

Cell Biology

Our product range for cell biological research



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► Contact us - if you have any questions about our products, ROTH specialists will be happy to help you.

Cell Culture Media



S ready-to-use

- Sterile and ready-to-use
- CELLPURE® quality – particularly low endotoxin content
- Shipping at ambient temperature
- Storage temperature 2-8°C
- Media with stable glutamine can also be stored at room temperature (provided no other temperature-sensitive components are included)
- Nutrient supplements also available separately

Medium	Art. No.	Glucose g/l	Glutamine (mM)	HEPES (mM)	Sodium Pyruvate (mM)	NaHCO ₃ (mM)	Phenol Red	Salts	Note
Dulbecco's Modified Eagle Media									
ROTI®Cell DMEM High Glucose	9005.1	4.5	4	X	1	44	yes	X	
ROTI®Cell DMEM High Glucose	9006.1	4.5	4	X	X	44	yes	X	
ROTI®Cell DMEM High Glucose	9007.1	4.5	4 stab.	X	1	44	yes	X	With temperature stabile glutamine.
ROTI®Cell DMEM High Glucose	1TE9.1	4.5	4 stab.	25	X	44	yes	X	With temperature stabile glutamine.
ROTI®Cell DMEM High Glucose	9010.1	4.5	X	X	1	44	yes	X	
ROTI®Cell DMEM High Glucose	9019.1	4.5	X	X	X	44	yes	X	
ROTI®Cell DMEM High Glucose	1TE8.1	4.5	X	X	X	44	X	X	Without phenol red.
ROTI®Cell DMEM Low Glucose	1TE7.1	1.0	4 stab.	X	1	44	yes	X	With temperature stabile glutamine.
ROTI®Cell DMEM Low Glucose	9027.1	1.0	X	X	1	44	yes	X	
DMEM : F12									
ROTI®Cell DMEM : F12	1TE5.1	3.151	X	15	0,5	14,3	yes	X	
ROTI®Cell DMEM : F12	1YTP.1	3.151	2.5	15	0,5	14,3	yes	X	
Iscove's Modified Dulbecco Media									
ROTI®Cell Iscove's MDM	9033.1	4.5	4	25	1	36	yes	X	Additional amino acids and selene.
Minimum Essential Media									
ROTI®Cell Eagle's MEM / Earle's	9044.1	1	2	X	X	26,2	yes	Earle's	
ROTI®Cell Eagle's MEM / Earle's	1TE6.1	1	2 stab.	X	X	26,2	yes	Earle's	With temperature stabile glutamine.
ROTI®Cell Eagle's MEM / Earle's	9047.1	1	X	X	X	26,2	yes	Earle's	
ROTI®Cell Eagle's MEM-Alpha	9058.1	1	X	X	1	26,2	yes	Earle's	Plus cobalamin, ascorbic acid, NEAA*, lipoic acid, biotin.
ROTI®Cell Eagle's MEM-Alpha	1TEA.1	1	X	X	1	26,2	yes	Earle's	Plus cobalamin, ascorbic acid, NEAA*, lipoic acid, biotin, ribonucleosides and desoxyribonucleosides.
RPMI Media									
ROTI®Cell RPMI 1640	9085.1	2	2	X	X	23,8	yes	X	
ROTI®Cell RPMI 1640	9086.1	2	2	25	X	23,8	yes	X	
ROTI®Cell RPMI 1640	9091.1	2	2 stab.	X	X	23,8	yes	X	With temperature stabile glutamine.
ROTI®Cell RPMI 1640	9099.1	2	X	X	X	23,8	yes	X	
ROTI®Cell RPMI 1640	9104.1	2	X	X	X	23,8	X	X	
Special Media									
ROTI®Cell Ham's F12	9108.1	1,8	1	X	1	14	yes	X	
ROTI®Cell Leibovitz's L15	9109.1	0,9 galact.	X	X	5	X	yes	X	With galactose instead of glucose. Without sodium bicarbonate.
ROTI®Cell McCoy's 5A	9111.1	3	1,5	X	X	26,2	yes	X	
ROTI®Cell Medium 199 / Earle's	9112.1	1	0,7	X	X	26,2	yes	Earle's	
ROTI®Cell TC100	9114.2	1	4,1	X	X	4,2	X	X	With Tryptose Broth.

* NEAA: Non-essential amino acids

Culture Media Additives

ROTI®Cell HEPES solution S

CELLPURE® 1 M, sterile

HEPES belongs to the “goods buffers” and its properties make it optimally suited as an additional buffer system in cell culture. Depending on the concentration, it stabilizes the pH value in the cell culture media in a range between 6 and 8.5. Therefore, the use of the ROTI®Cell HEPES solution is particularly recommended when the pH value urgently needs to be kept constantly high. pH fluctuations mainly occur when working outside the CO₂ incubator for longer periods.

Solution in cell culture grade water.
Recommended end concentration 25 mM.

Storage temperature: +4 °C

Transport temperature: ambient temp.

Art. No.	Pack Qty.	Pack.
9157.1	100 ml	plastic

ROTI®Cell Pyruvate solution S

CELLPURE® 100 mM, sterile

Sodium Pyruvate is a key intermediate in the ATP production within the cell and is sometimes added to cell culture media as an additional source of energy. Additional pyruvate may help cells deficient in one of the enzymes involved in glucose metabolism, and may kick-start cells in the citric acid cycle, thus supporting growth of low density cells. Concentration in standard media is 1 mM; special media like Leibovitz's medium are supplemented with up to 5 mM pyruvate.

Solution in cell culture grade water.
Recommended end concentration 1 mM, in special media up to 5 mM.

Storage temperature: +4 °C

Transport temperature: ambient temp.

Art. No.	Pack Qty.	Pack.
9182.1	100 ml	plastic

ROTI®Cell MEM-AA solution S

CELLPURE® 50x conc., sterile, w/o glutamine

Amino acids, essential · Essential amino acids
ROTI®Cell MEM-AA solution consists of a pre-formulated mixture of 12 essential amino acids in water perfectly suited for culturing of most eukaryotic cells. Since cells are not able to synthesize essential amino acids by themselves, those have to be supplemented externally. A 1:50 dilution of ROTI®Cell MEM-AA solution in cell culture medium will give a final concentration for each amino acid corresponding to the amount in Eagle's Minimum Essential Medium.

