ELISABETH PHARMACON Ltd.
Rokycanova 4437/5
615 00 Brno-Zidenice, Czech Republic
Phone: +420 542 213 851
E-mail: info@elisabeth.cz
Web: www.elisabeth.cz
VAT: CZ26258412

EliZyme™ LAMP

Intended use:

For Research Use Only. Not for use in diagnostic procedures.

Storage:

Upon arrival store components at -20 °C. Avoid prolonged exposure to light and keep components on ice when in use. When stored under these conditions, the kit will retain full activity until the expiration date indicated on the kit label. We recommend aliquoting the enzyme and fluorescent dye at the first use to avoid excess freeze/thaws.

Product description

EliZyme™ LAMP product line represents a complete solution for the users utilizing an isothermal amplification. The EliZyme™ LAMP products are based on the polymerase engineered from the Bst recombinant protein expressed in E. coli, is derived from the large fragment of Geobacillus stearothermophilus (formerly known as Bacillus stearothermophilus) DNA Polymerase. This polymerase fragment retains its 5'-3' polymerase activity while lacking the 5'-3' exonuclease activity. Bst Polymerase exhibits robust strand displacement activity, making it highly suitable for various nucleic acid amplification methods, including whole genome amplification, multiple displacement amplification, and isothermal amplification. Although a recommended reaction temperature of 65 °C is suggested, the enzyme performs well within a broad temperature range of 55 °C to 70 °C. Heat inactivation can be achieved at 80 °C.

Engineered for rapid amplification speed, Bst Polymerase consistently delivers quick results across diverse target sequences and sample types. To ensure high yield and performance even under challenging conditions, the enzyme is supplied with a 2-part buffer system. For higher comfort is EliZyme™ LAMP product line available also as 2X Ready MIX, which was optimized to give rapid and consistent results across different target sequences and sample types. The mix includes an advanced buffer system to ensure high yield and performance even under difficult conditions.

For real-time detection using any qPCR thermocycler, the addition of a 20X Fluorescent Dye to the reaction enables fluorescence-based monitoring. The Fluorescent Dye is provided separately.

Content

	Ref. No.	Content	Size
EliZyme™ LAMP Pol	EZ2616	1×200 µl (8 U/µl) Bst Pol+ 1x500 µl 10× buffer A + 1×1 ml 5× Buffer B	1600 U
	EZ2680	1×1 ml (8 U/µl) Bst Pol+ 2x1.25 ml 10× buffer A + 3×1.7 ml 5× Buffer B	8000 U

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EliZyme™ LAMP Pol Dye	EZ2716	1×200 µl (8 U/µl) Bst Pol+ 1x500 µl 10× buffer A + 1×1 ml 5× Buffer B + 2×125 µl Dye	1600 U
	EZ2780	1×1 ml (8 U/µl) Bst Pol+ 2x1.25 ml 10× buffer A + 3×1.7 ml 5× Buffer B + 2×625 µl Dye	8000 U
EliZyme™ LAMP MIX	EZ2801	1×1.25 ml mix + 1×125 µl Dye	100 rxns
	EZ2805	5×1.25 ml mix + 1×625 µl Dye	500 rxns
EliZyme™ Fluorescent Dye	EZ3002	2×125 µl 20× Dye	200 rxns
	EZ3010	2×625 µl 20× Dye	1000 rxns

	Buffer/MIX	Content
EliZyme™ LAMP Pol	10x Buffer A	30 mM $MgSO_4$, 16 mM dNTPs
EliZyme™ LAMP Pol Dye	5× Buffer B	Enhancers to increase the reaction speed
EliZyme™ LAMP MIX	2x mix	6 mM $MgSO_4$, 3.2 mM dNTPs

The buffers composition has been optimized to maximize amplification success rates.

LAMP

Incubate at 65 ˚C for 30 minutes. Time can be extended and temperature can be modified (between 55 ˚C and 70 ˚C) as necessary for low copy targets, challenging templates, or whenever amplification times have been reported to be slow.

If a qPCR instrument is used for signal detection, follow the reaction using the FAM channel, acquiring data every 10-15 seconds. If final products are to be analyzed after the reaction is complete, the enzyme can be inactivated by heating at 80 °C for 10 minutes.

Primers

We recommend a predicted melting temperature of around 60 ˚C using default Primer Explorer v5 settings. A primer set can be prepared with all 4 or 6 (if you include Loop) primers. A 10x primer set should contain: 16µM FIP, 16µM BIP, 2µM F3, 2µM B3, 4-8µM LoopF, 4-8µM LoopB in TE Buffer or water.

Reaction setup

EliZyme™ LAMP Pol

After thawing, briefly vortex all components and shortly spin. Reactions should be setup on ice.

Reagent	25 µl reaction	Final conc.
10x EliZyme™ Buffer A	2.5 µl	1x
5× EliZyme™ Buffer B	5 µl	1×
20× EliZyme™ Fluorescent Dye*	1.25 µl	1×

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EliZyme™ Bst Pol (8U/µl)	1 µl	8U
10× Primer set	2.5 µl	1×
Template DNA	Variable	
PCR grade water	Up to 25 µl	

* Optional reagent, can be ordered under catalogue numbers EZ3002 and EZ3010

EliZyme™ LAMP Pol Dye

After thawing, briefly vortex all components and shortly spin. Reactions should be setup on ice.

Reagent	25 µl reaction	Final conc.
10x EliZyme™ Buffer A	2.5 µl	1x
5× EliZyme™ Buffer B	5 µl	1×
20x EliZyme™ Fluorescent Dye	1.25 µl	1×
EliZyme™ Bst Pol (8U/µl)	1 µl	8U
10× Primer set	2.5 µl	1×
Template DNA	Variable	
PCR grade water	Up to 25 µl	

EliZyme™ LAMP MIX

After thawing, briefly vortex all components and shortly spin. Reactions should be setup on ice.

Reagent	25 µl reaction	Final conc.
2x EliZyme™ Bst Mix	12.5 µl	1x
20x EliZyme™ Fluorescent Dye	1.25 µl	1×
10× Primer set	2.5 µl	1×
Template DNA	Variable	
PCR grade water	Up to 25 µl	

LAMP profile

Step	Temperature	Time
Strand displacement	55-70 °C*	30-60 min
Deactivation**	80 °C	10 min

*Standard incubation at 65 ˚C for 30 minutes. Time can be extended and temperature can be modified (between 55 ˚C and 70 ˚C) as necessary for low copy targets, challenging templates, or whenever amplification times have been reported to be slow. If a qPCR instrument is used for signal detection, follow the reaction using the FAM channel, acquiring data every 10-15 seconds.
**If final products are to be analyzed after the reaction is complete, the enzyme can be inactivated by heating at 80 °C for 10 minutes.

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Manufacturer:

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REF	Catalog number		Upper limit of temperature
LOT	Batch code		Manufacturer
	Use by (last day of month)	Σ	Contains sufficient "N" tests