ProFi Taq DNA Polymerase

[Cat. No.] Please refer to the **Ordering Information**

Introduction

ProFi Taq DNA Polymerase, developed by BIONEER, is a unique recombinant *Taq* DNA polymerase that offers enhanced amplification efficiency and higher fidelity. This enzyme is applicable to any template DNA, and especially effective in amplifying large genomic DNA fragments up to 20 kb. *ProFi Taq* DNA Polymerase provides accurate long-range amplification of standard and complex templates and amplification of low-copy target, and it is highly suitable for all PCR applications.

Applications

- Primer extension
- Long-range amplification from genomic DNA
- High amplification efficiency
- Excellent performance on difficult template
- Amplification of low-copy targets
- High yield and high sensitivity PCR

Components

Components	E-2201	E-2202	E-2203	E-2204
ProFi Taq DNA Polymerase	250 U (50 µl)	250 U (50 µl)	250 U (50 µl)	250 U (50 µl)
10X Reaction buffer	1 ml (with $MgCl_2$)	1 ml (without $MgCl_2$)	1 ml (with $MgCl_2$)	1 ml (without $MgCl_2$)
10 mM dNTPs	1 ml	1 ml	-	-
20 mM $MgCl_2$	-	1 ml	-	1 ml
Dilution buffer	1 ml	1 ml	1 ml	1 ml

*** Note:** For research use only. Not for use in diagnostic or therapeutic procedures.

Specifications

ProFi Taq DNA Polymerase	
5' to 3' exonuclease activity	Yes
3' to 5' exonuclease activity	Yes
3'–A overhang	Yes
Fragment size	Up to 30 kb

Buffer Composition

10X Reaction buffer with $MgCl_2$	400 mM Tris-HCl, 600 mM KCl, 15 mM $MgCl_2$, pH 9.0
10X Reaction buffer without $MgCl_2$	400 mM Tris-HCl, 600 mM KCl, pH 9.0
Dilution buffer	20 mM Tris-HCl, 0.5 mM EDTA, 1 mM DTT, 100 mM KCl, stabilizer, 50% glycerol, pH 8.0

Storage Buffer

ProFi Taq DNA Polymerase is supplied in 50% (v/v) glycerol containing 20 mM Tris-HCl, 0.5 mM EDTA, 1 mM DTT, 100 mM KCl and stabilizer, pH 8.0.

Unit Definition

One unit is defined as the amount of enzyme that incorporates 10 nmole of dNTP into acid-insoluble products in 30 min at 72°C.

Quality Control

- Nuclease Contamination Assay: Nuclease activity is not detected after incubation of 1 µg of substrate DNA (supercoiled plasmid and Lambda/*Hind* III DNA) with 5 U of *ProFi Taq* DNA Polymerase in 50 µl reaction volume at 37°C and 70°C for 18 hrs.

Storage

Store at -20°C. If stored in the recommended temperature, this product will be stable until the expiration date printed out on the label.

Online Resources

Korean **English**

Visit our **product page** for additional information and protocols.

Ordering Information

Description			Cat. No
250 U	10X Reaction buffer with $MgCl_2$	10 mM dNTPs	E-2201
			E-2203
	10X Reaction buffer without $MgCl_2$	10 mM dNTPs	E-2202
			E-2204
1,000 U	10X Reaction buffer with $MgCl_2$	10 mM dNTPs	E-2205
			E-2207
	10X Reaction buffer without $MgCl_2$	10 mM dNTPs	E-2206
			E-2208

Notice

BIONEER corporation reserves the right to make corrections, modifications, improvements and other changes to its products, services, specifications or product descriptions at any time without notice.

Explanation of Symbols

LOT Batch Code · REF Catalog Number · Caution · Consult Instructions For Use · Contains Sufficient for <n> tests · RUO Research Use Only · Temperature Limitation · Use-by Date

Experimental Procedures

Step 1

Thaw reagents

1. Thaw 10X Reaction buffer, 10 mM dNTPs, and 20 mM $MgCl_2$ on ice and mix thoroughly before use. Then, briefly spin down all components including template DNA, *ProFi Taq* DNA Polymerase, primers and nuclease-free water.

Step 2

Preparation of reaction mixture

2. Add all components for PCR into PCR tubes (not provided) to a total volume of 20 µl or 50 µl.

- Preparation of reaction mixture

Components	20 µl reaction	50 µl reaction
Template DNA	1-500 ng	1-500 ng
Forward primer (10 pmol/µl)	0.5-2 µl	1-5 µl
Reverse primer (10 pmol/µl)	0.5-2 µl	1-5 µl
10X Reaction buffer	2 µl	5 µl
10 mM dNTPs	2 µl or Variable	5 µl or Variable
20 mM $MgCl_2$*	Variable	Variable
ProFi Taq DNA Polymerase (5 U/µl)	0.5 U	1.25 U
Nuclease-free water	Variable	Variable
Total volume	20 µl	50 µl

* 20 mM $MgCl_2$ is provided for E-2202, E-2204, E-2206, and E-2208.
Recommended final concentration of $MgCl_2$ 1.5-2 mM.

3. Mix the reaction mixture by tapping or pipetting, and briefly spin down.

Step 3

Incubate reactions in a thermal cycler

4. Perform the reaction under the following conditions.

- For standard PCR (3-step)

Step	Temperature	Time	Cycles
Pre-denaturation	95°C	5 min	1 cycle
Denaturation	95°C	15-20 sec	
Annealing	45-65°C*	15-30 sec	25-35 cycles
Extension	68°C	1 min/kb	
Final extension	68°C	3-5 min	1 cycle

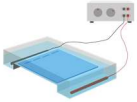
* Set the annealing temperature to 3-5°C lower than the Tm of the primers.

- For long target PCR (all targets longer than 10 kb, 2-step)

Step	Temperature	Time	Cycles
Pre-denaturation	95°C	5 min	1 cycle
Denaturation	95°C	15-20 sec	
Annealing/Extension*	68°C	< 1 min/kb	25-35 cycles
Final extension	68°C	3-5 min	

* Annealing/Extension time depends on fragment length. Use 15 min for 20 kb, 20 min for 30 kb.

Step 4



Analyze with gel electrophoresis

5. After the reaction, maintain the reaction mixture at 4-8°C. The samples can be stored at -20°C until use.

6. Load samples on agarose gel with adding a loading-dye mixture, and perform gel electrophoresis for analysis.