Biolabmix®

Biosan Ltd and Biolabmix Ltd are research and production companies focused on reagents for molecular biology, including reagents for Polymerase Chain Reaction (PCR) - important instrument in clinical diagnostics and research laboratories. We are the largest Russian manufacturer of a number of crucial PCR components.

Guarantee high quality and provide real analytical data

Fast delivery worldwide. The product remains 100% quality after transportation

Certificate ISO 9001:2015
Certificate ISO 13485:2016

Technical supporting our customers by phone or email

Competitive Pricing Strategy

CONTENTS

NUCLEIC ACID PURIFICATION AND ISOLATION KITS

Applications:

- Genomic DNA isolation
- Plasmid DNA isolation
- Total cellular RNA isolation
- Plants DNA and RNA isolation
- Isolation and purification of DNA from FFPE blocks
- RNA/DNA purification systems on microcentrifuge spin columns
- PCR product purification
- Isolation and purification of DNA and RNA from agarose gels
- Nimble DNA and RNA extraction
- Store and stabilization of cellular RNA in tissues

Features:

RNA, DNA and protein isolation

- **Lira. Reagent for RNA, DNA, proteins isolation.** Lira reagent is intended for guanidinium thiocyanate-phenol-chloroform extraction of RNA, DNA and proteins.

- **DNA and RNA isolation and precipitation kit (with precipitant).** Isolation of DNA and RNA from animal and bacterial cell cultures, swabs/scrapes, viruses by precipitation method. The lysis buffer contains a DNA/RNA co-precipitant.
- **RNA stabilization reagent.** The reagent preserves the integrity of RNA and DNA in cultured animal and bacterial cells, animal and plant tissues.

RNA isolation

- **RUplus. Column total RNA isolation kit.** The kit for isolation and purification of total RNA from animal and bacterial (gram-negative and gram-positive bacteria) cell cultures, swabs/scrapes of epithelial cells, viruses.

- **R-Plants. Column total plants tissues RNA isolation kit.** The kit for isolation and purification of total RNA from following plants samples: leaves, needles, stamens; fruits, berries, seeds; mosses, lichens; unicellular algae.
- **LRU. Column Total RNA and small RNA isolation kit.** The kit for isolation and purification of total RNA and small forms of RNA (up to 200 nt, including miRNA) from animal and bacterial cell cultures, animal and plant tissues. The kit contains Lira reagent.
- **DR. Column reaction mixtures DNA and RNA isolation kit.** The kit for purification of DNA and RNA (from 50 to 10000 nt) from reaction mixtures components, for example, dNTPs, enzymes, non-incorporated radioactive and fluorescent labels, etc.
- **N-Gel. Column DNA and RNA agarose gels isolation kit.** The kit for purification of DNA and RNA from >3% agarose gels up to 200 mg.
- **NAmagp. Magnetic total RNA isolation kit.** The kit for isolation and purification of total RNA from animal and bacterial cell cultures, swabs/scrapes of epithelial cells, viruses on magnetic particles. It is possible to isolate RNA both manually using a magnetic stand, and automatically using automatic stations. Ready-to-use protocols for Auto-Pure96 (Allsheng) and KingFisher Flex (ThermoScientific).
- **MRP. Magnetic total RNA isolation kit.** The kit for isolation and purification of total RNA from swabs/scrapes of epithelial cells, viruses on magnetic particles. It is possible to isolate RNA both manually using a magnetic stand, and automatically using automatic stations. Ready-to-use protocols for Auto-Pure96 (Allsheng) and KingFisher Flex (ThermoScientific).

DNA isolation

- **DU. Column cells, tissues, blood genomic DNA isolation kit.** The kit for isolation and purification of genomic DNA from animal and bacterial (gram-negative and gram-positive bacteria) cell cultures, animal and plant tissues, and blood.

- **D-Plants. Column plants tissues DNA isolation kit.** The kit for isolation and purification of genomic DNA from following plants samples: leaves, needles, stamens; roots, stems, bark; fruits, berries, seeds; mosses, lichens; unicellular algae. RNase A solution is included.

- **D-Tissues. Column animal tissues DNA isolation kit.** The kit for isolation and purification of of genomic DNA from animal tissues. Proteinase K solution is included.

- **D-FFPE. Column FFPE DNA isolation kit.** The kit for isolation and purification of DNA from sections/cuts from FFPE blocks. DNA fragments up to 1000 b.p. can be isolated. Proteinase K and RNase A solution are included.

- **D-Cells. Column animal and bacterial cells DNA isolation kit.** The kit for isolation and purification of genomic DNA from animal and bacterial (gram-negative and gram-positive bacteria) cell cultures. Proteinase K solution is included.

- **D-Blood. Column blood DNA isolation kit.** The kit for isolation and purification of genomic DNA from following samples: whole blood, plasma and blood serum, cryoprecipitate, leukocytes, cerebrospinal fluid. Proteinase K solution is included.

- **D-Swabs. Column swabs DNA isolation kit.** The kit for isolation and purification of genomic DNA from following samples: buccal epithelium, swabs from mucous membranes, saliva, transport media samples with mucosal swab samples, smears from surfaces. Proteinase K solution and transport media for swabs are included.

- **DR. Column reaction mixtures DNA and RNA isolation kit.** The kit for purification of DNA and RNA (from 50 to 10000 nt) from reaction mixtures components, for example, dNTPs, enzymes, non-incorporated radioactive and fluorescent labels, etc.

- **N-Gel. Column DNA and RNA agarose gels isolation kit.** The kit for purification of DNA and RNA from >3% agarose gels up to 200 mg.

- **Fast Lysis Buffer. Fast DNA isolation kit.** The kit for isolation of genomic DNA from animal and bacterial (gram-negative and gram-positive bacteria) cell cultures, buccal swabs, saliva. Proteinase K solution is included. Lysate ready-to-use for PCR.

- **MagBlood. Magnetic blood DNA isolation kit.** The kit for isolation and purification of DNA from whole blood samples on magnetic particles.

Plasmid DNA isolation

- **Plasmid-mini. Column plasmid DNA isolation mini kit.** The kit for isolation and purification of plasmid DNA from up to 5 ml E. coli cell cultures. Column binding capacity up to 50 µg. RNase A solution and pH-indicator are included.

- **Plasmid-maxi. Column plasmid DNA isolation maxi kit.** The kit for isolation and purification of plasmid DNA from up to 100 ml E. coli cell cultures. Column binding capacity up to 1.5 mg.

RNA, DNA and protein isolation

Name	Cat. #	Prep	Technical features
Lira. Reagent for RNA, DNA, proteins isolation	LR-100	100*	Technical features. RNA is suited for RT-PCR, Northern blot, etc. DNA is suited for PCR, Southern blot, etc. Proteins is suited for Western blot, etc.
Lira+ kit for RNA and DNA isolation	LRP-100-2	100*	Technical features. RNA is suited for RT-PCR, Northern blot, etc. DNA is suited for PCR, Southern blot, etc.
Lira+ kit for RNA, DNA, proteins isolation	LRP-100-3	100*	Technical features. RNA is suited for RT-PCR, Northern blot, etc. DNA is suited for PCR, Southern blot, etc. Proteins is suited for Western blot, etc.
DNA and RNA isolation and precipitation kit (with precipitant)	PN-100	100	The isolated DNA can be used for PCR, the isolated RNA can be used for RT-PCR
RNA stabilization reagent	St-100		The samples are stored in RNA stabilization solution for at least 1 day at 37 °C, 1 week at 15-25 °C, 1 month at 2-8 °C, 1 year at -20 °C without a noticeable decrease in RNA quality.

*at the rate of 1 ml of reagent per 1-10×10^7 of cells, 50-100 mg of tissues.

RNA isolation

Name	Cat. #	Prep	Technical features
RUplus. Column total RNA isolation kit.	RUplus-250	250	The isolated RNA contains traces of DNA. When using RNA in applications that are sensitive to the presence of DNA, PCR as an example, DNAase treatment is required.
R-Plants. Column total plants tissues RNA isolation kit.	R-Plants-250	250	Most disruptive kit for plant membranes and further RNA isolation. During the isolation process, the integrity of the RNA is maintained. The integrity of the isolated RNA depends on storage conditions, preparation, and sample type. When working with samples with a high stage of degradation, it is possible to isolate only fragmented RNA due to its degradation in such samples. The isolated RNA contains traces of DNA.
LRU. Column Total RNA and small RNA isolation kit.	LRU-100-50	100	100 preps for total RNA isolation, 50 preps for small RNA isolation. DNase treatment is recommended. RNA is suited for RT-PCR, Northern blot, etc.
DR. Column reaction mixtures DNA and RNA isolation kit.	DR-250	250	DNA and RNA are suited for PCR, transcription, nick-translation, sequencing, etc.

Name	Cat. #	Prep	Technical features
N-Gel. Column DNA and RNA agarose gels isolation kit.	N-Gel-250	250	DNA and RNA are suited for PCR, transcription, nick-translation, sequencing, etc. Buffer for agarose gel solubilization (buffer PB) PB contains pH-indicator.
NAmagp. Magnetic total RNA isolation kit.	NAmagp100	100	Manually by using a magnetic stand and automatically by using nucleic acid extractors with magnetic rods.
MRP. Magnetic total RNA isolation kit.	MRP100	100	Manually by using a magnetic stand and automatically by using nucleic acid extractors with magnetic rods. Lysis and wash buffers contain isopropanol, buffers ready to use, no ethanol required.

DNA isolation

Name	Cat. #	Prep	Technical features
DU. Column cells, tissues, blood genomic DNA isolation kit	DU-250	250	DNA is suited for PCR, nicktranslation, etc.
D-Plants. Column plants tissues DNA isolation kit	D-Plants-250	250	Powerful kit for working with plants. DNA is suited for PCR, nicktranslation, sequencing, etc.
D-Tissues. Column animal tissues DNA isolation kit	D-Tissues-250	250	DNA is suited for PCR, nicktranslation, NGS, etc. Proteinase K solution is included.
D-FFPE. Column FFPE DNA isolation kit	D-FFPE-250	250	DNA is suited for PCR, nick translation, sequencing, genotyping, SNP analysis, etc. DNA fragments up to 1000 b.p. can be isolated. Proteinase K solution is included.
D-Cells. Column animal and bacterial cells DNA isolation kit	D-Cells-250	250	DNA is suited for PCR, nicktranslation, NGS, etc. Proteinase K solution is included.
D-Blood. Column blood DNA isolation kit	D-blood-250	250	DNA is suited for PCR, nicktranslation, NGS, etc. Proteinase K solution is included.
D-Swabs. Column swabs DNA isolation kit	D-Swabs-250	250	DNA is suited for PCR, nicktranslation, NGS, etc. Proteinase K solution is included.
DR. Column reaction mixtures DNA and RNA isolation kit	DR-250	250	DNA and RNA are suited for PCR, transcription, nick-translation, sequencing, etc.
N-Gel. Column DNA and RNA agarose gels isolation kit	N-Gel-250	250	DNA and RNA are suited for PCR, transcription, nick-translation, sequencing, etc. Buffer for agarose gel solubilization (buffer PB) PB contains pH-indicator.

