

Twist cfDNA Pan-cancer Reference Standard

BENEFITS

Comprehensive Detection of Cancer Variants

- 458 unique naturally occurring cancer variants
- 132 clinically relevant variants
- Across 84 different genes

Better Design of Background DNA

- Background DNA derived from human cfDNA samples
- DNA size profile and post-sequencing profile mimic native cfDNA

Designed for Precision and Flexibility

- Seven individual VAF percentages to choose from
- Digital Droplet PCR verification of VAF percentages
- Convenient test set of all VAF percentages available

VARIANT CLASSIFICATION TABLE

VARIANT CLASS	NUMBER OF VARIANTS
Single Nucleotide Variants	228
Insertions	47
Deletions	168
Structural Variants	15

NGS-based liquid biopsy is a rapidly evolving application that requires accurate and precise reference standards. The Twist Pan-cancer Reference Standard is a high-quality, standardized control for use in the research and development of NGS-based liquid biopsy assays. This reference standard is ideal for establishing the analytical limit of detection (LoD) for specific cancer variants and as a control to track the quality of an NGS assay workflow and assess the fidelity of the assay process during research and development of such assays.

Traditional reference standards are limited in the number and range of variants and typically use cell line-derived DNA which can carry unwanted sequence perturbations and variable fragment length. The Twist cfDNA Pan-cancer Reference Standard incorporates a large and diverse set of variants for research use. This reference standard utilizes accurate DNA synthesis of variants with precise control over the specific variant allele frequencies (VAF) to produce a reference standard which closely mimics the size distribution and fragmentation profile of cell-free and circulating tumor DNA enabling higher performance assay development.

This reference standard consists of synthetically designed variant sequences that mimic circulating tumor DNA (ctDNA), combined with background DNA that is derived from, and closely mimics, human-derived cell-free DNA (cfDNA). The ctDNA sequences are designed as a tiled pool of ~167 bp sequences that closely mimic natural ctDNA and cover 458 individual mutations with 132 clinically actionable variants across 84 genes associated with cancer.

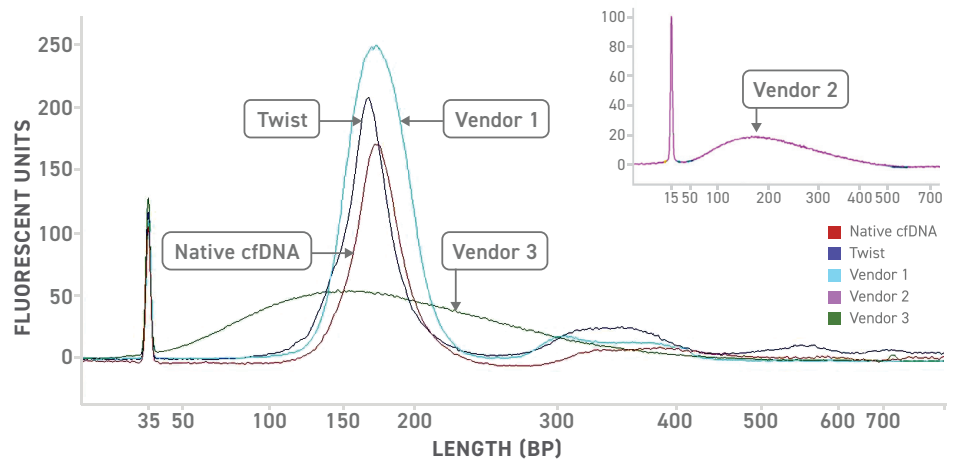
The development of synthetic ctDNA reference standards replaces cell culture method-based reference standards to increase the confidence of liquid biopsies by confirming the presence of specific oncogenes and variants.

The Twist cfDNA Pan-cancer Reference Standard Set consists of 7 individual tubes with 300 ng per tube for each of the 7 different VAFs: 0% (WT), 0.1%, 0.25%, 0.5%, 1%, 2%, 5%. Twist also offers each individual VAF in a larger format with 3 µg per tube.

The complete list of variants can be found [here](#).

