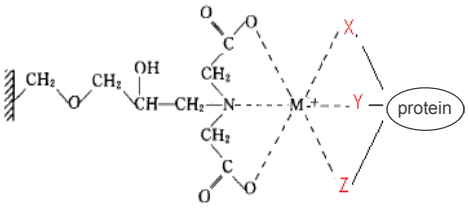
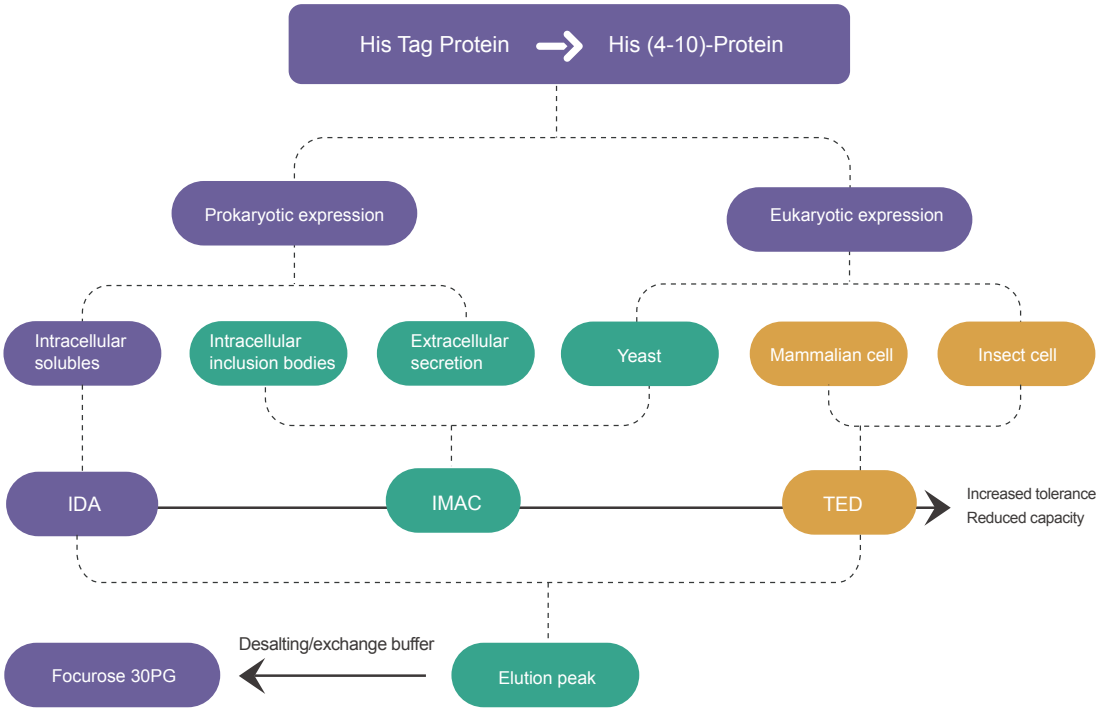
Affinity resins were established and developed based on the principle of specific adsorption between biomolecules and other ligand molecules (e.g. antigen and antibody, enzyme and substrate, hormone and receptor, complementary chain in nucleicacid, polysaccharide and protein complex, etc.). The purification of target molecules is achieved by specific adsorption between the ligand on the medium and the target molecule. Due to this specific force, affinity resins are characterized by high selectivity and high activity recovery.



His tag protein purification

Transition state metal ions (Cu^{2+}>Ni^{2+} >Zn^{2+} >Co^{2+}) can bind to electron donors, such as N, S, O and other atoms with coordination bonds. The remaining empty orbitals on the metal ions are ligand sites for electron donors, which will be occupied by water molecules or anions in solution. When the amino acid residues (His) on the protein surface are strongly bound to metal ions, the powered atoms of the amino acid residues will bind to the metal ions to form a complex, replacing the previously bound water molecules or anions, thus enabling the protein molecules to bind to the solid surface. His-tagged proteins with His and mediator binding are purified by selecting different metal ligands depending on the affinity of the metal ligands due to the different types, numbers, positions and spatial conformations of the amino acids on the protein surface.



Chelating ion (binding capacity to His Tag) Cu^{2+} > Ni^{2+} >Zn^{2+}

Strongest binding force

Most used

According to the different chelation methods, there are three kinds of IDA, IMAC and TED.

