Applied Biological Materials Inc.

1-866-571-7226
info@abmGood.com
www.abmGood.com

Precision™ Taq DNA Polymerase

Store at -20°C

Cat. No.	Conc.	Quantity
G078	5U/µl	500U

Description

Precision™ Taq DNA Polymerase is a thermostable enzyme that replicates DNA at 70°C to 80°C. It catalyzes the polymerization of nucleotides into duplex DNA in the 5′ to 3′ direction in the presence of magnesium. The enzyme has a molecular weight of approximately 90,000 daltons. Unlike Taq DNA Polymerase, Precision™ Taq DNA Polymerase exhibits 3′ to 5′ exonuclease (proofreading) activity, that enables the polymerase to correct nucleotide incorporation errors. The error rate of Precision™ Taq DNA Polymerase in PCR is $2.6x10^{-6}$ per nucleotide per cycle. The enzyme can be used in PCR applications that demand high fidelity and can amplify templates up to 3-5kb in length. The amplified PCR products are blunt-ended.

Source

E.coli cells carrying a cloned *pol* gene from *Pyrococcus Furiosis*.

Components	
Precision™ DNA Polymerase	100µl
10X PCR Buffer (-$MgCl_2$)	1.0ml
25mM $MgCl_2$	1.0ml

Enzyme Storage Buffer

50mM Tris-HCl (pH 8.2 at 25°C), 0.1mM EDTA, 1mM DTT, 0.05% CHAPS and 50% glycerol.

10X PCR Buffer

200mM Tris-HCl (pH 8.8), 100mM KCl, 100mM $(NH4)_2SO_4$, 1% TritonX-100 and enzyme stablizer. 25mM $MgCl_2$ supplied separately.

Unit Definition

One unit of the enzyme catalyzes the incorporation of 10 nanomoles of deoxyribo-nucleotides into a polynucleotide fraction (adsorbed on DE-81) in 30 mins at 72°C.

Basic PCR Protocol

The following basic protocol serves as a general guideline and a starting point for any PCR amplification. Optimal reaction conditions (incubation times and temperatures, concentration of Taq Polymerase, primers, $MgCl_2$ and template DNA) vary and need to be optimized.

PCR reactions should be assembled in a DNA-free environment. DNA sample preparation, reaction mixture assemblage and the PCR process, in addition to the subsequent reaction analysis, should be performed in separate areas.

A control reaction, omitting template DNA, should always be performed to confirm the absence of contamination.

1. Add the following components to a sterile 0.2ml PCR tube sitting on ice.

Components	Volume
DNA Template	~100ng
Forward Primer (10µM)	1µl
Reverse Primer (10µM)	1µl
10X PCR Buffer	5µl
25mM $MgCl_2$	3µl
dNTP Mixture (10mM each)	1ul
Precision™ Taq (5U/µl)	0.5-1µl
ddH_2O	up to 50µl

We recommend preparing a mastermix for multiple reactions to minimize reagent loss and enable accurate pipetting.

2. Mix contents of tube and centrifuge briefly.
3. Incubate tube in a thermal cycler at 94°C for 3 mins to completely denature the template.
4. Perform 30-40 cycles of PCR amplification as follows:

   Denature: 94°C for 30 sec
   Anneal: 55°C for 30 sec
   Extend: 72°C for 1 min/1kb template

5. Incubate for an additional 5 mins at 72°C and maintain the reaction at 4°C . The samples can be stored at -20°C until use.
6. Analyze the amplification products by agarose gel electrophoresis and visualize by ethidium bromide or SafeView™ staining. Use appropriate molecular weight standards.

This product is distributed for laboratory research only.
CAUTION: Not for clinical use.
For technical questions about this product, phone the ABM helpline at 1-866-571-7226 or visit our website at www.abmGood.com.

CERTIFICATE OF ANALYSIS