EZassay

Colorimetric LAMP kit (visual detection)

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Catalog Code: LAM-LQ-RED-1
LAM-LQ-RED-10

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Introduction

This product aims to simplify LAMP assay design with robust reaction and high tolerance of inhibitors. It integrates visible dye (Phenol Red) into the buffer to allow visual result interpretation, with high amplification efficiency and sensitivity.

Contents

Component	LAM-LQ-RED-1	LAM-LQ-RED-10
Colorimetric LAMP Enzyme Mix (25X)	100μL	100μL*10
Colorimetric LAMP Reaction Buffer (2X)	0.7mL*2	0.7 mL*20
Positive Control	80μL	800μL
Mineral oil	800μL*3	24mL*1

Storage

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

Required materials but not supplied

i. Nuclease-free water or ddH2O
ii. Thermal cycler or heat block
iii. Template DNA
iv. 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

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
Colorimetric LAMP Reaction Buffer (2X)	12.5µL	1X
Colorimetric 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 DNA*	1µL	>10 copies or more
Nuclease-free water or ddH2O	Up to25µL	-

* 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.

Samples to be added should not be dissolved or diluted using Tris-HCl-based buffer systems, as this may interfere with the pH indicator color change, affecting result interpretation.

2、 Incubate at 65°C for 30 to 40 minutes. Then incubate at 85°C for 5 minutes. After cooling to room temperature, remove the reaction tube and observe in a well-lit area (a white background is recommended). Magenta indicates a negative result; orange-yellow indicates a positive result.

Example of result

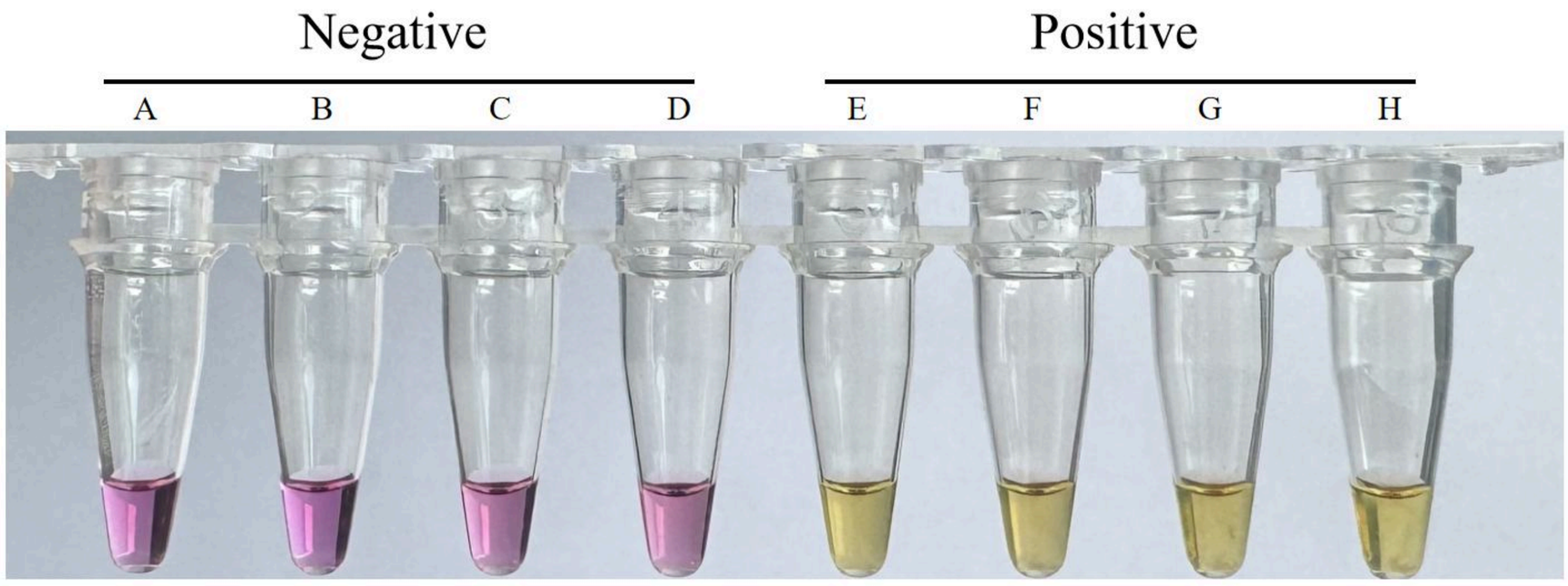


Figure 1. A: ddH2O; B~D: negative samples; E~H: 5 copies to 5000 copies DNA templates were added per reaction.

Notes

- 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.
- The temperature control device can be a heat block, water bath, or PCR instrument. For some brands of PCR instruments, the heated lid automatically warms up to 105 °C after startup. It is recommended to run several cycles to reduce the heated lid temperature to 75 °C.
- To prevent evaporation of the reaction mixture, add 20 µL of mineral oil to the surface of the final reaction mixture when using a water bath or heat block. When using a PCR instrument, mineral oil is not required; however, the heated lid temperature must be set to 75 °C.
- As this reagent uses a pH indicator method, avoid long-term air exposure. It may absorb carbon dioxide, acidify, and lighten in color, hindering result interpretation.

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.

Professional supplier of point-of-care test products

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