchers

The Metabolomics Shared Resource (MSR) has announced that its services are now available to UH Cancer Center researchers and various academic and industrial partners. The metabolomics lab, directed by Wei Jia, Ph.D., is a new service and research entity at the Cancer Center. It is expected to enhance the Cancer Center’s research capabilities by enabling the study of metabolic changes related to cancer development and the discovery of cancer biomarkers. Metabolomics is important in cancer research as a means for cancer diagnosis, prognosis, and therapeutic evaluation in patients.

The MSR is able to provide streamlined metabolomics solutions to support researchers. It offers extraction of metabolites (substances produced by the body) from biological samples, metabolomic profiling of human or animal samples, quantitative metabolomics analysis of specific metabolites/markers (such as amino acids, bile acids, free fatty acids, lipids, drug metabolites, etc.), and metabolomics data processing, analysis and interpretation.

Inquiries may be addressed to Jia at wjia@cc.hawaii.edu (808-564-5823) or Mingming Su, Ph.D., at msu@cc.hawaii.edu (808-564-5814).