Vazyme

Solutions for Molecular Test Development

For customized service

Science and Technology Make a Healthier Life

Content

About Vazyme

Introduction

Vazyme provides customized solutions in areas of life sciences and *in vitro* diagnostics to stimulate your innovation and productivity. With over 10 years of manufacturing and cooperation experience, our experienced commercial supply team will provide an one-stop solution in the whole process. With the help of our trustworthy brands and products, excellent services and support, and professional molecular diagnostics support team, the full potential of your project development can be unleashed. Your successful commercialization is our goal.

We are confident enough to stand out from competitors:

- Products based on protein engineering transformation
- Great emphasis on R&D
- Constantly iterative products
- Independent manufacturing line for core raw materials
- Well-developed standardized process and quality control system
- Professional after-sales team

Commercial Supply

Customized services and manufacturing

We are committed to developing and delivering better solutions to meet our partners' needs of precise specificity, sensitivity, and workflow. Our dedicated team will provide you with customized services for development and build assay components to your exact specifications. In addition, Vazyme's departments at all levels are dedicated to offering solutions for workflow development and optimization, lyophilization, customized packaging, OEM, etc. We take pride in providing our customers with unparalleled support, customer service and quality.

Customized and manufacturing services include:

- Workflow development and optimization
- Performance testing
- Verification testing
- Lyophilization
- Customized packaging
- OEM

Vazyme around the world

High Quality

To ensure lot-to-lot consistency and reproducibility of the final supplies/products, we have a strict quality control system to test the products, which requires our suppliers to accept a high level of scrutiny, including the audit of raw materials and quality control. Using our excellent manufacturing processes, we can ensure that our products will comply with regulatory guidelines and our quality commitments. Equipped with certifications of ISO9001 and ISO13485, we have confidence to win your trust. In the future, we will continue to conduct business with such quality commitments and adhere to the principle of "Customer first".

As the life science department of Vazyme, our mission is to create value for our customers by continuously improving the quality of our products. Vazyme's manufacturing center brings your vision into practice.

We promise that your products will be manufactured in a strict system to ensure your:

- **Innovation**
- **Flexibility**
- **Reproducibility**
- **Efficiency**
- **Scalability**

Quality Inspection

Perfect zymogen indicator monitoring

Purity/residue/absolute activity/specific activity/function verification/stability, etc.

Production process monitoring

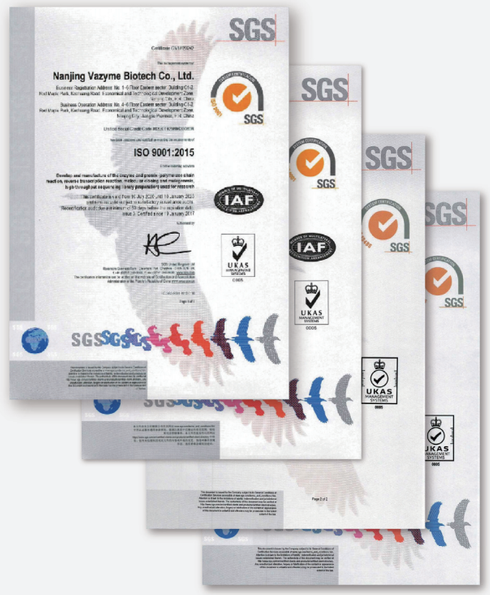
8 quality inspection processes

Standardized testing process

Quality Assurance

ISO 9001:2015 certification

ISO 13485:2016 certification



Safe Supply Chain

Changes in raw materials mean that you may need to retest your product, which can greatly affect your long-term business progress. Working with us will ensure a secure supply of your raw materials, which is essential for developing and manufacturing reliable commercial products. We have developed strong safeguards to help you reduce risks and avoid delays in your manufacturing process, including:

- **Supply agreements**
- **Comprehensive controls over raw materials and processes**
- **Confidentiality**

Tel: +86 25-83772625
E-mail: global@vazyme.com

Domain Expertise

Our management team has in-depth experience in providing novel health-care solutions for customers to achieve success in such an increasingly difficult business environment. With rich experience accumulated in the process of developing and commercializing products, we have confidence in offering professional services to you, especially in the early stage of product development.

At Vazyme, you can get solutions ranging from R&D and manufacturing to regulatory affairs. Exclusive business development manager will be manned for your project, and they can guide you through the product launching and its life cycle. Besides, quality raw materials will be provided every stage of your product development.

Vazyme has relevant experience in the following services:

- **Oncology**
- **Infectious Disease**
- **Reproductive Health**
- **Neurobiology**
- **Cardiovascular Disease**
- **Hematology**
- **Cell Therapy**
- **Agriculture and Environment**
- **Food Safety**
- **Research Tools**

Inspired by 'Innovation in Enzyme Technology', Vazyme conducts innovative business in enzymes, such as improving the performance, quality and activity of enzymes to make them more resistant to impurities and adaptable to various reaction systems. Our commercial supply team can provide more efficient and quality products and services to a wide range of researchers or enterprises, helping them achieve commercialization goals.

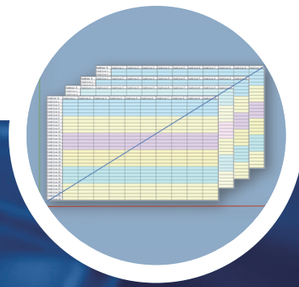
——by Cao Lin, President of Vazyme

Analysis Workflow

Nucleic acid extraction	Reverse transcription	Amplification
Sample preservative fluid	Reverse transcriptase	dNTPs
DNA extraction free	RNase inhibitor	Heat-labile UDG
DNA column purification	One-step qRT-PCR master mix	Hot start DNA polymerase
Total RNA column purification		QPCR probe master mix
DNA/RNA column co-extraction		One-step qRT-PCR master mix
DNA/RNA magnetic bead co-extraction		One-step and one-tube qRT-PCR master mix
Automatic extraction machine		Bst DNA Polymerase Large Fragment

Vazyme is a fully integrated life sciences company that develops and markets a wide range of innovative diagnostic products. We strive to provide our customers with solutions they need—from fighting against major pandemics such as COVID-19 to taking innovative steps to develop a market of qPCR/RT-qPCR mixtures.

We provide customers of molecular diagnostics with a "one-stop" solution from project services to product customization, including nucleic acid extraction, reverse transcription and amplification. We are capable of guaranteeing the product quality, delivery and reliability to offer flexible solutions to our customers and ensure compatibility between product lines. If you cannot exactly find what you need or have problem in selecting the right product for your workflow, please contact us for help and guidance.



Nucleic acid Extraction

Infectious diseases can take heavy toll on human health and wreak havoc on the economy. Hence, early screening plays an important role in the prevention and control of diseases. Vazyme provides products and services for sample preservation, lysis and extraction. Each kit has undergone rigorous quality control so that you can use it with confidence.

