Agarose Bead Technologies

Product portfolio

ENHANCING BIOPROCESSING EFFICIENCY WITH HIGH-PERFOMANCE CHROMATOGRAPHY RESINS

Agarose Bead Technologies

Breaking the Barriers in Bioseparations

Agarose Bead Technologies

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Products

ABT is a leading european manufacturer of agarose resins supporting the Biopharmaceutical industry

Agarose resins are manufactured under a rigorous quality management system (QMS) needed to meet the requirements of the bioprocessing industry. These resins are used in variety of process development and commercial-scale cGMP chromatographic purification applications.

Our custom products are made in compliance with client specifications in large scale industry standards. ABT is an ISO 9001:2015 certified company with cGMP facilities operated by experts with in-depth knowledge of agarose.

Our expanding and growing global footprint with locations in Europe and US enable us to offer novel chromatography resins to meet the evolving needs of the biopharmaceutical Industry.

01

Experience

We are one of the few European companies to manufacture agarose beads.

We have been providing solutions to the biopharmaceutical industry for over 20 years by supplying high-quality agarose resins for the purification, separation, or immobilization of biomolecules.

02

Innovation

We challenge conventional processes to find more for cost-effective purification methods.

We have the ability to manufacture resins to your unique purification needs.

03

Quality

Since its origin, the ABT brand has been recognized for quality.

Our products exceed customer quality expectations, which sets us apart in the industry.

04

Commitment

Finding the best processing solution for our clients is our top priority.

Understanding their challenges and needs helps us create better solutions and build trusting relationships.

Custom resins for unique solutions

Resins customization is our flagship service

Every application has its own unique challenge and off-the-shelf solutions may not work for all the projects and require customization.

With by decades of experience in developing resins, ABT offers customized resins for the bioprocessing industry from lab through commercial scale that satisfy the need for high capacity, high resolution, and high specificity.

Size Exclusion Chromatography

ABT offers plain and crosslinked agarose beads at different agarose concentrations

ABT offers a wide range of plain and crosslinked agarose beads at different agarose concentrations (2, 4, 6, 8, & 10%) in different particle size distributions: Macro[1] (~150 - 350 µm), Standard (~50-150 µm), and Fine (~50 µm).

Additionally, we have developed Rapid Run™ resin technology based on highly crosslinked 4% and 6% agarose matrices that is commonly used for industrial scale separations.

[1]Customized product, contact customized@abtbeads.com

Plain & Crosslinked Agarose Beads

Low pressure

Agarose is a very inert polysaccharide that forms hydrophilic with high 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 and known activation chemistry, 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 and 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 resins such as Protein A, Protein G, Glutathione, etc.

ABT offers a wide range of plain and crosslinked agarose beads at various agarose concentrations (2, 4, 6, 8 & 10%) and different particle size distributions: Macro[1] (~150 - 350 µm), Standard (~50 - 150 µm), and Fine (~50 µm).

- The widest range of different based-bead agarose concentrations (2-10%)
- Multiple pore sizes options
- Broad fractionation range
- Excellent chemical and physical stability
- Negligible non-specific adsorption
- For batch or column procedures
- Three different particle sizes available

[1]Customized product, contact customized@abtbeads.com

Plain Agarose Beads Standard

Technical specifications

PRODUCT	2% B	4% B	6% B	8% B	10% B
Cat. No.	A-1020S-X	A-1040S-X	A-1060S-X	A-1080S-X	A-1100S-X
Bead geometry & size	Spherical, Standard: ~50 - 150 µm				
Bead mean diameter (d_{50V})	~90 µm				
Crosslinked	No				
Agarose %	2%	4%	6%	8%	10%
Chemical stability	Stable in moderate acid and basic solutions				
pH stability working range	4 - 9				
pH stability cleaning in place (CIP)	4 - 9				
Linear recommended flow rate	<10 cm/h	<16 cm/h	<20 cm/h	< 25 cm/h	<30 cm/h
Fractionation (Mr) globular proteins Da	7×10^4 - 4×10^7	7×10^4 - 2×10^7	1×10^4 - 4×10^6	1×10^4 - 1.5×10^6	1×10^4 - 1×10^6
Exclusion limit (Mr) globular proteins Da	$>4\times10^7$	$>2\times10^7$	$>4\times10^6$	$>1.5\times10^6$	$>1\times10^6$
Antimicrobial agent	20% ethanol				
Storage temperature	2 - 30ºC				

X: Product quantity.

Crosslinked Agarose Beads Standard

Technical specifications

PRODUCT	2% BCL	4% BCL	6% BCL	8% BCL	10% BCL
Cat. No.	A-1021S-X	A-1041S-X	A-1061S-X	A-1081S-X	A-1101S-X
Bead geometry & size	Spherical, Standard: ~50 - 150 µm				
Bead mean diameter (d_{50V})	~90 µm				
Crosslinked	Yes				
Agarose %	2%	4%	6%	8%	10%
Chemical stability	Stable in all solutions commonly used in gel filtration, 2 M Sodium chloride, 8 M urea, 30% isopropanol, 70% ethanol and commonly used detergents				
pH stability working range	3 - 13				
pH stability cleaning in place (CIP)	2 - 14				
Linear recommended flow rate	<17 cm/h	<26 cm/h	<30 cm/h	<36 cm/h	<40 cm/h
Fractionation (Mr) globular proteins Da	7×10^4 - 4×10^7	7×10^4 - 2×10^7	1×10^4 - 4×10^6	1×10^4 - 1×10^6	1×10^4 - 5×10^5
Exclusion limit (Mr) globular proteins Da	$>4\times10^7$	$>2\times10^7$	$>4\times10^6$	$>1\times10^6$	$>5\times10^5$
Antimicrobial agent	20% ethanol				
Storage temperature	2 - 30ºC				

X: Product quantity.

Rapid Run™ Agarose Beads
High pressure

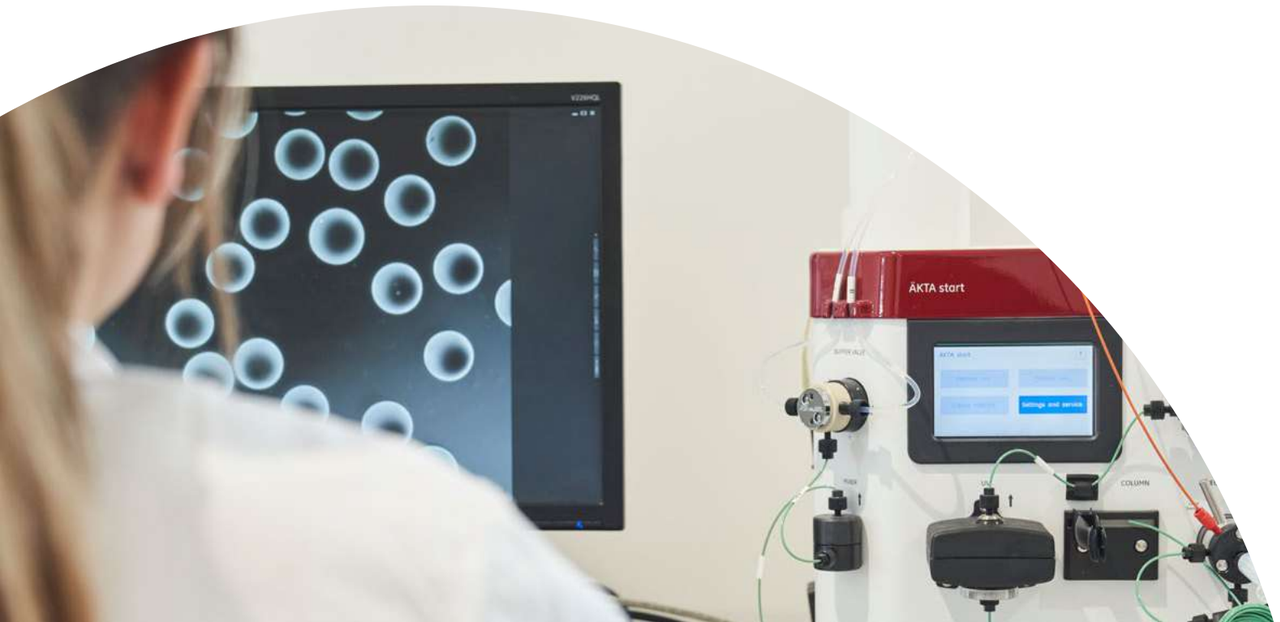
ABT has developed Rapid Run™ high throughput resins to meet the demands of industrial process chromatography market. Their rigidity and mechanical resistance permits high flow rates and resolution at low residence times, making these beads ideal for process-scale through commercial scale applications.

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

Rapid Run™ resins provide an ideal support for the immobilization of ligands for affinity chromatography and for base matrix support for manufacturing ion exchange (IEX) and hydrophobic interaction (HIC) chromatography resins.

Rapid Run™ resins 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



Rapid Run™ Agarose Beads
Technical specifications

PRODUCT	4% RAPID RUN™	6% RAPID RUN™
Cat. No.	4RRS-X	6RRS-X
Bead geometry & size	Spherical, Standard: ~50 - 150 µm	
Bead mean diameter (d_{50v})	~90 µm	
Crosslinked	Highly crosslinked	
Agarose %	4%	6%
Chemical stability	Most commonly used aqueous and organic solutions including: in gel filtration, 2 M Sodium chloride, 8 M urea, 70% ethanol, 30% IPA	
pH stability working range	3 - 13	
pH stability cleaning in place (CIP)	2 - 14	
Maximum flow rates[(1)]	≥900 cm/h	≥1,800 cm/h
Fractionation (Mr) globular proteins Da	6×10^4 - 3×10^7	1×10^4 - 4×10^6
Exclusion limit (Mr) globular proteins Da	~3×10^7	~4×10^6
Antimicrobial agent	20% ethanol	
Storage temperature	2 - 30°C	

[(1)]Column: XK 16/40 bed height 15 cm. System: AKTA™ 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

Ion Exchange Chromatography

Accelerate your drug development with our standard and custom Ion Exchange resins.

