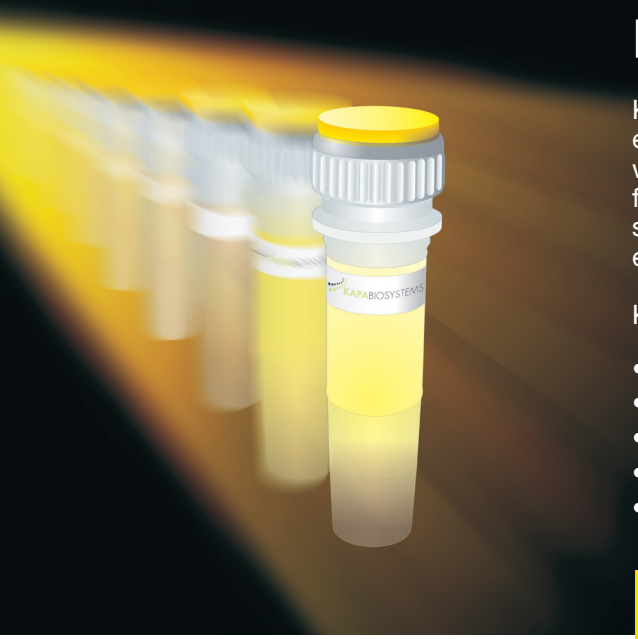


KAPA2G FAST Multiplex PCR Kit

KAPA2G Fast Multiplex PCR Kits contain a second-generation (2G) enzyme derived through a process of molecular evolution. The polymerase was engineered for higher processivity and speed, offering significantly faster extension rates than wild-type *Taq* DNA polymerase. In addition to speed, KAPA2G Fast provides higher yields and sensitivity than competitor enzymes for highly multiplexed PCR.

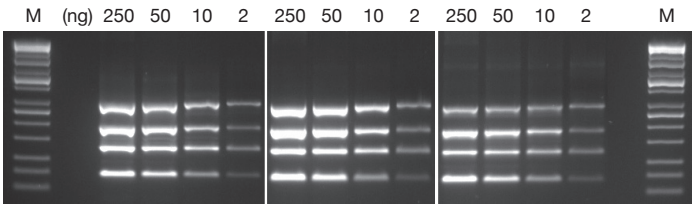
KAPA2G Fast Multiplex Kits offer:

- Higher yields and sensitivity
- Uniform representation of all amplicons
- Reduction in PCR cycling time up to 60%
- High speed without compromising performance
- Minimal optimization with master mix formulation

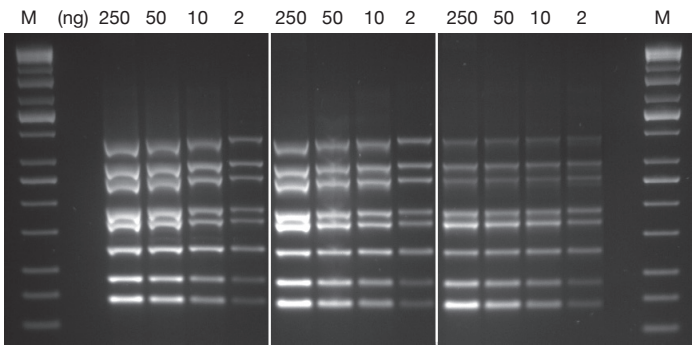
High speed, high performance multiplex PCR without the need for optimization.

High performance multiplex PCR.

KAPA2G Fast Multiplex PCR Kits are based on a second-generation (2G) polymerase capable of synthesizing DNA faster than wild-type *Taq* and other DNA polymerases. A total extension time of 15 sec/cycle is sufficient for many multiplex assays, compared to 60 - 90 sec/cycle for competitor kits containing wild-type *Taq*.



KAPA2G Fast 57 min | Competitor Q 143 min | Competitor I 89 min

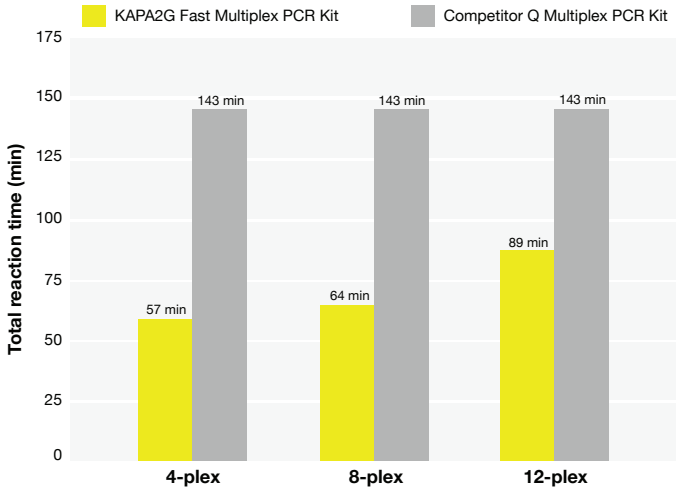


KAPA2G Fast 64 min | Competitor Q 143 min | Competitor I 89 min

Multiplex PCR (4- and 8-plex) performed with the KAPA2G Fast Multiplex PCR Kit, Competitor Q and Competitor I. Reactions (25 µl) contained 1X PCR Master Mix (KAPA and Competitor Q) or 1X PCR Buffer, 3 mM $MgCl_2$, 0.2 mM of each dNTP and 1 U of hot start *Taq* DNA Polymerase (home brew multiplex reagents, with Competitor I). Human genomic DNA was used as template (250 ng - 2 ng per reaction), and primers were supplied at 0.2 µM each. Cycling was performed according to manufacturers' recommendations (30 cycles).

