

Table of Contents

Welcome to our New Catalogue	3
New Product Highlights	4

Smart Buffers and Reagents 6

Smart Buffers	
Phosphate Buffered Saline (PBS)	8
Phosphate Buffered Saline without potassium	9
Phosphate Buffered Saline with Tween™ 20 (PBS-T).....	10
SSPE Buffer (PBS-EDTA)	11
Borate Buffered Saline (BBS)	12
Tris Buffered Saline (TBS)	13
Tris Buffered Saline with Tween™ 20 (TBS-T).....	14
HEPES Buffered Saline (HBS)	15
Tris Buffer (Tris-HCl)	16
EDTA Buffer	17
Tris-EDTA Buffer (TE)	18
Tris-Borate-EDTA Buffer (TBE)	19
Tris-Acetate-EDTA Buffer (TAE)	20
Tris-Glycine Buffer (TG)	21
Tris-Glycine-SDS Buffer (TG-SDS)	22
Saline Sodium Citrate Buffer (SSC)	23
IMAC Phosphate & Elution Buffer.....	24
Sodium Acetate Buffer	25
Buffered Sodium Citrate	25
Sodium Phosphate Buffer (NaPi)	26
Carbonate-bicarbonate Coating Buffer.....	27
Glycine-HCl Buffer	28
Washing solution for DELFIA™	28
0.1 mol NaCl tablets	29
Smart Reagents	
Sodium Chloride	30
Sodium Hydroxide	30
Sodium Dodecyl Sulphate (SDS)	31
Potassium Chloride	31
<i>p</i> -Nitrophenyl Phosphate Substrate	32
Magnesium Sulphate	32
Urea	33
D (+) Glucose	33
Reagents for Biotechnology.....	34



Lectins and Bioactive Proteins 36

<i>Aleuria aurantia</i> lectin (AAL)	38
<i>Arachis hypogaea</i> lectin (PNA)	39
<i>Artocarpus integrifolia</i> lectin (Jacalin).....	40
Concanavalin A (Con A)	41
<i>Crotalaria juncea</i> lectin	42
<i>Galanthus nivalis</i> lectin (GNA)	43
<i>Glycine max</i> lectin (SBA)	44
<i>Lens culinaris</i> lectin (LCA/LcH)	45
<i>Narcissus pseudonarcissus</i> lectin (NPA/NPL)	46
<i>Phaseolus vulgaris</i> lectin E (PHA-E).....	47
<i>Phaseolus vulgaris</i> lectin L (PHA-L)	48
<i>Phaseolus vulgaris</i> lectin M (PHA-M)	49
<i>Phaseolus vulgaris</i> lectin P (PHA-P)	50
<i>Pisum sativum</i> lectin (PSA)	51
<i>Trichosanthes japonica</i> agglutinin I and II (TJA I and TJA II)	52
<i>Triticum vulgare</i> lectin (WGA).....	53
<i>Vicia ervilia</i> lectin (VEA)	54
Calmodulin	55





Immuno Reagents 56

Immunosorb A 58
 β-galactosidase 59
 Carbon Suspension for CIA 60
 Stop Solution for TMB Substrate 60
 EC-Blue Enhanced Substrate (TMB) 61
 Protein L Ligand Leakage ELISA 62
Encephalitozoon cuniculi ELISA 63
Encephalitozoon cuniculi CIA 64
Encephalitozoon cuniculi whole cell antigen suspension 65
 Rabbit antiserum against *Encephalitozoon cuniculi* 65
 Rat antiserum against *Encephalitozoon cuniculi* 65
 Rabbit antiserum against *Toxoplasma Gondii* 66
Toxoplasma gondii whole cell antigen suspension 66

Contract Manufacturing, Product Development and Custom Services 68



ISO Certifications 70
 Excellence in Development and Manufacturing 70
 Expertise and Capabilities 72

Customer and Product Support Services 74

Customer Service 74
 Technical Support 74
 Medicago Website 75
 Product Support Literature 75
 Product Ordering 75
 Terms and Conditions 76

Indexes 77

Index by Article Number 77
 Alphabetical Index 81

Welcome to our new catalogue!

Founded in 1995 in Uppsala, Sweden, Medicago is celebrating 18 years of continuous service to the life science and biotechnology industry. We specialize in user-friendly bio-reagents and diagnostic and biochemical kits in standard pack sizes as well as bulk. We are privately-owned, enthusiastic and forward-looking and operate throughout the world.

Medicago is active in three product areas as well as sub-contract development, manufacturing, customization and OEM.

- Smart Buffers and Reagents
- Lectins and Bioactive Proteins
- Immuno Reagents
- Contract Manufacturing, Bulk and OEM

Smart buffers and reagents

We develop and manufacture a wide range of pre-made buffers and reagents of the highest purity, pre-mixed and supplied in convenient tablets or powder pouches. Smart buffers and reagents save valuable time in routine laboratory work while providing maintained or increased precision. Our products cover most of the commonly used buffers and we welcome requests for customization if you have special requirements.

Lectins and bioactive proteins

We provide a large variety of bioactive proteins of both natural and recombinant origin. Lectins were the first products manufactured and marketed by Medicago and, even today, we remain one of the world's few primary manufacturers of extremely pure lectins. Our extensive expertise in this area makes us the ideal partner for customized solutions.

Immuno reagents

Medicago develops and manufactures monoclonal and polyclonal antibodies, as well as antigens from viruses, bacteria and parasites. In addition we also sell diagnostic kits as well as other biochemical kits for in vitro use based on well-proven ELISA and monoclonal antibody technique. Over the last decade, we have built up a substantial body of expertise in this important area.

Contract manufacturing, product development and custom services

We welcome requests for custom, bulk and OEM in any of our product areas as well as for saponins. Today we manufacture custom products in a large range of life science and biotechnology applications, including medical devices, according to customer specifications and sub-contracting agreements. Custom products cover everything from single components to complex kits. We offer flexibility and high quality in both product development and manufacturing. Our capabilities include upstream bio processing, fermentation in bioreactors, protein purification, antibody production, freeze-drying, filling under aseptic conditions and downstream processing on any scale - from laboratory to large industrial. Our DIN EN ISO 9001:2008, ISO 13485:2012 quality management system ensures that your special requests are handled and delivered quickly, efficiently and accurately.

To all of you who have purchased and used Medicago products over the last 18 years, we sincerely thank you for your trust and support. We are as committed as ever to making new investments in product development and improving our customer service. Our goal, as always, is to help you achieve success.

Best regards,



Jan Henriksson, President



New Product Highlights

Smart Buffers

IMAC Phosphate & Elution Buffer Tablets

Page 24

Medicago introduces a new set of tablets developed exclusively for use in IMAC (Immobilized Metal Ion Affinity Chromatography). This includes IMAC phosphate buffer and IMAC elution buffer in bottles of 50 tablets as well as blister packs of 10 tablets. IMAC is a widely used separation method for purifying proteins and peptides that show an affinity for metal ions, such as histidine-tagged proteins and also some untagged recombinant or native proteins.

- Guaranteed reproducible results
- Mix elution buffer with phosphate buffer to achieve desired imidazole concentration
- Ultrapure, low UV280 absorbance imidazole
- Exactly pre-weighed tablets in bottles (50 tablets) and blister packs (10 tablets)



HEPES Buffered Saline (HBS), pH 7.4

Page 15

Our new Smart Buffer HBS is a routinely used buffer in cell culture, enzymology, chromatography and general biochemistry.

- Guaranteed reproducible results
- Formulated from analytical grade chemicals
- Exactly pre-weighed tablets in bottles and blister packs
- Ideal for standardizing laboratory work



0.1 mol NaCl tablets

Page 29

0.1 mol NaCl tablets have been developed for use in many different lab applications. The tablets work perfectly in combination with Medicago's Smart Buffers to adjust the sodium chloride concentration. To reach the desired sodium chloride concentration, simply add one tablet per 100 mM needed in one litre.

- Easy way to adjust NaCl concentration
- Many applications
- Each tablet contains 100 mmol of 99.9% NaCl
- The tablets are precisely weighed to 5.844 g



Lectins

Aleuria aurantia lectin (AAL)

Page 38

Medicago expands its range of lectins by introducing *Aleuria aurantia* lectin. AAL has been widely used for analysis and preparation of fucosylated oligosaccharides and glycoproteins. Diagnostic applications include analysis of disease-associated glycosylation on plasma proteins. Furthermore, recombinant AAL can be immobilized and used for affinity chromatography.

- Ultrapure quality
- Sugar specificity: fucose and terminal fucose residues on complex oligosaccharides and glycoconjugates
- Binding affinity for fucose in all binding positions (α 1-2, α 1-3, α 1-4 and α 1-6)
- Higher affinity towards fucosylated oligosaccharides than native AAL
- Not blood group specific



Trichosanthes japonica agglutinin I and II (TJA-I and TJA-II)

Page 52

TJA-I is along with its isolectin TJA-II isolated from the root tubers of Japanese gourd. They are highly purified and one purification step involves bio specific affinity chromatography to ensure highest possible binding affinity. They both have affinity for lactose but while TJA-II favours fucose α 1->2 lactose TJA-I favours acidic groups coupled to N-acetyl-D-lactosamine in 1,4 position.

- Ultrapure quality
- Affinity for lactose
- TJA-I favours acidic groups coupled to N-acetyl-D-lactosamine in 1,4 position
- TJA-II favours fucose α 1->2 lactose
- Supplied as a lyophilized powder, essentially salt free



Phaseolus vulgaris lectin M (PHA-M)

Page 49

PHA-M is the mucoprotein variant of phytohemagglutinin isolated from red kidney bean. It contains up to 20% carbohydrates in conjugation with the protein, which presents two bands corresponding to about 35 kDa according to SDS-PAGE in the presence of mercaptoethanol. It is a potent mitogen used to stimulate cell proliferation in lymphocyte cultures and also has a powerful erythroagglutinating activity.

- Two grades of purity; PHA-M pure and PHA-M crude
- Potent mitogen
- High erythroagglutinating activity
- Supplied as a lyophilized powder, essentially salt free



Immuno Reagents

Protein L Ligand Leakage ELISA kit

Page 62

Ideally suited for detecting and quantifying Protein L in Immunoglobulin (Ig) or Ig-fragment containing solutions. This kit complements Medicago's range of ready-to-use kits for EC ELISA and EC CIA. The kit is a sandwich ELISA with microtiter strips coated with an affinity purified anti-Protein L IgY-antibody.

- Ready-to-use kit with all reagents and controls necessary for the analysis
- Detection and quantification of Protein L in Immunoglobulin (Ig) or Ig-fragment containing solutions
- Convenient ELISA procedure
- Includes 12 strips (96 wells), sufficient for 48 tests



Smart Buffers and Reagents

Biological buffers for the life-science laboratory need to meet a wide array of criteria. These include pKa between 6.0 to 8.0 (the region in which most biological reactions occur), high solubility in water, lack of toxicity, good stability, minimal salt effects due to the ionic composition of the solution, free from enzymatic and hydrolytic activity, and minimal participation in biological reactions. Buffers for molecular biology applications, e.g. Tris-Borate-EDTA and Tris-Acetate-EDTA, also need to be free from DNase and RNase activity.

Medicago's Smart Buffers and Reagents meet all these criteria. They are manufactured using highly-purified, analytical-grade chemicals and extensively tested. Manufacturing is done in a controlled clean environment according to GMP procedures. A high level of automation essentially avoids operator intervention and contact with the products.

Pre-mixed reagents are exactly weighed according to specification. Tablets are packed in containers or blister packs and powders in sealed aluminium foil pouches.

Features

- Analytical-grade reagents
- Pre-mixed powder buffers with pre-set pH
- Eliminate calculation, formulation and weighing errors
- Dissolve-and-go for greater convenience
- Stable at room temperature for 3 years
- Ideal for standardizing laboratory work
- Guaranteed reproducibility
- Save space in stock rooms

APPLICATION TABLE FOR SMART BUFFERS

Buffer	Nucleic acid electrophoresis	Protein electrophoresis	Coating procedures	Western blot	Southern blot	Northern blot	ELISA	Immunohistochemistry	Molecular biology	Clinical chemistry	Chromatography
PBS							•	•		•	
PBS-T				•			•				
TBS				•			•	•			
TBS-T				•			•		•		
BBS			•				•				
HBS									•		•
NaPi									•		
TAE	•					•					
TBE	•										
TG		•		•							
TG+SDS		•									
TE								•	•		
Carb-Bicarb			•								•
SSC					•	•			•		
Tris-HCl									•		
NaAc									•		
Sodium Citrate										•	
EDTA									•	•	
IMAC											•

Storage and stability

Smart Buffers and Reagents supplied in tablets and pouches are stable for at least 2 years at room temperature. The stability of dissolved stock solutions varies according to buffer composition, concentration, water quality, cleanness of the container and the working environment. Use buffers correctly to avoid contamination, oxidation, hydration, microbial growth, etc.

In general, concentrated stock solutions (greater than 5x) are more stable than 1x working solutions. Phosphate buffers are sensitive to microbial growth and need to be kept refrigerated and stored for no more than one week. Discard turbid solutions! Other buffers can be stored longer but should still be discarded after two weeks. Basic buffers readily absorb CO₂ from the air. Acid buffers absorb ammonia. To extend the shelf-life of a buffer, filter the solution through a sterile 0.22 µm filter into sterile bottles or autoclave it.



IKA® RCT basic
safety certified

Power
Speed/Torque



Temp 0 310 °C

Rot 0 1500 rpm



Phosphate Buffered Saline (PBS), pH 7.4 and 7.2



Features

- Formulated from analytical grade chemicals
- Ideal for standardizing laboratory work
- Ready to use in minutes
- Choice of two formats: tablets and pouches
- Autoclavable

Applications

- Immunoassays
- Immuno-histochemical procedures
- Microbiological procedures
- Tissue and cell culture procedures
- Protein dilution

Description

One of the most commonly used biological buffers. Isotonic and non-toxic to cells. Medicago's PBS is specifically developed for immunological and microbiological laboratories. It is provided in sealed pouches and as pre-weighed tablets in bottles or convenient blister packs. Thirteen standard-sized packages and volumes range from 100 ml to 100 litres.

Preparation

Dissolve one tablet or the contents of one pouch in a specified quantity of deionized water. This yields a solution containing 0.14 M Sodium chloride, 0.0027 M Potassium chloride and 0.01 M Phosphate buffer, pH 7.4, at 25°C.

Storage and stability

Tablets and pouches stable for 5 years at room temperature.

Ordering information			
Article no.	Product name	Pack size	Solution vol.
09-2051-100	PBS tablets pH 7.4	100 tablets	100 ml/tablet
09-2052-100	PBS tablets pH 7.4	100 tablets	200 ml/tablet
09-8912-100	PBS tablets pH 7.4	100 tablets	500 ml/tablet
09-8912-12	PBS tablets pH 7.4	12 tablets*	500 ml/tablet
09-9400-100	PBS tablets pH 7.4	100 tablets	1000 ml/tablet
09-9400-10	PBS tablets pH 7.4	10 tablets*	1000 ml/tablet
09-9499-100	PBS tablets pH 7.2	100 tablets	1000 ml/tablet
12-9423-5	PBS 10x pouches pH 7.4	5 pouches	1000 ml/pouch
12-9424-1	PBS pouches pH 7.4	1 pouch	10 l/pouch
12-9422-1	PBS pouches pH 7.4	1 pouch	25 l/pouch
12-9425-1	PBS pouches pH 7.4	1 pouch	50 l/pouch
12-9426-1	PBS pouches pH 7.4	1 pouch	100 l/pouch
10-9402-10	PBS solution pH 7.4	10 bottles	1000 ml/bottle

*Blister pack

Associated products

Product name	Page no.
PBS-Tween™	10
PBS-EDTA	11
PBS without potassium	9
NaCl 0.9%	30

Tween™ is a trade mark of the Croda Group of Companies.

Phosphate Buffered Saline (PBS) without potassium, pH 7.4



Features

- Choice of 2 buffer strengths
- PBS without potassium
- Exactly pre-weighed tablets
- Tablets in bottle or blister pack
- Autoclavable

Applications

- Methods requiring PBS without potassium
- When a higher-strength (0.02 M) PBS buffer is desirable
- Biochemical downstream processing

Description

Medicago's PBS without potassium is specifically developed for biochemical processing and immunological/microbiological laboratories. It is supplied in two formulations (low and high buffer strength) as pre-weighed tablets in bottles or convenient blister packs.

Preparation

Dissolve one tablet in the specified quantity of deionized water. This yields a solution containing 0.15 M Sodium chloride and 0.01 M Phosphate buffer, pH 7.4, at 25°C or 0.15 M Sodium chloride and 0.02 M Phosphate buffer, pH 7.4, at 25°C.

Storage and stability

Tablets stable for 5 years at room temperature.

Ordering information			
Article no.	Product name	Pack size	Solution vol.
09-9420-100	PBS without potassium pH 7.4	100 tablets	1000 ml/tablet
09-9420-10	PBS without potassium pH 7.4	10 tablets*	1000 ml/tablet
09-9500-100	PBS without potassium pH 7.4 high strength 0.02 M phosphate	100 tablets	1000 ml/tablet

*Blister pack

Associated products

Product name	Page no.
PBS-EDTA	11
PBS-Tween™	10
PBS	8
NaCl 0.9%	30

Phosphate Buffered Saline with Tween™ 20 (PBS-T), pH 7.4



Features

- PBS with non-ionic detergent
- Analytical grade reagents
- Exactly pre-weighed tablets
- Ready to use in minutes

Applications

- Washing buffer for ELISA
- Washing buffer for Western blotting
- General immunoassays

Description

PBS-T buffer contains the non-ionic detergent Tween™20 which acts through blocking. It has the ability to reduce non-specific binding and protein-protein interaction during the wash step in protein and immunoassay procedures such as ELISA and Western blotting. Decreasing the non-specific binding and staining makes ELISA results and blots easier to interpret.

PBS-T is supplied in exactly pre-weighed tablets in bottles and convenient blister packs.

Preparation

Dissolve one tablet in the specified quantity of deionized water. This yields a solution containing 0.14 M Sodium chloride, 0.0027 M Potassium chloride, 0.05% Tween™ and 0.01 M Phosphate buffer, pH 7.4, at 25°C.

Storage and stability

Tablets stable for 3 years at room temperature.

Ordering information

Article no.	Product name	Pack size	Solution vol.
09-8903-100	PBS-T pH 7.4	100 tablets	100 ml/tablet
09-8902-100	PBS-T pH 7.4	100 tablets	500 ml/tablet
09-8902-12	PBS-T pH 7.4	12 tablets*	500 ml/tablet
09-9410-100	PBS-T pH 7.4	100 tablets	1000 ml/tablet
09-9410-10	PBS-T pH 7.4	10 tablets*	1000 ml/tablet

*Blister pack

Associated products

Product name	Page no.
PBS-EDTA	11
PBS-without potassium	9
PBS	8

Tween™ is a trade mark of the Croda Group of Companies.

SSPE buffer, pH 7.4 (PBS-EDTA)



Features

- Analytical grade reagents
- Exactly pre-weighed in tablets
- Excellent lot-to-lot reproducibility
- Ready to use in minutes

Applications

- Nucleic acid probe pre-hybridization and hybridization
- Washing solution for microarrays

Description

Medicago's SSPE buffer is specifically formulated for hybridization in Northern and Southern blotting and for wash steps in microarray techniques. The buffer can be used in various applications within molecular biology such as immunocyto-chemistry and cell culture procedures. It is suitable as wash buffer for some cell cultures and for resuspending cells for FACS (fluorescence-activated cell sorter) techniques, in order to attain good cell sorting.

Preparation

One tablet dissolved in deionized water and adjusted up to 200 ml yields 0.15 M NaCl, 0.001 M EDTA, 0.010 M Sodium phosphate buffer, pH 7.4. at 25°C.

Storage and stability

Tablets stable for 3 years at room temperature.

Ordering information

Article no.	Product name	Pack size	Solution vol.
09-8952-100	SSPE Buffer, pH 7.4	100 tablets	200 ml/tablet

Associated products

Product name	Page no.
PBS	8
PBS-without potassium	9
PBS-Tween™	10

Borate Buffered Saline (BBS), pH 8.2



Features

- Formulated from analytical grade chemicals
- Exactly pre-weighed tablets
- Ready to use in minutes
- Guaranteed reproducibility
- Bactericidal

Applications

- Protein-coating on microtiter plates or plastic tubes
- Together with casein or BSA as blocking solution in blots
- General laboratory routines

Description

Borate buffered saline (BBS) is commonly used in coating procedures for ELISA and as a component in blocking solutions for Western blotting. The buffer can be used as a sample diluent in biological studies and for various applications within biology and biochemistry to maintain the pH.

Preparation

Dissolve one tablet under stirring in 500 ml deionized water. This yields a solution containing 0.15 M Sodium chloride and 0.01 M Borate buffer, pH 8.2, at 25°C.

Storage and stability

Tablets stable for 4 years at room temperature.

Ordering information

Article no.	Product name	Pack size	Solution vol.
09-2053-100	BBS pH 8.2	100 tablets	500 ml/tablet

Associated products

Product name	Page no.
PBS	8
TBS	13
Carbonate Bicarbonate	27

Tris Buffered Saline (TBS), pH 8.0 and pH 7.6



Features

- Isotonic, non-toxic buffer
- Choice of pH
- Tablets or pouches
- 1x and 10x concentrations
- Guaranteed reproducibility

Applications

- Immuno-histochemical staining
- *In situ* hybridization
- Dilution agent in Western blotting
- General wash buffer in immunoassays

Description

TBS is isotonic and non-toxic to cells and is suitable for molecular biology. The buffer is commonly used as substance diluent or as wash buffer in immunoassays such as ELISA. It is used in immuno-histochemical staining when the background is high and for diluting alkaline phosphatase or peroxidase-conjugated antibodies in Western blotting.

Preparation

Dissolve one tablet or the content of one pouch in the specified quantity of deionized water. This yields a solution containing either:

- 1) 1x solution pH 8.0 at 25°C: 0.05 M Tris buffered saline, 0.138 M Sodium chloride, 0.0027 M Potassium chloride.
- 2) 10x solution pH 8.0 (1x) at 25°C: 0.5 M Tris buffered saline, 1.38 M Sodium chloride, 0.027 M Potassium chloride.
- 3) 1x solution pH 7.6 at 25°C: 0.05 M Tris-HCl buffer, 0.15 M Sodium chloride.

