## Introduction /Modified Agarose [Affarose™]

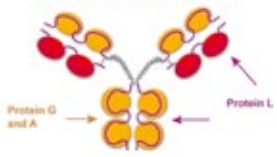
**Interchim offer a range of affinity based products that combine a number of biological sample binding methods with a variety of housing formats. These formats allow the affinity supports to utilise a range of techniques to assist with the biological purification process i.e.**

Affarose™ : Affinity agarose gels
UptiSpin™ : Affinity /Centrifugation
UptiSpin™ : Affinity /Vacuum
Ami R Gels : Amine specific affinity agarose
UptiBeads™ : Affinity /Magnetic

**Immobilized Metal Affinity Chromatography (IMAC)**

Afforose™ : Affinity IMAC gels
UptiSpin™ : Affinity IMAC /Centrifugation

Cellufine™ : Cellultic Affinity Purification/ Immobilizaton




## Protein A, G, L - Affarose™

Antibody purification was popularized by Protein A affinity chromatography. Interchim offers high-quality supports with Ig-binding proteins i.e. rProtein A, rProtein G, rProtein L supporting a range of requirements from benchtop R&D to production (ask for bulk sizes).

Support selection is dependant upon a number of parameters such as ligand specificity, stability, leaching and flow rate.

Protein A is particularly suited to the purification of monoclonal antibodies from FCS supplemented cell cultures and is often the affinity of choice for many other Ig species. Protein G is generally considered as an alternative when cross-reactivity to several species is desired, or when Protein A fails. Protein L is dedicated to specific applications.

Our recombinant grade Protein A, G & L provide unsurpassed binding capacity.

Affarose™ format : Ligands are covalently bound to the modified agarose matrix called Affarose™. Affarose™ ensures a minimal leaching of ligand and displays excellent stability, allowing for support re-use.

UptiSpin™ format : Designed for simple, rapid, multiple antibody purification from serum, ascites and tissue culture supernatant. Re-usable.

| | Protein A | Protein G | Protein L |
|---|---|---|---|
| (native) | (Staphylococcus | (streptococcus) | (Peptostreptococcus) |
| Origin | E. coli | E. coli | E. coli |
| Nb binding sites | (4) 4 | (4) 2 | 4 |
| Ig binding site | Fc | Fc | K light chain |
| Albumin binding | (-) - | (+) - | + |
| Optimal pH binding | 8 - 9 | 5 - 6 | 7.5 |

| | Binding capacity * | | |
|---|---|---|---|
| | Protein A | Protein G | Protein L |
| Hu IgGs | +++ | +++ | +++ |
| Hu IgG1 | +++ | +++ | +++ |
| Hu IgG2 | +++ | +++ | +++ |
| Hu IgG3 | + | +++ | +++ |
| Hu IgG4 | +++ | +++ | +++ |
| Hu IgM | + | - | +++ |
| Hu IgE | ++ | - | +++ |
| Hu IgD | - | - | +++ |
| Hu IgA | + | - | +++ |
| Ms IgGs | +++ | +++ | +++ |
| Ms IgG1 | + | ++ | +++ |
| Ms IgG2a | +++ | +++ | +++ |
| Ms IgG2b | +++ | +++ | +++ |
| Ms IgG2c | +++ | +++ | +++ |
| Ms IgG3 | +++ | +++ | +++ |
| Ms IgM | - | - | ++ |
| Rt IgGs | + | ++ | +++ |
| Rt IgG1 | + | ++ | ++ |
| Rt IgG2a | +++ | +++ | +++ |
| Rt IgG2b | +++ | +++ | +++ |
| Rt IgG3 | +++ | +++ | +++ |
| Rb IgGs | +++ | +++ | + |
| Gp IgGs | +++ | + | +/- |
| Hs IgGs | ++ | | +/- |
| Dog IgGs | +++ | + | |
| Cat IgGs | +++ | + | |
| Mk IgGs | +++ | +++ | |
| Pig IgGs | +++ | + | +++ |
| Gt IgGs | +/++ | +++ | - |
| Sh IgGs | +/++ | +++ | + |
| Bv IgGs | +/++ | +++ | +/- |
| Dk IgGs | ++ | +++ | |
| Hs IgGs | + | +++ | |
| Ck IgGs | - | - | |

Bv : Bovine, Ck : Chicken, Ct : Cat, Dg : Dog, Gp : Guinea-pig, Gt : Goat, Hm : Hamster Hs : Horse
Hu : Human, Mk : Monkey, Ms : Mouse, Rt : Rat, Rb : Rabbit, Sh : Sheep
* binding capacities for proteins L are given for K subclass only / +++ : strong binding / - : no binding

