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### Precision Oncology : Revisiting the Circulating Tumor Cell Clusters

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#### Abstract

The global socio-economic impact of cancers is profound. Tissue biopsies have been conventionally used for histopathological studies. Management of cancers based on circulating nucleic acids in peripheral blood (i.e., Liquid Biopsy) has gained prominence. cfDNA obtained from peripheral blood plasma, and sequenced to reveal genomic changes, such as point mutations and copy number variations in genes, relevant to cancers. The clinical relevance and utility of molecular biomarker based tools are evident by their contribution to therapy selection and management and serial monitoring.

Circulating Tumor Cells (CTCs) are cells shed into the vasculature from a primary tumor and may constitute seeds for subsequent growth of additional tumors in distant organs. They have been detected in various metastatic carcinomas for example breast, prostate, lung, and colorectal cancer. CTC clusters are two or more individual CTCs bound together. These clusters have cancer-specific biomarkers that identify them as CTCs. Several studies have reported that the presence of these clusters is associated with increased metastatic risk and poor prognosis. An innovative negative-enrichment approach to yield sufficient cell clusters (C-ETACs) to permit meaningful downstream applications. C-ETACs can be characterized by immunocytochemistry (ICC) profiling for organ-specific and subtype-specific (OSS) antigens, which are routinely evaluated in HPE and ICC, to determine the tissue of origin.

Recent data evaluates the suitability of this approach for adoption in clinical practice because it non-invasively provides diagnostically relevant information. One indicated approach may be intended for symptomatic individuals who have been referred for a biopsy but have not yet undergone the biopsy.

#### Biography

Dr. Vineet Datta brings over 20 years of global healthcare experience across clinical patient care, medical assistance and strategic healthcare leadership. His current role as the Executive Director at Datar Cancer Genetics is to globally expand the adoption of personalised medicine across the clinical mainstream. He is a Fellow with the Royal College of Physicians and Surgeons of Glasgow and the Royal College of Physicians of Edinburgh.