Molecular Biology

Reagents and laboratory equipment
for the Isolation and Analysis of nucleic acids

Content

Sample Preparation

ROTI® SampleLyse

For homogenisation of various plant, animal or microbial source materials.

Our ROTI® SampleLyse tubes are 2 ml screw cap vessels filled with beads made of steel, ceramic or glass for mechanical disruption of various cell, tissue or environmental samples. The screw cap vessels can be inserted into a commercially available homogeniser such as the cell disruption shaker Genie® (Art. No. PA66.1). By shaking the beads, the sample is quickly and efficiently disrupted and nucleic acids or proteins can be extracted from the homogenised sample.

Suitable, for example, for:

- Plant material: flowers, leaves, stems, roots, woody parts, seeds, grains
- Animal tissue: brain, liver, kidney, lung, muscle, hair, nails, bones
- Microorganisms: yeast, fungi, algae, bacteria, spores
- Environmental samples: soil, faeces

General properties:

- Sample volume: 0.5 - 2 ml
- Bead material: glass, ceramic and/or steel
- Bead diameter: 0.09 - 4.7 mm

Product name	Suitable for	Ø Ball	Volume range up to	Art. No.	Pack Qty.
ROTI® SampleLyse Soft Tissue 1	Plant material: flowers, leaves Animal tissue: brain, liver	1,4 - 1,6 mm	0,5 ml	**1YK4.1**	10 unit(s)
				1YK4.2	50 unit(s)
				1YK4.3	100 unit(s)
				1YK4.4	250 unit(s)
ROTI® SampleLyse Soft Tissue 2	Plant material: flowers, leaves Animal tissue: brain, liver, kidney	2,4 -2,8 mm	0,5 ml	**1YK5.1**	10 unit(s)
				1YK5.2	50 unit(s)
				1YK5.3	100 unit(s)
				1YK5.4	250 unit(s)
ROTI® SampleLyse Soft Tissue 3	Plant material: flowers, leaves Animal tissue: brain, liver	1,4 - 1,6 mm	2 ml	**1YK6.1**	10 unit(s)
				1YK6.2	50 unit(s)
				1YK6.3	100 unit(s)
				1YK6.4	250 unit(s)
ROTI® SampleLyse Soft Tissue 4	Plant material: flowers, leaves Animal tissue: brain, liver, kidney	2,4 -2,8 mm	2 ml	**1YK7.1**	10 unit(s)
				1YK7.2	50 unit(s)
				1YK7.3	100 unit(s)
				1YK7.4	250 unit(s)
ROTI® SampleLyse Complex	Plant material: flowers, leaves, stems, roots Animal tissue: lungs, heart/muscle Environmental samples: soil, faeces	1,4 - 3,5 mm	2 ml	**1YK8.1**	10 unit(s)
				1YK8.2	50 unit(s)
				1YK8.3	100 unit(s)
				1YK8.4	250 unit(s)
ROTI® SampleLyse Hard Tissue	Plant material: wooden parts, seeds, grains. Animal tissue: hair, nails, bones		2 ml	**1YK9.1**	6 unit(s)
				1YK9.2	12 unit(s)
				1YK9.3	24 unit(s)
ROTI® SampleLyse Plant	Plant material: leaves, stems, roots, woody material, seeds, grains	4,7 mm	2 ml	**1YKA.1**	10 unit(s)
				1YKA.2	50 unit(s)
				1YKA.3	100 unit(s)
				1YKA.4	250 unit(s)
ROTI® SampleLyse Plant Plus	Plant material: leaves, stems, roots, woody material, seeds, grains. Animal tissue: lungs, heart/muscle	3,5 mm	0,5 ml	**1YKC.1**	10 unit(s)
				1YKC.2	50 unit(s)
				1YKC.3	100 unit(s)
				1YKC.4	250 unit(s)
ROTI® SampleLyse Microbes 1	Microorganisms: Yeasts, fungi, algae, bacteria	0,09-3,5 mm	2 ml	**1YKE.1**	10 unit(s)
				1YKE.2	50 unit(s)
				1YKE.3	100 unit(s)
				1YKE.4	250 unit(s)
ROTI® SampleLyse Microbes Plus	Microorganisms: Yeasts, fungi, algae, bacteria Environmental samples: Faeces	0,4-0,6 mm	2 ml	**1YKH.1**	10 unit(s)
				1YKH.2	50 unit(s)
				1YKH.3	100 unit(s)
				1YKH.4	250 unit(s)
ROTI® SampleLyse Microbes Special	Microorganisms: Yeasts, fungi, algae, bacteria, spores Environmental samples: Soil, faeces	0,4-1,6 mm	2 ml	**1YKK.1**	10 unit(s)
				1YKK.2	50 unit(s)
				1YKK.3	100 unit(s)
				1YKK.4	250 unit(s)

For safety information and additional data, see our current catalogue or at www.carlroth.com

DNA / RNA Isolation

ROTI®Phenol

ROTI®Phenol solutions for DNA and RNA extraction

- Reduce exposure to toxic chemicals
- Prepared from phenol of highest purity
- Packed under argon for maximum stability
- Successfully tried and tested in many research laboratories

Mechanism

Phenol and chloroform lead to denaturation of proteins which accumulate in the interphase. Isoamyl alcohol prevents foaming and very efficiently inhibits RNAses. For distinct phase separation, ROTI®Aqua-Phenol needs a pH of ≤4.0 in the aqueous upper phase. If needed, the upper phase may be acidified by adding 1-2 drops of 1 N HCl.

Draw solution from lower phase. Do not shake before use!

ROTI®Phenol ready-to-use

Product name	General application	Area of use	Pack.	Art. No.	Pack Qty.
ROTI®Phenol	Redistilled, in TE buffer equilibrated phenol, pH 7,5-8,0.	for the extraction of nucleic acids	glass	**0038.1**	100 ml
				0038.2	250 ml
				0038.3	500 ml
				0038.4	1 l
ROTI®Aqua-Phenol	Redistilled, in water saturated phenol, pH 4,5-5.	for RNA extraction	glass	**A980.2**	100 ml
				A980.1	250 ml
				A980.3	500 ml
ROTI®Phenol/Chloroform/Isoamyl alcohol	Redistilled, in TE-buffer equilibrated phenol, chloroform and isoamyl alcohol at a ratio of 25:24:1, pH 7,5-8,0.	for the extraction of nucleic acids	glass	**A156.3**	100 ml
				A156.1	250 ml
				A156.2	500 ml
ROTI®Aqua-P/C/I	Redistilled, in water saturated phenol, chloroform and isoamyl alcohol at a ratio of 25:24:1, pH 4,5-5.	for RNA extraction	glass	**X985.3**	100 ml
				X985.1	250 ml
				X985.2	500 ml

For safety information and additional data, see our current catalogue or at www.carlroth.com

ROTI®C/I ready-to-use

ready-to-use, for the extraction of nucleic acids

Chloroform/Isoamyl alcohol at a ratio of 24:1.

Mixture of chloroform and isoamyl alcohol of highest purity.
Ideal for extraction of DNA/RNA in combination with ROTI®Phenol, especially for the purification of nucleic acid containing solutions from residual phenol.

Storage temperature: +15 to +25 °C
Transport temperature: ambient temp.

UN no. 1888 · ADR 6.1 III · WGK 3

Danger H302-H315-H319-H331-H351-H361d-H372

Art. No.	Pack Qty.	Pack.
X984.3	100 ml	glass
X984.1	250 ml	glass
X984.2	500 ml	glass

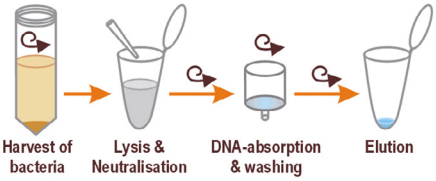
Please note our **Technical Information Brochure** on the Internet next to the products:

Phenolic DNA Isolation
Background and protocol

DNA / RNA Isolation

ROTI®Prep Kits - Column-based kits for the isolation of nucleic acids

Our ROTI®Prep kits are designed for the manual extraction of nucleic acids from various starting materials. The column-based kits enable fast, safe and uncomplicated purification of nucleic acids without the use of toxic phenol. The isolated nucleic acids are highly pure and can be used in all common subsequent applications.



General properties:

- Manual extraction of nucleic acids from various source materials
- Preparation by well-known mini spin-column system
- Fast, easy and efficient
- Short extraction time
- High yield

Product name	General application	Packaging	Art. No.	Pack Qty.
ROTI®Prep Plant DNA	**Kit for isolation of genomic DNA from various plant tissues.**	10 preparations	**20H4.1**	1 kit
		50 preparations	**20H4.2**	1 kit
		250 preparations	**20H4.3**	1 kit
ROTI®Prep Plant DNA Micro	**Kit for isolation of genomic DNA from small sample volumes (animal tissue, cells, blood).**	10 preparations	**20H5.1**	1 kit
		50 preparations	**20H5.2**	1 kit
ROTI®Prep Gel & PCR	**Kit for DNA isolation from agarose gel pieces, or from PCR and sequencing reactions.**	10 preparations	**20H6.1**	1 kit
		50 preparations	**20H6.2**	1 kit
		250 preparations	**20H6.3**	1 kit
ROTI®Prep Plant RNA	**Kit for RNA isolation from various plant tissues**	10 preparations	**20H7.1**	1 kit
		50 preparations	**20H7.2**	1 kit
		250 preparations	**20H7.3**	1 kit
ROTI®Prep Plant DNA & RNA	**Kit for simultaneous isolation of DNA and RNA from different starting materials.**	10 preparations	**20H8.1**	1 kit
		50 preparations	**20H8.2**	1 kit
		250 preparations	**20H8.3**	1 kit
ROTI®Prep Plant Soil DNA	**Kit for isolation of microbial DNA from soil samples.**	10 preparations	**20H9.1**	1 kit
		50 preparations	**20H9.2**	1 kit
ROTI®Prep gDNA Mini 2.0	**Kit for the isolation of genomic DNA from various starting materials such as bacteria, plants, fungi, cell cultures or blood.**	10 preparations	**1YTK.1**	1 kit
		50 preparations	**1YTK.2**	1 kit
		250 preparations	**1YTK.3**	1 kit
ROTI®Prep Genomic DNA MINI	**Kit for isolation of genomic DNA from tissues, rodent tails, FFPE tissues, buccal swabs, cell cultures.**	10 preparations	**8472.1**	1 kit
		50 preparations	**8472.2**	1 kit
		250 preparations	**8472.3**	1 kit
ROTI®Prep Blood Genomic DNA MINI	**Kit for isolation of DNA from whole blood**	10 preparations	**8620.1**	1 kit
		50 preparations	**8620.2**	1 kit
		250 preparations	**8620.3**	1 kit
ROTI®Prep Plasmid MINI-XL	**Kit for easy isolation of plasmids from up to 15 ml bacterial culture.**	10 preparations	**8546.1**	1 kit
		50 preparations	**8546.2**	1 kit
		250 preparations	**8546.3**	1 kit
ROTI®Prep PCR Purification	**Kit for concentration and purification of PCR products.**	10 preparations	**8503.1**	1 kit
		50 preparations	**8503.2**	1 kit
		250 preparations	**8503.3**	1 kit
ROTI®Prep Gel Extraction	**Kit for DNA extraction from agarose gels.**	10 preparations	**8510.1**	1 kit
		50 preparations	**8510.2**	1 kit
		250 preparations	**8510.3**	1 kit
ROTI®Prep Viral RNA/DNA MINI	**Kit for isolation of viral DNA and RNA.**	10 preparations	**8547.1**	1 kit
		50 preparations	**8547.2**	1 kit
		250 preparations	**8547.3**	1 kit
ROTI®Prep RNA MINI	**Kit for RNA isolation from eukaryotic cells, tissues, bacteria, biopsies.**	10 preparations	**8485.1**	1 kit
		50 preparations	**8485.2**	1 kit
		250 preparations	**8485.3**	1 kit

For safety information and additional data, see our current catalogue or at www.carlroth.com

Other reagents for the extraction of RNA

ready-to-use | RNase-free

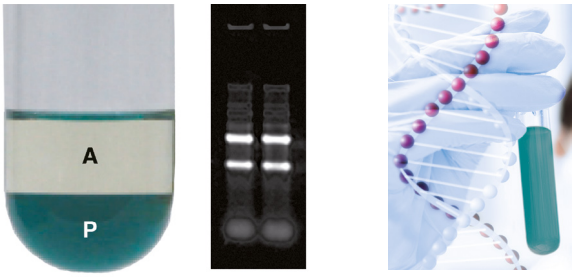
ROTI®ZOL RNA

ready-to-use, for molecular biology

Ready-made solution with green dye for isolation of total RNA

ROTI®ZOL RNA is a ready-to-use, green-coloured solution for isolating total RNA from biological samples such as cells or tissue.
ROTI®ZOL RNA is based on the phenolic isolation procedure known from Chomczynski and Sacchi (*Anal. Biochem.* (1987) 162:156-9). Due to the advanced and optimized formulation, ROTI®ZOL RNA results in very high recovery rates of highly pure total RNA. Application is very convenient and preparation of several samples in parallel is finished in less than one hour. Additionally, the green colour significantly simplifies the separation of the RNA containing aqueous phase, the DNA containig interphase, and the protein containing phenolic phase during the process.

- Easy and very rapid two-step RNA isolation
- High recovery rates of intact, very pure total RNA
- Applicable on a broad range of tissues and on cell types
- The purified RNA is ready for use in standard downstream applications such as RT-PCR



Figures 1 and 2:
Isolation of totalRNA by ROTI®Zol RNA.
Left: Tube after centrifugation. A: Aqueous phase – RNA containig, P: Phenolic phase – protein containing. DNA accumulates in the A/P interphase.
Right: Typical gel of total RNA isolated by ROTI®Zol RNA
(extracted from 5x10^6 HL-60 cells).

Typical RNA yield from 5x10^6 cells: 30–35 µg
Typical purity of RNA prepared from 5x10^6 cells: 2,08 (A_{260}/A_{280})

1 ml ROTI®ZOL RNA is used for RNA isolation from 100 mg tissue or 10^7 cells, respectively.

Storage temperature: +4 °C

UN no. 1760 · ADR 8 III · WGK 2

Danger
H290-H302+H312+H332-H314-H341-H373-H411-EUH032 EUH208

Art. No.	Pack Qty.	Pack.
9319.1	100 ml	plastic
9319.2	200 ml	plastic

Instructions for use

can be found in our webshop in the product description under "Downloads".

ready-to-use

ROTI®Quick kit

ready-to-use, for molecular biology

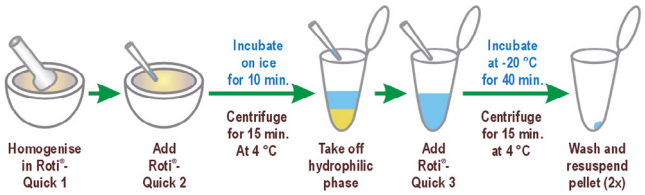
Kit for RNA-isolation from cells and tissues.