Name	Cat. #	Prep	Technical features
Fast Lysis Buffer. Fast DNA isolation kit	FL-bio200	200	Lysate ready-to-use for PCR, no purification is required.
MagBlood. Magnetic blood DNA isolation kit	MagBlood-100	100	DNA is suited for PCR, nicktranslation, NGS, etc.

Plasmid DNA isolation

Name	Cat. #	Prep	Technical features
Plasmid-mini. Column plasmid DNA isolation mini kit	Plasmid-250-mini	250	Plasmid DNA is suited for PCR, restriction, sequencing, transformation, transfection, etc. RNase A solution is included. Buffer for lysis (buffer LB) PB contains pH-indicator. Column binding capacity up to 50 µg. Isolation from up to 5 ml *E. coli* cell cultures.
Plasmid-maxi. Column plasmid DNA isolation maxi kit	Plasmid-20 maxi	20	Plasmid DNA is suited for PCR, restriction, sequencing, transformation, transfection, etc. RNase A solution is included. Buffer for lysis (buffer LB) PB contains pH-indicator. Column binding capacity up to 1.5 mg. Isolation from up to 100 ml *E. coli* cell cultures.

REVERSE TRANSCRIPTION

Applications:

- First strand cDNA synthesis for RT-PCR and RT-qPCR analysis
- Gene expression analysis
- DNA labeling for microarray probes production
- RNA structure analysis by primer extension

Features and advantages

Reverse Transcriptase M-MuLV-RH	Reverse Transcriptase RNAscribe RT
cDNA synthesis up to 7 kb	cDNA synthesis up to 9 kb
Lacks RNase H activity	Suppressed RNase H activity
Active up to 50 °C	Active up to 65 °C
Contains an RNase inhibitor	Contains an RNase inhibitor

Name	Cat. #	Pack	Optimum tempera-ture, °C	Transcript length, up to	Primers	Q-ty of kit tubes per reaction
M-MuLV-RH Reverse Transcription Kit	R01-50	50 reactions (20 µl)	42-45	7 kb	-	5
	R01-250	250 reactions (20 µl)				
Reverse Transcriptase M-MuLV-RH	R03-10	10 000 U	55	9 kb	+	2
	R03-50	50 000 U				
BioMaster RNAscribe RT Plus (5×)	R02-100	100 reactions (20 µl)	42-45	7 kb	+	1
	R02-400	400 reactions (20 µl)				
Reverse Transcriptase RNAscribe RT	R04-10	10 000 U	55	9 kb	+	3
	R04-50	50 000 U				

REVERSE TRANSCRIPTION-POLYMERASE CHAIN REACTION (RT-PCR)

Features:

- Easy and convenient in use
- Contains an inhibitor of RNases
- High specificity and sensitivity
- Standardization of the same-type experiments (reduced pipetting error during mixing PCR components in a series of experiments)
- Products can be further subjected to TA cloning due to the presence of dA overhangs in amplified DNA fragment
- Shorter step of sample preparation for the analysis of PCR results. No loading buffer is required due to the high density of the mixture (kits with C in catalog number).

RT-PCR with real-time detection

Applications:

- single gene expression analysis / MGE analysis
- one-step RT-PCR and RT-qPCR

Limits of use:
Not recommended to use for fragments > 5 kbp

Name	Cat. #	Fluorescent intercalating dye	Probes	RT step, up to °C	Colored mix
BioMaster RT-qPCR (2×)	RM03-80 RM03-400	–	+	50	–
BioMaster RT-qPCR-Extreme (2×)	RM01-80 RM01-400	–	+	60	–
BioMaster RT-PCR SYBR-Blue (2×)	RM04-80 RM04-400	+	–	50	+

*reaction mixture volume 25 µl

RT-PCR with endpoint detection

Applications:

- one-step RT-PCR
- working on long RNAs up to 7 kb.
- production of the cloning products

Name	Cat. #	Contains dye	Amplicon length, up to kbp	RT step, up to °C	Ready-to-load
BioMaster RT-PCR Standard (2×)	RM02-40 RM02-200	–	5	50	–
BioMaster RT-PCR Color (2×)	RMC02-40 RMC02-200	+	5	50	+
BioMaster RT-PCR Premium (2×)	RM05-40 RM05-200	–	7	50	–
BioMaster RT-PCR Premium Color (2×)	RMC05-40 RMC05-200	+	7	50	+
BioMaster RT-PCR Extra (2×)	RM06-40 RM06-200	–	9	65	–

*reaction mixture volume 50 µl

PCR KITS AND REAGENTS

END-POINT PCR

Applications:

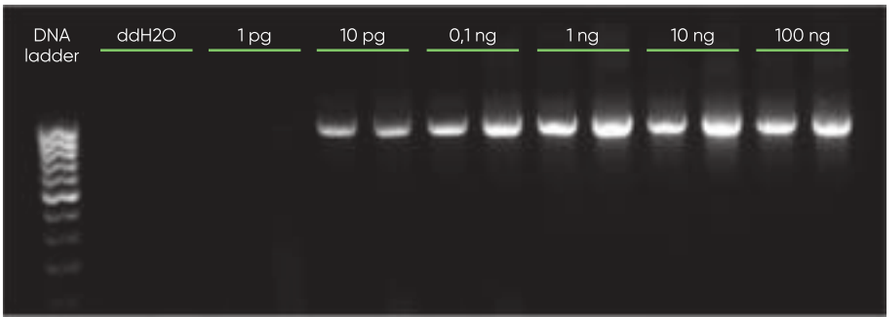
- Conventional PCR;
- Hot-start PCR;
- Amplification of GC-rich and complicated templates.;
- RT-PCR;
- Generation of PCR products for TA cloning.

Features and advantages

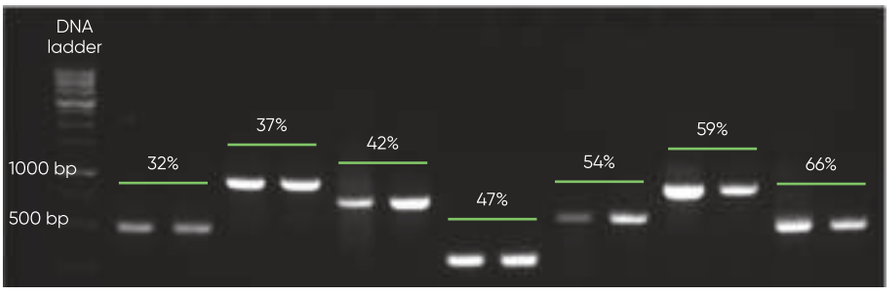
BioMaster HS-Taq PCR/ PCR Color / PCR Sp	PCR kits with HS-Taq
Hot-start enzyme for increasing specificity and sensitivity	
Reduced preparation time (mastermixes contain DNA pol)	Opportunity to variate DNA pol activity (all reaction components in individual tubes)
5-min heating activation of HS-Taq DNA pol	
Low chance of contamination	
Standardization of the same-type experiments	

Name	Cat. # (50 µl per react.)	Q-ty	Hot Start	Ready-to-use reaction mix	PCR of GC-rich templates	Optimizing for the template–primer complex	Ready-to-load
PCR kit with HS-Taq (+$MgCl_2$)	KH016-500	500 U	+	–	–	+	–
	KH016-2250	2250 U					
PCR kit with HS-Taq	KH017-500	500 U	+	–	–	+	–
	KH017-2250	2250 U					
Extended PCR kit with HS-Taq	KH018-500	500 U	+	–	+	+	–
	KH018-2500	2250 U					
BioMaster HS-Taq PCR (2×)	MH010-200	200 react.	+	+	–	–	–
	MH010-1020	1020 react.					
BioMaster HS-Taq PCR - Color (2×)	MHC010-200	200 react.	+	+	–	–	+
	MHC010-1020	1020 react.					
BioMaster HS-Taq PCR Sp (2×)	MH011-200	200 react.	+	+	+	–	–
	MH011-1020	1020 react.					

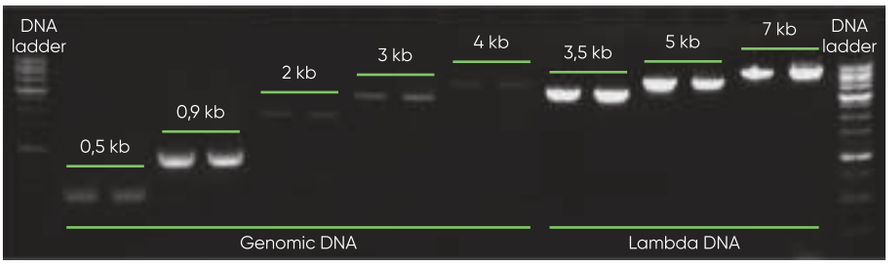
BioMaster HS-Taq PCR (2×). High sensitivity mastermixes



Efficient for routine use



Wide range of template length



REAL-TIME PCR WITH FLUORESCENT PROBES

Applications:

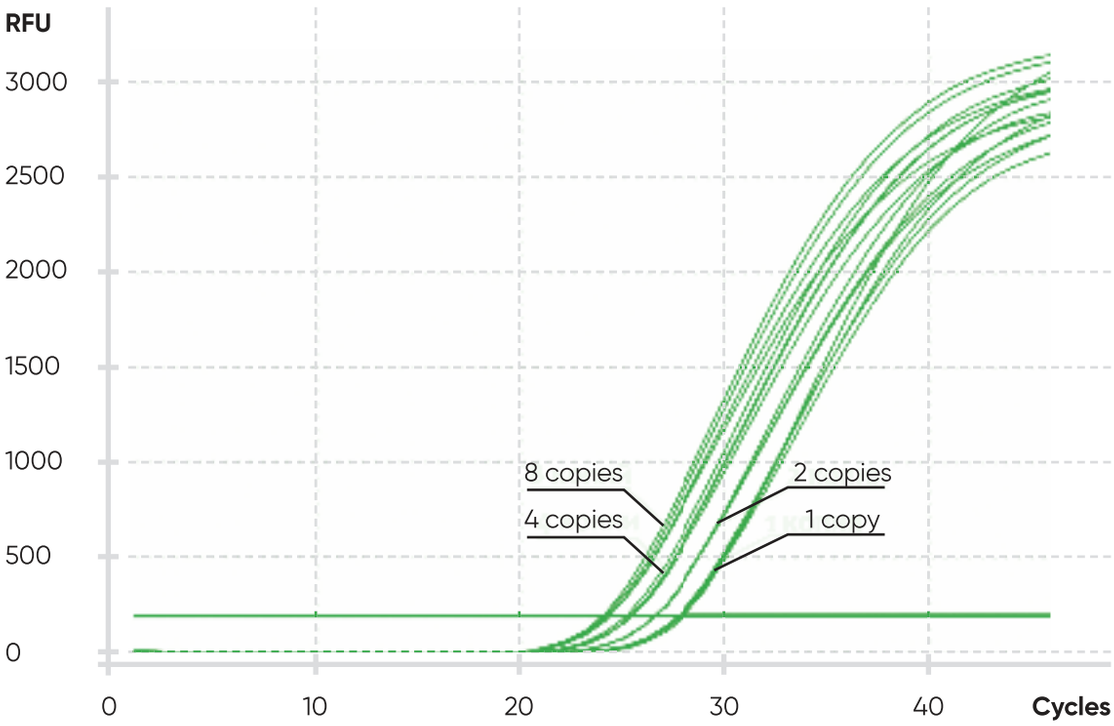
- Real-time quantitative PCR
- The second step of RT-PCR in gene expression analysis
- Multiplex PCR analysis
- Amplification of GC-rich (>66 %) and complicated DNA regions
- Genotyping