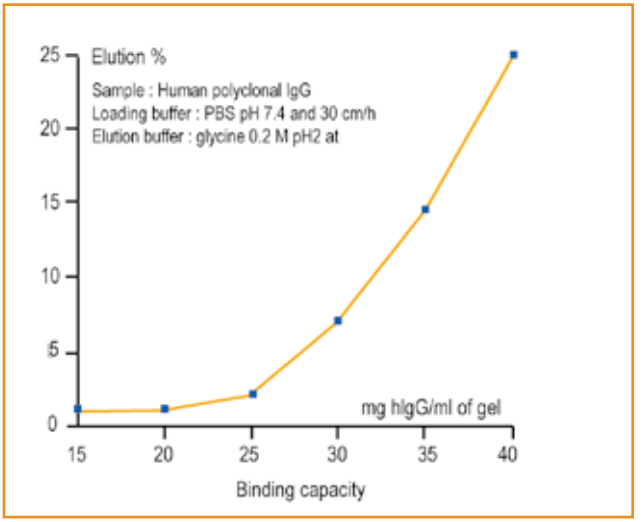
## Affarose™ rProtein A, XTrem

This is our highest capacity affinity Protein A support. The protein A is immobilised onto a 6% cross-linked agarose. Supplied as a 50% suspension.

- Capacity : 30-40 mg of human IgG per ml of wet gel (static)
- Excellent stability and minimal leaching of ligand
- High flow rate, up to 400 cm /hour

### Applications

- Purification of monoclonal antibodies, notably from FCS supplemented culture media (no Bovine IgG binding)
- Purification of polyclonal antibodies
- Immunoprecipitation
- IgG immobilization (affinity column preparation)
- Pre-adsorption, IgG depletion
- Isolation of immune complexes




| Cycle | Capacity (% initial) | Protein A in eluate |
|---|---|---|
| 1 | 100% | 2.5 ng/ml* |
| 2 | 100% | 2.4 ng/ml* |
| 16 | 100% | 1.5 ng/ml* |
| 32 | >95% | 6.7 ng/ml* |
| 100 | >85% | 3.3 ng/ml* |

*representative data. - Eluate : polyclonal human IgG 7.4 - 8.5mg /ml

| Product | P/N | Qty |
|---|---|---|
| Affarose™ rProtein A, Xtrem | **UP904670** | 5 ml |
| Affarose™ rProtein A, Xtrem | **UP904672** | 20 ml |

## Affarose™ rProtein A

Interchim's classical Protein A affinity support suitable for most applications. Protein A is immobilised on a 6% modified agarose and supplied as a 50% suspension.

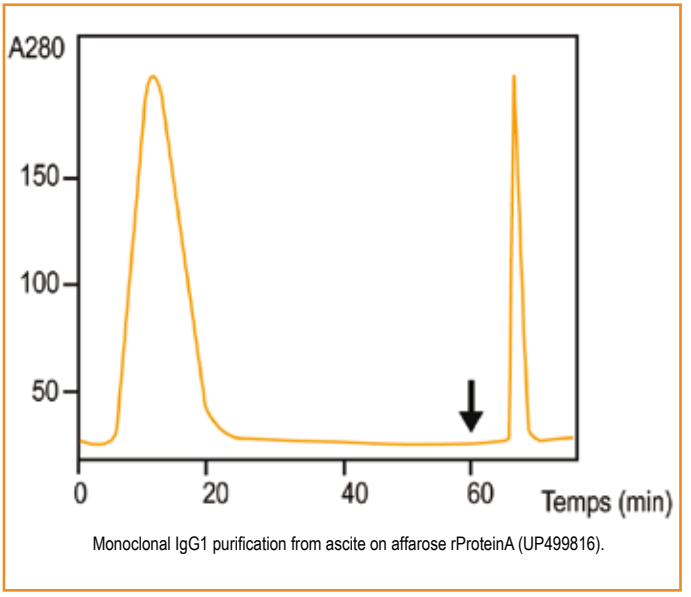
- Minimal leaching (<3ng Protein /mL)
- Capacity : 18-22 mg of human IgG per ml of wet gel
- High flow rate - up to 300cm /hour

### Applications

- Purification of monoclonal antibodies, notably from FCS supplemented culture media (no Bovine IgGs binding)
- Purification of polyclonal antibodies
- Immunoprecipitation
- IgG immobilisation (affinity column preparation)
- Preadsorption, IgG depletion
- Isolation of immune complexes

| Product | P/N | Qty |
|---|---|---|
| Affarose™ rProtein A | **UP49981G** | 2 ml |
| Affarose™ rProtein A | **UP49981H** | 5 ml |

Uptima Protein A is produced by recombinant technology in E.coli, with culture media exempt of any animal proteins. Highly controlled procedures result in a material free from toxic bacterial contaminant (Staphyloccocus endotoxins and hemolysin), found normally in native Protein A.