Column-free, ultra-flexible isolation system designed for reliable isolation of total RNA from almost any tissue.
The ROTI®Quick Kit is suitable for use with cell culture material, biopsies, high-fat or high-protein tissue, blood (Üçeyler *et al. Neurology* (2007) 69:42-9), solid plant material, mitochondria (Backert *et al. Plant Molecular Biology* (1997) 33:1037-50), mycoplasms (Weiner *et al. Nucleic Acids Res.* (2000) 28:4488-96) and many more. The kit can be used for both fresh tissue and frozen material.

The ROTI®Quick Kit is based on the GITC isolation method by Chomczynski and Sacchi (Chomczynski and Sacchi. (1987) *Anal. Biochem.* 162:156) and includes three optimised ready-to-use solutions that were developed by molecular biologists and have proven effective for many years.

After the tissue has been homogenised, the RNA is purified in a single step and isolated by precipitation. Each isolation takes approximately 2,5 hours, and multiple isolations can easily be performed simultaneously. The incubation and centrifuging steps take about 2 hours.

- Easy, most versatile application
- High recovery rate of intact, very pure total RNA
- Column-free two-step isolation
- Applicable on nearly any tissue type



Preparation as given in the instruction-for-use is optimised for RNA isolation from approx. 0,2 g of tissue or cell material. The amount of material isolated per batch may easily be up- or downscaled to larger or smaller amounts of tissue.
The isolated total RNA is highly pure and may be used directly for all common down-stream applications, such as RT-PCR, Northern blotting and reverse transcription. Detailed instructions-for-use are enclosed with each kit.

The kit contains:

ROTI®Quick Kit 1, ROTI®Quick Kit 2 and ROTI®Quick Kit 3.
Contents of this Kit may not be bought separately.

The Rot®-Quick Kit is sufficient for 20 isolations from 0,2 g tissue each.

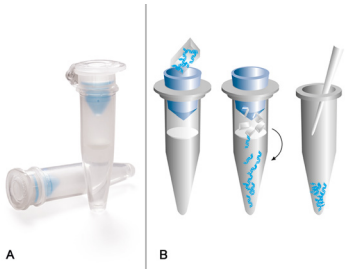
Storage temperature: +4 °C

UN no. 2924 · ADR 3 (8) II · WGK 3

Danger H225-H301+H311+H331-H314-H336-H341-H351-H361d-H372-H411-EUH032 EUH208

Art. No.	Pack Qty.	Packaging	Pack.
A979.1	1 kit	for approx. 20 preparations	cardboard

Laboratory Aids for the Extraction of DNA from Agarose Pieces



Gel extraction kit Ultrafree® DA

for molecular biology

For easy and speedy extraction of DNA fragments from agarose gels.

- Extraction in 10 minutes
- High recovery of fully intact DNA
- Highly efficient with all gel running buffers
- Easy application – even during student courses
- Convenient handling even of large sample numbers

Recovery of functionally intact DNA in one spin-step. The agarose slice is placed directly into the pre-assembled device and centrifuged for 10 min. (fig. B). Melting or enzymatic digestion is not required. The agarose slice is nebulised and the DNA is filtered and purified during centrifugation. The eluate may simply be stored away in the extraction tube or collected from the tube in order to apply the DNA to subsequent analyses.

Directions for use

Compatible with all agaroses with standard gelling temperature (not compatible with Low-Melting agarose). Suitable for fragments of 100 bp up to 10,000 bp. Ideal also for labelled DNA, e.g. after fluorescence- or radioactive labelling. Reliable recovery rates for fragments of 100 bp up to 2,000 bp.
The gel extraction units may be used with all standard gel running buffers. Following elution from gels run with ROTIPHORESE® 10x TAE buffer *light* (Art. No. 0122.1), the DNA may be applied **directly** to cloning or sequencing. Compatible with all standard Mini-centrifuges.

Gel extraction kit Ultrafree® DA

MERCK MILLIPORE.

The kit contains

50 standard reaction vessels and 50 removable nebulizer/filter units

Type	Pack.	Art. No.	Pack Qty.
Gel extraction kit Ultrafree® DA	50 extraction units	**AE86.1**	50 unit(s)

Detailed product information can be found in our webshop!

Always current prices!

- All relevant product information
- Status of product availability
- Specifications and certificates of analysis
- Instructions for use

DNA / RNA Isolation

DNase-free **RNase-free**

Elution Tubes ROTI®

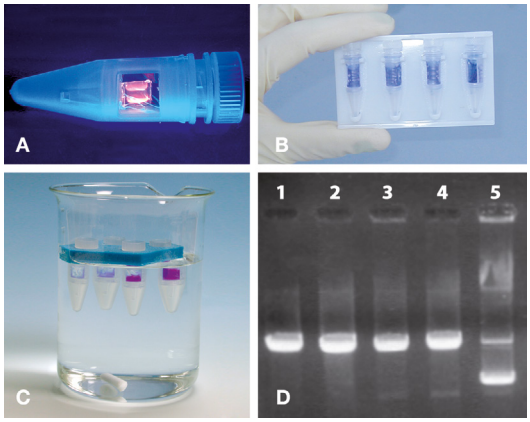
RNase-free, DNase-free and proteinase-free, free of PCR products.
For gel elution and purification of DNA/RNA and proteins.
Easy-to-handle system for gel elution and purification of DNA/RNA and proteins in solution (electro elution).

This very gentle method guarantees the non-disruptive purification of high-molecular or genomic DNA as well as of native protein complexes and long peptides. Using membranes of low MWCO, elution of very small DNA fragments is possible, making the tubes a very useful tool for the efficient desalting of primers within 60–100 min as well as for purification of siRNA (ss or duplexes).

ROTI®elution tubes are suitable for elution of ssDNA (≥20 nt), dsDNA (15 bp–100 kb), RNA of each size, proteins of each size, and of protein/nucleic acid complexes. The tubes may be applied to elution procedures from agarose- and polyacrylamide gels, as well as to all popular electrophoresis units. Used in floating racks, they are ideal for the purification of DNA, RNA or proteins by means of dialysis.

All ROTI®elutions tubes are free of DNase, RNase, Proteinase and PCR products. All membranes are made from regenerated cellulose and can thus be exposed to a pH range of 2–12, to a temperature of +60 °C, and also to a variety of organic solvents. Additionally, the membranes are free of sulphate and heavy metals and were treated with EDTA. Hence, macromolecules (like proteins or nucleic acids) or other biological particles may be eluted and dialysed in native conformation, and are very well suited for subsequent activity tests.

- Ultrapure
- Easy-to-handle
- Very gentle process
- Typical recovery rate of >95%
- Suitable for elution from agarose and PAGE
- Suitable for dialysis of biomolecules
- Suitable for oligoncleotides, dsDNA, ssDNA, RNA, proteins and protein/nucleic acid complexes
- Compatibel with all popular electrophoresis units



Application examples

Purification of DNA and proteins from gels, elution of genomic DNA or total RNA, preparation of DNA fragments prior to cloning, purification of siRNA for RNAi assays, purification/desalting of oligonucleotides/primers, purification of RNA or DNA for transfection or transformation, desalting or buffer change of protein solutions.

Please order the respective ROTI®elution Tube Tray separately.

Directions for use

ROTI®elution tubes are very easy to handle, and therefore can be used in both individual tests and high-throughput applications.
Thanks to the screw cap, the vials are easy to open, can easily be filled with gel slices and buffer and can be securely sealed.

The practical elution vial holder has sufficient stability for safe use in electrophoresis cell. Under current flow, the DNA/RNA/protein molecules initially migrate from the gel slice until they are halted by the dialysis membrane. By briefly reversing the polarity of the electrical field, the molecules can be separated from the membrane and pipetted out of the tube together with the buffer. By carefully selecting the tube and the amount of buffer, it is in many cases possible to achieve a high concentration directly within the elution buffer. The buffer can then easily be concentrated by using the usual methods (e.g. precipitation).

ROTI®elution tubes with MWCO 1, 25 and 50 kDa are wet packed in stabilising solution (25 % ethanol, 2 mM EDTA) and should stored under refrigeration. All other elution vials are dry packed and can be stored at room temperature.

The classification below refers only to Art. Nos. marked *.

Recommendation for the Choice of the MWCO:

MWCO (kDa)	RNA/ssDNA	dsDNA	Proteins
1	20–50 nt	15–25 bp	3–15 kDa
3,5	50–250 nt	25–100 bp	10–30 kDa
8	250–1000 nt	100–500 bp	25–50 kDa
14	1–5 knt	0,5–2 kb	45–100 kDa
25	5–30 knt	2–10 kb	80–200 kDa
50	>30 knt	10–100 kb	>150 kDa

DNA / RNA Isolation

Elution Tubes ROTI®

DNase-free **RNase-free**

Product name	Type	Volume	MWCO	Art. No.	Pack Qty.
Elution Tubes ROTI® MAXI	MAXI 3.5	0.1 to 3 ml	3,5 kDa	**9421.1**	2 unit(s)
				9421.2	30 unit(s)
				9421.3	100 unit(s)
	MAXI 8		8 kDa	**9425.1**	2 unit(s)
				9425.2	30 unit(s)
				9425.3	100 unit(s)
	MAXI 14		14 kDa	**9427.1**	2 unit(s)
				9427.2	30 unit(s)
				9427.3	100 unit(s)
Elution Tubes ROTI® MAXI in stabilising solution	MAXI 25*	0.1 to 3 ml	25 kDa	**9428.1**	1 unit(s)
				9428.2	5 unit(s)
	MAXI 50*		50 kDa	**9489.1**	1 unit(s)
				9489.2	5 unit(s)
				9489.3	30 unit(s)
Elution Tubes ROTI® MEGA	MEGA 3.5/10	to 10 ml	3,5 kDa	**9371.1**	1 unit(s)
				9371.2	10 unit(s)
	MEGA 3.5/15	to 15 ml		**9380.1**	1 unit(s)
				9380.2	10 unit(s)
	MEGA 3.5/20	to 20 ml		**9381.1**	1 unit(s)
				9381.2	10 unit(s)
	MEGA 8/10	to 10 ml	8 kDa	**9390.1**	1 unit(s)
				9390.2	10 unit(s)
	MEGA 8/15	to 15 ml		**9393.1**	1 unit(s)
				9393.2	10 unit(s)
	MEGA 8/20	to 20 ml		**9394.1**	1 unit(s)
				9394.2	10 unit(s)
	MEGA 14/10	to 10 ml	14 kDa	**9396.1**	1 unit(s)
				9396.2	10 unit(s)
	MEGA 14/15	to 15 ml		**9397.1**	1 unit(s)
				9397.2	10 unit(s)
	MEGA 14/20	to 20 ml		**9398.1**	1 unit(s)
				9398.2	10 unit(s)
Elution Tubes ROTI® MIDI in stabilising solution	MIDI 1*	50 to 800 µl	1 kDa	**9263.1**	1 unit(s)
				9263.2	5 unit(s)
Elution Tubes ROTI® MIDI	MIDI 3.5	50 to 800 µl	3,5 kDa	**9266.1**	2 unit(s)
				9266.2	30 unit(s)
				9266.3	100 unit(s)
	MIDI 8		8 kDa	**9294.1**	2 unit(s)
				9294.2	30 unit(s)
				9294.3	100 unit(s)
Elution Tubes ROTI® MINI	MINI 8	10 to 250 µl	8 kDa	**9281.1**	2 unit(s)
				9281.2	30 unit(s)
				9281.3	100 unit(s)
	MINI 14		14 kDa	**9283.1**	2 unit(s)
				9283.2	30 unit(s)
				9283.3	100 unit(s)
Elution Tubes ROTI® MINI in stabilising solution	Mini 25*	10 to 250 µl	25 kDa	**9284.1**	1 unit(s)
				9284.2	5 unit(s)

For safety information and additional data, see our current catalogue or at www.carlroth.com

ROTI®elution tubes with MWCO 1, 25 and 50 kDa are wet packed in stabilising solution (25 % ethanol, 2 mM EDTA) and should stored under refrigeration. All other elution vials are dry packed and can be stored at room temperature.

The classification below refers only to Art. Nos. marked *.

Elution Tube Trays ROTI®

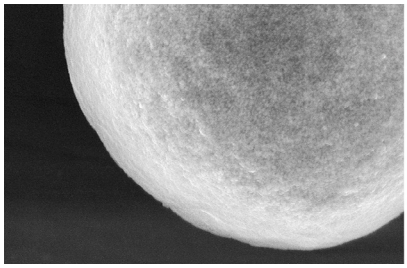
ROTH SELECTION.

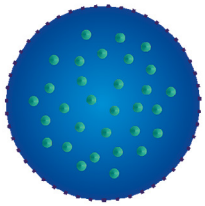
Technical specifications:

Art. No.	**9628.1**	**9626.1**	**9627.1**
Suitable for	3 Elution Tubes MAXI	4 Elution Tubes MINI	4 Elution Tubes MIDI

Type	Art. No.	Pack Qty.
MAXI	**9628.1**	1 unit(s)
MIDI	**9627.1**	1 unit(s)
MINI	**9626.1**	1 unit(s)

Bead Solutions for DNA Isolation





MagSi-DNA

Magnetic beads

Magnetic beads can be used as solid support phase in DNA extraction and purification protocols by a simple bind/wash/elute principle. The products in this category are intended for own development of protocols and are suitable for various sample sources and buffer systems.

MagSi-beads for genomic applications are available with a range of physical properties and a silica or carboxyl modified surface.

MagSi-DNA Trial kit

for molecular biology

magtivio.

Magnetic beads for covalent coupling of chosen ligands.

A complete set of the 8 types of MagSi beads for genomic applications, offered in a single kit for trial purposes in development of new assays. Intended for nucleic acid isolation from various sources (blood, cells, bacteria etc.) for manual and automated work-flow.

The kit contains

2 ml each of MagSi-DNA, MagSi-DNA COOH, MagSi-DNA allround, MagSi-DNA allround COOH, MagSi-DNA 600, MagSi-DNA 600 COOH, MagSi-DNA 3.0 and MagSi-DNA 3.0 COOH.

Kit for development of new assays.

Storage temperature: +4 °C

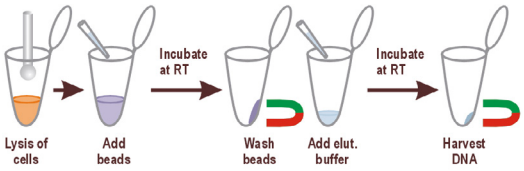
WGK 1

2 ml each of MagSi-DNA, -DNA 600, -DNA allround, -DNA 3.0, DNA COOH, -DNA 600 COOH, -DNA allround COOH, and -DNA 3.0 COOH.