Features

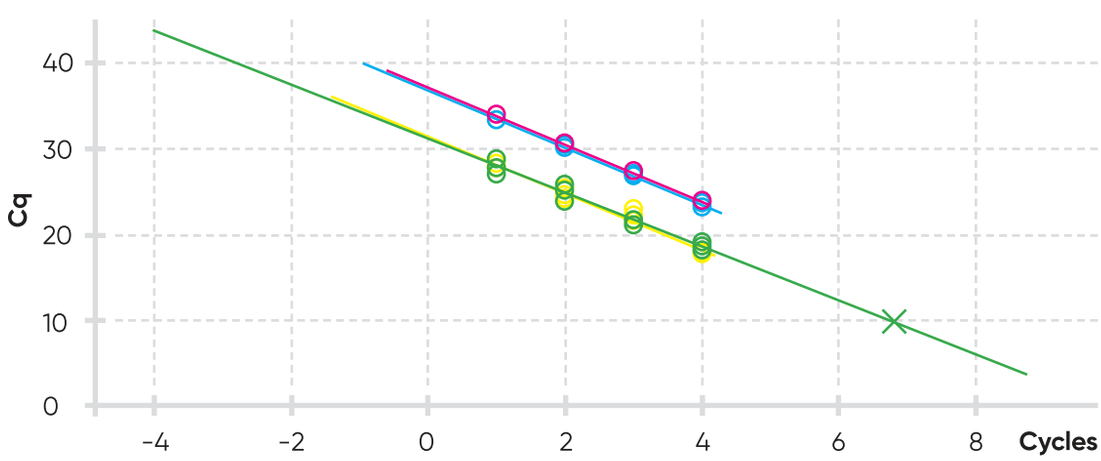
- High specificity and sensitivity (detection of 1-10 copies of targets)
- Accurate quantitative analysis at 8-9-fold dilution
- Various ROX concentrations
- The solution composition allows long-term storage. Storage of BioMaster HS-qPCR (2×) in a place protected from light: at +25 °C – 7 days; at +4 °C - 4 months; at -20°C – 18 months; no more than 50 cycles of freezing - defrosting.

Name	Cat. # (25 ul per reaction)	Hot-Start	ROX Reference dye	Amplifi-cation of GC-rich templates	Cross-conta-mination protection
BioMaster HS-qPCR (2×)	MH020-400, MH020-2040	+	–	–	–
BioMaster UDG HS-qPCR (2×)	MH021-400, MH021-2040	+	–	–	+
BioMaster HS-qPCR Sp (2×)	MH022-400 MH022-2040	+	–	+	–
BioMaster HS-qPCR Hi-ROX (2×)	MHR020-400 MHR020-2040	+	High	–	–
BioMaster HS-qPCR Lo-ROX (2×)	MHR021-400 MHR021-2040	+	Low	–	–
BioMaster UDG HS-qPCR Hi-ROX (2×)	MHR022-400 MHR022-2040	+	High	–	+
BioMaster UDG HS-qPCR Lo-ROX (2×)	MHR023-400 MHR023-2040	+	Low	–	+

BioMaster HS-qPCR (2×) mixes provide accurate quantitative analysis



BioMaster HS-qPCR (2×) mixes are optimized for multiplex reactions



Target	Fluophor	Efficiency, E% Multiplex	Efficiency, E% Individual
B2M	FAM	99,8	94,9
Act	HEX	108,1	97,4
GAPDH	ROX	101,7	100,1
Hprt	Cy5	99,7	94,4

REAL-TIME PCR WITH SYBR GREEN I

Applications:

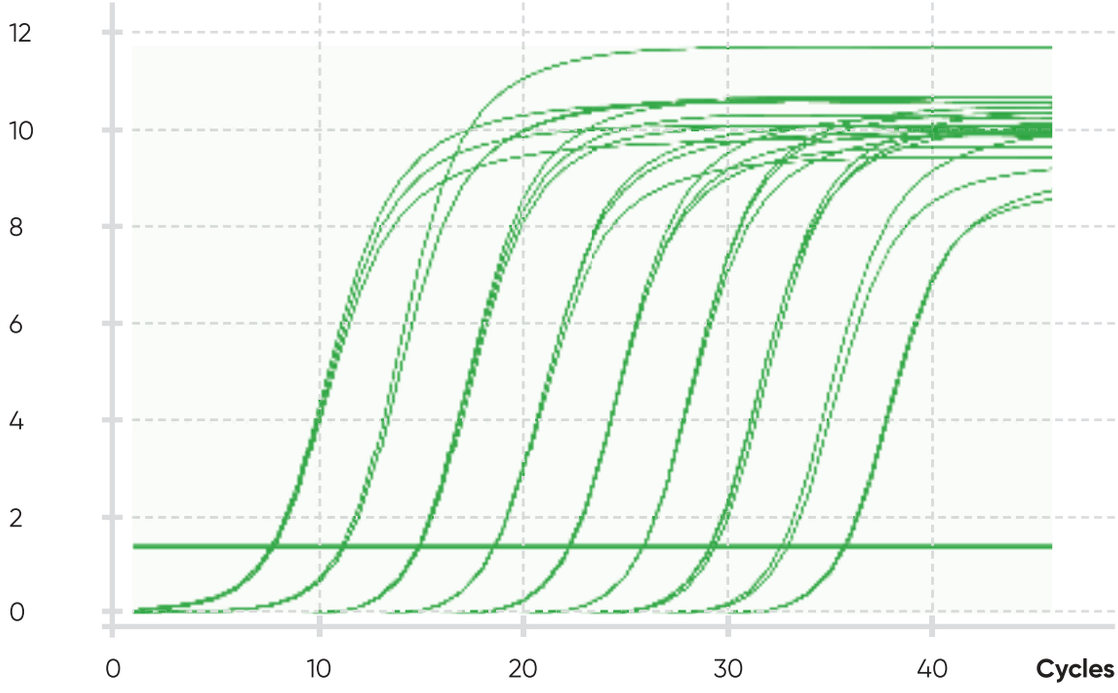
- Real-time PCR with intercalating dye SYBR Green I
- Quantitative analysis of DNA amount
- The second step of RT-PCR with SYBR Green I in gene expression analysis

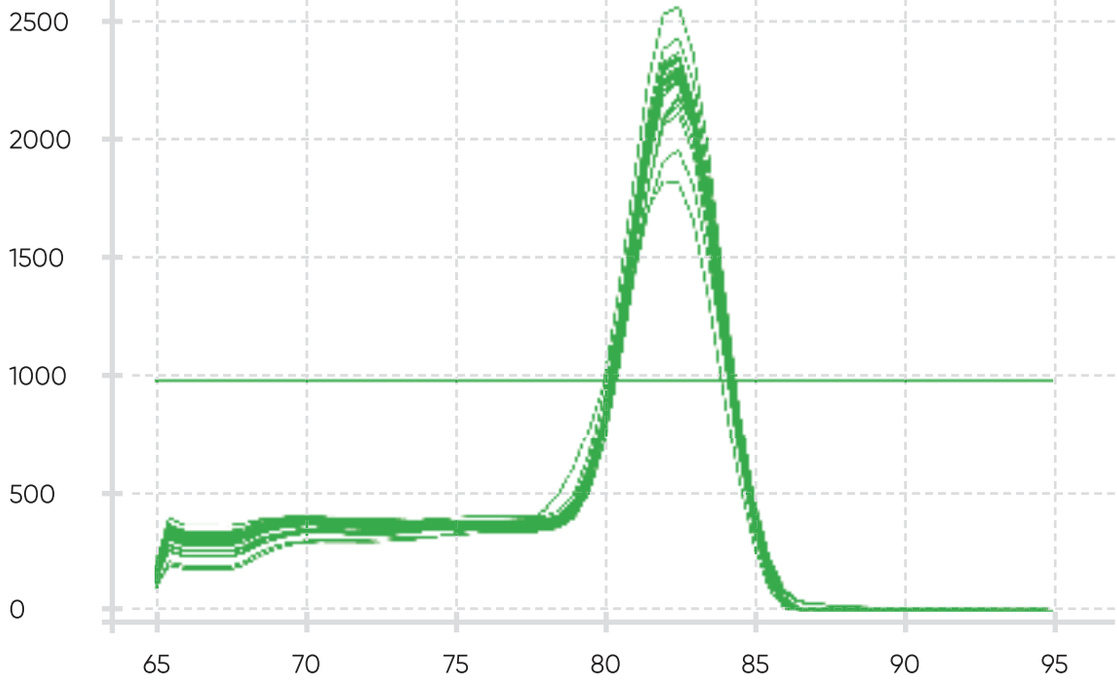
Features

- High specificity and sensitivity (detection of 1-10 copies of targets)
- Accurate quantitative analysis at 8-9-fold dilution
- Storage of BioMaster HS-qPCR SYBR Blue (2×) for a month at room temperature does not reduce PCR efficiency (in the dark) and 18 months at - 20° C
- Various ROX concentrations
- Mixes is colored for easy pipetting

