KAPA2G Robust DNA Polymerase

KAPA2G Robust DNA Polymerase is a highly robust and versatile second-generation (2G) enzyme derived through a process of molecular evolution. The novel amino acid mutations in the polymerase offer higher processivity and specific activity, which translates to robust performance across a wide range of GC- and AT-rich templates, higher yields and sensitivity, and improved tolerance to common PCR inhibitors.

KAPA2G Robust DNA Polymerase is ideally suited for:

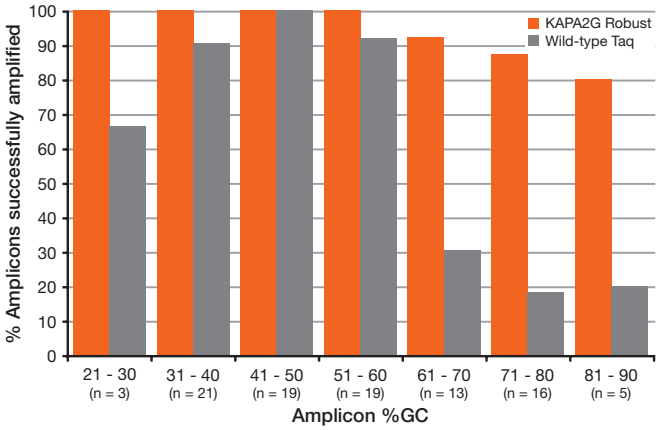
- Consolidating PCR protocols and reagents
- Broad coverage of both AT- and GC-rich targets
- Applications requiring higher yield per unit enzyme
- Colony PCR
- Tolerance to inhibitor carryover and crude sample PCR (e.g. FFPE)
- Routine PCR, using the HotStart or ReadyMix formulation

A second-generation DNA polymerase evolved for robustness and versatility.

Consolidate PCR protocols and increase success rates with a single enzyme.

The improved processivity and tolerance to common PCR inhibitors of the KAPA2G Robust DNA Polymerase offers consistent amplification, high yields and wide coverage of both easy and challenging amplicons. The unique features of the enzyme supports versatile and robust amplification of a broad range of AT- and GC-rich targets and allows for the simplification of PCR workflows, through the consolidation of reagents and protocols, while increasing success rates and turnaround time.

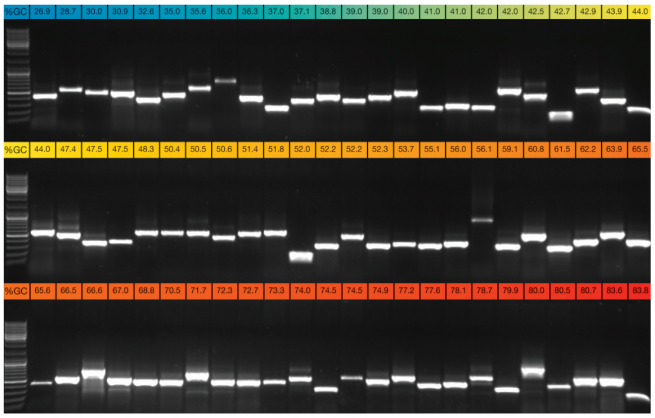
Wide coverage of AT- and GC-rich amplicons



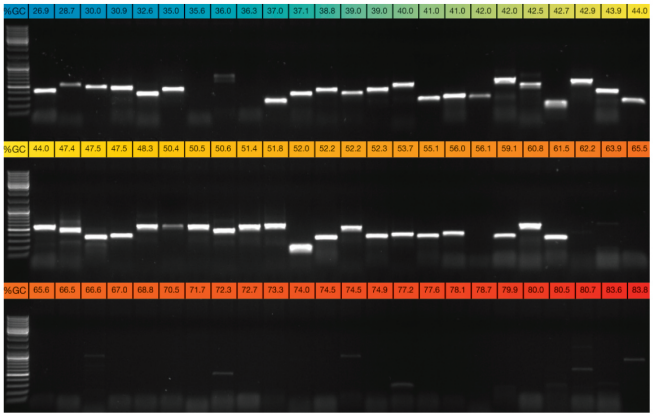
A total of 96 amplicons from human genomic DNA were amplified using a single PCR protocol (above): 3 min (95 °C) initial denaturation followed by 35 cycles of 15 sec (95 °C) denaturation, 15 sec (60 °C) annealing, and 15 sec (72 °C) extension for KAPA2G Robust HotStart ReadyMix or 60 sec (72 °C) extension for *Taq* polymerase. With KAPA2G Robust, high success rates were achieved across the full spectrum of GC contents, whereas wild-type *Taq* yielded poor results with AT-rich amplicons and amplicons with GC content >60%.

72 of the 96 amplicons (right), representing a range of primer lengths, sequence composition and melting temperatures, were electrophoresed in order of increasing GC content, with the lowest GC content (27%, blue) at the top left corner and the highest GC content (84%, red) at the bottom right corner of each composite gel image. All reactions contained 25 ng human genomic DNA.

