NEOliquid: Detection of KIF5B-RET fusions in liquid biopsy samples

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Abstract ID: #431

Proprietary NEOliquid assay:

- hybrid capture-based NGS technology
- detection of point mutations, InDels and gene fusions down to an allele frequency of 0.1%
- detection of copy number alterations in samples with tiny amounts of tumor DNA
- provides nucleotide resolution for every genomic breakpoint
- can identify novel fusion partners
- comprehensive testing of 39 genes

THE ASSAY:

- Hybrid capture Next Generation Sequencing (NGS)
- Detection of genomic alterations

CASE 1:

- 65-year old female patient
- diagnosed with adenocarcinoma of the lung in 2013
- tested negative for EGFR and KRAS mutations and ALK and ROS1 translocations
- treated with chemotherapy, erlotinib and radiation
- progressive disease
- no results from analysis of tissue due to limited material

CASE 2:

- 45-year old male patient
- former smoker
- adenocarcinoma of the lung with liver metastasis
- tested negative for EGFR, KRAS, BRAF, MET, PIK3CA and TP53 mutations and ALK and ROS1 translocations
- progressive disease after chemotherapy

RESULT:

- NEOliquid assay detected a KIF5B-RET translocation from a liquid biopsy
  (Case 1: 37 encompassing, 28 spanning reads
  Case 2: 1318 encompassing, 1219 spanning reads)

CONCLUSION:

- Using hybrid capture-based next generation sequencing, we identified therapeutically relevant gene fusions (KIF5B-RET) in two patients previously tested negative for mutations in a selection of genes. Patients harboring this fusion may potentially benefit from treatment with tyrosine kinase inhibitors (i.e. cabozantinib or vandetanib) (REF.2).

REFERENCES:


(Adapted and modified from REF.1)

(Adapted and modified from REF.3)