Art. No.	Pack Qty.	Pack.
1560.1	1 kit	cardboard

MagSi-Beads DNA

Different magnetic beads for the development of custm protocols in the isolation of nucleic acids from different source materials

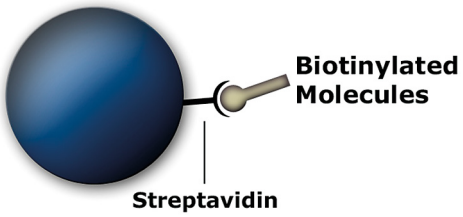


Product name	Purity	Instructions for use	Pack.	Art. No.	Pack Qty.
MagSi-DNA	300 mg/ml, for molecular biology	Fast magenetic separation, very large total surface, high yield. Silica surface. For chaotropic buffer systems only.	plastic	**1540.1**	2 ml
				1540.2	10 ml
				1540.3	100 ml
MagSi-DNA allround	20 mg/ml, for molecular biology	Medium magnetic separation. Silica surface. For chaotropic buffer systems only.	plastic	**1544.1**	2 ml
				1544.2	10 ml
				1544.3	100 ml
MagSi-DNA allround COOH	20 mg/ml, for molecular biology	Medium magnetic separation. Carboxyl-modified surface.	plastic	**1558.1**	2 ml
				1558.2	10 ml
				1558.3	100 ml
MagSi-DNA 600	20 mg/ml, for molecular biology	Slow magnetic separation, for long incubation times. Silica surface. For chaotropic buffer systems only.	plastic	**1542.1**	2 ml
				1542.2	10 ml
				1542.3	100 ml
MagSi-DNA 600 COOH	20 mg/ml, for molecular biology	Slow magnetic separation, for long incubation times. Carboxyl-modified surface.	plastic	**1557.1**	2 ml
				1557.2	10 ml
				1557.3	100 ml
MagSi-DNA 3.0	20 mg/ml, for molecular biology	Ultra fast magnetic separation, for rapid preparations. Silica surface. For chaotropic buffer systems only.	plastic	**1549.1**	2 ml
				1549.2	10 ml
				1549.3	100 ml
MagSi-DNA 3.0 COOH	20 mg/ml, for molecular biology	Ultra fast magnetic separation, for rapid preparations. Carboxyl-modified surface.	plastic	**1559.1**	2 ml
				1559.2	10 ml
				1559.3	100 ml

For safety information and additional data, see our current catalogue or at www.carlroth.com

Please note our **Technical Information Brochure** on the Internet next to the products:
MagSi-Beads and Kits

Magnetic Beads for Isolation of Biotinylated Nucleic Acids



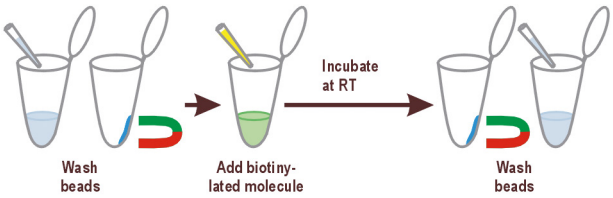
MagSi-STA

Magnetic beads

Magnetic silica particles with high quality streptavidin covalently bonded to the surface of the particle. Applications include immunoassays and capture or purification of biotinylated molecules.

Various types of this product are available, with different mean size, streptavidin coating chemistry, and binding capacity.

Bigger packages available on request.



MagSi-STA Trial kit

for protein biochemistry and molecular biology

magtivio.

Magnetic beads for capture or purification of biotinylated molecules.

The MagSi-STA Trial kit allows the screening of different types of streptavidin in parallel. The kit is especially useful when required specifications for magnetic beads are not known.

This kit includes 1 mL of the 8 different MagSi-STA products and is intended for evaluation purposes during trial phase of developing new assays, or bead replacement in existing assays.

Kit for development of new assays.

Storage temperature: +4 °C

WGK 1

1 ml each of MagSi-STA 600, -STA 600 BI, -STA 1.0 L, -STA 1.0, -STA 1.0 TL, -STA 1.0 TS, -STA 3.0 L, -STA 3.0 TL.

Art. No.	Pack Qty.	Pack.
1566.1	1 kit	cardboard

MagSi-STA 1.0

10 mg/ml, for protein biochemistry and molecular biology

magtivio.

Magnetic beads for capture or purification of biotinylated molecules.

Magnetic silica particles of 1,0 µm size with high quality streptavidin covalently attached to the bead surface.

Use with PBS or glycine buffer. Medium magnetic separation.

Storage temperature: +4 °C

WGK 1

Art. No.	Pack Qty.	Pack.
1561.1	2 ml	plastic
1561.2	10 ml	plastic

MagSi-STA 600

10 mg/ml, for protein biochemistry and molecular biology

magtivio.

Magnetic beads for capture or purification of biotinylated molecules.

Magnetic silica particles of 600 nm size with high quality streptavidin covalently attached to the bead surface.

Use with PBS or glycine buffer. Slow magnetic separation, for long incubation times.

Storage temperature: +4 °C

WGK 1

Art. No.	Pack Qty.	Pack.
1562.1	2 ml	plastic
1562.2	10 ml	plastic

MagSi-STA 3.0 L

10 mg/ml, for protein biochemistry and molecular biology

magtivio.

Magnetic beads for capture or purification of biotinylated molecules.

Use with PBS or glycine buffer. Ultra fast magnetic separation, for rapid preparations.

Storage temperature: +4 °C

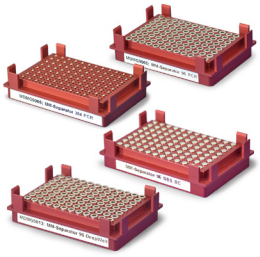
WGK 1

Art. No.	Pack Qty.	Pack.
1563.1	2 ml	plastic
1563.2	10 ml	plastic

DNA / RNA Isolation

Separators

MM Separator for automated processing



These MM-Separators are designed for fast and efficient collection of magnetic beads in a variety of microplates. Their SBS footprint allows placement on standard automated liquid handling workstations. Small skirts on each side of the aluminium block ensure correct and stable placement of microplates onto the separators.

Directions for use
Compatible with 8- or 12-channel multipipettes.

Technical specifications:

Art. No.	2162.1	2166.1	2167.1	2169.1
Type	96 PCR	384 PCR	96 SBS BC	96 DeepWell
Max. number of samples	96	384	96	
Max. volume	300 µl	40 µl	400 µl	1.2 ml
Min. elution volume	20 µl	10 µl	5 µl	
L x W x H	133.7 x 91.5 x 3.4 cm			

MM Separator for automated processing

magtivio. Material: aluminium.

Suitable for

Type 96 PCR: PCR plates, U- and V-bottom microplates
Type 384 PCR: PCR microplates only. For 384 V-bottom plates, use MM-Separator 384 DeepWell
Type 96 SBS BC: U- and V-bottom microplates
Type 96 DeepWell: DeepWell microplates

Type	Suitable for	Art. No.	Pack Qty.
96 PCR	PCR plates, U- and V-bottom microplates	**2162.1**	1 unit(s)
384 PCR	PCR microplates only. For 384 V-bottom plates, use MM-Separator 384 DeepWell	**2166.1**	1 unit(s)
96 SBS BC	U- and V-bottom microplates	**2167.1**	1 unit(s)
96 DeepWell	DeepWell microplates	**2169.1**	1 unit(s)

MM Separator

Made from acrylic glas for optimal visual inspection needs, and from chemically resistant polyoxymethylene (POM) (versions “P”) for routine use of organic solvents.

Application examples

MM-Separators are designed for optimal magnetic bead separation in terms of speed and bead pellet positioning, as well as stability and user-friendliness.

magtivio’s MM-Separators are intended for magnetic separation of MagSi beads from liquid samples for isolation and purification of nucleic acids and proteins, immunoprecipitation, immunoassays (ELISA), cell sorting, and purification of biomolecules.

Technical specifications:

Art. No.	2138.1	2151.1	2141.1	2154.1	2155.1	2157.1
Type	M12 + 12	M12 + 12 P	M96	M96 P	PCR Strip Adapter	PCR Strip Adapter P
Max. number of samples	24		96			
L x W x H	21.7 x 11.0 x 2.5 cm		12.8 x 8.6 x 2.5 cm		12.8 x 8.6 x 1.0 cm	
Weight	0,7 kg		0,4 kg		0,1 kg	

DNA / RNA Isolation

MM Separator M12 + 12

magtivio.

Directions for use

MM-Separators M12 + 12 enable easy separation of beads from liquids for processing low amounts of samples with working volumes from 10 µl to 2 ml. In the centre, 12 magnets allow accommodation of up to 24 centrifuge tubes.

Application area: manual use with 1.5 and 2 mL microtubes.

Pic.	Type	Art. No.	Pack Qty.
(1)	M12 + 12	**2138.1**	1 unit(s)
(2)	M12 + 12 P	**2151.1**	1 unit(s)

MM Separator M96

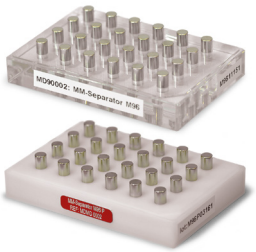
magtivio.

Directions for use

MM-Separators M96 enable easy separation of beads from liquids for multiple sample processing with 8- or 12-channel pipettes. The separators hold 24 magnets that are placed for magnetic separation of beads in 96 wells.
MM-Separators M96 allow magnetic particles to be pulled to the side of wells for optimal access to the bottom and easy supernatant removal. The product is suitable for U- and V-bottom shaped 96 well microplates and for most PCR plates, skirted or semi- and non-skirted.

Application area: anual use with 96 well microplates and PCR plates.

Compatible with 8- or 12-channel multi-pipettes.



Pic.	Type	Art. No.	Pack Qty.
(3)	M96	**2141.1**	1 unit(s)
(4)	M96 P	**2154.1**	1 unit(s)

MM Separator PCR Strip Adapter

magtivio.

Directions for use

The PCR Strip Adapters have to be placed onto the MM-Separators M96 and are suitable for users with smaller sample throughputs, preferring use of PCR tube strips over PCR plates. These separators are suitable for use with U- or V-shaped 96 well microplates and for 96- well PCR plates in various formats, and 8- and 12-tube PCR strips.

Application area: manual use with 8- and 12-tube PCR strips, complementary to MM-Separators M96.

Compatible with 8- or 12-channel multi-pipettes.

Pic.	Type	Art. No.	Pack Qty.
(5)	PCR Strip Adapter	**2155.1**	1 unit(s)
(6)	PCR Strip Adapter P	**2157.1**	1 unit(s)

DNA / RNA Isolation

FTA® Technology

Collect, transport, archive and isolate nucleic acids – all at room temperature.

FTA® Cards utilize patented Whatman FTA® Technology that simplifies the handling and processing of nucleic acids. The cards contain chemicals that lyse cells, denature proteins and protect nucleic acids from nucleases, oxidative and UV damage.

FTA® Cards rapidly inactivate organisms, including bloodborne pathogens, and prevent the growth of bacteria and other microorganisms. Capture of nucleic acid is a most simple and highly rapid process which can be performed quite easily also by untrained personal. The captured DNA is stable for years at room temperature.

Indicating FTA® Cards change colour upon sample application to facilitate handling of colourless samples.
Since FTA® Cards are suitable for virtually any cell type, this is a very versatile, ready-to-use and easy-to-handle tool for storage and isolation of genomic DNA.

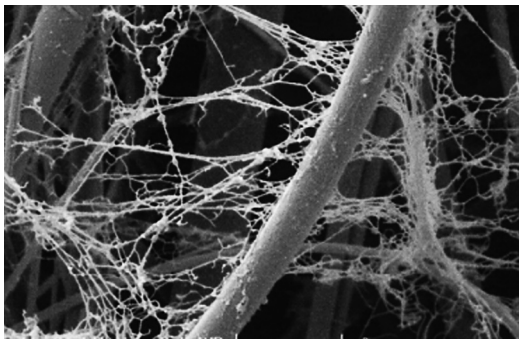


Figure: Electron micrograph showing DNA entrapped within the FTA Matrix (magnification x 10,000).

FTA® Cards

Qiagen.

Speciality cards for space- and time-saving collection, archival storage, and isolation of genomic DNA from a variety of sample material. Originally Whatman®.

- Capture nucleic acid in one easy step – simply apply blood or tissue material to the FTA® Card
- Captured nucleic acid is ready for downstream applications in less than 30 mins.
- Genomic DNA collected on FTA® Cards is stable for years at room temperature
- Suitable for virtually any cell type
- Indicating FTA® Cards change colour upon sample application in order to facilitate handling of colourless samples

Simply apply your sample to the FTA® Card. Liquids are pipetted or trickled, tissue samples are pressed onto the surface. Cell membranes and organelles are automatically lysed and the released nucleic acids are entrapped in the fibres of the matrix. The nucleic acids remain immobilized and are stabilized for transport, immediate processing or long-term storage. Libraries and species DNA collections can be stored simply in a folder; single DNA samples can be filed in your lab manual. FTA® Cards facilitate sample collection in remote locations and simplify sample transport, thus, you can collect samples in the field without worrying about refrigeration. Captured nucleic acids are used for downstream experiments by simply taking a small punch from the FTA® Card, wash with FTA® Purification Reagent and rinse with TE buffer (ROTI®Stock 100x TE Buffer, Art. No. 1052.1). DNA on the washed punch is ready for use in a variety of applications given below. Genomic DNA stored on FTA® Cards at room temperature for over 14 years (and counting) has been successfully amplified by PCR. For RNA, being more sensitive than DNA, we recommend rapid analysis after only few weeks‘ storage at room temperature.

FTA® Cards contain chemicals that lyse cells, denature proteins and protect nucleic acids from nucleases, oxidative and UV damage. FTA® Cards rapidly inactivate organisms, including blood borne pathogens, and prevent the growth of bacteria and other microorganisms. Each card can be used for archival storage or multiple downstream applications of 1–2 (MINI) and 1–4 (CLASSIC) independent samples.

Suitable for blood, cultivated cells, buccal cells, plant material, bacteria, microorganisms, tissue and tissue homogenisations, virions, M13 plaques and more.
Applications: storage of genomic DNA samples and libraries, collection of nucleic acid from animal tissue or cell cultures, or from plants or microorganisms during in-field-experiments.
Downstream-Experiments: e. g. PCR, real-time PCR, SNP and STR analysis, transgenetic identification, whole genome amplification, HLA typing, and genotyping **in** forensics, molecular biology, food and agriculture testing, drug discovery, genomics, species identification, and more.

Type	Fields	Art. No.	Pack Qty.
MINI	2	**CL90.1**	25 unit(s)
MINI with colour indicator	2	**CL91.1**	25 unit(s)
CLASSIC	4	**CL93.1**	25 unit(s)
CLASSIC with colour indicator	4	**CL94.1**	25 unit(s)

DNA / RNA Isolation

FTA® CloneSaver Cards

Speciality cards for space- and time-saving archival storage and isolation of Plasmid and BAC DNA. Originally Whatman®.