Solution in water.
Dilution 1:50 in cell culture medium. End concentration per amino acid conforms to EMEM.

Storage temperature: +4 °C

Transport temperature: cooled

Art. No.	Pack Qty.	Pack.
0647.1	100 ml	plastic



ROTI®Cell Glutamine solution S

CELLPURE® 200 mM, sterile, stable

L-glutamine is an essential amino acid that is an important source of energy in cell culture media and is indispensable for cell growth. Since normal L-glutamine is temperature sensitive and spontaneously decomposes to toxic ammonia in the course of cell cultivation, the stable ROTI®Cell Glutamine Solution is an optimal alternative.

Stable glutamine is present as the dipeptide L-alanyl-L-glutamine. Due to its reinforced structure, this form of glutamine is not temperature sensitive, unlike normal L-glutamine. Cells are able to break down this dipeptide bond and release L-glutamine as needed. Thus, the low ammonia concentration improves cell viability and growth. In addition, the concentration of L-glutamine is kept constant.

ROTI®Cell Glutamine Solution can be stored at room temperature for a long period of time.

Solution in cell culture grade water.
As in the case of normal L-glutamine, the recommended final concentration in media is between 292 mg/l (2 mM) and 585 mg/l (4 mM).

Storage temperature: +4 °C

Transport temperature: ambient temp.

Art. No.	Pack Qty.	Pack.
9183.1	100 ml	plastic

ROTI®Cell MEM-NEAA solution S

CELLPURE® 100x conc., 10 mM (each), sterile

Amino acids, non-essential · MEM-NEAA solution · Non-essential amino acids

ROTI®Cell MEM-NEAA solution consists of a mixture of 7 non-essential amino acids in water. Enrichment of ROTI®Cell Eagle's MEM Medium (with Earle's or Hanks' salts) with non-essential amino acids enables culturing of fastidious cells and cell lines, hereby broadening the utility of this medium. Dilution by 1:100 of ROTI®Cell MEM-NEAA solution yields a final concentration 0.1 mM of each component.

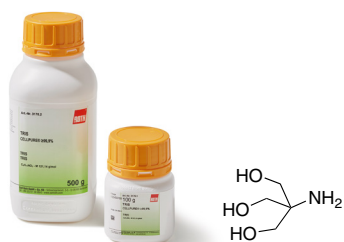
Solution in water.
Dilution 1:100 in cell culture medium. End concentration per amino acid 0,1 mM.

Storage temperature: +4 °C

Transport temperature: ambient temp.

Art. No.	Pack Qty.	Pack.
9185.1	100 ml	plastic

Culture Media Additives



TRIS

DNase-free

RNase-free

Protease-free

CELLPURE® ≥99,9 %

For cell culture, tissue culture and biotechnology. Buffer with low endotoxin content and especially designed for life science applications.

Endotoxins: ≤0.03 E.U./mg

$C_4H_{11}NO_3$ · M 121,14 g/mol
WGK 1

Art. No.	Pack Qty.	Pack.
3170.1	100 g	plastic
3170.2	500 g	plastic



HEPES

DNase-free

RNase-free

Protease-free

PUFFERAN® CELLPURE® ≥99,5 %

For cell culture, tissue culture and biotechnology. Extremely versatile buffer. Excellent for cell and tissue cultures and for analysis of biological systems.

Application examples:

- Combined with bicarbonate, HEPES is an excellent medium for human lymphocytoidal cell lines
- HEPES is more effective than $NaHCO_3$ when controlling the pH value in tissue and organ culture
- HEPES-buffered media for chicken and human lung fibroblasts
- Can be used to replace a bicarbonate buffered medium containing serum with a serum-free HEPES-buffered medium for mouse fibroblasts

Tested for low amount of endotoxins.

Buffer reagent according to Good. High buffer capacity at physiological pH-values.

$C_8H_{18}N_2O_4S$ · M 238,31 g/mol

Art. No.	Pack Qty.	Pack.
HN77.1	50 g	plastic
HN77.2	100 g	plastic
HN77.3	250 g	plastic
HN77.4	500 g	plastic
HN77.5	1 kg	plastic
HN77.6	2.5 kg	plastic



TSE-/BSE-free

Bovine Serum Albumin (BSA) Fraction V, very low endotoxin

CELLPURE® ≥98 %, very low endotoxin, for cell biology

With extremely low endotoxin content. Recommended for the culture of primary cells, cell lines and stem cells. Also suitable for sensitive cell culture assays.

Bovines Serumalbumin ist grundsätzlich geeignet zur Stabilisierung von Enzymen und Antikörpern sowie als Blockierungsreagenz in Hybridisierungen und Immunoassays.

Tested for very low endotoxin content.

Storage temperature: +4 °C · WGK 1

US-Origin

Art. No.	Pack Qty.	Pack.
1ET6.1	1 g	plastic
1ET6.2	10 g	plastic
1ET6.3	50 g	plastic
1ET6.4	200 g	plastic

NZ-Origin

Art. No.	Pack Qty.	Pack.
1ET4.1	1 g	plastic
1ET4.2	10 g	plastic
1ET4.3	50 g	plastic
1ET4.4	200 g	plastic

- Further **amino acids**, **salts** and **sugars** in cell culture quality can be found in the current catalogue or at www.carlroth.com

The buffer system in cell culture media

In addition to the various nutrients in the medium, the pH value also plays a very important role in cell culture. The physiological pH for almost all mammalian cells is 7.4. Deviating from this, it has been observed that certain transformed cell lines prefer a pH between 7.0 and 7.4 and certain fibroblasts prefer a pH between 7.4 and 7.7. In any case, pH fluctuations should be avoided and the pH should be maintained as well as possible. That is why a buffer system in media is necessary. The most important buffer system in the body is the **carbonic acid-carbonate buffer system**. Accordingly, almost all cell culture media contain bicarbonate ($NaHCO_3$). Bicarbonate alone leads to a strong pH increase of the medium, so that $NaHCO_3$ -buffered media must always be used with CO_2 incubators. Depending on the $NaHCO_3$ concentration in the medium, different CO_2 environments are necessary to ensure a pH of about 7.4. For this reason, you should not work outside of the CO_2 incubator for too long. If this is necessary, a HEPES buffer should be used in addition to the $NaHCO_3$, which contributes as a second buffer system to stabilize the pH value.