Table 1. Viral Sample Processing Solutions

Product name	Viral Sample Stabilizer	RoomTemp Sample Lysis Kit	FastPure Viral DNA/RNA Mini Kit	Virus DNA/RNA Extraction Kit 2.0(Prepackaged)
Catalog	R513	P073	RC312	RM401
Function	Viral sample stabilizer	Room temperature sample lysis	Viral DNA/RNA extraction kit based on silicon columns	Viral DNA/RNA extraction kit based on magnetic beads
Sample type	Nasopharyngeal swab	Blood	Swab, alveolar lavage fluid, cell culture supernatant	Blood, serum, plasma, faecal swabs, tissue homogenate supernatant, other body fluid
Features	Inactivate virus, safe for operators Nuclease inhibitor to maintain nucleic acid integrity RNA extraction seamlessly	Lysis blood at room temperature in 3 min Highly lysis efficiency, with the effect being the same as that of traditional extraction kits	Extraction can be completed within 7 min Rapidly inactivate virus, with viral nucleic acid released 10 pseudovirus copies can be extracted, and higher yield brings more sensitive downstream detection	32 samples extracted within 14 min. 1T/strips, 8T/plate, 16T/plate reagents available, choose freely according to the number of samples Nucleic acid can be extracted efficiently without adding protease K

Virus Sample Stabilizer (R513)

This product is applicable to the specimen collection from human nasopharyngeal swab specimen and the preservation of viral nucleic acid. The sample stabilizer contains guanidine isothiocyanate and other protein denaturation reagents which can rapidly lyse cells and denature viral proteins to obtain the inactivated virus and release the nucleic acid of virus. The high concentration of guanidine salt in a suitable buffer solution can inhibit the nuclease activity and effectively protect the integrity of nucleic acid. The nuclease-free tube is treated with nuclease eliminator to further ensure the integrity of nucleic acid.

Highlights

- Complete viral inactivation, safe for operators
- Nuclease inhibitor to maintain nucleic acid integrity
- Integrate with RNA extraction seamlessly

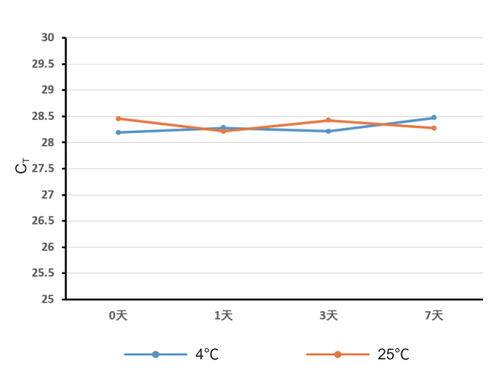


Figure 1. Nucleic acid preservation stability. The samples containing PEDV pseudovirus were stored in Virus Sample Stabilizer, at 4 ℃ and 25 ℃ for 1 day, 3 days and 7 days. After RNA extraction, the samples were detected by RT-qPCR and the results showed no significant change in Ct value.

Table 2. Extensive testing guarantees high quality

Test	Specification
Appearance	Complete components, clean packaging appearance, no leakage, no damage; no cracks, no perforations, no burrs in the cap, and uniform color
Feature	The preservation solution is clear, without visible suspended impurities
Quantity	Not less than the indicated capacity
Functional Assay (− △ Ct)	-0.5 ≤ Test/Control ≤ 0.5

RoomTemp Sample Lysis Kit (P073)

RoomTemp Sample Lysis Kit is a simple and fast blood lysis kit. Genomic DNA can be released from blood samples after 3 minutes of lysis at room temperature. The lysed DNA solution can be directly used as a template, applying to Taqman probe method for SNP detection, qPCR probe method quantification, PCR amplification, etc. Applicable blood sample types include fresh blood, frozen blood and blood containing anticoagulants (EDTA, citrate, sodium heparin, etc.). In addition to blood, this kit is also compatible with FTA blood cards, oral swabs, plant tissues and other samples.

Highlights

- Lysis blood at room temperature in 3 min
- Highly lysis efficiency, with the effect being the same as that of traditional extraction kits

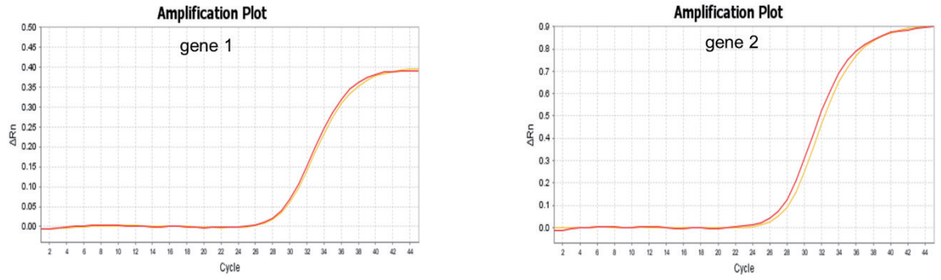


Figure 2. The detection of blood lysis effect. The blood was lysis with RoomTemp Sample Lysis Kit(red) and FastPure Blood DNA Isolation Mini Kit V2(orange), and two different genes were detected by qPCR after product normalization. The results showed the amount of DNA extracted by the two methods was almost the same.

Table 3. Extensive testing guarantees high quality

Test	Specification
Appearance	Complete, no damage
Functional Assay (− △ Ct)	-0.5 ≤ Test/Control ≤ 0.5

FastPure Viral DNA/RNA Mini Kit(RC312)

This kit is applicable for extracting highly pure viral nucleic acid (DNA/RNA) from samples such as human nasopharyngeal swabs, sputum, alveolar lavage fluid, and cell culture supernatant. Based on silicon membrane purification technology, the operation of this kit is easy and convenient, and no toxic reagent will be included. The obtained nucleic acid can be used for clinical in *vitro* trials.

Highlights

- Extraction can be done within 7 min for single sample
- Rapidly inactivate virus, with viral nucleic acid released
- 10 pseudovirus copies can be extracted, and higher yield brings more sensitive downstream detection

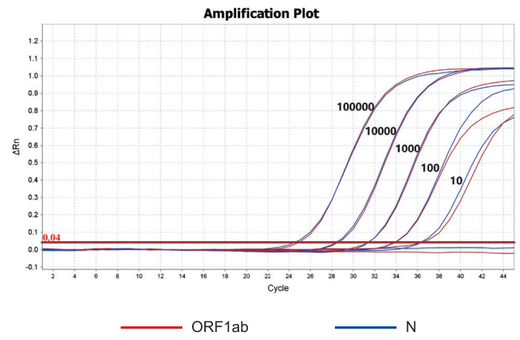


Figure 3. Recovery of viral nucleic acid across a wide range of pseudovirus input. Using FastPure Viral DNA/RNA Mini Kit (Vazyme#RC312) to extract the nucleic acid of SARS-CoV-2 pseudovirus at an initial amount of 10-100000 copies, then detected by qRT-PCR. The result showed that Vazyme#RC312 can be widely widely applicable to all gradients.

Table 4. Extensive testing guarantees high quality

Test	Specification
Appearance	Complete, no damage
Functional Assay (productivity)	80% ≤ Test/Control ≤ 120%
Functional Assay (− △ Ct)	-0.5 ≤ Test/Control ≤ 0.5

Virus DNA/RNA Extraction Kit 2.0(Prepackaged) (RM401)

Virus DNA/RNA Extraction Kit 2.0 is applicable for extracting highly pure viral nucleic acid (DNA/RNA) using magnetic bead purification technology. Samples can be blood, serum, plasma, nasopharyngeal swabs, sputum, and alveolar lavage fluid. Extracted nucleic acid can be used in downstream PCR/RT-PCR, qPCR, sequencing, and other experiments. Equipped with automatic nucleic acids extraction instrument (VNP-32YL), the kit can complete high-throughput extraction quickly.

