PRODUCT LIST

BiORi
宝 锐 生 物

# MOLECULAR DIAGNOSIS RAW MATERIALS AND SOLUTION

## BIORI PRODUCT BROCHURE 2023

Focus on raw material development and provide high-quality services

Zhuhai Biori Biotechnology Co.,Ltd


# ABOUT US

## COMPANY PROFILE

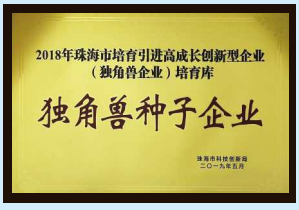
Founded in 2012, Zhuhai Biori Biotechnology Co.,Ltd has been focusing on the core raw materials of nucleic acid diagnostic reagents, and was successively awarded as “The National High-tech Enterprise”, “The Specialized, Refined, Differentiated, and Innovative Little Giant Enterprise in Guangdong Province” and “The Unicorn Seed Enterprise in Zhuhai”. Through the rapid development in recent years, Biori has successfully developed full kinds of raw materials(key enzyme and premix) for nucleic acid diagnosis, which have been widely used by many companies in their development and production of nucleic acid diagnostic reagents. At the same time, Biori is increasing its investment in the development and research of mRNA vaccine raw materials and a variety of constant temperature amplification raw materials, and related products have been launched one after another.

Focus on raw material development and provide professional service. Biori is entering a new era of industry development at a high speed, and we will firmly pore the upstream core technology to facilitate the development of health industry with high-quality products and services!

### QUALIFICATION HONOR

National High-Tech Enterprise

Small and Medium-sized the Specialized, Refined, Differentiated, and Innovative Enterprise in zhuhai xiang zhou district--Guangdong Province



Zhuhai “Unicorn” seed Enterprise


ISO9001: Certification of 2015 system

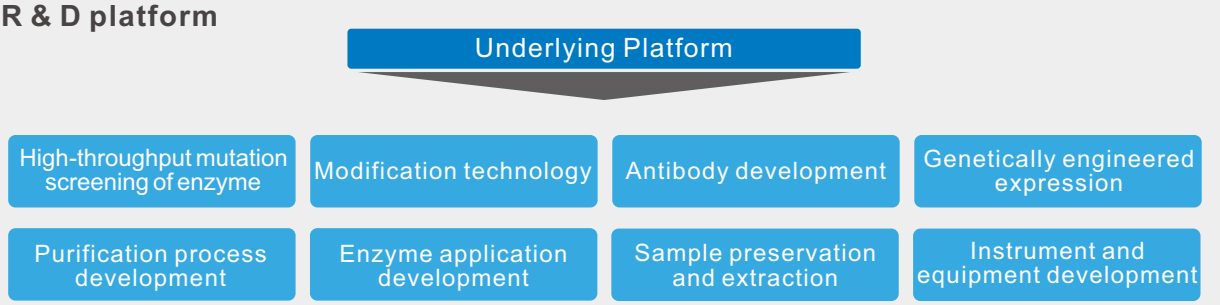
Zhuhai advanced group in fighting against COVID-19

Top 50 High-tech Enterprises in Zhuhai Xiangzhou District

Small and Medium-sized Growth Project Cultivation Enterprise in Zhuhai Xiangzhou District

# INTRODUCTION TO CUSTOMIZED SERVICES

## • R & D platform

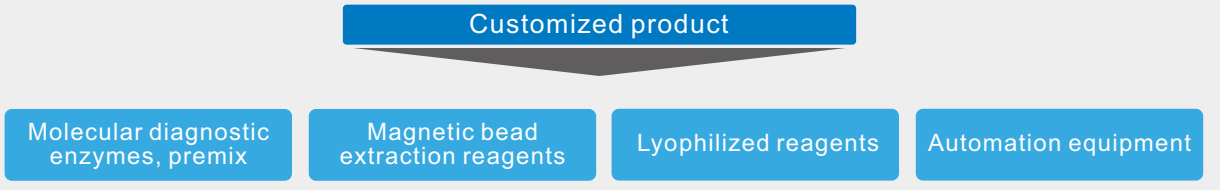



## • Customer groups

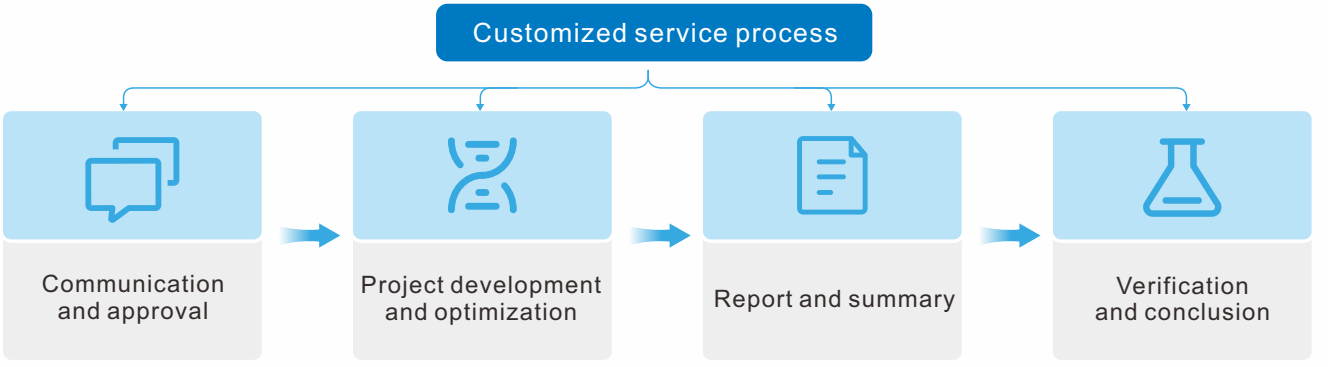
Biori has been focusing on the research and development of nucleic acid diagnostic raw materials for nearly ten years, and has accumulated rich experience. We can provide customers with a series of solutions in various related fields, like technical demonstration to R&D projects, research optimization, pilot-scale development, and production scale-up.


## • Customized product

Biori's products, such as nucleic acid diagnostic enzymes, high-performance premix, direct amplification reagents, rapid amplification reagents, isothermal amplification reagents, extraction reagents, instruments and equipment, can provide customers with OEM and flexible customized development services.




## • Service process



# CONTENTS

# PART 01

## LYO-READY RAW MATIERIALS

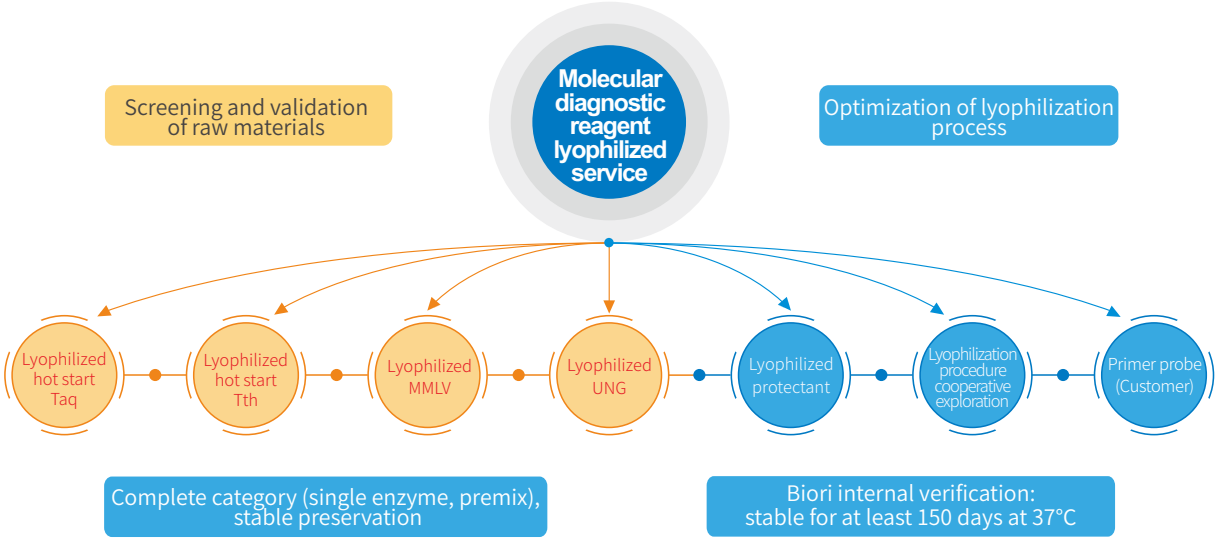
Lyo-ready raw materials series results display

Lyophilized formulations are available for the all products

| Varirty | Diverse | Advantage |
|---|---|---|
| Full-line PCR test materials support lyophilized formula | PCR Tube (8-Tube Strips), lyophilized microsphere (sphere), Vial | Full stability verification, a variety of products can be customized, there are certified customers. |

Since 2014, Biori has been developing lyophilized raw materials for molecular diagnostic reagents, and has taken the lead in developing lyophilized enzymes and premix for DNA and RNA detection in China. At present, Biori has a full set of lyophilized raw materials suitable for fluorescence quantitative detection of DNA and RNA. Including enzymes for lyophilization, premix, lyophilization protectants, rapid and direct amplification reagents for lyophilization, loop-mediated isothermal amplification reagents for lyophilization and many other series of lyophilization raw materials products.

A large number of long-term accelerated stability tests have been carried out on the lyophilized materials, which can provide stronger support for the research and development of lyophilized reagents. At present, the lyophilized reagent products of our customers are the first to obtain NMPA registration approval.




During the cooperation, the client only needs to provide relevant primers or probes to complete the feasibility study of the lyophilization project. Biori will help the client to optimize the lyophilized procedure and guide the client to perform the lyophilized operation.

In order to cooperate with the customer's research and development work, Biori also undertakes the lyophilized service. Available lyophilization forms include PCR Tube(8-Tube Strips), lyophilized microsphere(sphere) and Vial, to help customers quickly obtain the most reliable project results.

## Stability data of lyophilized product in 8-Strip tubes

## 01 DNA amplification reagent lyophilized product

### Test 1:Accelerated stability (45°C) verification of human genome quadruple detection system

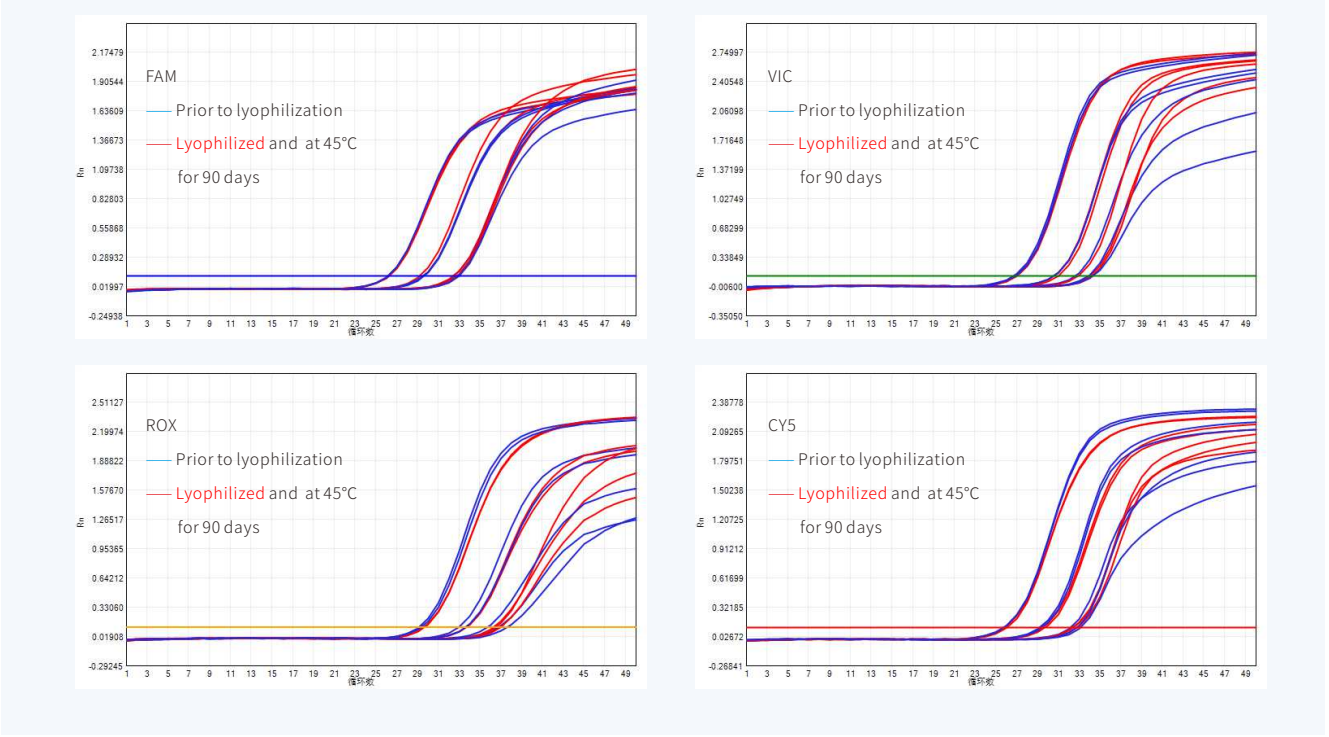
Experimental conditions:

| | | | |
|---|---|---|---|
| Code | FM5071 | System | Human genome quadruple detection system |
| Template | Human genome template | Template concentration | 2.5、25、250 pg/μL |
| Cycling program | 50°C 2min;95°C 5min;50 Cycles (95°C 10s, 55°C 40s) | | |

Note: In the control group, the liquid reagent of the same batch of lyophilized reagent was prepared immediately.
The lyophilized reagent was vacuum-packed in aluminum foil bag after leaving the box, and accelerated at 45°C.

