Rapid progress of next generation sequencing technology: Implications for implementation in clinical diagnostic laboratories

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In the past few years, the massively parallel sequencing capabilities of NGS have found widespread acceptance for clinical genomics in molecular diagnostic laboratories. Due to rapid progress, the underlying technology and the associated informatics is constantly evolving resulting in considerable process improvements in relatively short durations. Although desirable, these constant upgrades pose a challenge for clinical sequencing assays being used for clinical purposes due to the need of thorough validation before implementation. Here, in the context of a CAP and CLIA accredited molecular diagnostic laboratory the advantages and challenges posed by the constant upgrades for routine NGS testing of solid tumors and hematological malignancies will be presented. The progress in the wet bench and informatics portions of major NGS platforms will be highlighted.

Biography

Rajesh Singh has a PhD in Biochemistry from The University of Mysore, India and Postdoctoral research experience from University of Texas, MD Anderson Cancer Center. He has extensive experience in cancer biology focusing on the deregulated oncogenic and tumor suppressor pathways in the origin and maintenance of solid tumors and hematological malignancies. He is an Assistant Professor and Director Clinical NGS Development in the molecular diagnostics laboratory at MD Anderson, where he supervises the design and validation of the NGS assays for routine mutational screening of tumors. He has published more than 40 papers and 3 review articles in reputed journals.

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