
PCRBIOSYSTEMS
simplifying research
· PRODUCTS ·

PCR Biosystems offer a range of best-in-class kits and reagents for PCR and related technologies. By maintaining the highest levels of integrity, professionalism, innovation, and competitive pricing for our customers, we are leading the development of PCR.

Our PCR reagents combine enhanced polymerases with highly developed reaction buffers and proprietary hot start chemistry to maximise yield and sensitivity from the simplest to most challenging of reactions. We continuously invest in research and development to bring innovative, high-performing products to market, covering a range of techniques including real-time PCR, endpoint PCR, high fidelity PCR, hot start PCR, long PCR, PCR direct from crude samples and molecular diagnostic PCR.

Our products are developed, manufactured, and sold under a comprehensive quality management system in accordance with ISO 9001:2015 and ISO 13485:2016 international standards. Detailed competitor product comparisons show that on average we outperform all competitors in yield, specificity, sensitivity, and speed, giving your reaction the best chance of working as you want it to, first time.

QUALITY SYSTEM CERTIFICATION
DNV
ISO 9001
ISO 13485

CONTENTS

Real-Time **PCR**

- Sensitive
- Specific
- Fast

qPCRBIO **Selection Table**

	DNA Kits									RNA Kits					
	qPCRBIO SyGreen Mix | SyGreen Blue Mix Hi-ROX	qPCRBIO SyGreen Mix | SyGreen Blue Mix Lo-ROX	qPCRBIO SyGreen Mix | SyGreen Blue Mix Separate-ROX	qPCRBIO SyGreen Mix with Fluorescein	qPCRBIO Probe Mix | Probe Blue Mix Hi-ROX	qPCRBIO Probe Mix | Probe Blue Mix Lo-ROX	qPCRBIO Probe Mix | Probe Blue Mix Separate-ROX	qPCRBIO Probe Mix No-ROX	qPCRBIO HRM Mix	qPCRBIO SyGreen 1-Step Detect | 1-Step Go Hi-ROX	qPCRBIO SyGreen 1-Step Detect | 1-Step Go Lo-ROX	qPCRBIO Probe 1-Step Go | 1-Step Virus Detect Hi-ROX	qPCRBIO Probe 1-Step Go | 1-Step Virus Detect Lo-ROX	qPCRBIO Probe 1-Step Go | 1-Step Virus Detect No-ROX	qPCRBIO Probe 1-Step Go | 1-Step Virus Detect Separate-ROX
Agilent (Stratagene)															
AriaMX, AriaDX		●	●			●	●		●		●		●		●
MX3000P®, MX3005P®, MX4000P®		●	●			●	●				●		●		●
Analytik Jena															
qTOWER, qTOWER 2.x		●	●				●	●			●			●	●
BMS															
Mic		●	●				●	●	●		●			●	●
Bio-Rad®															
CFX96™, CFX384™, CFX WConnect™		●	●				●	●	●		●			●	●
Chromo4™, MiniOpticon™ , Opticon™, Opticon™ 2		●	●				●	●			●			●	●
iCycler®, iQ™ 5, MyiQ™				●			●	●						●	●
BJS															
Xxpress®		●	●				●	●			●			●	●
Cepheid®															
SmartCycler®		●	●				●	●			●			●	●
Eppendorf															
Mastercycler® ep realplex, Mastercycler® ep realplex 2S		●	●				●	●	●		●			●	●
Fluidigm															
BioMark™		●	●			●	●				●		●		●
Hain Lifescience															
FluoroCycler® 96		●	●				●	●			●			●	●
IT-IS Life Science															
MyGo Pro, MyGo Mini		●	●				●	●			●			●	●
PCRmax															
Eco™		●	●				●	●	●		●			●	●
Qiagen (Corbett)															
Rotor-Gene™ 3000, Rotor-Gene™ 6000, Rotor-Gene™ Q		●	●				●	●	◇		●			●	●
Roche															
LightCycler® 480, LightCycler® 96, LightCycler® Nano		●	●				●	●	●		●			●	●
Takara															
Thermal Cycler Dice® (TP800)		●	●				●	●			●			●	●
Techne®															
PrimeQ, Quantica®		●	●				●	●			●			●	●
Thermo Fisher (including Applied Biosystems and Life Technologies)															
5700, 7000, 7300, StepOne™, StepOne™ plus	●		●		●		●		◇	●		●			●
7500, 7500 FAST, QuantStudio™ 3, 5, 6, 7, 12k Flex, ViiA7™		●	●			●	●		◇		●		●		●
7700, 7900, 7900HT, 7900HT FAST	●		●		●		●		◇	●		●			●
Piko Real®		●	●				●	●			●			●	●

◇ qPCRBIO HRM Mix works with the following instruments:
Thermo Fisher: StepOne™, StepOne™plus, 7500 FAST, QuantStudio™ 6, 7, 12k Flex, ViiA7™, 7900HT FAST only Qiagen (Corbett): Rotor-Gene™ 6000, Rotor-Gene™ Q only

For bulk and custom services please contact info@pcrbio.com

qPCRBIO **SyGreen Mix**

- Sensitive
- Specific
- Fast

qPCRBIO SyGreen Mix combines a proprietary non-inhibiting intercalating dye with the latest advances in polymerase technology and buffer chemistry to give you fast, highly sensitive and reproducible real-time PCR.

Antibody-mediated hot start technology prevents the formation of primer dimers and non-specific products leading to improved reaction sensitivity and specificity with minimal or no optimisation required. qPCRBIO SyGreen Mix can be used to reliably quantify any DNA template including genomic, cDNA and viral sequences, and is able to detect extremely low copy number targets with the highest efficiency.

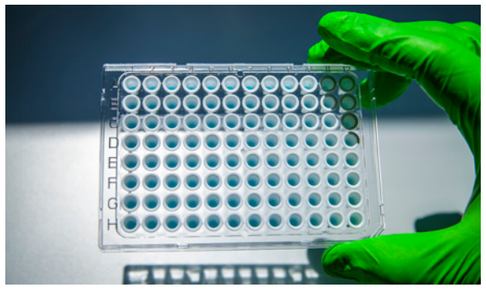


Figure 1. qPCRBIO SyGreen Blue Mix for greater pipetting precision

qPCRBIO SyGreen Blue Mix contains a non-reactive blue dye to assist researchers during pipetting, allowing greater visibility and precision without affecting PCR performance.

Features

- Non-PCR inhibiting intercalating dye
- Rapid extension rate for early Ct values
- Market-leading sensitivity
- Increased limit of detection
- Specific amplification from complex templates including GC and AT-rich sequences
- Also available as an easy-to-see blue mix
- Compatible with all standard and fast cycling real-time instruments

Applications

- Absolute quantification
- Relative gene expression analysis
- High-throughput PCR from genomic, cDNA and viral sequences
- Detection of extremely low copy number targets
- Crude sample PCR

qPCRBIO SyGreen Blue Mix	Pack size	Presentation	Cat. no.
qPCRBIO SyGreen Blue Mix Lo-ROX	100 x 20 µL reactions	1 x 1 mL	PB20.15-01
	500 x 20 µL reactions	5 x 1 mL	PB20.15-05
	2000 x 20 µL reactions	20 x 1 mL	PB20.15-20
	5000 x 20 µL reactions	1 x 50 mL bottle	PB20.15-50
	5000 x 20 µL reactions	50 x 1 mL in pouch	PB20.15-51
qPCRBIO SyGreen Blue Mix Hi-ROX	100 x 20 µL reactions	1 x 1 mL	PB20.16-01
	500 x 20 µL reactions	5 x 1 mL	PB20.16-05
	2000 x 20 µL reactions	20 x 1 mL	PB20.16-20
	5000 x 20 µL reactions	1 x 50 mL bottle	PB20.16-50
	5000 x 20 µL reactions	50 x 1 mL in pouch	PB20.16-51
qPCRBIO SyGreen Blue Mix Separate-ROX	100 x 20 µL reactions	[1 x 1 mL mix] & [1 x 200 µL ROX]	PB20.17-01
	500 x 20 µL reactions	[5 x 1 mL mix] & [1 x 200 µL ROX]	PB20.17-05
	2000 x 20 µL reactions	[20 x 1 mL mix] & [4 x 200 µL ROX]	PB20.17-20
	5000 x 20 µL reactions	[1 x 50 mL bottle mix] & [2 x 520 µL ROX]	PB20.17-50
	5000 x 20 µL reactions	[50 x 1 mL mix] & [2 x 520 µL ROX] in pouch	PB20.17-51

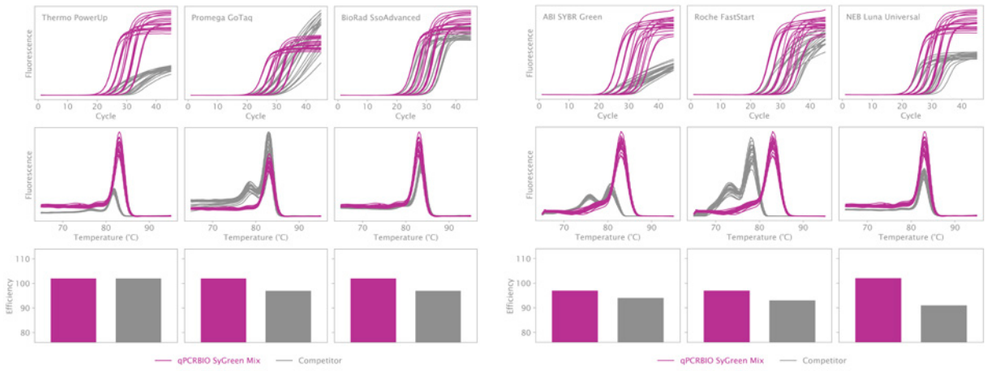


Figure 2.

Amplification of Beta-2 Microglobulin using qPCRBIO SyGreen Mix (purple curves). Amplification curves are shown in the top panel, melt curves are shown in the middle panel and the efficiencies of amplification are shown in the bottom panel. A direct, on-plate comparison was performed with the competitors identified in the top panel (grey curves). 5 serial dilutions of mouse cDNA template were used in a total reaction volume of 10 µL. Cycling conditions were those recommended by each of the competitors. qPCRBIO SyGreen Mix displays earlier Ct, cleaner melt peaks and better efficiency compared to each of the competitor mixes.

qPCRBIO SyGreen Mix	Pack size	Presentation	Cat. no.
qPCRBIO SyGreen Mix Lo-ROX	100 x 20 µL reactions	1 x 1 mL	PB20.11-01
	500 x 20 µL reactions	5 x 1 mL	PB20.11-05
	2000 x 20 µL reactions	20 x 1 mL	PB20.11-20
	5000 x 20 µL reactions	1 x 50 mL bottle	PB20.11-50
	5000 x 20 µL reactions	50 x 1 mL in pouch	PB20.11-51
qPCRBIO SyGreen Mix Hi-ROX	100 x 20 µL reactions	1 x 1 mL	PB20.12-01
	500 x 20 µL reactions	5 x 1 mL	PB20.12-05
	2000 x 20 µL reactions	20 x 1 mL	PB20.12-20
	5000 x 20 µL reactions	1 x 50 mL bottle	PB20.12-50
	5000 x 20 µL reactions	50 x 1 mL in pouch	PB20.12-51
qPCRBIO SyGreen Mix with Fluorescein	100 x 20 µL reactions	1 x 1 mL	PB20.13-01
	500 x 20 µL reactions	5 x 1 mL	PB20.13-05
	2000 x 20 µL reactions	20 x 1 mL	PB20.13-20
qPCRBIO SyGreen Mix Separate-ROX	100 x 20 µL reactions	[1 x 1 mL mix] & [1 x 200 µL ROX]	PB20.14-01
	500 x 20 µL reactions	[5 x 1 mL mix] & [1 x 200 µL ROX]	PB20.14-05
	2000 x 20 µL reactions	[20 x 1 mL mix] & [4 x 200 µL ROX]	PB20.14-20
	5000 x 20 µL reactions	[1 x 50 mL bottle mix] & [2 x 520 µL ROX]	PB20.14-50
	5000 x 20 µL reactions	[50 x 1 mL mix] & [2 x 520 µL ROX] in pouch	PB20.14-51

qPCRBIO **Probe Mix**

- Sensitive
- Specific
- Fast

qPCRBIO Probe Mix is a universal probe kit designed to give superior sensitivity and specificity in all probe-based real-time PCR assays including TaqMan®, Scorpions® and molecular beacon probes.

By combining antibody-mediated hot start technology with the latest advances in buffer chemistry we offer market-leading performance with minimal or no optimisation required. qPCRBIO Probe Mix can be used to reliably detect extremely low copy number targets and quantify any DNA template including genomic, cDNA and viral sequences. The enhanced sensitivity of qPCRBIO Probe Mix makes it the perfect choice for multiplexing.

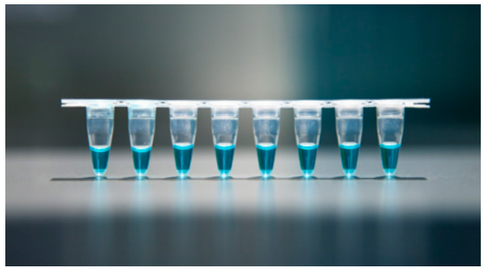


Figure 1. qPCRBIO Probe Blue Mix for greater pipetting precision

qPCRBIO Probe Blue Mix contains a non-reactive blue dye for easy sample visualisation and greater precision, particularly useful when loading small volume reactions.

Features

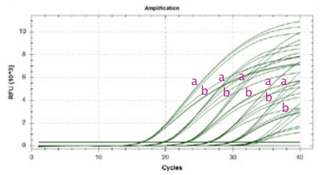
- High efficiency in multiplex reactions
- Rapid extension rate for early Ct values
- Market-leading sensitivity
- Increased limit of detection
- Efficient amplification from GC and AT-rich templates
- Also available as an easy-to-see blue mix
- Compatible with all standard and fast and cycling real-time instruments

Applications

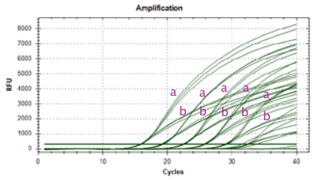
- Absolute quantification
- Relative gene expression analysis
- TaqMan®, Scorpions® and molecular beacon probes
- Detection of extremely low copy number targets
- Diagnostic real-time PCR
- Genotyping & allelic discrimination

qPCRBIO Probe Blue Mix	Pack size	Presentation	Cat. no.
qPCRBIO Probe Blue Mix Lo-ROX	100 x 20 µL reactions	1 x 1mL	PB20.25-01
	500 x 20 µL reactions	5 x 1mL	PB20.25-05
	2000 x 20 µL reactions	20 x 1mL	PB20.25-20
	5000 x 20 µL reactions	1 x 50mL bottle	PB20.25-50
	5000 x 20 µL reactions	50 x 1mL in pouch	PB20.25-51
qPCRBIO Probe Blue Mix Hi-ROX	100 x 20 µL reactions	1 x 1mL	PB20.26-01
	500 x 20 µL reactions	5 x 1mL	PB20.26-05
	2000 x 20 µL reactions	20 x 1mL	PB20.26-20
	5000 x 20 µL reactions	1 x 50mL bottle	PB20.26-50
	5000 x 20 µL reactions	50 x 1mL in pouch	PB20.26-51
qPCRBIO Probe Blue Mix Separate-ROX	100 x 20 µL reactions	[1 x 1mL mix] & [1 x 200 µL ROX]	PB20.27-01
	500 x 20 µL reactions	[5 x 1mL mix] & [1 x 200 µL ROX]	PB20.27-05
	2000 x 20 µL reactions	[20 x 1mL mix] & [4 x 200 µL ROX]	PB20.27-20
	5000 x 20 µL reactions	[1 x 50mL bottle mix] & [2 x 520 µL ROX]	PB20.27-50
	5000 x 20 µL reactions	[50 x 1mL mix] & [2 x 520 µL ROX] in pouch	PB20.27-51

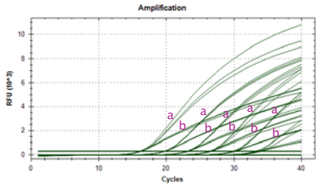
Experiment 1-qPCRBIO Probe Mix
a=Singleplex b=Quadplex



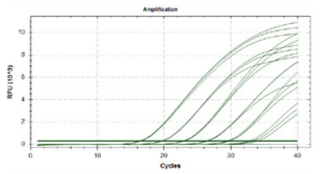
Experiment 2-Invitrogen EXPRESS
a=Singleplex b=Quadplex



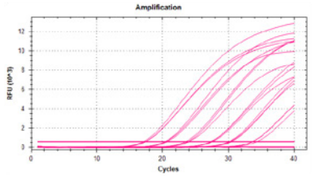
Experiment 3-Bio-Rad Ssofast Probe Mix
a=Singleplex b=Quadplex



Experiment 4-qPCRBIO Probe Mix
Singleplex sensitivity test ACVR2B



Experiment 5-qPCRBIO Probe Mix
Singleplex sensitivity test LIMK1



Experiment 6-qPCRBIO Probe Mix
Singleplex sensitivity test ACVR1B

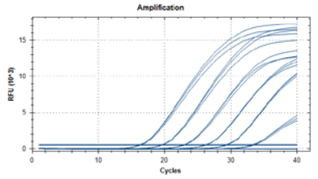


Figure 2.

