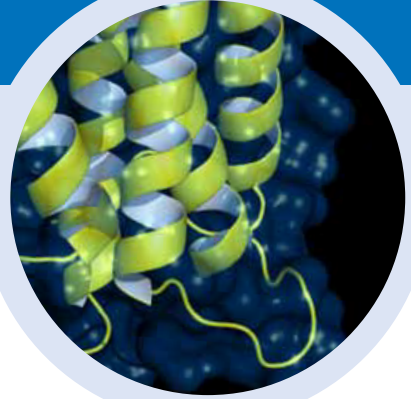
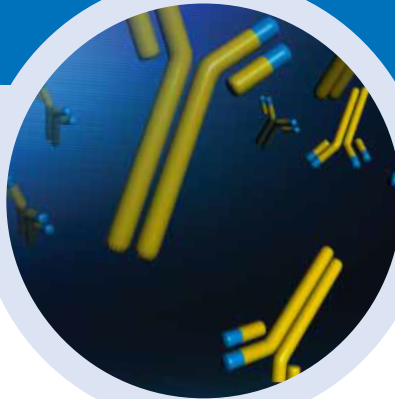
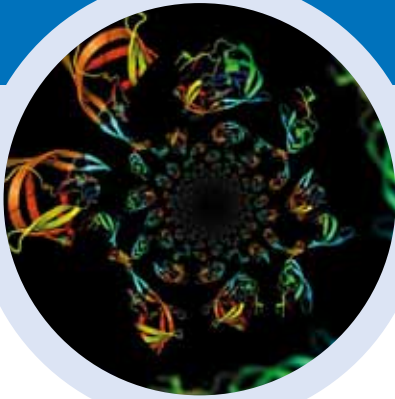




AGAROSE BEAD
TECHNOLOGIES



Your agarose beads for separation,
purification and conjugation of biomolecules

AGAROSE BEAD TECHNOLOGIES

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All products for Laboratory Research use. Preparation and purification of recombinant proteins/peptides containing neighboring His residues may require a license under US pat 5,284,933 and US pat. 5,310,663, including corresponding patents (assignee: Hoffman La Roche, Inc.).

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Agarose Bead Technologies (ABT) is an ISO 9001:2008 certified company dedicated to the research and development of biotechnological separation/purification products derived from agarose and related polysaccharides such as dextrans. The company offers a wide range of non-activated agarose beads for Size Exclusion & activation procedures, as well as a variety of activated beads for Affinity Chromatography and Pre-activated resins for coupling of affinity ligands (Immobilization). The catalog for separation media includes Low Pressure products for R&D scale, and High Pressure media (Rapid Run™ beads) for industrial scale separations.

The company uses its years of knowledge and expertise to bring the benefit of agarose beads to other application fields (microfluidics and microarrays) through our Customized Agarose Bead Program in which we encourage cooperative relationships with our customers. ABT can customize beads for a variety of applications by analyzing possible parameter variations such as pore size, bead size, monodispersion, bead concentration, and others.

With several years of experience in this technically demanding field, ABT is expanding its worldwide presence with distribution partners throughout the globe and has sales offices in the US and Europe. ABT's mission is to focus its efforts in producing highly specialized products, offering the widest range within its manufacturing capability, thus positioning itself as a specialist in this growing market segment.

SIZE EXCLUSION CHROMATOGRAPHY

LOW PRESSURE: Plain & Crosslinked Agarose Beads

Agarose is a very inert polysaccharide which forms hydrophilic and high gel strength gels at low concentrations.

Agarose beads are microspheres of agarose gels with different particle diameters and concentrations. Small spherical particles of agarose act as a porous gel to filter or separate a mixture of molecules according to their individual sizes. Due to the composition (easy to activate), the agarose beads may be prepared to bind biomolecules in a reversible or irreversible manner.

Plain and crosslinked agarose beads are used in Gel Filtration Chromatography.

Plain and crosslinked agarose beads can be activated for ligand attachment due to its

unique internal surface area and composition (inert polysaccharide). These beads are the basis for affinity chromatography beads such as Protein A & G, Glutathione, etc.

ABT offers a wide range of plain and crosslinked agarose beads with different agarose concentrations (2, 4, 6, 8 & 10%) in different particle size distributions: Macro (150-350 μm), Standard (50-150 μm) and Fine (20-50 μm).

- The widest range of different agarose concentrations
- Different pore sizes
- Broad fractionation range
- Excellent chemical and physical stability
- Negligible non specific adsorption
- For batch or column procedures
- Three different particle sizes

TECHNICAL SPECIFICATIONS

PRODUCT	PLAIN AGAROSE BEADS				CROSSLINKED AGAROSE BEADS	
GEOMETRY	Spherical					
CROSSLINKED	No				Yes	
CHEMICAL STABILITY	Stable in moderate acid and basic solutions ⁽¹⁾				Stable in very strong acid and basic solutions, also in dissociating reagents ⁽¹⁾	
AGAROSE %	2%	4%	6%	8%	10%	
ANTIMICROBIAL AGENT	20% Ethanol					
STORAGE TEMPERATURE	2 - 30°C					

PLAIN BEADS	BEAD SIZE *	CAT. No.
2% B AGAROSE BEAD	STANDARD	A-1020S-X
4% B AGAROSE BEAD	STANDARD	A-1040S-X
	MACRO ⁽²⁾	A-1040M-X
	FINE	A-1040F-X
6% B AGAROSE BEAD	STANDARD	A-1060S-X
	MACRO ⁽²⁾	A-1060M-X
	FINE	A-1060F-X
8% B AGAROSE BEAD	STANDARD	A-1080S-X
10% B AGAROSE BEAD	STANDARD	A-1100S-X
	MACRO ⁽²⁾	A-1100M-X

CROSSLINKED BEADS	BEAD SIZE *	CAT. No.
2% BCL AGAROSE BEAD	STANDARD	A-1021S-X
4% BCL AGAROSE BEAD	STANDARD	A-1041S-X
	MACRO ⁽²⁾	A-1041M-X
	FINE	A-1041F-X
6% BCL AGAROSE BEAD	STANDARD	A-1061S-X
	MACRO ⁽²⁾	A-1061M-X
	FINE	A-1061F-X
8% BCL AGAROSE BEAD	STANDARD	A-1081S-X
10% BCL AGAROSE BEAD	STANDARD	A-1101S-X
	MACRO ⁽²⁾	A-1101M-X

For further information concerning monodispersed beads with bead size less than 20µm, contact customized@abtbeads.com

* MACRO: ~150 -350 µm; STANDARD: ~50-150 µm; FINE: ~20-50 µm. ¹ See stability table in Plain & Crosslinked Agarose Beads Procedure for Use. ² Customized product. Ask for information.
X: Product quantity. Macro (500 ml or 1 L). Standard (500 ml, 1 L or 10 L). Fine (250 ml, 500 ml or 1L).

SIZE EXCLUSION CHROMATOGRAPHY

HIGH PRESSURE: Rapid Run™ Agarose Beads

ABT has developed Rapid Run™ high throughput beads to meet a chromatography media market demand for industrial process separations. Their rigidity and mechanical resistance permits high flow rates, with good resolution in a minimum time, making these beads ideal for process-scale use.

Rapid Run™ beads are based on highly crosslinked 4% and 6% agarose matrices, respectively, which give excellent physical and chromatographic properties.

Rapid Run™ beads are an ideal support for the immobilization of ligands for Affinity Chromatography and base media support for producing IEX and Hydrophobic interaction chromatography resins. These media are the accepted standard for laboratory as well as large scale applications.

Rapid Run™ beads exhibit the following main characteristics:

- High mechanical resistance
- High flow/pressure properties
- High physical and chemical stability
- Scalable
- Good binding capacity
- Low non specific adsorption
- Thermally stable
- Good reproducibility

TECHNICAL SPECIFICATIONS

PRODUCT	4% RAPID RUN™ AGAROSE BEAD STANDARD	6% RAPID RUN™ AGAROSE BEAD STANDARD
CAT. No.	4RRS-X	6RRS-X
BEAD GEOMETRY & SIZE	Spherical ~ 50 – 150 µm	
CROSSLINKED	Highly crosslinked	
TEMPERATURE STABILITY	Autoclavable at 121 °C for 20 min in H ₂ O	
pH STABILITY	pH 1.8-14 short term / pH 3.8-13 long term	
CHEMICAL STABILITY	Most commonly used aqueous and organic solutions including: 1 M NaOH, 8 M Urea, 6 M guanidine HCl, 75% ethanol	
AGAROSE %	4%	6%
EXCLUSION LIMIT (GLOBULAR PROTEINS)	~ 3 X 10 ⁷	~ 4 X 10 ⁶
MAXIMUM FLOW RATE AT 15 cm BED HEIGHT ⁽¹⁾	≥ 500 cm /h	≥ 1000 cm /h
MAXIMUM PRESSURE AT 15 cm BED HEIGHT ⁽¹⁾	≥ 150 kPa	≥ 300 kPa
ANTIMICROBIAL AGENT	20% Ethanol	
STORAGE TEMPERATURE	2 - 30°C	

For further information concerning different agarose concentrations, bead sizes or monodispersed beads, contact customized@abtbeads.com

¹ Column; XK 16/40 bed height 15 cm. System: Äkta Purifier UPC 100. Maximum flow rates: The highest flow that beads withstood for 1 minute without collapsing and the pressure reaching 1 MPa.
X: Product quantity (500 ml, 1 L or 10 L).

SIZE EXCLUSION CHROMATOGRAPHY

LOW PRESSURE: Sepadextran™

Sepadextran™ is a beaded gel filtration medium prepared by crosslinking dextran and supplied in dry form.

ABT offers two types of Sepadextran™ (25 & 50) that differ in their degree of crosslinking and hence in their degree of swelling and molecular fractionation range. Both types are available in three different particles sizes (Medium, Fine & Superfine). Medium grade is suitable for separations at high flow rates and low operating pressures and Fine & Superfine grades are for preparative separations and routine laboratory work.

TECHNICAL SPECIFICATIONS

PRODUCT	SEPADEXTRAN™-25		
	MEDIUM	FINE	SUPERFINE
CAT No.	SD25M-X	SD25F-X	SD25SF-X
MATRIX	Crosslinked dextran		
WATER REGAIN	2.15 – 2.25 ml/g		
SWELLING	4 – 6 ml/g		
DRY PARTICLE SIZE	50-150 µm (>80%)	20-80 µm (>80%)	20-50 µm (>80%)
WET PARTICLE SIZE	85-260 µm	35-140 µm	35-90 µm
MAXIMUM OPERATING PRESSURE	Generally obeys Darcy’s Law: $U=K_o \Delta P/L$ Where: U=linear flow rate (cm/h). ΔP = pressure drop over gel bed (cm H ₂ O). L= bed high (cm)		
	Ko=80	Ko=30	Ko=9
CHEMICAL STABILITY	All commonly used buffers, including: 0.1 M NaOH; 0.01 M HCl; 1 M acetic acid; 8 M urea; 6 M guanidine HCl; 1% SDS, 24% Ethanol; 30% Propanol; 30% Acetonitrile		
FRACTIONATION RANGE	1- 5 kD for globular proteins, 100 - 5,000 D for dextrans		
pH STABILITY	2.0 to 13.0		
AUTOCLAVABLE	121°C, pH 7.0 (30 minutes)		
STORAGE TEMPERATURE	Ambient		

X: Product quantity. Medium & Fine (100 g or 500 g). Superfine (100 g).

