



LavaLAMP™ DNA Master Mix

Simplify LAMP experiments with this easy-to-use, sensitive and thermostable DNA LAMP master mix.

- **Isothermal Amplification:** Facilitates running amplification reactions in difficult test environments, enabling use of low tech instrumentation.
- **Master Mix Format:** Simplifies LAMP reaction set up and minimizes optimization required to produce the best assay results.
- **High Thermal Stability:** Highly thermotolerant enzyme (up to 90°C for 5 min) enables preheating of reactions containing purified target DNA which, depending on the target, may increase assay sensitivity and decrease time to results.
- **Elevated LAMP Reaction Temperature (68-74°C):** Improves primer specificity and reduces background amplification depending on the DNA target.
- **Freeze-dry Compatible:** Enables generation of room temperature stable test kits through lyophilization.

The LavaLAMP™ DNA Master Mix is designed to simplify development and optimization of DNA LAMP (loop-mediated isothermal amplification) reactions. LAMP kits are commonly available as multi-component kits that require optimization (e.g. MgSO₄, betaine, enzyme as well as temperature, primer concentration, etc.). The LavaLAMP™ DNA Master Mix greatly simplifies reaction optimization by limiting optimization to target specific components/conditions such as LAMP primer design, target concentration and reaction temperature. Additionally, this master mix is heat stable at 90°C for ≤5 minutes, which enables the addition of a reaction preheating step which may, depending on the target, increase assay sensitivity and decrease time to results.

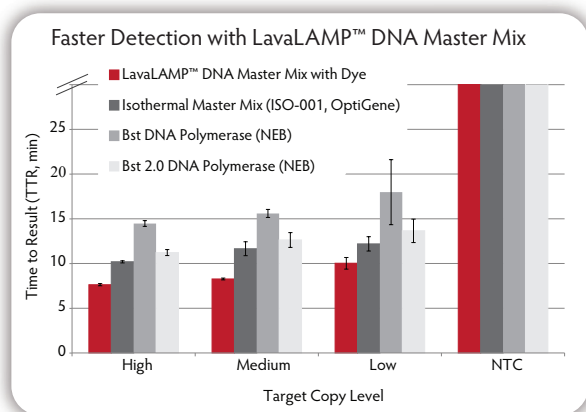


Figure 1. Loop-mediated isothermal amplification (LAMP) with real-time fluorescent detection of amplified products. LAMP reactions were set up using the indicated kits according to manufacturer's recommendations. Target DNA (*C. difficile*) at varying input amounts, tcdA target LAMP primers, and Green Fluorescent Dye (LavaLAMP Kit) were included in all reactions. Reactions were run on a CFX96 Thermal Cycler (Bio-Rad) at the following temperatures: LavaLAMP; 68°C; other kits at the recommended 65°C and fluorescence was measured in real-time to determine the TTR. NTC = No Target Control.

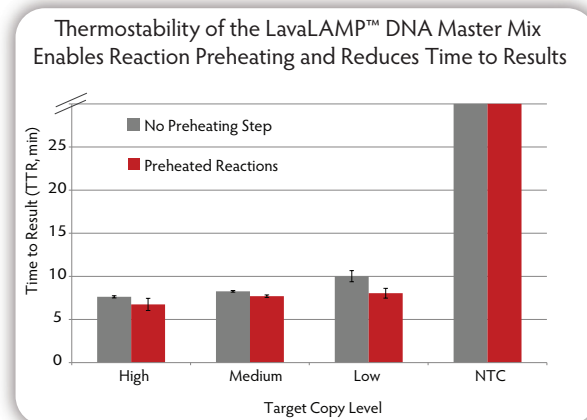
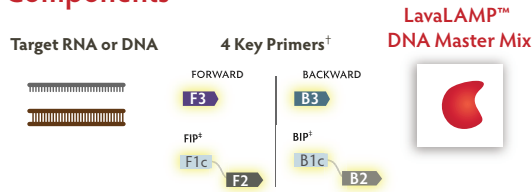


Figure 2. Testing the thermostability of the LavaLAMP™ DNA Master Mix. Two sets of triplicate LAMP reactions were set up using the indicated amounts of target DNA (*C. difficile*), tcdA target LAMP primers, and Green Fluorescent Dye. One set of reactions was preheated to 90°C for 5 minutes, and then all reactions were incubated in a CFX96 Thermal Cycler (Bio-Rad) at 68°C and fluorescence was measured in real-time to determine TTR. NTC = No Target Control.



