



The ENZYME Company

Klein-Taq DNA polymerase

Description Klein Taq is a derivative of Taq DNA-Polymerase. It is a 5'-exo-minus N-terminally truncated *Thermus aquaticus* DNA polymerase. As expressed from a gene construct in *E. coli*, translation initiates at Met236, bypassing the 5'-3' exonuclease domain of the DNA polymerase-encoding gene. The enzyme reveals a highly active and even more heat-stable DNA polymerase activity of to compare with Taq DNA polymerase. The optimal range of Mg²⁺ concentration for KleinTaq is broader than for the majority of thermostable polymerases. This feature allows to optimize reaction conditions easier than for other polymerases. Repeated exposure to 98 °C does not diminish the enzyme activity. Significant activity remains even after exposure to 99°C.

The mutation rate during polymerization is twofold lower for Klein Taq if to compare with full-length Taq DNA polymerase. Klein Taq has a very low background ability to extend a mismatched 3'-oligonucleotide end making it suitable for mutation analysis with mutation-specific oligonucleotides.

Concentration 5-10000 units/ml

Unit definition One unit is defined as the amount of enzyme that incorporates 10 nmoles of dNTPs into acid-insoluble form in 30 min at 72 °C

Storage buffer 10 mM Kaliumphosphat (pH 7,0), 100 mM NaCl, 0,5 mM EDTA, 1 mM DTT, 0,01 % Tween 20, und 50 % glycerol.

Reaction buffer 10x incomplete 160 mM (NH₄)₂SO₄, 670 mM Tris · HCl (pH 8,8), 0,1% Tween 20

Reaction Buffer 10x complete 160 mM (NH₄)₂SO₄, 670 mM Tris · HCl (pH 8,8), 0,1% Tween 20, 25 mM MgCl₂.

Reaction Buffer 10x complete II KCl 500 mM KCl, 100 mM Tris · HCl (pH 8,8), 0,1% Tween 20, 15 mM MgCl₂.

Quality control Activity, SDS-Page purity, absence of endonucleases/nickases and exonucleases

Storage at -20°C

Klein Taq protocol for ~ 2000 bp amplification:

für 50 µl Volumen:

DNA template	10 – 15 ng plasmid DNA	
Primer	0.1 – 1 µM final concentration	
dNTPs	0.2 mM je (final concentration)	
KleinTaq	2-12 units in 50 µl	
10 x Bioron reaction buffer "complete" (mit MgCl ₂)	5 µl	MgCl ₂ is final 2.5 mM
Add H ₂ O up to 50µl		

Thermocycling:

The number of cycles will depend on the amount of template DNA. In most cases 25 cycles are sufficient. For low copy number genes or rare DNAs, 30-35 cycles is recommended.

The amplification parameters will vary depending on the primers, amplicon size and the thermal cycler used. It may be necessary to optimize the system. For 5-10kb amplicon increase the extension time to 6-10 min.

Catalog #	Pack size
118002	200 u
118010	1000 u

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Bioron

Contact Germany Phone +49-(0)-621- 5720 915

Contact Singapore Phone +65 6896 6942

E-Mail: info@bioron.net WEB: www.bioron.net