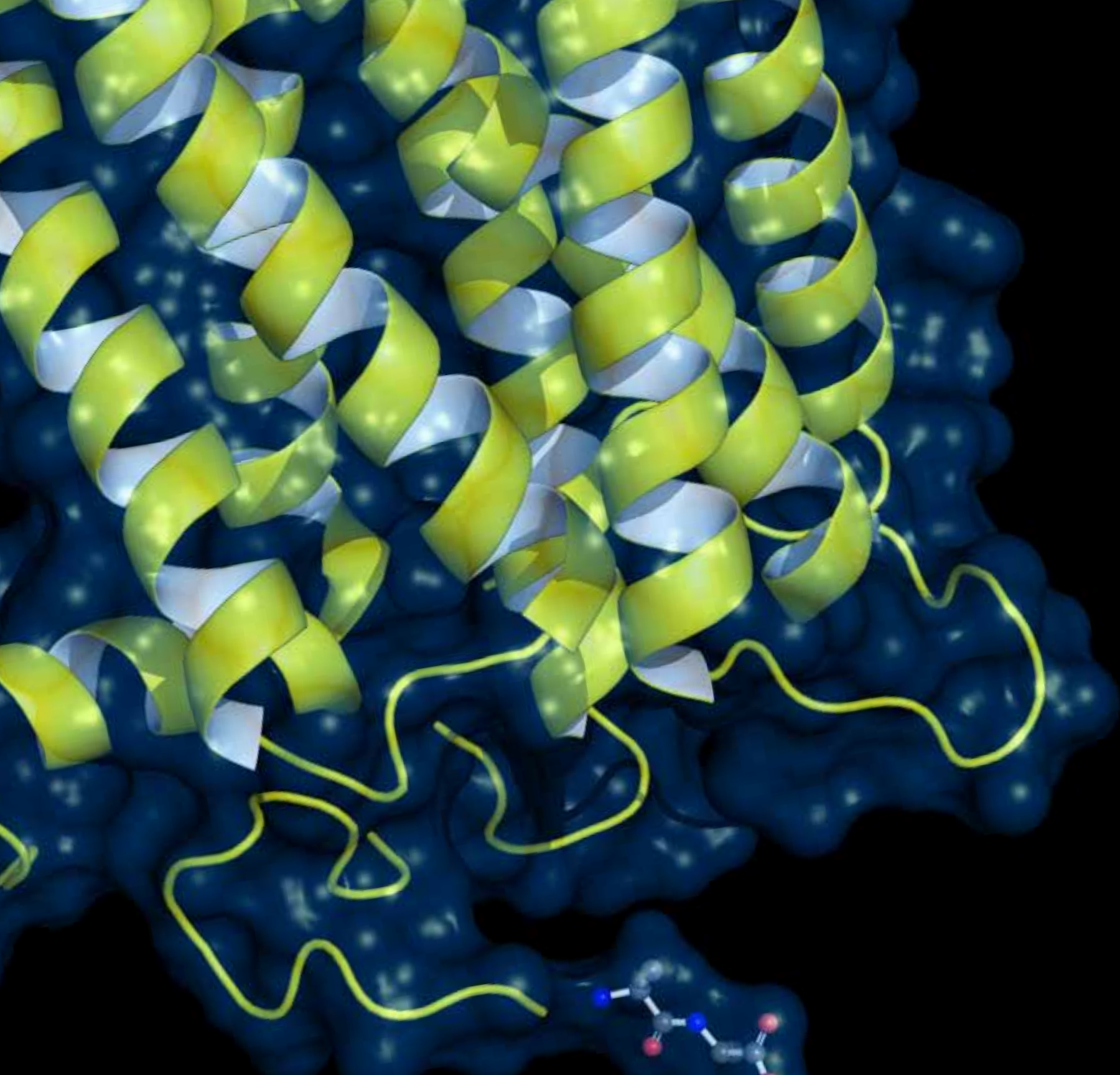
Sepadextran™-25 can be used for protein and nucleic acid purifications with the exclusion limit of 5kD for proteins and 10 bases for nucleic acids. Desalting (before IEX and after HIC or Affinity Chromatography) & buffer exchange (between different chromatography steps) are other common applications.

Sepadextran™-50 can be used for protein and nucleic acid purifications with the exclusion limit of 25kD for proteins and 20 bases for nucleic acids.

TECHNICAL SPECIFICATIONS

PRODUCT	SEPADEXTRAN™-50		
	MEDIUM	FINE	SUPERFINE
CAT N°	SD50M-X	SD50F-X	SD50SF-X
MATRIX	Crosslinked dextran		
WATER REGAIN	4.80 – 5.20 ml/g		
SWELLING	9 – 11 ml/g		
DRY PARTICLE SIZE	50-150 µm (>80%)	20-80 µm (>80%)	20-50 µm (>80%)
WET PARTICLE SIZE	100-300 µm	40-160 µm	40-100 µm
MAXIMUM OPERATING PRESSURE	Generally obeys Darcy's Law: $U=K_o \Delta P/L$ Where: U=linear flow rate (cm/h). ΔP = pressure drop over gel bed (cm H ₂ O). L= bed high (cm) Ko=145 Ko=36 Ko=13,5		
CHEMICAL STABILITY	All commonly used buffers, including: 0.1 M NaOH; 0.01 M HCl; 1 M acetic acid; 8 M urea; 6 M guanidine HCl; 1% SDS, 24% Ethanol; 30% Propanol; 30% Acetonitrile		
FRACTIONATION RANGE	1.5- 30 kD for globular proteins, 0.5-10 kD for dextrans		
pH STABILITY	2.0 to 13.0		
AUTOCLAVABLE	121°C, pH 7.0 (30 minutes)		
STORAGE TEMPERATURE	Ambient		

X: Product quantity, Medium & Fine (100 g or 500 g), Superfine (100 g).



AFFINITY CHROMATOGRAPHY

Purification of proteins is a vital part of modern research. Impure extracts generally contain a wide range of proteins with diverse biological functions and different chemistry which need to be separated.

Affinity Chromatography is a technique that separates tagged proteins and other biomolecules using biological interactions. This technique has high selectivity and is widely used to obtain proteins with high purity at high yields.

His-tag Purification

- LOW PRESSURE: - Chelating Agarose Beads
- NTA Agarose Beads
- HIGH PRESSURE: - Chelating Rapid Run™ Agarose Beads

Antibody Purification

- LOW PRESSURE: - Protein A Agarose Beads
- Protein L Agarose Beads
- HIGH PRESSURE: - Protein A Rapid Run™ Agarose Beads
- AFFI-MAB™ Agarose Beads
- Protein G Rapid Run™ Agarose Beads
- Protein A/G Rapid Run™ Agarose Beads

GST Purification

- LOW PRESSURE: - Glutathione Agarose Beads

Biotin/Avidin Binding Purification

- LOW PRESSURE: - Biotin Agarose Beads
- HIGH PRESSURE: - Streptavidin Rapid Run™ Fine

AFFINITY CHROMATOGRAPHY

HIS-TAG PURIFICATION

Affinity Chromatography (IMAC) is the most widely used purification technique. It is based on the interaction between certain superficial protein residues (histidines, cysteines and to a lesser extent tryptophans), with transition metal cations, forming chelates. The transition metal/protein complex is then bound to chelating groups attached to the agarose beads. Elution is usually by lowering pH or by adding imidazole.

LOW PRESSURE

ABT manufactures two types of chelating beads using standard crosslinked beads and two different ligands iminodiacetic acid (IDA) and nitrilotriacetic acid (NTA).

IDA crosslinked agarose resin consists of iminodiacetic acid groups ligated by stable ether linkages via a spacer arm. IDA is a tridentate chelating agent, covalently coupled to crosslinked agarose beads. This resin is loaded with a divalent metal (Ni^{2+} , Cu^{2+} , Zn^{2+} or Co^{2+}). The resulting resin (ready to use) is ideal for rapid purifications of His-tagged proteins.

In comparison with other chelating resins such as NTA-agarose, the IDA has three sites available for the interaction with metal ions, instead of the four with NTA. IDA resins are usually more easily regenerated, allowing a better elution of the fused proteins bound with lower concentrations of imidazole.

The product range covers four different types of metal and two different densities of groups on the beads.

- Nickel chelates recognize two exposed target residues (usually histidines) for an efficient protein binding and it is recommended in the majority of resins.
- Zinc chelates seems to recognize two exposed target residues in vicinal position and it is recommended to work with proteins that are difficult to separate.
- Cobalt chelates recognize two exposed target vicinal residues. This resin provides very good selectivity.
- Copper chelates recognize one single exposed target residue. This resin is recommended for proteins that are difficult to separate.

The choice of resin depends on the objectives/priorities for each purification (binding capacity/selectivity) and the type of protein to be purified (easy or difficult to separate).

The user can optimize the best recovery system by using Test Kit approach. Test Kits contains a small quantity of several resins and permits to choose the best option in each purification run.

ABT offers different product formats: Bulk, Pre-Packed Columns and Cartridges.

NTA crosslinked Agarose Resin consists of agarose derivatized with Nitrilotriacetic acid (NTA) and loaded with divalent nickel ions. NTA is a tetradentate chelator which occupies four of six binding sites in the coordination sphere of nickel ion. The other two coordination sites are usually occupied by water molecules that can interact with histidine residues of the recombinant protein. This binding minimizes metal leaching during purification.

HIGH PRESSURE

Nickel & Cobalt are the most commonly used metal ions for IMAC purifications. Nickel/ Cobalt Rapid Run™ beads combine the advantages of the metal with the high flow rates of the Rapid Run™ resin. These products are excellent for large scale His-tagged protein purifications.

AFFINITY CHROMATOGRAPHY

HIS-TAG PURIFICATION

LOW PRESSURE: Chelating Agarose Beads

Bulk Resins

ABT offers resins for purifications of histidine-tagged proteins by Immobilized Metal Affinity Chromatography (IMAC).

- Different grades of activation to optimize the relationship between binding capacity and purification selectivity
- Resins charged with Ni, Cu, Zn or Co as well as metal free
- For batch or column purifications
- Test Kit available to choose the best option in each purification run

TECHNICAL SPECIFICATIONS

PRODUCT	HIGH Density	LOW Density
	METAL FREE/NICKEL/ZINC/COBALT	METAL FREE/NICKEL/ZINC/COPPER
BEAD GEOMETRY & SIZE	Spherical, Standard: ~ 50 - 150 µm	
CROSSLINKED	Yes	
AGAROSE %	6%	
MATRIX	Stable in all commonly used reagents	
BINDING/LOADING CAPACITY (µmol Me ²⁺ /ml gel)	20-40	5-19
ANTIMICROBIAL AGENT	20% Ethanol	
STORAGE TEMPERATURE	2 - 8°C	

	CAT. No.
HIGH Density METAL FREE	6BCL-QH-X
LOW Density METAL FREE	6BCL-QL-X
HIGH Density NICKEL	6BCL-QHNi-X
LOW Density NICKEL	6BCL-QLNi-X
HIGH Density ZINC	6BCL-QHZn-X
LOW Density ZINC	6BCL-QLZn-X
HIGH Density COBALT	6BCL-QHCo-X
LOW Density COPPER	6BCL-QLCu-X

Pre-Packed Columns

ABT offers Pre-Packed ready to use columns for purifications of histidine-tagged proteins by Immobilized Metal Affinity Chromatography (IMAC). Fast and simple purification.

- For gravity flow
- No need of purification systems
- Available for Ni and Co chelating resins
- Contains 1 or 5 ml of gel



TECHNICAL SPECIFICATIONS

PRODUCT	His-COLUMN HIGH Density		His-XL COLUMN HIGH Density	
	NICKEL	COBALT	NICKEL	COBALT
CAT No.	6BCL-QHNI-C8	6BCL-QHCO-C8	6BCL-QHNI-C5	6BCL-QHCO-C5
BEAD GEOMETRY & SIZE	Spherical, Standard: ~ 50 - 150 µm			
CROSSLINKED	Yes			
AGAROSE %	6%			
COLUMN MATERIAL	Polypropylene column and polyethylene frit			
BED VOLUME	1 ml		5 ml	
QUANTITY OF COLUMNS	8 Gravity Pre-Packed columns		5 Gravity Pre-Packed columns	
LOADING CAPACITY (µmol Me ²⁺ /ml gel)	20-40			
ANTIMICROBIAL AGENT	20% Ethanol			
STORAGE TEMPERATURE	2 - 8°C			

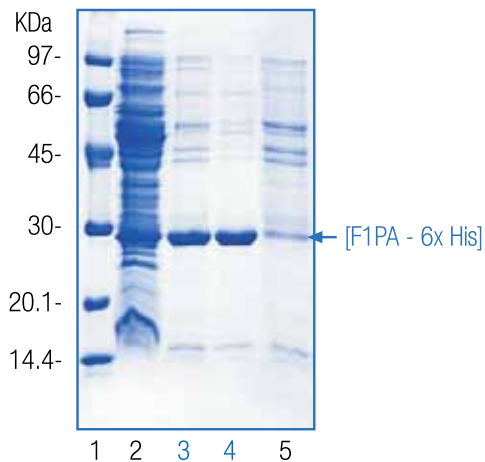
AFFINITY CHROMATOGRAPHY

HIS-TAG PURIFICATION

LOW PRESSURE: Chelating Agarose Beads

Nickel Chelating Beads comparisons

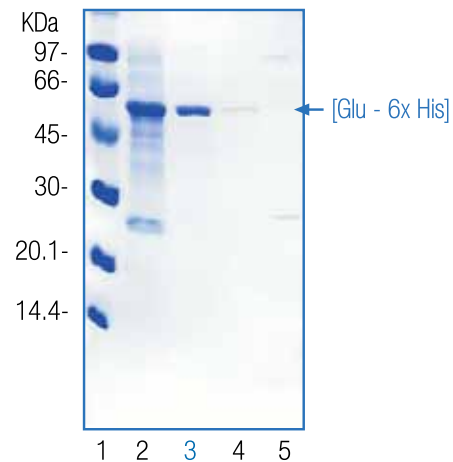
Unpurified extract containing Fuculose -1-aldolase (6xHis) was tested under the same conditions with different NICKEL charged chelating beads. The SDS-PAGE shows the eluted fraction in all resins.