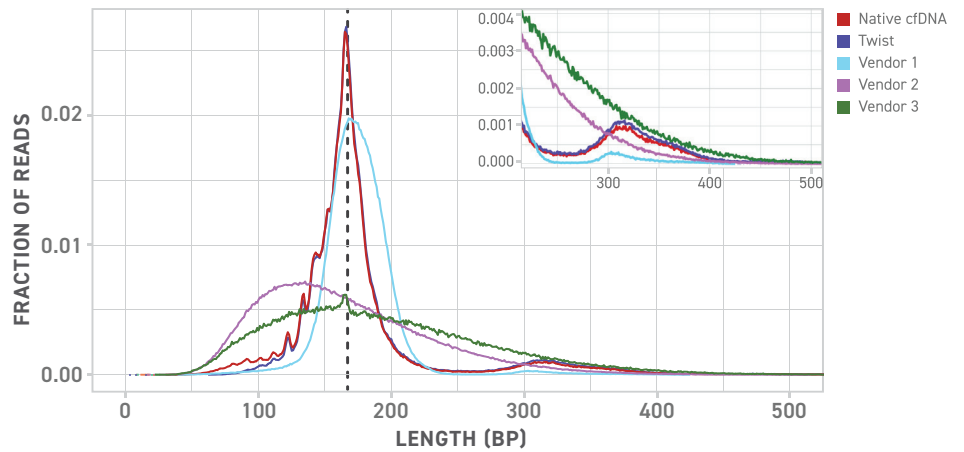
Comparison of Twist’s Reference Standard and Competitors

DNA analysis of the Twist cfDNA Pan-cancer Reference Standard and competitors reference standards show that Twist more closely mimics native cell-free DNA providing a more true to life test result.



Post Sequencing Profile Comparison

Post sequencing library size distribution comparison between Twist and competitors show how similarly Twist’s Reference Standard mimics native cfDNA samples including the jagged leading peaks.



PAN-CANCER REFERENCE STANDARDS	
104549*	Twist cfDNA Pan-cancer reference standard set, 300ng kit
104563	Twist cfDNA Pan-cancer reference standard VAF 0% (WT), 3 ug
104564	Twist cfDNA Pan-cancer reference standard VAF 0.1%, 3 ug
104565	Twist cfDNA Pan-cancer reference standard VAF 0.25%, 3 ug
104566	Twist cfDNA Pan-cancer reference standard VAF 0.5%, 3 ug
104567	Twist cfDNA Pan-cancer reference standard VAF 1%, 3 ug
104568	Twist cfDNA Pan-cancer reference standard VAF 2%, 3 ug
104569	Twist cfDNA Pan-cancer reference standard VAF 5%, 3 ug
105900	Twist cfDNA Pan-cancer Reference Standard 0% 300ng, 2 tubes
105901	Twist cfDNA Pan-cancer Reference Standard 0.1% 300ng, 2 tubes
105902	Twist cfDNA Pan-cancer Reference Standard 0.25% 300ng, 2 tubes
105903	Twist cfDNA Pan-cancer Reference Standard 0.5% 300ng, 2 tubes
105904	Twist cfDNA Pan-cancer Reference Standard 1% 300ng, 2 tubes
105905	Twist cfDNA Pan-cancer Reference Standard 2% 300ng, 2 tubes
105906	Twist cfDNA Pan-cancer Reference Standard 5% 300ng, 2 tubes

RECOMMENDED LIBRARY PREPARATION PRODUCTS	
104176	Twist Library Preparation Kit with amp mix, Mechanical Fragmentation, 16 Samples
104177	Twist Library Preparation Kit with amp mix, Mechanical Fragmentation, 96 Samples
105094	Twist UMI Adapters - TruSeq Compatible, 96 Samples
105040	Twist UMI Adapter System - TruSeq Compatible, 16 Samples
105041	Twist UMI Adapter System - TruSeq Compatible, 96 Samples Plate A
105042	Twist UMI Adapter System - TruSeq Compatible, 96 Samples Plate B
105043	Twist UMI Adapter System - TruSeq Compatible, 96 Samples Plate C
105044	Twist UMI Adapter System - TruSeq Compatible, 96 Samples Plate D

*Kit includes 7 VAFs individually: 0% (WT), 0.1%, 0.25%, 0.5%, 1%, 2%, 5%.

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