Monoclonal IgG1 purification from ascite on affarose rProteinA (UP499816).

## Affarose™ rProtein L

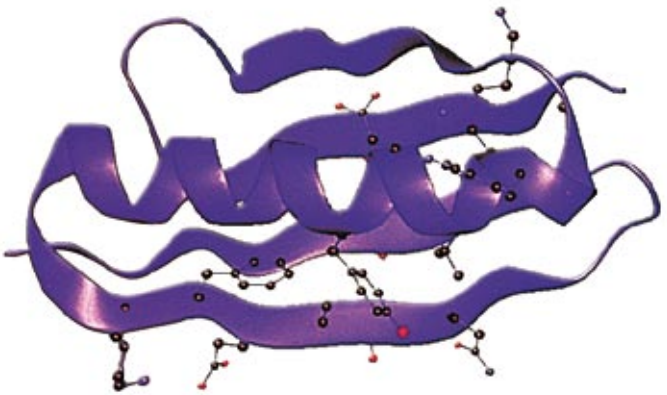
Interchim Protein L is immobilised on 4% modified agarose and supplied as a 50% suspension. It is particularly referenced as an excellent support for the purification of Ig fragments

- Capacity : 3-5 mg of human IgG per ml of wet gel
- Ig binding does not interfere with antigen binding site
- Excellent stability

### Applications

- Ideal for the purification of F(ab')2, Fab and scFV fragments containing kappa light chains
- Purification of kappa monoclonal antibodies directly from media supplemented with FCS
- Purification of IgG, IgM, IgA, IgE, IgD containing kappa light chains from serum, ascites and hybridoma supernatant
- Antibodies sensitive to alkaline pH

| Product | P/N | Qty |
|---|---|---|
| Affarose rProtein L | **UP52746A** | 2 ml |
| | **UP52746C** | 0.5 ml |



3D structure of one sub-unit of rProtein L Drs T. Wan, B.J. Sutton et m. G. Gore, University of Southampton, GB.

## UptiSpin™ Protein A and UptiSpin™ Protein G

Uptispin™ centrifugal columns are one of the simplest means to purify antibodies from serum, ascites and tissue culture supernatant. UptiSpin columns achieve high recovery of pure antibodies in minutes.

- Fast, convenient and easy to use
- Cost effective : less than 1 Euro to purify 1 mg
- Efficient : Proteins are sufficiently pure for further applications.

UptiSpin™ Protein A & G kits are designed for simple, rapid and multiple antibody purification from serum, ascites & tissue culture supernatant derived from static cultures & bioreactors. Working volume range for mini : 650 µl and midi : 20 ml

| Product | P/N | Kit |
|---|---|---|
| Protein A UptiSpin™ | | |
| Mini | | |
| Protein A Mini Sample Kit : 2 A Plugs (includes buffers) | **UPBB9720** | 1 |
| Protein A Mini Kit – 16 A Plugs (includes buffers) | **UPBB9730** | 1 |
| Protein A Mini Bulk Pack – 48 A plugs (does not include buffers) | **UPBB9740** | 1 |
| Midi | | |
| Protein A Midi Kit – 4 Midi A Plugs (includes buffers) | **UPBB9750** | 1 |
| Protein A Midi Bulk Pack – 12 A Plugs (does not include buffers) | **UPBB9760** | 1 |
| Protein G UptiSpin™ | | |
| Mini | | |
| Protein G Mini Sample Kit : 2 G Plug (includes buffers) | **UPBB9770** | 1 |
| Protein G Mini Kit – 16 G Plugs (includes buffers) | **UPBA7770** | 1 |
| Protein G Mini Bulk Pack – 48 G plugs (does not include buffers) | **UPBB9780** | 1 |
| Midi | | |
| Protein G Midi Kit – 4 Midi G Plugs (includes buffers) | **UPBB9790** | 1 |
| Protein G Midi Bulk Pack – 12 G Plugs (does not include buffers) | **UPBB9800** | 1 |
| Starter pack A and G (Mini Only) | | |
| Starter Pack: 2 A and 2 G Mini Plugs (does not include buffers) | **UPBB9820** | 1 |