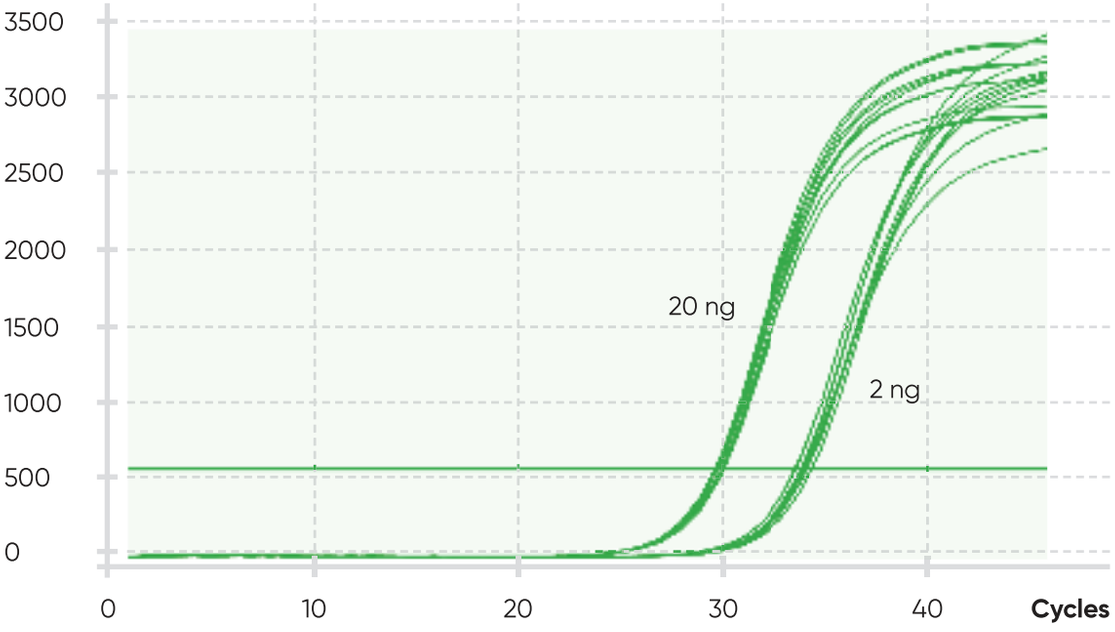
Name	Cat.#	Inert dye	ROX reference dye	Real-time	Cross-contamination protection
BioMaster HS-qPCR SYBR Blue (2×)	MHC030-400 MHC030-2040	+	-	+	-
BioMaster UDG HS-qPCR SYBR Blue (2×)	MHC031-400 MHC031-2040	+	-	+	+
BioMaster HS-qPCR Hi-ROX SYBR (2×)	MHR030-400 MHR030-2040	+	High	+	-
BioMaster HS-qPCR Lo-ROX SYBR (2×)	MHR031-400 MHR031-2040	+	Low	+	-
BioMaster UDG HS-qPCR Hi-ROX SYBR (2×)	MHR032-400 MHR032-2040	+	High	+	+
BioMaster UDG HS-qPCR Lo-ROX SYBR (2×)	MHR033-400 MHR033-2040	+	Low	+	+

BioMaster HS-qPCR SYBR Blue (2×) mixes are optimized for wide range of template concentration

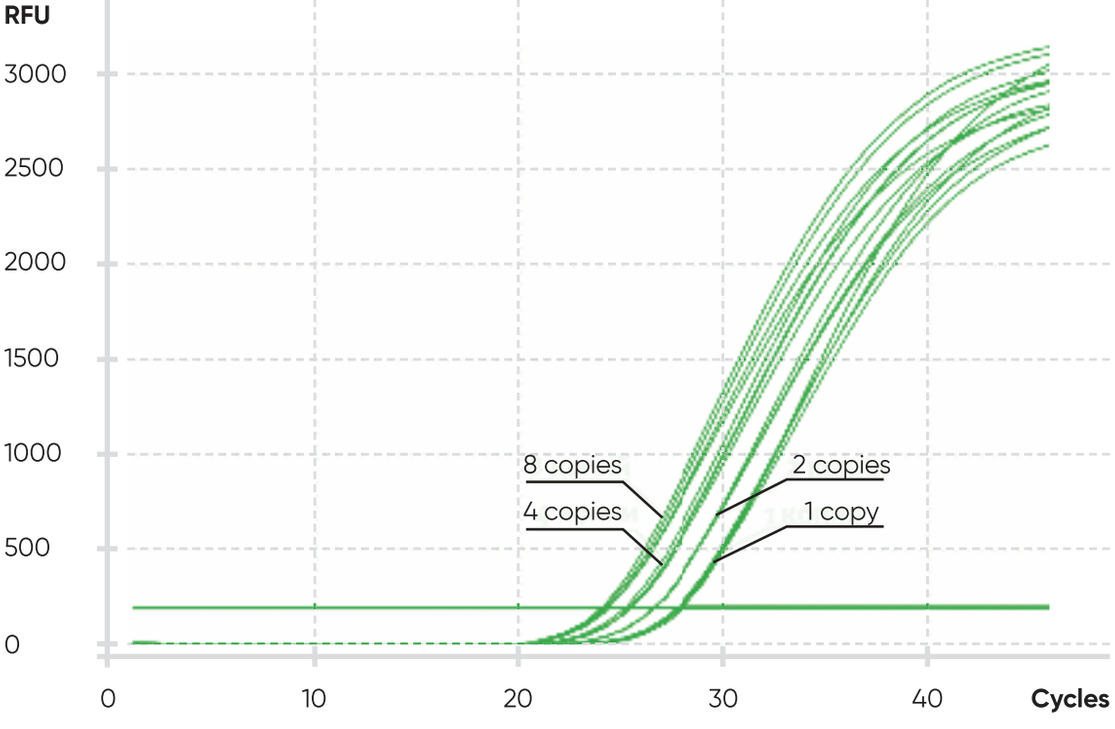




BioMaster HS-qPCR (2×) mixes provide accurate quantitative analysis



BioMaster HS-qPCR (2×) mixes provide accurate quantitative analysis.
Effectiveness does not decrease over time



LONG-RANGE PCR

Applications:

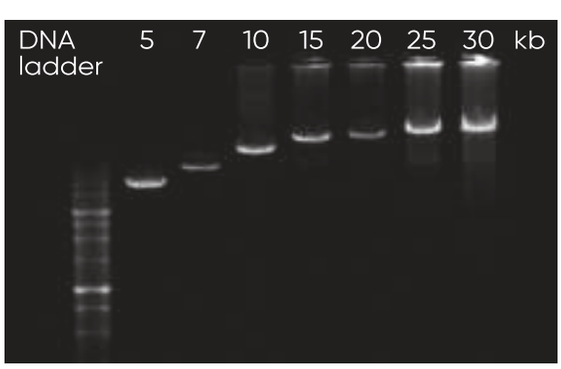
- Amplification of long templates
- High-throughput PCR (DNA fragment production for genetic constructions)
- Generation of PCR products for TA-cloning
- Amplification of GC-rich (up tp 80 %) and complicated DNA regions
- Analysis of CRISPR/Cas-directed mutations in genomic DNA

Features and advantages

- Amplification of long fragments up to 30 kbp (viral DNA templates) and up to 15 kbp (genomic DNA templates)
- Enhanced amplification fidelity (up to 30%) compared to PCR with only Taq DNA pol
- Hot-start enzyme for increasing specificity and sensitivity
- Amplification of a wide spectrum of DNA templates including GC-rich and hair-pin loops
- The solution composition allows long-term storage. Storage of BioMaster LR HS-PCR (2×) in a place protected from light: at +4 °C - 3 months; at -20°C – 1 year; no more than 50 cycles of freezing - defrosting.

Name	Cat. # (50 ul per reaction)	Hot-Start	PCR of GC-rich templates	Ready-to-load
BioMaster LR HS-PCR (2×)	MH040-100 MH040-400	+	+	–
BioMaster LR HS-Taq PCR - Color (2×)	MHC040-100 MHC040-400	+	+	+

Amplification of long fragments by BioMaster LR HS-PCR (2×)



ISOTHERMAL AMPLIFICATION (LAMP, RT-LAMP)

Kits and mixtures for loop-mediated isothermal amplification of DNA and RNA.

- Simple, one-step solution for Loop-Mediated Isothermal Amplification (LAMP) of DNA or RNA (RT-LAMP) targets
- Compatible with multiple detection methods

The solution is optimized to perform efficient and reproducible loop isothermal reactions on genomic, plasmid and viral DNA and RNA samples.

Applications:

- LAMP with end-point detection
- Real-time LAMP
- Quick, clear, pink-to-yellow visible detection of amplification

Features:

BioMaster LAMP (2×). 2× BioMaster LAMP reaction mixture (2×) is designed for loop isothermal amplification (LAMP) with subsequent control of the reaction progress in the gel.

BioMaster LAMP SYBR (2×). 2× BioMaster LAMP SYBR reaction mixture (2×) is intended for real-time loop isothermal amplification (LAMP) using SYBR Green I fluorescent dye.

BioMaster LAMP-Color(2×). 2× reaction mixture BioMaster LAMP-Color (2×) is optimized for efficient and reproducible LAMP with genomic, plasmid and viral DNA samples. During amplification, reaction mixtures change color from red to yellow in 15-60 minutes.

Name	Cat. #	Master-mix	Dye	Endpoint detection	Real-time	Change in color
BioMaster LAMP (2×)	MH051-400 MH051-2040	+	–	+	–	–
BioMaster LAMP SYBR (2×)	MH050-400 MH050-2040	+	+	–	+	–
BioMaster LAMP-Color(2×)	MHC052-400 MHC052-2040	+	+	+	–	+

*reaction mixture volume 25 µl

BioMaster RT-LAMP (2×) The kit is designed for reverse transcription (RT) and loop isothermal amplification (LAMP) in one tube.

BioMaster RT-LAMP SYBR (2×) The kit is designed for reverse transcription (RT) and loop isothermal amplification (LAMP) in one tube, in real time using SYBR Green I fluorescent dye.

BioMaster RT-LAMP-Color (2×) The kit is designed to perform colorimetric reverse transcription (RT) and loop-mediated isothermal amplification (LAMP) in a single tube. During amplification, reaction mixtures change color from red to yellow in 15-60 minutes, depending on the concentration of the matrix. The kit allows efficient RT-LAMP from complex and GC-rich matrices. Easy visualization of the reaction result.

Name	Cat. #	Master-mix	Dye	Endpoint detection	Real-time	Change in color
BioMaster RT-LAMP (2×)	RM08-80 RM08-400	+	–	+	–	–
BioMaster RT-LAMP SYBR (2×)	RM07-80 RM07-400	+	+	–	+	–
BioMaster RT-LAMP-Color(2×)	RM09-80 RM09-400	+	+	+	–	+

10× LAMP buffer 10x LAMP buffer optimized for loop isothermal amplification (LAMP). The buffer is chemically stable, inert, and does not change the optimum annealing temperature of the primers or the melting characteristics of the template.

Name	Cat. #	Q-ty
10× LAMP buffer	SP030-003	3 ml
	SP030-030	30 ml

RNA TRANSCRIPTION AND REAGENTS FOR mRNA SYNTHESIS

STANDARD NTPs

Name	Cat. #	Q-ty
Guanosine-5′-triphosphate (GTP)	N-rG0100	100 µl
	N-rG1000	1 ml
Adenosine-5′-triphosphate (ATP)	N-rA0100	100 µl
	N-rA1000	1 ml
Cytidine-5′-triphosphate (CTP)	N-rC0100	100 µl
	N-rC1000	1 ml
Uridine-5′-triphosphate (UTP)	N-rU0100	100 µl
	N-rU1000	1 ml
Set of 100 mM solutions of ATP, GTP, CTP, UTP in TE buffer	rNS-401	4x100 µl
	rNS-410	4x1000 µl
Set of 100 mM solutions of ATP, GTP, CTP, UTP in water	rNS-101	4x100 µl
	rNS-110	4x1000 µl

MODIFIED NTPs

Modified NTPs are supplied as sodium or ammonium salt (100 mM solution).

