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BioMaster LAMP-Color (2×)

Cat. number MHC052-400, MHC052-2040

Description:

BioMaster LAMP-Color (2×) kit contains 2× BioMaster LAMP-Color (2×) reaction mixture and sterile water. 2× BioMaster LAMP-Color (2×) reaction mixture designed to perform colorimetric loop-mediated isothermal amplification (LAMP). BioMaster LAMP-Color (2×) contains all of the necessary reaction components (excluding DNA-matrix and primers):

- Highly processive recombinant Bst DNA-polymerase large fragment (LF)
- deoxynucleosidetriphosphate mixture
- low-capacity buffer
- Mg^{2+} (6 mM)
- Indicator dye.

The mixture is optimized to perform effective and reproducible LAMP with samples of genomic, plasmid and virus DNA. The reaction mix contains additives, increasing half-life time and processivity of the Bst FL DNA-polymerase due to the increment of its stability during the reaction.

The main advantage of the product consists of the easy visual detection of the reaction results. During the amplification, the reaction mixture, where the product is accumulated, change its color from red to yellow in 15-60 min, depending on the matrix concentration.

Kit contains:

Catalogue number	BioMaster LAMP-Color (2×)	Water	Amount of 25 µl reactions
MHC052-400	4 × 1.25 ml	4 × 1.25 ml	400
MHC052-2040	17 × 1.5 ml	3 × 1.8 ml	2040

BioMaster LAMP-Color (2×) contains:

Low-capacity buffer, 20 mM KCl, 2 mM of each nucleosidetriphosphate, 12 mM $MgCl_2$, 0.06 U. A./µL Bst LF DNA-polymerase, 0.5% Tween 20, Bst LF DNA-polymerase stabilizers, indicator dye.

Application area:

- colorimetric loop-mediated isothermal amplification

Polymerase properties

LF Bst DNA-polymerase is a large fragment of Bst (*Bacillus stearothermophilus*) polymerase (polypeptide 67 kDa), extracted from the *E.coli* strain, carrying the modified cloned gene. Enzyme has 5′-> 3′ -polymerase activity but no 5′-> 3′ nor 3′-> 5′-exonuclease activity, allowing to apply it for the colorimetric loop-mediated isothermal amplification (LAMP) performance. LF Bst DNA-polymerase exhibit high

DNA-chain displacement activity and can be applied for the isothermal DNA amplification. The enzyme shows highest activity at 60-65° C temperature range.

Application advantages

- The mixture does not require additional manipulations or complex devices to visualize the reaction;
- The reaction is dyed to facilitate the distribution while pipetting;
- Decrement of reaction preparation time;
- Decrement of the contamination possibility during the PCR components mixturing;

Amplification performance assay

1. De-thaw the reaction mixture and mix thoroughly. It is recommended to use ice or the precooled thermorack for the reaction preparation.
2. In PCR thin-wall tubes add the next components based on one reaction volume of 25 µl:

Component	Volume	Final concentration
BioMaster LAMP Color (2×)	12.5 µl	1×
Primer mix	variable	1– 2 µM
DNA-matrix	1-5* µl	100 pg – 1 µg
Sterile water	up to 25 µl	

* - the mixture was designed with the low-capacity buffer, to avoid the obtainment of the false-positive results follow the next rules: sample in 1× TE-buffer can be applied in the volume no more than 1 µl, in 0,1× TE-buffer – no more than 5 µl, for the express-analysis the «HFast Lysis Buffer for DNA express-extraction» kit is recommended (FL-bio-100, FL-bio-200) up to 5 µl per reaction!

3. Mix carefully and discard the droplets, using microcentrifuge.
4. Perform the reaction at 65 °C. The reaction performance duration depends on the matrix concentration, with kit sensitivity maximum being observed at 60 min incubation time. For the higher contrast between the negative and positive results colling the tubes for 10 to 15 min is recommended.
5. Reaction considered positive of the color of the negative control does not change (remains red), but changes in the sample (becomes yellow).

Storage conditions:

Store in place, protected from the light at -20°C – 12 month; no more than 30 freeze-thaw cycles.

Transportation conditions:

Transport in thermocontainers with cooling elements; the ambient temperature increment to the room temperature during the transportation up to 7 days is allowed.