July 2018 News

In This Issue

1. UACC Updates
2. New Faces at UACC
3. UACC: On the Air and on the Web
4. Surveys: Website and Media/Speaker List
5. Shared Resource Highlight: Proteomics
6. National Conversation
7. Contact Us

UACC Updates

New Issue of *Act Against Cancer* Online
You can download a PDF of the spring 2018 issue of Act Against Cancer online.

The issue centers around the theme of immunotherapy, and we talked to several of our physicians and scientists about the topic — including Hani Babiker, Julie Bauman, Clara Curiel, Emmanuel Katsanis, Lisa Kopp, Michael Kuhns, Benjamin Lee, Daruka Mahadevan, Thalachallour Mohanakumar, Daniel Persky and Protul Shrikant.

Please contact Anna C. Christensen if you would like paper copies of the magazine to share with colleagues, patients, donors, friends and family.

Pancreatic Cancer Patients with BRCA Mutation May Benefit from Targeted Drug

Physician-scientist Rachna Shroff, MD, the UA Cancer Center’s new section chief of gastrointestinal medical oncology, investigated a novel treatment for pancreatic cancer patients whose tumors exhibited a harmful genetic mutation. The results were published online last month in the *Journal of Clinical Oncology Precision Oncology*.

The study, which Dr. Shroff led when she was at MD Anderson Cancer Center, was one of a handful looking at the efficacy of PARP inhibitors in pancreatic cancer patients with the BRCA mutation. A total of 19 patients were enrolled. Participants had locally advanced or metastatic pancreatic cancer, and had received only one or two previous chemotherapy regimens.

Overall, 32 percent of patients experienced disease control, in which tumors either stopped growing, got smaller or disappeared. Among patients who had only received one previous chemotherapy regimen, 44 percent experienced disease control.

Cervical Cancer May Be Driven by Imbalance in Vaginal Bacteria
Virtually all cervical cancers are caused by HPV, or human papillomavirus, dubbed the “common cold” of sexually transmitted infections because nearly every sexually active person catches it. Fortunately, the immune system vanquishes the majority of HPV infections, with only a small percentage progressing to precancer and, ultimately, cancer. But why do some people clear the infection while others are unable to fight it?

To answer that question, a team led by the UA Cancer Center’s Melissa M. Herbst-Kralovetz, PhD, studied 100 premenopausal women to find links between vaginal bacteria and cervical cancer. Her team found that women without cervical abnormalities are hosts to different communities of vaginal bacteria than women with cervical cancer and precancer, a discrepancy that reveals a direct relationship between “good” bacteria and cervical health, and “bad” bacteria and increased cancer risk. The results were published online May 15 in the open-access Nature publication Scientific Reports.

UA Cancer Center Fondly Remembers Dr. Tim Bowden

It is with great sorrow that the University of Arizona Cancer Center shares the news that George Timothy (Tim) Bowden, PhD, passed away on May 15. Diane Bowden, his wife of more than 50 years, was at his side.

“He served in my administration as a chief scientific officer, and did a wonderful job establishing interactions between basic, translational and clinical scientists,” recalled David Alberts, MD, director emeritus of the UA Cancer Center.

“He was an outstanding scientist with a national reputation. He and his wife were extremely supportive of student education,” added Andrew Kraft, MD, UA Cancer Center director. “Tim Bowden will be missed by all at the University of Arizona Cancer Center.”

An estimated 200 of his colleagues, friends and family gathered in Kiewit Auditorium on June 28 to celebrate Dr. Bowden’s life.
Unlocking Cancer’s Secrets Using the ‘Social Networks’ of Cells

Recent headlines have cast suspicion on social network analysis, which can mine data from the internet to target advertisements or potentially influence elections.

But what if we could use those same tools not for the economic or political gain of a few, but for the health of all humankind? Scientists now can harness the tools of social network analysis to understand connections among genes, an advance that someday could lead to medical advancements.

Megha Padi, PhD, director of the UA Cancer Center Bioinformatics Shared Resource and an assistant professor of molecular and cellular biology, developed a computer algorithm called ALPACA that reveals which gene networks are activated in a diseased cell — an approach that could lead to better treatments for various diseases. The results were published online April 19 in the open-access Nature Partner journal Systems Biology and Applications.

