

COVID-19 Panel, Large Tube

Product Specification Sheet



Product Description:

The COVID-19 panel is an in-vitro multiplex reverse transcription polymerase chain reaction (rRT-PCR) assay for the identification of SARS-CoV-2 virus that is frequently found in the upper respiratory tract. This method is highly accurate and an extremely sensitive and is used to identify the disease causing COVID-19 by amplifying and detecting genetic material (ribonucleic acid or RNA) of SARS-CoV-2.

The COVID-19 panel is capable of detecting SARS-CoV-2 N1 variants including Omicron sub-variants BA.4 and BA.5

Product Information	
Large Tube COVID-19 Panel, 200 Panels	
Part Number	T-COV-001-A
Number of Reactions	200
Storage Temperature	-25°C to -15°C

Product Specifications	
QC Test	qPCR Cycle Threshold Percent CV
Specification	≤ 2.5

QC Results	
Positive	meets specification
Negative	meets specification
Targets	meets specification

▶ Limitations of Use

Molecular Designs products are for Research Use Only and intended for molecular biology applications. This product is not intended for the diagnosis, prevention or treatment of a disease.

▶ Disclaimer - Use of PCR and Patent

This product is for basic PCR and is outside of any valid US patents assigned to Hoffman La-Roche.

▶ Product Guarantee

This kit is proven in PCR and results in reliable, repeatable and high-performance results. Please contact Molecular Designs for technical assistance. We are 100% committed to our clients and offer a variety of products and services to assist you with your molecular biology needs.



Jaspreet Seth

Vice President, Quality

Usage Information

▶ Reagent Storage and Use Guidelines

1. Store all reagents at -25°C to -15°C.
2. Prior to use, thaw and store the mastermix and reverse transcriptase on ice.
3. Prior to use, thaw and store the primer and probe mixture on ice.
4. Maintain the reagents on ice when in use.
5. Use reagents within couple hours of thawing.
6. Assembled reactions (mastermix, primers and probes, sample) should be run within 60 minutes of assembly.
7. Reagents should not be freeze-thawed more than 4 times.

▶ The Following is Included in the Kit:

1. 2X Mastermix
2. 20X Primer and Probe mixture
3. 20X Reverse Transcriptase
4. Nuclease Free Water
5. Positive control Template

▶ The Following is Supplied by the User: Materials

1. Extracted sample(s)
2. Nuclease-Free Water
3. 1.5 mL microcentrifuge tubes or equivalent
4. qPCR optical film
5. Compatible 96-well plates
6. Sealer for optical film

▶ Equipment

1. Biosafety cabinet or laminar flow hood or PCR Dead Air Box. Do not use Laminar Flow for infectious samples
2. Pipettes and appropriate filtered pipette tips
3. Plate Vortex [recommend Vortex Genie 2 (Model G560) with the 3-inch platform and rubber cover]
4. Plate centrifuge

▶ Instrumentation

1. CFX96 Touch Real-Time PCR Detection System (or equivalent)

▶ General Guidelines and Safety Precautions

1. As with any test procedure, good laboratory practice is essential to the proper performance of this assay. Due to the high sensitivity of this test, care should be taken to keep reagents and amplification mixtures free of contamination.
 - a) Do not eat, drink, or smoke in designated work areas.
 - b) Wear laboratory gloves, laboratory coats, and eye protection when handling samples and reagents. Gloves must be changed between handling samples to prevent contamination. Avoid contaminating gloves when handling samples and controls.
 - c) Wash hands thoroughly after handling samples and kit reagents, and after removing the gloves.
 - d) Thoroughly clean and disinfect all laboratory work surfaces.

NOTE: Do not use sodium hypochlorite solution (bleach) to clean up a spill or to disinfect a plate before disposal as it can react with the common extraction reagents and generate toxic byproducts. If spills occur, follow internal procedures to immediately clean and decontaminate the surface of instrument.
2. Best practice is to use a laminar flow hood or Dead Air Box for PCR setups to reduce contamination probability. A biosafety cabinet may alternatively be used.
3. The use of filtered, sterile, and nuclease-free pipette tips is recommended.
4. False positive results may occur if carryover of samples is not adequately controlled during sample handling and processing.