1. Low Molecular weight markers (LMW)
2. F1PA (6xHis) extract
3. ABT Product 1
4. ABT Product 2
5. Competitor

Cobalt Chelating Beads comparisons

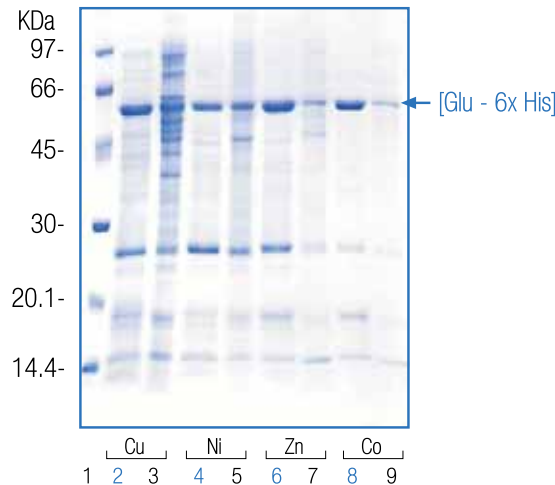
Unpurified extract containing Glutaryl acylase (6xHis) was tested under the same conditions with different COBALT charged chelating beads. The SDS-PAGE shows the eluted fraction in all resins.



1. Low Molecular weight markers (LMW)
2. Glutaryl acylase (6xHis) extract
3. ABT Product
4. Competitor 1
5. Competitor 2

Different Chelating Beads comparisons

Unpurified extract containing Glutaryl acylase (6xHis) was tested under the same conditions with different METAL charged chelating beads. The SDS-PAGE shows the eluted fraction for all resins.



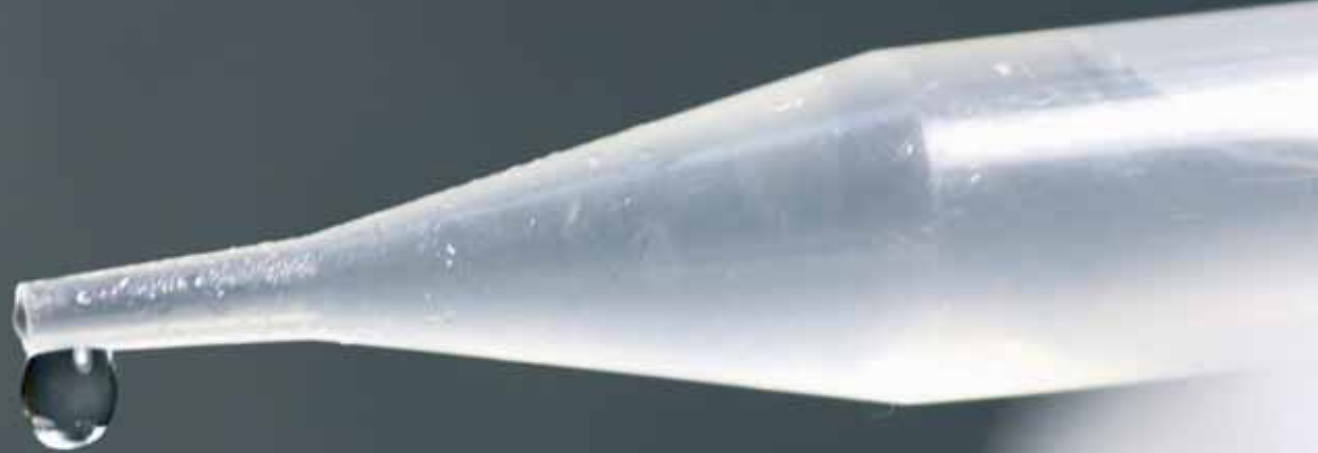
1. Low Molecular weight markers (LMW)
2. ABT-COPPER charged resin
3. Competitor-COPPER charged resin
4. ABT-NICKEL charged resin
5. Competitor-NICKEL charged resin
6. ABT-ZINC charged resin
7. Competitor-ZINC charged resin
8. ABT-COBALT charged resin
9. Competitor-COBALT charged resin

Binding Capacity Results comparisons

Purified Dehydroxyacetone Kinase (6xHis) was tested under the same conditions with different METAL charged chelating beads. The table shows the binding capacity.

METAL CHARGED RESIN	PRODUCT	BINDING CAPACITY mg DHAK-(6xHis) purified/ml gel
NICKEL	ABT	117
	Competitor 1	112
	Competitor 2	40
	Competitor 3	82
COBALT	ABT	135
	Competitor 1	56
	Competitor 2	29
	Competitor 3	16

Comparison carried out by an independent laboratory.



AFFINITY CHROMATOGRAPHY

HIS-TAG PURIFICATION

LOW PRESSURE: NTA Agarose Beads

Bulk Resins

Nickel NTA Agarose Resin consists of crosslinked agarose derivatized with Nitrilotriacetic acid (NTA) and loaded with divalent nickel ions. This resin is the most common IMAC resin for working in reducing conditions because of the four metal-binding sites on the chelate, which enables high-protein binding and minimal metal leaching.

- One step purification
- High capacity
- Purification under native or denaturing conditions
- Minimum metal leaching

TECHNICAL SPECIFICATIONS

PRODUCT	Nickel NTA Agarose Resin
CAT. No.	6BCL-NTANi-X
BEAD GEOMETRY & SIZE	Spherical, Standard: ~ 50 - 150 µm
CROSSLINKED	Yes
AGAROSE %	6%
LIGAND	Nitrilotriacetic acid (NTA)
STATIC BINDING CAPACITY	> 50 mg/ ml gel ⁽¹⁾
ANTIMICROBIAL AGENT	30% Ethanol
STORAGE TEMPERATURE	4 - 8°C

¹ Static binding capacity will differ for each target protein.
X: Product quantity (25, 100 or 500 ml).

AFFINITY CHROMATOGRAPHY

HIS-TAG PURIFICATION

HIGH PRESSURE: Chelating Rapid Run™ Agarose Beads

Bulk Resins

Nickel & Cobalt are the most commonly used metal ions for IMAC purifications. Nickel/Cobalt Rapid Run™ beads combine the advantages of the metal with the high flow rates of the Rapid Run™ resin.

These beads Nickel/Cobalt Rapid Run™ chelating agarose beads are designed for large scale downstream purification of His-tagged proteins using IMAC technology and support 70% higher flow rates than other commercially available products.

- Easy scale up and robust function
- High chemical and physical stabilities
- Good resolution in minimal time

TECHNICAL SPECIFICATIONS

PRODUCT	NICKEL RAPID RUN™	COBALT RAPID RUN™
CAT. No.	6NiRR-X	6CoRR-X
BEAD GEOMETRY & SIZE	Spherical, Standard: ~ 50 - 150 µm	
EXCLUSION LIMIT	~ 4 X 10 ⁶	
CROSSLINKED	Highly crosslinked	
AGROSE %	6%	
MAXIMUM FLOW RATE AT 15 cm bed height ⁽¹⁾	≥ 1000 cm/h	
MAXIMUM PRESSURE AT 15 cm bed height ⁽¹⁾	≥ 300 kPa	
LOADING CAPACITY (µmol Me ²⁺ /ml gel)	~ 20	
LIGAND	Iminodiacetic acid	
ANTIMICROBIAL AGENT	20% Ethanol	
STORAGE TEMPERATURE	2 - 8°C	

¹ Data corresponding to the non-activated Rapid Run™ beads. Column: XK 16/40 bead height 15 cm. System Äkta Purifier UPC 100. Maximum flow rate: The highest flow that beads withstood for 1 minute without collapsing and the pressure reaching 1MPa.

X: Product quantity (5, 25, 100 or 500 ml).

Cartridges

Nickel Affinity Cartridges 5ml are used for purification of histidine-tagged proteins.

- No need for optimization or protocol change
- Great adaptability: Cartridges suitable for MPLC, FPLC, ÄKTA™ design
- High purity achieved in one purification step, comparable to market standards



TECHNICAL SPECIFICATIONS

PRODUCT	NICKEL AFFINITY CARTRIDGES 5ml
CAT. No.	AF6Ni-Ctg5-X
BEAD GEOMETRY & SIZE	Spherical, Fine: ~ 20 - 50 µm
DESCRIPTION	Cartridges 5 ml resin
CROSSLINKED	Highly crosslinked
AGROSE %	6%
LIGAND	Iminodiacetic acid
MATRIX	Stable in all commonly used reagents ⁽¹⁾
RECOMMENDED FLOW RATE	5 ml /min
APPLICATION	Automated liquid chromatography (MPLC, FPLC™, ÄKTA™ design) peristaltic pump & syringe
CARTRIDGE PORTS	Standard 10 – 32 fitting without additional connectors
ANTIMICROBIAL AGENT	20% Ethanol
STORAGE TEMPERATURE	2 - 8°C

¹ See stability table in Procedure for Use. Larger amounts available on request. Note: Binding capacity was tested using purified Dehydroxyacetone Kinase (6 x His) and the result was 110 mg DHAK-(6x His) purified / ml medium. This is only an indicative value because binding capacity can be affected by several factors such as sample concentration, binding buffer and the flow rate during sample application. ABT offers the option to pre-pack cartridges (contact customized@abtbeads.com).

X: Quantity of cartridges (1 or 5).

AFFINITY CHROMATOGRAPHY

ANTIBODY PURIFICATION

Protein A Agarose Beads

Protein A is a cell wall component of *Staphylococcus aureus*. It consists of a single polypeptide chain, which contains five antibody-binding domains. These high affinity regions are specifically bonded to the Fc region of the immunoglobulin G (IgG). Other types like IgA and IgM might bind to Protein A via Fab interaction.

Protein A is temperature stable and it retains its native conformation even in the presence of denaturing agents. Protein A resins have been widely used to purify a wide range of immunoglobulins of different mammalian species and also to purify certain IgG subclasses that have no affinity.

ABT offers Protein A products with competitive advantages compared to market standards:

- High IgG-binding capacity resin (around 25 mg human IgG / ml)
- High stability binding of Protein A: resin is reusable with no significant loss of binding capacity

These resins are available in Low & High Pressure versions.



RELATIVE AFFINITY OF IMMOBILIZED PROTEIN A FOR VARIOUS SPECIES AND SUBCLASSES
OF POLYCLONAL AND MONOCLONAL IgGs⁽¹⁾

SPECIES / SUBCLASS	PROTEIN A	SPECIES / SUBCLASS	PROTEIN A
<i>Monoclonal</i>		<i>Polyclonal</i>	
Human		Rabbit	+++++
IgG ₁	+++++	Cow	++
IgG ₂	+++++	Horse	++
IgG ₃	---	Goat	-
IgG ₄	+++++	Guinea Pig	+++++
Mouse		Sheep	+/-
IgG ₁	+	Pig	+++
IgG _{2a}	+++++	Rat	+/-
IgG _{2b}	+++	Mouse	++
IgG ₃	++	Chicken	---
Rat		Human IgG	+++++
IgG ₁	---	Human IgM	---
IgG _{2a}	---	Human IgD	---
IgG _{2b}	---	Human IgA	---
IgG _{2c}	+		

¹Harlow, E. And Lane, D. eds. (1988). Antibodies, A. Laboratory Manual. Cold Spring Harbor Laboratory, N.Y., 617-618.

AFFINITY CHROMATOGRAPHY

ANTIBODY PURIFICATION

LOW PRESSURE: Protein A Agarose Beads

Bulk Resins

ABT offers ^TProtein A resins for purifications of a wide range of immunoglobulins of different mammalian species and also to purify certain IgG subclasses that have no affinity.

- Get more of your antibody: higher IgG binding capacity
- Get a better purification: higher stability binding of the ^TProtein A
- Save time and money: reusable. Low leakage levels due to very stable immobilization

TECHNICAL SPECIFICATIONS

PRODUCT	PROTEIN A Agarose Resin	PROTEIN A Test Kit
CAT No.	PA09-X	PA09-K-01
BEAD GEOMETRY & SIZE	Spherical, Standard: ~ 50-150 µm	
CROSSLINKED	Yes	
AGAROSE %	4%	
COUPLING METHOD	Covalent binding by reductive amination.	
STATIC BINDING CAPACITY	~25 mg human IgG / ml resin	
ANTIMICROBIAL AGENT	20% Ethanol	
STORAGE TEMPERATURE	2 - 8°C	

Protein A Test Kit is a Pre-Packed ready to use product for gravity flow purification and includes 100 µl of resin. This format allows the user to pretest the resin before large scale use.



HIGH PRESSURE: Protein A Rapid Run™ Agarose Beads

Bulk Resins

Protein A Agarose 4 Rapid Run™ resin allows batch or column purifications and it is specially recommended for high flow rates.

TECHNICAL SPECIFICATIONS

PRODUCT	PROTEIN A Agarose Resin 4 RAPID RUN™
CAT No.	4RRPA-X
BEAD GEOMETRY & SIZE	Spherical, Standard: ~50-150 µm
CROSSLINKED	Highly crosslinked
AGAROSE %	4%
COUPLING METHOD	Covalent binding by reductive amination
STATIC BINDING CAPACITY	~25 mg human IgG / ml resin
ANTIMICROBIAL AGENT	20% Ethanol
STORAGE TEMPERATURE	2 - 8°C

X: Product quantity (5, 25 or 500ml)

AFFINITY CHROMATOGRAPHY

ANTIBODY PURIFICATION

HIGH PRESSURE: AFFI-MAB™ Fine Agarose Beads

AFFI-MAB™ Fine Agarose Beads are products specially designed to capture antibodies providing fast and efficient purifications.

The stable binding of the recombinant protein formed by aldehyde coupling chemistry and the novel NaOH tolerant modified 'Protein A allows cleaning and sanitization by using 0.1 to 0.5 M NaOH.

