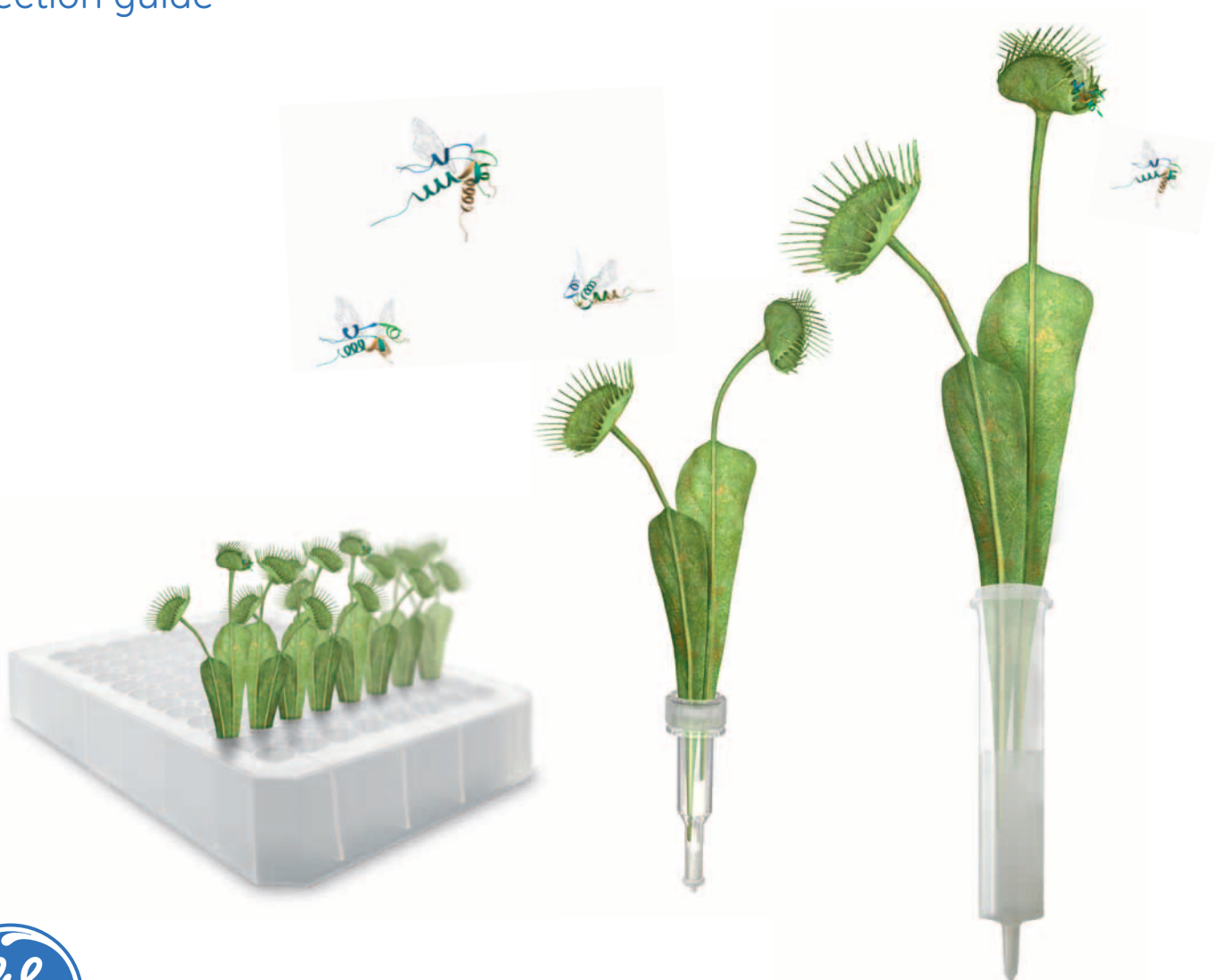


# Sample preparation for analysis of proteins, peptides and carbohydrates

Desalting, Buffer Exchange, Cleanup, Concentration  
Selection guide



## The Trap platform

The Trap platform addresses the need for flexible, small-scale preparation of samples containing protein or other biomolecules prior to downstream analytical techniques such as gel electrophoresis, liquid chromatography and LC-MS.

