TRANS®

The BEST for Life Science

PerfectStart™ *Taq* DNA Polymerase

Cat. No. AP401

Store at: -20°C for two years

Concentration: 2.5 units/μl

Description:

PerfectStart™ *Taq* DNA Polymerase is a hot start *Taq* DNA polymerase containing *Taq* DNA polymerase and three kinds of monoclonal antibodies, effectively blocking DNA polymerase activity and preventing non-specific amplification at low temperature. As the denaturation step progresses, the antibodies are inactivated and *Taq* DNA Polymerase is activated, which can effectively enhance the amplification efficiency and improve the amplification sensitivity and specificity. The amplified product has an "A" base at the 3' end and can be directly cloned into the *pEASY*®-T vectors.

- Compared with *TranStart*® *Taq* DNA Polymerase and *TranStart*® *TopTaq* DNA Polymerase, *PerfectStart*™ *Taq* DNA Polymerase has higher amplification efficiency, specificity and sensitivity.
- Prepared at room temperature, reduced nonspecific and primer dimer formation.
- Different from chemical modification, long denaturing step is not needed.
- The reaction solution is specifically designed for molecular diagnosis, and the amplification length is no more than 1 kb.

Highlights

- Hot start and high specificity.
- High sensitivity.
- High amplification efficiency.
- Low *E. coli* genomic DNA residue.

Application

- Low copy number templates.
- Complex templates.
- GC/AT-rich templates.
- Real-time Quantitative PCR (qPCR).
- Multiplex PCR.
- Single nucleotide polymorphisms (SNPs)

Unit definition

One unit of *PerfectStart*™ *Taq* DNA Polymerase incorporates 10 nmol of deoxyribonucleotide into acid-precipitable material in 30 minutes at 74°C.

Quality Control

PerfectStart™ *Taq* DNA Polymerase has passed the following control assays: functional absence of double-and single-stranded endonuclease activity; >99% homogeneousness measured by SDS-PAGE, host-free residual DNA detected by PCR method, effective amplification of single-copy genes from human genome.

Storage Buffer

20 mM Tris-HCl (pH 8.0), 0.1 mM EDTA, 1 mM DTT, 100 mM KCl, 50% Glycerol, Stabilizers.

10×*PerfectStart*™ *Taq* Buffer (With Mg^{2+})

200 mM Tris-HCl (pH 9.0), 200 mM $(NH_4)_2SO_4$, 20 mM $MgSO_4$, 10% Glycerol, others.

Kit Contents

Component	AP401-01/11	AP401-02/12	AP401-03/13
PerfectStart™ *Taq* DNA Polymerase	250 U×1	500 U×1	500 U×6
10×*PerfectStart*™ *Taq* Buffer	1.2 ml×1	1.2 ml×2	1.2 ml×12
2.5 mM dNTPs	-/800 µl×1	-/800 µl×2	-/1.2 ml×8
6×DNA Loading Buffer	500 µl×1	1 ml×1	1 ml×2
10×GC Enhancer	200 µl×1	400 µl×1	1 ml×1

Reaction Components

Component	Volume	Final Concentration
Template DNA	Variable	as required
Forward Primer (10 µM)	1 µl	0.2 µM
Reverse Primer (10 µM)	1 µl	0.2 µM
10×*PerfectStart*™ *Taq* Buffer	5 µl	1×
2.5 mM dNTPs	4 µl	0.2 mM
PerfectStart™ *Taq* DNA Polymerase	0.5-1 µl	1.25-2.5 units
Nuclease-free Water	Variable	-
Total volume	50 µl	-

Thermal cycling conditions

Temperature	Time	
94°C	2-5 min	
94°C	30 sec	30-35 cycles
50-60°C	30 sec	
72°C	1-2 kb/min	
72°C	5-10 min	

GC Enhancer

For better amplification of GC rich or complex templates, we recommend adding GC enhancer to PCR reaction. GC enhancer is provided at 10× concentration and can be used at 0.25×-1× concentration.

Note

- The final concentration of $MgSO_4$ is sufficient for most targets and amplification. For optimal results, the concentration of $MgSO_4$ can be increased by 1-3 mM.
- For GC/AT-rich templates and complex templates, we recommend adding GC enhancer.

FOR RESEARCH USE ONLY