HZYMES BIOTECH

LAMP/RT-LAMP

LAMP/RT-LAMP - RAPID NUCLEIC ACID DETECTION

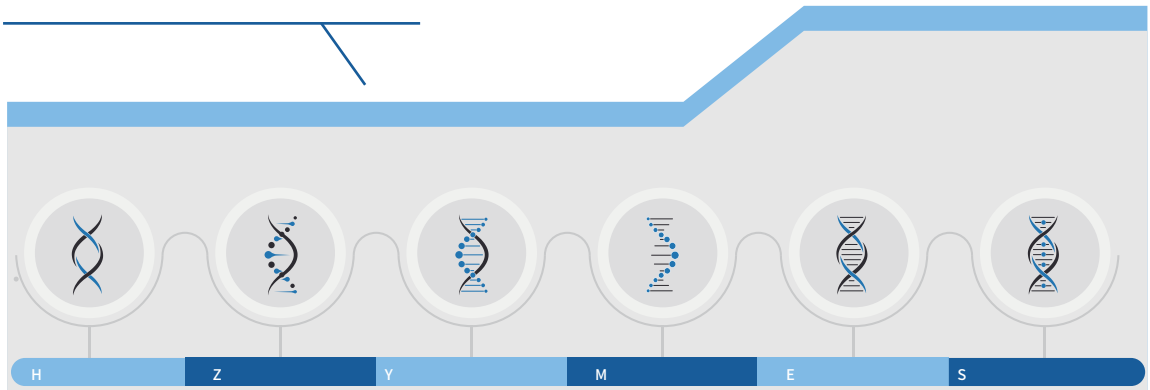
HZYMES BIOTECHNOLOGY CO.,LTD

BACKGROUND

Loop-mediated isothermal amplification (LAMP) is a versatile technique for detecting target DNA and RNA, enabling rapid molecular diagnostic assays with minimal equipment. LAMP technique does not require changing the reaction temperature and it' s extremely fast, which is making them particularly well suited for field applications and point-of-care molecular diagnostics assays.

With well-designed 4-6 primers and the specific Bst DNA polymerase, the detection of the target of interest can be done within 30 min. There are many LAMP detection methods, including the fluorescent method, colorimetric method, fluorescent-probe-based method, turbidity method, HNB, etc. The LAMP solution provided by Hzymes is able to help achieve high sensitivity, good primer compatibility, and excellent performance in specificity, tolerance, and stability.

OUR ADVANTAGES



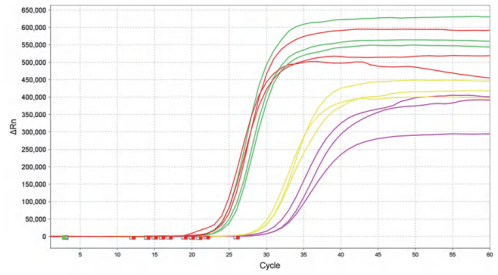
Fast Reaction	High Sensitivity	High Specificity	Lyophilization	Inhibitor Tolerance	Good Primer Compatibility
< 25 min	20 - 50 copies/T	No amplification with NTC samples	Lyo-Pellets and in-situ lyophilization	Extraction-Free LAMP/RT-LAMP	Compatible with SARS-COV-2 N, O, E and other primer sets

BST DNA POLYMERASE V2

Fast Polymerization

A fast polymerization is the key of Bst DNA Polymerase, the Bst DNA Polymerase V2 (HMD7003) performs almost the same speed compared against the competitor with the SARS-COV-2 N gene target. And better after 7 days thermal acceleration experiment.

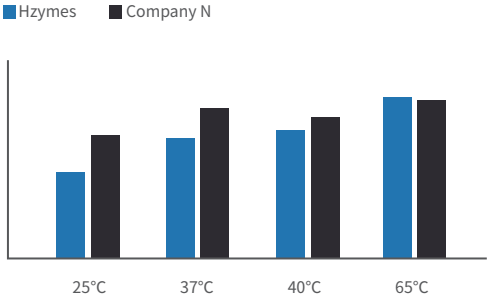
Green: Hzymes
Red:Competitor
Yellow:Hzymes after 7 days thermal acceleration
Purple:Competitor after 7 days thermal acceleration



Warmstart activity

To achieve higher specificity in the LAMP reaction and even close to zero false-positive amplification, Bst DNA Polymerase V2 (HMD7003) with a reversibly-bound aptamer could give you the warmstart function, which can block the activity under room temperature. Hzymes Bst DNA Polymerase V2 could have higher blocking efficiency at 25°C, 37°C, and 40 °C, and can release the activity even faster at 65 °C than other competitors.

