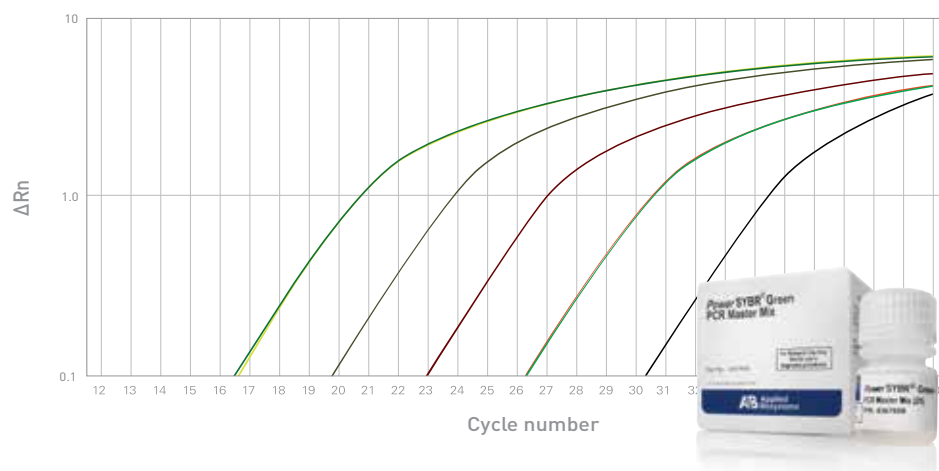


Power SYBR® Green PCR Master Mix



Obtain superior sensitivity and reproducibility without compromising performance parameters such as specificity, dynamic range, or uniformity in your real-time quantitative PCR experiments.

Introduction

Power SYBR® Green PCR Master Mix delivers highly sensitive DNA, cDNA, and RNA quantitation, detecting as few as 2 copies of a target gene over a broad range of template concentrations. Power SYBR® Green PCR Master Mix offers significantly improved sensitivity by employing the highly purified AmpliTaq Gold® DNA Polymerase, UP (Ultra Pure) in an optimized formulation. The Power SYBR® Green formulation minimizes variation to help ensure consistent results. In addition, Power SYBR® Green PCR Master Mix can be used in place of SYBR® Green PCR Master Mix in existing Applied Biosystems® protocols using the same reaction preparation and thermal cycling conditions.

Benefits

- Better sensitivity for detecting as few as 2 copies of target
- Contains AmpliTaq Gold® DNA Polymerase, UP in an optimal formulation to provide greater specificity
- Robust formulation minimizes variation between kits to help ensure reliable results with every experiment
- Easy substitution for SYBR® Green PCR Master Mix in existing protocols: same setup, same thermal cycling conditions

Optimized formulation for powerful performance

Power SYBR® Green PCR Master Mix contains all of the components, excluding the template and primers, for superior SYBR® Green reagent-based real-time PCR in a convenient 2X mix. Components of the master mix in the optimized buffer include:

- AmpliTaq Gold® DNA Polymerase, UP, a highly purified DNA polymerase that allows automatic hot start to minimize nonspecific product formation and reactions to be set up at room temperature
- SYBR® Green I dye to detect double-stranded DNA
- dNTPs with a blend of dUTP/dTTP to maintain optimal PCR results and be compatible with uracil-DNA glycosylase (UDG) treatment, which reduces carryover contamination
- Passive internal reference based on proprietary ROX™ dye for increased precision

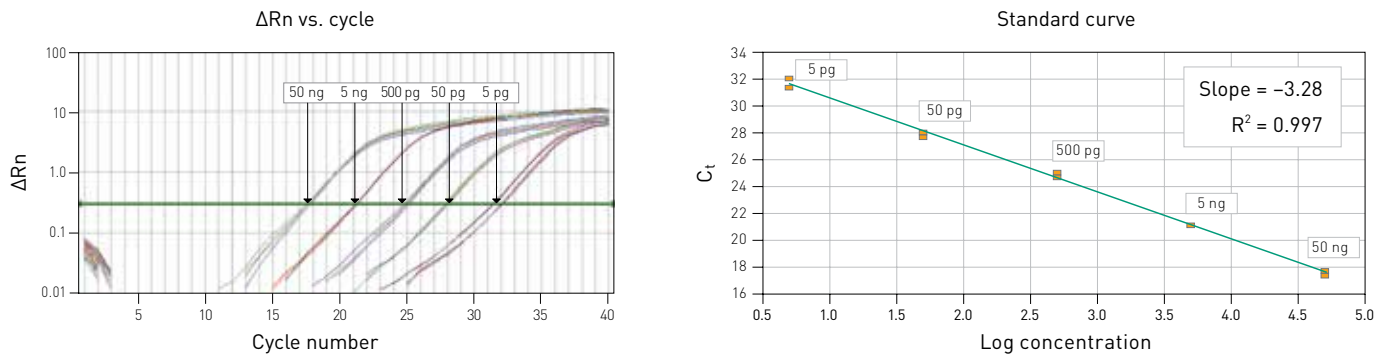


Figure 1. Detection down to 2 copies of target with good linearity over a wide range of template quantities. Amplification plot (left) and standard curve (right) for β-actin amplified from human gDNA.

