



TransStart® FastPfu DNA Polymerase

Cat. No. AP221

Store at: -20°C for two years

Concentration: 2.5 units/ μ l

Description:

TransStart® FastPfu DNA Polymerase is a fast, high fidelity and high processivity hot start DNA polymerase.

Highlights

- Extension rate is about 2-4 kb/min.
- TransStart® FastPfu DNA Polymerase offers 54-fold fidelity as compared to EasyTaq® DNA Polymerase.
- PCR products can be directly cloned into pEASY®-Blunt vectors.
- Amplification of genomic DNA fragment up to 15 kb.
- Amplification of plasmid DNA fragment up to 20 kb.

Applications

- High fidelity PCR
- High yield and fast PCR
- Blunt end cloning
- Site-directed mutagenesis
- Complex templates

Unit Definition

One unit of TransStart® FastPfu DNA Polymerase incorporates 10 nmol of deoxyribonucleotide into acid-precipitable material in 30 minutes at 74°C.

Quality Control

TransStart® FastPfu DNA Polymerase has passed the following quality control assays: functional absence of double- and single-strand endonuclease activity; >99% homogeneous measured by SDS-PAGE. Each batch of TransStart® FastPfu DNA Polymerase has been assayed for amplification efficiency to amplify p53 gene from 10 ng of human genomic DNA.

Storage Buffer

50 mM Tris-HCl (pH 8.2), 0.1 mM EDTA, 1 mM DTT, Stabilizers, 50% glycerol

5×TransStart® FastPfu Buffer with 20 mM MgSO₄

100 mM Tris-SO₄ (pH 9.2), 50 mM (NH₄)₂SO₄, 200 mM KCl, 10 mM MgSO₄, 10% Glycerol, others

Kit Contents

Component	AP221-01/11	AP221-02/12	AP221-03/13
TransStart® FastPfu DNA Polymerase	250 U×1	500 U×1	500 U×6
5×TransStart® FastPfu Buffer	1.2 ml×1	1.2 ml×2	1.2 ml×12
2.5 mM dNTPs	- / 500 μ l×1	- / 1 ml×1	- / 1 ml×6
50 mM MgSO ₄	200 μ l×1	400 μ l×1	1 ml×1
PCR Stimulant	200 μ l×1	400 μ l×1	1 ml×1
6×DNA Loading Buffer	500 μ l×1	1 ml×1	1 ml×2

PCR Stimulant

For better amplification of GC rich or complex template, we recommend adding PCR Stimulant into PCR reaction. PCR Stimulant is provided at 5× concentration and can be used at 0.5×-2.5× concentration.

Reaction Components

Component	Volume	Final Concentration
Template	Variable	as required
Forward Primer (10 μM)	1 μl	0.2 μM
Reverse Primer (10 μM)	1 μl	0.2 μM
5× <i>TransStart</i> [®] <i>FastPfu</i> Buffer	10 μl	1×
2.5 mM dNTPs	4 μl	0.2 mM
<i>TransStart</i> [®] <i>FastPfu</i> DNA Polymerase	1 μl	2.5 units
Nuclease-free Water	Variable	-
Total volume	50 μl	-

Suggested conditions (50 μl reaction volumes)

Parameter	Targets ≤10 kb	Targets ≥10 kb	cDNA Targets
Template	100 ng Genomic DNA 5-30 ng Plasmid DNA	200-500 ng Genomic DNA 5-30 ng Plasmid DNA	1-2 μl cDNA from RT reaction (50-500 ng starting RNA template)
MgSO ₄	Add 1-2 μl of 50 mM MgSO ₄ to a final concentration of 3-4 mM for target larger than 5 kb		

Thermal cycling conditions

Number of cycles	Temperature	cDNA or Genomic DNA	Plasmid DNA
1 cycle	95°C	2 min	1 min
Plasmid or Genomic DNA: 30-35 cycles cDNA: 35-40 cycles	95°C	20 sec	20 sec
	T _m -5°C	20 sec	20 sec
	72°C	4 kb/min for targets ≤1 kb 2-4 kb/min for targets >1 kb	2 kb/min
1 cycle	72°C	5 min	5 min

Notes

- For GC-rich templates, the recommended denaturation temperature is 98°C.
- To ensure high fidelity, we recommended using high quality dNTPs. dNTPs containing dUTP cannot be used.

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