2) The extension time should be set according to the size of the amplified fragment. The GoldStar Taq DNA Polymerase included in this product has an expansion efficiency of 1-2 KB /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-denaturated at 95°C for 10 mins under the condition of enzyme activation.

This product is for scientific research only, which shall not be used for clinical diagnosis or other purposes.

Version: 09/2022

GoldStar DNA Polymerase

Cat. No. : CW0938S (500 U)
CW0938M (2500 U)
CW0938L (10000 U)

Storage Conditions: -20°C

Components

Component	CW0938S 500 U	CW0938M 2500 U	CW0938L 1000 U
GoldStar DNA polymerase, 5 U/uL	100 μL	5×100 μL	2×1 mL
5×GolderStar PCR Buffer	1.9 mL	5×1.9 mL	8×5 mL

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

Introduction

GoldStar DNA Polymerase is a chemically modified new and efficient Taq DNA Polymerase, which is completely blocked at room temperature, making the enzyme inactiveat 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 temperaturethe 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 10 nmol 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.

Procedure

The following examples are the PCR reaction system and reaction conditions for the amplification of 1 kb 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	50 μLReaction System	Final Conc.
5×GoldStar PCR Buffer	10 μL	1×
dNTP Mix，10 mM each	1 μL	200 μM each
Forward Primer，10 μM	2 μL	0.4 μM
Reverse Primer，10 μM	2 μL	0.4 μM
Template DNA	<0.5 μg	<0.5 μg/50 μL
GoldStar DNA Polymerase，5 U/μL	0.5 μL	2.5 U/50 μL
ddH_2O	up to 50 μL	

Note: primer concentration, please use final concentration 0.1-1.0 μM 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	
Initialization	95°C	10 min	
Denaturation	95°C	30 s	30-40 cycles
Annealing	55-65°C	30 s	
Elongation	72°C	1 min	
Final elongation	72°C	5 min	

Note:

1) In general experiments, the annealing temperature is 5°C lower than the melting Temperature Tm of the amplification primer, and the annealing time is generally 30-60 s. 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 tooptimize the reaction conditions.