### Features

| Key Features | Benefits |
|---|---|
| Centrifugal spin column | Simple to use. Only a centrifuge required. No HPLC or format FPLC equipment has to be used. |
| Uses centrifugal g force driving force | Extremely fast separation times No hold up volume or spluttering. High recovery during fast elution step. |
| Many samples can be centrifuged in parallel | Multiple samples can be purified at the same time. |
| Economical | Low cost purification. (less than 1 Euro per mg IgG)* (*5 times re-use of Midi). |
| Working range (1 -to- 100's of mg) | Variable volume and amounts can be loaded and recovered with ease. Typical amount of rabbit IgG purified : Midi kit : 400 mg (4 plugs) > 20 mg rabbit IgG /plug in one run ; > 10 mg rat IgG /plug /run). |

## UptiSpin™ Protein A and G Vacuum kits

UptiSpin™ Protein A & G Vacuum kits are designed to concentrate and purify antibodies, at high speed, from large volumes of dilute cell culture supernatants (up to 2 L) using vacuum as the driving force.

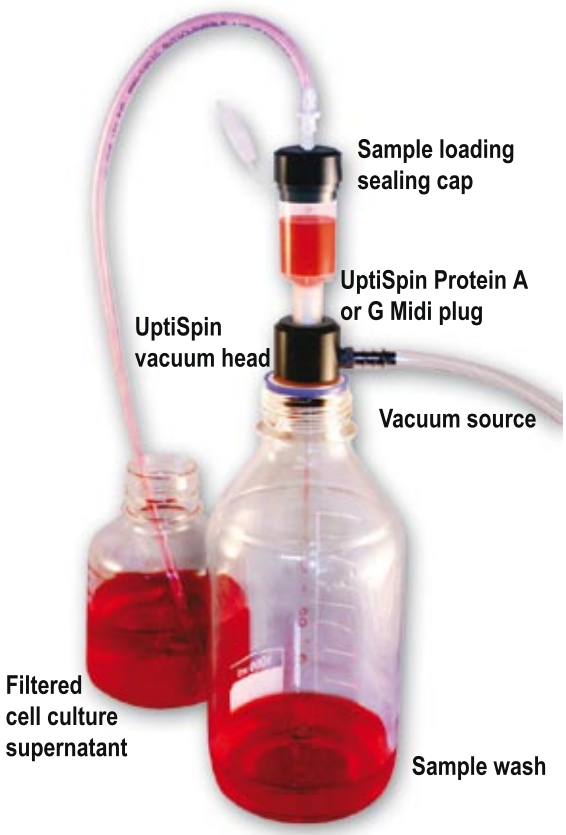
### Features

- Uses universal 50 ml collection tubes and standard glass laboratory bottles up to 2 l
- Works under low or high vacuum (capture efficiency is enhanced at lower vacuum)
- Simple to set up and easy to use
- Ultra-filtration concentrators to desalt and concentrate the purified monoclonal antibody
- Can be performed at room temperature or in cold room

### Applications

- High speed, hands-free concentration and purification of large volumes of dilute cell culture supernatant without the need of a centrifuge.

| Description | P/N | No. of purifications |
|---|---|---|
| UptiSpin™ Protein A Midi Vacuum Kit with Vacuum Head (4 columns, UF concentrators, Buffers) | **UPBM8140** | 20 |
| UptiSpin™ Protein G Midi Vacuum Kit with Vacuum Head (4 columns, UF concentrators, Buffers) | **UPBM8150** | 20 |
| UptiSpin™ Protein A Midi Vacuum Kit without Vacuum Head (4 columns, UF concentrators, Buffers) | **UPBM8220** | 20 |
| UptiSpin™ Protein G Midi Vacuum Kit without Vacuum Head (4 columns, UF concentrators, Buffers) | **UPBM8240** | 20 |
| UptiSpin™ Protein A Bulk Pack (12 columns only) | **UPBM8260** | 60 |
| UptiSpin™ Protein G Bulk Pack (12 columns only) | **UPBM8270** | 60 |
| UptiSpin™ Vacuum Accessory pack containing two complete sets of O-rings (6 x O-rings) plus 6 mm and 8 mm hose barb connectors | **UPBM8280** | 1 unit |
| Protein A Buffer Pack (Buffers only) | **UPBM8360** | 1 unit |
| Protein G Buffer Pack (Buffers only) | **UPBM8370** | 1 unit |
| UptiSpin™ Vacuum Head and a sample loading sealing cap | **UPBM8190** | 1 unit |



## Ami. R. Gel & Ami. Fast Flow Gel

Ami R and Ami fast flow affinity gels provide an excellent means to immobilize antibodies, proteins and peptides through available amines for affinity purifications.

