KAPALongRange | DNA Polymerase

Product Description

The KAPALongRange PCR system is a blend of *Taq* DNA polymerase and a modified archaeal (Type B) DNA polymerase possessing proofreading capability. This two-enzyme system is designed specifically to support long range and/or sensitive PCR. The KAPALongRange system polymerizes DNA from a primer annealed to a DNA template in the presence of deoxyribonucleotide triphosphates. Both enzymes possess 5'→3' polymerase activity, but only *Taq* possesses double strand dependent 5'→3' exonuclease activity and only the Type B polymerase possesses 3'→5' exonuclease (proofreading) activity.

KAPALongRange possesses higher fidelity than *Taq* polymerase.

The majority of PCR products from a KAPALongRange DNA Polymerase reaction have a single deoxyadenosine added to the 3' ends of the amplicon and can be used for ligation into single 3'-T -overhang cloning sites.

All KAPALongRange kits are supplied with a 5x reaction buffer. This buffer has been formulated to support long range and low template applications. Magnesium chloride solution is supplied separately to accommodate PCR optimization.

Product Applications

The KAPALongRange PCR system is ideally suited for:

- PCR amplification of long targets and/or PCR using low amounts of template DNA
- Standard short- and mid-range PCR amplification
- Production of PCR products to be used for ligation into 3'-T-overhang cloning vectors

Product Performance

LONG RANGE AND HIGH SENSITIVITY

KAPALongRange is able to amplify long templates from limiting complex genomic DNA.

Figure 1: Amplification of 15 kb fragment (tPA gene) from human chromosomal DNA. Lanes: (M) Marker, (1) 25 ng human gDNA, (2) 5 ng human gDNA, (3) 1 ng human gDNA. 35 cycles, 68°C extension temperature, 2.5 units of enzyme.

KAPALongRange exhibits high yield, greater sensitivity and specificity compared with leading competitive long range kits.

Figure 2: Amplification of 15 kb fragment from 10 pg, 10 fg, and 1 fg of lamdba DNA. Lanes: (1-3) KAPALongRange, (M) Marker, (4-6) Competitor R, (7-9) Competitor T.

Figure 1

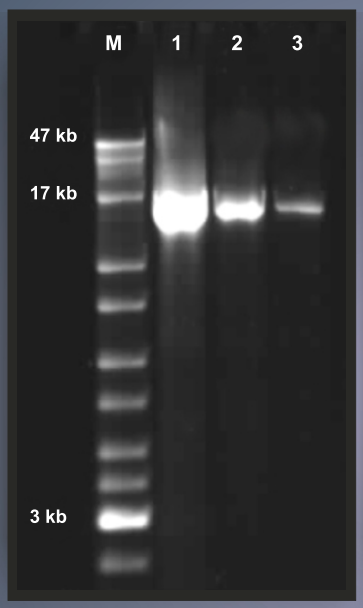
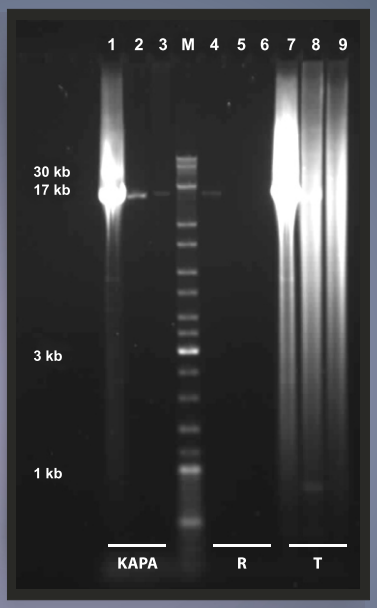


Figure 2



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Long Range. High Sensitivity.

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Product Performance

KAPALongRange can replace *Taq* polymerase using standard PCR cycling conditions and less enzyme per reaction. KAPALongRange amplifies short-range and mid-range targets with greater sensitivity and specificity as compared with *Taq* polymerase.

Figure 3

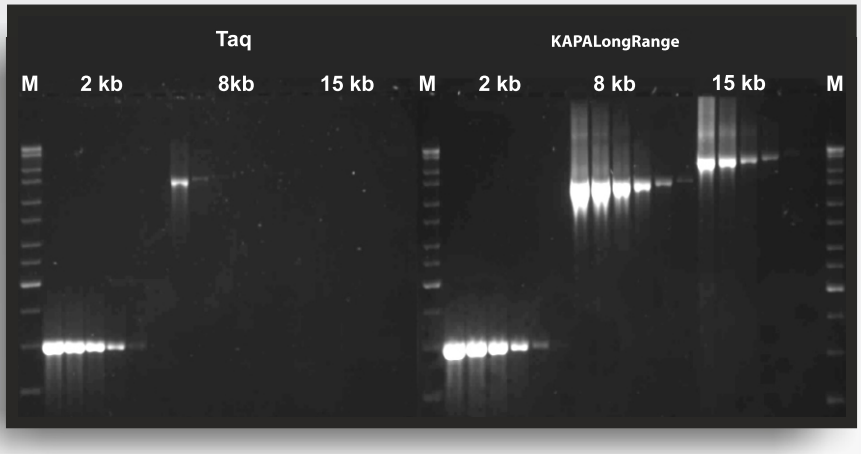

Figure 3: Amplification of 6 log dilution series of lambda DNA starting with 1 ng to 10 fg. Amplicons were 2 kb, 8 kb, and 15 kb in length. 35 cycles, 72°C extension temperature, 1.25 units of enzyme.

KAPALongRange Kit Components:

- KAPALongRange DNA Polymerase (5 U/µl in storage buffer)
- 5x KAPALongRange Reaction Buffer
- 25 mM $MgCl_2$ solution
- 250µl KAPA dNTP Mix (10mM each)

KAPALongRange	
Product Code	**Kit Size**
KK3003	250 units
KK3004	100 units

For custom orders please contact: sales@kapabiosystems.com

Boston, Massachusetts, United States
600 West Cumming Park, Suite 5350 Woburn, MA, 01801 U.S.A.
Tel: +1 781 497 2933 Fax: +1 781 497 2934
Email: info@kapabiosystems.com

Cape Town, South Africa
Research, Development, and Manufacturing Facility
2nd Floor, Old Warehouse Building, Black River Park, Fir Road,
Observatory, 7925 Cape Town, South Africa
Tel: +27 21 448 8200 Fax: +27 21 448 6503
Email: info@kapabiosystems.com

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