



SMOBIO

Small Bio, Smart Tool

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Product Information

ExcelTaq™ series

Hot Start II DNA Polymerase

TP5000 500 units

Hot Start II DNA Polymerase (5 U/μl)

100 μl

10X HS Buffer

1 ml × 2

Storage

-20°C for 24 months

Features

- Reversible enzyme inactivation
- Omits extra enzyme activation step
- Convenient for room temperature PCR set-up
- High yield and specificity of target amplicons
- Wide range of amplicon length (up to 10 kb)
- High sensitivity (as low as 1 fg of plasmid)

Description

The ExcelTaq™ Hot Start II DNA Polymerase is a mixture of an aptamer-based inhibitor and a recombinant thermo-stable *Taq* DNA polymerase designed for preventing or minimizing non-specific DNA amplification in PCR reaction (Fig. 1). The inactivation of polymerase is achieved by a reversible binding of the aptamer to the polymerase at temperatures below 45°C. The aptamer inhibitor releases polymerase during normal PCR cycling. The aptamer-based inhibition omits the time-consuming initial activation step required by chemically modified or antibody-based hot start polymerases.

The high specificity and sensitivity of ExcelTaq™ Hot Start II DNA Polymerase allows sensitive detection from limited amount of DNA templates, such as 1 pg of cDNA or 1 fg of plasmid DNA. With a high DNA synthesis rate and high thermo-stability, the ExcelTaq™ Hot Start II DNA Polymerase allows reactions to be set up at room temperature and is suitable for common and specialized PCR applications.

Applications

- High specificity PCR
- High-throughput PCR
- Generation of PCR products for TA cloning
- Routine PCR, multiplex PCR, colony PCR, and RT-PCR

Storage Buffer

50 mM Tris-HCl (pH 8.0), 50 mM KCl, 0.1 mM EDTA, 1 mM DTT, stabilizer, 50% (v/v) glycerol

10X HS Buffer

200 mM Tris-HCl (pH 8.8 at 25°C), 100 mM KCl, 100 mM $(\text{NH}_4)_2\text{SO}_4$, 20 mM MgCl_2 , 1% Triton X-100

Unit Definition

One unit is defined as the amount of enzyme that will incorporate 10 nmol of dNTP into acid-insoluble material in 30 minutes at 74°C.

Recommended PCR Condition

Template	0.1 – 150 ng*
Forward primer	0.1 – 0.5 μ M
Reverse primer	0.1 – 0.5 μ M
10X HS buffer	5 μ l
dNTPs	0.2 mM (each)
Hot Start II DNA Polymerase	0.25 μ l (1.25 U)
ddH ₂ O	to 50 μ l
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Total volume	50 μ l

* Optimal amount of DNA template depends on the source and quality of DNA. The amount of purified plasmid templates can be even less than 1 pg.

Recommended PCR Program

94°C	2 min	} 25 ~ 40 cycles
94°C	30 sec	
50~68°C**	30 sec	
72°C	30 sec/kb	
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72°C	1 min	

** Optimal PCR condition varies according to primers' thermodynamic properties.

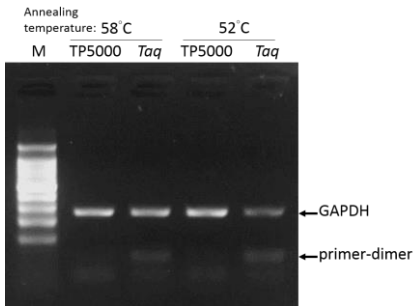


Fig. 1. ExcelTaq™ Hot Start II DNA Polymerase increases specificity and quantity of amplicons. The GAPDH gene was amplified from 100 pg of HeLa cells cDNA with *Taq* DNA polymerase (lane 3 and 5) or with TP5000 ExcelTaq™ Hot Start II DNA Polymerase (lane 2 and 4). Results display an elimination of primer-dimers and increased amount of desired products when ExcelTaq™ Hot Start II DNA Polymerase is used. (M: DM2100)

Quality Control

Functional Testing

ExcelTaq™ Hot Start II DNA Polymerase is tested for performance in the polymerase chain reaction (PCR) using 1 unit enzyme to amplify a 665 bp target from 1 pg of tested plasmid DNA. The resulting PCR product is visualized as a single band on an ethidium bromide-stained agarose gel.

Nuclease Assay

No contaminating endonuclease or exonuclease activity was detected using pUC19 incubated with ExcelTaq™ Hot Start II DNA Polymerase for 4 hours at 37°C.

Residual Nucleotides Assay

No contaminating residual nucleotides were detected from purified ExcelTaq™ Hot Start II DNA Polymerase by PCR assay.

Other Information

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Caution: Not intended for human or animal diagnostic or therapeutic uses.

Related Products

CK1000	Champion E. coli Transformation Kit
DM1100	ExcelBand 50 bp DNA Ladder, 500 μ l
DM2300	ExcelBand 100 bp+3K DNA Ladder, 500 μ l
DM3100	ExcelBand 1 KB (0.25-10 kb) DNA Ladder, 500 μ l
DM4100	ExcelBand XL 25 kb DNA Ladder, Broad Range (up to 25 kb), 500 μ l
NS1000	FluoroVue Nucleic Acid Gel Stain (10,000X), 500 μ l
RP1000	ExcelRT Reverse Transcriptase, 20,000 U
RP1100	ExcelRT One-step RT-PCR Kit, 50 Rxn
TF1000	SMO-HiFi DNA Polymerase, 100 U
TP1000	ExcelTaq Taq DNA Polymerase, 500 U
TP1200	ExcelTaq 5X PCR Master Dye Mix, 200 RXN
TP1260	ExcelTaq 5X Fluorescent PCR Master Mix, 200 RXN
TQ1100	ExcelTaq 2X Q-PCR Master Mix (SYBR, no ROX), 200 RXN
TQ1110	ExcelTaq 2X Q-PCR Master Mix (SYBR, ROX), 200 RXN
TQ2110	ExcelTaq 2X Q-PCR Master Mix (TaqMan, ROX), 200 RXN
VE0100	B-BOX Blue Light LED epi-illuminator, AC 100-240V, 50/60Hz