Vazyme

Reagents for Molecular Biology Research

Product Catalogue

2022

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Science and technology Make a Healthier Life

2012
-
2022

Overview of Vazyme

InoVation in Enzyme Technology

Since the establishment in 2012, Vazyme has been dedicated to our mission "Science and Technology Make a Healthier Life" to focus on technology innovation and continuously expand the application fields of core technologies in life science. Currently, we have a portfolio of over 200 kinds of genetic engineering recombinases, more than 1,000 kinds of high-performance antigens, monoclonal antibodies and other key raw materials, in addition to over 600 finished products.

As a R&D based company, we have been holding ourselves to the highest standards of ethics, accountability and professionalism. Our global research and development operations make sure we could provide quality products, solutions, and services locally to our customers, and more importantly, to do as much as it can to meet the unmet customers' needs. For now, we are present in more than 60 countries and regions worldwide to get close to local customers.

Development of Core Technology

Since its establishment, Vazyme has always adhered to the business philosophy—— R&D is the core. Through years of relentless efforts, Vazyme has achieved a lot in biomedical science. For instance, we have developed various kinds of biological preparations, covering but not limited to high-throughput sequencing library series, PCR, qPCR, molecular clone, reverse transcription and 8 sets of POCT diagnostic reagents used to detect heart and cerebral vessels, inflammation, sound child rearing, and gastric function, etc. Now Vazyme has expanded the customer portfolio to a wider range, including scientific research institutions, high-throughput sequencing service companies, molecular diagnostic reagent manufacturers, pharmaceutical companies, CRO companies, hospitals and other medical institutions.

Innovation & Reservation of Talents

Based on self-established core technologies, Vazyme has built an independent generic technology platform to meet the needs of large-scale research and development of products quickly and efficiently. Now we have over 200 kinds of genetic engineering recombinases, more than 1000 kinds of high-performance antigens, mAb and other critical materials. In addition, Vazyme owns above 500 terminal products that are widely applied in science research, high-throughput sequencing, IVD, pharmaceutical and vaccine research development, animal quarantine, etc.

Vazyme's powerful R&D strength is supported by a strong research and innovation team with over 400 multi-disciplinary experts majoring in molecular biology, enzymology, immunology, bioinformatics, organic chemistry and materials science, etc., more than half of which have a master's degree or above. ***We have been mentioned in CNS and sub-journals over 180 times and more than 1500 times in various other journals. The total citation of papers so far has reached to 10000.***

Staying True to the Original Aspiration & Fulfill the Mission

On the way to deepen and broaden the entire product and technology chain, Vazyme stays true to the orignial aspiraton —— "Science and Technology Make a Healthier Life", explores new methods for disease discovery, diagnosis, prevention and treatment, and provides quality products and professional services to creat value for clients.

In the past few years, Vazyme has actively engaged in the construction of public health programs, and played a vital role in fighting against African swine fever and COVID-19. ***So far we have business cooperation with more than 300 IVD kit manufacturers by providing raw materials and premixes for over 800 million population covering more than 30 countries.*** In the future, we will continue to contribute to the development of biosafety, and help mankind to overcome the threats posed by major infectious diseases, tumors, and autoimmune diseases!

Product Catalogue

Contents

Reagents for Molecular Biology Research

01

Product List

PCR

High-Fidelity PCR

Product Name	Size	Cat.No.#
Hot Phanta Max Super-Fidelity DNA Polymerase	100 U / 500 U / 1,000 U	P505-d1/d2/d3
2 × Phanta Max Master Mix	1 ml / 5 ml / 15 ml	P515-01/02/03
2 × Phanta Max Master Mix (Dye Plus)	1 ml / 5 ml / 15 ml	P525-01/02/03
2 × Phanta Flash Master Mix	1 ml / 5 ml / 15 ml	P510-01/02/03
2 × Phanta Flash Master Mix (Dye Plus)	1 ml / 5 ml / 15 ml	P520-01/02/03

Conventional PCR

Product Name	Size	Cat.No.#
Taq DNA Polymerase (Mg^{2+} plus Buffer)	1,000 U / 5,000 U / 10,000 U	P101-01/02/03
Taq DNA Polymerase (Mg^{2+} free Buffer)	1,000 U / 5,000 U / 10,000 U	P102-01/02/03
Taq DNA Polymerase (Mg^{2+} plus Buffer, with dNTP)	1,000 U / 5,000 U / 10,000 U	P101-d1/d2/d3
2 × Taq Master Mix	5 ml / 15 ml / 50 ml	P111-01/02/03
2 × Taq Master Mix (Dye Plus)	5 ml / 15 ml / 50 ml	P112-01/02/03
2 × Taq Master Mix for PAGE	5 ml / 15 ml / 50 ml	P113-01/02/03
Hot 3G Taq Master Mix for PAGE (Red Dye)	5 ml / 50 ml	P115-01/02
Green Taq Mix	5 ml / 15 ml / 50 ml	P131-01/02/03

High-Yield PCR

Product Name	Size	Cat.No.#
2 × Taq Plus Master Mix	5 ml / 15 ml / 50 ml	P211-01/02/03
Hot 2 × Taq Plus Master Mix II (Dye Plus)	5 ml / 15 ml / 50 ml	P213-01/02/03

Long-Fragment PCR

Product Name	Size	Cat.No.#
Vazyme LAmp DNA Polymerase (Mg^{2+} plus buffer)	125 U / 500 U	P301-01/02
2 × Vazyme LAmp Master Mix	1 ml / 5 ml / 15 ml	P311-01/02/03
2 × Vazyme LAmp Master Mix (Dye Plus)	1 ml / 5 ml / 15 ml	P312-01/02/03

Direct PCR

Product Name	Size	Cat.No.#
One Step Mouse Genotyping Kit	200 rxn (50 ul/rxn)	PD101-01
One Step U+ Probe Mouse Genotyping Kit	200 rxn (20 ul/rxn)	PD104-01
Blood Direct PCR Kit V2	50 rxn / 200 rxn (50 ul/rxn)	PD103-01/02

Rapid PCR

Product Name	Size	Cat.No.#
	5 ml / 15 ml	P222-01/02
Hot 2 × Rapid Taq Master Mix	50 ml (50 x 1 ml)	P222-03
	50 ml (10 x 5 ml)	P222-04

Multiplex PCR

Product Name	Size	Cat.No.#
Multiplex PCR Kit	50 rxn / 200 rxn / 1,000 rxn (50 ul/rxn)	PM101-01/02/03

Hot-Start PCR

Product Name	Size	Cat.No.#
Hot AceTaq DNA Polymerase	250 U / 1,000 U / 3,000 U	P401-d1/d2/d3
2 × AceTaq Master Mix	1 ml / 5 ml /15 ml	P411-01/02/03
2 × AceTaq Master Mix (Dye Plus)	1 ml / 5 ml / 15 ml	P412-01/02/03
Champagne Taq antibody	500 U	P121-01
Hot Champagne Taq DNA Polymerase	500 U (2.5 / 5 / 10 U/μl)	P122-d1/d2/d3
Hot Taq Pro HS DNA Polymerase	250 U / 1,000 U / 5,000 U	PN101-01/02/03
Taq Pro HS Master Mix	500 rxn / 1,500 rxn (20 μl/rxn)	PN111-01/02
Taq Pro HS U+ Master Mix	500 rxn / 1,500 rxn (20 μl/rxn)	PN112-01/02

Isothermal Amplification

Product Name	Size	Cat.No.#
Bst DNA Polymerase Large Fragment	800 U / 8,000 U	P701-01/02

PCR-Related

Product Name	Size	Cat.No.#
Hot PCR Enhancer	500 μl	P021-01
dNTP Mix (10 mM each)	1 ml / 5 ml	P031-01/02
dNTP Mix (2.5 mM each)	1 ml / 5 ml	P032-01/02
Heat-labile UDG	100 U / 500 U	P051-01/02
RNase-free ddH_2O	5 ml	P071-01
10 × DNA Loading Buffer	1 ml	P022-01

Cloning/Mutagenesis

Fast Cloning

Product Name	Size	Cat.No.#
ClonExpress II One Step Cloning Kit	25 rxn / 50 rxn (20 ul/rxn)	C112-01/02
ClonExpress MultiS One Step Cloning Kit	10 rxn / 25 rxn (20 ul/rxn)	C113-01/02
Hot ClonExpress Ultra One Step Cloning Kit	25 rxn / 50 rxn (20 ul/rxn)	C115-01/02

Fast Site-Directed Mutagenesis

Product Name	Size	Cat.No.#
Mut Express II Fast Mutagenesis Kit V2	10 rxn / 25 rxn (20 μl/rxn)	C214-01/02
Mut Express MultiS Fast Mutagenesis Kit V2	10 rxn / 25 rxn (20 μl/rxn)	C215-01/02

Traditional/TA Cloning

Product Name	Size	Cat.No.#
T4 DNA Ligase	40,000 U	C301-01
Hot 5min Universal Ligation Mix	50 rxn / 100 rxn (10 μl/rxn)	C311-01/02

TOPO Cloning

Product Name	Size	Cat.No.#
Hot 5min TA/Blunt-Zero Cloning Kit	25 rxn / 50 rxn (5 μl/rxn)	C601-01/02

Nucleic Acid Electrophoresis

GelRed Nucleic Acid Stain

Product Name	Size	Cat.No.#
Hot Ultra GelRed (10,000 ×)	0.5 ml / 5 ml / 50 ml	GR501-01/02/03

DNA Marker

Product Name	Size	Cat.No.#
DL2000 Plus DNA Marker	250 μl / 500 μl	MD101-01/02
DL5000 DNA Marker	250 μl / 500 μl	MD102-01/02
DL15000 DNA Marker	250 μl / 500 μl	MD103-01/02
100 bp DNA Ladder	250 μl / 500 μl	MD104-01/02

Reverse Transcription

Universal RT

Product Name	Size	Cat.No.#
HiScript II Reverse Transcriptase	2,000 U / 10,000 U	R201-01/02
HiScript III Reverse Transcriptase	10,000 U	R302-01
HiScript II 1st Strand cDNA Synthesis Kit	50 rxn / 100 rxn (20 μl/rxn)	R211-01/02
Hot HiScript III 1st Strand cDNA Synthesis Kit (+gDNA wiper)	50 rxn / 100 rxn (20 μl/rxn)	R312-01/02
M-MLV(H-) Reverse Transcriptase	10,000 U	R021-01
Murine RNase inhibitor	2,000 U / 10,000 U / 20,000 U	R301-01/02/03