Sensitivity without compromise

Power SYBR® Green PCR Master Mix delivers better sensitivity to accurately detect targets over a broad range of template concentrations. The β-actin gene was amplified from a dilution series of human genomic DNA (gDNA) to demonstrate the superior sensitivity and reliability of *Power SYBR® Green PCR Master Mix*.

The amplification plot and standard curve show that β-actin can be detected in 5 pg human gDNA, which is equivalent to approximately 2 copies of initial target (Figure 1). For each standard, four replicate reactions of 50 μL were carried out on an Applied Biosystems® real-time PCR instrument.

Lowest variability for consistent performance

With a minimum of two lots tested per mix, variability was examined across four commercially available master mixes. Variability for β-actin amplified from 50 ng of human gDNA was calculated as the difference between the maximum and minimum values for both C_t and fluorescence intensity (ΔRn). *Power SYBR® Green PCR Master Mix* showed the lowest variability for C_t and ΔRn values, yielding dependable results for real-time PCR experiments (Figure 2).

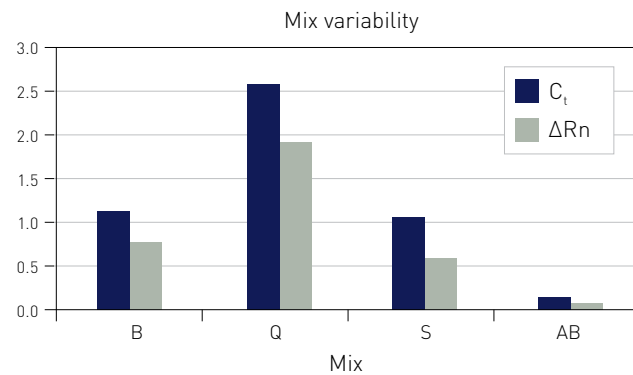


Figure 2. Variability in C_t and fluorescence intensity (ΔRn) for SYBR® Green master mixes. *Power SYBR® Green PCR Master Mix* (AB) exhibits the lowest variability between manufactured lots, among four SYBR® Green master mixes tested.

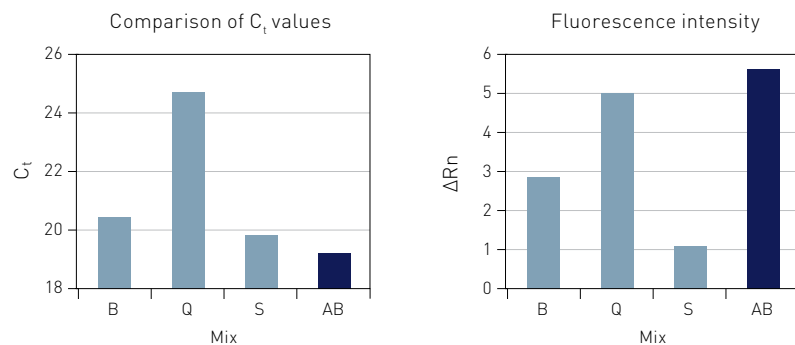


Figure 3. C_t and fluorescence intensity for amplification of β-actin from 50 ng of human gDNA using *Power SYBR® Green PCR Master Mix* (AB) and three competitor mixes. *Power SYBR® Green PCR Master Mix* outperforms other SYBR® Green master mixes by detecting targets in fewer cycles (early C_t) and exhibiting the strongest fluorescence signal.

Early C_t and powerful fluorescence intensity

Using *Power SYBR® Green PCR Master Mix* and three other commercially available SYBR® Green master mixes, the β-actin target was amplified from 50 ng of human gDNA. In comparing C_t values and fluorescence intensities,

Power SYBR® Green PCR Master Mix shows the earliest C_t and brightest fluorescent signal for robust results (Figure 3). For each mix, four replicate reactions from a minimum of two lots per mix were carried out on an Applied Biosystems® real-time PCR instrument.