Name	Ni-IDA	Ni-IMAC	Ni-TED
Chelation ratio	3 : 3	4 : 2	5 : 1
Reducing agent (mM)	Avoid	1	20
Chelating agent (mM)	Avoid	5	100
pH range	3-12(working) 2-14(cleaning)	3-12 (working) 2-14 (cleaning)	3-12 (working) 2-14 (cleaning)
Cleaning regeneration	9 steps (nickel removal - cleaning - regeneration)	9 steps (nickel removal - cleaning - regeneration)	5 steps (cleaning)
Application scope	Conventional His-tagged Protein Purification (Active Conditions)	Routine His-tagged protein purification (active and denaturing conditions)	Can be used for high reductant, chelator His-tagged protein samples and eukaryotic His-tagged protein purification (low abundance samples and denaturant samples are less effective)

Product number	Product name	Spec	Load per /mL	Particle size range μm	Maximum flow rate (cm/h)	Withstand pressure MPa	pH stability long-term [short-term]	Application characteristics
HQ060311025M	Ni Focurose FF (IDA)	25mL	≥30mg His-tagged proteins	45-165	370	⩽0.3	3-12 [2-14]	Purification of His-tagged proteins
HQ060311100M		100mL						
HQ060311500M		500mL						
HQ060311001L		1L						
HQ060311005L		5L						
HQ060311020L		20L						
HQ060312025M	Ni Focurose FF (IMAC)	25mL	≥40mg His-tagged proteins	45-165	250-400	⩽0.3	3-12 [2-14]	Large-scale purification of His-tagged proteins
HQ060312100M		100mL						
HQ060312500M		500mL						
HQ060312001L		1L						
HQ060312005L		5L						
HQ060312020L		20L						

Product number	Product name	Spec	Load per /mL	Particle size range μm	Maximum flow rate (cm/h)	Withstand pressure MPa	pH stability long-term [short-term]	Application characteristics
HQ060313025M	Ni Focurose FF (TED)	25mL	≥10mg His-tagged proteins	45-165	600	⩽0.3	3-12 [2-14]	Resistant to 100mM EDTA and 10mM DTT, direct 1M NaOH thorough cleaning without nickel removal.
HQ060313100M		100mL						
HQ060313500M		500mL						
HQ060313001L		1L						
HQ060313005L		5L						
HQ060313020L		20L						

Application Cases

Ni Focurose FF (TED) purification of His-tagged proteins

Sample 1: His-tagged protein

Sample 2: His-tagged protein (containing 0.1M EDTA)

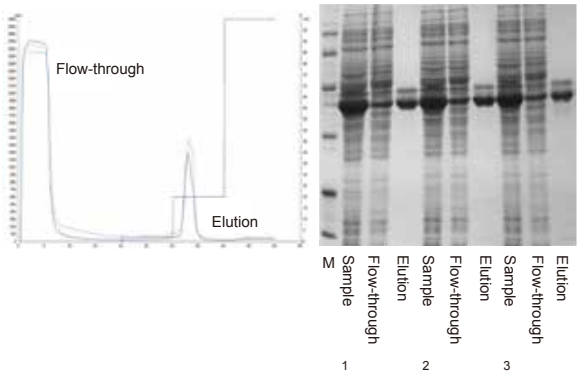
Sample 3: His-tagged protein (containing 0.1M EDTA+ 0.01M DTT)

Column: HT01,1.0mL

Equilibrium solution: 0.05M Tris-HCl, 0.5M NaCl, pH8.0

Elution solution: 0.05M Tris-HCl, 0.5M imidazole, 0.5M NaCl, pH8.0

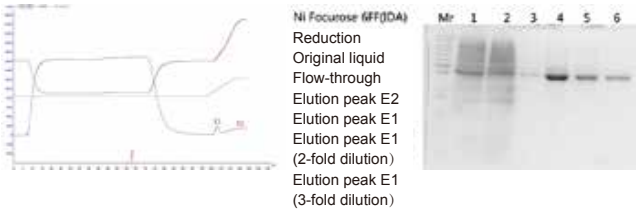
Sample loading flow rate: 0.5mL/min, other flow rates: 1mL/min.



Ni Focurose FF (IDA) purification of recombinant COVID-19 antigen (His label)

Equilibrium solution: 20mM PB, 0.15 M NaCl, pH7.5

Elution solution: 20mM PB, 0.15 M NaCl, 500 mM Imidazole, pH7.5

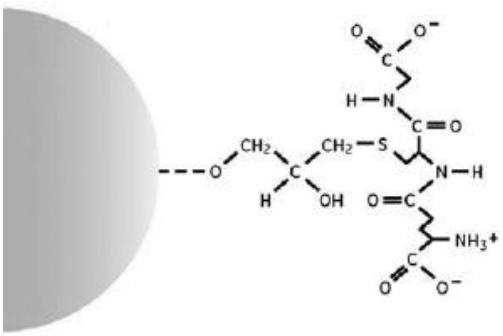


Pre-assembled column ordering information

Product name	Spec	Product number	Product name	Spec	Product number
Ni Focurose FF (IDA)	1mL	HQ060311001E	Ni Focurose FF (IMAC)	1mL	HQ060312001E
	5mL	HQ060311005E		5mL	HQ060312005E
Ni Focurose FF (TED)	1mL	HQ060313001E			
	5mL	HQ060313005E			