Highlights

- 32 samples can be extracted within 14 min.
- 1 T/strips, 8 T/plate, 16 T/plate reagents available,choose freely according to the number of samples
- Nucleic acid can be extracted efficiently without adding protease K

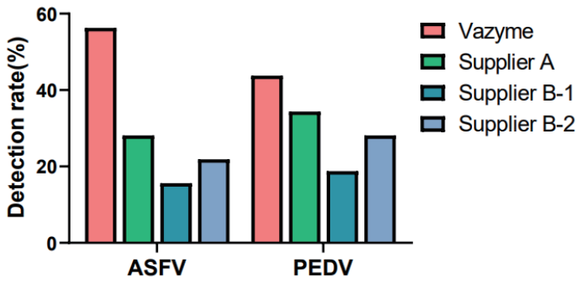


Figure 4. Detection rate of virus critical positive sample. 16 borderline positive samples of ASFV and PEDV were taken and extracted with automatic nucleic acid extraction machines of Vazyme, company A and B respectively. Each extracted product was tested with two duplicates, and the positive detection rate was counted. The results show the extraction machine of Vazyme has a higher detection rate for low-copy samples, effectively reducing the risk of missed detection.

Automatic Nucleic Acids Extraction Instrument (VNP-32YL)

The VNP-32YL automatic nucleic acids extraction instrument is used for automatic extraction and purification of DNA/RNA. which can significantly improve the extraction operation efficiency. It is also widely used in the field of molecular diagnostics and animal disease detection. With different kinds of magnetic beads nucleic acids extraction reagents, the nucleic acid can be extracted from blood and body fluids. The operation is automated, fast and simple, Significantly improving the efficiency, the extraction operation is automated, fast and simple, and widely used in the field of molecular diagnostics and animal disease detection.

Features

- Throughput: 1-32 samples per run
- High efficiency: Automatic extraction nucleic acids with minimal operation time
- No cross contamination: Equipped with UV disinfection to effectively avoid cross contamination
- Power-off protection: You can choose whether to continue to run or not after power-on

Taq DNA Polymerase

We modified Taq DNA polymerase by chemical or antibody methods to block its enzyme activity and giving it the property of encoding hot-start enzyme activity. The activity of Taq DNA polymerase is still blocked at temperatures up to 55°C, which minimizes non-specific amplification during mixing and system heating. When the reaction is kept at 95°C for more than 30 sec, Taq DNA enzyme activity is completely released, ensuring that the PCR system has extremely high amplification sensitivity and specificity. The activation of Taq DNA polymerase is not affected by pH, ionic strength, etc. It is applicable for various hot-start PCR and qPCR based on Taq DNA polymerase and can be used to amplify gene with low copy numbers from complex templates (genome and cDNA). It is the hot-start Taq-DNA polymerase of choice for PCR/qPCR molecular diagnostic reagents. This product has higher stability and detection rate.

Table 5. Taq DNA polymerase selection

Product name	Taq HS DNA Polymerase	Taq HS DNA Polymerase (Glycerol-free)	AceTaq DNA Polymerase	Taq Pro HS DNA Polymerase	Taq Pro HS DNA Polymerase for ddPCR	Champagne Taq DNA Polymerase
Catalog	P132	QL101	P401-MD1	PN101	PN102	P122-MD2
Hot-start PCR	Antibody-based	Antibody-based	Chemically-modified	Antibody-based	Antibody-based	Antibody-based
TaqMan probe-compatible	Yes	Yes	Yes	Yes	Yes	Yes
Reaction time	95 ℃ 30 sec	95 ℃ 30 sec	95 ℃ 5 min	95 ℃ 30 sec	95 ℃ 30 sec	95 ℃ 30 sec
Extension rate	60 sec/kb	60 sec/kb	60 sec/kb	60 sec/kb	60 sec/kb	60 sec/kb
Sensitivity	★★★	★★★	★★★	★★	★★★	★★★
Inhibitor tolerance	/	/	/	√	√	√
Freeze-dried	/	√	/	/	/	/
Features	High sensitivity, high specificity, high tolerance to impurities	Lyo-ready, High sensitivity, high specificity	High specificity	High sensitivity, high tolerance to impurities	High sensitivity, high specificity, Suitable for ddPCR	High sensitivity

★ = poor; ★★ = medium; ★★★ = good

Excellent amplification efficiency and plateau

With the three systems, Taq HS DNA polymerase (Vazyme#P132) and Champagne Taq DNA Polymerase (Vazyme#P122-MD2) have obvious advantages in sensitivity in the plateau phase compared with other brands.

Highlights

- Gene amplification with low copy numbers from complex templates (genome and cDNA)
- Rapid enzyme activation
- High sensitivity, high specificity
- Good tolerance to impurities
- It is available in a glycerol-free version, suitable for freeze-drying

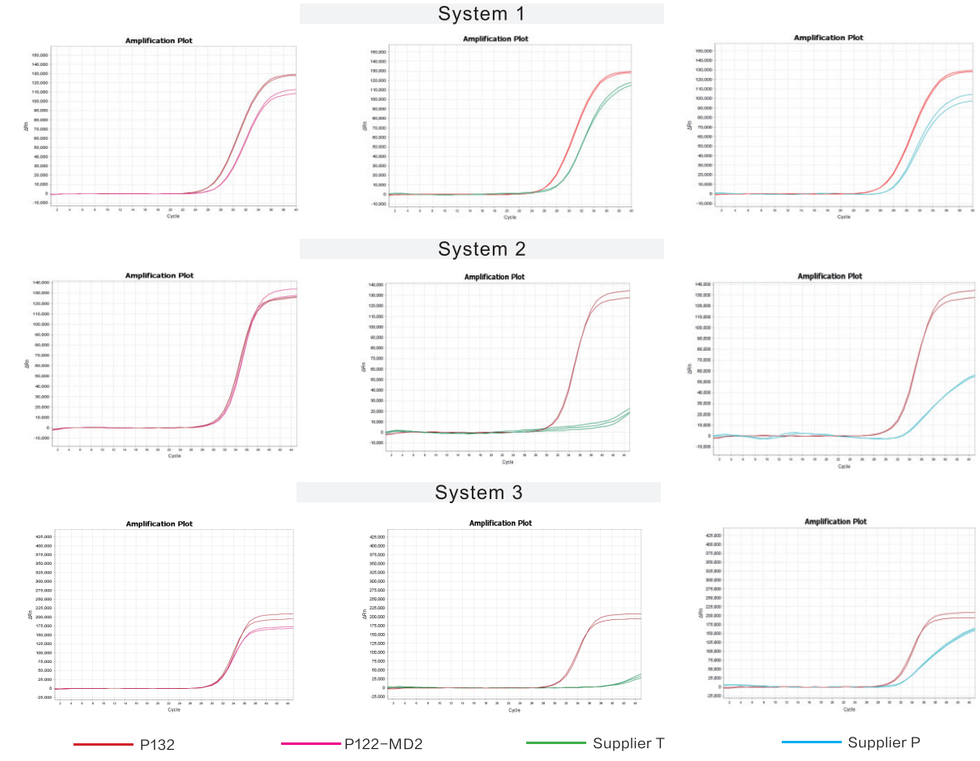


Figure 5. Amplification efficiency comparison of Vazyme#P132, Vazyme#P122-MD2 and other brand reagents.