### Sephadex G-25 and Sephadex G-10 for rapid desalting and buffer exchange

Gel filtration, using Sephadex™ G-25, is ideal for rapid desalting, buffer exchange and sample cleanup of small or large sample volumes. Biomolecules with  $M_r > 5\,000$  are rapidly separated from low-molecular weight substances such as salt, dyes and radioactive labels, and are exchanged into a new buffer. The technique is used for sample preparation at laboratory and production scale, before, between or after purification steps.

Sample volumes up to 30% of the total column volume can be loaded in one single step. Prepacked columns are available both for manual use and for automated use together with a chromatography system, for sample volumes from 70  $\mu\text{l}$  up to 60 ml. Typical desalting capacity is above 90% with recoveries between 70% and 95% (biomolecule-dependent).

Gel filtration based on Sephadex G-10 is used for desalting and buffer exchange of samples like small proteins, peptides and carbohydrates, and separates biomolecules with a  $M_r > 700$  from low molecular weight contaminants.

### HiTrap Desalting prepacked columns for manual or automated operation

HiTrap™ Desalting 5-ml columns, prepacked with Sephadex G-25 Superfine, provide fast desalting, either automated using a pump or a chromatography system, or manually using a syringe. A separation can be performed in 5 minutes. If sample volumes larger than 0.5 ml need to be prepared, up to five columns can be connected in series.

### HiPrep 26/10 Desalting for fast and easy scale-up

HiPrep™ 26/10 Desalting can be used with samples volumes up to 15 ml. Four columns can be run in series, allowing up to 60 ml sample to be prepared in one separation. The column is prepacked with Sephadex G-25 Fine, volume 53 ml.

### PD-10 Desalting Columns, PD MidiTrap G-25 and PD MiniTrap G-25 for simple manual cleanup

PD-10 Desalting Columns, PD MidiTrap™ G-25 and PD MiniTrap™ G-25 are gravity columns of different sizes prepacked with Sephadex G-25 Medium. Sample volumes between 0.1 and 2.5 ml can be handled, and the instructions provide two possible application protocols: gravity or spin.

With the gravity protocol, a simple cleanup of the sample is done without any need for a purification system. To simplify the use of PD -10 Desalting Columns with the gravity protocol, the LabMate PD-10 Buffer reservoir may be used. With the buffer reservoir in place, wash and equilibration of the columns can be applied in one step.

By using the spin protocol, the samples are run in parallel in a standard centrifuge. The spin protocol gives minimal dilution of the eluted sample. Four spin adapters are included in each product pack. To facilitate increased throughput, a 10-pack package of adapters can be ordered separately.

### PD SpinTrap G-25 and PD MultiTrap G-25 for small-scale cleanup

PD SpinTrap™ G-25 and PD MultiTrap™ G-25 are prepacked microspin columns and 96-well filter plates for screening purposes and high-throughput applications. The products are designed for small-scale cleanup for sample volumes between 70 to 130  $\mu\text{l}$  for PD MultiTrap G-25 and 100-180  $\mu\text{l}$  for PD SpinTrap G-25. Separation in SpinTrap format is performed in a standard microcentrifuge. The MultiTrap format allows separation by centrifugation, manually or automated by robotics. The desalting capacity is typically above 85% with recoveries between 70% and 90% (biomolecule-dependent).

### PD MidiTrap G-10 and PD MiniTrap G-10 for convenient cleanup of peptides and carbohydrates

PD MidiTrap G-10 and PD MiniTrap G-10 are gravity columns prepacked with Sephadex G-10. These gravity flow columns are designed for sample volumes between 100  $\mu\text{l}$  and 1 ml, and give rapid and simple desalting and buffer exchange of peptides, small proteins, or oligosaccharides. The desalting capacity is typically above 75% with recoveries between 70% and 90% (biomolecule-dependent).

## Vivaspin sample concentrators

Vivaspin™ provides fast, nondenaturing concentration of biological samples by membrane ultrafiltration. The entire process is carried out in a single tube ensuring convenient sample handling and reduced sample loss. Recovery of the target molecule typically exceeds 95%. Patented dead-stop technology ensures that samples cannot be concentrated to dryness. The vertical polyethersulfone membrane minimizes membrane blockage and tolerates high flow rates.