Experiments 1-3 show TaqMan® probe amplification traces of human gene ACVR2B in singleplex and in quadplex (ACVR2B, LIMK1, ACVR1B and CDK7) from a cDNA dilution series. qPCRBIO Probe Mix shows the least PCR inhibition when in multiplex compared to Invitrogen and Bio-Rad mixes. This is evident in more delayed amplification traces in quadplex (b) compared to singleplex (a). Cycling conditions were 95 °C 2 min, 40 cycles of 95 °C 10 sec, 60 °C 15 sec on Biorad CFX instrument. Experiments 4, 5 and 6 show TaqMan® probe amplification traces from plasmid dilution series of $1x10^6$ copies to 10 copies of DNA. For each gene qPCRBIO Probe Mix amplified with 100% efficiency and detected 10 copies of DNA.

qPCRBIO Probe Mix	Pack size	Presentation	Cat. no.
qPCRBIO Probe Mix Lo-ROX	100 x 20 µL reactions	1 x 1 mL	PB20.21-01
	500 x 20 µL reactions	5 x 1 mL	PB20.21-05
	2000 x 20 µL reactions	20 x 1 mL	PB20.21-20
	5000 x 20 µL reactions	1 x 50 mL bottle	PB20.21-50
	5000 x 20 µL reactions	50 x 1 mL in pouch	PB20.21-51
qPCRBIO Probe Mix Hi-ROX	100 x 20 µL reactions	1 x 1 mL	PB20.22-01
	500 x 20 µL reactions	5 x 1 mL	PB20.22-05
	2000 x 20 µL reactions	20 x 1 mL	PB20.22-20
	5000 x 20 µL reactions	1 x 50 mL bottle	PB20.22-50
	5000 x 20 µL reactions	50 x 1 mL in pouch	PB20.22-51
qPCRBIO Probe Mix No-ROX	100 x 20 µL reactions	1 x 1 mL	PB20.23-01
	500 x 20 µL reactions	5 x 1 mL	PB20.23-05
	2000 x 20 µL reactions	20 x 1 mL	PB20.23-20
	5000 x 20 µL reactions	1 x 50 mL bottle	PB20.23-50
	5000 x 20 µL reactions	50 x 1 mL in pouch	PB20.23-51
qPCRBIO Probe Mix Separate-ROX	100 x 20 µL reactions	[1 x 1 mL mix] & [1 x 200 µL ROX]	PB20.24-01
	500 x 20 µL reactions	[5 x 1 mL mix] & [1 x 200 µL ROX]	PB20.24-05
	2000 x 20 µL reactions	[20 x 1 mL mix] & [4 x 200 µL ROX]	PB20.24-20
	5000 x 20 µL reactions	[1 x 50 mL bottle mix] & [2 x 520 µL ROX]	PB20.24-50
	5000 x 20 µL reactions	[50 x 1 mL mix] & [2 x 520 µL ROX] in pouch	PB20.24-51

qPCRBIO **Probe 1-Step Go**

- Thermostable reverse transcription
- Sensitive
- Early Ct

qPCRBIO Probe 1-Step Go uses the latest developments in enzyme technology and buffer chemistry to give fast, efficient cDNA synthesis and subsequent real-time PCR in a single tube.

This universal probe kit is engineered for use on a wide range of probe technologies and can be used to quantify any RNA template including mRNA, total RNA and viral RNA sequences. qPCRBIO Probe 1-Step Go is designed to give rapid and accurate results over a broad range of template concentrations and is ideally suited to the detection of RNA viruses including SARS-CoV-2.

The kit includes a thermostable and extremely active reverse transcriptase and advanced RNase inhibitor. Antibody-mediated hot start technology prevents primer dimer formation and non-specific amplification giving highly specific and ultra-sensitive real-time RT-PCR with unrivalled efficiency in multiplex.

Features

- High efficiency in multiplex reactions
- Thermostable reverse transcriptase 45 °C to 55 °C
- Advanced RNase inhibitor
- Rapid extension rate for early Ct values
- Market-leading sensitivity
- Increased limit of detection
- Antibody-mediated hot start PCR
- Compatible on all standard and fast cycling real-time PCR platforms
- Rapid and sensitive detection of RNA viruses including SARS-CoV-2

Applications

- Diagnostic real-time PCR
- Absolute quantification
- Relative gene expression analysis
- TaqMan®, Scorpions® and molecular beacon probes
- Detection of extremely low copy number targets
- Multiplex or singleplex

Product name	Pack size	Presentation	Cat. no.
qPCRBIO Probe 1-Step Go Lo-ROX	100 x 20 µL reactions	[1 x 1 mL mix] & [1 x 100 µL RTase Go]	PB25.41-01
	300 x 20 µL reactions	[3 x 1 mL mix] & [3 x 100 µL RTase Go]	PB25.41-03
	500 x 20 µL reactions	[1 x 5 mL mix] & [1 x 500 µL RTase Go]	PB25.41-05
	1200 x 20 µL reactions	[12 x 1 mL mix] & [12 x 100 µL RTase Go]	PB25.41-12
	5000 x 20 µL reactions	[1 x 50 mL mix] & [1 x 5 mL RTase Go]	PB25.41-50
	50000 x 20 µL reactions	[1 x 500 mL mix] & [1 x 50 mL RTase Go]	PB25.41-500

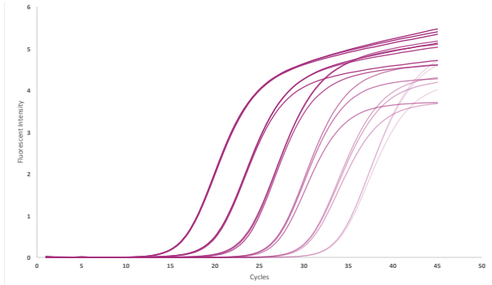


Figure 1. High efficiency and broad dynamic range

Shows TaqMan® probe amplification traces of mouse gene ACTB using mouse liver total RNA as template in triplicate. Template concentrations are 10x serial dilutions ranging from 10 pg to 1 µg total RNA per 20 µL reaction. Cycling conditions were 45 °C 10 min, 95 °C 3 min, then 45 cycles of 95 °C 10 sec, 60 °C 30 sec. qPCRBIO Probe 1-Step Go shows high efficiency over a broad dynamic range.

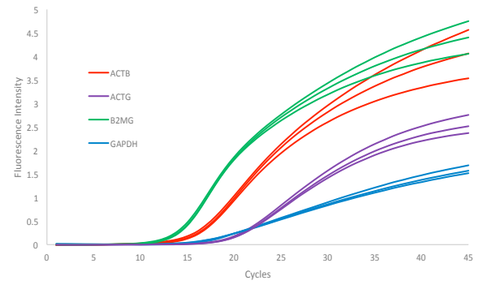


Figure 2. qPCRBIO Probe 1-Step Go in multiplex

Four mouse housekeeping genes were amplified simultaneously in a single multiplex reaction. 1 µg of mouse liver total RNA was used as template. Amplification was detected using TaqMan® probes in the following gene/probe combinations: B2MG/HEX, ACTB/Cy5, GAPDH/FAM, and ACTG/TexasRed. Cycling conditions were 45 °C 10 min, 95 °C 3 min, then 45 cycles of 95 °C 10 sec, 60 °C 30 sec. This demonstrates that the qPCRBIO Probe 1-Step Go mix can be used to quantify and compare expression levels of multiple genes in a single reaction.

Product name	Pack size	Presentation	Cat. no.
qPCRBIO Probe 1-Step Go Hi-ROX	100 x 20 µL reactions	[1 x 1 mL mix] & [1 x 100 µL RTase Go]	PB25.42-01
	300 x 20 µL reactions	[3 x 1 mL mix] & [3 x 100 µL RTase Go]	PB25.42-03
	500 x 20 µL reactions	[1 x 5 mL mix] & [1 x 500 µL RTase Go]	PB25.42-05
	1200 x 20 µL reactions	[12 x 1 mL mix] & [12 x 100 µL RTase Go]	PB25.42-12
	5000 x 20 µL reactions	[1 x 50 mL mix] & [1 x 5 mL RTase Go]	PB25.42-50
	50000 x 20 µL reactions	[1 x 500 mL mix] & [1 x 50 mL RTase Go]	PB25.42-500
qPCRBIO Probe 1-Step Go No-ROX	100 x 20 µL reactions	[1 x 1 mL mix] & [1 x 100 µL RTase Go]	PB25.43-01
	300 x 20 µL reactions	[3 x 1 mL mix] & [3 x 100 µL RTase Go]	PB25.43-03
	500 x 20 µL reactions	[1 x 5 mL mix] & [1 x 500 µL RTase Go]	PB25.43-05
	1200 x 20 µL reactions	[12 x 1 mL mix] & [12 x 100 µL RTase Go]	PB25.43-12
	5000 x 20 µL reactions	[1 x 50 mL mix] & [1 x 5 mL RTase Go]	PB25.43-50
	50000 x 20 µL reactions	[1 x 500 mL mix] & [1 x 50 mL RTase Go]	PB25.43-500
qPCRBIO Probe 1-Step Go Separate-ROX	100 x 20 µL reactions	[1 x 1 mL mix] & [1 x 100 µL RTase Go] & [1 x 200 µL ROX]	PB25.44-01
	300 x 20 µL reactions	[3 x 1 mL mix] & [3 x 100 µL RTase Go] & [1 x 200 µL ROX]	PB25.44-03
	1200 x 20 µL reactions	[12 x 1 mL mix] & [12 x 100 µL RTase Go] & [4 x 200 µL ROX]	PB25.44-12

qPCRBIO **Probe 1-Step Virus Detect**

- SARS-CoV-2 validated
- Ultra-sensitive
- Accurate

qPCRBIO Probe 1-Step Virus Detect is designed for ultra-sensitive detection of viral RNA using probe-based 1-step RT-qPCR. The kit has been optimised with a high-concentration 4x mix, enabling greater sample input and increasing sensitivity, even when working with small volume reactions.

Developed with a high-concentration 4x mix, qPCRBIO Probe 1-Step Virus Detect offers greater sensitivity, enabling more sample to be added, and for smaller reaction volumes to be used with confidence. The kit gives accurate and sensitive detection of viral sequences over a broad range of input RNA, down to 4 copies tested per reaction (0.8 copies per µL).

qPCRBIO Probe 1-Step Virus Detect uses UltraScript Reverse Transcriptase for fast and efficient cDNA synthesis up to 55 ºC. The PCR step is powered by PCRBIO HS Taq DNA Polymerase, which employs antibody-mediated hot start technology for specific amplification of virus-derived cDNA, with improved tolerance to the common PCR inhibitors found in clinical samples.

qPCRBIO Probe 1-Step Virus Detect contains all the components needed for rapid and accurate RT-qPCR, requiring only the addition of primers, probes, template and water. The kit is compatible with all qPCR instruments and a wide range of probe technologies, including TaqMan®, Scorpions® and molecular beacon probes.

Features

- Ultra-sensitive detection of RNA viruses
- Validated for qualitative detection of SARS-CoV-2 nucleic acid
- Concentrated 4x mix format, ideal for high-throughput, highly multiplexed assays
- Gives earlier detection of a wide range of template amounts
- Includes UltraScript RTase for thermostable reverse transcription up to 55 ˚C
- Advanced RNase inhibitor
- Antibody-mediated hot start technology
- Compatible with all real-time PCR platforms – standard and fast cycling conditions

Applications

- SARS-CoV-2 detection and research
- Diagnostic real-time PCR
- Detection of extremely low copy number targets
- High throughput assays
- Singleplex and multiplex
- TaqMan®, Scorpions® and molecular beacon probes

Product name	Pack size	Presentation	Cat. no.
qPCRBIO Probe 1-Step Virus Detect Lo-ROX	200 x 20 µL rxns	[1 x 1 mL mix] & [1 x 200 µL UltraScript]	PB25.51-01
	600 x 20 µL rxns	[3 x 1 mL mix] & [1 x 600 µL UltraScript]	PB25.51-03
	1000 x 20 µL rxns	[1 x 5 mL mix] & [1 x 1 mL UltraScript]	PB25.51-05
	10000 x 20 µL rxns	[1 x 50 mL mix] & [2 x 5 mL UltraScript]	PB25.51-50
	50000 x 20 µL rxns	[1 x 500 mL mix] & [1 x 100 mL UltraScript]	PB25.51-500

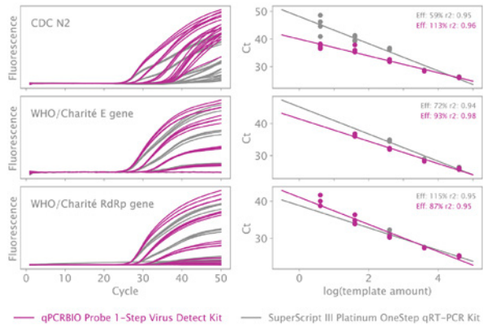


Figure 1. Triplex detection of SARS-CoV-2 nucleic acid using CDC and WHO/Charité recommended sequences

Amplification of SARS-CoV-2 N, E, and RdRp genes according to CDC (N2) and WHO/Charité (E and RdRp-P2) recommended sequences, using qPCRBIO Probe 1-Step Virus Detect (purple) and SuperScript III Platinum OneStep qRT-PCR Kit (grey). Amplification curves are shown on the left and efficiency on the right. 5 serial dilutions of RNA template were used, corresponding to 40000, 4000, 400, 40 and 4 copies of the SARS-CoV-2 genome. Total reaction volume is 20 µL. The N2 probe was labelled with Cy5, E probe with FAM, and RdRp-P2 probe with Texas Red. Cycling conditions were RT at 55 ˚C 10 min, denaturation at 95 ˚C 3 min and 50 cycles of amplification at 95 ˚C 15 s, 58 ˚C 30 s. qPCRBIO Probe 1-Step Virus Detect can reliably and sensitively detect SARS-CoV-2 in triplex reactions, giving earlier or equal Ct and increased sensitivity at lower template dilutions compared to the competitor kit.

