Jena Bioscience

BULK AND OEM PRODUCTION

Master Mixes – Polymerases & Enzymes
Lyo-ready Reagents – Nucleotides
Buffers & Supplements

Molecular Biology

We offer state-of-the-art technology at the highest quality level for the realization of individual customer projects.

Bulk and OEM Production for Life Science Reagents

WE DEVELOP LIFE SCIENCE REAGENTS

Bulk and OEM Services from Jena Bioscience

Jena Bioscience, a trailblazer in the life science industry with over 25 years of academic expertise, is your partner for innovative high-quality reagents and customized services. Our commitment to excellence has made us a trusted provider in this field, serving customers in more than 100 countries worldwide.

Tailored Solutions for DNA and RNA Amplification

That is why we have specialized in developing personalized solutions. Whether you need single liquid or lyophilized reagents, complex kits or optimized master mixes for purification, amplification or modification of DNA/RNA, our extensive portfolio covers it all. We offer expert advice throughout the development and lifetime of your production.

Focus on the safe growth of your business by partnering with Jena Bioscience. Your success is our commitment.

IFTA AG
Certified QMS and EMS according to
DIN EN ISO 9001 and DIN EN ISO 14001
Reg.-No.: ICV03597 034 and ICV03597 534

FROM CUSTOMIZED SOLUTIONS TO LARGE-SCALE PRODUCTION

- **Master Mixes**
- **Polymerases & Enzymes**
- **Lyo-ready Reagents**
- **Nucleotides**
- **Buffers & Supplements**

Lab to Bulk

Tailored to your scale

Move from lab to bulk scale easily for more flexibility with variable quantity options.

- Off-the-shelf bulk products
- Customized formulations on demand
- Cost effective up-scaling
- Consistent quality

Original Manufacturer

Your products – Your way

Full exclusivity with customized formulations, packaging and branding.

- Tailored solutions
- Brand labeling
- Strict confidentiality
- Technical expertise

Lyophilization

- Pre-aliquoted and ready-to-use
- Room temperature stable

ISO Certified

- Certified quality and environmental management system
  - DIN EN ISO 9001
  - DIN EN ISO 14001

BULK AND OEM PRODUCTION

We see your research and applications to be unique

- More than 500 off-the-shelf products for molecular biology applications
- Master mixes for PCR, RT-PCR and LAMP
- Polymerases, reverse transcriptase, enzymes and buffer systems
- Customized solutions for research and industry applications
- Free validation samples

From key components to ready-to-use solutions

Step 1

Inquiry & Feasibility Check

- Requirements
- Timeline
- Budget
- Confidentiality Agreement / NDA

Step 2

Specifications

- Pricing
- Batch volume
- Cost efficiency
- Batch to batch consistency

Step 3

Production & Quality Control

- Quality standards
- Monitoring process parameters
- Quality control
- Documentation

Step 4

Packaging & Shipping

- Customized packaging
- Customized labelling
- Global shipping
- Certified customs clearance system

REAL-TIME PCR

qPCR SYBR and PROBES SERIES

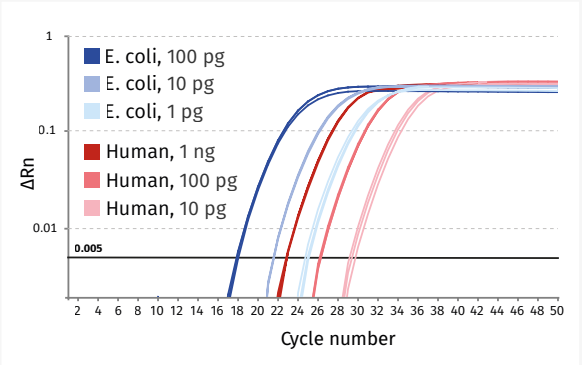
Easy-to-handle master mixes provide a powerful tool for quantification of sample DNA in a broad dynamic range with exceptional sensitivity and precision

Cat.-No.	Amount	Conc.	Reactions
qPCR SybrMaster			
PCR-372-100ML	100 ml	2×	10,000 reactions × 20 µl
qPCR ProbesMaster			
PCR-360-100ML	100 ml	2×	10,000 reactions × 20 µl

DIRECT AMPLIFICATION – Perfect for Point-of-Care applications

From crude extract to quantitative analysis – this is reached fastest by Direct Amplification master mixes which come along with an extraction buffer compatible to the subsequent qPCR