Buffered Salt Solutions and Water

ROTI®Cell PBS S ready-to-use

CELLPURE® ready-to-use, sterile

Balanced salt solution for cell culture

ROTI®Cell PBS is a balanced salt solution to be used in a wide variety of cell- and tissue culture applications; for instance diluting cell suspensions prior to counting, washing cells prior to dissociation, transfection or passaging, and transporting cells or tissues.

w/o Ca/Mg

Art. No.	Pack Qty.	Pack.
9143.1	500 ml	plastic
9143.2	1 l	plastic

10x conc., w/o Ca/Mg

Art. No.	Pack Qty.	Pack.
9150.1	1 l	plastic

ROTI®Cell PBS/EDTA S

CELLPURE® sterile, 0,046 % EDTA, w/o Ca/Mg

Balanced salt solution with EDTA for cell culture.

EDTA, a chelator of divalent cations, is used combined with trypsin prior to passaging in order to solubilize adherent cells from the culture vessel surface into suspension. EDTA binds calcium and magnesium which aid in cell-cell adhesion, additionally allowing trypsin to more efficiently hydrolyze specific peptide bonds.

ROTI®Cell PBS/EDTA may also be used directly without addition of trypsin for very gentle cell dissociation.

Storage temperature: +2 to +25 °C

Transport temperature: ambient temp.

Art. No.	Pack Qty.	Pack.
9152.1	500 ml	plastic

ROTI®Cell Hanks' BSS S ready-to-use

CELLPURE® ready-to-use, sterile

Balanced salt solution acc. to Hanks for cell culture

ROTI®Cell Hanks' BSS is a balanced salt solution to be used in a wide variety of cell- and tissue culture applications; for instance stabilizing of a physiological pH for cell maintenance in CO₂-free atmosphere, diluting cell suspensions prior to counting, washing cells prior to dissociation or passaging, and transporting cells or tissues.

w/o Ca/Mg, w/o phenol red

Art. No.	Pack Qty.	Pack.
9117.1	500 ml	plastic

w/o Ca/Mg, with phenol red

Art. No.	Pack Qty.	Pack.
9118.1	500 ml	plastic

with Ca/Mg, with phenol red

Art. No.	Pack Qty.	Pack.
9119.1	500 ml	plastic



ROTI®Cell DPBS S ready-to-use

CELLPURE® ready-to-use, sterile

Dulbecco's balanced salt solution, Phosphate buffered saline acc. to Dulbecco, DPBS

ROTI®Cell Dulbecco's PBS is a balanced salt solution based on PBS to be used in a wide variety of cell- and tissue culture applications; for instance stabilizing of a physiological pH in cell culture media, washing cells prior to dissociation, transfection or passaging, and maintaining cell tonicity and viability during transport of cells or tissues.

w/o Ca/Mg

Art. No.	Pack Qty.	Pack.
9124.1	500 ml	plastic
9124.2	1 l	plastic

10x conc., w/o Ca/Mg

Art. No.	Pack Qty.	Pack.
9130.1	500 ml	plastic
9130.2	1 l	plastic

with Ca/Mg

Art. No.	Pack Qty.	Pack.
9131.1	500 ml	plastic

ROTI®Cell Water S ready-to-use

CELLPURE® ready-to-use, sterile

Water for cell culture

Art. No.	Pack Qty.	Pack.
9186.1	500 ml	plastic
9186.2	1 l	plastic

Not a medical device / Not an IVD product

Cell Dissociation

ROTI®Cell Trypsin solution ready-to-use

Cell dissociation solution

Trypsin is a protein-cleaving digestive enzyme of the pancreas belonging to the serine proteases, which cleaves lysine and arginine at the C-terminus. Trypsin solutions are used for the separation of cells from tissue or cell monolayers. Thus, they are essential for routine applications in cell culture passaging, for cell culture experiments to obtain an adequate number of cells or for dissociation of primary tissue.

As an alternative to Trypsin, the more cell-protective solution ROTI®Cell Accutase solution can be used, which is free of mammalian components.

ROTI®Cell Trypsin/EDTA solution CELLPURE® ready-to-use, sterile

For detachment of adherent cells from tissue and culture surfaces.

This trypsin solution contains EDTA. EDTA is a chelating agent and enhances the ability of trypsin to detach adherent cells. EDTA binds calcium and magnesium, which additionally weakens cell contacts. This favors the hydrolysis of specific peptide bonds by trypsin.

Storage temperature: $-20\text{ }^{\circ}\text{C}$
Transport temperature: cooled

1x conc., 0.05 % in DPBS

Art. No.	Pack Qty.	Pack.
1Y1A.1	100 ml	plastic

10x conc., 0.5 % in DPBS
EUH208

Art. No.	Pack Qty.	Pack.
1Y19.1	100 ml	plastic

ROTI®Cell Accutase solution

Cell dissociation solution

Accutase is a ready-to-use cell dissociation solution of proteolytic and collagenolytic enzymes from crustaceans. In addition to detaching cells from culture surfaces, Accutase can also be used to dissociate cell clumps. Due to its gentle properties, Accutase solution is an excellent alternative for trypsin and collagenase applications. Membrane proteins remain intact so that downstream cell experiments or analyses such as FACS can be directly performed.

Accutase is a registered brand of Innovative Cell Technologies, Inc.

CELLPURE® 1x in DPBS, ready-to-use, sterile, with phenol red, with EDTA

For gentle detachment of adherent cells from culture surfaces.

