BGI

Detection Kit

for 6 Mutations in S Gene of SARS-CoV-2 (ARMS-PCR)

Product Description

The kit is a qualitative in vitro nucleic acid amplification assay to detect the mutations ofNS0 lY, A570D, HV69-70del, K417N, K417T, and E484K in S gene of SARS-CoV-2 in B.1.1.7 lineage, B.1.1.28 lineage, B.1.351 lineage and B.1.1.529 lineage of SARS-CoV-2 in throat swab or sputum specimen confirmed as SARS-CoV-2 positive by RT-PCR. B.1.1.7 lineage (UK), B.1.1.28 lineage (Brazil), B.1.351 lineage (South Africa) and B.1.1.529 lineage (South Africa) variants have been detected in numerous countries worldwide. They all have mutation in the receptor binding domain (RBD) of the spike protein at position 501, where the amino acid asparagine (N) has been replaced with tyrosine (Y), NSOlY, leading to a tight interaction ofRBD with human receptor ACE2. Other mutations detected in this kit include A570D and HV69-70del, both probably associated with increased transmissibility, and K417N, K417T, E484K, RBD mutation, which could increase the affinity of virus with human receptor.

Features

- Bundle with BGI EUA RT-PCR kit for detecting Alpha, Beta, Gamma and Omicron* variant of SARS-CoV-2
- Allele refractory mutation system (ARMS)-based quantitative PCR
- Identify spike protein mutations: N501 Y, A570D, K417N, K417T, HV69-70del, E484K
- Hwnan EGFR as an internal control
- Two reactions for each specimen in a single run to identify six spike protein mutations
- Stringent QC with positive and blank controls

Benefits

- Highly compatible - Bundled kits require very similar lab settings and procedure
- Highly sensitive -Superior limit of detection for oropharyngeal swabs or sputum
- Fast TAT- Sample to result in 2.8 hours with automated sample preparation system (l hour for detecting mutations by RT-PCR)
- High-throughput - Ramp up labs for large-scale, community-based testing
- Ease of use -All-inclusive with pre-mixed reaction reagents
- Easy interpretation -Analysis of each allele with well-defined controls

Specifications

No. of tests per kit	50
Acceotable samoles	Orooharvn11eal swabs and soutum
Acceptable real-time PCR machines	-Applied Biosystems™ QuantStudio 5 Real-Time PCR System - Roche LightCycler® 480 Real time PCR System
Acceptable viral RNA extraction kits	- MGIEasy Nucleic Acid Extraction Kit, 96 or 1728 preps - QlAamp Viral RNA Mini Kit, 50 or 250 preps
Automation (Optional)	- MGISP-960RS Automated Sample Preparation System - MGISP-100 Automated Preparation System
Reagent stabilitv	Under dark for 9 months at-15 °C or below

Key Components

Contents (50 tests/kit)	Volume	Quantity	Description
Reaction Mix A	1 mL/vial	1 vial	Reagent with primers and probe for amplification of ORF1ab, internal reference, N501Y and K417N
Reaction Mix B	1 mL/vial	1 vial	Reagent with primers and probe for amplification of A570D, HV69-70del, K417T, and E484K
Enzyme Mix	240 µL/vial	1 vial	Taq polymerase, reverse transcriptase, and UDG
Positive Control	750 µL/vial	1 vial	Mixed solution of recombinant pseudo-viruses with target genes of mutant strain, ORF1ab, and internal reference
Blank Control	750 µL/vial	1 vial	DNase/RNase free water

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Contact us for more information

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https://www.bgi.com/us/sars-cov-2-variant-detection/

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GLOBAL GENOMIC SERVICES

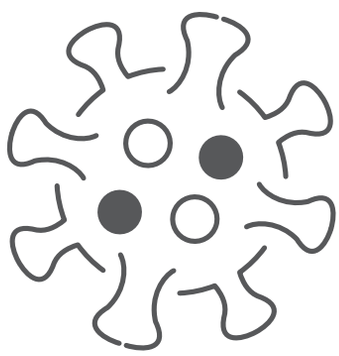
BGI Genomics

Alpha, Beta, Gamma, and Omicron

The Variants of SARS-CoV-2

Total Solution for Omicron

Recent generation of the new SARS-CoV-2 variant, Omicron (B.1.1.529), has sparked huge concerns worldwide. BGI now provides a total solution for the detection and identification of Omicron from other SARS-CoV-2 variants. With our comprehensive solution, the identification of Omicron is made easier in the fight against the pandemic.



Bundle Options

1. Order our total solution which includes the Single and Double Target RT-PCR for SARS-CoV-2, Detection Kit for 6 Mutations in S genes, and Genome Assembly service.
2. Order BGI's Single and Double Target RT-PCR for SARS-CoV-2 in conjunction with the Detection Kit for 6 Mutations in S Gene.
3. Order BGI's Single and Double Target RT-PCR for SARS-CoV-2 in conjunction with our Genome Assembly Service.

