October 14: Ramana Davuluri, Cancer Genomes Are Too Complex

SYNOPSIS: With each successive discovery in genetics, the true dynamic complexity of the genome has become increasingly apparent, requiring relatively consistent updates to the technical definition of the word "gene." It is now understood that the majority of human genes produce multiple functional products, or isoforms, primarily through alternative transcription and alternative splicing. Different isoforms within the same gene have been shown to participate in different functional pathways, and the altered expression of specific isoforms have been associated with numerous diseases. While the recent advances in NGS are facilitating the goal of studying gene regulation at isoform-level, there are a number of informatics challenges and difficulties that need to be addressed to improve the current state and fulfill the promise of studying gene regulation at gene isoform-level. Dr. Davuluri will present some of the recent approaches developed by our group, with an emphasis on how those methods have led to the development of a diagnostic assay for molecular sub-typing of cancer patients. In particular, he will challenge the use of basic gene-centric approaches in cancer genomics and argue that one should go beyond simple gene-based analyses but also consider isoform-level information that include gene expression/regulation of splice-variants. Looking forward, Dr. Davuluri will discuss the integrative application of different statistical and data-mining approaches to derive platform-independent classification models for identification of isoform-level gene signatures for cancer subtyping.

Session details...

BIO:

Ramana V. Davuluri, Ph.D., is a Professor and Director of Cancer Informatics Core at the Robert H. Lurie Comprehensive Cancer Center, Department of Preventive Medicine, Division of Health and Biomedical Informatics at the Feinberg School of Medicine at Northwestern University in Chicago. Dr. Davuluri earned a Ph.D. in Statistics from the Indian Agricultural Statistics Research Institute in 1996.

SUMMARY:

Topic: Cancer Genomes Are Too Complex – It is Time to Move Away from Simple Gene-centric Approaches

Speaker: Ramana V. Davuluri, Ph.D.

Date: Wednesday, October 14, 2015

Time: 11 AM – 12 PM ET

You are invited to listen to Dr. Davuluri's presentation in Room 2E908 in the NCI Shady Grove Building on Medical Center Drive or via WebEx.

Presentation: View the presentation slides.

About the NCI CBIIT Speaker Series:

The National Cancer Institute (NCI) Center for Biomedical Informatics and Information Technology (CBIIT) Speaker Series is a bi-weekly knowledge-sharing forum featuring both internal and external speakers on topics of interest to the biomedical informatics and research communities. For additional information, including past speaker series presentations, visit the CBIIT Speaker Series page.

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