Storage and stability

Tablets and pouches stable for 3 years at room temperature

Ordering information			
Article no.	Product name	Pack size	Solution vol.
12-9133-10	TBS pH 8.0	10 pouches	1000 ml/pouch
12-9134-10	TBS 10x pH 8.0	10 pouches	1000 ml/pouch
09-7500-100	TBS pH 7.6	100 tablets	500 ml/tablet
09-7500-10	TBS pH 7.6	10 tablets*	500 ml/tablet

*Blister pack

Associated products

Product name	Page no.
TBS-Tween™	14

Tris Buffered Saline with Tween™ 20 (TBS-T), pH 7.6



Features

- Formulated from analytical grade chemicals
- TBS buffer containing non-ionic detergent
- Pre-weighed tablets
- Ready to use in minutes

Applications

- General wash buffer in immunoassays
- Western blotting

Description

TBS Tween™ 20 is one of the most commonly used biological buffers for plate based immunoassays and Western blotting. It is isotonic, non-toxic to cells and contains a non-ionic detergent. It is used preferably as an antibody diluent and wash reagent in ELISA and Western blotting using alkaline phosphatase or peroxidase-conjugated antibodies.

Preparation

Dissolving 1 tablet under stirring in 500 ml deionized water yields a solution containing 0.15 M Sodium chloride, 0.05% Tween™ 20 and 0.05 M Tris-HCl buffer, pH 7.6, at 25°C.

Storage and stability

Tablets stable for 2 years at room temperature. To inhibit microbial growth, store TBS-T solutions at 4°C. Discard solutions that are turbid. Filter through a sterile 0.22 µm filter into sterile bottles. Do not shake the bottle excessively (foaming degrades Tween™ 20).

Ordering information

Article no.	Product name	Pack size	Solution vol.
09-7510-100	TBS-T pH 7.6	100 tablets	500 ml/tablet
09-7510-10	TBS-T pH 7.6	10 tablets*	500 ml/tablet

*Blister pack

Associated products

Product name	Page no.
TBS	13

NEW

HEPES Buffered Saline (HBS) pH 7.4



Features

- Dissolve-and-go for greater convenience
- Exactly pre-weighed tablets in bottles or blister packs
- Guaranteed reproducibility
- Formulated from analytical grade chemicals

Applications

- Cell culture
- Enzymology
- Chromatography
- General Biochemistry

Description

HEPES is a routinely used buffer in cell culture, enzymology, chromatography and in general biochemistry.

Preparation

Dissolve one tablet in the specified quantity of deionized water. This yields a solution containing 0.01 M HEPES pH 7.4 and 0.15 M Sodium chloride.

Storage and stability

Tablets stable for 3 years at room temperature.

Ordering information

Article no.	Product name	Pack size	Solution vol.
09-8500-100	HBS pH 7.4	100 tablets	500 ml
09-8500-12	HBS pH 7.4	12 tablets*	500 ml

*Blister pack

Associated products

Product name	Page no.
PBS	8

Tris Buffer (Tris-HCl), pH 7.4, pH 8.0 and pH 8.3



Features

- Formulated from analytical grade chemicals
- Choice of pH
- Exactly pre-weighed in pouches
- Dissolve-and-go for greater convenience

Applications

- General buffer used extensively in biochemistry and molecular biology laboratories.

Description

Tris buffer is used in many applications within biochemistry and molecular biology laboratories and is a component in TAE and TBE (electrophoresis running buffer). Tris has a slightly alkaline buffering capacity between pH 7.0 and 9.2, which coincides with the typical physiological pH of most living organisms. Tris buffer is a good option for washing procedures in cell culture and is suitable as suspension buffer for biological samples.

Preparation

Dissolve the contents of one pouch under stirring in deionized water. Adjusting the volume up to 1000 ml yields 1 M Tris-HCl buffer, pH 7.4, 8.0 or 8.3, at 25°C.

Storage and stability

Pouches stable for 3 years at room temperature. Tris-HCl solutions can be stored at room temperature or 4°C for 2 weeks.

The pH value of a Tris buffer strongly depends on the temperature. The pKa of 8.06 changes approximately 0.03 units per degree Celsius.

Ordering information

Article no.	Product name	Pack size	Solution vol.
12-9198-10	Tris buffer pH 7.4	10 pouches	1000 ml/pouch
12-9199-10	Tris buffer pH 8.0	10 pouches	1000 ml/pouch
12-9200-10	Tris buffer pH 8.3	10 pouches	1000 ml/pouch
12-9198-1	Tris buffer pH 7.4	1 pouch	1000 ml/pouch
12-9199-1	Tris buffer pH 8.0	1 pouch	1000 ml/pouch
12-9200-1	Tris buffer pH 8.3	1 pouch	1000 ml/pouch

Associated products

Product name	Page no.
NaPi	26

EDTA Buffer, pH 8.0



Features

- Chelating agent
- Exactly pre-set pH
- Exactly pre-weighed in pouches
- High lot-to-lot consistency
- Ready to use in minutes

Applications

- Added to stored blood as an anti-coagulant
- Inhibits metal-dependent enzymatic reactions
- Inhibits metalloproteases
- Used in electrophoresis buffers TAE and TBE

Description

EDTA (ethylene-diamine-tetraacetic acid) is a chelating agent widely used in molecular biology to sequester divalent and trivalent metal ions such as calcium and magnesium. It can, for example, be added to stored blood as an anti-coagulant to bind Ca^{2+} ions.

Preparation

Dissolving the contents of one pouch under stirring in the specified volume of deionized water yields 0.5 M EDTA buffer, pH 8.0, at 25°C.

Storage and stability

Pouches stable for 3 years at room temperature.

Ordering information

Article no.	Product name	Pack size	Solution vol.
12-9161-5	EDTA buffer pH 8.0	5 Pouches	500 ml/pouch
12-9160-5	EDTA buffer pH 8.0	5 Pouches	1000 ml/pouch



Medicago's new product packaging.

Tris-EDTA Buffer (TE) 10x, pH 7.4



Features

- Pre-set pH
- 10x exactly pre-weighed in pouches
- Dissolve-and-go for greater convenience

Applications

- Breaking protein cross-links in immuno-histochemistry procedures
- Diluting and storing DNA or RNA samples

Description

Tris-EDTA is used to dilute and store nucleic acid samples. Tris-EDTA-based solutions break protein cross-links and can therefore unmask antigens and epitopes in formalin-fixed and paraffin-embedded tissue sections. Treatment with TE Buffer enhances the staining intensity of antibodies in the immuno-histochemical detection of certain proteins.

Preparation

Dissolve the contents of one pouch under stirring in deionized water and adjust up to 1000 ml. This yields 0.1 M Tris-HCl, 0.01 M EDTA buffer, pH 7.4, at 25°C.

Storage and stability

Pouches stable for 3 years at room temperature. The 10x TE buffer stock solution can be stored at room temperature or 4°C for 2 months.

Dilute the 10x TE stock solution to 1x as needed and use within a week.

For molecular biology work, filter the solution through a sterile 0.22 µm filter into sterile bottles.

Ordering information

Article no.	Product name	Pack size	Solution vol.
12-9154-10	Tris-EDTA buffer 10x pH 7.4	10 Pouches	1000 ml/pouch

Associated products

Product name	Page no.
TAE	20
TBE	19

Tris-Borate-EDTA Buffer (TBE), pH 8.3

Electrophoresis running buffer



Features

- No detectable DNase or RNase
- Ideal for standardizing electrophoresis
- Choice of 3 concentrations: 10x, 5x and 1x
- Exactly pre-weighed in pouches
- Ready to use in minutes

Applications

- Nucleic acid electrophoresis running buffer
- Buffer of choice when running short DNA fragments (below 1500 bp)

Description

In molecular biology, TBE and TAE buffers (see page 20) are often used in procedures involving nucleic acids, the most common being agarose and polyacrylamide gel electrophoresis. Tris-acid solutions are effective buffers for the slightly basic conditions that keep DNA deprotonated and soluble in water. EDTA is a chelating agent for divalent cations, particularly magnesium (Mg^{2+}). As these ions are necessary co-factors for many enzymes, including contaminant nucleases, one task of EDTA is to protect the nucleic acids against enzymatic degradation by nucleases. However, since Mg^{2+} is also a co-factor for many DNA-modifying enzymes such as restriction enzymes and DNA polymerases, its concentration in TBE or TAE buffers is generally kept low.

Borate is a strong inhibitor for many enzymes, which makes its presence in TBE buffer very popular: the DNA sample run in a TBE buffer can better keep its integrity, which suits the purpose of many agarose gel electrophoreses runs, i.e. to analyze the size of DNA fragments.

TBE buffer is often used for agarose and polyacrylamide gel electrophoresis when analysing DNA fragments from PCR amplification, DNA isolation protocols, or DNA cloning experiments. It is particularly useful for separating smaller DNA fragments (less than 1500 bp on a 0.8% agarose gel), e.g. small products of restriction enzyme digests. TBE has a greater buffering capacity and will give sharper resolution than TAE. DNA fragments also move faster in TBE than in TAE buffer. However, TBE gels in general afford a poor recovery of nucleic acids compared with TAE gels. TBE also inhibits DNA ligase, which may cause problems if subsequent DNA purification and ligation steps are intended.

TBE buffer is supplied in 3 concentrations. Pre-weighed powders give 10x and 5x stock solutions or a 1x working solution.

Preparation

Dissolve the contents of one pouch under stirring in deionized water and adjust up to 1000 ml. This yields a solution containing:

- 1) 1x solution pH 8.3 at 25°C: 0.089 M Tris-borate, 0.002 M EDTA
- 2) 5x solution pH 8.3 (1x) at 25°C: 0.445 M Tris-borate, 0.01 M EDTA
- 3) 10x solution pH 8.3 (1x) at 25°C: 0.89 M Tris-borate, 0.02 M EDTA

Storage and stability

Pouches stable for 3 years at room temperature. Stock solutions can be stored at room temperature or 4°C for 2 months. Dilute the 5x and 10x stock solutions to 1x as needed and use within one week.

The 1x solution (Article no. 12-9110-10) is ready to use directly after it has been dissolved.

For molecular biology work, filter the solutions through a sterile 0.22 μm filter into sterile bottles.

Ordering information

Article no.	Product name	Pack size	Solution vol.
12-9110-10	TBE buffer 1x pH 8.3	10 pouches	1000 ml/pouch
12-9111-10	TBE buffer 5x pH 8.3	10 pouches	1000 ml/pouch
12-9112-10	TBE buffer 10x pH 8.3	10 pouches	1000 ml/pouch

Associated products

Product name	Page no.
TAE	20
TE	18

Tris-Acetate-EDTA Buffer 50x (TAE), pH 8.3

Electrophoresis running buffer



Features

- For DNA and RNA work
- No detectable DNase or RNase
- Ideal for standardizing electrophoresis
- Exactly pre-weighed in pouches
- Ready to use in minutes

Applications

- Nucleic acid electrophoresis running buffer
- Used for agarose and polyacrylamide gels
- Buffer of choice when running nucleic acid fragments >1500 bp
- Native and denaturing RNA analysis
- Northern blotting buffer

Description

TAE is preferably used in electrophoresis because of its high recovery of nucleic acids from agarose gels (compared with TBE).

TAE is advantageous for high resolution of long nucleic acid fragments (longer than 1500 bp) on agarose gels. It has a lower buffering capacity than TBE and in general, nucleic acid fragments move slower in TAE gels (apart from linear dsDNA, which tends to run faster). However, gel temperature increases when running a TAE gel for a long time, so the pH might significantly decrease because of the temperature dependency of the Tris pKa.

TAE buffer also offers advantages in subsequent enzymatic applications of the DNA sample. For example, if the downstream application is a cloning experiment, the step following agarose gel electrophoresis is ligation to a cloning vector. A DNA sample from TAE buffer is suitable for this purpose, whereas DNA from TBE buffer is not, since TBE inhibits ligases.

TAE is also used for native (non-denaturing) RNA analysis and in denaturing gels (instead of MOPS buffer) using prior denaturation of the RNA samples in hot formamide.

Preparation

To prepare a 50x stock solution, dissolve the contents of one pouch under stirring in deionized water and adjust up to 500 ml or 1000 ml. This yields 2.0 M Tris-acetate buffer, 0.05 M EDTA, pH 8.3, at 25°C.

Storage and stability

Pouches stable for 3 years at room temperature. The 50x solution can be stored at room temperature or 4°C for 2 months.

Dilute the 50x TAE stock solution to 1x as needed before use.

For molecular biology work, filter solutions through a sterile 0.22 µm filter into sterile bottles.

Ordering information

Article no.	Product name	Pack size	Solution vol.
12-9145-5	TAE buffer 50x pH 8.3	5 pouches	500 ml/pouch
12-9144-5	TAE buffer 50x pH 8.3	5 pouches	1000 ml/pouch

Associated products

Product name	Page no.
TBE	19
TE	18

Tris-Glycine Buffer (TG), pH 8.3

Electrophoresis running buffer



Features

- Formulated from analytical grade chemicals
- Ideal for standardizing protein electrophoresis
- Exactly pre-weighed in pouches
- Ready to use in minutes

Applications

- Protein electrophoresis running buffer
- Polyacrylamide gel electrophoresis
- Western blotting

Description

The most common running buffer in native (non-denaturing) homogeneous and gradient polyacrylamide gel electrophoresis (PAGE). Tris-Glycine also has applications in Western blotting. Tris-Glycine gels use a stacking gel to compress the sample into a narrow band before it enters the resolving gel. This leads to much sharper bands than would be seen in gels lacking a stacking gel. Tris-Glycine gels resolve proteins by charge/size. However, very small proteins and peptides do not resolve well due to interference from the glycine/pH discontinuity front.

TG buffer is used to make a Tris-glycine/20% methanol Western transfer buffer, which is the most common protein transfer buffer for wet blot transfers. The methanol prevents the gel from swelling during transfer and enhances protein binding to nitrocellulose. Make sufficient transfer buffer to cover the electrode wires in the wet blot transfer unit and to soak the gel, membrane and blotting paper.

Protein electrophoresis under denaturing conditions (SDS-PAGE) involves separating proteins based on their size. By treating the sample under denaturing and reducing conditions with sodium dodecyl sulfate (SDS), proteins unfold and become coated with SDS detergent molecules, thereby acquiring a high net negative charge that is proportional to the length of their polypeptide chain. During electrophoresis, the negatively-charged protein molecules migrate towards the positive electrode.

Preparation

One pouch dissolved in 1000 ml or 5000 ml deionized water yields Tris-Glycine buffer with a concentration of 0.025 M Tris and 0.192 M Glycine, pH 8.3, at 25°C.

Storage and stability

Pouches stable for 3 years at room temperature.

Ordering information			
Article no.	Product name	Pack size	Solution vol.
12-9122-10	Tris-glycine buffer 1x pH 8.3	10 pouches	1000 ml/pouch
12-9123-10	Tris-glycine buffer 1x pH 8.3	10 pouches	5000 ml/pouch

Associated products

Product name	Page no.
SDS Reagent	31
TG-SDS	22

Tris-Glycine-SDS Buffer (TG-SDS), pH 8.3

Electrophoresis running buffer



Features

- Formulated from analytical grade chemicals
- Ideal for standardizing protein electrophoresis
- Exactly pre-weighed in pouches
- Ready to use in minutes

Applications

- Denaturing protein electrophoresis running buffer (SDS-PAGE)

Description

Protein electrophoresis under denaturing conditions (SDS-PAGE) involves separating proteins based on their size. By treating the sample under denaturing and reducing conditions with sodium dodecyl sulfate (SDS), proteins unfold and become coated with SDS detergent molecules, thereby acquiring a high net negative charge that is proportional to the length of their polypeptide chain. During electrophoresis, the negatively-charged protein molecules migrate towards the positive electrode and they are separated exclusively by size.

Preparation

One pouch dissolved in 1000 ml or 5000 ml deionized water yields Tris-Glycine buffer with a concentration of 0.025 M Tris and 0.192 M Glycine, 0.1% SDS, pH 8.3, at 25°C.

Storage and stability

Pouches stable for 3 years at room temperature.

Ordering information

Article no.	Product name	Pack size	Solution vol.
12-9222-10	Tris-glycine-SDS buffer 1x pH 8.3	10 Pouches	1000 ml/pouch
12-9223-10	Tris-glycine-SDS buffer 1x pH 8.3	10 Pouches	5000 ml/pouch

Associated products

Product name	Page no.
Tris-glycine buffer	21

Saline Sodium Citrate Buffer (SSC), pH 7.0



Features

- Highest purity and quality
- Two stock solutions: 2x and 20x
- Ready to use in minutes
- Pre-set pH

Applications

- Nucleic acid hybridization
- Blot transfer procedures
- Nucleic acid preparation

Description

Specifically developed for Northern and Southern transfer protocols and nucleic acid preparations. Supplied in pouches in two concentrations (2x and 20x).

Preparation

One pouch dissolved in the specified volume of deionized water yields:

- 1) 20x SSC buffer, pH 7.0 (20x), at 25°C: 3.0 M NaCl, 0.3 M Sodium citrate
- 2) 2x SSC buffer, pH 7.0 (2x), at 25°C: 0.3 M NaCl, 0.03 M Sodium citrate

Storage and stability

Pouches stable for 3 years at room temperature. Stock solutions can be stored at room temperature or 4°C for 2 months.

Dilute 20x SSC buffer stock solutions as needed before use.

Ordering information

Article no.	Product name	Pack size	Solution vol.
12-9195-5	SSC buffer 20x pH 7.0	5 pouches	1000 ml/pouch
12-9196-5	SSC buffer 2x pH 7.0	5 pouches	1000 ml/pouch

NEW

IMAC Phosphate & Elution Buffer



Features

- Exactly pre-weighed tablets in bottles and blister packs
- Mix elution buffer with phosphate buffer to achieve desired imidazole concentration
- Ultrapure, low UV280 absorbance imidazole
- Formulated from analytical grade chemicals
- Ready to use in minutes

Applications

- Purification of histidine-tagged and non-histidine-tagged recombinant and native proteins using IMAC chromatography
- The phosphate buffer may be used for other types of affinity chromatography methods

Description

Immobilized metal ion affinity chromatography (IMAC) is a widely used separation method for purifying proteins and peptides that have an affinity for metal ions, such as histidine-tagged proteins but also some untagged recombinant or native proteins. Medicago's IMAC phosphate and elution buffer tablets have been developed exclusively for use in this method.

IMAC buffer tablets are supplied in bottles and in blister packs. One tablet of phosphate buffer dissolved in deionized water yields a 300 mM Sodium chloride, 50 mM Sodium phosphate buffer with pH 8.0 at 22°C. One tablet of elution buffer yields a 300 mM Sodium chloride, 300 mM Imidazole, 50 mM Sodium phosphate buffer with pH 8.0 at 22°C.

Preparation

Prepare the phosphate and the elution buffers separately. Dissolve one tablet in the specified quantity of deionized water. Mix the phosphate buffer and elution buffer to achieve desired imidazole concentration, follow the dilution series included in the product sheet.

Storage and stability

IMAC phosphate buffer tablets are stable for 5 years at room temperature. IMAC elution buffer tablets are stable for 3 years at room temperature.

Ordering information

Article no.	Product	Pack size	Solution vol.
09-1010-10	IMAC phosphate buffer	10 tablets*	400 ml/tablet
09-1010-50	IMAC phosphate buffer	50 tablets	400 ml/tablet
09-1012-10	IMAC elution buffer	10 tablets*	100 ml/tablet
09-1012-50	IMAC elution buffer	50 tablets	100 ml/tablet

*Blister pack

Dilution series for IMAC Phosphate and Elution buffers

Final Conc. Imidazole (mM)	IMAC Elution Buffer (ml)	IMAC Phosphate Buffer (ml)	Final Conc. Imidazole (mM)	IMAC Elution Buffer (ml)	IMAC Phosphate Buffer (ml)
0	0	60	70	14	46
5	1	59	80	16	44
10	2	58	90	18	42
15	3	57	100	20	40
20	4	56	125	25	35
25	5	55	150	30	30
30	6	54	175	35	25
35	7	53	200	40	20
40	8	52	225	45	15
45	9	51	250	50	10
50	10	50	275	55	5
60	12	48	300	60	0

Dilution table for IMAC phosphate and IMAC elution buffers. Follow the protocol and mix the two buffers to obtain desired final concentration of Imidazole.

Sodium Acetate Buffer, pH 7.0



Features

- Exactly pre-weighed in pouches
- Highest purity and quality
- Ready to use in minutes

Applications

- Nucleic acid purification
- Molecular biology procedures

Description

Widely used in molecular biology laboratories for nucleic acid purification.

Preparation

One pouch dissolved in deionized water and adjusted up to 1000 ml yields a 3 M Sodium acetate buffer solution, pH 7.0 at 25°C.

Storage and stability

Pouches stable for 3 years at room temperature.

Ordering information

Article no.	Product name	Pack size	Solution vol.
12-9188-5	Sodium Acetate Buffer pH 7.0	5 pouches	1000 ml/pouch

Buffered Sodium Citrate 3.2%, 0.109 M



Features

- Highest purity and quality
- Exactly pre-weighed in pouches
- Ready to use in minutes

Applications

- General anti-coagulant agent
- Clinical laboratory examinations
- In venous blood collection tubes
- Preservation of blood in blood banks

Description

Used in clinical laboratories and blood banks as an effective anti-coagulant, usually in a ratio of 1:9 sodium citrate/blood. The citrate ion chelates calcium ions in the blood by forming calcium citrate complexes and disrupting the blood clotting mechanism.

Preparation

One pouch dissolved in deionized water and adjusted up to the specified volume yields 3.2%, 0.109 M Buffered sodium citrate.

Storage and stability

Pouches stable for 3 years at room temperature. Solutions can be stored at room temperature or 4°C for 2 months.

To extend the shelf-life, filter the solution through a sterile 0.22 µm filter into sterile bottles.

Ordering information

Article no.	Product name	Pack size	Solution vol.
12-8480-10	Buffered Sodium Citrate 3.2%	10 pouches	100 ml/pouch
12-8483-5	Buffered Sodium Citrate 3.2%	5 pouches	1000 ml/pouch

Sodium Phosphate Buffer (NaPi), pH 6.5, pH 7.0, pH 7.2 and pH 7.4



Features

- Highest purity and quality
- Wide choice of pH
- Choice of three molar concentrations
- Exactly pre-weighed in pouches
- Ready to use in minutes

Applications

- Multi-purpose buffer for many laboratory procedures

Description

Supplied in seven different formulations to suit most biochemical and molecular biology applications.