Table 6. Strict quality control guarantees high performance of Taq DNA polymerase.

Test	Specification
Appearance	Complete, no damage
Purity of Enzyme Stock(SDS-PAGE)	≧ 90%
Endonuclease Activity	undetectable
RNase Activity	undetectable
Exonuclease Activity	undetectable
Residual E.coli DNA	50U < 10 copies
Functional Assay	90% ≤ Test/Control ≤ 110%

Taq HS DNA polymerase(Glycerol-free)(QL101) is optimum for the development of qPCR-based molecular diagnosis kits

Taq HS DNA polymerase, combined with specifically-designed champagne antibody, has presented high sensitivity and specificity in diverse application scenarios.This product is a glycerol-free Taq HS DNA polymerase, which can be used for lyophilization. It is the preferred hot-start Taq enzyme for qPCR-based molecular diagnostic reagents.

Highlights

- Heating at 95°C for 30 s can completely release Taq DNA polymerase activity
- High sensitivity and specificity
- Excellent compatibility with various qPCR systems

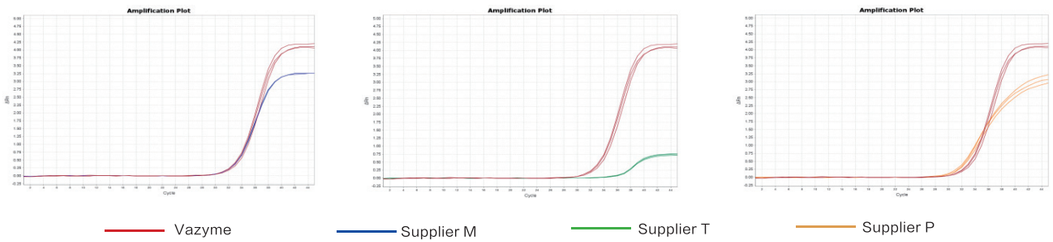


Figure 6. Amplification performance comparison between Vazyme#QL101 and the reagents of other brands

Table 7.Strict quality control guarantees high performance of Taq DNA polymerase.

Test	Specification
Appearance	Complete, no damage
Purity of Enzyme Stock (SDS-PAGE)	≧ 90%
Endonuclease Activity	50U, not detectable
RNase Activity	50U, not detectable
Exonuclease Activity	50U, not detectable
Residual E.coli DNA	50U < 10 copies
Functional Assay	90% ≤ Test/Control ≤ 110%

Taq Pro HS DNA Polymerase (PN101) is applicable to a wide range of PCR/qPCR-based scenarios

Taq Pro HS DNA Polymerase, a new-generation of antibody-based hot-start Taq DNA polymerase, has been modified to enhance its affinity for DNA templates. Taq Pro HS DNA Polymerase has significantly improved specificity and sensitivity for the detection of the low-copy DNA template paired with optimized buffer for a wide range of qPCR scenarios. Besides, it also has high resistance to PCR inhibitors and high compatibility with various testing scenarios.

Highlights

- High resistance to PCR inhibitors
- High sensitivity and specificity
- High compatibility with various qPCR scenarios

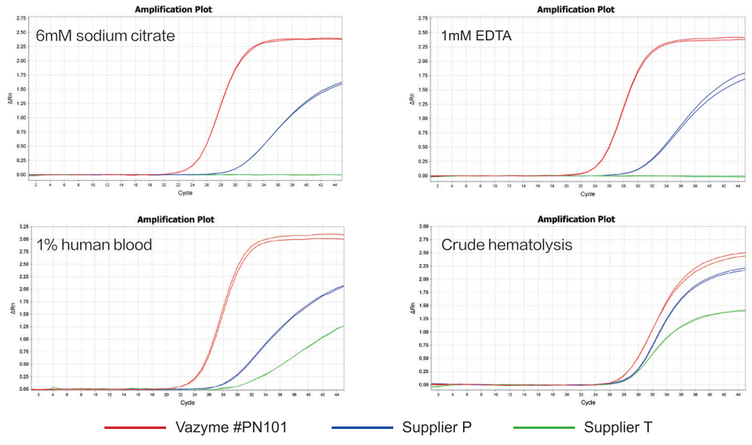


Figure 7. Impurity tolerance tests for Vazyme#PN101 and other brand reagents.

Table 8. Rigorous quality control guarantees the high performance of DNA polymerase in your assays

Test	Specification
Appearance	Complete, no damage
Purity of Enzyme Stock (SDS-PAGE)	≧ 90%
Endonuclease Activity	undetectable
RNase Activity	undetectable
Exonuclease Activity	undetectable
Residual E.coli DNA	50U < 10 copies
Functional Assay	-0.5≤△ Ct≤0.5

Reverse Transcription

New-generation reverse transcriptases are provided for development of PCR/qPCR-based molecular diagnosis kits. Their affinity to RNA templates and reverse transcription efficiency have been improved by introducing multiple mutations. Besides, the reverse transcriptase also has high sensitivity and high resistance to reverse transcription inhibitors.

Highlights

- Good thermo-stability
- Stable reverse transcription efficiency
- High resistance to reverse transcription inhibitors
- High specificity and sensitivity

Table 9. Reverse transcription selection

Product name	Reverse transcriptase		RNase Inhibitor
Characteristics	HiScript II Reverse Transcriptase	HiScript III Reverse Transcriptase	Murine RNase Inhibitor
Catalog	R201	R302	R301
Optimum reaction temperature	50 ℃	37 ℃	50 ℃
Duration required	15 min	15 min	/
Reverse Transcription Efficiency	★★	★★★	/
Tolerance	★★★	★★	★★
Sensitivity	★★	★★	/
Application	One step RT-qPCR	Two step RT-qPCR , isothermal amplification	Suitable for the reaction system with high DTT.

Excellent Thermal Stability

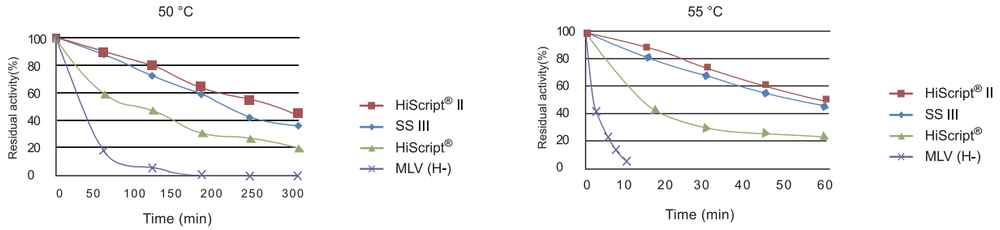


Figure 8. Enzyme activity stability test. HiScript II reverse transcriptase (R201) is stored at 50°C and 55°C, where the half-life of R201 at 50°C is more than 4 hours; at 55°C, the enzyme activity of R201 remains stable for a longer period of time compared to the other products.