Storage temperature: $-20\text{ }^{\circ}\text{C}$
Transport temperature: cooled

Art. No.	Pack Qty.	Pack.
1Y18.1	100 ml	plastic



ROTI®Cell Trypsin solution CELLPURE® ready-to-use, sterile

For detachment of adherent cells from tissue and culture surfaces.

The required trypsin concentration depends primarily on the cell type and the age of the cell culture. For orientation, you will find a complete protocol in the technical info brochure.

Storage temperature: $-20\text{ }^{\circ}\text{C}$
Transport temperature: cooled
WGK 1

 **Danger H334**

1x conc., 0.25 % in DPBS
EUH208

Art. No.	Pack Qty.	Pack.
1Y17.1	100 ml	plastic

10x conc., 2.5 % in DPBS

Art. No.	Pack Qty.	Pack.
1Y16.1	100 ml	plastic



ready-to-use

Advantages:

- Gentle detachment of cells
- Suitable for sensitive cells
- Reduced cell stress with maximum recovery and yield
- Surface proteins remain intact
- No neutralization step required
- Without mammalian components
- Stable at $+4\text{ }^{\circ}\text{C}$ for two months

Cryopreservation



S ready-to-use

Cryopreservation

Cryopreservation allows the preservation and indefinite storage of living cells at very low temperatures (< -150°C). This requires cryopreservation media that ensure protection of the cells and minimize ice crystal formation.

ROTI®Cell Freezing Medium

CELLPURE® ready-to-use, sterile, serum-free

For cryopreservation and long-term storage of cells.

ROTI®Cell Freezing Medium is a serum-free cryopreservation medium for long-term storage of various cell types. It contains 10 % DMSO and is also suitable for sensitive cells due to its gentle formulation. Thus, it is preferably used for the cryopreservation of embryonic and adult stem cells as well as induced pluripotent stem cells (iPS).

DMSO serves as a cryoprotectant. By lowering the freezing point, a gentler cooling rate for the cells is ensured. Cell stress is minimized and possible cell damage caused by intracellular ice crystals is largely prevented.

Art. No.	Pack Qty.	Pack.
1Y1L.1	50 ml	plastic

Dimethyl sulphoxide (DMSO) **DNase-free** **RNase-free**

≥99,5 %, BioScience Grade, nuclease free

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

C₂H₆OS · 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



► **Cryo-freezing container Mr. Frosty** can be found in the current catalogue or at www.carlroth.com

Antibiotics

ROTI®Cell Myco-Free **S** **ready-to-use**

CELLPURE® 50x conc., sterile, ready-to-use

For elimination of mycoplasma contamination in cell culture.

ROTI®Cell Myco-Free is a reliable, rapidly effective reagent for eradication of contaminations by mycoplasmas and other bacteria in cell culture.

The sterile solution ROTI®Cell Myco-Free is composed of a mixture of specially selected antibiotics in PBS, which are known to be highly potent, even in very low concentrations.

- Simple Application
- Reliable eradication
- Effective against all mycoplasmas and bacteria
- Not cytotoxic

One bottle of 100 ml is sufficient for approx. 300 applications.

Storage temperature: -20 °C

Transport temperature: cooled

WGK 3

Art. No.	Pack Qty.	Pack.
9830.1	100 ml	plastic

Product name	Purity	Endotoxin content	Art. No.	Pack Qty.
Ampicillin sodium salt	≥91 %	< 0,15 E.U./mg	HP62.1	10 g
			HP62.2	50 g
Geneticin disulphate (G418) solution	50 mg/ml, sterile	<10 E.U./ml	CP11.1	10 ml
			CP11.2	20 ml
			CP11.3	100 ml
Gentamycin sulphate solution	50 mg/ml, sterile	≤10 E.U./ml	HN09.1	20 ml
			HN09.2	100 ml
Hygromycin B solution	50 mg/ml, sterile	<10 E.U./ml	CP12.1	10 ml
			CP12.2	20 ml
Penicillin G sodium salt	≥1550 I.U./mg	≤0,25 E.U./mg	HP48.1	1 g
			HP48.2	10 g
			HP48.3	25 g
Pen/Strep-PreMix		≤4,2 I.U. / ml	HP10.1	1 set
			HP66.1	10 g
Streptomycin sulphate	≥720 I.U./mg	≤0,25 E.U./mg	HP66.2	25 g
			HP66.3	50 g
			HP63.1	10 g
Tetracycline hydrochloride	≥900 µg/mg	≤0,5 E.U./mg	HP63.2	50 g
			0242.1	250 mg
Vancomycin hydrochloride	≥900 U/mg	≤0,33 E.U./mg	0242.2	500 mg
			0242.3	1 g
			0242.7	5 g

Cell Isolation

ROTI®Sep 1077 human

Lymphocyte separation medium, Polysucrose solution
 Ready-to-use and sterile separation medium based on polysucrose 400, for efficient isolation of lymphocytes from human blood by density gradient centrifugation.
 Density 1.077 g/ml.
 Best alternative to Ficoll®.

- Optimised for isolation of lymphocytes from non-coagulated human whole blood
- Produces distinct, compact layers
- Results in high recovery rates of viable cells
- Maintains the representative ratio of B- to T lymphocytes
- May be directly applied to all protocols using Ficoll®

ROTI®Sep 1077 human excels due to the superior separation power, forming very distinct, easy to pipet, lymphocyte layers during centrifugation. The ready to use solution is very easy in handling, resulting in high cell recovery rates, while cell viability and the representative ratio of B- to T lymphocytes are maintained. Osmolality as well as pH value are strictly kept in the physiological range.

Suitable for application with human non-coagulated peripheral blood. In all respective protocols originally using Ficoll® this reagent may be replaced by ROTI®Sep 1077 human without any adjustment.

