

## Isotherm3G DNA Polymerase

### Description

Isotherm3G DNA Polymerase is a mesophilic DNA polymerase, which synthesizes DNA from both DNA and RNA templates with a high strand displacement activity. It exhibits 5' to 3' polymerase activity but lacks any nuclease activity. Isotherm3G DNA Polymerase is the next generation of the original Isotherm DNA polymerase with further improved reverse transcription activity.

The product components have been optimized and are perfectly suited for loop-mediated isothermal amplification (LAMP) at constant temperature. The optimal reaction temperature is 65°C. However, the enzyme is also active at lower and higher temperatures (60–68°C). The enzyme can be inactivated at temperatures higher than 80°C. Addition of an intercalating dye allows the reaction to be monitored using a real-time PCR instrument. Isotherm3G DNA Polymerase is not suitable for use in PCR.

### Kit components

Component	S pack	M pack
Isotherm3G DNA Polymerase (8 U/μL)	1x 200 μL	1x 1 mL
10x Isotherm3G reaction buffer	1x 1 mL	3x 1 mL

\*Other pack sizes, bulk orders and customization are available upon request.

### Storage and shipment

Transport with ice pack. The reagents should be stored at -20°C upon arrival. The reagents are stable until the expiration date if stored correctly.

### Reaction mastermix set-up for LAMP assay

The recommended reaction mastermix set-up for a 25 μL LAMP reaction volume is shown in the table below. Reactions should be setup on ice. Mix and spin down all solutions carefully before use. After the preparation of the mastermix, incubate at 65°C for 30–60 minutes.

To get optimal performance, a temperature gradient experiment (suggested is 60–68°C) and titration of Mg<sup>2+</sup> concentration (suggested is 4–10 mM final) can be performed.

Reagent	Volume (μL)	Final concentration
Isotherm3G DNA Polymerase (8 U/μL)	1	0.32 U/μL
10x Isotherm3G reaction buffer	2.5	1x
*Primer mix	Variable	Variable
dNTPs (10 mM)	3.5	1.4 mM
Magnesium chloride (100 mM)	1.625	6.5 mM
DNA/cDNA/RNA template	Variable	Variable
Nuclease-free water	Up to 25 μL final volume	
Total volume	25 μL	

\* Primer mixes and concentrations depend strongly on the employed isothermal reaction method. Typical primer concentration for LAMP: 1.6 μM FIP/BIP primers, 0.2 μM F3/B3 primers, 0.4 μM LoopF/B primers.

### Technical information and support

The product is available also in bulk with custom fillings and can be produced customized for example in a lyo-ready formulation. For technical enquiries or assay development support, please contact us via e-mail at: [mdx@medixbiochemica.com](mailto:mdx@medixbiochemica.com).

Additional information and technical resources are available on our website at: [www.medixbiochemica.com/en/MedixMDx](http://www.medixbiochemica.com/en/MedixMDx).