They have high substrate properties in relation to the DNA-dependent RNA polymerase of phage T7 (E-1001, E-1010). When transfected into mammalian cells, modified RNAs have a number of positive properties:

- nuclease resistance
- increased intracellular translation efficiency
- reduced cytotoxic and nonspecific immunostimulating effect

Features:

N6-Methyladenosine-5′-triphosphate (m6ATP) Sterile 100 mM solution of N6-methyladenosine-5′-triphosphate as ammonium salt in water. Nucleotide purity ≥ 96% (HPLC). Functional activity was confirmed by a transcription reaction *in vitro.*

5-Methylcytidine-5′-triphosphate (m5CTP) Sterile 100 mM solution of 5-Me-CTP as sodium salt in water. Nucleotide purity ≥ 96% (HPLC). Functional activity was confirmed by a transcription reaction *in vitro*.

Pseudouridine-5′-triphosphate (ΨTP) Sterile 100 mM solution of Pseudo-UTP as sodium salt in water. Nucleotide purity ≥ 96% (HPLC). Functional activity was confirmed by a transcription reaction *in vitro*.

N1-methyl-pseudouridine-5′-triphosphate (m1ΨTP) Sterile 100 mM solution of N1-Me-PseudoUTP as sodium salt in water. Nucleotide purity ≥ 96% (HPLC). Functional activity was confirmed by a transcription reaction *in vitro*.

Name	Cat. #	Q-ty
N6-Methyladenosine-5′-triphosphate (m6ATP)	TNA-0050	50 µl
	TNA-1000	1 ml
5-Methylcytidine-5′-triphosphate (m5CTP)	TMC-0050	50 µl
	TMC-1000	1 ml
Pseudouridine-5′-triphosphate (ΨTP)	TPU-0050	50 µl
	TPU-1000	1 ml
N1-methyl-pseudouridine-5′-triphosphate (m1ΨTP)	TNP-0050	50 µl
	TNP-1000	1 ml

CAP ANALOGS

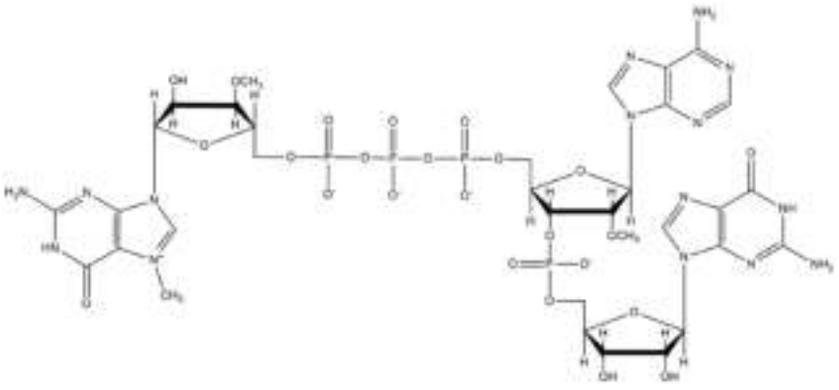
One of the first and key steps in mRNA maturation in cells is the addition of a 5′-cap structure. It is a 5′-5′-triphosphate connection between the 5′ end of the RNA and a guanosine nucleotide.

Upon producing artificial mRNA, the cap must be included in the structure during transcription (cotranscriptionally) in order to stabilize the mRNA and significantly improve translation within cells.

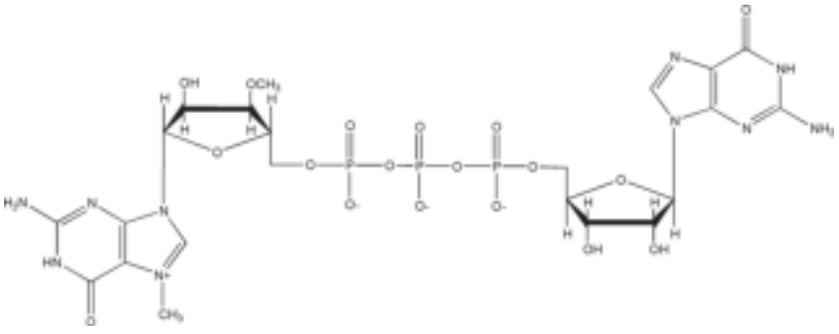
Features:

Cap analog m7GmAmG (m7G(3`OMe)pppA(2`OMe)pG). Sterile 100 mM solution of m7G(3`OMe)pppA(2`OMe)pG cap analog as ammonium salt in water. Nucleotide purity ≥ 96% (HPLC). Functional activity was confirmed by a transcription reaction *in vitro*.

Analog of the ARCA cap structure. Sterile 100 mM ammonium salt solution of ARCA cap analog in water. Nucleotide purity ≥ 96% (HPLC). Functional activity was confirmed by a



transcription reaction *in vitro*.



Name	Cat. #	Q-ty
m7GmAmG	AGME-0050	50 µl
	AGME-1000	1 ml
ARCA	ARCA-0050	50 µl
	ARCA-1000	1 ml

IN VITRO TRANSCRIPTION (RNA SYNTHESIS)

T7 RNA POLYMERASE

T7 RNA Polymerase is a DNA-dependent RNA polymerase with strict specificity for its respective double-stranded promoters. It exhibits extremely high specificity for its cognate promoter sequences. Only T7 DNA or DNA cloned downstream from a T7 promoter can serve as a template for T7 RNA Polymerase-directed RNA synthesis.

It catalyzes the 5'→3' synthesis of RNA on either single-stranded DNA or double-stranded DNA downstream from its promoter.

Feature:
Incorporates modified nucleotides (e.g., aminoallyl-, biotin-, fluorescein-, digoxigenin-labeled nucleotides)

Applications:
Synthesis of unlabeled and labeled RNA

Consensus promoter sequence:
T7: TAATACGACTCACTATAGGGAGA

QC Tests:
Activity, SDS-PAGE/purity, DNase, RNase, endonuclease, transcription.

Source:
Recombinant *E. coli* strain.

Storage Buffer:
40 mM Tris-HCl (pH 7.4 at 25°C), 15 mM $MgCl_2$, 2 mM spermidine, 10 mM NaCl, 10 mM DTT, and 50% (v/v) glycerol.

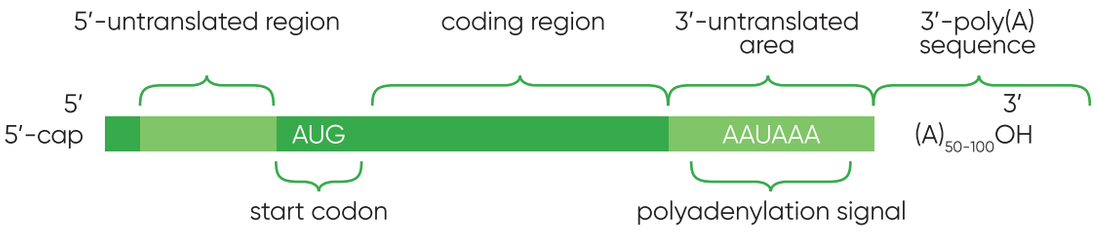
Storage Conditions:
Store at –20°C.

Unit Definition:
One unit is defined as the amount of enzyme required to catalyze the incorporation of 1 nmol of NTP into acid-insoluble product in 60 minutes at 37°C in a total volume of 100µl.

Name	Cat. #	Q-ty
T7 RNA Polymerase	E-1001	10000 U
	E-1010	100000 U

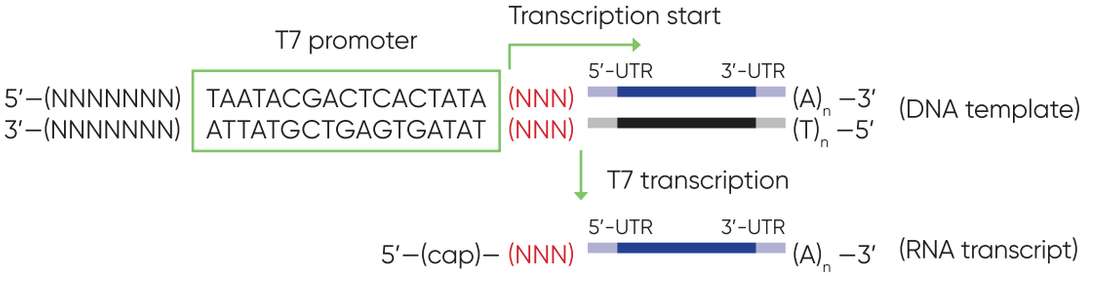
KITS FOR *IN VITRO* TRANSCRIPTION AND mRNA SYNTHESIS

Platform for mRNA synthesis



***In vitro* mRNA synthesis kits with ARCA or m7GmAmG cap analogs.** The kits are intended for setting up an *in vitro* transcription reaction to produce ARCA- or cap1-capped mRNA containing modified nucleotides in its structure. YC-20 kits already contain pseudouridine 5′-triphosphate (ΨTP) and 5-methylcytidine 5′-triphosphate (m5C).

Synthesis of RNA transcript on a DNA template using T7 RNA polymerase



Minimum sequence of the T7 promoter: 5′—NNNNNNNTAATACGACTCACTATANNN...-3′.
When using an ARCA: NNN = GNN.
When using cap analog m7GmAmG: NNN = AGN.

Due to the fact that the inclusion of the ARCA cap analog into the mRNA structure is possible only in the correct orientation, capped mRNAs have 100% translational activity. The use of the m7GmAmG cap analog makes it possible to increase the yield of the transcription reaction without loss of capping efficiency, but requires a special structure of the DNA template in the transcription start point.

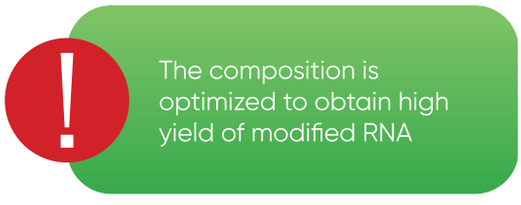
Presence of modified nucleotides (pseudouridine and 5-methylcytidine) increases the stability and reduces the immunogenicity of mRNA.

The resulting mRNA can be used to study the functions of mRNA, for microinjections, for cell transfection, for *in vitro* translation, etc.

