



**SMOBIO**

Small Bio, Smart Tool

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## Product Information

ExcelTaq™ series

### 2X Q-PCR Master Mix (SYBR, ROX)

<b>TQ1110</b>	<b>200 RXN</b>	
	2X Q-PCR Master Mix (SYBR, ROX)	1 ml x 2

## Storage

**Aliquot to avoid multiple freeze-thaw cycles**

**Protect from light**

-20°C for 12 months

## Features

- High sensitivity and signal intensity
- More compatible with reverse transcriptase
- With smart blue contrast dye as a visual aid for reaction setup
- With ROX reference dye

## Description

The ExcelTaq™ 2X Q-PCR Master Mix (SYBR, ROX) is a ready-to-use reagent with all the essential components for quantitative real-time PCR (qPCR) except primers and templates. The master mix features high sensitivity (Fig. 1) and high signal intensity as compared with another brand (Fig. 2).

The ExcelTaq™ 2X Q-PCR Master Mix (SYBR, ROX) contains hot-start *Taq* polymerase in an optimized buffer with dsDNA specific SYBR green fluorescent dye. This master mix allows for sensitive and precise amplification, real-time tracking of the amplification process, and simultaneous quantification for targeted DNA molecules.

The master mix includes ROX reference dye for normalization of each qPCR assay.

With inert smart blue contrast dye, the ExcelTaq™ 2X Q-PCR Master Mix (SYBR, ROX) is ready-to-use and greatly reduces pipetting errors, while largely improving the reproducibility for the process.

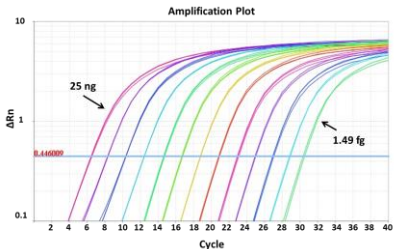


Fig. 1. The amplification plot of real-time PCR with cDNA templates ranging from 1.49 fg to 25 ng in quantity, analyzed by using TQ1110 ExcelTaq™ 2X Q-PCR Master Mix (SYBR, ROX) for Q-PCR amplification.

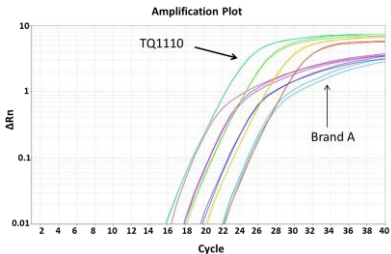


Fig. 2. SMOBIO's TQ1110 ExcelTaq™ 2X Q-PCR Master Mix (SYBR, ROX) shows better fluorescent signal as compared to a similar product from Brand A.

## Application

- Quantitative real-time PCR
- Quantitative two-step real-time PCR

## Instrument compatibility

- BioRad system:
  - CFX96 / CFX384
  - Chromo 4™ Real-Time Detector
  - DNA Engine Opticon™ / Opticon™ 2
- Cepheid system:
  - Smart Cycler®
- Eppendorf system:
  - Mastercycler® ep realplex
- Roche system:
  - Roche LightCycler® 480 / Nano
- QIAGEN system:
  - Rotor-Gene™ Q
- Applied Biosystems system:
  - 5700, 7300, 7000, 7700, and 7900HT system
  - StepOne™ / StepOne Plus™
  - QuantStudio™ 3 / 5 / 6 / 7

Note: ExcelTaq™ 2X Q-PCR Master Mix (SYBR, ROX) is compatible with a variety of real-time instruments, including but not limited to the list above.

## Recommended primer design

- Amplicon size: 80-150 bp
- T<sub>m</sub> value: around 60°C (calculated with Primer3 software)
- Primer length: 17-25 mer
- Sequence:
  - 45-55% of GC content is recommended.
  - Avoid regional high GC or AT content
  - Avoid palindrome sequence
  - Sequence with G or C at the 3' end is recommended.
- Specificity of primers should be confirmed through a BLAST search.

## Recommended reaction mixture set up for qPCR

Template	2 µl*
Forward primer	50 – 400 nM**
Reverse primer	50 – 400 nM**
2X Q-PCR Master Mix (SYBR, ROX)	10 µl
H <sub>2</sub> O	to 20 µl
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Total volume	20 µl

\*Final template concentration varies depending on the copy number of target present in the template solution. The recommended amount of template is: **100 fg -100 ng of cDNA, 80 pg -50 ng of gDNA or 10<sup>2</sup>-10<sup>8</sup> molecules of plasmid.**

\*\*The PCR primer concentration for an optimal qPCR reaction may vary according to primers' properties and template condition.

## Recommended qPCR program

Try Two-step cycle protocol first, and optimize the reaction conditions if necessary. If the two-step protocol still does not give optimal results (e.g., if  $T_m$  values for the primers are low), try the Three-step cycle protocol.

### Two-step cycle for qPCR

Steps	Temp.	Time	Cycles
Template denature and enzyme activation	95°C	10 min <sup>#</sup>	1
Denature	95°C	15 sec	40
Annealing/Extension	60°C	60 sec	
Melting curve analysis	Refer to instrument manual		

### Three-step cycle for qPCR

Steps	Temp.	Time	Cycles
Template denature and enzyme activation	95°C	10 min <sup>#</sup>	1
Denature	95°C	15 sec	40
Annealing	55-60°C	30 sec	
Extension	72°C	30 sec	
Melting curve analysis	Refer to instrument manual		

<sup>#</sup> We suggest 10 minutes for the first step to thoroughly denature DNA and activate enzymes.

## **Other Information**

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Caution: Not intended for human or animal diagnostic or therapeutic uses.

## Related Products

RP1000	ExcelRT Reverse Transcriptase, 20,000 U
RP1100	ExcelRT One-step RT-PCR Kit, 50 RXN
RP1400	ExcelRT Reverse Transcription Kit II, 100 RXN
RI1000	RNAok RNase Inhibitor, 2000 U
TQ1100	ExcelTaq 2X Q-PCR Master Mix (SYBR, no ROX), 200 RXN
TQ2110	ExcelTaq 2X Q-PCR Master Mix (TaqMan, ROX), 200 RXN
DM2300	ExcelBand 100 bp+3K DNA Ladder, 500 $\mu$ l
DM3100	ExcelBand 1 KB (0.25-10 kb) DNA Ladder, 500 $\mu$ l
DL5000	FluoroDye DNA Fluorescent Loading Dye (Green, 6 $\times$ ), 1 ml
NS1000	FluoroVue Nucleic Acid Gel Stain (10,000X), 500 $\mu$ l
PM2510	ExcelBand Enhanced 3-color Regular Range Protein Marker, 250 $\mu$ l $\times$ 2
TF1000	SMO-HiFi DNA Polymerase, 100 U $\times$ 1
TP1000	ExcelTaq Taq DNA Polymerase, 500 U $\times$ 1
TP1200	ExcelTaq 5X PCR Master Dye Mix, 200 RXN
CK1000	Champion E. coli Transformation Kit
WM1000	YesBlot Western Marker I, 250 $\mu$ l