



# Brilliant III Ultra-Fast QPCR/QRT-PCR Master Mixes for ABI 7500 Fast Real-Time PCR System

## Data Sheet

The Brilliant III QPCR and QRT-PCR master mixes are designed to provide the fastest cycling times on the ABI 7500 Fast real-time PCR instrument. The new ultra-fast reagents allow the completion of real-time experiments in as little as 29 minutes giving researchers results quicker without compromising data quality. These reagents feature a newly engineered mutant *Taq* delivering faster extension rate combined with an optimized buffer formulation and novel hot-start technology minimizing non-specific amplification products to increase overall sensitivity. Brilliant III Ultra-Fast QPCR and QRT-PCR Master Mixes provide the benefit of ultra-fast cycling times while maintaining the performance of conventional real-time PCR reagents.

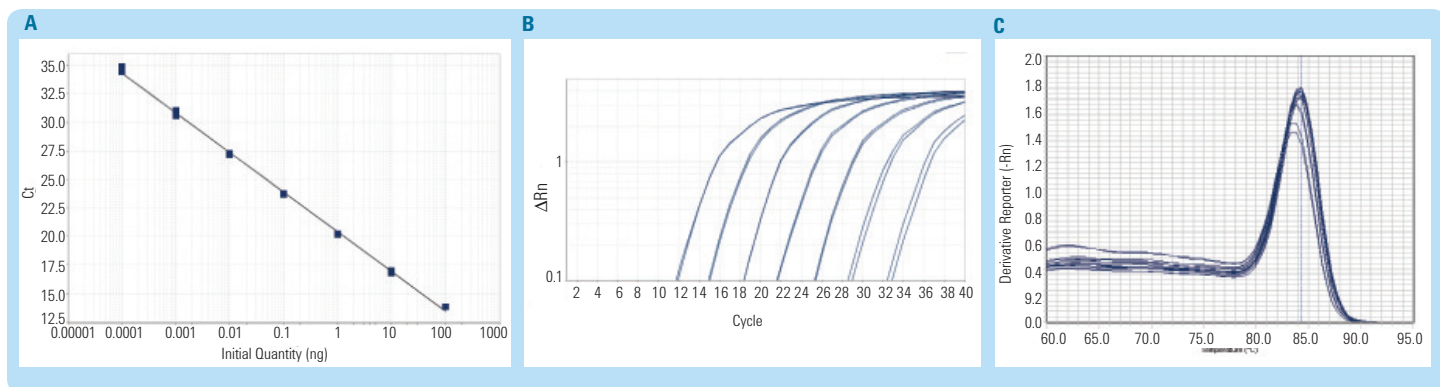
Highly efficient one-step QRT-PCR is performed with our Brilliant III Ultra-Fast QRT-PCR reagents using a Moloney-based RT for first strand synthesis with optimal performance at 50°C.

The AffinityScript QPCR cDNA Synthesis Kit can be used for cDNA synthesis in a 2-step reaction providing flexibility across a wide range of temperatures. Novel hotstart *Taq* DNA polymerase combined with AffinityScript RT, minimizes the potential for primer-dimer formation or other non-specific PCR products and delivers the most reproducible results.