Name	Cat. #	Q-ty
High-yield ARCA mRNA synthesis kit	ARCA-mRNA-20	20 reactions of 50 µl
High-yield m7GmAmG mRNA synthesis kit	AG-mRNA-20	20 reactions of 50 µl
High-yield ARCA mRNA synthesis kit (m5CTP/ΨTP)	ARCA-mRNA-YC-20	20 reactions of 50 µl
High-yield m7GmAmG mRNA synthesis kit (m5CTP/ΨTP)	AG-mRNA-YC-20	20 reactions of 50 µl

***In vitro* mRNA synthesis kit**

The kit is intended for the synthesis of modified and capped artificial mRNAs by *in vitro* transcription using DNA-dependent RNA polymerase of bacteriophage T7.



The operating principle of the kit is based on the enzymatic synthesis of RNA molecules on a DNA template with the possibility of simultaneous co-transcriptional modification. The kit contains separate NTP solutions, which allows you to vary the composition of the final transcription mixture, to add the modified monomers and cap analogs.

Name	Cat. #	Q-ty
High-yield mRNA synthesis kit	mRNA-20	20 reactions of 50 µl

High-yield T7 RNA synthesis kit

The operating principle of the kit is based on the enzymatic synthesis of RNA molecules on a DNA template using the DNA-dependent RNA polymerase of bacteriophage T7.

The kit includes all the necessary reagents to obtain a high yield of RNA transcripts in a minimum reaction time: T7 RNA polymerase, NTP mixture, (5×) buffer for T7 transcription, (25×) DTT, sterile water.

Name	Cat. #	Q-ty
High-yield T7 RNA synthesis kit	T7-tr-20	20 reactions of 50 µl
	T7-tr-100	100 reactions of 50 µl

READY-TO-USE DNA LADDERS

DNA ladder concentration: 0,1 mg/ml.

Pack size 50 µg.

Storage buffer: 10 mM Tris-HCl (pH 8.0), 5 mM EDTA, 12.5% glycerol, 0.008% bromophenol blue, 0.008% xylencyanol.

Ready-to-use DNA ladders are supplied with dyes for applying samples to the gel.

DNA ladder Step50 plus
is suitable for using as a standard from 50 to 1500 bp in agarose gel. The ladder contains 13 DNA fragments.

DNA ladder Step100
is suitable for using as a standard from 100 to 1000 bp in agarose gel. The ladder contains 10 DNA fragments from 100 to 1000 bp.

DNA ladder Step 100 Long
is suitable for using as a standard from 100 to 3000 bp in agarose gel. The ladder contains 14 DNA fragments from 100 to 3000 bp.

DNA ladder Sky-High
is suitable for estimating the quantity of unknown double-stranded DNA samples from 250 to 10000 bp. The ladder contains 13 blunt-ended DNA fragments: 250, 500, 750, 1000, 1500, 2000, 2500, 3000, 4000, 5000, 6000, 8000 and 10000 bp.

For easy reference on agarose gels, the 250, 500, 1000, and 3000 bp bands have increased intensity to serve as reference points.

DNA ladder Step 50 Plus

bp	ng/1 µg
2*1500	220
2*1000	145
700	100
600	90
2*500	145
400	60
350	50
300	40
250	35
2*200	60
150	20
100	20
50	15

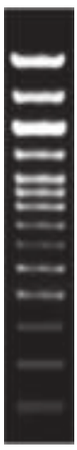
2% agarose
1*TAE
2 µl/lane

DNA ladder Step 100

bp	ng/1 µg
1000	156
900	140
800	126
700	110
600	94
2*500	156
400	62
300	46
200	62
100	46

2% agarose
1*TAE
2 µl/lane

DNA ladder Step 100 Long



bp	ng/1 µg
3000	179
2000	118
2*1500	179
1200	70
1000	71
900	64
800	57
700	50
600	43
2*500	71
400	29
300	20
200	29
100	20

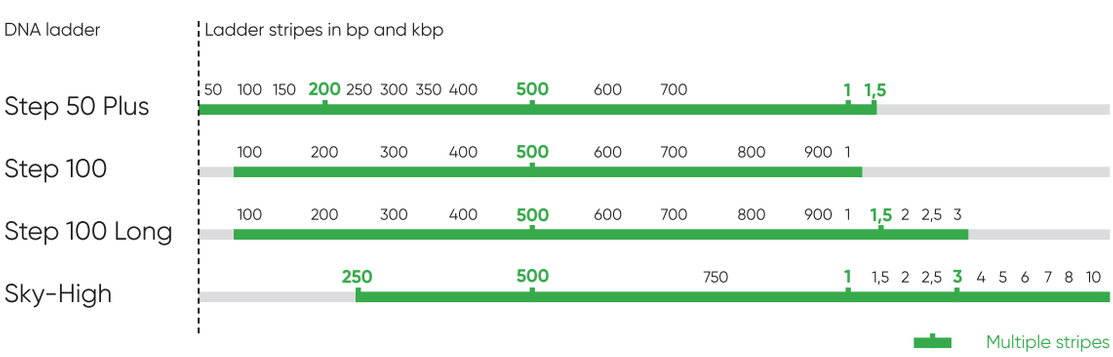
1,5% agarose
1*TAE
2 µl/lane

DNA ladder Sky-High

bp	ng/1 µg
10000	80
8000	80
6000	80
5000	80
4000	80
2*3000	200
2500	70
2000	60
1500	50
3*1000	100
750	30
2*500	40
3*250	50

1,5% agarose
1*TAE
2 µl/lane

Table for selecting DNA markers for various ranges



Name	Cat. #	Q-ty
DNA ladder Step50 plus	S-8055	50 µg
DNA ladder Step100	S-8100	50 µg
DNA ladder Step 100 Long	S-8103	50 µg
DNA ladder Sky-High	S-8000	50 µg

ENZYMES FOR AMPLIFICATION

FUSION DNA POLYMERASE (Pfu-Sso7d)

Fusion DNA polymerase is a recombinant polypeptide consisting of a fusion of thermostable DNA polymerase *Pyrococcus furiosus (Pfu)* and DNA-binding protein of thermophilic archaea species *Sulfolobus solfataricus (Sso7d)*. The Sso7d protein binds to the minor groove of doublestranded DNA and additionally stabilizes the polymerase complex with the matrix. Thanks to this, Fusion DNA polymerase has increased processivity, synthesis accuracy, fragment amplification rate, and increased resistance to PCR inhibitors compared to native Pfu DNA polymerase. Fusion DNA polymerase has 5'→3' polymerase activity, 3'→5' exonuclease activity and synthesizes products with blunt ends.

Fusion DNA polymerase isolated from strain *E. coli*, containing a plasmid with a cloned DNA fragment consisting of fused thermostable DNA polymerase genes Pyrococcus furiosus (Pfu) and DNA binding protein Sulfolobus solfataricus (Sso7d).

Application area:
Fusion DNA polymerase is a good choice for routine cloning and can be used to generate long or complex amplicons by PCR.

Activity units:
One unit of activity corresponds to the amount of enzyme required to incorporate 10 nmol of dNTP into the acid-insoluble DNA fraction in 30 min at 74°C.

Name	Cat. #	Qty.	Volume
Fusion DNA polymerase (Pfu-Sso7d)	E-11001	100 U	50 µl
	E-11005	500 U	250 µl

PCR AMPLIFICATION KIT WITH FUSION DNA POLYMERASE

A set of reagents for performing PCR with high-fidelity DNA polymerase. The kit contains individual components such as magnesium ions, a mixture of deoxynucleotide triphosphates (dNTPs) and dimethyl sulfoxide, which allows you to optimize the amplification conditions for the experimenter's tasks.

Application area:
Fusion DNA Polymerase has increased fidelity and speed and produces blunt-ended amplicons, making the kit a good choice for routine gene cloning and can be used to generate long or difficult amplicons by PCR.

Activity units:
One unit of activity corresponds to the amount of enzyme required to incorporate 10 nmol of dNTP into the acid-insoluble DNA fraction in 30 min at 74°C.

Name	Cat. #	Qty.	Volume
PCR amplification kit with Fusion DNA polymerase	KH041-100	100 U	50 µl
	KH041-500	500 U	250 µl

HOT START TAQ DNA POLYMERASE

Hot Start Taq DNA Polymerase is the optimized mixture of Taq Polymerase and Anti-Taq monoclonal antibodies. Amplification product obtained using Hot Start Taq DNA polymerase is free from non-specific impurities and primer-dimers.

The PCR products obtained with Hot Start Taq DNA Polymerase are free from unspecific products and from primer-dimers.

One unit of enzyme catalyses incorporation of 10 nanomoles of deoxyribonucleotides into acid-insoluble polynucleotide fraction in 30 min at 70°C.

Quality control: Endo-, exodeoxyribonucleases, ribonucleases free.

Features:
- Reliable and reproducable quantification in qPCR
- Perfect for real time PCR
- Especially for diagnostic purposes
- Reaction set-up at room temperature
- Activation of enzyme during first heating
- No change or optimization of protocol necessary
- High specifity, reduced primer mismatch or dimers

Applications:
- Hot start PCR
- Real time PCR
- Amplification of complex genomic and cDNA templates
- Multiplex PCR
- High specifity PCR

Concentration: 5 U/µl

Name	Cat. #	Qty.
Hot Start Taq DNA polymerase	E-7010	1000 U
	E-7100	10000 U

BST DNA POLYMERASE, LARGE FRAGMENT

Bst DNA Polymerase, Large Fragment is the portion of the *Bacillus stearothermophilus* DNA Polymerase protein that contains the 5′ → 3′ polymerase activity, but lacks 5′ →3′ exonuclease activity. Enzyme provide strong strand displacement activity.

Unit definition: One unit is defined at the amount of enzyme that will incorporate 10 nmol of dNTP into acid insoluble material in 30 minutes at 65°C.

Quality control: Each lot of enzyme is tested for endonuclease and non specific exonuclease activity.

Applications:
- LAMP
- Reverse transcription
- Whole Genome Amplification

Name	Cat. #	Qty.
BST DNA polymerase, large fragment	E-10002	2000 U
	E-10010	10000 U

HS-TAQ-NEXT DNA POLYMERASE

Recombinant *Taq* DNA polymerase inactivated by thermolabile monoclonal antibodies.

- Highly stable enzyme, that remains active after incubation at room temperature for five days

The enzyme is intended for amplification complex matrices and obtaining amplicons up to 20 kb long

- Preparation of the reaction mixture can be carried out at room temperature
- 30% higher accuracy than natural *Taq* DNA polymerase
- Obtaining PCR products with overhanging 3′-dA ends

Application area:
- PCR for obtaining long fragments (Long-range PCR)
- Standard PCR
- Amplification of complex matrices, containing GC-rich regions
- Low copy targets
- Real-time PCR with intercalating dyes (SYBR Green, etc.)
- Development of PCR products for TA cloning

Name	Cat. #	Qty.
HS-Taq-Next DNA polymerase	E-8005	500 U
	E-8025	2500 U
	E-8100	10000 U

ENZYMES FOR BIOTECHNOLOGY

T4 DNA LIGASE

T4 DNA ligase catalyses the formation of phosphodiester bond between juxtaposed 5′-phosphate and 3′-hydroxyl termini in DNA or RNA duplex. Purified from *E. coli* strain carrying plasmid with the cloned T4 DNA Ligase gene.