RT SuperMix (For qPCR)

Product Name	Size	Cat.No.#
HiScript II Q RT SuperMix for qPCR	100 rxn (20 μl/rxn)	R222-01
HiScript II Q RT SuperMix for qPCR (+gDNA wiper)	100 rxn (20 μl/rxn)	R223-01
HiScript II Q Select RT SuperMix for qPCR	100 rxn (20 μl/rxn)	R232-01
HiScript II Q Select RT SuperMix for qPCR (+gDNA wiper)	100 rxn (20 μl/rxn)	R233-01
Hot HiScript III RT SuperMix for qPCR (+gDNA wiper)	100 rxn (20 μl/rxn)	R323-01
Hot HiScript III All-in-one RT SuperMix Perfect for qPCR	100 rxn (20 μl/rxn)	R333-01

One-Step RT-PCR

Product Name	Size	Cat.No.#
HiScript II One Step RT-PCR Kit	50 rxn (50 μl/rxn)	P611-01
HiScript II One Step RT-PCR Kit (Dye Plus)	50 rxn (50 μl/rxn)	P612-01

5' RACE & 3' RACE Amplification

Product Name	Size	Cat.No.#
10 × Universal Primer Mix (UPM)	100 rxn (50 μl/rxn)	RA102-01
HiScript-TS 2 × PCR Mix	40 rxn / 200 rxn (50 μl/rxn)	RA103-01/02

Single Cell Sequence Amplification

Product Name	Size	Cat.No.#
Single Cell Sequence Specific Amplification Kit	200 rxn (20 ul/rxn)	P621-01

miRNA Reverse Transcription

Product Name	Size	Cat.No.#
miRNA 1st Strand cDNA Synthesis Kit (by stem-loop)	50 rxn / 100 rxn (20 μl/rxn)	MR101-01/02

qPCR

qPCR Master Mix (SYBR-Green)

Product Name	Size	Cat.No.#
AceQ qPCR SYBR Green Master Mix	500 rxn / 2,500 rxn (20 μl/rxn)	Q111-02/03
AceQ Universal SYBR qPCR Master Mix	500 rxn / 2,500 rxn (20 μl/rxn)	Q511-02/03
Hot Taq Pro Universal SYBR qPCR Master Mix	500 rxn / 2,500 rxn (20 μl/rxn)	Q712-02/03

qPCR Master Mix (Probe)

Product Name	Size	Cat.No.#
AceQ qPCR Probe Master Mix	500 rxn / 2,500 rxn (20 μl/rxn)	Q112-02/03
Hot AceQ Universal U+ Probe Master Mix V2	500 rxn / 2,500 rxn (20 μl/rxn)	Q513-02/03
Hot ChamQ Geno-SNP Probe Master Mix	500 rxn / 2,500 rxn (20 μl/rxn)	Q811-02/03
Animal Detection U+ Probe Master Mix	400 rxn / 800 rxn (25 μl/rxn)	QV110-01/02
Taq Pro HS Probe Master Mix	500 rxn / 2,500 rxn (20 μl/rxn)	QN111-01/02
Taq Pro HS U+ Probe Master Mix	500 rxn / 2,500 rxn (20 μl/rxn)	QN112-01/02
Taq Pro HS Universal Probe Master Mix	500 rxn / 2,500 rxn (20 μl/rxn)	QN113-01/02
Taq Pro HS Universal U+ Probe Master Mix	500 rxn / 2,500 rxn (20 μl/rxn)	QN114-01/02

One-Step RT-qPCR Mix

Product Name	Size	Cat.No.#
HiScript II One Step qRT-PCR SYBR Green Kit	250 rxn (20 μl/rxn)	Q221-01
HiScript II One Step qRT-PCR Probe Kit	250 rxn (20 μl/rxn)	Q222-01
HiScript II U+ One Step qRT-PCR Probe Kit	250 rxn (20 μl/rxn)	Q223-01
Hot HiScript III U+ One Step qRT-PCR Probe Kit	100 rxn/1000 rxn/5000 rxn (30 μl/rxn)	Q225-01/02/03
Hot HiScript III U+ One Step qRT-PCR Probe 5 × Master Mix	100 rxn/1000 rxn/10000 rxn (20 μl/rxn)	Q611-01/02/03

miRNA qPCR

Product Name	Size	Cat.No.#
miRNA Universal SYBR qPCR Master Mix	125 rxn / 500 rxn (20 μl/rxn)	MQ101-01/02

Genome Editing

Genome Editing

Product Name	Size	Cat.No.#
Cas9 Nuclease	50 pmol / 250 pmol	EN301-01/02
T7 Endonuclease I	250 U / 1,250 U	EN303-01/02

In Vitro Transcription

Product Name	Size	Cat.No.#
T7 High Yield RNA Transcription Kit	50 rxn / 100 rxn	TR101-01/02
Hot T7 RNAi Transcription Kit	25 rxn / 50 rxn	TR102-01/02

Nucleic Acid Isolation

RNA Isolation (Column)

Product Name	Size	Cat.No.#
Hot FastPure Cell / Tissue Total RNA Isolation Kit V2	50 rxn	RC112
FastPure Cell / Tissue Total RNA Isolation Kit	50 rxn	RC101
Hot FastPure Plant Total RNA Isolation Kit (Polysaccharides & Polyphenolics-rich)	50 rxn	RC401

DNA Isolation (Column)

Product Name	Size	Cat.No.#
Hot FastPure Blood / Cell / Tissue / Bacteria DNA Isolation Mini Kit	50 rxn / 200 rxn	DC112-01/02
FastPure Blood DNA Isolation Mini Kit V2	50 rxn / 200 rxn	DC111-01/02
FastPure Cell / Tissue DNA Isolation Mini Kit	100 rxn	DC102
FastPure Bacteria DNA Isolation Mini Kit	100 rxn	DC103
FastPure Plant DNA Isolation Mini Kit	50 rxn	DC104
Lysozyme	200 mg	DE103-01

Tissue Stabilizer

Product Name	Size	Cat.No.#
RNA Keeper Tissue Stabilizer	100 ml	R501

Exosome Isolation

Product Name	Size	Cat.No.#
Hot VEX Exosome Isolation Reagent (from cell culture media)	50 ml	R601
VEX Exosome Isolation Reagent (from serum)	10 ml	R602
VEX Exosome Isolation Reagent (from plasma)	10 ml	R603

Cell Biology/Protein Research

Cell Counting

	Product Name	Size	Cat.No.#
Hot	CCK-8 Cell Counting Kit	500 rxn / 1,000 rxn (10 μl/rxn)	A311-01/02

Dual Luciferase Reporter Assay

	Product Name	Size	Cat.No.#
Hot	Dual Luciferase Reporter Assay Kit	100 rxn (100 μl/rxn)	DL101-01

Mycoplasma

	Product Name	Size	Cat.No.#
Hot	Myco-Blue Mycoplasma Detector	20 rxn / 50 rxn	D101-01/02

Protein Marker

	Product Name	Size	Cat.No.#
Hot	180 kDa Prestained Protein Marker	100 rxn / 500 rxn (5 μl/rxn)	MP102-01/02

Cell Apoptosis Detection

	Product Name	Size	Cat.No.#
	TUNEL FITC Apoptosis Detection Kit	20 rxn / 50 rxn / 100 rxn	A111-01/02/03
Hot	TUNEL BrightGreen Apoptosis Detection Kit	20 rxn / 50 rxn / 100 rxn	A112-01/02/03
	TUNEL BrightRed Apoptosis Detection Kit	20 rxn / 50 rxn / 100 rxn	A113-01/02/03
Hot	Annexin V-FITC/PI Apoptosis Detection Kit	50 rxn / 100 rxn	A211-01/02

Cell Transfection

Product Name	Size	Cat.No.#
Exfect Transfection Reagent	1 ml / 4 ml	T101-01/02

BCA Protein Quantification

	Product Name	Size	Cat.No.#
Hot	BCA Protein Quantification Kit	250 rxn / 500 rxn	E112-01/02

Instant Granules

	Product Name	Size	Cat.No.#
Hot	1 × PBS Instant particles (PH 7.4)	10 × 1L	G101-01
	1 × TAE Instant particles (PH 8.3)	10 × 1L	G102-01
	1 × TBE Instant particles (PH 8.5)	10 × 1L	G103-01

02

Applications

PCR

Selection Guide

Applications	Products (Cat.#)	Features	Applicable for
Conventional PCR	3G Taq Master Mix for PAGE (Red Dye) (#P115) Green Taq Mix (#P131)	No 3' → 5' exonuclease activity. Excellent compatibility. Products contain A at 3'-end.	Colony PCR; Large-scale gene identification; TA Cloning for small fragments.
High-Yield PCR	2 × Taq Plus Master Mix (#P211) 2 × Taq Plus Master Mix II (Dye Plus) (#P213)	With fidelity 6-fold higher than Taq. Mixed products with 3'-end blunt or containing A.	PCR that requires some fidelity.
Rapid PCR	2 × Rapid Taq Master Mix (#P222)	Amplification speed: up to 15 sec/kb.	Colony PCR.
Long-Fragment PCR	2 × Vazyme LAmp Master Mix (#P311) 2 × Vazyme LAmp Master Mix (Dye Plus) (#P312)	Efficiently amplify fragments > 20 kb.	Long-fragment amplification.
Hot-Start PCR	Champagne Taq DNA Polymerase (#P122) Taq Pro HS DNA Polymerase (#PN101) Taq Pro HS U+ Master Mix (#PN112)	Excellent specificity. Excellent sensitivity.	Amplification that requires higher sensitivity and specificity; Amplification of genes with low copy or qPCR assay from complex templates (genomic DNA, cDNA).
Multiplex PCR	Multiplex PCR Kit (#PM101)	19-plex PCR in one single reaction.	Detection or typing of pathogens.
Direct PCR	One Step Mouse Genotyping Kit (#PD101) Blood Direct PCR Kit V2 (#PD103)	Easy and fast, without DNA purification.	One step mouse genotyping; Direct PCR from plant tissues; Direct PCR from blood.
High-Fidelity PCR	2 × Phanta Flash Master Mix (#P510) 2 × Phanta Flash Master Mix (Dye Plus) (#P520)	With super fidelity 81-fold higher than Taq; Rapid extension: ≤1 kb, 1 sec/kb; ≤10 kb, 4 - 5 sec/kb; >10 kb, 10 sec/kb	High-fidelity PCR. Amplification of templates with crude, uracil-containing and high GC-containing.