The chromatography resins selected for the process determine the accomplishment of goals in downstream processing.

With our client's success in mind, our agarose resins are designed to exceed industry standards for quality, performance reproducibility, reliability, and operational efficiency.

Our continuous manufacturing capacity with improved scalability has facilitated time to market, while lowering capital and operating costs, meeting our commitment to satisfy global demand.

Ion Exchange Rapid Run™ Agarose Resins

High pressure

Ion Exchange Chromatography (IEX) separates biomolecules on based on the net surface charge. Biomolecules have different interaction properties depending on the net charge, density and surface charge distribution.

Biomolecules without a net charge (neutral) at a pH equivalent to their isoelectric point (pI) will not interact with the resin. Therefore, at a pH above its pI, the biomolecule will interact with a positively charged resin (anion exchanger) and at a pH below its pI, the biomolecule will show affinity to a negatively charged resin (cation exchanger). Depending on the working pH, the biomolecule will exhibit interaction to anion or cation exchanger resin.

- **Anion Exchanger Resins:**

  ABT offers two different Anion Exchangers. Q Rapid Run™ Agarose Resin manufactured with a highly crosslinked beads activated with quaternary ammonium and DEAE Rapid Run™ Agarose Resin in which the highly crosslinked beads have been activated with diethylaminoethyl.

- **Cation Exchanger Resins:**

  ABT offers two different Cation Exchangers. SP Rapid Run™ Agarose Resin manufactured with highly crosslinked beads activated with sulfopropyl and CM Rapid Run™ Agarose Resin in which the highly crosslinked beads have been activated with carboxymethyl.

Technical specifications

PRODUCT	Q RAPID RUN™	DEAE RAPID RUN™	SP RAPID RUN™	CM RAPID RUN™
Cat. No.	QRR-X	DEAERR-X	SPRR-X	CMRR-X
Bead geometry & size	Spherical, Standard: ~50 - 150 µm			
Crosslinked	Highly crosslinked			
Bead mean diameter (d50v)	~90 µm			
Ligand	Quaternary amine	Diethylaminoethyl	Sulfopropyl	Carboxymethyl
Ion exchanger type	Strong Anion Exchanger	Weak Anion Exchanger	Strong Cation Exchanger	Weak Cation Exchanger
Flow velocity(1)	≥900 cm/h			
Exclusion limit (Mr) globular proteins da	~4×10^6			
Ionic capacity	0.14 - 0.18 mmol Cl^-/ml resin	0.10 - 0.15 mmol Cl^-/ml resin	0.11 - 0.16 mmol H^+/ml resin	0.09 - 0.13 mmol H^+/ml resin
Static binding capacity	>60 mg BSA/ml resin		>60 mg IgG/ml resin	
Dynamic binding capacity 10% breakthrough	>50 mg BSA/ml packed resin		>30 mg IgG/ml packed resin	
Ph stability	Short term: 2-14. Long Term: 2 - 12		Short term: 3 - 14. Long Term: 4 - 13	
Chemical stability(2)	Most commonly used aqueous and organic solutions including: 1 M NaOH*, 8 M urea, 30% isopropanol, 70% ethanol			
Working temperature	4 - 30°C			
Antimicrobial agent	20% ethanol, 0.2 M sodium acetate only for SP Rapid Run™			
Storage temperature	4 - 30°C			

*Should only be used for cleaning purposes.
(1) Column: XK 16/40 bed height 15 cm. System: ÄKTA Purifier UPC 100. Flow velocity at 3 bar.
(2) (CM & SP) Avoid oxidizing agent and cationic detergents. (DEAE & Q) Avoid oxidizing agent and anionic detergents.
X: Product quantity

Ion Exchange resins for oligonucleotide purification

Our IEX resins demonstrate high-purity and yield, ensuring that your oligonucleotides are contaminant-free and suitable for use in medical applications.

The need to improve the purity and performance of the oligonucleotide purification process, has led us to develop a new anion-exchange agarose resin: QRRPT1 Rapid Run™ High Sub Agarose Bead (QRRPT1).

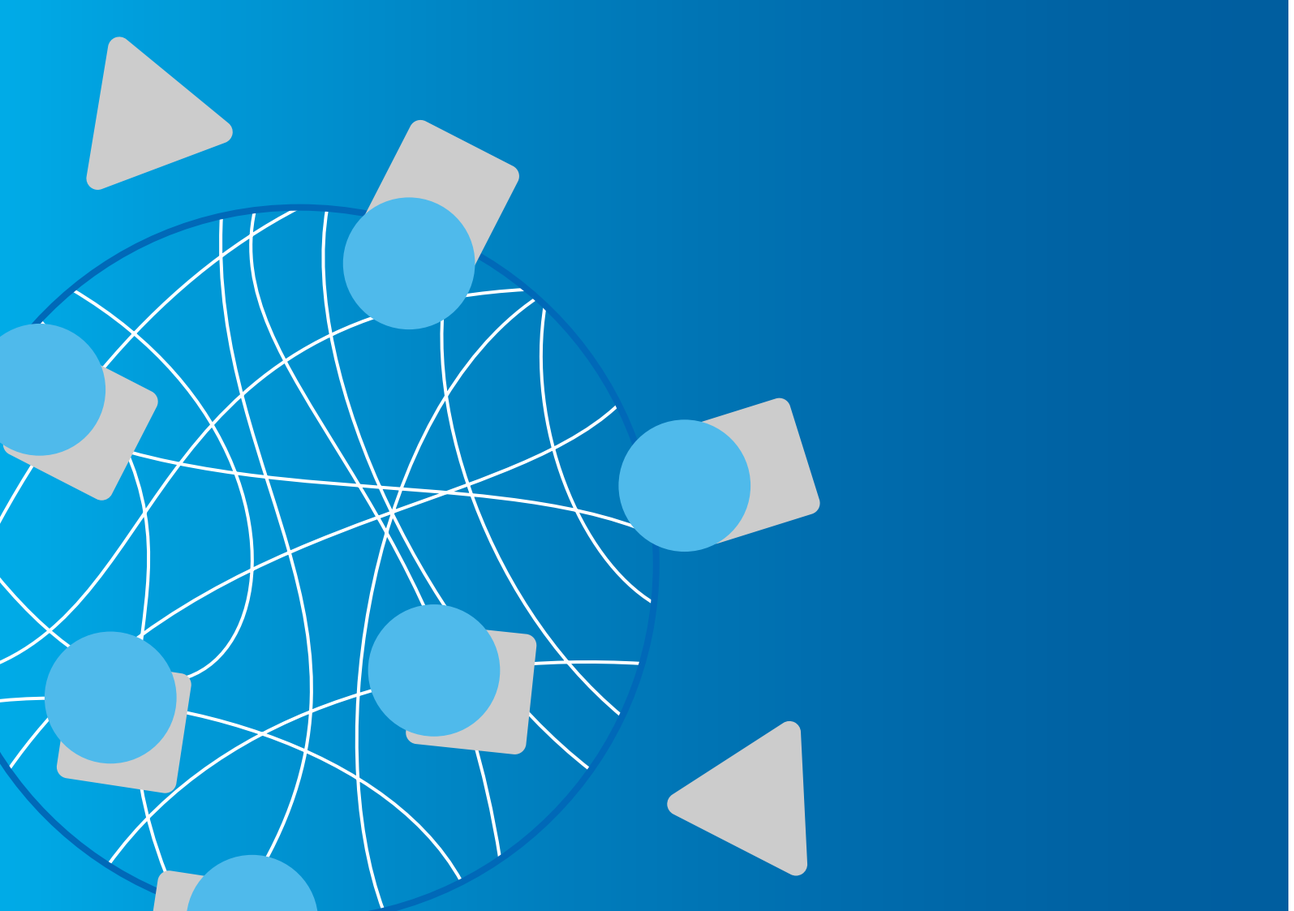
Within the Q family, ABT offers QRRPT1 version showing higher ionic capacity, with benefits in final performance in oligonucleotide purification process.

Technical specifications

PRODUCT	QRRPT1 RAPID RUN™ AGAROSE BEAD
Cat. No.	QRRPT1-X
Bead geometry & size	Spherical, Standard: ~50 - 150 µm
Crosslinked	Highly crosslinked
Bead mean diameter (d_{50V})	~90 µm
Ligand	Quaternary amine
Ion Exchange Type	Strong Anion Exchanger
Flow velocity at 3 bar in 1.6 × 15 cm column	≥900 cm/h
Ionic Capacity	0.19 - 0.25 mmol Cl^-/ml packed resin
pH stability	Short term: 2-14 Long term: 2-12
Chemical Stability	Most commonly used aqueous and organic solutions including: 1 M NaOH, 8 M urea, 30% isopropanol & 70% ethanol(1)
Antimicrobial Agent	20% ethanol
Storage Temperature	4 - 30°C

X: Product quantity
(1)1 M NaOH should be used only for cleaning purposes

Affinity Chromatography



Affinity Chromatography is generally the primarily purification step, which is based on a highly specific biological binding interaction.

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

Affinity Chromatography is generally the primarily purification step, which is based on a highly specific biological binding interaction. This technique has high selectivity and is widely used within the bioprocessing industry to obtain proteins with high purity at high yields.