60% reduction in total cycling time.

Fast PCR protocols using KAPA2G Fast Multiplex PCR Kits are based on reduced extension times that allow for up to 60% reduction in PCR cycling time, without the risk of compromising reaction performance, or having to invest in specialized PCR consumables or instrumentation.

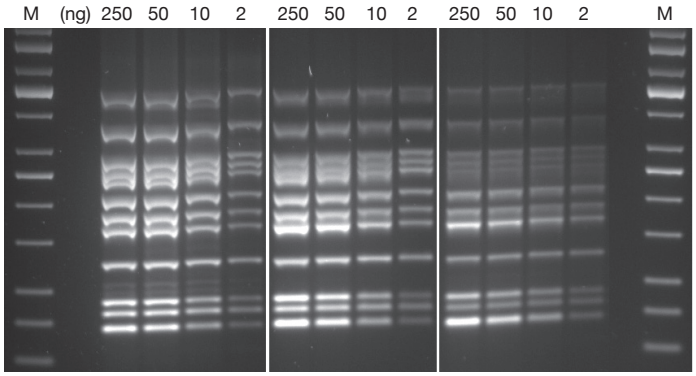


Fast Multiplex PCR with KAPA2G Fast Multiplex PCR Kits. Multiplex PCR with wild-type *Taq* typically requires very long annealing and extension times to allow primer annealing and extension of all primers in the multiplex. KAPA2G Fast Multiplex PCR Kits contain KAPA2G Fast HotStart DNA Polymerase, a second-generation (2G) polymerase engineered via molecular evolution to synthesize DNA at a faster rate. Total PCR cycling times required for 4-plex, 8-plex and 12-plex multiplex PCRs (30 cycles, set up according to the manufacturers' recommendations) with KAPA2G Fast Multiplex PCR Kits and Competitor Q Multiplex PCR Kit (which contains wild-type *Taq* DNA polymerase) are shown. Time savings of 40 - 60% are possible with the KAPA2G Fast Multiplex PCR Kit.

KAPABIOSYSTEMS

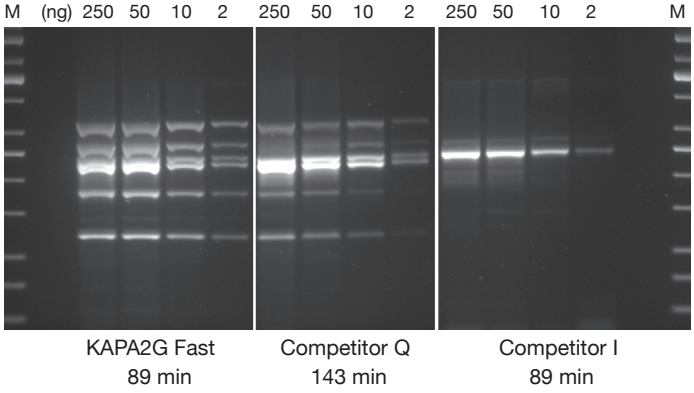
KAPA2G FAST Multiplex PCR Kit

Uniform representation of all amplicons in 12-plex PCR.



12-plex Multiplex PCR performed with the KAPA2G Fast Multiplex PCR Kit, Competitor Q and Competitor I. Achieving uniform representation of all amplicons in a complex multiplex assay is a challenge due to amplification bias, a result of differences in amplicon length, secondary structure and priming efficiency. Reactions (25 µl) contained 1X PCR Master Mix (KAPA and Competitor Q) or 1X PCR Buffer, 3 mM $MgCl_2$, 0.2 mM of each dNTP and 1 U of hot start *Taq* DNA Polymerase (home brew multiplex reagents, with Competitor I). Human genomic DNA was used as template (250 ng - 2 ng per reaction), and primers were supplied at 0.2 µM each. Cycling was performed according to manufacturers' recommendations (30 cycles).

Successful multiplex PCR with difficult, GC-rich targets.



6-plex GC-rich Multiplex PCR performed with the KAPA2G Fast Multiplex PCR Kit, Competitor Q and Competitor I. Successful Multiplex PCR with wild-type Taq is limited to easy, simple targets that can be amplified with equal efficiency. The improved processivity of the engineered KAPA2G Fast DNA Polymerase allows uniform multiplex PCR of a broad range of difficult targets. Reactions (25 µl) contained 1X PCR Master Mix (KAPA and Competitor Q) or 1X PCR Buffer, 3 mM $MgCl_2$, 0.2 mM of each dNTP and 1 U of hot start *Taq* DNA Polymerase (home brew multiplex reagents, with Competitor I). Human genomic DNA was used as template (250 ng - 2 ng per reaction), and primers were supplied at 0.2 µM each. DMSO (5%) and KAPA Enhancer 1 (1X) was added to all reactions. Cycling was performed according to manufacturers' recommendations (30 cycles). Amplicons range in size from 241 - 642 bp, and in GC content from 72.7 - 83.8%.

ORDERING INFORMATION

Description	Code	Kit contents
KAPA2G Fast Multiplex PCR Kit	KK5801	100 reactions
KAPA2G Fast Multiplex PCR Kit	KK5802	500 reactions

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

KAPABIOSYSTEMS

Version 1.10