- Capture DNA in one easy step by simply applying the samples (recombinant bacteria, glycerol stocks etc.) to the card
- Captured nucleic acid is easily accessible for downstream applications
- DNA collected on FTA® CloneSaver Cards is stable for years at room temperature
- Store up to 96 clones on each card
- Standard 96well plate format and compatible with multi-channel pipettors

Apply few µl bacterial culture, resuspended colony or glycerol stock.
Cells are lysed and plasmid or BAC DNA is stabilized for long-term storage or immediate processing.
Captured nucleic acids are used for downstream experiments without the need for culture regrowth and plasmid purification. Simply take a small punch from the FTA® Card and wash with TE buffer (ROTI®Stock 100x TE Buffer, Art. No. 1052.1). DNA on the washed punch is ready for elution or for direct use in PCR, transformation, amplification by rolling circle followed by sequencing, and so on.

Qiagen.

Type	Art. No.	Pack Qty.
CloneSaver	**HP11.1**	5 unit(s)

ready-to-use

FTA® Purification Reagent

FTA® ready-to-use, for molecular biology

Qiagen.

For purification of nucleic acids stored on FTA® Cards.

Simple and rapid purification of nucleic acids stored on FTA® Cards.
Ensures superior quality DNA for PCR or SNP analysis.
Removes heme, PCR inhibitors and other potential contaminants.

WGK 2

Art. No.	Pack Qty.	Pack.
CL99.1	500 ml	plastic

Punches Harris Uni-Core

The disposable Uni-Core Punch addresses your laboratory's manual punching requirements. Designed for use with Whatman® FTA® Cards, FTA® Elute Cards, and EasiCollect device.
Uni-Core Punch is a disposable punch which has a polished steel tip that is case-hardened and can be sterilized. Each tip provides up to 500 punches before disposal. Uni-Core Punch is available in diameters from 1,0 to 6,0 mm for a variety of sampling needs. It is housed in a plastic handle and disposable for contamination control. Stainless steel cutting edges enable manual coring, retrieval, and controlled ejection of the FTA® punch. Manual punching is preferred for laboratories with low sample volumes punching 1 to 50 samples per day.

Directions for use

By pressing the Micro tip down a tiny slice is punched from the FTA® card. This DNA containing sample is then washed and directly applied to downstream experiments.

The set contains

Two cutting mats are included in the small packages (4 punches).
Colour of the punches supplied may differ to that shown in the picture.

Qiagen.

Ø (mm)	Cutting mats	Art. No.	Pack Qty.
1.0		**6729.1**	25 unit(s)
1.2	2	**HP15.1**	4 unit(s)
1.2		**HP15.2**	25 unit(s)
2.0	2	**HP16.1**	4 unit(s)
2.0		**HP16.2**	25 unit(s)
3.0	2	**6798.1**	4 unit(s)
3.0		**6798.2**	25 unit(s)
6.0	2	**6799.1**	4 unit(s)
6.0		**6799.2**	25 unit(s)

DNA / RNA Isolation

S

FTA® Foam Tip Applicator

For application of saliva and buccal cells to FTA® Cards.
Originally Whatman®.
Non-abrasive foam head is same size as sample area on FTA® Cards and is, therefore, best suited for application of buccal samples. The oral mucosa is grazed with the foam head, which is then pressed onto the card field. We recommend the use of FTA® Cards with colour indicator (CLASSIC Art. No. CL 91.1 and MINI Art. No. CL94.1) for buccal and saliva samples.

Qiagen.

Type	Art. No.	Pack Qty.
Foam tip applicator	**HP14.1**	100 unit(s)

FTA® Pouches

For transporting or storing FTA® Cards.
Originally Whatman®.
Seven laminated layers protect the FTA® Card from exposure to gas or liquid contamination. Tamper-evident seal maintains sample security. Outer paper surface for labelling or writing.

CloneSaver pouches only: with additional resealable zip-lock closure.

Qiagen.

Type	Suitable for	Art. No.	Pack Qty.
MINI	for FTA® Cards of Type MINI, MICRO	**CL92.1**	100 unit(s)
MAXI	for FTA® Cards of Type CLASSIC	**CL95.1**	100 unit(s)
CloneSaver	for FTA® Cards of Type CloneSaver	**HP12.1**	50 unit(s)

Density Gradient Centrifugation

Caesium chloride

≥99,999 %, p.a., Ultra Quality

Reagent for density gradient centrifugation.

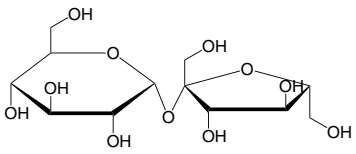
For isolation and purification of nucleic acids in ultra centrifugation. This extremely pure reagent is especially ideal for isolation of DNA, which is subsequently used in hybridisation and enzyme reactions.

CsCl · M 168,36 g/mol

WGK 1

Warning H361fd

Art. No.	Pack Qty.	Pack.
8627.6	5 g	glass
8627.4	10 g	glass
8627.3	50 g	plastic
8627.1	100 g	plastic
8627.5	250 g	plastic
8627.2	1 kg	plastic



DNase-free RNase-free

D(+)-Saccharose

≥99,5 %, RNAse/DNAse free

Reagent for density gradient centrifugation.

Sucrose gradient centrifugation has proven very effective in structural and functional analysis of macromolecular complexes. The distribution of macromolecules in gradients can be measured by UV absorption (A_{254}).

$C_{12}H_{22}O_{11}$ · M 342,30 g/mol

WGK 1

Art. No.	Pack Qty.	Pack.
9097.1	1 kg	plastic
9097.2	5 kg	plastic

Enzymes

Ligase

DNase-free

Ligase T4

5 U/µl, for molecular biology

ATP-dependent recombinant ligase for molecular cloning.

ATP-dependent recombinant ligase for molecular cloning, site-directed mutagenesis, pitch repair in duplex DNA, RNA or DNA/RNA hybrids and ligation-mediated PCR.

- Cloning of PCR and restriction fragments
- Self-circulation of linear DNA
- Site-directed mutagenesis

T4 DNA Ligase catalyses the formation of a phosphodiester bond between adjacent 5'-phosphate and 3'-hydroxyl end groups in duplex DNA or RNA.

The kit contains:

T4 DNA Ligase
Ligation buffer (10x)
ATP solution (25 mM)
The individual components of this kit cannot be purchased separately.The tubes included in the kit are colour coded to avoid confusion of reagents.

Storage temperature: –20 °C
Transport temperature: cooled
WGK 1

Art. No.	Pack Qty.	Packaging	Pack.
3729.1	100 µl	1x 500 U	plastic
3729.2	500 µl	5x 500 U	plastic

DNase-free

Ligase Tth

5 U/µl, for molecular biology

NAD-dependent ligase for molecular cloning.

Tth DNA Ligase catalyzes the NAD-dependent formation of phosphodiester bonds between adjacent 3'-hydroxyl and 5'-phosphate termini in double-stranded DNA. This ligase is inactive against single-stranded DNA or RNA and blunting DNA.

- stable at high temperatures
- ligates double-stranded DNA
- Repairs single strand breaks in double stranded DNA

The Tth DNA ligase is stable and active at much higher temperatures than conventional DNA ligases. The optimal ligation temperature range is 7-10 °C higher than that of the T4 DNA ligase and is determined by the Tm of the substrates. High ligation temperature eliminates the nonspecific ligation.

The kit contains:

Quick Ligase
Ligation buffer (10x)
The individual components of this kit cannot be purchased separately.

The tubes included in the kit are colour coded to avoid confusion of reagents.

Storage temperature: –20 °C
Transport temperature: cooled
WGK 1

Art. No.	Pack Qty.	Pack.
3736.1	50 µl	plastic
3736.2	500 µl	plastic

DNA / RNA Isolation

Proteinase K

Endopeptidase

Proteinase K (from *Tritirachium album*) is a non-specific protease of the serine protease family.
Proteinase K is used for the cleavage of proteins in nucleic acid preparations. It is mainly used in nucleic acid purification or for the removal of nucleases.
Proteinase K is active under a wide range of reaction conditions, including elevated temperatures and presence of SDS.

Directions for use

Activity: (Haemoglobin, pH 7.5; 25 °C) 30 mAnson-U/mg
Foreign activity: RNAse and DNAse not detectable
Optimum temperature: +65 °C.
Activity at +65 °C is ca. 12 x higher than at +25 °C. Over +65 °C, inactivation due to denaturation.
Activators: Denaturating agents like SDS (0,5-1 %), urea.
Inhibitors: Inhibition with Hg^{2+}-ions, DFP, PMSF and phenol. Not inhibited by EDTA, sulfhydryl reagents and trypsin or chymotryps ininhibitors.
Stability: pH 4.0-12.5. pH optimum: 8,0.
Also stable even when denaturing agents, e.g. SDS and urea are present.
Stabilisers: Ca^{2+}-ions (1-5 mM) prevent autolysis.

DNase-free RNase-free

Proteinase K

≥35 U/mg, BioScience Grade, lyophilised

High-quality endopeptidase for molecular biology.
Isolated from fungi (*Tritirachium album*).

Endopeptidase for the degradation of proteins with very high solubility, specific activity and DNA purity. Extra high purified.

Advantages:

- High solubility
- High specific activity
- Extremely low DNA content

Activity: ≥ 35 U/mg lyophilizate
Specific activity: ≥ 45 U/mg protein
DNA content: ≤ 0.1 pg/mg

Directions for use

Working solution: 50 µg/ml
Reaction buffer: 50 mM Tris-HCl; pH 7.5; 5 mM $CaCl_2$; 0.5 % SDS

Stock solution: 20 mg/ml in water.
Storage temperature (stock solution): -20 °C

Storage temperature: –20 °C
Transport temperature: ambient temp.

WGK 1

Danger H315-H317-H319-H334-H335

Art. No.	Pack Qty.	Pack.
3726.1	100 mg	glass
3726.2	1 g	glass

S ready-to-use DNase-free RNase-free

Proteinase K – Solution

20 mg/ml, sterile, ready-to-use, for biochemistry and molecular biology

Non-specific protease for degrading proteins in biological samples.
Isolated from fungi (*Tritirachium album*).

Proteinase K (from *Tritirachium album*) is a non-specific protease of the serine protease family. Proteinase K is used for the cleavage of proteins in nucleic acid preparations. It is mainly used in nucleic acid purification or for the removal of nucleases.

- Sterile ready-to-use solution
- Stable over a wide pH range: 4.0–12.5
- Active at high temperatures and denaturing conditions

Ready made solution

Storage temperature: –20 °C
Transport temperature: cooled

WGK 1

Danger H317-H334

Art. No.	Pack Qty.	Pack.
3719.1	1 ml	glass
3719.2	5 ml	glass

DNA / RNA Isolation

Ribonucleases

DNase-free Protease-free

Ribonuclease

>70 U/mg (Kunitz), salt-free, protease-free

Purified by chromatography, for biochemistry.

Extracted from bovine pancreas; free from salt, without proteases and chromatographically cleaned with specific activity of 70 U/mg (Kunitz). RNAse mixture containing approx. 70–80 % RNAse A.

DNAse free RNAse ist prepared by cooking the solubilised ribonuclease aliquots for 15 min. Let cool to room temperature on bench top.

Stock solution: 10 mg/ml in water.
Working solution: 5–20 µg/ml in 10 mM Tris (pH 7,5), 15 mM NaCl.
Store solution in aliquots at –20 °C.

M ~13 700 g/mol

Storage temperature: –20 °C
Transport temperature: ambient temp.

WGK 1

Art. No.	Pack Qty.	Pack.
7164.1	100 mg	glass
7164.2	1 g	glass

DNase-free Protease-free

Ribonuclease H

5 U/µl, for molecular biology

For hydrolytic cleavage of phosphodiester bonds between RNA and DNA.

Non-specific endoribonuclease that specifically cleaves RNA into RNA:DNA hybrids. At least four continuous base pairs (RNA:DNA) are required for activity. The RNAse H cleaves RNA to release 5' oligoribonucleotides.

RNAse H does not degrade single and double-stranded DNA or unhybridized RNA.

The kit contains

RNAse H
Reaction buffer (10x)
The individual components of this kit cannot be purchased separately.

The kit consists of colour coded tubes for easy identification of the reagents.

250 U correspond to 50 preparations with a volume of 20 µl.

M ~13 700 g/mol

Storage temperature: –20 °C
Transport temperature: cooled

WGK 1

Art. No.	Pack Qty.	Pack.
3728.1	50 µl	plastic
3728.2	250 µl	plastic

DNase-free Protease-free

Ribonuclease A

90 U/mg (Kunitz), BioScience Grade, salt-free

Acc. to Hirs, extracted from bovine pancreas.

Extracted from bovine pancreas for RNA separation, especially when isolating RNA-free DNA. The enzyme cleaves RNA and produces 3' terminal nucleoside phosphates.
This quality product for molecular biology is free from salt, without proteases and is chromatographically homogeneous. Unit definition acc. to Kunitz.

Directions for use
Working solution: 2–10 µg/ml in 10 mM Tris (pH 7,5), 15 mM NaCl.
Note: RNase precipitates when concentrated solutions are heated/cooked at pH ≥7,0. Store solution in aliquots at –20 °C

Stock solution: 10 mg/ml in water (pH ≤6,0) or 0,01 M sodium acetate (pH 5,2). Do not heat RNase prepared in sodium acetate.

M ~13 700 g/mol
Storage temperature: –20 °C
Transport temperature: ambient temp.

WGK 1

Art. No.	Pack Qty.	Pack.
7156.1	100 mg	glass
7156.4	250 mg	glass
7156.2	500 mg	glass
7156.3	1 g	glass

DNase-free RNase-free

RNAse Inhibitor

40 U/µl, for biochemistry and molecular biology

Inhibitor of common enzymes such as RNAse A, B and C

The RNAse Inhibitor is a 50 kDa recombinant human placental protein expressed in *Escherichia coli*. It inhibits ribonuclease (RNAse) activity of common eukaryotic enzymes such as e.g. RNAse A, RNAse B, RNAse C.

- Inhibits eukaryotic type ribonucleases e.g. RNAses A, B and C
- For RNA isolation and purification
- Suitable for c-DNA synthesis, RT-PCR and RT-qPCR
- Wide pH range

Directions for use
The RNAse inhibitor is intended for use in applications where the presence of RNAses may pose a risk to RNA quality and experimental results, e.g. RNA isolation, cDNA synthesis, RT-PCR, *in vitro* transcription and translation or RNAse-free monoclonal antibody production.

Storage temperature: –20 °C
Transport temperature: cooled

WGK 1

Art. No.	Pack Qty.	Pack.
3727.1	50 µl	plastic
3727.2	250 µl	plastic

DNA / RNA Isolation

Zymolyase®

β-1,3-glucan laminaripentaohydrolase, Lyticase

Zymolyase®, produced by a submerged culture of *Arthrobacter luteus,* has strong lytic activity against living cell walls of various strains of yeast cells. Hence, it is frequently used in order to produce protoplasts or spheroplasts.