Vivaspin concentrators cater for sample volumes from 100  $\mu\text{l}$  to 20 ml, with a range of molecular weight cut-off values from  $M_r = 3\,000 - 100\,000$ .

### Mini Dialysis Kit

The disposable tubes in Mini Dialysis Kit provide a simple sample preparation method for dialysis of small sample volumes (maximum volume 250  $\mu\text{l}$  and 2 ml). Kits for two different cut-off are available 1 kDa and 8 kDa. Each tube has a cap with a small dialysis membrane disc. Samples are pipetted into the conical bottom of the tube. The capped tube is inserted into a float and placed with the membrane downwards in a stirred beaker containing the desired dialysis solution. Following dialysis, the tube is centrifuged briefly for maximal recovery.

### 2-D Clean-Up Kit eliminates interfering substances in 2-D electrophoresis

The 2-D Clean-Up Kit prepares samples for 2-D electrophoresis that might otherwise produce poor 2-D spot-maps due to high conductivity. The proteins are precipitated quantitatively, centrifuged and washed to remove non-protein contaminants. The pellet is then resuspended into denaturing sample solution for first-dimension IEF.

### SDS-PAGE Clean-Up Kit removes interfering substances from SDS gels

SDS-PAGE Clean-Up Kit allows for the preparation of samples for SDS-PAGE that are difficult to analyze due to low protein concentrations or the presence of salts. The proteins are precipitated quantitatively and centrifuged, leaving interfering substances in solution. After a wash, the pellet is resuspended and heated in SDS-PAGE sample buffer.