New Faces: Welcome New Cancer Center Members

Rachna Shroff, MD
Mrinalini Kala, PhD
Andrew L. Paek, PhD
Dr. Shroff has joined the UA Cancer Center, where she serves as the new section chief of gastrointestinal medical oncology, chair of the Data and Safety Monitoring Board and associate professor at the UA College of Medicine – Tucson.

Dr. Shroff, who specializes in cancers of the pancreas and biliary tract, comes to Arizona from Texas, where she was an associate professor at MD Anderson Cancer Center. But she is not new to the Copper State; Dr. Shroff grew up in Tucson and is a 1996 graduate of St. Gregory College Preparatory School, now known as the Gregory School.

Dr. Kala is a new affiliate member of the Therapeutic Development Program. Dr. Kala has been at Barrow Neurological Institute since 2006, and was appointed director of the Flow Cytometry Core in 2010 at the UA College of Medicine – Phoenix.

Dr. Kala has expanded the core services for immunology and clinical trial work, and has developed testing services for lymphoid malignancies. The clinical flow cytometry testing services for lymphoid malignancies are done in partnership with Phoenix Children’s Hospital and the Molecular Medicine Laboratories at St. Joseph’s Hospital and Medical Center.

Dr. Paek of the Department of Molecular and Cellular Biology recently joined the Cancer Biology Program. His research interests include understanding the heterogeneous response of cancer cells to chemotherapy treatment; the dynamics of key signaling pathways in response to chemotherapy treatment; and how the state of cancer cells prior to chemotherapy treatment predisposes cells to a particular cell fate.

He did his undergrad in microbiology and applied mathematics at the University of Texas before earning his doctorate in molecular and cellular biology here at the University of Arizona in 2010.

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The Phoenix campus welcomes Dr. Ammanamanchi, who joined the UA College of Medicine as a research assistant professor, having come to us from the University of Nebraska Medical Center in Omaha.

Dr. Ammanamanchi is a cancer biologist with expertise in gene regulation studies using in vitro and in vivo cell model systems, focusing on the mechanism(s) by which head-and-neck cancer cells respond to treatment.

The Therapeutic Development Program welcomes Dr. Bearelly as a clinical member. He focuses on head-and-neck cancer treatment and reconstruction, and improving patients’ quality of life. His clinical interests include head-and-neck mucosal malignancies, cutaneous malignancies, thyroid and parathyroid surgery, robotic surgery and microvascular reconstructive surgery.

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Dr. Caulin's laboratory studies molecular mechanisms that promote head and neck cancer development, with a primary focus on squamous cell carcinoma and salivary adenoid cystic carcinoma. 

which RON, a tyrosine kinase receptor for macrophage stimulating protein, is regulated and promotes cancer metastasis. He is collaborating with William Cance, MD, to develop small molecule inhibitors for RON tyrosine kinase receptor.

Dr. Bearelly obtained degrees from Boston University and completed his residency at the University of California, San Francisco, and his fellowship at Vanderbilt University. He joined Banner in September 2017.

Dr. Wilson, assistant professor of immunobiology, joined the Cancer Biology Program. Dr. Wilson received his doctorate from Albany Medical College and did his postdoc at the University of North Carolina at Chapel Hill. 

He envisions several clear collaborations with other UA Cancer Center members and has already begun discussing projects with some of these individuals.

Dr. LaBaer is the founder and former director of the Harvard Institute of Proteomics and is currently the executive director of the Biodesign Institute at ASU and the director of the Virginia G. Piper Biodesign Center for Personalized Diagnostics.

The LaBaer lab focuses on advancing biomarker research for the early detection of cancers and autoimmune diseases.

Dr. LaBaer is the chair for the steering committee for the Early Detection Research Network, a recent member of the NCI Board of Scientific Advisors, and the recent president of the U.S. Human Proteome Organization. He obtained his medical degree and doctorate in biochemistry and biophysics from UC San Francisco.

Dr. Surdeanu has more than 15 years of experience in building systems driven by natural language processing and machine learning. His experience spans both academia (Stanford University, UA) and industry (Yahoo! Research and two startups).

His work has been funded by government organizations (DARPA, NIH) as well as private foundations (Allen Institute for Artificial Intelligence, Bill & Melinda Gates Foundation).