The essential enzyme for the lytic activity of Zymolyase® is β-1,3-glucan laminaripentaohydrolase.
It hydrolyzes linear glucose polymers with β-1,3-linkages and releases specifically laminaripentaose as the main and minimum product unit.

Directions for use

Other enzymatic activities contained: β-1,3-glucanase, protease, mannanase. Trace amounts of amylase, xylanase, phosphatase.
Stability: At 30 °C 70 % of the lytic activity is lost after 3 months.
Optimum temperature and pH: at pH 7,5 – 35 °C for lysis of viable yeast cells, at pH 6,5 – 45 °C for hydrolysis of yeast glucan.
Specificity (lytic spectrum): *Ashbya, Candida, Debaryomyces, Eremothecium, Endomyces, Hansenula, Hanseniaspora, Kloeckera, Kluyveromyces, Lipomyces, Metschnikowia, Pichia, Pullularia, Torulopsis, Saccharomyces, Saccharomycopsis, Saccharomycodes, Schwanniomyces*, etc.
Stock solution: As stock solution, a 2 to 10 % (20 or 100 mg/ml) Zymolyase® solution may be prepared, solubilizing the enzyme in water, 10 mM sodium-phosphate buffer (pH 7,4) or 50 mM Tris-Cl (pH 7,5), respectively, according to the buffer system to be used downstream and containing 5 % glucose and 50 % glycerol each. The Zymolyase® tends to not dissolve completely. Do not heat for solubilization, but rather use the Zymolyase® as suspension. The suspension may be stored in aliquots at –20 °C.
Working solution: For use in the respective buffer system, dilute the stock solution to the working concentration of 2–5 mg/ml and optionally sterilize by filtration (0,2 µm). In most cases, however, Zymolyase® is solubilized in freshly prepared working buffer (for instance rescue buffer 50 mM Tris-Cl, pH 7,5, 10 mM EDTA, 0,3 % β-Mercaptoethanol) in the required working concentration directly prior to use.
Sterile filtration: Avoid using nitrocellulose filters when sterilizing – Zymolyase® may be adsorbed to nitrocellulose membranes.

Unit definition

One unit of lytic activity is defined as the enzyme amount causing a decrease of 30 % in absorbance at 800 nm using 6 mg Brewer's yeast as substrate in Phosphate buffer (pH 7,5) at 25 °C. Lytic activity varies depending on the particular yeast strain, the growth stage of the yeast, and cultural conditions.

Zymolyase® 20T

≥20 U/mg, for biochemistry and molecular biology

For lysis of yeast cells. Isolated from *Arthrobacter luteus*.

Zymolyase® 20T is prepared by ammonium sulfate precipitatation.

Please note: Zymolyase® does not dissolve completely in higher concentrations.

Storage temperature: +4 °C
Transport temperature: cooled
WGK 1

Art. No.	Pack Qty.	Pack.
9324.1	100 mg	glass
9324.2	500 mg	glass
9324.3	1 g	glass

Zymolyase® 100T

≥100 U/mg, for biochemistry and molecular biology

For lysis of yeast cells. Isolated from *Arthrobacter luteus*.

Zymolyase® 100T is prepared by ammonium sulphate precipitatation, and is further purified by affinity chromatography.

Please note: Zymolyase® does not dissolve completely in higher concentrations.

Storage temperature: +4 °C
Transport temperature: cooled
WGK 1

Art. No.	Pack Qty.	Pack.
9329.1	100 mg	glass
9329.2	500 mg	glass

Precipitation & Concentration

DNA-free

Glycogen

lyophilized, made of oysters

For molecular biology and biochemistry.

Glycogen type 2.
Long-chain polysaccharide made of glucose. Most frequently used in biochemistry and as “carrier” during precipitation of nucleic acids. Recovery of precipitated DNA is significantly enhanced by addition of 50 µg/ml glycogen; even starting from solutions with very low DNA concentrations, efficient precipitation can be performed. Contains no nucleic acid and doesn‘t hinder enzymatic downstream applications. Glycogen contains a central protein and should not be applied if DNA is to be used in protein binding-assays following precipitation. In these cases we recommend to use our glycogen-free coprecipitants.

Stock solution: 5 mg/ml in distilled, sterile water
Working concentration: 50 µg/ml

WGK 1

Art. No.	Pack Qty.	Pack.
HP51.1	1 g	glass
HP51.2	5 g	plastic
HP51.3	10 g	plastic
HP51.4	25 g	plastic

ROTI®SampleConcentrator Water

Kit for the concentration of microorganisms and biomolecules from water.

ROTI®SampleConcentrator Water was developed to enrich biomolecules such as freely circulating nucleic acids, or microorganisms such as bacteria, algae, protozoa, but also bacteriophages and viruses from water samples. Approximately 1-1000 ml of fresh water of various origins can be used as a source.

Concentration is based on a novel technology in which the water contained in the sample is specifically absorbed by means of special SCW beads. The biomolecules and microorganisms in the water sample are thus enriched and made available for subsequent analyses. The sample can then be used directly, without additional filtration, centrifugation or precipitation, for various molecular biological analyses or microbiological cultivation methods. Due to the high degree of concentration the sensitivity of each downstream application is significantly increased.

Possible basic material:

- Waste water
- Aquarium water
- Surface water
- Pool water
- Drinking water

Application examples:

- Isolation of DNA and RNA
- Cultivation of microorganisms
- Flow cytometry
- Immunological methods (lateral flow test, ELISA)
- Microscopy and spectroscopy

The kit contains:

SCW Beads (1 g), SCW Beads (2 g), PBS, detailed instructions

The required amount of SCW beads depends on the desired target volume and the time in which the concentration is to take place.

Storage temperature: +15 to +25 °C

Not a medical device / Not an IVD product

Art. No.	Pack Qty.	Pack.
20N4.1	1 kit	cardboard
20N4.2	1 kit	cardboard

Centrifugation Units ROTI®Spin

For purification and concentration of biomolecules and for purification of solutions.

- Applicable for nucleic acids, proteins/peptides, other biomolecules >6 kDa and very small bioparticles
- Can be used to replace standard techniques like precipitation, dialysis, gel filtration, gel purification, column chromatography, gradient centrifugation etc.
- Gentle: No shearing of DNA of up to 100 kb, proteins remain native and enzymatically active
- Applicable for purification of all labelled probes (isotope-, fluorescent-, chromogenic labelling)
- Very high recovery rates of >90% (when using devices of appropriate MWCO)

Centrifugal devices for ultrafiltration of biomolecules. The membranes made of highly chemical-resistant polyethersulfone have been tightly sealed to prevent leakage and loss of samples. Furthermore, the membranes underwent special treatment minimising the binding of biomolecules, in order to optimise sample recovery rates.
ROTI®Spin Centrifugal Devices can be applied to a variety of applications and can be used to replace tedious and labour-intensive methods like gel filtration, gel purification or precipitation. Application is time-saving and very simple - only few centrifugal steps are necessary to concentrate and recover your sample. During this, the sample remains untouched in the upper reservoir, and cross-contamination is efficiently prevented even when large numbers of samples are handled. Centrifugation can easily be performed in the cold room or at specially designated benches like isotope laboratories or in laminar flow hoods.

Application examples

Desalting or buffer exchange following restriction digest, PCR or such; separation of free nucleotides and polymerised DNA; removal of contaminating compounds (like DNA) from stock solutions (e.g. PCR-buffers); concentration of DNA or proteins; separation of proteins of different size; sample preparation prior to HPLC.

Overview for selecting the appropriate pore size

MWCO	Molecule size	DNA size
3 kDa	10 – 20 kDa	<50 bp
10 kDa	30 – 90 kDa	50 – 200 bp
30 kDa	90 – 180 kDa	200 bp – 1 kb
100 kDa	>300 kDa	>1 kb

Centrifugation Units ROTI®Spin

Carl ROTH.

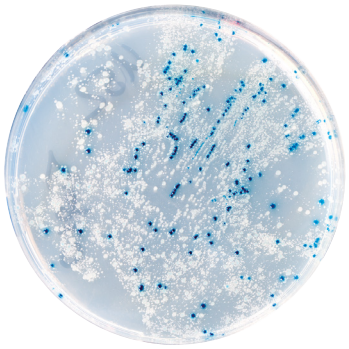
Sample volumes:
Maximum sample volume: ROTI®Spin MINI 50-500 µl
Final concentrate volume: ROTI®Spin MINI 15-20 µl

MWCO:
For convenient and successful application, centrifugal devices with membranes in 4 colour-coded molecular weight cut-offs (MWCO) are available. In order to choose the appropriate MWCO please use the following thumb-rule:
Centrifugation of proteins/peptides: MWCO ≤1/3 of sample molecule size.
Centrifugation of nucleic acids: MWCO ≤½ sample molecule size.

Type	MWCO (kDa)	Colour	Art. No.	Pack Qty.
MINI-3	3	grey	**CL12.1**	25 unit(s)
MINI-10	10	blue	**CL13.1**	25 unit(s)
MINI-30	30	red	**CL14.1**	25 unit(s)
MINI-100	100	colourless	**CL15.1**	25 unit(s)

DNA / RNA Analysis

Cloning



Plasmides

The following plasmid DNA was prepared in low nuclease host bacteria and isolated through ion exchange chromatography. It is available in supercoiled form (ccc-form >95%) and, as a high-purity DNA ($OD_{260/280}$ > 1,70), it is ideal for different applications:

- Controlling transformation efficiency
- Comparison with plasmid ccc-forms of unknown size
- Cloning DNA-fragments
- Restriction (Preparing DNA-length markers)
- Calibrating DNA-separating or DNA-preparing processes or equipment
- Blocking DNA-chips with plasmid DNA of a defined sequence

Plasmid DNA pUC19

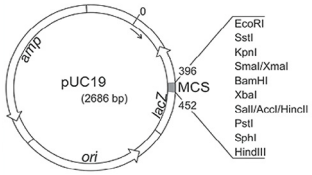
lyophilized

High-purity plasmid-DNA of pUC19 for genetic engineering

pUC19 is a standard high-copy cloning vector for *E. coli* recombinants. The position of the Multi Cloning Site (MCS), which is inserted in frame into the LacZ-gene, enables a blue-white selection of insert containing plasmid DNA by α-complementation. The copy number of plasmids per cell depends on the temperature and is approx. 70–80 at 37 °C and over 200 at 42 °C.

General properties:

- $OD_{260/280}$: >1,70
- Genomic DNA: <2 %
- oc form: <3 %
- ccc form: >95 %
- Base pairs: 2686



pUC19c, Acc. No. L09137
full llength: 2686 bp

Storage temperature: –20 °C
Transport temperature: ambient temp.

WGK 1

Art. No.	Pack Qty.	Pack.
X911.1	50 µg	plastic

Plasmid DNA pBR322

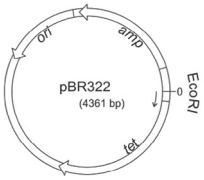
lyophilized

High-purity plasmid-DNA of pBR322 for genetic engineering

The circular sequence was numbered in such a way that 0 lies in the middle of the singular *EcoR* I restriction site. The copy number of pBR322 is limited by the gene product of *rop* to 20 copies per cell. However, by adding chloroamphenicol (final concentration 170 µg/ml) to log-phase cultures and then incubating for 8 hours, the copy number can be increased considerably.

General properties:

- $OD_{260/280}$: >1,70
- Genomic DNA: <2 %
- oc form: <3 %
- ccc form: >95 %
- Base pairs: 4361



pBR322, Acc. No. V01119
full lenght: 4361 bp

Storage temperature: –20 °C
Transport temperature: ambient temp.

WGK 1

Art. No.	Pack Qty.	Pack.
X912.1	50 µg	plastic

Blue-/White Selection

DNase-free **RNase-free** **Protease-free**

IPTG

≥99 %, BioScience Grade, dioxane-free, animal-free

For molecular biology.

Lactose analogon. Glucose-galactose-disaccharide. *lac*-promotor is induced by IPTG via inhibition of *lac*-repressor. Recommended for induction of *lac*-regulated vectors in expression assays, for instance blue-/white selection of recombinant *E. coli*, in bench-top as well as in production scale.

Storage temperature: –20 °C
Transport temperature: ambient temp.

WGK 1

Art. No.	Pack Qty.	Pack.
2316.1	250 mg	glass
2316.2	1 g	glass
2316.3	5 g	glass
2316.4	25 g	plastic
2316.5	100 g	plastic

X-β-Gal

≥99 %, BioScience Grade

Colorimetric substrate of β-galactosidase. For biochemistry and molecular biology.

Ideal for colorimetric detection of β-galactosidase activity, for instance during blue-/white selection.

Storage temperature: –20 °C
Transport temperature: ambient temp.

WGK 1

Art. No.	Pack Qty.	Pack.
2315.1	100 mg	glass
2315.2	500 mg	glass
2315.3	1 g	glass
2315.5	2.5 g	glass
2315.4	5 g	glass

Hybridisation

Ready-Made Buffers & Supplements

ready-to-use

ROTI®Hybri-Quick

BioScience Grade, ready-to-use, for molecular biology

Ready-made buffer for DNA- and RNA hybridisation.

Roti®-Hybri-Quick ready-to-use solution is an all-purpose solution for DNA-hybridisation experiments.

Optimised sodiumphosphate buffer with superior signal-to-noise ratio. Compatible with all Southern- and Northern-hybridisations, all labelling and detection methods, and all types of membranes. Improved buffer formulation based on the hybridisation solution published by Church & Gilbert (*PNAS USA*, 81:1991-95).

- Suitable for prehybridisation, hybridisation and washing
- For Southern- and Northern-hybridisations
- Suitable for all membrane types

UN no. 1760 · ADR 8 III · WGK 2

Danger H290-H318

Remark: Contains SDS. Can be redissolved by heating (max. 45 °C).

Art. No.	Pack Qty.	Pack.
A981.1	1 l	glass
A981.2	2.5 l	glass

ROTI®Fair SSPE

for 200 ml/tablet, for molecular biology

Buffer solution for DNA- and RNA hybridisation.

1x SSPE solution is prepared by dissolution of 1 tablet in 200 ml highly pure water.

WGK 1

Prepared 1x SSPE solution contains: 0.15 M NaCl, 1 mM EDTA, 10 mM Na-phosphate, pH-value 7.4 ±0.05, when prepared in deionized or distilled water.

Art. No.	Pack Qty.	Pack.
1233.1	100 unit(s)	plastic

ROTI®Fair 20x SSC

for 1000 ml/pouch, for molecular biology

Concentrated buffer solution for Southern- and Northern transfer.

20x SSC solution is prepared by dissolution of 1 pouch in 1000 ml highly pure water.

WGK 1

Prepared 20x SSC solution contains: 3.0 M NaCl, 0.3 M Na-Citrat, pH-value 7.0 ±0.1, when prepared in deionized or distilled water.