Cat.-No.	Amount	Conc.	Reactions
Direct qPCR SybrMaster			
PCR-344-100ML	100 ml	2×	10,000 reactions × 20 µl
Direct qPCR ProbesMaster			
PCR-396-100ML	100 ml	2×	10,000 reactions × 20 µl



Functional QC: Amplification of human DNA and E. coli DNA templates

Reproducible and low variability levels with various starting DNA amounts. Amplification plot of ß-actin gene from human DNA and of 16S rRNA gene for detection of bacterial DNA (E.coli). qPCR SybrMaster highROX #PCR-374 was used for real-time PCR. Starting DNA amount was 1 pg, 10 pg and 100 pg of E. coli and 10 pg, 100 pg and 1 ng of human DNA

REVERSE TRANSCRIPTION REAL-TIME PCR

One-Step RT-qPCR SYBR and PROBES SERIES

Master mixes designed for quantitative real-time analysis of RNA templates containing an optimized composition of all required reagents including RNase inhibitor

Cat.-No.	Amount	Conc.	Reactions
SCRIPT RT-qPCR SybrMaster			
PCR-520-100ML	100 ml	2×	10,000 reactions × 20 µl
SCRIPT RT-qPCR ProbesMaster			
PCR-512-100ML	100 ml	2×	10,000 reactions × 20 µl

DIRECT AMPLIFICATION – No need for time-consuming DNA extraction – perfect for Point-of-Care applications

Cat.-No.	Amount	Conc.	Reactions
SCRIPT Direct RT-qPCR SybrMaster			
PCR-532-100ML	100 ml	2×	10,000 reactions × 20 µl
SCRIPT Direct RT-qPCR ProbesMaster			
PCR-528-100ML	100 ml	2×	10,000 reactions × 20 µl

All Mixes are available

- → as free validation sample
- → in customized packaging sizes
- → with high ROX, low ROX or without ROX
- → with or without UNG
- → as blue dyed version to facilitate pipetting into white plasticware

ISOTHERMAL AMPLIFICATION

LAMP Green Series

Isothermal amplification, using the outstanding technique **LAMP** (Loop-mediated Isothermal Amplification) is revolutionizing the way we analyze DNA and RNA.

LAMP is performed at a constant temperature (60 – 65 °C), so no thermal cycling is required. Optimized Bst enzymes and master mixes generate an amplification factor of up to 10^9, comparable to 30 cycles in a PCR assay. This allows the detection of a target gene **within 10 – 30 minutes**.

Saphir LAMP Turbo GreenMaster is based on a genetically improved next-generation Bst polymerase. The polymerase is the ideal choice for ultra-fast and robust amplification of DNA. The polymerase is 2 – 3 times faster than Saphir Bst Polymerase (#PCR-389) cutting down the detection time of a DNA target **to 5 – 10 minutes**.

Cat.-No.	Amount	Conc.	Reactions
Saphir LAMP GreenMaster			
PCR-387-100ML	100 ml	2 ×	10,000 reactions × 20 µl
Saphir LAMP Turbo GreenMaster			
PCR-393-100ML	100 ml	2 ×	10,000 reactions × 20 µl

POLYMERASES

Set up your own kit production

Cat.-No.	Amount	Conc.
Taq Polymerase for routine PCR applications		
PCR-420-100KU	100 kilo units	5 units / µl
PCR-420-1MU	1,000 kilo units	5 units / µl
Hot Start Polymerase Apta+ Hot Start polymerase for high specificity, aptamer-inhibited		
PCR-432-100KU	100 kilo units	5 units / µl
PCR-432-1MU	1,000 kilo units	5 units / µl
Hot Start Polymerase Ab+ Hot Start polymerase for highest specificity, antibody-blocked		
PCR-423-100KU	100 kilo units	5 units / µl
PCR-423-1MU	1,000 kilo units	5 units / µl
Saphir Bst Polymerase		
PCR-389-10KU	100 kilo units	8 units / µl
PCR-389-100KU	1,000 kilo units	8 units / µl
Saphir Bst Turbo Polymerase		
PCR-390-10KU	100 kilo units	8 units / µl
PCR-390-100KU	1,000 kilo units	8 units / µl

Hot Start Polymerase Inhibition: Aptamer versus Antibody

Aptamers are an economic way to block polymerase activity and to prevent the extension of nonspecifically annealed primers and primer-dimer formation at low temperatures during PCR setup. The aptamer is quickly released at the increased temperature of thermal cycling.

