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 Includes 2ml high Density IDA-Affarose Ni Charged 2ml Low Density IDA-Affarose Ni Charged	**BG7080**	1 kit
Zinc Chelate kit Includes 2ml high Density IDA-Affarose Zn Charged 2ml Low Density IDA-Affarose Zn Charged	**BG7090**	1 kit
High Density Chelat kit Includes 2ml high Density IDA-Affarose Metal Free 2ml High Density IDA-Affarose Ni Charged 2ml High Density IDA-Affarose Zn Charged 2ml High Density IDA-Affarose Co Charged	**BG7100**	1 kit
Low Density Chelate kit Includes 2ml Low Density IDA-Affarose Metal Free 2ml Low Density IDA-Affarose Ni Charged 2ml Low Density IDA-Affarose Zn Charged 2ml Low Density IDA-Affarose Cu Charged	**BG7110**	1 kit

Selectivity / loading

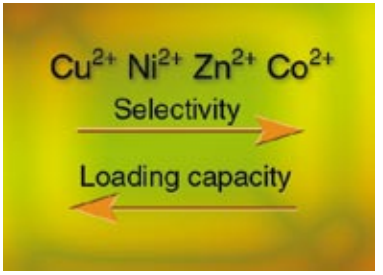
Cobalt displays the highest selectivity towards a poly-His sequence but the lowest loading capacity : it is the ion of choice when your recombinant protein is valuable and in limited quantities. Conversely, Copper shows the highest loading capacity but the lowest selectivity.

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