Better Reverse Transcription Efficiency

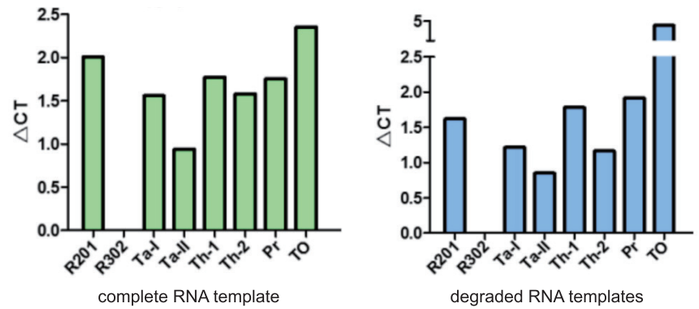


Figure 9. Statistics of △ CT (CT(each competitor) - CT(Vazyme #R302)) amplified by qPCR. The CT value of HiScript III Reverse Transcriptase (Vazyme#R302) is lower than that of other brands and Vazyme #R201 when amplifying the complete template and the degraded template. And the result showed that reverse transcription efficiency of Vazyme #R302 was better than that of the competitors and Vazyme#R201.

Table 10. Rigorous quality control guarantees the high performance of DNA polymerase in your assays

Test	Specification
Appearance	Complete, no damage
Purity of Enzyme Stock (SDS-PAGE)	≧ 95%
Endonuclease Activity	undetectable
RNase Activity	undetectable
Exonuclease Activity	undetectable
Residual E.coli DNA	600U < 10 copies
Functional Assay	90% ≤ Test/Control ≤110%

Real-time PCR Master Mixes

qPCR Probe Master Mix is combined with optimized buffers, dNTPs, passive reference dye, thermostable hot-start DNA polymerase and other components formulated for reliable 5´ nuclease probe–based real-time PCR. It can effectively inhibit non-specific amplification, and significantly improve the amplification efficiency. You can just add your sample, primers and TaqMan probe with this master mix to initial your reactions.

Highlights

- Strictly controlled the lot-to-lot reproducibility to ensure consistent and reliable results
- ISO 13485:2016 certified
- Optimized for various applications and can be customized for your specific requirements

The master mixtures listed in this brochure are the most commonly used ones. Should you have needs for other specifications, please do not hesitate to ask us.

Table 11. TaqMan master mixes provide turnkey solutions for real-time PCR.

Product name	Taq Pro HighGC U⁺ Multiple Probe qPCR Mix	Taq Pro U⁺ Multiple Probe qPCR Mix	AceQ Universal U⁺ Probe Master Mix V2
Catalog	QN211	QN213	Q513
Application	DNA detection and 2-step gene expression analysis	DNA detection and 2-step gene expression analysis	DNA detection and 2-step gene expression analysis
Passive reference dye	50×ROX Reference Dye	50×ROX Reference Dye	Specific ROX Reference Dye
Fast reaction	★	★	-
Impurity tolerance	★★	★★	-
Low-copy template	★★	★★	★★
High sensitivity	★★	★★★	-
Features/ advantages	Suitable for amplification in high GC templates	Wide template compatibility	Universal across all platforms

Table 12. Extensive testing guarantees the quality of real-time PCR master mixes.

Test	Specification
Appearance	Complete, no damage
Enzyme purity (SDS-PAGE)	≧ 90%
Endonucleases and RNases	undetected
Exonucleases	50 U Test/Control ≤ 1
E.coli genome	50 U < 10 copies
Functional detection	-0.5 ≤ △ Ct ≤ 0.5

Taq Pro HighGC U$^+$ Multiple Probe qPCR Mix (QN211)

Taq Pro High GC U$^+$ Multiple Probe qPCR Mix is a master mix for probe qPCR of DNA templates (e.g. DNA viruses). The core component of Taq Pro HS DNA polymerase is a new generation of hot-start DNA polymerase, which has been modified based on antibody technology and upgraded with improved template affinity. It is equipped with the most suitable buffer optimized for the qPCR system, resulting in a significant improvement in amplification specificity, sensitivity when detecting low-copy genes, and amplification curve shape. Excellent amplification curves can be obtained over a wide quantitative range, and target genes can be accurately quantified and detected, with good repeatability and reliability. This product is suitable for amplification of high GC templates and has good impurity tolerance. The reagents contain a dUTP/UDG anti-contamination system, which works at room temperature to eliminate the effect of amplification product contamination on qPCR to ensure the accuracy of results. The product is a 2 × master mix, and you only need to add primers, probes and templates. It is easy to use and compatible with rapid program to save reaction time.

Highlights

- Suitable for high GC templates
- Superior amplification specificity
- Excellent amplification curve shape
- Good impurity tolerance
- Compatible with rapid procedures for test time-saving

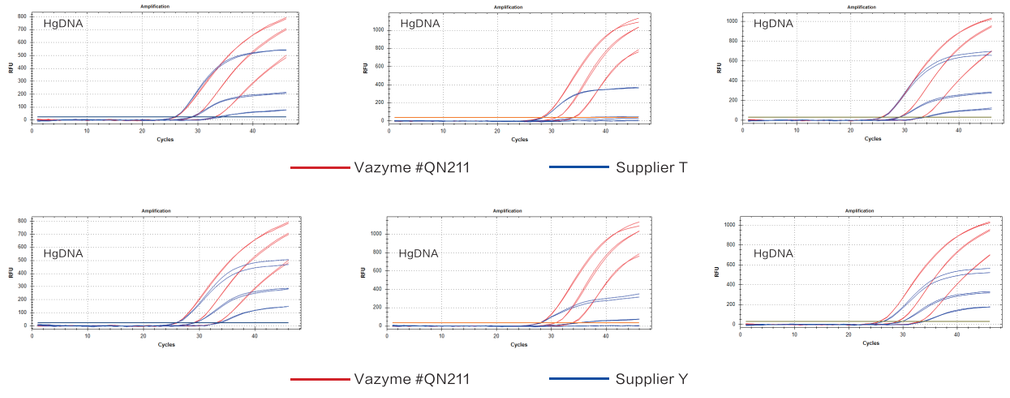


Figure 10. Amplification performance comparison of Taq Pro HighGC U$^+$ Multiple Probe qPCR Mix (Vazyme#QN211) and other commercial master mixes. The results of the amplification of human genomic DNA with qPCR kits of different brands show that the Vazyme#QN211 (red) performed better than other brands (blue) in sensitivity in the plateau phase of FAM/VIC/CY5 channels.

Taq Pro U$^+$ Multiple Probe qPCR Mix (QN213)

Taq Pro U$^+$ Multiple Probe qPCR Mix is a master mix for probe qPCR of DNA templates (e.g. DNA viruses). The core component of Taq Pro HS DNA polymerase is a new generation of hot-start DNA polymerase, which has been modified based on antibody technology and upgraded with improved template affinity. It is equipped with the most suitable buffer optimized for the qPCR system, resulting in a significant improvement in amplification specificity, sensitivity when detecting low-copy genes, and amplification curve shape. Excellent amplification curves can be obtained over a wide quantitative range, and target genes can be accurately quantified and detected, with good repeatability and reliability. It has a broad compatibility with different template types, template GC content, primer Tm value, and good impurity tolerance, making it suitable for a variety of test scenarios. The reagents contain a dUTP/UDG anti-contamination system, which works at room temperature to eliminate the effect of amplification product contamination on qPCR to ensure the accuracy of results. The product is a 2× master mix, and you only need to prepare primers, probes and templates. It is easy to use and compatible with rapid program to save test time.