Art. No.	Pack Qty.	Pack.
1232.1	5 unit(s)	box

S ready-to-use

ROTI®Stock 20x SSC

20x conc., BioScience Grade, ready-to-use, steam sterilized

For molecular biology.

20x stock solution sodium/sodiumcitrate.
Undiluted or after dilution with sterile water to 10x, 6x, 1x or 0,1x SSC one receives a versatile buffer for blotting, hybridising or washing of Southern- or Dot/Slot-Blots of DNA as well as for *in situ* hybridisation. Undiluted buffer is also suitable for neutral transfer of RNA onto unloaded membranes (e.g. ROTI®Nylon 0.2, Art. No. AE50.1).

With original seal.

WGK 1

3.0 M NaCl, 300 mM sodium citrate in deionised water, pH-value 7.0, steam sterilised.

Art. No.	Pack Qty.	Pack.
1054.1	1 l	glass

Denhardt's solution, lyophilised powder

50x, BioScience Grade, for molecular biology

Blocking reagent for hybridisation and stripping.

Denhardt's lyophilised powder contains a mixture of different blocking agents that is used for nuclear acid hybridisation (Northern and Southern Blot) as well as for stripping of hybridised membranes. By prehybridisation the filter membranes with Denhardt's solution unspecific binding of DNA to the membrane is avoided.

Directions for use

For hybridisation use 10x Denhardt's solution with 6x SSC (ROTI®Stock 20x SSC, Art. No. 1054.1) supplemented with 100 µg/ml denatured salmon sperm DNA and 1 % SDS (ROTI®Stock 20 % SDS, Art. No. 1057.1).

The bottle contains powder mix for 50 ml 50x stock solution. Add 48,8 ml water to gain exactly 50 ml stock solution. Sterilise stock solution by filtration (0,2 µm) and store in aliquots of 10 ml at –20 °C .

Storage temperature: +4 °C

WGK 1

Art. No.	Pack Qty.	Packaging	Pack.
HP33.1	50 ml	Powder for 50 ml	plastic

Salmon Sperm DNA sodium salt

ex salmon testes

DNA from salmon sperm is used in Southern- and Northern hybridisation, in order to block unspecific probe binding prior to and during hybridisation (Sambrook, J. *et al.* (1989) *Molecular Cloning:* A Laboratory Manual, 2nd Edition).

Stock solution: 10 mg/ml in H_2O. Storage of stock solution: –20 °C in aliquots. Working concentration: 100 µg/ml.

Storage temperature: +4 °C

WGK 1

Art. No.	Pack Qty.	Pack.
5434.1	5 g	plastic
5434.2	10 g	plastic

General Reagents for Molecular Biology

ROTH for Future

ROTI®Fair 10x TE

for 1000 ml/pouch, for molecular biology

Concentrated buffer solution for solubilisation and dilution of nucleic acids.

1x TE solution is prepared by dissolution of 1 pouch in 1000 ml highly pure water.

WGK 2

Warning H373

Prepared 10x TE solution contains: 0.1 M Tris-HCl, 10 mM EDTA, pH-value 7.4 ±0.05, when prepared in deionized or distilled water.

Art. No.	Pack Qty.	Pack.
1268.1	10 unit(s)	box

S ready-to-use

ROTI®Stock 100x TE

100x conc., BioScience Grade, ready-to-use, steam sterilized

For molecular biology.

100x stock solution Tris/EDTA for DNA storage.

Common solution and storage buffer for DNA.
The included EDTA inhibits traces of DNAses and thus protects your DNA from degradation. However, many other enyzmes such as ligases will also be inhibited through the complexation of bivalent cations, therefore TE buffer should not be used as a solution buffer for cloning.

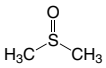
With original seal.

WGK 1

1.0 M Tris (pH 8.0), 100 mM EDTA (pH 8.0) in deionised water, steam sterilised.

Art. No.	Pack Qty.	Pack.
1052.1	1 l	glass

DNA / RNA Analysis



DNase-free RNase-free

Dimethyl sulphoxide (DMSO)

≥99,5 %, BioScience Grade, nuclease free

Recommended for PCR, sequencing, hybridisation and microbiological cell culture.

C_2H_6OS · M 78,13 g/mol

WGK 1

Note: Product may crystallise. It can be liquefied by heating in a water bath to max. 40 °C.

Art. No.	Pack Qty.	Pack.
A994.1	100 ml	glass
A994.2	250 ml	glass

DNase-free RNase-free

Formamide, deionized

≥99,5 %, BioScience Grade, RNAse/DNAse free

After receiving the formamide, mix well and aliquot. Store aliquots at –20 °C.

CH_3NO · M 45,04 g/mol

Storage temperature: –20 °C
Transport temperature: ambient temp.

WGK 1

Danger H351-H360FD-H373

Art. No.	Pack Qty.	Pack.
P040.1	250 ml	plastic
P040.2	500 ml	plastic

S ready-to-use DNase-free RNase-free

Water

BioScience Grade, DEPC treated, sterile, nuclease-free, autoclaved

For molecular biology.

Distilled water mixed with DEPC and steam sterilised. By DEPC Histidin residues in proteins are modified to *N*-carbethoxy histidin, resulting in inhibition of RNases and DNases. DEPC decomposes to CO_2 and ethanol during sterilisation.

Also available as 50 reaction tubes or as 50 glass ampoules with 1 ml each nuclease free water in a tube rack.
To prevent loss of volume in the 1 mltubes (T143.4), we recommend freezing the product at -20°C after receipt.

After autoclaving, each lot is photometrically tested for optimal purity in the wave length range relevant for nucleic acid research.

H_2O · M 18,02 g/mol

Art. No.	Pack Qty.	Packaging	Pack.
T143.4	50 ml	50 x 1 ml in tubes	plastic
T143.6	50 ml	50 x 1 ml in glass breaker ampoules	glass ampoule
T143.5	100 ml	5 x 20 ml	glass
T143.1	250 ml	1 x 250 ml	glass
T143.2	500 ml	1 x 500 ml	glass
T143.3	1 l	1 x 1 l	glass

Decontamination & Purification

ready-to-use

ROTI®Nucleic Acid-free

ready-to-use

for removal of nucleic acid contaminations from surfaces

Decontamination solution · Nuclease Removal ·
Purification solution for surfaces

ROTI®Nucleic Acid-free was specifically designed for extensive removal of nucleic acid contaminations.
Being a mild reagent, ROTI®Nucleic Acid-free may be used on tables, laboratory devices, as well as on glass and plastic wares. By incubation or by wiping, laboratory benches, heating blocks, thermocyclers, pipettor shafts, reaction tubes a.s.o. can easily be cleaned.
Contamination with foreign DNA or RNA, which may heavily interfere with sensitive assays like PCR, reverse transcription or sequencing, is hence efficiently eliminated.

UN no. 1824 · ADR 8 III

Warning H290-H315-H319

Art. No.	Pack Qty.	Pack.
HP69.1	500 ml	spray bottle
HP69.2	1 l	plastic
HP69.3	2.5 l	plastic

ready-to-use

DNA AWAY®

ready-to-use

for removal of DNA-contaminations from surfaces

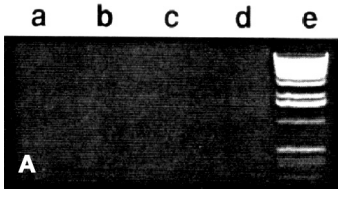


Figure A: Full removal of DNA surface contaminations after 5 minutes (1 µg dried DNA each, a-d).

Suitable for PCR-applications.
DNA AWAY® enables speedy and safe removal of DNA-contaminations, e.g. to prevent false-positive PCR results. For decontamination of surfaces as well as of lab ware like pipettors, thermocyclers, and reaction tubes.

UN no. 1824 · ADR 8 II

Danger H314

Art. No.	Pack Qty.	Pack.
X996.1	250 ml	plastic
X996.2	4 l	plastic

ready-to-use

ROTI®Nucleic Acid-free eXtra

ready-to-use

Gentle solution for removal of nucleic acid contaminations from surfaces.

Decontamination solution · Purification solution for surfaces

ROTI®Nucleic Acid-free eXtra is a very gently and highly efficient solution that has been designed as nonhazardous alternative to our top-selling ROTI®Nucleic Acid-free.

The ready-to-use solution or spray may be used for fast elimination of all kinds of contaminating nucleic acids (e.g. gDNA, amplicons, plasmids, RNA) from surfaces without the need to handle dangerous liquids.
Contamination with foreign DNA or RNA, which may heavily interfere with sensitive assays like PCR, reverse transcription or sequencing, is hence efficiently eliminated.

Application examples

ROTI®Nucleic Acid-free eXtra is suitable for use on a broad variety of materials for instance glass, ceramic, plastic, rubber, high quality steel and precious metal, with the exception of light or non-ferrous metals.
By incubation or by wiping, laboratory benches, heating blocks, thermal cyclers, pipettor shafts, reaction tubes etc. can easily be cleaned.
We recommend to test the reagent in an inconspicuous place before using it over a large area.

WGK 1

Art. No.	Pack Qty.	Packaging	Pack.
1312.1	500 ml	1 x 500 ml	plastic
1312.4	500 ml	1 x 500 ml, spray bottle	spray bottle
1312.2	1 l	1 x 1 l	plastic
1312.3	2.5 l	1 x 2,5 l	plastic

Spray bottle with pump atomiser for ROTI®Nucleic Acid-free eXtra

Material: HDPE.

Decontamination solution · Purification solution for surfaces

Volume: 500 ml

Art. No.	Pack Qty.
1L9N.1	1 unit(s)

ready-to-use

RNase AWAY®

ready-to-use

For removal of RNase-contaminations from surfaces

RNase AWAY® allows quick and safe removal of RNases from labware made of plastic or glass, e.g. pipettes, gel chambers, glass discs, etc.

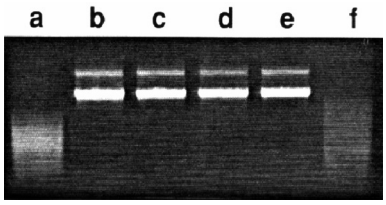


Figure: RNase-digestion of RNA (a, f), and removal of RNase by RNase AWAY® (b–e: undamaged RNA, 1 µg poly(A)-RNA each).

A safe alternative to DEPC. Reduces the use of carcinogenic DEPC in the laboratory considerably. RNase AWAY® does not corrode the surface and is not carcinogenic. Creates and preserves RNase-free surfaces. No mixing, baking or time-consuming waiting. RNase AWAY® is chemically stable and requires no special storing.

Apply RNase AWAY® directly to surface, allow to work in, then rinse with water or dry with an RNase-free tissue cloth. For effective removing of RNases without influencing your DNA samples

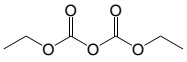
UN no. 1824 · ADR 8 II

Danger H314

Art. No.	Pack Qty.	Pack.
A998.1	250 ml	plastic
A998.4	475 ml	spray bottle
A998.2	1 l	plastic
A998.3	4 l	plastic

Instructions for use

can be found in our webshop in the product description under “Downloads”.



DEPC

≥97 %, for biochemistry and molecular biology

Histidin residues in proteins are modified to N-carbethoxy histidin, resulting in inhibition of RNases and DNases. DEPC decomposes to CO_2 and ethanol during steam sterilisation.

Application: 0,1 % DEPC over night under agitation. Autoclave.

$C_6H_{10}O_5$ · M 162,14 g/mol

Storage temperature: +4 °C

WGK 1

Warning H302-H315-H319-H335

Art. No.	Pack Qty.	Pack.
K028.3	5 ml	glass
K028.1	25 ml	glass

Thermocycler

Thermal Cycler Alpha

Compact and easy-to-handle thermal cyclers for PCR

- Android controlled HD touchscreen
- Gradient function
- Fast heating and cooling rates
- High temperature homogeneity
- Automatic protocol optimisation with Program Wizard
- USB interface for secure user login

The compact PCR thermal cyclers are suitable for DNA amplification in high-throughput screening, genotyping or cloning.
The thermal cyclers can be intuitively programmed with a touch screen and deliver repeatable results with every run.
Features include a clear, responsive touch screen, secure and user-specific programming, an adjustable heated lid and active sample cooling for stronger and more specific amplification.
A program wizard generates a protocol specific to your sequence in seconds, allowing you to quickly optimise amplification of new samples.
The instrument stores up to 1000 reports for later viewing and offers an intuitive HD Android™ tablet user interface.
Personal settings can be stored on a USB stick, which can then also be used to log in.

Thermal Cycler A1, 96 Well

Antylia Scientific.

Single block system with a capacity of 96 or 384 wells. The 96 block can be used with 0.2 ml PCR tubes, with 0.2 ml PCR strips or a 96-well plate. The 384 block is suitable for 384-well plates with a capacity of max. 40 µl per well.

Not a medical device / Not an IVD product

Sample capacity	Art. No.	Pack Qty.
1 x 96	**1Y24.1**	1 unit(s)
1 x 384	**1Y2T.1**	1 unit(s)

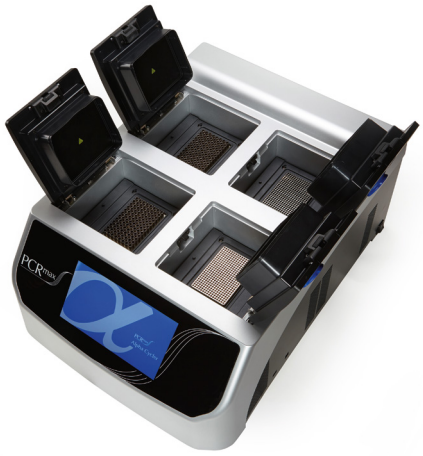
Thermal Cycler A2, 2 x 96 Well

Antylia Scientific.

Two blocks with 96 wells each for 96 well PCR plates or 0.2 ml PCR tubes. The compact design allows the running of two independent PCR assays in one unit. The blocks can be controlled individually.

Not a medical device / Not an IVD product

Sample capacity	Art. No.	Pack Qty.
2 x 96	**1Y1E.1**	1 unit(s)



Thermal Cycler A3, 4 x 96 Well

Antylia Scientific.

Four blocks with 96 wells each for 96 well PCR plates or 0.2 ml PCR tubes. The compact design allows the running of four independent PCR screenings in one unit. The blocks can be controlled individually.

Not a medical device / Not an IVD product

Sample capacity	Art. No.	Pack Qty.
4 x 96	**1Y1C.1**	1 unit(s)

ROTI®Pol DNA Polymerases and Master Mixes

For PCR.
Recombinant, heat stable DNA polymerases from the thermophilic bacteria *Thermus aquaticus* or *Pyrococcus furiosus.*

ROTI®Pol, the series of DNA polymerases is the optimal choice for all PCR cycling protocols, as being performed in, for instance, analysis of cloning efficiency, for gene fishing, in routine screening processes, educational assays and much more. In combination with our specially designed buffers, the ROTI®Pol DNA polymerases deliver specific and reproducible PCR amplification with a wide range of PCR templates.