Preparation

One pouch dissolved in deionized water and adjusted up to the specified volume yields:

- 1) NaPi buffer 0.1 M or 1 M, pH 6.5, at 25°C.
- 2) NaPi buffer 0.1 M or 0.02 M, pH 7.0, at 25°C.
- 3) NaPi buffer 1 M, pH 7.2, at 25°C.
- 4) NaPi buffer 0.1 M or 1 M, pH 7.4, at 25°C.

Storage and stability

Pouches stable for 3 years at room temperature.

Ordering information

Article no.	Product name	Pack size	Solution vol.
12-9527-10	Sodium Phosphate Buffer 0.02 M pH 7.0	10 pouches	1000 ml/pouch
12-9528-10	Sodium Phosphate Buffer 0.02 M pH 7.0	10 pouches	5000 ml/pouch
12-9529-10	Sodium Phosphate Buffer 0.1 M pH 6.5	10 pouches	1000 ml/pouch
12-9530-10	Sodium Phosphate Buffer 0.1 M pH 7.0	10 pouches	1000 ml/pouch
12-9531-10	Sodium Phosphate Buffer 0.1 M pH 7.4	10 pouches	1000 ml/pouch
12-9184-10	Sodium Phosphate Buffer 1 M pH 6.5	10 pouches	1000 ml/pouch
12-9185-10	Sodium Phosphate Buffer 1 M pH 7.2	10 pouches	1000 ml/pouch

Associated products

Product name	Page no.
PBS	8
Tris-HCl	16

Carbonate-bicarbonate Coating Buffer, pH 9.6



Features

- Supplied with and without sodium azide as preservative
- Pre-set pH
- Exactly pre-weighed tablets
- Highest purity and quality
- Ready to use in minutes

Applications

- Protein coating on microtiter plates and plastic tubes for RIA and EIA
- Coupling buffer when immobilizing proteins on chromatography media such as agarose

Description

Specifically developed for protein-coating procedures on microtiter plates and plastic for RIA and EIA techniques. The buffer is supplied in tablets with two formulations, one of which contains 0.05% sodium azide as preservative.

Preparation

One tablet dissolved in deionized water and adjusted up to the specified volume yields 0.05 M sodium carbonate-bicarbonate buffer, pH 9.6, at 25°C.

Storage and stability

Pouches stable for 3 years at room temperature.

Ordering information			
Article no.	Product name	Pack size	Solution vol.
09-8932-50	Carbonate-bicarbonate Buffer, pH 9.6 with 0.05% Azide	50 tablets	100 ml/tablet
09-8932-8	Carbonate-bicarbonate Buffer, pH 9.6 with 0.05% Azide	8 tablets*	100 ml/tablet
09-8922-100	Carbonate-bicarbonate Buffer, pH 9.6	100 tablets	100 ml/tablet
09-8922-24	Carbonate-bicarbonate Buffer, pH 9.6	24 tablets*	100 ml/tablet
09-8922-8	Carbonate-bicarbonate Buffer, pH 9.6	8 tablets*	100 ml/tablet

*Blister pack

Associated products

Product name	Page no.
PBS-Tween™	10
BBS	12

Glycine-HCl buffer, pH 3.0



Features

- Highest purity and quality
- Exactly pre-weighed in pouches
- Ready to use in minutes

Applications

- Widely used in biochemistry

Description

Glycine-HCl is used as an elution buffer in Protein A chromatography and other types of affinity chromatography. Medicago's glycine is more than 99% pure.

Preparation

One pouch dissolved in deionized water and adjusted up to 1000 ml yields 0.1 M Glycine-HCl, pH 3.0, at 25°C.

Storage and stability

Pouches stable for 3 years at room temperature.

Ordering information

Article no.	Product name	Pack size	Solution vol.
12-9121-10	Glycine-HCl powder	10 pouches	1000 ml/pouch

Washing solution for DELFIA™, pH 7.8



Features

- Pre-formulated
- Exactly pre-weighed in pouches
- Ready to use in minutes

Applications

- Washing solution for DELFIA immunoassays

Description

Specifically developed for immunoassay procedures.

Preparation

One pouch dissolved in deionized water and adjusted up to 10 litres yields 0.9% NaCl, 0.005% Sodium azide, 0.05% Tween™ 20, 0.050 M Tris-HCl, pH 7.8, at 25°C.

Storage and stability

Pouches stable for 3 years at room temperature.

Ordering information

Article no.	Product name	Pack size	Solution vol.
12-9197-1	Washing solution for DELFIA™	1 pouch	10 l/pouch

NEW

0.1 mol NaCl tablets



Features

- Easy way to adjust NaCl concentration
- Highest purity and quality
- Exactly pre-weighed tablets
- Ready to use in minutes

Applications

- Biochemistry
- Molecular biology
- Chromatography

Description

0.1 mol NaCl tablets have been developed for use in many different applications. The tablets work perfectly in combination with Medicago's Smart Buffers to adjust the sodium chloride concentration. To reach the desired sodium chloride concentration, simply add one tablet per 100 mM needed in one litre.

Example 1

- Preparation of 1 litre of 50mM tris, 200mM Sodium chloride pH 8
- Dissolve one pouch of tris buffer (art no. 12-9199-10) in 750 ml deionized water, make up to 1000 ml.
- Transfer 50 ml to a new bottle, add two tablets of 0.1 mol NaCl (art no. 09-0100-100), dissolve and make up to 1000 ml.
- Finished!

Example 2

- Preparation of 2 litre of 50mM Phosphate, 150mM Sodium chloride pH 7.4
- Dissolve the contents of one pouch of Sodium phosphate buffer (art no.12-9531) and three tablets of 0.1 mol NaCl (art no. 09-0100-100) in a bottle, and make up to 2000 ml.
- Finished!

Preparation

Dissolve one tablet per 100 mM needed in one litre.

Storage and stability

Tablets are stable for 3 years at room temperature.

Ordering information

Article no.	Product	Pack size
09-0100-100	0.1 mol NaCl tablets	100 tablets

Associated products

Product name	Page no.
Tris-HCl	16
Na-Pi	26

Sodium Chloride Reagent (NaCl)



Features

- Made from the highest quality pharmaceutical grade NaCl (99.99%)
- Supplied in tablets or pouches
- Choice of 3 concentrations
- Ready to use in minutes

Applications

- General laboratory solution. Physiological saline (0.9%) solution routinely used in laboratories when an isotonic solution is needed

Description

Sodium Chloride is usually used in laboratory routines. The product is supplied in convenient exactly pre-weighed tablets and as powder in pouches.

Preparation

One tablet or the contents of one pouch dissolved in deionized water and adjusted up to the specified volume yields:

- 1) 0.9% (w/v) Sodium chloride (physiological isotonic solution)
- 2) 3 M Sodium chloride (hypertonic)
- 3) 5 M Sodium chloride (hypertonic)

Storage and stability

Tablets and pouches stable for 3 years at room temperature.

Ordering information

Article no.	Product name	Pack size	Solution vol.
09-9103-100	Sodium chloride, 0.9%	100 tablets	100 ml/tablet
09-9105-100	Sodium chloride, 0.9%	100 tablets	200 ml/tablet
09-9104-100	Sodium chloride, 0.9%	100 tablets	1000 ml/tablet
09-9104-10	Sodium chloride, 0.9%	10 tablets*	1000 ml/tablet
12-9190-5	Sodium chloride, 3 M	5 pouches	1000 ml/pouch
12-9191-5	Sodium chloride, 5 M	5 pouches	1000 ml/pouch

*Blister pack

Sodium Hydroxide Reagent (NaOH)



Features

- Highest purity and quality
- Exactly pre-weighed pellets in pouches
- Ready to use in minutes

Applications

- Biochemistry and molecular biology laboratories

Description

Sodium Hydroxide is used in general chemical applications. It is often utilized to raise the pH value of chemical solutions. Medicago's NaOH is more than 99% pure.

Preparation

One pouch dissolved in deionized water and adjusted up to 1000 ml yields 5 M Sodium hydroxide.

Storage and stability

Pouches stable for 3 years at room temperature.

Ordering information

Article no.	Product name	Pack size	Solution vol.
12-9183-5	Sodium hydroxide, 5 M	5 pouches	1000 ml/pouch

Sodium Dodecyl Sulphate Reagent (SDS)



Features

- Highest purity and quality
- Anionic detergent
- Exactly pre-weighed tablets and pouches
- Ready to use in minutes

Applications

- Solubilizes and denatures proteins
- SDS-PAGE electrophoresis
- Western blots

Description

Anionic detergent that denatures secondary and non-disulfide-linked tertiary protein structures. Applies a negative charge to each protein in proportion to its mass. SDS binds in a ratio of approximately 1.4 g SDS per 1.0 g protein, unfolding it to give a near-uniform negative charge along the length of the polypeptide chain. As a result, the distance of migration through the gel in SDS-PAGE electrophoresis can be assumed to be directly related only to the size of the protein.

More than 99% pure. One tablet weighs 0.5 g and can be dissolved in deionized water to the desired volume.

Preparation

One pouch dissolved in deionized water and adjusted up to 1000 ml yields a 10% or 20% solution of Sodium dodecyl sulphate.

Storage and stability

Tablets and pouches stable for 3 years at room temperature.

Ordering information			
Article no.	Product name	Pack size	Weight/Solution vol.
09-2026-1000	SDS	1000 tablets	0.5 g/tablet
09-2026-50	SDS	50 tablets	0.5 g/tablet
12-9193-5	SDS 10%	5 pouches	1000 ml/pouch
12-9194-5	SDS 20%	5 pouches	1000 ml/pouch

Potassium Chloride Reagent (KCl)



Features

- Made from the highest quality analytical grade KCl ($\geq 99.5\%$)
- Exactly pre-weighed in pouches
- Ready to use in minutes

Applications

- Multi-purpose routine laboratory reagent
- Storage buffer for pH electrodes
- Reference solution for conductivity

Description

Potassium chloride, KCl, is generally used in laboratory routines. Its use as a storage buffer for pH electrodes and as a reference solution for conductivity measurements is well established. Supplied as convenient exactly pre-weighed powder in pouches in two formulations: 1 M and 3 M.

Preparation

One pouch dissolved in deionized water and adjusted up to 1000 ml yields 1 M or 3 M Potassium chloride reagent.

Storage and stability

Pouches stable for 3 years at room temperature.

Ordering information			
Article no.	Product name	Pack size	Solution vol.
12-9175-10	Potassium chloride, 1 M	10 pouches	1000 ml/pouch
12-9176-5	Potassium chloride, 3 M	5 pouches	1000 ml/pouch

p -Nitrophenyl Phosphate Substrate (pNPP)



Features

- Formulated from chemicals of analytical quality
- Exactly pre-weighed tablets
- Ready to use in minutes

Applications

- Immunoassays
- Chromogenic substrate for phosphatase assays
- Histochemistry procedures
- Recommended for ELISA procedures

Description

Specifically developed for immunoassay procedures. Ideal for phosphate-based ELISA methods. Also used as a chromogenic non-specific substrate in alkaline and acid phosphatase assays. Its soluble end-product is yellow and can be spectrophotometrically read at 405 to 410 nm. The reaction may be stopped with 3 M NaOH.

The substrate is more than 99% pure. Supplied in convenient exactly pre-weighed tablets containing 5 mg or 20 mg of substrate.

Preparation

Drop a magnetic stir bar in a standard laboratory bottle or beaker and put it on the magnetic stirrer. Dissolve one tablet in the appropriate amount of desired buffer to reach the desired result according to the assay you are using. Within a few minutes, the substrate is ready to use. Store solution in dark storage conditions at +2-+8°C.

Storage and stability

Tablets stable for 3 years below -18°C.

Ordering information

Article no.	Product name	Pack size
09-2001-100	p -Nitrophenyl phosphate, 5 mg	100 tablets
09-2001-24	p -Nitrophenyl phosphate, 5 mg	24 tablets*
09-2020-100	p -Nitrophenyl phosphate, 20 mg	100 tablets
09-2020-24	p -Nitrophenyl phosphate, 20 mg	24 tablets*

*Blister Pack

Magnesium Sulphate Reagent



Features

- Highest purity and quality
- Exactly pre-weighed in pouches
- Ready to use in minutes

Applications

- Molecular biology laboratories
- Agricultural micro-nutrient
- Process industry catalyst

Description

Magnesium sulphate powder is widely utilized in biology. It can be used as a micro-nutrient and in the bioprocess industry. The product is more than 99.5% pure.

Preparation

One pouch dissolved in deionized water and adjusted up to 1000 ml yields 1.0 M Magnesium sulphate.

Storage and stability

Pouches stable for 3 years at room temperature.

Ordering information

Article no.	Product name	Pack size	Solution vol.
12-9182-5	Magnesium sulphate, 1 M	5 pouches	1000 ml/pouch

Urea Reagent, 5 M and 8 M



Features

- Highest purity and quality
- Exactly pre-weighed in pouches
- Choice of two concentrations
- Ready to use in minutes

Applications

- Denaturing proteins
- Protein refolding
- 2D-PAGE
- Sequencing methods

Description

Urea (carbamide) is an organic compound with the chemical formula $(\text{NH}_2)_2\text{CO}$ extensively used in proteomics and molecular biology. The urea supplied by Medicago is more than 99% pure.

Preparation

One pouch dissolved in deionized water and adjusted up to 100 ml yields 5 M Urea (30% w/v) or 8 M Urea.

Storage and stability

Pouches stable for 3 years at room temperature.

Ordering Information

Article no.	Product name	Pack size	Solution vol.
12-8481-5	Urea, 5 M	5 pouches	100 ml/pouch
12-8484-5	Urea, 8 M	5 pouches	100 ml/pouch

D(+) Glucose Reagent 20%



Features

- Highest purity and quality
- Exactly pre-weighed in pouches
- Ready to use in minutes

Applications

- Sugar solution routinely used in laboratories
- Use in growth media

Description

D-glucose, also referred to as dextrose monohydrate, is a very important carbohydrate in biology and as an energy source for cultivation of microorganisms. It is biologically active.

Preparation

One pouch dissolved in deionized water and adjusted up to 1000 ml yields 20% D(+) Glucose.

Storage and stability

Pouches stable for 3 years at room temperature.

Ordering information

Article no.	Product name	Pack size	Solution vol.
12-9165-5	D(+) Glucose 20%	5 pouches	1000 ml/pouch

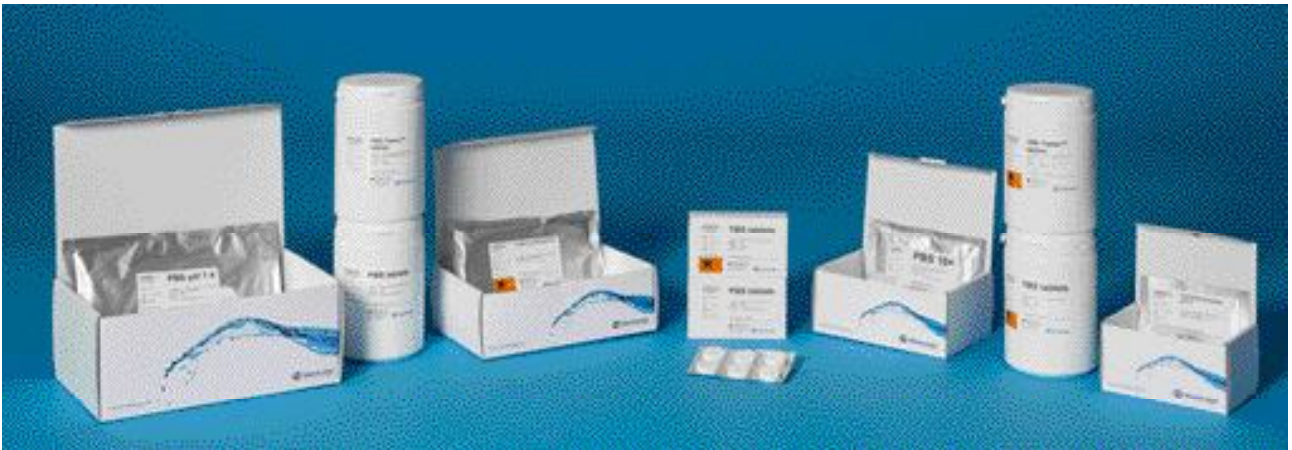
Reagents for Biotechnology



Medicago offers a selected range of reagents and biochemicals that are extensively tested and are of very high quality, suitable for use in numerous biotechnology applications. These reagents meet stringent requirements, such as adherence to compendial references where applicable and extremely low levels of trace element contamination.

Ordering information

Article no.	Product Name	Purity	CAS no.	Pack size
16-0027-100	Agarose for DNA electrophoresis (low EEO)	n.a.	9012-36-6	100 g
16-0027-500	Agarose for DNA electrophoresis (low EEO)	n.a.	9012-36-6	500 g
16-0005-500	Boric acid	≥ 99.8%	10043-35-3	500 g
16-0026-100	Bovine Serum Albumin	≥ 98%	9048-46-8	100 g
16-0026-500	Bovine Serum Albumin	≥ 98%	9048-46-8	500 g
16-0006-1000	Citric acid monohydrate	≥ 99.5%	5949-29-1	1 kg
16-0007-500	EDTA disodium	≥ 99.4%	6381-92-6	500 g
16-0024-500	Glycerol (Glycerin)	≥ 99.5%	56-81-5	500 ml
16-0008-1000	Glycine	≥ 99%	56-40-6	1 kg
16-0009-500	Lactose	≥ 99%	64044-51-5	500 g
16-0010-1000	Potassium chloride	≥ 99.5%	7447-40-7	1 kg
16-0011-1000	Potassium dihydrogen phosphate	≥ 99%	7778-77-0	1 kg
16-0012-1000	Dipotassium hydrogen phosphate	≥ 99%	7758-11-4	1 kg
16-0013-1000	Sodium chloride	≥ 99.99%	7647-14-5	1 kg
16-0014-1000	Tri sodium citrate	≥ 99.5%	68-04-2	1 kg
16-0015-500	Sodium carbonate	≥ 99.5%	497-19-8	500 g
16-0018-1000	Sodium hydrogen carbonate	≥ 99.7%	144-55-8	1 kg
16-0016-1000	Sodium dihydrogen phosphate	≥ 99%	7558-80-7	1 kg
16-0017-1000	Disodium hydrogen phosphate	≥ 99%	7558-79-4	1 kg
16-0019-1000	Sodium hydroxide	≥ 99%	1310-73-2	1 kg
16-0020-1000	Sucrose (saccharose)	≥ 99.5%	57-50-1	1 kg
16-0021-500	Tris	≥ 99.9%	77-86-1	500 g
16-0022-500	Tris-HCl	≥ 99.5%	1185-53-1	500 g
16-0023-1000	Tween™ 20	n.a.	9005-64-5	1000 ml
16-0023-250	Tween™ 20	n.a.	9005-64-5	250 ml
16-0025-500	Urea	≥ 99.5%	57-13-6	500 g



Lectins and Bioactive Proteins

Medicago is a primary manufacturer of a wide variety of exceptionally pure lectins purified by affinity chromatography. Lectins are non-enzymatic proteins of non-immunoglobulin origin that bind specifically and reversibly to carbohydrate moieties without altering the covalent structure of the glycosyl ligands.

The term 'lectin' is derived from the latin word legere, meaning 'to select'. The specificity of a lectin is usually defined by the monosaccharides or oligosaccharides that are best at inhibiting the agglutination or precipitation caused by the lectin. Lectins are usually of plant origin but do occur in many types of organism; some are glycoproteins and may be soluble or membrane-bound.

The biological function of lectins is far from fully explored. Their specificity enables binding to glycoproteins and polysaccharides as well as agglutination of erythrocytes and stimulation of blood lymphocytes. Because of their ability to distinguish glycosyl ligands on human red blood cells, lectins can be used for blood typing.

Immobilized lectins can be used in affinity chromatography to purify and isolate glycoproteins, glycolipids, polysaccharides, viruses and cells. Carbohydrate-containing substances bound to the lectin may be eluted with a competitive binding substance.

Medicago offers lectins as a freeze-dried powder on a mg to kg scale or as a solution manufactured under aseptic conditions. If you don't find the lectin you are looking for, we can certainly produce it for you. Furthermore, we offer different custom lectin conjugates on request.

Medicago's bioactive proteins include the calcium-binding protein Calmodulin and other custom-made proteins.

LECTINS SELECTION TABLE

Article no.	Lectin	Mol. Wt. (kDa)	Subunits	Sugar specificity	Agglutination specificity	Mitogenic activity
05-0134	<i>Aleuria aurantia</i>	36	2	fucose	—	
05-0116	<i>Arachis hypogaea</i>	110	4	β -gal(1- \rightarrow 3)galNAc	T	
05-0133	<i>Artocarpus integrifolia</i>	66	4	α -gal- \rightarrow OMe	T	x
05-0106	Concanavalin A	104	4	α -man, α -glc	—	x
05-0105	<i>Crotalaria juncea</i>	124	4	Gal > GalNAc	—	x
05-0120	<i>Galanthus nivalis</i>	52	4	non-reduc. D-man	(b)	
05-0117	<i>Glycine max</i>	120	4	galNAc	—	x (c)
05-0104	<i>Lens culinaris</i>	46	2	α -man > α -glc	—	x
05-0119	<i>Narcissus pseudonarcissus</i>	26	2	α -D-man	(b)	x
05-0131	<i>Phaseolus vulgaris</i> PHA-E	128	4	oligosaccharide	—	x
05-0132	<i>Phaseolus vulgaris</i> PHA-L	126	4	oligosaccharide	—	x
05-1118	<i>Phaseolus vulgaris</i> PHA-M	128	2	oligosaccharide	—	x
05-0115	<i>Phaseolus vulgaris</i> PHA-P	128	4	oligosaccharide	—	
05-0111	<i>Pisum sativum</i>	49	4(α & β) (a)	α -man > α -glc	—	x
05-0036	<i>Trichosanthes japonica</i> TJA-I	70	2	lactose	—	
05-0033	<i>Trichosanthes japonica</i> TJA-II	62	2	lactose	—	
05-0102	<i>Triticum vulgare</i>	36	2	(glcNAc) ₂ , NeuNAc	—	x
05-0114	<i>Vicia ervilia</i>	53	$\alpha_2\beta_2$	α -Man > α -Glc	—	

Abbreviations

a – Lectin has subunits of different molecular weight

b – Lectin agglutinates rabbit, but not human, erythrocytes

c – Lectin is mitogenic for lymphocytes treated with neuramidase



NEW

Aleuria aurantia lectin (AAL)



Features

- Ultrapure quality
- Sugar specificity: fucose and terminal fucose residues on complex oligosaccharides and glycoconjugates
- Binding affinity for fucose in all binding positions (α 1-2, α 1-3, α 1-4 and α 1-6)
- Higher affinity towards fucosylated oligosaccharides than native AaL
- Not blood group specific

Applications

- Studies of glycoproteins and glycolipids
- Purification of membrane proteins
- Affinity chromatography
- Agglutination studies

Description

Recombinant *Aleuria aurantia* lectin (rAAL) is produced in *E.coli* and has an amino acid sequence identical to native *Aleuria aurantia* lectin. AAL is a dimeric lectin with two identical subunits of approximately 36 kDa. Each subunit has five carbohydrate-binding sites (1). The lectin recognizes and binds specifically to fucose and terminal fucose residues on complex oligosaccharides and glycoconjugates. rAAL has binding affinity for fucose in all binding positions (α 1-2, α 1-3, α 1-4 and α 1-6) and in contrast to AAL purified from natural sources, rAAL is not contaminated with free fucose yielding higher affinity towards fucosylated oligosaccharides than native AAL (2).

