

# DATA SHEET

Version: 03  
Revision date: 27/03/2023Tlf: +34 983 54 85 63  
[info@canvaxbiotech.com](mailto:info@canvaxbiotech.com)  
[www.canvaxbiotech.com](http://www.canvaxbiotech.com)

## 1. Identification

**Product name** **qMAXSen™ One-Step Green RT-qPCR Kit (Low Rox™)**  
500 rxn (of 20 µL)

**Cat. No:** **E0833**

## 2. Description

**qMAXSen™ One-Step Green RT-qPCR Kit (4X) (Low Rox™)** allow efficient cDNA synthesis and qPCR in a single tube. The kit includes a qPCR master mix supplied in a 4X concentration to perform real-time PCR. The qPCR master mix contains all the reagent (except PCR primers and template) needed for running PCR reactions. The mix is compatible with many probe technologies. In addition, a separate RT mix that comprises a balanced mixture of both RTase and RNase Inhibitor is also provided.

RT-PCR is used to amplify double-stranded DNA from single-stranded RNA templates. In the RT step the reverse transcriptase synthesizes single-stranded DNA molecules (cDNA) complementary to the RNA template. In the first cycle of the PCR step synthesis, Taq DNA polymerase synthesizes DNA molecules complementary to the cDNA, thus generating a double-stranded DNA template. During subsequent rounds of cycling the DNA polymerase exponentially amplifies the double stranded DNA template

## 3. Composition

Item	Quantity
One-Step Green RT-qPCR (4X) (Low ROX)	5 x 500 µl
RT Mix	5 x 100 µl
RNase-free Water	5 x 1 ml

## 4. Storage specifications

**qMAXSen™ One-step Green RT-qPCR (4X) (Low ROX)** is shipped on dry/blue ice. The Kit should be stored at **-20°C** upon receipt. Avoid repeated freezing and thawing.

## 5. Features

- Higher specificity, sensitivity, and yield.
- For use on a wide range of probe technologies including Taqman®, Molecular Beacons® and Scorpion® probes.
- Available with ROX™ as reference dye.
- Compatible with most real-time PCR instruments.

## 6. Applications

- Detection and quantification of DNA and cDNA targets
- Gene expression
- For use with standard and fast qPCR platforms.
- High throughput applications



## 8. Quality Control

Functionally tested in RT-qPCR on Applied Biosystems StepOne® Real-Time PCR System. Tested for activity, processivity, efficiency, sensitivity and heat activation.

## 9. Recommended Protocol

### 1. Thaw Kit components, template DNA, probe, primers, and nuclease-free H<sub>2</sub>O on ice. Mix each solution well.

The following protocol is recommended for a 20 µL reaction volume:

### 2. Set up the following reaction mixture:

Component	Volume reaction 20 µL	Final concentration
Forward Primer	X µL	100-400 nM <sup>(1)</sup>
Reverse Primer	X µL	100-400 nM <sup>(1)</sup>
RNA Template	X µL	0.01 pg to 1 µg
One-step Green RT-qPCR (4X) (Low ROX)	5 µL	1X
RT Mix	1 µL	1X <sup>(2)</sup>
Nuclease-Free Water to a final volume of	20 µL	

<sup>(1)</sup> Too high primer concentrations result in unspecific amplification and should be avoided.

<sup>(2)</sup> For optimal performance, use 1 pg – 1 µg Total RNA, or >0.01 pg mRNA.

### 3. Mix reagents completely, and then transfer to a thermocycler.

### 4. Program the appropriate PCR cycling protocol on your real-time PCR instrument.

Suggested thermal cycling conditions:

Step	Temperature	Duration	Cycles
Reverse Transcription	50°C	10 min	1
Initial activation	95°C	3 min	1
Denaturation	95°C	10 sec	40-45
Annealing/Extension*	60°C- 65°C	30 sec	

\* Recommended annealing/extension temperature is primer T<sub>m</sub> +2°C. Use gradient PCR to optimize the annealing temperature. Do not use temperatures below 60°C. Do not exceed 30 seconds.

### 5. For melt analysis refer to instrument instructions.



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**Canvax Reagents, S.L.U.**  
Luis de Mercado Street, 19  
Boecillo Technological Park  
47151, Boecillo  
Valladolid, Spain.

Tlf: +34 983 54 85 63  
[info@canvaxbiotech.com](mailto:info@canvaxbiotech.com)

[www.canvaxbiotech.com](http://www.canvaxbiotech.com)

## Notes:

- As with all Real-Time PCR reactions, conditions may need to be optimized. You may be able to adjust your PCR conditions to optimize reaction.
- For efficient amplification under fast cycling conditions use amplicon lengths between 80 bp and 200 bp.
- The shorter the amplicon length the faster the reaction can be cycled. Use maximum 400 bp amplicons.
- Primers should have a predicted melting temperature of around 60°C.
- For TaqMan® probes choose probe close to 5' primer, avoid terminal guanosine residues.

## 8. Further information

<b>Product Use Limitations</b>	This product is developed, designed, and sold exclusively only for research purposes use. The product was not tested for use in diagnostics or for drug development, nor is it suitable for administration to humans or animals.
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