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qPCRBIO Probe 1-Step Go Lo-ROX

Product description:

qPCRBIO Probe 1-Step Go is a universal probe kit designed for fast, highly specific and ultra-sensitive RT-qPCR. The latest developments in reverse transcriptase technology and buffer chemistry are used to give efficient cDNA synthesis and real-time PCR in a single tube.

The kit is engineered for use on a wide range of probe technologies such as TaqMan®, Scorpions® and molecular beacon probes. It can be used to quantify any RNA template including mRNA, total RNA and viral RNA sequences. qPCRBIO Probe 1-Step Go is designed to give rapid and accurate results over a broad range of template concentrations and is ideally suited to the detection of RNA viruses including SARS-CoV-2.

The kit includes a thermostable and extremely active modified MMLV reverse transcriptase (RTase Go) and advanced RNase inhibitor that prevents degradation of RNA by contaminating RNase. Antibody-mediated hot start technology prevents the formation of primer dimers and non-specific products giving highly specific and ultra-sensitive real-time RT-PCR with unrivalled efficiency in multiplex.

High-throughput screening has resulted in a buffer system that allows efficient amplification from GC-rich and AT-rich templates, under fast and standard cycling conditions.

Pack size	2x qPCRBIO Probe 1-Step Go Lo-ROX	20x RTase Go (with RNase inhibitor)
100 reactions	1 x 1 mL	1 x 100 µL
300 reactions	3 x 1 mL	3 x 100 µL
500 reactions	1 x 5 mL	1 x 500 µL
1200 reactions	12 x 1 mL	12 x 100 µL
5000 reactions	1 x 50 mL	1 x 5 mL
50000 reactions	1 x 500 mL	1 x 50 mL

Shipping and storage

On arrival the kit should be stored between -30 °C and -15 °C. Avoid prolonged exposure to light. If stored correctly the kit will retain full activity for 12 months. Avoid exposure of the stock solution to frequent temperature changes and limit handling at room temperature to the necessary minimum. Do not store the mix once it is combined with the RTase.

Limitations of product use

The product may be used for in vitro research purposes only.

Technical support

Help is available on our website at https://pcrbio.com/resources/ including answers to frequently asked technical questions. For technical support and troubleshooting please email technical@pcrbio.com with the following information:

- Amplicon size
- Reaction setup
- Cycling conditions
- Screen grabs of amplification traces and melting profile

Important considerations

Instrument compatibility: Different real-time PCR instruments require different levels of ROX passive reference. Generally, modern instruments do not require passive reference but include the option to use it for normalisation. Please check our qPCRBIO Selection Tool to determine which ROX concentration your instrument requires (https://pcrbio.com/resources/qpcr-selection-tool/).

Primer design: For efficient amplification under fast cycling conditions we recommend amplicon lengths between 80 bp and 200 bp. With all manufacturers, the shorter the amplicon length, the faster the reaction can be cycled. Amplicon lengths should not exceed 400 bp. Primers should have a predicted melting temperature of around 60 °C, using default Primer 3 settings (http://bioinfo.ut.ee/primer3/). For TaqMan® probes, choose a probe close to the 5' primer and avoid terminal guanosine residues.

Template concentration: As target copy number will vary, it is important to select the correct template concentration to correctly quantify the target sequence. A good concentration will display clear separation between amplification curves (Fig.1). At lower template concentrations, the amplification curves will begin to group together and Ct values will not fit the standard curve (Fig.2).

Fig.1

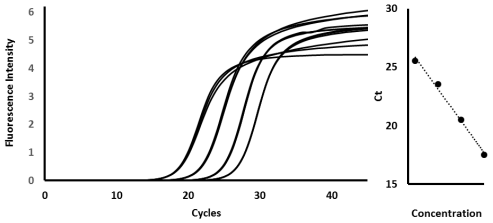
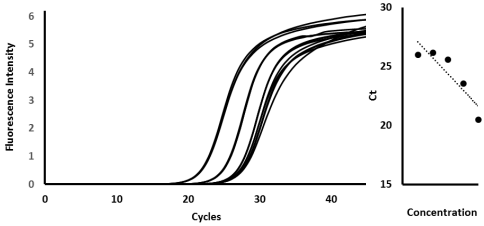


Fig.2



Reaction setup

1. Before starting, briefly vortex 2x qPCRBIO Probe 1-Step Go Mix.

2. Prepare a master mix based on the following table. We also recommend setting up a no-RTase control:

Reagent	20 µL reaction	Final conc.	Notes
2x qPCRBIO Probe 1-Step Go Mix	10 µL	1x	
Forward primer (10 µM)	0.8 µL	400 nM	See above for optimal primer design
Reverse primer (10 µM)	0.8 µL	400 nM	
Probe (10 µM)	0.4 µL	200 nM	
20x RTase Go	0.2 µL	0.2x	0.2 µL for sensitive SARS-CoV-2 detection. Alternatively, titrate down to 0.05 µL.
Template RNA	Viral RNA: 10 to 1x10^8 copies Total RNA: 1 pg to 1 µg mRNA: >0.01 pg	Variable	Addition of sample as 2 to 5 µL volumes will improve assay precision. 5 µL of swab extract is recommended for SARS-CoV-2 diagnostic assays
PCR grade dH_2O	Up to 20 µL final volume		

3. Program the instrument using the following conditions, acquiring data on the appropriate channel:

Cycles	Temperature	Time	Notes
1	45 °C to 55 °C	10-20 minutes	Reverse transcription: 45 °C is recommended for most applications. 55 °C should be used only when amplicon contains regions of high secondary structure
1	95 °C	2 minutes	Polymerase activation
40	95 °C 60 °C to 65 °C	5 seconds 20-30 seconds	Denaturation Anneal/Extension: do not exceed 30 seconds, do not use temperatures below 60 °C
Melt analysis	Refer to instrument instructions		Optional melt profile analysis, available for hybridisation probes only