

Thermo Scientific *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*. It is licensed and optimized for use in the Polymerase Chain Reaction (PCR) process.

Enzyme Source: *Thermus aquaticus*

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: *Taq* DNA polymerase has 5' to 3' polymerization and exonuclease activity but lacks 3' to 5' exonuclease activity (proofreading).

Kit Contents	Vial	Pack Size (cap color)		
		A	B	C
<i>Taq</i> DNA Polymerase	50 μ l (clear)	10 x 50 μ l (clear)	20 x 50 μ l (clear)	
Reaction Buffer IV	1.25 ml (blue)	10 x 1.25 ml (blue)	20 x 1.25 ml (blue)	
MgCl ₂	1.5 ml (clear)	10 x 1.5 ml (clear)	20 x 1.5 ml (clear)	

<u><i>Taq</i> DNA Polymerase:</u>	100mM	KCl
	20mM	Tris-HCl, pH 8.0 (at 25°C)
	0.1mM	EDTA (ethylenediaminetetraacetic acid)
	1mM	DTT (dithiothreitol)
	0.5%	Tween® 20
	0.5%	Nonidet® P40
	50% (v/v)	Glycerol
<u>Reaction Buffer IV (10X):</u>	750mM	Tris-HCl, pH 8.8 (at 25°C)
	200mM	(NH ₄) ₂ SO ₄
	0.1% (v/v)	Tween® 20
<u>MgCl₂</u>	25mM	MgCl ₂



Storage Conditions: Store at -20°C until ready for use. *Taq* DNA polymerase is stable for a minimum of 12 months. The reagents can be stored at 4°C for up to 1 month. Avoid repeated freeze thawing. Shipped on ice within the UK and on dry ice internationally and within the US.

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

	Volume	Final Concentration 1X
<i>Taq</i> DNA Polymerase (5U/μl)	0.125 μl	0.625 U
10X Reaction Buffer IV	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:	25mM	TAPS, pH 9.3 (at 25°C)
		[tris-(hydroxymethyl)-methyl-amino-propane sulfonic acid, sodium salt]
	50mM	KCl
	2mM	MgCl ₂
	1mM	β-mercaptoethanol
	250μM	of each: dCTP, dGTP, dTTP
	250μM	[³ H] dATP (0.05 Ci/mmol)
	1.25μg/μl	activated salmon sperm DNA
		Water added to a total volume of 50μl. Incubated at 74°C for 10 minutes.

Ordering Information:	AB-0192/A	<i>Taq</i> DNA Polymerase	250 units
	AB-0192/B	<i>Taq</i> DNA Polymerase	10 x 250 units
	AB-0192/C	<i>Taq</i> DNA Polymerase	20 x 250 units

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

Troubleshooting

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

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