In addition to the **standard Taq** polymerase for PCR assays in general, the range also includes the antibody blocked **hot-start** version of the enzyme, which is recommended for particularly sequence specific approaches. This inhibited Taq polymerase is getting active only after the initial denaturation step, resulting in amplification of the target sequence without production of unwanted side products. Both Taq polymerases are available as **set of enzyme and buffer solutions** as well as premixed, 2x concentrated **master mixes**. The sets contain the DNA polymerase plus two 10x concentrated reaction buffers with $MgCl_2$, one of which has been specially designed for direct gel loading following the PCR reaction. Besides the DNA polymerase, the master mixes include dNTPs, $MgCl_2$, and all other components required for PCR except primers and template DNA, and are available in a colourless version for PCR only, plus a red ready-to-load version for subsequent direct gel electrophoresis.
With the **TaqHY** DNA polymerase we provide a modified Taq polymerase outstanding in robust performance, fast polymerisation rate and high yield of amplicons. Combining the benefits of both techniques, the **Hot-TaqHY** DNA polymerase has been designed by increasing the PCR sequence specificity of a quick and high yield modified Taq polymerase by antibody mediated inhibition.
In combination with the attached specially adjusted high fidelity buffer, the **ProofRead** polymerase delivers highly sequence-true PCR amplicons and is recommended for amplification of target sequences of high GC content, or with complex secondary structures.
All **TaqUltra** DNA polymerase are being tested on absence of DNA (bacterial genomic DNA) which makes them particularly suitable for amplification of bacterial DNA. This polymerase is also available in standard version as well as the hot-start type **Hot-TaqUltra**.

ROTI®Pol DNA polymerases are able to amplify PCR products up to 5 kb with genomic, viral, cDNA and plasmid DNA as template. The Taq DNA polymerases possess a 5' → 3' polymerase- as well as a 5'-flap endonuclease activity, generating amplicons with a 3'dA (adenine)-overhang which may well be used for TA-cloning purposes.

In addition to the 5' → 3' polymerase activity, the Pfu DNA polymerase possesses a 3' → 5' (proof reading) exonuclease activity, rapidly substituting misincorporated bases during polymerization. These DNA fragments are blunt-ended.

For easy handling, all solutions are filled in tubes with **colour coded lids**. The red dye for direct gel loading, included in buffers and master mixes, migrates approx. as fast as a 1 kb DNA fragment in 1 % agarose gels.

PCR

Roti®Pol DNA Polymerases – Overview

Product name	Purity	Use	Amplicon ends	Art. No.	Pack Qty.
ROTI®Pol TaqS	5 U/µl	Standard PCR	3'dA	**9223.1**	100 µl
				9223.2	500 µl
ROTI®Pol TaqS Mix (2x)	2x conc., ready-to-use	Standard PCR	3'dA	**9239.1**	2 ml
				9239.2	10 ml
ROTI®Pol TaqS Red-Mix (2x)	2x conc., ready-to-use	Standard PCR with subsequent gel loading	3'dA	**9241.1**	2 ml
				9241.2	10 ml
ROTI®Pol Hot-TaqS	5 U/µl	Particularly sequence specific standard PCR	3'dA	**9245.1**	40 µl
				9245.2	200 µl
ROTI®Pol Hot-TaqS Mix (2x)	2x conc., ready-to-use	Particularly sequence specific standard PCR	3'dA	**9248.1**	2 ml
				9248.2	10 ml
ROTI®Pol Hot-TaqS Red-Mix (2x)	2x conc., ready-to-use	Particularly sequence specific standard PCR with subsequent gel loading	3'dA	**9256.1**	2 ml
				9256.2	10 ml
ROTI®Pol TaqHY	5 U/µl	Fast PCR protocols and/or high yield, GC rich template DNA	3'dA	**9345.1**	100 µl
				9345.2	500 µl
ROTI®Pol TaqHY Mix (2x)	2x conc., ready-to-use	Fast PCR protocols and/or high yield, GC rich template DNA	3'dA	**1K33.1**	2 ml
				1K33.2	10 ml
ROTI®Pol TaqHY Red-Mix (2x)	2x conc., ready-to-use	Fast PCR protocols and/or high yield, GC rich template DNA with following gel loading	3'dA	**1K34.1**	2 ml
				1K34.2	10 ml
ROTI®Pol Hot-TaqHY	5 U/µl	Particularly sequence specific, fast PCR protocols and/or high yield, GC rich template DNA	3'dA	**9346.1**	40 µl
				9346.2	200 µl
ROTI®Pol ProofRead	5 U/µl	High fidelity PCR with exact sequence replication	blunt	**9344.1**	40 µl
				9344.2	200 µl
ROTI®Pol TaqUltra	5 U/µl, DNA-free	PCR of bacterial gDNA	3'dA	**9347.1**	40 µl
				9347.2	200 µl
ROTI®Pol Hot-TaqUltra	5 U/µl, DNA-free	Particularly sequence specific PCR of bacterial gDNA	3'dA	**9350.1**	40 µl
				9350.2	200 µl

For safety information and additional data, see our current catalogue or at www.carlroth.com

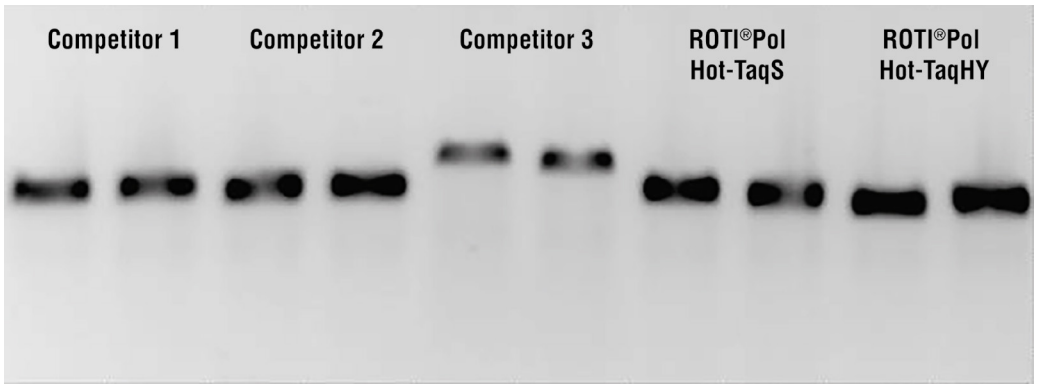


Figure: comparative PCR with 1 U /reaction of ROTI®Pol Hot-TaqS and ROTI®Pol Hot-TaqHY with various competitor Taq polymerases. 1 kb α1-AT fragment, 30 cycles. Template 5 ng human gDNA, 10 µ per lane.

Instructions for use

can be found in our webshop in the product description under “Downloads”.

Important information on refrigerated transports

All products identified as being particularly temperature-sensitive are shipped in **special ice boxes with freezer packs or in dry ice.**

Additional costs resulting from such, **will be invoiced** (further information on request).

Please note: In order to guarantee optimum product quality, the dispatch of refrigerated transport products will be carried out **on Mon and Tue only outside Germany!** Slight delays in delivery are therefore possible.

Nucleotides

Applicable to

PCR, light-cycling, cDNA synthesis, labelling and primer-extension, mutagenesis-assays, sequencing reactions and *in vitro* transcription.

- Available as ready-to-use set or mix, for contamination-free applications
- Purity ≥98 % (HPLC-tested)
- Tested for “long-run-PCR” of up to 30 kb
- DNAse-, RNAse-, Protease- and Phosphatase-free
- Free of PCR inhibitors like modified bases and tetra-pyrophosphate
- Adjusted to pH 8,5 for superior stability even during larger numbers of freeze-and-thaw cycles
- Also available adjusted to pH 7,0 for special applications (see below)
- Highly efficient enzymatic fabrication*

* of dATP, dGTP, dCTP and dUTP. dTTP ist synthesized chemically.

All Carl ROTH nucleotides are manufactured from highest-quality reagents and are most thoroughly tested for quality. This testing procedure not only includes standard-PCR (fig. 1) but also “long-range-PCR” of up to 30 kb, repeated quantitative light-cycling reactions (fig. 2), and tests for physical stability (fig. 3).

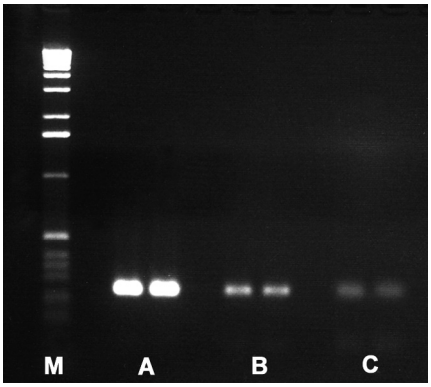


Figure 1 :
Sensitivity assay. Amplification of a 260 bp fragment of human genomic DNA with (left to right) 250 ng (A), 25 ng (B) and 2,5 ng (C) DNA as template (two replicates).

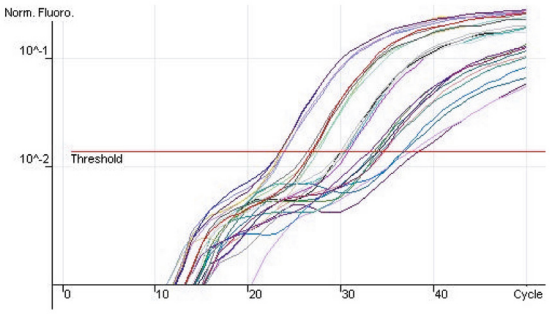


Figure 2:
Sensitivity assay II: Quantitative light-cycling-PCR on recombinant DNA with (left to right) 10 ng, 1 ng, 100 pg, 10 pg, 1 pg DNA as template (six replicates).

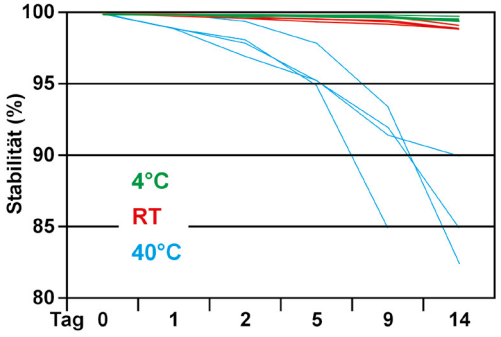


Figure 3:
Stability testing: HPLC analysis of all four dNTPs following incubation periodes of 1–14 days at different temperatures (4 °C – green; room temperature – red; 40 °C – blue). Stability of nucleotides is >99 % even after 14 days incubation at room temperature. Even after an incubation period of 9 days at 40 °C, 85 % of all nucleotide molecules are still intact.

PCR

dNTP Sets and dNTP Mixtures

Applicable to
PCR, light-cycling, cDNA synthesis, labelling and primer-extension, mutagenesis-assays, sequencing reactions and *in vitro* transcription.

All Carl ROTH nucleotides are produced from high-quality starting reagents and carefully checked for quality. The quality check always includes a “long-run-PCR”, repeated quantitative runs in the light cycler and physical stability tests.

- Available as ready-to-use set or mix, for contamination-free applications
- Can be optimally combined with ROTI®Pol DNA polymerases from Carl ROTH
- Tested for “long range PCR”
- DNAse-, RNAse-, Protease- and Phosphatase-free
- Free of PCR inhibitors like modified bases and tetra-pyrophosphate
- Adjusted to pH 8,5 for superior stability even during larger numbers of freeze-and-thaw cycles
- Also available adjusted to pH 7,0 for special applications
- Highly efficient enzymatic fabrication of dATP, dGTP, dCTP and dUTP. dTTP ist synthesized chemically.

Storage temperature: –20 °C
Transport temperature: cooled (freezer packs)

dNTP Sets

DNase-free | RNase-free | PCR inhibitor-free | Phosphatase-free | Protease-free

Product name	Purity	General application	Instructions for use	Packaging	Art. No.	Pack Qty.
dNTP-Set 1	≥99 % dATP, dTTP, dGTP, dCTP, 100 mM per dNTP	For PCR and RT, nucleotide set composed of solutions of dATP, dTTP, dGTP, dCTP	Concentration: 100 mM per dNTP Typical end concentration in PCR: 200 µM each	4 x 25 µmol (250 µl), 100 mM	**K039.1**	1 set
				5 x 4 x 25 µmol (250 µl), 100 mM	**K039.2**	1 set
dNTP-Set 1 (pH 7)	≥99 % dATP, dTTP, dGTP, dCTP , 100 mM per dNTP	For PCR and RT, nucleotide set composed of solutions of dATP, dTTP, dGTP, dCTP, **pH 7,0 ±0,1**	Concentration: 100 mM per dNTP Typical end concentration in PCR: 200 µM each	4 x 25 µmol (250 µl), 100 mM	**0178.1**	1 set
				5 x 4 x 25 µmol (250 µl), 100 mM	**0178.2**	1 set
dNTP-Set 2	≥99 % dATP, dUTP, dGTP, dCTP, 100 mM per dNTP	For PCR and RT, nucleotide set composed of solutions of dATP, **dUTP**, dGTP, dCTP	Concentration: 100 mM per dNTP Typical end concentration in PCR: 200 µM each	4 x 25 µmol	**L540.1**	1 set
				5 x 4 x 25 µmol	**L540.2**	1 set
dNTP-Set 3	≥99 % dATP, dTTP, dITP, dCTP, 100 mM per dNTP	For PCR and RT, nucleotide set composed of solutions of dATP, dTTP, **dITP**, dCTP	Concentration: 100 mM per dNTP Typical end concentration in PCR: 200 µM each	4 x 25 µmol	**P731.1**	1 set
				5 x 4 x 25 µmol	**P731.2**	1 set

For safety information and additional data, see our current catalogue or at www.carlroth.com

dNTP Mixtures

ready-to-use | DNase-free | RNase-free | PCR inhibitor-free | Phosphatase-free | Protease-free

Product name	Purity	General application	Instructions for use	Packaging	Art. No.	Pack Qty.
ROTI®Mix PCR 1	2 mM (/dNTP), 8 mM (total), dATP, dTTP, dGTP, dCTP, ready-to-use	For PCR and RT.	Concentration: 2 mM per dNTP Typical end concentration in PCR: 200 µM each	1 x 1 ml	**L541.1**	1 ml
				5 x 1 ml	**L541.2**	5 ml
ROTI®Mix PCR 3	10 mM (/dNTP), 40 mM (total), dATP, dTTP, dGTP, dCTP, ready-to-use	For PCR and RT.	Concentration: 10 mM per dNTP Typical end concentration in PCR: 200 µM each	1 x 0.2 ml	**L785.1**	0.2 ml
				5 x 0,2 ml	**L785.2**	1 ml
				5 x 1 ml	**L785.3**	5 ml

For safety information and additional data, see our current catalogue or at www.carlroth.com

dNTP Solutions

DNase-free | RNase-free | PCR inhibitor-free | Phosphatase-free | Protease-free

Product name	Purity	General application	Packaging	Art. No.	Pack Qty.
dATP solution	≥99 %, 100 mM solution	for molecular biology, biochemistry and cell analysis	25 µmol	**K035.1**	250 µl
dCTP solution	≥99 %, 100 mM solution	for molecular biology	25 µmol	**K038.1**	250 µl
dGTP solution	≥99 %, 100 mM solution	for molecular biology, biochemistry and cell analysis	25 µmol	**K037.1**	250 µl
dITP solution	≥99 %, 100 mM solution	for molecular biology	25 µmol	**P732.1**	250 µl
dTTP solution	≥99 %, 100 mM solution	for molecular biology	25 µmol	**K036.1**	250 µl
dUTP solution	≥99 %, 100 mM solution	for molecular biology	25 µmol	**L539.1**	250 µl

For safety information and additional data, see our current catalogue or at www.carlroth.com

Parameters of Nucleotide Solutions

Nucleotides	Art. No.	pH value	Solvent
dNTP-Solution	K035-K038, L539, P732	8.5 ±0.1	Water
dNTP-Set	K039, L540, P731	8.5 ±0.1	Water
dNTP-Mix	L541, L785	8.5 ±0.1	Water
dNTP-Set or -Mix	0178, 0179	7.0 ±0.1	Water
NTP-Solution	K045-K048	8.0 ±0.2	20 mM Tris-HCl*
NTP-Set	K049	8.0 ±0.2	20 mM Tris-HCl*
Labelled Nucleotides	1049	7.5 ±0,2	Water

*For highly efficient reverse transcription

Important information on refrigerated transports

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Additional costs resulting from such, **will be invoiced** (further information on request).