High-Fidelity PCR

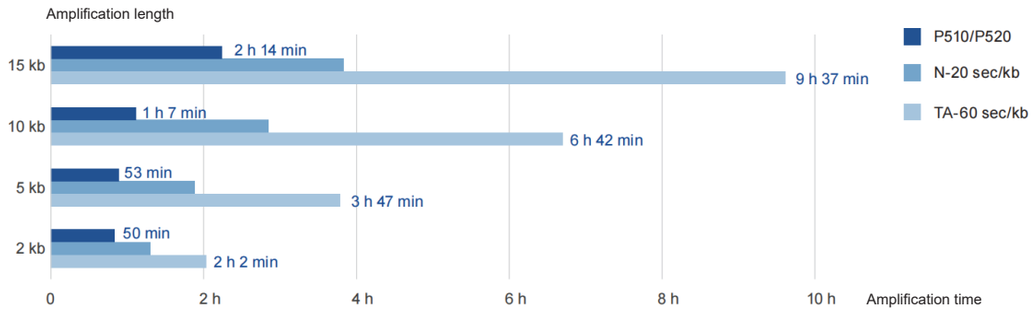
2 × Phanta Flash Master Mix (#P510)

2 × Phanta Flash Master Mix (Dye Plus) (#P520)

Features

- Amplification of fragments within 10 kb can be completed in 1 h.
- 81 × higher fidelity than Taq DNA polymerase.
- PCR products can be directly loaded for electrophoresis with no need for loading buffer.

Validation Data



Amplification speed: for DNA fragments ≤1 kb, 1 sec/kb; ≤10 kb, 4 - 5 sec/kb; >10 kb, 10 sec/kb

Selected Product Citations

Han X, Zhou Z, Fei L, et al. Construction of a human cell landscape at single-cell level. Nature. 2020 May;581(7808):303-309 .IF:43.07

Liu C, Shen L, Xiao Y, et al. Pollen PCP-B peptides unlock a stigma peptide-receptor kinase gating mechanism for pollination. Science. 2021 Apr 9;3 72(6538):171- 175.IF:41.84

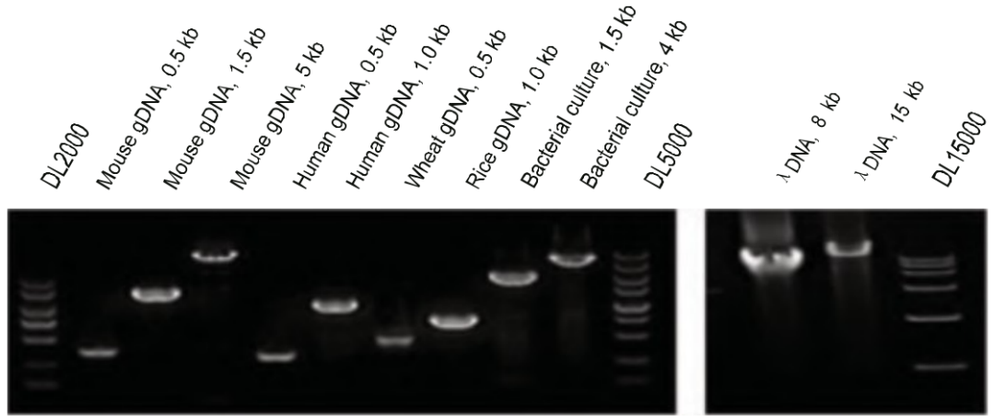
High-Yield PCR

2 × Taq Plus Master Mix II (Dye Plus) (#P213)

Features

- Robust performance for high-yield PCR in most primer-template systems.
- Ready-to-use master mix with no need for operations on ice.
- PCR products can be directly loaded for electrophoresis with no need for loading buffer.

Validation Data



2 × Taq Plus Master Mix II (Vazyme #P213) demonstrated excellent template compatibility. Fragments (0.5 kb to 15 kb) were amplified from genomic DNA (mouse, human, wheat, rice), bacterial culture, and λDNA, respectively. A specific corresponding band was observed in each PCR.

Selected Product Citations

Zhang X O, Wang H B, Zhang Y, et al. Complementary sequence-mediated exon circularization[J]. Cell, 2014, 159(1): 134-147.IF:33.116

Yuan H, et al. GyrI-like proteins catalyze cyclopropanoid hydrolysis to confer cellular protection. Nature Communications, 2017, 8(1).1485.IF: 12.124

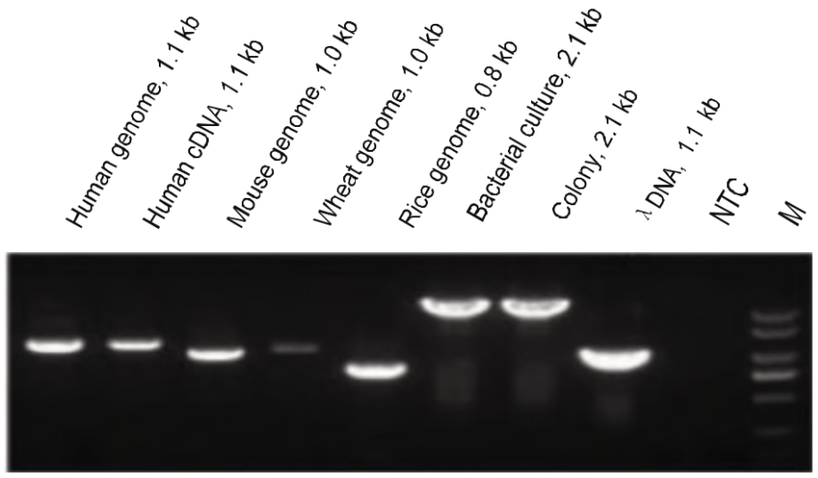
Rapid PCR

2 × Rapid Taq Master Mix (#P222)

Features

- **Rapid:** Amplification speed is 15 sec/kb, with an extreme speed of 1 sec/kb for fragments within 1 kb.
- Ready-to-use master mix with no need for operations on ice.
- PCR products can be directly loaded for electrophoresis with no need for loading buffer.
- **Excellent stability:** Remains stable after 50 freeze-thaw cycles.

Validation Data



Fragments (1 - 2 kb) was amplified from genomic DNA (human, mouse, wheat, rice), cDNA (human), bacterial culture, colony, and λDNA, respectively. The extension time was set as 1 sec/kb. 10 μl of PCR product was loaded for agarose gel electrophoresis. Specific bands were observed.

Selected Product Citations

Zhang B, Wang K B, Wang W, et al. Enzyme-catalysed [6+4] cycloadditions in the biosynthesis of natural products[J]. Nature, 2019, 568(7750): 122-126.IF:41.577

Jin S, Lin Q, Luo Y, et al. Genome-wide specificity of prime editors in plants[J]. Nature Biotechnology, 2021, 39(10): 1292-1299.IF:36.558

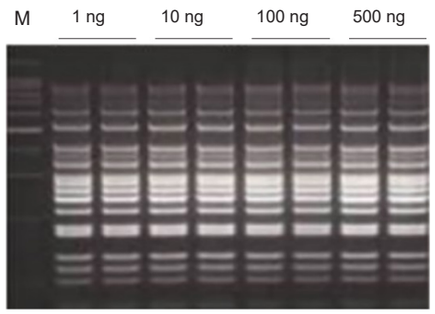
Multiplex PCR

Multiplex PCR Kit (#PM101)

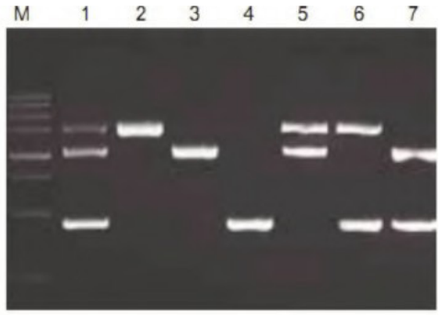
Features

- Multiplex: 19-plex PCR or even higher.
- Excellent target-to-target amplification uniformity and extremely low target preference.
- Highly sensitive amplification from trace amount of genomic DNA (≥ 1 ng).

Validation Data



Uniform amplification coverage of different regions. Human genomic DNA was used as template for 19-plex PCR. The size of the amplicons ranged from 70 bp to 916 bp. The result indicated that Multiplex PCR Kit (Vazyme #PM101) has a uniform amplification coverage of different regions for 1 - 500 ng of template.



The Multiplex PCR Kit showed excellent compatibility with fragment length. Mouse genomic DNA was used as template for amplification of 1.55 kb, 1.07 kb, and 0.45 kb fragments, respectively. The result indicated that Multiplex PCR Kit (Vazyme #PM101) is compatible with amplicons of various lengths in one single reaction system.

1: 3-plex PCR
2-4: 1-plex PCR
5-7: 2-plex PCR
M: DL5000 DNA Marker

Cloning / Mutagenesis

Selection Guide

Applications	Products (Cat.#)	Features	Applicable for
Fast Cloning	ClonExpress Ultra One Step Cloning Kit (#C115) ClonExpress II One Step Cloning Kit (#C112) ClonExpress MultiS One Step Cloning Kit (#C113)	Easy, fast, and efficient. No need to consider the restriction enzyme cutting sites on the inserts. Ligase-independent. Positive Clone Rate > 95%. Efficient cloning of fragments of 50 bp - 10 kb.	Cloning or assembly of 1-5 fragments.
fast site-directed mutagenesis	Mut Express II Fast Mutagenesis Kit V2 (#C214) Mut Express MultiS Fast Mutagenesis Kit V2 (#C215)	Efficient amplification of any plasmids within 20 kb. Site-directed mutations of 1-5 discontinuous sites in one reaction.	1-5 separate site-directed mutagenesis on one plasmid.
TOPO Cloning	5min TA/Blunt-Zero Cloning Kit (#C601)	Cloning within 5 min. Positive Clone Rate > 95%	TA cloning. cloning with blunt ends.