AFFI-MAB™ Fine Agarose Resins is a product that allows batch or column purifications. ABT offers Test Kits, a ready to use format that contains 100 µl of resin packed in a column that works by gravity. This format allows the user to pretest the resin before large scale use.

TECHNICAL SPECIFICATIONS

PRODUCT	AFFI-MAB™ Fine Agarose Resin	AFFI-MAB™ Fine Test Kit
CAT. No.	MABRRF-X	MABRRF-K-01
BEAD GEOMETRY & SIZE	Spherical, Fine: ~ 20 - 50 µm	
CROSSLINKED	Highly crosslinked	
AGROSE %	6%	
LIGAND	Alkali-tolerant variant of Protein A	
STATIC BINDING CAPACITY	~ 75 mg human IgG / ml resin ⁽¹⁾	
ANTIMICROBIAL AGENT	20% Ethanol	
STORAGE TEMPERATURE	2 - 8°C	

¹ Dynamic binding capacity: ~67.1 mg human IgG /ml resin at 100cm/h and ~47.0 mg human IgG /ml resin at 300cm/h. Column size: 5 x 105mm
X: Product quantity (5, 10 or 25 ml).

RELATIVE AFFINITY OF AFFI-MAB™ FOR VARIOUS SPECIES AND SUBCLASSES OF POLYCLONAL AND MONOCLONAL IgGs

SPECIES / SUBCLASS	AFFI-MAB™
<i>Monoclonal</i>	
Human	
IgG ₁	++++
IgG ₂	++++
IgG ₃	-
IgG ₄	++++
Mouse	
IgG ₁	++
IgG _{2a}	++++
IgG _{2b}	+++
IgG ₃	++
Rat	
IgG ₁	++++
IgG _{2a}	-
IgG _{2b}	+++
IgG _{2c}	++

SPECIES / SUBCLASS	AFFI-MAB™
<i>Polyclonal</i>	
Rabbit	++++
Cow	++
Horse	++
Goat	+++
Guinea Pig	++++
Sheep	ND
Pig	ND
Rat	+++
Mouse	++++
Chicken	-
Human IgG	++++
Human IgM	-/+
Human IgD	ND
Human IgA	-

ND: Not Determined.
-/+ : There are two types of IgM which bind and not bind to AFFI-MAB™.

AFFINITY CHROMATOGRAPHY

ANTIBODY PURIFICATION

HIGH PRESSURE: Protein G Rapid Run™ Agarose Beads

Recombinant Protein G contains only IgG binding domains. The albumin-binding domain as well as cell wall and cell membrane binding domains of native Protein G have been removed to ensure the maximum specific IgG binding capacity.

Protein G products (Test Kit and Bulk Resins) have competitive advantages compared to market standards:

- High stability binding of Protein G
- Resin is reusable with no significant loss of binding capacity

ABT offers Protein G resins to isolate and purify classes, subclasses and fragments of immunoglobulins from cell culture media and biological fluids. Rapid purifications and high yield of purified immunoglobulin are obtainable by this method. Protein G

is immobilized by means of covalent binding that minimize protein G leakage and allows for column re-use.

Protein G Test Kit is a Pre-Packed ready to use product for gravity flow purification and includes 100 µl of resin. This format allows the user to pretest the resin before large scale use.

TECHNICAL SPECIFICATIONS

PRODUCT	PROTEIN G Agarose Resin 4 RAPID RUN™	PROTEIN G Test Kit
CAT. No.	4RRPG-X	4RRPG-K-01
BEAD GEOMETRY & SIZE	Spherical, Standard: ~ 50-150 µm	
CROSSLINKED	Highly crosslinked	
AGAROSE %	4%	
COUPLING METHOD	Coupling binding by reductive amination	
STATIC BINDING CAPACITY	~20 mg human IgG / ml resin	
ANTIMICROBIAL AGENT	20% Ethanol	
STORAGE TEMPERATURE	2 - 8°C	

RELATIVE AFFINITY OF IMMOBILIZED PROTEIN G FOR VARIOUS SPECIES AND SUBCLASSES OF POLYCLONAL
AND MONOCLONAL IgGs ⁽¹⁾

SPECIES / SUBCLASS	PROTEIN G
<i>Monoclonal</i>	
Human	
IgG ₁	++++
IgG ₂	++++
IgG ₃	++++
IgG ₄	++++
Mouse	
IgG ₁	++++
IgG _{2a}	++++
IgG _{2b}	+++
IgG ₃	+++
Rat	
IgG ₁	+
IgG _{2a}	++++
IgG _{2b}	++
IgG _{2c}	++

SPECIES / SUBCLASS	PROTEIN G
<i>Polyclonal</i>	
Rabbit	+++
Cow	++++
Horse	++++
Goat	++
Guinea Pig	++
Sheep	++
Pig	+++
Rat	++
Mouse	++
Chicken	+
Human IgG	++++
Human IgM	+
Human IgD	+
Human IgA	+

¹Harlow, E. And Lane, D. eds. (1988). Antibodies, A. Laboratory Manual. Cold Spring Harbor Laboratory, N.Y., 617-618.

AFFINITY CHROMATOGRAPHY

ANTIBODY PURIFICATION

LOW PRESSURE: Protein L Agarose Beads

Protein L is an immunoglobulin-binding protein that was isolated from the bacteria *Peptostreptococcus magnus* and provides a convenient way to separate immunoglobulins from a variety of sources.

Protein L contains four immunoglobulin binding domains of the native protein and may be used for the purification of IgG, IgM, IgA and IgD containing kappa light chains from various species without interfering with the antigen binding site.

Besides antibody, Protein L is also suitable for binding of a wide range of antibody fragments such as Fabs, single-chain variable fragments (scFv), and domain antibodies (Dabs).

Protein L is immobilized by means of covalent binding that minimizes protein L leakage and allows for column re-use.

Protein L Agarose Resin are products that allow for batch or column purifications.

Protein L Test Kit is in ready-to-use format that contains 100 µl of resin packed in a column that works by gravity. This format allows the user to pretest the resin before larger scale use.

TECHNICAL SPECIFICATIONS

PRODUCT	PROTEIN L Agarose Resin	PROTEIN L Test Kit
CAT. No.	4BCLPL-X	4BCLPL-K-01
BEAD GEOMETRY & SIZE	Spherical, Standard: ~ 50-150 µm	
CROSSLINKED	Yes	
AGAROSE %	4%	
COUPLING METHOD	Covalent binding by reductive amination	
STATIC BINDING CAPACITY	~10 mg human IgG / ml resin	
ANTIMICROBIAL AGENT	20% Ethanol	
STORAGE TEMPERATURE	2 - 8°C	

BINDING OF IMMUNOGLOBULINS TO PROTEIN L

SPECIES / SUBCLASS	PROTEIN L
Human	
Total IgG	+++
IgG ₁	++++
IgG ₂	++++
IgG ₃	+++
IgG ₄	++++
IgA	+++
IgA ₁	+++
IgA ₂	+++
IgD	+++
IgE	+++
IgM	+++
Cow	
Total IgG	-
IgG ₁	-
IgG ₂	-
Horse	ND
Cat	ND
Dog	ND
Chicken	
IgY	+

SPECIES / SUBCLASS	PROTEIN L
Mouse	
Total IgG	+++
IgG1	+++
IgG2a	+++
IgG2b	+++
IgG3	+++
IgM	+++
Rat	
Total IgG	+++
IgG1	+++
IgG2a	+++
IgG2b	+++
IgG2c	+++
IgG3	ND
Hamster	+++
Rabbit	+
Pig	+++
Guinea-pig	
IgG1	ND
IgG2	ND

ND: Not Determined.



AFFINITY CHROMATOGRAPHY

ANTIBODY PURIFICATION

HIGH PRESSURE: Protein A/G Rapid Run™ Agarose Beads

Protein A/G Agarose Resin 4 Rapid Run™ contains a mixture of 50% Protein G Agarose Resin 4 Rapid Run™ & Protein A Agarose Resin 4 Rapid Run™ in 20% ethanol. This resin is used to isolate mouse IgG₁, IgG_{2a}, IgG_{2b}, IgG₃ and IgA, rat IgG₁, IgG_{2a}, IgG_{2b}, IgG_{2c}, rabbit and goat polyclonal and human IgG₁, IgG₂, IgG₃ and IgG₄.

Protein G and Protein A are immobilized by means of covalent binding that minimizes protein loss and allows for column re-use.

This product is supplied as a suspension in 20% ethanol 50:50 (Mixture of Resins: Preservative).

TECHNICAL SPECIFICATIONS

PRODUCT	PROTEIN A/G Agarose Resin 4 RAPID RUN™	PROTEIN A/G Test Kit
CAT. No.	4RRPAG-X	4RRPAG-K-01
BEAD GEOMETRY & SIZE	Spherical, Standard: ~50-150 µm	
CROSSLINKED	Highly crosslinked	
AGAROSE %	4%	
CHEMICAL STABILITY	Covalent binding	
STATIC BINDING CAPACITY	~25 mg human IgG / ml resin	
ANTIMICROBIAL AGENT	20% Ethanol	
STORAGE TEMPERATURE	2 - 8°C	

Protein A/G Test Kit is a Pre-Packed ready to use product for gravity flow purification and includes 50 µl of each resins. This format allows the user to pretest the resin before large scale use.

AFFINITY CHROMATOGRAPHY

GST PURIFICATION

LOW PRESSURE: Glutathione Agarose Beads

Glutathione Agarose Resins provides a one step purification method and permits rapid, mild and highly selective purifications of proteins containing glutathione binding sequences. Bound GST-fusion proteins are easily displaced from the resin by elution with buffers containing reduced glutathione.

This resin is used to purify of Glutathione-S-transferase (GST) and GST-tagged fusion proteins.

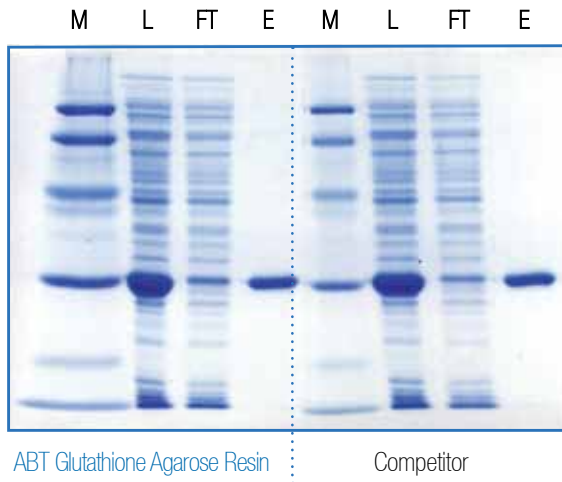
- For all kind of proteins: small and large protein complex
- Simple protocol and no need for optimization
- Great adaptability: Bulk format suitable for batch & column purifications
- High purity achieved in one purification step, comparable to market standards

TECHNICAL SPECIFICATIONS

PRODUCT	GLUTATHIONE Agarose Resin
CAT. No.	4B-GLU-X
BEAD GEOMETRY & SIZE	Spherical, Standard: ~50-150 µm
CROSSLINKED	No
AGAROSE %	4%
LIGAND	Glutathione, linked via sulphur atom
STATIC BINDING CAPACITY	> 8 mg recombinant GST /ml gel
ANTIMICROBIAL AGENT	20% Ethanol
STORAGE TEMPERATURE	4 - 8°C

Glutathione Agarose Beads Comparisons

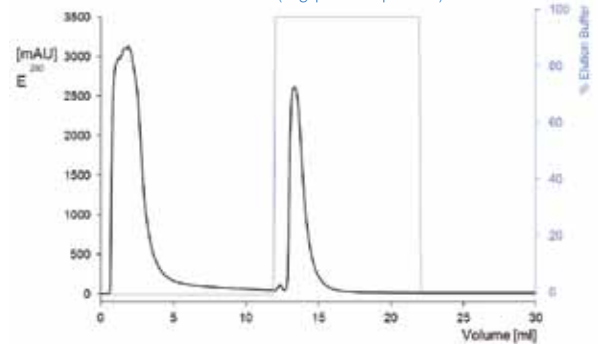
Clarified *E.coli* lysate containing recombinant Glutathione-S-Transferase, MW 26.100 Da was loaded (under the same conditions) to different Glutathione Agarose Resins.



Chromatograms and SDS-PAGE analysis indicate similar yields and purity.

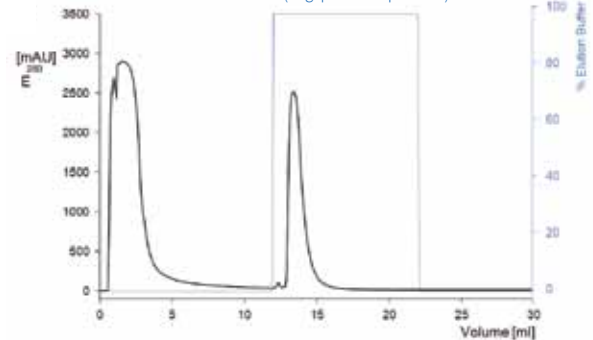
ABT GLUTATHIONE AGAROSE RESIN

12 (mg purified protein)



COMPETITOR

11.3 (mg purified protein)



AFFINITY CHROMATOGRAPHY

BIOTIN/AVIDIN BINDING PURIFICATION

LOW PRESSURE: Biotin Agarose Beads

Biotin Agarose Resin is used for purification or removal of avidin or streptavidin samples. Biotin is immobilized through a spacer arm by means of covalent binding that minimize leakage.

