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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 $(NH_4)_2SO_4$, 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 µM
Reverse primer	0.1 – 0.5 µM
10X HS buffer	5 µl
dNTPs	0.2 mM (each)
Hot Start II DNA Polymerase	0.25 µl (1.25 U)
ddH_2O	to 50 µl
Total volume	50 µl

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

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

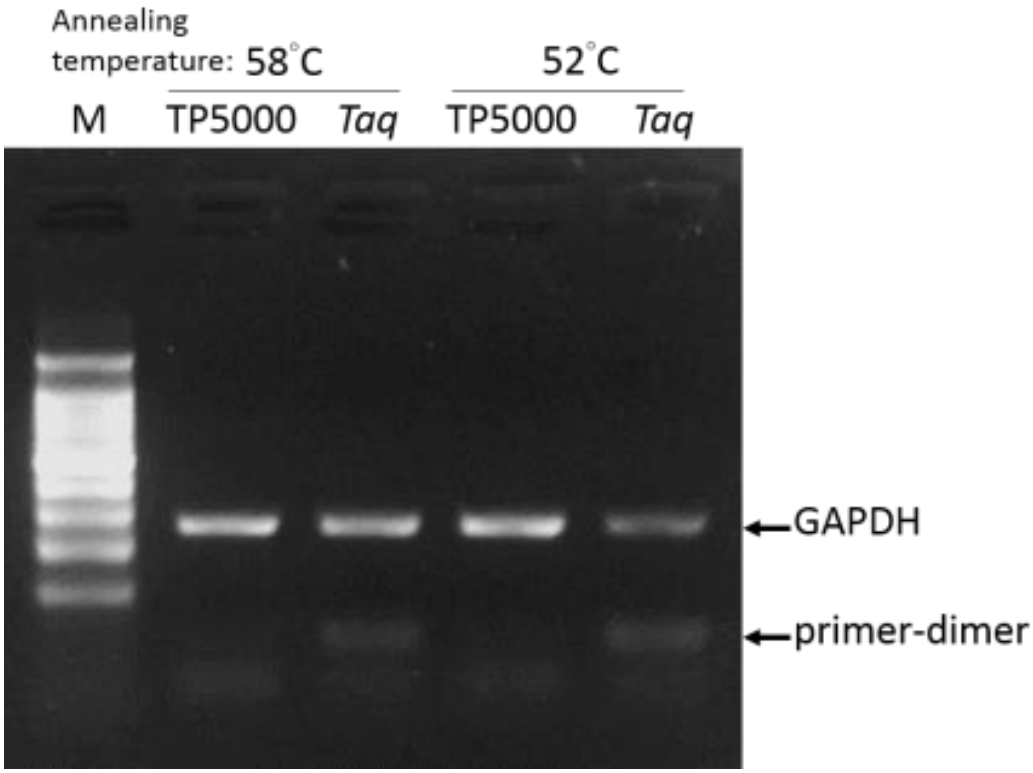

Fig. 1. ExcelTaq™ Hot Start II DNA Polymerase increases specificity and quantity of amplicons. The GAPDH gene was amplified from 100 pg of HeLa cells cDNA with *Taq* DNA polymerase (lane 3 and 5) or with TP5000 ExcelTaq™ Hot Start II DNA Polymerase (lane 2 and 4). Results display an elimination of primer-dimers 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 µl
DM2300	ExcelBand 100 bp+3K DNA Ladder, 500 µl
DM4100	ExcelBand XL 25 kb DNA Ladder, Broad Range (up to 25 kb), 500 µl
NS1000	FluoroVue Nucleic Acid Gel Stain (10,000X), 500 µl
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
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

The latest version of the manual can be downloaded from www.smobio.com/shop.

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