

GE Healthcare

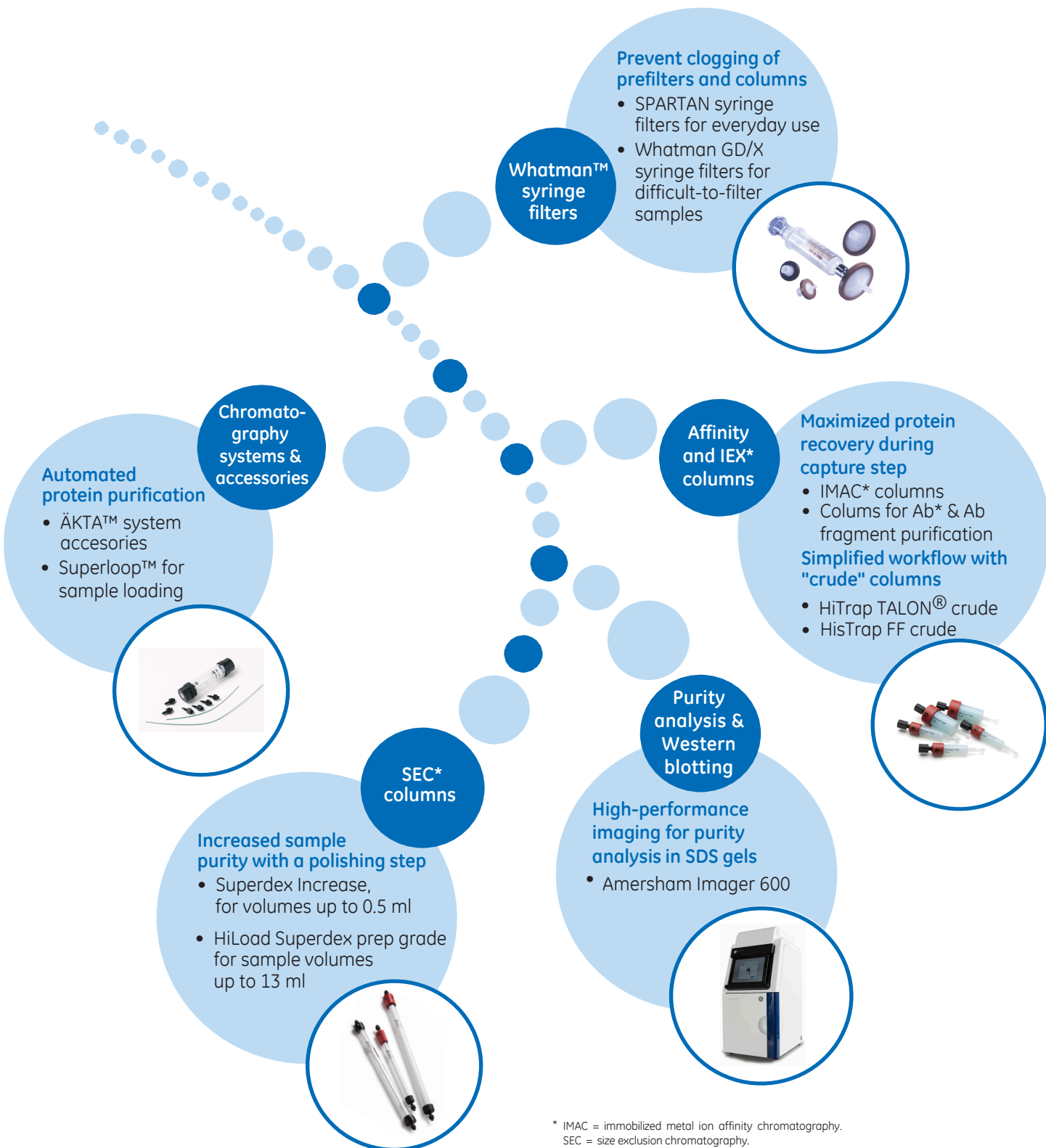


Protein Workflow Solutions

Protein purification & analysis products for life science research



Protein purification workflow solutions.



* IMAC = immobilized metal ion affinity chromatography.
SEC = size exclusion chromatography.
IEX = ion-exchange chromatography.
Ab = antibody.

Whatman filters and accessories for the lab.