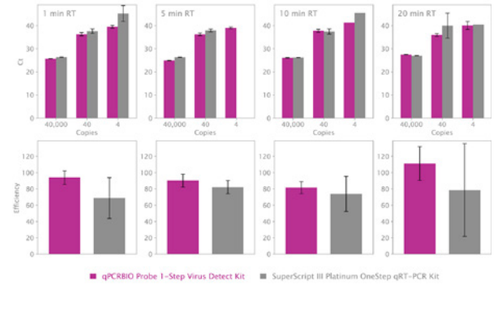


Figure 2. Amplification of SARS-CoV-2 E gene using WHO/Charité recommended sequences after different RT times

Ct values and efficiency plots obtained with amplification of SARS-CoV-2 E gene sequences after different reverse transcription (RT) times using qPCRBIO Probe 1-Step Virus Detect (purple) and SuperScript III Platinum OneStep qRT-PCR Kit (grey). 3 dilutions of RNA template were used, corresponding to 40000, 40 and 4 copies of SARS-CoV-2 genome per reaction. Total reaction volume is 20 µL. Cycling conditions were RT at 55 ˚C, denaturation at 95 ˚C 3 min and 50 cycles of amplification at 95 ˚C 15 s, 58 ˚C 30 s. qPCRBIO Probe 1-Step Virus Detect enables sensitive detection of SARS-CoV-2 nucleic acid over a range of RT times, with earlier Ct and greater efficiency compared to the competitor kit. When using the qPCRBIO kit we recommend 5 min RT for singleplex reactions and 10 min RT for multiplex.

Product name	Pack size	Presentation	Cat. no.
qPCRBIO Probe 1-Step Virus Detect Hi-ROX	200 x 20 µL rxns	[1 x 1 mL mix] & [1 x 200 µL UltraScript]	PB25.52-01
	600 x 20 µL rxns	[3 x 1 mL mix] & [x 600 µL UltraScript]	PB25.52-03
	1000 x 20 µL rxns	[1 x 5 mL mix] & [1 x 1 mL UltraScript]	PB25.52-05
	10000 x 20 µL rxns	[1 x 50 mL mix] & [2 x 5 mL UltraScript]	PB25.52-50
	50000 x 20 µL rxns	[1 x 500 mL mix] & [1 x 100 mL UltraScript]	PB25.52-500
qPCRBIO Probe 1-Step Virus Detect No-ROX	200 x 20 µL rxns	[1 x 1 mL mix] & [1 x 200 µL UltraScript]	PB25.53-01
	600 x 20 µL rxns	[3 x 1 mL mix] & [x 600 µL UltraScript]	PB25.53-03
	1000 x 20 µL rxns	[1 x 5 mL mix] & [1 x 1 mL UltraScript]	PB25.53-05
	10000 x 20 µL rxns	[1 x 50 mL mix] & [2 x 5 mL UltraScript]	PB25.53-50
	50000 x 20 µL rxns	[1 x 500 mL mix] & [1 x 100 mL UltraScript]	PB25.53-500
qPCRBIO Probe 1-Step Virus Detect Separate-ROX	200 x 20 µL rxns	[1 x 1 mL mix] & [1 x 200 µL ROX] & [1 x 200 µL UltraScript]	PB25.54-01
	600 x 20 µL rxns	[3 x 1 mL mix] & [1 x 200 µL ROX] & [1 x 600 µL UltraScript]	PB25.54-03
	1000 x 20 µL rxns	[1 x 5 mL mix] & [1 x 200 µL ROX] & [1 x 1 mL UltraScript]	PB25.54-05

qPCRBIO **SyGreen 1-Step Kits**

qPCRBIO SyGreen 1-Step Kits have been designed for fast, highly specific and ultra-sensitive cDNA synthesis and dye-based real-time PCR in a single tube.

The kits can be used to quantify any RNA template including mRNA, total RNA and viral RNA sequences. qPCRBIO SyGreen 1-Step Detect is designed for sensitivity and is ideally suited to the detection of extremely low copy number targets. qPCRBIO SyGreen 1-Step Go gives the earliest Ct and is formulated for rapid and accurate results from high template concentrations.

By combining antibody-medited hot start technology and advanced buffer chemistry together with a thermostable and extremely active modified MMLV reverse transcriptase, qPCRBIO SyGreen 1-Step Kits offer market-leading performance with minimal or no optimisation required.

Features

- Thermostable reverse transcriptase 45 ˚C to 55 ˚C
- Advanced RNase inhibitor
- Non-PCR inhibiting intercalating dye
- Rapid extension rate for early Ct values
- Market-leading sensitivity
- Increased limit of detection
- Antibody-mediated hot start PCR
- Compatible on all standard and fast cycling real-time PCR platforms

Applications

- Absolute quantification
- Relative gene expression analysis
- Detection of extremely low copy number targets
- qPCRBIO SyGreen 1-Step Detect recommended for template amounts of 1 pg - 10 ng total RNA or >0.01 pg mRNA per reaction
- qPCRBIO SyGreen 1-Step Go recommended for template amounts of 10 pg - 100 ng total RNA or >0.01 pg mRNA per reaction

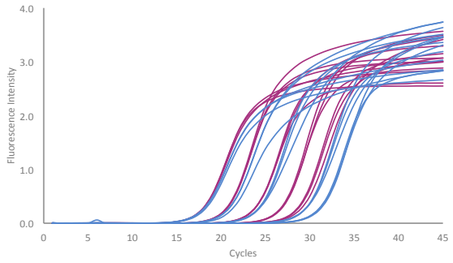


Figure 1. Comparison of qPCRBIO SyGreen 1-Step Go (purple) against competitor Bioline (blue)

Shows amplification traces of the ACTG1 gene from a dilution series of total RNA extracted from mouse liver. Total RNA concentration varied from 25 pg to 250 ng per 20 µL reaction. Cycling conditions were 45 ˚C 10 minutes for cDNA synthesis, followed by 95 ˚C 2 minutes hot start, then 45 cycles of 95 ˚C 10 sec, 60 ˚C 10 sec on Roche LC480. qPCRBIO SyGreen 1-Step Go had equal performance at high RNA concentrations and superior performance at lower RNA concentrations, displaying linear spacing between amplification curves, earlier amplification by 3–4 cycles, and lower prevalence of primer dimers.

Product name	Pack size	Presentation	Cat. no.
qPCRBIO SyGreen 1-Step Detect Lo-ROX	100 x 20 µL reactions	[1 x 1 mL mix] & [1 x 200 µL RTase]	PB25.11-01
	300 x 20 µL reactions	[3 x 1 mL mix] & [3 x 200 µL RTase]	PB25.11-03
	1200 x 20 µL reactions	[12 x 1 mL mix] & [12 x 200 µL RTase]	PB25.11-12
qPCRBIO SyGreen 1-Step Detect Hi-ROX	100 x 20 µL reactions	[1 x 1 mL mix] & [1 x 200 µL RTase]	PB25.12-01
	300 x 20 µL reactions	[3 x 1 mL mix] & [3 x 200 µL RTase]	PB25.12-03
	1200 x 20 µL reactions	[12 x 1 mL mix] & [12 x 200 µL RTase]	PB25.12-12
qPCRBIO SyGreen 1-Step Go Lo-ROX	100 x 20 µL reactions	[1 x 1 mL mix] & [1 x 100 µL RTase Go]	PB25.31-01
	300 x 20 µL reactions	[3 x 1 mL mix] & [3 x 100 µL RTase Go]	PB25.31-03
	1200 x 20 µL reactions	[12 x 1 mL mix] & [12 x 100 µL RTase Go]	PB25.31-12
qPCRBIO SyGreen 1-Step Go Hi-ROX	100 x 20 µL reactions	[1 x 1 mL mix] & [1 x 100 µL RTase Go]	PB25.32-01
	300 x 20 µL reactions	[3 x 1 mL mix] & [3 x 100 µL RTase Go]	PB25.32-03
	1200 x 20 µL reactions	[12 x 1 mL mix] & [12 x 100 µL RTase Go]	PB25.32-12

qPCRBIO **HRM Mix**

- SNP genotyping
- Gene scanning
- Ultra sensitive

High Resolution Melt curve analysis is a powerful post-PCR technique for the analysis of mutations, polymorphisms and epigenetic differences in double stranded DNA samples.

Samples are characterised based on DNA strand dissociation behavior as temperature is increased in the presence of a fluorescent dye.

qPCRBIO HRM Mix uses SyGreen 2, a 3rd generation non-PCR inhibiting saturating dye which produces ultra-sensitive melt profiles capable of discriminating class I to IV mutations as well as CpG methylation differences.

Features

- 3rd generation saturating dye SyGreen 2
- Ultra-sensitive fluorescence profile
- Antibody-mediated hot start for improved sensitivity
- Accurate discrimination of class I to IV SNP mutations and CpG methylation differences
- Compatible with all standard and fast cycling real-time instruments with HRM capability

Applications

- Accurate SNP genotyping
- Gene scanning
- CpG methylation analysis

Product name	Pack size	Presentation	Cat. no.
qPCRBIO HRM Mix	100 x 20 µL reactions	1 x 1 mL	PB20.31-01
	500 x 20 µL reactions	5 x 1 mL	PB20.31-05
	2000 x 20 µL reactions	20 x 1 mL	PB20.31-20

cDNA **Synthesis**

- Thermostable reverse transcriptases
- High yields
- Versatile

qPCRBIO **cDNA Synthesis Kit**

High quality cDNA synthesis is essential for downstream real-time PCR analysis and successful expression studies. qPCRBIO cDNA Synthesis Kit is an easy-to-use 2 tube system specifically developed to generate cDNA for use in real-time PCR.

The reverse transcriptase, buffer system and optimised blend of random hexamers with anchored oligo(dT) primers provide unbiased, efficient and sensitive cDNA synthesis over a broad range of RNA template concentrations.

The kit combines a thermostable and extremely active modified MMLV reverse transcriptase with advanced RNase inhibitor to enhance cDNA synthesis speed and yield with accurate transcript representation. The enzyme is not inhibited by ribosomal and transfer RNAs making total RNA an ideal substrate.

Features

- Unbiased representation of 5' and 3' mRNA transcript ends
- High cDNA yields from as little as 4 pg total RNA
- Simple 2 tube system
- Reduced RNase H activity
- 20x thermostable reverse transcriptase blended with RNase Inhibitor
- 5x buffer contains anchored oligo(dT), random hexamers, enhancers, dNTPs and $MgCl_2$

Applications

- cDNA synthesis for real-time PCR analysis
- Low copy number transcripts
- Viral RNA and miRNA targets
- Efficient synthesis from total RNA or poly(A)+ RNA

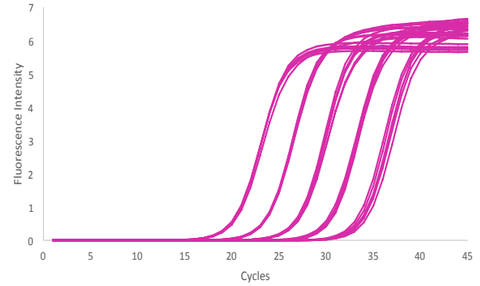
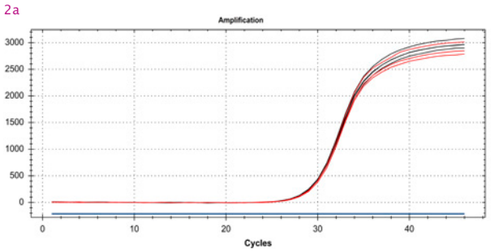


Figure 1. Broad reverse transcription dynamic range

qPCRBIO cDNA Synthesis Kit was used for cDNA synthesis using a 10 fold serial dilution of mouse total RNA from 40 pg to 400 ng. qPCR was performed using qPCRBIO SyGreen Mix amplifying a 122 bp fragment of the mouse ACTG gene. Efficiency was measured at 96% across the range tested. Results demonstrate that qPCRBIO cDNA Synthesis Kit efficiently reverse transcribes RNA across a broad dynamic range of substrate.

2a



2b

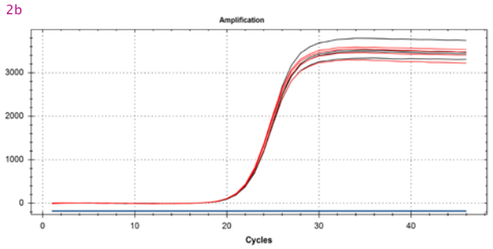


Figure 2. Unbiased representation of mRNA ends

2a) qPCRBIO cDNA Synthesis Kit was used to synthesise cDNA from mouse liver total RNA. 2 primer pairs were designed against the 5' (red traces) and the 3' (black traces) ends of the 4.2 kb mouse CANX transcript. qPCRBIO SyGreen Mix was used for analysis. The primer pairs were 4 kb apart and did not show any reverse transcription bias, hence the amplification traces overlap.

2b) 2 primer pairs against the 5' (red) and 3' (black) traces of RNS18 gene (1.8 kb). Again, no reverse transcription bias was evident.

qPCRBIO cDNA Synthesis Kit	Pack size	Presentation	Cat. no.
qPCRBIO cDNA Synthesis Kit	25 x 20 µL reactions	[1 x 0.1 mL mix] & [1 x 0.025 mL RTase]	PB30.11-02
	100 x 20 µL reactions	[4 x 0.1 mL mix] & [1 x 0.1 mL RTase]	PB30.11-10

UltraScript **Reverse Transcriptase**

- Thermostable
- Flexible
- High yield

UltraScript Reverse Transcriptase is a robust and thermostable modified MMLV reverse transcriptase engineered to enhance cDNA synthesis speed and yield with accurate transcript representation. The latest developments in reverse transcriptase technology and buffer chemistry give efficient and sensitive cDNA synthesis.

The enhanced thermostability of UltraScript Reverse Transcriptase enables the reaction temperature to be increased up to 55 ˚C, providing higher specificity and efficient transcription of RNA regions with a high secondary structure.

The enzyme is supplied with a 5x buffer containing Mg, dNTPs, stabilizers and enhancers. As oligos are not included, UltraScript Reverse Transcriptase provides the flexibility for users to define their own priming strategy. The enzyme gives exceptional performance with gene-specific primers, oligo(dT) and random hexamers to produce high quality cDNA ideal for a variety of downstream applications.