Dr. Surdeanu's current work focuses on using machine reading to extract structure from free text, and using this structure to construct causal models that can be used to understand, explain and predict hypotheses for precision medicine.
Grant McFadden, PhD

Dr. McFadden is the director of the Biodesign Center for Immunotherapy, Vaccines, and Virotherapy at Arizona State University. He received his doctorate in biochemistry from McGill University in Montreal. At UACC, he is collaborating on skin cancer research with Karen Taraszka Hastings, MD, PhD.

The McFadden Lab studies how poxviruses that cause immunosuppression interact with the host immune system. His group pioneered the field of viral immune subversion ("anti-immunology") and is credited with the discovery of a variety of virus-derived immune inhibitors. His lab also investigates the deployment of poxviruses for oncolytic virotherapy for the treatment of cancer, particularly with myxoma virus.

In collaboration with a biotech company called DNAtrix, Dr. McFadden is developing clinical trials that exploit virotherapy with myxoma virus to improve hematopoietic stem cell transplantation therapies for cancer.

Read Full Profile

UACC Welcomes New HR Specialist

Please welcome Cristal Rivera, who joined UACC in April as the personnel affairs coordinator. She comes to us from the Department of Medicine, where she was the assistant coordinator of personnel affairs. Cristal has significant experience in recruitment, health care and general human resources. Prior to joining the University of Arizona in December 2016, she worked as a human resources consultant at Banner University Medical Center.

Cristal received her bachelor of science in commerce from the University of Arizona and is married with two college-age children, Antonio and Victoria. She is acclimating to her new position and is excited to be supporting the our team.

Cristal will be our primary point of contact for hiring, time reporting and other personnel coordination activities. You can reach Cristal at crivera2@email.arizona.edu or by phone at 520-626-2548.

UACC on the Air and on the Web
Carlos Herrera of KGUN channel 9 in Tucson talked to Megha Padi, PhD, on May 16 to find out how we can use what we know about social networks to study "gene networks" in cancer cells. Watch Video.

In June, KPHO channel 5 in Phoenix discussed immunotherapy with Debra Wong, MD, who gave an overview of this exciting new pillar in cancer treatment. Watch Video.

On June 20, Veronica Acosta of KGUN channel 9 talked to Clara Curiel, MD, to learn more about sun safety and the importance of keeping track of the moles, scabs and other spots popping up on your skin. Watch Video.

On June 4, Arizona Public Media aired a radio interview with UA Cancer Center members Minying Cai, PhD, and Victor Hruby, PhD, who have developed peptides that can produce melanin in skin cells to protect them from UV damage. Listen.

Also in June, KJZZ in Phoenix talked to Melissa M. Herbst-Kralovetz, PhD, about her investigation into possible links between the vaginal microbiota and cervical cancer. Listen.

On June 18, KJZZ talked to Rachna Shroff, MD, about treating pancreatic cancer patients with BRCA mutations with PARP inhibitors. Listen.

KTAR in Phoenix talked to Julie Bauman, MD, MPH, about eliminating HPV-related cancers through vaccination. The piece aired June 8 but is not available online.

\[ \text{Rachna Shroff, MD, on the Power of Friendship} \]

We love all the perspectives shared by oncologists last month at ASCO — especially the speech our very own Rachna Shroff, MD, gave with her dear friend Nina Shah, MD on the importance of support networks (starting 16 minutes into the video). Friendship is an invaluable component of anyone's support network, and Drs. Shroff and Shah describe the powerful role their friendship has played in their careers and lives.

Watch Video
Surveys:
Rebuilding the UACC Website

Over the course of 2018, we will be rebuilding the UACC website in a multi-stage process. In June, we sent out a survey to elicit your feedback on how you use the website and how it can be improved. To those of you who have already filled out the survey, thank you so much! To those of you who missed it or did not receive the link, you can participate anonymously here:

Take Survey

We will be reaching out to various groups as we move through the process of redesigning the website. We also hope to establish which personnel are accountable for the information on the website, as currently there are no adequate systems in place to ensure accuracy.

In the meantime, please email achristensen@email.arizona.edu if there are corrections that need to be made to the website. Please be specific, and provide a URL (web address) of the page that needs corrections.

Do You Want to Help Educate the Community About Cancer?

The communications and outreach teams are compiling a list of experts willing to speak to reporters and the community. Ultimately, we hope to compile a spreadsheet that will allow us to respond quickly to requests from media and community members, many of whom might be working under tight deadlines.

Please fill out the following survey if you are interested in helping to educate the wider community about issues in cancer care, prevention and research.

Take Survey

A hearty thanks to those of you who have already filled out the survey!

