VIASURE *MULTIPLEX*

Coronavirus 229E + NL63 + OC43 + HKU1 *Real Time PCR Detection Kit*
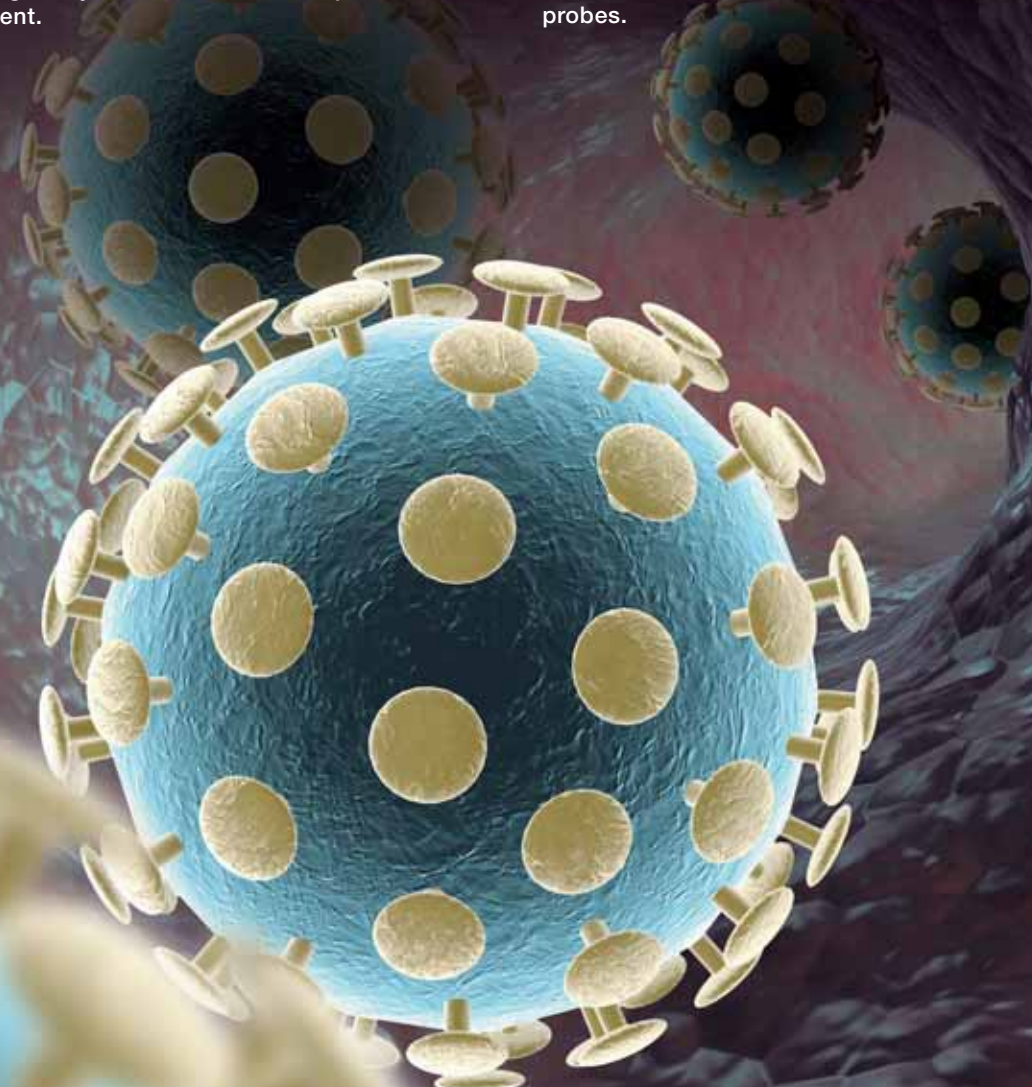
Pathogen and product description

Lower respiratory tract disease accounts for, approximately, four million deaths annually worldwide. A wide variety of viruses can be held responsible for this, one of them being Coronaviruses, which belong to the *Coronaviridae* family.

They are directly related to diseases for the respiratory tract, gastrointestinal tract and central nervous system, being the most common symptoms the following: fever, digestive problems, rhinitis, pharyngitis, laryngitis, otitis, bronchitis, bronchiolitis, pneumonia or severe complications such as meningitis.
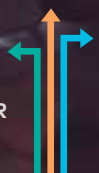
Common human Coronaviruses are the HCoV-229E, HCoV-OC43, HCoV-NL63 and HCoV-HKU1 strains. Their pathways of transmission are unclear, being air suspected as their main vehicle of transmission, even though they are known to be ubiquitous to the environment.

HCoVs are difficult to detect via common diagnosing methods, because they are normally codetected with other respiratory viruses, such as HRSV or influenzas, and there are minimal differences between strains regarding symptomatology.

VIASURE *Coronavirus 229E + NL63 + OC43 + HKU1* Real Time PCR Detection Kit is designed for the diagnosis of Coronavirus 229E, NL63, OC43 and HKU1 strains in clinical samples. The detection is done in a one-step real time RT format where the reverse transcription and the subsequent amplification of the specific targeted sequence occur in the same reaction well. The isolated RNA target is transcribed generating complementary DNA by reverse transcriptase which is followed by the amplification of a conserved region of the *nucleoprotein* gene for strains 229E, OC43 and NL63 and the *replicase* gene for strain HKU1 as targets, using specific primers and a fluorescent-labelled probes.

