

Technical Bulletin - February 2022

Introducing qMAX Probe Multiplex One-Step RT-qPCR Kit, A new formulation for detecting and amplifying multiple target sequences in one reaction tube.

What Is Multiplex qPCR?

Multiplex qPCR is a molecular biology technique for the amplification of multiple targets in a single qPCR experiment. It has been successfully used in areas of nucleic acid diagnostics, including gene deletion analysis, mutation and polymorphism analysis, quantitative analysis, RNA detection, forensic studies, and diet analysis. The Multiplex qPCR method uses multiple templates and several primer-probe sets in the same reaction in order to amplify multiple target sequences.

Advantages of Multiplex qPCR

Multiplex qPCR has many advantages over single template qPCR. It enables a higher throughput, is cost and time effective, requires less input material (fewer dNTP's, enzymes, and consumables), provides more accurate data normalization, and fewer pipetting errors.

Do I have the Flu, or do I have Covid?

In the field of infectious diseases, the technique has become one of the most valuable methods in identifying viruses, bacteria, fungi, and parasites. For example, Multiplex qPCR is used in SARS-CoV-2 virus detection to detect and differentiate RNA from the SARS-CoV-2 virus, Influenza A, and Influenza B. The ability to detect three viruses simultaneously allows for faster results while maintaining accuracy. This allows laboratories to process more tests in a given time period and allows for flu surveillance while testing for SARS-CoV-2.

The Accuris qMAX Probe Multiplex One-Step RT-qPCR Kit is our new formulation that offers an optimized protocol for the amplification of multiple targets at the same time using specific primer-probe sets and RNA input samples. It can be used to quantify a specific target RNA from either total RNA or mRNA while reducing the number of pipetting steps and time to obtain results. This Mix delivers earlier quantification cycle values and broad range detection for increased sensitivity, speed reliability and reproducibility. By including more than one pair of primers, Multiplex qPCR allows for faster results without compromising test utility.

How do we do it?

Optimized buffer in our mix includes powerful RNase inhibitors, and its extremely thermostable MMLV-derived reverse transcriptase allows for robust first strand cDNA synthesis. The included Accuris Hot Start Taq DNA Polymerase uses an antibody mediated hot start mechanism that allows for sample preparation at room temperature. Our kit is optimized for use with popular Taqman, Scorpions and molecular beacon probes.

Proven Performance

An independent lab performed multiplex RT-qPCR detection of 3 respiratory viral RNA targets using TaqMan analysis. Two sets of tests were run to compare the performance of Accuris reagents to that of Supplier T's. For presentation purposes, 3 panels are separated to show amplification efficiency of each target, although the reaction was performed in

one tube. Accuris One-Step Virus (Green) vs Supplier T's (Red). Note the differences in Cq and higher levels of fluorescence due to the high specific activity exhibited by Accuris One-Step Virus qPCR Mix. Assay conditions as follows: 50C for 10 minutes followed by 2-step cycling (95C, 60C) for 45 cycles.