Recombinant AAL hemagglutinates erythrocytes irrespective of blood type (A, B and 0) at the same titers as AAL isolated from natural sources.

AAL has been widely used for analysis and preparation of oligosaccharides and glycoproteins (3). Diagnostic applications include analysis of disease-associated glycosylation on plasma proteins (4). Furthermore, rAAL can be immobilized and used for affinity chromatography (5).

Storage and stability

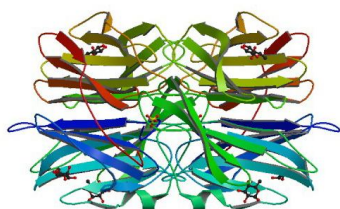
Stable for at least 3 years from production date when stored below -20°C . May be shipped at ambient temperature. After reconstitution in PBS pH 7.4, the solution may be stored frozen in working aliquots for up to 12 months. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Ordering information

Article no.	Product name	Pack size
05-0134-1000	<i>Aleuria aurantia</i> lectin (AAL)	1 g
05-0134-100	<i>Aleuria aurantia</i> lectin (AAL)	100 mg
05-0134-2	<i>Aleuria aurantia</i> lectin (AAL)	2 mg

References

- (1) Wimmerova M, Mitchell E, Sanchez JF, Gautier C, Imberty A. Crystal structure of fungal lectin: six-bladed beta-propeller fold and novel fucose recognition mode for *Aleuria aurantia* lectin. *J Biol Chem*. 2003; 278:27059–67.
- (2) Olausson J, Tibell L, Jonsson BH, Pålsson P. Detection of a high affinity binding site in recombinant *Aleuria aurantia* lectin. *Glycoconj J*. 2008; 25:753–62.
- (3) Yazawa S, Kochibe N, Asao T. A simple procedure for isolation of tumor-associated antigens by affinity chromatography using fucose-specific *Aleuria aurantia* lectin. *Immunol Invest*. 1990; 19:319–27.
- (4) Hashimoto S, Asao T, Takahashi J, Yagihashi Y, Nishimura T, Saniabadi AR, Poland DC, van Dijk W, Kuwano H, Kochibe N, Yazawa S. alpha1-acid glycoprotein fucosylation as a marker of carcinoma progression and prognosis. *Cancer*. 2004; 101:2825–36.
- (5) Bergström M, Åström E, Pålsson P, Ohlson S. Elucidating the selectivity of recombinant forms of *Aleuria aurantia* lectin using weak affinity chromatography. *J Chromatogr B Analyt Technol Biomed Life Sci*. 2011 [Epub ahead of print]
- (6) Fujihashi M, Peapus DH, Kamiya N, Nagata Y, Miki K. Crystal structure of fucose-specific lectin from *Aleuria aurantia* binding ligands at three of its five sugar recognition sites. *Biochemistry*. 2003 Sep 30;42(38):11093–9.



Crystalline structure of *Aleuria aurantia* lectin (6)

Arachis hypogaea lectin (PNA, Peanut Agglutinin)



Features

- Strong anti-T activity (1)
- Sugar specificity: β -D-Gal-(1-3)-D-GalNAc (1)
- Agglutinates rabbit erythrocytes at $<0.1 \mu\text{g/ml}$ after trypsin treatment of the cells
- High activity

Applications

- Probe in histochemistry and immuno-histochemistry
- Binds to a broad range of receptors in human tissues
- Human lymphocyte subset studies

Description

Arachis hypogaea lectin (PNA, Peanut Agglutinin) is isolated from peanuts by affinity chromatography. The lectin has 4 sub-units and a molecular weight of 110 kDa. PNA is a carbohydrate-free protein that displays specificity towards β -D-Gal(1-3)-D-galNAc (1). It has potent anti-T activity and can be used to distinguish between human lymphocyte subsets. PNA has been used in tumour tissue determination for transitional mucosa malignancies.

Arachis hypogaea lectin is supplied without preservatives as a lyophilized white to light-yellow powder from 10 mM NH_4HCO_3 . For laboratory use only.

Storage and stability

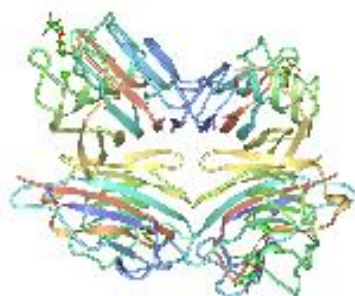
Stable for at least 3 years from production date when stored below -20°C . May be shipped at ambient temperature. After re-constitution in PBS pH 7.4, the solution may be stored frozen in working aliquots for up to 12 months. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Ordering information

Article no.	Product name	Pack size
05-0116-1000	<i>Arachis hypogaea</i> lectin (PNA)	1 g
05-0116-50	<i>Arachis hypogaea</i> lectin (PNA)	50 mg
05-0116-10	<i>Arachis hypogaea</i> lectin (PNA)	10 mg

References

- (1) Liener I. E., Sharon N., Goldstein I. J., (1986) The Lectins – Properties, Functions and Applications in Biology and Medicine.
- (2) Conformation, protein-carbohydrate interactions and a novel subunit association in the refined structure of peanut lectin-lactose complex. Banerjee, R., Das, K., Ravishankar, R., Suguna, K., Surolia, A., Vijayan, M. (1996) J.Mol.Biol. 259: 281–96.



Crystal structure of peanut lectin (2)

Artocarpus integrifolia lectin (Jacalin)



Features

- Galactose-binding lectin (1)
- Highly specific for the tumour-associated T-antigenic disaccharide (2)
- Agglutinates human erythrocytes at a concentration of $\geq 7.8 \mu\text{g/ml}$
- High activity

Applications

- Isolation of IgA from human serum
- Isolation of human plasma glycoproteins
- AIDS research

Description

Jacalin, isolated by affinity chromatography from jackfruit seeds, belongs to the family of galactose-binding lectins. Jacalin is a tetrameric two-chain lectin with a molecular weight of 66 kDa (2). Applications include isolating IgA from human serum, isolating human plasma glycoproteins and histochemistry.

A post-translational proteolytic modification of Jacalin gives the lectin a novel carbohydrate-binding site involving the N terminus of the α -chain. The relative affinities of the lectin for galactose derivatives, as well as the structural basis of its T-antigen specificity, are explained by its protein structure (2).

Artocarpus integrifolia lectin is supplied without preservatives as a lyophilized white to light-yellow powder, essentially salt-free.

For laboratory use only.

Storage and stability

Stable for at least 5 years from production date when stored below -20°C . May be shipped at ambient temperature. After reconstitution in PBS pH 7.4, the solution may be stored frozen in working aliquots for up to 12 months. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Ordering information

Article no.	Product name	Pack size
05-0133-1000	<i>Artocarpus integrifolia</i> lectin	1 g
05-0133-100	<i>Artocarpus integrifolia</i> lectin	100 mg
05-0133-10	<i>Artocarpus integrifolia</i> lectin	10 mg

References

- (1) Liener I. E., Sharon N., Goldstein I. J., (1986) The Lectins – Properties, Functions and Applications in Biology and Medicine.
- (2) Sankaranarayanan R., Sekar K., Banerjee R., Sharma V., Surolia A., Vijayan M, (1996) A novel mode of carbohydrate recognition in jacalin, a Moraceae plant lectin with a b-prism fold. Nature Structural Biology 3, 596–603.
- (3) Structural basis for the unusual carbohydrate-binding specificity of jacalin towards galactose and mannose. Bourne, Y., Astoul, C.H., Zamboni, V., Peumans, W.J., Menu-Bouaouiche, L., Van Damme, E.J., Barre, A., Rouge, P. (2002) Biochem.J. 364: 173–180.



Crystal structure of Jacalin (3)

Concanavalin A (Con A)



Features

- Sugar specificity: α -Man, α -Glc (1)
- Mitogen acting principally on T-lymphocytes (2)
- Reacts with a number of bacterial and animal cells
- High activity

Applications

- Hormone receptor studies
- Lymphocyte mitogenic studies
- Characterization of certain normal and malignant cells

Description

Concanavalin A is a lectin isolated from Jack beans (*Canavalia ensiformis*) by affinity chromatography. It has 4 subunits and a molecular weight of 104 kDa. Con A is the most widely used lectin and has broad applicability. It reacts with non-reducing α -D-glucose and α -D-mannose.

Con A binds specifically to certain structures found in various sugars, glycoproteins and glycolipids. It has been utilized in hormone receptor studies, mitogenic assays and for characterizing normal and malignant cells (cancer cells are readily aggregated by Con A while normal cells are not). Con A can initiate cell division (mitogenesis).

Immobilized Con A has been used in affinity chromatography purifications of a wide variety of glycoproteins and cellular structures.

Concanavalin A lectin is supplied without preservatives as a lyophilized white powder or flocculate from 0.5 mM MnCl_2 , 0.5 mM CaCl_2 .

For laboratory use only.

Storage and stability

Stable for at least 5 years from production date when stored below -20°C . May be shipped at ambient temperature. After re-constitution in PBS pH 7.4, the solution may be stored frozen in working aliquots for up to 12 months. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Ordering information

Article no.	Product name	Pack size
05-0106-10000m	Concanavalin A	100 g
05-0106-10000	Concanavalin A	10 g
05-0106-1000	Concanavalin A	1 g
05-0106-250	Concanavalin A	250 mg
05-0106-100	Concanavalin A	100 mg

References

- (1) Liener I. E., Sharon N., Goldstein I. J., (1986) The Lectins – Properties, Functions and Applications in Biology and Medicine.
- (2) Krauss S., Buttgerit F., (1999) Effects of the mitogen concanavalin A on pathways of thymocyte energy metabolism. *BrandBiochim Biophys Acta* 1412: 129–38.
- (3) The Determination of Protonation States in Proteins. Ahmed, H.U., Blakeley, M.P., Cianci, M., Cruickshank, D.W.J., Hubbard, J.A., Helliwell, J.R. (2007) *Acta Crystallogr., Sect. D* 63: 906.



Crystal structure of Ni, Ca Concanavalin A (3)

Crotalaria juncea lectin



Features

- Non-specific blood group activity (1)
- Sugar specificity: Gal > GalNAc (1)
- Phytohaemagglutinin
- High activity

Applications

- Studies of virus surface glycoproteins
- Purifying bovine diarrhea virus when immobilized on an agarose gel/matrix.

Description

Crotalaria juncea lectin is isolated from Sunn Hemp seeds by affinity chromatography. It has a molecular weight of 124 kDa and is composed of four identical polypeptide chains of 31 kDa each. The lectin is a glycoprotein that displays specificity toward β -galactosides and interacts with serum glycoproteins, cytochrome b5 and virus surface glycoproteins such as BVDV, influenza and bovine diarrhea (1).

Crotalaria juncea lectin is supplied without additives as a white to yellowish-white lyophilized powder.

For laboratory use only.

Storage and stability

Stable for at least 3 years from production date when stored below -20°C . May be shipped at ambient temperature. After reconstitution in PBS pH 7.4, the solution may be stored frozen in working aliquots for up to 12 months. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Ordering information

Article no.	Product name	Pack size
05-0105-1000	<i>Crotalaria juncea</i> lectin	1 g
05-0105-50	<i>Crotalaria juncea</i> lectin	50 mg
05-0105-10	<i>Crotalaria juncea</i> lectin	10 mg

References

- (1) Liener I. E., Sharon N., Goldstein I. J., (1986) The Lectins – Properties, Functions and Applications in Biology and Medicine.

Galanthus nivalis lectin (GNA)



Features

- Contains little or no carbohydrate
- Binds serum IgM and α 2-macroglobulin
- Sugar specificity: structures containing (α -1,3) mannose residues

Applications

- Model systems to help understand the molecular basis of how proteins recognize carbohydrates
- HIV research (1)

Description

Galanthus nivalis lectin is isolated from snowdrop bulbs and has a molecular weight of 52 kDa. The lectin contains little or no carbohydrate and does not need Ca^{2+} or Mn^{2+} for binding, since unlike most mannose-specific lectins it is not a metalloprotein. Structures containing (α -1,3) mannose residues are preferred for binding. Unlike the majority of mannose-binding lectins, GNA does not bind alpha-linked glucose.

Galanthus nivalis lectin is supplied without preservatives as a lyophilized powder.

Larger quantities are available on request.

For laboratory use only.

Storage and stability

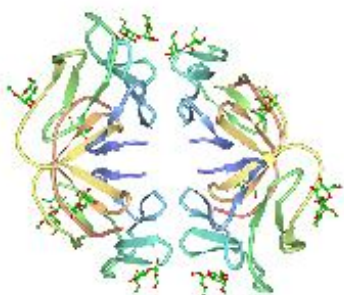
Stable for at least 5 years from production date when stored at -20°C . May be shipped at ambient temperature. After reconstitution in PBS pH 7.4, the solution may be stored frozen in working aliquots for up to 12 months. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Ordering information

Article no.	Product name	Pack size
05-0120-1000	<i>Galanthus nivalis</i> lectin	1 g
05-0120-5	<i>Galanthus nivalis</i> lectin	5 mg

References

- (1) Gilljam, G. AIDS Reserach and Human Retroviruses. May 1993; 9(5): 431–8.
- (2) The mannose-specific bulb lectin from *Galanthus nivalis* (snowdrop) binds mono- and dimannosides at distinct sites. Structure analysis of refined complexes at 2.3 Å and 3.0 Å resolution. Hester, G., Wright, C.S. (1996) J.Mol.Biol. 262: 516–31.



Crystal structure of *Galanthus nivalis* lectin in complex with mannose-alpha 1,3-methyl-d-mannose (2)

Glycine max lectin (SBA)



Features

- Binding specificity for N-acetyl-D-galactosamine (1)
- Specificity for blood group: A1 > A2 >> B (1)
- High activity

Applications

- Studies of SBA-binding normal and tumour cells
- Blood group agglutination
- Glycoprotein studies

Description

Glycine max lectin is isolated from soy bean (Soy bean agglutinin, SBA) by affinity chromatography. The protein has 4 subunits and a molecular weight of 120 kDa. SBA is not blood group specific. It displays carbohydrate binding specificity for N-acetyl-D-galactosamine and galactopyranosyl residues of glycoproteins (1).

The lectin interacts better with neuramidase-treated cells than with untreated cells. It possesses selective affinity for lymphocytes and human CD34⁺ hematopoietic stem cells. Immobilized conjugates of SBA are therefore important tools for removing T-cells in bone marrow transplantation.

Glycine max lectin is supplied without preservatives as a white to cream-coloured lyophilized powder from 50 mM NH₄HCO₃, 10 μM CaCl₂.

For laboratory use only.

Storage and stability

Stable for at least 3 years from production date when stored below -20°C. May be shipped at ambient temperature. After reconstitution in PBS pH 7.4, the solution may be stored frozen in working aliquots for up to 12 months. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Ordering information

Article no.	Product name	Pack size
05-0117-1000	<i>Glycine max</i> lectin	1 g
05-0117-50	<i>Glycine max</i> lectin	50 mg
05-0117-10	<i>Glycine max</i> lectin	10 mg

References

- (1) Liener I. E., Sharon N., Goldstein I. J., (1986) *The Lectins – Properties, Functions and Applications in Biology and Medicine*.
- (2) X-ray crystallographic studies of unique cross-linked lattices between four isomeric biantennary oligosaccharides and soybean agglutinin. Olsen, L.R., Dessen, A., Gupta, D., Sabesan, S., Sacchettini, J.C., Brewer, C.F. (1997) *Biochemistry* 36: 15073–80.



Crystal structure of *glycine max* lectin (2)

Lens culinaris lectin (LCA/LcH)



Features

- Sugar specificity: α -D-mannose and α -D-glucose (1)
- Hemagglutinating activity
- High activity

Applications

- Hemagglutination
- Cell agglutination studies

Description

Lens culinaris lectin is isolated from lentil seeds by affinity chromatography. It has 2 subunits and a molecular weight of 46 kDa (1). The lectin gives two major bands in isoelectrofocusing corresponding to the isomers LCA-A and LCA-B.

Lens culinaris is not blood group specific. Its carbohydrate specificity is D-mannose and D-glucose. Adding Mn^{2+} and Ca^{2+} to the reconstitution buffer will enhance hemagglutination activity (1).

LCA contains a hemagglutinin A and B mixture that agglutinates human red blood cells but that is not group-specific. *Lens culinaris* agglutinates a 2% suspension of human erythrocytes at a lectin concentration of $\leq 16 \mu\text{g/ml}$ in 0.9% NaCl after 2 h at 25°C. Adding 60 mM methylmannoside gives an inhibition with a titer that is at least 16-fold lower than the control.

Lens culinaris lectin is supplied as a white lyophilized powder from a buffer containing 1 mM $CaCl_2$, 1 mM $MnCl_2$ and 1 mM $MgCl_2$. No preservatives are added.

For laboratory use only.

Storage and stability

Stable for at least 3 years from production date when stored below -20°C. May be shipped at ambient temperature. After reconstitution in PBS pH 7.4, the solution may be stored frozen in working aliquots for up to 12 months. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Ordering information

Article no.	Product name	Pack size
05-0104-10000	<i>Lens culinaris</i> lectin	10 g
05-0104-1000	<i>Lens culinaris</i> lectin	1 g
05-0104-100	<i>Lens culinaris</i> lectin	100 mg
05-0104-10	<i>Lens culinaris</i> lectin	10 mg

References

- (1) Liener I. E., Sharon N., Goldstein I. J., (1986) The Lectins – Properties, Functions and Applications in Biology and Medicine.
- (2) NMR, molecular modeling, and crystallographic studies of lentil lectin-sucrose interaction. Casset, F., Hamelryck, T., Loris, R., Brisson, J.R., Tellier, C., Dao-Thi, M.H., Wyns, L., Poortmans, F., Perez, S., Imberty, A. (1995) J.Biol.Chem. 270: 25619–28.



Crystal structure of *Lens culinaris* lectin complexed with sucrose (2)

Narcissus pseudonarcissus lectin (NPA/NPL)



Features

- Sugar specificity: α -D-mannose
- Mitogenic activity (1)
- Non-reactive with human erythrocytes (2)

Applications

- Mitogenic studies of human lymphocytes

Description

Narcissus pseudonarcissus lectin (NPL) is isolated from daffodils. It exists as a dimeric protein (molecular weight 26 kDa) composed of two subunits of 13 kDa each. NPL dissociates into its monomers below pH 5.0 and above pH 9.0.

NPL is mitogenic for human lymphocytes (1). Specificity for blood group: non-reactive with human erythrocytes (2).

Narcissus pseudonarcissus lectin is supplied as a white lyophilized powder in 10 mM $\text{CH}_3\text{COONH}_4$.

For laboratory use only.

Storage and stability

Stable for at least 5 years from production date when stored below -20°C . May be shipped at ambient temperature. After reconstitution in PBS pH 7.4, the solution may be stored frozen in working aliquots for up to 12 months. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Ordering information

Article no.	Product name	Pack size
05-0119-1000	<i>Narcissus pseudonarcissus</i> lectin	1 g
05-0119-50	<i>Narcissus pseudonarcissus</i> lectin	50 mg
05-0119-10	<i>Narcissus pseudonarcissus</i> lectin	10 mg

References

- (1) Summers C., Forrest J., Norval M., Sharp J. M. (2002) The potentially insecticidal *Narcissus pseudonarcissus* lectin demonstrates age-related mitogenicity. *FEMS immunology and medical microbiology* vol 33 Issue 1, 47–9.
- (2) Van Damme J. M., Allen A. K., Peumans W. J. (2007). Related mannose-specific lectins from different species of the family Amaryllidaceae. *Physiologia Plantarum* Vol 53, Issue 1, 52–7.
- (3) Structure of *Narcissus pseudonarcissus* lectin complex with Mannobiose at 1.7 Å resolution, form II Rizkallah, P.J., Ozbey, S., Sauerborn, M.K. To be Published.



Structure of *Narcissus pseudonarcissus* lectin complex with Mannobiose (3)

Phaseolus vulgaris lectin E (PHA-E)



Features

- Sugar specificity: complex oligosaccharides (1)
- High erythroagglutinin activity (1)
- High activity

Applications

- Erythrocyte agglutination studies
- Model systems to help understand the molecular basis of how proteins recognize carbohydrates

Description

Phaseolus vulgaris lectin E is a tetrameric protein with a molecular weight of 128 kDa. It is isolated from red kidney beans by affinity chromatography and ion-exchange chromatography. The lectin recognizes terminal galactose residues of complex glycans on mammalian glycoproteins (2). Because it has high erythrocyte agglutinating activity, it is also known as Erythroagglutinin (PHA-E). PHA-E is not blood group specific (1). Less than 5 µg/ml will agglutinate human erythrocytes type O.

Phaseolus vulgaris lectin is supplied as a white to light-pink lyophilized powder from 50 mM NH₄HCO₃.

For laboratory use only.