## For faster, improved real-time quantitative PCR (qPCR) on the ABI 7500 Fast Real-Time PCR instrument – choose Agilent

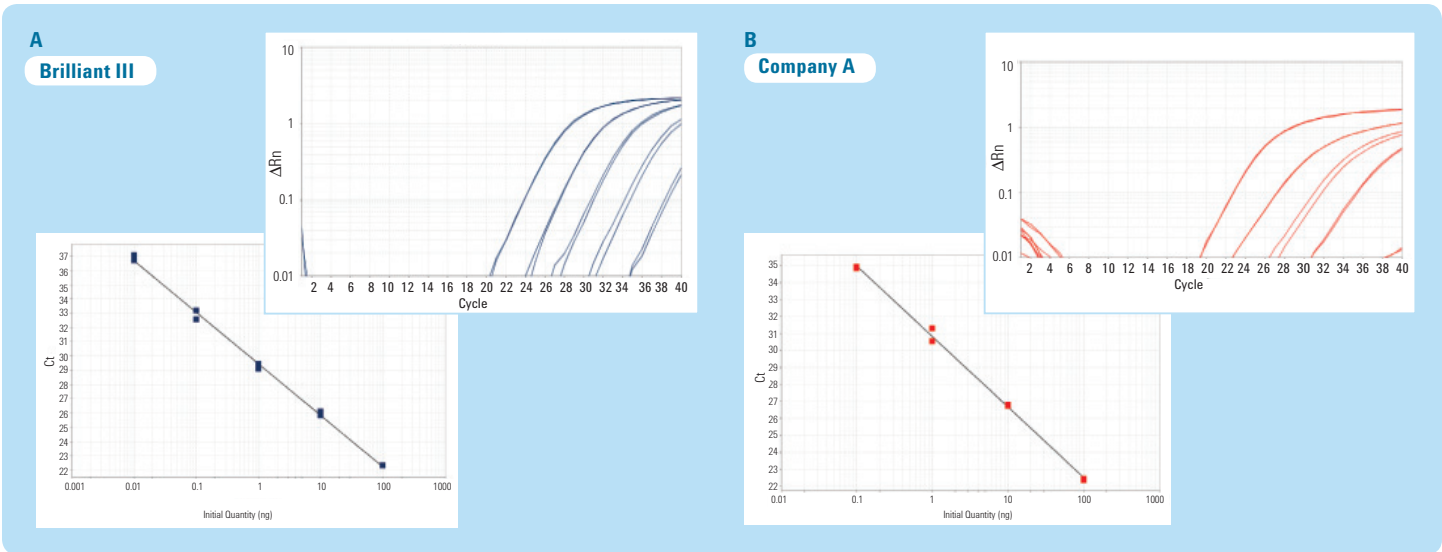
- Novel fast *Taq* mutant for qPCR results in under 30 minutes
- Enhanced rapid hot start capability saves time and reduces primer-dimer formation
- Optimized fast cycling formulation ensures reliable and reproducible data with shorter run times
- Convenient pre-blended formulations compatible with any fluorescent detection chemistry including both sequence-specific probes and SYBR® Green dyes

## For reduced time to results cycling on the 7500 Fast Real-Time PCR platform, choose our next generation Brilliant III Ultra-Fast QPCR or QRT-PCR Master Mixes.



**Figures 1.**  
**Brilliant III Ultra-Fast SYBR® Green QPCR Master Mix Delivers Superior Sensitivity by Minimizing Primer Dimerization.**