KAPA2G Robust HotStart ReadyMix achieved 100% success

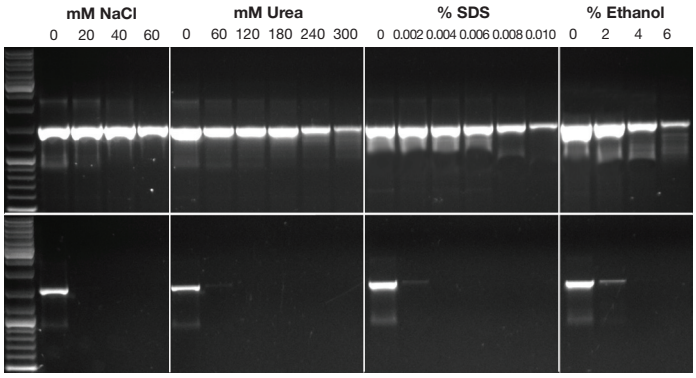


Hot start Taq Polymerase achieved 66% success



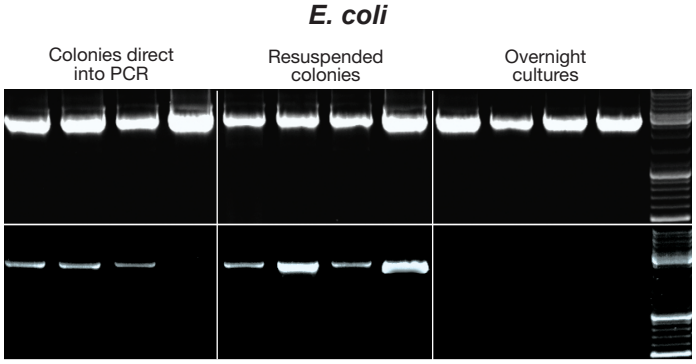
KAPA2G Robust DNA Polymerase

Greatly improved tolerance to common PCR inhibitors.

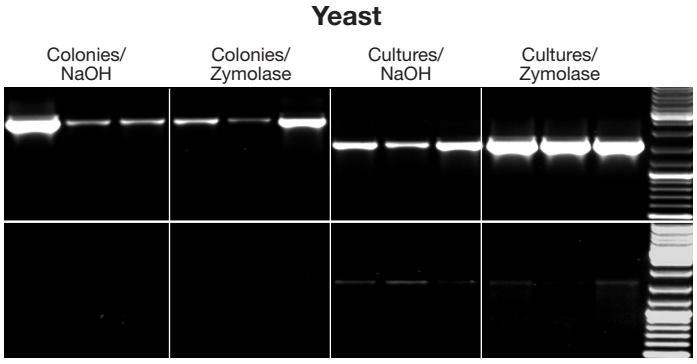


Amplification of a 1.5 kb fragment from 1 pg plasmid DNA in the presence of four common PCR inhibitors using KAPA2G Robust HotStart (top) or wild-type *Taq* (bottom). All reactions contained 0.5 units of enzyme per 25 µl reaction. A standard 3-step cycling profile (35 cycles) with an annealing temperature of 65 °C and 1.5 min extension per cycle was used.

Unrivalled performance in Colony PCR for yeast and *E. coli*



Amplification of a cloned 2.7 kb insert from four commonly used *E. coli* strains (DH5a, DH10B, JM109 or BL21) using KAPA2G Robust HotStart (top) or wild-type *Taq* (bottom). Colonies (grown on LB-agar + Amp plates) were either resuspended directly in individual PCR reactions (left) or first resuspended in PCR grade water and then added to PCR reaction mixes (middle). For overnight cultures (prepared in LB + Amp), 1 µl was added directly to the PCR mix (right).



Amplification of a 2.5 kb (left) or 1.6 kb (right) fragment from the GSH1 gene from three commonly used *S. cerevisiae* strains (BY4742, FY23 and W303) using KAPA2G Robust HotStart (top) or wild-type *Taq* (bottom). Colonies (from YPD-agar plates) or YPD overnight cultures were first lysed in 50 µl volumes with NaOH or Zymolase (as indicated).

KAPABIOSYSTEMS

ORDERING INFORMATION

Description	Code	Kit contents
KAPA2G Robust	KK5023	100 units
KAPA2G Robust	KK5024	250 units
KAPA2G Robust + KAPA dNTP Mix	KK5004	100 units
KAPA2G Robust + KAPA dNTP Mix	KK5005	250 units
KAPA2G Robust HotStart	KK5522	100 units
KAPA2G Robust HotStart	KK5515	250 units
KAPA2G Robust HotStart	KK5517	500 units
KAPA2G Robust HotStart	KK5525	2500 units
KAPA2G Robust HotStart + KAPA dNTP Mix	KK5532	100 units
KAPA2G Robust HotStart + KAPA dNTP Mix	KK5516	250 units
KAPA2G Robust HotStart + KAPA dNTP Mix	KK5518	500 units
KAPA2G Robust HotStart ReadyMix	KK5701	100 rxns
KAPA2G Robust HotStart ReadyMix	KK5702	500 rxns

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

Version 1.09