

KAPA2G Fast DNA Polymerase

KAPA2G Fast DNA Polymerase is 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* polymerase. In addition to speed, KAPA2G Fast provides higher yields and sensitivity than competitor enzymes across a broad range of targets.

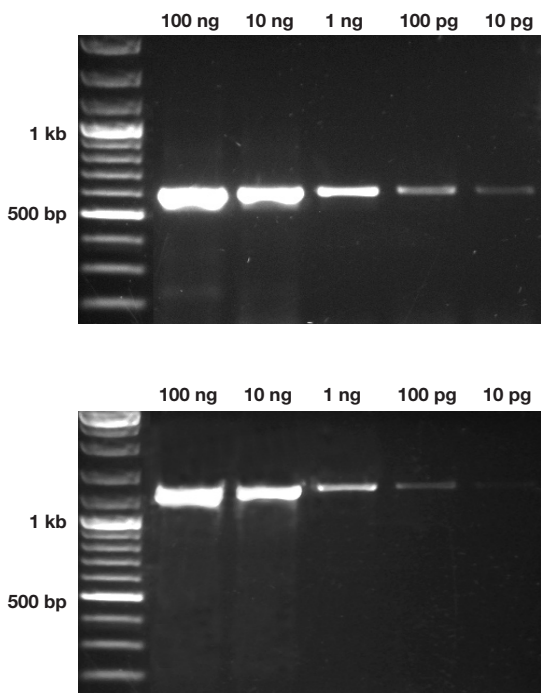
KAPA2G Fast DNA Polymerase offers:

- Extension times as low as 1 sec/kb
- Broad coverage of both AT- and GC-rich targets
- Reduction in PCR reaction time up to 70%
- High speed without compromising performance
- Availability in HotStart and ReadyMix formulations

The first DNA polymerase evolved for extreme speed and performance.

High speed and sensitivity

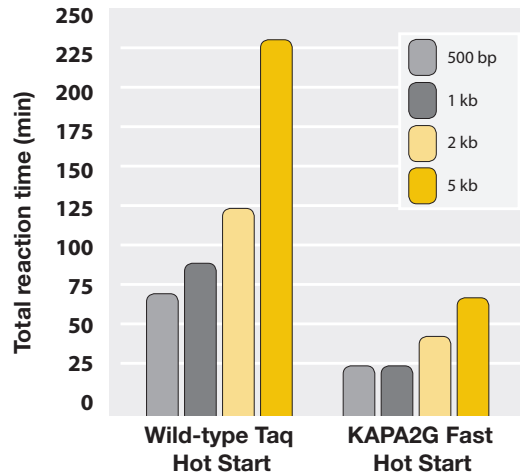
KAPA2G Fast DNA Polymerase is based on a second-generation (2G) polymerase with the intrinsic ability to synthesize DNA faster than wild-type *Taq* and other DNA polymerases. A total extension time of 1 sec/cycle is sufficient for the amplification of fragments ≤ 1 kb from as little as one copy of human genomic DNA using the KAPA2G Fast DNA Polymerase.



Amplification of a 626 bp fragment of the epidermal growth factor receptor gene (top panel) and a 1.3 kb fragment of the macrophage stimulating 1 receptor gene (bottom panel) from a 10-fold dilution series of human genomic DNA using KAPA2G Fast HotStart. 0.5 units of enzyme were used per 25 μ l reaction. A standard 3-step cycling profile (35 cycles) was used. For the 626 bp fragment, a total extension time of 1 sec per cycle was used and for the 1.3 kb fragment an extension time of 15 sec/kb was used per cycle.

70% reduction in total cycling time

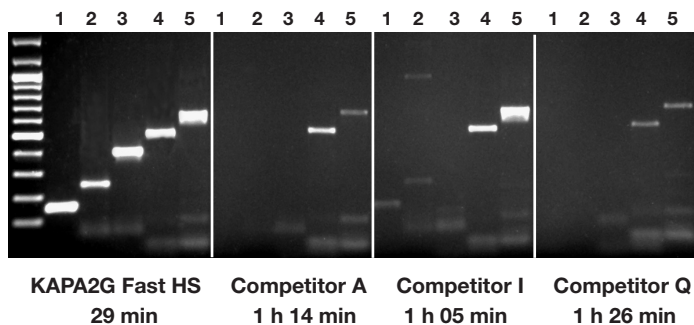
Fast PCR protocols using KAPA2G Fast DNA Polymerase are based on reduced extension times that allow for up to 70% reduction in PCR cycling time without the risk of compromising reaction performance or having to invest in specialized PCR consumables or instrumentation.