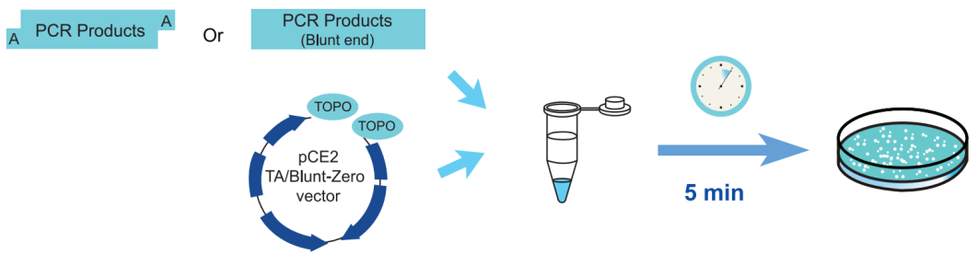
TOPO Cloning

5min TA/Blunt-Zero Cloning Kit (#C601)

Features

- Ready-to-use master mix.
- Suitable for both TA cloning and blunt-end cloning.
- Rapid cloning within 5 min.
- High cloning efficiency with Positive Clone Rate > 95%.
- Ampicillin and Kana dual resistance vector.

Workflow



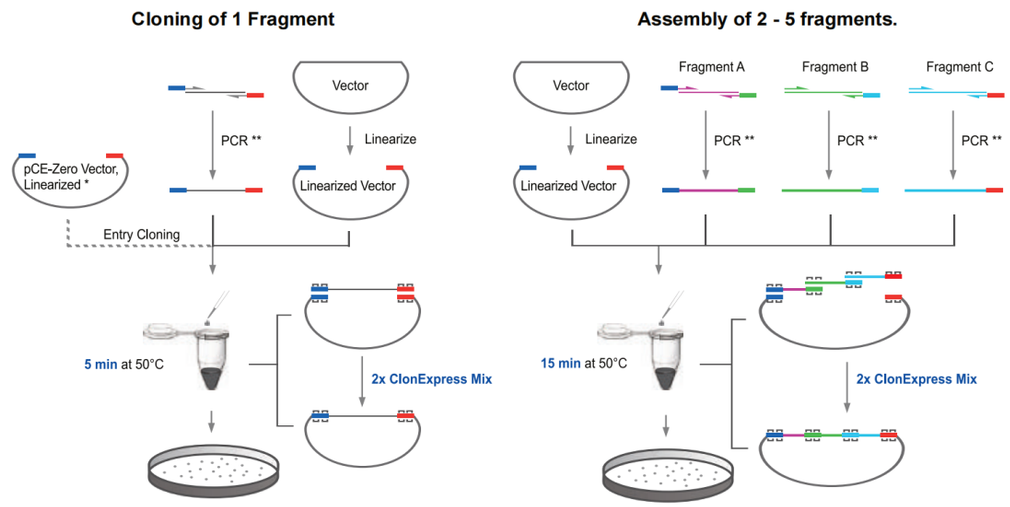
Fast Cloning

ClonExpress Ultra One Step Cloning Kit (#C115)

Features

- Cloning within 5 min.
- Ready-to-use super mix in one tube.
- Efficient cloning of fragments of 50 bp - 10 kb with Positive Clone Rate > 95%.
- Suitable for cloning of 1 fragment, assembly of 2 - 5 fragments, and entry cloning.
- Independent of DNA ligase, significantly reducing the self-ligated colonies.

Mechanism



* pCE-Zero Vector, Linearized, is supplied with ClonExpress Ultra One Step Cloning Kit (Vazyme #C115).

** It is highly recommended to use Vazyme's APP - "CE Design" - for easy primer design.

Selected Product Citations

Bi G, Su M, Li N,et al. The ZAR1 resistosome is a calcium-permeable channel triggering plant immune signaling. Cell. 2021 May 11 :S0092-8674(21)00600-0.IF:38.637

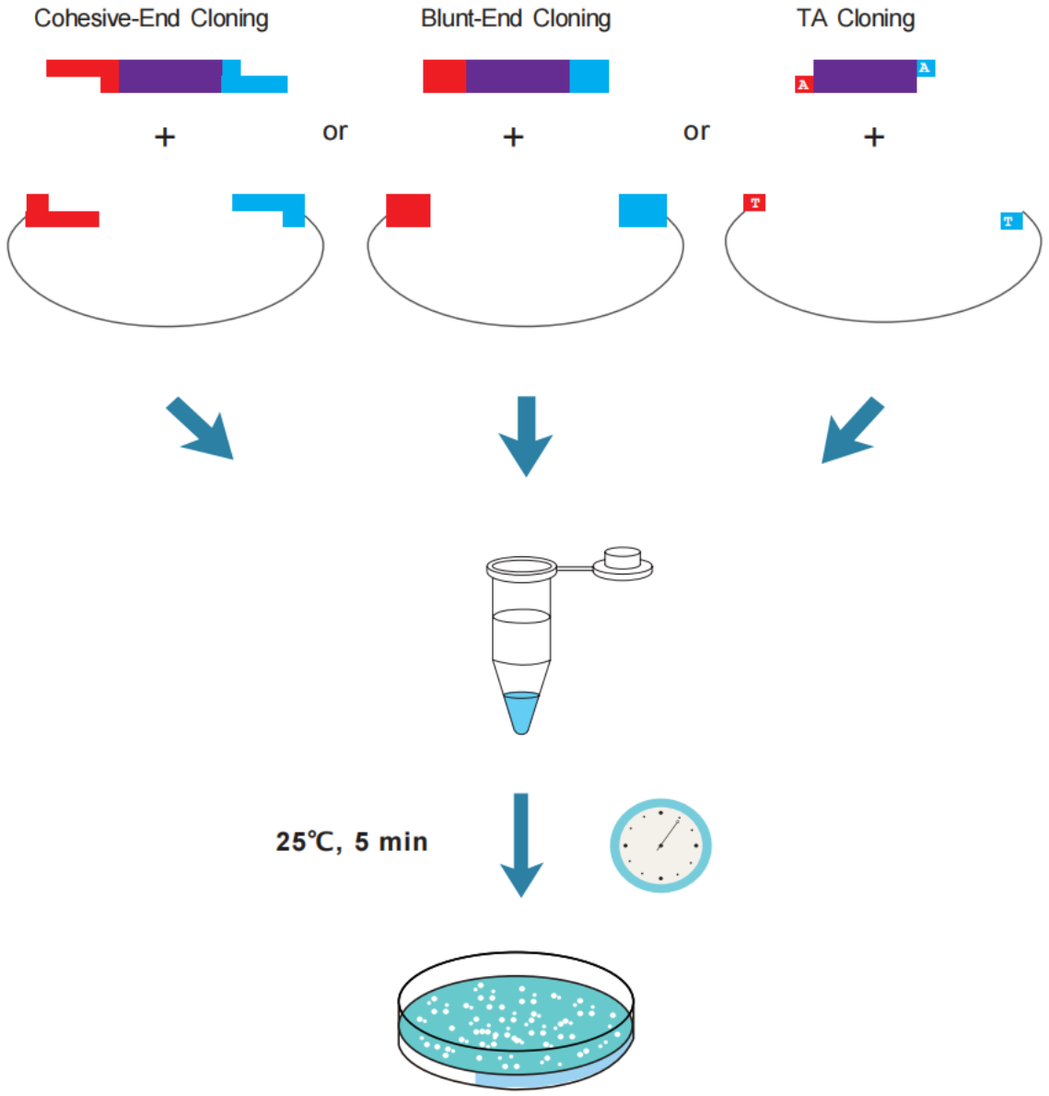
Jin S, Lin Q, Luo Y, et al. Genome-wide specificity of prime editors in plants. Nat Biotechnol. 2021 Apr 15.IF:36.558

5min Universal Ligation Mix (#C311)

Features

- **Versatile:** Suitable for TA cloning, blunt-end cloning, cohesive-end cloning, and ligation of linkers or adapters.
- **Fast:** Cloning within 5 min at 25℃ .
- **Efficient:** Positive Clone Rate > 95%.

Mechanism



Schematic of 5 min Universal Ligation Mix experiment process

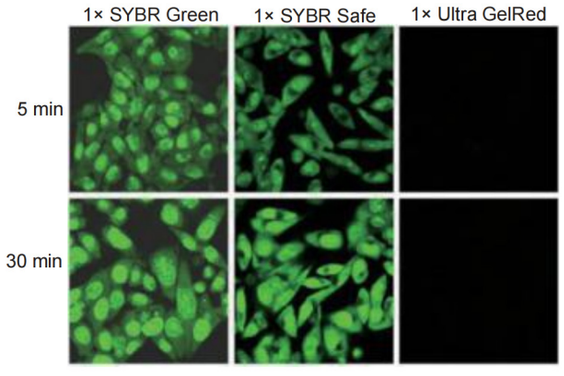
Nucleic Acid Electrophoresis

GelRed

Ultra GelRed (10,000 ×) (#GR501)

Perfect substitute forethidium bromide (EB)

No toxicity

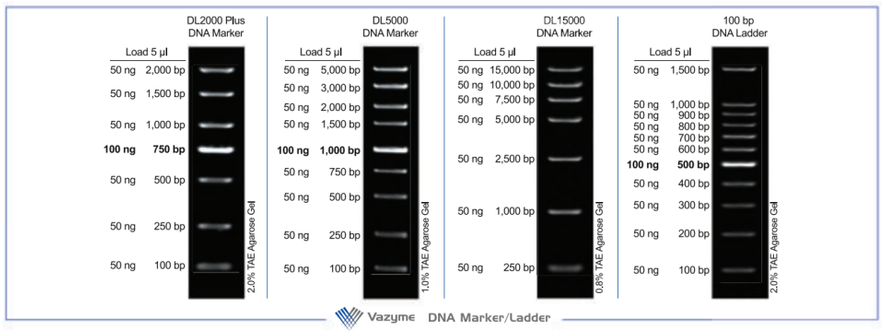


Ultra GelRed is unable to cross cell membranes.

