Ver. EN20250624

UCF. ME™ Advanced Hotstart Taq DNA Polymerase (20 U/μL)

Description

The product is a hot start DNA polymerase with double blocking by double antibodies independently developed by the company. This product not only blocks the 5'→3' polymerase activity of Taq DNA polymerase, but also blocks the 5'→3' exonuclease activity. Heating for 30 seconds at the pre denaturation temperature can completely inactivate the antibody and release DNA polymerase activity and exonuclease activity. The double blocking characteristic can not only effectively prevent the nonspecific amplification caused by mismatch or primer dimer, but also effectively inhibit the decline of fluorescence signal caused by probe degradation, so as to make the in vitro detection reagent more stable during transportation or use at room temperature.

In addition, this product has been processed with the UCF.ME™ ultra-low residual process from Yeasen Biotechnology, resulting in extremely low residual levels of nucleases and host gDNA. With an optimized amplification buffer (e.g., Cat#16716ES), it can effectively reduce non-specific amplification caused by primer-probe hybridization during sample mixing, system warming, and long-term storage. This supports the development of a real time PCR system that allows for pre-mixing of primers and probes.

Specifications

Polymerase	Taq DNA Polymerase
Purity	≥ 95%（SDS-PAGE）
Hot Start	Built-In Hot Start
Reaction Speed	Standard
Exonuclease Activity	5' - 3'

Components

Name	14321ES76 (1,000 U)	14321ES80 (10,000 U)	14321ES92 (25,000 U)	14321ES93 (100,000 U)
UCF.ME™ Advanced Hotstart Taq (20 U/μL)	50 μL	500 μL	1.25 mL	5 mL

Storage

This product should be stored at -25~-15°C for 2 years.

Instructions

1.Reaction Setup

Cat	Components	Volume (μL)	Volume (μL)
16716-A	5× PCR Buffer	5	10
16716-B	$MgCl_2$（250 mM）	0.35	0.7
16716-C	dNTP Mix（25 mM each）	0.25	0.5
14321	UCF.ME™ Advanced Hotstart Taq (20 U/μL)	0.15	0.3
/	Primer Mix(10μM)	0.4	0.8
/	Probe Mix(10μM)	0.2	0.4
/	DNA template	1-20	1-30
/	RNase Free H_2O	up to 25	up to 50

Note：Be sure to mix well before use, avoid excessive bubbles caused by violent vibration.

a) dNTP concentration: It is recommended that the final concentration of dNTP be 0.2-0.5mM. If requirements, you can use 25 mM each dNTP Mix at an interval of 0.05-0.1mM to find the best dNTP concentration.

b) MgCl2 concentration: It is recommended that the final concentration of Mg2+ is 1.5-5 mM. If requirements, 250 mM MgCl2 can be used to explore the best concentration of Mg 2+ at an interval of 0.2-0.5 mM.

c) Primer concentration: Primer mix including multiplex primer, depending on the situation optimal primer concentration may be between 0.1 and 1.0 μM.

d) Probe concentration: Probe mix including multiplex probe labeling difference fluorescent group, depending on the situation optimal probe concentration may be between 0.05 and 0.3 μM.

e) Template dilution: qPCR is highly sensitive and it is recommended to dilute the template. The control Ct value is suitable between 20 and 35.

f) Reaction system: 25μL or 50μL is recommended

g) System preparation: un head with filter element. Avoid cross contamination and aerosol contamination.

2. Thermal cycling protocol

(1) Standard amplification procedure

Stage	Temperature	Time	Cycles
Pre-denaturation	95°C	5 min	1
Denaturation	95°C	15 sec	45
Annealing/Extension	60°C[a]	30 sec[b]	

Notes:

a. The reaction temperature is adjusted according to the Tm value of the designed primers.

b. Different qPCR instruments need different fluorescence signal acquisition time, please set according to the shortest time limit.

(2) Rapid amplification program

Stage	Temperature	Time	Cycles
Pre-denaturation	95°C	30 sec	1
Denaturation	95°C	5 sec	45
Annealing/Extension	60°C	20 sec	

Note：If the actual qPCR detector supports rapid amplification, please perform a pre-test to confirm.

3. Application equipment

Equipment with Rox：ABI 5700, 7000, 7300, 7700, 7900HT Fast, StepOne™, StepOne Plus™

Equipment with Low Rox：ABI 7500, 7500 Fast, ViiA™7, QuantStudio™ 3 and 5, QuantStudio™ 6,7,12k Flex Stratagene MX3000P™, MX3005P™, MX4000P™

Equipment without Rox：

Bio-Rad CFX96™, CFX384™, iCycler iQ™, iQ™5, MyiQ™, MiniOpticon™, Opticon®, Opticon® 2, Chromo4™

Eppendorf Mastercycler® ep realplex, realplex 2 s; **Qiagen** Corbett Rotor-Gene® Q, Rotor-Gene® 3000, Rotor-Gene® 6000

Roche Applied Science LightCycler® 480, LightCycler® 2.0, Lightcycler® 96

Thermo Scientific PikoReal Cycler; **Cepheid** SmartCycler®; **Illumina** Eco qPCR

Notes

1. This product is for research use only!
2. For your safety and health, please wear lab coats and disposable gloves for operation.