Cat.:FE102

AcuGenix™ Bst DNA Polymerase (Glycerol-Free)-V2

V01

Product Description

AcuGenix™ Bst DNA Polymerase (Glycerol-Free)-V2 is derived from *Bacillus stearothermophilus* DNA Polymerase I. Through genetic engineering techniques, it retains the 5′→3′ DNA polymerase activity while eliminating the 5′→3′ exonuclease activity and exhibits strand displacement capability. It is suitable for DNA strand displacement reactions and LAMP (Loop - mediated isothermal amplification).AcuGenix™ Bst DNA Polymerase (Glycerol-Free)-V2 has been genetically modified to improve its sensitivity, and compared to the wild-type Bst DNA polymerase and long fragments, this enzfiyme can effectively increase the amplication speed and yield.AcuGenix™ Bst DNA Polymerase (Glycerol-Free)-V2 is a specialized enzyme optimized and formulated according to the characteristics of lyophilized reagents.

Size

8 U/μL

Components

1. 8 U/μLAcuGenix™ Bst DNA Polymerase (Glycerol-Free)-V2
2. 10×LAMP Buffer (Mg^{2+} free) (Optional)
3. 35.71×$MgSO_4$ (Optional)

*The 10×LAMP Buffer (Mg^{2+} free) does not contain dNTPs or Mg^{2+}. When preparing the reaction system, dNTPs and $MgSO_4$ must be added.

Unit Definition

One unit is defined as the quantity of enzyme that integrates 10 nmol of dNTP into acid-insoluble substances within 30 minutes at a temperature of 65℃.

Thermal inactivation

This product undergoes thermal inactivation at 85℃ for 5 minutes or 95℃ for 2 minutes.

Storage

Store at -20±5℃. Vortex before use. Avoid freeze-thaw cycles.

Application

This product is suitable for DNA strand displacement reactions and LAMP (Loop - mediated isothermal amplification).

Prepare Reaction Mix

Component	Volume per Reaction	Concentration in Master Mix
10×LAMP Buffer (Mg^{2+} free) [1]	5 μL	1×
dNTPs（25 mM each dNTP）	2.8-3.2 μL	1.4-1.6 mM
35.71×$MgSO_4$	1.2-1.6 μL	1×
8 U/μLAcuGenix™ Bst DNA Polymerase (Glycerol-Free)-V2	2 μL	16 U
50×Eva Green [2]	1 μL	1×
10×Primer Mix [3]	5 μL	1×
Template [4]	—	—
ddH_2O	To 50 μL	—

1. The 10×LAMP Buffer (Mg^{2+} free) does not contain dNTPs or Mg^{2+}. When preparing the reaction system, dNTPs and $MgSO_4$ must be added.
2. The 50×Eva Green can be replaced with other dyes, and the dosages of different dyes should be adjusted in accordance with experimental requirements.
3. 10×Primer Mix: 16 μM FIP, 16 μM BIP, 2 μM F3, 2 μM B3, 4 μM LoopF, and 4 μM LoopB in TE buffer.
4. For optimal amplification, add an appropriate amount of template: plasmid DNA 10 fg-1 ng, genomic DNA 1 ng-100 ng, or appropriately prepared DNA extract.

Reaction Conditions

60-65℃, 30-60min (acquire fluorescence every minute).

Q & A

LAMP amplification products are scarce or non-existent:

1. Elevate the quantity of the template and the concentration of the enzyme.
2. Substitute the primers. It is advisable to design multiple primer sets and conduct screening for the optimal primers via preliminary experiments. For primer design, refer to http://primerexplorer.jp/e/.
3. The use of Loop Primers is recommended to enhance amplification efficiency and reduce amplification time.