GST-tagged protein purification

GST (glutathione transferase) can specifically bind to glutathione, exhibiting the principle of enzyme and substrate action. Using this principle, GST is made into a tag to express a fusion protein that binds specifically to the affinity mediator of glutathione ligand, thus purifying the target protein. The characteristics of GST fusion protein purification are: high purity, mild purification conditions to maintain protein activity, promotion of protein soluble expression, etc.



Product number	Product name	Spec	Load per /mL	Particle size range μm	Maximum flow rate (cm/h)	Withstand pressure MPa	pH stability long-term [short-term]	Application characteristics
HQ030307025M	GST Focurose 4FF	25mL	≥20mg GST-tagged proteins	45-165	450	⩽0.3	3-12 [3-12]	Purification of GST-tagged proteins
HQ030307100M		100mL						
HQ030307500M		500mL						
HQ030307001L		1L						
HQ030307005L		5L						
HQ030307020L		20L						

Application Cases

GST Focurose 4FF purified GST-tagged protein

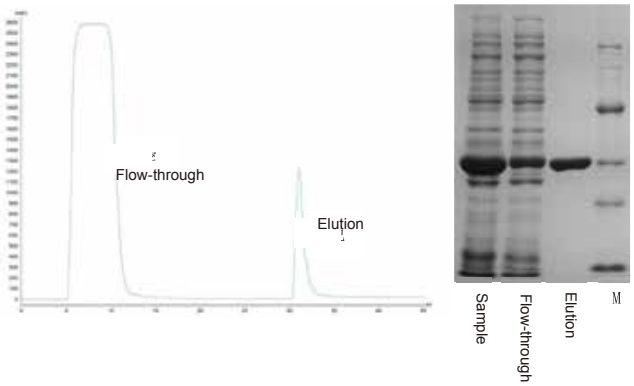
Sample: GST-tagged protein

Column: HT01, 1.0mL

Equilibrium solution: 0.05M Tris-HCl, 0.14M NaCl, pH7.3

Eluent: 0.05M Tris-HCl, 0.01M GSH, pH8.0

Sample flow rate 0.5mL/min, other flow rate 1mL/min

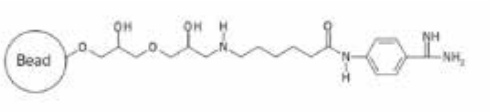


Pre-assembled column ordering information

Product name	Spec	Product number
GST Focurose 4FF	1mL	HQ030307001E
	5mL	HQ030307005E

Serine Protease Purification

The affinity resin for the purification of serine proteases is prepared by coupling a broad-spectrum inhibitor of serine proteases, aminobenzamidine, to agarose microspheres Focurose FF and highly cross-linked agarose Focurose 4FF. This affinity resin is referred to as Benzamidine Focurose FF (LS) and Benzamidine Focurose 4FF (HS).



Product number	Product name	Spec	Load per /mL	Particle size range μm	Maximum flow rate (cm/h)	Withstand pressure MPa	pH stability long-term [short-term]	Application characteristics
HQ060336025M	Benzamidine Focurose FF(LS)	25mL	10～20mg trypsin	45-165	300	≤0.3	2-8 [1-9]	Serine protease inhibitor for the purification of serine proteases, trypsin and trypsin-like proteases, etc.
HQ060336100M		100mL						
HQ060336500M		500mL						
HQ060336001L		1L						
HQ060336005L		5L						
HQ060336020L		20L						
HQ030317025M	Benzamidine Focurose 4FF(HS)	25mL	⩾30mg trypsin	45-165	300	≤0.3	2-8 [1-9]	Serine protease inhibitor that binds exclusively to serine proteases, trypsin and trypsin-like proteases.
HQ030317100M		100mL						
HQ030317500M		500mL						
HQ030317001L		1L						
HQ030317005L		5L						
HQ030317020L		20L						

Pre-assembled column ordering information

Product name	Spec	Product number	Product name	Spec	Product number
Benzamidine Focurose FF(LS)	1mL	HQ060336001E	Benzamidine Focurose 4FF(HS)	1mL	HQ030317001E

Antibody purification

Coupling substances such as Protein A and Protein G on high-strength cross-linked agarose is widely used for the purification of antibodies.

