



RT-LAMP Fluorescent Kit-Lyophilized

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

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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 specifically binds to Bst DNA polymerase and inhibits its activity. Once the reaction reaches the working temperature, the aptamer undergoes a conformational change and dissociates from the enzyme, thereby restoring polymerase activity and initiating amplification. This hot-start mechanism effectively reduces non-specific amplification during reaction setup and improves assay specificity, sensitivity, and reproducibility.

The kit provides a complete LAMP reaction system together with a positive control, facilitating rapid assay development, method setup, and reliable quality control. With strong amplification performance and high tolerance to common inhibitors, the kit is suitable for molecular detection, POCT assay development, and research applications.

Materials supplied

Component	RT-LAM-LQ-EGR-1	RT-LAM-LQ-EGR-10
RT-LAMP Enzyme Mix (25X) (lyophilized)*	100μl	100μl*10
RT-LAMP Reaction Buffer (2X)	0.7ml*2	14 ml*1
Fluorescent dye (25X)	100μl	100μl*10
Positive Control	80μl	800μl
PCR-grade water	1mL	1mL*2

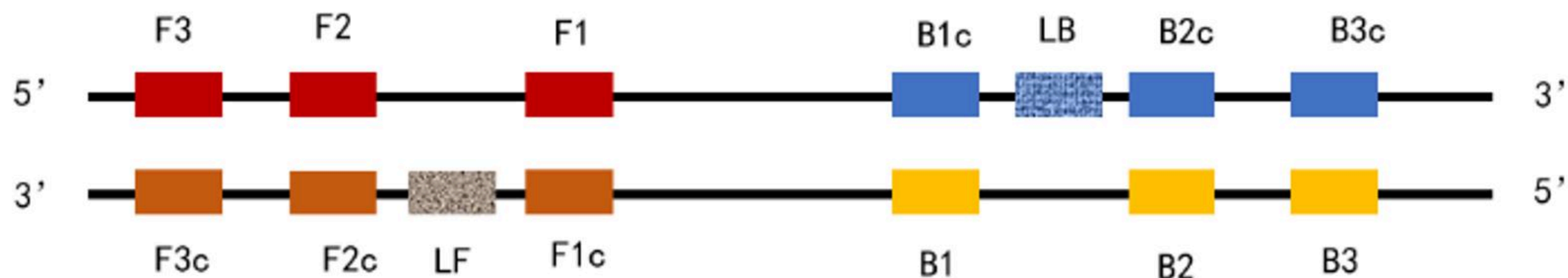
* Add PCR-grade water according to the label on the tube before use.
Note: Before opening the tube, briefly centrifuge at 3000-4000 rpm for 1 minute to collect the reagents at the bottom of the tube.

Storage

-20°C. Suggest aliquot. Avoid repeated freeze-thaw.

Required materials

- i. qPCR instrument or fluorescence reader
- ii. Template RNA
- iii. Primers (Recommend LAMP primer online 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

Typical protocol

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
RT-LAMP Reaction Buffer (2X)	12.5µl	1X
RT-LAMP Enzyme Mix (25X)	1µl	1X
Fluorescent dye (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、 Read fluorescence at FAM channel in qPCR instrument for 30 to 60 minutes at 65°C.

Notes

- Designate and use distinct areas for sample preparation, reaction setup and analysis to avoid carry-over contamination.
- Running a negative control is strongly recommended to ensure amplification specificity.
- If optimization is desired, try titrating concentration of Mg (4–10 mM final) or Bst 2.0 (0.04-0.32 U/µL), or changing reaction temperature (50–72 °C).
- If PCR thermal cycler is used, turn off the lid heating function or set it to 70 °C.
- RNase inhibitor (Cat. MRI-2000) and RNase-free consumables are recommended for RNA experiment.

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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