DNA Marker/ Ladder

Stable

Clear Bands



Reverse Transcription

Selection Guide

Applications	HiScript I 1st Strand cDNA Synthesis Kit (R211)	HiScript II 1st Strand cDNA Synthesis Kit (+gDNA wiper) (R212)	HiScript II Q RT SuperMix for qPCR (R222)	HiScript II Q RT SuperMix for qPCR (+gDNA wiper) (R223)	HiScript II Q Select RT SuperMix for qPCR (R232)	HiScript II Q Select RT SuperMix for qPCR (+gDNA wiper) (R233)	HiScript III 1st Strand cDNA Synthesis Kit (+gDNA wiper) (R312)	HiScript III RT SuperMix for qPCR (+gDNA wiper) (R323)	HiScript III All-in-one RT SuperMix Perfect for qPCR (R333)
RT-qPCR			●	●	●	●		●	●
RT-PCR	●	●					●		
Features									
SuperMix			●	●	●	●		●	●
Long-fragment cDNA	●	●					●		
Rapid removal of Genomic DNA		●		●		●	●	●	●
Primers									
Oligo dT_{23} VN / N6 Mix			●	●				●	●
Optional	●	●			●	●	●		

	M-MLV (H-) (#R021)	HiScript II Reverse Transcriptase (#R201)	HiScript III Reverse Transcriptase (#R302)
Reaction temperature	37°C - 42°C	42°C - 55°C	37°C - 50°C
Thermal stability	☆☆☆	☆☆☆☆☆	☆☆☆☆
RNase H activity	No	No	No
cDNA length	2 kb - 3 kb	Up to 20 kb	Up to 20 kb
Template adaptability	☆☆☆	☆☆☆☆	☆☆☆☆☆
Crude material adaptability	☆☆☆	☆☆☆☆	☆☆☆☆☆

RT-qPCR SuperMix

HiScript III All-in-one RT SuperMix Perfect for qPCR (#R333)

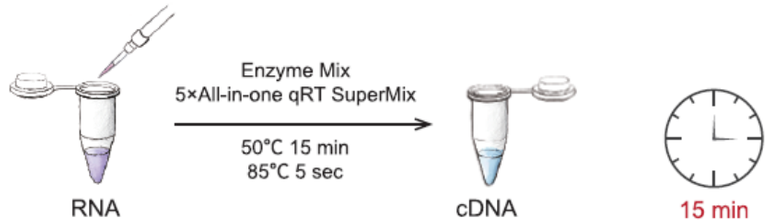
Features

- Heat-labile DNase, more thorough inactivation, more stable cDNA storage for a long time.
- Genomic DNA elimination and reverse transcription can be simultaneously completed in one step.
- Ready-to-use SuperMix: Reverse transcription within 15 min by only adding template RNA.

Validation Data

1.Easy & Fast

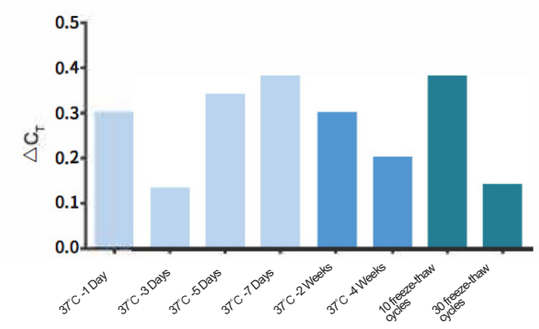
Genomic DNA elimination and reverse transcription can be simultaneously completed in one step.
Reverse transcription within 15 min by only adding template RNA.



2.Ultra-high cDNA stability

RNA of HeLa cells (100 ng) was reversed using HiScript III All-in-one RT SuperMix Perfect for qPCR (Vazyme #R333). The obtained cDNA was placed at 37°C for 7 days, at 4°C for 4 weeks, and 30 freeze-thaw cycles for stress testing, while the cDNA was stored at -20°C as a control. The cDNA after different treatments was analyzed by qPCR.

The results show that the quantitative $\triangle C_T$ obtained by cDNA under various pressure conditions are all within 0.5. This indicate that the cDNA reversed by Vazyme #R333 can be stored stably at 37 °C for 7 days, at 4 °C for 4 weeks, and freeze-thaw cycles for 30 times, without any influence on the integrity of the cDNA.



$\triangle C_T = C_T$(Processing cDNA under different conditions)-C_T(Store cDNA at -20°C)

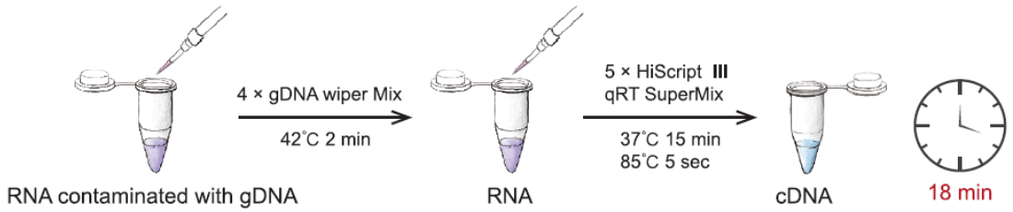
HiScript III RT SuperMix for qPCR (+gDNA wiper) (#R323)

Features

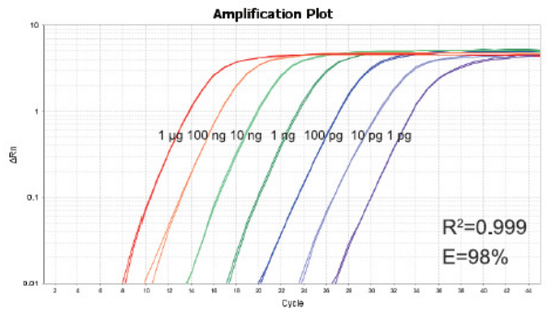
- Ready-to-use SuperMix: reverse transcription within 20 min by only adding template RNA.
- Excellent efficiency for low-input RNA or degraded RNA.
- Excellent tolerance for impurities (i.e. ethanol, isopropanol, phenol water, guanidine thiocyanate, humic acid).
- Lower C_T value and higher efficiency than most other commercially available reverse transcription reagents.

Validation Data

1.Easy & Fast



2.Excellent Sensitivity



RNA of HeLa cells was serially diluted and reverse transcribed using HiScript III RT SuperMix for qPCR (+gDNA wiper) (Vazyme #R323), followed by qPCR detection of gene ACTB. The results show an excellent linear relationship across a wide range of RNA concentrations. The target gene (ACTB) was detected in 1 pg of RNA.

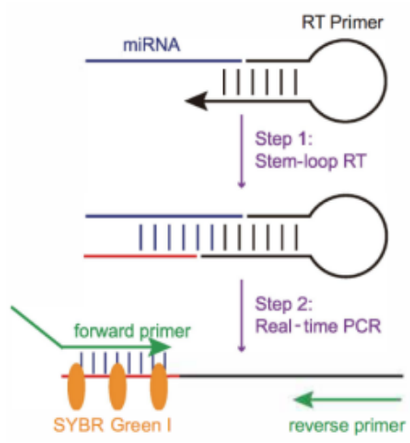
miRNA reverse transcription Kit

miRNA 1st Strand cDNASynthesis Kit (by stem-loop) (#MR101)

Features

- It has good linear relationship over a wide range of templates. Detects down to pg level of RNA template.
- Suitable for microRNA reverse transcription and qPCR experiments (Optimal Buffer composition and concentration).
- Supporting primer design software is provided to make primer design more convenient.

Mechanism



Schematic of stem-loop microRNA reverse transcription and quantification

qPCR

Selection Guide

Applications	Products (Cat.#)	Features
SYBR	Taq Pro Universal SYBR qPCR Master Mix (#Q712)	Ultra-high amplification plateau value Universal
Probe	AceQ Universal U+ Probe Master Mix V2 (#Q513)	Excellent linear relationship dUTP/Heat-labile UDG system
	Animal Detection U+ Probe Master Mix (QV110)	Upgraded Hot-start Taq compatible with fast program
	Taq Pro HS U+ Probe Master Mix (QN112)	Upgraded template affinity Excellent resistance to blood impurities
SNP (TaqMan MGB Probe)	ChamQ Geno-SNP Probe Master Mix (#Q811)	Universal Anti-contamination

qPCR Master Mix (SYBR)

Taq Pro Universal SYBR qPCR Master Mix (#Q712)

Best Combination of **Specificity + Sensitivity**

Features

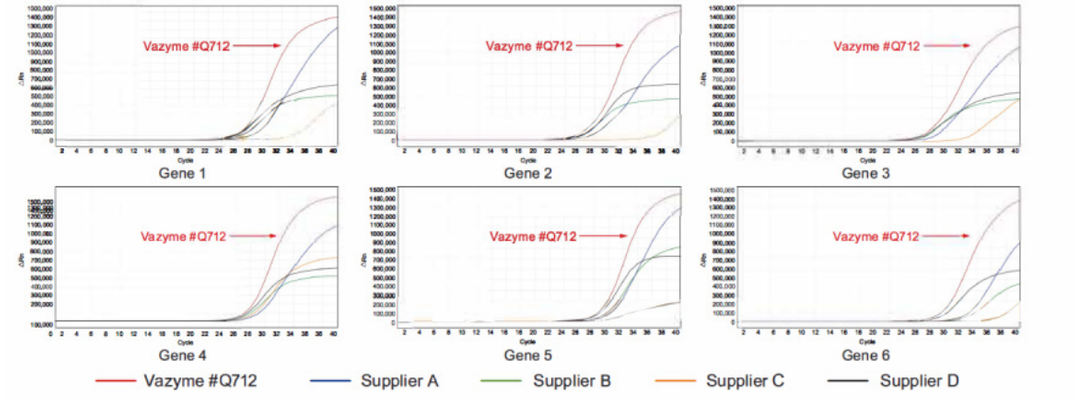
- Ultra-high amplification plateau value
- Amplification yield improvement
- Special ROX reference dye
- Universal

Validation Data

Ultra-high amplification plateau value.

With Hela cDNA as the template, six different genes were amplified under the same reaction conditions using TaqPro Universal SYBR qPCR Master Mix (Vazyme #Q712)and other commercially available dye qPCR reagents (from Supplier A, B, C, D).

The results show that the Vazyme #Q712 Master Mix has high sensitivity, high yield of amplification products and Ultra-high plateau value compared with similar products in different amplification systems.



qPCR Master Mix (Probe)

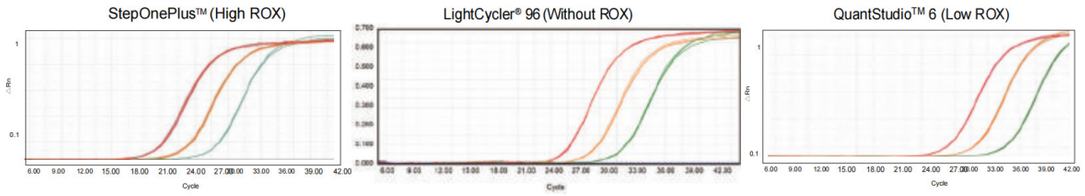
AceQ Universal U+ Probe Master Mix V2 (#Q513)

Features

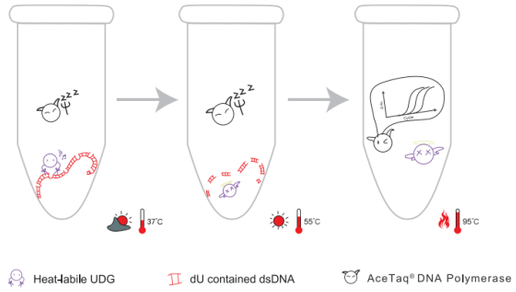
- Excellent sensitivity: Hot-start AceTaq and optimal buffer ensure high sensitivity and effectively inhibit non-specific amplification.
- Excellent linear relationship over a large range of input amount of template. Suitable for the detection of single-copy templates.
- Anti-contamination: The dUTP/UDG system eliminates possible contaminations and ensures reliable results.
- Universal: applicable for almost all qPCR instruments.

