HotStart Taq DNA Polymerase

Cat: PE3009 **Size: 250 Units**
Conc. 5 units/µl Store at -20°C.

Description
HotStart Taq DNA Polymerase is a high purity, recombinant Taq DNA polymerase preparation with high avidity monoclonal antibodies that bind the polymerase and keep it inactive prior to the initial PCR denaturation step. Upon heat activation (1 minute at 94°C), the antibodies denature irreversibly, releasing fully active, unmodified Taq DNA polymerase. This enables specific and efficient primer extension with the convenience of room temperature reaction assembly. Non-specific extension of primers at low temperatures is a common cause of artifacts and poor sensitivity in PCR. The HotStart Polymerase automatic hot-start enables specific and efficient primer extension in the PCR process with the added convenience of room temperature reaction assembly. The included 10X PCR Buffer II is a new optimized buffer that provides higher product yield, improved specificity, and enhanced multiplexing capability. Activated HotStart Taq DNA Polymerase possesses 5´->3´DNA polymerase activity and a double-strand specific 5´->3´exonuclease. The polymerase does not have 3´-exonuclease activity and is free of any contaminating endo or exonuclease activities. One unit is defined as the amount of enzyme that will incorporate 10 nmol of dNTP into acid-insoluble material in 30 minutes at 74°C. HotStart Taq DNA Polymerase contains extremely low levels of residual host, *E. coli* genomic DNA.

Contents:
HotStart Taq DNA Polymerase 5 units/µL in 50% glycerol, 20 mM Tris-HCl, 40 mM NaCl, 0.1 mM EDTA, and stabilizers.
10X PCR Buffer II Optimized 10X-concentrated buffer
50 mM $MgCl_2$

Storage conditions
HotStart Taq DNA Polymerase is stable for 3 years when stored in a constant temperature freezer at -20°C.

Preparation of PCR reaction mixture:

Components	Qty.	Final concentration
Template DNA	variable	10-250 ng for genomic DNA template 0.1-10 ng for plasmid DNA template
Forward primer, 10 □M	0.5-2.5 ul	0.1-0.5 uM
Reverse primer, 10 □M	0.5-2.5 ul	0.1-0.5 uM
dNTP mix (10 mM each)	1 ul	200 uM each
PCR Buffer, 10X	5 ul	1X
$MgCl_2$	1-5 ul	1-5 mM
Taq DNA Polymerase	0.2 ul	1.0 unit
ddH_2O	up to 50 ul	Variable
Final volume	50 ul	

Program of Thermal cycling:

Step 1 Initial denaturation	94º	1-3 min	92º, 95º, 94º are the standard denaturation temperatures
Step 2 Denaturation	94º	15-30 sec	
Step 3 Annealing	55º- 65º	30 sec	Optimal annealing temperature depends on primers Tm and the reaction conditions.
Step 4 Elongation	68-72º	1 min/kb	Adjust elongation time based on product size (1kb per 1 min)
Step 5 Recycle	Go to Step 2 20-40 cycles		
Step 7 Hold	4-15º	∞	

Accessory Products

The following products are available separately from Genbiotech.

Product	**Quantity**	**Catalog no.**
dNTPs in Separate Tube (100 mM each)	4 x 100 ul	PD2001
dNTPs in Separate Tube (100 mM each)	4 x 250 ul	PD2002
dNTPs in Separate Tube (100 mM each)	4 x 400 ul	PD2003
EvaGreen™, 20X in water	5 x 1 ml	31001
Custom oligonucleotides		