

TOROGreen® qPCR Master Mix



Description

TOROGreen® qPCR Master Mix is a Taq DNA polymerase-based 2× master mix for real-time PCR, which contains all components, except for the primer. The master mix is applicable for intercalation assay with SYBR Green I and can be used in glass capillary systems or passive reference system.

Hot Start technology with Taq polymerase antibodies enables high specificity and reproducible amplification. The specially optimized PCR buffer make the mix more efficient amplification of GC-rich templates and more stable at room temperature. According to the MIQE guidelines, a master mix should not have primer dimers amplification in NTC tests.

Compared with other brands, this master mix greatly reduces the formation of primer dimers. Therefore, this premix makes qPCR primer design easier while meeting MIQE requirements.

Feature

- **High specificity**— high efficiency Taq antibodies and optimized PCR buffer greatly reduce the formation of primer dimers, so it easily meets MIQE requirements.
- **Room-temperature stable**— the performance is not easily decrease during storing and shipping.
- **Wide dynamic range**— the mix demonstrates excellent reproducibility over a wide dynamic range and provides efficient amplification over 8 logs of sample.

High specificity

TOROGreen® qPCR Master Mix (QST-100) use an antibody-mediated hot-start mechanism to provide tight control over Taq enzyme activation and help prevent early activity of the polymerase at low temperatures that can lead to nonspecific amplification.

In an evaluation of a primer set used with QST-100, a single melt curve was obtained in 100% of reactions. In contrast, nonspecific amplification was observed for the same target with master mix from Brand N, as shown by multiple peaks in the melt curves (Figure 1). Verification of primer specificity in SYBR Green reactions is essential to data quality and validity (Ref.1). The high specificity enabled by TOROGreen® qPCR Master Mix (QST-100) can meet the requirements of MIQE, and allows you to spend less time optimizing and redesigning primers to get high-quality data.

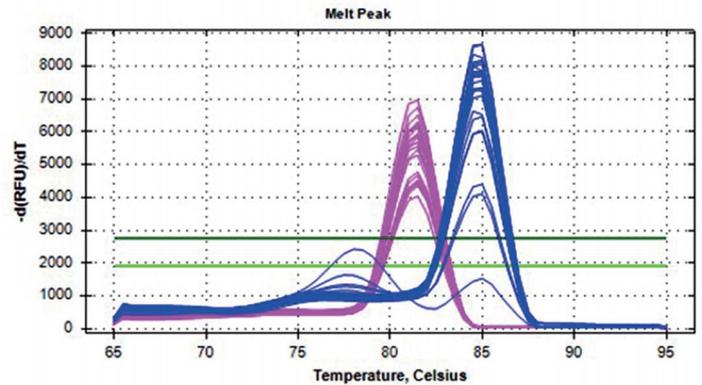


Figure 1. Target specificity. Real-time PCR was performed using pET28a plasmid with *Bacillus badius* phenylalanine dehydrogenase gene and primers (F: AGGAAGCCGATGTGTTTCGTT; R:TTCCGCTTGCTGGTACACTT) targeting *pdh* (phenylalanine dehydrogenase). QPCR master mix of Brand N (blue) show a second peak, while QST-100 (purple) exhibits a single peak in the melt curve analysis.

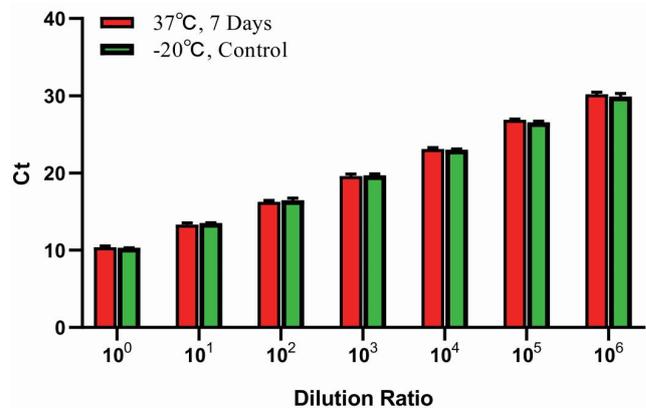
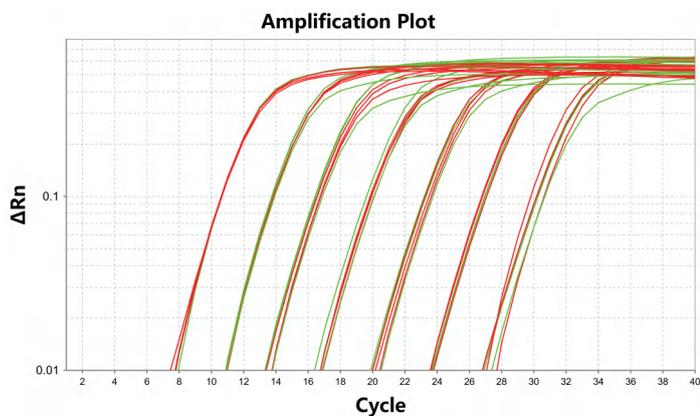


