

CBRG Program Director: Dr. Natalie Abrams



Dr. Abrams is excited to share the published NOSI's:

NOT-CA-21-028: Notice of Special Interest (NOSI): Leveraging Real-World Imaging Data for Artificial Intelligence-based Modeling and Early Detection of Abdominal Cancers <https://grants.nih.gov/grants/guide/notice-files/NOT-CA-21-028.html>. This has been a joint effort between DCP and DCTD.

Dr. Karin Rodland Receives 2020 Award for Distinguished Achievement in Proteomic Sciences

For the last 16 years Dr. Karin Rodland has been the Leader and the co-leader of an Inter-Agency Agreement (IAA) between the National Cancer Institute (NCI) and Pacific Northwest National Laboratory (PNNL), Department of Energy (DOE). Dr. Rodland is a cancer cell biologist that has been awarded the 2020 Award for Distinguished Achievement in Proteomic Sciences from the Human Proteome Organization (HUPO). This award recognizes a scientist for distinguished scientific achievements in the field of proteomic science. "Proteomics" involves measuring all the proteins in a cell to learn the details of how it functions. Patterns in protein production can be used as indicators of health or disease.



For the past 20 years, Rodland has been [combining proteomics with genetic analysis](#) to identify molecular signatures that could improve cancer treatment and detection.

[HUPO](#) is an international organization that supports proteomics research and collaboration on large-scale projects studying fundamental biological processes and human disease. Rodland shares this award with Fuchu He, a professor at Beijing Institute of Lifeomics in China.

Liquid Biopsy 3rd Steering Committee Meeting



The Cancer Biomarkers Research Group of the Division of Cancer Prevention sponsored their 3rd Liquid Biopsy Consortium Steering Committee Meeting on February 23-24, 2021. This Pre-competitive Collaboration on Liquid Biopsy for Early Cancer Assessment is an Academic-Industrial Partnership Program consisting of six funded sites. Each site is led by, at least, one primary investigator from industry and one from academia. The focus of the research is to develop new and/or validate existing technologies, methods, and assays for the capture and quantification of tumor-associated cells, DNA, RNA, or exosomes in body fluids of patients with early-stage disease

or those at high risk; as well as distinguishing cancer from benign disease; or aggressive from indolent cancers. These pre-competitive alliances with industry are meant to harmonize and validate technologies, methods, and assays associated with liquid biopsies.

The recent meeting began with an open session entitled “Liquid Biopsy: From Bench to Commercialization” and featured several outstanding experts in the field of new liquid biopsy technologies/assay development. Drs. Nickolas Papadopoulos, Ph.D. of Johns Hopkins University School of Medicine, and Abhijit Patel, MD, Ph.D. of Yale University began the session with a “one/two punch” presentation of “Liquid Biopsy for the Detection of Cancer: From Bench to Clinical.” Nick presented an overview of the many clinical application of liquid biopsy but stressed that the gap lies in screening and early detection. He focused on the state-of-the-art technologies for multi-cancer detection with a discussion on the pros and cons of these types of methods. Not to be outdone, Abhi focused on single-cancer technologies and particularly on methylation assays and methods of ctDNA.

Richard Cote, MD of Washington University School of Medicine presented a fascinating new technology marrying an automated CTC capture/staining system with Fourier Ptychography and deep learning in his presentation of “Toward the Translation of Circulating Tumor Cells into Clinically Actionable Biomarkers”

Another very unique new technology that is on the cutting edge was presented by Dr. Charles Buck, MD, Ph.D., and CEO of Liquid Diagnostics. This technology known as EFRIM (Electric Field-Induced Release and Measurement) can detect mutations in single-stranded DNA in 100ul of blood with little sample preparation and technician time.

Dr. Johan Skog, Ph.D., the CSO of Exosome Diagnostics gave us a wonderful overview of “everything you ever wanted to know about circulating cancer-associated exosomes” in his lecture entitled, “Current Synergies of Liquid Biopsies, a Multi-analyte Approach to Early Detection.”

The open session was capped off with a journey through the history of ctDNA biology and technology with Dr. Victor E. Velculescu MD, Ph.D. of Johns Hopkins University School of Medicine as the Key Plenary Speaker. Dr. Velculescu and his John Hopkins University colleagues have developed methods for screening seven types of cancer in a completely unique way. DELFI is a new and different kind of cancer screening test. Rather than finding cancer gene mutations or chemical alterations to the DNA, known as epigenetic changes, it detects unique patterns in fragments of DNA shed from breast, colorectal, lung, ovarian, pancreatic, and gastric cancer cells that are circulating in the bloodstream.

The consortium continues to make great strides in the technological development and validation of these exciting new methods for minimally invasive early cancer detection.

These emerging technologies are likely to transform the applications of liquid biopsy in early detection with high throughput and the requirement for small sample volumes” commented Dr. Srivastava, Chief, Cancer Biomarkers Research Group which oversee and administers the Liquid Biopsy Consortium.

Notable Scientific Publication



Published in the Journal of Urology

A Urine Exosome Gene Expression Panel Distinguishes between Indolent and Aggressive Prostate Cancers at Biopsy. Featuring EDRN Investigator Indu Kohaar and CBRGs own Dr. Sudhir Srivastava.

<https://doi.org/10.1097/JU.0000000000001374>

Upcoming EDRN Meeting [VIRTUAL]



A Message from Dr. Sudhir Srivastava

The *12th NCI Early Detection Research Network (EDRN) Scientific Workshop* will be held virtually due to COVID-19 pandemic on March 23 through March 25, 2021. EDRN is celebrating the 20th year, this year's event entitled, "20th Year of EDRN: Making Cancer Detection Possible" will include both lectures and panel discussions.

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