Features

- Thermostable reverse transcriptase 45 ˚C to 55 ˚C
- Advanced RNase inhibitor
- High cDNA yields from as little as 4 pg total RNA
- Accurate reverse transcription of GC-rich templates
- Sensitive detection of low copy number transcripts
- Reduced RNase H activity
- Advanced buffer chemistry including Mg and dNTPs

Applications

- Random hexamer, oligo(dT) and gene-specific primers
- cDNA synthesis for PCR analysis, cloning, library preparation and Next Generation Sequencing
- Low copy number transcripts
- Viral RNA targets
- miRNA targets
- Efficient synthesis from total RNA or poly(A)+ RNA

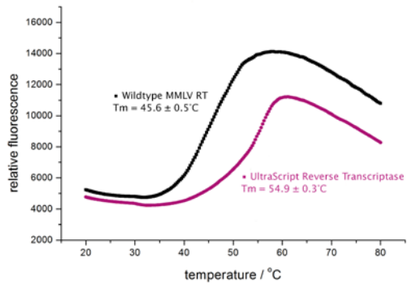


Figure 1. Thermostable enzyme up to 55 ˚C

The thermostability of UltraScript Reverse Transcriptase was measured using the Sypro Orange fluorescence assay. The protein is incubated with Sypro Orange dye and the temperature gradually increased. The fluorescence intensity increases as the protein unfolds and the melting point is the temperature where 50% of the protein is unfolded. The DSF curve shows UltraScript Reverse Transcriptase (purple) and wildtype MMLV RT (black) at 0.1 mg/ml. This experiment shows that UltraScript Reverse Transcriptase unfolds at 54.9±0.3 ˚C, which is 9.3 ˚C higher than the wildtype enzyme, indicating it is more thermostable and more likely to remain active during the reaction.

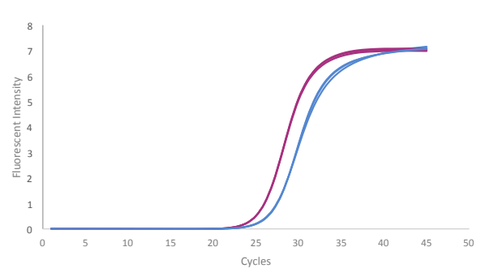


Figure 2. Generation of high cDNA yields

cDNA was created from 100 ng of total RNA from mouse liver using UltraScript Reverse Transcriptase (purple) and a competitor mix (blue). 5 µM oligo(dT)$_{18}$ and 5 µM random hexamers were added as primers. The reaction was incubated for 10 minutes at 42 ˚C. The resulting cDNA was quantified using qPCRBIO SyGreen Mix. PCR Biosystems UltraScript Reverse Transcriptase created >10x more cDNA than the competitor in the same amount of time.

Product name	Pack size	Presentation	Cat. no.
UltraScript Reverse Transcriptase	10000 units	[2 x 25 µL 200 U/µL] & [1 x 200 µL buffer]	PB30.12-01
	40000 units	[2 x 100 µL 200 U/µL] & [4 x 200 µL buffer]	PB30.12-04

UltraScript 2.0 **Reverse Transcriptase** and **cDNA Synthesis Kits**

- Highly thermostable
- Superior yields
- Versatile

UltraScript 2.0 Reverse Transcriptase is a highly thermostable reverse transcriptase engineered for superior cDNA synthesis speed, yield and representation of the most challenging RNA sample types.

This modified MMLV reverse transcriptase can be used with reaction temperatures of over 55 ˚C, giving improved specificity, higher cDNA yields and more full length cDNA product. The enzyme remains partially active even up to 90 ˚C and is designed for efficient reverse transcription of the most difficult RNA templates, including GC-rich and highly structured transcripts.

UltraScript 2.0 Reverse Transcriptase gives efficient and reliable cDNA synthesis from a broad range of RNA concentrations and can be used with 20 pg to 3.5 µg total RNA or oligo(dT) purified mRNA.

The reverse transcriptase is available as a stand-alone enzyme with 5x buffer, and a cDNA synthesis kit with premixed anchored oligo(dT) and random hexamers optimised for downstream qPCR analysis. A cDNA synthesis kit with separate oligos is also available, for user optimisation depending on the type of analysis needed.

Features

- Highly thermostable reverse transcriptase 55 ˚C to 65 ˚C and above
- Advanced RNase inhibitor
- High cDNA yields from as little as 20 pg total RNA
- Accurate reverse transcription of GC-rich and highly structured transcripts
- Reduced RNase H activity
- Available as a stand-alone enzyme with buffer, a cDNA synthesis kit with premixed oligos and a cDNA synthesis kit with separate oligos

Applications

- cDNA synthesis for qPCR and PCR analysis, cloning, cDNA library preparation and next generation sequencing
- Viral RNA targets
- miRNA targets
- Efficient synthesis from total RNA or poly(A)+ RNA

Product name	Pack size	Presentation	Cat. no.
UltraScript 2.0 Reverse Transcriptase	10000 units	[2 x 25 µL UltraScript 2.0, 200 U/µL] & [1 x 200 µL buffer]	PB30.33-01
	40000 units	[2 x 100 µL UltraScript 2.0, 200 U/µL] & [4 x 200 µL buffer]	PB30.33-04
UltraScript 2.0 cDNA Synthesis Kit	25 x 20 µL reactions	[1 x 25 µL UltraScript 2.0] & [1 x 100 µL reaction mix]	PB30.31-02
	100 x 20 µL reactions	[1 x 100 µL UltraScript 2.0] & [4 x 100 µL reaction mix]	PB30.31-10
UltraScript 2.0 cDNA Synthesis Kit Separate Oligos	25 x 20 µL reactions	[1 x 25 µL UltraScript 2.0] & [1 x 200 µL buffer] & [1 x 100 µL Anchored Oligo(dT)$_{18}$] & [1 x 100 µL Random Hexamers]	PB30.32-02
	100 x 20 µL reactions	[1 x 100 µL UltraScript 2.0] & [2 x 200 µL buffer] & [1 x 100 µL Anchored Oligo(dT)$_{18}$] & [1 x 100 µL Random Hexamers]	PB30.32-10

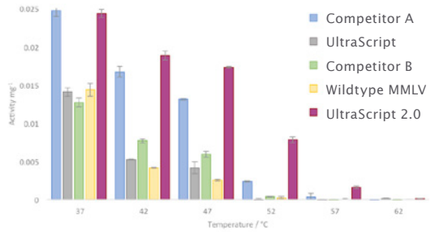


Figure 1. Higher specific activity at elevated temperatures

UltraScript 2.0 Reverse Transcriptase maintains higher specific activity at elevated temperatures when compared to competing products and our original UltraScript Reverse Transcriptase. Specific activity is measured at the given incubation temperatures using an RT-qPCR assay.

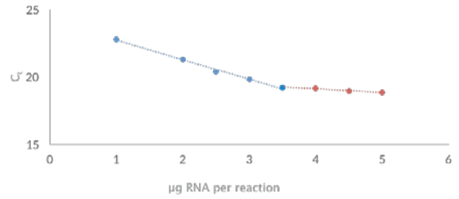


Figure 2. Increased upper limit of RNA per reaction

Mouse liver total RNA was reverse transcribed using UltraScript 2.0 Reverse Transcriptase, followed by amplification of G-Act cDNA with qPCRBIO SyGreen Mix. UltraScript 2.0 Reverse Transcriptase can transcribe up to 3.5 µg of RNA while retaining a linear response.

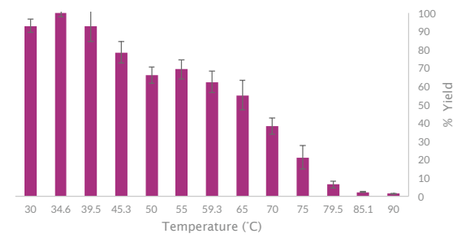


Figure 3. Remains partially active up to 90 ˚C

Mouse liver total RNA was reverse transcribed using UltraScript 2.0 Reverse Transcriptase, followed by amplification of G-Act cDNA using qPCRBIO SyGreen Mix. Up to 65 ˚C, UltraScript 2.0 Reverse Transcriptase shows little change in yield (with ΔCt values within ± 1 Ct range), and remains partially active up to 90 ˚C.

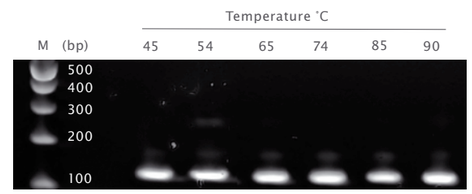


Figure 4. Highly thermostable reverse transcriptase

UltraScript 2.0 Reverse Transcriptase gives similar amounts of product across a wide range of temperatures in endpoint RT-PCR. Mouse reference RNA was reverse transcribed using UltraScript 2.0 Reverse Transcriptase. G-Act cDNA was amplified using qPCRBIO SyGreen Mix and visualised on EtBr 1% agarose gel.

RiboShield™ **RNase Inhibitor**

- Superior RNA protection
- Thermostable
- Flexible

RiboShield™ RNase Inhibitor is a recombinant protein that blocks the activity of a wide range of ribonucleases to reliably protect your RNA from RNase digestion. The inhibitor is designed for use in RNA-sensitive applications where the presence of even small amounts of RNase can be highly detrimental to RNA quality and experimental outcome.

RiboShield™ RNase Inhibitor is designed for RNA-sensitive applications, including RT-qPCR, cDNA synthesis and RNA sequencing, to shield your RNA from degradation and provide higher yields and better performance as a result. When tested in RT-qPCR, RiboShield™ offers the greatest RNA protection in comparison to competing products.

RiboShield™ is able to perform over a wide range of reaction conditions and can sustain inhibition of RNase A at temperatures up to 65 ˚C for at least 30 minutes. In addition, RiboShield™ does not contain cysteine residues that have been implicated in the oxidation sensitivity of the human placental version of the protein[1]. This results in an RNase inhibitor molecule that is not only thermostable, but also more resistant to oxidative stress.

RiboShield™ can be used to block the activity of a wide range of ribonucleases, including eukaryotic RNases of the neutral type (RNases A, B and C). It does not inhibit RNases T1, T2, U1, U2, CL3, RNase I and H.

Features

- Superior protection leading to better performance in RNA-sensitive applications
- Particularly suited to incorporation into saliva-based tests for SARS-CoV-2 detection
- Inhibits eukaryotic RNases, including RNase A, B and C
- Compatible with reverse transcriptases, RNA polymerases and Taq DNA polymerase
- Stable up to 65 ˚C for at least 30 minutes
- Ribonuclease and phosphatase free
- Ideal for long term storage of samples

Applications

- cDNA synthesis
- 1-step RT-PCR and RT-qPCR
- RNA purification
- RNA sequencing
- *In vitro* transcription and translation
- Saliva-based diagnostic testing for SARS-CoV-2

RiboShield™ does not hinder other enzymes such as reverse transcriptases, RNA polymerases or Taq DNA polymerase, making it compatible with many enzymatic reactions involving RNA. The inhibitor is inactivated by heating at 75 ˚C for 15 minutes.

[1] Kim BM, Schultz LW, Raines RT. Variants of ribonuclease inhibitor that resist oxidation. Protein Science. 1999; 8(2):430-434.

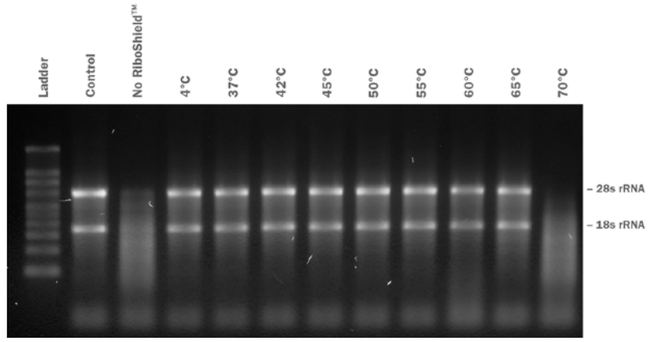


Figure 1. Stable at high temperatures

RiboShield™ RNase Inhibitor was incubated at the indicated temperatures for 30 minutes. 40 U of the inhibitor were then added to 1 µg RNA and 5 pg RNase A in 5x UltraScript buffer and incubated at 37 ˚C for 30 minutes. Samples were then loaded on a 1% agarose gel. RiboShield™ RNase Inhibitor can inhibit RNase A at temperatures up to 65 ˚C for at least 30 minutes.

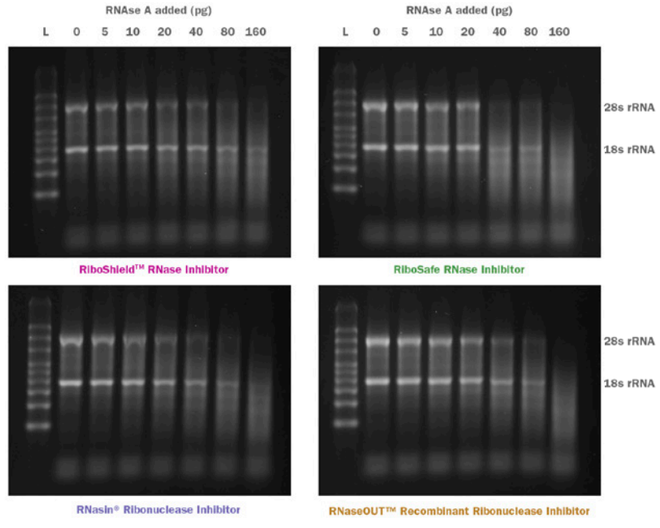


Figure 2. Superior protection against RNase A

RiboShield™ RNase Inhibitor and three competitor products (40 U) were incubated with the indicated amounts of RNase A and 1 µg RNA in 5x UltraScript buffer at 37 ˚C for 30 min. Samples were then loaded on a 1% agarose gel. L: Ambion RNA Millennium Markers. The RNase inhibitors used were PCR Biosystems' RiboShield™, Promega's RNasin®, Bioline's RiboSafe and ThermoFisher's RNaseOUT™.

RiboShield™ RNase Inhibitor offers the greatest RNA protection amongst the inhibitors tested.

Product name	Pack size	Presentation	Cat. no.
RiboShield™ RNase Inhibitor	2500 units	1 x 62.5 µL	PB30.23-02
	10000 units	4 x 62.5 µL	PB30.23-10

Endpoint **PCR**

- Enhanced polymerases
- Advanced buffer chemistry
- Increased PCR success rates

PCRBIO **Enzyme Selection Guide**

	Endpoint polymerases							Endpoint kits	
	PCRBIO Taq DNA Polymerase	PCRBIO HS Taq DNA Polymerase	PCRBIO Classic Taq	PCRBIO Ultra Polymerase	PCRBIO HiFi Polymerase	PCRBIO VeriFi Polymerase	PCRBIO HS VeriFi Polymerase	PCRBIO Rapid Extract PCR kit	PCRBIO 1-Step Go RT-PCR kit
Properties									
Amplicon length	<6 kb	<6 kb	<6 kb	<6 kb	<10 kb	<20 kb	<20 kb	<6 kb	<6 kb
Fidelity vs Taq	x1	x1	x1	x3	x50	x100	x100	x1	x1
3'→5' exonuclease (proofreading) activity				◇	◇	◇	◇		
Hot start		◇		◇			◇	◇	◇
High fidelity				◇	◇	◇	◇		
Sensitivity	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●
Specificity	●●	●●●	●●	●●●	●●●●	●●●●	●●●●	●●●	●●●
Stability at room temperature	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●
Available formats									
Ready mix	◇	◇		◇		◇	◇	◇	
Direct loading	◇	◇		◇		◇	◇	◇	
Applications									
Routine PCR	◇	◇	◇	◇				◇	
Long PCR				◇	◇	◇	◇		
High-throughput		◇		◇			◇	◇	
Multiplex PCR		◇		◇			◇		
High fidelity PCR					◇	◇	◇		
PCR from solid tissue		◇		◇			◇	◇	
GC-rich templates		◇		◇	◇	◇	◇		
Genotyping	◇	◇	◇					◇	◇
Bisulphite PCR		◇		◇			◇		
Methylated DNA	◇	◇	◇	◇	◇	◇	◇	◇	◇
TA cloning	◇	◇	◇	◇				◇	◇
Blunt end cloning					◇	◇	◇		
Colony PCR		◇		◇			◇		
Crude sample PCR		◇		◇			◇	◇	
Site directed mutagenesis					◇	◇	◇		
Next generation sequencing					◇	◇	◇		

◇ = Suitable for application

● = Relative activity

For bulk and custom services please contact info@pcrbio.com

PCRBIO **Taq DNA Polymerase**

PCRBIO Taq DNA Polymerase is an affordable, versatile and robust enzyme for all your everyday PCR applications including genotyping, screening and library construction.