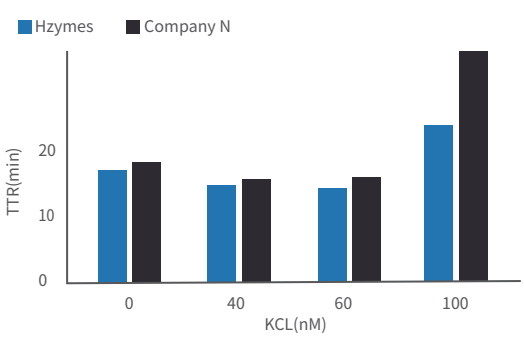
Activity under different temperature



High Tolerance to Salt Inhibition

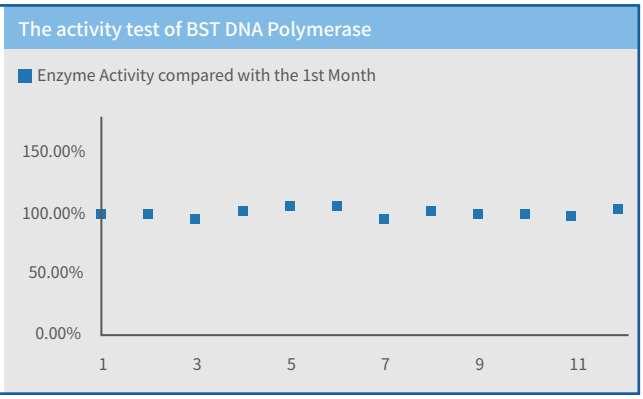
LAMP reactions were performed using Bst DNA Polymerase V2 (HMD7003) or a competitor Bst Polymerase (Company N) using increasing amounts of salt (potassium chloride). Bst DNA Polymerase V2 from Hzymes has better overall performance in the presence of potassium chloride.

High Tolerance to Salt Inhibition



Long-Term Stability

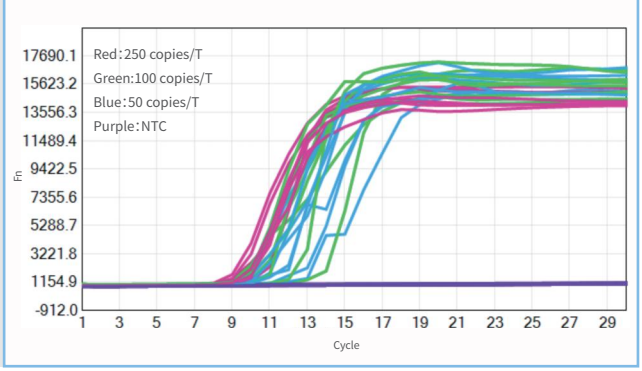
The activity test of Bst DNA Polymerase V2 (HMD7003) for 12 months under proper storage conditions. It has no activity change even after 12 months of storage.



RT-LAMP MASTER MIX(FLUORESCENT) - LIQUID & LYOPHILIZED

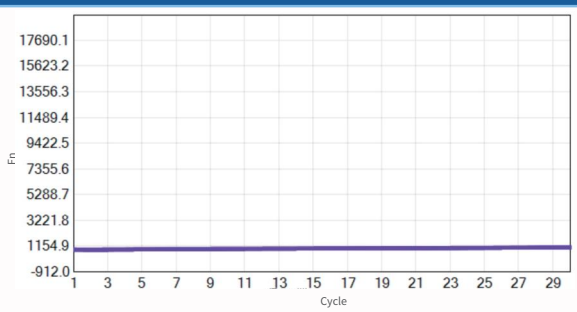
High Sensitivity and High Inhibitor Tolerance

RT-LAMP reaction is performed using a nasal swab sample spiked with SARS-CoV-2 pseudovirus(50 copies/T, 100 copies/T, and 250 copies/T) after a simple treatment with Hzymes Sample Release Buffer(HMD3504).



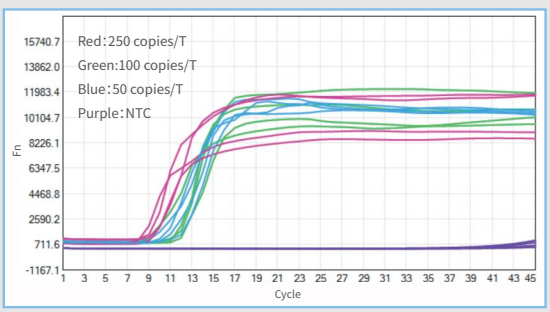
High Specificity

There is no NTC amplification while using RT-LAMP Master Mix(Fluorescent) (HMD5207).



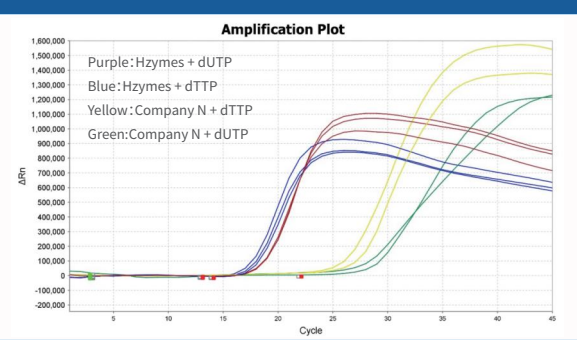
Performance Consistency with Lyophilized Reagent

The data illustrate that the lyophilization process does not affect the performance of the RT-LAMP reaction. (The same template concentration: 250 copies/T, 100 copies/T, and 50 copies/T).

