Technical Note

NEAT Liquid Biopsy Kit is Compatible with Illumina Trusight Myeloid Sequencing Panel

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Product: NEAT Liquid Biopsy Kit

Summary

Next-generation sequencing (NGS) is often used in liquid biopsy research as it enables detection of a wide range of genes or whole genome sequencing. Targeted sequencing, while limited to detecting a specific set of mutations, offers higher sensitivity compared to whole genome sequencing. This makes tools like the Trusight Myeloid Sequencing Panel highly effective for clinical research studies. In this research, 4 mL of K2 EDTA plasma was processed using the NEAT Liquid Biopsy Kit on a KingFisher™ Apex system. The experiment included four plasma samples spiked with Horizon Discovery OncoSpan cfDNA standard. The cfDNA isolated was then analyzed using an Illumina NextSeq System. The findings revealed that multiple mutations were detected in each sample, with the detection limit being ~0.6% variant allele frequency at 500x depth. The NEAT Liquid Biopsy Kit shows compatibility with the Illumina Trusight Myeloid Sequencing Panel, demonstrating its potential as an effective tool for identifying specific mutations in liquid biopsies through NGS.

Mutant Allele Frequency by the Trusight Myeloid Sequencing Panel

Mutation List	Sample Number				
	1	2	3	4	OncoSpan
BRAF V600E	2%	3.4%	5.1%	5.4%	10.5%
BRCA1 R1443*	4.2%	11.7%	15.5%	12.1%	30%
EGFR G719S	2.7%	9.2%	12.1%	9.7%	24.5%
E746_A750del	ND	ND	1.6%	0.4%	2%
EGFR L858R	ND	0.6%	1.4%	0.8%	3%
KRAS G12D	1.3%	2%	2.5%	2.5%	6%
KRAS G13D	ND	5.5%	9.5%	3.4%	15%
NRAS Q61K	2.6%	3.3%	7.3%	4.4%	12.5%
PIK3CA E545K	ND	4.7%	5.6%	ND	9%
PIK3CA H1047R	2.2%	6.8%	9%	5.9%	17.5%

Figure 1.

Figure 1. Blood was collected in K2EDTA tubes and spun once to isolate plasma. 4 mL of plasma was spiked with 20 ng/mL Horizon Discovery OncoSpan cfDNA standard. The sample was processed using the NEAT Liquid Biopsy Kit on the KingFisher Apex system. Plasma from four individual donors was used in this study. NGS was performed by the Clinical Pathology Laboratory at the University of Virginia. The samples were analyzed using an Illumina Trusight Myeloid Sequencing Panel and run on an Illumina NextSeq System. Percentages of mutations in plasma are lower than those in the Horizon control due to wild type cfDNA present in the plasma.

Customer Benefits

- **NEAT Liquid Biopsy Kit is compatible with the Illumina Trusign Myeloid Sequencing Panel.**
- **NEAT Liquid Biopsy Kit is compatible with the Illumina NextSeq System.**

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