

## HelixAmp™ Fast RT-LAMP Kit (Ver. 2.0)

### Kit Contents

HelixAmp™ Fast RT-LAMP Kit (Ver. 2.0)		
Cat. No.	FRLMP2-100 (100rxns)	FRLMP2-500 (500rxns)
RT-LAMP Enzyme V2	0.2ml	0.2ml x 5ea
5x RT-LAMP Buffer V2 (Mg-free)	0.5ml	0.5ml x 5ea
100mM MgSO <sub>4</sub>	0.25ml	0.25ml x 5ea
Instructions for Use	1ea	1ea

### Description

**HelixAmp™ Fast RT-LAMP Kit (Ver. 2.0)** provides simple and fast (within 20 minutes) target RNA amplification using loop-mediated isothermal Amplification (LAMP). This kit consists of a 5x RT-LAMP Buffer V2 (Mg-free), 100mM MgSO<sub>4</sub> and a RT-LAMP Enzyme V2. The 5x RT-LAMP Buffer V2 (Mg-free), optimized for fast amplification, contains buffering reagents, dNTPs, and salts. The RT-LAMP Enzyme V2 is a blend of engineered *Bst* DNA polymerase, thermostable reverse transcriptase (RTase), and RNase inhibitor. The novel *Bst* DNA polymerase enhances the DNA polymerization speed and allows the fast isothermal amplification reaction. The thermostable RTase is fully active at a relatively high temperature (60°C) and it makes possible the one-step RT-LAMP in a constant reaction temperature.

### Application

Loop-Mediated Isothermal Amplification (LAMP) of RNA 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™ Fast RT-LAMP Kit (Ver. 2.0)** was tested against predetermined specifications to ensure consistent product quality.

## Protocol

### 1. 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
Template RNA	1 ~ 5 $\mu$ l	1 ~ 5 $\mu$ l
5x RT-LAMP Buffer V2 (Mg-free)	5 $\mu$ l	5 $\mu$ l
RT-LAMP Enzyme V2	2 $\mu$ l	2 $\mu$ l
100mM MgSO <sub>4</sub>	2.25 $\mu$ l	2.25 $\mu$ l
10x LAMP Primer Mix <sup>1)</sup>	2.5 $\mu$ l	2.5 $\mu$ l
Fluorescent dye <sup>2)</sup> or probe	-	X $\mu$ l
RNase-free Water	Adjust to final 25 $\mu$ l	

- <sup>1)</sup> 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	16 $\mu$ M
BIP	16 $\mu$ M
F3	2 $\mu$ M
B3	2 $\mu$ M
LF	8 $\mu$ M
LB	8 $\mu$ M

- <sup>2)</sup> Recommend using final 0.1~0.2x SYBR Green I or 0.1~0.3x EvaGreen dye (not supplied in this kit).

## 2. Reaction Condition

**For end-point assay:** Incubate at 60°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 (fluorescent dye or probe):** Use a real-time PCR machine or an isothermal amplification instrument to run the assay. Set the instrument to a constant incubation temperature at 60°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
FRLMP2-100	HelixAmp™ Fast RT-LAMP Kit (Ver. 2.0)	100rxns
FRLMP2-500	HelixAmp™ Fast RT-LAMP Kit (Ver. 2.0)	500rxns