

Product Description

AcuGenix™ phi29 DNA Polymerase is derived from *Bacillus subtilis* bacteriophage phi29. It exhibits strong strand displacement activity and high processivity, capable of producing DNA fragments larger than 70 Kb in a single extension. Furthermore, phi29 DNA Polymerase possesses extremely robust 3'→5' exonuclease activity, resulting in fidelity that surpasses that of most currently available high-fidelity enzymes. phi29 DNA Polymerase is suitable for in vitro isothermal DNA polymerization reactions that do not rely on thermal cycling, such as plasmid preparation, whole genome amplification (WGA), rolling circle amplification (RCA), SNP detection, and other applications.

Components

Components	BR3P104-54 (500 U)	BR3P104-56 (1000 U)
10×phi29 Buffer	125 µL	250 µL
phi29 DNA Polymerase	50 µL	100 µL

Storage

Store at -20±5°C.

Notes

1. This product is for research use only.
2. Template integrity will affect amplification performance.
3. phi29 DNA Polymerase has extremely strong 3'→5' exonuclease activity. When performing amplification, use exonuclease-resistant primers, such as phosphorothioate-modified primers.
4. The reaction buffer contains DTT. If stored for an extended period, reaction performance may decline. In such cases, add DTT to a final concentration of 4 mM before use.

Protocol

1. Using whole genome amplification as an example:

1.1 Thaw all components at room temperature or on ice, mix well, and briefly centrifuge. Prepare the reaction mix according to Table 1:

Table 1. phi29 reaction system

Component	Volume (µL)	Remarks
Genomic DNA	X	0.1 ng-10 ng
Random primer (100 µM)	25	10-50 µM
10×phi29 Buffer	5	1×
25mM dNTP	2	1 mM
ddH ₂ O	up to 48	\

1.2 Flick the tube to mix, briefly centrifuge, incubate at 95°C for 3 min, then immediately place on ice bath and cool for 2 min.

1.3 Add 2 µL of phi29 DNA Polymerase to the above mixture. Flick the tube to mix and briefly centrifuge.

1.4 Incubate at constant temperature 30°C for 2-8 h.

1.5 Incubate at 65°C for 10 min to inactivate phi29 DNA Polymerase.