T W I S T
BIOSCIENCE

Twist SARS-CoV-2 Research Panel

Highly sensitive solution for viral detection and characterization

KEY BENEFITS

Highly sensitive detection

- Detection of as little as 10 copies of viral material with a fold enrichment of >100,000

More sequence information

- Coverage of > 99.9% of the genome at 1X or greater post enrichment
- Ability to identify viral mutations

Use for environmental monitoring and surveillance

- Assess viral evolution over time
- Track strain origin and transmission patterns

The recent Coronavirus pandemic has led to a rapid response from the viral research and therapeutics community around the world. These research teams need robust and reliable genomic tools to classify and characterize viral samples.

Twist now offers Research-Use Only (RUO) NGS target enrichment panels for the detection and characterization of SARS-CoV-2 virus. The panel targets about 30 kb viral genome with approximately 1,000 probes, designed against the SARS-CoV-2 genome (GenBank: MN908947.3).

NGS for Virus Detection

Next-generation sequencing (NGS) offers high-throughput, specific identification of infections in a variety of sample types including blood, nasal swab, feces, etc. In the case of viral infections, however, direct sequencing can be a challenge due to the extremely low concentration of the viruses of interest and the presence of high background from the host. Target capture using DNA-based hybridization probes to isolate specific sequences out of a mixed genomic sample can increase the sensitivity and specificity of NGS-based efforts.
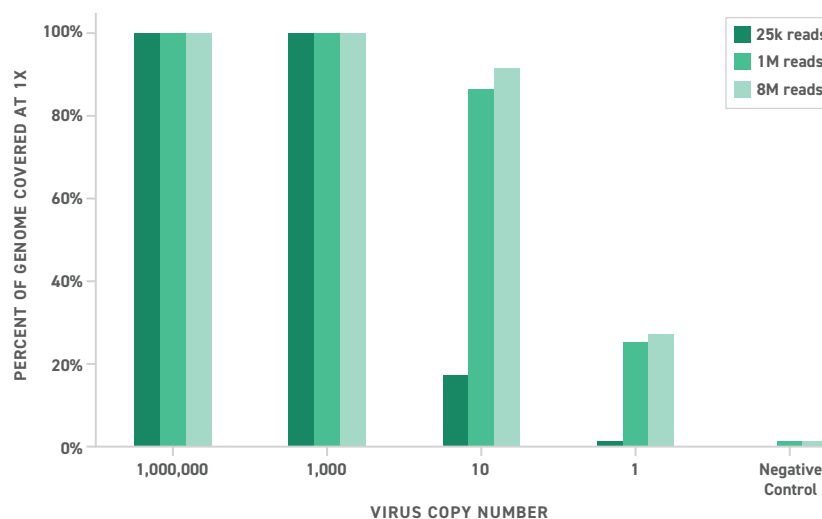

Figure 1. Coverage of SARS-CoV-2 genome at different viral copy numbers with varying total reads.

High Sensitivity Through Efficient Design

Twist's highly sensitive and accurate target capture enables efficient viral RNA detection. In Figure 1, we demonstrate target enrichment's ability to capture and detect the viral genome at varying numbers of viral copies spiked into human reference RNA. At high viral load (1 million copies), the complete genome is recovered even with only 25,000 reads. While at lower copy numbers, coverage of large portions of the viral template is maintained (Figure 1). No reads from the negative control map to the viral template even when using 8 million mapped reads, demonstrating our detection at 10 copies represents true capture and not background contamination (find more in App Note.)

Twist SARS-CoV-2 Synthetic Controls

Twist synthetic RNA controls are available as positive controls for capture. Several different variants are available, but all are suitable as positive controls for the panel. Twist Synthetic RNA Control 2 (MN908947.3) matches the panel design genome, and the other controls contain variants of interest to act as positive controls in concert with the panel. Please see our product sheet (twistbioscience.com/resources/twist-synthetic-sars-cov-2-rna-controls) for more information about the Twist SARS-CoV-2 Synthetic Controls.

Easy Workflow from Purified RNA to Sequencing

Twist SARS-CoV-2 Research Panel is provided with a simple to follow protocol from purified RNA samples to Sequencing with easily available components.

Prepare RNA and optional Synthetic Controls — cDNA Synthesis — Twist Enzymatic Fragmentation — Twist UDI Library Preparation — Hybrid Capture — Sequencing

Twist SARS-CoV-2 Research Panel is a component of the Twist Infectious Disease portfolio of products.

LEARN MORE
twistbioscience.com
sales@twistbioscience.com

ORDERING INFORMATION

102016: Twist SARS-CoV-2 Research Panel, 2 Reactions, Kit

102017: Twist SARS-CoV-2 Research Panel, 12 Reactions, Kit

102018: Twist SARS-CoV-2 Research Panel, 96 Reactions, Kit

OPTIONAL CONTROLS

102019: Twist Synthetic SARS-CoV-2 RNA Control 1 (MT007544.1)

102024: Twist Synthetic SARS-CoV-2 RNA Control 2 (MN908947.3)