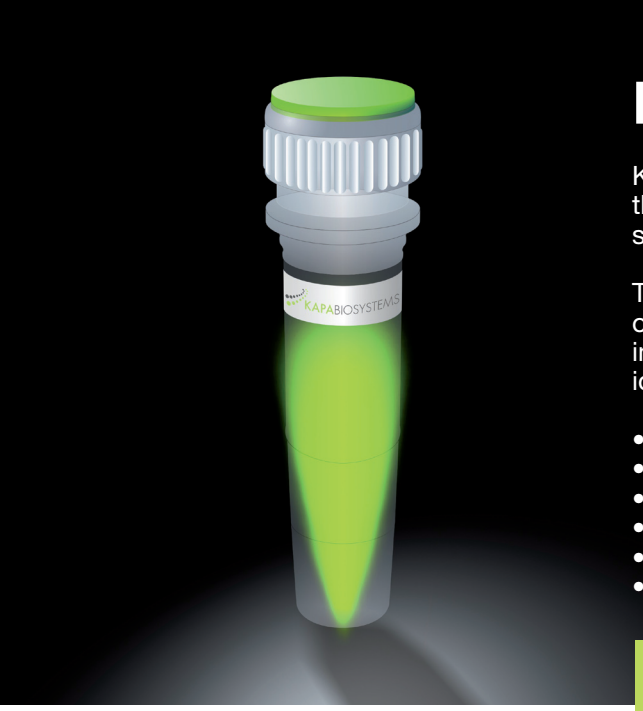


KAPA SYBR® FAST qPCR Kits

KAPA SYBR® FAST qPCR Kits contain a novel DNA polymerase engineered through a process of molecular evolution. The result is a unique enzyme, specifically evolved for qPCR using SYBR® Green I dye chemistry.

The KAPA SYBR® DNA Polymerase has been engineered to perform optimally in stringent qPCR reaction conditions, exhibiting dramatic improvements in fluorescence, C_T values, linearity, and sensitivity. Kits are ideally suited for:

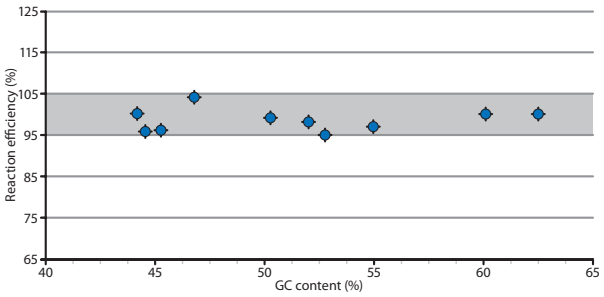
- Gene expression analysis
- Microarray validation
- Low-copy detection
- Gene knockdown validation
- ChIP
- Next-generation sequencing library quantification

The first DNA polymerase engineered for real-time PCR.

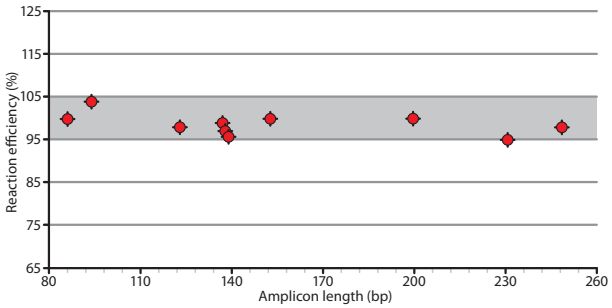
High performance gene expression analysis

The improved speed, processivity and robustness of KAPA SYBR® FAST qPCR Kits results in consistently high amplification efficiencies required for accurate relative quantification. To demonstrate the high performance of KAPA SYBR® FAST for gene expression analysis, the reaction efficiencies obtained for ten commonly used housekeeping genes in the human breast cancer cell line, MCF-7, were compared*. The KAPA SYBR® FAST qPCR Kit achieved consistently high amplification efficiencies (95 – 104%) across all ten genes, despite differences in amplicon length.

Reaction efficiency vs. GC-content



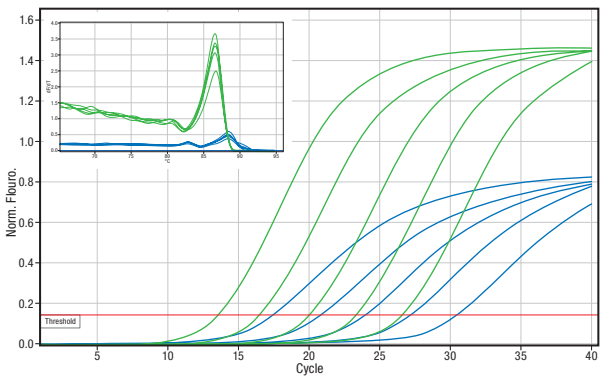
Reaction efficiency vs. amplicon length

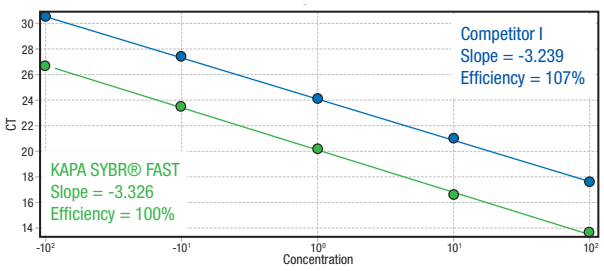


No bias in amplification efficiency across a wide range of GC contents (44.2 – 62.5%) or amplicon lengths (86 – 249 bp) was observed with KAPA SYBR® FAST. Amplification efficiencies achieved for ten housekeeping genes with the KAPA SYBR® FAST Universal qPCR Kit were plotted against GC content (top) or amplicon length (bottom). The reaction efficiency achieved for each of the ten genes fell within the optimal range of 95 – 105%, independent of the nature or length of the amplicon.