Blocking by an **antibody** provides highest specificity and sensitivity when amplifying low-copy-number targets in complex backgrounds or when prolonged room-temperature set up is required. The polymerase activity is switched on automatically at the initial denaturation step.

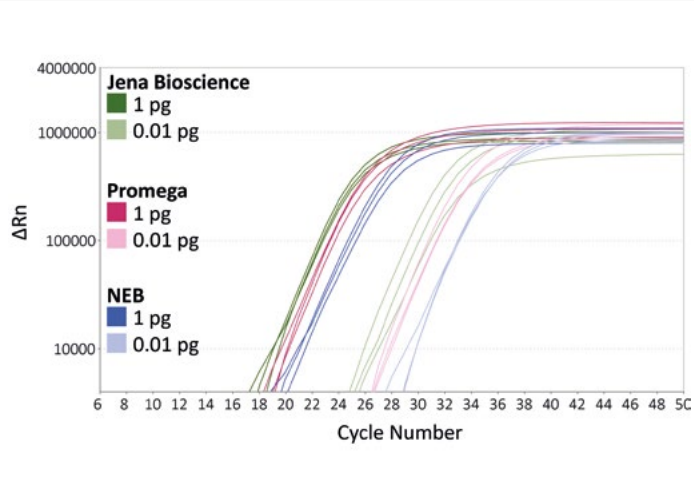
SCRIPT REVERSE TRANSCRIPTASE

with increased thermal stability and sensitivity

Did you know? – RNase H activity

RNase H cuts RNA from RNA-DNA hybrids causing truncated cDNA. When producing long transcripts (e.g. for cloning) it is advantageous to eliminate the RNase H activity.

Cat.-No.	Amount	Conc.
SCRIPT Reverse Transcriptase		
PCR-425-100KU	100 kilo units	200 units/µl
PCR-425-1MU	1 Mio units	200 units/µl



Benchmark Testing against Competitors

Amplification of a RdRP gene fragment from SARS-CoV-2 RNA. Comparison with competitors using different amounts of SARS-CoV-2 RNA as template (1 pg and 0.01 pg in triplicates). **SCRIPT RT-qPCR ProbesMaster #PCR-512** was used for one-step RT-qPCR. The Jena Bioscience master mix shows a higher sensitivity compared to other suppliers.

ENZYMES & COMPONENTS

RNase Inhibitor and **Thermolabile UNG** – essential components in PCR, RT and RT-PCR assays

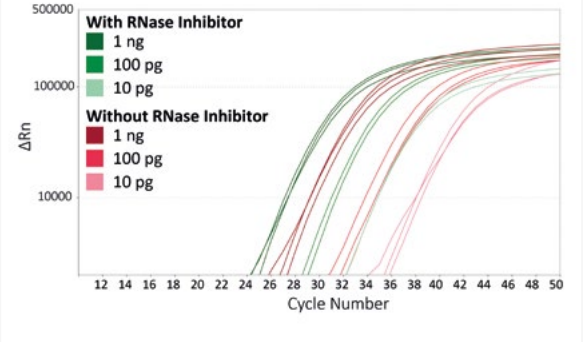
Cat.-No.	Amount	Conc.
RNase Inhibitor – recombinant Preventing RNA from being degraded		
PCR-392-100KU	100 units	40 units / µl
PCR-392-1MU	1,000 kilo units	40 units / µl
Thermolabile UNG – 10 units / µl UNG (UDG) for preventing carry-over contaminations in PCR assays		
PCR-427-1KU	1 kilo unit	10 units / µl
PCR-427-10KU	10 kilo units	10 units / µl
Extreme Thermolabile UNG UNG (UDG) for preventing carry-over contaminations in RT-PCR assays		
PCR-429-1KU	1 kilo unit	1 units / µl
PCR-429-10KU	10 kilo units	1 units / µl

Did you know? – Thermolabile vs. Extreme Thermolabile UNG

UNG (Uracil-N-Glycosylase) is used to prevent carry-over contamination with DNA from previous PCR reactions. Thermolabile UNG is used in PCR assays in an additional 50°C step, while Extreme Thermolabile UNG can decontaminate RT-PCR assays at 20°C before starting the cycler.