Storage and Stability

Stable for at least 3 years from production date when stored below -20°C. May be shipped at ambient temperature. After reconstitution in PBS pH 7.4, the solution may be stored frozen in working aliquots for up to 12 months. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Ordering information

Article no.	Product name	Pack size
05-0131-1000	<i>Phaseolus vulgaris</i> lectin E	1 g
05-0131-5	<i>Phaseolus vulgaris</i> lectin E	5 mg

References

- (1) Liener I. E., Sharon N., Goldstein I. J., (1986) The Lectins – Properties, Functions and Applications in Biology and Medicine.
- (2) Chrispeels M. J., Raikhel N. V. (1991). Lectins, Lectin Genes, and Their Role in Plant Defense. The Plant Cell Vol.3, 1–9.

Phaseolus vulgaris lectin L (PHA-L)



Features

- Sugar specificity: complex oligosaccharides (1)
- High mitogenic and leucoagglutinating activity (1)
- Very low erythroagglutinating activity

Applications

- Leucocyte agglutination studies
- Mammalian glycoprotein studies
- Model system to help understand the molecular basis of how proteins recognize carbohydrates

Description

Phaseolus vulgaris lectin L is composed of four units each of molecular weight of 31 kDa. The protein has a molecular weight of 126 kDa. It is isolated from red kidney beans by affinity chromatography (1).

Also known as Leucoagglutinin (PHA-L), this lectin has high mitogenic and leucoagglutinating activity, but low erythroagglutinating activity (1). The lectin recognizes terminal galactose residues of complex glycans on mammalian glycoproteins such as thyroglobulin (2). PHA-L does not agglutinate human erythrocytes at concentrations of 250 µg/ml or less, and is non-specific for blood groups.

Phaseolus vulgaris lectin is supplied as a white lyophilized powder from 10 mM NH_4HCO_3 .

For laboratory use only.

Storage and stability

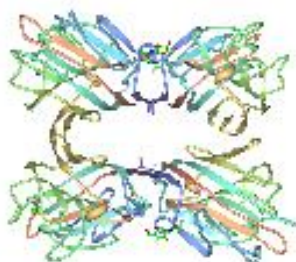
Stable for at least 3 years from production date when stored below -20°C . May be shipped at ambient temperature. After reconstitution in PBS pH 7.4, the product may be stored frozen in working aliquots for up to 12 months. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Ordering information

Article no.	Product name	Pack size
05-0132-1000	<i>Phaseolus vulgaris</i> lectin L	1 g
05-0132-10	<i>Phaseolus vulgaris</i> lectin L	10 mg
05-0132-2	<i>Phaseolus vulgaris</i> lectin L	2 mg

References

- (1) Liener I. E., Sharon N., Goldstein I. J., (1986) The Lectins – Properties, Functions and Applications in Biology and Medicine.
- (2) Chrispeels M. J., Raikhel N. V. (1991). Lectins, Lectin Genes, and Their Role in Plant Defense. The Plant Cell Vol.3, 1–9.
- (3) Weak protein-protein interactions in lectins: the crystal structure of a vegetative lectin from the legume *Dolichos biflorus*. Buts, L., Dao-Thi, M.H., Loris, R., Wyns, L., Etzler, M., Hamelryck, T. (2001) J.Mol.Biol. 309: 193–201.



Crystal structure of PHA-L (3)

NEW

Phaseolus vulgaris lectin M (PHA-M)



Features

- Two grades of purity; PHA-M pure and PHA-M crude
- Potent mitogen
- High erythroagglutinating activity

Applications

- Stimulation of cell proliferation in lymphocyte cultures
- Erythroagglutination

Description

PHA-M is the mucoprotein variant of phytohemagglutinin isolated from red kidney bean. It contains up to 20% carbohydrates in conjugation with the protein which presents two bands corresponding to about 35 kDa according to SDS-PAGE in presence of mercaptoethanol. It is a potent mitogen used to stimulate cell proliferation in lymphocyte cultures and also has a powerful erythroagglutinating activity.

Storage and stability

Stable for at least 3 years from production date when stored below -20°C. May be shipped at ambient temperature. After reconstitution in PBS pH 7.4, the solution may be stored frozen in working aliquots for up to 12 months. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Ordering information

Article no.	Product	Pack size
05-1118-1000	<i>Phaseolus vulgaris</i> lectin M pure	1 g
05-1118-25	<i>Phaseolus vulgaris</i> lectin M pure	25 mg
05-0118-1000	<i>Phaseolus vulgaris</i> lectin M crude	1 g
05-0118-25	<i>Phaseolus vulgaris</i> lectin M crude	25 mg

References

(1) Liener I. E., Sharon N., Goldstein I. J., (1986) The Lectins – Properties, Functions and Applications in Biology and Medicine.

Phaseolus vulgaris lectin P (PHA-P)



Features

- Mixture of L and E subunits: L₁E₃, L₂E₂, L₃E₁, E₄ (PHA-E) (1)
- Sugar specificity: complex oligosaccharides (1)
- High activity

Applications

- Lateral flow erythrocyte separation

Description

Phaseolus vulgaris lectin P is isolated from red kidney beans by affinity chromatography. The lectin has a molecular weight of 128 kDa and the purity of the product is decided by SDS electrophoresis. PHA-P is a mixture of isolectins containing L (leucoagglutinin) and E (erythroagglutinin) subunits.

Phaseolus vulgaris lectin is supplied without preservatives as a white to light-pink lyophilized powder.

For laboratory use only.

Storage and stability

Stable for at least 5 years from production date when stored below -20°C. May be shipped at ambient temperature. After reconstitution in PBS pH 7.4, the solution may be stored frozen in working aliquots for up to 12 months. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Ordering information

Article no.	Product name	Pack size
05-0115-1000	<i>Phaseolus vulgaris</i> lectin P	1 g
05-0115-10	<i>Phaseolus vulgaris</i> lectin P	10 mg
05-0115-5	<i>Phaseolus vulgaris</i> lectin P	5 mg

References

- (1) Liener I. E., Sharon N., Goldstein I. J., (1986) The Lectins – Properties, Functions and Applications in Biology and Medicine.

Pisum sativum lectin (PSA)



Features

- Carbohydrate binding specificity: α -D-mannose and α -D-glucose (1)
- Non-specific blood group agglutinin (1)
- Mitogenic activity (2)
- High activity

Applications

- Model systems to help understand the molecular basis of how proteins recognize carbohydrates

Description

Pisum sativum agglutinin (PSA) is isolated from peas by affinity chromatography. It has 4 subunits and a molecular weight of 49 kDa. PSA has a carbohydrate binding specificity for α -D-mannose and α -D-glucose. The lectin agglutinates human erythrocytes without regard to blood type (1). PSA lectin is a mitogen similar to Concanavalin A (2).

Pisum sativum lectin is supplied without preservatives as a white to cream-coloured lyophilized powder.

For laboratory use only.

Storage and stability

Stable for at least 3 years from production date when stored below -20°C . May be shipped at ambient temperature. After reconstitution in PBS pH 7.4, the solution may be stored frozen in working aliquots for up to 12 months. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Ordering information

Article no.	Product name	Pack size
05-0111-1000	<i>Pisum sativum</i> lectin	1 g
05-0111-100	<i>Pisum sativum</i> lectin	100 mg
05-0111-10	<i>Pisum sativum</i> lectin	10 mg

References

- (1) Liener I. E., Sharon N., Goldstein I. J., (1986) The Lectins – Properties, Functions and Applications in Biology and Medicine.
- (2) Preedy V. R., Watson R. R. (2005). Reviews in food and nutrition toxicity Vol 4.
- (3) The Structure of Pea Lectin-D-Glucopyranose Complex at a 1.9 Å Resolution Pletnev, V.Z., Ruzhenikov, S.N., Tsygannik, I.N., Mikhailova Yu, I., Duax, W., Ghosh, D., Pangborn, W. (1997) RUSS.J.BIOORGANIC CHEM. 23: 469.



Crystal structure of PSA-D-glucopyranose complex (3)

NEW

Trichosanthes japonica agglutinin I and II (TJA-I and TJA-II)



Features

- Two variants
- Affinity for lactose
- Ultrapure quality

Applications

- Diagnosis of colon cancer (TJA-I)
- Anti-H agglutinin (TJA-II)

Description

TJA-I is along with its isolectin TJA-II isolated from the root tubers of Japanese gourd. They are highly purified and one purification step involves bio specific affinity chromatography to ensure highest possible binding affinity. They both have affinity for lactose but while TJA-II favours fucose α 1- \rightarrow 2 lactose TJA-I favours acidic groups coupled to N-Acetyl-D-lactosamine in 1,4 position.

Storage and stability

Stable for at least 3 years from production date when stored below -20°C . May be shipped at ambient temperature. After reconstitution in PBS pH 7.4, the solution may be stored frozen in working aliquots for up to 12 months. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Ordering information

Article no.	Product name	Pack size
05-0036-100	<i>Trichosanthes japonica</i> agglutinin I	100 mg
05-0036-25	<i>Trichosanthes japonica</i> agglutinin I	25 mg
05-0036-2	<i>Trichosanthes japonica</i> agglutinin I	2 mg
05-0033-100	<i>Trichosanthes japonica</i> agglutinin II	100 mg
05-0033-25	<i>Trichosanthes japonica</i> agglutinin II	25 mg
05-0033-2	<i>Trichosanthes japonica</i> agglutinin II	2 mg

References

(1) Liener I. E., Sharon N., Goldstein I. J., (1986) The Lectins – Properties, Functions and Applications in Biology and Medicine.

Triticum vulgaris lectin (WGA)



Features

- Sugar specificity: N-acetylglucosamine and N-acetylneuraminic acid residues
- Agglutinates erythrocytes and most types of malignant cells
- High purity
- Agglutinates rabbit erythrocytes at ≤ 0.1 $\mu\text{g/ml}$ after treating the cells with trypsin

Applications

- Studies of glycoproteins and glycolipids
- Purification of membrane proteins
- Affinity chromatography of cells and sub-cellular particles

Description

Wheat germ agglutinin (WGA) is isolated from *Triticum vulgaris* (Wheat germ) by affinity chromatography. It has two subunits and a molecular weight of 36 kDa. The WGA lectin selectively binds to N-Acetyl glucosamine (GlcNAc) and to N-acetylneuraminic acid (sialic acid) residues of glycoproteins and glycolipids (1).

The lectin agglutinates erythrocytes and most types of malignant cells more readily than the same cells from normal tissues. WGA agglutinates rabbit erythrocytes at < 0.1 $\mu\text{g/ml}$ following trypsin treatment of the cells. Adding 300 mM N-Acetyl-D-Glucosamine gives an inhibition with a titer that is at least 8-fold lower than the control.

Wheat germ agglutinin inhibits the C5a receptor interaction, which has implications in studies of receptor micro-heterogeneity and ligand binding sites (1).

WGA and Con A are the two lectins most widely used as analytical and preparative agents when studying glycoproteins and cell surface proteins. The immobilized lectins can be used for affinity chromatography of cells and sub-cellular particles.

Triticum vulgaris lectin is supplied as a white to pale-yellow lyophilized powder from 10 mM $\text{CH}_3\text{COONH}_4$. No preservatives are added.

For laboratory use only.

Storage and stability

Stable for at least 3 years from production date when stored below -20°C . May be shipped at ambient temperature. After reconstitution in PBS pH 7.4, the solution may be stored frozen in working aliquots for up to 12 months. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Ordering information

Article no.	Product name	Pack size
05-0102-10000	<i>Triticum vulgaris</i> lectin	10 g
05-0102-1000	<i>Triticum vulgaris</i> lectin	1 g
05-0102-100	<i>Triticum vulgaris</i> lectin	100 mg
05-0102-10	<i>Triticum vulgaris</i> lectin	10 mg

References

(1) Johnson R. J., Simpson S., Van Epps D. E., Chenoweth D. E. (1992) Wheat germ agglutinin inhibits the C5a receptor interaction: implications for receptor microheterogeneity and ligand binding site. *Journal of Leukocyte Biology* Vol 52, Issue 1, 3–10.

Vicia ervilia lectin (VEA)



Features

- Sugar specificity: α -Mannose > α -Glucose (1)
- Non-specific blood group agglutination (1)

Applications

- Membrane protein studies

Description

Vicia ervilia lectin is isolated from bitter vetch seeds and has a molecular weight of 53 kDa. This lectin is blood group non-specific with sugar specificity for α -mannose and, to a lesser extent, α -glucose residues. Agglutination is inhibited by mannose, glucose, fructose, methyl mannoside, maltose, melezitose and, α , α' -trehalose (1).

Vicia ervilia lectin is supplied without preservatives as a yellow lyophilized powder.

For laboratory use only.

Storage and stability

Stable for at least 3 years from production date when stored below -20°C . May be shipped at ambient temperature. After reconstitution in PBS pH 7.4, the product may be stored frozen in working aliquots for up to 12 months. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Ordering information

Article no.	Product name	Pack size
05-0114-1000	<i>Vicia ervilia</i> lectin	1 g
05-0114-50	<i>Vicia ervilia</i> lectin	50 mg
05-0114-10	<i>Vicia ervilia</i> lectin	10 mg

References

(1) Liener I. E., Sharon N., Goldstein I. J., (1986) The Lectins – Properties, Functions and Applications in Biology and Medicine.

Calmodulin



Features

- Derived from bovine testes
- Calcium-binding protein
- Intracellular receptor protein

Applications

- Protein calcium-binding studies on the regulation of a multitude of different protein targets
- Activation of cyclic nucleotide-dependent phosphodiesterase
- Co-factor/activator for kinase studies
- Studies of edema factor toxin and anthrax bacteria

Description

Calmodulin is a bioactive protein isolated from bovine testes. The material is derived from individually marked animals born and raised in Sweden, a country where BSE has not been a problem. Calmodulin is a calcium-binding protein expressed in many eukaryotic cells. By binding to and regulating various protein targets, it affects cellular processes such as metabolism, nerve growth, apoptosis, inflammation, muscle contraction and memory.

Calmodulin is used by many proteins as a calcium sensor and signal transducer, as the proteins themselves are not able to bind calcium. The molecule can bind a maximum of four calcium ions and by undergoing post-translational modifications such as acetylation, phosphorylation, proteolytic cleavage and methylation, its functions can potentially be altered.

Calmodulin is supplied as a lyophilized white powder or flocculate from 50 mM NH_4HCO_3 with 10 μM CaCl_2 . No preservatives are added.

For laboratory use only.

Storage and stability

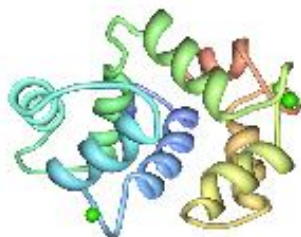
Stable for at least 5 years from production date when stored at -20°C . May be shipped at ambient temperature. After reconstitution in PBS pH 7.4, the solution may be stored frozen in working aliquots for up to 12 months. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Ordering information

Article no.	Product name	Pack size
05-0103-1000	Calmodulin	1 g
05-0103-100	Calmodulin	100 mg
05-0103-2	Calmodulin	2.5 mg
05-0103-1	Calmodulin	1 mg

References

(1) A closed compact structure of native Ca^{2+} -calmodulin. Fallon, J.L., Quiocho, F.A. (2003) Structure 11: 1303–7.



Crystal structure of bovine Ca^{2+} calmodulin (1)

Immuno Reagents

Medicago develops and manufactures a wide range of immuno reagents, including monoclonal and polyclonal antibodies, antigens from bacteria, parasites and other sources, and synthetically manufactured antigens and antigen analogues. We also offer complete kits for the *in vitro* diagnosis of parasite diseases in rabbits and rats, as well as a kit for quantification of Protein L.

Scientists at Medicago have broad experience of production and purification of antibodies for different *in vitro* applications. We provide full service from design of the antigen and immunisation protocol to immunisation, harvesting, fusion, sub-cloning and production. We have developed a special expertise in producing monoclonal antibodies against very small molecules (molecular weights down to 190 g/mol). Our antibodies are developed in mice, rats, rabbits, goats and other animals.



Immunosorb A



Features

- Pure recombinant Protein A immobilized on a cross-linked agarose matrix
- Strong binding to Fc region of IgG
- High capacity: > 20 mg IgG/ml

Applications

- Affinity chromatography
- Purification of immunoglobulins

Description

Immunosorb A is a cross-linked agarose matrix with immobilized Protein A. We use recombinant Protein A of high purity.

Protein A binds to the Fc region of immunoglobulins by interacting with the heavy chain. The protein binds to specific classes of immunoglobulins, including high affinity binding to human IgG₁ and IgG₂ as well as mouse IgG_{2a} and IgG_{2b}. In addition, Protein A also binds with moderate affinity to human IgM, IgA and IgE as well as to mouse IgG₃ and IgG₁. It does not react with human IgG₃ or IgD, nor will it react with mouse IgM, IgA or IgE.

This affinity chromatography matrix is ideal for purifying human, mouse and rabbit immunoglobulins.

Immunosorb A is supplied as a white liquid substrate containing 20% ethanol as preservative. No additional mixing or reagents are required. Warming the product to room temperature before use is not necessary.

For research use only.

Storage and stability

Immunosorb A is stable at 2-8°C for 12 months. The product does not contain any animal-derived products or additives such as albumin or serum. Toxic or harmful substances are not present.

Ordering information

Article no.	Product name	Pack size
10-1257-200	Immunosorb A	200 ml
10-1257-100	Immunosorb A	100 ml
10-1257-5	Immunosorb A	5 ml

β-galactosidase



Features

- High specific activity
- Hydrolysis of β-galactosides into monosaccharides
- Supplied as lyophilized powder

Applications

- Reporter molecule
- Cloning studies
- Blue/white screening of recombinant clones

Product description

β-galactosidase is a hydrolase enzyme that catalyzes the hydrolysis of β-galactosides into monosaccharides. The protein has four subunits and has a molecular weight of 464 kDa (each subunit is 116 kDa).

β-galactosidase is a commonly used reporter molecule and a very important marker for the lacZ gene. The enzyme can be split into two peptides; LacZα and LacZΩ. Neither is active by itself but they spontaneously reassemble into a functional enzyme. This characteristic is used in many cloning vectors to achieve α-complementation in specific laboratory strains of *E. coli* (the small LacZα peptide is encoded on the plasmid while the large LacZΩ is encoded in trans on the bacterial chromosome). When DNA fragments are inserted in the vector and production of LacZα disrupted, cells exhibit no β-galactosidase activity. This allows the blue/white screening of recombinant clones.

The specific activity is 230–375 Units/mg protein at 410 nm, pH 7.0 and 25°C (0.2 M Sodium phosphate, 2 mM Magnesium chloride, 8% methanol, 0.25% Tween 20). One unit of enzyme hydrolyses 1 micromole of *o*-nitro-phenyl-β-D-galactopyranoside (ONPG) (46 mM) per minute. The protein concentration is assayed by the biuret method with BSA as standard. The free thiol groups on the enzyme surface are characterized to be 14–18 mole/mole enzyme. These free groups are useful for derivatisation of the enzyme.

One vial contains approximately 25 mg (8 KU) lyophilizate of partly purified enzyme. Reconstitution of this lyophilizate in 4 ml of water gives a solution of approximately 1 mM Tris-HCl, pH 7.2 and 1 mM MgCl₂.

For laboratory use only.

Storage and stability

The enzyme is stable for 5 years when stored at -20°C in an unbroken package. Repeated freezing and thawing is not recommended.

Ordering information		
Article no.	Product name	Pack size
10-1101-25	β-galactosidase	25 mg (8 KU)

Carbon Suspension for CIA



Features

- Ready-to-use
- Specially developed carbon suspension for CIA

Applications

- Custom Carbon Immunoassay studies

Product description

Medicago's Carbon Suspension is especially developed for Carbon Immunoassays (CIA). The suspension contains microscopic carbon particles that attach to IgG molecules in many different mammalian sera, including human serum.

For laboratory use only.

Ordering information

Article no.	Product name	Pack size
18-6010-3	Carbon suspension for CIA	3 ml

Stop Solution for TMB Substrate



Features

- Ready-to-use
- Contains 0.5 M H₂SO₄
- Sufficient for 10 plates (96-wells)

Applications

- Stop solution for TMB substrate

Product description

Stop Solution specifically developed for the EC-Blue Enhanced Substrate (TMB) (Article no. 10-9405). Supplied in a 50 ml bottle.

For laboratory use only.

Ordering information

Article no.	Product name	Pack size
10-9500-50	Stop Solution for TMB substrate	50 ml

EC-Blue Enhanced™ Substrate (TMB)



Features

- Ready-to-use liquid substrate
- Substrate for assays using horseradish peroxidase (HRP)
- Low background
- High sensitivity
- Long stability

Applications

- Recommended for ELISA applications

Product description

EC-Blue Enhanced™ Substrate is a ready-to-use liquid substrate for HRP, specially developed for ELISA applications. EC-Blue Enhanced™ Substrate turns deep blue (620-650 nm) in the presence of a peroxidase-labelled conjugate. Colour development can be stopped by adding 0.5 M H₂SO₄ (Article no. 10-9500-50), which turns the substrate yellow (450 nm).

EC Blue Enhanced™ contains a proprietary ready-to-use chromogen substrate mixture. The solution has a straw-yellow colour at room temperature and a light greenish tint when stored at 4°C. The colour returns to normal when warmed to room temperature.

For laboratory use only.

Storage and stability

Store at 2-8°C. Do not freeze and do not expose to direct sunlight. Prolonged exposure to light is not recommended. Store in an amber bottle. As some metal ions can oxidize TMB, allow only glass or plastic items to come in contact with the substrate.

Never pipette directly from the bottle. Do not leave the cap off. EC-Blue Enhanced™ Substrate is stable for at least 18 months when stored at 4°C.

Ordering information		
Article no.	Product name	Pack size
10-9405-1000	EC-Blue Enhanced™ Substrate	1000 ml
10-9405-250	EC-Blue Enhanced™ Substrate	250 ml
10-9405-100	EC-Blue Enhanced™ Substrate	100 ml
10-9405-5000	EC-Blue Enhanced™ Substrate	5 litre
10-9405-0	EC-Blue Enhanced™ Substrate	25 litre

Associated products

Product name	Page no.
Stop Solution for TMB substrate	60
p-Nitrophenyl phosphate (pNPP) substrate tablets	32

NEW

Protein L Ligand Leakage ELISA



Features

- Ready-to-use kit with all reagents and controls necessary for the analysis
- Detection and quantification of Protein L in Immunoglobulin (Ig) or Ig-fragment containing solutions
- Convenient ELISA procedure
- Includes 12 strips (96 wells), sufficient for 48 tests

Applications

- Detection and quantification of Protein L in Immunoglobulin (Ig) or Ig-fragment containing solutions

Product description

This ELISA-kit has been designed to detect and quantify Protein L in Immunoglobulin (Ig) or Ig-fragment containing solutions. It is a sandwich ELISA with microtiter strips coated with an affinity purified anti-Protein L IgY-antibody.

