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Thermo Scientific Red Hot *Taq* DNA Polymerase

Description: Red Hot® *Taq* DNA Polymerase is the original 'red' thermostable DNA polymerase. It consists of ThermoPrime *Taq* DNA Polymerase containing an inert red dye to facilitate accurate low volume pipetting and as an indicator of enzyme addition. This dye has no adverse effect on the outcome of PCR. 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/µl

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: Red Hot® *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	C
Red Hot DNA Polymerase (clear)	20µl	100µl	10 x 100µl
Reaction Buffer IV (blue)	1.5ml	2 x 1.5ml	20 x 1.5ml
$MgCl_2$ (clear) 25mM	1.5ml	1.5ml	10 x 1.5ml

Polymerase Buffer:	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
10X Reaction Buffer IV:	750mM	Tris-HCl, pH 8.8 (at 25°C)
	200mM	$(NH_4)_2SO_4$
	0.1% (v/v)	Tween® 20

Storage Conditions: Store Red Hot *Taq* DNA polymerase at -20°C. 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
Red Hot DNA Polymerase (5U/µl)	0.125µl	0.625 U
10X Reaction Buffer IV	2.5µl	1X
dNTP Mix (20mM)	1µl	0.2mM of each nucleotide
$MgCl_2$ (25mM)	1.5µl*	1.5mM*
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
$MgCl_2$ 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-0406/A	Red Hot *Taq* DNA Polymerase	100 units
AB-0406/B	Red Hot *Taq* DNA Polymerase	500 units
AB-0406/C	Red Hot *Taq* DNA Polymerase	10 x 500 units

All sizes are supplied with 10X Reaction Buffer IV and 25mM $MgCl_2$.

Troubleshooting

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

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Email	abgeneus.techservice@thermofisher.com	abgene.techsupport@thermofisher.com
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