Highlights

- Amplification performance with multiple targets
- Superior amplification specificity
- Higher sensitivity when detecting low-copy genes
- Excellent amplification curve shape
- Good impurity tolerance
- Compatible with rapid procedures for test time-saving

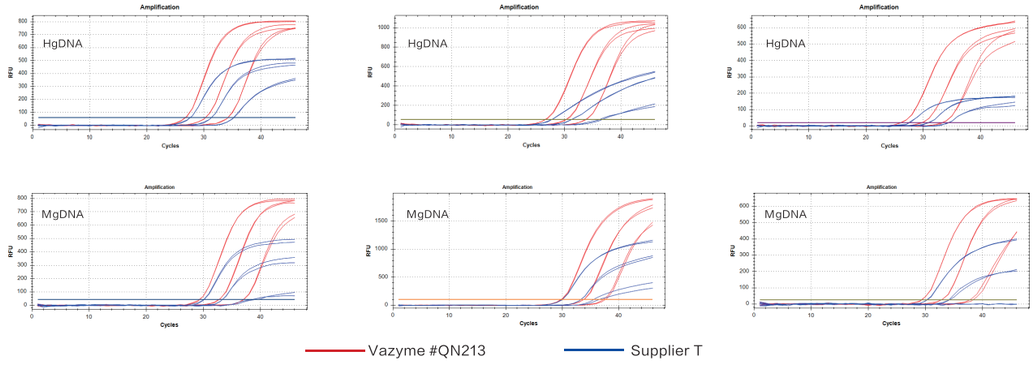


Figure 11. Amplification performance comparison of Taq Pro U$^+$ Multiple Probe qPCR Mix(Vazyme#QN213) and other commercial master mixes. The results of the amplification of human genomic DNA and mouse genomic DNA using Vazyme#QN213 (red) and other commercial master mixes (blue) showed that Vazyme#QN213 performed better than Supplier T in sensitivity and in the plateau phase of the FAM/VIC/CY5 channels.

AceQ Universal U+ Probe Master Mix V2

AceQ Universal U+ Probe Master Mix V2 is a probe-based reagent for qPCR. The core component of AceTaq DNA Polymerase is a chemically modified hot-start DNA polymerase. Combined with optimized buffer for qPCR, it can effectively minimize non-specific amplification and significantly improve the amplification efficiency. It is suitable for qPCR with high sensitivity. The reagent contains a dUTP/UDG anti-contami-nation system, which works at room temperature to eliminate the amplification products contamination. This product is a 2 × master mix. A good standard curve can be obtained over a wide quantitative range, and the target gene can be accurately quantified and detected, with good repeatability and high reliability. This product contains a unique ROX Passive Reference Dye that is suitable for almost all kinds of qPCR instruments. The concentration of ROX is not required to be adjusted and optimized even on different kind of instruments.

Highlights

- Detection sensitivity from low-level to single-copy template
- Multi-platform compatibility
- Heat-labile UDG contamination prevention introduced

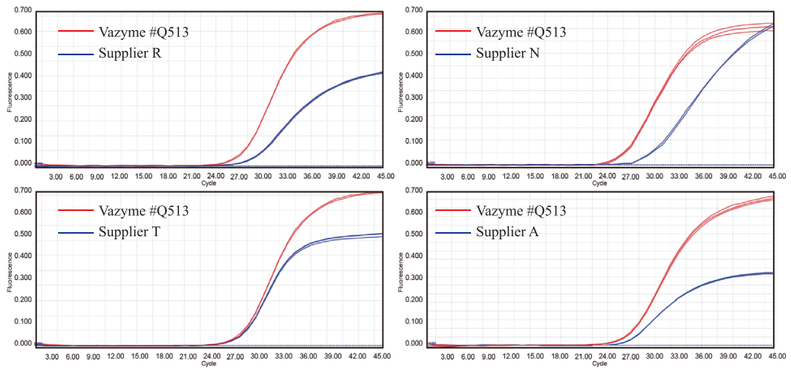


Figure 12. Amplification performance comparison of AceQ Universal U+ Probe Master Mix V2 mix (Vazyme#Q513) and other commercially available brand probe qPCR reagents (from Supplier R, N, T, A, respectively). The results showed Vazyme#Q513 had better amplification sensitivity compared to other master mixes.

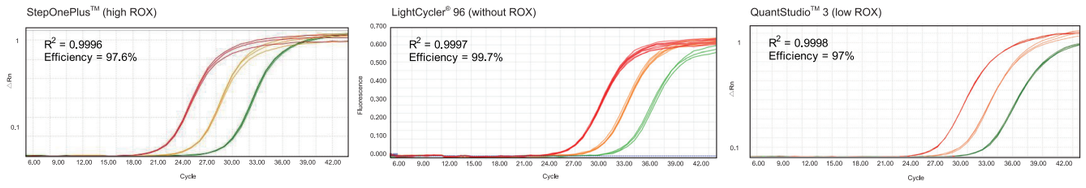


Figure 13.Stable reactions on different Real-time PCR instruments

qRT- PCR Master Mixes

qRT-PCR Probe Master Mix is combined with optimized buffers, reverse transcriptase, dNTPs, passive reference dye, thermostable hot-start DNA polymerase, and other components formulated for reliable 5´ nuclease probe–based real-time PCR. It can effectively inhibit non-specific amplification and significantly improve the amplification efficiency. You can just add your sample, primers and TaqMan probe with this master mix to initial your reactions.

Highlights

- Strictly control the lot-to-lot reproducibility to ensure consistent and reliable results
- ISO 9001:2005 and ISO 13485:2016 certified
- Optimized for various applications and can be customized for your specific requirements

The master mixtures listed in this brochure are the most commonly used ones. Should you have needs for other specifications, please do not hesitate to ask us.

Table 13. TaqMan master mixes provide turnkey solutions for qRT- PCR.

Product name	HiScript II U+ One Step qRT-PCR Probe Kit	HiScript III U+ One Step qRT-PCR Probe Kit	HiScript III U+ One Step qRT-PCR Probe 5× Master Mix
Catalog	Q222-CN	Q225	Q611
Application	RNA virus detection and 1-step gene expression analysis	RNA virus detection and 1-step gene expression analysis	RNA virus detection and 1-step gene expression analysis
Passive reference dye	50×ROX Reference Dye	50×ROX Reference Dye	50×ROX Reference Dye
Fast reaction	★★	★★★	★★
Impurity tolerance	★★	★★	★★
Low-copy template	★★	★★★	★★★
High sensitivity	★★	★★	★
Features/ advantages	Suitable for amplification in high GC templates	Wide template compatibility	Universal across all platforms
Notes	--	Available in PCR inhibitor-resistant version and glycerin-free version	Available in PCR inhibitor-resistant version

Table 14. Extensive testing guarantees the quality of qRT- PCR master mixes.