In this assay, the samples are boiled to separate the Ig/Ig-fragments from the Protein L in the solution, centrifuged, and incubated in the strip wells.

The bound Protein L is then detected by adding a horseradish peroxidase (HRP)-conjugated anti-Protein L IgY antibody.

Substrate is added to induce a colour change which is proportional to the amount of bound Protein L from the sample. The colour change is quantified spectrophotometrically at 450 nm by using a plate reader.

The amount of protein L in the sample is determined by using a standard curve prepared in a reference sample. The reference sample should have the same concentration of Ig or Ig-fragments and preferably the same buffer composition as the elution samples from the Protein L affinity chromatography medium. However, it should be prepared using another purification strategy, e.g. ion exchange chromatography. Once a reference sample is created it can be aliquoted and used for several different protein L ELISA assays.

Storage and stability

The product is stable for 12 months from manufacture at 2-8°C.

Ordering information

Article no.	Product name	Pack size
10-0027-1	Protein L Ligand Leakage ELISA	1 kit

Encephalitozoon cuniculi (EC) ELISA



Features

- Complete ready-to-use kit
- Detection of antibodies against *Encephalitozoon cuniculi* in rabbit serum
- Enzyme Linked Immunosorbent Assay (ELISA) using microtiter plates coated with EC antigen

Applications

- Veterinary procedures
- Detection and verification of antibodies against EC in rabbit serum
- Screening entire populations of rabbits for encephalitozoonosis
- Verification of a putative clinical diagnosis of *E. cuniculi* infection

Product description

The kit is used to detect antibodies against *E. cuniculi*. It includes two coated 96-well microtiter plates and all reagents and controls necessary to perform the analysis. Each plate provides 48 tests.

For research use only.

Storage and stability

The product is stable for 12 months from manufacture when stored at 2-8°C.

Ordering information

Article no.	Product name	Pack size
18-9001-1	<i>E. cuniculi</i> ELISA	1 kit

Encephalitozoon cuniculi (EC) CIA



Features

- Complete ready-to-use kit
- Fast 5-minute test
- Detection of antibodies against *Encephalitozoon cuniculi* in rabbits
- Carbon Immuno Assay (CIA) procedure using EC whole-cell antigen and carbon suspension

Applications

- Veterinary procedures
- Quick and easy test to screen rabbit populations for encephalitozoonosis
- Verification of a putative clinical diagnosis of EC infection in rabbits

Product description

Encephalitozoon cuniculi is a parasite that causes encephalitozoonosis in animals and humans. Rabbits and rodents may be infected with EC, resulting in chronic disease. Infection can persist for a long time without clinical signs.

To avoid misleading experimental results, laboratory animals should be tested before use. The disease can occur sporadically and is unrelated to age and sex of the animals. Clinical signs include stunted growth and signs of central nervous damage due to granulomatous encephalitis and nephritis. Other diseases can, however, give rise to the same neurological symptoms, which can make the diagnosis difficult.

Medicago Carbon Immuno Assay is a quick and easy test to screen populations of rabbits and guinea pigs for encephalitozoonosis, or to verify a putative clinical diagnosis of *E. cuniculi* infection. Sera from other animal species may also be tested.

The kit contains reagents and controls sufficient for 100 CIA determinations.

For research use only.

Storage and stability

The product is stable for 12 months from manufacture when stored at 2-8°C.

Ordering information

Article no.	Product name	Pack size
18-2001-1	<i>E. cuniculi</i> CIA	1 kit

Encephalitozoon cuniculi whole cell antigen suspension



Features

- Whole cell suspension
- High antigenicity

Applications

- Diagnostics
- Immunology

Product description

The *Encephalitozoon cuniculi* antigen suspension contains approximately 3×10^7 spores per ml. The spores are suspended in phosphate buffered saline solution (PBS) containing 0.1% formalin.

For laboratory use only.

Storage and stability

Store at 2-8°C. Antigenicity will last for 2 years or more.

Ordering information

Article no.	Product name	Pack size
18-2002-3	<i>E. cuniculi</i> whole cell antigen suspension	3 ml

Associated products

Product name	Page no.
<i>T. gondii</i> whole cell antigen suspension	66

Antiserum against *Encephalitozoon cuniculi*



Features

- Antiserum against *E. cuniculi*
- Different animal sources available (rabbit, rat)

Applications

- Veterinary applications
- Can be used as positive control in immunoassays

Product description

The serum is produced from naturally-infected animals. 0.1% NaN_3 is added. The serum should be diluted at least 1:20 in phosphate buffered saline solution (PBS) before use in tests.

For laboratory use only.

Storage and stability

Store undiluted serum at -20°C. Avoid repeated thawing and freezing.

Ordering information

Article no.	Product name	Pack size
18-4001-1	Rabbit antiserum against <i>E. cuniculi</i>	1 ml
18-4001-100	Rabbit antiserum against <i>E. cuniculi</i>	0,1 ml
18-4002-100	Rat antiserum against <i>E. cuniculi</i>	0,1 ml

Rabbit antiserum against *Toxoplasma gondii*



Features

- Rabbit antiserum against *Toxoplasma gondii*

Applications

- Veterinary procedures
- Can be used as a positive control in ELISA

Product description

Toxoplasma gondii is a species of parasitic protozoa. The primary host of *T. gondii* is the cat, but the parasite can be carried by all known mammals. *T. gondii* is the causative agent of Toxoplasmosis, a disease that is usually minor and self-limiting but that can have serious or even fatal effects on a fetus whose mother first contracts the disease during pregnancy, or on an immuno-compromised human or cat.

For laboratory use only.

Storage and stability

Store undiluted serum at -20°C. Avoid repeated thawing and freezing.

Ordering information

Article no.	Product name	Pack size
18-5001-1	Rabbit antiserum against <i>T. gondii</i>	1 ml
18-5001-100	Rabbit antiserum against <i>T. gondii</i>	0.1 ml

Toxoplasma gondii whole cell antigen suspension



Features

- Ready-to-use suspension
- High antigenicity

Applications

- Immunology
- Diagnostics

Product description

The *Toxoplasma gondii* antigen suspension contains approximately 3×10^7 tachyzoites per ml. The tachyzoites are heat-inactivated and suspended in PBS containing 0.1% formalin.

For laboratory use only.

Storage and stability

Store at 2-8°C. Antigenicity will last for 2 years or more.

Ordering information

Article no.	Product name	Pack size
18-2003-3	<i>T. gondii</i> whole cell antigen suspension	3 ml

Associated products

Product name	Page no.
<i>E. cuniculi</i> whole cell antigen suspension	65



Contract Manufacturing, Product Development and Custom Services

We enjoy challenges

Medicago was founded in 1995 with the purpose of supplying the Pharmaceutical and Biotechnology industries with high-quality customized bio-reagents and ready-to-use kits. For the last 18 years, we have collaborated with large and small industrial partners as well as academic institutions. We have also expanded our expertise and facilities in Uppsala plus our operations throughout the world.

Today Medicago's industrial group serves the:

- Pharmaceutical industry
- Biotech industry
- Diagnostics industry
- Veterinary and Agricultural industries
- Life Science Research industry

In addition to our standard product range, we manufacture according to customer specifications and sub-contracting, contract product development, customization, bulk and OEM.

We are recognized as a flexible partner with short decision and lead times plus a proven record for the highest quality, cost-efficiency and delivery standards. Our commitment to excel in these areas ensures our industrial partners success in their increasingly complex product development and manufacturing processes.

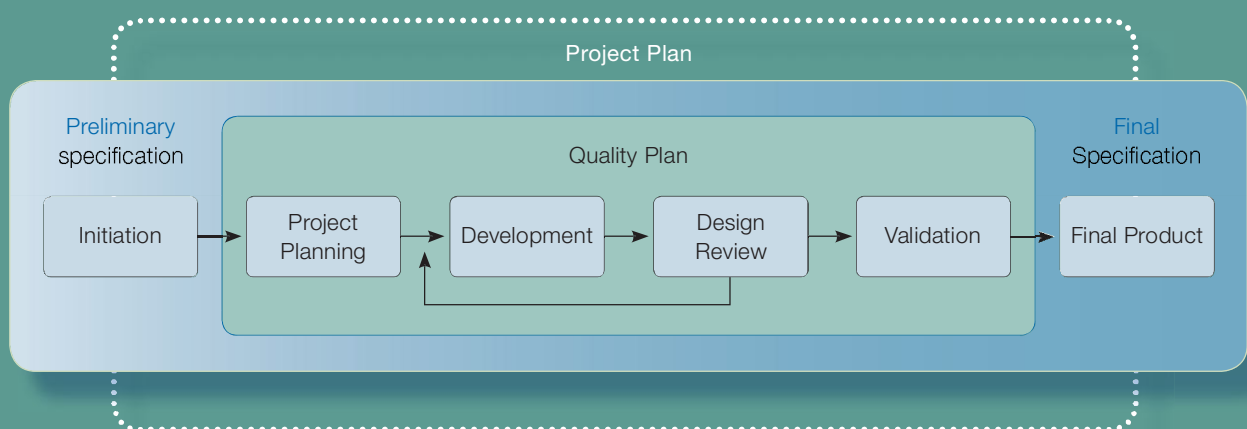
We enjoy the challenge of working with large and small companies as a sub-contractor for new or established products, or in assisting university researchers in the commercialisation of their ideas. Try us!

Turning your product ideas into reality

This concept summarises our interest in working together with partners to develop their product ideas and business concepts within our areas of expertise. After initial contact, our Development Group Project Leader will liaise with you to resolve scientific matters and planning issues, manage costs and make available all the resources that Medicago can provide to deliver your product on time and according to agreed specifications.

We have established metrics and key indicators for our projects, including continuous and uniform reporting to partners throughout project duration. We maintain current, accurate and complete documentation. At Medicago, we take pride in promoting free and open communication with our partners based upon mutual confidentiality, respect and trust.

Our competences include extensive experience of freeze-drying, fermentation, filling under aseptic conditions, and downstream processing on any scale – from laboratory to large industrial.



The six stages of Medicago's custom development projects.



 STRÖBEL
180 kg
U

ISO 9001:2008 and ISO 13485:2012 certifications

Our laboratories and manufacturing site in Uppsala are ISO 9001:2008 and ISO 13485:2012 certified. Furthermore, we strive to continuously improve the excellence of our highly skilled personnel, daily operational routines and quality assurance systems. Each stage of the manufacturing process is controlled and monitored by stringent quality control procedures to guarantee the highest possible quality and lot-to-lot reproducibility. We welcome on-site audits by our industrial partners.

ISO 9001 and ISO 13485 certification means that our organisation has better documentation and control of processes due to constant quality control. Naturally, this means less time is wasted due to inconsistencies in processes, which results in increased productivity and reduced costs. ISO 9001 focuses our organization on customer satisfaction through seeking feedback. This feedback is then analysed so that improvements can be made to our services and offering.

We are very receptive to confidentiality issues raised by our industrial partners. We aim to develop long-term relationships based on trust and respect with mutually-agreed confidentiality for each project we undertake.



Intertek



Intertek

ISO 9001:2008 and ISO 13485:2012 certification means:

- Rigorous QA/QC systems
- Documented product development
- Complete product documentation
- Product traceability
- Product validation files
- Regular inspections by ISO authorities

Excellence in bio-reagents development and manufacturing

Medicago is a developer and primary manufacturer of a wide range of bio-reagents and ready-to-use kits. We can accommodate requests from microliters to liters and from milligrams to kilograms. We can synthesise and manufacture special batches with unique specifications, blends and premixes to your requirements in any format or formulation. Private labelling, OEM and product/kit packaging arrangements are also possible.

Our facilities are supplied with cGMP-validated WFI and PW water plus Clean Steam. Clean room areas are qualified according to cGMP and ISO standards.

Medicago's product range includes:

Pre-made Smart Buffers and Reagents

As a world-leading producer of biological and chemical buffers in tablets and pre-mixed powders, Medicago is sure to comply with any request you may have. And if you don't find what you are looking for, we will develop and manufacture your buffer exactly to your specifications.

Manufacturing is done in a controlled clean environment using GMP procedures. Pre-mixed reagents are exactly weighed according to the specifications of the tablets and powders. Processes are largely automated to avoid operator intervention and contact with products. Tablets are packed in clean containers or in blister packs and powders in sealed aluminium laminate foil pouches.

- Manufacture in tablets, powder or solution
- Packaged in bottles, blister packs or pouches
- Customized to any blend or formulation
- Any volume or weight
- Provided as OEM buffers for inclusion in any of your own kits





Lectins and Bioactive Proteins

Medicago is one of the world's few primary manufacturers of extremely pure lectins. Our state-of-the-art purification equipment and extensive expertise in this area make us a unique partner for customized solutions.

- Bulk and custom lectins and conjugates
- Any scale: milligrams to kilograms
- Lyophilised or liquid solutions
- Special and reserved batches
- Private label arrangements

Saponins

Over the years, Medicago has developed expertise in manufacturing bulk and custom-made saponins. These compounds are amphipathic glycosides used commercially in dietary supplements and nutraceuticals. Saponins are also used as adjuvants in vaccine preparations.

- Bulk and custom saponins
- Pharmaceutical and Diagnostic grades
- Any scale: milligrams to kilograms
- Special and reserved batches
- Private label arrangements

Immuno Reagents

Medicago develops and manufactures monoclonal and polyclonal antibodies, as well as antigens from viruses, bacteria and parasites. During the last decade, this has represented a steadily expanding area of expertise. We have also developed special skills in producing monoclonal antibodies against very small molecules such as common explosive and narcotic substances, for example.

- Monoclonal and polyclonal antibodies
- Highly purified antigens
- Synthesis of hapten conjugates
- Manufacturing under aseptic conditions
- Development of unique hybridoma clones

Kit development, construction and assembly

Medicago possesses long and unique experience in the development, construction and assembly of diagnostic, biochemical and chemical kits according to customer specifications on a sub-contracting basis. We do as much or as little as you need in the design and manufacture of your kit.

Diagnostic Kits

In addition to developing and producing our own kits for *in vitro* diagnostic use based on ELISA and monoclonal antibody techniques, we also undertake production of diagnostic kits validated according to ISO 13485:2012 requirements.

- ELISA kits
- Rapid tests
- *In vitro* diagnostics
- Veterinary kits

Chemical and Biochemical Kits

- Reagent kits
- Calibration kits
- Spare part kits
- Sterile kits
- Maintenance kits
- Analytical kits

Expertise and Capabilities at your service

Medicago's experienced and highly-qualified staff of product development and manufacturing scientists is on hand to provide our partners with a wide range of competences and capabilities. We are committed to putting your needs first. Our Project Leader will manage the entire process to ensure the success of your project.

Our areas of expertise include:

- Process engineering
- Organic chemistry
- Analytical chemistry
- Biochemistry
- Molecular biology
- Immunology
- Parasitology
- Microbiology
- Cell biology

Our capabilities include the following operations:

Chemical synthesis

A wide range of organic preparative services fit the needs of our diverse clientele. Our experienced staff share their expertise in the synthesis of non-commercial compounds by:

- Optimising and scaling-up published procedures
- Using proprietary processes developed by our customers
- Designing new syntheses
- Synthesising oligopeptides
- Conjugation

We manufacture speciality chemicals, drug intermediates and analytical bio-reagents in quantities from milligrams to kilograms with high standards of quality, safety and reproducibility.

Freeze-drying

Medicago's contract freeze-drying capability is one of the largest in Northern Europe. Our state-of-the-art freeze dryers accommodate up to 120 kilos of material or 25,000 vials. We have the capacity to satisfy industrial customer requests



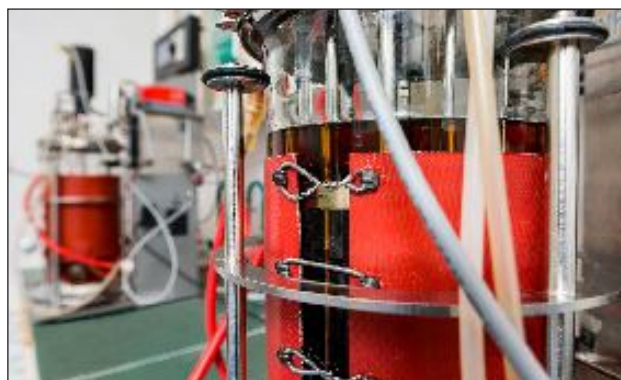
for both bulk and vial freeze-drying from pilot to production scale. Furthermore, we offer aseptic-filling freeze-drying that meets most customer needs in this area.

- Up to 120 kilograms or 25,000 vials
- Development of freeze-drying processes
- Fully cGMP compliant
- Automated cleaning and sterilization of equipment (SIP&CIP)
- Fully-automated processes
- Aseptic freeze-drying

Fermentation

We have the capability to produce bacteria and yeast under stringently controlled conditions using state-of-the-art fermentation systems. Our fermentation service provides clients with a wide range of growth conditions plus high reproducibility for their products. Vector design and recombinant protein purification services are also available.

- Fully-automated bioreactors
- Validated clean-room environment
- Process development on request
- Downstream processing and separation



Downstream Processing and Separation

Our services in this area assist clients from early research and development to pilot studies, manufacture and delivery of the final product. Medicago can engineer a process and provide cell or protein extracts, fractions or pure products specific to your requirements.

Our extensive facilities include modern, large-scale instrumentation and systems. We use integrated technologies and a wide variety of separation techniques, e.g. industrial-scale liquid chromatography, to provide protein fractions or pure proteins.

- Fully cGMP compliant
- State-of-the-art equipment
- Industrial-scale separation equipment
- Process engineering on request
- Ultrafiltration capability
- Continuous centrifuges

Aseptic Filling

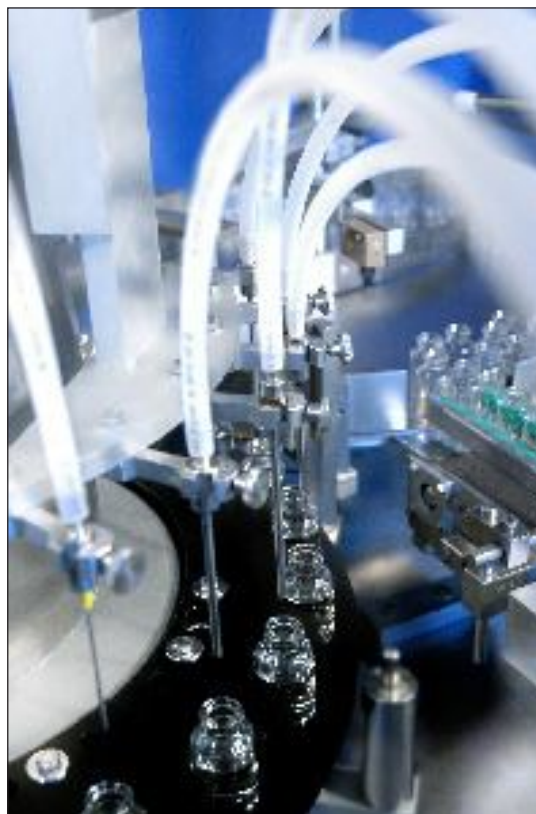
Medicago offers both liquid and powder filling under aseptic conditions from small to production scale.

- cGMP B, C and D
- Water for injection (WFI)
- Clean steam system
- Fully-automated lines
- Wide range of vial sizes



Get exactly what you want

- From laboratory to industrial scale
- Any concentration, any pack size
- Special syntheses and batches
- Special blends and formulations
- Development and purification of new bioactive proteins
- Special testing as required
- Complete product documentation
- Cost-efficient manufacturing of your products
- Customized packaging
- Assembly of custom kits
- Private label and OEM arrangements
- Scheduled delivery to fit your needs
- Temporary warehousing
- Fast-track technical and scientific support
- Mutually-agreed confidentiality



Customer and Product Support Services

Confidence and trust when you need it most

Our ISO 9001 and ISO 13485 certified facilities are highly focused on delivering service excellence based on customer experience and satisfaction in doing business with Medicago. We have lived up to this aim for the last 18 years! Quality and service are integral parts of the company's business proposition; we strive to continuously improve our services and offerings to our customers and partners.

Medicago's Customer Service is on hand during office hours to give a quick response to your questions about prices and product availability as well as order and delivery status. In addition, our website is open 24 hours a day to accept your questions online.

We can also put you in direct contact with our Technical Support scientists. They answer technical questions about our products, provide useful tips and hints, and keep you informed about new product developments.

Medicago's website is a key element in our contact with customers. Here you can find detailed and up-to-date information about our products, including technical data and downloads. You can also download our Product Catalogue and contact us online. Our website features current prices plus a convenient, easy-to-use order online service.

Product Support Literature, which includes Product Data Sheets, Material Safety Data Sheets (MSDS) and Certificates of Analysis, can be downloaded from our website or ordered from our offices.



Customer Service

Contact our customer service during regular business hours to ask about prices and product availability, to place an order, for quotations for standard and bulk packages, to check delivery status, request product literature or be put in direct contact with our Technical Support team.

Direct line: +46 18 56 11 80

Business hours: 8.00 to 17.00 (8 am to 5 pm) CET week-days only

Outside business hours, e-mail info@medicago.se

For bulk and OEM information, e-mail bulk@medicago.se

Technical Support

At Medicago we are committed to putting our expertise and technology at your service. Our team of Technical Support scientists is on hand to answer technical questions about our products and protocols, give you tips and hints about their uses and applications, help you choose the right Medicago product for your research, provide you with information about our new products, etc. They are here to support you in your research!

Direct line: +46 18 56 11 80. Ask for Technical Support

Business hours: 8.00 to 17.00 (8 am to 5 pm) CET week-days only

Outside business hours, e-mail support@medicago.se



Medicago Website

Browse our well-documented website with the latest detailed product information, technical data and downloads on each individual product. The website is continuously updated, so be sure to check www.medicago.se regularly for the latest news and product introductions. Additionally, our website features our up-to-date competitive pricing information. Our customers can take advantage of the seasonal product promotions, as well as keeping track of new product releases. Visit our events page for a list of upcoming local and international events at which Medicago or our distributors will feature our products.