SPARTAN syringe filters



Mini Uni-Prep syringeless filters



Benchkote protection paper



pH papers



Vacu-Guard pump protection filters

Description	Products	Dimension	Cat. No.	Qty/pack
SPARTAN syringe filters • Versatile: Use for any application requiring a chemically resistant, hydrophilic, low protein-binding membrane	SPARTAN HPLC - certified syringe filters, Regenerated cellulose (RC)	30 mm, 0.2 µm	09-302-151	500
		30 mm, 0.45 µm	09-302-154	500
Mini Uni-Prep syringeless filters • Provides a faster, easier way to remove particulates from samples being prepared for HPLC/UHPLC analysis	Mini Uni-Prep syringeless filters, PES, Translucent housing	0.2 µm	09-927-65	100
		0.45 µm	09-923-30	100
Benchkote bench protection papers • High-quality, smooth, absorbent Whatman paper • Quickly absorbs liquid spills and protects the working surface • Benchkote Plus is thicker and more absorbent	Benchkote	460 x 570 mm	12-007-180	50
		460 mm x 50 m	12-007-182A	1 reel
	Benchkote Plus	500 x 600 mm	12-007-183A	50
		600 mm x 50 m	12-007-183B	1 reel
Puradisc syringe filters • Combine quality and economy for filtration of samples up to 100 ml. • Pigment-free polypropylene housing • Standard inlet and outlet luer connectors	Puradisc syringe filters, PES	25 mm, 0.2 µm	05-713-389	200
		25 mm, 0.45 µm	05-713-390	200
	Puradisc syringe filters, PVDF	25 mm, 0.2 µm	09-302-117	200
		25 mm, 0.45 µm	09-302-118	200
Whatman GD/X syringe filters • Excellent for difficult to filter samples that are heavily laden with particles. • Increased volume throughput: Volume of sample filtered can be three to seven times greater than conventional filters	Whatman GD/X syringe filters, PES	25 mm, 0.2 µm	09-927-32C	150
		25 mm, 0.45 µm	09-927-32D	150
	Whatman GD/X syringe filters, RC	25 mm, 0.2 µm	05-713-931	150
		25 mm, 0.45 µm	05-713-929	150
pH Indicator Papers • Range of pH indicator and test papers for the rapid determination of pH values in many applications	Colour Bonded, 0.0 to 14.0 range	6 x 80 mm	09-876-17	100 strips
	Standard Full Range, Reel, 1.0 to 14.0 range	7 mm x 5 m	09-875-70	1
	Standard Narrow Range, Reel, 4.0 to 7.0 range	7 mm x 5 m	09-875-72	1
Pump protection filters • Protects vacuum pump systems from aqueous aerosols. Hydrophobic PTFE membranes retain 99.99% or airborne particles > 0.1 µm	Vacu-Guard	50 mm	09-744-75	10

* For more product and pack size information plus additional products, please visit www.fishersci.com/gehc.

Desalting and sample concentration.

Vivaspin sample concentrators

Vivaspin sample concentrators offer up to 30-fold concentration of the sample with recovery of the target molecule typically exceeding 95%. The entire process is performed in a single tube with an upper compartment containing sample and a lower compartment separated by a semipermeable membrane with a molecular weight cutoff (MWCO) selected by the user.

- One-step sample concentration in a single tube
- Patented dead-stop technology
- Vertical polyethersulfone membrane



Figure 1. Vivaspin sample concentrators are designed for fast, nondenaturing concentration of biological samples by membrane ultrafiltration.

Volume range	Product	MWCO value					
		3 000	5 000	10 000	30 000	50 000	100 000
100-500 µl	Vivaspin 500	45-001-559	45-001-560	45-001-561	45-001-562	45-001-563	45-001-564
400 µl to 2 ml	Vivaspin 2	45-001-565	45-001-566	45-001-567	45-001-568	45-001-569	45-001-570
2-6 ml	Vivaspin 6	45-001-571	45-001-572	45-001-573	45-001-573	45-001-575	45-001-576
5-20 ml	Vivaspin 20	45-001-577	45-001-578	45-001-579	45-001-580	45-001-581	45-001-582

Desalting and buffer exchange

Prepacked, single-use PD-10 desalting columns and 96-well filter PD plates for buffer exchange and cleanup of biological samples (e.g, proteins and carbohydrates).