ROTI®Sep 1077 human S ready-to-use

CELLPURE® sterile, ready-to-use, for density gradient centrifugation

Polysucrose based medium for separation of lymphocytes/PBMC from human whole blood. Density: 1,077 g/ml
 M ~400000 g/mol
 Storage temperature: +4 °C
 WGK 1

Danger H317-H334

Not a medical device / Not an IVD product

Art. No.	Pack Qty.	Pack.
0642.1	100 ml	plastic
0642.2	500 ml	plastic



ROTI®Sep 1077 human/tube

CELLPURE® sterile, ready-to-use, for density gradient centrifugation S ready-to-use

Prefilled in 50 ml centrifugation tubes, 15 ml each.
 With permeable membrane for easy pipetting of diluted blood.
 Not a medical device / Not an IVD product

Art. No.	Pack Qty.	Packaging	Pack.
0634.1	25 unit(s)	25 x 50 ml	cardboard

ROTI®Sep 1077 animal S ready-to-use

CELLPURE® sterile, ready-to-use, for density gradient centrifugation

Polysucrose based medium for separation of lymphocytes/PBMC from mammalian whole blood. Density: 1,077 g/ml
 Storage temperature: +4 °C
 WGK 1

Not a medical device / Not an IVD product

Art. No.	Pack Qty.	Pack.
0622.1	100 ml	plastic
0622.2	500 ml	plastic

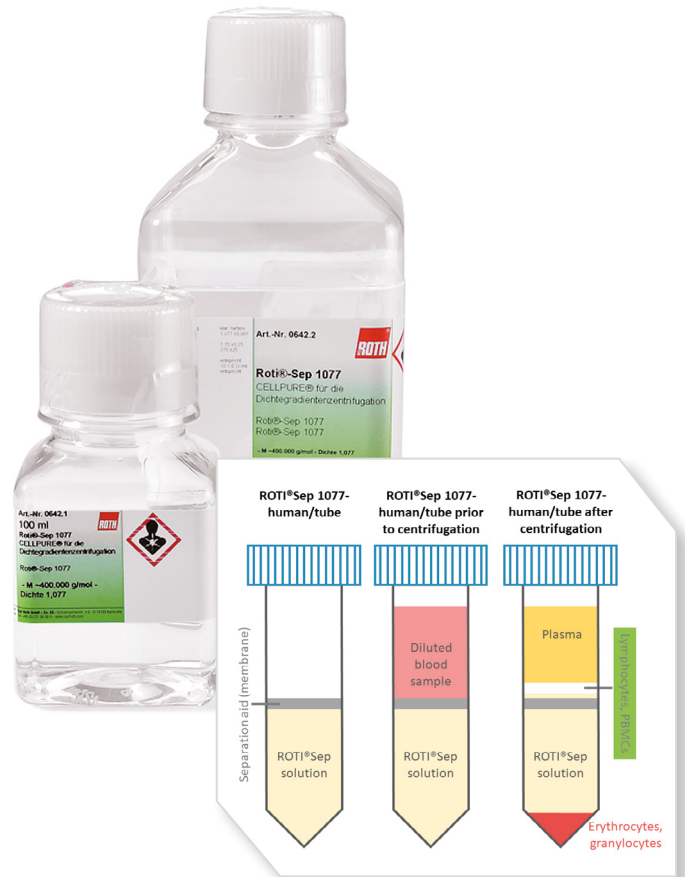
ROTI®Sep 1086 mouse S ready-to-use

CELLPURE® sterile, ready-to-use, for density gradient centrifugation

Polysucrose based medium for separation of lymphocytes/PBMC from mouse whole blood. Density: 1,086 g/ml
 Storage temperature: +4 °C
 WGK 1

Not a medical device / Not an IVD product

Art. No.	Pack Qty.	Pack.
0624.1	100 ml	plastic
0624.2	500 ml	plastic



Cell Isolation



Ficoll® 400 for molecular biology and biochemistry

For density gradient centrifugation; ingredient of gel loading buffers. Non-ionic polymer of saccharose.

Ficoll® 400 is a hydrophilic copolymer of saccharose and epichlorohydrin, that readily solubilises in water and aqueous solutions. It may be solubilised at concentrations of up to 50 %, and is mainly used in the following applications: A) In hybridisation buffer acc. to Denhardt, Ficoll® 400 reduces non specific binding of labelled DNA to the filter membrane. B) In gel loading buffer it supports DNA application to agarose gels by increasing the density of the sample. C) In continuous or discontinuous density gradients, Ficoll® 400 is used as matrix for fractioning of cells (e.g. lymphocytes) or subcellular particles, also taking advantage of its ability to stabilise membrane coupled components and the functional as well as the morphological integrity of cells. Autoclavable at neutral pH.

M ~400 000 g/mol

WGK 1

Art. No.	Pack Qty.	Pack.
CN90.1	10 g	plastic
CN90.2	25 g	plastic
CN90.3	100 g	plastic

Polysucrose 400 BioScience Grade, for molecular biology

For density gradient centrifugation during cell separation and isolation of cell organelles.

Nonionic, synthetic copolymer from sucrose and epichlorohydrin. Ficoll® derivative.

Solution of polysucrose 400 is used for separation of blood cells (mono nuclear cells, granulocytes, erythrocytes) via density gradient centrifugation, and for isolation of mononuclear cells from whole blood. Also well applicable for isolation of islets of Langerhans from pancreatic issue.

May be used as direct replacement for Ficoll® in common protocols.

$(C_{12}H_{22}O_{11})_n \times (C_3H_5ClO)_n \cdot M 450000 \pm 100000$ g/mol

Storage temperature: +15 to +25 °C

Transport temperature: ambient temp.

WGK 1

Art. No.	Pack Qty.	Pack.
4668.1	10 g	plastic
4668.2	25 g	plastic
4668.3	100 g	plastic



ROTI®Fair BSC for 100 ml/pouch, for cell culture and microscopy



Buffer solution for isolation of blood cells.

0,109 M BSC solution is prepared by dissolution of 1 pouch in 100 ml highly pure water.

WGK 1

Prepared BSC solution contains: 0,109 M (3,2 %) buffered Na-citrate, when prepared in deionized or distilled water.

Not a medical device / Not an IVD product

Art. No.	Pack Qty.	Pack.
1011.1	10 unit(s)	box



ROTI®Fair BSC for 1000 ml/pouch, for cell biology

Buffer solution for isolation of blood cells.

