

SARS-CoV-2 Blue-LAMP Detection Kit

Kit Components:

Component	Cat. no. E0460-01 50 reactions, 25 µl each	Cat. no. E0460 02 500 reactions, 25 µl each
BlueLAMP Master Mix (2x) brown tube	1 x 625 µl	10 x 625 µl
LAMPcov 10x Primer Mix yellow cap	125 µl	5 x 250 µl
ACTB 10x Primer Mix orange cap	62.5 µl	5 x 125 µl
Lambda 10x Primer Mix orange cap	35 µl	5 x 70 µl
Lambda 5x Positive Control black cap	62.5 µl	625 µl
RNase free Water transparent cap	1000 µl	5 x 1000 µl

Storage:

All kit components should be stored at a temperature of -20°C in the dark.

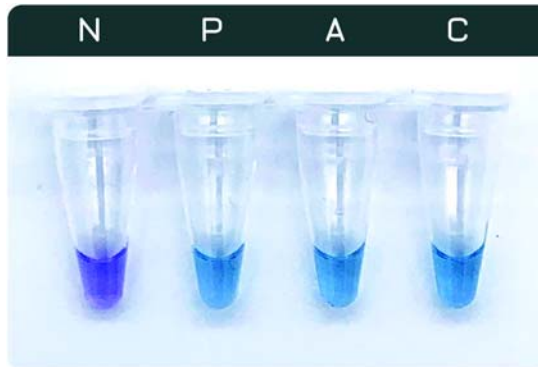


Figure 1: Sample reactions. Description: N – negative control; P – positive control; A – sample control, patient X; C – specific reaction, patient X

Negative control N	Positive control P	Sample control A	Specific reaction C	Result
-	+	+	+	positive for SARS-CoV-2
-	+	+	-	negative for SARS-CoV-2

Blue LAMP Master Mix is violet before reacting. To read the correct color, cool the samples down to room temperature. Only the result configuration included in the table is considered correct, any other result is incorrect and the test must be repeated. The shades of blue may vary depending on the amount of initial material. The DNA amplification causes reaction to become turbid. This effect is independent of the color change and is present in all positive (blue) samples. Negative control does not show the turbidity effect and remains violet.

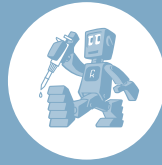
The SARS-CoV-2 Blue-LAMP Detection Kit is an isothermal rapid amplification system for quick detection of SARS-Cov-2 virus, the causative agent of the COVID-19 disease.

Description:

- SARS-CoV-2 Blue-LAMP Detection KIT is designed to detect the SARS-CoV-2 coronavirus in samples from patients with symptoms of COVID-19 infection.
- Starting material are purified RNA extracts from sample material of patients with symptoms of the COVID-19 disease.
- The purified genetic material of the virus from swab samples taken from the throat, nasopharynx or saliva, etc. is amplified using the LAMP reaction - isothermal amplification of nucleic acids and detected visually by changing the color of the reaction from violet to blue.
- Virus identification is based on the amplification of a highly conserved region in the ORF1ab gene characteristic of SARS-CoV-2.
- Additionally, the kit includes a specific control for the human ACTB gene (gene encoding beta-actin), which makes it possible to verify both the correctness of the collected swab and the quality of the purified RNA, and a positive control of the reaction to the Lambda phage sequence, which enables confirming the correctness of the test execution.
- The kit does not show any cross-reactions with other microorganisms causing respiratory diseases.
- The sensitivity of the LAMP amplification method is estimated at 100 copies of RNA molecules. In the case of samples with a lower number of viral RNA copies, it is recommended to use SARS-CoV-2 qRT-PCR Detection KIT (Cat. No. E0430).

Storage:

All kit components should be stored at a temperature of -20°C in the dark.



SARS-CoV-2 Blue-LAMP Detection Kit

COLORIMETRIC LAMP PROTOCOL

Preparation of the sample taken from the patient: RNA from a swab, saliva or other secretion should be isolated using kits dedicated to viral RNA purification. Follow the instructions recommended by the kit manufacturer.

Preparation of LAMP reaction:

1. Determine the number of reactions. In each cycle set:

- Positive control P minimum 1 reaction
- Negative control N minimum 1 reaction
- Sample control A in the number of samples tested
- Specific reaction C in the number of samples tested

Each patient sample should be tested for the presence of SARS-Cov-2 RNA and the ACTB gene.

2. After thawing, mix all components of the reaction well by pipetting several times. Reactions should be prepared on ice or in a cooling block. Prepare reaction Master Mixes depending on the number of reactions according to the table above. The components of the Master Mix must be mixed by pipetting several times. Do not "vortex" the mixture.

3. Distribute the Master Mix into strip tubes or onto a plate, transferring 20 µl of the solution. Avoid foaming. Remove all the components of the reaction that are no longer needed from the work station, to prevent their contamination.

4. Prepare the reactions in the following order:

- N– Negative control: add 5 µl of water and close the tube to avoid contamination by the patient's RNA.
- P– Positive control: add 5 µl of Lambda 5x Positive Control.
- A– Patient RNA samples: add 5 µl of purified RNA and close the tubes.
- C– Patient RNA samples: add 5 µl of purified RNA and close the tubes.

5. Put the prepared reactions in a thermal cycler heated to 65°C for 40 minutes. It is recommended to use a thermocycler with heated lid to prevent evaporation of the reaction.

6. Cool the samples to room temperature. Do not open the test tubes! The color change in relation to the negative control is visually assessed. With passing time, the color reaches maximum intensity.

Reaction component Master Mix	Negative control N No template	Positive control P Lambda DNA	Sample control A ACTB	Specific reaction C SARS-Cov-2
BlueLAMP Master Mix (2x)	12,5 µl	12,5 µl	12,5 µl	12,5 µl
LAMPcov 10x Primer Mix	2,5 µl	–	–	2,5 µl
ACTB 10x Primer Mix	–	–	2,5 µl	–
Lambda 10x Primer Mix	–	2,5 µl	–	–
RNase free Water	5 µl	5 µl	5 µl	5 µl
Master Mix volume	20 µl	20 µl	20 µl	20 µl
RNase free Water	5 µl	–	–	–
Lambda 5x Positive Control	–	5 µl	–	–
Sample of purified RNA from a patient	–	–	5 µl	5 µl
Reaction volume	25 µl	25 µl	25 µl	25 µl