

Big Data Training for Cancer Research

Special Lecture Series

Harnessing Metabolomics for Biomarker Discovery in Colon Cancer: Opportunities and Challenges

Dr. Daniel Raftery

June 15, 2020, 1:00 – 2:30 PM (EST)

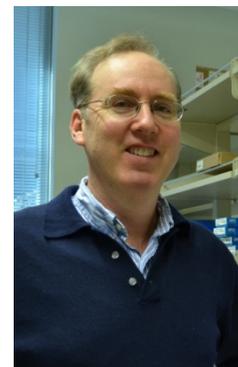
Abstract:

Metabolomics enables the identification of putative biomarkers for numerous diseases including many cancers. A number of recent studies have shown promise for early detection, therapy monitoring, disease recurrence and risk prediction, including our own focusing on colon cancer. However, the influence of many confounding factors such as genetic, environmental, life style that can affect metabolite levels poses a major challenge in moving forward with such metabolites for clinical applications. Advanced statistical methods can be used to identify and validate promising biomarker candidates as well as to evaluate and even model the effects of confounding factors with the goal of improving biomarker performance. Our results show that demographic covariates, such as gender, BMI, and smoking status, exhibit significant confounding effects on metabolite levels which can be modeled effectively. These results not only provide new insights into addressing the major issue of confounding effects in metabolomics analysis, but also shed light on issues related to establishing reliable biomarkers and the biological connections between them in a complex disease.

Series Schedule:

June 8: Dr. Timothy Ratliff – Purdue University
 June 9: Dr. Peter Kraft – Harvard University
 June 12: Dr. Sean Davis – The National Cancer Institute
 June 15: Dr. Daniel Raftery – University of Washington
 June 16: Dr. Constantine Gatsonis – Brown University
 June 18: Dr. Mark Kelley – Indiana University
 June 19: Dr. Warren Kibbe – Duke University

Register for other lectures: www.purdue.edu/bigcare



Speaker Bio:

Dr. Raftery is currently a professor at the University of Washington, School of Medicine, in Seattle. Dr. Raftery received his PhD from Berkeley and was previously Professor of Chemistry in the Analytical Division at Purdue University, where his group began its research in metabolomics in 2003. Dr. Raftery's current research program is focused on the development of new analytical methods and their application to a range of clinical and basic science studies in metabolomics. Dr. Raftery is also the Founding Director of the Northwest Metabolomics Research Center at UW Medicine, and works with more than 50 research groups per year on a large variety of metabolomics studies.