Please note: In order to guarantee optimum product quality, the dispatch of refrigerated transport products will be carried out **on Mon and Tue only outside Germany!** Slight delays in delivery are therefore possible.

Labelled dNTPs

- Ultra pure
- Stabile
- pH 7.5
- Tested for the lack of endo- and exonucleases, ribonucleases, and phosphatases

Applications:
Non-radioactive labelling of DNA via enzymatic reactions like e.g. PCR, reverse transcription, nick-end-translation, end-labelling, or random-priming. Can be incorporated by all standard DNA-polymerases (Taq-polymerase, T4 DNA-polymerase, Klenow fragment and so on).

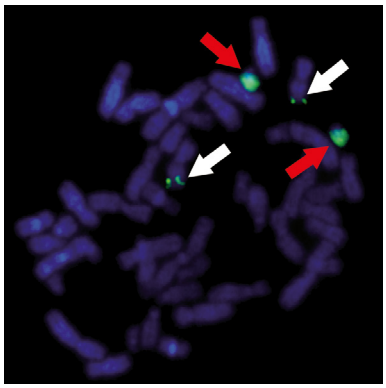


Figure:
Detection of chromosome wcp21q (whole chromosome paint, red arrows) and band 11q23 (BAC, bacterial artificial chromosome, white arrows) by FISH, labelling with fluorescein-12-dUTP.
With kind permission of PD Dr. Thomas Liehr, Institute of Human Genetics and Anthropology, Friedrich-Schiller University, Jena.

ready-to-use | DNase-free | RNase-free | PCR inhibitor-free | Protease-free

Rhodamine-12-dUTP

≥95 %, 1 mM solution

For non-radioactive, enzymatic labelling of DNA.

Rhodamine-12-dUTP is able to replace dTTP in growing DNA-strands and is used for efficient non-radioactive DNA-labelling. Detection of labelled nucleic acids can easily be done by direct analysis of fluorescent signals (e. g. by fluorescence microscopy).
Rhodamine-12-dUTP can also be used for double staining techniques in combination with fluorescein-12-dUTP or biotin-11-dUTP and corresponding antibodies or streptavidin-complexes, respectively.

Excitation: 505 nm
Emission: 530 nm (red)

Application examples

Non-radioactive labelling of DNA by enzymatic reactions, e.g. PCR, reverse transcription, nick-end-translation, end-labelling or random-primed DNA-labelling. Incorporation can be done with all established DNA-polymerases (e.g. Taq-polymerase, T4 DNA-polymerase, Klenow fragment).
Tested for the lack of endo-, exodeoxyribonuclease, ribonuclease and phosphatase.

Rhodamine Green, mixture of 5/6 isomeres

ε_{505} (pH 7) = 8,5 E x $mmol^{-1}$ x cm^{-1}; pH: 7,5 ±0,2

$C_{39}H_{41}N_6O_{19}P_3$ · M 990,7 g/mol

Storage temperature: –20 °C
Transport temperature: cooled
WGK 1

Art. No.	Pack Qty.	Packaging	Pack.
1049.1	25 µl	25 nmol	plastic
1049.2	50 µl	50 nmol	plastic

PCR

NTP Set

DNase-free | RNase-free | PCR inhibitor-free | Protease-free

NTP-set

≥99 % ATP, CTP, GTP, UTP, 100 mM per NTP

for molecular biology, nucleotide set composed of solutions of ATP, CTP, GTP, UTP

Concentration: 100 mM per NTP

Storage temperature: –20 °C
Transport temperature: cooled

WGK 1

Art. No.	Pack Qty.	Packaging	Pack.
K049.1	1 set	4 x 25 µmol	plastic
K049.2	1 set	5 x 4 x 25 µmol	plastic

NTP Solutions

DNase-free | RNase-free | PCR inhibitor-free | Protease-free

Product name	Purity	Packaging	Art. No.	Pack Qty.
ATP solution	≥99 %, 100 mM solution	25 µmol	**K045.1**	250 µl
CTP solution	≥99 %, 100 mM solution	25 µmol	**K048.1**	250 µl
GTP solution	≥99 %, 100 mM solution	25 µmol	**K047.1**	250 µl
UTP solution	≥99 %, 100 mM solution	25 µmol	**K046.1**	250 µl

NTP Lyophilisates

DNase-free | RNase-free | Protease-free

Product name	Purity	General application	Art. No.	Pack Qty.
ATP	≥98 %, lyophilized	for molecular biology and biochemistry	**K054.1**	1 g
			K054.3	10 g
			K054.6	100 g
CTP	≥98 %, lyophilized	for molecular biology and biochemistry	**K057.1**	100 mg
			K057.4	1 g
			K057.5	10 g
GTP	≥90 %, lyophilized	for molecular biology and biochemistry	**K056.1**	100 mg
			K056.4	1 g
			K056.5	10 g
UTP	≥90 %, lyophilized	for molecular biology and biochemistry	**K055.1**	100 mg
			K055.3	1 g

Reagents for PCR

ready-to-use | DNA-free | DNase-free | RNase-free | Protease-free

Magnesium chloride solution

25 mM, for PCR, for molecular biology

For optimisation of PCR reaction conditions.

In a PCR reaction, cofactors such as divalent cations ($MgCl_2$) are needed for an optimal process. Magnesium interacts with the DNA template, dNTPs and the polymerase in a PCR reaction. The $MgCl_2$ concentration influences the productivity and accuracy of the polymerase. It also influences the binding of the primers to the template.

Application:

- Too high magnesium concentration can lead to reduced specificity and undesired PCR products
- Too low a magnesium concentration can lead to no PCR product at all
- Magnesium influences the melting point of double-stranded DNA

$MgCl_2$ · M 95,22 g/mol

Storage temperature: +4 °C
Transport temperature: ambient temp.

Art. No.	Pack Qty.	Packaging	Pack.
1HY7.1	1 ml	2 x 0,5 ml in tubes	plastic
1HY7.2	2.5 ml	5 x 0,5 ml in tubes	plastic

ready-to-use

Mineral Oil

for molecular biology

For overlaying PCR and other enzymatic reactions.

Light, colourless oil, particularly suitable for overlaying PCR and other enzymatic reactions such as restriction digestion, priming reactions or whole-mount *in situ* reactions incubated in warm temperatures. Prevents fluid loss and reduces any danger of cross-contamination.

Each batch is functionally tested for its suitability in PCR.

WGK 1

Danger H304

Each batch is functionally tested for its suitability in PCR.

Art. No.	Pack Qty.	Pack.
HP50.1	10 ml	glass
HP50.4	15 ml	dropp. bottle
HP50.2	50 ml	plastic
HP50.3	250 ml	plastic

PCR

S | ready-to-use | DNA-free | DNase-free | RNase-free | Protease-free

PCR water

Ultrapure water (Type I), sterile, nuclease-free, free of DNA and RNA

Ultrapure water, free of nucleases, DNA and RNA for use in sensitive molecular biological applications.

PCR water is ultrapure water that has been proven to be free of nucleases, DNA and RNA. Ultrapure water is specially purified water whose purity exceeds that of demineralised and distilled water. The difference to the quality of distilled or demineralised water can be seen in the electrical conductivity of ultrapure water of ≤0,075 µS/cm. Since the water molecule is an ampholyte that can react with itself, even ultrapure water has a low electrical conductivity.

PCR water is suitable for use in sensitive molecular biology applications such as PCR, RT-PCR, cDNA synthesis or sequencing.

Each batch is tested by PCR to exclude contamination by DNA and nucleases.

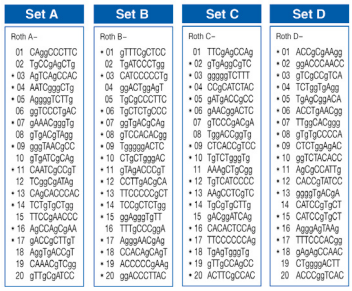
H_2O · M 18,02 g/mol

Storage temperature: +15 to +25 °C
Transport temperature: ambient temp.

Art. No.	Pack Qty.	Packaging	Pack.
1HPE.1	15 ml	10 x 1,5 ml in tubes	plastic
1HPE.2	30 ml	20 x 1,5 ml in tubes	plastic
1HPE.4	60 ml	1 x 60 ml	plastic
1HPE.3	75 ml	50 x 1,5 ml in tubes	plastic
1HPE.5	125 ml	1 x 125 ml	plastic

Ready-Made Primers

- Superior purity
- Standardised quality
- Immediately available



ROTH Random-Primer sets for RAPD-PCR

Ready-made primers, Primer

- Superior purity
- Standardised quality
- Immediately available

Primer set for rapid amplification of polymorphic DNA (RAPD)-PCR. For analysing DNA-polymorphisms or the change in genetic expression samples. 20 x 10mers with 60–80 % GC-assay.

ROTH Random-Primer set A

desalinated and lyophilized

20 x 10mer/set

2,0 OD_{260} units per primer, aliquoted in 2 vials each.

Storage temperature: –20 °C
Transport temperature: ambient temp.

Art. No.	Pack Qty.	Packaging	Pack.
HP22.1	1 set	40 tubes	box

ROTH Random-Primer set B

desalinated and lyophilized

20 x 10mer/set

2,0 OD_{260} units per primer, aliquoted in 2 vials each.

Storage temperature: –20 °C
Transport temperature: ambient temp.

Art. No.	Pack Qty.	Packaging	Pack.
HP23.1	1 set	40 tubes	box

ROTH Random-Primer set C

desalinated and lyophilized

20 x 10mer/set

2,0 OD_{260} units per primer, aliquoted in 2 vials each.

Storage temperature: –20 °C
Transport temperature: ambient temp.

Art. No.	Pack Qty.	Packaging	Pack.
HP24.1	1 set	40 tubes	box

PCR

ROTH Random-Primer set D

desalinated and lyophilized

20 x 10mer/set

2,0 OD_{260} units per primer, aliquoted in 2 vials each.

Storage temperature: –20 °C
Transport temperature: ambient temp.

Art. No.	Pack Qty.	Packaging	Pack.
HP25.1	1 set	40 tubes	box

ROTH poly $d(T)_{12-18}$ Primer

HPLC-purified, lyophilized

For sequence unspecific priming during reverse transcription.

Delivery includes 5 x 1 OD_{260} units (31.2 µg or 7.3 nmol DNA each) poly $d(T)_{12-18}$ Primer in one vial each and 1 ml DEPC-treated water for molecular biology (DNAse-free, RNAse-free).

- Superior purity
- Standardised quality
- Immediately available

Mix of d(T) 12 to 18mers.
5 OD_{260} units.

Storage temperature: –20 °C
Transport temperature: ambient temp.

Art. No.	Pack Qty.	Packaging	Pack.
HP27.1	1 set	5 tubes, 1 OD each	plastic

ROTH Hexanucleotide Random-Primer Mix

HPLC-purified, lyophilized

For random priming during probe generation or during total genome-amplification.

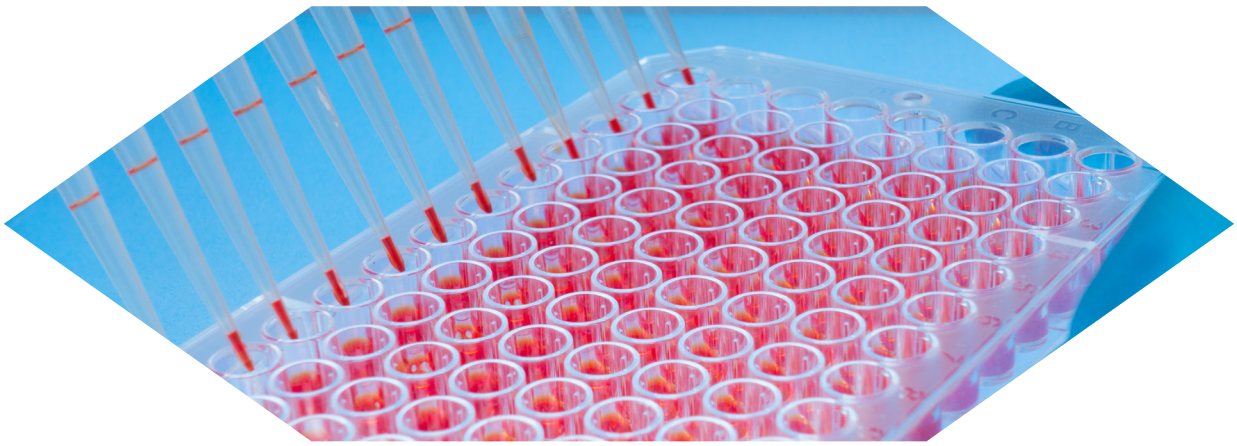
Delivery includes 10 x 1 OD_{260} units (27.4 µg or 15.3 nmol DNA each) of hexanucleotide mixture in one vial each and 1 ml DEPC-treated water for molecularbiology (DNAse-free, RNAse-free).

- Superior purity
- Standardised quality
- Immediately available

N_6 mix (N for A, G, C, T).
10 OD_{260} units.

Storage temperature: –20 °C
Transport temperature: ambient temp.

Art. No.	Pack Qty.	Packaging	Pack.
HP28.1	1 set	10 tubes, 1 OD each	plastic



Current prices at www.carlroth.com

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