SDS-PAGE Clean-up kit



with spin adapter



2-D Clean-up kit



with spin adapter



Mini Dialysis kit



with spin adapter



PD MultiTrap G-25



PD SpinTrap



PD MiniTrap G-10



PD MidiTrap G-10



HiTrap Desalting



HiPrep 26/10



Vivaspin

PD-10 Desalting Columns

PD MidiTrap G-25

PD MiniTrap G25

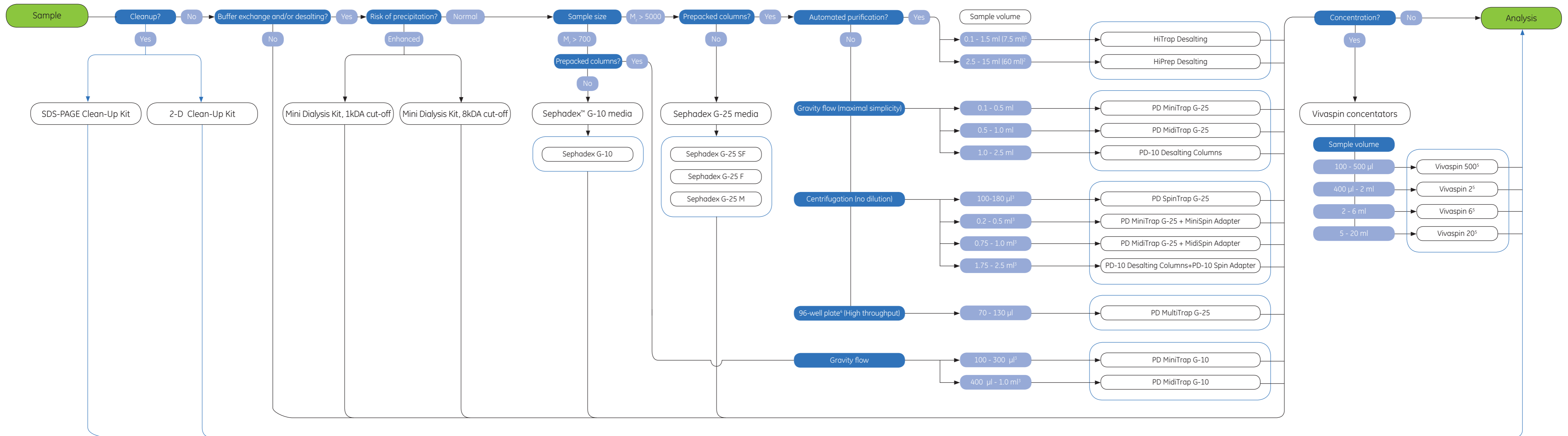
PD SpinTrap

PD MidiTrap G-10

HiPrep 26/10

Vivaspin

# Selection guide – Desalting/Buffer exchange/Cleanup and Concentration



<sup>1</sup> 7.5ml: up to five columns in series  
<sup>2</sup> 60 ml: up to four columns in series  
<sup>3</sup> For volumes outside those specified, dilute sample to nearest volume range  
<sup>4</sup> Centrifugation  
<sup>5</sup> Available with cut-off values from M<sub>r</sub> 3000 to 100 000

## Selection guide

	High throughput	Centrifugation	Gravity flow	Syringe	ÅKTA/PPC	Sample volume range	Exclusion limit (M <sub>w</sub> )	Desalting capacity	Recovery
Sephadex G-25 SF							>5000		
HiTrap Desalting				•	•	0.1–1.5 (7.5 <sup>†</sup> )	>5000		
Sephadex G-25 F							>5000		
HiPrep 26/10 Desalting				•		2.5–15 (60 <sup>†</sup> )	>5000		
Sephadex G-25 M							>5000		
Disposable PD-10 Desalting columns	•	•				1.0–2.5 ml <sup>‡</sup> /1.75–2.5 ml <sup>§</sup>	>5000	>90%	70–95%
PD MidiTrap G-25	•	•				0.5–1.0 ml <sup>‡</sup> /0.75–1.0 ml <sup>§</sup>	>5000	>90%	70–95%
PD MiniTrap G-25	•	•				0.1–0.5 ml <sup>‡</sup> /0.2–0.5 ml <sup>§</sup>	>5000	>90%	
PD SpinTrap G-25				•		100–180 µl	>5000	>85%	
PD MultiTrap G-25	•	•				70–130 µl/well	>5000	>85%	
Sephadex G-10									
PD MidiTrap G-10		•				400–1000 µl	>700		
PD MiniTrap G-10		•				100–300 µl	>700		
Spin Adapters									
PD-10 Spin Adapter		•							
PD MidiSpin Adapter		•							
PD MiniSpin Adapter		•							
Bulk media									
Sephadex G-10	•	•	•		•		>700		
Sephadex G-25 Superfine	•	•	•		•		>5000		
Sephadex G-25 Fine	•	•	•		•		>5000		
Sephadex G-25 Medium	•	•	•		•		>5000		
Vivaspin concentrators									
Vivaspin 500 MWCO <sup>††</sup> 3 000		•				100–500 µl	3000		>95%
Vivaspin 500 MWCO 5 000		•				100–500 µl	5000		>95%
Vivaspin 500 MWCO 10 000		•				100–500 µl	10000		>95%
Vivaspin 500 MWCO 30 000		•				100–500 µl	30000		>95%
Vivaspin 500 MWCO 50 000		•				100–500 µl	50000		>95%
Vivaspin 500 MWCO 100 000		•				100–500 µl	100000		>90%
Vivaspin 2 MWCO 3 000		•				400 µl–2 ml	3000		>95%
Vivaspin 2 MWCO 5 000		•				400 µl–2 ml	5000		>95%
Vivaspin 2 MWCO 10 000		•				400 µl–2 ml	10000		>95%
Vivaspin 2 MWCO 30 000		•				400 µl–2 ml	30000		>95%
Vivaspin 2 MWCO 50 000		•				400 µl–2 ml	50000		>95%
Vivaspin 2 MWCO 100 000		•				400 µl–2 ml	100000		>90%
Vivaspin 6 MWCO 3 000		•				2–6 ml	3000		>95%
Vivaspin 6 MWCO 5 000		•				2–6 ml	5000		>95%
Vivaspin 6 MWCO 10 000		•				2–6 ml	10000		>95%
Vivaspin 6 MWCO 30 000		•				2–6 ml	30000		>95%
Vivaspin 6 MWCO 50 000		•				2–6 ml	50000		>95%
Vivaspin 6 MWCO 100 000		•				2–6 ml	100000		>90%
Vivaspin 20 MWCO 3 000		•				5–20 ml	3000		>95%
Vivaspin 20 MWCO 5 000		•				5–20 ml	5000		>95%
Vivaspin 20 MWCO 10 000		•				5–20 ml	10000		>95%
Vivaspin 20 MWCO 30 000		•				5–20 ml	30000		>95%
Vivaspin 20 MWCO 50 000		•				5–20 ml	50000		>95%
Vivaspin 20 MWCO 100 000		•				5–20 ml	100000		>90%
Other									
Mini Dialysis Kit, 1 kDa cut-off, 250 µl						10–250 µl	>1000		
Mini Dialysis Kit, 1 kDa cut-off, 2 ml						200 µl–2ml	>1000		
Mini Dialysis Kit, 8 kDa cut-off, 250 µl						10–250 µl	>8000		
Mini Dialysis Kit, 8 kDa cut-off, 2 ml						200 µl–2ml	>8000		
2-D Clean-Up Kit									
SDS-PAGE Clean-Up Kit									