The binding is very strong, making it suitable for non-reversible binding applications (e.g. removal of avidin components from a sample).

TECHNICAL SPECIFICATIONS

PRODUCT	BIOTIN Agarose Resin
CAT No.	4BCL-BI-X
BEAD GEOMETRY & SIZE	Spherical, Standard: ~50-150 µm
CROSSLINKED	Yes
AGAROSE %	4%
COUPLING CHEMISTRY	Carboxy (amide linkage)
AVIDIN BINDING CAPACITY	> 30 mg/ml gel
ANTIMICROBIAL AGENT	0.02% Sodium azide
STORAGE TEMPERATURE	2 - 8°C

HIGH PRESSURE: Streptavidin Rapid Run™ Agarose Beads

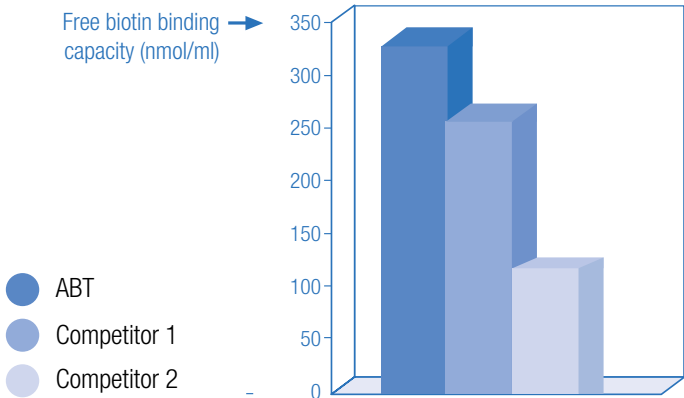
ABT Streptavidin Rapid Run™ Fine is a high biotin binding capacity resin used for the immobilization of biotinylated biomolecules. High specific activity recombinant streptavidin is immobilized on 6% highly crosslinked beaded agarose. With a biotin binding capacity of >300 nmol/ml of gel, Streptavidin Rapid Run™ Fine is the highest loading-capacity resin currently available.

- Superior coupling chemistry: The methods used to prepare this resin are superior to all other immobilization technologies, providing higher binding capacity, lower non-specific binding, and low leakage
- Superior performance: higher binding capacity than streptavidin agarose from other vendors

TECHNICAL SPECIFICATIONS

PRODUCT	SREPTAVIDIN RAPID RUN™ Fine
CAT. No.	6RRF-STV-X
BEAD GEOMETRY & SIZE	Spherical, Fine: ~ 20 - 50 µm
CROSSLINKED	Highly crosslinked
AGAROSE %	6%
FREE BIOTIN BINDING CAPACITY	>330 nmol /ml gel
ANTIMICROBIAL AGENT	10 mM sodium phosphate, 150 mM NaCl, pH 7.2 with 0.05% azide and 1 mM EDTA
STORAGE TEMPERATURE	2 - 8°C

STREPTAVIDIN RAPID RUN™ COMPARISONS



X: Product quantity (2, 5 or 10ml)



HIGH Density
GLYOXAL 6BCL
6BCL-GM3-S0

Activation degree: 30-40 µmol/glyoxal/gross wt gel
Binding capacity: 20-25 mg BSA/gel
Suspension in 0.5 M NaCl containing 0.02% formalin

Size: 2 to 8 µm
Dry: 0.0012 g
LOT No.: 14024-02-021-011-6BCL-ALO

100 ml

Q La Faja, 8 - 28800 - Torrijos de Ardoz - Madrid - SPAIN
Phone: +34 91 701 02 30/32 Fax: +34 91 675 74 44
info@abtoch.es - www.abtoch.es

HIGH Density
GLYOXAL 6BCL
6BCL-GM3-S0

Activation degree: 30-40 µmol/glyoxal/gross wt gel
Binding capacity: 20-25 mg BSA/gel
Suspension in 0.5 M NaCl containing 0.02% formalin

Size: 2 to 8 µm
Dry: 0.0012 g
LOT No.: 14024-02-021-011-6BCL-ALO

100 ml

Q La Faja, 8 - 28800 - Torrijos de Ardoz - Madrid - SPAIN
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www.abtoch.es

LOW
Density
AMINOETHYL 6BCL
6BCL-ALO-100

Activation degree: 15-25 µmol/glyoxal/gross wt gel
Binding capacity: 2-5 mg BSA/gel
Suspension in 0.5 M NaCl containing 0.02% formalin

Size: 2 to 8 µm
Dry: 0.0012 g
LOT No.: 14024-02-021-011-6BCL-ALO

100 ml

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Phone: +34 91 701 02 30/32 Fax: +34 91 675 74 44
www.abtoch.es

LOW
Density
AMINOETHYL 6BCL
6BCL-ALO-250

Activation degree: 15-25 µmol/glyoxal/gross wt gel
Binding capacity: 2-5 mg BSA/gel
Suspension in 0.5 M NaCl containing 0.02% formalin

Size: 2 to 8 µm
Dry: 0.0012 g
LOT No.: 14024-02-021-011-6BCL-ALO

100 ml

Q La Faja, 8 - 28800 - Torrijos de Ardoz - Madrid - SPAIN
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HIGH
Density
GLYOXAL
6BCL
6BCL-GLO-500

Activation degree: 10-25 µmol/glyoxal/gross wt gel
Binding capacity: 5-10 mg BSA/mg gel
Suspension in 0.5 M NaCl containing 0.02% formalin

Size: 2 to 8 µm
Dry: 0.0012 g
LOT No.: 14024-02-021-011-6BCL-ALO

100 ml

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AFFINITY COUPLING

Immobilization is a technique in which a ligand (enzyme, antibody, affinity proteins, etc.) is coupled to a support structure such as agarose beads that provides high stability and easier re-use of the immobilized molecule. The conjugation of affinity ligands and their use in chromatography have extended applications in many fields, including purification procedures, removal of contaminating substances, and biocatalysis.

ABT offers a great range of pre-activated resins that are designed to couple ligands via stable & uncharged covalent linkages that minimize leakage of the affinity ligand and reduce non-specific binding. Two different chemistries of pre-activated beads are provided:

- Glyoxal beads for the covalent binding of agarose to lysine amino groups of the target ligand (similar to CNBr orientation)
- Aminoethyl beads for the covalent binding of agarose to carboxyl amino acids group of the target ligand

ABT also provides resins with different concentrations of agarose (4-6%) and different densities/concentrations of both Glyoxal and Aminoethyl activated groups:

High and Very High activated resins for high recovery and yields:

- High/Very high binding capacity
- High immobilized enzyme stability
- Possibility of multiple binding points

Low and Very Low activated resins for less non-specific binding:

- Good binding capacity
- Immobilized enzyme stability
- Minimum distortion of immobilized enzyme

These resins are excellent options for work in research and industrial scale, conferring a qualitative advantage compared to CNBr agarose resins. The choice of Glyoxal or Aminoethyl will depend on the ligand to be immobilized, the accessibility of the reactive groups and the direction/orientation required for the binding to the support. The easiest strategy is to screen with the Glyoxal or Aminoethyl Test Kit to optimize the best choice of activation degree. These kits provide both High/Very High and Low/Very Low density beads.

AFFINITY COUPLING

AMINO GROUPS

LOW PRESSURE: Glyoxal Agarose Beads

Bulk Resins

Glyoxal Agarose Beads allow a covalent binding of agarose to lysine amino groups of the chosen biomolecule.

These products are adequate to work in batch or column purifications.

TECHNICAL SPECIFICATIONS

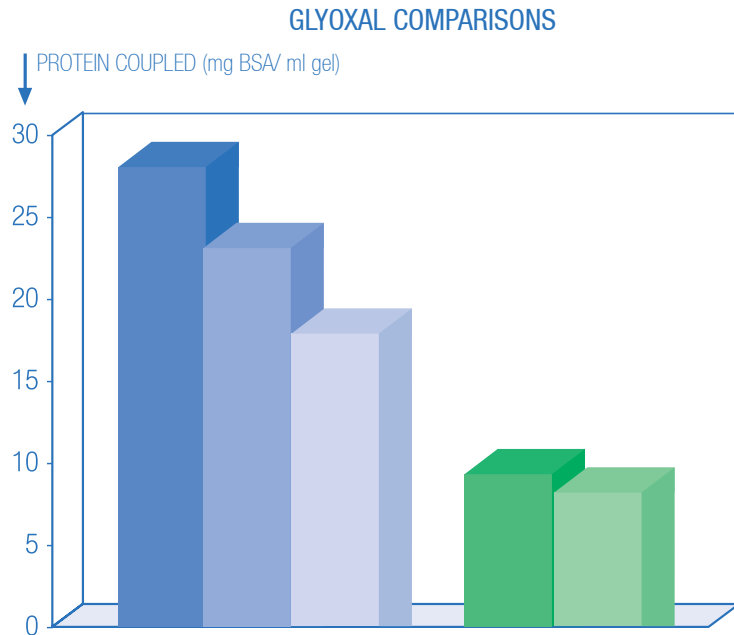
PRODUCT	VERY HIGH Density GLYOXAL 6BCL	HIGH Density GLYOXAL 4BCL6BCL		LOW Density GLYOXAL 4BCL6BCL	
CAT. No.	6BCL-GH1-X	4BCL-GH1-X	6BCL-GM3-X	4BCL-GLO-X	6BCL-GLO-X
BEAD GEOMETRY & SIZE	Spherical, Standard: ~ 50 -150 µm				
CROSSLINKED	Yes				
MATRIX ACTIVE GROUPS	Agarose with some diols oxidized to aldehydes				
AGAROSE %	6%	4%	6%	4%	6%
ACTIVATION DEGREE (µmol Glyoxyl/ml gel)	80 -100	40 - 60	40 - 60	15 - 25	15 - 25
COUPLING CAPACITY ⁽¹⁾ (mg BSA/ml gel)	25 -30	15 - 20	20 -25	5 - 10	5 - 10
ANTIMICROBIAL AGENT	20% Ethanol				
STORAGE TEMPERATURE	2 - 8°C				

ABT

- VERY HIGH Density GLYOXAL 6BCL
- HIGH Density GLYOXAL 6BCL
- HIGH Density GLYOXAL 4BCL

COMPETITOR

- PRODUCT 1
- PRODUCT 2



ABT Glyoxal Resin: Higher amount of protein coupled compared to competitor products.

AFFINITY COUPLING

AMINO GROUPS

HIGH PRESSURE: Glyoxal Rapid Run™ Agarose Beads

Bulk Resins

Glyoxal Rapid Run™ Agarose Beads is a pre-activated resin that combines the advantages of Glyoxal resins with the high flow and stability characteristics of our highly crosslinked beads.

Proteins and other ligands containing amino groups can be coupled directly to the resin. A typical application of Glyoxal Rapid Run™ is based on antigen-antibody interactions with monoclonal antibodies as ligands.

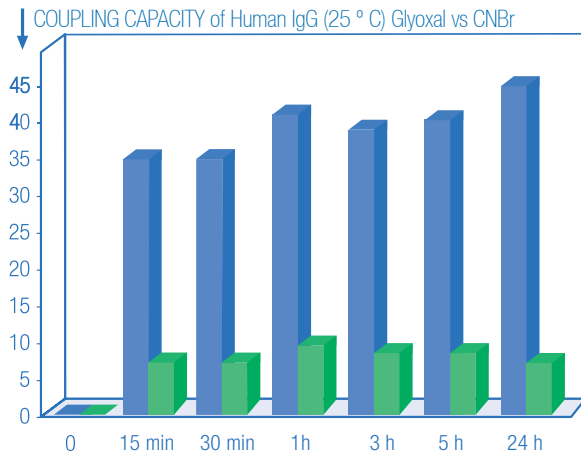
TECHNICAL SPECIFICATIONS

PRODUCT	LOW Density GLYOXAL 6 RAPID RUN™	HIGH Density GLYOXAL 6 RAPID RUN™	LOW Density GLYOXAL 4 RAPID RUN™	HIGH Density GLYOXAL 4 RAPID RUN™	LOW Density GLYOXAL 6 RAPID RUN™ FINE	LOW Density GLYOXAL 4 RAPID RUN™ FINE
	High Flow Minimum distortion of immobilized ligand. Exclusion Limit ~4 x 10 ⁶	High Flow Multiple Binding points. High immobilized ligand stability. Exclusion Limit ~4 x 10 ⁶	High Flow Minimum distortion of immobilized ligand. Exclusion Limit ~3 x 10 ⁷	High Flow Multiple Binding points. High immobilized ligand stability. Exclusion Limit ~3 x 10 ⁷	High Flow Minimum distortion of immobilized ligand. Exclusion Limit ~4 x 10 ⁶	High Flow Minimum distortion of immobilized ligand. Exclusion Limit ~3 x 10 ⁷
CAT. No.	6RR-GLO-X	6RR-GM3-X	4RR-GLO-X	4RR-GH1-X	6RRF-GLO-X ⁽¹⁾	4RRF-GLO-X ⁽¹⁾
BEAD GEOMETRY & SIZE	Spherical, Standard: ~50-150 µm				Spherical, Fine: ~20-50 µm	
CROSSLINKED	Highly crosslinked					
AGAROSE %	6%		4%		6%	4%
ACTIVATION DEGREE (µmol glyoxyl/ml gel)	15-25	40-60	15-25	40-60	15-25	15-25
ANTIMICROBIAL AGENT	20% Ethanol					
STORAGE TEMPERATURE	2 - 8°C					

¹ Recommended for packing cartridges. X: Product quantity (25 or 100 ml).