Shared Resource Highlight
Proteomics Shared Resource

The mission of the Proteomics Shared Resource (PSR) is to provide the University of Arizona Cancer Center investigators with a dedicated facility and expertise in analyzing proteins for their identity, quantity and function via state-of-the-art Modern Mass Spectrometry and peripheral analytical instrumentation.

Over the past funding cycle, the PSR has performed proteomics analyses for Cancer Center members belonging to the four scientific research programs.

Services

A variety of gel-based and solution-based proteomics services are offered at competitive rates to UACC members.

- Gel electrophoresis (achieves separation of proteins in a gel matrix)
- Protein MW determination
- LC-MS/MS
- LC-LC-MS/MS
- Abundant protein depletion
- Protein purification
- Biomolecular interactions by surface plasmon resonance
- Sample concentration and clean-up
- Aid with experimental design and data/results interpretation

Proteomics Equipment

The latest mass spectrophotometers provide improved sensitivity and are listed below along with their analysis type and funding source. The available instrumentation provides good coverage of current proteomic standard technologies, including 20 a la carte services at competitive rates.

- Q Exactive Plus (Thermo); 2016 UA purchase; Dionex Nano- HPLC, nanoESI source (Thermo), HCD, Deep and Greater Proteomic Profiling
- Q Exactive Plus (Thermo); 2016 UA purchase; Dionex Vantage HPLC, ESI source (Thermo), HCD, Lipid analysis (in development)
- Amazon 3D Ion Trap (Bruker); 2016 UA purchase; small molecule rapid MS analysis (available for use in CBC Mass Spectrometry Facility)
- Autoflex Speed MALDI-TOF (Bruker); 2016 UA purchase; high throughput MS measurements of polymers, whole proteins (available in CBC Mass Spectrometry Facility)
• LTQ Orbitrap Velos (Thermo); 2009 NIH NCRR HEI; Proxeon Nano-HPLC, ESI source (Advion), CID, ETD; Proteomic Profiling, PTM identification
• 9.4t Apex FT-ICR (Bruker); 2008 NIH NCRR HEI; ESI, nano-ESI, MALDI; CID, ECD, IRMPD; high-resolution MS (available for use in CBC Mass Spectrometry Facility)
• Ultraflex III MALDI TOF-TOF (Bruker); 2008 NIH NCRR HEI; high-energy MS/MS, high-mass protein measurements (available for use in CBC Mass Spectrometry Facility)
• 4000 QTRAP (ABI); 2006 NIH NCRR SIG; HPLC, Advion nano-HPLC, nano-ESI source (Advion), CID; PTM, targeted quantification of peptides and metabolites via MRM/SRM capabilities
• Biacore T100 SPR Biosensor; 2008 donation; molecular interactions
• Gel separation and analyses: 1D and 2D gel stations, Propic II Gel Imager, two digestion robots, two plate readers
• Off-line LC separation: AKTA FPLC; Michrom Paradigm LC

Prices: Call 520-626-4161 or click here for a full list of prices. Prices are subject to change without notice and set by the University of Arizona Financial Services Office.

National Conversation

• New Cancer Treatments Lie Hidden Under Mountains of Paperwork (New York Times): Medicine could leap forward if we could pool patient data into enormous databases. Unfortunately, gathering written and electronic medical records into one standardized format is a challenge.
• Why Do So Many Hollywood Villains Look Like Cancer Patients? (Slate): Do our ideas about disability and disease inform the portrayal of villains on film? (video)
• The Search for Cancer Treatment Beyond Mutant-Hunting (New York Times): Siddhartha Mukherjee writes about the early disappointments of precision medicine, and how looking beyond single mutations could expand our search for new cancer treatments.
• Flight Attendants May Face Increased Risk for Many Cancers, Study Finds (Smithsonian): A new study has found that American flight attendants are more likely to develop breast, uterine, cervical, gastrointestinal, skin and thyroid cancers.

Contact Us:
Do You Have a Publication Coming Up?

The UA Cancer Center communications office can work with you to put together a press release to announce important, interesting, or high-impact publications. Press releases can be scheduled on or
shortly after your paper's publication date. We can also send out press releases to announce any grants you have been awarded for your studies and research projects.

We hope to work with you and your home department to put together a press release that explains your study and the greater implications of your work to the general public. Contact Anna C. Christensen at achristensen@email.arizona.edu.

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