0,109 M BSC solution is prepared by dissolution of 1 pouch in 1000 ml highly pure water.

WGK 1

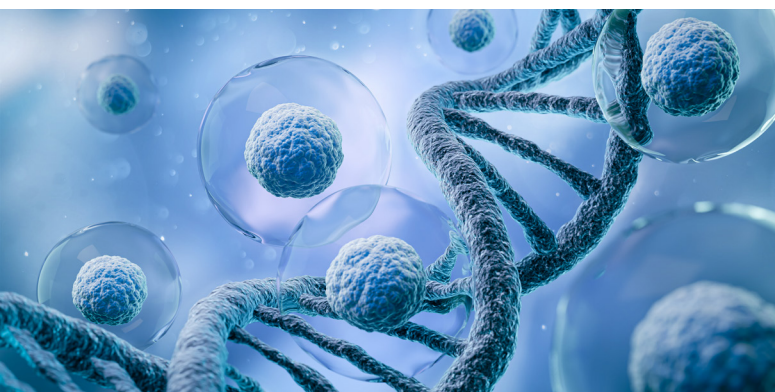
Prepared BSC solution contains: 0,109 M (3,2 %) buffered Na-citrate, when prepared in deionized or distilled water.

Not a medical device / Not an IVD product

Art. No.	Pack Qty.	Pack.
1026.1	5 unit(s)	box

► An extensive range of **centrifuge tubes** can be found in the current catalogue or at www.carlroth.com

Cell Transfection



DOTAP ready-to-use

CELLPURE® ready-to-use, for transfection

Purity, QC: Controlled by TLC, NMR, standard transfection test with HeLa-, CV-1-cells. At least 99 %

Stability: Minimum shelf-life 6 month at +4 °C

Culture media: Suitable for whole and serum-free media.

Formulation

Transfection reagent DOTAP is an aqueous liposome formulation of N-[1-(2,3-Dioleoyloxy)]-N,N,N-trimethylammonium propane methyl sulphate.

Concentration is approx. 1 mg/ml.

Approx. 200 assays per ml in 24wells.

Storage temperature: +4 °C

WGK 3

Art. No.	Pack Qty.	Packaging	Pack.
L787.1	0.5 ml	1 x 0,5 ml	plastic
L787.2	1 ml	1 x 1 ml	plastic
L787.3	5 ml	5 x 1 ml	plastic

ROTI®Fect RNAi Kit ready-to-use

CELLPURE® ready-to-use, for transfection

Reagent for transfection of mammalian cells with siRNA and miRNA, for efficient gene silencing.

- Optimised RNA release into the cytosol
- High levels of gene silencing with low RNA concentration
- Efficient knockdown after 48 hours already
- No elaborate optimisation necessary
- Very low cell toxicity
- Suitable for cell lines and primary cells
- Straightforward, efficient protocol for whole medium included

Approx. 250 assays per ml in 24wells.

Dependent on the cell line used.

Storage temperature: -20 °C

Transport temperature: ambient temp.

WGK 1

Art. No.	Pack Qty.	Pack.
3129.1	0.2 ml	plastic
3129.2	1 ml	plastic

► Further information and detailed instructions for use can be found at www.carlroth.com

ROTI®Fect ready-to-use

CELLPURE® ready-to-use, for transfection

Reagent for liposoma-mediated transfection of eukaryotic cells.

- Highly efficient reproduction of DNA in mammal cells
- Excellent reproducibility
- High and wide operating plateau
- No inhibition through serum
- Low cell toxicity
- Successful with different cell lines
- Excellent transfection results

Approx. 400 assays per ml in 24wells. Dependent on the cell line used.

Storage temperature: +4 °C

WGK 3

Art. No.	Pack Qty.	Packaging	Pack.
P001.1	0.2 ml	1 x 0,2 ml	plastic
P001.2	0.5 ml	1 x 0,5 ml	plastic
P001.3	1 ml	1 x 1 ml	plastic
P001.4	5 ml	5 x 1 ml	plastic

ROTI®Fect Plus ready-to-use

CELLPURE® ready-to-use, for transfection

Reagent for transfection of all eukaryotic cells in culture, particularly suited for hard-to-transfect cell lines.

- Particularly low cell toxicity
- Superior transfection efficiency with all cell lines
- Especially recommended for hard-to-transfect cell lines
- Particularly suited for use with primary cells
- Excellent reproducibility
- No serum inhibition

Approx. 500 assays per ml in 24wells.

Dependent on the cell line used.

Storage temperature: +4 °C

WGK 3

Art. No.	Pack Qty.	Packaging	Pack.
CL21.1	0.2 ml	1 x 0,2 ml	plastic
CL21.2	1 ml	1 x 1 ml	plastic

ROTI®Fect solutions - High efficiency and low toxicity compared to other commercially available transfection reagents.

Cell Analysis

ROTITEST®Annexin V ready-to-use

ROTITEST® BioAnalysis Grade, ready-to-use

For detection and enumeration of apoptotic cells and simultaneous differentiation from necrosis.

Mechanism

During the first stages of apoptosis, phosphatidylserine (PS) is translocated from the inner membrane layer to the outer surface of the cell. The ROTITEST®Annexin V Kit uses the Ca²⁺ dependent binding efficiency of Annexin V to PS in order to label cells with damaged cell membranes. Additionally, propidium iodide is used to counter stain nuclei of cells with opened membranes, hence those which undergo necrotic degradation.

Thus, cells with yellow-green membrane staining only can be identified as apoptotic, while double stained cells (with yellow-green membranes plus orange-red nuclei) are classified as necrotic. Analysis is performed via flow cytometry or fluorescence microscopy.

- Simple, rapid application
- For adherent and suspension cells
- For cultured and primary cells (also for yeast cells)
- Discriminating between apoptotic and necrotic cells
- Result in approx. 30 minutes

The kit contains:

Annexin V-FITC conjugate, propidium iodide solution, Annexin V binding buffer, detailed instructions-for-use. Excluding the columns, contents of this Kit may not be bought separately.