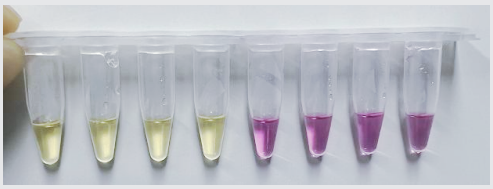


dUTP Tolerance

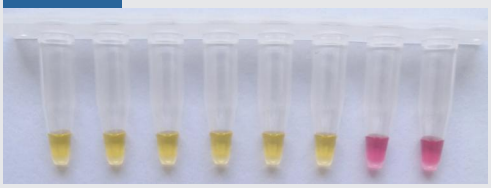
Hzymes RT-LAMP Master Mix(Fluorescent) (HMD5204) performs better dUTP tolerance than company N, while using the same primer set and template.

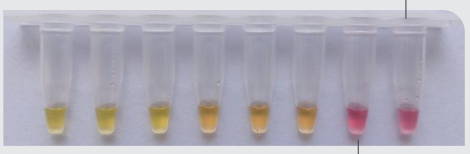


RT-LAMP MASTER MIX(COLOMETRIC) - LIQUID & LYOPHILIZED



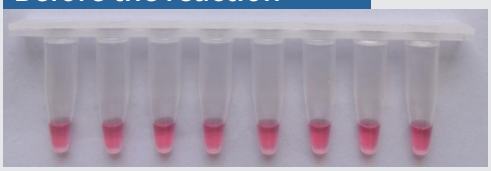
20min





Good thermal stability after 37 °C for 7 days.

Before the reaction



The nasal swab samples spiked with SARS-CoV-2 pseudovirus (50 copies/T, 100 copies/T, 250 copies/T) can be 100% detected using RT-LAMP Master Mix (Colometric)(HMD5204). The samples have been simply treated using Hzymes Sample Release Buffer (LAMP Colometric)(HMD3505)

SELECTION GUIDE
FOR YOUR LAMP APPLICATION

LAMP/RT-LAMP Raw Materials

Hzymes Cat. No.	Products	Specification
HMD7002	Bst DNA polymerase V2	800U, 8000U, 80000U
HMD7002D	Bst DNA polymerase V2(High concentration)	4800U, 12000U, 120000U
HMD7003	WarmStart Bst DNA polymerase V2	800U, 8000U, 80000U
HMD5301	RTL reverse transcriptase	1500U, 15000U, 150000U
HMD5301D	RTL reverse transcriptase(High concentration)	9000U, 22500U, 225000U
HMD3901	RNase inhibitor	2000U, 20000U, 400000U
HMD2101	dNTP(25mM each)	0.5mL, 1mL, 5mL, 100mL
HMD2102	dNTP(10mM each)	0.5mL, 1mL, 5mL, 100mL
HMD3504	Sample release buffer	1mL, 8mL, 100mL, 1000mL
HMD3505	Sample release buffer(LAMP colometric)	1mL, 8mL, 100mL, 1000mL

LAMP/RT-LAMP related CDMO Service

Hzymes Cat. No.	Products
HCRO0011	LAMP primer design and optimization
HCRO0012	The development of lyophilization process
HCRO0013	Contract producation of lyophilized reagent

LAMP/RT-LAMP Master Mix

Hzymes Cat. No.	Products	Specification
HMD5204	LAMP/RT-LAMP colometic master mix (Liquid, Lyoph-Ready)	100RXN, 1000RXN, 10000RXN
HMD5205	LAMP/RT-LAMP colometic master mix (In situ lyophilization)	100RXN, 1000RXN, 10000RXN
HMD5206	LAMP/RT-LAMP colometic master mix (Lyophilized beads)	100RXN, 1000RXN, 10000RXN
HMD5207	LAMP/RT-LAMP fluorescent master mix (Liquid, Lyoph-Ready)	100RXN, 1000RXN, 10000RXN
HMD5208	LAMP/RT-LAMP fluorescent master mix (In situ lyophilization)	100RXN, 1000RXN, 10000RXN
HMD5209	LAMP/RT-LAMP fluorescent master mix (Lyophilized beads)	100RXN, 1000RXN, 10000RXN

HZYMES

HZYMES BIOTECHNOLOGY CO.,LTD

Marketing & Sales Center:
Hzymes Building, Shanghai, China
Production Center:
Precision Medical Industry Base, Wuhan, China
+86 021-60879177 | info@hzymes.com

Brochure

Website