Version: 12/2023

Es Taq DNA Polymerase

Cat. No. : CW0688S (500 U)
CW0688M (2500 U)
CW0688L (10000 U)

Storage Conditions: -20°C

Components

Component	CW0688S 500 U	CW0688M 2500 U	CW0688L 1000 U
Es Taq DNA Polymerase, 5 U/μL	100 μL	5×100 μL	2×1 mL
10×PCR Buffer	1.8 mL	5×1.8 mL	8×5 mL

Note: The 10×PCR Buffer of this product contains 15 mM magnesium ions.

Introduction

Es Taq DNA Polymerase is an optimized mixture of Taq and Pfu DNA Polymerase, with 5 '→3' DNA Polymerase activity, 5 '→3' exonuclease activity and 3 '→5' exonuclease activity. Compared with Taq DNA Polymerase, Es Taq DNA Polymerase has the advantages of high amplification efficiency and low mismatch rate, and can efficiently amplify DNA fragments. Most of the PCR products amplified with this product have an "A" base attached to the 3 'end, which can be directly used for T/A cloning. This product is suitable for conventional PCR reaction and gene cloning with high fidelity 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

After multiple column purifications, SDS-PAGE analysis confirmed a purity exceeding 99%. No exogenous nuclease activity was detected. PCR analysis showed no host residual DNA. It effectively amplifies single-copy genes in the human genome. It can be stored at room temperature for one month with no significant change in activity.

Procedure

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	25 μL	Final Conc.
10×PCR Buffer	5μL	1×
dNTP Mix (10 mM each)	1μL	200 μM each
Forward Primer (10 μM)	2μL	0.4 μM
Reverse Primer (10 μM)	2μL	0.4 μM
Template DNA	<0.5 μg	<0.5 μg/50 μL
Es Taq DNA Polymerase5 U/μL	0.25-0.5 μL	1.25-2.5U/50 μL
ddH_2O	up to 50 μL	

Note:

Primer concentration should take 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 non-specific reactions occur, the concentration of primers can be reduced to optimize the reaction system.

2. PCR Reaction Condition

Step	Temperature	Time	
Pre-denaturation	94°C	2 mins	
Denaturation	94°C	30 s	25-35 cycles
Annealing	55-65°C	30 s	
Extension	72°C	30 s	
Terminal Extension	72°C	2 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 temperature should be appropriately reduced when the ideal amplification efficiency cannot be obtained. When nonspecific reactions occur, increase the annealing temperature to optimize reaction conditions.

2) The extension time should be set according to the size of the amplified fragment. The amplification efficiency of the Es Taq DNA Polymerase is 2 KB /min.

3) The number of cycles can be set according to the downstream application of the amplification product. If the number of cycles is too low, there is insufficient amplification. If the number of cycles is too high, the mismatch rate increases, leading to significant nonspecific background. Therefore, the number of cycles should be minimized on the premise of ensuring the yield of the product.