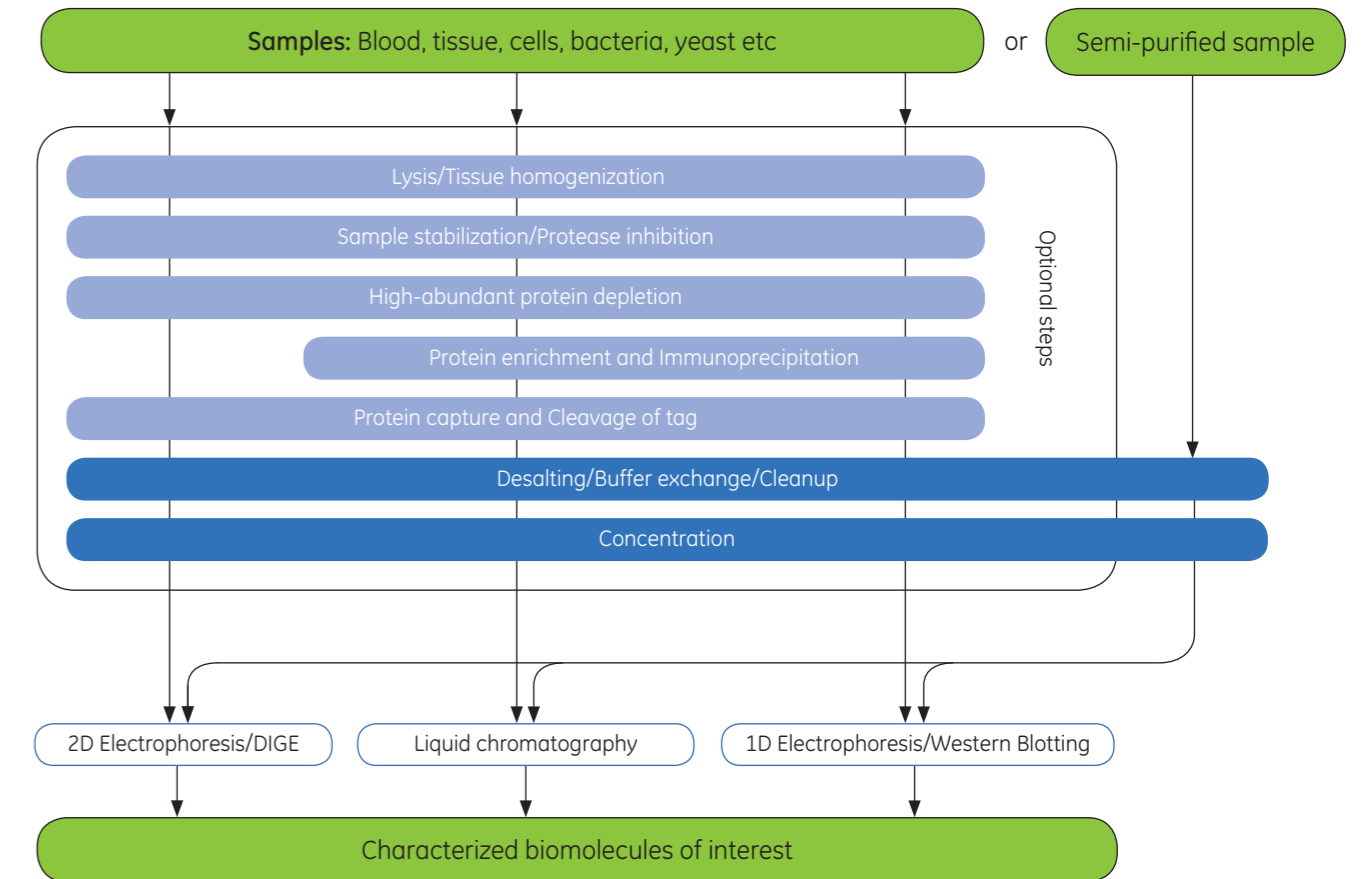
\* Up to 5 columns in series  
† Up to 4 columns in series  
‡ Gravity protocol  
§ Centrifugation protocol  
†† Molecular weight cut-off