The amount of time that can be saved using protocols based on wild-type *Taq* is limited by the extension rate of the enzyme. KAPA2G Fast DNA Polymerase is based on a second-generation polymerase with an ability to synthesize DNA faster than wild-type *Taq* or other DNA polymerases. Total PCR times for the generation of different sized amplicons for human genomic DNA (≤ 3.5 kb) and lambda (≤ 5 kb) using wild-type *Taq* DNA polymerase and KAPA2G Fast DNA Polymerase. Reaction times are based on a 35-cycle program using the cycling profile recommended by each kit manufacturer.

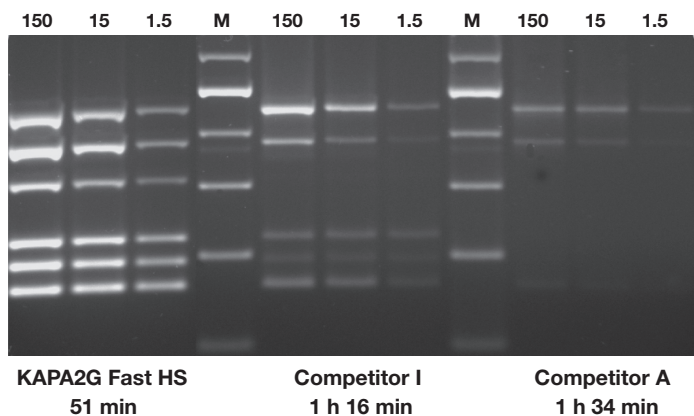
KAPA2G Fast DNA Polymerase

High speed and performance.



Amplification of 5 human gene fragments using KAPA2G Fast HotStart or competitor hot start *Taq* formulations. Reactions (25 µl) contained 5 ng human genomic DNA and 0.5 units (KAPA2G Fast HotStart and Competitor I) or 0.625 units (Competitor A and Competitor Q) enzyme. For amplicons with a GC content >65% (lanes 2 and 3), 7.5% DMSO was included in reactions. A 3-step cycling profile (35 cycles) with 15 sec denaturation (95 °C) and 15 sec annealing (60 °C) per cycle was used for all enzymes. The extension time (72 °C) was 1 sec/cycle for KAPA2G Fast HotStart and 60 sec/cycle for competitor enzymes. The total reaction time for each enzyme is indicated.

High performance, fast multiplex PCR.



Amplification of 6 fragments of the cystic fibrosis transmembrane receptor (CFTR) gene in a multiplex PCR using KAPA2G Fast HotStart or competitor hot start *Taq* Polymerase. Reactions (25 µl) contained 150 ng, 15 ng or 1.5 ng male human genomic DNA and 1 unit of enzyme. A 3-step cycling profile (30 cycles) with 15 sec denaturation (95 °C) and 30 sec annealing per cycle was used. The extension time (72 °C) was 10 sec/cycle for KAPA2G Fast HotStart and 60 sec/cycle for competitor enzymes.



ORDERING INFORMATION

Description	Code	Kit contents
KAPA2G Fast	KK5020	100 units
KAPA2G Fast	KK5021	250 units
KAPA2G Fast + KAPA dNTP Mix	KK5008	100 units
KAPA2G Fast + KAPA dNTP Mix	KK5009	250 units
KAPA2G Fast HotStart	KK5523	100 units
KAPA2G Fast HotStart	KK5503	250 units
KAPA2G Fast HotStart	KK5501	500 units
KAPA2G Fast HotStart	KK5519	2500 units
KAPA2G Fast HotStart + KAPA dNTP Mix	KK5530	100 units
KAPA2G Fast HotStart + KAPA dNTP Mix	KK5502	250 units
KAPA2G Fast HotStart + KAPA dNTP Mix	KK5500	500 units
KAPA2G Fast HotStart ReadyMix	KK5603	100 rxns
KAPA2G Fast HotStart ReadyMix	KK5601	500 rxns