Validation Data

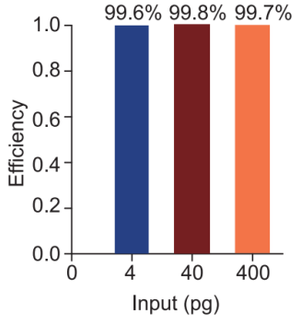
1.Applicable for almost all qPCR instruments.



2.dUTP/UDG system.



Working principle of dUTP/ Heat-labile UDG



For Vazyme #Q513, the removal rate of the contaminated template is as high as 99.6%, effectively ensuring the accuracy of experimental results. U-containing templates (4 pg, 40 pg, 400 pg) were added respectively to the reaction system to evaluate the removal efficiency of the contaminated template by Vazyme #Q513.

Animal Detection U+ Probe Master Mix (#QV110)

Features

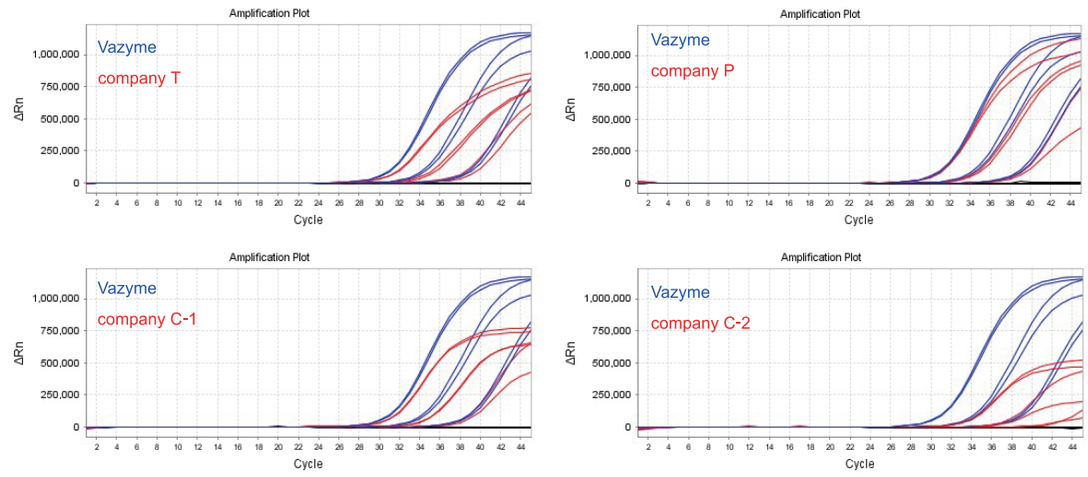
- Excellent sensitivity: Upgraded Hot-start Taq DNA polymerase with optimal buffer system improves the detection sensitivity of low-concentration templates.
- Anti-contamination: The dUTP/Heat-labile UDG system eliminates possible contaminations and ensures reliable results.
- Test results within 40 minutes, compatible with fast program.

Validation Data

Excellent amplification sensitivity and compatibility.

African swine fever virus DNA was used as a template for three 10-fold gradient dilution. Animal Detection U+ Probe Master Mix (Vazyme #QV110) and other brand probe qPCR reagents (from A/B/C company) were used to detect the target genes in each dilution gradient.

Vazyme #QV110 reagent shows excellent performance, when multiple systems are tested under the same reaction conditions. The following figure is one of the system test results:



Taq Pro HS U+ Probe Master Mix (#QN112)

Features

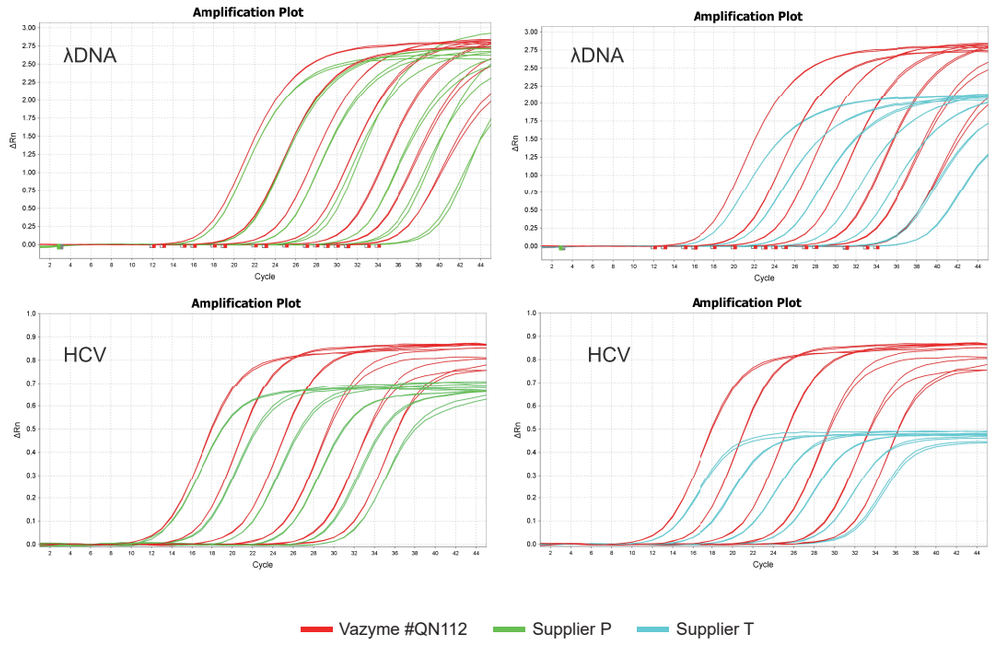
- Excellent sensitivity: Hot-start DNA polymerase (upgraded template affinity) with optimal buffer system improves the detection sensitivity of low-concentration templates.
- Anti-contamination: The dUTP/Heat-labile UDG system eliminates possible contaminations and ensures reliable results.
- Good amplification performance in blood-related impurity samples.
- Compatible with fast program to improve detection efficiency.

Validation Data

Excellent amplification sensitivity.

HCV plasmid and λDNA were used as templates. Taq Pro HS U+ Probe Master Mix (Vazyme #QN112) and other commercially available brand probe method qPCR reagents (respectively from Supplier A/B) were used to amplify HCV plasmid and DNA genome under the same reaction conditions.

The results show that compared with similar products, Vazyme #QN112 premix has higher amplification sensitivity. Vazyme #QN112 has a wider range of template quantification, leading to a significant advantage in low-concentration template amplification.



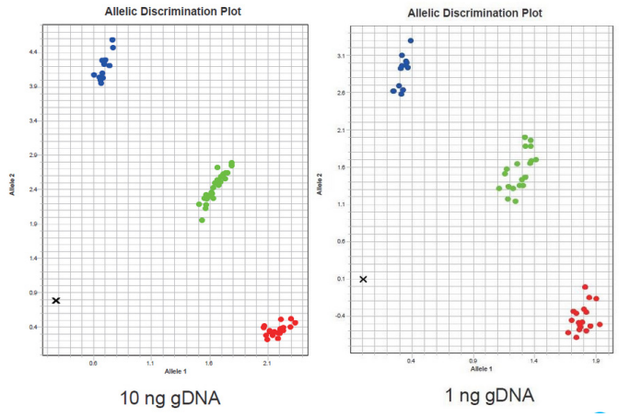
ChamQ Geno-SNP Probe Master Mix (#Q811)

Features

- Compatible with 1 - 10 ng of input genomic DNA.
- Accurate genotyping of SNP sites with GC-content of 25% - 73%.
- Excellent stability: stable signal and accurate genotyping results can be obtained both 72 h pre-PCR and 72 h post-PCR.
  - ***72 h pre-PCR:** PCR reaction solutions were prepared and left in darkness (at room temperature) for 72 h before PCR;
  - ***72 h post-PCR:** after PCR, the samples were left in darkness (at room temperature) for 72 h.
- Blood lysate can be directly used as a template for SNP genotyping, with no need for blood genomic DNA extraction.

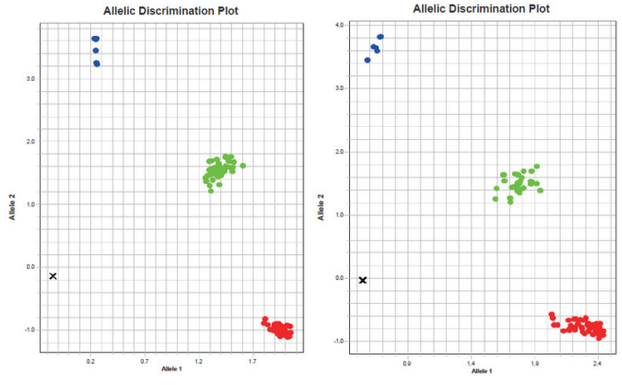
Validation Data

1.Flexible input amounts.



10 ng gDNA　　1 ng gDNA

2.Direct genotyping with blood lysate.