*For more information see KAPA SYBR® FAST Application Note: Gene Expression I

ActB (153 bp, 60.1% GC)

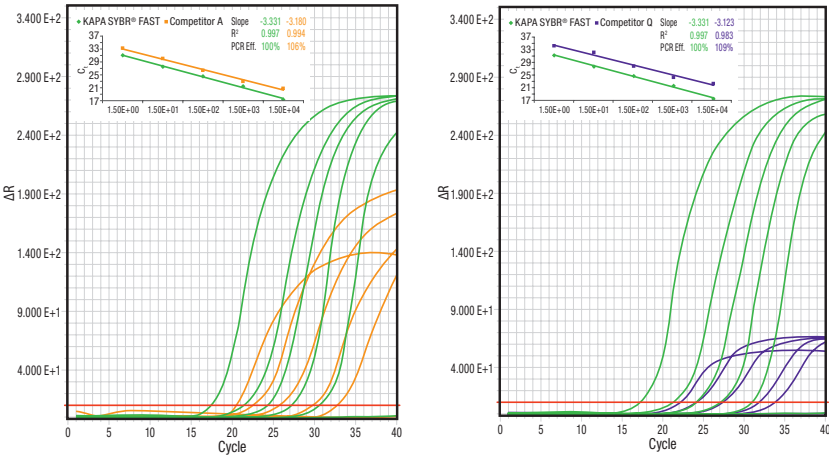




The housekeeping gene ActB was amplified from a log-fold serial dilution of MCF-7 cDNA (100 ng to 10 pg/reaction) using the KAPA SYBR® FAST Universal qPCR Kit (green) or Competitor I qPCR kit (blue). Linear amplification plots (top) demonstrate earlier C_T scores and greater baseline subtracted fluorescence for the ActB gene with the KAPA SYBR® FAST Kit. Calculated reaction efficiencies (bottom) confirmed that the consistently high performance required for accurate expression quantitation is achievable with the KAPA SYBR® FAST qPCR Kit (ActB = 100%). Efficiencies obtained with Competitor I were sub-optimal (107%).

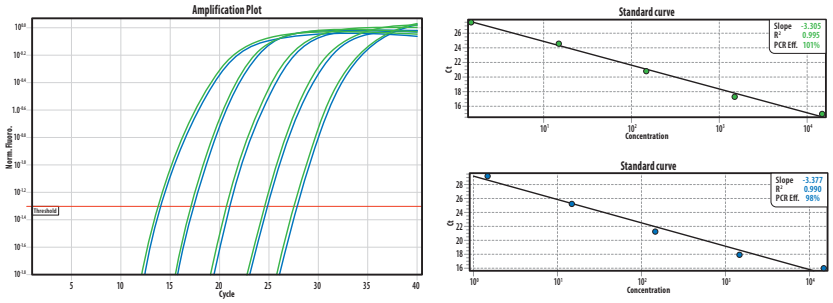
KAPA SYBR® FAST qPCR Kits

Superior signal and reaction efficiency.



A 290 bp fragment of the human beta-actin gene was amplified from a set of five 10-fold dilutions of human genomic DNA (20 ng to 2 pg) using KAPA SYBR® FAST qPCR Master Mix (green) or fast qPCR competitor kits (Competitor A, orange or Competitor Q, purple). Reactions were performed according to each competitors' suggested protocol on an ABI Prism® 7900 HT real-time cycler.

High performance with both standard and fast cycling protocols.



A 150 bp fragment of the human coagulation factor V gene was amplified from a set of five 10-fold dilutions of human genomic DNA (20 ng to 2 pg) using KAPA SYBR® FAST, with a standard cycling protocol (green) or a fast cycling protocol (blue). Standard cycling conditions: 5 min initial denaturation at 95 °C, followed by 40 cycles of 15 sec denaturation at 95 °C and 60 sec combined annealing/extension at 60 °C. Fast cycling conditions: 3 min initial denaturation at 95 °C, followed by 40 cycles of 1 sec denaturation at 95 °C and 20 sec combined annealing/extension at 60 °C. The total run time was 1.5 hours for the standard cycling and 40 min for the fast cycling protocol.

ORDERING INFORMATION

Description	Code	Kit contents
KAPA SYBR® FAST Universal	KK4600	1 x 1 ml
KAPA SYBR® FAST Universal	KK4601	1 x 5 ml
KAPA SYBR® FAST Universal	KK4602	2 x 5 ml
KAPA SYBR® FAST ABI Prism®	KK4603	1 x 1 ml
KAPA SYBR® FAST ABI Prism®	KK4604	1 x 5 ml
KAPA SYBR® FAST ABI Prism®	KK4605	2 x 5 ml
KAPA SYBR® FAST Bio-Rad iCycler™	KK4606	1 x 1 ml
KAPA SYBR® FAST Bio-Rad iCycler™	KK4607	1 x 5 ml
KAPA SYBR® FAST Bio-Rad iCycler™	KK4608	2 x 5 ml
KAPA SYBR® FAST for Roche LightCycler® 480	KK4609	1 x 1 ml
KAPA SYBR® FAST for Roche LightCycler® 480	KK4610	1 x 5 ml
KAPA SYBR® FAST for Roche LightCycler® 480	KK4611	2 x 5 ml

KAPABIOSYSTEMS

For more information please contact **sales@kapabiosystems.com** or your local representative.

Version 6.10