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Will Next Generation Sequencing Improve Treatment Outcomes: Low frequency KRAS mutations in colorectal cancer patients and the presence of multiple mutations in oncogenic drivers in non-small cell lung cancer patients

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Abstract

Recent advances in the targeted resequencing application on next generation sequencing instrumentation have established this method as a powerful tool in assessing the mutational status of oncology patient samples. Here we will discuss the application of one of the amplicon generation methods available for next generation sequencing, and do a cross sectional comparison with traditional sequencing methods as well as qPCR methods of mutation detection. Several case studies highlighting the role of KRAS mutations in EGFR therapies in colorectal cancer and multiple mutations in oncodrivers in NSCLC will be presented with a set of relevant sample types, and mutation detection rates on each platform will be demonstrated. This strategy will bring forward the increased sensitivity of mutation detection utilizing next generation sequencing, and potential application of the technology in biomarker discovery and development and its relevance to companion diagnostics will be discussed.

Biography

Dr. Yihong Yao is director and head of Pharmacogenomics and Bioinformatics group at MedImmune, LLC. The focus of Dr. Yao's group is the utilization of cutting edge genomics and genetics approaches to develop pharmacodynamics and predictive diagnostic markers to understand disease linkage and to identify the right patients that might respond (or not respond) to therapeutic interventions. The other areas of interest in Dr. Yao's group include: to unveil potential key drivers in cancer, respiratory and inflammatory diseases, and to understand the role of miRNAs in disease pathogenesis.

Dr. Yao received a bachelor's degree in biochemistry from Fu Dan University in 1988. He received a Master degree in Bioinformatics from Boston University. He completed his doctorate in Biochemistry and Biophysics from the University of Kansas in Lawrence, Kansas. He conducted his postdoctoral research at Johns Hopkins Medical School in Baltimore, Maryland. Dr. Yao has authored over 50 peer-reviewed publications, edited two books and has over 16 patents.