Unit definition: One unit is defined as the amount of enzyme required to give 50% ligation of Hind III fragments of Lambda DNA in 30 minutes at 16°C in 20 µl.

Quality control: tested for the absence of endo- and exodeoxyribonucleases, ribonucleases.

Applications:
- Joining of double-stranded DNA with cohesive or blunt-ended termini
- Joining of oligonucleotide linkers or adaptors to blunt-ended DNA
- Repairing nicks in DNA, RNA duplex or RNA-DNA hybrids

Name	Cat. #	Qty.	Packing vol.
T4 DNA Ligase	E-2010	10000 U	50 mcl
	E-2050	50000 U	250 mcl

TEV PROTEASE (TOBACCO ETCH VIRUS PROTEASE – TEVP)

Recombinant version of the catalytic domain of the nuclear inclusion protein of the Tobacco Etch Virus. TEV protease cleaves proteins at a specific site of seven amino acid residues of the following composition: Glu-Asn-Leu-Tyr-Phe-Glu-X (ENLYFQ-X).

Application: A TEV protease can be used to cleave recombinant fusion polypeptides having a protease recognition site between the leader fragment and the target protein. The presence of a histidine label on the TEV protease makes it possible to purify the target protein from the enzyme using IMAC.

Unit Definition: 1 unit of TEV Protease will cleave 2 µg of MBP-fusion protein, MBP-Bst (Mr ~145 kDa), to 90% completion in a total reaction volume of 10 µl in 1 hour at 30°C in 50 mM Tris-HCl (pH 7.5 @ 25°C) with 0.5 mM EDTA and 1 mM DTT (500 µl 10x buffer supplied with enzyme). Separation of reaction products are visualized by SDS-PAGE.

Name	Cat. #	Qty.
TEV Protease	E-9001	1000 U
	E-9005	5000 U

ENZYMES FOR GENOME EDITING

CAS9 NUCLEASE

The Cas9 protein is a recombinant endonuclease from *Streptococcus pyogenes* with a molecular weight of 150 kDa. Cas9 endonuclease in complex with RNA guides (crRNA duplex: tracrRNA) or single sgRNA catalyzes site-specific hydrolysis of the phosphodiester bond in double-stranded DNA. The cleavage is on the DNA chain between the third and fourth nucleotides from the PAM sequence (NGG is a motif adjacent to the protospacer) with the formation of blunt ends. Recombinant Cas9 endonuclease does not contain a nuclear localization sequence.

Application: genome editing, «CRISPR/Cas9» technology.

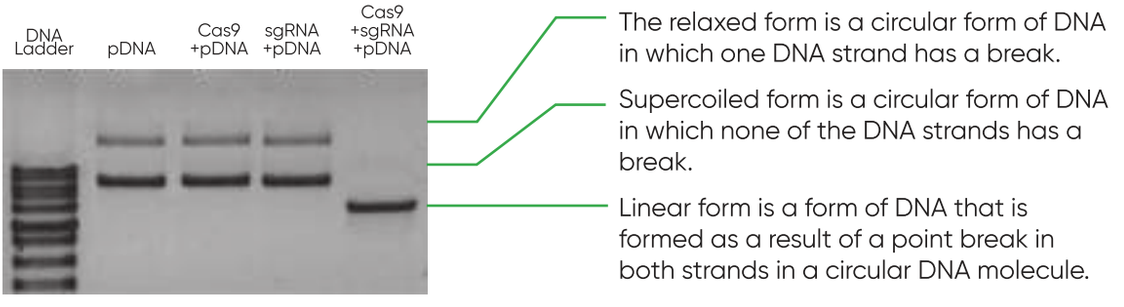
Source: Cas9 endonuclease purified from *E. coli* strain containing a plasmid with the cloned full length gene of Cas9 *Streptococcus pyogenes*.

Cas9 endonuclease concentration: 20 µM (20 pmol/µl).

Total amount of Cas9 endonuclease: 300 pmol (15 µl).

Quality control: Each batch of the enzyme is tested for enzyme activity, electrophoretic purity, and the absence of non-specific endonuclease activity.

An example of plasmid DNA hydrolysis using Cas9 endonuclease:



DNA Ladder – DNA Ladder Sky-High.

pDNA – plasmid DNA, a double-stranded circular DNA molecule.

Cas9 + pDNA - plasmid DNA incubated in the presence of the Cas9 nuclease protein (cleavage of plasmid DNA does not occur).

sgRNA + pDNA - plasmid DNA incubated in the presence of guide RNA (cleavage of plasmid DNA does not occur).

Cas9 + sgRNA + pDNA - plasmid DNA incubated in the presence of the Cas9 nuclease protein and guide RNA (plasmid DNA is cleaved and converted into a linear form).

Name	Cat. #	Qty.
Cas9 Nuclease	E-5030	300 pmole
	E-5050	500 pmole

CAS9-NLS NUCLEASE

The Cas9-NLS protein is a recombinant endonuclease from *Streptococcus pyogenes* fused from the C-terminus to the repeated nuclear localization signal (NLS) of the SV40 virus (PKKKRKV). The molecular weight of the Cas9-NLS protein is163 kDa. Cas9-NLS endonuclease in complex with RNA guides (crRNA duplex: tracrRNA) or single sgRNA catalyzes site-specific hydrolysis of the phosphodiester bond in double-stranded DNA. The cleavage is on the DNA chain between the third and fourth nucleotides from the PAM sequence (NGG is a motif adjacent to the protospacer) with the formation of blunt ends.

Application: genomic editing, «CRISPR/Cas9» technology.

Source: Cas9 endonuclease purified from *E. coli* strain containing a plasmid with the cloned full length gene of Cas9 *Streptococcus pyogenes*.

Cas9 endonuclease concentration: 20 µM (20 pmol/µl).

Total amount of Cas9 endonuclease: 300 pmol (15 µl).

Quality control: Each batch of the enzyme is tested for enzyme activity, electrophoretic purity, and the absence of non-specific endonuclease activity.

Name	Cat. #	Qty.
Cas9-NLS Nuclease	GE-5030	300 pmole
	GE-5050	500 pmole

READY SOLUTIONS FOR CELL BIOLOGY AND BIOTECHNOLOGY

LAB SCREENING KITS

BIOMASTER *MYCO*-VISOR

Designed to detect the presence of microorganisms of the *Mycoplasma spp*. family (in cell cultures and other biomaterial samples) by real-time PCR using a fluorescent probe.

This system is capable of detecting a DNA fragment of *Mycoplasma spp*. in isolated DNA samples and culture medium with high specificity and sensitivity. The sensitivity of the system allows you to detect the presence of a DNA fragment from *Mycoplasma spp*. in total DNA from 0.1 ng per reaction. Both isolated DNA and culture medium can be used as a sample for analysis. When using analysis medium, the recommended volume is 5-7 µl.

Name	Cat. #	Qty.
Biomaster *Myco*-visor	Myc-16S-100	100 reactions
	Myc-16S-400	400 reactions

HOST CELL DNA DETECTION

RESIDUAL DNA ISOLATION KIT

The kit is based on an effective DNA extraction method that allows the isolation of residual DNA from producer cells in sub-picogram quantities per milliliter of complex biological solutions. The final solutions of purified DNA do not contain impurities of proteins, salts and detergents that can interfere with PCR analysis.

Application area:

• Isolation of residual DNA from cell lines such as *E. coli*, CHO, Vero
• Isolation of small amounts of DNA from swabs and other solutions
• Concentration by reprecipitation of small amounts of DNA

The resulting DNA is ready for downstream applications such as quantitative PCR, DNA hybridization or any other methods requiring high-quality purified DNA.

The kit is intended for research, development and production use only.

Name	Cat. #	Prep
Residual DNA Isolation Kit	D-Host-100	100

A SYSTEM FOR QUANTIFYING HOST DNA IMPURITIES *E. COLI* BY REAL-TIME PCR

Designed to assess the amount of DNA impurities in a producer strain based on cell lines *E. coli* (such as *Bl21*, *Rosetta* and similar) in protein preparations in accordance with the requirements of the pharmacopeia.

The kit is intended for research, development and production use only.

Name	Cat. #	Qty.
A system for quantifying host DNA impurities *E. coli* by real-time PCR	KDE001	100 reactions

SYSTEM FOR QUANTITATIVE ASSESSMENT OF CHO HOST DNA IMPURITIES BY RT-PCR

The kit is intended for assessing the amount of DNA impurities of the producer strain based on the cell line CHO (Chinese hamster ovary cells) in protein preparations in accordance with the requirements of the pharmacopoeia.

The kit includes everything needed to analyze the presence and quantify residual CHO DNA in test samples. The advantage of the method using a probe in the PCR reaction is a high degree of specificity, in contrast to the use of intercalating dyes, as well as a higher accuracy of the research results.

The kit is intended for research, development and production use only.

Name	Cat. #	Qty.
System for quantitative assessment of CHO host DNA impurities by RT-PCR	KDE002	100 reactions

OLIGONUCLEOTIDES

- Primers are desalted and freeze-dried
- Molecular mass distribution confirmed by HPLC MS
- Functional activity confirmed by PCR
- Primer-mixtures are ready-to use

Features:

HEXAPRIMER (RANDOM PRIMER 6). Random Primer 6 is used to prime DNA synthesis *in vitro*, incl. to synthesize the first strand of cDNA.

Labeling of oligonucleotides using this mixture makes it possible to obtain probes for screening gene libraries, Southern and Northern blotting, and hybridization *in situ*.

Structure:
5′-NNN-NNN-3′, N = [$dA_{0.25}$,$dC_{0.25}$,$dG_{0.25}$,$T_{0.25}$]

NONAPRIMER (RANDOM PRIMER 9) Random Primer 9 is used to prime DNA synthesis *in vitro*, incl. to synthesize the first strand of cDNA. Purified by ion exchange chromatography.

Structure:
5′-NNN-NNN-NNN-3′, N = [$dA_{0.25}$,$dC_{0.25}$,$dG_{0.25}$,$T_{0.25}$]

OLIGO d(T) (OLIGO $d(T)_{18}$)

Oligo d(T) is a synthetic 18-mer single-stranded DNA oligonucleotide. This primer hybridizes to the poly(A) 3′ end of the mRNA.

Oligo d(T)18 is used for cDNA synthesis by reverse transcription and in the creation of cDNA libraries.