Experimental results:

**45°C for 90 days▼**




### Test 2:Accelerated stability (45°C) verification of human genome quadruple detection system

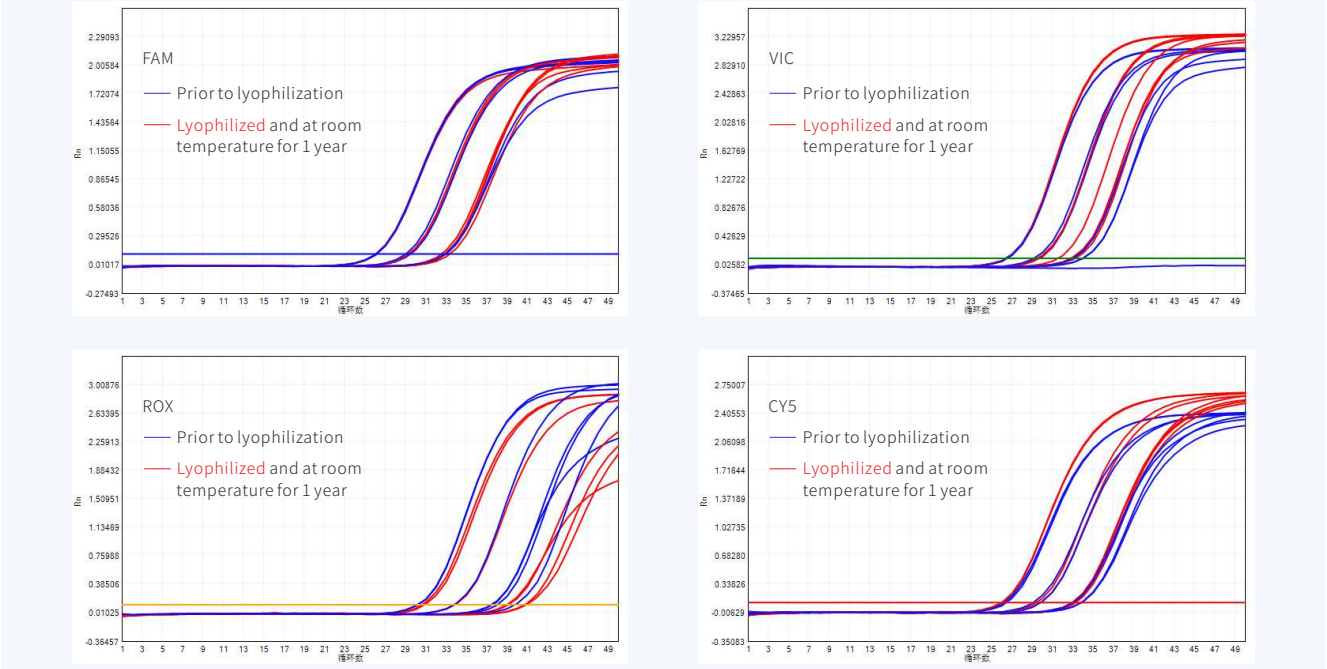
Experimental conditions:

| | | | |
|---|---|---|---|
| Code | FM5071 | System | Human genome quadruple detection system |
| Template | Human genome purification template | Template concentration | 2.5、25、250 pg/μL |
| Cycling program | 50°C 2min;95°C 5min;50 Cycles (95°C 10s, 55°C 40s) | | |

Note: In the control group, the liquid reagent of the same batch of lyophilized reagent was prepared immediately.
The lyophilized reagent was vacuum-packed in aluminum foil bag after leaving the box, Place at room temperature.

Experimental results:

**Room temperature for 1 year▼**




## ⑫ RNA amplification reagent lyophilized products

**Test 1: Accelerated Stability (55°C) Verification of Human Total RNA Purification Template Triple Detection System**

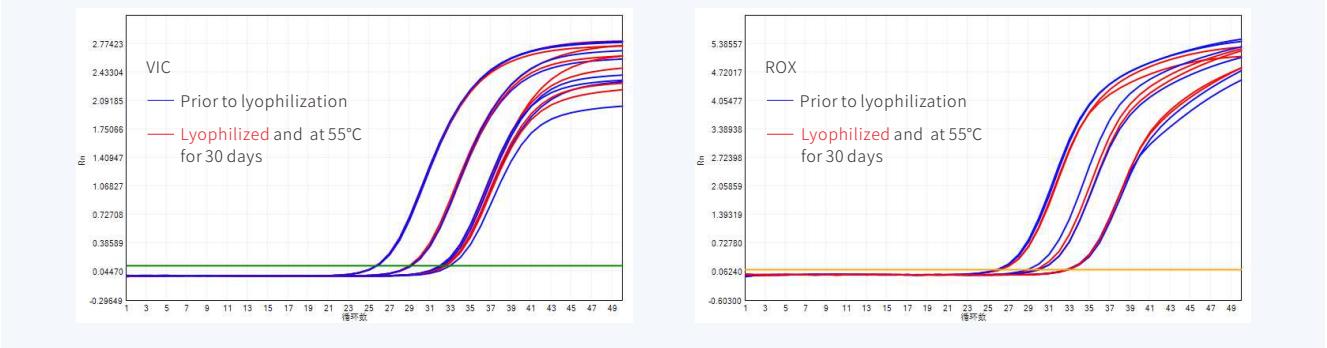
Experimental conditions:

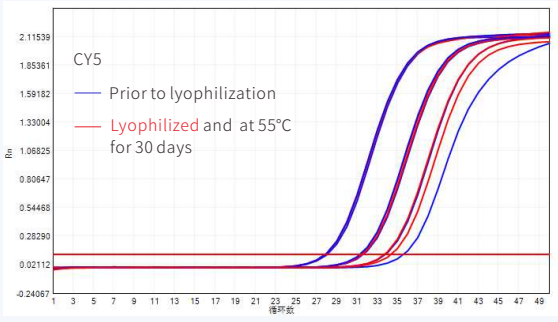
| | | | |
|---|---|---|---|
| Code | FM5134 | System | Triple detection system of human total RNA |
| Template | Human total RNA purification template | Template concentration | 0.464、4.64、46.4 pg/μL |
| Cycling program | 50°C 15min；95°C 1min；50 Cycles (95°C 15s，56°C 45s) | | |

Note: In the control group, the liquid reagent of the same batch of lyophilized reagent was prepared immediately. The lyophilized reagent was vacuum-packed in aluminum foil bag after leaving the box, and accelerated at 55°C.

Experimental results:

**55°C for 30 days▼**






## Test 2: Room temperature Stability Verification of Human Total RNA Purification Template Triple Detection System

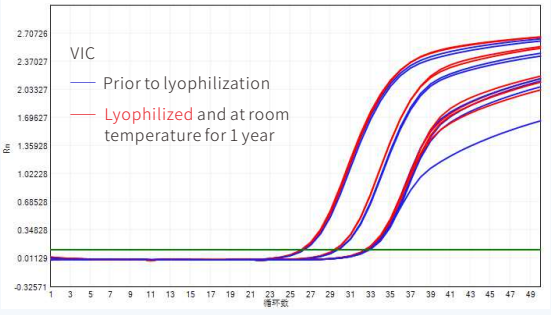
Experimental conditions:

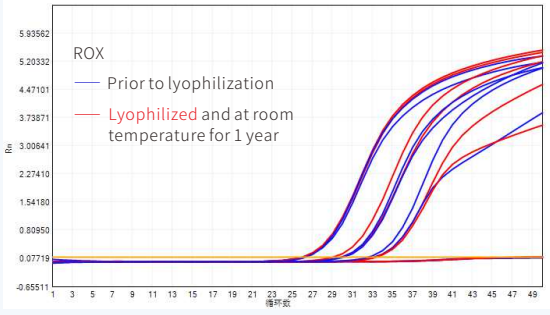
| | | | |
|---|---|---|---|
| Code | FM5134 | System | Triple detection system of human total RNA |
| Template | Human total RNA purification template | Template concentration | 0.464、4.64、46.4 pg/μL |
| Cycling program | 50°C 15min；95°C 1min；50 Cycles (95°C 15s, 56°C 45s) | | |

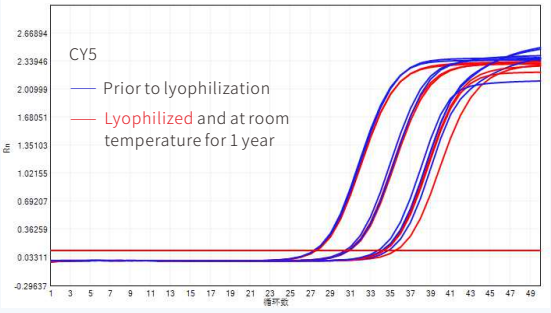
Note: In the control group, the liquid reagent of the same batch of lyophilized reagent was prepared immediately.
The lyophilized reagent was vacuum-packed in aluminum foil bag after leaving the box, Place at room temperature.

Experimental results:

**Room temperature for 1 year▼**



## 03 Loop-mediated Isothermal Amplification (LAMP)

### Test 1: Accelerated stability validation of LAMP lyophilized system (accelerated at 55℃ for 30 days)

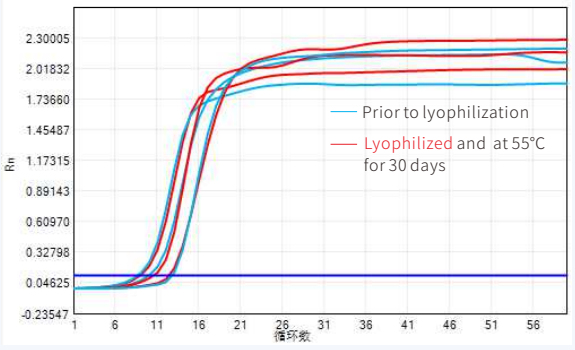
Experimental conditions:

| | | | |
|---|---|---|---|
| Code | HW201-R01 | System | LAMP lyophilized system |
| Template | λDNA | Template concentration | 0.05pg/T、0.5pg/T、5pg/T |
| Cycling program | 65℃, 60min(Fluorescence was collected every minute) | | |

Note: In the control group, the liquid reagent of the same batch of lyophilized reagent was prepared immediately. The lyophilized reagent was vacuum-packed in aluminum foil bag after leaving the box and accelerated at 55℃.

Experimental results:

**55℃ for 30 days▼**




Note：The amount of template addition from left to right is 5pg/T, 0.5pg/T, 0.05pg/T.

### Test 2: Accelerated stability validation of RT-LAMP lyophilized system (accelerated at 55℃ for 30 days)

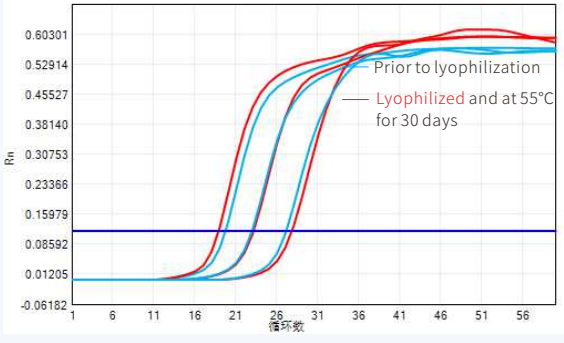
Experimental conditions:

| | | | |
|---|---|---|---|
| Code | HW202-R01 | System | RT-LAMP lyophilized system |
| Template | Human total RNA | Template concentration | 1ng/T、10ng/T、100ng /T |
| Cycling program | 65℃, 60min(Fluorescence was collected every minute) | | |

Note: In the control group, the liquid reagent of the same batch of lyophilized reagent was prepared immediately. The lyophilized reagent was vacuum-packed in aluminum foil bag after leaving the box and accelerated at 55℃.

Experimental results:

**55℃ for 30 days▼**




Note: template addition from left to right: 100ng/T, 10ng/T, 1ng/T.

# Stability data of lyophilized products in vials

## RNA amplification reagent lyophilized product

**Test: Accelerated stability (55°C) validation of triple detection system for human total RNA purification template**

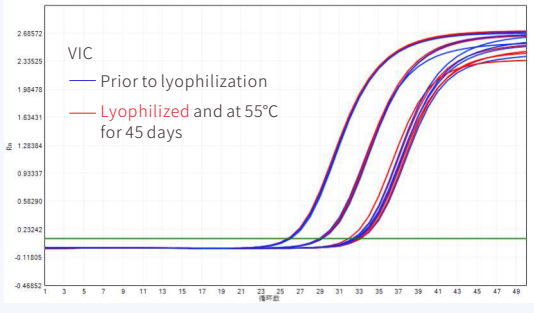
Experimental conditions:

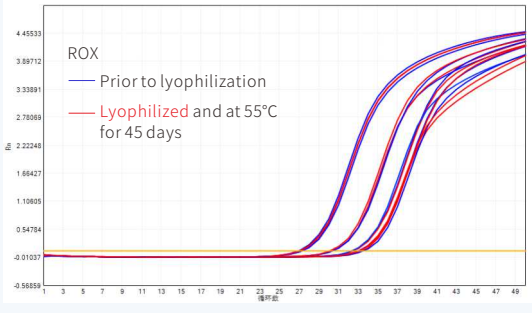
| | | | |
|---|---|---|---|
| Code | FM5134 | System | Triple detection system for human total RNA |
| Template | Human total RNA purification template | Template concentration | 0.464、4.64、46.4 pg/μL |
| Cycling program | 50°C 15min；95°C 1min；50 Cycles (95°C 15s, 56°C 45s) | | |

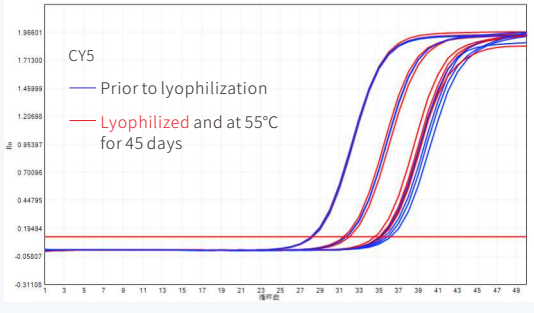
Note: In the control group, the liquid reagent of the same batch of lyophilized reagent was prepared immediately. The lyophilized reagent was vacuum-packed in aluminum foil bag after leaving the box and accelerated at 55°C.

Experimental results:

**55°C for 45 days▼**



# Stability data of lyophilized microspheres

## RNA amplification reagent lyophilized product

**Test: Accelerated stability (55°C) validation of triple detection system for human total RNA purification template**

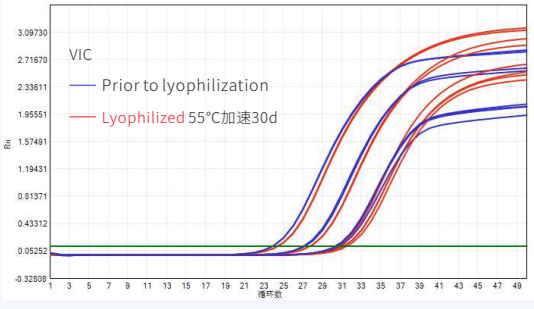
Experimental conditions:

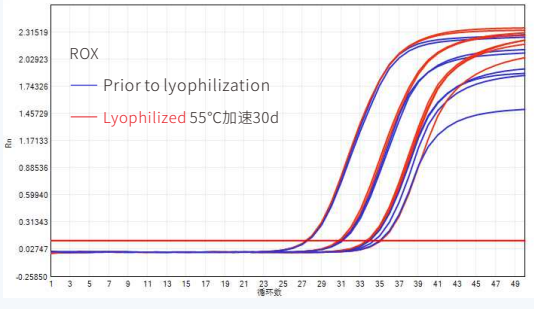
| | | | |
|---|---|---|---|
| Code | FMD5084 | System | Triple detection system for human total RNA |
| Template | Human total RNA purification template | Template concentration | 0.464、4.64、46.4 pg/μL |
| Cycling program | 50°C 15min；95°C 1min；50 Cycles (95°C 15s, 56°C 45s) | | |

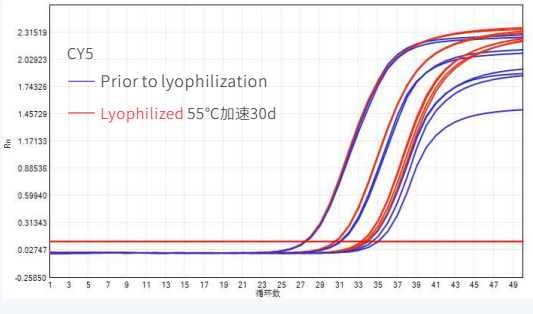
Note: In the control group, the liquid reagent of the same batch of lyophilized reagent was prepared immediately. The lyophilized reagent was vacuum-packed in aluminum foil bag after leaving the box and accelerated at 55°C.