Affinity Chromatography

His-tag Purification

- **Low Pressure:**
  Chelating Agarose Resins
  NTA Agarose Resins and Cartridges
- **High Pressure:**
  Chelating Rapid Run™ Agarose Resins and Cartridges
  Nickel NTA Rapid Run™
  Nickel Agarose Extrachel™

Antibody Purification

- **Low Pressure:**
  Protein A Agarose Resins
  Protein L Agarose Resins
- **High Pressure:**
  Protein A Rapid Run™ Agarose Resins
  Protein G Rapid Run™ Agarose Resins and Cartridges
  Protein A/G Rapid Run™ Agarose Resins
  ExtraBind Protein G Agarose Resin 6 Rapid Run™

Biotin/Avidin Binding Purification

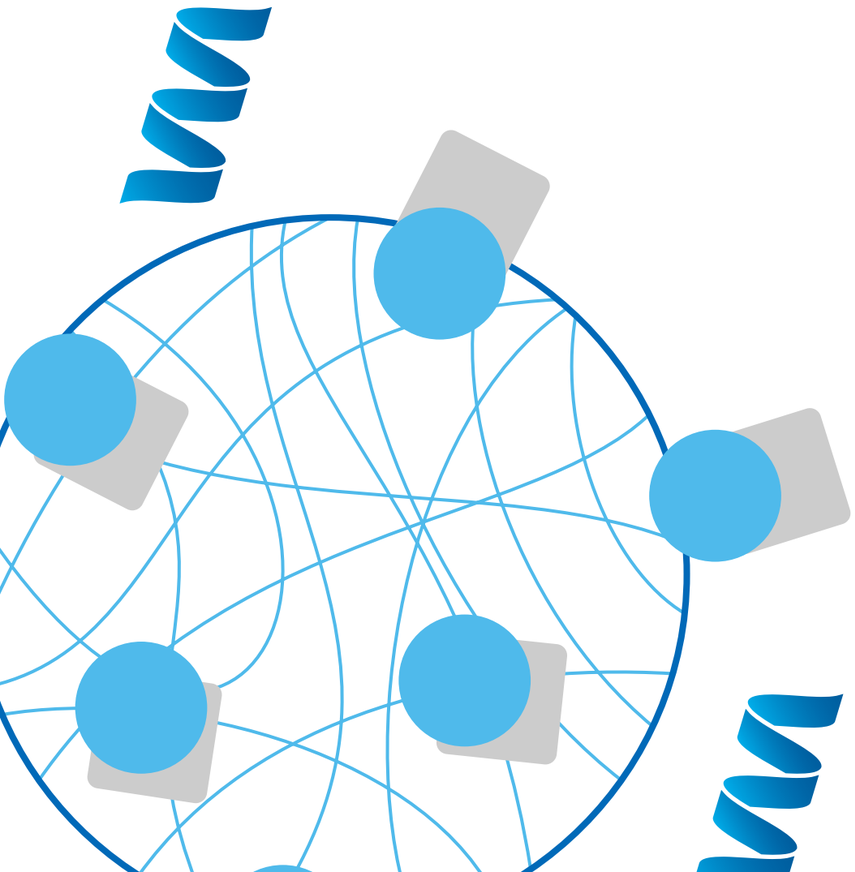
- **Low Pressure:**
  Biotin Agarose Resins
- **High Pressure:**
  Streptavidin HC Agarose Resins

GST Purification

- **Low Pressure:**
  Glutathione Agarose Resins

Affinity Chromatography

His-tag Purification



His-tagged proteins can be purified with single-step affinity chromatography, often referred to as immobilized metal ion affinity chromatography (IMAC).

Immobilized Metal Affinity Chromatography (IMAC) is the most widely used purification technique. It is based on the interaction between certain amino acid residues (i.e., 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 resin. Elution is usually by lowering pH or performed by adding imidazole.

Chelating Agarose Resins
Low pressure

ABT offers two types of chelating resins that use standard crosslinked beads and either iminodiacetic acid (IDA) and nitrilotriacetic acid (NTA) ligands.

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 available sites for the interaction with metal ions, instead of four with NTA. IDA resins are easily regenerated, allowing a better elution of the bound fused proteins with lower concentrations of imidazole.

The product range covers four different types of metal and ions that can be optimized at varying densities.

- Nickel chelates recognize two exposed target residues (usually histidines) for an efficient protein binding and it is recommended for the majority of His-tagged protein purifications.
- Zinc chelates seem 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 high 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).

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

Nickel Agarose Extrachel™ is an IMAC resin precharged with nickel that is strongly bound to a ligand. Nickel remains bound to the chelating ligand after incubation in 20 mM EDTA.

Chelating Agarose Resins
Low pressure

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

- Different grades of activation allows for optimization between binding capacity and purification selectivity.
- Resins charged with Ni, Cu, Zn, or Co as well as metal-free.
- For batch or column purifications

Bulk Resins
Technical specifications

PRODUCT	HIGH DENSITY METAL FREE/NICKEL/ZINC/COBALT	LOW DENSITY 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 - 8ºC	

PRODUCT	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

X: Product quantity

Pre-packed Columns

ABT offers pre-packed 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
- Available in 1 and 5 ml columns

Pre-packed Columns
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 - 8ºC			

Nickel NTA Agarose Resins
Low pressure

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 reducing conditions
- Minimum metal leaching

Bulk Resins
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	15% ethanol of total volume
Storage temperature	2 - 8ºC

(1) Static binding capacity will differ for each target protein.
X: Product quantity.

Nickel NTA Agarose Cartridges
Low pressure

Cartridges

Nickel NTA Agarose Cartridges 5 ml are pre-packed products for use in the MPLC, FPLC and ÄKTA™ benchtop systems. ABT offers units of 1 or 5 cartridges packed with 5 ml of Nickel NTA Agarose Resin.

Cartridges
Technical specifications

PRODUCT	NICKEL NTA AGAROSE CARTRIDGES 5 ML
Cat. No.	6BCL-NTANiCTG5-X
Bead geometry & size	Spherical, Standard: ~50 - 150 µm
Description	Cartridges 5 ml resin
Crosslinked	Yes
Agarose %	6%
Ligand	nitrilotriacetic acid (NTA)
Static binding capacity	≥50 mg/ml gel(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 aditional connectors
Antimicrobial agent	15% ethanol of total volume
Storage temperature	4 - 8°C

(1) Static binding capacity will differ for each target protein.
X: quantity of cartridges 1 or 5.

Chelating Rapid Run™ Agarose Resins
High pressure

Nickel, cobalt, and metal free Rapid Run™ agarose resins 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
- Low residence time required

Bulk Resins
Technical specifications

PRODUCT	METAL FREE RAPID RUN™	NICKEL RAPID RUN™	COBALT RAPID RUN™
Cat. No.	6RR-QH-X	6NiRR-X	6CoRR-X
Bead geometry & size	Spherical, Standard: ~50 - 150 µm		
Exclusion limit	~4×10⁶		
Crosslinked	Highly crosslinked		
Agarose %	6%		
Binding / loading capacity (µmol Me^{2+}/ml gel)	~20		
Ligand	Iminodiacetic acid		
Antimicrobial agent	20% ethanol		
Storage temperature	2 - 8°C		

X: Product quantity

Nickel NTA Rapid Run™

High pressure

This resin consists of highly crosslinked agarose with nitrilotriacetic acid (NTA) ligand. The resin provides good properties working in the presence of reducing agents and is designed for large scale downstream purification of His-tagged proteins.

PRODUCT	NICKEL NTA RAPID RUN™
Cat. No.	6RR-NTANi-X
Bead geometry & size	Spherical, Standard: ~50 - 150 µm
Crosslinked	Highly crosslinked
Agarose %	6%
Ligand	nitrilotriacetic acid (NTA)
Loading capacity (µmol Me^{2+}/ml gel)	≥15
Protein binding capacity (mg/ml gel)	≥60
Antimicrobial agent	20% ethanol
Storage temperature	2 - 8°C

X: Product quantity

Nickel Agarose Extrachel™

High pressure

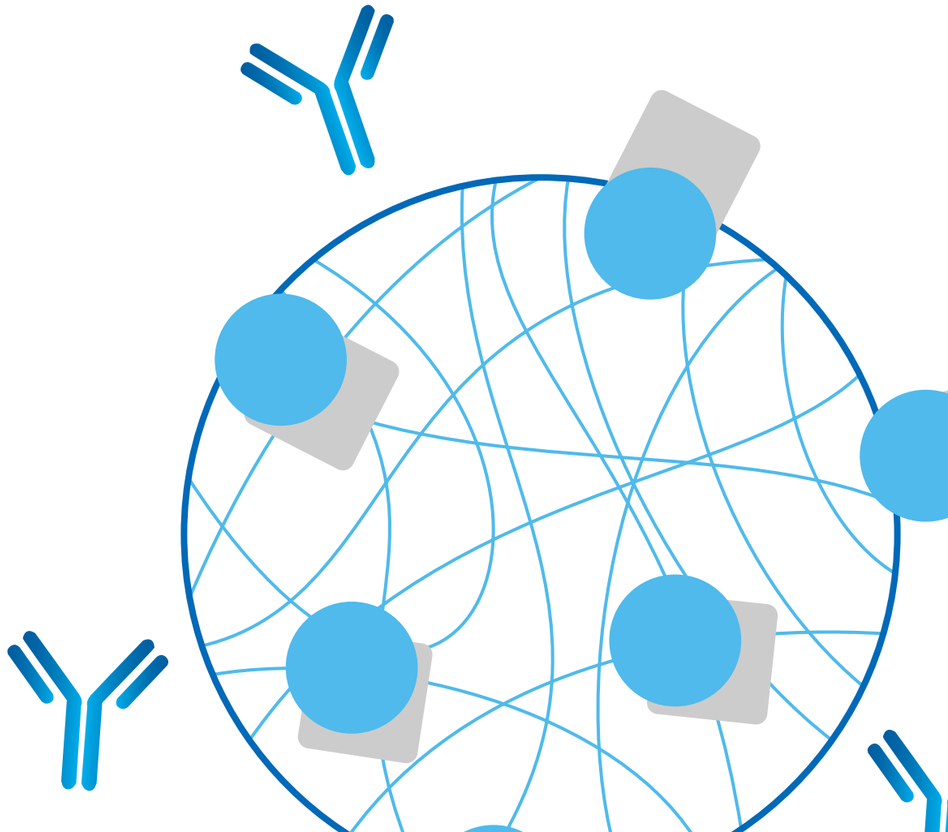
Nickel Agarose ExtrachelTM is a high capacity resin manufactured with a polychelator ligand. The product is developed to work in the presence of EDTA and DTT without loss of performance. Its specificity and stability allows a one-step purification eliminating the need of pretreatment of samples that cause nickel stripping.