Structure:
5'-TTT-TTT-TTT-TTT-TTT-TTT-3'

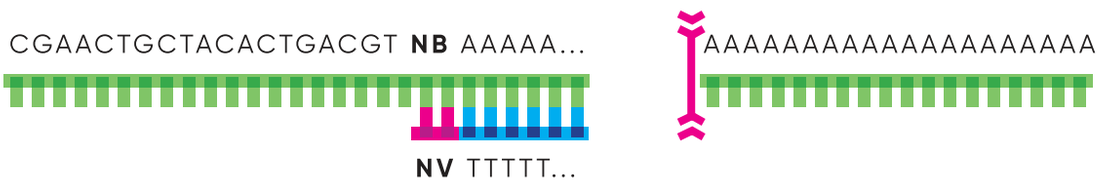
ANCHOR OLIGO d(T) (ANCHORED OLIGO $d(T)_{18}$)

Anchor oligo d(T) is a synthetic 20-mer single-stranded DNA oligonucleotide.

It consists sequentially of 18 dT nucleotides, followed by two additional ones - VN, where V represents dA, dC or dG, and N represents dA, dC, dG or dT.

Due to the variable terminal sequence, it prevents binding within the poly(A) tail, allowing more efficient cDNA synthesis for labeling, first-strand synthesis and RT-PCR applications.

Structure:
5'-TTT-TTT-TTT-TTT-TTT-TTT-VN-3'



Name	Cat. #	Qty. (A_{260})	Qty., nmol	Qty., mcg
Hexaprimer (Random primer 6)	OLE22-02-01	1 oe	11	31
	OLE22-02-05	5 oe	55	154
	OLE22-02-10	10 oe	110	308
Nonaprimer (Random primer 9)	OLE22-03-01	1 oe	17	31
	OLE22-03-05	5 oe	86	154
	OLE22-03-10	10 oe	172	308
Oligo $d(T)_{18}$	OLE22-04-01	1 oe	6,8	37
	OLE22-04-05	5 oe	34,1	185
	OLE22-04-10	10 oe	68,3	370
Anchored oligo $d(T)_{18}$	OLE22-05-01	1 oe	5,5	34
	OLE22-05-05	5 oe	27,5	170
	OLE22-05-10	10 oe	55	340

PRIMER MIXES OLIGO(dT)/N6 AND OLIGO(dT)/N9

Ready-to-use, optimized mixture of random hexamers and oligo(dT)$_{18}$ primers. Provides optimal and uniform coverage of the RNA sample, for a wide range of RNA template concentrations. In contrast to the traditional use of hexamers as primers, this method allows an improved coverage of the 3′ end of the RNA template.

Application area:

- Synthesis of first strand cDNA
- Generation of cDNA libraries
- Analysis of gene expression changes
- DNA tagging

Features:

PRIMER-MIX-OLIGO(dT)/N6

Ready to use, optimized mixture of random hexamers and oligo(dT)$_{18}$ primers. This mixture provides optimal and uniform coverage of the RNA sample, for a wide range of concentrations of RNA templates. Unlike the traditional use of hexamers as primers, this method improves coverage of the 3′-end of the RNA template.

PRIMER-MIX-OLIGO(dT)/N9

Ready-to-use, optimized mixture of random 9-mer (nona) and oligo(dT)$_{18}$ primers. This mixture provides optimal and uniform coverage of the RNA sample, for a wide range of concentrations of RNA templates. In contrast to the traditional use of random primers for cDNA production, this method improves coverage of the 3′ end of the RNA template.

Name	Cat. #	Qty., nmol	Qty., mkl	C, µM
Primer-mix-oligo(dT)/N6	OLE22-06-010	10	100	50
	OLE22-06-050	50	500	50
Primer-mix-oligo(dT)/N9	OLE22-07-010	10	100	50
	OLE22-07-050	50	500	50

COMPONENTS FOR PCR AND ELECTROPHORESIS BUFFERS

STERILE WATER (DEPC-TREATED)

Sterile water treated with diethyl pyrocarbonate (DEPC), free from RNases and DNase, with a specific resistance of 18 MΩ * cm, is designed to work with nucleic acids.

Required to maintain the stability of DNA and RNA samples after dissolution or dilutions in PCR and RT-PCR experiments.

Eliminates the possibility of sample contamination with nucleases and inhibitors of reverse transcription and PCR.

Areas of use:
- Dissolution of nucleic acids
- Preparation of solutions for molecular biological experiments
- Carrying out PCR and other enzymatic reactions.

Name	Cat. #	Qty.
Sterile water	SP010-05	5 ml
	SP010-50	50 ml

dNTP mix (10 mM and 25 mM each)

dNTP Mix contains premixed aqueous solutions of dATP, dCTP, dGTP and dTTP, each at a final concentration of 10 mM or 25 mM. The nucleotides are free of nuclease activities, human and *E. coli* DNA. Mixes offer the possibility to reduce the number of pipetting steps and the risk of reaction set up errors.

Purity: HPLC ≥98%

Storage conditions: -20°C

Application:
- Long range PCR (40 kb)
- cDNA synthesis and RT-PCR
- Real-time PCR
- Standard PCR
- High fidelity PCR
- DNA sequencing

Name	Cat. #	Qty.
dNTP Mix (10 mM each of dATP, dGTP, dCTP, TTP)	NM10-0100	0,1 ml (mix)
	NM10-0500	0,5 ml (5 pcs 0,1 ml each)
	NM10-1000	1 ml (10 pcs 0,1 ml each)
dNTP Mix (25 mM each of dATP, dGTP, dCTP, TTP)	NM25-0100	0,1 ml (mix)
	NM25-0500	0,5 ml (5 pcs 0,1 ml each)
	NM25-1000	1 ml (10 pcs 0,1 ml each)

GC ENHANCER

The reagent improves the amplification of a target with a high content of GC regions in the template:

- GC allowance up to 75%
- With localized accumulation of GC motifs

Name	Cat. #	Qty.
GC enhancer	SP012-200	200 mcl
	SP012-1000	1000 mcl

10× PCR BUFFER

Composition: 100 mM Tris-HCl, pH 8.5 (at 25 °C), 500 mM KCl, 0.5% (v/v) Tween 20, Taq DNA polymerase stabilizers.

Name	Cat. #	Qty.
10× PCR buffer	SP020-010	10 ml

10× NEXT PCR BUFFER

10× Next PCR buffer is optimized for efficient operation of HS-Taq-Next DNA polymerase. Can be used for most types of PCR, including real-time PCR with intercalating dyes or fluorescent probes. The buffer is chemically stable, inert and does not change the optimal annealing temperature of primers or the melting characteristics of the matrix.

Application area:
• PCR for obtaining long fragments (long-range PCR)
• Standard PCR
• Amplification of complex templates containing GC-rich regions
• Second stage RT-PCR

Name	Cat. #	Qty.
10× Next PCR buffer	SP040-003	3 ml
	SP040-030	30 ml

50× TAE BUFFER FOR ELECTROPHORESIS OF NUCLEIC ACIDS

50× TAE buffer for nucleic acid electrophoresis in agarose gel. The buffer was prepared using type I water and filtered through a 0.45 µm pore size membrane.

Name	Cat. #	Qty.
50× TAE buffer for electrophoresis of nucleic acids	BE-DNA-500	500 ml
	BE-DNA-1000	1000 ml

10× TBE BUFFER FOR ELECTROPHORESIS OF NUCLEIC ACIDS

10× TBE buffer for nucleic acid electrophoresis in agarose gel. The buffer was prepared using type I water and filtered through a 0.45 µm pore size membrane.

Name	Cat. #	Qty.
10× TBE buffer for electrophoresis of nucleic acids	TBE-500	500 ml

ETHIDIUM BROMIDE SOLUTION (10 MG/ML)

Ethidium bromide solution for visualization of nucleic acids after agarose gel electrophoresis.

Name	Cat. #	Qty.
Ethidium bromide solution, 10 mg/ml	EtBr-10	10 ml

4× DNA LOADING BUFFER

4× Nucleic acids loading buffer is used to load samples to agarose gel and to visualize samples applied to gel. Contains two gel mobility dyes: Bromophenol Blue and Xylene Cyanol FF.

Name	Cat. #	Qty.
4× DNA loading buffer	D-3002	1 ml

6× DNA LOADING BUFFER

6× Nucleic acids loading buffer is used to load samples to agarose gel and to visualize samples applied to gel. Contains three gel mobility dyes: Bromophenol Blue, Xylene Cyanol FF and Orange G.

Name	Cat. #	Qty.
6× DNA loading buffer	D-3003	1 ml

2× RNA LOADING BUFFER

2× RNA loading buffer is used to load samples to agarose gel and to visualize samples applied to gel. Contains formamide and ethidium bromide for efficient RNA denaturation and staining. Contains two gel mobility dyes: Bromophenol Blue and Xylene Cyanol FF.

Name	Cat. #	Qty.
2× RNA loading buffer	D-3001	1 ml

10× BUFFER FOR PROTEIN ELECTROPHORESIS

10× buffer for protein electrophoresis in polyacrylamide gel. The buffer was prepared using type I water and filtered through a 0.45 µm pore size membrane.

Name	Cat. #	Qty.
10× Protein electrophoresis buffer	BE-Prot-500	500 ml
	BE-Prot-1000	1000 ml

PROTEIN STAINIG SOLUTION FOR POLYACRYLAMIDE GELS (WITH ACETIC ACID). CONCENTRATE

A solution for staining and visualizing proteins in polyacrylamide gels after Laemmli protein electrophoresis. The solution contains acetic acid. The solution is supplied as a concentrate, which must be mixed with ethanol before use.

Name	Cat. #	Qty.
Protein stainig solution for polyacrylamide gels (with acetic acid). Concentrate	D-Solution-01	250 ml

PROTEIN STAINIG SOLUTION FOR POLYACRYLAMIDE GELS (WITH PHOSPHORIC ACID)

Solution for staining and visualization of proteins in polyacrylamide gels after protein electrophoresis according to Laemmli. The solution contains phosphoric acid.

Name	Cat. #	Qty.
Protein stainig solution for polyacrylamide gels (with phosphoric acid)	D-Solution-02	500 ml

NON-REDUCING PROTEIN GEL LOADING DYE (4X)

4× Laemmli Protein Electrophoresis (Non-Reducing) loading buffer is used to load samples to polyacrylamide gel and to visualize samples applied to gel.

Name	Cat. #	Qty.
Non-reducing protein gel loading dye (4x), with mercaptoethanol	D-Prot-01	1 ml

REDUCING PROTEIN GEL LOADING DYE (4×), WITH MERCAPTOETHANOL

4× Laemmli Protein Electrophoresis Loading Buffer (reducing, with mercaptoethanol) is used to load samples to polyacrylamide gel and to visualize samples applied to gel.

Name	Cat. #	Qty.
Reducing protein gel loading dye (4×), with mercaptoethanol	D-Prot-ME-01	1 ml