- Convenient and rapid cleanup with high reproducibility
- High desalting capacity
- A wide range of applications including desalting, buffer exchange and the removal of low-molecular weight compounds



Figure 2. PD Desalting & buffer exchange products.*

Products	Quantity	Code number
PD-10 Desalting Columns	30 columns	45-000-148
PD SpinTrap G-25	50 columns	45-001-527
PD MultiTrap G-25	4 × 96-well plates	45-001-528
PD MiniTrap G-25	50 columns	45-001-529
PD MidiTrap G-25	50 columns	45-001-530
MiniSpin Adapter	10	45-002-004
MidiSpin Adapter	10	45-001-551
PD-10 Spin Adapter	10	45-001-552
PD MiniTrap G-10	50 columns	45-001-531

Products	Quantity	Code number
HiTrap Desalting columns	5 × 5 ml	45-000-252
HiTrap Desalting ¹ columns	100 × 5 ml	45-002-908
HiPrep 26/10 Desalting	1 × 53 ml	45-000-266
HiPrep 26/10 Desalting	4 × 53 ml	45-000-267

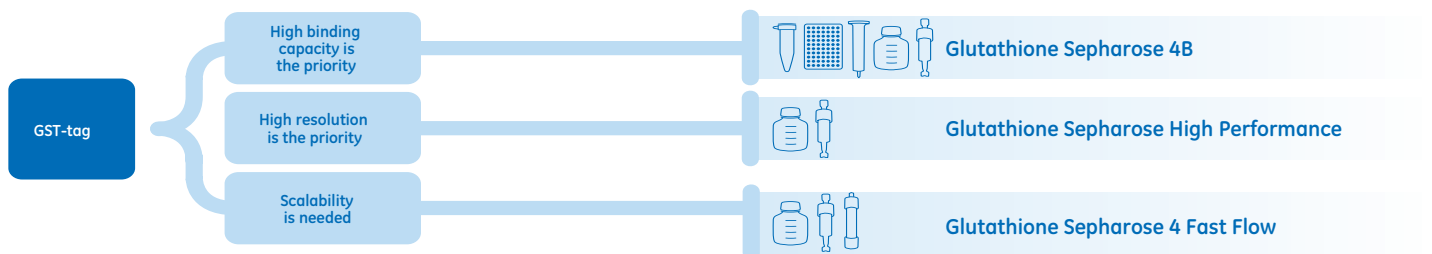
¹ Special pack size, please contact your local office to order.

Related products	Quantity	Code number
Collection plate 500 µl V-bottom	5 × 96-well plates	45-001-434

* For more product and pack size information plus additional products, please visit www.fishersci.com/gehc.

GST-tagged protein purification.

Glutathione S-transferase (GST) is a versatile means for expression, purification and detection of tagged proteins. GST-tagged proteins are purified by affinity chromatography utilizing immobilized glutathione, such as Glutathione Sepharose™ High Performance and Glutathione Sepharose 4 Fast Flow. Glutathione Sepharose HP is for high performance and high resolution purification of GST-tagged proteins. Glutathione Sepharose FF is for easy scale-up.



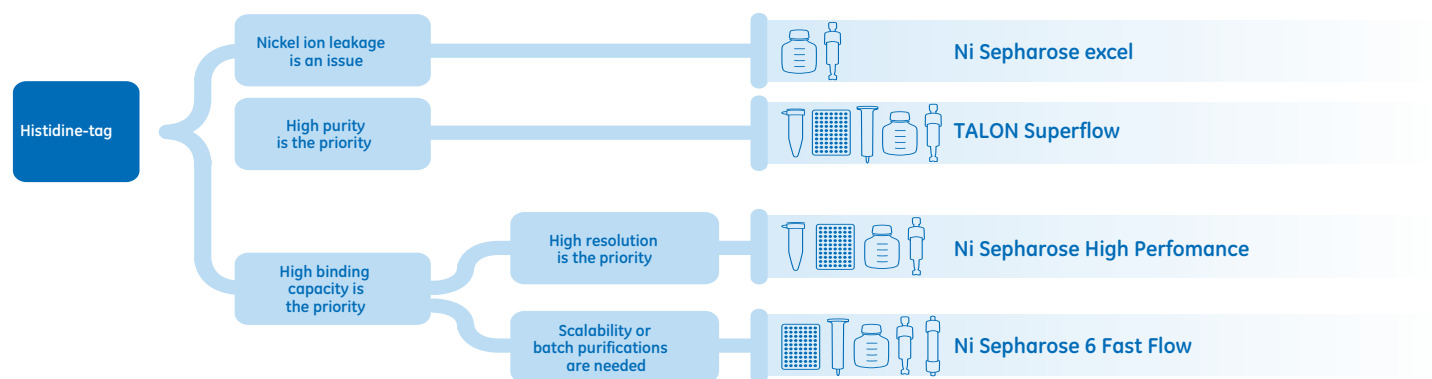
Products	Code number
Glutathione Sepharose High Performance, 25 ml	45-000-330
Glutathione Sepharose 4 Fast Flow, 25 ml	45-000-285
GSTrap HP, 5 × 1 ml	45-000-332
GSTrap HP, 1 × 5 ml	45-000-333
GSTrap HP, 5 × 5 ml	45-000-334