Figure 2. Target specificity. Real-time PCR was performed using pET28a plasmid with *Bacillus badius* phenylalanine dehydrogenase gene and primers (F: AGGAAGCCGATGTGTTTCGTT; R: TTCCGCTTGCTGGTACACTT) targeting *pdh* (phenylalanine dehydrogenase). QST-100 stored at 37 °C (red line) and at -20 °C (green line) have the same curve, and the Ct value is basically similar.

Room-temperature stable

Extensive stability testing was performed on eight 10×dilutes of the template. TOROGreen® qPCR Master Mix were sealed and left at 37 °C for 7days, and all results calculated and collated.

From the amplification plot, it shows that the QST-100 stored at 37 °C and at -20 °C have the same curve, and the Ct value is basically similar. QST-100 has extremely high stability within a wide range of template concentration.

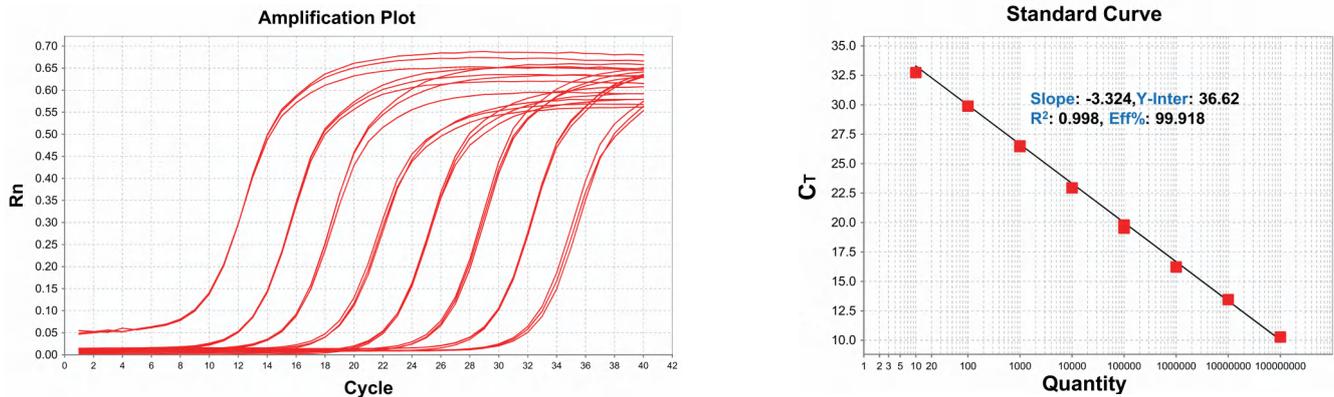


Figure 3. Wide dynamic range. Real-time quantitative PCR of 10-fold serial dilutions of pET-28a plasmid were performed using primers specific to the Kanamycin resistance gene with TOROGreen® qPCR Master Mix (QST-100). The amplification plot and standard curve show that QST-100 displaying superior dynamic range and efficiency (Eff%=99.918) .

Wide dynamic range

TOROGreen® qPCR Master Mix (QST-100) is able to accommodate a wide range of input DNA/cDNA without compromising PCR efficiency. The Kanamycin resistance gene was amplified from a 10-fold dilution series of pET-28a plasmid to demonstrate the superior range and amplification efficiency of the TOROGreen® qPCR Master Mix . The amplification plot and standard curve (Fig.3) show that the TOROGreen® qPCR Master Mix displaying superior dynamic range and efficiency (Eff%=99.918) .

Ordering information

Catalog Number	Product Name	Unit Size
QST-100	TOROGreen® qPCR Master Mix	1 mL × 10tubes

References

[1] Bustin SA, Benes V, Garson JA, etc.,al. The MIQE guidelines: minimum information for publication of quantitative real-time PCR experiments. ClinChem. 2009,55(4):611-22.

Applications

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- [4] Xu K , Meng Z , Xian X M ,et al.LncRNA PVT1 induces chondrocyte apoptosis through upregulation of TNF- α in synoviocytes by sponging miR-211-3p[J]. Molecular and Cellular Probes, 2020, 52:101560.
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