Avoiding Loss of Sensitivity due to contamination with RNase

Comparison of RT-qPCR with and without RNAse inhibitor. Amplification plot of ß-actin transcript with different amounts of total human RNA as template (1 ng, 100 pg and 10 pg in triplicates). 2 pg of RNase were added to the 20 µl RT-qPCR assay.



LYO-READY COMPONENTS

Set up your own production line for lyophilisates

Glycerol must be avoided in freeze-drying

- → Polymerases and enzymes in glycerol-free storage buffer
- → Highly concentrated reagents to minimize glycerol contribution to the master mix

Cat.-No.	Amount	Conc.
Taq Polymerase – glycerol-free		
PCR-422-10KU	10 kilo unit	5 units / µl
PCR-422-100KU	100 kilo units	5 units / µl
Taq Polymerase – high conc.		
PCR-421-10KU	10 kilo unit	100 units / µl
PCR-421-100KU	100 kilo units	100 units / µl
Hot Start Polymerase Ab+ – glycerol-free		
PCR-424-10KU	10 kilo unit	5 units / µl
PCR-424-100KU	100 kilo units	5 units / µl
SCRIPT Reverse Transcriptase – glycerol-free		
PCR-426-100KU	100 kilo units	200 units / µl
PCR-426-100KU	100 kilo units	200 units / µl
RNase Inhibitor – glycerol-free		
PCR-399-10KU	10 kilo unit	40 units / µl
PCR-399-100KU	100 kilo units	40 units / µl
Thermolabile UNG – high conc.		
PCR-428-10KU	10 kilo unit	200 units / µl
PCR-428-100KU	100 kilo units	200 units / µl

LYOPHILIZATION SERVICE

Lyophilization of master mixes tailored to your application

- Pre-aliquoted and ready-to-use
- Custom-specific primer and probes included
- Stable at ambient temperature
- No cooling chain required
- Minimized risk of contamination

Contact us for customized lyophilization services: molbio@jenabioscience.com

Development **Optimization** **Scale up** **Customized Packaging**

Lyophilization Flyer

Have a look at our lyophilization flyer. Feel free to request your copy:
molbio@jenabioscience.com

NUCLEOTIDES

Highest quality nucleotides as single solutions or mixes

The level of sophistication in PCR applications constantly reaches new highs and performance can be negatively affected by even one poor quality reagent.

According to our certified quality management system each lot is assayed under stringent criteria for purity and functionality. The quality of dNTP solutions is assessed on the basis of three criteria: **Purity, Macromolecular Contaminants and Inorganic Species.**

Purity of dNTPs is a deciding factor in PCR performance. A specification of ≥ 99.0 % dNTP is the market standard, yet this only tells you half the story. The constitution of the remaining ≤ 1.0 % is crucial.

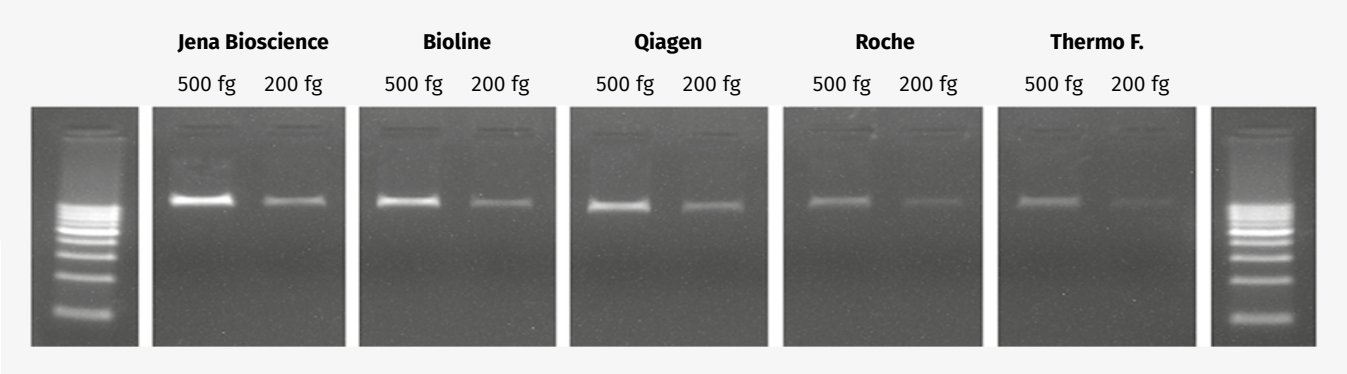
The absence of **Macromolecular Contaminants** like human DNA and bacterial DNA is critical. These macromolecules can be present from the use of bacterial enzymes used in production, as well as human DNA from handling during production.