Experimental results:

**55°C for 30 days▼**



# PART 02

## RAW MATERIALS FOR NUCLEIC ACID DETECTION

- Novel hot-start Taq DNA Polymerase
- MMLV reverse transcriptase
- Tth DNA Polymerase
- Direct amplification reagents
- Fast Amplification Premix For Purified Template
- New Products
- Isothermal amplification
- Other products

All products can be customized / have anti-pollution system

The following icons (without text description) will appear below the product name to annotate its features:

① ▶ Suitable for qPCR ② ▶ Suitable for qRT-PCR ③ ▶ Lyophilizable ④ ▶ Can be used with anti-pollution system

⑤ ▶ Customizable concentration ⑥ ▶ Suitable for multiplex amplification ⑦ ▶ Stable preserve in one tube

## **Novel hot-start Taq DNA polymerase** and its relevant premix

Biori hot-start Taq, novelty modification, has the characteristics of high specificity, high sensitivity,and complete categories. It is suitable for all kinds of PCR detection methods

| Product name | Code | Concen-tration | Characteristic | Recommended Application |
|---|---|---|---|---|
| HS Taq ①④⑤⑥ | E03 | 5U/μL | ①Chemically-modified and incubate at 95°C for 10 min for polymerase activation. ②The activity of polymerase is gradually released, and performs high specificity. | ①End-Point PCR and quantitative PCR. ②Multiplex PCR and genotyping test. |
| 2×HS Premix (Probe qPCR) ①④⑤⑥ | M203 | \ | | |
| Superstart Taq plus ①②③④⑤⑥ | E07 | 5U/μL | ①Modified by antibody and hot start at 95°C for 1~5 min. ②High sensitivity and specificity. ③Stable detection of low concentration samples, and performs high fluorescence value. | ①End-Point PCR and quantitative PCR. ②Multiplex PCR, genotyping test and high sensitivity detection of viral nucleic acid . |
| 2×Superstart Premix plus (Probe qPCR) ①②④⑤⑥ | M207 | \ | | |
| Hyperstart® Taq ①②③④⑤⑥ | E09 | 5U/μL | ①Modified by aptamer, and reversible hot start above 60°C. ②Dynamically modified during PCR process, with high sensitivity and specificity. ③ It can be stored stably at 2~8°C. | ①End-Point PCR and quantitative PCR. ②Multiplex PCR, genotyping test and high sensitivity detection of viral nucleic acid . |
| 2×Hyperstart® Premix (Probe qPCR) ①②④⑤⑥ | M209 | \ | | |
| Robustart Taq ①②③④⑤⑥ | E16 | 5U/μL | ①Modified by antibody and hot start at 95°C for 1~5 min. ②High sensitivity and specificity. ③It has strong applicability to various detections. | ①End-Point PCR and quantitative PCR. ②Multiplex PCR, genotyping test and high sensitivity detection of viral nucleic acid . |
| 2×Robustart Premix (Probe qPCR) ①②④⑤⑥ | M216 | \ | | |
| 2×Robustart Premix OT (Probe qPCR) NEW ①②④⑤⑥ | M2211 | 5U/μL | ①Modified by antibody and hot start at 95°C for 1~5min. ②High stability under one-tube conditions (enzyme, buffer and primer probe are mixed in one tube). | ①Detection of human and animal-related DNA viruses. ②POCT |
| Robustart Taq QS II ①②③④⑤⑥ | E20 | 5U/μL | ①Modified by antibody and hot start at 95°C for 1~5 min. ②Amplification rate of rapid DNA polymerase is no less than 1kb/10s. ③It exhibits extremely high resistance to inhibitors found in blood, swabs, etc. | ①End-Point PCR and quantitative PCR. ②Rapid amplification, direct amplification and POCT nucleic acid detection. |

## **MMLV Reverse Transcriptase** and its relevant premix

Biori MMLV Reverse Transcriptase has the characteristics of high efficiency reverse transcription, good stability, excellent performance and strong applicability. It can match all kinds of amplification enzymes and is suitable for all kinds of RT-PCR detection methods.

| Product name | Code | Concen-tration | Characteristic | Recommended Application |
|---|---|---|---|---|
| Celerscript®RTase ②③④⑤⑥ | E12 | 200U/μL | ①Reverse transcription temperature range from 42°C to 50°C. ②It has high efficiency in cDNA synthesis . ③Strong substrate affinity. | ①cDNA synthesis(E12), quantitative RT-PCR. ②Detection of human and animal RNA viruses. High sensitivity detection of novel coronavirus, influenza virus and respiratory tract virus in multiplex detection. |
| 5×Celerscript® RT Premix (Probe qRT-PCR) ②③④⑤⑥ | M512 | \ | | |
| Neoscript® RTase ②③④⑤⑥ | E13 | 200U/μL | ①Reverse transcription temperature range from 42°C to 55°C. ②Excellent specificity and sensitivity. ③High applicability, and suitable for all kinds of high sensitivity detection. | ①cDNA synthesis(E13), quantitative RT-PCR. ②Detection of human and animal RNA viruses. High sensitivity detection of novel coronavirus, influenza virus and respiratory tract virus in multiplex detection. |
| 5×Neoscript® RT Premix (Probe qRT-PCR) ②③④⑤⑥ | M513 | \ | | |

| Product name | Code | Concen-tration | Characteristic | Recommended Application |
|---|---|---|---|---|
| Neoscript® RT Premix OT (Probe qRT-PCR) ②③④⑤⑥⑦ NEW | M527 | \ | ①Reverse transcription temperature range from 42°C to 55°C.<br>②High stability under one-tube conditions (enzyme, buffer and primer probe are mixed in one tube).<br>③High applicability, suitable for all kinds of high sensitivity detection. | ①Detection of human and animal RNA viruses. High sensitivity detection of novel coronavirus, influenza virus and respiratory tract virus in multiplex detection.<br>②POCT. |

## **Tth Polymerase** and its relevant premix

Biori Tth polymerase with the functions of RNA reverse transcription and DNA amplification, the inhibitor is well tolerated.
We provide a variety of modification schemes for it and it is suitable for various PCR and RT-PCR detection methods.

| Product name | Code | Concen-tration | Characteristic | Recommended Application |
|---|---|---|---|---|
| Hyperstart® Tth ①②③④⑤⑥ | E10 | 5U/μL | ①Modified by aptamer, and reversible hot start above 60°C.<br>②It has both polymerase and reverse transcriptase activities.<br>③In the presence of $Mn^{2+}$, the reverse transcription can be carried out at a high temperature from 60 to 70°C. The reverse transcription efficiency of complex RNA templates is higher and non-specificity is reduced.<br>④It preforms high inhibitor-tolerance. | ①Quantitative PCR.<br>②Multiple PCR, Genotyping, Highly sensitive virus detection.<br>③Preserve at 2-8°C. |
| 5×Hyperstart® Tth Premix (Probe qRT-PCR) ①②③④⑤⑥ | M510 | \ | | |
| Robustart Tth ①②③④⑤⑥ | E17 | 5U/μL | ①Modified by antibody and hot start at 95°C for 1~5 min.<br>②It has both polymerase and reverse transcriptase activities.<br>③In the presence of $Mn^{2+}$, the reverse transcription can be carried out at a high temperature from 60 to 70°C. The reverse transcription efficiency of complex RNA templates is higher and non-specificity is reduced.<br>④It preforms high inhibitor-tolerance. | ①Quantitative PCR.<br>②MultiplePCR, genotyping, and highlysensitive virus detection. |

## **Direct Amplification Premix**

Biori Direct Amplification Premix use innovative and unique formulations containing antibody-modified polymerase, have the characteristics of high sensitivity and inhibitor-tolerance. It can be lyophilized and used for in-situ lysis and amplification of biological samples, and ensure the accuracy of results. It is suitable for extraction-free nucleic acid detection of blood, swabs and other samples.

| Product name | Code | Characteristic | Recommended Application |
|---|---|---|---|
| 2×Superstart™ Direct Premix (Probe qPCR) ①③④⑤⑥ | MD201 | ①It exhibits extremely high resistance to inhibitors found in blood, swabs, tissue homogenate, etc. The recommended volume of different samples is whole blood ⩽5%, plasma ⩽30% and serum ⩽30%.<br>②It is suitable for direct fluorescence quantitative PCR detection of DNA without extraction. | ①Human and animal related DNA virus detection.<br>②Genomic DNA amplification and genotyping. |
| 2×Hyperstart® Direct Premix (Probe qPCR) ①③④⑤⑥ | MD202 | ①It exhibits extremely high resistance to inhibitors found in blood, swabs, tissue homogenate, etc. The recommended volume of different samples is whole blood ⩽5%, plasma ⩽30% and serum ⩽30%.<br>②It is suitable for direct fluorescence quantitative PCR detection of DNA without extraction. | ①Human and animal related DNA virus detection.<br>②Genomic DNA amplification and genotyping. |
| 2×SensiDirect® Premix (Probe qPCR) ①③④⑤⑥ | MD209 | ①It exhibits extremely high resistance to inhibitors found in blood, swabs, tissue homogenate, etc. The recommended volume of different samples is whole blood ⩽5%, plasma ⩽30% and serum ⩽30%.<br>②It is suitable for direct fluorescence quantitative PCR detection of DNA without extraction. | ①Human and animal related DNA virus detection.<br>②Genomic DNA amplification and genotyping. |
| 2×Fast Direct Premix (Probe qPCR) ①③④⑤⑥ | MD207 | ①The amplification rate is not less than 1kb/5s, which is suitable for rapid extraction-free fluorescence quantitative PCR, and the detection can be completed within 30min.<br>②It exhibits extremely high resistance to inhibitors found in blood, swabs, tissue homogenate, etc. The recommended volume of different samples is whole blood ⩽5%, plasma ⩽30% and serum ⩽30%. | ①Human and animal related DNA virus detection.<br>②Genomic DNA amplification and genotyping. |

| Product name | Code | Characteristic | Recommended Application |
|---|---|---|---|
| 2×SensiDirect RT Premix (Probe qRT-PCR) ②③④⑤⑥ | MD210 | ①It exhibits extremely high resistance to inhibitors found in blood,swabs,tissue homogenate,etc.The recommended volume of different samples is whole blood≤5%,plasma≤30%andserum≤30%. ②It is suitable for direct fluorescence quantitativePCR detectionofDNAwithoutextraction. | ①Human and animal related RNA virus detection. ②Direct amplification detection without extraction. |
| 2×Fast Direct RT Premix (Probe qRT-PCR) ②③④⑤⑥ | MD208 | ①It is suitable for rapid extraction-free fluorescent quantitative RT-PCR, and the detection can be completed within 40min. ②It exhibits extremely high resistance to inhibitors found in blood, swabs, tissue homogenate, etc. The recommended volume of different samples is whole blood ≤5%, plasma ≤30% and serum ≤30%. | ①Human and animal related RNA virus detection. ②Direct amplification detection without extraction. |
| Stool Direct Premix (Probe qPCR) NEW ②③④⑤⑥ | MD211 | ①It has a high tolerance for samples derived from stool and anal swabs, and the proportion of stool directly added to the sample is ≤0.5%. ②Suitable for DNA extraction-free direct fluorescence qPCR detection of stool samples. | ① Detection of DNA viruses and pathogens related to humans and animals. ②Amplification and typing of genomic DNA. |
| 通用型核酸释放剂 NEW ①②⑤ | AS17 | ① Pre-treatment of biological samples, such as swabs, anticoagulant whole blood, stool, etc.,swab sample≤ 20%, anticoagulation whole blood sample≤ 20%, stool fluid ≤20%. ②Efficient and time-saving, one-step cracking and binding, instant release, no heating and no centrifugation during processing. | ① Detection of DNA/RNA viruses and pathogens related to humans and animals. ②Fast amplification, POCT. |

## Fast Amplification Premix For Purified Template

| Product name | Code | Characteristic | Recommended Application |
|---|---|---|---|
| 2×Superstart Fast Premix (Probe qPCR) ①③④⑤⑥ | M222 | ①The amplification rate is not less than 1kb /10s, which is suitable for rapid fluorescent quantitative PCR of purified DNA template, and the reaction can be completed within 30min. ② It has excellent specificity and sensitivity. | ①Human and animal related DNA virus detection. ②Genomic DNA amplification andgenotyping. ③Rapid amplification detection. |
| 5×Neoscript® Fast RT Premix (Probe qRT-PCR) ②③④⑤⑥ | M524 | ①The amplification rate is not less than 1kb /10s, which is suitable for rapid fluorescent quantitative PCR of purified RNA template, and the reaction can be completed within 30min. ② It has excellent specificity and sensitivity. | ①Human and animal related RNA virus detection. ②Genomic DNA amplification andgenotyping. ③Rapid amplification detection. |

## TEST DATA

### 01 Testing data of direct DNA amplification reagent

Experimental conditions:

| | | | |
|---|---|---|---|
| Code | MD2011 | System | HBV、human genomic DNA detection system |
| Template | HBV-positive plasma, whole blood, Oral swabs | Cycling program | 50°C 2min；95°C 5min；50 Cycles (95°C 10s，55°C 40s) |

**● Direct DNA amplification of plasma**

**HBV-positive plasma:** 48，96，$1.6\times10^3$、$1.6\times10^4$ IU/mL。All concentrations of HBV positive plasma were directly added into the reaction system for amplification without pretreatment. And plasma is added 25% of the total PCR volume into the reaction system before amplification, 6.25μL HBV-positive plasma was added into 25uL reaction system.