PRODUCT	NICKEL AGAROSE EXTRACHEL™
Cat. No.	6RREXCH-X
Bead geometry & size	Spherical, Standard: ~50 - 150 µm
Crosslinked	Highly crosslinked
Agarose %	6%
Chemical stability	20 mM DTT, 20 mM EDTA, 8 M urea, 6 M guanidinium hydrochloride, 30% acetonitrile, 100% methanol, 100% ethanol, and buffer solutions at pH 4 - 9
Loading capacity (µmol Me^{2+}/ml gel)	>60
Static binding capacity (mg/ml gel)	>80[1]
Antimicrobial agent	20% ethanol
Storage temperature	2 - 8°C

X: Product quantity
[1]Static binding capacity will differ for each target protein.

Affinity Chromatography

Antibody Purification



Protein A Agarose Resins

Protein A is a cell wall component of *Staphylococcus aureus*. It consists of a single polypeptide chain, which contains five antibody-binding domains. These regions have high affinity and specificity 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 rProtein A products with competitive advantages compared to market standards:

- High IgG-binding capacity resin (~25 mg human IgG/ml)
- High stability binding of rProtein A: resin is reusable with no significant loss of binding capacity
- ABT offers Protein A Agarose Resin for working in both Low and High Pressure conditions.

Relative affinity of immobilized Protein A for various species and subclasses of polyclonal and monoclonal IgGs (1)

SPECIES / SUBCLASS	PROTEIN A
MONOCLONAL	
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 A
POLYCLONAL	
Rabbit	++++
Cow	++
Horse	++
Goat	-
Guinea Pig	++++
Sheep	+/-
Pig	+++
Rat	+/-
Mouse	++
Chicken	---
Human IgG	++++
Human IgM	---
Human IgD	---
Human IgA	---

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

Protein A Agarose Resins

Low pressure

ABT offers rProtein A resins for purifications of a wide range of immunoglobulins of different mammalian species as well as certain IgG subclasses that have no affinity.

Protein A Test Kit

Pre-packed columns are available for gravity flow purification and includes 100 µl of resin. This format allows for evaluation of the resin prior to larger scale applications.

- Get more of your antibody: higher IgG binding capacity
- Get better purification: higher stability binding of the rProtein A
- Save time and money: reusable. Low leaching 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 - 8ºC	

X: Product quantity

Protein A Rapid Run™ Agarose Resins
High pressure

Protein A Agarose Resin 4 Rapid Run™ can be used in 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 - 8ºC

X: Product quantity.

Protein G Rapid Run™ Agarose Resins
High pressure

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

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

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

ABT offers ʳProtein 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. ʳProtein G is immobilized by means of covalent binding that minimizes protein G ligand leaching. The result is increased cycle lifetime.

Bulk Resins
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 - 8ºC	

X: Product quantity

Protein G Affinity Cartridges 5 ml
High pressure

Cartridges

Protein G Affinity Cartridges are pre-packed 5 mL ready to use for purifying classes, subclasses, and fragments of immunoglobulins from cell culture media and biological fluids. The cartridges can be used with automated chromatography systems, peristaltic pump, or manual processing and are compatible with AKTA™ design systems.

Cartridges
Technical specifications

PRODUCT	PROTEIN G AFFINITY CARTRIDGES 5 ML
Cat. No.	AF4PG-Ctg5-X
Bead geometry & size	Spherical, Fine: ~50 µm
Description	Cartridges 5 ml resin
Crosslinked	Highly crosslinked
Agarose %	4%
Coupling method	Covalent binding by reductive amination
Static binding capacity	~20 mg human IgGh / ml resin[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 - 8ºC

X: Quantity.
[1]Static binding capacity will differ for each target protein.

ExtraBind Protein G Agarose Resin 6 Rapid Run™
High pressure

Next generation of ABT´s Protein G resins. Recombinant Protein G has been improved by adding more IgG binding domains than the previous version. Thus, ExtraBind Protein G Agarose Resin 6 Rapid Run™ has a higher dynamic binding capacity for low-affinity immunoglobulins such as rat, mouse or hamster IgGs (Figure 1).

Technical specifications

PRODUCT	EXTRABIND PROTEIN G AGAROSE RESIN 6 RAPID RUN™
Cat. No.	6RRPG2
Beads Geometry & Size	Spherical ~50-150 µm
Ligand	Recombinant Protein G-2
Coupling method	Covalent binding by reductive amination
Static binding capacity	~25 mg human IgG/ml resin ~8 mg rat IgG/ml resin
Antimicrobial agent	20% ethanol
Storage temperature	2 - 8ºC

X: Product quantity

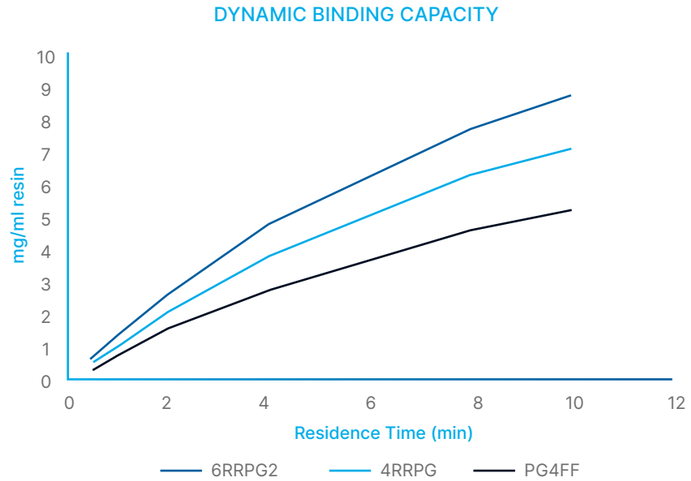


Figure 1. Comparison of the dynamic binding capacity at different residence times of ExtraBind Protein G Agarose Resin 6 Rapid Run™ (6RRPG2), Protein G resin (4RRPG) and other commercial resin (PG4FF).

Protein G Agarose Resins
Low pressure

Protein G Test Kit

Pre-packed columns are available for gravity flow purification and includes 100 µl of resin. This format allows for evaluation of the resin prior to larger scale applications.

Relative affinity of immobilized Protein G for various species and subclasses of polyclonal and monoclonal IgGs(1)

SPECIES / SUBCLASS	PROTEIN G
MONOCLONAL	
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
POLYCLONAL	
Rabbit	+++
Cow	++++
Horse	++++
Goat	++
Guinea Pig	++
Sheep	++
Pig	+++
Rat	++
Mouse	++
Chicken	+
Human IgG	++++
Human IgM	+
Human IgD	+
Human IgA	+

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

Protein L Agarose Resins
Low pressure

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

ʳProtein L contains three 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.

Other antibodies, ʳProtein 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). ʳProtein 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 for batch or column purifications.

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	

X: Product quantity.

Protein L Test Kit

Pre-packed columns are available for gravity flow purification and includes 100 µl of resin. This format allows for evaluation of the resin prior to larger scale applications.

Relative affinity of immobilized Protein L for various species and subclasses of polyclonal and monoclonal immunoglobulins

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	+++
IgG_1	+++
$IgG2_a$	+++
$IgG2_b$	+++
IgG3	+++
IgM	+++
Rat	
Total IgG	+++
IgG_1	+++
IgG_{2a}	+++
IgG_{2b}	+++
IgG_{2c}	+++
IgG_3	ND
Hamster	+++
Rabbit	+
Pig	+++
Guinea-pig	
IgG_1	ND
IgG_2	ND

ND: Not Determined.

Protein A/G Rapid Run™ Agarose Resins

High pressure

Protein A/G Agarose Resin 4 Rapid Run™ contains a 1:1 mixture of Protein G Agarose Resin 4 Rapid Run™ and Protein A Agarose Resin 4 Rapid Run™. This resin is used to isolate mouse IgG_1, $IgG2_a$, IgG_{2b}, IgG_3 and IgA, rat IgG_1, IgG_{2a}, IgG_{2b}, IgG_{2c}, rabbit and goat polyclonal and human IgG_1, IgG_2, IgG_3 and IgG_4.

ʳProtein G and ʳProtein A are immobilized through covalent binding to minimize protein loss and ligand leaching. The result is increased cycle lifetime.