Blood genomic DNA　　Blood lysate

Nucleic Acid Isolation

Selection Guide

Category	Series	Sample / Application	Products	Cat.#
DNA Isolation & Purification	DNA Extraction (Column)	Blood / Cell / Tissue / Bacteria	FastPure Blood/Cell/Tissue/Bacteria DNA Isolation Mini Kit	DC112
		Blood	FastPure Blood DNAIsolation Mini Kit V2	DC111
		Cell / Tissue	FastPure Cell/Tissue DNA Isolation Mini Kit	DC102
		Bacteria	FastPure Bacteria DNA Isolation Mini Kit	DC103
		Plant	FastPure Plant DNA Isolation Mini Kit	DC104
		Lysozyme	Lysozyme	DE103
RNA Isolation & Purification	RNA Tissue Keeper	RNA Keeper for fresh tissue	RNA Keeper Stabilizer	R501
	Column RNA Extraction	Cell / Tissue Total RNA	FastPure Cell/Tissue Total RNA Isolation Kit V2	RC112
			FastPure Cell/Tissue Total RNA Isolation Kit	RC101
		Polysaccharide & Polyphenol-rich Plant total RNA	FastPure Plant Total RNA Isolation Kit (Polysaccharides & Polyphenolics-rich)	RC401
Exosome Isolation	Cell supernatant		VEX Exosome Isolation Reagent (from cell culture media)	R601
	Serum		VEX Exosome Isolation Reagent (from serum)	R602
	Plasma		VEX Exosome Isolation Reagent (from plasma)	R603

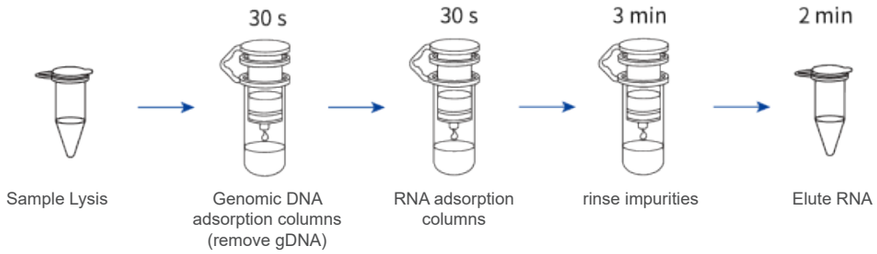
Cell and tissue RNA Isolation

FastPure Cell/Tissue Total RNA Isolation Kit V2 (#RC112)

Features

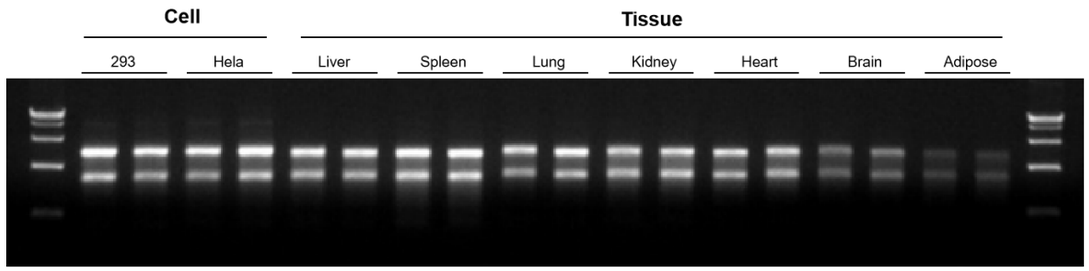
- Safe and non-toxic: no need for toxic and harmful reagents such as beta-mercaptoethanol and phenol/chloroform.
- Fast: operation takes only 6 minutes at room temperature.

Workflow



Total 6 min

Validation Data



Total RNA was extracted using Vazyme #RC112 from 9 samples including 293 cells, HeLa cells, and liver, spleen, lung, kidney, heart, brain of rat, and adipose tissue of mice. The RNA products were loaded for agarose gel electrophoresis. Vazyme #RC112 showed great compatibility with different cell and tissue samples.

Plant RNA Isolation

FastPure Plant Total RNA Isolation Kit (Polysaccharides & Polyphenolics-rich) (#RC401)

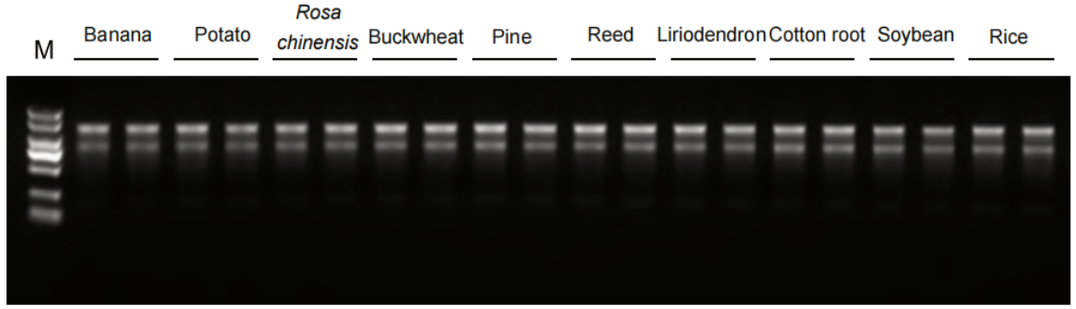
Features

- High purity.
- Rapid extraction of total RNA from plant tissues, especially from those rich in polysaccharide & polyphenol.
- Low genomic DNA residue.

Validated Samples

Pine needles, Eriobotrya japonica leaves, potato tubers, grape fruits, apples, pears, tobacco leaves, mature leaves and roots of wheat, peach fruit, lotus, chrysanthemum rhizome, bananas, Rosa chinensis, buckwheat leaves and seeds, poplar, Catharanthus roseus leaves, liriodendron, reed, rice plant, roots and leaves of cotton, strawberry leaf, Phoebe neurantha leaves, ginkgo (root, leaf, flower and fruits), Arabidopsis seeds, corn seeds, fungal hyphae, etc.

Validation Data



Total RNA was extracted using Vazyme #RC401 from 50 mg of banana fruit, potato tubers, rose petals, pine needles, reed leaves, Liriodendron leaves, cotton roots, soybean leaves, rice leaves, or 20 mg of buckwheat seed, respectively. The RNA products were loaded for agarose gel electrophoresis. Vazyme #RC401 showed great compatibility to above plants, especially to those that were rich in polysaccharide & polyphenol, and the RNA extracted using Vazyme #RC401 was with good integrity and high yield.
M: DL2000 Plus DNA Marker (Vazyme #MD101). The elution volume was 100 μl and the loading amount was 4 - 10 μl for agarose gel electrophoresis.

Blood, Cell, Tissue and Bacteria DNA Isolation

FastPure Blood/Cell/Tissue/Bacteria DNA Isolation Mini Kit (#DC112)

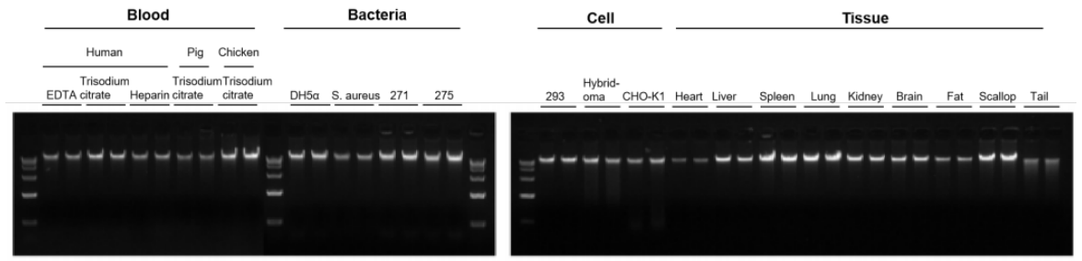
Features

- High quality and integrity.
- Suitable for direct DNA extraction from a variety of fresh or frozen anticoagulant, cell, animal tissue and bacterial samples.
- Fast: Animal tissue offers a 30-minute fast extraction protocol.

Validated Samples

Blood: Human EDTA, heparin sodium, sodium citrate anticoagulant blood, pig blood, chicken blood and other fresh or frozen anticoagulant blood;
Bacteria: DH5α, Staphylococcus aureus (S. aureus), etc;
Cells: Human 293 cells, mouse hybridoma cells, hamster CHO-K1 cells, etc;
Tissue: heart, liver, spleen, lung, kidney, brain of rat, fat and tail of mouse, scallop and other tissues.

Validation Data



The genomic DNA was extracted from the above samples using Vazyme #DC112, including 200 μl human blood samples with EDTA, heparin sodium, and sodium citrate, 200 μl pig blood, 20 μl chicken blood, etc. The results show that Vazyme #DC112 has a wide range of sample compatibility and can perform high-quality extraction of genomic DNA from different species.
M: DL15000 DNA Marker (Vazyme #MD103). The elution volume was 100 μl and the loading amount was 160 - 180 ng for agarose gel electrophoresis.

Cell Biology / Protein Research

Selection Guide

Category	Series	Application	Products (Cat.#)
Cell	Apoptosis detection	TUNEL method Applicable to cells: Round coverslips, cell smears; Tissue: Paraffin section, frozen section samples	A111
			A112
			A113
		Annexin method Suitable for cells: Suspension cells, adherent cell samples	A211
	Cell proliferation assay	For cell proliferation, cell viability, cytotoxicity assays	A311
	Dual-luciferase reporter gene assay	For cell signal transduction pathway, promoter/enhancer/transcription factor research, etc.	DL101
	Cell transfection	DNA transfection of multiple cells (adherent or suspension)	T101
	Mycoplasma Detection and Removal	Rapid detection of mycoplasma contamination in cell cultures: various suspension, adherent cultured cell; Wide compatibility with medium and serum types	D101
Protein	Protein Marker	It can be used to judge the molecular weight of 10-180 kDa Western Blot target protein and the transfer efficiency of Western Blot.	MP102
	Bradford protein quantification	Protein concentration determination	E111
		Protein Concentration Determination (Detergent Resistance)	E211
	BCA protein quantification	Protein Concentration Determination (Detergent Resistance)	E112

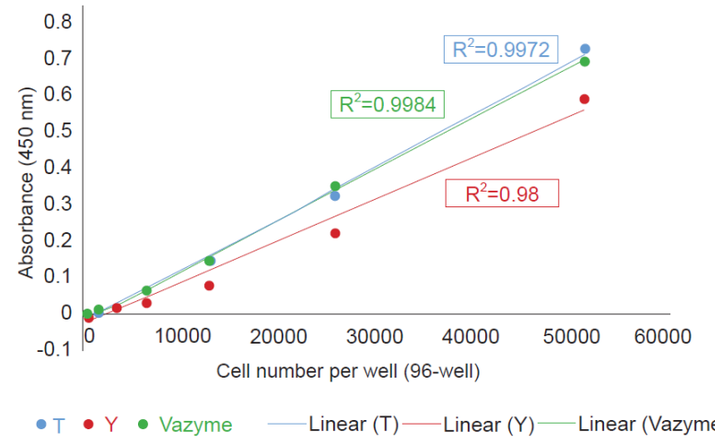
Cell Counting

CCK-8 Cell Counting Kit (#A311)

Features

- Ready-to-use solution.
- High sensitivity, with excellent linear correlation and repeatability.
- Low cytotoxicity.

