

## Thermo Scientific *Taq* PCR Kit

**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/ $\mu$ 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 (cap color)	Pack Size	
	A	B
<i>Taq</i> DNA Polymerase (clear)	50 $\mu$ l	10 x 50 $\mu$ l
Buffer IV containing 15mM MgCl <sub>2</sub> (red)	1.25ml	10 x 1.25ml
dNTP Mix (brown)	0.5ml	3 x 1.6ml

<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 <sup>®</sup> 20
	0.5%	Nonidet <sup>®</sup> P40
	50% (v/v)	Glycerol

<u>Reaction Buffer IV</u>	750mM	Tris-HCl, pH 8.8 (at 25°C)
<u>+MgCl<sub>2</sub> (10X):</u>	200mM	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub>
	0.1% (v/v)	Tween <sup>®</sup> 20

<u>dNTP Mix:</u>	5mM	dATP
	5mM	dCTP
	5mM	dGTP
	5mM	dATP

**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 for international 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)	0.125μl	0.625 U
10X Reaction Buffer IV + MgCl <sub>2</sub> (15mM)	2.5μl	1X with 1.5mM MgCl <sub>2</sub>
dNTP Mix (20mM)	1μl	0.2mM of each nucleotide
Primer forward (10μM each)	1.25μl*	0.5μM*
Primer reverse (10μM each)	1.25μl*	0.5μM*
Water (PCR Grade)	Variable	
DNA Template	0.5 - 10μl	0.5 - 125ng
Total volume	25μl	

\*Scale up or down the volume and concentration as appropriate

**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)
50mM	[tris-(hydroxymethyl)-methyl-amino-propane sulfonic acid, sodium salt]
2mM	KCl
1mM	MgCl <sub>2</sub>
250µM	β-mercaptoethanol
250µM	of each: dCTP, dGTP, dTTP
1.25µg/µl	[ <sup>3</sup> H] dATP (0.05 Ci/mmol)
	activated salmon sperm DNA

Water added to a total volume of 50µl. Incubated at 74°C for 10 minutes.

**Ordering Information:**

AB-1192/A/N	Taq PCR Kit	250 units
AB-1192/B/N	Taq PCR Kit	2500 units

All sizes are supplied with 10X Reaction Buffer IV containing 15mM MgCl<sub>2</sub> and a 20mM dNTP Mix.

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