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CAUTION! Professional use only.
Follow instruction manual before use.
Reading and carefully following these warnings will minimize usage errors, other possible risks and hazards.
Wear safety glasses, clothes, and gloves.

TAQ DNA POLYMERASE (RECOMBINANT) (5 U/µL) User Guide

Catalog Number	Pack Size
ZT-TAQ-100	500 U
ZT-TAQ-500	5 X 500 U

Content and Storage Condition

Content	Quantity	Shipping Condition	Storage Condition
Taq DNA Polymerase	100µl	-20°C	-20°C
10X KCl Buffer	1,25 mL	-20°C	4°C or -20°C
10X $(NH_4)_2SO4$ Buffer	1,25 mL	-20°C	4°C or -20°C
25 mM $MgCl_2$	1,25 mL	-20°C	4°C or -20°C

Features

Concentration: 2X
Application: Molecular Biology
Purity Class: Molecular Biology
Appearance: Colorless, clear, liquid
Classification: General Substance
Reaction Speed: Standard

Product Description

Taq DNA Polymerase is a highly thermostable DNA polymerase derived from the thermophilic bacterium Thermus Aquacus. The enzyme catalyzes the presence of 5' 3' DNA, lacks detectable 3' 5' exonuclease (editing) capabilities, and has low 5' 3' exonuclease capabilities. In addition, Taq DNA Polymerase exhibits clusters of deoxynucleotidyl transferase, resulting in extra adenine seeding at the 3' end of the children's PCR knockdown. Recombinant Taq DNA Polymerase is an ideal enzyme for standard PCR of 5 kb or shorter templates. High GC rate, poor performance for die sizes.
It is thermostable. Its half-life is more than 40 minutes at 95 ° C.
3'-Also produces PCR products.
The kit is supplied with two buffers; 10X KCl Buffer and 10X (NH4)2SO4 Buffer.

Applications

Routine PCR amplification of DNA fragments up to 5 kb in length and high throughput PCR.

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Note

The error rate of Taq DNA Polymerase in PCR is 2.2 x 10-5 errors per nucleotide in each cycle. The accuracy of PCR is 4.5 x 104. Accuracy is the inverse of the error rate and refers to the average number of correct nucleotides included before an error occurs.

Warning

Do not preserve the product when the package is damaged.

Warning

1. Perform all stages on ice.
2. To set up parallel reactions and minimize pipetting errors, prepare a master mixture by mixing nuclease-free water, buffer, dNTPs, primers and SOFTEC Taq DNA Polymerase. Prepare sufficient master mix for the number of reactions plus one extra.
3. After thawing the main mixture on ice, centrifuge it for a short time.
4. Place your 0.2ml microcentrifuge tubes on the ice and follow the recommended table below for each 50 µL reaction volume.

SOFTEC Taq DNA Polymerase (5 U/µL)	0,5 – 1 µL
SOFTEC 10x (NH4)2SO4 Buffer or SOFTEC 10x KCl Buffer	5 µL
SOFTEC MgCl2 (25mM)	6 µL
dNTP (10mm each)	1 µL
Forward Primer (10µM)	0,5 - 1 µL
Reverse Primer (10µM)	0,5 - 1 µL
Template DNA	0,005µg – 0,5µg
Nuclease-Free Water	Up to 50µL

25 mM MgCl2 volumes, which may vary for the specific final MgCl2 concentration:

$MgCl_2$ final concantration	1 mM	1,5 mM	2 mM	2,5 mM	1 mM	3 mM	4 mM
25mM $MgCl_2$ volume for 50 µL reaction volume	2 µL	3 µL	4 µL	5 µL	2 µL	6 µL	8 µL

5. Gently vortex the samples and spin down.
6. When using a thermal cycler that does not contain a heated lid, overlay the reaction mixture with 25 µL of mineral oil.

7. Perform PCR by following the table below for recommended thermal cycling conditions:

Step	Temperature (°C)	Time	Number of cycles
Pre-denaturation	95	1-3 min	1
Denaturation	95	30 s	25-40
Annealing	Tm-5	30 s	
Extension	72	1 min /1kb	
Final extension	72	5-15 min	1

Recommendations for Preventing Contamination for the PCR Reaction

- Perform the preparation of the DNA sample, preparation of the PCR mixture, use of the thermal cycling device and analysis operations in separate areas.
- Perform the preparation of the PCR mixture in a laminar flow cabinet with a UV lamp.
- Wear clean laboratory gloves and renew your gloves in different steps.
- Always perform "no template control" (NTC) reactions to check for contamination.

Tips

For GC-rich DNA templates, DNA denaturation time of 30 seconds can be prolonged to 3-4 min.
Primer annealing temperature should be 5°C lower than the melting temperature (Tm) of the primers.
Annealing for 30 seconds is normally sufficient. If non-specific PCR products appear, the annealing temperature should be optimized stepwise in 1-2°C increments.
The recommended extension step is 1 min/kb at 72° for PCR products up to 2 kb. For larger products, the extension time should be prolonged by 1 min/kb.
For less than 10 copies of the template in the reaction, 40 cycles are recommended.
For higher template amounts, 25-35 cycles are sufficient.

Quality authorized by: Zet Medical R&D Lab