Product Support Literature

Each Medicago product is supported by technical literature such as a Data Sheet, MSDS and Certificate of Analysis. These can be downloaded from the website or requested via Customer Service.



Product Ordering

Order online

Order from Medicago's online shop by visiting www.medicago.se

Order by e-mail

Place your order at order@medicago.se

Order by fax

Please send to fax number:

018 56 11 88 (Swedish customers)

+46 18 56 11 88 (International customers)

For your convenience, a fax order sheet is available at www.medicago.se under 'downloads'.

Order by phone

Please call:

018 56 11 80 (Swedish customers)

+46 18 56 11 80 (International customers)

Order by post

Medicago's postal address is:

Medicago AB
Order Centre
Danmark Berga
SE-755 98 UPPSALA
Sweden

Terms & Conditions

These terms and conditions cover all sales of products and services by Medicago AB and any information and advice given whether charged for or not. No variation in these terms and conditions will apply unless agreed by Medicago AB in writing.

1. Delivery

- Terms of delivery: EXW Uppsala according to INCOTERMS 2000.
- Medicago will charge for freight costs, insurances and for any specialised packaging.
- Custom duties, taxes and other impositions shall be borne by the Buyer.

2. Prices/charges

- Medicago has the right to change the prices shown in price lists at any time and to invoice at prices current at the date of receipt of an order.
- Price on application and all other quotations will be valid for 60 days from the date of the quotation, unless otherwise notified by Medicago AB.
- All prices in price lists and quotations are exclusive of Value Added Tax (VAT). VAT will be charged separately, if applicable.

3. Payment

Unless otherwise agreed in writing payment in full is due within 30 days from date of an invoice. Medicago has the right to charge interest on all overdue sums at the rate of 12 percent per annum.

- Payment in advance may be required from customers without an account.
- Customers who exceed their credit limits will be asked to pay in advance for additional goods until the account is settled.
- Any claims for shortages must be made within 7 days of delivery.
- Any claims for non-ordered items or non-delivery must be made within 7 days of receiving the invoice.

4. Return of damaged or unsuitable goods

- No goods may be returned without the authorisation of Medicago.
- Authorisation to return products damaged during delivery or delivered in error must be requested within 7 days of delivery. Medicago has the right to repair and return damaged products.
- Authorisation for the return of products which fail to meet current product specifications must be requested in writing within 14 days of delivery.
- Credit will be given for those products authorised for return which are unused and in re-saleable condition other than those in the categories shown below:
 - Diagnostic reagents
 - Refrigerated or frozen products
 - Items with an expired shelf life or an expiration date too short for resale
 - Discontinued items
 - Custom products or special orders

5. Intended use/field of use

- Products are sold for research and laboratory use only.
- Medicago products are NOT to be administered to humans or used for medical diagnosis.
- Please read the product label and material safety data sheet for information pertaining to any product hazards which may exist. Products are intended for use only by qualified laboratory personnel.

6. Limited Product Warranty

- Medicago warrants that its products will conform to the standards stated in its product specification sheets in effect at the time of shipment. Medicago will replace free of charge, any product that does not conform to the specifications. This warranty limits Medicago's liability only to the replacement of the product.

- THIS WARRANTY IS EXCLUSIVE AND MEDICAGO MAKES NO OTHER WARRANTY, WHETHER EXPRESSED IN THESE CONTRACTS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

- The stated warranties expressed and the remedy provided for any breach thereof, are in lieu of any other liabilities or obligations of Medicago for any damages whatsoever, arising out of or in connection either with the delivery, or with the Buyer's inability to use any of its products.
- IN NO EVENT SHALL BIOLINE BE LIABLE UNDER ANY LEGAL THEORY (INCLUDING BUT NOT LIMITED TO CONTRACT, NEGLIGENCE, STRICT LIABILITY IN TORT, OR WARRANTY OF ANY KIND, FOR ANY INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL OR EXEMPLARY DAMAGES (INCLUDING, BUT NOT LIMITED TO, LOST PROFITS).
- Without limiting the effect of the preceding sentence, Medicago's maximum liability, if any, shall not exceed the purchase price paid by the buyer for the product.

7. Claims, Disclaimers and Liability

- No claim under the Warranty (see section 6) will be met if, in the opinion of Medicago:
 - The defect is not due solely to defective materials or manufacture.
 - The goods have been misused, treated with carelessness, contaminated, involved in an accident or dealt with in a manner at variance with the company's directions.
- The Buyer acknowledges that the goods will be used for laboratory and research purposes and undertakes not to make them available for human consumption, drugs or household use, directly or indirectly. The buyer shall indemnify the company permanently against claims by any third party, arising out of the use or sale of the goods by the buyer.
- All descriptions, representations, illustrations and samples furnished or statements made orally by the company are given for general information purposes only. Any possible claim can be based only on written specifications agreed at the time of contract.
- Medicago shall not be responsible for any injury or damages resulting from the use or misuse of any of its products.
- Unless explicitly stated, no license or immunity under any patent is either granted or implied by the sale of any of Medicago products.
- Medicago does not warrant that the resale or use of its products delivered will not infringe the claims of any patents, trademarks or copyright covering use of the product itself, or its use in combination with any other products, or its use in the operation of any process. Furthermore, the purchaser assumes all risks of patent, trademark or copyright infringement associated with any such use, combination or operation.

8. Force Majeure

Any product sell to which these conditions apply is subject to cancellation by the company or to any such variation as it might find necessary by reason of strike, lock-out, trade dispute, weather conditions, hostilities, legislation, Acts of God or any cause whatsoever, beyond the control of Medicago AB.

9. Governing Law

The selling and shipping of Medicago products shall be governed by and construed in accordance with the laws of the country of Sweden where the company's principal or registered offices are situated and the Buyers hereby submit to the non-exclusive jurisdiction of the courts of Sweden.

10. Copyright

Copyright © 2009 Medicago AB. All rights reserved. The reuse or reproduction of any of the information and design contained in this Catalogue without the written permission of Medicago AB is prohibited.

Index by Article Number

Article no.	Product name	Pack size	Page no.
05-0033-100	<i>Trichosanthes japonica</i> agglutinin II	100 mg	52
05-0033-2	<i>Trichosanthes japonica</i> agglutinin II	2 mg	52
05-0033-25	<i>Trichosanthes japonica</i> agglutinin II	25 mg	52
05-0036-100	<i>Trichosanthes japonica</i> agglutinin I	100 mg	52
05-0036-2	<i>Trichosanthes japonica</i> agglutinin I	2 mg	52
05-0036-25	<i>Trichosanthes japonica</i> agglutinin I	25 mg	52
05-0102-10	<i>Triticum vulgare</i> lectin (WGA)	10 mg	53
05-0102-100	<i>Triticum vulgare</i> lectin (WGA)	100 mg	53
05-0102-1000	<i>Triticum vulgare</i> lectin (WGA)	1 g	53
05-0102-10000	<i>Triticum vulgare</i> lectin (WGA)	10 g	53
05-0103-1	Calmodulin	1 mg	55
05-0103-100	Calmodulin	100 mg	55
05-0103-1000	Calmodulin	1 g	55
05-0103-2	Calmodulin	2,5 mg	55
05-0104-10	<i>Lens culinaris</i> lectin (LCA/LcH)	10 mg	45
05-0104-100	<i>Lens culinaris</i> lectin (LCA/LcH)	100 mg	45
05-0104-1000	<i>Lens culinaris</i> lectin (LCA/LcH)	1 g	45
05-0104-10000	<i>Lens culinaris</i> lectin (LCA/LcH)	10 g	45
05-0105-10	<i>Crotalaria juncea</i> lectin	10 mg	42
05-0105-1000	<i>Crotalaria juncea</i> lectin	1 g	42
05-0105-50	<i>Crotalaria juncea</i> lectin	50 mg	42
05-0106-100	Concanavalin A (Con A)	100 mg	41
05-0106-1000	Concanavalin A (Con A)	1 g	41
05-0106-10000	Concanavalin A (Con A)	10 g	41
05-0106-100000	Concanavalin A (Con A)	100 g	41
05-0106-250	Concanavalin A (Con A)	250 mg	41
05-0111-10	<i>Pisum sativum</i> lectin (PSA)	10 mg	51
05-0111-100	<i>Pisum sativum</i> lectin (PSA)	100 mg	51
05-0111-1000	<i>Pisum sativum</i> lectin (PSA)	1 g	51
05-0114-10	<i>Vicia ervilia</i> lectin (VEA)	10 mg	54
05-0114-1000	<i>Vicia ervilia</i> lectin (VEA)	1 g	54
05-0114-50	<i>Vicia ervilia</i> lectin (VEA)	50 mg	54
05-0115-10	<i>Phaseolus vulgaris</i> lectin P (PHA-P)	10 mg	50
05-0115-1000	<i>Phaseolus vulgaris</i> lectin P (PHA-P)	1 g	50
05-0115-5	<i>Phaseolus vulgaris</i> lectin P (PHA-P)	5 mg	50
05-0116-10	<i>Arachis hypogaea</i> lectin (PNA)	10 mg	39
05-0116-1000	<i>Arachis hypogaea</i> lectin (PNA)	1 g	39
05-0116-50	<i>Arachis hypogaea</i> lectin (PNA)	50 mg	39
05-0117-10	<i>Glycine max</i> lectin (SBA)	10 mg	44
05-0117-50	<i>Glycine max</i> lectin (SBA)	50 mg	44
05-0117-1000	<i>Glycine max</i> lectin (SBA)	1 g	44
05-0118-1000	<i>Phaseolus vulgaris</i> lectin M (PHA-M) crude	1 g	49
05-0118-25	<i>Phaseolus vulgaris</i> lectin M (PHA-M) crude	25 mg	49
05-0119-10	<i>Narcissus pseudonarcissus</i> lectin (NPA/NPL)	10 mg	46
05-0119-1000	<i>Narcissus pseudonarcissus</i> lectin (NPA/NPL)	1 g	46
05-0119-50	<i>Narcissus pseudonarcissus</i> lectin (NPA/NPL)	50 mg	46
05-0120-1000	<i>Galanthus nivalis</i> lectin (GNA)	1 g	43
05-0120-5	<i>Galanthus nivalis</i> lectin (GNA)	5 mg	43
05-0131-1000	<i>Phaseolus vulgaris</i> lectin E (PHA-E)	1 g	47
05-0131-5	<i>Phaseolus vulgaris</i> lectin E (PHA-E)	5 mg	47
05-0132-10	<i>Phaseolus vulgaris</i> lectin L (PHA-L)	10 mg	48
05-0132-1000	<i>Phaseolus vulgaris</i> lectin L (PHA-L)	1 g	48
05-0132-2	<i>Phaseolus vulgaris</i> lectin L (PHA-L)	2 mg	48

Article no.	Product name	Pack size	Page no.
05-0133-10	<i>Artocarpus integrifolia</i> lectin (Jacalin)	10 mg	40
05-0133-100	<i>Artocarpus integrifolia</i> lectin (Jacalin)	100 mg	40
05-0133-1000	<i>Artocarpus integrifolia</i> lectin (Jacalin)	1 g	40
05-0134-100	<i>Aleuria aurantia</i> lectin (AAL)	100 mg	38
05-0134-1000	<i>Aleuria aurantia</i> lectin (AAL)	1 g	38
05-0134-2	<i>Aleuria aurantia</i> lectin (AAL)	2 mg	38
05-1118-1000	<i>Phaseolus vulgaris</i> lectin M (PHA-M) pure	1 g	49
05-1118-25	<i>Phaseolus vulgaris</i> lectin M (PHA-M) pure	25 mg	49
09-0100-100	0.1 mol Sodium chloride tablets	100 tablets	29
09-1010-10	IMAC phosphate buffer	10 tablets/blisterpack	24
09-1010-50	IMAC phosphate buffer	50 tablets	24
09-1012-10	IMAC elution buffer	10 tablets/blisterpack	24
09-1012-50	IMAC elution buffer	50 tablets	24
09-2001-100	p-Nitrophenyl phosphate (pNPP) substrate 5 mg	100 tablets	32
09-2001-24	p-Nitrophenyl phosphate (pNPP) substrate 5 mg	24 tablets/blisterpack	32
09-2020-100	p-Nitrophenyl phosphate (pNPP) substrate 20 mg	100 tablets	32
09-2020-24	p-Nitrophenyl phosphate (pNPP) substrate 20 mg	24 tablets/blisterpack	32
09-2026-1000	Sodium dodecyl sulphate (SDS) 0.5 g	1000 tablets	31
09-2026-50	Sodium dodecyl sulphate (SDS) 0.5 g	50 tablets	31
09-2051-100	Phosphate Buffered Saline (PBS) pH 7.4, 100 ml	100 tablets	8
09-2052-100	Phosphate Buffered Saline (PBS) pH 7.4, 200 ml	100 tablets	8
09-2053-100	Borate Buffered Saline (BBS) pH 8.2, 500 ml	100 tablets	12
09-7500-10	Tris Buffered Saline (TBS) pH 7.6, 500 ml	10 tablets/blister pack	13
09-7500-100	Tris Buffered Saline (TBS) pH 7.6, 500 ml	100 tablets	13
09-7510-10	Tris Buffered Saline with Tween™ 20 (TBS-T) pH 7.6, 500 ml	10 tablets/blister pack	14
09-7510-100	Tris Buffered Saline with Tween™ 20 (TBS-T) pH 7.6, 500 ml	100 tablets	14
09-8500-100	HEPES Buffered Saline (HBS), pH 7.4	100 tablets (bottle)	15
09-8500-12	HEPES Buffered Saline (HBS), pH 7.4	12 tablets/blisterpack	15
09-8902-100	Phosphate Buffered Saline with Tween™ 20 (PBS-T) pH 7.4, 500 ml	100 tablets	10
09-8902-12	Phosphate Buffered Saline with Tween™ 20 (PBS-T) pH 7.4, 500 ml	12 tablets/blister pack	10
09-8903-100	Phosphate Buffered Saline with Tween™ 20 (PBS-T) pH 7.4, 100 ml	100 tablets	10
09-8912-100	Phosphate Buffered Saline (PBS) pH 7.4, 500 ml	100 tablets	8
09-8912-12	Phosphate Buffered Saline (PBS) pH 7.4, 500 ml	12 tablets/blister pack	8
09-8922-100	Carbonate-bicarbonate Coating buffer pH 9.6, 100 ml	100 tablets	27
09-8922-24	Carbonate-bicarbonate Coating buffer pH 9.6, 100 ml	24 tablets/blisterpack	27
09-8922-8	Carbonate-bicarbonate Coating buffer pH 9.6, 100 ml	8 tablets/blisterpack	27
09-8932-50	Carbonate-bicarbonate Coating buffer with Azide pH 9.6, 100 ml	50 tablets	27
09-8932-8	Carbonate-bicarbonate Coating buffer with Azide pH 9.6, 100 ml	8 tablets/blisterpack	27
09-8952-100	SSPE buffer 200 ml	100 tablets	11
09-9103-100	Sodium chloride tablets 100 ml	100 tablets	30
09-9104-10	Sodium chloride tablets 1000 ml	10 tablets/blisterpack	30
09-9104-100	Sodium chloride tablets 1000 ml	100 tablets	30
09-9105-100	Sodium chloride tablets 200 ml	100 tablets	30
09-9400-10	Phosphate Buffered Saline (PBS) pH 7.4, 1000 ml	10 tablets/blister pack	8
09-9400-100	Phosphate Buffered Saline (PBS) pH 7.4, 1000 ml	100 tablets	8
09-9410-10	Phosphate Buffered Saline with Tween™ 20 (PBS-T) pH 7.4, 1000 ml	10 tablets/blister pack	10
09-9410-100	Phosphate Buffered Saline with Tween™ 20 (PBS-T) pH 7.4, 1000 ml	100 tablets	10
09-9420-10	Phosphate Buffered Saline (PBS) tablets without potassium pH 7.4, 1000 ml	10 tablets/blisterpack	9
09-9420-100	Phosphate Buffered Saline (PBS) tablets without potassium pH 7.4, 1000 ml	100 tablets	9
09-9499-100	Phosphate Buffered Saline (PBS) pH 7.2, 1000 ml	100 tablets	8
09-9500-100	Phosphate Buffered Saline (PBS) without Potassium (0.02M phosphate) pH 7.4, 1000 ml	100 tablets	9
10-0027-1	Protein L Ligand Leakage ELISA kit	1 kit	62
10-1101-25	β-galactosidase	25 mg (8 K units)	59
10-1257-100	Immunosorb A	100 ml	58
10-1257-200	Immunosorb A	200 ml	58
10-1257-5	Immunosorb A	5 ml	58
10-9402-10	PBS solution pH 7.4, 1000 ml/ bottle	10 bottles	8

Article no.	Product name	Pack size	Page no.
10-9405-0	EC-Blue Enhanced™ Substrate (TMB)	25 litre	61
10-9405-100	EC-Blue Enhanced™ Substrate (TMB)	100 ml	61
10-9405-1000	EC-Blue Enhanced™ Substrate (TMB)	1000 ml	61
10-9405-250	EC-Blue Enhanced™ Substrate (TMB)	250 ml	61
10-9405-5000	EC-Blue Enhanced™ Substrate (TMB)	5 litre	61
10-9500-50	Stop solution for TMB substrate	50 ml	60
12-8480-10	Buffered Sodium Citrate 3.2 % (0.109M) 100 ml	10 pouches	25
12-8481-5	Urea 5M, 100ml	5 pouches	33
12-8483-5	Buffered Sodium Citrate 3.2 % (0.109M) 1000 ml	5 pouches	25
12-8484-5	Urea 8M, 100 ml	5 pouches	33
12-9110-10	Tris-Borate-EDTA buffer (TBE) pH 8.3, 1000 ml	10 pouches	19
12-9111-10	Tris-Borate-EDTA buffer (TBE) 5x pH 8.3, 1000 ml	10 pouches	19
12-9112-10	Tris-Borate-EDTA buffer (TBE) 10x pH 8.3, 1000 ml	10 pouches	19
12-9121-10	Glycine-HCl buffer 0.1 M pH 3.0 1000 ml	10 pouches	28
12-9122-10	Tris-Glycine buffer pH 8.3, 1000 ml	10 pouches	21
12-9123-10	Tris-Glycine buffer pH 8.3, 5000 ml	10 pouches	21
12-9133-10	Tris Buffered Saline (TBS) pH 8.0, 1000 ml	10 pouches	13
12-9134-10	Tris Buffered Saline (TBS) 10x pH 8.0, 1000 ml	10 pouches	13
12-9144-5	Tris-Acetate-EDTA buffer (TAE) 50x pH 8.3, 1000 ml	5 pouches	20
12-9145-5	Tris-Acetate-EDTA buffer (TAE) 50x pH 8.3, 500 ml	5 pouches	20
12-9154-10	Tris-EDTA buffer (TE) 10x pH 7.4, 1000 ml	10 pouches	18
12-9160-5	EDTA buffer pH 8.0, 1000 ml	5 pouches	17
12-9161-5	EDTA buffer pH 8.0, 500 ml	5 pouches	17
12-9165-5	D(+)Glucose 20 % 1000 ml	5 pouches	33
12-9175-10	Potassium chloride 1 M, 1000 ml	10 pouches	31
12-9176-5	Potassium chloride 3 M, 1000 ml	5 pouches	31
12-9182-5	Magnesium sulphate 1 M, 1000 ml	5 pouches	32
12-9183-5	Sodium hydroxide reagent 5 M, 1000 ml	5 pouches	30
12-9184-10	Sodium Phosphate Buffer (NaPi) 1M pH 6.5, 1000 ml	10 pouches	26
12-9185-10	Sodium Phosphate Buffer (NaPi) 1M pH 7.2, 1000 ml	10 pouches	26
12-9188-5	Sodium acetate buffer pH 7.0, 1000 ml	5 pouches	25
12-9190-5	Sodium chloride 3 M, 1000 ml	5 pouches	30
12-9191-5	Sodium chloride 5 M, 1000 ml	5 pouches	30
12-9193-5	Sodium dodecyl sulphate (SDS) 10 %, 1000 ml	5 pouches	31
12-9194-5	Sodium dodecyl sulphate (SDS) 20 %, 1000 ml	5 pouches	31
12-9195-5	Saline sodium citrate buffer (SSC) 20x pH 7.0, 1000 ml	5 pouches	23
12-9196-5	Saline sodium citrate buffer (SSC) 2x pH 7.0, 1000 ml	5 pouches	23
12-9197-1	Washing solution for DELFIA pH 7.8, 10 litres	1 pouch	28
12-9198-1	Tris buffer pH 7.4, 1000 ml	1 pouch	16
12-9198-10	Tris buffer pH 7.4, 1000 ml	10 pouches	16
12-9199-1	Tris buffer pH 8.0, 1000 ml	1 pouch	16
12-9199-10	Tris buffer pH 8.0, 1000 ml	10 pouches	16
12-9200-1	Tris buffer pH 8.3, 1000 ml	1 pouch	16
12-9200-10	Tris buffer pH 8.3, 1000 ml	10 pouches	16
12-9222-10	Tris-Glycine SDS buffer pH 8.3, 1000 ml	10 pouches	22
12-9223-10	Tris-Glycine SDS buffer pH 8.3, 5000 ml	10 pouches	22
12-9422-1	Phosphate Buffered Saline powder (PBS) pH 7.4, 25 l	1 pouch	8
12-9423-5	Phosphate Buffered Saline (PBS) 10x pH 7.4, 1000 ml	5 pouches	8
12-9424-1	Phosphate Buffered Saline powder (PBS) pH 7.4, 10 l	1 pouch	8
12-9425-1	Phosphate Buffered Saline powder (PBS) pH 7.4, 50 l	1 pouch	8
12-9426-1	Phosphate Buffered Saline powder (PBS) pH 7.4, 100 l	1 pouch	8
12-9527-10	Sodium Phosphate Buffer (NaPi) 0.02M pH 7.0, 1000 ml	10 pouches	26
12-9528-10	Sodium Phosphate Buffer (NaPi) 0.02M pH 7.0, 5000 ml	10 pouches	26
12-9529-10	Sodium Phosphate Buffer (NaPi) 0.1M pH 6.5, 1000 ml	10 pouches	26
12-9530-10	Sodium Phosphate Buffer (NaPi) 0.1M pH 7.0, 1000 ml	10 pouches	26
12-9531-10	Sodium Phosphate Buffer (NaPi) 0.1M pH 7.4, 1000 ml	10 pouches	26
16-0005-500	Boric acid	500 g	34
16-0006-1000	Citric acid monohydrate	1 kg	34
16-0007-500	EDTA disodium	500 g	34