* GSTrap columns are prepacked with Glutathione Sepharose; HP = High performance; FF = Fast flow

Products	Code number
GSTrap FF, 5 × 1 ml	45-000-281
GSTrap FF, 1 × 5 ml	45-000-283
GSTrap FF, 5 × 5 ml	45-000-284
PreScission protease, 500U	45-001-319
Thrombin, 500U	45-001-320

Histidine-tagged protein purification.

We offer products for fast and convenient histidine-tagged recombinant protein purification using immobilized metal ion affinity chromatography (IMAC). Ni Sepharose media are precharged with nickel ions (Ni²⁺) and TALON® Superflow™ medium is precharged with cobalt ions (Co²⁺). Ni Sepharose excel is designed for capture and purification of his-tagged proteins with minimized Ni-leakage and maximized protein recovery when stripping agents are present in the sample.



Products	Code number
Ni Sepharose High Performance, 25 ml	45-000-328
Ni Sepharose 6 Fast Flow, 25 ml	45-002-984
Ni Sepharose 6 Fast Flow, 500 ml	45-002-986
HisTrap HP, 5 × 1 ml	45-000-323
HisTrap HP, 5 × 5 ml	45-000-325
HisTrap FF, 5 × 1 ml	45-000-336

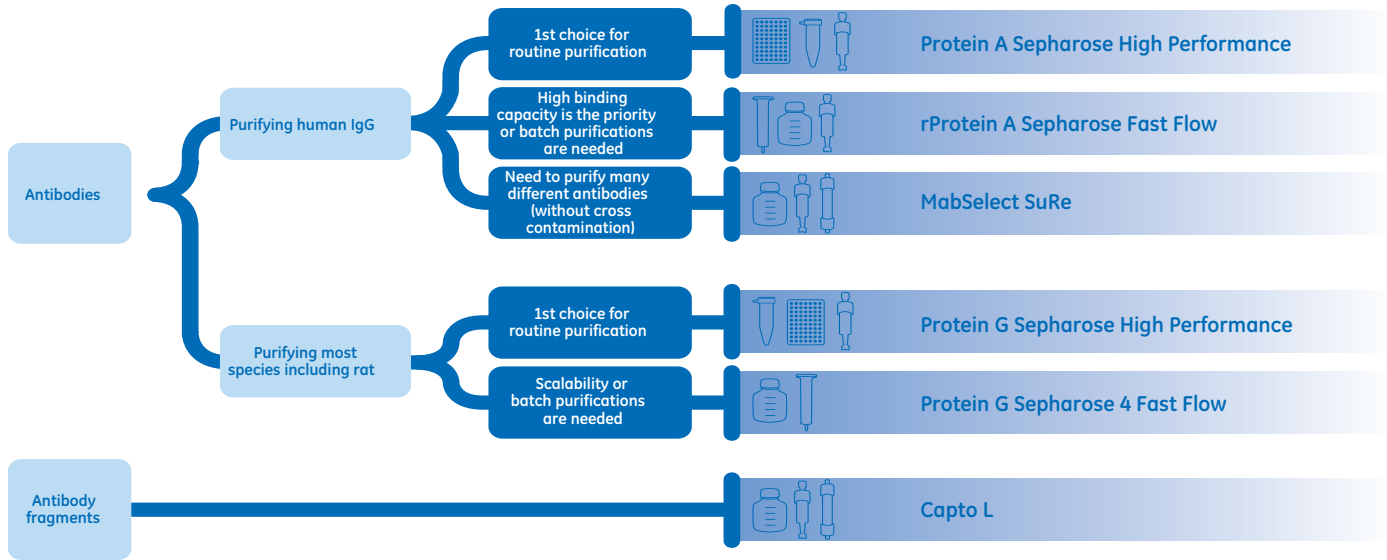
* HisTrap columns are prepacked with Ni Sepharose; HP = High performance; FF = Fast flow.