An enhanced 12-step purification strategy together with an optimised buffer system enable PCRBIO Taq DNA Polymerase to amplify with the highest speed, yield and specificity on the market, ideal for complex templates such as mammalian genomic DNA.

For added convenience, PCRBIO Taq DNA Polymerase is available as a ready-to-use 2x mix containing all reaction components except primers and template. PCRBIO Taq Mix Red contains a red dye suitable for direct loading and tracking during agarose gel electrophoresis.

Features

- Increased PCR success rates with amplicons up to 6 kb
- Ultra-low background DNA
- Advanced buffer chemistry including Mg and dNTP
- Efficient and specific amplification from GC and AT-rich sequences
- High yields under standard and fast PCR conditions

Applications

- Routine application PCR
- TA cloning
- High-throughput PCR
- Methylated DNA
- Crude sample PCR

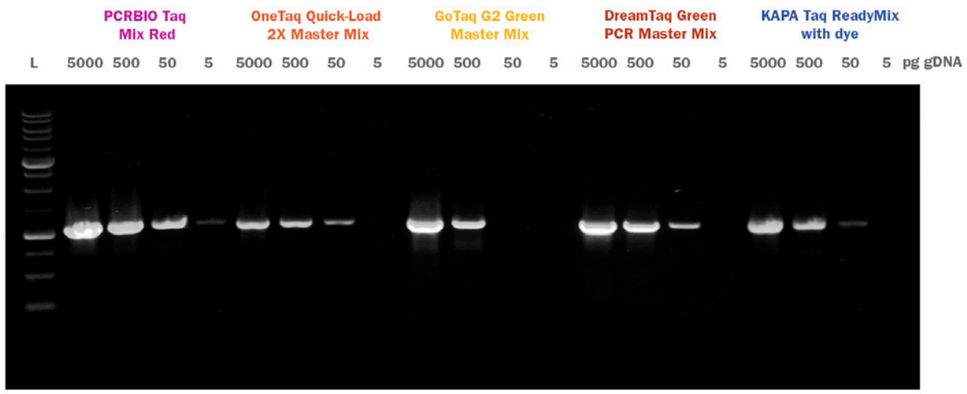


Figure 1. PCRBIO Taq Mix Red outperforms competitors at amplifying a 1 kb fragment

A PCR amplification of a 1 kb fragment (GAPDH gene) was carried out using a 1 in 10 serial dilution of mouse genomic DNA (5000, 500, 50, 5 pg) with PCRBIO Taq Mix Red and matching Taq mixes from competitors NEB (orange), Promega (yellow), Thermo (red) and Kapa Biosystems (blue). Reactions were set up using manufacturers' recommendations. Cycling conditions were 95 °C 2 min, then 40 cycles of 95 °C 15 sec, 63 °C 15 sec, 72 °C 30 sec except for NEB: 94 °C 2 min, then 40 cycles of 94 °C 15 sec, 63 °C 15 sec, 68 °C 30 sec. L: PCRBIO Ladder II.

Product name	Pack size	Presentation	Cat. no.
PCRBIO Taq DNA Polymerase	500 units	[1 x 0.1 mL 5 U/µL] & [4 x 1 mL buffer]	PB10.11-05
	2000 units	[4 x 0.1 mL 5 U/µL] & [16 x 1 mL buffer]	PB10.11-20
	4000 units	[8 x 0.1 mL 5 U/µL] & [32 x 1 mL buffer]	PB10.11-40
PCRBIO Taq Mix	200 x 50 µL reactions	5 x 1 mL	PB10.12-02
	1000 x 50 µL reactions	5 x (5 x 1 mL)	PB10.12-10
PCRBIO Taq Mix Red	200 x 50 µL reactions	5 x 1 mL	PB10.13-02
	1000 x 50 µL reactions	5 x (5 x 1 mL)	PB10.13-10

PCRBIO **HS Taq DNA Polymerase**

PCRBIO HS Taq DNA Polymerase is an advanced antibody-mediated hot start DNA polymerase designed for fast, highly specific PCR.

Proprietary antibodies inhibit polymerase activity until an initial activation step at 95 °C, preventing the formation of primer dimers and non-specific products, giving improved specificity and sensitivity compared to other methods. The enzyme and buffer system allow for superior PCR performance on complex templates such as mammalian genomic DNA. Whether you need a hot start assay for high-throughput, automated reaction setup or the detection of a low copy number template, PCR Biosystems offers you a robust industry-leading enzyme to meet your needs.

PCRBIO HS Taq DNA Polymerase is also available as a ready-to-use 2x mix, with or without a red dye for direct gel loading.

Features

- Hot start technology for unrivalled detection of low copy number templates
- Increased PCR success rates with amplicons up to 6 kb
- Ultra-low background DNA
- Advanced buffer chemistry including Mg and dNTP
- Efficient and specific amplification from GC and AT-rich sequences
- High yields under standard and fast PCR conditions

Applications

- Genotyping
- High-throughput PCR
- Standard and fast PCR
- Routine and multiplex PCR
- TA cloning
- Colony PCR
- Inhibitor tolerant PCR direct from bacterial culture, blood and urine
- 'Difficult' PCR - GC and AT-rich DNA

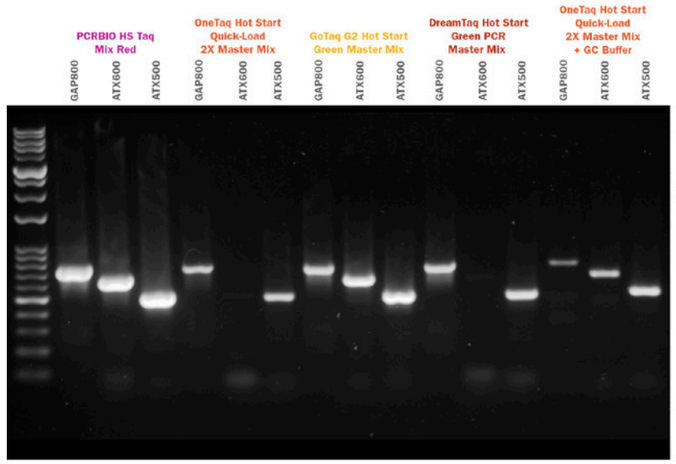


Figure 1. PCRBIO HS Taq Red Mix outperforms competitors at amplifying GC-rich fragments

The starting template amount was 5 ng mouse genomic DNA. Amplified fragments belong to 3 different genes chosen for their GC content (GAP800 bp with 49% GC, ATX500 bp with 69% GC and ATX600 bp with 71% GC). PCRBIO HS Taq Mix Red (purple) and matching hot start Taq mixes from competitors were used according to manufacturers' recommendations: NEB (orange, standard format and GC buffer format), Promega (yellow) and Thermo (red). Cycling conditions were 95 °C 5 min, then 40 cycles of 95 °C 15 sec, 60 °C 15 sec, 72 °C 20 sec. 2/5 of the reaction volume was loaded in 1.2% agarose gel. L: PCRBIO Ladder III.

Product name	Pack size	Presentation	Cat. no.
PCRBIO HS Taq DNA Polymerase	250 units	[1 x 0.05 mL 5 U/µL] & [2 x 1 mL buffer]	PB10.21-02
	1000 units	[4 x 0.05 mL 5 U/µL] & [8 x 1 mL buffer]	PB10.21-10
	5000 units	[20 x 0.05 mL 5 U/µL] & [40 x 1 mL buffer]	PB10.21-50
PCRBIO HS Taq Mix	200 x 50 µL reactions	5 x 1 mL	PB10.22-02
	1000 x 50 µL reactions	5 x (5 x 1 mL)	PB10.22-10
PCRBIO HS Taq Mix Red	200 x 50 µL reactions	5 x 1 mL	PB10.23-02
	1000 x 50 µL reactions	5 x (5 x 1 mL)	PB10.23-10

PCRBIO **VeriFi Polymerase**

- High fidelity
- Long range
- Superior sensitivity

PCRBIO VeriFi Polymerase is a versatile and robust high fidelity enzyme engineered for all PCR applications where greater sequence accuracy is required. Enhanced processivity combined with advanced buffer chemistry give significant improvements in speed, yield and sensitivity, while also increasing PCR success rates of long and challenging templates.

PCRBIO VeriFi Polymerase is derived from Pfu DNA polymerase for its 3'-5' exonuclease proofreading activity. The enzyme is engineered with proprietary mutations that significantly increase processivity, resulting in shorter extension times (10-30 s/kb), higher yields and the amplification of longer and more difficult targets.

High temperature cycling and the ability to denature up to 100 ˚C mean that even GC-rich templates can be amplified.

The high accuracy and enhanced 3'-5' exonuclease activity of PCRBIO VeriFi Polymerase result in extremely low error rates and fidelity that is approximately 100 times higher than Taq DNA polymerase.

The enzyme is ideal for applications where superior accuracy is required, such as cloning, site-directed mutagenesis and sequencing. PCR products generated with this range of products are blunt ended.

Features

- High temperature cycling - up to 100 ˚C denaturation
- Efficient and specific amplification from challenging templates including GC and AT-rich sequences
- Increased PCR success rates with complex genomic templates (17.5 kb and over)
- High yields under standard and fast PCR conditions (10-30 s/kb)
- 100x higher fidelity than Taq DNA polymerase
- Advanced buffer chemistry including Mg and dNTPs
- Generates blunt-end PCR products
- Also available as a 2x ready mix, with or without a red dye for direct gel loading

Applications

- High fidelity PCR
- Next Generation Sequencing
- Long range PCR
- Site-directed mutagenesis
- Cloning

Product name	Pack size	Presentation	Cat. no.
PCRBIO VeriFi Polymerase	100 units	[1 x 0.05 mL 2 U/µL] & [1 x 1.7 mL buffer]	PB10.42-01
	500 units	[1 x 0.250 mL 2 U/µL] & [3 x 1.7 mL buffer]	PB10.42-05
PCRBIO VeriFi Mix	100 x 50 µL reactions	2 x 1.25 mL	PB10.43-01
	500 x 50 µL reactions	2 x (5 x 1.25 mL)	PB10.43-05
PCRBIO VeriFi Mix Red	100 x 50 µL reactions	2 x 1.25 mL	PB10.44-01
	500 x 50 µL reactions	2 x (5 x 1.25 mL)	PB10.44-05

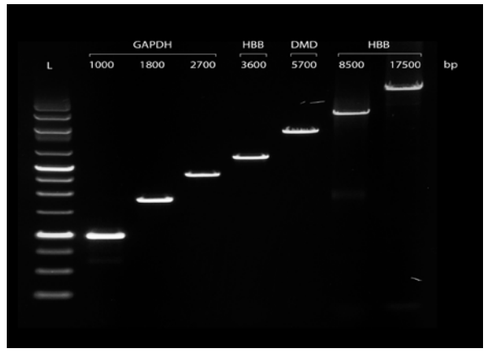


Figure 1. Versatility across a broad range of amplicon lengths

PCRBIO VeriFi Polymerase amplifies the range of fragment lengths indicated with high yield and specificity. The starting template amount is 4-30 ng of mouse or human genomic DNA, diluted 1.5 to 3 fold. GC content ranges from 37-55%. L: PCRBIO Ladder II.

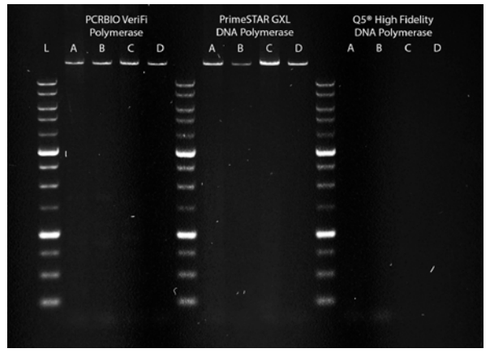


Figure 2. Increased success rates with complex templates

Amplification of a 17.5 kb fragment of the HBB gene. The starting template amount is 150 ng (A and C) and 30 ng (B and D) of human genomic DNA, diluted 2 fold. A 2-step PCR protocol was used with amplification at 72 ˚C (A and B) or 68 ˚C (C and D). GC content is 37%. PCRBIO VeriFi Polymerase amplifies long fragments with yields comparable to Takara PrimeSTAR GXL DNA Polymerase. L: PCRBIO Ladder II.

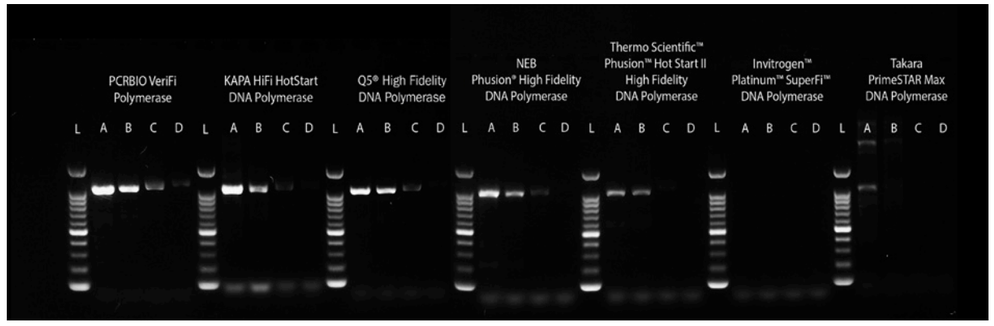


Figure 3. Amplification of targets with high sensitivity and specificity compared to leading competitors

Amplification of a 1.0 kb fragment of the GAPDH gene with different starting template amounts of mouse genomic DNA. A: 20 ng, B: 3.2 ng, C: 0.5 ng, D: 0.08 ng. GC content is 51%. L: PCRBIO Ladder IV. The reactions were set up following manufacturers' recommendations. Cycling conditions were 95˚C 2 min, then 30 cycles of 98 ˚C 15 sec, 66 ˚C 15 sec and 72 ˚C 30 sec. PCRBIO VeriFi Polymerase displays greater sensitivity and specificity compared to leading competitors.

PCRBIO **HS VeriFi™ Polymerase**

- AptaLock™ hot start technology
- High fidelity
- Long range

PCRBIO HS VeriFi™ Polymerase is a versatile and robust proofreading enzyme with AptaLock™ hot start technology for highly precise PCR. Enhanced processivity combined with an advanced buffer system give significant improvements in speed, yield and sensitivity while also increasing PCR success rates of long and challenging templates.

