



RT-LAMP Kit-Lyophilized

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Catalog Code: RT-LAM-LYO-1
RT-LAM-LYO-10

CONTENTS

<u>Contents</u>	<u>Page</u>
Product Introduction	1
Materials supplied	1
Storage	1
Heat Inactivation	1
Required materials	2
Preparation of reagents	2
Attention	3
How to choose the LAMP products	4
How to choose the LAMP-related enzymes	4

Product Introduction

The RT-LAMP kit is based on a thermostable reverse transcriptase and an optimized Bst 2.0 DNA polymerase system combined with aptamer-mediated hot-start technology, enabling rapid reverse transcription and amplification of target RNA under isothermal conditions. Reverse transcription and amplification are performed sequentially in a single reaction system, offering simple operation and high efficiency.

At low temperatures, the aptamer binds to the enzyme and inhibits its activity. Upon reaching the reaction temperature, the aptamer is released, thereby preventing non-specific amplification during reaction setup and significantly improving assay specificity and result consistency.

The kit provides a complete reaction system and a positive control, supporting rapid method setup and quality control. It is suitable for molecular diagnostics and POCT application development.

Materials supplied

Component	RT-LAM-LYO-1	RT-LAM-LYO-10
RT-LAMP Enzyme Mix (25X) (lyophilized)*	96T	96T*10
LAMP Reaction Buffer (2X)	0.7mL*2	14mL*1
Positive Control	80μl	800μl
PCR-grade water	1mL	1mL*2

* Add PCR-grade water according to the label on the tube before use.
Note: Before opening the tube, briefly centrifuge at 3000-4000 rpm for 1 minute to collect the reagents at the bottom of the tube.

Storage

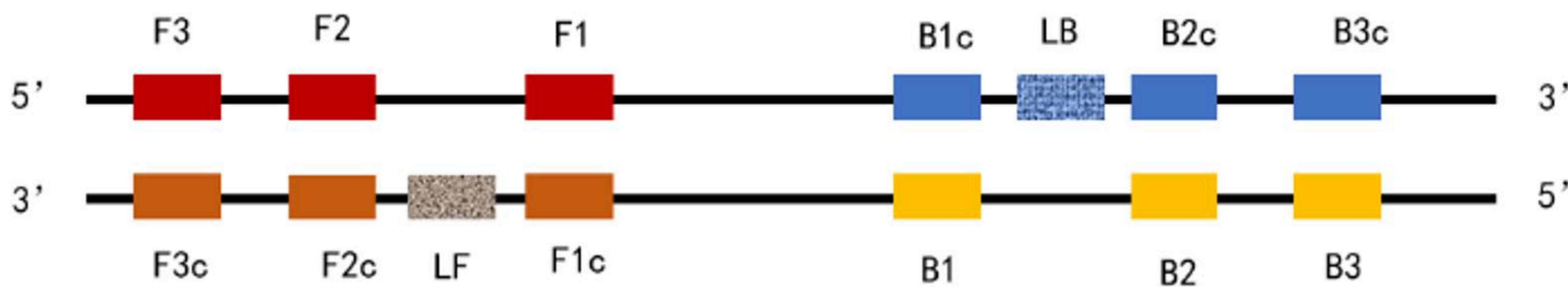
Store at -20 °C. After rehydration, aliquot as needed. Avoid repeated freeze-thaw cycles.

Heat Inactivation

85°C for 10 minutes.

Required materials

- i. Thermal cycler or heat block
- ii. Template RNA
- iii. Primers (Recommend LAMP primer online design software: <https://lamp.neb.com/#!/>)



- F1c: Complementary sequence of F1
- FIP: Forward Inner Primer (F1c + F2)
- LF: Forward loop primer
- B1c: Complementary sequence of B1
- BIP: Backward Inner Primer (B1c + B2)
- LB: Backward loop primer

Preparation of reagents

- 1、 Take 25µl reaction volume as an example. Prepare reactions as described in the table below. Suggest to set up the reaction on ice.