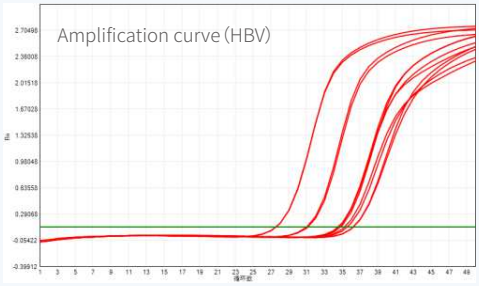



Fig.A Amplification curve of HBV

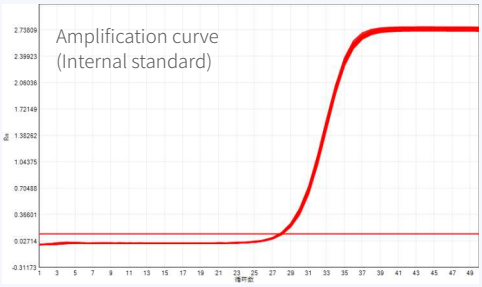
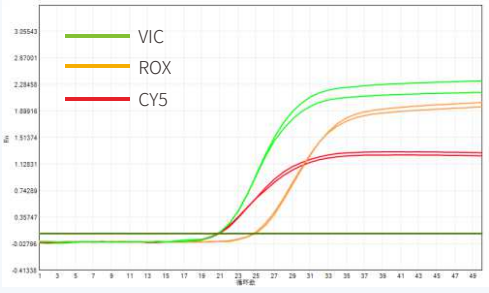



Fig.B Amplification curve of Internal standard

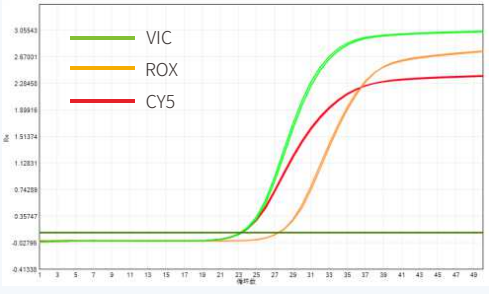
## Direct DNA amplification of human whole blood

**Human whole blood:** Human whole blood was directly added into the reaction system for amplification without pretreatment. And human whole blood is added 5% of the total PCR volume into the reaction system before amplification, 1.25μL Human whole blood was added into 25uL reaction system.




## Direct DNA amplification of Oral swabs

**Oral swabs:**After brushing in the oral cavity for about 10 times, we wash the swab with 1000μL H2O, centrifuge at 2500rpm for 10min and discard the supernatant, then there is about 100μL remaining liquid, blow and mix well the remaining liquid, take 10μL and add into reaction system for amplification.



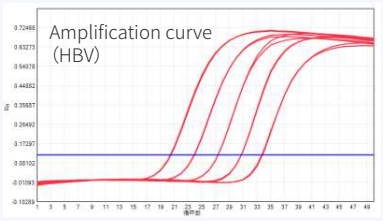

## 02 Testing data of amplification efficiency

Experimental conditions:

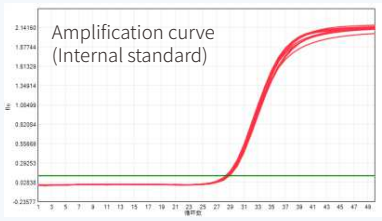
| | | | |
|---|---|---|---|
| Code | MD2091 | System | HBV detection system |
| Template | HBV-positive plasma, which added 25% of the total PCR volume into the reaction system | Cycling program | 50°C 2min；95°C 5min；50 Cycles (95°C 10s, 55°C 40s) |

## ● Direct DNA amplification of plasma

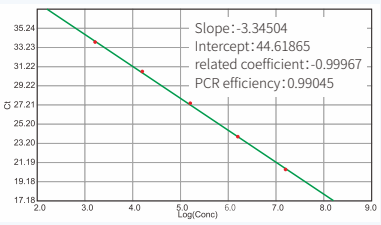
**HBV-positive plasma:** $1.6\times10^3$、$1.6\times10^4$、$1.6\times10^5$、$1.6\times10^6$、$1.6\times10^7$ IU/mL。All concentrations of HBV positive plasma were directly added into the reaction system for amplification without pretreatment. And plasma is added 25% of the total PCR volume into the reaction system before amplification




Amplification curve of HBV




Amplification curve of MLN (Internal standard)



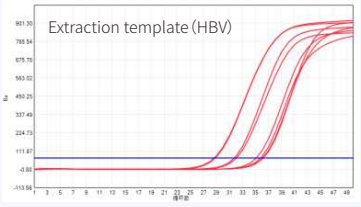

The standard curve

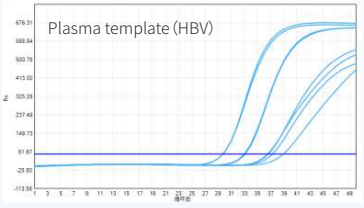
## 03 Testing data of amplification comparison between biological samples without extraction and purified biological samples after extraction

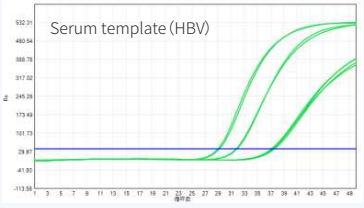
Experimental conditions:

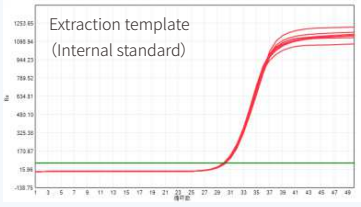
| | | | |
|---|---|---|---|
| Code | MD2091 | System | HBV detection system |
| Template | HBV-positive plasma, HBV-positive serum, Magnetic bead extraction HBV positive plasma template | Cycling program | 50°C 2min; 95°C 5min; 50 Cycles (95°C 10s, 55°C 40s) |

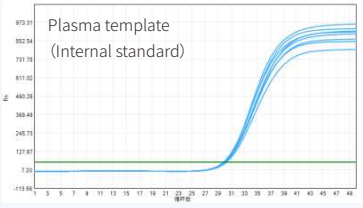
**Magnetic bead extraction HBV positive plasma template:** 200μL HBV positive plasma was extracted and eluted with 85μL 1×TE Buffer. And template is added 40% of the total PCR volume into the reaction system before amplification.
**HBV-positive plasma:** $1.6\times60$ IU/mL, 4T; $1.6\times10^3$ IU/mL, 2T; $1.6\times10^4$ IU/mL, 2T. All concentrations of HBV positive plasma were directly added into the reaction system for amplification without pretreatment. And plasma is added 25% of the total PCR volume into the reaction system before amplification.
**HBV-positive serum:** $1.6\times60$ IU/mL, 4T; $1.6\times10^3$ IU/mL, 2T; $1.6\times10^4$ IU/mL, 2T. All concentrations of HBV positive serum were directly added into the reaction system for amplification without pretreatment. And plasma is added 25% of the total PCR volume into the reaction system before amplification

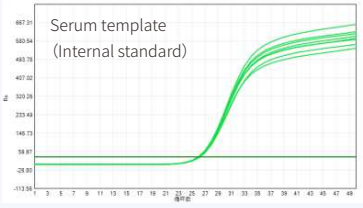


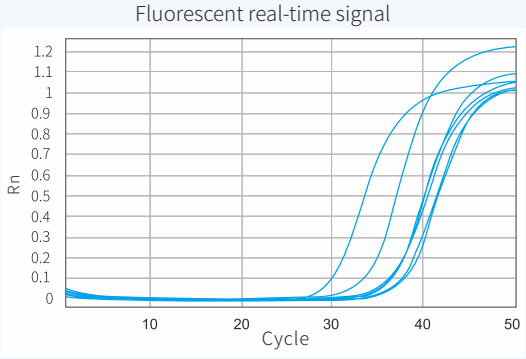




| Template | Template concentration (IU/mL) | Equivalent template concentration (IU/T) | Average Ct value | Template | Template concentration (IU/mL) | Equivalent template concentration (IU/T) | Average Ct value |
|---|---|---|---|---|---|---|---|
| Magnetic bead extraction HBV positive plasma template | $1\times10^4$ | 235 | 28.72 | HBV-positive plasma | $1.6\times10^4$ | 100 | 30.17 |
| | $1\times10^3$ | 23.50 | 31.90 | | $1.6\times10^3$ | 10 | 33.45 |
| | 50 | 1.20 | 35.78 | | $1.6\times60$ | 0.6 | 37.90 |
| HBV-positive serum | $1.6\times10^4$ | 100 | 29.87 | | | | |
| | $1.6\times10^3$ | 10 | 33.17 | | | | |
| | $1.6\times60$ | 0.60 | 38.68 | | | | |

## 04 Testing data of DNA rapid direct amplification product

Experimental conditions:

| | | | |
|---|---|---|---|
| Code | MD2071 | Template concentration | 0.6、1、10、100IU/T |
| Template | HBV-positive plasma | Cycling program | 50°C 2min；95°C 1min；<br>50 Cycles (95°C 1s, 60°C 5s)；<br>Complete the amplification within **23min** |
| Sample volume | Added 25% of the total PCR volume into the reaction system before amplification | | |




HBV amplification curve

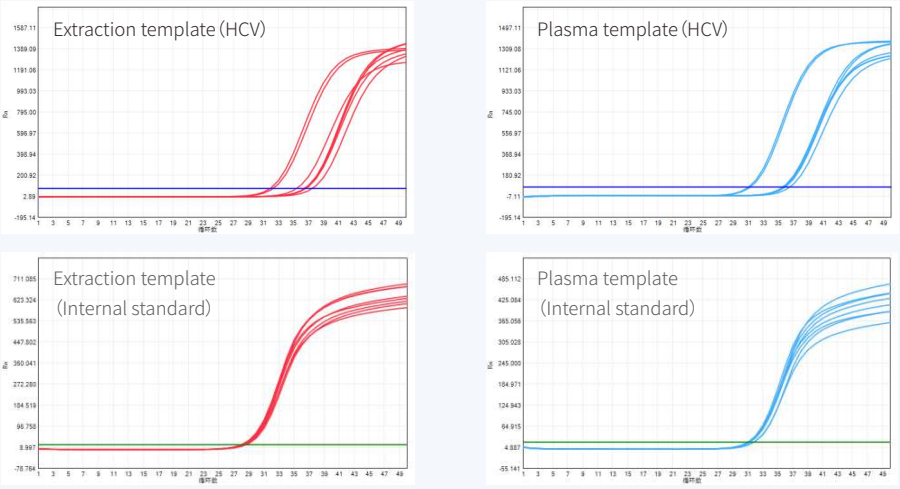
## 05 Testing data of RNA direct amplification product

Experimental conditions:

| | | | |
|---|---|---|---|
| Code | MD 2104 | Cycling program | 50°C 15min；95°C 1min；<br>50 Cycles (95°C 15s, 56°C 45s) |
| Template | HCV-positive plasma（Added 20% of the total PCR volume into the reaction system)，<br>Magnetic bead extraction HCV positive plasma template | | |

**HCV-positive plasma:** $1.3\times10^3$ U/mL, 6T; $2.61\times10^4$ IU/mL, 2T. All concentrations of HCV positive serum were directly added into the reaction system for amplification without pretreatment. And plasma is added 20% of the total PCR volume into the reaction system before amplification.

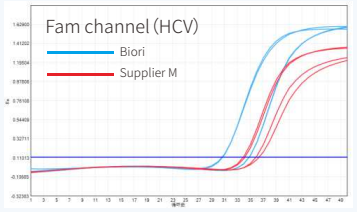
**Magnetic bead extraction HCV positive plasma template:** 200μL HCV positive plasma (130 IU/mL, 6T; $2.61\times10^3$ IU/mL, 2T) was extracted and eluted with 85μL 1×TE Buffer. And template is added 40% of the total PCR volume into the reactionsystem before amplification.

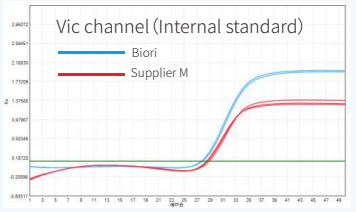


| Template | Template concentration (IU/mL) | Equivalent template concentration (IU/T) | Average Ct value | Template | Template concentration (IU/mL) | Equivalent template concentration (IU/T) | Average Ct value |
|---|---|---|---|---|---|---|---|
| Magnetic bead extraction HCV positive plasma template | $2.61\times10^{3}$ | 61.40 | 31.51 | HCV- positive plasma | $2.61\times10^{4}$ | 130.50 | 30.61 |
| | $1.30\times10^{2}$ | 3.06 | 35.97 | | $1.30\times10^{3}$ | 6.50 | 35.34 |

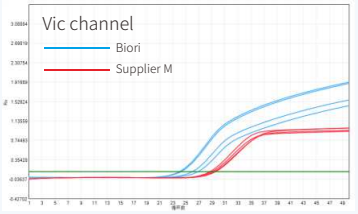
## 06 Comparison with similar products

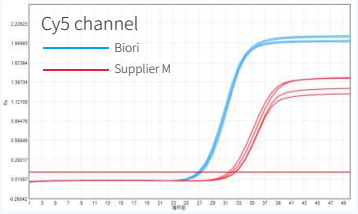
**HCV-positive plasma:** $1\times10^{4}$ IU/mL, 2T; $1\times10^{5}$ IU/mL, 2T. All concentrations of HCV positive serum were directly added into the reaction system for amplification without pretreatment. And plasma is added 20% of the total PCR volume into the reaction system before amplification.




**Saliva template(Human total RNA amplification):** 10% of the total PCR volume, 2T. 20% of the total PCR volume, 2T. Saliva template was directly added into the reaction system for amplification without pretreatment.

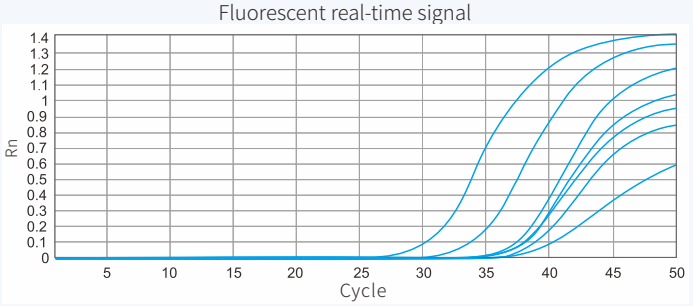



## 07 Testing data of RNA rapid direct amplification product

Experimental conditions:

| | | | |
|---|---|---|---|
| Code | MD2084 | Template concentration | 2.5、5、50、500IU/T |
| Template | HCV-positive plasma | Cycling program | 50°C 7min; 95°C 1min;<br>50 Cycles (95°C 1s, 56°C 10s)<br>Complete the amplification within **23min** |
| Sample volume | Added 20% of the total PCR volume into the reaction system before amplification | | |




HCV amplification curve

# NEW PRODUCTS

Universal nucleic acid release reagent

Stool Direct Premix

RNA one-tube reagent



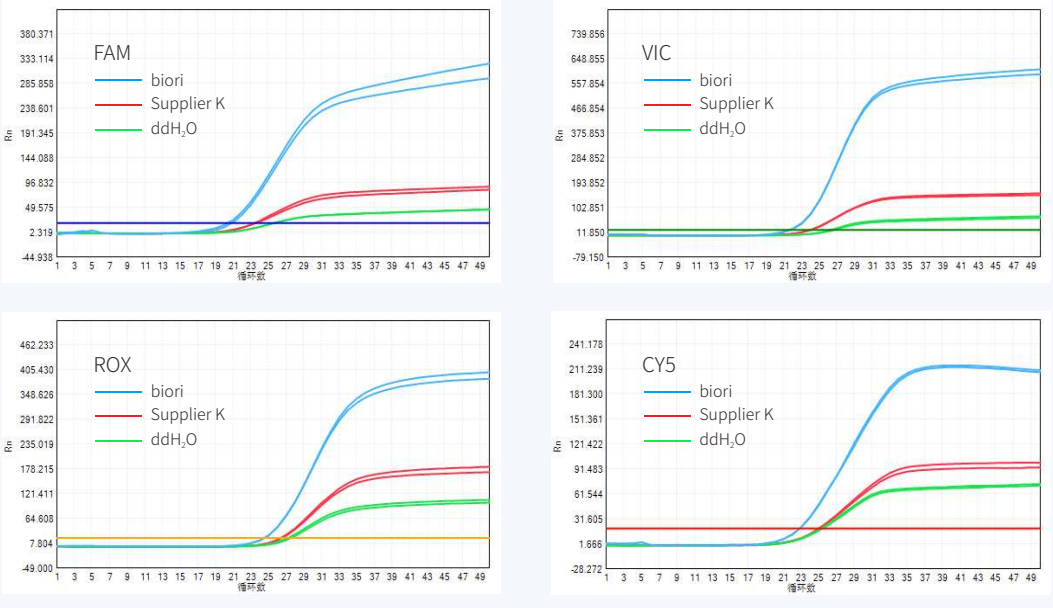
## NEW Universal nucleic acid release reagent

### 01 Comparison test of similar products (anticoagulant human whole blood)

Experimental conditions:

| | | | |
|---|---|---|---|
| Code | AS17 | Detection reagent | MD2091 |
| Template | EDTA Anticoagulated human whole blood | Template amount | 5μL/T |
| Cycling program | 50°C 2min；95°C 5min；50 Cycles (95°C 10s, 55°C 40s) | | |

**Whole blood sample processing:** Take 20 μL of whole blood and 60 μL of release reagent into an Ep tube, pat it slowly for 15-20 times to avoid the air bubbles, and add the sample directly after mixing for extraction-free nucleic acid amplification detection.

