TrueLAMP™ 8-Strip Instruction Manual

General Information

Description

TrueLAMP™ chemistry suppresses primer-driven nonspecific amplification in reactions without a template. TrueLAMP™ 8-Strip provides dried TrueLAMP components in the caps, dried polymerase in the tubes, and 2x TrueLAMP 8-Strip Buffer in a separate vial. The kit can be shipped without cold packs at temperatures below 60 °C and stored at −20 to 22 °C. Users supply their own LAMP primers. RNA targets also require user-supplied reverse transcriptase. Reactions run directly in the supplied strips. To run a test, prepare a 10 µL reaction, dissolve the dried components, incubate, and read the color: red is negative and yellow is positive.

Specification

- Product Name: TrueLAMP™ 8-Strip
- Catalog #: TL0008S, TL0008M, TL0008L
- Contents:
    - TL0008S (16 reactions): 2 8-strips and 100 µL 2x TrueLAMP 8-strip buffer
    - TL0008M (160 reactions): 20 8-strips and 1 mL 2x TrueLAMP 8-strip buffer
    - TL0008L (800 reactions): 100 8-strips and 5 mL 2x TrueLAMP 8-strip buffer

Storage

Store at −20 to 22 °C. Long-term shelf-life evaluation is ongoing

Terms & Conditions

- Product Usage: For in vitro laboratory research use only. Not for administration to humans or use in medical diagnosis.
- Warranties and Liabilities: Boltii Diagnostics Inc. accepts no responsibility and shall not be held liable for any loss, damage, or expenses—whether consequential or incidental—including damage to property, persons, or premises, arising from the use, results of use, or inability to use this product. Boltii Diagnostics Inc. makes no warranties, expressed or implied, including but not limited to warranties of merchantability or fitness for a particular purpose.

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TrueLAMP™ 8-Strip Assay Protocol

1. Prepare Master Mix
Prepare enough for 8 reactions (+10% excess).

Component	1 Rxn (µL)	8 Rxn (µL)	+10% (µL)	Total (µL)
Nuclease-free water	3	24	2.4	26.4
10x LAMP primer mix*	1	8	0.8	8.8
2x TrueLAMP 8-strip buffer	5	40	4	44

* 10x LAMP primer mix: F3/B3 2 µM, FIP/BIP 16 µM, LF/LB 4 µM; or user optimized concentrations.

For RNA targets (RT-LAMP):
Dried TrueLAMP polymerase lacks reverse transcription activity. Add 0.3 U NEB WarmStart® RTx Reverse Transcriptase per 10 µL reaction (user supplied, one-tenth the RTx concentration in NEB's standard RT-LAMP protocol).

2. Reaction Setup

1) Label tubes, including NTC and PTC.
2) Add 9 µL master mix to each tube.
3) Add 1 µL water (NTC), positive control (~500 copies, PTC), or sample.
4) Seal with strip caps.
5) Flip liquid into caps. Sit inverted 1 min. Touch vortex 10 times while inverted to dissolve dried component in caps.
6) Briefly spin liquid into tubes. Touch vortex 10 times, then stand upright 10 min at room temperature to rehydrate polymerase.
7) Vortex, briefly spin, and begin 2-step incubation.

3. Amplification
Incubate:
• 60 °C for 10 min
• 65 °C for 50–80 min
Use: digital oven, fully submerged water bath or smart coffee mug, or thermocycler with heated lid.

4. Detection
Colorimetric Readout:
• Endpoint: photograph after incubation
• Semi-real-time: photograph 8-strip tubes every 15 min through glass oven door
Quantify using smartphone colorimeter app:
• RGB mode → minimum green value
• CMYK mode → maximum magenta value

Expected Results:
NTC: red
PTC: yellow

TrueLAMP™ 8-Strip
- an ambient-stable TrueLAMP Kit

Frequently Asked Questions

1. Is cold chain required?

No. Kit tolerates 60 °C for 8 days and 22 °C for >6 months. Shipped at <60 °C and store at −20 to 22 °C. Long-term shelf-life evaluation is ongoing.

2. How does TrueLAMP suppress nonspecific amplification?

It contains a proprietary inhibitor formulated for the polymerase to selectively suppress nonspecific primer-driven amplification in the absence of template.

3. What incubation system works best?

Uniform heating is critical to avoid evaporation and condensation in 10 µL reactions. Recommended: Digital oven, or fully submerged water bath or temperature-controlled smart coffee mug, or thermocycler with heated lid.

4. Why is my NTC positive?

Check pipette calibration: incorrect volumes (>10 µL reaction) may reduce inhibition. Verify incubation temperature: nonspecific amplification can occur at ≤ 63 °C.

5. Why did my positive control fail?

Template concentration may be below LOD. Determine LOD for each primer set.

6. Can raw samples (e.g., saliva, plasma) be used?

Purified DNA/RNA is recommended. Colorimetric TrueLAMP is sensitive to pH and ionic strength. Water-suspended cells or virions may be compatible after validation.

7. Can rehydrated strips be frozen and used later?

No. Use immediately after rehydration.

8. Why is a 60 °C pre-incubation needed and how long should reactions run?

An initial 58-61 °C 10 min pre-incubation followed by 65 °C for 50-80 min improves consistency and robustness across DNA and RNA targets, LAMP primer sets, and incubation systems (oven, bath, thermocycler). Reaction generally reaches maximum by 90 min. However, strict endpoint timing is not required. Positive reactions may appear by 30 min. Extended incubation does not typically alter endpoint color.

9. How should color be quantified?

Use a smartphone colorimeter app. Sample the region just below the liquid meniscus with the smallest aperture and record: Minimum green (RGB mode) or Maximum magenta (CMYK mode).