These supports preserve protein activity compared to conventional coupling chemistries suchas Glutaraldehyde, cyanogen bromide, epoxy, succinimide, etc... and provide an efficient and ease to use support for bench top R & D applications.

Efficient high binding capacities combined with ease of use, favour diagnostic applications. Ami.R. Gel and Ami.R. Gel Fast Flow are excellent alternatives to conventional activated gels in pharmaceutical processing thanks to their extreme stability and regeneration features.

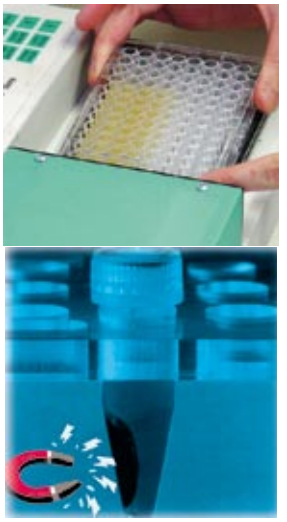
### Features

- High binding capacity (up to 60 mg/ml BSA)
- Higher activity of immobilized antibodies than with "oriented" coupling
- Amine specificity (couple on NH2-bearing molecules)
- High coupling efficiency (85-99%), irrespective of MW
- Coupling compatible at pH 3-10, with temperatures 0-40°C
- Fast coupling (from 20 min to 2 hr)
- No end-capping necessary
- Undetectable leaching of ligand (<0.1 ppm)
- High flow rate (up to 250 cm/h) (200cm/hr for Fast Flow gel)
- Sanitizable with NaOH, autoclavable

| Product | P/N | Qty |
|---|---|---|
| Ami. R. Gel | **UP564089** | 2 ml |
| | **UP56408A** | 5 ml |
| | **UP56408B** | 10 ml |
| Ami. R. Fast Flow Gel | **UPR2289A** | 5 ml |
| | **UPR2289B** | 10 ml |

## UptiBeads™ Magnetic Beads

UptiBeads™ are magnetized iron core polystyrene microspheres for affinity /magnetic purification applications.
The excellent rate of capture of our para-magnetic beads is due to the high diameter /ligand load ratio, and very low dispersal rates. UptiBeads™ are stable between pH 2 and 12, and are compatible with sonication applications. They are supplied ready-to-use in a 1% PBS suspension in 0.3 and 0.86 µm diameters.
The grafted ligands are high affinity anti IgG (all isotype), anti IgM, Streptavidin and anti Biotin. Other sizes and ligands are available upon request.



- High binding capacity
- Monodisperse
- Excellent colloidal stability
- Stable
- Excellent specific surface /magnetic capacity

| Diameter (µm) | % ferrite | Density (g/cm³) | Surface area (cm²) | Number of beads (nb/ml) |
|---|---|---|---|---|
| 0.3 µm | 40% | 1.54 | $3.0 \times 10^{-9}$ | $4.2 \times 10^{10}$ |
| 0.86 µm | 55% | 1.54 | $3.1 \times 10^{-8}$ | $1.6 \times 10^{10}$ |

| Specificity | Diameter (µm) | Binding capacity (mg IgG/g particules) | P/N 2 ml | P/N 10 ml |
|---|---|---|---|---|
| Anti- Human IgG | 0.3 | 0.3-0.6 mg | Please contact us for P/N information | |
| Anti-Mouse IgG | 0.3 | 0.4-0.6 mg | | |
| Anti-Rabbit IgG | 0.3 | 0.3-0.6 mg | | |
| Anti-Rat IgG | 0.3 | 0.3-0.6 mg | | |
| Anti-Human IgM | 0.3 | 0.75-1 mg | | |
| Anti-Mouse IgM | 0.3 | 2-3 mg | | |
| Anti-Rabbit IgM | 0.3 | nd | | |
| Streptavidine | 0.3 | 3-4 mg | | |
| Anti Biotin | 0.3 | 3-4 mg | | |
| Anti- Human IgG | 0.86 | 0.1-0.3 | | |
| Anti-Mouse IgG | 0.86 | 0.1-0.3 | | |
| Anti-Rabbit IgG | 0.86 | 0.5-1 | | |
| Anti-Rat IgG | 0.86 | 0.2-0.4 mg | | |
| Anti-Human IgM | 0.86 | 0.1-0.3 mg | | |
| Anti-Mouse IgM | 0.86 | 0.75-1.25 mg | | |
| Anti-Rabbit IgM | 0.86 | nd | | |
| Streptavidine | 0.86 | 2-3 mg | | |
| Anti Biotin | 0.86 | 2-3 mg | | |

