HelixAmp™ Fast RT-LAMP Kit (Ver. 3.0)

Kit Contents

HelixAmp™ Fast RT-LAMP Kit (Ver. 3.0)		
Cat. No.	**FRLMP3-100** **(100rxns)**	**FRLMP3-500** **(500rxns)**
RT-LAMP E.M V3	0.2ml	0.2ml x 5ea
5x RT-LAMP Buffer V3 (Mg-free)	0.5ml	0.5ml x 5ea
100mM $MgSO_4$	0.5ml	0.5ml x 5ea
Instructions for Use	1ea	1ea

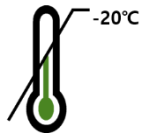
Description

HelixAmp™ Fast RT-LAMP Kit (Ver. 3.0) provides simple and fast (within 20 minutes) amplification of target RNA/DNA through loop-mediated isothermal Amplification (LAMP). Especially, this kit effectively mitigates non-specific product formation during isothermal amplification. The components include a 5x RT-LAMP Buffer V3 (Mg-free), 100mM $MgSO_4$ and a RT-LAMP E.M V3. The 5x RT-LAMP Buffer V3, optimized for fast amplification, comprises buffering reagents, dNTPs, and salts. The RT-LAMP E.M V3 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 maintains full activity at a relatively high temperature (60°C), enabling one-step RT-LAMP in a constant temperature.

Application

Loop-Mediated Isothermal Amplification (LAMP) of RNA/DNA target

Storage



Store below -20℃

Shelf life

12 months

Quality Control

By Nanohelix's ISO 13485-certified quality management system, each lot of **HelixAmp™ Fast RT-LAMP Kit (Ver. 3.0)** 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 ~ 5µl	1 ~ 5µl
5x RT-LAMP Buffer V3 (Mg-free)	5µl	5µl
RT-LAMP E.M V3	2µl	2µl
100mM $MgSO_4$ [1)]	1.75~2.25µl (7~9mM)	1.75~2.25µl (7~9mM)
10x LAMP Primer Mix [2)]	2.5µl	2.5µl
Fluorescent dye [3)]	-	X µl
RNase-free Water	Adjust to final 25µl	

1) Adjusting the $MgSO_4$ concentration according to the primer set used is recommended. Begin by using $MgSO_4$ at a final concentration of 8 mM. If encountering low efficiency, consider employing 9 mM $MgSO_4$. For addressing non-specific or NTC amplification issues, modify the $MgSO_4$ 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 µM each
F3/B3	2 µM each
LF/BF	8 µM each

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3) Recommend using final 0.4x SYTO-9 dye or 0.1~0.2x SYBR Green I or 0.1~0.3x Eva Green dye (not supplied in this kit). If utilizing a probe, we recommend employing the "FastLAMP Kit (Ver. 2.0)."

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): 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
FRLMP3-100	HelixAmp™ Fast RT-LAMP Kit (Ver. 3.0)	100rxns
FRLMP3-500	HelixAmp™ Fast RT-LAMP Kit (Ver. 3.0)	500rxns

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