The presence of **inorganic species** may result from contaminated raw materials and inadequate manufacturing processes. These species commonly interfere with PCR and are referred as “PCR inhibitors”.

dNTP SOLUTIONS

Test the exceptional performance of our nucleotides for yourself. Request a sample!

	dATP sodium salt 100 mM solution	**dCTP sodium salt 100 mM solution**	**dTTP sodium salt 100 mM solution**	**dGTP sodium salt 100 mM solution**	**dUTP sodium salt 100 mM solution**
Nonemclature	2'-Deoxyadenosine 5'-triphosphate	2'-Deoxycytidine 5'-triphosphate	2'-Deoxyguanosine 5'-triphosphate	2'-Deoxythymidine 5'-triphosphate	2'-Deoxyuridine 5'-triphosphate
CAS No.	1927-31-7	102783-51-7	93919-41-6	18423-43-3	102814-08-4
Formula (anlon)	$C_{10}H_{13}N_5O_{12}P_3$	$C_9H_{13}N_3O_{13}P_3$	$C_{10}H_{13}N_5O_{13}P_3$	$C_{10}H_{14}N_2O_{14}P_3$	$C_9H_{12}N_2O_{14}P_3$



Each mix was used to amplify a 5 kb fragment in an assay particularly sensitive to nucleotide impurities. Lambda DNA was used as template (left to right: 500 fg, 200 fg)

Product	**Cat.-No.**	**Amount**	**Conc.**
dATP - Solution	NU-1001-100ML	100 ml	100 mM
dCTP - Solution	NU-1002-100ML	100 ml	100 mM
dGTP - Solution	NU-1003-100ML	100 ml	100 mM
dTTP - Solution	NU-1004-100ML	100 ml	100 mM
dUTP - Solution	NU-1008-100ML	100 ml	100 mM
dNTP-Mix 10 mM	NU-1006-100ML	100 ml	10 mM each dNTP
dNTP-Mix 25 mM	NU-1023-100ML	100 ml	25 mM each dNTP

rNTP SOLUTIONS & SOLIDS

Ultrapure ribonucleotides for *in vitro* transcription

Product	Cat.-No.	Amount	Conc.
ATP - Solution	NU-1010-100ML	100 ml	100 mM
ATP - Solid	NU-1049-100G	100 g	
CTP - Solution	NU-1011-100ML	100 ml	100 mM
CTP - Solid	NU-1050-100G	100 g	
GTP – Solution	NU-1012-100ML	100 ml	100 mM
GTP – Solid	NU-1047-100G	100 g	
UTP – Solution	NU-1013-100ML	100 ml	100 mM
UTP - Solid	NU-1051-100G	100 g	

REACTION BUFFER SYSTEMS

Select the best fitting reaction buffer for your PCR or RT-PCR application to optimize your assay performance.

Add the best fitting reaction buffer for your PCR or RT-PCR application to complete your order!

Product	Cat.-No.	Amount	Conc.
qPCR Buffer	PCR-279-100ML	100 ml	10 ×
SCRIPT RT Buffer complete	PCR-281-100ML	100 ml	5 ×
Crystal Buffer	PCR-271-100ML	100 ml	10 ×
Ruby Buffer	PCR-272-100ML	100 ml	10 ×
KCl Buffer	PCR-262-100ML	100 ml	10 ×

SINGLE COMPONENTS AND ADDITIVES

Supplements to enhance functionality and tools for quality control and PCR assay optimization

Product	Cat.-No.	Amount	Conc.
MgCl2 Solution - 25 mM	PCR-266-100ML	100 ml	25 mM
MgCl2 Solution - 100 mM	PCR-282-100ML	100 ml	100 mM
PCR-grade Water	PCR-258-100	100 ml	-
PCR-grade Water	PCR-258-1L	1 l	-
ROX Reference Dye	PCR-356-100ML	100 ml	100 µM
SYBR® Green Fluorescent DNA Stain	PCR-378-100ML	100 ml	100 µM

Contact our Molecular Biology experts

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