Bundle Option 2: Single/Double Target Detection Kit + GA
Bundle Option 3: Single/Double Target Detection Kit+6 Mutation Detection Kit + GA

Bundle Option 1: Single/Double Target Detection Kit+6 Mutation Detection Kit

SARS-CoV-2 rapid detection

Real-Time Fluorescent RT-PCR Kit for 2019-nCoV Detection

Real-Time Fluorescent RT-PCR Kit for Detecting SARS-CoV-2

Positive

SARS-CoV-2 Omicron Identification

6 mutation detection kit

Positive

Full length genome assembly of SARS-CoV-2

Genome Assembly of SARS-CoV-2

ATOPlex RNA library Prep Set for COVID

DNBSEQ-G400

HALOS

Advantages: Rapid, Low cost, Gold standard

Advantages: High accuracy, Detection of all mutations, Surveillance

SARS-CoV-2 Rapid Detection

BGI's Real-Time Fluorescent RT-PCR kit For Detecting SARS-CoV-2 and BGI's Real-Time Fluorescent RT-PCR Kit For Detecting 2019-nCoV are not impacted by the newly reported SARS-CoV-2 variant, B.1.1.529 lineage.

Product	Size	Specimen	Features
Real-Time Fluorescent RT-PCR Kit for 2019-nCoV Detection	50 tests/kit	Nasal Swab Throat Swab BALF	- Detection of SARS-CoV-2, including the Omicron variant - Taqman Reverse Transcription PCR - ORF1ab gene as domain target - Human β-actin as internal control - Manufactured in ISO 13485 compliant and high-volume production facility
Real-Time Fluorescent RT-PCR Kit for Detecting SARS-CoV-2	50 tests/kit	Nasal Swab Throat Swab BALF	- Detection of SARS-CoV-2, including the Omicron variant - Taqman Reverse Transcription PCR - ORF1ab and N gene as domain target - Human β-actin as internal control - Manufactured in ISO 13485 compliant and high-volume production facility

Advantages

Sensitive - superior limit of detection *(96.55%)*
Specific - no cross-reactivity with human-related pathogens (100%)
Rapid - Sample to result within 3 hours
Ease of use - Pre-mixed primers, probes and enzymes

SARS-CoV-2 Omicron Identification

The kit is a qualitative in vitro nucleic acid amplification assay to detect the mutations of N501Y, A570D, HV69-70del, K417N, K417T and E484K in S gene of SARS-CoV-2. Our detection kit for 6 mutations in the S gene allows the differentiation of SARS-CoV-2 in B.1.1.7 lineage, B.1.1.28 lineage, B.1.351 lineage and B.1.1.529 lineage.

Product	Size	Specimen	Features
Detection Kit for 6 Mutations in S gene of SARS-CoV-2 (ARMS-PCR)	50 tests/kit	Nasal Swab Throat Swab BALF	- Differentiating Alpha, Beta, Gamma and Omicron variants of SARS-CoV-2 - Allele frequency mutation system (ARMS)-based quantitative PCR - Identification of spike protein mutations: N501Y, A570D, K417N, K417T, HV69-70del, E484K - Human EGFR as internal control - Two reactions for each specimen in a single run to identify six spike protein mutations

Variant	Mutation Positive						Result Interpretation
	69-70 del	K417N	K417T	E484K	N501Y	A570D	
Alpha	Pos				Pos	Pos	Positive Alpha
Beta		Pos		Pos	Pos		Positive Beta
Gamma		Pos	Pos	Pos			Positive Gamma
Omicron	Pos	Pos			Pos		Positive Omicron

Advantages

Compatible - Bundled kits require very similar lab settings and procedures
Sensitive - Superior limit of detection for oropharyngeal swabs or sputum
Rapid - Sample to Result in 2.8 hours with automated sample preparation system (1 hour for detecting mutations by RT-PCR)
Ease of use - Inclusive with pre-mixed reaction reagents

Full Length Genome Assembly of SARS-CoV-2

BGI provides a genome assembly (GA) total solution to profile the nucleotide sequence of SARS-CoV-2, which allows for the monitoring of all mutations of the SARS-CoV-2. This allows for the in-depth analysis of SARS-CoV-2 variants, including Omicron, and its associated nucleotide polymorphisms.

Product	Specimen	Features
Genome Assembly (GA) of COVID	Nasal Swab Throat Swab BALF	- Full length genome assembly of SARS-CoV-2 - 240-333 bp (Insert size 159-199 bp), with an amplicon length of 240-333 bp - Capable of identifying single nucleotide variations (SNV) as well as insertions and deletions (Indel)

Advantages

High contiguity - Ultra-high depth sequencing of the SARS-CoV-2 genome
High quality - Less than 1% bases undetermined
Accurate mutation identification - Capable of identifying variant sites that are specific to various SARS-CoV-2 mutations, such as the S gene of the spike protein

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