Test	Specification
Appearance	Complete, no damage
Enzyme purity (SDS-PAGE)	≧ 95%
Exonucleases and endonucleases	2000 U undetected
RNases	Undetected
E.coli genome	600 U < 10 copies
Functional assay-amplification efficiency	90% ≤ sample ≤ 110%

HiScript II U$^+$ One Step qRT-PCR Probe Kit (Q222-CN)

HiScript II U$^+$ One Step qRT-PCR Probe Kit is specially designed for the detection of RNA templates (e.g. viral RNA) by one-step qRT-PCR reaction. Using gene-specific primers (GSP), the reverse transcription and qPCR can be finished in one tube, significantly simplified pipetting procedures and reducing the risk of contamination. This kit contains a dUTP/UDG system that can carryover contamination in qPCR. Heat-labile UDG can quickly eliminate the contamination of dU-containing products at room temperature. It can be inactivated at 55℃ without affecting the efficiency and sensitivity of qRT-PCR. The HiScript II Reverse Transcriptase and hot-start Champagne Taq DNA Polymerase in this kit enable high-sensitive total RNA detection (as little as 0.1 pg or <10 copies). HiScript II U$^+$ One Step qRT-PCR Probe Kit is provided in the form of master mix. The 2 × One Step U$^+$ Mix contains an optimized buffer and dNTP/dUTP Mix, and it is suitable for detection systems with high specificity based on fluorescence labelled probes (i.e.TaqMan).

Highlights

- Excellent detection sensitivity
- Compatible with multiple reaction systems
- dUTP/UDG system introduced
- Eligible for fast program

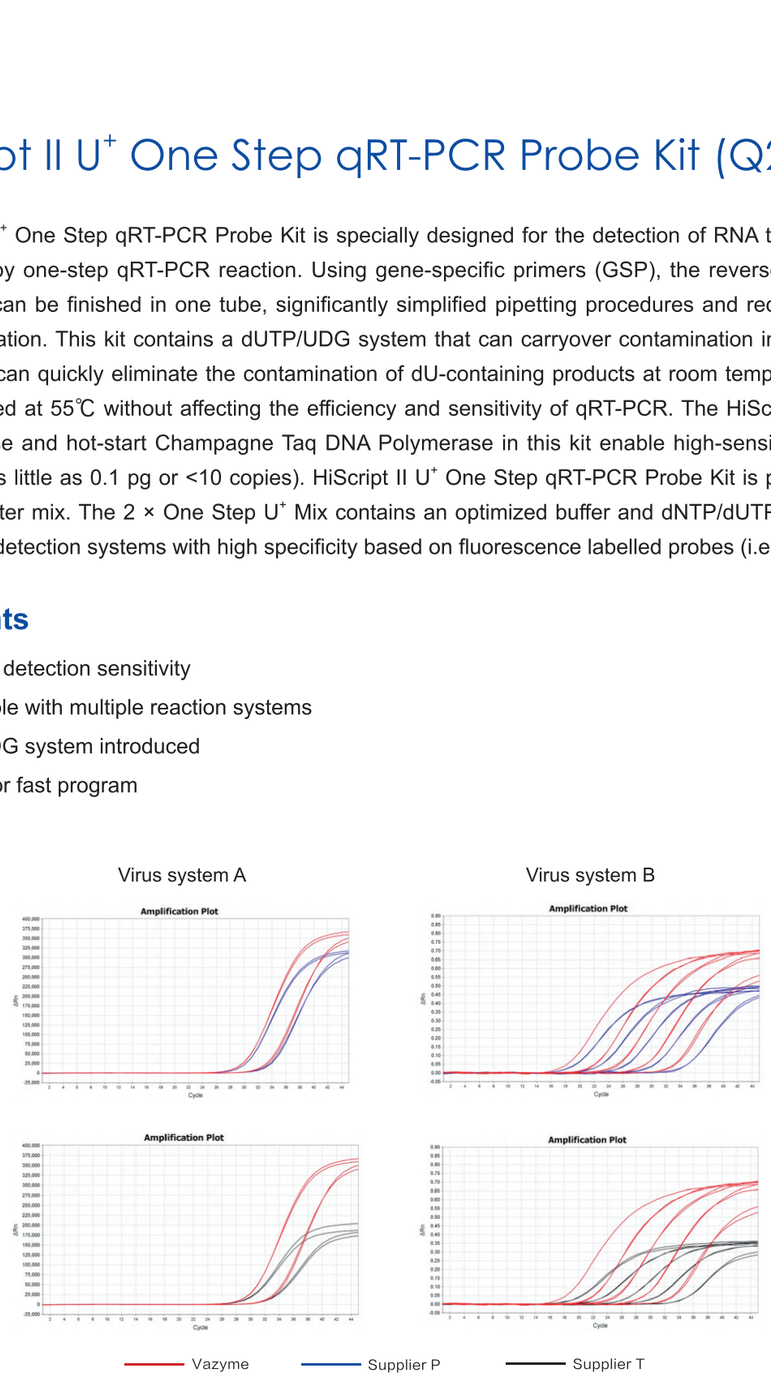


Figure 14. Amplification performance comparison of HiScript II U$^+$ One Step qRT-PCR Probe Kit (Vazyme#Q222-CN) and other commercial master mixes. The results of the amplification of Vazyme and other commercial master mix showed that the Vazyme#Q222-CN performed better than other master mixes in sensitivity in the plateau phase.

HiScript III U$^+$ One Step qRT-PCR Probe Kit (Q225)

HiScript III U$^+$ One Step qRT-PCR Probe Kit is specially designed for the detection of RNA templates (e.g. viral RNA) by one-step qRT-PCR reaction. Using gene-specific primers (GSP), the reverse transcription and qPCR can be finished in one tube, significantly simplifying pipetting procedures and reducing contamination. This kit contains a dUTP/UDG system that can prevent carryover contamination in qPCR. Heat-labile UDG can quickly eliminate the contamination of dU-containing products at room temperature. Combining the superior performance of HiScript III Reverse Transcriptase and hot-start Champagne Taq DNA Polymerase with an optimized buffering system, the detection sensitivity of HiScript III U$^+$ One Step qRT-PCR Probe Kit can reach 0.1 pg of total RNA or less than 10 copies of RNA templates with higher thermal stability. HiScript III U$^+$ One Step qRT-PCR Probe Kit is suitable for detection systems with high specificity based on fluorescence labelled probes (e.g. TaqMan).

Highlights

- Higher detection sensitivity
- Balanced amplification of high and low template concentration
- Suitable for multiplex qPCR
- Introduced dUTP/UDG system
- Compatible with fast programs, with work efficiency improved
- Better storage stability

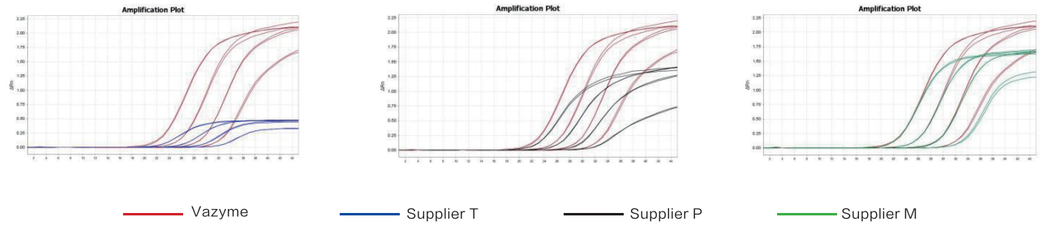


Figure 15. Amplification performance comparison of HiScript III U$^+$ One Step qRT-PCR Probe Kit (Vazyme#Q225) and other commercial master mixes. The results of the amplification of Vazyme and other commercial master mixes showed that Vazyme#Q225 outperformed its competitors in sensitivity and plateau.