## Immobilized Metal Affinity Chromatography - IMAC

**IMAC (Immobilized Metal Affinity Chromatography ) is based on the interaction between certain superficial protein residues (histidines, cysteines and to a lesser extent tryptophans), and transition metal cations forming chelates ($Ni^{2+}$, $Co^{2+}$, $Zn^{2+}$, $Cu^{2+}$). This technique has proven particularly useful for the purification of recombinant proteins.**

Affarose™ format :
Ligands are covalently bound to a modified agarose matrice called Affarose, this ensures minimal leaching of ligand, excellent stability and can be re-used.

UptiSpin™ centrifugal format :
Ready -to-use kits designed for simple, rapid and multiple recombinant protein purification utilizing centrifugation.

### Affarose™ / IMAC

Our Affarose™ IMAC affinity columns are activated with different metal ions in a range of densities for His-Tag recombinant protein purification. Ions show varying affinity & loading capacities with poly-His residues. The management of these dual features offers flexibility for purification applications.

Range :

- Four different ions
- Two different ion densities

| Product | P/N | Qty |
|---|---|---|
| **Chelate Affarose Beads** | | |
| High Density IDA-Affarose Nickel charged | **BG7020** | 5 ml |
| | **BG7021** | 10 ml |
| | **BG7022** | 25 ml |
| Low Density IDA-Affarose Nickel charged | **BG7030** | 5 ml |
| | **BG7031** | 10 ml |
| | **BG7032** | 25 ml |
| High Density IDA-Affarose Zinc Charged | **BG7040** | 5 ml |
| | **BG7041** | 10 ml |
| | **BG7042** | 25 ml |
| Low Density IDA-Affarose Zinc Charged | **BG7050** | 5 ml |
| | **BG7051** | 10 ml |
| | **BG7052** | 25 ml |
| High Density IDA-Affarose Cobalt charged | **BG7060** | 5 ml |
| | **BG7061** | 10 ml |
| | **BG7062** | 25 ml |
| Low Density IDA-Affarose Cooper charged | **BG7070** | 5 ml |
| | **BG7071** | 10 ml |
| | **BG7072** | 25 ml |

| Product | P/N | Qty |
|---|---|---|
| **Chelate Test Kits** | | |
| Nickel Chelate kit<br>Includes 2ml high Density IDA-Affarose Ni Charged<br>2ml Low Density IDA-Affarose Ni Charged | **BG7080** | 1 kit |
| Zinc Chelate kit<br>Includes 2ml high Density IDA-Affarose Zn Charged<br>2ml Low Density IDA-Affarose Zn Charged | **BG7090** | 1 kit |
| High Density Chelat kit<br>Includes 2ml high Density IDA-Affarose Metal Free<br>2ml High Density IDA-Affarose Ni Charged<br>2ml High Density IDA-Affarose Zn Charged<br>2ml High Density IDA-Affarose Co Charged | **BG7100** | 1 kit |
| Low Density Chelate kit<br>Includes 2ml Low Density IDA-Affarose Metal Free<br>2ml Low Density IDA-Affarose Ni Charged<br>2ml Low Density IDA-Affarose Zn Charged<br>2ml Low Density IDA-Affarose Cu Charged | **BG7110** | 1 kit |

### Selectivity / loading

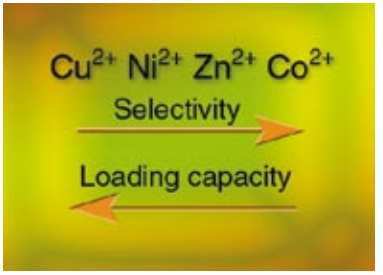
Cobalt displays the highest selectivity towards a poly-His sequence but the lowest loading capacity : it is the ion of choice when your recombinant protein is valuable and in limited quantities. Conversely, Copper shows the highest loading capacity but the lowest selectivity.

Nickel and Zinc are often more useful as they show intermediate selectivity and loading capacity.

High density :
The higher the density of ions within the support, the greater the purification of recombinant proteins. However, unwanted proteins within the sample will also be bounded.