Usage Information

▶ Master Mix Preparation and Reaction Plate Setup

1. Fully thaw the mastermix and primers and probe mix on ice.
2. Gently vortex the mastermix and primers and probe mixtures for least 5 seconds and centrifuge briefly to get contents to the bottom of the tubes. Keep tubes on ice.
3. Mix RT by gentle flicking. Do not vortex. Centrifuge briefly to get contents to the bottom of the tubes. Keep on ice.
4. Recommended reaction mixture assembly for 10 μ L reactions:

Component	Volume	Final Conc.
2X Mastermix	5.0 μ L	1X
20X Primers and Probe	0.5 μ L	1X
20X Reverse Transcriptase	0.5 μ L	1X
RNA template up to	4 μ L	NA
Nuclease Free Water* to	10 μ L	NA

*Use nuclease-free water for negative controls

5. Best Practice is to prepare reaction mixture for all of the samples using the components above minus the template and dispense to PCR plate.
6. Add up to 4.0 μ L of the sample being tested to each of the target wells.
7. Add up to 4.0 μ L nuclease-free water to the negative control well.
8. Add up to 4.0 μ L positive sample to the positive control well.
Note: add the same volume of PC template to the positive control well as the volume of sample being tested.
9. Seal the PCR plate using optical qPCR film.
10. Vortex the plate, at least 5 seconds per plate quadrant.
11. Spin down the plate in a plate centrifuge.

▶ Procedural Notes

1. Do not reuse consumables. They are for one-time use only.
2. Always use caution when transferring specimens from a primary collection tube to a secondary tube.
3. Use pipettes with aerosol-barrier to handle specimens and reaction materials.
4. Always use a new pipette tip for each specimen.
5. For testing of previously frozen sample, ensure samples are equilibrated to room temperature and well mixed prior to use.

▶ Recommended Plate Layout

For a 96-well plate, setup at least one positive and negative control. Other wells may be used for detection of SARS-CoV-2 present in the samples. Along with the SARS-CoV-2 assay, RNase P primers and probe (extraction process control assay) is also included in the 20x.

The fluorophore for RNase P is CAL Fluor Red 610 which will be detected on the qPCR instrument.

Usage Information

▶ Real-Time PCR Detection System qPCR Run Setup

1. Open the specified run template and fill in the sample name fields with unique sample IDs corresponding to the samples being processed.

Note: This step can also be done prior to reaction plate setup if sample IDs have already been specified.

2. Place the reaction plate into the instrument in the appropriate orientation (A1 in the upper left corner), close the instrument lid and initiate the run.

▶ Thermocycling Protocol

1. Reverse Transcription
 - a) 5 minutes at 50°
2. Denaturation
 - a) 3 minutes at 95°C
3. Annealing and Extension
 - a) 5 seconds at 95°C
 - b) 30 seconds at 60°C, with fluorescence acquisition during this step

▶ Amplification Interpretation and Troubleshooting

* It is recommended to consider Public Health guidance for determining Limit of Detection and a CT cut off for establishing negative results with this (or any) SARS-CoV-2 PCR assay.

1. The laboratory should establish cycle threshold (CT) cutoffs as appropriate for their sample workflow and procedures. It is recommended that CT cutoffs are determined during the validation of the test.
2. The laboratory should evaluate the curve shape when considering whether a sample with a given CT should be considered positive:
 - a) Plate sealing issues can lead to jagged curve shapes or rising/decreasing baselines that lead to inaccurate data (erroneous CT value).
 - b) Inappropriate mixing or centrifuging can lead to inaccurate data.
3. If user suspects contamination, it is recommended to clean and disinfect the laboratory area and re-test to ensure proper results.
4. A negative result for the endogenous control can be discarded if the sample is detected positive for a target assay and if the positive and negative controls have proper results.
5. Any failure of the positive or negative control should require a repeat run. If the control failure continues, it is recommended to have the qPCR instrument and the sample extraction workflow evaluated to ensure they are functioning properly.