1 set is sufficient for analysis of 50 samples of 10⁵ cells each

Storage temperature: +4 °C

WGK 1

Art. No.	Pack Qty.	Packaging	Pack.
7735.1	1 kit	approx. 50 assays	cardboard

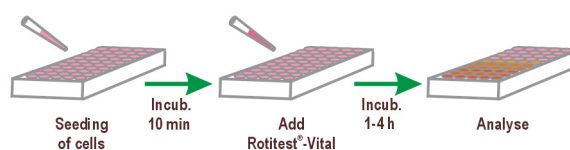
- **EdU Click proliferation kits from baseclick** can be found in our current catalogue or at www.carlroth.com



ROTITEST®Vital S ready-to-use

ROTITEST® BioAnalysis Grade, sterile, ready-to-use

Colorimetric test solution for evaluation of cell proliferation and -viability. Non toxic.



Mechanism

Sensitivity of the tetrazolium salt used is higher than that known for standard reagents such as MTT, XTT, MTS, or WST-1. Results were shown to be of highly stringent correlation with [³H]-thymidine incorporation assays, therefore representing viability as well as proliferation status of the cells (Tominaga *et al.*, *Anal. Commun.* 1999 (36) 47-50). In all living cells, NADH and NADPH are formed by the respiratory chain. ROTITEST®vital is based on the (colourless) WST-8, which functions as acceptor for the NADH/NADPH dehydrogenase while being reduced to (coloured) formazane during the process.

Rapid and simple test system for non-radioactive quantitation of proliferating cells. Also well suitable for cytotoxicity assays.

Optimum replacement for MTT:

- Cells keep on being vital
- Most simple handling
- One-component-system without radioactivity
- For adherent and suspension cells
- Photometric result in 1 to 4 hours
- Strong correlation between absorbance and cell number
- Suitable for every culture media

1 ml is sufficient for 100 measurements.

Storage temperature: +4 °C

WGK 1

Art. No.	Pack Qty.	Packaging	Pack.
0069.3	1 ml	1 x 1 ml	plastic
0069.1	5 ml	1 x 5 ml	plastic
0069.2	20 ml	4 x 5 ml	plastic

- Further information and detailed instructions for use can be found at www.carlroth.com

Coating of Cell Culture Tubes

Adhesion Factors

ROTI®Cell Gelatine solution ready-to-use

CELLPURE® 0,1 % conc., sterile, ready-to-use, in PBS, w/o Ca/Mg

From porcine skin, for cell culture, protein biochemistry and molecular biology

Directions for use

ROTI®Cell 0.1% Gelatine solution for cell culture coating:
100–200 µg (0,1–0,2 ml)/cm².

Hence, we recommend to use the following amounts per well/plate in ml: 0,1–0,2 (48well), 0,2–0,4 (24well), 0,4–0,8 (12well), 1–1,9 (6well), 2,8–5,7 (6 cm plate), 8–15,7 (10 cm plate). The optimal amount depends on the cell type and specific assay parameters and has to be evaluated. Coat by incubation at 37 °C for 30 mins in minimum.

For coating cell culture vessels: 100–200 µg (0,1–0,2 ml)/cm²

Not a medical device / Not an IVD product

Art. No.	Pack Qty.	Pack.
0621.1	500 ml	plastic



ROTI®Cell Gelatine solution ready-to-use

CELLPURE® 2 % conc., sterile, ready-to-use, in PBS, w/o Ca/Mg

From porcine skin, for cell culture, protein biochemistry and molecular biology

Directions for use

ROTI®Cell 2% Gelatine solution for cell culture coating:
100–200 µg (5–10 µl)/cm².

Hence, we recommend to use the following amounts per well/plate in ml: 5–10 µl (48well), 10–20 µl (24well), 20–40 µl (12well), 42–85 µl (6well), 0,12–0,24 ml (6 cm plate), 0,31–0,63 ml (10 cm plate). The optimal amount depends on the cell type and specific assay parameters and has to be evaluated. Coat by incubation at 37 °C for 30 mins in minimum.

For coating cell culture vessels: 100–200 µg (5–10 µl)/cm²

WGK 1

Not a medical device / Not an IVD product

Art. No.	Pack Qty.	Pack.
0646.1	100 ml	plastic

► An extensive range of **bottles, plates** and other **laboratory equipment** can be found in our current catalogue or at www.carlroth.com



Gelatine

extra pure, platinum, 240 Bloom

Storage temperature: +15 to +25 °C

WGK 1

Gelatine is produced from porcine skin.

Art. No.	Pack Qty.	Pack.
4582.4	100 g	plastic
4582.3	500 g	plastic
4582.1	1 kg	plastic
4582.2	5 kg	plastic

Gelatine

extra pure, gold, 180 Bloom

Storage temperature: +15 to +25 °C

WGK 1

Gelatine is produced from porcine skin.

Art. No.	Pack Qty.	Pack.
4274.4	100 g	plastic
4274.3	500 g	plastic
4274.1	1 kg	plastic
4274.2	5 kg	plastic

Gelatine

extra pure, crystal, 160 Bloom

Storage temperature: +15 to +25 °C

WGK 1

Gelatine is produced from porcine skin.

Art. No.	Pack Qty.	Pack.
4308.4	100 g	plastic
4308.3	500 g	plastic
4308.1	1 kg	plastic
4308.2	5 kg	plastic

Gelatine

extra pure, silver, 140 Bloom

Storage temperature: +15 to +25 °C

WGK 1

Gelatine is produced from porcine skin.

Art. No.	Pack Qty.	Pack.
4275.4	100 g	plastic
4275.3	500 g	plastic
4275.1	1 kg	plastic
4275.2	5 kg	plastic

► More **adhesion factors** will **soon** be available at www.carlroth.com

Cell Lysis

Cell Lysis Buffer

RIPA Buffer ready-to-use

1x conc., ready-to-use, for protein extraction

Cell lysis buffer for protein extraction from mammalian cells
RIPA Buffer is supplied as a ready to use solution.

Protease and phosphatase inhibitors may be added to the lysis buffer as needed.

Storage temperature: +2 to +8 °C

Transport temperature: ambient temp.