Features

- AptaLock™ hot start technology for maximised sensitivity and specificity
- Greater success with long and/or GC or AT-rich templates (17.5 kb and over)
- High temperature cycling – up to 100 ˚C denaturation to better separate GC-rich sequences
- 100x higher fidelity than Taq DNA polymerase
- Room temperature setup
- Reaction mix stability for up to 24 hours both before and after PCR run
- Generates blunt-end PCR products
- Also available as a 2x ready mix with the option of a red dye for direct gel loading

Applications

- High fidelity PCR
- Next Generation Sequencing
- Long PCR
- Multiplex and high throughput PCR
- Site-directed mutagenesis
- Cloning

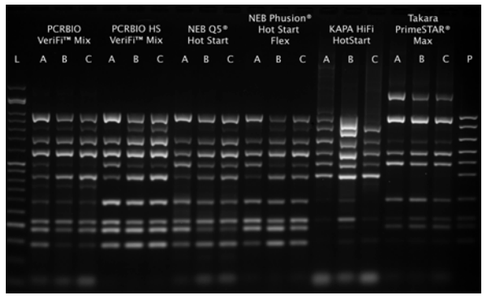


Figure 1. Superior performance in multiplex reactions

10-plex PCR using lambda phage genome (6 targets) and mouse genome (4 targets) at different annealing temperatures (A: 63.0 ˚C, B: 61.5 ˚C, C: 60.5 ˚C). The starting template amount is 1 pg lambda DNA and 1 ng mouse gDNA. Amplicon lengths are between 139 bp and 962 bp. Reactions were set up using master mix formats following manufacturers' recommendations. Cycling conditions were 95 ˚C 2 min, 40 cycles of 95˚C 15 sec, annealing A to C 30 sec, 72 ˚C 90 sec. L: PCRBIO Ladder III. P: reference pool of single products. PCRBIO HS VeriFi™ Mix displays greater sensitivity and specificity in multiplex when compared to leading competitors.

PCRBIO HS VeriFi™ Polymerase is a single enzyme derived from Pfu DNA polymerase for its 3'-5' exonuclease (proofreading) activity. Proprietary mutations improve DNA binding and increase processivity when compared to its native form, resulting in shorter extension times, higher yields and the ability to amplify longer and more difficult targets. PCRBIO HS VeriFi™ Polymerase is able to amplify eukaryotic genomic templates in excess of 17.5 kb, and longer for simpler DNA templates.

PCRBIO's innovative AptaLock™ technology uses a proprietary aptamer-like molecule that reversibly inhibits both the 3'-5' exonuclease activity and 5'-3' polymerase activity of the enzyme at ambient temperatures.

This unique hot start molecule prevents primer dimer formation and non-specific amplification to maximise the sensitivity and specificity of your PCR. This feature makes PCRBIO HS VeriFi™ Polymerase highly suitable for multiplexing and enables reactions to be set up at room temperature, with benchtop stability both before and after PCR for up to 24 hours.

The enhanced accuracy of PCRBIO HS VeriFi™ Polymerase gives extremely low error rates and fidelity that is approximately 100 times higher than Taq DNA polymerase. The enzyme is ideal for applications where superior accuracy is required, such as cloning, site-directed mutagenesis and sequencing.

PCRBIO HS VeriFi™ Polymerase is provided with an advanced buffer system including dNTPs, Mg and enhancers, enabling high fidelity PCR of a wide range of targets and fragment sizes regardless of GC or AT content.

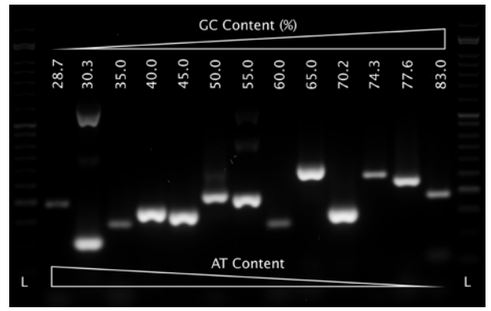


Figure 2. Successful PCR across a broad range of GC and AT content

Amplification of 13 targets with GC content ranging from 28.7% to 83% using PCRBIO HS VeriFi™ Mix. The starting template amount is 30ng mouse cDNA. Band size is between 99 bp and 274 bp. Cycling conditions were 98 ˚C 5 min, 40 cycles of 98 ˚C 15 sec, annealing between 54 ˚C and 62 ˚C (depending on target) 15 sec, 72 ˚C 30 sec. L: PCRBIO Ladder III.

PCRBIO HS VeriFi™ Mix is able to amplify templates across a broad range of GC and AT content.

Product name	Pack ize	Presentation	Cat. no
PCRBIO HS VeriFi™ Polymerase	100 units	[1 x 0.05 mL 2 U/µL] & [1 x 1.7 mL buffer] & [1 x 1.7 mL enhancer]	PB10.45-01
	500 units	[1 x 0.250 mL 2 U/µL] & [3 x 1.7 mL buffer] & [2 x 1.7 mL enhancer]	PB10.45-05
PCRBIO HS VeriFi™ Mix	100 x 50 µL reactions	2 x 1.25 mL	PB10.46-01
	500 x 50 µL reactions	2 x (5 x 1.25 mL)	PB10.46-05
PCRBIO HS VeriFi™ Mix Red	100 x 50 µL reactions	2 x 1.25 mL	PB10.47-01
	500 x 50 µL reactions	2 x (5 x 1.25 mL)	PB10.47-05

PCRBIO
Classic Taq

PCRBIO Classic Taq is a highly purified recombinant Taq DNA Polymerase for all your everyday PCR applications including genotyping, screening and library construction.

The enzyme and buffer system provide enhanced PCR speed, yield and specificity allowing for superior performance on complex templates such as mammalian genomic DNA. PCRBIO Classic Taq performs consistently well on a broad range of templates including both GC and AT-rich. PCR products generated with PCRBIO Classic Taq are A-tailed and may be cloned into TA cloning vectors.

Features

- Increased PCR success rates with amplicons up to 6 kb
- High yields under standard and fast PCR conditions
- Efficient specific amplification from complex templates including GC and AT-rich sequences
- 10x buffer includes $MgCl_2$ and enhancers

Applications

- Routine application PCR
- TA cloning
- High-throughput PCR
- Methylated DNA
- Crude sample PCR
- Standard and fast PCR

Product name	Pack size	Presentation	Cat. no.
PCRBIO Classic Taq	1000 units	[2 x 0.1 mL 5 U/µL] & [4 x 1 mL buffer]	PB10.15-01
	2000 units	[4 x 0.1 mL 5 U/µL] & [8 x 1 mL buffer]	PB10.15-02
	6000 units	[12 x 0.1 mL 5 U/µL] & [24 x 1 mL buffer]	PB10.15-06

PCRBIO
Ultra Polymerase

PCRBIO Ultra Polymerase has been engineered for the amplification of extremely difficult templates. Proprietary modifications that enhance processivity together with advanced buffer chemistry and hot start technology deliver outstanding performance whether your template is GC or AT-rich, low in abundance or contains PCR inhibitors.

The enzyme and buffer system have been developed to give superior PCR performance and higher success rates on a broad range of templates, including complex genomic DNA and targets with a high GC content (up to 80% GC). PCRBIO Ultra Polymerase exhibits a high tolerance to PCR inhibitors making it the ideal choice for colony and crude sample PCR.

Features

- Increased PCR success rates with difficult templates
- Antibody-mediated hot start for unrivalled detection of low copy number templates
- Advanced buffer chemistry including Mg and dNTPs
- High yields under standard and fast PCR conditions
- Efficient specific amplification from complex templates including GC and AT-rich sequences
- 3 fold higher fidelity than Taq

Applications

- Colony PCR
- Crude sample PCR
- Long range PCR
- Multiplex PCR
- TA cloning

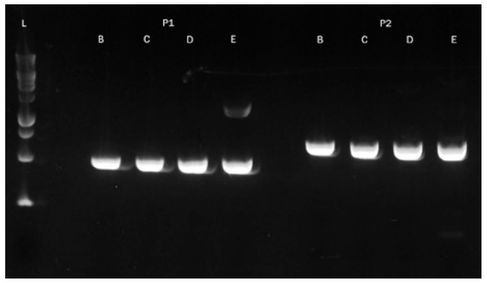


Figure 1. GC-rich products visualised on agarose gel

Amplification of 0.5 kb (P1) and 0.6 kb (P2) fragments of the ATXN2 gene with GC contents of 69% and 71% respectively, using 20 ng of mouse genomic DNA as template and a range of annealing temperatures from 67 °C to 60 °C (B-E). PCRBIO Ultra Polymerase efficiently amplifies GC rich templates >65% GC and is recommended for templates up to 80% GC.

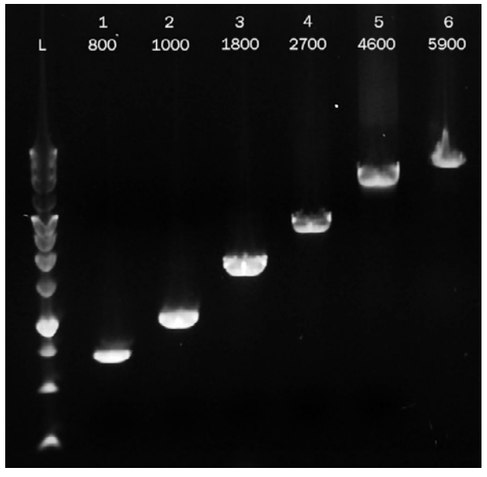
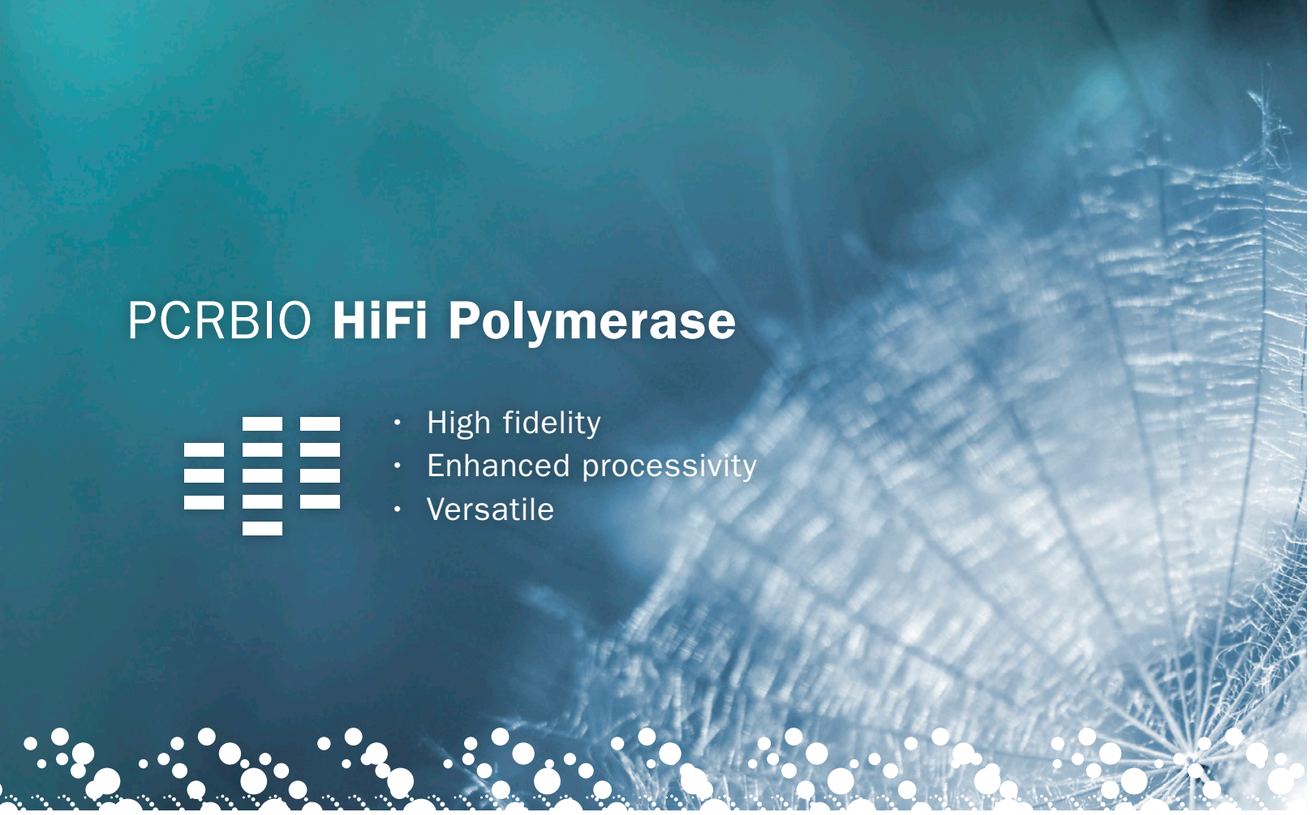


Figure 2. Long PCR products visualised on agarose gel

Amplification of 0.8 kb, 1.0 kb, 1.8 kb, and 2.7 kb fragments of the GAPDH gene, a 4.6 kb fragment of the RBL15 gene, and a 5.9 kb fragment of the MYH6 gene. The starting template amount is 20 ng (50 ng for the 5.9 kb fragment) of mouse genomic DNA and is diluted 2 to 5 fold. PCRBIO Ultra Polymerase amplifies the range of fragment lengths indicated with high yield and specificity.

Product name	Pack size	Presentation	Cat. no.
PCRBIO Ultra Polymerase	250 units	[1 x 0.05 mL 5 U/µL] & [2 x 1 mL buffer]	PB10.31-02
	1000 units	[4 x 0.05 mL 5 U/µL] & [8 x 1 mL buffer]	PB10.31-10
PCRBIO Ultra Mix	80 x 50 µL reactions	2 x 1 mL	PB10.32-01
	400 x 50 µL reactions	5 x (2 x 1 mL)	PB10.32-05
PCRBIO Ultra Mix Red	80 x 50 µL reactions	2 x 1 mL	PB10.33-01
	400 x 50 µL reactions	5 x (2 x 1 mL)	PB10.33-05



PCRBIO **HiFi Polymerase**

- High fidelity
- Enhanced processivity
- Versatile

PCRBIO HiFi Polymerase is a versatile high fidelity enzyme possessing 3'-5' exonuclease proofreading activity. Enhanced DNA binding gives inherently high processivity, increased yields and shorter cycling times while minimising PCR inhibition from impure samples such as colony and direct PCR.

Advanced buffer chemistry together with the latest developments in polymerase technology give increased PCR success rates with amplicons up to 10 kb.

PCRBIO HiFi Polymerase is room temperature stable for 4 weeks and is ideally suited to the robust amplification of complex templates including problematic GC and AT-rich targets.

Features

- Derived from Pfu DNA Polymerase
- 50x higher fidelity than Taq DNA polymerase
- Increased success rates with amplicons up to 10 kb
- Advanced buffer chemistry including Mg and dNTPs
- High yields under standard and fast PCR conditions
- Efficient specific amplification from complex templates including GC-rich and AT-rich sequences

Applications

- High fidelity PCR
- Blunt end cloning
- Site directed mutagenesis
- Long range PCR
- 'Difficult' PCR - GC and AT-rich DNA
- Crude sample PCR

Product name	Pack size	Presentation	Cat. no.
PCRBIO HiFi Polymerase	200 units	[1 x 0.1 mL 2 U/µL] & [3 x 1 mL buffer]	PB10.41-02
	1000 units	[5 x 0.1 mL 2 U/µL] & [15 x 1 mL buffer]	PB10.41-10

PCRBIO **1-Step Go RT-PCR Kit**

PCRBIO 1-Step Go RT-PCR Kit is a convenient, easy-to-use kit for fast and efficient cDNA synthesis and PCR in a single tube. The advanced buffer system, reverse transcriptase and hot start polymerase give highly specific and ultra-sensitive 1-step RT-PCR from any RNA template including mRNA, total RNA and viral RNA sequences.