Products	Code number
HisPrep FF 16/10	45-002-073
HisTrap FF Crude, 5 × 5 ml	45-000-335
TALON Superflow, 10 ml	45-002-389
HiTrap TALON crude, 5 × 5 ml	45-002-386
Ni Sepharose excel, 25 ml	45-002-820
HisTrap excel, 5 × 5 ml	45-003-014

* HisPrep FF 16/10 and HisTrap FF Crude columns are prepacked with precharged Ni Sepharose 6 Fast Flow.

Antibody purification.

We offer tools for the purification of monoclonal (MAbs) and polyclonal antibodies from different sources. The basis for antibody affinity purification is the high affinity and specificity of protein G and protein A for the Fc region of IgG from a variety of species. We offer chromatography media with protein G and protein A immobilized to several different matrices resulting in an excellent means of isolating IgG and IgG subclasses from ascites, cell culture supernatants, and serum.



Products	Code number
HiTrap Protein A HP, 5 × 1 ml	45-000-049
HiTrap Protein A HP, 5 × 5 ml	45-000-052
Protein A HP SpinTrap columns, Pack of 16	45-001-483
Protein A HP MultiTrap plates, Pack of 4	45-001-484
HiTrap Protein G HP, 5 × 1 ml	45-000-053
HiTrap Protein G HP, 5 × 5 ml	45-000-056
Protein G HP SpinTrap columns, Pack of 16	45-001-485
Protein G HP MultiTrap plates, Pack of 4	45-001-486
Protein G Sepharose 4 FF, 25 ml	45-000-117
HiTrap rProtein A FF, 5 × 1 ml	45-000-262

Products	Code number
HiTrap rProtein A FF, 2 × 1 ml	45-000-263
HiTrap rProtein A FF, 1 × 5 ml	45-000-264
HiTrap rProtein A FF 5 × 5 ml	45-000-265
rProtein A GraviTrap columns, 10 × 1 ml	45-002-800
rProtein A Sepharose 4 FF, 5 ml	45-002-971
rProtein A Sepharose 4 FF, 25 ml	45-002-972
HiTrap MabSelect SuRe, 1 × 5 ml	45-000-009
HiTrap MabSelect SuRe, 5 × 1 ml	45-000-008
Capto L, 5ml	45-002-603
Capto L, 25ml	45-002-601

* For more product and pack size information plus additional products, please visit www.fishersci.com/gehc.

GE format guide

Type of purification	Manual purification			Manual or system purification		System purification
Format	Spin columns	96-well plates	Gravity flow columns	Bottles of chromatography media (resins)	Small-column cartridges	Other columns
Format name	SpinTrap	MultiTrap	GraviTrap, MiniTrap, MidiTrap, PD10	Lab pack	HiTrap	HiScreen™, HiPrep, HiLoad, RESOURCE™, Tricorn™, and Precision
Use	Screening and quick desalting of small sample quantities using a centrifuge	High-throughput screening and small scale purification using centrifuge or vacuum equipment	Simple one-step purification of proteins or sample desalting without the need for equipment	Batch purification and self-packing	Easy to use with a syringe, peristaltic pump, or a chromatography system	Larger scale or high performance applications

New generation columns for SEC.

Size-exclusion chromatography (SEC) is used for final polishing steps (Fig. 3). We offer three columns pre-packed with new generation Superdex Increase and Superose Increase resins (Table 1). These columns are used for small-scale preparative purification and analysis (sample volume 4 to 500 µl). Preparative grade columns and resins are also available for larger sample volumes (see next page).

Choose from three pre-packed column sizes to meet your different analysis and polishing needs.

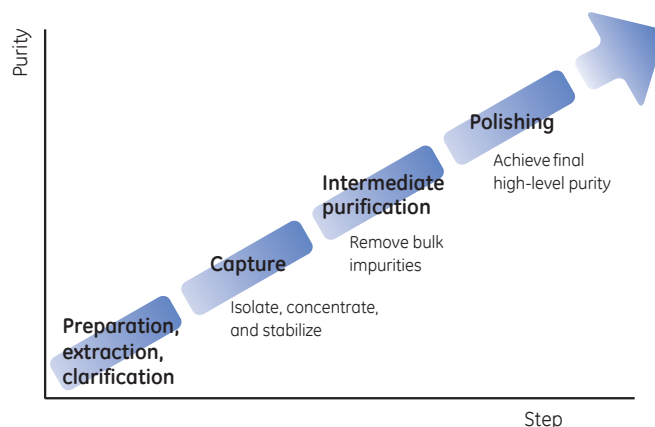


Figure 3. CIPP Purification Strategy. The capture phase reduces the amount of unwanted proteins and concentrates the target protein. Intermediate purification removes most contaminants that are closely related to the target protein. Polishing removes specified contaminants and unwanted forms of the target protein that may have been formed during isolation and purification.