WGK 1

Warning H319

Not a medical device / Not an IVD product

Art. No.	Pack Qty.	Pack.
23T1.1	100 ml	plastic
23T1.2	250 ml	plastic
23T1.3	500 ml	plastic

Inhibitor Cocktail Plus ready-to-use

ready-to-use, for biochemistry, EDTA free

Broad range cocktail of protease inhibitors for extracts of mammalian cells or tissue. Without EDTA.

Inhibitor cocktail for inhibition of a broad range of proteases. Inhibits serine proteases, esterases, aminopeptidase B, leucine-aminopeptidases, cysteine proteases, trypsin-like proteases, and aspartic proteases.

Recommended as cocktail for protease inhibition particularly in extracts from mammalian cells or tissue.

Provided as stock-solution in DMSO.

Directions for use

Concentrations per vial are:

AEBSF: 100 mM

Aprotinin: 80 µM

Bestatin: 5 mM

E-64: 1.5 mM

Leupeptin: 2 mM

Pepstatin A: 1 mM

Storage of inhibitor solution: -20 °C max. 6 months.

1 ml is sufficient for inhibition of proteases from approx. 20 g cells or tissue.

Storage temperature: -20 °C

Transport temperature: cooled

WGK 1

Warning H315-H319

Art. No.	Pack Qty.	Pack.
3751.1	1 ml	plastic



Inhibitor Cocktail Tissue

for biochemistry, EDTA free

Cocktail of protease inhibitors for extracts of mammalian cells or tissue. Without EDTA.

Inhibitor cocktail. Inhibits serine proteases, esterases, cysteine proteases, and trypsin-like proteases.

Recommended as cocktail for protease inhibition particularly in extracts from mammalian cells or tissue.

Directions for use

Well water-soluble and hygroscopic. The premixed powder may easily be reconstituted in 1 ml distilled water to form an inhibitor stock-solution.

Recommended dilution is 1:100. End concentration for the respective extract has to be optimized.

Concentrations in stock-solution are:

AEBSF: 50 mM

Aprotinin: 15 µM

E-64: 100 µM

Leupeptin: 100 µM

Storage of aliquoted inhibitor solution: -20 °C max. 6 months.

1 vial is sufficient for inhibition of proteases from approx. 2 g cells or tissue.

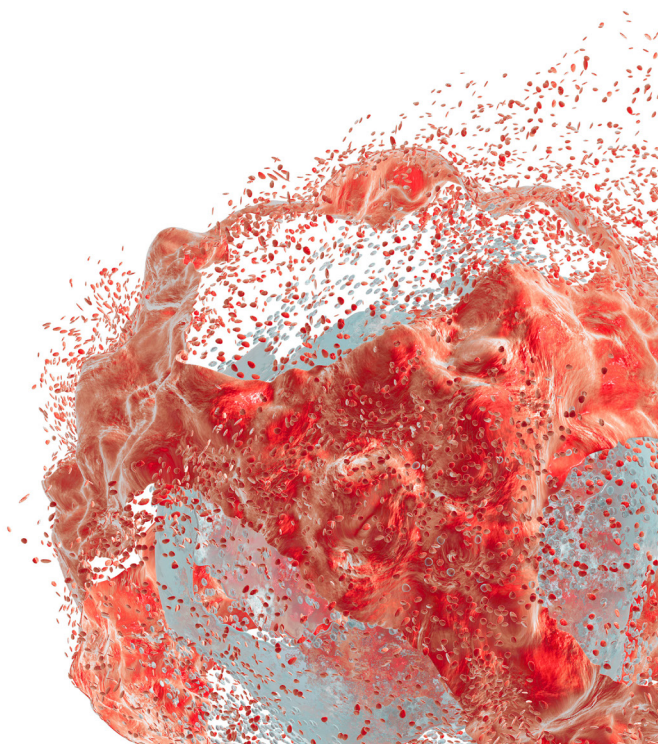
Storage temperature: -20 °C

Transport temperature: ambient temp.

UN no. 3261 · ADR 8 III · WGK 1

Danger H314

Art. No.	Pack Qty.	Pack.
3755.1	0.5 g	plastic



Cell Lysis

Enzymatic Cell Lysis



Lysozyme

≥45 000 FIP U/mg, lyophilized

From chicken egg white, free from albumin.

Salt and albumin free lyophilised powder. Quality product for molecular biology. Ideal for lysis of bacteria for preparing DNA.

Lysozyme preferentially hydrolyses the β-1,4-glycosidic bond between N-acetylmuramic acid and N-acetylglucosamine. Muramic acid and acetylglucosamine are components of the proteoglycan cell wall of many microorganisms. The enzyme is mostly derived from chicken egg white and may efficiently be used for lysis of Gram+ bacteria. In genetic engineering, it is very often used during isolation of plasmid DNA or cellular RNA for the lysis of *E. coli* or eukaryotic cells.

Unit definition

1 FIP-Unit equals the amount of enzyme which reduces the absorbance by 0.001 per min. at 450 nm, 25 °C, pH 7.00 using a suspension of FIP *Micrococcus luteus* as substrate (acc. to *Pharmaceutical Enzymes* 1997). 1 FIP-Unit resembles approximately 1 Shugar-Unit.

Stock solution: 10–50 mg/ml in 10 mM Tris (pH 8,0), prepare directly before use

M ~14000 g/mol

Storage temperature: –20 °C

Transport temperature: ambient temp.

WGK 1

Danger H334

Art. No.	Pack Qty.	Pack.
8259.1	1 g	glass
8259.2	10 g	glass
8259.3	25 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 precipitation, 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



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 precipitation.

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

► Our **ROTI®SampleLyse tubes** for mechanical cell lysis can be found in our current catalogue or at www.carlroth.com



Accessories

In addition to our chemicals, the Carl ROTH product range offers an extensive selection of laboratory supplies for your cell culture laboratory.

At www.carlroth.com you will find everything you need, from cell culture flasks and glass pipettes to extraction systems and CO₂ incubators.



Current prices at www.carlroth.com

Contact international:

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