The kit combines our thermostable and extremely active reverse transcriptase with an advanced RNase inhibitor to enhance cDNA synthesis speed and yield. Antibody-mediated hot start technology prevents the formation of primer dimers and non-specific amplification giving robust RT-PCR performance with minimal or no optimisation required.

Features

- Thermostable reverse transcription 45 °C to 55 °C
- Advanced RNase inhibitor
- Antibody-mediated hot start technology for unrivalled detection of low copy number templates
- High PCR yields under standard and fast PCR conditions
- Efficient specific amplification from complex templates including GC and AT-rich sequences

Applications

- Gene expression analysis
- Transcription analysis
- Gene cloning
- Multiplex RT-PCR

Product name	Pack size	Presentation	Cat. no.
PCRBIO 1-Step Go RT-PCR Kit	50 x 50 µL reactions	[1 x 1.25 mL mix] & [1 x 125 µL RTase]	PB10.53-05
	100 x 50 µL reactions	[2 x 1.25 mL mix] & [2 x 125 µL RTase]	PB10.53-10
	500 x 50 µL reactions	[10 x 1.25 mL mix] & [10 x 125 µL RTase]	PB10.53-50

PCRBIO
DNA Markers

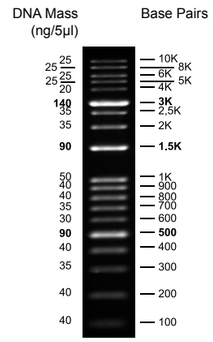
PCRBIO Ladders I-IV are designed for easy size determination and DNA quantification using agarose gel electrophoresis.

The ladders are room temperature stable and ready for immediate gel loading. They cover a wide range (from 50 bp to 10 kb) and contain loading dye for simple migration observation.

All four PCRBIO Ladders are manufactured using a combination of plasmid restriction digest fragments and PCR amplification products.

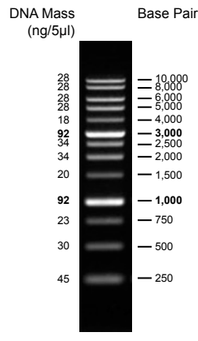
Features

- Ready to use – load straight onto your gel
- Room temperature stable – store at 25 °C
- Quantitative – helps to visualise PCR yield
- Wide range – 50 bp to 10 kb
- Evenly spaced bands
- Easy to identify reference bands



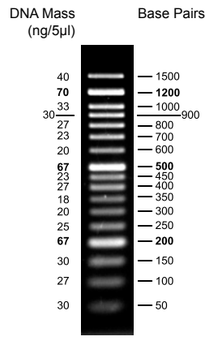
1.5 % TAE agarose gel

PCRBIO Ladder I



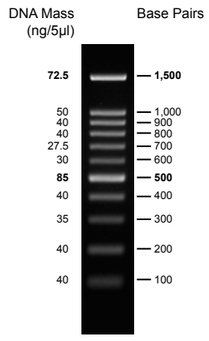
1 % TAE agarose gel

PCRBIO Ladder II



2 % TAE agarose gel

PCRBIO Ladder III



1.7 % TAE agarose gel

PCRBIO Ladder IV

Product name	Pack size	Presentation	Cat. no.
PCRBIO Ladder I (100 bp - 10 kb)	100 lanes	[1 x 0.5 mL ladder] & [1 x 0.4 mL loading buffer]	PB40.11-01
	500 lanes	[5 x 0.5 mL ladder] & [1 x 2.0 mL loading buffer]	PB40.11-05
PCRBIO Ladder II (250 bp - 10 kb)	100 lanes	[1 x 0.5 mL ladder] & [1 x 0.4 mL loading buffer]	PB40.12-01
	500 lanes	[5 x 0.5 mL ladder] & [1 x 2.0 mL loading buffer]	PB40.12-05
PCRBIO Ladder III (50 bp - 1500 bp)	100 lanes	[1 x 0.5 mL ladder] & [1 x 0.4 mL loading buffer]	PB40.13-01
	500 lanes	[5 x 0.5 mL ladder] & [1 x 2.0 mL loading buffer]	PB40.13-05
PCRBIO Ladder IV (100 bp - 1500 bp)	100 lanes	[1 x 0.5 mL ladder] & [1 x 0.4 mL loading buffer]	PB40.14-01
	500 lanes	[5 x 0.5 mL ladder] & [1 x 2.0 mL loading buffer]	PB40.14-05

PCRBIO
dNTP Mix

PCRBIO dNTP Mix contains premixed aqueous solutions of dATP, dCTP, dGTP and dTTP available at a final concentration of 10 mM each or 25 mM each.

The mix is ultra pure (more than 99%), stable after multiple freeze-thaw cycles and perfect for a wide variety of applications including standard PCR, real-time PCR, high-fidelity PCR, 1-Step PCR and long range PCR.

95% of dNTPs remain in triphosphate form after 5 weeks at room temperature.

Features

- Ultra pure
- Stable
- Versatile

Applications

- Standard PCR
- Real-time PCR
- High fidelity PCR
- 1-Step PCR
- Isothermal amplification
- DNA sequencing

Product name	Pack size	Presentation	Cat. no.
PCRBIO dNTP Mix 10 mM each (40 mM total)	10 mM each	1 x 0.5 mL	PB10.71-05
	10 mM each	1 x 1 mL	PB10.71-10
PCRBIO dNTP Mix 25 mM each (100 mM total)	25 mM each	1 x 0.5 mL	PB10.72-05
	25 mM each	1 x 1 mL	PB10.72-10

DNA **Extraction**

- Column-free
- Convenient
- Fast

PCRBIO **Rapid Extract PCR Kit**

PCRBIO Rapid Extract PCR Kit combines rapid DNA extraction with fast, highly specific DNA amplification in an easy-to-use format. Eliminate the need for time-consuming DNA extraction methods with this integrated extraction and amplification kit powered by the latest advances in hot start polymerase technology.

PCRBIO Rapid Extract PCR Kit is particularly suited to solid tissue such as mouse tail. Sample processing is simplified and contamination risks minimised as DNA extraction is performed in a single tube, removing the need for multiple washing steps. Extracted DNA is amplified using hot start technology to enhance PCR speed, yield and sensitivity. PCRBIO Rapid Extract Lysis Kit contains only the lysis and protease buffer system, allowing the generation of PCR-ready DNA for use in downstream PCR or qPCR reactions.

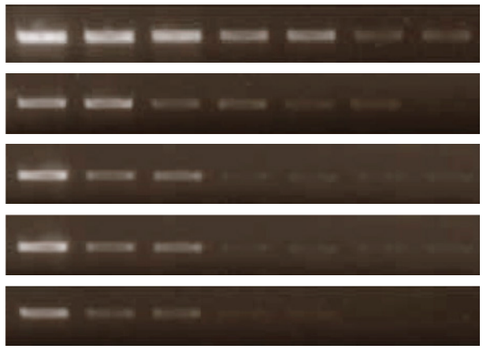


Figure 1. Mouse tail DNA rapid extraction comparison

PCRBIO Rapid Extract PCR Kit was used to extract DNA from 3 mg of mouse tail clipping following the standard 15 min protocol. The extraction was repeated using equivalent extraction kits from alternative manufacturers. A serial 3-fold dilution series was made from each supernatant. PCRBIO HS Taq Mix Red was used to amplify a 1 kb fragment of mouse GAPDH gene from each dilution. Results were compared by agarose gel electrophoresis. Row 1 shows results from PCRBIO, row 2 Kapa Biosystems, row 3 Bioline, row 4 Sigma and row 5 Fermentas.

Features

- Rapid, convenient, single-tube DNA extraction
- Produces high yield, PCR-ready DNA in 15 minutes
- Powered by PCRBIO HS Taq Mix Red for direct gel loading
- Ideal for complex templates
- Also available as a lysis-only kit

Samples

- Mouse tail clip and ear punch
- Animal tissue
- Hair follicle
- Buccal swab
- Mammalian blood
- FFPE tissue

Applications

- Genotyping
- Transgene detection
- Knockout analysis
- Sequencing

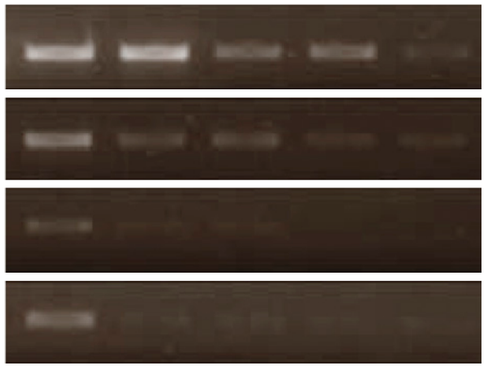


Figure 2. Mouse ear DNA rapid extraction and 2.5 kb amplification using supplied PCR reagent

PCRBIO Rapid Extract PCR Kit was used to extract DNA from 3 mg of mouse ear clipping following the standard 15 min protocol. The extraction was repeated using equivalent extraction kits from alternative manufacturers. A serial 2-fold dilution series was made from each supernatant. The supplied polymerase was used to amplify a 2.5 kb fragment of the mouse Calnexin gene from each dilution. Results were compared by agarose gel electrophoresis. Row 1 shows results from PCRBIO, row 2 Kapa Biosystems, row 3 Bioline and row 4 Sigma.

PCRBIO Rapid Extract Kits	Pack size	Presentation	Cat. no.
PCRBIO Rapid Extract PCR Kit	80 x 50 µL reactions	[2 x 1 mL mix] & [1 x 1.6 mL buffer A] & [1 x 0.8 mL buffer B]	PB10.24-08
	400 x 50 µL reactions	[10 x 1 mL mix] & [5 x 1.6 mL buffer A] & [5 x 0.8 mL buffer B]	PB10.24-40
PCRBIO Rapid Extract Lysis Kit	80 x 50 µL reactions	[1 x 1.6 mL buffer A] & [1 x 0.8 mL buffer B]	PB15.11-08
	240 x 50 µL reactions	[3 x 1.6 mL buffer A] & [3 x 0.8 mL buffer B]	PB15.11-24

For bulk and custom services please contact info@pcrbio.com

Isothermal Amplification

- Fast
- High yield
- Versatile

IsoFast™ **Bst Polymerase**

IsoFast™ Bst Polymerase is a recombinant form of the large fragment of Bst DNA polymerase containing strand-displacing 5'-3' polymerase activity. The enzyme offers fast amplification and strong strand displacement capabilities, making it ideal for nucleic acid amplification methods such as isothermal amplification.

IsoFast™ Bst Polymerase is provided with an advanced 2-part buffer system ensuring high yields and performance even under difficult conditions. The enzyme is available in a range of different presentations including a convenient 2x mix.

Features

- Has strand-displacing 5'-3' polymerase activity
- Lacks 5'-3' exonuclease activity
- Sythesises DNA at a constant temperature
- Active over a broad temperature range, with an optimum of 65 ºC
- Gives rapid and consistent amplification across a wide range of templates
- Includes a 2-part buffer system for higher yield under difficult conditions
- 30 minute protocol
- Flexible formats, with the option of fluorescent dye
- Also available as a 2x ready mix
- Glycerol-free enzyme

Applications

- Whole genome amplification
- Multiple displacement amplification
- Isothermal amplification
- Loop mediated isothermal amplification (LAMP)
- Molecular diagnostics
- Field diagnostics

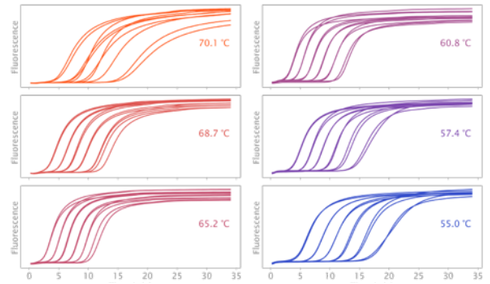


Figure 1. Active over a broad temperature range

Isothermal amplification of scaffolding protein gene (using M13mp18 ssDNA genome) was performed using IsoFast™ Bst Mix. 6 serial dilutions of ssDNA template were used and the reaction run at the indicated temperature for 34 mins. A BioRad CFX96 Touch instrument was used to record fluorescence every 10 sec. IsoFast™ Bst Mix is active over a broad temperature range.

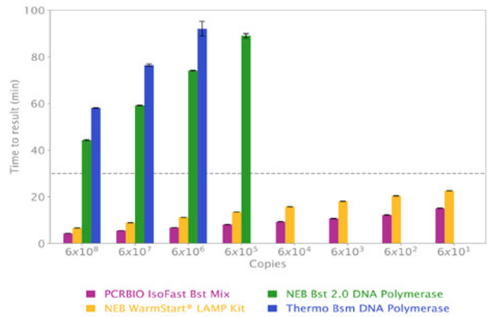


Figure 2. Fast and consistent isothermal amplification performance

Isothermal amplification of scaffolding protein gene from M13mp18 ssDNA genome using IsoFast™ Bst Mix, NEB WarmStart® LAMP Kit, NEB Bst 2.0 DNA Polymerase and Thermo Bsm DNA Polymerase. The manufacturers' protocols were followed to set up the reaction mix. 8 serial dilutions of ssDNA template were used, corresponding to the number of copies of M13 genome indicated. The reaction was run at 65 °C for 100 mins. A BioRad CFX96 Touch instrument was used to record fluorescence every 10 sec. The time to result is the time required to reach the same fluorescent threshold.

Product name	Pack size	Presentation	Cat. no.
IsoFast™ Bst Polymerase	1600 units	[1 x 200 µL 8 U/µL] & [1 x 500 µL Buffer A] & [1 x 1 mL Buffer B]	PB80.10-01
	8000 units	[1 x 1 mL 8 U/µL] & [2 x 1.25 mL Buffer A] & [3 x 1.7 mL Buffer B]	PB80.10-08
IsoFast™ Bst Polymerase with Dye	1600 units	[1 x 200 µL 8 U/µL] & [1 x 500 µL Buffer A] & [1 x 1 mL Buffer B] & [2 x 125 µL Dye]	PB80.11-01
	8000 units	[1 x 1 mL 8U/ µL] & [2 x 1.25 mL Buffer A] & [3 x 1.7 mL Buffer B] & [2 x 625 µL Dye]	PB80.11-08
IsoFast™ Bst Mix	100 reactions	[1 x 1.25 mL Mix] & [1 x 125 µL Dye]	PB80.12-01
	500 reactions	[5 x 1.25 mL Mix] & [1 x 625 µL Dye]	PB80.12-05
Fluorescent Dye	200 reactions	1 x 125 µL	PB80.30-02
	1000 reactions	1 x 625 µL	PB80.30-10

IsoFast™ **Bst 1-Step Mix**

- Fast
- High yield
- Versatile

IsoFast™ Bst 1-Step Mix is a dual enzyme system for rapid and sensitive isothermal amplification of RNA targets in one step. The kit contains IsoFast™ Bst Polymerase, which provides strong strand displacement capabilities, together with the highly active modified MMLV RTase Go.