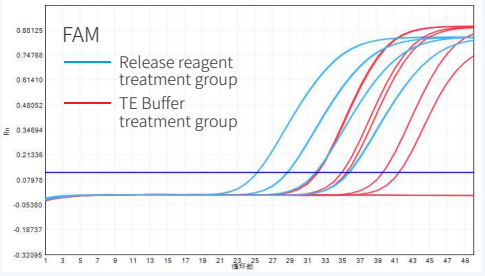


## 02 Pseudovirus sample processing effect test

Experimental conditions:

| | | | |
|---|---|---|---|
| Code | AS17 | Detection reagent | MD2104 |
| Template | RBCS pseudovirus | Template concentration | $1.4\times10^5$、$1.4\times10^6$、$1.4\times10^7$ and $1.4\times10^8$ copies/μL |
| Cycling program | 50°C 15min；95°C 1min；50cycles (95°C 15s, 56°C 45s) | | |

**Pseudovirus sample processing:** Take 30 μL of RBCS pseudovirus (gradient concentration) and 30 μL of release reagent in an Ep tube, pat it slowly for 15-20 times to avoid the air bubbles, and add the sample directly after mixing for extraction-free nucleic acid amplification detection.Treated with 1×TE Buffer as control.

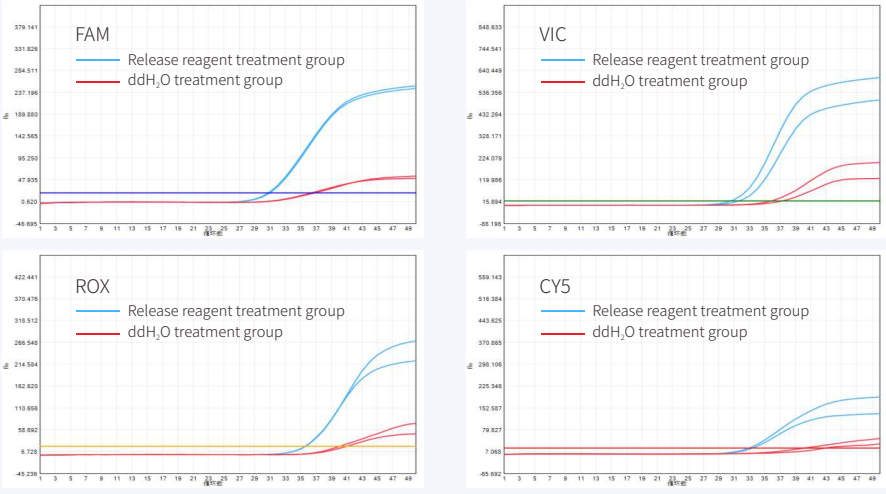



## 03 Stool sample treatment effect test

Experimental conditions:

| | | | |
|---|---|---|---|
| Code | AS17 | Detection reagent | MD2084-4 |
| Template | Human genome in stool samples | Template concentration | 0.0125 ng/μL |
| Cycling program | 50°C 2min；95°C 5min；50 Cycles (95°C 10s, 55°C 40s) | | |

**Stool sample processing:** Take 0.2 g of stool sample and add it to 1 mL of TE Buffer, mix and liquefy well; take the supernatant after instant centrifugation to obtain 20% stool sample, which is diluted with sterile water to obtain 2% stool samples; mix 2% stool solution and release reagent in equal volume, and treat with sterile water as a control; dilute the human genome with the above-treated samples to obtain a human genome template with a concentration of 0.0125 ng/μL; then 20% sample was directly added to the reaction system for amplification.

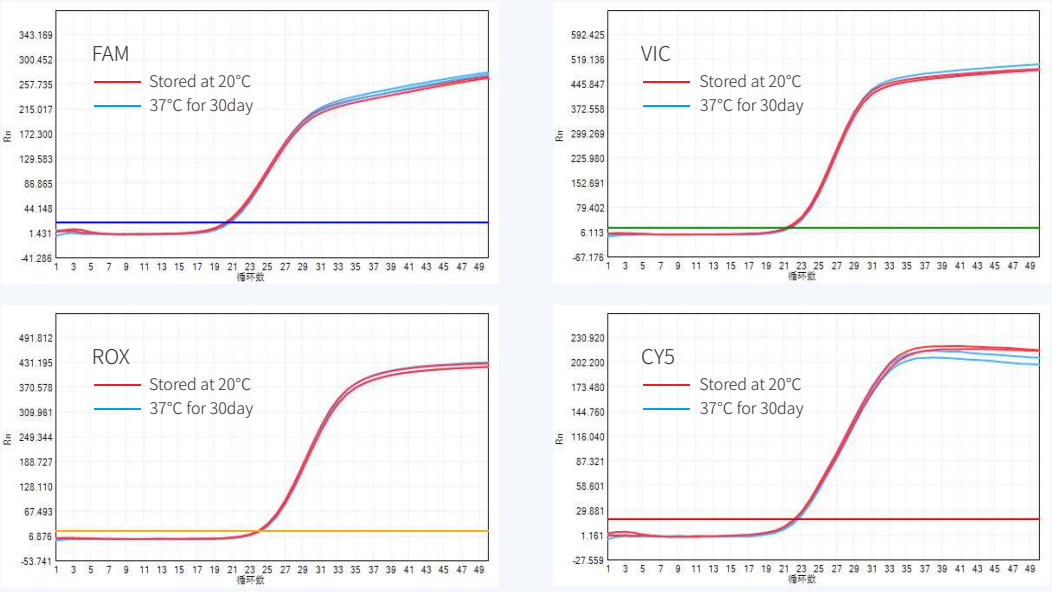


## 04 Accelerated Stability Verification

Experimental conditions:

| | | | |
|---|---|---|---|
| Code | AS17 | Detection reagent | MD2091 |
| Template | Anticoagulated human whole blood | Template amount | 5μL/T |
| Cycling program | 50°C 2min；95°C 5min；50 Cycles (95°C 10s，55°C 40s) | | |

**Test method:** Mix the nucleic acid release reagent, divide it into two parts, put them at -20°C and 37°C respectively, and take them out on the 30th day. Take 20 μL of whole blood and 60 μL of release reagent into an Ep tube, pat it slowly for 15-20 times to avoid the air bubbles, and add the sample directly after mixing for extraction-free nucleic acid amplification detection.
**Whole blood sample processing:** Take 20 μL of whole blood and 60 μL of release reagent into an Ep tube, pat it slowly for 15-20 times to avoid the air bubbles, and add the sample directly after mixing for extraction-free nucleic acid amplification detection.




# NEW Stool Direct Premix

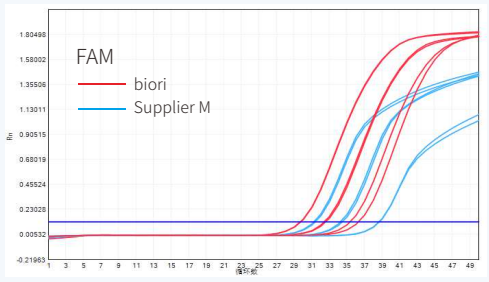
Comparison of similar products

## 01 Salmonella detection in stool samples

Experimental conditions:

| | | | |
|---|---|---|---|
| Code | MD2111 | Detection reagent | Salmonella detection system |
| Template | Salmonella in stool samples | Template concentration | 1.496、14.96、and 149.6 copies/μL |
| Cycling program | 50°C 2min；95°C 5min；50 Cycles (95°C 10s，55°C 40s) | | |

**Stool sample processing:** Take 0.2 g of stool samples and add them to 1 mL of TE Buffer, fully mix and liquefy; take the supernatant after instant centrifugation to obtain 20% stool samples, which are diluted with sterile water to obtain 1% stool Samples; serially dilute 10-fold 1% fecal samples of Salmonella to make the Salmonella concentrations at 149.6, 14.96 and 1.496 copies/μL respectively; then add 20% of the sample volume directly to the reaction system

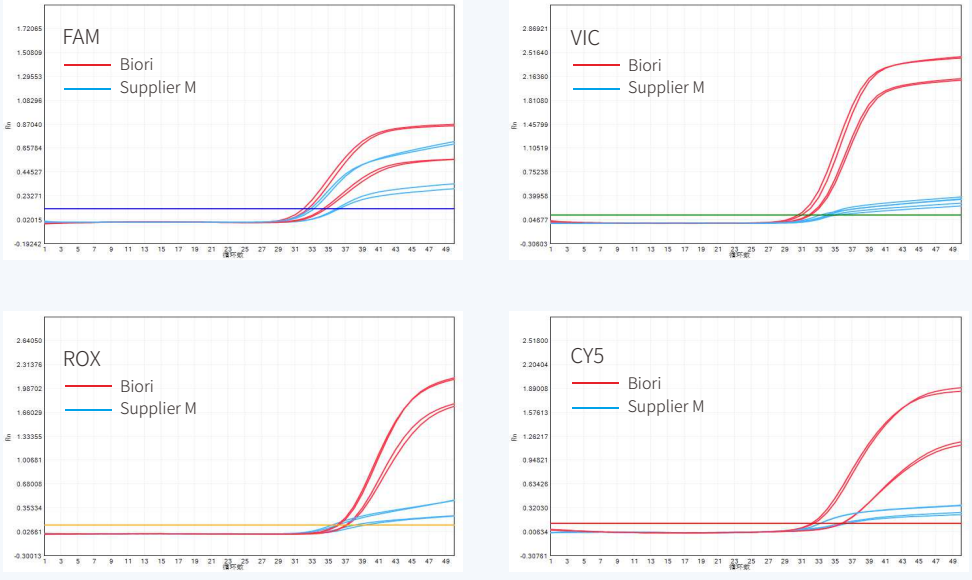



## 02 Stool Background Human Genome Template Quadruple Assay

Experimental conditions:

| | | | |
|---|---|---|---|
| Code | MD2111 | System | Human Genomic DNA Quadruple Detection System |
| Template | Human genome in stool samples | Template concentration | 0.0125 ng/μL |
| Cycling program | 50°C 2min；95°C 5min；50 Cycles (95°C 10s，55°C 40s) | | |

**Stool sample processing:** Take 0.2 g of stool sample and add it to 1 mL of TE Buffer, mix and liquefy well; take the supernatant after instant centrifugation to obtain 20% stool sample, which is diluted with sterile water to obtain 1% and 2.5% stool samples;The human genome was diluted with the above two concentrations of stool samples to obtain a human genome template at a concentration of 0.0125 ng/μL; then 20% sample was directly added to the reaction system for amplification.



# NEW RNA one-tube reagent

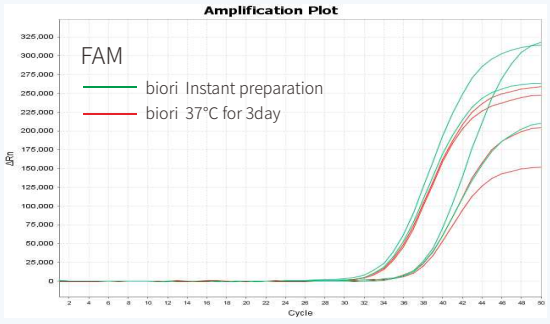


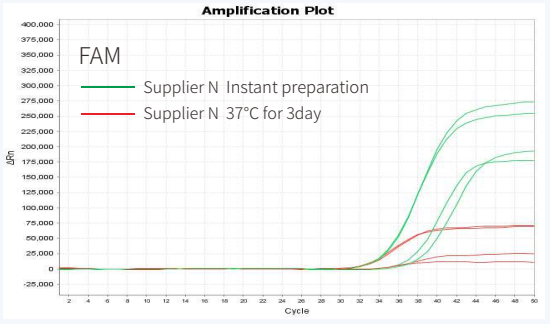
## 01 Comparison test of similar products

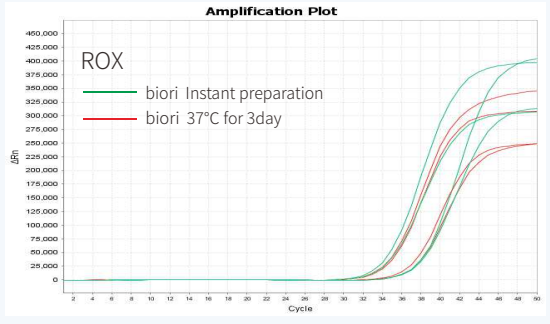
Experimental conditions:

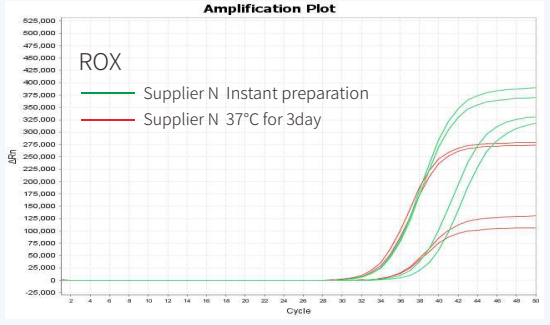
| | | | |
|---|---|---|---|
| Code | M5274 | System | Respiratory Virus Triple Detection System |
| Template | Respiratory virus quality control sample purification template | Template concentration | 0.25、2.5 copies/μL |
| Cycling program | 50°C 15min；95°C 1min；50 Cycles (95°C 15s，56°C 45s) | | |

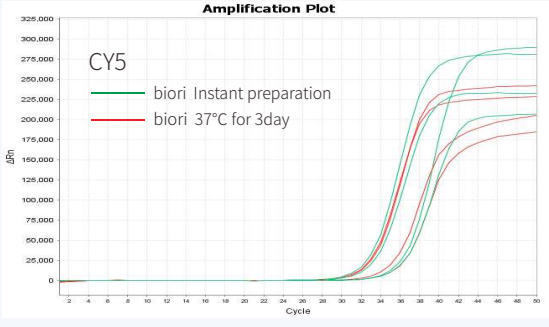
**Test method:** Mix buffer, enzyme and primer probe to prepare working solution, and place it at 37°C for 3 days. The comparison test was conducted with the instant preparation working solution of the same system as a control.