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 - 8ºC	

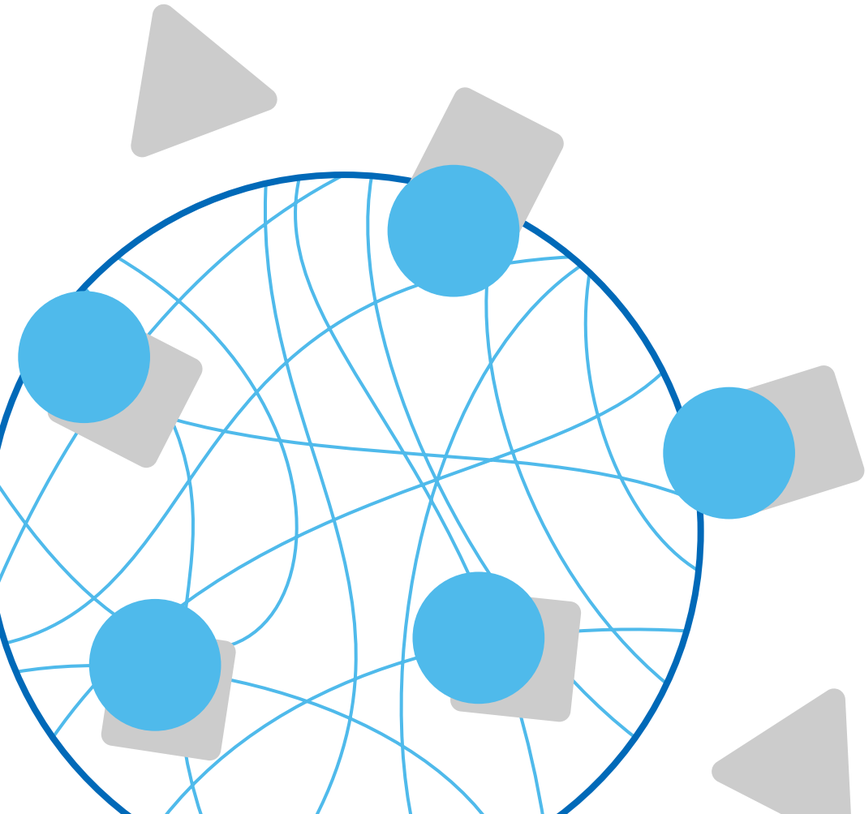
X: Product quantity.

Protein A/G Test Kit

Pre-packed columns are available for gravity flow purification and includes 100 µl of resin. This format allows for evaluation of the resin prior to larger scale applications.

Affinity Chromatography

Biotin/Avidin Binding Purification



Biotin Agarose Resins

Low pressure

Biotin Agarose Resin is used for purification or removal of avidin and streptavidin samples. Biotin is immobilized through a spacer arm using covalent binding that minimizes leaching.

The high affinity binding of the resin makes it ideal 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

X: Product quantity.

Streptavidin HC Agarose Resins

High pressure

ABT Streptavidin 6HC is used for the immobilization of biotinylated biomolecules. Recombinant streptavidin is immobilized on 6% highly crosslinked agarose beads.

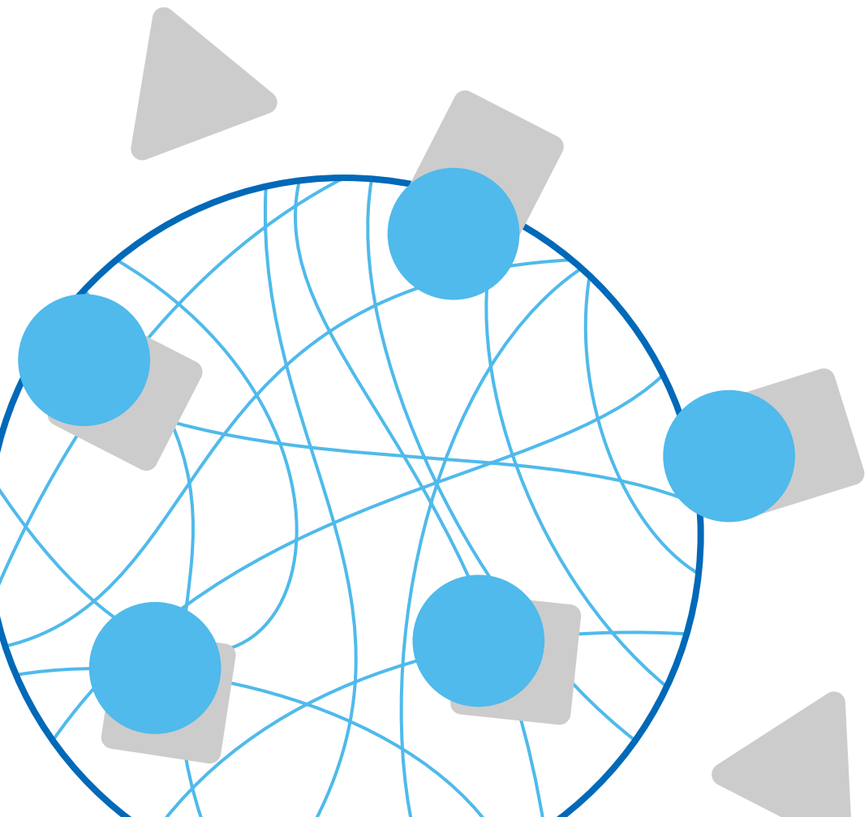
Technical specifications

PRODUCT	STREPTAVIDIN HC AGAROSE RESINS
Cat. No.	STV6HC-X
Bead geometry & size	Spherical, Standard: ~50 - 150 µm
Crosslinked	Highly crosslinked
Agarose %	6%
Free biotin binding capacity	>120 nmol/ml gel
Antimicrobial agent	20% ethanol in Phosphate Buffered Saline
Storage temperature	2 - 8°C

X: Product quantity.

Affinity Chromatography

GST Purification



Glutathione Agarose Resins

Low pressure

Glutathione Agarose Resin 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 small and large protein complexes
- 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

X: Product quantity.

Affinity Coupling

Affinity Coupling

Pre-activated resins designed to couple ligands via stable and uncharged covalet linkages.

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 easy re-use of the immobilized molecule. The conjugation of affinity ligands and their use in chromatography have multiple applications, including purification procedures, removal of contaminating substances, and biocatalysis.

Affinity Coupling

ABT offers a wide range of pre-activated resins designed to couple ligands via stable and uncharged covalent linkages to minimize affinity ligand leakage and reduce nonspecific binding.

Two different chemistries are utilized depending on the ligand, the accessibility of the reactive groups and the direction/orientation required to support binding.

- **Glyoxal resins**
- **Aminoethyl resins**

Unique to ABT, we also offer resin customization options including different agarose concentrations (4 - 6%) and densities/concentrations of both Glyoxal and Aminoethyl activated groups.

High density activated resins for:

- High binding capacity
- High immobilized enzyme stability
- Possibility of multiple binding points
- High yields

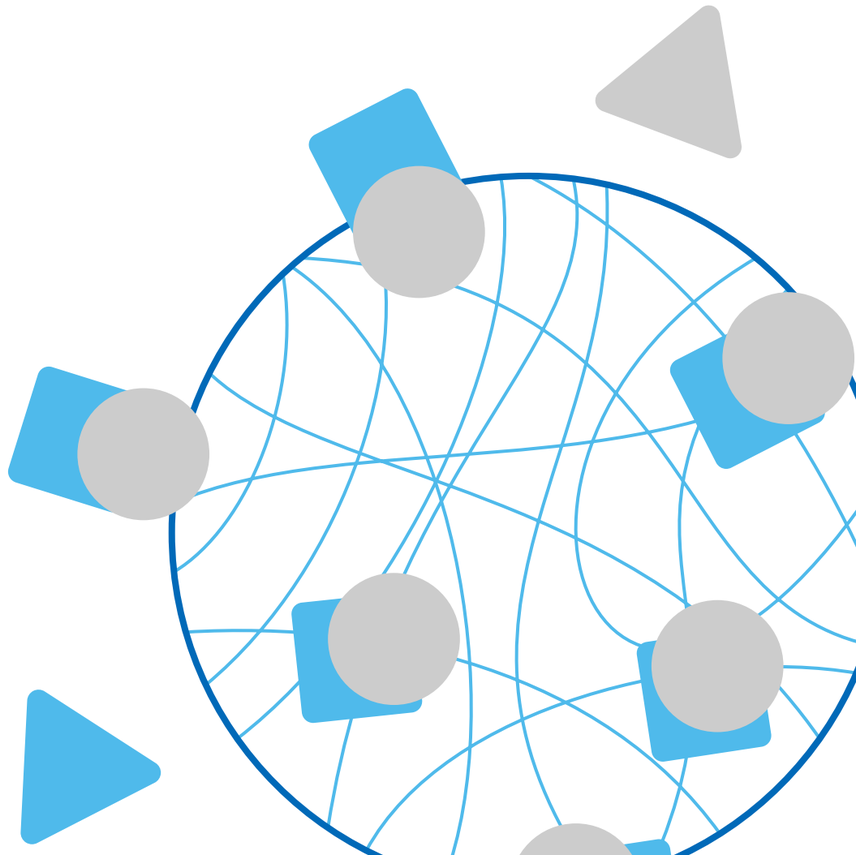
Low density activated resins for:

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

These resins are excellent options for work in research and industrial scale, conferring a qualitative advantage compared to compared to Cyanogen bromide (CNBr) agarose resins.