Glyoxal beads confers a qualitative advantage compared with CNBr.

GLYOXAL COMPARISONS



ABT

● HIGH Density GLYOXAL 4BCL

COMPETITOR

● CYANOGEN BROMIDE-ACTIVATED SEPHAROSE® 4B

GLYOXAL AGAROSE BEADS

CNBr ACTIVATED AGAROSE BEADS

Both methods couple protein ligands via primary amino groups (Lys and N-terminal)

- | | |
|--|--|
| • Very stable ligand binding (covalent) | • Low stability ligand binding (reversible) |
| • High ligand coupling capacity | • Low ligand binding capacity |
| • High specificity (no cations presence) | • Low specificity (may act as anionic exchanger) |
| • Quick ligand conjugation | • Slow ligand conjugation |
| • No affinity ligand loss (reusable) | • Affinity ligand loss (contaminations) |
| • Ready to use | • Previous hydration step required |
| • Long shelf-life | • Short shelf-life |

AFFINITY COUPLING

CARBOXYL GROUPS

LOW PRESSURE: Aminoethyl Agarose Beads

Bulk Resins

ABT Aminoethyl resins allow covalent binding of agarose to carboxy amino acids group of the target ligand.

TECHNICAL SPECIFICATIONS

PRODUCT	LOW Density AMINOETHYL 6 BCL	VERY LOW Density AMINOETHYL 4 BCL	HIGH Density AMINOETHYL 6 BCL	HIGH Density AMINOETHYL 4 BCL
CAT. No.	6BCL-AL0-X	4BCL-AVL4-X	6BCL-AM3-X	4BCL-AH1-X
BEAD GEOMETRY & SIZE	Spherical, Standard: ~50-150 µm			
CROSSLINKED	Yes			
AGAROSE %	6%	4%	6%	4%
MATRIX ACTIVE GROUPS	Amino Groups			
ACTIVATION DEGREE (µmol diaminoethyl/ml gel)	15-25	3-6	40-60	40-60
ANTIMICROBIAL AGENT	20% Ethanol			
STORAGE TEMPERATURE	2 - 8°C			

HIGH PRESSURE: Aminoethyl Rapid Run™ Agarose Beads

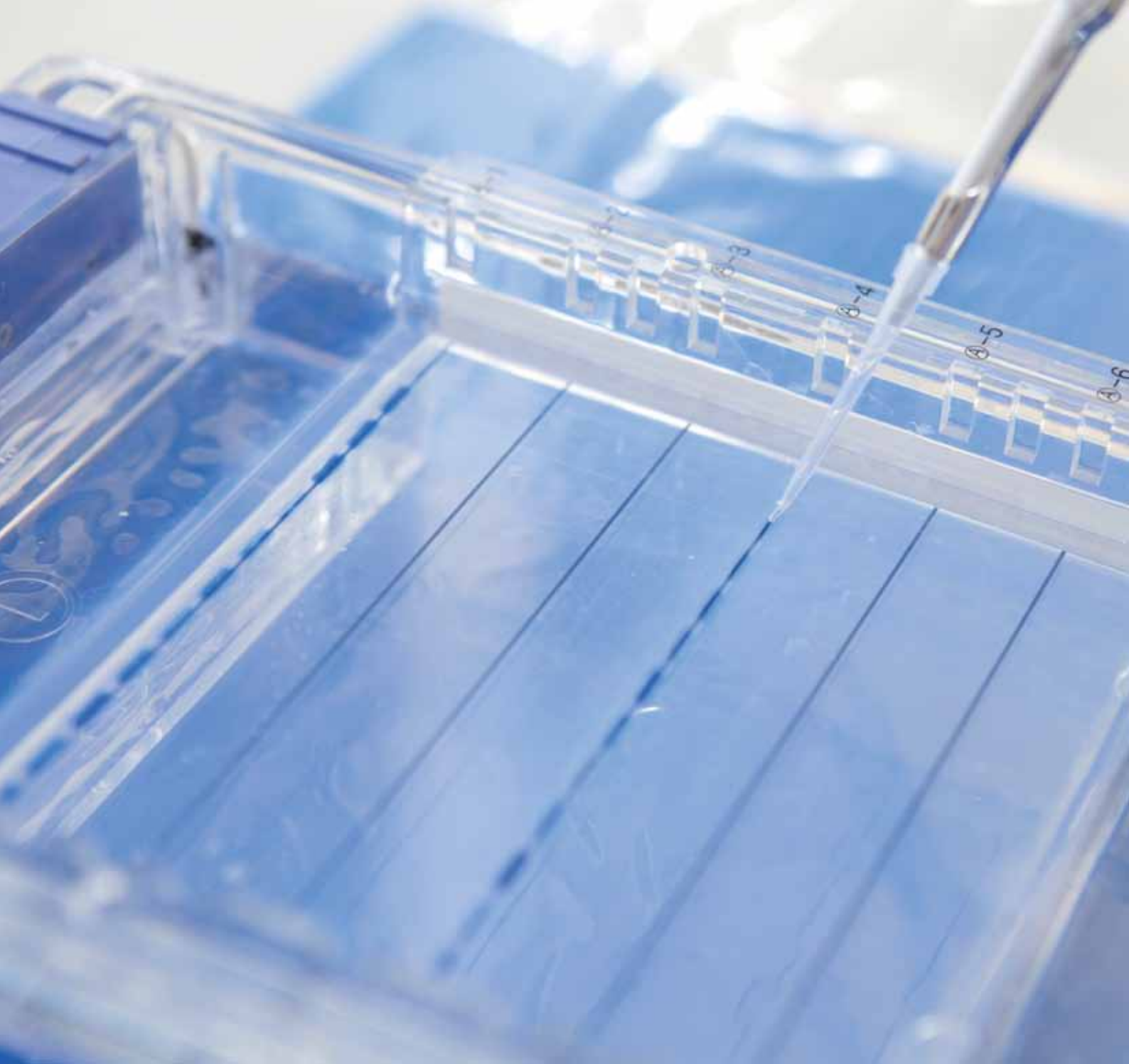
Bulk Resins

Aminoethyl Rapid Run™ Agarose Beads is a pre-activated resin that combines the advantages of Aminoethyl resins with the high flow and stability characteristics of ABT's highly crosslinked beads.

Proteins and other ligand containing carboxy groups can be coupled directly to the resin.

TECHNICAL SPECIFICATIONS

PRODUCT	LOW Density AMINOETHYL 6 RAPID RUN™	HIGH Density AMINOETHYL 6 RAPID RUN™	VERY LOW Density AMINOETHYL 4 RAPID RUN™	HIGH Density AMINOETHYL 4 RAPID RUN™	VERY LOW Density AMINOETHYL 6 RAPID RUN™ FINE
	High Flow Minimum distortion of immobilized Biomolecule. Exclusion Limit ~4 x 10 ⁶	High Flow Multiple Binding points. High immobilized Biomolecule stability. Exclusion Limit ~4 x 10 ⁶	High Flow Minimum distortion of immobilized. Biomolecule. Exclusion Limit ~3 x 10 ⁷	High Flow Multiple Binding points. High immobilized Biomolecule stability. Exclusion Limit ~3 x 10 ⁷	High Flow Minimum distortion of immobilized Biomolecule. Exclusion Limit ~4 x 10 ⁶ .
CAT. No.	6RR-ALO-X	6RR-AM3-X	4RR-AVL4-X	4RR-AH1-X	6RRF-AVL4-X
BEAD GEOMETRY & SIZE	Spherical, Standard: ~50-150 µm				Spherical, Fine: ~20-50 µm
CROSSLINKED	Highly crosslinked				
AGAROSE %	6%	4%			6%
MATRIX ACTIVE GROUPS	Amino Groups				
ACTIVATION DEGREE (µmol diaminoethyl/ml gel)	15-25	40-60	3-6	40-60	3-6
ANTIMICROBIAL AGENT	20% Ethanol				
STORAGE TEMPERATURE	2 - 8°C				



ELECTROPHORESIS

AGAROSE POWDER

Agarose powder is an essential component of the general lab technique known as gel electrophoresis. Due to its ionic neutrality, agarose serves as a support gel through which charged hydrophilic micro and macromolecule particles, such as DNA and proteins, can migrate and be separated by their molecular weight.

- Standard Low Endosmosis agarose (Agarose LE and GA) for analytical separations greater than 1000 bp
- Low Melting agarose (Agarose LM) for recovery of undamaged nucleic acids greater than 1000 bp below their denaturation temperature
- High Resolution agarose (Agarose HR) for molecular screening resolution of DNA fragments and PCR products less than 1000 bp

TECHNICAL SPECIFICATIONS

PRODUCT	Agarose LE	Agarose GA	Agarose LM	Agarose HR
CAT. No.	A-1270-X	A-1290-X	A-1300-X	A-1280-X
EEO (Electroendosmosis)	≤ 0.12	-	≤ 0.12	≤ 0.12
SULFATE	≤ 0.1%	≤ 0.1%	≤ 0.12%	≤ 0.11%
GEL STRENGTH %	1%	1%	1.5%	3%
	≥ 1200 g/cm ²	≥ 1000 g/cm ²	≥ 500 g/cm ²	≥ 1500 g/cm ²
GELLING TEMPERATURE	36 ± 1.5 °C	36 ± 1.5 °C	24 - 28 °C	≤ 35.5 °C
MELTING TEMPERATURE	88 ± 1.5 °C	88 ± 1.5 °C	≤ 65.5 °C	≤ 80°C
DNase/ RNase ACTIVITY	None detected			
DNA RESOLUTION ≥ 1000 bp	Finely resolved			
GEL BACKGROUND	Very low			
DNA BINDING	Very low			

ACCESSORIES

ABT offers single-use chromatography tools, which simplifies the use of the resins and makes the purification process a simple and rapid one.

Empty Mini Columns

Serves as a tool for purification using small quantities of resin (100 - 250 μ l). It is a single-use format for centrifuge purifications.



Empty Spin Columns

Allows working with small quantities of resin, around 50 to 100 μ l. Adequate for purifications with syringe (luer lock system) or by centrifugation.



Empty Columns

Adequate for working with gel volumes of 100-200 μ l Plastic Small Columns, 0.5 - 2 ml Plastic Columns or 2 - 6 ml Plastic XL Columns.



TECHNICAL SPECIFICATIONS

PRODUCT	PLASTIC MINI COLUMNS includes 100 columns	PLASTIC SPIN COLUMNS includes 25 columns	PLASTIC SMALL COLUMNS ⁽¹⁾ includes 20 columns	PLASTIC COLUMNS ⁽¹⁾ includes 50 columns	PLASTIC XL COLUMNS ⁽¹⁾ includes 50 columns
CAT. No.	MC-100	SP-25	CS-20	C-50	CXL-50
FRIT PORE SIZE	20 µm	35 µm	20 µm	20 µm	20 µm
COLUMN/SPIN MATERIAL	Polypropylene				
FRIT MATERIAL	Polyethylene				
CHEMICAL STABILITY	Stable in all commonly used reagents				
CAPS	Top caps included	Top caps: Luer lock & screw cap End cap included	Top & end caps included	Top & end caps included	Top & end caps included
CAPACITY (ml)	1.5	0.8	1	12	35

EMPTY COLUMN ACCESSORIES

PRODUCT	PLASTIC SMALL COLUMN FRITS	PLASTIC COLUMN FRITS	PLASTIC XL COLUMN FRITS
CAT. No.	FSC-20	FC-50	FCXL-50
CONTAINS	20 units	50 units	50 units

⁽¹⁾ Plastic Columns include one frit. ABT supplies additional frits for all sizes of Plastic Columns.

ACCESSORIES

Empty Syringe Cartridges

ABT Empty Syringe Cartridges are a single-use solution that makes the purification process simple and rapid one. With only a syringe and easily packed 1ml cartridge of the appropriate resin you can begin recovering your purified protein in a very short time.

The cartridge's body is made of polypropylene which shows excellent chemical resistance to most of the commonly used reagents. Frits, blue fitting ring, top plug housing and top/bottom caps are supplied together with the cartridge body.