THE REAL ONE STEP qPCR

Analytical sensitivity

VIASURE *Coronavirus 229E + NL63 + OC43 + HKU1* Real Time PCR Detection Kit has a detection limit of $\geq$ 50 RNA copies per reaction for Coronavirus NL63, HKU1 and OC43 (Figure 1, 2 and 3); and $\geq$ 10 RNA copies per reaction for Coronavirus 229E (Figure 4).

Figure 1. Dilution series of Coronavirus NL63 (10^7–10^1 copies/rxn) template run on the Bio-Rad CFX96 Touch™ Real-Time PCR Detection System (channel ROX).
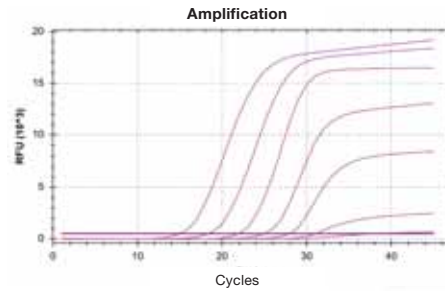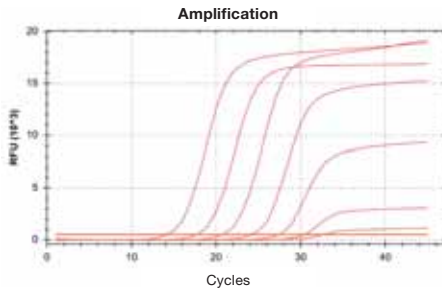

Figure 3. Dilution series of Coronavirus OC43 (10^7–10^1 copies/rxn) template run on the Bio-Rad CFX96 Touch™ Real-Time PCR Detection System (channel Cy5).

Figure 2. Dilution series of Coronavirus HKU1 (10^7–10^1 copies/rxn) template run on the Bio-Rad CFX96 Touch™ Real-Time PCR Detection System (channel HEX).
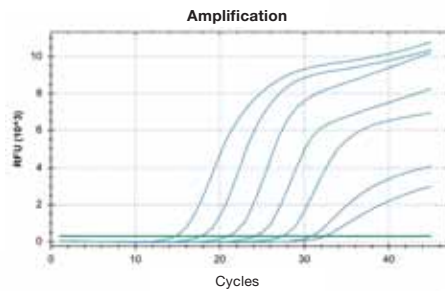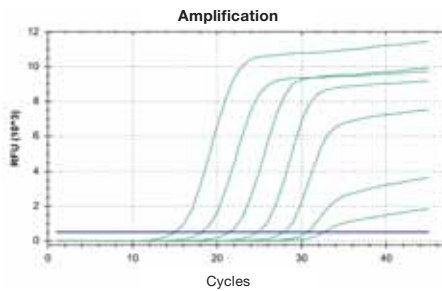

Figure 4. Dilution series of Coronavirus 229E (10^7–10^1 copies/rxn) template run on the Bio-Rad CFX96 Touch™ Real-Time PCR Detection System (channel FAM).

Components

Reagent/Material	Description	Colour	Quantity
Coronavirus 229E + NL63 + OC43 + HKU1 8-well strips	A mix of enzymes, primers-probes, buffer, dNTPs, stabilizers and Internal control in stabilized format	White	6/12 x 8-well strip
Rehydration Buffer	Solution to reconstitute the stabilized product	Blue	1 vial x 1,8 mL
Coronavirus 229E + NL63 + OC43 + HKU1 Positive Control	Non-infectious synthetic lyophilized cDNA	Red	1 vial
Negative Control	Non template control	Violet	1 vial x 1 mL
Water RNAse/DNAse free	RNAse/DNAse free water	White	1 vial x 1 mL
Tear-off 8-cap strips	Optical caps for sealing wells during thermal cycling	Transparent	6/12 x 8-cap strip

Work Flow

One-step rehydration of wells and add your extracted RNA
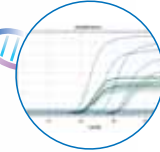

STEP 1
Add 15 µl of rehydration buffer into each well

STEP 2
Add 5 µl of RNA sample / positive control / negative control

STEP 3
Load the strips into the thermocycler and run the specified protocol

STEP 4
Interpretate results

Kit References

Reference	Description
VS-COR106L	VIASURE *Coronavirus 229E + NL63 + OC43 + HKU1* Real Time PCR Detection Kit 6 x 8-well strips, low profile
VS-COR106H	VIASURE *Coronavirus 229E + NL63 + OC43 + HKU1* Real Time PCR Detection Kit 6 x 8-well strips, high profile
VS-COR112L	VIASURE *Coronavirus 229E + NL63 + OC43 + HKU1* Real Time PCR Detection Kit 12 x 8-well strips, low profile
VS-COR112H	VIASURE *Coronavirus 229E + NL63 + OC43 + HKU1* Real Time PCR Detection Kit 12 x 8-well strips, high profile
VS-COR113L	VIASURE *Coronavirus 229E + NL63 + OC43 + HKU1* Real Time PCR Detection Kit 96-well plate, low profile
VS-COR113H	VIASURE *Coronavirus 229E + NL63 + OC43 + HKU1* Real Time PCR Detection Kit 96-well plate, high profile