Comparison of Routine Molecular Screening of Patient Samples with Advanced Non-Small Cell Lung Cancer in Circulating Cell-Free DNA Using Three Techniques.

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Circulating tumor DNA (ctDNA) samples reflect the total tumor burden and allow longitudinal monitoring of mutational sensitizing alterations in routine use for advanced non-small cell lung cancer (NSCLC). Various technics are developed and commercially available on the market. To drive the choice of the best assay at diagnosis or during progression, we compared the clinical performance of an ultra-sensitive Plasma-SeqSensei™SOLID CANCER IVD kit with the Plasma OncoBEAMTM EGFR V2 assay, or with our custom validated NGS routine assay. We describe the advantages and limits of each technic. In resume, global clinical concordance rates of 75% and 68% were found between the Plasma-SeqSensei™ SOLID CANCER IVD assay with the Plasma OncoBEAMTM EGFR V2 assay, and the custom validated NGS assays. The Plasma-SeqSensei™ SOLID CANCER IVD tool enables the identification of the maximum number of patients bearing sensitizing alterations for a tyrosine kinase inhibitor indication at diagnosis, while the custom NGS assay, with weaker clinical sensitivity, is dedicated to the exploration of resistance mechanisms and co-mutations during clinical progression.