LAMP Process Overview

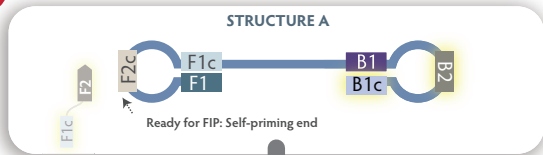
1 Components



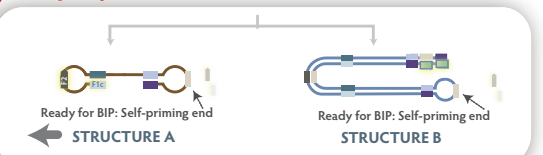
Target DNA Detail: Key primer sequences highlighted.



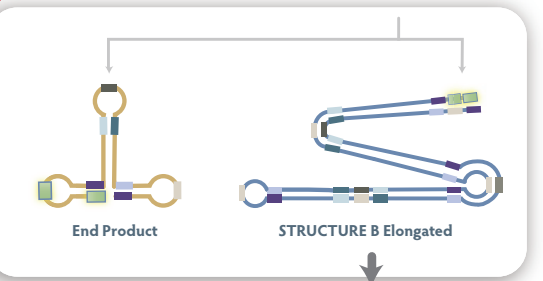
2 LAMP Initiates



3 Amplify



4 Elongate & Amplify



Exponential Amplification

[†] Two additional booster primers not shown. More information can be found on the Eiken web site.
[‡] FIP = Forward Inner Primer BIP = Backward Inner Primer

The LavaLAMP™ DNA Master Mix is Lyophilization-Ready and Shows No Decrease in Performance After Lyophilization

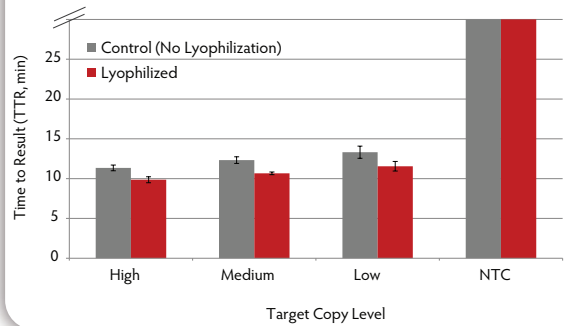


Figure 3. Testing the performance of lyophilized LavaLAMP™ DNA Master Mix. The LavaLAMP DNA Master Mix (12.5 µL) was aliquoted into tubes and lyophilized using a VirTis Wizard 2.0. After one day, each lyophilized tube was reconstituted in 12.5 µL water. Then six replicate LAMP reactions per condition were set up using the reconstituted lyophilized master mix and the standard LavaLAMP DNA Master Mix (Controls). The indicated amounts of target DNA (*S. aureus*), *clfA* target LAMP primers, and Green Fluorescent Dye were added to the reactions. All reactions were incubated in a CFX96 Thermal Cycler (Bio-Rad) at 68°C and fluorescence was measured during the reactions to determine the TTR. NTC = No Target Control.



CUSTOMIZABLE

Once primers are optimized with the LavaLAMP™ DNA Master Mix, we can work with you to generate custom master mixes further optimized for your target and/or test needs.

CONTACT US!

bizdev@lucigen.com

Products

Products	Size	Cat. No.	Price
LavaLAMP™ DNA Master Mix	200 rxns	30066-1	\$290
LavaLAMP™ DNA Master Mix with Dye	200 rxns	30067-1	\$300

COMPONENTS

Both LavaLAMP™ DNA Master Mix kits contain: LavaLAMP™ DNA Master Mix, DNA Positive Control LAMP Primer Mix, and DNA Positive Control. The LavaLAMP™ DNA Master Mix with Dye also contains Green Fluorescent Dye for fluorescent detection of amplified DNA. Standard LavaLAMP™ reactions are 25 µL.