HiScript III U^{+} One Step qRT-PCR Probe 5 × Master Mix (Q611)

HiScript III U^{+} One Step qRT-PCR Probe 5 × Master Mix is specially designed for single-plex or multiplex qPCR detection using RNA templates (e.g. viral RNA). It has extremely high stability, so it can be stored at 37 ℃ for up to 14 days and remains liquid form at a storage temperature of - 20℃ , to avoid repeated freeze-thaw cycles. The reaction can be started by directly adding the template, primers and target probes required for detection. Using gene-specific primers (GSP), the reverse transcription and qPCR can be finished in one tube, significantly simplifying pipetting procedures and reducing the risk of contamination. Combining the superior performance of HiScript III Reverse Transcriptase and hot-start Champagne Taq DNA Polymerase with an optimized buffering system, the detection sensitivity of HiScript III U^{+} One Step qRT-PCR Probe 5 × Master Mix can reach 0.1 pg of total RNA or less than 10 copies of RNA templates. It is suitable for detection systems with high specificity based on fluorescence labeled probes (e.g. TaqMan).

Highlights

- Enzyme and buffer premixed into one tube
- Amplification performance benchmark Vazyme#Q225
- Excellent balance of high and low template amplification
- Eligible for full premix format except for probes and primers

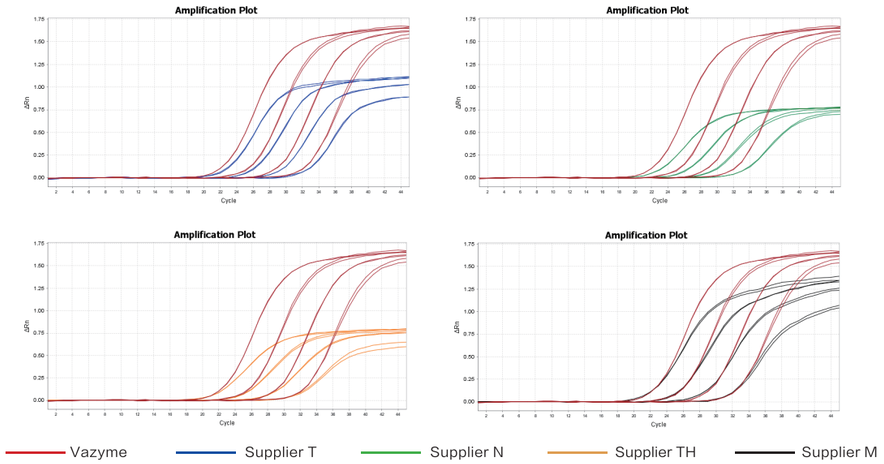


Figure 16. Amplification performance comparison of HiScript III U^{+} One Step qRT-PCR Probe 5 × Master Mix (Vazyme#Q611) and other commercial master mixes. The results of the amplification of Vazyme and other commercial master mixs showed that the Vazyme#Q611 performed better than other master mixes in sensitivity in the plateau phase.

Others

In addition to the above reagents, other enzymes (UDG, PK, Bst) and dNTP mixes have been extensively tested and verified for various molecular biology applications, including highly sensitive techniques such as qRT-PCR and next-generation sequencing.

The reagents represent those that are most commonly used; please inquire if you have other specifications, and we will find a solution to suit your needs.

Table 15. Other enzymes (UDG, PK, Bst) and dNTP mixes.

Product name	Heat-labile UDG	Bst II Pro DNA Polymerase Large Fragment	Proteinase K	dNTP Mix
Catalog	P051	P703	DE102 (20mg/ml)	P031 (10mM each) P032 (2.5mM each)
Features/ advantages	Efficient pollution prevention, heat-sensitive inactivation	Fast aggregation, Excellent impurity resistance, Good stability, Optimal reaction performance at temperature from 60-72 °C, Strong specificity	Excellent impurity tolerance, good stability, and broad substrate specificity	Each batch is tested for purity and functional quality control, which is for a variety of PCR reactions

Table 16. Extensive testing guarantees the quality

Product name	Test	Specification
Heat-labile UDG	Appearance	Complete, no damage
	Purity of Enzyme Stock (SDS-PAGE)	≥ 95%
	Endonuclease Activity	undetectable
	Exonuclease Activity	undetectable
	RNaseActivity	undetectable
	Residual *E.coli* DNA	20U<10copies
	Functional Assay	Standard value ± 10%
P073	Appearance	Complete, no damage
	Purity of Enzyme Stock (SDS-PAGE)	≥ 90%
	Endonuclease Activity	undetectable
	Exonuclease Activity	undetectable
	Residual *E.coli* DNA	80U <10copies
	Functional Assay - △ CT	-1 ≤ Test/Control ≤ 1
Proteinase K	Appearance	Complete, no damage
	Purity of Enzyme Stock	1.6 ≤ OD260/280 ≤ 2.2
	Functional assay - Yield	80% ≤ Test/Control ≤ 120%
dNTP Mix	Appearance	Complete, no damage
	Purity (HPLC)	≥ 99%

Heat-labile UDG (P051)

UDG (Uracil-DNA Glycosylase) catalyzes the hydrolysis of the N-glycosidic bond between the uracil base and the sugar phosphate backbone of a single- or double-stranded DNA to release uracil.The resulting base-free sites are easily broken down by hydrolysis. Heat-labile Uracil DNA Glycosylase is derived from a cryophilic marine bacterium and is sensitive to high temperatures, with irreversible inactivation at 55 °C for 10 min. Heat-labile UDG is highly active in a wide range of common PCR Buffer and is suitable for qPCR, RT-PCR/qRT-PCR systems.

Bst II Pro DNA Polymerase Large Fragment (P703)

Highlights

- Fast aggregation
- Excellent impurity resistance
- Good stability
- Optimal reaction performance at temperature from 60-72 °C
- Strong specificity

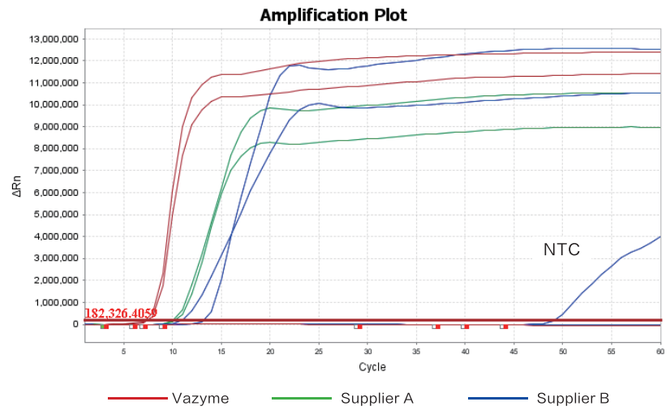


Figure 17. Amplification performance comparison of Bst II Pro DNA Polymerase Large Fragment (Vazyme#P703) and other commercial Bst DNA polymerase. The amplification results of Vazyme and other commercial Bst DNA polymerases showed that the Vazyme#P703 outperformed other Bst DNA polymerases in sensitivity.

Contact Info:

Web: www.vazymebiotech.com

Email: global@vazyme.com

Tel: +86 25-83772625

Address: Floor 1-3, Building C2, Red Maple Technology Industrial Park, Kechuang Road Economy & Technology Development Zone, Nanjing, China.