Table 1. Superdex 75 Increase, Superdex 200 Increase, and Superose 6 Increase columns.

Type of protein	Product name	Characteristics and benefits
Recombinant tagged proteins For Mr 3-70 kDa	Superdex 75 Increase	Compared with original Superdex columns: Higher resolution Reduced runtimes with maintained resolution
MAbs and other antibodies For Mr 10-600 kDa	Superdex 200 Increase	Compared with original Superdex columns: Higher resolution using existing run times/flow rates Up to half the run time with maintained resolution columns
Large proteins and complexes For Mr 5-5000 kDa (wide fractionation range)	Superose 6 Increase	Compared with original Superose columns: Improved resolution and run time

Ordering information

Dimensions (mm)	Superdex 75 Increase	Superdex 200 Increase	Superose 6 Increase
10 × 300	45-003-050	45-002-570	45-003-210
5 × 150	45-003-051	45-002-571	45-003-211
3.2 × 300	45-003-052	45-002-572	45-003-212

Broad range of SEC columns and resins.

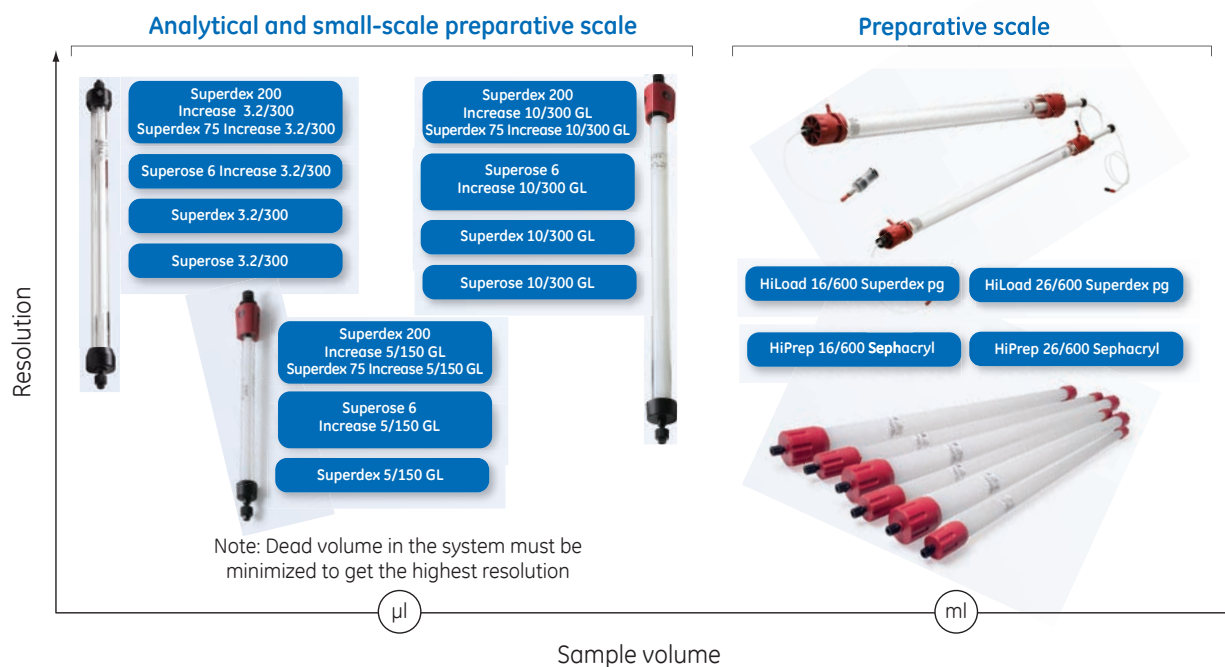


Figure 4. Schematic overview of resolution and sample volume for prepacked, high-resolution SEC columns. For best performance and convenience use prepacked SEC columns.