TECHNICAL SPECIFICATIONS

PRODUCT NAME	EMPTY SYRINGE CARTRIDGES (1 ml)
CAT. No.	ESY-Ctg1-5
CONTAINS	5 Empty Syringe Cartridges: 5 cartridge bodies, 5 blue fitting rings, 5 top plug housings, 5 upper frits/ caps and 5 bottom frits/caps.
COLUMN MATERIAL	Polypropylene
FRIT MATERIAL	Polyethylene
FRIT PORE SIZE	10 µm
CHEMICAL STABILITY	Stable in all commonly used reagents
CAPACITY (ml)	1 ml packed resin



Empty Acrylic Columns

Empty Acrylic Column is a good alternative to glass column users that need to purify different types of proteins and want to avoid cross-contamination problems that can happen if the column is reused. It is suitable for FPLC and ÄKTA design™ chromatography systems. The packed volume is approximately 8ml of gel.

This disposable column is a low cost and flexible alternative with an identical design to scale up columns and permits precise and reproducible packing allowing moderate back pressure and avoiding cross-contaminations problems. Therefore, due to its low cost, user can afford to assign individual columns for the purification of each target molecule.

TECHNICAL SPECIFICATIONS

PRODUCT NAME	EMPTY ACRYLIC COLUMNS
CAT. No.	AC8-3
CONTAINS	3 Empty Acrylic Columns: 3 column bodies, 6 end plugs and 6 stop plugs
COLUMN MATERIAL	Acrylic resin
FRIT MATERIAL	Two layers of mesh (coarse and fine) ⁽¹⁾
END PLUGS	Polypropylene (10-32 UNF female thread)
MAX. PRESSURE	3 bar (42 psi)
CHEMICAL STABILITY	Stable in all commonly used reagents
CAPACITY (ml)	~ 8 ml packed resin



⁽¹⁾ This column can be used for any type of chromatography media with a particle size larger than 20µm

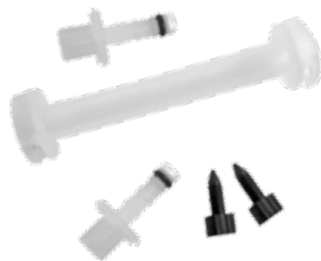
ACCESSORIES

Empty Cartridges

ABT offers single-use Empty Cartridges 1 ml compatible with common chromatography instruments.

- Easy to pack
- Reduced cost
- Reproducible packing

The customer can use any type of chromatography media (> 20 µm) including the ABT range of products for packing the cartridges. We recommend packing using the bulk resins available from ABT.



TECHNICAL SPECIFICATIONS

PRODUCT	EMPTY CARTRIDGES 1 ml
CAT. No.	EB-Ctg1-5
CONTAINS	5 Empty Cartridges (5 Cartridge Bodies and 10 End Plugs)
COLUMN MATERIAL	Polypropylene
FRIT MATERIAL	Polyethylene
FRIT PORE SIZE AVERAGE	12 µm
INNER COLUMN DIAMETER	6.2 mm
CONNECTIONS	Standard connection compatible to the common chromatography instruments (such as ÄKTA™)
CHEMICAL STABILITY	Stable in all commonly used reagents
CAPACITY (ml)	1 ml packed resin ⁽¹⁾

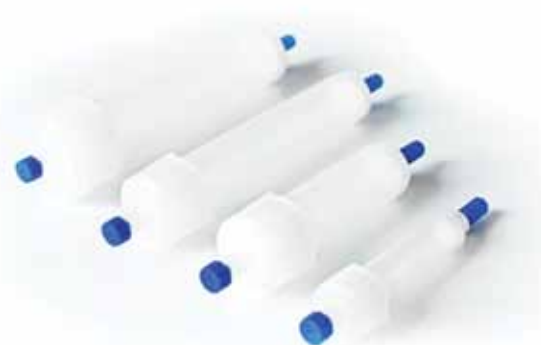
CARTRIDGE ACCESSORIES

PRODUCT	STOP PLUG	SYRINGE CONNECTOR
CAT. No.	SEB-10	SCEB-1
CONTAINS	10 / pack	1
REMARKS	For storage of the packed cartridge, Stop Plugs need to be ordered separately.	10-32 male / female luer connector. This adapter is used to connect syringes.

¹ The packed volume depends on the type of resin. As a guide, the packed volume should be 1.2 – 1.4 ml of settled beads. The recommended packed volume is 1.3 ml for ABT Rapid Run™ Fine Resins.

Empty FPLC Columns

ABT offers four different sizes of single-use columns suitable for FPLC and ÄKTA design™ chromatography systems. Empty FPLC Columns have the functionality of a small column but provide other advantages: disposable, easy to pack, identical designs for different sizes, accurate for reproducible packing, robust construction allowing moderate back pressure, and easy to store with long shelf-life.



TECHNICAL SPECIFICATIONS

PRODUCT	EMPTY FPLC 8 ml	EMPTY FPLC 30 ml	EMPTY FPLC 45 ml	EMPTY FPLC 80 ml
CAT. No.	FPLC8-3	FPLC30-2	FPLC45-2	FPLC80-1
CONTAINS	3 columns 9 frits & 6 caps	2 columns, 6 frits & 4 caps	2 columns 6 frits & 4 caps	1 column, 3 frits & 2 caps
CAPACITY (ml of packed resin) ⁽¹⁾	8	30	45	80
DIMENSIONS diameter x height (mm)	~12 x 70	~21 x 87	~21 x 137	~26 x 144
COLUMN MATERIAL	Polypropylene			
FRIT MATERIAL	Polyethylene			
FRIT PORE SIZE	10 µm			
MAX PRESSURE (psi /bar/MPa)	200/14/1.38			
CHEMICAL STABILITY	Stable in all commonly used reagents			
CONNECTIONS ⁽²⁾	Standard connection usually supplied with the common FPLC instruments (such as ÄKTA™)			
ACCESSORIES	FPLC LUER lock-male/CAT. No. FPLCLM-1 FPLC LUER lock-female/CAT. No. FPLCLF-1			

¹ Packed volume depends on the type of resin – only use as a guide.

² For fitting the column to the FPLC equipment, if the user does not have standard connections, ABT supplies them CAT. No. FPLCLM-1/FPLCLF-1.

ACCESSORIES

Flexi-column™

ABT offers a type of FPLC column that fits into ÄKTA™ devices with no need for special adaptors. These columns have the functionality and flexibility of other small columns and are designed to work with three different gel volumes (4, 6, & 8ml). Each Flexi84-2 product unit contains 2 columns with 6 frits (3 small and 3 large) that can be used in different combinations to maximize your desired packing volume. Once customer has chosen the optimal packing volume, ABT supplies the individual columns with the proper frits. The Flexi-column™ is a tool that provides a variety of choices to suit your needs.



Advantages:

- No need for adaptors to fit into the ÄKTA™ devices
- Robust polypropylene construction allowing for moderate back pressure
- Excellent chemical resistance to most of the commonly used cleaning reagents
- Easy to pack resin
- Three different packing volume options
- Suitable for scale up purifications
- Can be used multiple times once resin is packed
- Standard connectors are compatible with other common chromatography instruments.

TECHNICAL SPECIFICATIONS

PRODUCT	FLEXI-COLUMN™
CAT. No.	FLEC84-2
CONTAINS	Includes: 2 Columns, 6 small frits, 6 large frits & 4 caps
CAPACITY (ml of packed resin) ⁽¹⁾	~8 ml (packing the gel between two small frits) ~6 ml (packing the gel between one small frit at the bottom and one large frit at the top) ~4 ml (packing the gel between two large frits)
DIMENSIONS (diameter x height)	~12 x 59 (mm)
COLUMN MATERIAL	Polypropylene
FRIT MATERIAL	Polyethylene
FRIT PORE SIZE	10 µm
MAX LINEAR FLOW RATE	Depends on the type of chromatography resin
MAX PRESSURE (psi /bar)	100 / 7
CHEMICAL STABILITY	Stable in all commonly used reagents
CONNECTIONS	No need of special connections with the common chromatography instruments (such as ÄKTA™)

After optimization, individual columns with the desired number of frit sizes are available.

PRODUCT	CAT. No.	PACKING VOLUME	CONTAINS
4 ml FLEXI-COLUMN	FLEC4-2	~4 ML	2 Columns, 6 large frits and 4 caps
6 ml FLEXI-COLUMN	FLEC6-2	~6 ML	2 Columns, 4 large frits, 2 small frits and 4 caps
8 ml FLEXI-COLUMN	FLEC8-2	~8 ML	2 Columns, 6 small frits and 4 caps

⁽¹⁾ Packed volume depends on the type of resin – only use as a guide.

solutions
to fit

evaluation
of samples

optimal
performance



CUSTOMIZED AGAROSE RESINS

Production of agarose resins requires the precise control of many parameters, and the product range is based on the most common research and production requirements. However, there are many specialized applications which are not currently served, and many separations which could be improved by a more appropriate bead. ABT offers Customized Resins to extend the range.

Parameters that can be specified are:

- Size of beads
- Degree of crosslinking
- Concentration of agarose
- Pore size
- Type of activation
- Spacer arm length
- Density of active groups

ABT's Customized Resins are now available to cover all different types of orders, making it possible for you to choose specifications for your resin at an affordable price. In order to produce exactly what you require, we will work closely with you and share technical details as appropriate. Monodispersed agarose beads are an example of this type of customized bead availability.

If your Company is interested in the preparation of Customized Agarose Resins, and you would like more information, contact us at customized@abtbeads.com

PRODUCT LIST

PRODUCT	CAT. No.	PACK SIZE
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SIZE EXCLUSION CHROMATOGRAPHY

LOW PRESSURE: PLAIN AGAROSE BEADS		
2% B Agarose Bead STANDARD (50-150 µm)	A-1020S-500	500 ml
	A-1020S-1000	1 l
	A-1020S-10000	10 l
4% B Agarose Bead STANDARD (50-150 µm)	A-1040S-500	500 ml
	A-1040S-1000	1 l
	A-1040S-10000	10 l
6% B Agarose Bead STANDARD (50-150 µm)	A-1060S-500	500 ml
	A-1060S-1000	1 l
	A-1060S-10000	10 l
8% B Agarose Bead STANDARD (50-150 µm)	A-1080S-500	500 ml
	A-1080S-1000	1 l
	A-1080S-10000	10 l
10% B Agarose Bead STANDARD (50-150 µm)	A-1100S-500	500 ml
	A-1100S-1000	1 l
	A-1100S-10000	10 l
4% B Agarose Bead MACRO ⁽¹⁾ (150-350 µm)	A-1040M-500	500 ml
	A-1040M-1000	1 l
	A-1060M-500	500 ml
6% B Agarose Bead MACRO ⁽¹⁾ (150-350 µm)	A-1060M-500	500 ml
	A-1060M-1000	1 l
10% B Agarose Bead MACRO ⁽¹⁾ (150-350 µm)	A-1100M-500	500 ml
	A-1100M-1000	1 l
4% B Agarose Bead FINE (20-50 µm)	A-1040F-250	250 ml
	A-1040F-500	500 ml
	A-1040F-1000	1 l
6% B Agarose Bead FINE (20-50 µm)	A-1060F-250	250 ml
	A-1060F-500	500 ml
	A-1060F-1000	1 l

LOW PRESSURE: CROSSLINKED AGAROSE BEADS		
2% BCL Agarose Bead STANDARD (50-150 µm)	A-1021S-500	500 ml
	A-1021S-1000	1 l
	A-1021S-10000	10 l

4% BCL Agarose Bead STANDARD (50-150 µm)	A-1041S-500	500 ml
	A-1041S-1000	1 l
	A-1041S-10000	10 l
6% BCL Agarose Bead STANDARD (50-150 µm)	A-1061S-500	500 ml
	A-1061S-1000	1 l
	A-1061S-10000	10 l
8% BCL Agarose Bead STANDARD (50-150 µm)	A-1081S-500	500 ml
	A-1081S-1000	1 l
	A-1081S-10000	10 l
10% BCL Agarose Bead STANDARD (50-150 µm)	A-1101S-500	500 ml
	A-1101S-1000	1 l
	A-1101S-10000	10 l
4% BCL Agarose Bead MACRO ⁽¹⁾ (150-350 µm)	A-1041M-500	500 ml
	A-1041M-1000	1 l
6% BCL Agarose Bead MACRO ⁽¹⁾ (150-350 µm)	A-1061M-500	500 ml
	A-1061M-1000	1 l
10% BCL Agarose Bead MACRO ⁽¹⁾ (150-350 µm)	A-1101M-500	500 ml
	A-1101M-1000	1 l
4% BCL Agarose Bead FINE (20-50 µm)	A-1041F-250	250 ml
	A-1041F-500	500 ml
	A-1041F-1000	1 l
6% BCL Agarose Bead FINE (20-50 µm)	A-1061F-250	250 ml
	A-1061F-500	500 ml
	A-1061F-1000	1 l

HIGH PRESSURE: RAPID RUN™ AGAROSE BEADS		
4% RAPID RUN™ Agarose Bead STANDARD (50-150 µm)	4RRS-500	500 ml
	4RRS-1000	1 l
	4RRS-10000	10 l
6% RAPID RUN™ Agarose Bead STANDARD (50-150 µm)	6RRS-500	500 ml
	6RRS-1000	1 l
	6RRS-10000	10 l