Component	Volume	Working concentration
LAMP Reaction Buffer (2X)	12.5µl	1X
RT-LAMP Enzyme Mix (25X)	1µl	1X
Primers (10X)	2.5µl	1.6 µM FIP/BIP, 0.4 µM LF/LB, 0.2 µM F3/B3,
Template RNA*	1µl	>10 copies or more
PCR-grade water	Up to 25µL	-

* Example of Preparing 10X Primers Mix:

- i. Primer stock concentrations: Dilute FIP and BIP primers to 80 µM; dilute LF, LB, F3, and B3 primers to 20 µM.
- ii. Prepare the Mix:
¢ FIP, BIP, LF, LB primers: 2µL each

¢ F3, B3 primers: 1µL each

¢ Total volume 10µL.

(Note: Primers may be diluted to other concentrations. In such cases, the volume added should be calculated accordingly to meet the final concentration requirements in the reaction system.)

**For positive control group, add 8µl Positive Control that provided in the kit. Template and primers are already mixed as positive control.

2、 Incubate at 65°C for 30 to 60 minutes.

3、 The result can be analyzed on agarose gel.

Attention

- It is recommended to implement physical separation between pre-amplification and post-amplification areas. Independent workspaces, equipment, and consumables should be used for sample preparation, reaction setup, and amplification procedures to minimize the risk of amplicon contamination.
- Running a negative control is strongly recommended to ensure amplification specificity.
- If PCR thermal cycler is used, please make sure to turn off the heat lid function or set it to 75 °C. For some types, the lid temperature goes up to 105°C immediately after power on. The lid is already hot enough to inactivate enzymes. Please run a few cycles to allow the temperature going down.
- Non-specific products are common in isothermal amplifications including LAMP. AapCas12b protein (Cat.: CAS-12P-010) or BrCas12b protein (Cat.: CAS-12R-010) or RNaseH2 enzyme (Cat.: RH2-250) can be used to increase the specificity.

How to choose the LAMP products

Product name		Catalog number	Brief introduction
1	- LAMP Kit - RT-LAMP Kit	- LAM-LYO-1 - RT-LAM-LYO-1	Basic (RT-)LAMP amplification for DNA/RNA detection; compatible with fluorescence, colorimetric, or lateral flow readout.
2	- Colorimetric LAMP kit - Colorimetric RT-LAMP kit	- LAM-LYO-RED-1 - RT-LAM-LYO-RED-1	Visual (RT-)LAMP detection by simple color change; no instrument required.
3	- LAMP Fluorescent Kit - RT-LAMP Fluorescent Kit	- LAM-LYO-EGR-1 - RT-LAM-LYO-EGR-1	Fluorescent (RT-)LAMP detection with EvaGreen; compatible with fluorescence readers.
4	- One-Step LAMP-CRISPR DNA Fluorescence Detection Kit - One-Step RT-LAMP-CRISPR DNA Fluorescence Detection Kit	- LAM-CAS-LYO-01 - RT-LAM-CAS-LYO-01	One-step (RT-)LAMP-CRISPR detection with enhanced specificity; fluorescence or lateral flow readout.
5	- RNase H2 Probe-Based LAMP Isothermal Amplification Kit - RNase H2 Probe-Based RT-LAMP Isothermal Amplification Kit	- LAM-PB-LYO-1 - RT-LAM-PB-LYO-1	Probe-based (RT-)LAMP with enhanced specificity; suitable for SNP detection.

How to choose the LAMP-related enzymes

LAMP related enzymes	Catalog Number	Brief introduction
Bst DNA Polymerase 2.0	BST2-1600	DNA polymerase with strong strand displacement activity, suitable for LAMP amplification reactions. High sensitivity and specificity.
Thermostable reverse transcriptase (for LAMP)	RT-TS-LM-2000	High-temperature resistant reverse transcriptase. The ideal partner for LAMP and PCR!
Thermostable RNaseH2/RNaseH II	RH2-250	RNase H2 is a specialized enzyme that degrades RNA in RNA/DNA hybrids
Uracil DNA Glycosylase (UDG/UNG), heat-labile	UG-HL-100	UDG acts on single- or double-stranded DNA containing dUTP and is inactive against RNA. It is sensitive to high temperature, and can irreversibly inactivate the enzyme above 50° C, and is suitable for LAMP, RT-LAMP, q-PCR and RT-qPCR.

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