Affinity Coupling

Amino Groups



Glyoxal Agarose Resins

Low pressure

Glyoxal pre-activated resins allow the covalent binding of agarose to lysine amino groups of the target ligand (similar to CNBr orientation). ABT offers a wide selection of activated products depending on the need. Customization includes the number of activated aldehyde groups, percent agarose backbone (4% and 6%), and particle size. These resins give adequate options to work in batch or column purifications for low pressure applications and large scale process Rapid Run™ for High Pressure applications.

Technical specifications

PRODUCT	HIGH DENSITY GLYOXAL		LOW DENSITY GLYOXAL	
	4BCL	6BCL	4BCL	6BCL
Cat. No.	4BCL-GH1-X	6BCL-GM3-X	4BCL-GL0-X	6BCL-GL0-X
Bead geometry & size	Spherical, Standard: ~50 -150 µm			
Crosslinked	Yes			
Activation degree (µmol Glyoxyl/ml gel)	40 - 60	40 - 60	15 - 25	15 - 25
Agarose %	4%	6%	4%	6%
Matrix active groups	Agarose with some diols oxidized to aldehydes			
Coupling capacity[1] (mg BSA/ml gel)	~15	~20	~10	~10
Antimicrobial agent	20% ethanol			
Storage temperature	2 - 8ºC			

(1) Orientative values for coupling capacity using BSA.
X: Product quantity.

Glyoxal Rapid Run™ Agarose Resins

High pressure

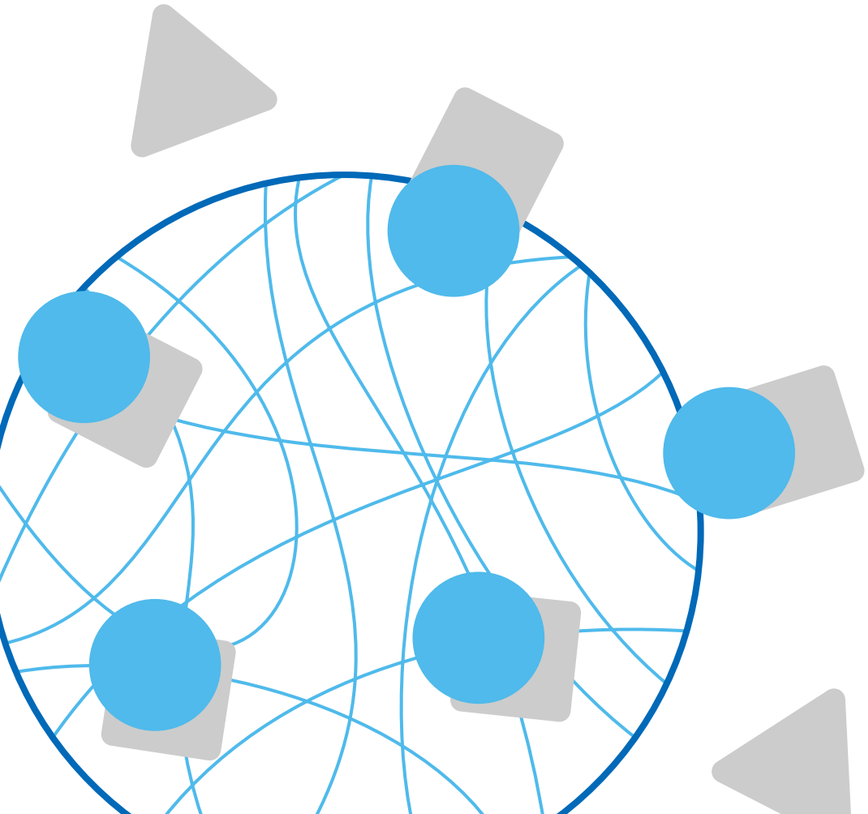
Technical specifications

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
Cat. No.	6RR-GL0-X	6RR-GM3-X	4RR-GL0-X	4RR-GH1-X	6RRF-GL0-X[1]	4RRF-GL0-X[1]
Additional information	Minimum distortion	High stability	Minimum distortion	High stability	Minimum distortion	Minimum distortion
Exclusion limit (Mr) globular proteins Da	~4×10^6	~4×10^6	~3×10^7	~3×10^7	~4×10^6	~3×10^7
Bead geometry & size	Spherical, Standard: ~50 - 150 µm				Spherical, Fine: ~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 - 8ºC					

(1) Recommended for packing cartridges.
X: Product quantity.

Affinity Coupling

Carboxyl Groups



Aminoethyl Agarose Resins

Low pressure

Aminoethyl resins allow for a covalent binding of agarose to carboxy group amino acids of the target ligand. ABT offers a wide selection of activated products depending on the need. Customization includes the number of activated amino groups, percent agarose backbone (4% and 6%), and particle size. These options allows for work in batch or column purifications for low pressure applications and large scale process Rapid Run™ for High Pressure applications.

Technical specifications

PRODUCT	LOW DENSITY AMINOETHYL 6 BCL	VERY LOW DENSITY AMINOETHYL 4 BCL	HIGH DENSITY AMINOETHYL 6BCL	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 - 8ºC			

X: Product quantity.

Breakthrough solutions for Bioseparation challenges.

The resins from ABT - standard or customized – offer robust solutions to reproducibly achieve your need.

Aminoethyl Rapid Run™ Agarose Resins

High pressure

Technical specifications

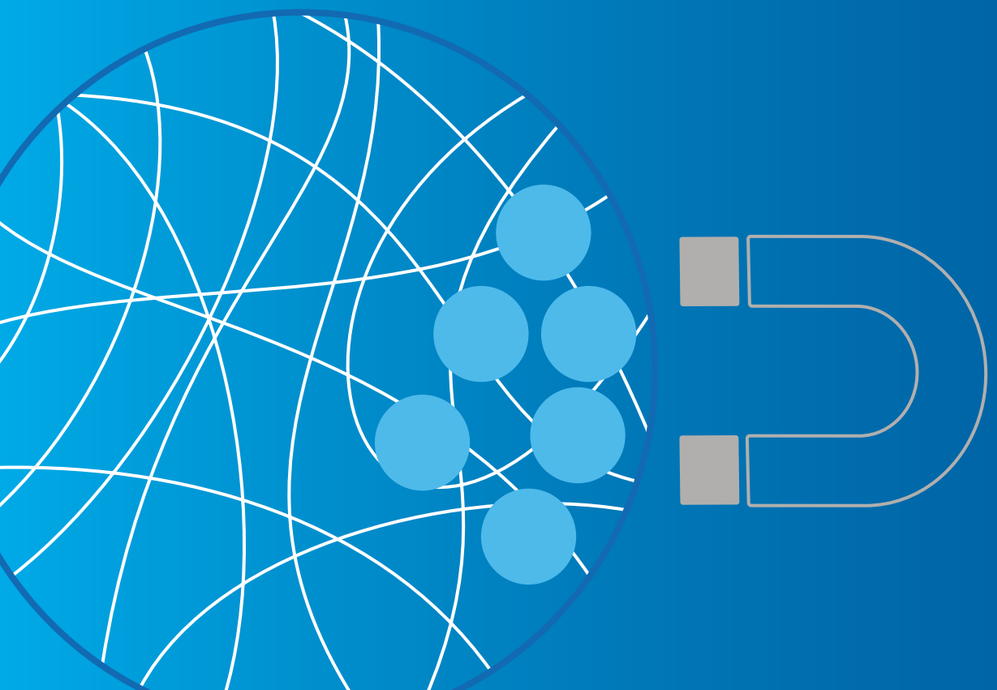
PRODUCT	LOW DENSITY AMINOETHYL 6 RAPID RUN™	HIGH DENSITY AMINOETHYL 6 RAPID RUN™	VERY LOW DENSITY AMINOETHYL 4 RAPID RUN™	HIGH DENSITY AMINOETHYL 4 RAPID RUN™	VERY LOW DENSITY AMINOETHYL 6 RAPID RUN™ FINE"
Cat. No.	6RR-AL0-X	6RR-AM3-X	4RR-AVL4-X	4RR-AH1-X	6RRF-AVL4-X
Additional information	Minimum distortion	High stability	Minimum distortion	High stability	Minimum distortion
Exclusion limit (mr) globular proteins da	~4×10^6	~4×10^6	~3×10^7	~3×10^7	~4×10^6
Bead geometry & size	Spherical, Standard: ~50 - 150 µm				Spherical, Fine: ~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				

X: Product quantity.

From laboratory scale to high-volume manufacturing.

Our cutting-edge resins are manufactured under stringent quality standards and that can be adapted to any application.

Magnetic Beads



Magnetic separation is a fast and broad use method for a variety of biomolecules bench-top purifications.

Since there are multiple ways or removing magnetic resins, there is no need to directly discuss. Can be a follow up discussion, if needed.

Magentic agarose resins offer a simplistic purification step due to their ferrimagnetic formulation properties. the same ligand coupling chemistry as conventional agarose beads, being suitable for a wide range of applications.

ABT offers plain agarose beads (4% concentration) with the option of two particle sizes for magnetic separation procedures.