High reproducibility across multiple real-time PCR instruments

To examine the reproducibility of *Power SYBR® Green PCR Master Mix*, 96 replicate reactions of β -actin amplification from 15 ng of human gDNA were performed using Applied Biosystems® real-time PCR systems. Replicates show excellent uniformity across all real-time PCR instruments tested (Figure 4). Dissociation curves show a single peak (Figure 4, insets), indicating that the β -actin target is specifically amplified.

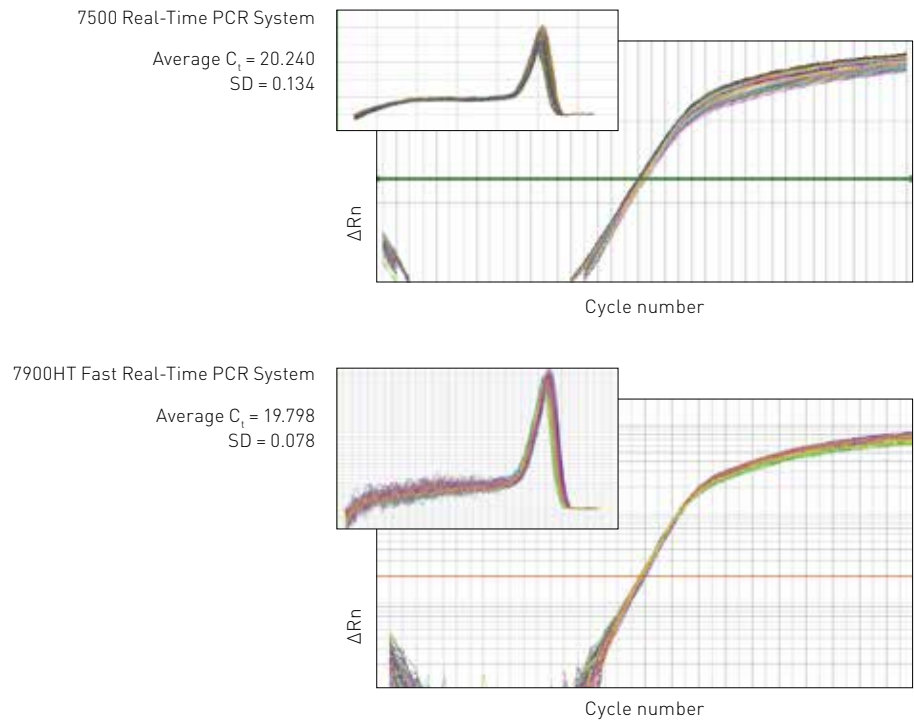


Figure 4. Reproducibility of *Power SYBR® Green PCR Master Mix* on Applied Biosystems® real-time PCR instruments. Amplification plots and dissociation curves (insets) of the β -actin target gene are shown. The target gene was amplified from human gDNA in 96 replicate reactions using Applied Biosystems® real-time PCR instruments.

Instruments and reagents compatible with *Power SYBR® Green PCR Master Mix* (standard thermal cycling mode)

Instruments and reagents

StepOne™ and StepOnePlus™ Real-Time PCR Systems

7500 Real-Time PCR System

7500 Fast Real-Time PCR System

7900HT Fast Real-Time PCR System

ViiA™ 7 Real-Time PCR System

QuantStudio® 6 Flex Real-Time PCR System

QuantStudio® 7 Flex Real-Time PCR System

QuantStudio® 12K Flex Real-Time PCR System

High Capacity RNA-to-cDNA™ Kit

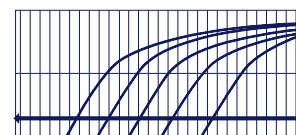
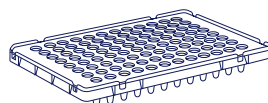
High Capacity RNA-to-cDNA™ Master Mix

SuperScript® VILO™ cDNA Synthesis Kit

Simple workflow for powerful results



High Capacity
RNA-to-cDNA™ Kit



Power SYBR® Green
PCR Master Mix

Template,
primers

Ordering information

Product	Quantity	Reactions*	Cat. No.
Power SYBR® Green PCR Master Mix			
Mini pack	1 mL tube	40	4368577
1-pack	5 mL bottle	200	4367659
2-pack	2 x 5 mL bottle	400	4368706
5-pack	5 x 5 mL bottle	1,000	4368702
10-pack	10 x 5 mL bottle	2,000	4368708
Bulk pack	50 mL bottle	2,000	4367660

* Assumes 50 µL reaction volume for PCR and 20 µL reaction volume for reverse transcription.

Find out more at lifetechnologies.com/powersybr

life
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