ONCOLOGY

LiquidIQ™

Pre-Analytical QC for Liquid Biopsy Samples

Sample identification, qualification and quantification for cfDNA samples

Liquid biopsy samples are challenging to analyze. Each milliliter of blood plasma sample may contain as few as one to three copies of circulating tumor DNA (ctDNA) in about 3000 copies (5 ng) of circulating cell free DNA (cfDNA).[1] In addition to the low quantity, samples may be contaminated with genomic DNA from white blood cells and PCR inhibitors which can impact downstream analysis.[2]

AGENA'S SOLUTION

- **DNA Quality -** Identify presence of long DNA fragments resulting from cell necrosis. Detect the existence of PCR inhibitors leftover from cfDNA extraction methods
- **DNA Quantity -** Determine the total number of amplifiable copies of cfDNA present in the sample. Estimate the level of WBC contamination
- **Sample Identification -** Generate a genetic barcode using 21 SNPs to track the sample. Match liquid and tissue biopsy samples across studies

Agena BIOSCIENCE

ASSAY WORKFLOW

DNA input of only 1.5 uL from a 50 uL - 100 uL cfDNA extraction from plasma. DNA to data in as little as 8 hours with minimal manual processing time enables greater lab efficiency. Simplified reporting with automated software generates clear results.

SUMMARY REPORT

The automated summary report provides a quick overview, enabling easy identification of total amplifiable copies, WBC contamination, presence of long DNA fragments and sample matches or mismatches. It also lists samples that may have failed quality control due to poor quality or low quantity DNA

Sample Information									Non-Tumor vs. Non-Tumor			Non-Tumor vs. Tumor		
Well	Sample	Passed QC	SNP Calls	Amplifiable Copies	WBC Contamination	Long DNA Template	Gender	Tumor	Unexpected Mismatches	Unexpected Matches	Expected Matches	Unexpected Mismatches	Unexpected Matches	Expected Matches
A01	cfDNA_A	Yes	21	1,120	5%	Not Detected	M	No	0	0	0	0	0	1
A02	cfDNA_B	No	21	25	4%	Not Detected	F	No	0	0	0	0	0	1
A03	cfDNA_C	Yes	21	950	95%	Detected	F	No	0	0	0	0	0	1
A04	cfDNA_D	Yes	21	1,000	5%	Not Detected	M	No	0	0	0	1	0	0
A07	NTC	No	N/A	N/A	N/A	N/A	N/A	No	N/A	N/A	N/A	N/A	N/A	N/A

SAMPLE QUALITY / QUANTITY — SAMPLE MATCHES

ORDERING INFORMATION

Catalog No.	Item	Sample Type	# Samples	Chip Format
13259F	LiquidIQ™ Panel Set - CPM (2x96)	Plasma	192	96

References

1. Bettegowda, Chetan et al. "Detection of circulating tumor DNA in early- and late-stage human malignancies." Science translational medicine vol. 6,224 (2014): 224ra24. doi:10.1126/scitranslmed.3007094
2. Sidstedt, Maja, et al. "Humic substances cause fluorescence inhibition in real-time polymerase chain reaction." Analytical biochemistry 487 (2015): 30-37.

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