



Phi29 Max DNA
Polymerase

NB-54-0042-01

NB-54-0042-02

Phi29 MAX DNA Polymerase

#Cat: NB-54-0042-01

Size: 250U

#Cat: NB-54-0042-02

Size: 1,250U

Introduction

Phi29 MAX DNA Polymerase is a DNA polymerase cloned from *Bacillus subtilis* phage phi29. Phi29 MAX DNA Polymerase exhibits a strong strand-displacement function. These functions allow for highly efficient isothermal amplification of circular or linear DNA templates via rolling circle amplification, and it can conduct isothermal DNA polymerization independent of thermal cycling in vitro. Phi29 MAX DNA Polymerase has a strong chain affinity, and a single polymerization can achieve a continuous polymerization extension of up to 100 kb. In addition, Phi29 DNA Polymerase has extremely high fidelity due to its inherent 3'→5' exonuclease activity, its fidelity is 1000 times higher than that of Taq enzyme, which is higher than the fidelity of most high-fidelity enzymes. This guarantees the high fidelity of DNA synthesis, and is very suitable for in vitro preparation of plasmids and whole-genome synthesis.

Components

Components	NB-54-0042-01(250 U)	NB-54-0042-02 (1,250 U)
Phi29 MAX DNA Polymerase	25 µl	125 µl
Phi29 MAX DNA Polymerase Reaction Buffer(10×)	1 ml	1 ml

Storage

Store at -20°C, if long-term storage, please store below -70°C and avoid repeated freezing and thawing.

Application Range

Isothermal Amplification

Unit Definition

One unit (U) is defined as the amount of enzyme that incorporates 0.5 pmol of dNTPs into acid insoluble materials in 10 minutes at 30°C

Quality control

Protein Purity Assay: Phi29 MAX DNA Polymerase protein purity is greater than 95% tested by SDS-PAGE Coomassie blue staining.

Endonuclease Activity Assay: 100 U of Phi29 MAX DNA Polymerase was incubated with 1 µg of lambda for 4 hours in a 50 µl reaction system, and the DNA bands did not change

Protocol

The chain-replacement activity and high-fidelity replication of Phi29 MAX DNA Polymerase greatly simplifies the preparation of circular plasmids for sequencing.

Bacterial Culture: Directly take 1 μ l of fresh bacterial culture for amplification.

Colonies on the Plate: Pick the colonies (avoid the medium) and mix them in double distilled water. Take 1 μ l of it for the amplification reaction.

Purified Plasmid: The plasmid was diluted to 1 ng/ μ l with double distilled water, and 1 μ l was taken for amplification reaction.

1. Prepare the reaction system as follows :

Components	Volume
Nuclease-free water	4 μ l
Phi29 MAX DNA Polymerase Reaction Buffer(10 \times)	1 μ l
Random primer (100 μ M)	2.5 μ l
Sample to be amplified	μ l
Total	8.5 μ l

2. Incubate for 3 minutes at 95°C and cool for 5 minutes on ice.

Components	Volume
Previous product	8.5 μ l
10 mM dNTP	μ l
Phi29 MAX DNA Polymerase	0.5 μ l
Total	μ l

3. Add the following components to the above reaction system :

4. Mix by vortex and collect by brief centrifugation

5. Incubate overnight at 30°C.

6. Incubate for 10 minutes at 65°C to inactivate Phi29 MAX DNA Polymerase.

7. The amplified product can be used for sequencing after column purification.