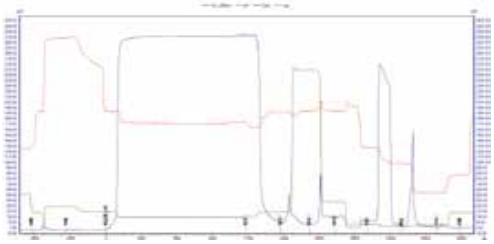
Product number	Product name	Spec	Load per /mL	Particle size range μm	Maximum flow rate (cm/h)	Withstand pressure MPa	pH stability long-term [short-term]	Application characteristics
HQ320827025M	arProtein A Focurose HR	25mL	~60mg human IgG	45-165	500	⩽0.5	3-12 [2-14]	Purified antibodies, immunoglobulin and FC fusion fused proteins. Tolerant to 0.5 M NaOH for CIP
HQ320827100M		100mL						
HQ320827500M		500mL						
HQ320827001L		1L						
HQ320827005L		5L						
HQ320827020L		20L						
HQ030316025M	Protein G Focurose 4FF	25mL	≥20mg human IgG	45-165	400	⩽0.3	3-9 [2-10]	One-step purification multi-species source antibodies
HQ030316100M		100mL						
HQ030316500M		500mL						
HQ030316001L		1L						
HQ030316005L		5L						
HQ030316020L		20L						

Application Cases

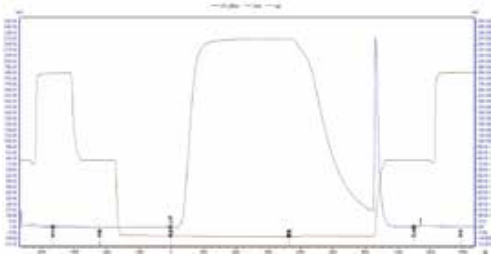
Two-step affinity and ionization purification of murine IgG antibody (pilot test)

arProtein A Focurose HR was used for large-scale sample preparation (chromatographic column size 7.0cm * 24cm) with the pressure maintained below 0.20Mpa. The resin performance was good in three replicate sample preparations with the yield above 93%. The purity of HCP, HCD and endotoxin all met the requirements.

Step 1: arProtein A Focurose HR affinity capture target IgG



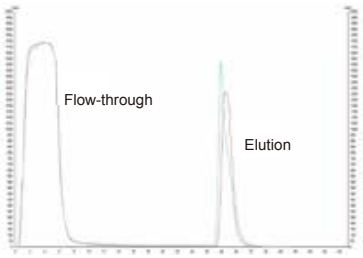
Step 2: Q Focurose FF anion purification

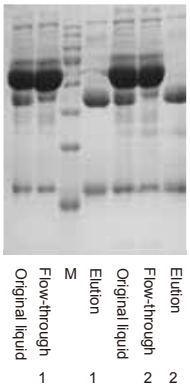


Protein G Focurose4FF purification of IgG from human blood

Sample: 5 mL of human serum at 5-fold dilution (with two different buffers)

Column: HT01,1.0mL
Equilibrium solution: 1#(0.02M PB, pH7.0)
2#(0.02M PB, 0.3M NaCl, pH7.0)
Eluent: 0.1M Glycine-HCl, pH2.7
Sample flow rate 0.25mL/min, others 1 mL/min





Pre-assembled column ordering information

Product name	Spec	Product number	Product name	Spec	Product number
arProtein A Focurose HR	1mL	HQ320827001E	Protein G Focurose 4FF	1mL	HQ030316001E
	5mL	HQ320827005E		5mL	HQ030316005E

Pre-activation resins

Pre-activation resins, also known as affinity resin activation intermediates, are based on various cross-linked strength agarose, bonded with different active groups (active spacer arms) by different coupling methods. The active groups can be further coupled with various ligands for the preparation of other resins (mainly affinity resins) and fixation of the corresponding substances, and users can easily couple the ligands to be coupled according to their needs, avoiding the tedious process of connecting active groups in the first stage.

Product number	Product name	Spec	Ligand coupling volume /1mL medial	Particle size range μm	Maximum flow rate (cm/h)	Withstand pressure MPa	pH stability long-term [short-term]	Euclidean functional group	Application characteristics
HQ030303005M	Epoxy Focurose 4FF	5mL	≥10μmol Epoxy groups	45-165	⩽0.3	75	2-14 [2-14]	$-NH_2$ -OH,-SH	Wide application and mild coupling conditions
HQ030303025M		25mL							
HQ030303100M		100mL							
HQ030303500M		500mL							
HQ030303001L		1L							
HQ030303005L		5L							
HQ030303020L		20L							