

Thermo Scientific ThermoPrime *Taq* DNA Polymerase

Description: An ultrapure recombinant thermostable *Taq* DNA polymerase obtained by high-level expression of the *Taq* DNA polymerase gene in *E. coli*. The enzyme exhibits enhanced thermal stability at DNA denaturation temperatures and can be shipped at ambient temperature with no loss of activity. It is licensed and optimized for use in the Polymerase Chain Reaction (PCR) process.

Concentration: 5 units/ μ l

Unit Definition: One unit of enzyme is defined as the amount that will incorporate 10nmoles of dNTPs into acid insoluble material in 30 minutes at 74°C under the analysis conditions below.

Associated Activities: ThermoPrime has 5' to 3' polymerization and exonuclease activity but lacks 3' to 5' exonuclease activity (proofreading).

Kit Contents:

Vial (cap color)	Pack Size			
	A	B	C	D
ThermoPrime (clear)	50 μ l	10 x 50 μ l	20 x 50 μ l	100 x 50 μ l
Reaction Buffer IV (blue)	1.25ml	10 x 1.25ml	20 x 1.25ml	100 x 1.25ml
MgCl ₂ (clear)	1.5ml	10 x 1.5ml	20 x 1.5ml	100 x 1.5ml

Enzyme	100mM	KCl
Storage and Dilution	20mM	Tris-HCl, pH 8.0 (at 25°C)
Dilution	0.1mM	EDTA (ethylenediaminetetraacetic acid)
Buffer:	1mM	DTT (dithiothreitol)
	0.5%	Tween [®] 20
	0.5%	Nonidet [®] P40
	50% (v/v)	Glycerol
Reaction Buffer (10X):	750mM	Tris-HCl, pH 8.8 (at 25°C)
	200mM	(NH ₄) ₂ SO ₄
	0.1% (v/v)	Tween [®] 20
Magnesium Chloride	25mM	MgCl ₂

Storage Conditions: Store ThermoPrime at -20°C. Shipping at ambient temperature has no detrimental effect on the performance of this enzyme. Shipped on ice within the UK and on dry ice for international and within the US.

Example of Protocol: Mix and spin down the solutions prior to use

	Volume	Final Concentration 1X
ThermoPrime (5U/μl)	0.125 μl	0.625 U
10X Reaction Buffer	2.5 μl	1X
dNTP Mix (20mM)	1 μl	0.2 mM of each nucleotide
MgCl ₂ (25mM)	1.5 μl*	1.5 mM*
Primer forward (10μM each)	1.25 μl*	0.5 μM*
Primer reverse (10μM each)	1.25 μl*	0.5 μM*
Water (PCR Grade)	variable	
DNA Template	0.5 – 10 μl	0.5 – 125 ng
Total volume	25 μl	

*Scale up or down the volume and concentration as appropriate
MgCl₂ concentration is usually between 1.5 and 4.0mM

Example of program:

	Temp.	Time	Number of cycle
Initial denaturation	94°C	2 min	1 cycle
Denaturation	94°C	20 sec	30 to 40 cycles
Annealing	50-65°C	30 sec	
Extension**	72°C	60 sec	
Final Extension	72°C	5 min	1 cycle

** Increase length of time in proportion to size of amplicon, *Taq* DNA Polymerase extends at approximately 1000 bp/min.

Analysis Conditions: 25 mM TAPS, pH 9.3 (at 25°C)
 50 mM [tris-(hydroxymethyl)-methyl-amino-propane sulfonic acid, sodium salt]
 2 mM KCl
 1 mM MgCl₂
 250 μM β-mercaptoethanol
 250 μM of each: dCTP, dGTP, dTTP
 1.25 μg/μl [³H] dATP (0.05 Ci/mmol)
 activated salmon sperm DNA
 Water added to a total volume of 50 μl. Incubated at 74°C for 10 minutes.

Ordering Information:	AB-0301/A	ThermoPrime <i>Taq</i> DNA polymerase	250 units
	AB-0301/B	ThermoPrime <i>Taq</i> DNA polymerase	10 x 250 units
	AB-0301/C	ThermoPrime <i>Taq</i> DNA polymerase	20 x 250 units
	AB-0301/D	ThermoPrime <i>Taq</i> DNA polymerase	100 x 250 units

All sizes are supplied with 10X Reaction Buffer and 25mM MgCl₂.

Troubleshooting

For technical information or troubleshooting contact Thermo Scientific Genomics Tech Support:

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Literature Code: AB-0301-v2-0411