Low density :
This will enhance the qualitative purification of recombinant protein but with lower target recoveries.

Interchim offer chelate test kits as screening tools. These enable you to identify the right ion and density for your application.



## UptiSpin™ / IMAC

UptiSpin™ Metal Chelate Mini and Midi kits contain all necessary components for effective 6x His-tagged recombinant protein purification from bacterial cells, insect vectors, mammalian cells and yeast under native or denaturing conditions. They are ideal for low -to- medium throughput expression scouting, and semi-preparative /preparative purification.

UptiSpin™ spin columns can purify and concentrate protein of interest in a single step and with high reproducibility (low % CV). Proteins are sufficiently pure for structural and activity-based studies or for raising antibodies.

- Speed : Isolate /purify /concentrate sample in less than 45 minutes for the Midi units and under 20 min for Mini units. Simultaneous purifications can be performed for rapid screening of recombinant protein expression.
- Performance : Bind 0.1 mg - 20 mg of 6x His-tagged protein, elute with > 90% recovery & high purity and yield. Devices are re-usable.
- Convenience : Only a centrifuge is required.
- Price : Spin columns are substantially cheaper than research grade FPLC column.

| Product | P/N |
|---|---|
| Mini | |
| Metal Chelate Mini Sample Kit - 8 Mini MC Plugs (includes buffers) | **UPBB9580** |
| Metal Chelate Mini Kit – 24 MC Plugs (includes buffers) | **UPBB9600** |
| Metal Chelate Mini Pack – 24 MC plugs (includes buffers, does not include UF concentrators) | **UPBB9620** |
| Metal Chelate Mini Bulk Pack (does not include buffers or UF concentrators) | **UPBB9630** |
| Midi | |
| Metal Chelate Midi Kit - 8 MC plugs (includes buffers) | **UPBB9640** |
| Metal Chelate Midi Pack - 8 MC plugs (includes buffers, does not include UF concentrators) | **UPBB9650** |
| Metal Chelate Midi Bulk Pack – 24 MC Plugs (does not include buffers or UF concentrators) | **UPBB9660** |

## Specifications

| Feature | Mini | Midi |
|---|---|---|
| Max. sample volume per load : | 0.65 ml, fixed angle roto | 20 ml, swing bucket rotor |
| Charged metal ion | $Ni^{2+}$ | $Ni^{2+}$ |
| Typical binding capacity per use : | 1 mg 6x His-tagged protein | 10 mg 6x His-tagged protein |
| Min. number of uses per plug : | 2 (assuming no further $Ni^{2+}$ charging) | 2 (assuming no further $Ni^{2+}$ charging) |
| Supporting Proteus matrix : | Covalently coupled to agarose resin | Covalently coupled to agarose resin |
| Resin bed volume : | 0.23 ml | 1.6 ml |
| Bead size range : | 45-165 µm | 45-165 µm |
| Storage temp. for resin plugs : | 2 -to- 8 °C | 2 -to- 8 °C |
| Recommended working pH : | pH 2.0-12.0 | pH 2.0-12.0 |
| Chemical stability | High | High |
| Plastic construction : | Polypropylene | Polypropylene |
| Purifications time : | 15 min | 48 min |
| Color coded end-caps : | Black | Black |

## UptiSpin™ Micro / IMAC

Ready to use spin micro columns filled in with activated agarose beads. Ni2+, Zn2+, Cu2+ or Co2+ metal ions are bound on the resin at different densities.

- For fast, small scale purification of histidine-tagged proteins using standard microcentrifuge.
- Saves time
- Single use spin columns
- Native and denaturing conditions

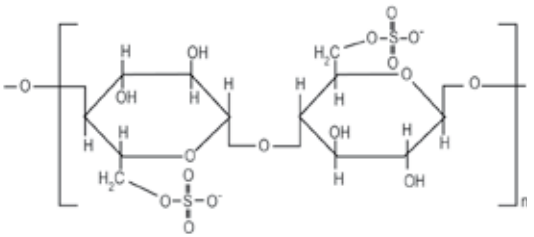
| Product | P/N | Qty |
|---|---|---|
| UptiSpin™ Micro IMAC Ni high density | **CE1130** | 25 |
| | **CE1131** | 50 |
| UptiSpin™ Micro IMAC Ni Low density | **CE1140** | 25 |
| | **CE1141** | 50 |
| UptiSpin™ Micro IMAC Zn high density | **CE1150** | 25 |
| | **CE1151** | 50 |
| UptiSpin™ Micro IMAC Zn Low density | **CE1160** | 25 |
| | **CE1161** | 50 |
| UptiSpin™ Micro IMAC Co high density | **CE1170** | 25 |
| | **CE1171** | 50 |
| UptiSpin™ Micro IMAC Cu Low density | **CE1180** | 25 |
| | **CE1181** | 50 |

