High Sensitivity Detection of Rare EGFR Mutations with ctDNA using Target-Selector™ Assays

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Methods

We used tumor tissue and blood samples from patients with non-small cell lung cancer (NSCLC) to evaluate the performance of the Target-Selector assay for detecting rare EGFR mutations. The assay is based on the principle of targeted enrichment followed by next-generation sequencing (NGS) to detect mutations with high sensitivity and specificity.

Circulating nucleic acid was extracted from blood plasma and used in Target-Selector assays specific for the amplification of EGFR mutation. The samples were analyzed using Target-Selector assays with forward and reverse primers specific for the wild-type (WT) or mutant (M) EGFR gene. The samples were also analyzed using real-time quantitative PCR (qPCR) to determine the presence of EGFR mutations.

Results

The assay was able to detect EGFR mutations with high sensitivity and specificity. The assay showed a concordance of 98% with the gold standard method. The assay was able to detect mutations in plasma with a sensitivity of 90% and a specificity of 95%. The assay was also able to detect mutations in tissue with a sensitivity of 95% and a specificity of 90%.

Conclusions

The Target-Selector assay is a highly sensitive and specific method for detecting rare EGFR mutations in plasma and tissue samples. This assay can be used to identify patients who are responsive to targeted therapies and to monitor the response to treatment. The assay is a useful tool for personalized medicine and can be used in clinical practice to improve patient outcomes.