Article no.	Product name	Pack size	Page no.
16-0008-1000	Glycine	1 kg	34
16-0009-500	Lactose	500 g	34
16-0010-1000	Potassium chloride	1 kg	34
16-0011-1000	Potassium dihydrogen phosphate	1 kg	34
16-0012-1000	Dipotassium hydrogen phosphate	1 kg	34
16-0013-1000	Sodium chloride	1 kg	34
16-0014-1000	Trisodium citrate	1 kg	34
16-0015-500	Sodium carbonate	500 g	34
16-0016-1000	Sodium dihydrogen phosphate	1 kg	34
16-0017-1000	Disodium hydrogen phosphate	1 kg	34
16-0018-1000	Sodium hydrogen carbonate	1 kg	34
16-0019-1000	Sodium hydroxide	1 kg	34
16-0020-1000	Sucrose (saccharose)	1 kg	34
16-0021-500	Tris	500 g	34
16-0022-500	Tris-HCl	500 g	34
16-0023-1000	Tween™ 20	1 kg	34
16-0023-250	Tween™ 20	250 g	34
16-0024-500	Glycerol (glycerin)	500 ml	34
16-0025-500	Urea	500 g	34
16-0026-100	Bovine Serum Albumin (BSA)	100 g	34
16-0026-500	Bovine Serum Albumin (BSA)	500 g	34
16-0027-100	Agarose for DNA electrophoresis	100 g	34
16-0027-500	Agarose for DNA electrophoresis	500 g	34
18-2001-1	<i>Encephalitozoon cuniculi</i> CIA (Carbon Immuno Assay)	1 kit	64
18-2002-3	<i>Encephalitozoon cuniculi</i> whole cell antigen suspension	3 ml	65
18-2003-3	<i>Toxoplasma gondii</i> whole cell antigen suspension	3 ml	66
18-4001-1	Rabbit antiserum against <i>Encephalitozoon cuniculi</i>	1 ml	65
18-4001-100	Rabbit antiserum against <i>Encephalitozoon cuniculi</i>	0,1 ml	65
18-4002-100	Rat antiserum against <i>Encephalitozoon cuniculi</i>	0,1 ml	65
18-5001-1	Rabbit antiserum against <i>Toxoplasma gondii</i>	1 ml	66
18-5001-100	Rabbit antiserum against <i>Toxoplasma gondii</i>	0,1 ml	66
18-6010-3	Carbon suspension for CIA test	3 ml	60
18-9001-1	<i>Encephalitozoon cuniculi</i> ELISA (Enzyme Linked Immuno Sorbent Assay)	1 kit	63

Alphabetical Index

	Product name	Pack size	Article no.	Page no.
A	Agarose for DNA electrophoresis	100 g	16-0027-100	34
	Agarose for DNA electrophoresis	500 g	16-0027-500	34
	<i>Aleuria aurantia</i> lectin (AAL)	2 mg	05-0134-2	38
	<i>Aleuria aurantia</i> lectin (AAL)	100 mg	05-0134-100	38
	<i>Aleuria aurantia</i> lectin (AAL)	1 g	05-0134-1000	38
	<i>Arachis hypogaea</i> lectin (PNA)	10 mg	05-0116-10	39
	<i>Arachis hypogaea</i> lectin (PNA)	50 mg	05-0116-50	39
	<i>Arachis hypogaea</i> lectin (PNA)	1 g	05-0116-1000	39
	<i>Artocarpus integrifolia</i> lectin (Jacalin)	10 mg	05-0133-10	40
	<i>Artocarpus integrifolia</i> lectin (Jacalin)	100 mg	05-0133-100	40
	<i>Artocarpus integrifolia</i> lectin (Jacalin)	1 g	05-0133-1000	40
B	Borate Buffered Saline (BBS) pH 8.2, 500 ml	100 tablets	09-2053-100	12
	Boric acid	500 g	16-0005-500	34
	Bovine Serum Albumin (BSA)	100 g	16-0026-100	34
	Bovine Serum Albumin (BSA)	500 g	16-0026-500	34
	Buffered Sodium Citrate 3.2 % (0.109M) 100 ml	10 pouches	12-8480-10	25
	Buffered Sodium Citrate 3.2 % (0.109M) 1000 ml	5 pouches	12-8483-5	25
C	Calmodulin	1 mg	05-0103-1	55
	Calmodulin	2,5 mg	05-0103-2	55
	Calmodulin	100 mg	05-0103-100	55
	Calmodulin	1 g	05-0103-1000	55
	Carbon suspension for CIA test	3 ml	18-6010-3	60
	Carbonate-bicarbonate Coating buffer pH 9.6, 100 ml	8 tablets/blister pack	09-8922-8	27
	Carbonate-bicarbonate Coating buffer pH 9.6, 100 ml	24 tablets/blister pack	09-8922-24	27
	Carbonate-bicarbonate Coating buffer pH 9.6, 100 ml	100 tablets	09-8922-100	27
	Carbonate-bicarbonate Coating buffer with Azide pH 9.6, 100 ml	8 tablets/blister pack	09-8932-8	27
	Carbonate-bicarbonate Coating buffer with Azide pH 9.6, 100 ml	50 tablets	09-8932-50	27
	Citric acid monohydrate	1 kg	16-0006-1000	34
	Concanavalin A (Con A)	100 mg	05-0106-100	41
	Concanavalin A (Con A)	250 mg	05-0106-250	41
	Concanavalin A (Con A)	1 g	05-0106-1000	41
	Concanavalin A (Con A)	10 g	05-0106-10000	41
	Concanavalin A (Con A)	100 g	05-0106-100000	41
	<i>Crotalaria juncea</i> lectin	10 mg	05-0105-10	42
	<i>Crotalaria juncea</i> lectin	50 mg	05-0105-50	42
	<i>Crotalaria juncea</i> lectin	1 g	05-0105-1000	42
	D	D(+)-Glucose 20 % 1000 ml	5 pouches	12-9165-5
Dipotassium hydrogen phosphate		1 kg	16-0012-1000	34
Disodium hydrogen phosphate		1 kg	16-0017-1000	34
E	EC-Blue Enhanced™ Substrate (TMB)	100 ml	10-9405-100	61
	EC-Blue Enhanced™ Substrate (TMB)	250 ml	10-9405-250	61
	EC-Blue Enhanced™ Substrate (TMB)	1000 ml	10-9405-1000	61
	EC-Blue Enhanced™ Substrate (TMB)	5 litre	10-9405-5000	61
	EC-Blue Enhanced™ Substrate (TMB)	25 litre	10-9405-0	61
	EDTA buffer pH 8.0, 1000 ml	5 pouches	12-9160-5	17
	EDTA buffer pH 8.0, 500 ml	5 pouches	12-9161-5	17
	EDTA disodium	500 g	16-0007-500	34
	<i>Encephalitozoon cuniculi</i> CIA (Carbon Immuno Assay)	1 kit	18-2001-1	64
	<i>Encephalitozoon cuniculi</i> ELISA (Enzyme Linked Immuno Sorbent Assay)	1 kit	18-9001-1	63
	<i>Encephalitozoon cuniculi</i> whole cell antigen suspension	3 ml	18-2002-3	65
	G	β -galactosidase	25 mg (8 K units)	10-1101-25
<i>Galanthus nivalis</i> lectin (GNA)		5 mg	05-0120-5	43
<i>Galanthus nivalis</i> lectin (GNA)		1 g	05-0120-1000	43
Glycerol (glycerin)		500 ml	16-0024-500	34

	Product name	Pack size	Article no.	Page no.
	Glycine	1 kg	16-0008-1000	34
	<i>Glycine max</i> lectin (SBA)	10 mg	05-0117-10	44
	<i>Glycine max</i> lectin (SBA)	50 mg	05-0117-50	44
	<i>Glycine max</i> lectin (SBA)	1 g	05-0117-1000	44
	Glycine-HCl buffer 0.1 M pH 3.0 1000 ml	10 pouches	12-9121-10	28
H	HEPES Buffered Saline (HBS), pH 7.4	12 tablets/blister pack	09-8500-12	15
	HEPES Buffered Saline (HBS), pH 7.4	100 tablets	09-8500-100	15
I	IMAC elution buffer	10 tablets/blister pack	09-1012-10	24
	IMAC elution buffer	50 tablets	09-1012-50	24
	IMAC phosphate buffer	10 tablets/blister pack	09-1010-10	24
	IMAC phosphate buffer	50 tablets	09-1010-50	24
	Immunosorb A	5 ml	10-1257-5	58
	Immunosorb A	100 ml	10-1257-100	58
	Immunosorb A	200 ml	10-1257-200	58
L	Lactose	500 g	16-0009-500	34
	<i>Lens culinaris</i> lectin (LCA/LcH)	10 mg	05-0104-10	45
	<i>Lens culinaris</i> lectin (LCA/LcH)	100 mg	05-0104-100	45
	<i>Lens culinaris</i> lectin (LCA/LcH)	1 g	05-0104-1000	45
	<i>Lens culinaris</i> lectin (LCA/LcH)	10 g	05-0104-10000	45
M	Magnesium sulphate 1 M, 1000 ml	5 pouches	12-9182-5	32
N	<i>Narcissus pseudonarcissus</i> lectin (NPA/NPL)	10 mg	05-0119-10	46
	<i>Narcissus pseudonarcissus</i> lectin (NPA/NPL)	50 mg	05-0119-50	46
	<i>Narcissus pseudonarcissus</i> lectin (NPA/NPL)	1 g	05-0119-1000	46
	p-Nitrophenyl phosphate (pNPP) substrate 20 mg	24 tablets/blister pack	09-2020-24	32
	p-Nitrophenyl phosphate (pNPP) substrate 20 mg	100 tablets	09-2020-100	32
	p-Nitrophenyl phosphate (pNPP) substrate 5 mg	24 tablets/blister pack	09-2001-24	32
	p-Nitrophenyl phosphate (pNPP) substrate 5 mg	100 tablets	09-2001-100	32
P	PBS solution pH 7.4, 1000 ml/ bottle	10 bottles	10-9402-10	8
	<i>Phaseolus vulgaris</i> lectin E (PHA-E)	5 mg	05-0131-5	47
	<i>Phaseolus vulgaris</i> lectin E (PHA-E)	1 g	05-0131-1000	47
	<i>Phaseolus vulgaris</i> lectin L (PHA-L)	2 mg	05-0132-2	48
	<i>Phaseolus vulgaris</i> lectin L (PHA-L)	10 mg	05-0132-10	48
	<i>Phaseolus vulgaris</i> lectin L (PHA-L)	1 g	05-0132-1000	48
	<i>Phaseolus vulgaris</i> lectin M (PHA-M) pure	25 mg	05-1118-25	49
	<i>Phaseolus vulgaris</i> lectin M (PHA-M) pure	1 g	05-1118-1000	49
	<i>Phaseolus vulgaris</i> lectin M (PHA-M) crude	25 mg	05-0118-25	49
	<i>Phaseolus vulgaris</i> lectin M (PHA-M) crude	1 g	05-0118-1000	49
	<i>Phaseolus vulgaris</i> lectin P (PHA-P)	5 mg	05-0115-5	50
	<i>Phaseolus vulgaris</i> lectin P (PHA-P)	10 mg	05-0115-10	50
	<i>Phaseolus vulgaris</i> lectin P (PHA-P)	1 g	05-0115-1000	50
	Phosphate Buffered Saline (PBS) 10x pH 7.4, 1000 ml	5 pouches	12-9423-5	8
	Phosphate Buffered Saline (PBS) pH 7.2, 1000 ml	100 tablets	09-9499-100	8
	Phosphate Buffered Saline (PBS) pH 7.4, 100 ml	100 tablets	09-2051-100	8
	Phosphate Buffered Saline (PBS) pH 7.4, 1000 ml	10 tablets/blister pack	09-9400-10	8
	Phosphate Buffered Saline (PBS) pH 7.4, 1000 ml	100 tablets	09-9400-100	8
	Phosphate Buffered Saline (PBS) pH 7.4, 200 ml	100 tablets	09-2052-100	8
	Phosphate Buffered Saline (PBS) pH 7.4, 500 ml	12 tablets/blister pack	09-8912-12	8
	Phosphate Buffered Saline (PBS) pH 7.4, 500 ml	100 tablets	09-8912-100	8
	Phosphate Buffered Saline (PBS) tablets without potassium pH 7.4, 1000 ml	10 tablets/blister pack	09-9420-10	9
	Phosphate Buffered Saline (PBS) tablets without potassium pH 7.4, 1000 ml	100 tablets	09-9420-100	9
	Phosphate Buffered Saline (PBS) without potassium (0.02M phosphate) pH 7.4, 1000 ml	100 tablets	09-9500-100	9
	Phosphate Buffered Saline powder (PBS) pH 7.4, 10 l	1 pouch	12-9424-1	8
	Phosphate Buffered Saline powder (PBS) pH 7.4, 100 l	1 pouch	12-9426-1	8
	Phosphate Buffered Saline powder (PBS) pH 7.4, 25 l	1 pouch	12-9422-1	8

	Product name	Pack size	Article no.	Page no.
	Phosphate Buffered Saline powder (PBS) pH 7.4, 50 l	1 pouch	12-9425-1	8
	Phosphate Buffered Saline with Tween™ 20 (PBS-T) pH 7.4, 100 ml	100 tablets	09-8903-100	10
	Phosphate Buffered Saline with Tween™ 20 (PBS-T) pH 7.4, 1000 ml	10 tablets/blister pack	09-9410-10	10
	Phosphate Buffered Saline with Tween™ 20 (PBS-T) pH 7.4, 1000 ml	100 tablets	09-9410-100	10
	Phosphate Buffered Saline with Tween™ 20 (PBS-T) pH 7.4, 500 ml	12 tablets/blister pack	09-8902-12	10
	Phosphate Buffered Saline with Tween™ 20 (PBS-T) pH 7.4, 500 ml	100 tablets	09-8902-100	10
	<i>Pisum sativum</i> lectin (PSA)	10 mg	05-0111-10	51
	<i>Pisum sativum</i> lectin (PSA)	25 mg	05-0111-25	51
	<i>Pisum sativum</i> lectin (PSA)	100 mg	05-0111-100	51
	<i>Pisum sativum</i> lectin (PSA)	1 g	05-0111-1000	51
	Potassium chloride	1 kg	16-0010-1000	34
	Potassium chloride 1 M, 1000 ml	10 pouches	12-9175-10	31
	Potassium chloride 3 M, 1000 ml	5 pouches	12-9176-5	31
	Potassium dihydrogen phosphate	1 kg	16-0011-1000	34
	Protein L Ligand Leakage ELISA kit	1 kit	10-0027-1	62
R	Rabbit antiserum against <i>Encephalitozoon cuniculi</i>	0,1 ml	18-4001-100	65
	Rabbit antiserum against <i>Encephalitozoon cuniculi</i>	1 ml	18-4001-1	65
	Rabbit antiserum against <i>Toxoplasma gondii</i>	0,1 ml	18-5001-100	66
	Rabbit antiserum against <i>Toxoplasma gondii</i>	1 ml	18-5001-1	66
	Rat antiserum against <i>Encephalitozoon cuniculi</i>	0,1 ml	18-4002-100	65
S	Saline sodium citrate buffer (SSC) 20x pH 7.0, 1000 ml	5 pouches	12-9195-5	23
	Saline sodium citrate buffer (SSC) 2x pH 7.0, 1000 ml	5 pouches	12-9196-5	23
	Sodium acetate buffer pH 7.0, 1000 ml	5 pouches	12-9188-5	25
	Sodium carbonate	500 g	16-0015-500	34
	Sodium chloride	1 kg	16-0013-1000	34
	Sodium chloride 3 M, 1000 ml	5 pouches	12-9190-5	30
	Sodium chloride 5 M, 1000 ml	5 pouches	12-9191-5	30
	0.1 mol Sodium chloride tablets	100 tablets	09-0100-100	29
	Sodium chloride tablets 100 ml	100 tablets	09-9103-100	30
	Sodium chloride tablets 1000 ml	10 tablets/blister pack	09-9104-10	30
	Sodium chloride tablets 1000 ml	100 tablets	09-9104-100	30
	Sodium chloride tablets 200 ml	100 tablets	09-9105-100	30
	Sodium dihydrogen phosphate	1 kg	16-0016-1000	34
	Sodium dodecyl sulphate (SDS) 0.5 g	50 tablets	09-2026-50	31
	Sodium dodecyl sulphate (SDS) 0.5 g	1000 tablets	09-2026-1000	31
	Sodium dodecyl sulphate (SDS) 10 %, 1000 ml	5 pouches	12-9193-5	31
	Sodium dodecyl sulphate (SDS) 20 %, 1000 ml	5 pouches	12-9194-5	31
	Sodium hydrogen carbonate	1 kg	16-0018-1000	34
	Sodium hydroxide	1 kg	16-0019-1000	34
	Sodium hydroxide powder 5 M, 1000 ml	5 pouches	12-9183-5	30
	Sodium Phosphate Buffer (NaPi) 0.02M pH 7.0, 1000 ml	10 pouches	12-9527-10	26
	Sodium Phosphate Buffer (NaPi) 0.02M pH 7.0, 5000 ml	10 pouches	12-9528-10	26
	Sodium phosphate buffer (NaPi) 0.1M pH 6.5, 1000 ml	10 pouches	12-9529-10	26
	Sodium phosphate buffer (NaPi) 0.1M pH 7.0, 1000 ml	10 pouches	12-9530-10	26
	Sodium phosphate buffer (NaPi) 0.1M pH 7.4, 1000 ml	10 pouches	12-9531-10	26
	Sodium Phosphate Buffer (NaPi) 1M pH 6.5, 1000 ml	10 pouches	12-9184-10	26
	Sodium Phosphate Buffer (NaPi) 1M pH 7.2, 1000 ml	10 pouches	12-9185-10	26
	SSPE buffer 200 ml	100 tablets	09-8952-100	11
	Stop solution for TMB substrate	50 ml	10-9500-50	60
	Sucrose (saccharose)	1 kg	16-0020-1000	34
T	<i>Toxoplasma gondii</i> whole cell antigen suspension	3 ml	18-2003-3	66
	<i>Trichosanthes japonica</i> agglutinin I	2 mg	05-0036-2	52
	<i>Trichosanthes japonica</i> agglutinin I	25 mg	05-0036-25	52
	<i>Trichosanthes japonica</i> agglutinin I	100 mg	05-0036-100	52
	<i>Trichosanthes japonica</i> agglutinin II	2 mg	05-0033-2	52
	<i>Trichosanthes japonica</i> agglutinin II	25 mg	05-0033-25	52
	<i>Trichosanthes japonica</i> agglutinin II	100 mg	05-0033-100	52

	Product name	Pack size	Article no.	Page no.
	Tri sodium citrate	1 kg	16-0014-1000	34
	Tris	500 g	16-0021-500	34
	Tris buffer pH 7.4, 1000 ml	1 pouch	12-9198-1	16
	Tris buffer pH 7.4, 1000 ml	10 pouches	12-9198-10	16
	Tris buffer pH 8.0, 1000 ml	1 pouch	12-9199-1	16
	Tris buffer pH 8.0, 1000 ml	10 pouches	12-9199-10	16
	Tris buffer pH 8.3, 1000 ml	1 pouch	12-9200-1	16
	Tris buffer pH 8.3, 1000 ml	10 pouches	12-9200-10	16
	Tris Buffered Saline (TBS) 10x pH 8.0, 1000 ml	10 pouches	12-9134-10	13
	Tris Buffered Saline (TBS) pH 7.6, 500 ml	10 tablets/blister pack	09-7500-10	13
	Tris Buffered Saline (TBS) pH 7.6, 500 ml	100 tablets	09-7500-100	13
	Tris Buffered Saline (TBS) pH 8.0, 1000 ml	10 pouches	12-9133-10	13
	Tris Buffered Saline with Tween™ 20 (TBS-T) pH 7.6, 500 ml	100 tablets	09-7510-100	14
	Tris Buffered Saline with Tween™ 20 (TBS-T) pH 7.6, 500 ml	10 tablets/blister pack	09-7510-10	14
	Tris-Acetate-EDTA buffer (TAE) 50x pH 8.3, 1000 ml	5 pouches	12-9144-5	20
	Tris-Acetate-EDTA buffer (TAE) 50x pH 8.3, 500 ml	5 pouches	12-9145-5	20
	Tris-Borate-EDTA buffer (TBE) 10x pH 8.3, 1000 ml	10 pouches	12-9112-10	19
	Tris-Borate-EDTA buffer (TBE) 5x pH 8.3, 1000 ml	10 pouches	12-9111-10	19
	Tris-Borate-EDTA buffer (TBE) pH 8.3, 1000 ml	10 pouches	12-9110-10	19
	Tris-EDTA buffer (TE) 10x pH 7.4, 1000 ml	10 pouches	12-9154-10	18
	Tris-Glycine buffer pH 8.3, 1000 ml	10 pouches	12-9122-10	21
	Tris-Glycine buffer pH 8.3, 5000 ml	10 pouches	12-9123-10	21
	Tris-Glycine SDS buffer pH 8.3, 1000 ml	10 pouches	12-9222-10	22
	Tris-Glycine SDS buffer pH 8.3, 5000 ml	10 pouches	12-9223-10	22
	Tris-HCl	500 g	16-0022-500	34
	<i>Triticum vulgare</i> lectin (WGA)	10 mg	05-0102-10	53
	<i>Triticum vulgare</i> lectin (WGA)	100 mg	05-0102-100	53
	<i>Triticum vulgare</i> lectin (WGA)	1 g	05-0102-1000	53
	<i>Triticum vulgare</i> lectin (WGA)	10 g	05-0102-10000	53
	Tween™ 20	250 g	16-0023-250	34
	Tween™ 20	1 kg	16-0023-1000	34
U	Urea	500 g	16-0025-500	34
	Urea 5M, 100 ml	5 pouches	12-8481-5	33
	Urea 8M, 100 ml	5 pouches	12-8484-5	33
V	<i>Vicia ervilia</i> lectin (VEA)	10 mg	05-0114-10	54
	<i>Vicia ervilia</i> lectin (VEA)	50 mg	05-0114-50	54
	<i>Vicia ervilia</i> lectin (VEA)	1 g	05-0114-1000	54
W	Washing solution for DELFIA pH 7.8, 10 litres	1 pouch	12-9197-1	28