

## HelixAmp™ FastLAMP Kit (Ver. 3.0)

### Kit Contents

HelixAmp™ FastLAMP Kit (Ver. 3.0)		
Cat. No.	FLMP3-100 (100rxns)	FLMP3-500 (500rxns)
FastLAMP Enzyme V3	0.1ml	0.1ml x 5ea
5x FastLAMP Buffer V3 (Mg-free)	0.5ml	0.5ml x 5ea
100mM MgSO <sub>4</sub>	0.5ml	0.5ml x 5ea
D-Solution	1ml	1ml x 5ea
Instructions for Use	1ea	1ea

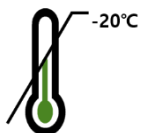
### Description

**HelixAmp™ FastLAMP Kit (Ver. 3.0)** provides simple and fast (within 20 minutes) target DNA amplification using loop-mediated isothermal Amplification (LAMP). Especially this kit suppress non-specific product formation in isothermal amplification. Kit contents consists 5x FastLAMP buffer V3 (Mg-free), FastLAMP Enzyme V3 and a D-Solution. The 5x FastLAMP Buffer V3 (Mg-free), optimized for fast amplification, contains buffering reagents, dNTPs, and salts. The FastLAMP Enzyme V3 is composed of a newly engineered *Bst* DNA Polymerase that provides improved amplification reaction properties. The novel *Bst* DNA polymerase enhances the DNA polymerization speed and allows the fast isothermal amplification reaction.

### Application

Isothermal amplification (LAMP) of DNA target

#### Storage



Store below -20°C

#### Shelf life



12 months

## Quality Control

By NanoHelix's ISO 13485-certified Quality Management System, each lot of **HelixAmp™ FastLAMP Kit (Ver. 3.0)** was tested against predetermined specifications to ensure consistent product quality.

## Protocol

### 1. Template preparation

Purified DNA sample using a commercial DNA preparation kits or a manual method can be applied directly to this assay. **Optionally** for better amplification and detection sensitivity, we recommend to use the **D-Solution** provided in this kit. **D-Solution** helps to denature the template DNA and induces efficient primer binding to its target sequence. The denatured template can be prepared by adding 1/10 volume of the D-Solution to the DNA sample.

Ex) DNA Sample 50ul + D-Solution 5ul

### 2. Reaction Mixture

LAMP products can be analyzed by examining the end-point product or real-time assay. Prepare the reaction mix according to the following table for the selected analysis method.

Components	For end-point assay	For real-time assay (intercalating dye)
Template	1 ~ 5µl	1 ~ 5µl
5x FastLAMP Buffer V3 (Mg-free)	5µl	5µl
FastLAMP Enzyme V3	1µl	1µl
100mM MgSO <sub>4</sub> <sup>1)</sup>	1.75~2.25µl (Final 7~9mM)	1.75~2.25µl (Final 7~9mM)
10x LAMP Primer mix <sup>2)</sup>	2.5µl	2.5µl
Fluorescent dye <sup>3)</sup>	-	x µl
RNase-free Water	Adjust to final 25µl	

- <sup>1)</sup> Adjusting the MgSO<sub>4</sub> concentration according to the primer set used is recommended. Begin by using MgSO<sub>4</sub> at a final concentration of 8 mM. If encountering low efficiency, consider employing 9 mM MgSO<sub>4</sub>. For addressing non-specific or NTC amplification issues, modify the MgSO<sub>4</sub> concentration to 7 mM.

- 2) For simplicity in setting up reactions, we recommend making stocks of the LAMP primers at a usable concentration. For example, we suggest a following **10x LAMP Primer Mix** containing all six LAMP primers. If there is low-efficiency or non-specific amplification, modify the primer concentration or design a new set of primers for the target sequence.

10x LAMP Primer Mix	
LAMP primers	Primer concentration.
FIP/BIP	16 $\mu$ M each
F3/B3	2 $\mu$ M each
LF/BF	8 $\mu$ M each

- 3) Recommend using final 0.4x SYTO9 or 0.1~0.2x SYBR Green I or 0.1~0.3x EvaGreen dye (not supplied in this kit). If utilizing a probe, we recommend employing the "FastLAMP Kit (Ver. 2.0)."

### 3. Reaction Condition

#### For end-point assay:

Incubate at 65°C for 30 minutes. Time can be extended as necessary for very low copy targets, challenging sample types, etc. Analysis the reaction product by a gel-electrophoresis or other detecting tools including colorimetric and fluorescence detection, turbidity observation, lateral flow devices, etc.

#### For real-time assay (intercalating dye):

Use a real-time PCR machine or an isothermal amplification instrument to run the assay. Set the instrument to a constant incubation temperature at 65°C. Measure the fluorescence intensity at every 1 min for 30 minutes. The reaction time can be increased as necessary for very low copy targets, challenging sample types, etc.

## Products

Cat. No.	Products	Size
FLMP3-100	HelixAmp™ FastLAMP Kit (Ver. 3.0)	100rxns
FLMP3-500	HelixAmp™ FastLAMP Kit (Ver. 3.0)	500rxns