Magnetic Beads

Plain Magnetic Beads

4% Magnetic T1 Agarose Bead
4% Magnetic Large Agarose Bead

Antibody Purification

Protein A Magnetic Resins
Protein G Magnetic Resins
Protein L Magnetic Resins

Glyoxal Magnetic Agarose resins

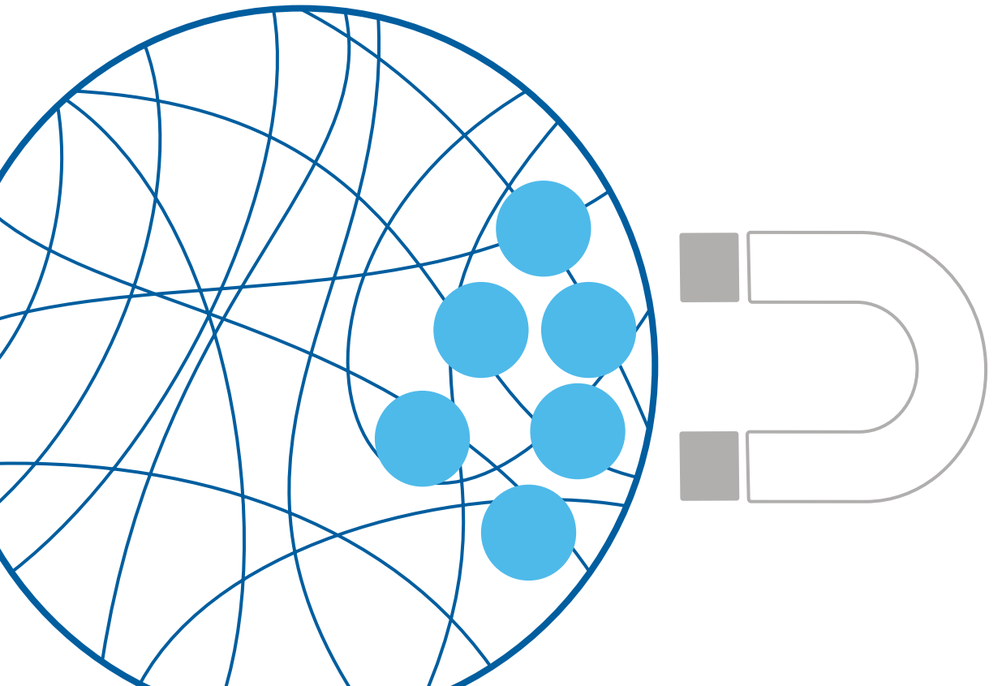
High Density Glyoxal 4BCL-Mag
Glyoxal 4BCL-Mag

His-Tag Purification Magnetic Resins

Nickel NTA magnetic Agarose Resins (5%)

Magnetic Beads

Plain Magnetic Beads



Plain Magnetic Beads

ABT offers plain agarose beads with an agarose concentration of 4% and two particle sizes for magnetic separation procedures:

- **4% Magnetic T1 Agarose Bead**
  Non-crosslinked agarose resin with bead size of 50 - 100 µm.
- **4% Magnetic Large Agarose Bead**
  Non-crosslinked agarose resin with bead size of 100 - 300 µm.

These beads are commonly used for coupling affinity ligands dedicated to rapid benchtop and single-use applications. The matrix is not pre-activated, so the user needs to generate clusters for docking procedures.

Technical specifications

PRODUCT	4% MAGNETIC T1 AGAROSE BEAD	4% MAGNETIC LARGE AGAROSE BEAD
Cat. No.	4MGT1-X	4MGT3-X
Bead Geometry & Size	Spherical ~ 50 - 100 µm	Spherical, ~100 - 300 µm
Crosslinked	No	No
Agarose %	4 %	4 %
Antimicrobial Agent	17- 20% ethanol	17- 20% ethanol
Storage Temperature	4 - 30°C	4 - 30°C
Order information	Fast magnetic reaction	Fast magnetic reaction

X: Product quantity
Each 1ml of slurry will contain 500um of magnetic beads

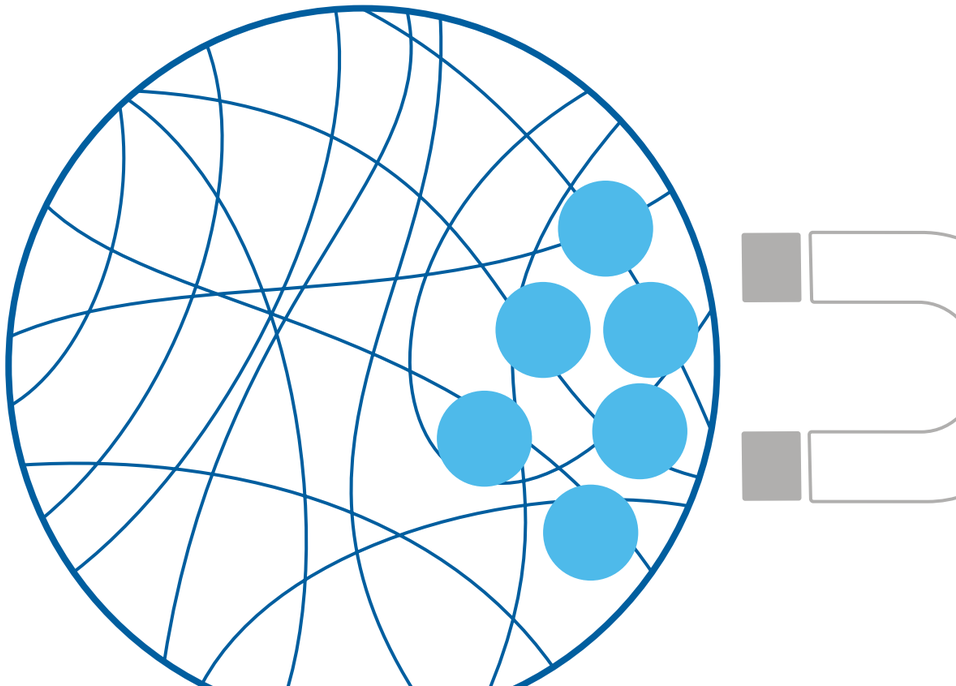
Magnetic Beads for antibody purification and immunoprecipitation procedures.

Magnetic Beads can be easily adapted for small-scale antibody purification and immunoprecipitation procedures.

The magnetic properties of the resin allows for the repetitive washings and recovery of the bound antibody. This leads to greater experimental reproducibility and more accurate quantitation of the immunoglobulin of interest.

Magnetic Beads

Antibody Purification



Protein A Magnetic Resins

Recombinant Protein A has been bound to agarose magnetic beads leading to a resin designed for the purification of a wide range of immunoglobulins of different mammalian species and certain IgG subclasses, as well as other immunoprecipitation procedures.

Technical specifications

PRODUCT	PROTEIN A MAG1 AGAROSE RESIN
Cat. No.	PA-MAG1-X
Agarose %	4% crosslinked agarose
Beads Geometry & Size	Spherical, ~50 - 100 µm
Ligand	Recombinant Protein A
Coupling Method	Covalent binding by reductive animation
Static binding capacity	~10 mg human IgG/ml resin
Antimicrobial Agent	20% ethanol
Storage temperature	2 - 8°C

X: Product quantity.
Each 1ml of slurry will contain 500um of magnetic beads.

Protein G Magnetic Resins

Protein G Magnetic Beads contain a recombinant Protein G with only IgG binding domain specificity. The albumin-binding domain, as well as, the cell wall and cell membrane binding domains from native Protein G have all been removed to ensure the maximum IgG specific binding capacity.

Technical specifications

PRODUCT	PROTEIN G MAG1 AGAROSE RESIN
Cat. No.	PG-MAG1-X
Agarose %	4% crosslinked agarose
Beads Geometry & Size	Spherical, ~50 - 100 µm
Ligand	Recombinant Protein G
Coupling Method	Covalent binding by reductive animation
Static binding capacity	~20 mg human IgG/ml resin
Antimicrobial Agent	20% ethanol
Storage temperature	2 - 8°C

X: Product quantity.
Each 1ml of slurry will contain 500um of magnetic beads.

Protein L Magnetic Resins

Protein L magnetic resins are designed for IgG, IgM, IgA and IgD purification where the kappa light chain is still present. The recombinant protein L contains the same immunoglobulin binding domains of the native protein. It is also suitable for the binding of a wide range of antibody fragments (Fabs), single-chain variable fragments (scFv) and domain antibodies (Dabs).

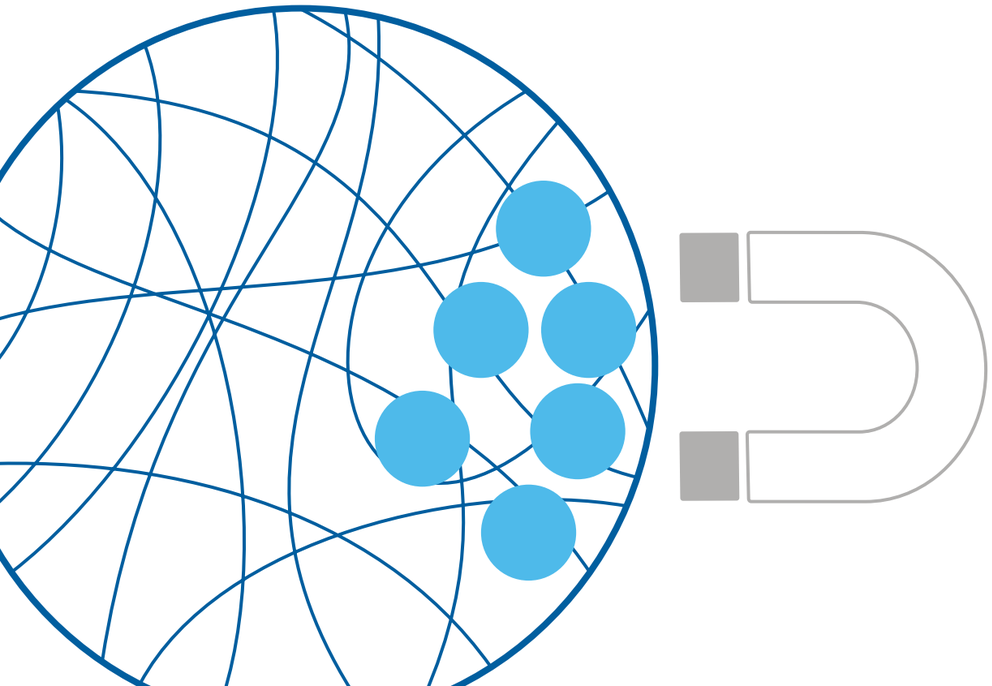
Technical specifications

PRODUCT	PROTEIN L MAG1 AGAROSE RESIN
Cat. No.	PL-MAG1-X
Agarose %	4% crosslinked agarose
Beads Geometry & Size	Spherical, ~50 - 100 µm
Ligand	Recombinant Protein L
Coupling Method	Covalent binding by reductive animation
Static binding capacity	~10 mg human IgG/ml resin
Antimicrobial Agent	20% ethanol
Storage temperature	2 - 8°C

X: Product quantity.
Each 1ml of slurry will contain 500um of magnetic beads.