Validation Data



HEK293 suspension cells were serially diluted and inoculated to a 96-well plate. The cell density in each group (n = 3) is: 0, 400, 800, 1600, 3200, 6400, 12800, 25600, 51200 cells per well. CCK-8 reagents from Vazyme (#A311 green), Supplier T (blue), and Supplier Y (red) were used for cell counting, respectively. The R^2 value of Vazyme #A311 is > 0.99.

Selected Product Citations

Zheng Q, et al. Thiopeptide antibiotics exhibit a dual mode of action against intracellular pathogens by affecting both host and microbe. Chemistry & Biology, 2015, 22(8):1002-7.
Liu Z, et al. Adiponectin reduces ER stress-induced apoptosis through PPARα transcriptional regulation of ATF2 in mouse adipose. Cell Death & Disease, 2016, 7(11):e2487.

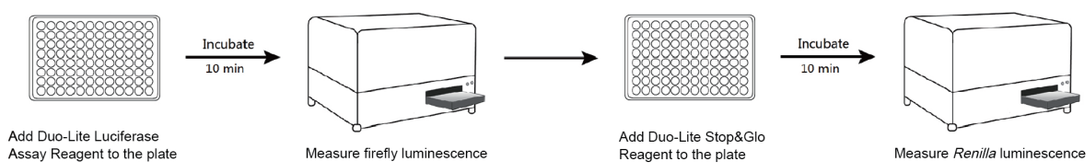
Luciferase Assay

Duo-Lite Luciferase Assay System (#DD1205)

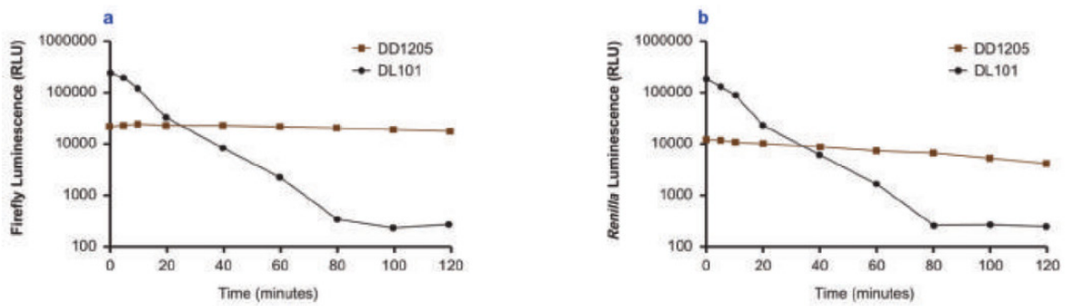
Features

- Easy to operate: The experiment could be completed by two steps: adding sample and reading plate. There is no need for cell lysis.
- Stable signal: Glow-type kit with 2 h half-life of fluorescence. Suitable for high-throughput operation.
- High accuracy: The system contains Renilla luciferase, which could correct the errors that caused by differences among cell number, transfection efficiency and cell growth state.

Workflow



Validation Data



Sample: HEK293 cells co-transfected with firefly + plasmid (96 well plate incubate)

Experimental design: Detect the dynamic change of fluorescent values of glow-type kit (Vazyme #DD1205) and flash-type kit (Vazyme #DL101) within 120 min simultaneously.

Conclusion: Compared with flash-type kit (Vazyme #DL101), glow-type kit (Vazyme #DD1205) shows higher light stability. The half-life of fluorescence is up to 2 h.

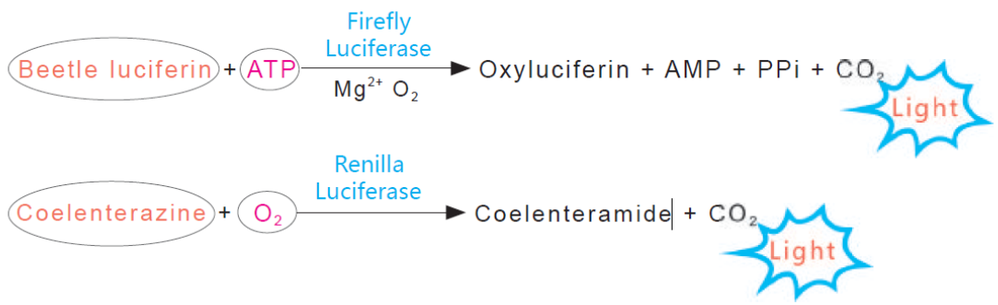
Luciferase Assay

Dual Luciferase Reporter Assay Kit (#DL101)

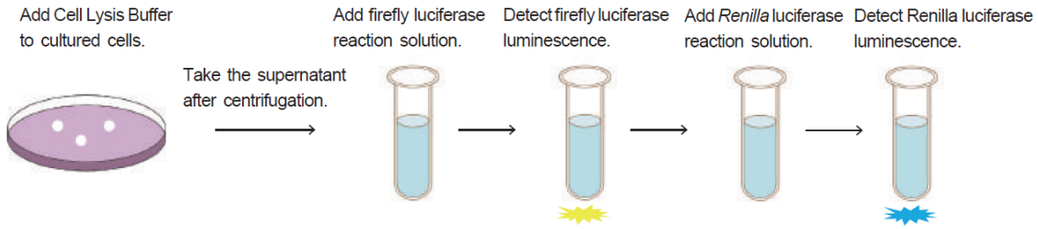
Features

- Robust luminescent signals: applicable for analysis of weak promoters and other genetic regulatory elements.
- Detection linear range covers up to 8 orders of magnitude ($R^2 > 0.99$).
- Detection sensitivity of 10^{-18} mol.

Mechanism



Workflow



Selected Product Citations

Chen S, Wu JL, Liang Y, et al. Arsenic Trioxide Rescues Structural p53 Mutations through a Cryptic Allosteric Site. Cancer Cell. 2020 Dec 7: S1535-6108(20)30605-X.IF:26.602

Lin JW, Tang C, Wei HC,et al. Genomic monitoring of SARS-CoV-2 uncovers an Nsp1 deletion variant that modulates type I interferon response. Cell Host Microbe.2021 Mar 10;29(3):489-502.eB.IF:15.923

Mycoplasma Detection

Myco-Blue Mycoplasma Detector (#D101)

Features

- Cell culture supernatant can be used directly for detection.
- Results are obtained after incubation at 60℃ for 1 h and can be determined by visual observation.
- Accuracy is higher than PCR method, and comparable to qPCR method.
- Suitable for detection of all kinds of mycoplasma that are commonly found in cell culture.

Validated Cell Lines

Validated cells and media serum include (but are not limited to):

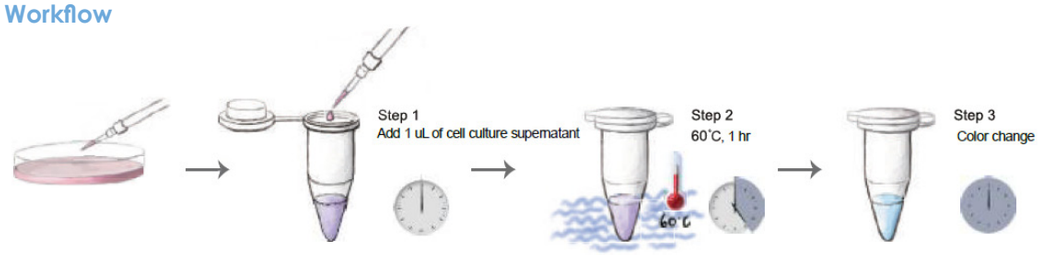
*Suspension cells: CHO, NS0, 293F, mouse hybridoma, Sf9, BHK21, etc.

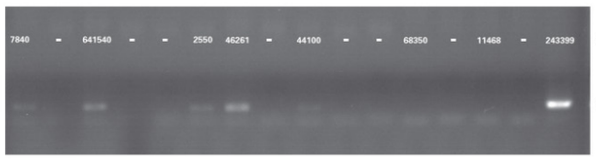
*Adherent cells: Vero, MDCK, SP2/0, 293T, HepG2, HeLa, A549, MB-MDA231, L929, MEF, etc.

*Medium: CD FortiCHO, CDM4, Expi 293 Medium, CD Hybridoma, Grace, DMEM, 1640, F12, etc.

*Serum: fetal calf / calf serum; horse serum; Gibco KSR serum replacement, etc.

Workflow





qPCR results. Positive is indicated by copy number (copies / μl supernatant); negative is indicated by "-".
PCR results.

Myco-Blue results.
Randomly selected 16 cell cultures, and mycoplasma were detected by three methods.

In Vitro Transcription

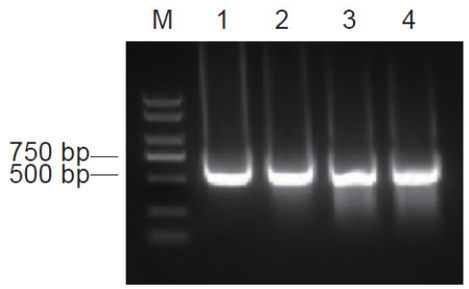
T7 RNAi Transcription Kit (#TR102)

Features

- High yield: yields up to 80 μg of dsRNA in a single reaction.
- Magnetic bead purification: recovery efficiency up to 80%.
- Able to transcribe both siRNA (21 bp) and dsRNA (long fragment).

Validation Data

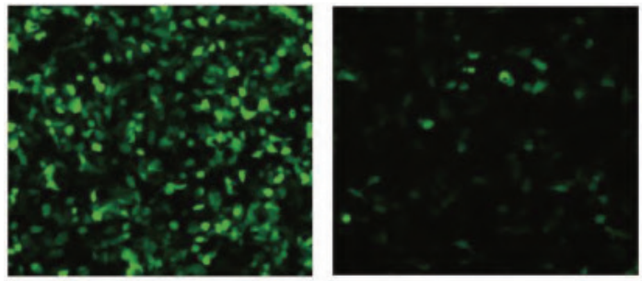
1.Excellent transcription efficiency.



Agarose gel electrophoresis (2%) of 500 bp dsRNA.

M: DL2000 Plus DNA Maker.
1and 3: products before and after enzymatic hydrolysis of dsRNA, respectively;
2and 4: products before and after enzymatic hydrolysis of dsRNA, respectively.

2.Knock-down of GFP expression by transcribed siRNA.



A B

293T cells were co-transfected for 24 h with both GFP plasmid and negative control GFP siRNA (A) or positive GFP siRNA (B).

03

Selected Product Citations

Nucleic Acid Isolation

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Reverse Transcription

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Genome Editing

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