Products	Code number	Products	Code number
Superdex Peptide 3.2/300	45-000-652	Superose 6 Increase 3.2/300	45-003-212
Superdex Peptide 10/300 GL	45-002-905	Superose 6 Increase 10/300 GL	45-003-210
Superdex 75 Increase 3.2/300	45-003-052	Superose 6 Increase 5/150 GL	45-003-211
Superdex 75 Increase 10/300 GL	45-003-050	HiPrep 16/60 Sephacryl S-100 HR	45-000-195
Superdex 75 Increase 5/150 GL	45-003-051	HiPrep 26/60 Sephacryl S-100 HR	45-000-206
Superdex 75 3.2/300*	45-000-651	HiPrep 16/60 Sephacryl S-200 HR	45-000-196
Superdex 75 10/300 GL*	45-002-903	HiPrep 26/60 Sephacryl S-200 HR	45-000-207
Superdex 75 5/150 GL*	45-002-907	HiPrep 16/60 Sephacryl S-300 HR	45-000-197
Superdex 200 Increase 3.2/300	45-002-572	HiPrep 26/60 Sephacryl S-300 HR	45-000-208
Superdex 200 Increase 10/300 GL	45-002-570	HiPrep 16/60 Sephacryl S-400 HR	45-002-990
Superdex 200 Increase 5/150 GL	45-002-571	HiPrep 26/60 Sephacryl S-400 HR	45-002-991
HiLoad 16/600 Superdex 30 pg	45-002-486	HiPrep 16/60 Sephacryl S-500 HR	45-002-992
HiLoad 26/600 Superdex 30 pg	45-002-487	HiPrep 26/60 Sephacryl S-500 HR	45-002-993
HiLoad 16/600 Superdex 75 pg	45-002-488	Superdex 30 prep grade, 150 ml	45-002-051
HiLoad 26/600 Superdex 75 pg	45-002-489	Superdex 75 prep grade, 150 ml	45-002-037
HiLoad 16/600 Superdex 200 pg	45-002-490	Superdex 200 prep grade, 150 ml	45-002-039
HiLoad 26/600 Superdex 200 pg	45-002-491	Superose 12 prep grade, 125 ml	45-000-093
Superose 12 3.2/300	45-000-654	Superose 6 prep grade, 125 ml	45-000-086
Superose 12 10/300 GL	45-002-902	Sephacryl S-200 HR, 150 ml	45-002-059

* Superdex 75 columns are to be replaced by new generation Superdex 75 Increase columns. The original Superdex 75 columns will be available until December 15, 2018

* For more product and pack size information plus additional SEC resin products, please visit www.fishersci.com/gehc.

Western Blotting.

Blotting

Amersham Hybond™ PVDF blotting membranes

- High protein binding capacity results in high sensitivity.
- Suitable for Western blotting applications with stripping and reprobing.
- Amersham Hybond P recommended for chemiluminescence detection.
- Amersham Hybond LFP specifically optimized for fluorescence detection methods.



Imaging

Amersham Hyperfilm ECL detection film

- Sensitive film for the detection of chemiluminescent signals in Western blotting assays.
- Clear background for excellent contrast and band visibility.
- Publication-quality images.



Blotting paper

	Quantity	Code number
Whatman 3MM blotting paper	46 × 57 cm	05-714-5

Amersham Western blotting membranes

Amersham Protran™ 0.2 µM Nitrocellulose	1 roll, 30 cm × 4 m	45-004-001
Amersham Protran 0.45 µM Nitrocellulose	1 roll, 30 cm × 4 m	45-004-002
Amersham Protran Premium 0.2 µM Nitrocellulose	1 roll, 30 cm × 4 m	45-004-004
Amersham Protran Premium 0.45 µM Nitrocellulose	1 roll, 30 cm × 4 m	45-004-003
Amersham Hybond P 0.2 µM PVDF	1 roll, 26 cm × 4 m	45-004-021
Amersham Hybond P 0.45 µM PVDF	1 roll, 30 cm × 4 m	45-004-110
Amersham Hybond LFP 0.2 µM PVDF	1 roll, 25.4 cm × 4 m	45-004-095

Molecular weight markers

Amersham ECL DualVue™ Markers – visible on the gel, blot, film, and imager	25 loadings	45-001-182
Amersham ECL Rainbow™ Marker-Full range	250 µl	45-001-591
Amersham ECL Plex Fluorescent Rainbow Marker	120 µl	45-001-594

Secondary antibodies

Amersham ECL Mouse IgG, HRP-Linked Whole Ab	1 ml	45-000-679
Amersham ECL Rabbit IgG, HRP-Linked Whole Ab	1 ml	45-000-682

Autoradiography film

Amersham Hyperfilm ECL, 5 × 7"	50 sheets	45-001-504
Amersham Hyperfilm ECL, 18 × 24 cm	50 sheets	45-001-505
Amersham Hyperfilm ECL, 8 × 10"	50 sheets	45-001-507

* For more product and pack size information plus additional products, please visit www.fishersci.com/gehc.