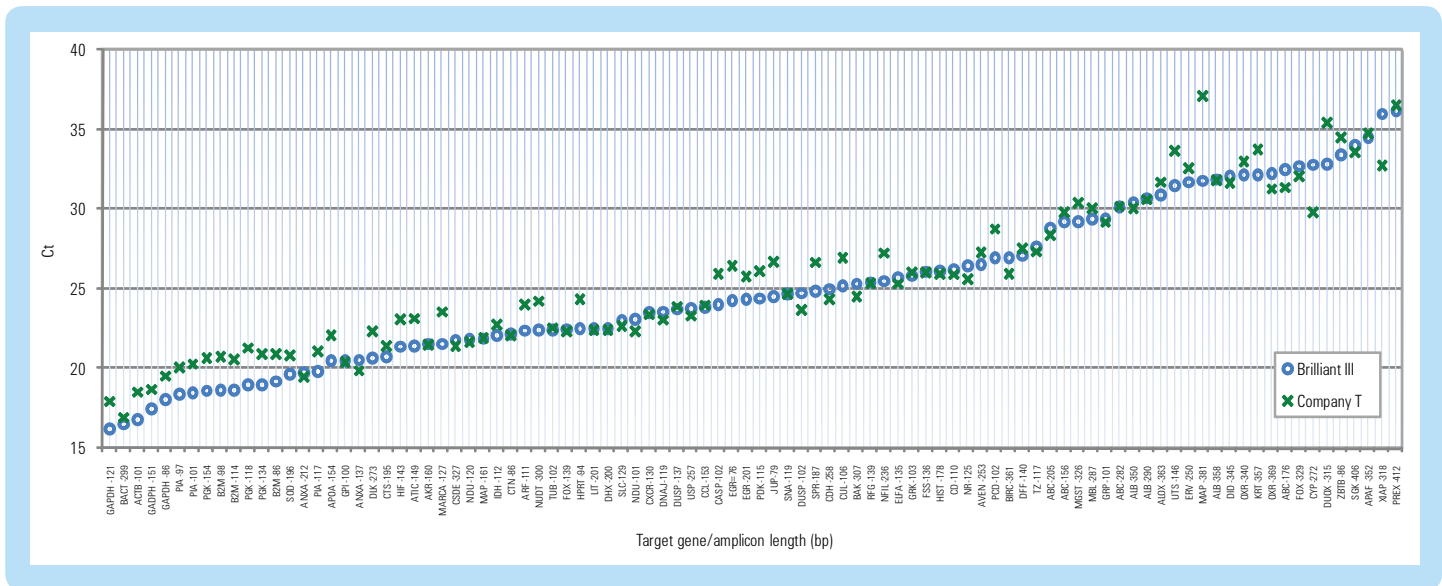
10 fold dilution series of 100 ng to 0.1 pg of cDNA from human total RNA were used in each 20 µl reaction designed to detect GAPDH (TaqMan Assays-On-Demand) in duplicate. Panel A shows the standard curve over 6 orders of magnitude. The amplification plots are shown in panel B. As seen by the dissociation curve (panel C), Brilliant III Ultra-Fast QPCR Master Mix produced minimal non-specific secondary products, providing a greater degree of confidence in the qPCR data generated. GAPDH efficiency = 94%, R<sup>2</sup> = 0.999. Total run time: 29 min.



**Figure 3A & 3B.**

**Improved Sensitivity of Detection at Lower Target Concentrations.**

Log plots and corresponding standard curve of GUS primer/probe set (ABI Assays-On-Demand) using (A) Brilliant III Ultra-Fast Master Mix and (B) using Company A master mix. Reactions (20 μl) contained 1x primer/probe and human universal cDNA ranging from 100-0.01 ng/Rxn in a 10 fold dilution series (in duplicate). The standard curves span four orders of magnitude resulting in an R<sup>2</sup> of 0.997 and amplification efficiency of 89.5% for the Brilliant III Ultra-Fast Master Mix and three orders of magnitude resulting in an R<sup>2</sup> of 0.998 and amplification efficiency of 73.7% for Company A master mix.



**Figure 4.**

**Reliability Comparison Across 94 cDNA Targets Using Brilliant III Ultra-Fast SYBR® Green qPCR Master Mix and a SYBR® Green Master Mix from Company T.**

Master mixes were run under recommended experimental setup and cycling conditions using 1 ng of cDNA from human total RNA in each 20 μl reaction designed to detect the gene target using primers designed for each target. Brilliant III total run time: 29 min. Company T total run time: 34 min. More than 40% of the targets generated >1 Ct delay with the Company T master mix compared to Brilliant III.

Ordering Information			
Description	Qty	Rxn*	Product Nos.
Brilliant III Ultra-Fast QPCR Master Mix	2 x 2 ml	400	600880
Brilliant III Ultra-Fast QPCR Master Mix (10 pack)	20 x 2 ml	4000	600881
Brilliant III Ultra-Fast QRT-PCR Master Mix Fast	2 x 2 ml	400	600884
Brilliant III Ultra-Fast QRT-PCR Master Mix for (10 pack)	20 x 2 ml	4000	600885
Brilliant III Ultra-Fast SYBR® Green QPCR Master Mix	2 x 2 ml	400	600882
Brilliant III Ultra-Fast SYBR® Green QPCR Master Mix (10 pack)	20 x 2 ml	4000	600883
Brilliant III Ultra-Fast SYBR® Green QRT-PCR Master Mix	2 x 2 ml	400	600886
Brilliant III Ultra-Fast SYBR® Green QRT-PCR Master Mix (10 pack)	20 x 2 ml	4000	600887

\*assumes 20 μl reaction volume

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