LOW PRESSURE: SEPADEXTRANS™		
SEPADEXTRAN™-25 MEDIUM	SD25M-100	100 g
	SD25M-500	500 g
SEPADEXTRAN™-25 FINE	SD25F-100	100 g
	SD25F-500	500 g
SEPADEXTRAN™-25 SUPERFINE	SD25SF-100	100 g
	SD50M-100	100 g
SEPADEXTRAN™-50 MEDIUM	SD50M-100	100 g
	SD50M-500	500 g

SEPADEXTRAN™-50 FINE	SD50F-100	100 g
	SD50F-500	500 g
SEPADEXTRAN™-50 SUPERFINE	SD50SF-100	100 g

AFFINITY CHROMATOGRAPHY PURIFICATION HIS-TAG PURIFICATION

LOW PRESSURE: CHELATING AGAROSE BEADS: BULK RESINS		
HIGH Density METAL FREE	6BCL-QH-25	25 ml
	6BCL-QH-100	100 ml
	6BCL-QH-500	500 ml
HIGH Density NICKEL	6BCL-QHNi-25	25 ml
	6BCL-QHNi-100	100 ml
	6BCL-QHNi-500	500 ml
HIGH Density ZINC	6BCL-QHZn-25	25 ml
	6BCL-QHZn-100	100 ml
	6BCL-QHZn-500	500 ml
HIGH Density COBALT	6BCL-QHCo-25	25 ml
	6BCL-QHCo-100	100 ml
	6BCL-QHCo-500	500 ml
LOW Density METAL FREE	6BCL-QL-25	25 ml
	6BCL-QL-100	100 ml
	6BCL-QL-500	500 ml
LOW Density NICKEL	6BCL-QLNi-25	25 ml
	6BCL-QLNi-100	100 ml
	6BCL-QLNi-500	500 ml
LOW Density ZINC	6BCL-QLZn-25	25 ml
	6BCL-QLZn-100	100 ml
	6BCL-QLZn-500	500 ml
LOW Density COPPER	6BCL-QLCu-25	25 ml
	6BCL-QLCu-100	100 ml
	6BCL-QLCu-500	500 ml
NICKEL CHELATE KIT	6BCL-KNi-2	
NICKEL CHELATE KIT + 20 empty mini columns	6BCL-KNiMC-2	
NICKEL & COBALT CHELATE KIT	6BCL-KNiCo-2	
NICKEL & COBALT CHELATE KIT + 30 empty mini columns	6BCL-KNiCoMC-2	
HIGH DENSITY CHELATE KIT	6BCL-KH-2	

PRODUCT	CAT. No.	PACK SIZE
HIGH DENSITY CHELATE KIT + 40 empty mini columns	6BCL-KHMC-2	
LOW DENSITY CHELATE KIT	6BCL-KL-2	
LOW DENSITY CHELATE KIT + 40 empty mini columns	6BCL-KLMC-2	

LOW PRESSURE: NTA AGAROSE BEADS: BULK RESINS		
	6BCL-NTANI-25	25 ml
NICKEL NTA Agarose Resin	6BCL-NTANI-100	100 ml
	6BCL-NTANI-500	500 ml

HIGH PRESSURE: CHELATING RAPID RUN™ BEADS: BULK RESINS		
NICKEL RAPID RUN™	6NIRR-5	5 ml
	6NIRR-25	25 ml
	6NIRR-100	100 ml
	6NIRR-500	500 ml
COBALT RAPID RUN™	6CoRR-5	5 ml
	6CoRR-25	25 ml
	6CoRR-100	100 ml
	6CoRR-500	500 ml

LOW PRESSURE: CHELATING AGAROSE BEADS: PRE-PACKED COLUMNS		
His-COLUMN HIGH Density NICKEL	6BCL-QHNI-C8	8 x 1 ml
HisXL-COLUMN HIGH Density NICKEL	6BCL-QHNI-C5	5 x 5 ml
His-COLUMN HIGH Density COBALT	6BCL-QHCo-C8	8 x 1 ml
HisXL-COLUMN HIGH Density COBALT	6BCL-QHCo-C5	5 x 5 ml

HIGH PRESSURE: CHELATING RAPID RUN™ BEADS: PRE-PACKED CARTRIDGES		
NICKEL Affinity Cartridges 5ml	AF6NI-Ctg5-1	1 x 5 ml
	AF6NI-Ctg5-5	5 x 5 ml

ANTIBODY PURIFICATION		
LOW PRESSURE: PROTEIN A AGAROSE BEADS: BULK RESINS		
	PA09-5	5 ml
PROTEIN A Agarose Resin	PA09-25	25 ml
	PA09-500	500 ml
PROTEIN A Test Kit	PA09-K-01	1 X 100 µl

LOW PRESSURE: PROTEIN L AGAROSE BEADS: BULK RESINS		
	4BCLPL-2	2 ml
PROTEIN L Agarose Resin	4BCLPL-5	5 ml
	4BCLPL-5	10 ml
PROTEIN L Test Kit	4BCLPL-K-01	1 X 100 µl

HIGH PRESSURE: PROTEIN A RAPID RUN™ BEADS: BULK RESINS		
	4RRPA-5	5 ml
PROTEIN A Agarose Resin 4 RAPID RUN™	4RRPA-25	25 ml
	4RRPA-500	500 ml

HIGH PRESSURE: AFFI-MAB™ BEADS: BULK RESINS		
	MABRRF-5	5 ml
AFFI-MAB™ Fine Agarose Resin	MABRRF-10	10 ml
	MABRRF-25	25 ml
AFFI-MAB™ Fine Test Kit	MABRRF-K-01	1 X 100 µl

HIGH PRESSURE: PROTEIN G RAPID RUN™ BEADS: BULK RESINS		
	4RRPG-1	1 ml
PROTEIN G Agarose Resin 4 RAPID RUN™	4RRPG-5	5 ml
	4RRPG-25	25 ml
PROTEIN G Test Kit	4RRPG-K-01	1 X 100 µl

HIGH PRESSURE: PROTEIN A/G RAPID RUN™ BEADS: BULK RESINS		
	4RRPAG-05	0.5 ml
PROTEIN A/G Agarose Resin 4 RAPID RUN™	4RRPAG-1	1 ml
	4RRPAG-2	2 ml
PROTEIN A/G Test Kit	4RRPAG-K-01	1 x 100 µl

GST PURIFICATION		
LOW PRESSURE: GLUTATHIONE AGAROSE BEADS: BULK RESINS		
	4B-GLU-10	10 ml
GLUTATHIONE Agarose Beads	4B-GLU-100	100 ml

BIOTIN/AVIDIN PURIFICATION		
LOW PRESSURE: BIOTIN AGAROSE BEADS: BULK RESINS		
	4BCL-BI-5	5 ml
BIOTIN Agarose Resin	4BCL-BI-10	10 ml

HIGH PRESSURE: STREPTAVIDIN RAPID RUN™ BEADS: BULK RESINS		
	6RRF-STV-2	2 ml
STREPTAVIDIN RAPID RUN™ Fine	6RRF-STV-5	5 ml
	6RRF-STV-10	10 ml

AFFINITY COUPLING AMINO GROUPS		
LOW PRESSURE: GLYOXAL AGAROSE BEADS: BULK RESINS		
LOW Density GLYOXAL 4BCL	4BCL-GL0-25	25 ml
	4BCL-GL0-100	100 ml
HIGH Density GLYOXAL 4BCL	4BCL-GH1-25	25 ml
	4BCL-GH1-100	100 ml
LOW Density GLYOXAL 6BCL	6BCL-GL0-25	25 ml
	6BCL-GL0-100	100 ml
HIGH Density GLYOXAL 6BCL	6BCL-GM3-25	25 ml
	6BCL-GM3-100	100 ml
VERY HIGH Density GLYOXAL 6BCL	6BCL-GH1-25	25 ml
	6BCL-GH1-100	100 ml
GLYOXAL KIT	GLYOXK-2	

HIGH PRESSURE: GLYOXAL RAPID RUN™ BEADS: BULK RESINS		
LOW Density GLYOXAL 4 RAPID RUN™	4RR-GL0-25	25 ml
	4RR-GL0-100	100 ml
HIGH Density GLYOXAL 4 RAPID RUN™	4RR-GH1-25	25 ml
	4RR-GH1-100	100 ml
LOW Density GLYOXAL 4 RAPID RUN™ FINE	4RRF-GL0-25	25 ml
	4RRF-GL0-100	100 ml
LOW Density GLYOXAL 6 RAPID RUN™	4RR-GL0-25	25 ml
	4RR-GL0-100	100 ml
HIGH Density GLYOXAL 6 RAPID RUN™	4RR-GM3-25	25 ml
	4RR-GM3-100	100 ml
LOW Density GLYOXAL 6 RAPID RUN™ FINE	4RRF-GL0-25	25 ml
	4RRF-GL0-100	100 ml

Large amounts available upon request.

PRODUCT	CAT. No.	PACK SIZE
ACIDIC GROUPS		
LOW PRESSURE: AMINOETHYL AGAROSE BEADS : BULK RESINS		
VERY LOW Density AMINOETHYL 4BCL	4BCL-AVL4-25	25 ml
	4BCL-AVL4-100	100 ml
HIGH Density AMINOETHYL 4BCL	4BCL-AH1-25	25 ml
	4BCL-AH1-100	100 ml
LOW Density AMINOETHYL 6BCL	6BCL-AL0-25	25 ml
	6BCL-AL0-100	100 ml
HIGH Density AMINOETHYL 6BCL	6BCL-AM3-25	25 ml
	6BCL-AM3-100	100 ml
AMINOETHYL COMPLETE KIT	AMINOC-2	

HIGH PRESSURE: AMINOETHYL RAPID RUN™ BEADS: BULK RESINS		
VERY LOW Density AMINOETHYL 4 RAPID RUN™	4RR-AVL4-25	25 ml
	4RR-AVL4-100	100 ml
HIGH Density AMINOETHYL 4 RAPID RUN™	4RR-AH1-25	25 ml
	4RR-AH1-100	100 ml
LOW Density AMINOETHYL 6 RAPID RUN™	6RR-AL0-25	25 ml
	6RR-AL0-100	100 ml
HIGH Density AMINOETHYL 6 RAPID RUN™	6RR-AM3-25	25 ml
	6RR-AM3-100	100 ml
VERY LOW Density AMINOETHYL 6 RAPID RUN™ FINE	6RRF-AVL4-25	25 ml
	6RRF-AVL4-100	100 ml

ELECTROPHORESIS AGAROSE POWDER

AGAROSSES		
Agarose LE	A-1270-100	100 g
	A-1270-500	500 g
Agarose HR	A-1280-100	100 g
	A-1280-500	500 g
Agarose GA	A-1290-100	100 g
	A-1290-500	500 g
Agarose LM	A-1300-25	25 g
	A-1300-100	100 g

ACCESSORIES EMPTY COLUMNS & EMPTY CARTRIDGES

EMPTY MINI COLUMNS		
PLASTIC MINI COLUMNS	MC-25	25 units
	MC-100	100 units

EMPTY SPIN COLUMNS		
PLASTIC SPIN COLUMNS	SP-25	25 units

EMPTY COLUMNS		
PLASTIC SMALL COLUMNS	CS-20	20 units
PLASTIC COLUMNS	C-50	50 units
PLASTIC XL COLUMNS	CXL-50	50 units

EMPTY COLUMNS SUPPLIES		
PLASTIC SMALL COLUMNS FRITS	FSC-20	20 units
PLASTIC COLUMNS FRITS	FC-50	50 units
PLASTIC XL COLUMNS FRITS	FCXL-50	50 units

EMPTY CARTRIDGES		
EMPTY CARTRIDGES (1 ml)	EB-CTg1-5	5 units

CARTRIDGES ACCESSORIES		
STOP PLUG	SEB-10	10 units
SYRINGE CONNECTOR	SCEB-1	1 units

EMPTY SYRINGE CARTRIDGES (1ML)		
EMPTY SYRINGE CARTRIDGES (1ml)	ESY-CTG-1-5	5 units

EMPTY FPLC COLUMNS		
EMPTY FPLC 8 ml Columns	FPLC8-3	3 units
EMPTY FPLC 30 ml Columns	FPLC30-2	2 units
EMPTY FPLC 45 ml Columns	FPLC45-2	2 units
EMPTY FPLC 80 ml Columns	FPLC80-1	1 units

EMPTY FPLC COLUMNS SUPPLIES		
FPLC Luer lock-male	FPLCLM-1	1 units
FPLC Luer lock-female	FPLCLF-1	1 units

EMPTY FPLC ACRYLIC COLUMNS		
EMPTY Acrylic Columns	AC8-3	3 units

FLEXI-COLUMN™		
FLEXI-COLUMN™ Includes: 2 Columns, 6 small frits, 6 large frits & 4 caps	FLEC84-2	2 units
4 ml FLEXI-COLUMN™ Includes: 2 Columns, 6 large frits & 4 caps	FLEC4-2	2 units
6 ml FLEXI-COLUMN™ Includes: 2 Columns, 4 large frits, 2 small frits & 4 caps	FLEC6-2	2 units
8 ml FLEXI-COLUMN™ Includes: 2 Columns, 6 small frits & 4 caps	FLEC8-2	2 units

Large amounts available upon request.

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