Amersham ECL Western blotting detection reagents.

Amersham ECL Start	Quantity	Code number
Amersham ECL start Western blotting detection reagent	200 ml for 2000 cm ² membrane	45-100-100
Amersham ECL start Western blotting detection reagent	400 ml for 4000 cm ² membrane	45-100-101

Amersham ECL	Quantity	Code number
Amersham ECL Western blotting detection reagent	100 ml for 1000 cm ² membrane	45-000-878
Amersham ECL Western blotting detection reagent	200 ml for 2000 cm ² membrane	45-000-885
Amersham ECL Western blotting detection reagent	400 ml for 4000 cm ² membrane	45-000-875
Amersham ECL Western blotting detection reagent	600 ml for 6000 cm ² membrane	45-001-160

Amersham ECL Prime	Quantity	Code number
Amersham ECL Prime Western blotting detection reagent	100 ml for 1000 cm ² membrane	45-002-401
Amersham ECL Prime Western blotting detection reagent	300 ml for 3000 cm ² membrane	45-010-090

Amersham ECL Select	Quantity	Code number
Amersham ECL Select Western blotting detection reagent	100 ml for 1000 cm ² membrane	45-000-999

Amersham ECL Plex	Quantity	Code number
Amersham ECL Plex Combination Pack (includes Cy TM 3, Cy5, Amersham ECL Plex Marker, and Amersham Protran Premium)	For 1000 cm ² membrane	45-001-214
Amersham ECL Plex Combination Pack (includes Cy3, Cy5, Amersham ECL Plex Marker, and Amersham Protran Premium)	For 1000 cm ² membrane	45-001-215
Amersham ECL Plex goat- α -mouse IgG-Cy2, Cy3, Cy5	For 1000 cm ² or 4000 cm ² membrane	
Amersham ECL Plex goat- α -rabbit IgG-Cy2, Cy3, Cy5	For 1000 cm ² or 4000 cm ² membrane	

* For more product and pack size information plus additional products, please visit www.fishersci.com/gehc.

Selection guide outlining the differences between ECL reagents.

Product	Amersham ECL start	Amersham ECL	Amersham ECL Prime	Amersham ECL Select	Amersham ECL Plex TM
Detection of	high to medium abundant proteins	high to medium abundant proteins	high to low abundant proteins	medium to very low abundant proteins	high to very low protein levels
Detection type	Chemiluminescence	Chemiluminescence	Chemiluminescence	Chemiluminescence	Fluorescence
Optimal membrane	Amersham Protran	Amersham Protran	Amersham Hybond P Amersham Protran	Amersham Hybond P Amersham Protran	Amersham Hybond LFP Amersham Protran Premium
Recommended detection	Amersham Hyperfilm (X-ray film) or ImageQuant TM LAS 500	Amersham Hyperfilm (X-ray film) or ImageQuant LAS 500	Amersham Imager 600 series X-ray film is also an option	Amersham Imager 600 series X-ray film is also an option	Typhoon TM FLA series Amersham Imager 600RGB
Signal duration	< 3 h	< 2 h	< 24 h	< 2 h	> 3 months
Typical applications	<ul style="list-style-type: none"> Routine protein detection Highly expressed proteins e.g. housekeeping proteins Tagged proteins 	<ul style="list-style-type: none"> Routine protein detection Protein confirmation Overexpressed proteins Tagged proteins 	<ul style="list-style-type: none"> Protein quantitation Protein confirmation Protein regulation and expression analysis 	<ul style="list-style-type: none"> Protein quantitation Protein confirmation Protein regulation and expression analysis 	<ul style="list-style-type: none"> Multiplex analysis Normalization to housekeeping protein Analysis of post translational modification and isoforms
Typical results	<p>WB ERK ½; LOD 320 ng; DR</p>	<p>WB ERK ½; LOD: 40 ng; DR: 2.1</p>	<p>WB ERK ½; LOD: 20 ng; DR: 2.4</p>	<p>WB ERK ½; LOD: 5 ng; DR: 2.4</p>	<p>WB ERK ½ (Cy5 on FLA 9500); LOD 10 ng; DR: 3</p>

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