



## Golden Star Taq DNA Polymerase

Product Number: PC09

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### Shipping and Storage

-20°C.

### Components

Component	PC09	PC09	PC09
	500U	2500U	10000U
Golden Star Taq DNA Polymerase,5U/μl	100μl	5×100μl	2×1ml
5×Golden Star Taq PCR Buffer	1.9ml	5×1.9 ml	8×5mL

Note: The 5×Golden Star Taq PCR Buffer of this product contains 8.5mM magnesium ions.

### Description

Golden Star Taq DNA Polymerase is a chemically modified new and efficient Taq DNA Polymerase, which is completely blocked at room temperature, making the enzyme inactive at low or normal temperature. Thus, non-specific amplification caused by non-specific binding of primers and templates or primer dimers can be effectively avoided at room temperature, the activation of the enzyme must be incubated at 95°C for 10 minutes. The unique buffer system enables the enzyme to be widely used, and makes efficient amplification of templates with high GC content, complex secondary structure and low copy. Using this product for PCR amplification, the 3' end of the PCR product with an "A" base, can be directly used for T/A cloning. This product has strong specificity and can be directly used for downstream cloning or chip hybridization experiments without the need for glue recovery to remove the heteroband after PCR amplification. It is mainly for conventional PCR, RT-PCR, real-time PCR, multiplex PCR, gene chip analysis and SNP detection, especially for PCR reaction with high specificity requirements.

### Activity Definition

Using activated salmon sperm DNA as template/primer, the amount of enzyme required to incorporate 10nmol deoxynucleotides into acidic insoluble material was defined as 1 active unit(U) at 74°C for 30 min.

### Quality Control

The purity of SDS-PAGE was greater than 99%. No exogenous nuclease activity was detected. No host residual DNA was detected by PCR. It can effectively amplify single copy genes in the human genome. There was no obvious activity change after one month storage at room temperature

### Protocol

The following examples are the PCR reaction system and reaction conditions for the amplification of 1kb fragment using human genomic DNA as template. In actual operation, corresponding improvements and optimization should be made according to the template, primer structure and the size of the target fragment.

#### 1. PCR Reaction System

Reagent	50μL Reaction System	Final Conc.
5×Golden Star Taq PCR Buffer	10μl	1×
dNTP Mix, 10mM each	1μl	200μM each
Forward Primer, 10μM	2μl	0.4μM
Reverse Primer, 10μM	2μl	0.4μM
Template DNA	<0.5μg	<0.5μg/50μl
Golden Star Taq DNA Polymerase,5 U/μl	0.5μl	2.5 U/50μl

**For Research Use Only**



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ddH<sub>2</sub>O

up to 50μl

Note: primer concentration, please use final concentration 0.1-1.0μM as reference for setting range. When the amplification efficiency is not high, the primer concentration can be increased. When nonspecific reactions occur, the concentration of primers can be reduced to optimize the reaction system.

## 2. PCR Reaction Program

Step	Temperature	Time	
Pre denaturation	95°C	10min	
Denaturation	95°C	30s	} 30-40 ↑ cycles
Annealing	55-65°C	30s	
Extend	72°C	1min	
Final extension	72°C	5min	

Note:1) In general experiments, the annealing temperature is 5°C lower than the melting Temperature T<sub>m</sub> of the amplification primer, and the annealing time is generally 30-60s. If the desired amplification efficiency cannot be obtained, the annealing temperature should be appropriately reduced; When the nonspecific reaction occurs, the annealing temperature is increased to optimize the reaction conditions.

2) The extension time should be set according to the size of the amplified fragment. The Golden Star Taq DNA Polymerase included in this product has an expansion efficiency of 1-2KB /min.

3) Cycle number can be set according to downstream application of amplified products. If the number of cycles is too small, the increment of expansion is insufficient; If the number of cycles is too high, the mismatch rate will increase, and the non-specific background will be serious. Therefore, the number of cycles should be reduced as far as possible under the premise of ensuring the product yield.

4) The product must be pre-denatured at 95°C for 10 min under the condition of enzyme Activation.