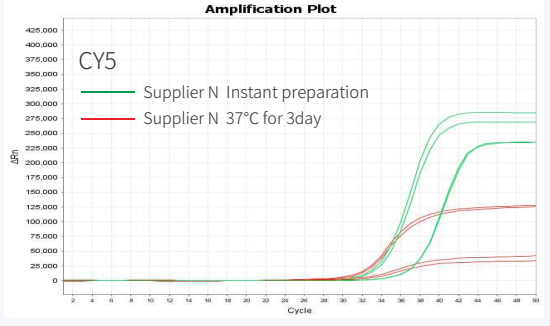


# NEW PRODUCTS / Bst 2.0 HS

## Loop-mediated Isothermal Amplification (LAMP)

| Enzymes | |
|---|---|
| Product Name | Code |
| Bst 2.0 (8U/μL) | E102 |
| Bst 2.0 HS (8U/μL) | E103 |
| Neoscript RTase (200U/μL) | E13 |
| RNase H II | E201 |

NEW

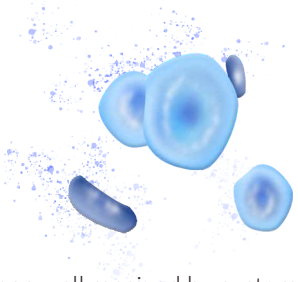
| DNA-Lamp | |
|---|---|
| Product Name | Code |
| 2×Lamp Premix (Bst 2.0 HS)(Eva Green/SYBR Green) | HW205-R01 |
| 2×Lamp Premix (Bst 2.0 HS)(Probe) | HW205-P01 |
| Colorimetric Lamp Kit (Bst 2.0 HS) | HW205-M01 |
| Colorimetric Lamp Kit (Bst 2.0 HS) | HW205-M02 |
| Colorimetric Lamp Kit (Bst 2.0 HS) | HW205-M03 |

NEW

| RNA-Lamp | |
|---|---|
| Product Name | Code |
| 2×RT Lamp Premix (Bst 2.0 HS)(Eva Green/SYBR Green) | HW206-R01 |
| 2×RT Lamp Premix (Bst 2.0 HS)(Probe) | HW206-P01 |
| Colorimetric RT Lamp Kit (Bst 2.0 HS) | HW206-M01 |
| Colorimetric RT Lamp Kit (Bst 2.0 HS) | HW206-M02 |
| Colorimetric RT Lamp Kit (Bst 2.0 HS) | HW206-M03 |

M01:Cresol red staining method, The color is purple before reaction. The positive reaction turns to yellow, while the negative reaction will remain the original color.
M02:Calcein staining method, The color is light orange before reaction. The positive reaction turns to green, while the negative reaction will remain the original color.
M03:Hydroxyphenol blue, the color is violet before the reaction, the positive reaction turns to blue while the negative reaction will remains violet.
The above products can be provided in lyophilized version, please inquire for the product code.

# Bst 2.0 / Bst 2.0 HS



Biori has obtained Bst2.0 through a high-throughput screening platform. The enzyme has been well received by customers for its excellent sensitivity and good resistance to inhibitors. At the same time, through the research and development of the protein modification technology platform, our hot-start version Bst2.0 was launched firstly in domestic market, further improves the specificity and sensitivity of LAMP reagents. On this basis, Bioi has developed a series of various LAMP and RT-LAMP isothermal amplification reagents such as colorimetric version, fluorescent dye method, and probe method. There are lyophilized version for the above-mentioned raw materials.

Bst2.0HS is a hot-start isothermal polymerase obtained by reversible modification technology on the basis of Bst2.0 DNA polymerase. It can completely block the activity of the enzyme at room temperature and establish a reaction at room temperature with preventing non-specificity and improving reaction efficiency. In addition, Bst2.0HS DNA polymerase does not require a separate activation step.

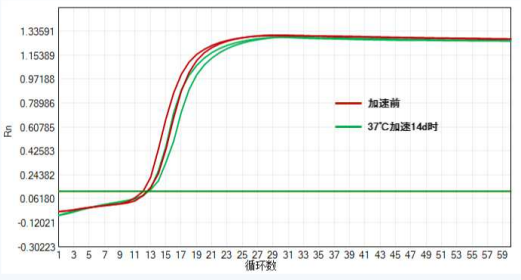
## 37°C accelerated stability data of lyophilized reagent raw materials in Bst2.0HS system

When the lyophilized reagent raw materials Bst2.0HS, Neoscript RTase and RNaseH II were separately accelerated at 37°C for 14 d, the performance of the whole reaction system remained unchanged.

Experimental conditions:

| | | | |
|---|---|---|---|
| Code | FHW206-P01 (Bst 2.0 HS) | System | RT-LAMP (Probe) 25μL/T |
| Template | Human total RNA(Detection of β-actin gene) | Template amount | 0.01ng/T |
| Cycling program | 65°C 60min；60 Cycles | | |

Experimental results:




## Performance after modification

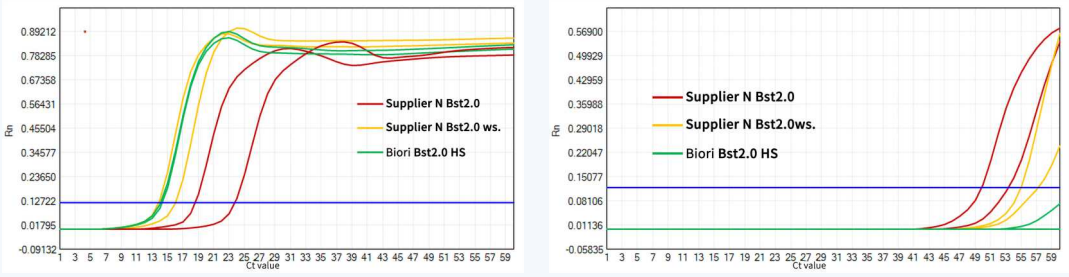
### 1.1 Specificity test

Biori BST2.0HS can perfectly replace imported products (NEB Bst 2.0 WarmStart DNA Polymerase), Biori BST2.0HS can achieve the same specificity as competing products, and performs better than the conventional Bst DNA polymerase.

Experimental conditions:

| | | | |
|---|---|---|---|
| Code | HW205-R01 (Bst 2.0 HS) | System | Real-time Fluorescent LAMP Kit |
| Template | Human genome (GAPDH gene) | Template amount | 0.1ng/T(Left)<br>NTC(Right) |
| Cycling program | 65°C 60min；60 Cycles | | |

Experimental results:




### 1.2 Room temperature stability test

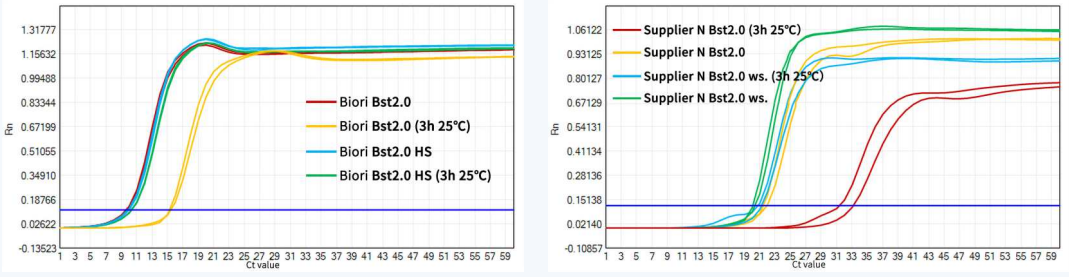
The Biori Bst 2.0 HS enables room temperature operation.

Experiments show that after adding template to prepare a mixed reaction system, under two conditions of incubation at 25°C for 3 hours (green) and immediate reaction after preparation (blue), Biori Bst 2.0 HS has similar reaction results compared with control Bst 2.0 ws . And the reaction performance of the Bst enzyme without hot-start modification is reduced after being incubated at room temperature for 3 hours, and the hot-start modified Bst enzyme can be equivalent to the performance of instant preparation, effectively maintaining the stability of the reaction performance.

Experimental conditions:

| | | | |
|---|---|---|---|
| Code | HW205-R01 (Bst2.0 HS) | System | LAMP (Eva green) 25μL/T |
| Template | Human genome (GAPDH gene) | Template amount | 1ng/T |
| Cycling program | 65°C, 60min, 60 Cycles | | |

Experimental results:



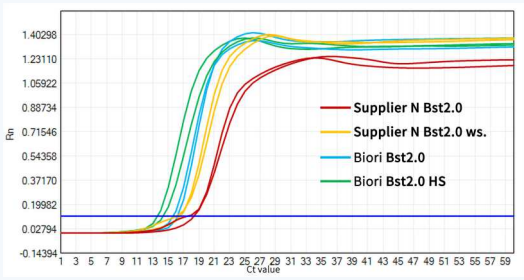

## ◆ Conventional Lamp performance comparison test

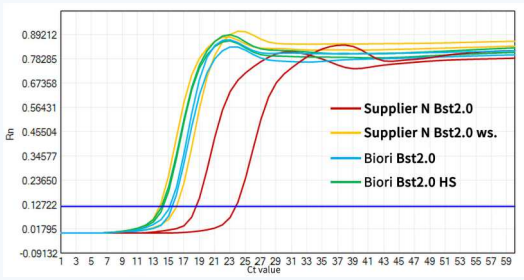
### 2.1 Performance comparison of DNA purified templates

Experimental conditions:

| | | | |
|---|---|---|---|
| Code | HW205-R01 (Bst2.0 HS) | System | LAMP (Eva green) 25μL/T |
| Template | Human genome<br>(GAPDH gene primer1, left;<br>GAPDH gene primer2, right) | Template amount | 0.1ng/T |
| Cycling program | 65°C, 60min, 60cycles | | |

Experimental results:



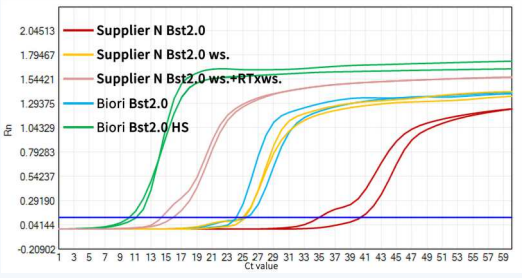



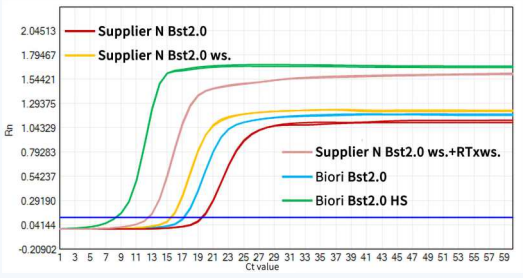

### 2.2 Performance comparison of RNA purified templates

Experimental conditions:

| | | | |
|---|---|---|---|
| Code | HW206-R01 (Bst2.0 HS) | System | RT-LAMP (Eva green) 25μL/T |
| Template | Human total RNA<br>(β-actin gene primer1, left<br>R18S12 gene primer2, right) | Template amount | 0.01ng/T |
| Cycling program | 65°C, 60min 60 cycles | | |

Experimental results:



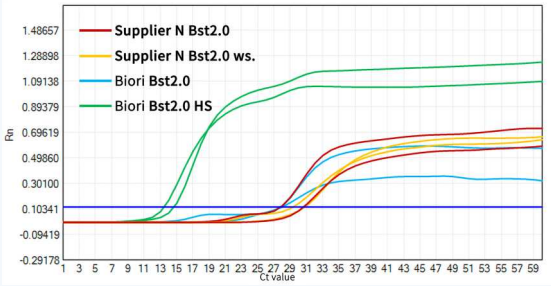

## ◆ Performance comparison of Direct premix

### 3.1 Performance in whole blood sample

Experimental conditions:

| | | | |
|---|---|---|---|
| Code | HW206-R01 (Bst2.0 HS) | System | RT-LAMP (Eva green) 25μL/T |
| Template | Human whole blood (β-actin gene) | Template amount | 5% |
| Cycling program | 65°C, 60min, 60 cycles | | |

Experimental results:

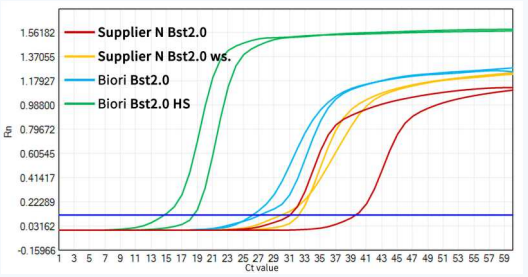


### 3.2 Performance in oral swab sample

Experimental conditions:

| | | | |
|---|---|---|---|
| Code | HW206-R01 (Bst2.0 HS) | System | RT-LAMP (Eva green) 25μL/T |
| Template | Human oral swab (β-actin gene) | Template amount | Swab solution 5μL/T |
| Cycling program | 65°C, 60min, 60 cycles | | |

Experimental results:

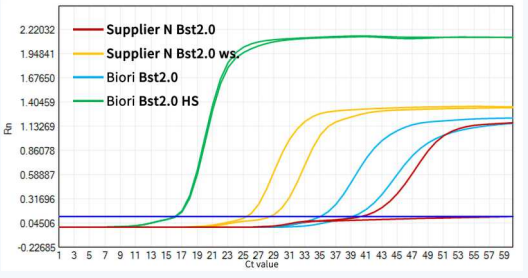



### 3.3 Performance in saliva sample

Experimental conditions:

| | | | |
|---|---|---|---|
| Code | HW206-R01 (Bst2.0 HS) | System | RT-LAMP(Eva green)25μL/T |
| Template | Human saliva (β-actin gene) | Template amount | 3μL/T |
| Cycling program | 65°C, 60min, 60cycles | | |

Experimental results:

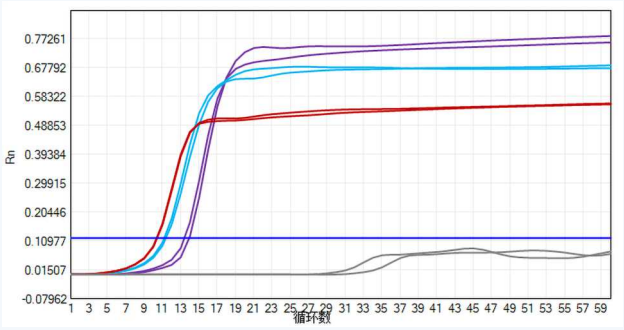



## ◆ Corona virus testing(Probe method)

Experimental conditions:

| | | | |
|---|---|---|---|
| Code | HW206-P01 (Bst2.0 HS) | System | RT-LAMP (Probe method) 25μL/T |
| Template | Extracted nucleic acid of corona virus | Template amount | About 31.25 copies/T (red)<br>About 15.63 copies/T (blue)<br>About 7.82 copies/T (purple)<br>NTC (grey) |
| Cycling program | 65°C, 60min, 60 cycles | | |

Experimental results:

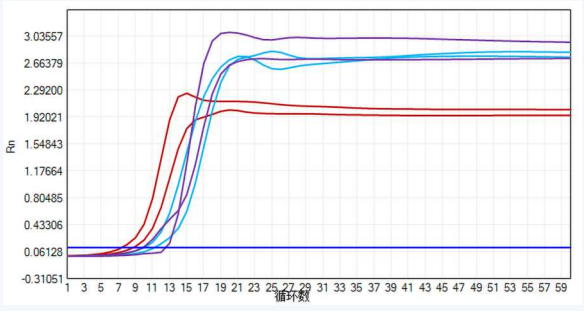



## Corona virus testing(Eva green)

Experimental conditions:

| | | | |
|---|---|---|---|
| Code | HW206-P01 (Bst 2.0 HS) | System | RT-LAMP (Eva green) 25μL/T |
| Template | Extracted nucleic acid of corona virus | Template amount | About 31.25 Copies/T (red)<br>About 15.63 Copies/T (blue)<br>About 7.82 Copies/T (purple) NTC (grey) |
| Cycling program | 65°C，60min, 60 cycles | | |

Experimental results:



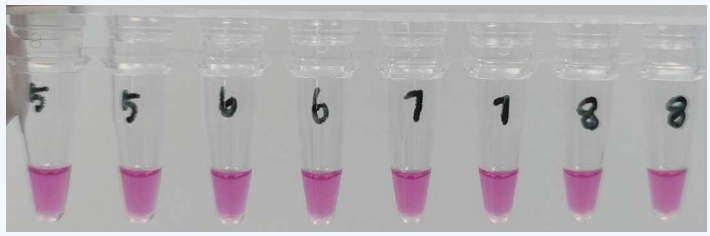
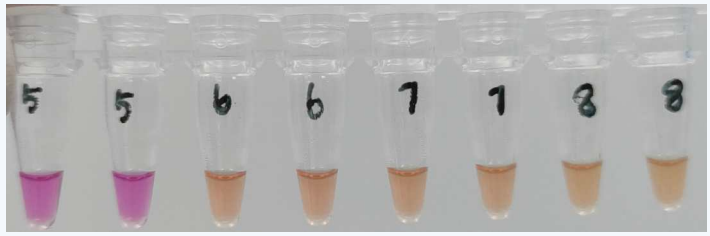

## Testing result of Colorimetric LAMP Kit

### 6.1 Colorimetric LAMP Kit (RY)

Experimental conditions:

| | | | |
|---|---|---|---|
| Code | HW206-M01 (Bst 2.0 HS) | System | Colorimetric RT-LAMP (RY) |
| Template | Human total RNA | Template amount | 0.01ng/T、0.1ng/T、1ng/T |
| Cycling program | 65°C，60min ,60 cycles | | |

Experimental results:

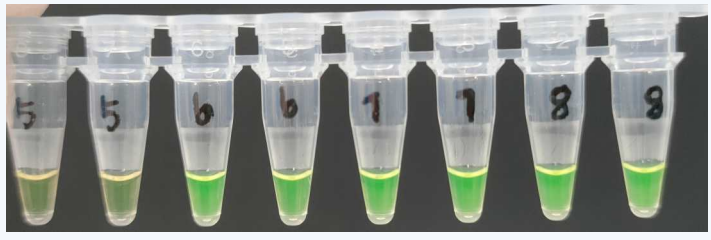
| | Tube5: Negative; Tube 6: 0.01ng/T; Tube 7: 0.1ng/T; Tube 8: 1ng/T |
|---|---|
| Before |  |
| After |  |

### 6.2 Colorimetric LAMP Kit(OG):

Experimental conditions:

| | | | |
|---|---|---|---|
| Code | HW206-M02 (Bst 2.0 HS) | System | Colorimetric RT LAMP Kit(OG) |
| Template | Human total RNA | Template amount | 0.01ng/T、0.1ng/T、1ng/T |
| Cycling program | 65°C, 60min ,60 cycles | | |

Experimental results:

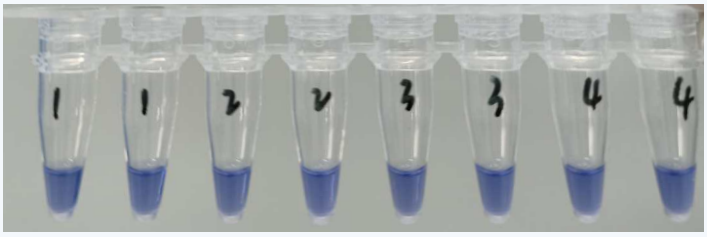
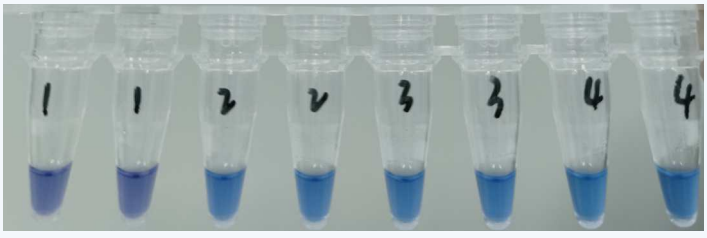
| | Tube5:Negative; Tube 6:0.01ng/T; Tube 7:0.1ng/T; Tube 8:1ng/T |
|---|---|
| Before |  |
| After |  |

### 6.3 Colorimetric LAMP Kit (HNB):

Experimental conditions:

| | | | |
|---|---|---|---|
| Code | HW206-M03 (Bst 2.0 HS) | System | Colorimetric RT LAMP Kit (HNB) |
| Template | Human total RNA | Template amount | 0.01ng/T、0.1ng/T、1ng/T |
| Cycling program | 65°C, 60min ,60 cycles | | |

Experimental results:

| | Tube5:Negative; Tube 2:0.01ng/T; Tube 3:0.1ng/T; Tube 4:1ng/T |
|---|---|
| Before |  |
| After |  |



## ◆ Other Products

### 01. Reagents using dye-binding method

| Product Name | Code | Characteristics | Recommended Application |
|---|---|---|---|
| Accustart Premix (SYBR qPCR) ①③④⑤ | M203S | ①Contained chemical modified enzyme, which activated at 95°C for 5~10 minutes.<br>②Gradually release enzyme activation; high specificity. | ①qPCR.<br>②High sensitivity virus detection. |
| Robustart Premix (SYBR qPCR) ①③④⑤ | M216S | ①Contained antibody modified enzyme , which activated at 95°C for 1~5 minutes.<br>②High sensitivity and specificity.<br>③High applicability in various detection. | ①qPCR.<br>②High sensitivity virus detection. |
| Novel Premix (SYBR qPCR) ①④⑤ | PM202S | ①Contained antibody modified enzyme , which activated at 95°C for 1~5 minutes.<br>②High sensitivity and specificity.<br>③Higher amplification efficiency to templates contained 40% to 80% GC. | ①qPCR.<br>②High sensitivity virus detection.<br>③Adapted to templates with high GC content. |
| Neoscript RT Premix (SYBR qRT-PCR) ②③④⑤ | M513S | ①Reverse transcription temperature range is between 42°C to 55°C.<br>②Excellent specificity and sensitivity.<br>③High applicability in various high sensitivity detection. | ①qRT-PCR.<br>②High sensitivity detection of human- and animal- derived RNA viruses. |

### PCR Premix

| Product Name | Code | Characteristics | Recommended Application |
|---|---|---|---|
| 2×Robustart Multi Premix ④⑥ | PM201 | ①Applied to DNA multiplex amplification in End-point PCR.<br>② Applied to amplification of templates contained 40% to 80% GC. | ①Multiplex PCR.<br>②DNA Microarrays.<br>③Reverse Dot Blot. |
| 2×Novel GC Rich Premix ④⑥ | PM202 | Applied to amplification of High GC templates, which contained 40% to 85% GC. | ①Amplification of templates with high GC content.<br>②DNA Microarrays.<br>③Reverse Dot Blot. |

| Product Name | Code | Characteristics | Recommended Application |
|---|---|---|---|
| 2×Blood Direct Premix ④ | MD205 | ①Successful tolerance to blood-derivedinhibitors, available to extraction-free End-point PCR.<br>② Good amplification capability of blood with different anticoagulants, even the addtion volume up to 45% in reaction system.<br>③ Applied to amplification of templates contained 40% to 60% GC. When GC content is 60% to 80%, keep blood addition between 4% to 10% in reaction system and the length of amplified fragments no longer than 1.2kb. | ①Extraction-free amplification of blood samples.<br>②DNA Microarrays.<br>③Reverse Dot Blot. |
| 2×Blood Direct Multi Premix ④⑥ | MD206 | ①Successful tolerance to blood-derived inhibitors, available to End-point Multiplex PCR.<br>②Good amplification capability when directly add blood with different anticoagulants, the maximum dosage is up to 20% and keep addition no more than 8% in multiplex PCR.<br>③ Applied to amplification of templates contained 40% to 60% GC. When GC content is 60% to 80%, keep blood addition between 4% to 10% in reaction system and the length of amplified fragment no longer than 1.2kb. | ①Extraction-free amplification of blood samples.<br>②DNA Microarrays.<br>③Reverse Dot Blot. |
| Neoscript RTase 1ST Strand cDNA Synthesis Kit ③⑤⑥ | PM05 | cDNA first strand synthesis | ①cDNA first chain synthesis.<br>②Molecular Hybridization.<br>③PCR or qPCR. |
| 5×Neoscript RT Premix (RT-PCR) ③④⑤⑥ | PM504 | ①Single or multiplex amplification in End-point One-Step RT-PCR.<br>② Applied to amplification of templates contained 40% to 60% GC. | ①Single or multiplex RT-PCR.<br>②DNA Microarrays.<br>③Reverse Dot Blot. |

## 02. STR Multiplex PCR Premix

| Product Name | Code | Characteristics | Recommended Application |
|---|---|---|---|
| 2×STR Premix Fast | STR201 | ①Suitable for STR multiplex PCR in medicolegal investigation.<br>②Compatible with fast amplification procedure, equilibrium of performance in multiplex amplification. It performs high sensitivity and specificity.<br>③It exhibits extremely high resistance to inhibitors found in blood, and available to Direct PCR of extraction-free blood and blood-collected card. | Paternity test, medicolegal investigation and so on. |

## 03. Other PCR-related products

| Product Name | Code | Characteristics | Recommended Application |
|---|---|---|---|
| UNG (Uracil-DNA Glycosylase) | E01 | Digest templates contained dUTP at 50°C and lose activity when heated to 95°C. | Anti-pollution amplification. |
| TS-UNG (Temperature Sensitive UNG) | E04 | ①Digest templates contained dUTP between 20°C to 37°C and lose activity when heated to 50°C.<br>②Suitable for anti-pollution reverse transcription. | Anti-pollution amplification. |
| T4 Gene 32 Protein | AS02 | A single strand DNA-binding protein (ssDNA) derived from phage T4. | ①Facilitate digestion of restriction endonuclease;<br>②Enhance DNA synthesis in vitro;<br>③Improve output and efficiency of reverse transcription in RT-PCR. |

| Product Name | Code | Characteristics | Recommended Application |
|---|---|---|---|
| Rnase Inhibitor | AS05 | ①No inhibition for Taq, AMV, MMLV and Phage RNA Polymerases (SP6, T7, or T3).<br>②It can keep stable at a low concentration of DTT (less than 1mM) because of stronger antioxidant capacity. | ①cDNA first chain synthesis.<br>②RT-PCR or RT-qPCR.<br>③In vitro transcription and translation.<br>④Separation and purification of mRNA.<br>⑤Related application needed integrated RNA. |
| dNTP (A/G/C/T/U) | As08 (As08-1/ -2/-3/-4/-5) | / | PCR Reaction |

# PART 03

## INSTRUMENTS & REAGENTS

CM-8 / CM-8 Plus Centrifugal mixer

BTE-32 BTE-8 Automatic nucleic acid extraction instrument

Sample pretreatment products

Nucleic acid extraction kit (magnetic bead) Release reagent

Sample preservation solution

Zhuhai BTE Biotechnology Co.Ltd., founded in March 2021, is an automatic life science instrument and equipment supplier. The company has an experienced R & D team, and has declared 7 related product patents since its establishment.

With enterprising and innovative, integrity and responsible business philosophy, BTE will layout molecular diagnosis, immunology, scientific instruments and other fields. We commit to providing customers with high-quality product solutions and professional service.