Features

- Validated for qualitative detection of SARS-CoV-2 nucleic acid
- Includes strand-displacing IsoFast™ Bst Polymerase in a 2x mix format
- Supplied with RTase Go plus RNase inhibitor
- Reaction is carried out at a constant temperature (65 ˚C)
- Gives rapid and consistent amplification across a wide range of templates
- Includes an advanced buffer system for higher yield under difficult conditions
- Supplied with a fluorescent dye for real-time detection
- 30 minute protocol

Applications

- Multiple displacement amplification
- Isothermal amplification
- Loop mediated isothermal amplification (LAMP)
- Molecular diagnostics
- Field diagnostics

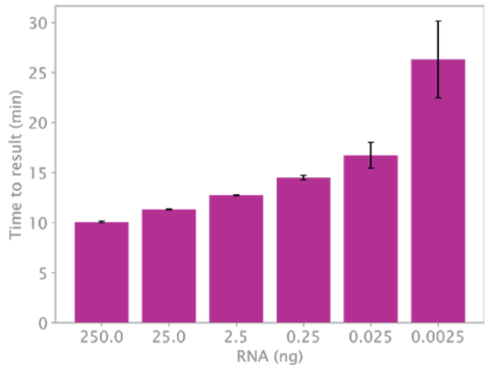


Figure 1. Rapid and sensitive amplification performance

Isothermal amplification of beta actin from human lung total RNA using IsoFast™ Bst 1-Step Mix. A primer mix of 0.2 µM for F3 and B3 primers, 1.6 µM for FIP and BIP primers and 0.8 µM for LoopF and LoopB primers was used. The total reaction volume was 25 µL. 7 serial dilutions of template were used, corresponding to 250ng, 25ng, 2.5 ng, 250 pg, 25 pg, 2.5 pg and 250 fg of total RNA. The reaction was run at 65 ˚C for 34 minutes. A BioRad CFX96 Touch instrument was used to record fluorescence every 10 seconds. Time to result is the time required to reach the same fluorescent threshold. IsoFast™ Bst 1-Step Mix provides rapid and sensitive amplification down to 2.5 pg of total RNA.

Product Name	Pack Size	Presentation	Cat. no.
IsoFast™ Bst 1-Step Mix	100 Reactions	[1 x 1.25 mL Bst Mix] & [1 x 200 µL RTase Go] & [1 x 125 µL Dye]	PB80.21-01
	500 Reactions	[4 x 1.6 mL Bst Mix] & [1 x 1 mL RTase Go] & [1 x 625 µL Dye]	PB80.21-05

IsoFast™ Bst 1-Step Mix is designed for reverse transcription of target RNA and subsequent isothermal amplification in a single tube.

The kit utilises IsoFast™ Bst Polymerase for its strong strand displacement activity, enabling DNA synthesis at a constant temperature (65 ˚C) without the need for thermal cycling. Representing the large fragment of *Geobacillus stearothermophilus* (formerly *Bacillus stearothermophilus*) DNA Polymerase, this portion of the protein catalyses the 5'-3' synthesis of DNA but does not contain the 5'-3' exonuclease domain.

Reverse transcription of target RNA is carried out by the thermostable and extremely active RTase Go, which is blended with RNase inhibitor to prevent degradation of RNA by contaminating RNase.

Designed for fast amplification, IsoFast™ Bst 1-Step Mix gives rapid and consistent results across a wide range of sample types and is validated for qualitative detection of SARS-CoV-2 nucleic acid. The buffer chemistry ensures high yield and performance even under difficult conditions, for example when inhibitors are present.

IsoFast™ Bst 1-Step Mix requires only the addition of primers, template and water. The kit is provided with a separate tube of fluorescent dye to allow real-time detection with any qPCR instrument.

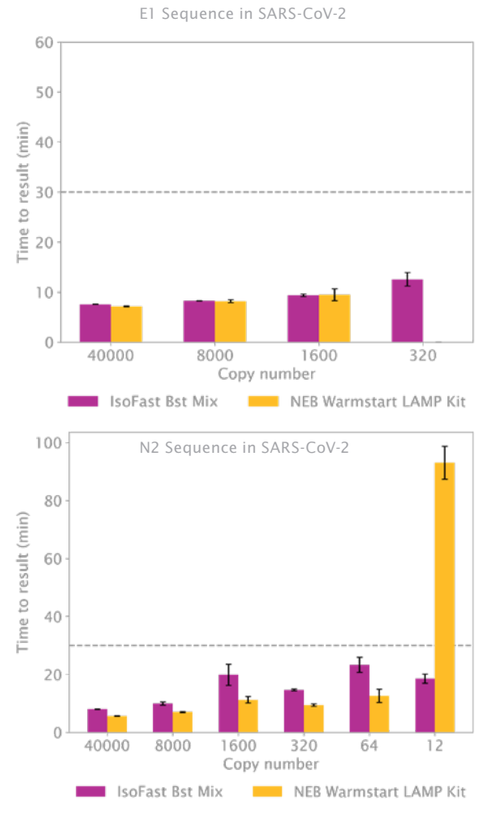


Figure 2. Rapid detection of SARS-CoV-2 E1 and N2 sequences

Isothermal amplification of E1 (top panel) and N2 (bottom panel) targets in SARS-CoV-2 RNA using IsoFast™ Bst 1-Step Mix and compared to results obtained with NEB WarmStart® LAMP Kit. A primer mix of 0.2 µM for F3 and B3, 1.6 µM for FIP and BIP and 0.8 µM for LoopF and LoopB primers was used. The total reaction volume was 25 µL. 7 serial dilutions of template were used, corresponding to 40 000, 8000, 1600, 320, 64, 12.8, 2.56 copies of SARS-CoV-2 RNA. The reaction was run at 65 ˚C for 100 minutes. A BioRad CFX96 Touch instrument was used to record fluorescence every 10 seconds. Time to result is the time required to reach the same fluorescent threshold. IsoFast™ Bst 1-Step Mix enables rapid detection of SARS-CoV-2 RNA.

Next Generation Sequencing

- Accurate library quantification
- Wide dynamic range
- Universal applications

NGSBIO **Library Quant Kit for Illumina®**

The NGSBIO Library Quant Kit contains all the components required for accurate and sensitive quantification of libraries prepared for Illumina® NGS systems. The kit uses qPCR to specifically quantify adapter-ligated DNA molecules, ensuring optimal cluster densities for improved sequencing efficiency and quality of data.

The NGSBIO Library Quant Kit offers a reliable qPCR-based method for the quantification of libraries prepared for Illumina® NGS systems. The kit includes 5 DNA standards, primers specific to the P5 and P7 Illumina® adapter sequences and qPCRBIO SyGreen Mix. The advanced qPCR buffer system has been developed using our high-throughput smart screen technology to ensure efficient amplification of all your libraries, including those that are GC or AT-rich. The kit is also supplied with a convenient library dilution buffer.

qPCR is considered the best method for quantifying NGS libraries as it only measures adapter-bound molecules that can be used as templates for library amplification and cluster generation. The NGSBIO Library Quant Kit enables highly accurate quantification crucial for optimal cluster densities and greater sequencing efficiency.

The NGSBIO Library Quant Kit is compatible with all qPCR platforms and is optimised to give consistent and reproducible library quantification across a wide range of sample types, fragment sizes (up to 1000 bp), concentrations and GC content.

Features

- Uses qPCR to accurately and rapidly quantify a library prior to sequencing
- Gives consistent library quantification across a wide range of sample types, concentrations, fragment sizes and GC content
- Uses a single extension time for all libraries
- Allows specific quantification of only DNA molecules that can be sequenced by NGS
- Uses antibody-mediated hot start technology to ensure all reactions start simultaneously
- Compatible with all Illumina® instruments and qPCR platforms
- Suitable for manual and automated workflows
- Easily calculate library concentration with the online NGSBIO Library Quantification Tool

Kit Contents

- qPCRBIO SyGreen Mix
- Illumina® primers
- Dilution buffer
- 5 DNA standards

Product name	Pack size	Presentation	Cat. no.
NGSBIO Library Quant Kit for Illumina® Lo-ROX	100 reactions	[1 x 1 mL mix] & [1 x 0.2 mL primers] & [1 x 0.6 mL buffer] & [5 x 30 µL standards]	PB71.11-01
	500 reactions	[5x1 mL mix] & [1x1 mL primers] & [2x1.5 mL buffer] & [5 x 85 µL standards]	PB71.11-05
NGSBIO Library Quant Kit for Illumina® Hi-ROX	100 reactions	[1 x 1 mL mix] & [1 x 0.2 mL primers] & [1 x 0.6 mL buffer] & [5 x 30 µL standards]	PB71.12-01
	500 reactions	[5 x 1 mL mix] & [1 x 1 mL primers] & [2 x 1.5 mL buffer] & [5 x 85 µL standards]	PB71.12-05
NGSBIO Library Quant Kit for Illumina® Separate-ROX	100 reactions	[1 x 1 mL mix] & [1 x 0.2 mL ROX] & [1 x 0.2 mL primers] & [1 x 0.6 mL buffer] & [5 x 30 µL standards]	PB71.14-01
	500 reactions	[5 x 1 mL mix] & [1 x 0.2 mL ROX] & [1 x 1 mL primers] & [2 x 1.5 mL buffer] & [5 x 85 µL standards]	PB71.14-05
NGSBIO DNA Standards for Illumina®	85 µL each	5 x 85 µL	PB71.22-05

NGSBIO **Library Quant Kit Blue for Illumina®**

- Accurate quantification
- Wide dynamic range
- Universal applications

The NGSBIO Library Quant Kit Blue combines the reliability of the NGSBIO Library Quant Kit with an easy-to-see blue qPCR mix to enhance visibility and streamline high-throughput workflows. Designed for accurate and sensitive quantification of libraries prepared for Illumina® NGS systems, the kit specifically quantifies adapter-ligated DNA molecules to ensure optimal cluster densities while minimising handling errors.

Features

- Easy-to-see blue mix for greater pipetting precision and accuracy
- Uses qPCR to accurately and rapidly quantify a library prior to sequencing
- Gives consistent library quantification across a wide range of sample types, concentrations, fragment sizes and GC content
- Uses a single extension time for all libraries
- Allows specific quantification of only DNA molecules that can be sequenced by NGS
- Uses antibody-mediated hot start technology to ensure all reactions start simultaneously
- Compatible with all Illumina® instruments and qPCR platforms
- Suitable for manual and automated workflows
- Easily calculate library concentration with the online NGSBIO Library Quantification Tool

Kit Contents

- qPCRBIO SyGreen Mix
- Illumina® primers
- Dilution buffer
- 5 DNA standards

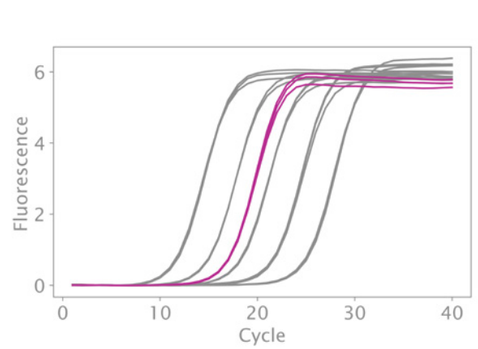


Figure 1. Amplification curves

An adapter-ligated library sample (purple) is run alongside six standard templates (grey) provided in the NGSBIO Library Quant Kit Blue.

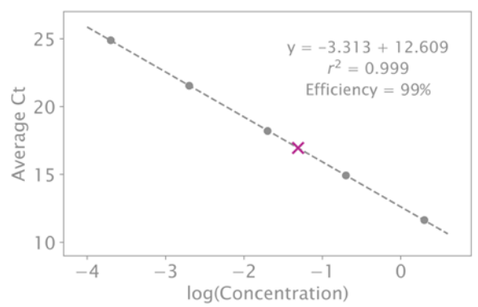


Figure 2. Standard curve

The Cts of the amplification curves are plotted against the log of the concentration of the standard templates. A linear curve is fitted through the standards. The concentration of the unknown sample is then calculated from its position on the curve.

The NGSBIO Library Quant Kit Blue provides reliable qPCR-based quantification of libraries prepared for Illumina® NGS systems. The kit includes 5 DNA standards, primers specific to the P5 and P7 Illumina® adapter sequences and qPCRBIO SyGreen Blue Mix. Our blue qPCR mixes contain a non-reactive dye to improve reaction mix visibility, allowing greater pipetting precision and reduced errors without affecting your real-time PCR performance.

qPCR is considered the best method for quantifying NGS libraries as it only measures adapter-bound molecules that can be used as templates for library amplification and cluster generation. The NGSBIO Library Quant Kit Blue enables highly accurate quantification crucial for optimal cluster densities and greater sequencing efficiency.

The DNA standards supplied are precisely measured and ready-to-use, covering 5 orders of magnitude from 2 pM to 0.2 fM. The kit is suitable for quantification of even low concentration libraries including libraries constructed without a PCR amplification step.

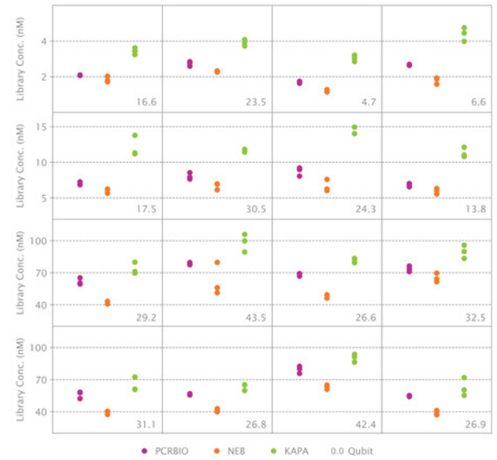


Figure 3. High consistency and reproducibility of quantification

Quantification of 16 adapter-ligated libraries using NGSBIO Library Quant Kit (purple), NEBNext® Library Quant Kit (orange) and KAPA Library Quantification Kit (green). The NGSBIO Library Quant Kit shows less spread and greater consistency among replicates. The quantification results are within those obtained by two leading manufacturers of NGS library quantification kits. The number on the bottom right corner of each graph represents the concentration of dsDNA obtained using a Qubit Fluorometer from Invitrogen.

Product name	Pack size	Presentation	Cat. no.
NGSBIO Library Quant Kit Blue for Illumina® Lo-ROX	100 reactions	[1 x 1 mL mix] & [1 x 0.2 mL primers] & [1 x 0.6 mL buffer] & [5 x 30 µL standards]	PB71.15-01
	500 reactions	[5 x 1 mL mix] & [1 x 1 mL primers] & [2 x 1.5 mL buffer] & [5 x 85 µL standards]	PB71.15-05
NGSBIO Library Quant Kit Blue for Illumina® Hi-ROX	100 reactions	[1 x 1 mL mix] & [1 x 0.2 mL primers] & [1 x 0.6 mL buffer] & [5 x 30 µL standards]	PB71.16-01
	500 reactions	[5 x 1 mL mix] & [1 x 1 mL primers] & [2 x 1.5 mL buffer] & [5 x 85 µL standards]	PB71.16-05
NGSBIO Library Quant Kit Blue for Illumina® Separate-ROX	100 reactions	[1 x 1 mL mix] & [1x0.2 mL ROX] & [1 x 0.2 mL primers] & [1 x 0.6 mL buffer] & [5 x 30 µL standards]	PB71.17-01
	500 reactions	[5 x 1 mL mix] & [1 x 0.2 mL ROX] & [1 x 1 mL primers] & [2 x 1.5 mL buffer] & [5 x 85 µL standards]	PB71.17-05
NGSBIO DNA Standards for Illumina®	85 µL each	5 x 85 µL	PB71.22-05

We pride ourselves on the service we provide to our customers and offer before and after sales support to help you achieve the most from our market-leading polymerases and mixes.

To place an order, or for more information and technical assistance, please contact us using the details below.

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