



CANCER BIOMARKERS RESEARCH GROUP

IN THIS ISSUE

*"The best prevention,
is Early Detection"*

EDRN Today

June 2018

Early Detection Research Network (EDRN)

by Michelle Pitt, MHA and Felicia Evans Long, MBA

US-Japan Workshop for Cancer Research

Biomarker discovery for early detection has been the main goal for the scientist with the EDRN family. The ongoing collaborative work and programs helps to maintain comprehensive infrastructure and resources critical to the discovery, development and validation of biomarkers for cancer risk and early detection. Development of early detection technologies is obviously one of the most fundamental pieces in cancer conquering researches. To facilitate the research and development for cancer early detection, international collaboration becomes important more and more.

The US-Japan joint workshops on cancer early detection have been annually held in the United States (2014-2017) and in Japan (2015 and 2016) past four years. These meetings have significantly stimulated research activities and facilitated collaborative crosstalk between two countries. Notably since 2016, Japan Agency for Medical Research and Development

(AMED) has supported the workshops to provide cancer researchers with an invaluable opportunity to mutually exchange information regarding their cutting-edge research findings and novel technologies. With the consecutive support of AMED, this workshop is expected to continue to be an international hub to promote exchange of seeds for cancer early detection.

International collaborations have continued to powerfully advance realization of next generation cancer prevention and therapy.



Sudhir Srivastava, M.P.H., Ph.D.

After attending the 3rd annual US-Japan Workshop, Dr. Srivastava received an award of appreciate for his ongoing commitment to early detection and prevention in cancer research.

Program Director of the Month



Dr. Lynn Sorbara earned her PhD from Albert Einstein College of Medicine in 1986. Her work here was on the drug, Taxol, and multidrug resistance. After postdoctoral fellowships at the Rockefeller University and Mt. Sinai School of Medicine, she found her way to the NIH. As a Clinical Staff Scientist, she headed the CAP/CLIA Molecular Diagnostics Unit for NCI. In 2007, Lynn joined the Cancer Biomarkers Research Group where she oversees and manages many cooperative agreement grants for EDRN and other programs. Most recently, Lynn and Dr. Srivastava, have developed a public private partnership program for early cancer assessment using liquid biopsy technologies.

On the personal side, Lynn is a rabid baseball (NY Mets) and football (NY Jets) fan and is happy to engage in conversations about her teams anytime. In her spare time, Lynn is a bronze level ballroom dancer an enthusiastic bread and cake baker, and jewelry maker.



Early Detection Research Network

RESEARCH SPOTLIGHT



Kenneth Kinzler, Ph.D., is co-director of the Ludwig Center at the Johns Hopkins Kimmel Cancer Center. He has been recognized for his role in uncovering the genetic alterations linked to the initiation of colon cancer, one of the most common cancers worldwide; development of novel approaches for the molecular analysis of cancer; and more recently, for his role in deciphering the genetic blueprints of many types of cancer.

"Participating in the EDRN has been a great asset to our efforts towards developing released Tumor DNA as a cancer biomarker. Like many of our colleagues in the EDRN, we

believe that early detection will be key to reducing cancer deaths. Accordingly, the EDRN has provided a welcoming, supportive and instructive community for our work. We have been fortunate to collaborate with Rocky Schoen through the EDRN and he is currently PI of our project directed at maximizing the clinical applications of circulating tumor DNA (ctDNA). Specifically, this project focuses on the application of ctDNA as a primary screening modality for early detection of cancer and as clinical biomarker in patients diagnosed with colorectal cancer."

Recently, Dr. Kinzler and his associates described a multi-analyte blood test (CancerSEEK) with performance characteristic that may aid in the early detection of cancer. As we know, earlier detection is key

to reducing cancer deaths. In this study, they describe a blood test that can detect eight common cancer types through assessment of the levels of circulating proteins and mutations in cell-free DNA. This test couples ctDNA with protein markers in a manner that prioritizes specificity (>99%, n=812 healthy controls). When tested on 1,005 cancer patients, CancerSEEK was positive in a median of 70% (range 33 to 98%) of eight common lethal tumor types (Cohen et al., Science 2018). Importantly, sensitivity ranged from 69% to 98% for five cancers type (e.g., ovary, liver, stomach, pancreas, and esophagus) lacking generally applicable screening approaches for average-risk individuals.

For more information, <http://science.sciencemag.org/content/359/6378/926>

Investigator Spotlight



Zhen Zhang, Ph.D.

"The objective of the JHU BDL (PIs Zhen Zhang and Ie-Ming Shih) is to develop in vitro diagnostic multivariate index assay (IVDMIA) using biomarkers from proximal fluids and/or serum/plasma to detect early stage or low-volume ovarian cancer. Current knowledge of cancer mutational landscape dictates that changes in biomarkers associated with cancer

initiation and early development typically happen at relatively low frequencies in patient populations. Approaches based on global significance test often fail to identify such changes in high-dimensional omics data. Researchers at the JHU BDL developed a new approach, OmicsMapNet, to take advantage of existing deep learning frameworks to analyze high-dimensional omics data that allows genes/proteins related in functions or pathways to be analyzed as collective "features" for their contribution in cancer phenotype differentiation."

Significant Events in the Entire EDRN Family

The CBRG team is working diligently to prepare for the 3rd CIB Annual Meeting, to be held on August 6, 2018 at the National Cancer Institute. Please monitor your emails for updates to circulate within the coming weeks.