## CM-8 / CM-8 Plus
## Centrifugal mixer

### Ingenious design

Exquisite appearance
drill-cut design Patent No.:202130389474.0
high quality

Graded locking
Smooth operation Patent No.:202110698687.0
Small size and portable

Integrated pallet design
Good uniformity between tubes
Stable baseline in PCR

### Intelligent actions

Compound knob Patent No.:202121409450.8
Smart Halo
Easy-to-use with start/stop combo button

Low-noise operation
Polarization shutdown
Automatically operation and reliable

Inductive control
Open cover protection Patent No.:202121406810.9
Smart and versatile

A new option to improve PCR hands-on efficiency and uniformity between tubes

### Technical Specifications

| CM-8 Technical Specifications | |
|---|---|
| Specifications | Parameter |
| Centrifugation RPM | 1500-4000rpm |
| Minimum Speed Regulation | 100rpm |
| Operating mode | Centrifugal and mix |
| Mixing Intensity Level | Strong, medium and soft |
| Rotor Capacity | 8-strip tubes |
| Lock Mode of Rotor | Quick-release knob |
| Lock Force | Multilevel adjustment |
| Procedural memory | Yes |
| Program Cycle | 1-999 |
| Open cover protection | Induction Type |
| Abnormal vibration Halting | Yes |
| Input | AC 100～240V, 1.4A, 50/60HZ |
| Maximum input power | 60W |
| Size(mm) | 218mm×234mm×136mm |
| Weight | ≦1.5kg |

| CM-8 Plus Technical Specifications | |
|---|---|
| Specifications | Parameter |
| Centrifugation RPM | 1500-4000rpm |
| Minimum Speed Regulation | 100rpm |
| Operating mode | Centrifugal, mix, Centrifugal and mix |
| Mixing Intensity Level | Strong, medium and soft |
| Rotor Capacity | 8-strip tubes, 1.5/2mL Centrifuge tube |
| Lock Mode of Rotor | Quick-release knob |
| Lock Force | Multilevel adjustment |
| Procedural memory | Yes |
| Program Cycle | 1-999 |
| Open cover protection | Induction Type |
| Abnormal vibration Halting | Yes |
| Input | AC 100～240V, 1.4A, 50/60HZ |
| Maximum input power | 60W |
| Size(mm) | 218mm×234mm×136mm |
| Weight | ≦1.5kg |

## BTE-8 / BTE-32

# Full automatic nucleic acid extractor

NEW

## BTE-8

### High-efficiency operation

Operating 1-8 samples flexibly
Rotary mix, efficient and mute

### Convenient operation

The consumables compartment ejects automatically

### Hardcore system

High precision & high efficiency temperature control
50μl-3200μl huge operating volume

### Intelligent design

Operation by one smart knob
Novel vertical design to save space

## Technical Specifications

NEW

| BTE-32 Technical Specifications | |
|---|---|
| Specifications | Parameter |
| Sample throughput | 1~32 |
| Process volume | 20~1000μL |
| Bead recovery rate | ⩾98% |
| Inter-pore uniformity | CV<3% |
| Rate of recovery | 70%-130% |
| Extraction capacity | Class fg |
| Compatibility | Suitable for a variety of magnetic bead method nucleic acid extraction and purification reagents |
| Program management | Create, edit, save, delete, and more |
| Pollution control | Exhaust ventilate, ultraviolet disinfection function, self-cleaning |
| Consumables | Standard 96 deep-well plates and 8-link magnetic rod sleeves |
| Maximum output power | 350W |
| Data storage | Built-in SD card; 255 groups of programs can be stored |
| Size(mm) | 360×382×480 |
| Weight | ⩽20kg |

| BTE-8 Technical Specifications | |
|---|---|
| Specifications | Parameter |
| Sample throughput | 1~8 |
| Process volume | 50μl~1000ul(standard), 1000~3200μl |
| Product name | Automatic nucleic acid extraction instrument |
| Code | BTE-8 |
| Inter-pore uniformity | CV＜3% |
| Rotate speed | Multi-position |
| Extracting time | 8-20mins/time (typical value) |
| Illuminating system | Internal LED |
| Sterilization | Ultraviolet ray |
| Lysis/elution temperature | Room temperature~120°C |
| Maximum output power | 90W |
| Power input | DC 24V |
| Size(mm) | 170×360×356 |
| Weight | ＜7kg |

## BTE-32

Using BTE nucleic acid extraction kit (Magnetic Beads-based Method), the procedure of nucleic acid extraction can be completed within 8 minutes!

### Intelligent recyclable magnetic adsorption, fast and efficient operation

The instrument can complete the nucleic acid extraction of 1-32 samples within 12-20 minutes, and the magnetic suction can be repeatedly cycled, and the recovery rate of magnetic beads is ⩾98%.

### Simple structure, unique appearance and powerful

10-inch color low-position touch screen, ergonomic design, silent electronic control cabin design, and card-type sliding interface, improving aesthetics and operating comfort.

### Convenient operation, and one-click disassembly

Simplified operation steps, user-friendly function settings, removable magnetic rods for easy maintenance and replacement, effectively extend the service life of the instrument.

### Scientific and technological wisdom anti-fouling, stable and reliable

Automatic lighting control, intelligent matching of "disinfection" and "extraction" status, and intelligent negative pressure system, reducing cross-contamination risk.



# Sample pretreatment products

## Nucleic acid extraction reagent (magnetic bead)

| PRODUCT DETAILS | | | |
|---|---|---|---|
| Name | Features | Specification | Code |
| MagBio Viral DNA/RNA Kit I | ①High sensitivity: DNA virus nucleic acid extraction concentration can be as low as 10IU/mL; RNA virus nucleic acid extraction concentration can be as low as 50IU/mL.<br>②Wide application: suitable for the extraction of various DNA and RNA; it can easily extract oral/pharyngeal swab washes, whole blood, plasma,serum, saliva, bronchoalveolar lavage fluid and other liquid samples nucleic acid.<br>③Simple and safe: avoid centrifugation, easy to operate; no toxic reagents such as chloroform and phenol, and high safety. | IME-DR0601-I | |
| | | Bottled package (32/48/64/96T) | IME-DR0601-I-B32T/48T/64T/96T |
| | | Deep-well Multiwell Plate package (32/48/64/96T) | IME-DR0601-I-W32T/48T/64T/96T |
| MagBio Fast Viral DNA/RNA Kit | ①Extensive range of samples: It can easily extract nucleic acids from liquid samples such as oral and nose swabs, whole blood, plasma, serum, saliva, and bronchoalveolar lavage fluid.<br>②Efficient and fast: It only takes 10 minutes for automated equipment to extract 96 sample programs at a time. | IME-DR0601-III | |
| | | Bottled package (32/48/64/96T) | IME-DR0601-III-B32T/48T/64T/96T |
| | | Deep-well Multiwell Plate package (32/48/64/96T) | IME-DR0601-III-W32T/48T/64T/96T |
| MagBio Swab DNA/RNA Kit II | ①Efficient and time-saving: The automated equipment takes only 8.5 minutes to extract swab samples.<br>②High sensitivity: RNA virus extraction concentration can be as low as 100copies/mL.<br>③ Simple operation: one-step cleavage and binding, one-step cleaning, one-step elution, and three-step method to complete nucleic acid purification.<br>④Stable and reliable: The reagents are equipped with automatic extraction equipment, and the test results are more stable and reliable. | IME-DR0101-II | |
| | | Bottled package (32/48/64/96T) | IME-DR0101-II-B32T/48T/64T/96T |
| | | Deep-well Multiwell Plate package (32/48/64/96T) | IME-DR0101-II-W32T/48T/64T/96T |

| Name | Features | Specification | Code |
|---|---|---|---|
| MagBio Swab DNA/RNA Kit I | ①Proteinase K-Free: No need to add proteinase K, the operation is easier.<br>②High sensitivity: RNA virus nucleic acid extraction concentration can be as low as 200copies/mL.<br>③ Efficient and time-saving: the automated equipment takes only 10.5 minutes to extract swab samples;<br>④Stable and reliable: The reagents are equipped with automatic extraction equipment, and the test results are more stable and reliable.<br>⑤High safety: It does not contain toxic reagents such as chloroform and phenol, and the operation is safer.<br>⑥ Simple operation: one-step cleavage and binding, one-step cleaning, one-step elution, and three-step method to complete nucleic acid purification. | IME-DR0101-I | |
| | | Bottled package (32/48/64/96T) | IME-DR0101-I-B32T/48T/64T/96T |
| | | Deep-well Multiwell Plate package (32/48/64/96T) | IME-DR0101-I-W32T/48T/64T/96T |
| MagBio Swab DNA/RNA Kit III | ①Efficient and time-saving: The automated equipment takes only 10.5 minutes to extract swab samples.<br>②High sensitivity: RNA virus extraction concentration can be as low as 200copies/mL.<br>③ Simple operation: one-step cleavage and binding, one-step cleaning, one-step elution, and three-step method to complete nucleic acid purification.<br>④Full-component alcohol-free: The whole reagent is alcohol-free, free from drying and safer. | IME-DR0101-III | |
| | | Bottled package (32/48/64/96T) | IME-DR0101-III-B32T/48T/64T/96T |
| | | Deep-well Multiwell Plate package (32/48/64/96T) | IME-DR0101-III-W32T/48T/64T/96T |
| MagBio Plasma/Serum DNA/RNA Kit | ①Efficient and time-saving: The automated equipment takes only 8.5 minutes to extract plasma samples.<br>②High sensitivity: DNA virus extraction concentration can be as low as 50IU/mL.<br>③ Simple operation: one-step cleavage and binding, one-step cleaning, one-step elution, and three-step method to complete nucleic acid purification.<br>④ Alcohol-free cleaning solution: Cleaning is alcohol-free, free from drying, and faster. | IME-DR1001-I | |
| | | Bottled package (32/48/64/96T) | IME-DR1001-I-B32T/48T/64T/96T |
| | | Deep-well Multiwell Plate package (32/48/64/96T) | IME-DR0101-III-W32T/48T/64T/96T |
| MagBio Blood DNA/RNA Kit II | ①Convenient and safe: avoid centrifugation, easy to operate, and high safety; no toxic reagents such as chloroform and phenol.<br>②High sensitivity: The DNA virus extraction concentration in the whole blood sample can be as low as 50IU/mL.<br>③ Alcohol-free cleaning solution: Alcohol-free cleaning, free from drying, and more stable. | IME-DR1001-II | |
| | | Bottled package (32/48/64/96T) | IME-DR1001-II-B32T/48T/64T/96T |
| | | Deep-well Multiwell Plate package (32/48/64/96T) | IME-DR1001-II-W32T/48T/64T/96T |

| Name | Features | Specification | Code |
|---|---|---|---|
| MagBio Viral DNA/RNA Kit II | ①Universal application: suitable for the extraction of various DNA and RNA; it can easily extract nucleic acid from oral/pharyngeal swab washing fluid, whole blood, plasma,serum, saliva, bronchoalveolar lavage fluid and other liquid samples .<br>②High sensitivity: RNA virus extraction concentration can be as low as 200copies/mL.<br>③ Enzyme-free treatment: no need to add proteinase K.<br>④Stable and reliable: The test results are more stable and reliable when using with automatic extraction equipment . | IME-DR0601-II | |
| | | Bottled package (32/48/64/96T) | IME-DR0601-II-B32T/48T/64T/96T |
| | | Deep-well Multiwell Plate package (32/48/64/96T) | IME-DR0601-II-W32T/48T/64T/96T |
| MagBio Tissue DNA/RNA Kit | ①It can process various types of animal tissue samples such as genitals, viscera, and skin.<br>②Flexible sample pre-processing methods can be provided.<br>③Easy to use and can be adapted to automated instruments for nucleic acid extraction. | IME-DR0401 | |
| | | Bottled package (32/48/64/96T) | IME-DR0401-B32T/48T/64T/96T |
| | | Deep-well Multiwell Plate package (32/48/64/96T) | IME-DR0401-W32T/48T/64T/96T |
| MagBio Plant DNA/RNA Kit | ①It can process various types of plant samples such as leaves, seeds, rhizomes, etc.<br>②It is easy to use and can be adapted to automated instruments for nucleic acid extraction. | IME-DR0501 | |
| | | Bottled package (32/48/64/96T) | IME-DR0501-B32T/48T/64T/96T |
| | | Deep-well Multiwell Plate package (32/48/64/96T) | IME-DR0501-W32T/48T/64T/96T |
| MagBio Starch DNA Kit | ①Suitable for DNA extraction from sweet potato, cassava, corn and other edible starches.<br>②It is easy to use and can be adapted to automated instruments for nucleic acid extraction.<br>③ Safe and non-toxic. | IME-D1201 | |
| | | Bottled package (32/48/64/96T) | IME-D1201-B32T/48T/64T/96T |
| | | Deep-well Multiwell Plate package (32/48/64/96T) | IME-D1201-W32T/48T/64T/96T |
| MagBio Free DNA Kit | ①It is suitable for extracting free nucleic acid from plasma/serum samples.<br>②The sample processing volume is flexible and optional, maximum 10ml.<br>③Easy to use, safe and non-toxic. | IME-D1701 | |
| | | Bottled package (50/100) | IME-D1701-B50T/100T |
| | | Deep-well Multiwell Plate package (50/100) | IME-D1701-W50T/100T |
| | | * Welcome to consult the detailed sample size processing range | |

# Disposable virus sampling tube

NEW

Disposable virus sampling tube products are mainly used for sample collection, transportation and storage. By fully mixing the collected samples with the virus nucleic acid preservation solution, the virus in the samples can be inactivated, and the virus in the samples can be effectively guaranteed. The integrity of the viral nucleic acid is maintained, the collected samples can be transported at room temperature and stored for a long time, and the preserved viral nucleic acid samples can be widely used in PCR detection, etc.

## Product Features

| Safe and stable | High compatibility | Simple operation | Wide applicability |
|---|---|---|---|
| Inactivated samples to protect operator safety; sample nucleic acids can be stored stably for 14 days at room temperature | Compatible with a variety of nucleic acid extraction reagents. | Easy to use and operate | Suitable for mouth, nose and throat swab samples, serum/plasma samples, virus culture fluid, saliva and other samples. |

## Product model number / Specification

| Product composition/ Model number | SP-1 | SP-2 | SP-3 | AP-1 | AP-2 |
|---|---|---|---|---|---|
| Code | CYG01-SP-1 | CYG01-SP-2 | CYG01-SP-3 | CYG01-AP-1 | CYG01-AP-2 |
| Viral nucleic acid preservation solution | 2mL/Tube×50 | 6mL/Tube×50 | 11mL/Tube×25 | 3mL/Tube×50 | 5mL/Tube×50 |
| sampling tube | 10mL Tube×50 | 10mL Tube×50 | 30mL Tube×25 | 10mL Tube×50 | 10mL Tube×50 |
| Sampling swab | 1 swab×50 | 1 swab×500 | 1 swab×500 | 1 swab×50 | 1 swab×50 |
| Product instruction | 1 | 1 | 1 | 1 | 1 |
| Remark | One human sample | 10 in 1 | 20 in 1 | Animal sample | Environmental sample |
| Special Note | Sampling swabs are optional and packaged separately, which is not included in the kit. | | | | |


## qRT-PCR&RT-PCR raw materials

- MMLV reverse transcriptase
- Tth
- One-step premix

can match with UNG+dUTP

## qPCR&PCR raw materials

- Hot start Taq polymerase
- Premix

can match with UNG+dUTP

## PCR ancillary product

- UNG
- TS-UNG
- dNTP

## Isothermal amplification

hot start version | lyophilized

- LAMP
- RT-LAMP NEW
- Multiple enzyme fast isothermal amplification

## Business layout

## Molecular diagnostic POCT raw materials

lyophilized | fast | resistance to inhibitor | can match with UNG+dUTP

- Lyophilized enzyme
- Premix
- Direct, fast PCR raw materials

## (magnetic bead) 宝泰仪 Biotech Equipment Nucleic acid extraction kit

- Universal blood, swab
- Quick swab
- Alcohol-free blood, swab

## Instrument 宝泰仪 Biotech Equipment

CM-8
All-in-one Centrifugal Mixer

BTE-8/BTE-32
Automatic nucleic acid extraction instrument

## Biomedicine

- mRNA vaccine raw materials enzyme
- Quality and safety control of biological products

Mycoplasma | CHO | E.coli | Vero | Pichia
Automatic extraction instrument and reagent

## Enterprise duty

Develop upstream technology and service diagnosis industry. Create value for customers, teams and society.

## Enterprise vision

Pursuit of excellence, Guardian Life

## Enterprise values

Honest and responsible, enterprising and innovative

# CORPORATE CULTURE

Official website

LinkedIn

Zhuhai Biori Biotechnology Co.,Ltd

Tel: +86-0756-8699969
Email: marketing@biori.com.cn
Web: www.biori-en.com
Address: No. 333, Pingbei 1st Road, Nanping Science Park, Xiangzhou District, Zhuhai

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