Magnetic Beads

Glyoxal Magnetic Resins



Glyoxal Magnetic Resins

Glyoxal magnetic beads are pre-activated resins that allow a covalent binding of agarose to lysine amino groups of the target ligand (similar to cyanogen bromide (CNBr) orientation).

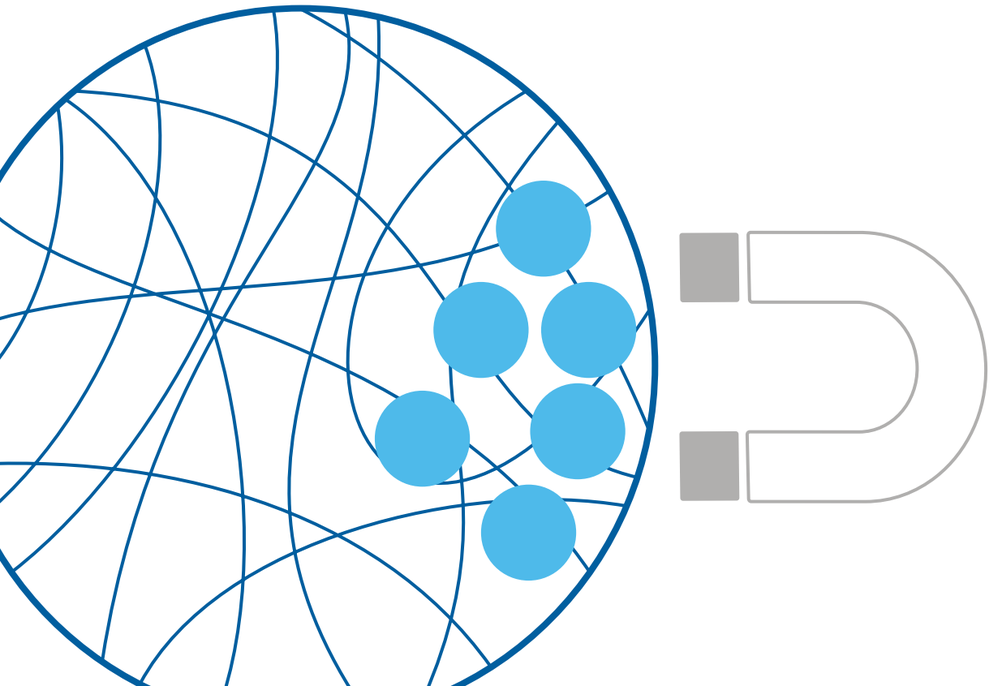
Technical specifications

PRODUCT	HIGH DENSITY GLYOXAL 4BCL-MAG	GLYOXAL 4BCL-MAG
Cat. No.	4BCL-GH1MAG-X	4BCL-GMAG-X
Bead geometry & size	Spherical, Standard: ~50 - 150 µm	
Crosslinked	Yes	
Matrix active groups	Agarose with some diols oxidized to aldehydes	
Agarose %	4%	
Activation degree (µmol glyoxyl/ml gel)	~60	~45
Coupling Capacity[1] (mg BSA/ml gel)	15 - 25	
Antimicrobial agent	20% ethanol	
Storage temperature	2 - 8ºC	

X: Product quantity.
Each 1ml of slurry will contain 500um of magnetic beads.

Magnetic Beads

His-Tag Purification Magnetic Resins



Nickel NTA magnetic Agarose Beads (5%)

A resin that allows rapid and easy small scale purification of histidine-tagged proteins. This resin consists of magnetic agarose derivatized with nitrilotriacetic (NTA) and provides good properties working in native or denaturing conditions.

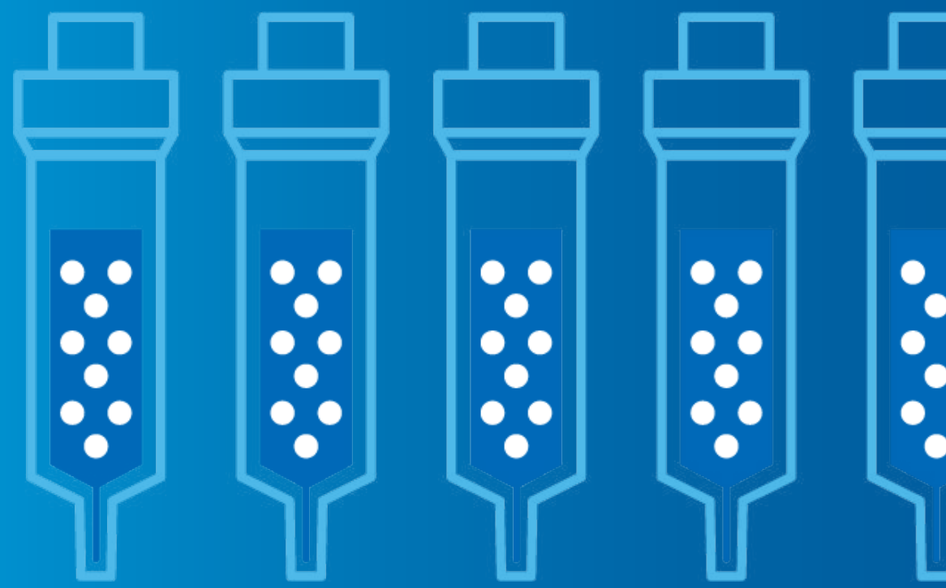
Technical specifications

PRODUCT	NICKEL NTA MAGNETIC AGAROSE BEADS (5%)
Cat. No.	MAGNTANi5-X
Bead geometry & size (d50)	Spherical, ~10 - 40 µm
Ligand	nitrilotriacetic acid (NTA)
Loading capacity (µmol Me^{2+}/ml gel)	>20 µmol/ml gel
Binding capacity[1]	>75 mg His-tagged protein/ml gel
Concentration	5% slurry
Antimicrobial agent	20% ethanol
Storage temperature	2 - 8°C

X: Volume of total slurry. Beads volume would be 5% of the total slurry.
Each 1 ml of slurry will contain 50 µl of magnetic beads
[1]Binding capacity was tested with his-GFP.
X: Product quantity.

PRODUCT	MAGNETIC SEPARATOR
Cat. No.	MagSep1

Accesories



Accesories

Empty Cartridges

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

- Easy to pack
- Reduced cost
- Reproducible packing

The user can utilize any type of chromatography resin (>20 µm) including all standard and custom ABT resins available.

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	Polypropylene
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	1 ml packed resin(1)

(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.

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.

Empty Mini Columns

Serves as a tool for purification using small quantities of resin (100 - 250 µL). Offered in a single-use format for centrifuge purifications.

Empty Spin Columns

Ideal for purification with a small quantities of resin around 50 to 100 µL. By syringe (luer lock system) or by centrifugation.

Empty Columns

- Plastic Small Columns 100 - 200 µL
- Plastic Columns 0.5 - 2 mL
- Plastic XL Columns 2 - 6 mL
- Plastic XXL Columns 6 - 12 mL

Technical specifications

PRODUCT	Plastic Mini Columns	Plastic Spin Columns	Plastic Small Columns[1]	Plastic Columns[1]	Plastic XL Columns[1]
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	Polypropylene				
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
Total capacity	1,5 ml	0,8 ml	1 ml	12 ml	35 ml
Contains	100 units	25 units	20 units	50 units	50 units

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

Empty column accesories

PRODUCT	PLASTIC SMALL COLUMN FRITS	PLASTIC COLUMN FRITS	PLASTIC XL COLUMN FRITS
Cat. No.	FCS-20	FC-50	FCXL-50
Contains	20 units	50 units	50 units

Single-use chromatography tools that simplify resin packing and purification with greater efficiency.

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, scalability, packing reproducibility, robust construction allowing moderate back pressure, and easy to store.

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)	~12×70	~21×87	~21×137	~26×144
Column material	Polypropylene			
Frit material	Polypropylene			
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	Male FPLC connector/CAT. No. MFC-1 Female FPLC connector/CAT. No. FFC-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. MFC-1/FFC-1.

Empty Acrylic Columns

Provide a cost-effective alternative to glass column for users who need to purify different types of proteins and want to avoid cross-contamination problems that may result from column reuse. It is suitable for FPLC and ÄKTA design™ chromatography systems.

This disposable column is a low cost and flexible alternative with scalable design and reproducible packing allowing moderate back pressure and avoiding cross-contamination.

Technical specifications

PRODUCT	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 (bar/psi)	3 bar (42 psi)
Chemical stability	Stable in all commonly used reagents
Capacity (ml of packed resin)	~8 ml packed resin

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

Breaking the Barriers in Bioseparations

Agarose Bead Technologies

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