

For faster, improved real-time quantitative PCR (qPCR) on the Roche LightCycler[®] 480 Real-Time PCR instrument – choose Agilent.

- New fast and highly processive polymerase delivers fast qPCR results in less than 40 minutes without compromising QPCR data quality
- Novel hot start technology reduces non-specific amplification products and primer-dimer formation delivering increased specificity
- Better Performance greater reproducibility and sensitivity within an assay and across multiple assays and templates at very low copy number

SYBR [®] Green Master Mixes									
Gene Target	Brilliant III		Company R		Company S				
	Efficiency	R ²	Efficiency	R ²	Efficiency	R ²			
HMGB1	Pass	0.993	Pass	0.999	Pass	0.998			
RPL32	Pass	0.998	Pass	0.999	Pass	0.999			
FLOT1	Pass	0.998	Pass	0.999	Fail	0.949			
MLH1	Pass	0.994	Pass	0.984	Pass	0.996			
ADA	Pass	0.995	Pass	0.990	Pass	0.993			
PMS2	Pass	0.979	Fail	0.965	Pass	0.978			
JUN	Pass	0.991	Fail	0.977	Pass	0.996			
PDPN	Pass	0.987	Pass	0.980	Pass	0.986			

Table 1

Performance Comparison Between Brilliant III Ultra-Fast SYBR® Green QPCR and Competitor Master Mixes of Several Targets on the Roche LC480.

10 fold dilution series of cDNA from human total RNA were used in each 10 µl reaction designed to detect 8 gene targets individually (in triplicate). The table represents averaged data comparing Brilliant III Ultra-Fast SYBR® Green Master Mix against Company R master mix and Company S. Three other SYBR® Green master mixes from Company B, Company P, and Company Q failed the standard curve specification of 90-110% for these targets due to poor efficiency, leading to loss of dynamic range and reduced sensitivity (Data not shown).

Brilliant III Ultra-Fast QPCR/QRT-PCR Master Mixes for Roche LC480 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 Roche LC480 real-time PCR instrument. These ultra-fast reagents allow the completion of real-time experiments in less than 40 minutes giving researchers access to their data faster without compromising data quality. These reagents feature a newly engineered *Taq* derives mutant delivering faster extension rate combined with a 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.

Following a thorough evaluation comparing Brilliant III against many competitor master mixes, Robert Loewe, CEO at GeneWake GmbH, stated "With Brilliant III we were able to push the boundaries of our research. As we are working with rare species of cells in a huge background of other cell types, we can now distinguish the biological picture more clearly. Elevating borderline positive results to really detectable and measurable ones is a leap essential to decipher the impact of our cells of interest without prior enrichment on cellular level. A definite plus is also that it cuts protocol run time by 30% compared to our current vendor allowing us to generate more data in the same time frame."

Table 1 shows the improved performance of Brilliant III where a good R^2 correlation for all targets assayed was obtained compared to other leading master mixes.

Figure 1 (on page 2) shows earlier Cqs for Brilliant III than the competitor qPCR master mix. Brilliant III demonstrated improved limit of detection (LOD) for three of the targets and equivalent LOD for the fourth (Table 2). This shifted LOD holds as a merit test in oncology studies. Brilliant III demonstrates improved detectability for a variety of targets, such as reference genes (e.g. RPL32), therapeutic predictive genes (e.g. MLH1 and HMGB1) as well as relatively overexpressed genes in some cancers (e.g. FLOT1).

SYBR [®] Green Master Mixes						
Gene Target	Company R	Brilliant III Ultra-Fast SYBR [®] Green				
FLOT1	1:100,000	1:200,000				
HMBG1	1:600,000	1:4M				
MLH1	1:10,000	1:10,000				
RPL32	1:1M	1:6M				

Table 2

Limit of Detection.

Improved Limit of Detection when comparing Brilliant III Ultra-Fast SYBR® Green OPCR Master Mix with a competitor SYBR® Green master mix on the LC480 (LOD is given in last detected dilution step that was still measurable with the employed master).





Figure 1

Improved Sensitivity of Detection at Lower Target Concentrations.

Standard dilution curve prepared according to MIOE Guidelines. After reverse transcription the generated cDNA (source material Stratagene QPCR Human Reference Total RNA (Agilent, #750500)) was first diluted in water (1:10'). Template was further diluted (1:10², 1:10³, 1:10⁵, 1:10⁵, 1:10⁵, 1:10⁵) in water containing tRNA from brewer's yeast (Roche, #10109525001) as a carrier, the total nucleic acid concentration was equivalent in all samples. If the limit of detection (LOD) was reached for a dilution steps additional dilution steps were introduced between the concerning concentration and the 10-fold higher concentration. All measurements were performed in triplicates (10µl reaction volume). Data presented as Log initial quantity against Cqs for each target. Amplification plots show delayed Cqs for the competitor master mix compared to Brilliant III.

For reduced time to results on the Roche LC480 Real-Time PCR instrument, choose our next generation Brilliant III Ultra-Fast QPCR and QRT-PCR Master Mixes.

Ordering Information			
Description	Qty	Rxn*	Cat 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	2 x 2 ml	400	600884
Brilliant III Ultra-Fast QRT-PCR Master Mix (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			

Learn more: www.stratagene.com/brilliant3

Find an Agilent customer center in your country: www.stratagene.com/chem/contacts

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