

## Accuris™ qMAX 4X RT-qPCR Virus Mix

Accuris™ qMAX™ 4× RT-qPCR Virus Mix is a high-concentration, one-step reverse transcription quantitative PCR system optimized for sensitive detection of viral RNA and DNA targets. The system comprises a 4× qMAX™ Probe Master Mix and a separate 20× qMAX™ Reverse Transcriptase supplemented with an RNase inhibitor, enabling modular assay design and improved reagent utilization. The 4× master mix format permits increased template input per reaction, enhancing analytical sensitivity for low-copy targets. Additionally, the elevated concentration supports reduced total reaction volumes, facilitating rapid thermal cycling while maintaining amplification efficiency and reproducibility.

The formulation is specifically optimized for dual-labeled hydrolysis probe-based assays and is compatible with both standard and fast cycling protocols. It supports robust performance in singleplex and multiplex RT-qPCR applications, including higher-order multiplexing (>3 targets). Buffer composition and enzyme system are engineered to maintain amplification efficiency across a broad range of template complexities, including GC-rich and AT-rich regions, while exhibiting tolerance to common PCR inhibitors.

To maximize compatibility with multiplex assay designs and diverse instrumentation, the master mix is supplied without ROX passive reference dye, allowing user-defined normalization strategies where required.

### Highlights:

- One-step RT-qPCR system for sensitive detection of viral RNA and DNA targets
- 4× formulation enables increased template input, improving low-copy target detection
- Optimized for dual-labeled hydrolysis probe-based assays
- Compatible with both standard and fast RT-qPCR cycling protocols
- Robust amplification across GC-rich and AT-rich templates
- Demonstrates tolerance to common PCR inhibitors

### Storage

Upon receipt, immediately store at -20°C. Avoid excessive freeze/thaw cycles. When stored as directed, this product will retain its activity for 12 months from date of receipt.

### Limitation of Use

For research purposes only. Not intended for therapeutic or diagnostic use.

### Quality Control

Accuris enzymes and reagents are tested under general assay conditions for activity, reproducibility, efficiency, heat activation, sensitivity, and absence of nuclease contamination and nuclease activity. This product is manufactured under a comprehensive quality management system, following ISO 9001:2008 standards.

### PCR Master Mix Guidelines:

| Component              | 20 L reaction                               | Final concentration |
|------------------------|---|---------------------|
| 4X qMAX Probe Mix      | 5 µL  | 1X                  |
| Forward Primer (10 µM) | 0.8 µL                                      | 400 nM              |
| Reverse Primer (10 µM) | 0.8 µL                                      | 400 nM              |
| Probe (10 µM)          | 1 µL  | 200 nM              |
| 20X qMAX RTase         | 1.0 µL                                      | Add prior to RNA    |
| Template RNA           | 10 pg to 100 ng Total RNA<br>> 0.01 pg mRNA |                     |

### qPCR Cycling Conditions:

| Cycles | Temperature | Time       | Notes   |
|--------|-------------|------------|---|
| 1      | 50 °        | 10 minutes | cDNA synthesis  |
| 1      | 95 °C       | 60 seconds | Enzyme activation   |
| 30-40  | 95 °C       | 5 seconds  | Denaturation  |
|        | 60 - 65 °C  | 20 seconds | Annealing/Extension (do not exceed 30 seconds and do not use temperature below 60 °C) |

## General Guidelines

#### 1. Primer Design

Design primers using dedicated tools such as Primer3 or Visual OMP. Aim for primer melting temperatures (T<sub>m</sub>) near 60 °C, and select a probe with a T<sub>m</sub> approximately 6–10 °C higher. When working with TaqMan™ probes, place the probe in close proximity to the 5' primer and avoid ending the probe sequence with a guanine base.

#### 2. Amplicon Size

Target amplicons are typically between 80 and 200 base pairs in length, and in most cases should remain under 400 base pairs.

#### 3. ROX requirement

Requirements for ROX™ passive reference dye vary by real-time PCR platform. Many newer instruments no longer depend on ROX, though they may still support it for signal normalization. qMAX 4x RT-qPCR Virus Mix is formulated without ROX.

## Technical Support

For troubleshooting and technical support, contact us at [info@accuris-usa.com](mailto:info@accuris-usa.com) or call **908 769-5555**. Accuris is not responsible for consequential or incidental damages, whether direct or indirect, resulting from use of this product. Accuris guarantees the performance of this product as described when used in accordance with these instructions.