### Specifications

Column materials : Polypropylene colums, PE frits
Bed volume : 100 µl
Sample Volume : 200 µl
Bead structure : 6% agarose
Storage : 20% Ethanol, 2-8 °C

## Cellufine™ Sulfate

For concentration, purification and depyrogenation of virus, viral/microbial antigens and heparin-binding proteins



Partial Structure of Cellufine Sulfate

### Features

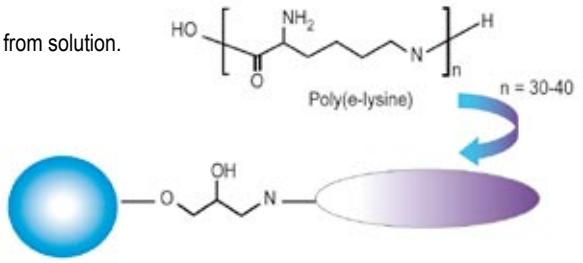
- Affinity for wide range of live, dead or disrupted viruses, viral or microbial antigens & heparin-binding proteins
- Closed column operation assures safety and product sterility
- Endotoxins do not bind, allowing a rapid and contaminant free depyrogenation
- Animal extract free
- Rigid, high-strength beads
- Autoclavable

### Benefits

- More effective than ultracentrifugation at removing contaminants from culture media and host cells
- Avoids excessive product handling and safety concerns, particularly with viral preparations
- Simultaneous concentration /purification improves yields and reduces processing steps.
- Gentle binding and elution conditions provide high capacity and product yield
- Resists compression, providing rapid flow for high-speed processing, even in large columns, making it easily scalable
- Resistant to chemical depyrogenation with base. Chemically sterilizable with formalin

## Cellufine™ ET clean S and L : Endotoxin removal

The Cellufine™ ET clean is poly(ε-lysine) immobilized Cellufine™. The beads bind and remove endotoxin from solution.




### Features

- Resistant against the cleanup solutions, including 0.2 M sodium hydroxide and 2 M sodium chloride
- Affinity for a wide spectrum of endotoxin

Cellufine ET clean S (small beads) : diameter : 45-105 µm
Cellufine ET clean L (large beads) : diameter : 53-125 µm

| Product | P/N | Qty |
|---|---|---|
| Cellufine Sulfate | **676943324** | 10 ml |
| | **19845** | 50 ml |
| Endotoxin removal | | |
| ET Clean L 53-125 µm | **681984324** | 10 ml |
| | **681984326** | 50 ml |
| ET Clean S 44-105 µm | **682985324** | 10 ml |
| | **682985326** | 50 ml |

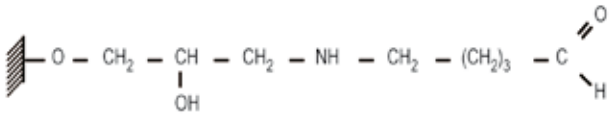
## Cellufine™ Amino and Formyl

Activated supports for Immobilization of Antibodies, Antigens, Affinity Ligands and Enzymes

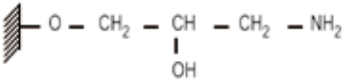
### Features

- High flow rates in laboratory and process columns for high throughput
- Low ligand leakage due to exceptionally stable coupling chemistry and support matrix
- Excellent mechanical, chemical and environmental resistance
- High ligand loading capacity
- Compatible with high molecular weight ligands and target proteins due to structural similarity to 4 % cross-linked agarose media
- Unreacted formyl groups easily converted during reduction to neutral hydroxyls for low non-specific adsorption
- Built in hydrophilic spacer arms for maximum ligand accessibility and low non-specific adsorption
- No media damage or fines generation with extended mixing to allow use of simple coupling apparatus
- Ligand coupling occurs under mild conditions in short reaction times
- Thermal stability of media allows high temperature reactions
- Long shelf-life of unreacted media

| Product | P/N | Qty |
|---|---|---|
| Cellufine formyl | **676944324** | 10 ml |
| | **19853** | 50 ml |
| Cellufine Amino | **676945324** | 10 ml |
| | **19856** | 50 ml |




Cellufine Formyl




Cellufine Amino