## Ordering information

	Code no.	Pack size	Data file code no.
Sephadex G-25 SF			
HiTrap Desalting	17-1408-01	5 x 5 ml	28-9137-87
HiTrap Desalting	11-0003-29	100 x 5 ml <sup>†</sup>	28-9137-87
Sephadex G-25 F			
HiPrep 26/10 Desalting	17-5087-01	1 x 53 ml	28-9137-87
HiPrep 26/10 Desalting	17-5087-02	4 x 53 ml	28-9137-87
Sephadex G-25 M			
Disposable PD-10 Desalting Columns	17-0851-01	30 x 8.3 ml	28-9267-48
PD MidiTrap G-25	28-9180-08	50 x 3.45 ml	28-9267-48
PD MiniTrap G-25	28-9180-07	50 x 2.1 ml	28-9267-48
PD SpinTrap G-25	28-9180-04	50 x 500 µl	28-9267-48
PD MultiTrap G-25	28-9180-06	4 x 96-well plates, 500 µl/well	28-9267-48
Sephadex G-10			
PD MidiTrap G-10	28-9180-11	50 x 5.3 ml	28-9267-49
PD MiniTrap G-10	28-9180-10	50 x 2.1 ml	28-9267-49
Spin Adapters			
PD-10 Spin Adapter	28-9232-45	10	28-9267-48
PD MidiSpin Adapter	28-9232-44	10	28-9267-48
PD MiniSpin Adapter	28-9232-43	10	28-9267-48
Bulk media			
Sephadex G-10	17-0010-01	100 g	18-1022-18 <sup>†</sup>
Sephadex G-25 Superfine	17-0031-01	100 g	18-1022-18 <sup>†</sup>
Sephadex G-25 Fine	17-0032-01	100 g	18-1022-18 <sup>†</sup>
Sephadex G-25 Medium	17-0033-01	100 g	18-1022-18 <sup>†</sup>
Vivaspin concentrators			
Vivaspin 500 MWCO <sup>†</sup> 3 000	28-9322-18	25 concentrators	28-9356-53
Vivaspin 500 MWCO 5 000	28-9322-23	25 concentrators	28-9356-53
Vivaspin 500 MWCO 10 000	28-9322-25	25 concentrators	28-9356-53
Vivaspin 500 MWCO 30 000	28-9322-35	25 concentrators	28-9356-53
Vivaspin 500 MWCO 50 000	28-9322-36	25 concentrators	28-9356-53
Vivaspin 500 MWCO 100 000	28-9322-37	25 concentrators	28-9356-53
Vivaspin 2 MWCO 3 000	28-9322-40	25 concentrators	28-9356-53
Vivaspin 2 MWCO 5 000	28-9322-45	25 concentrators	28-9356-53
Vivaspin 2 MWCO 10 000	28-9322-47	25 concentrators	28-9356-53
Vivaspin 2 MWCO 30 000	28-9322-48	25 concentrators	28-9356-53
Vivaspin 2 MWCO 50 000	28-9322-57	25 concentrators	28-9356-53
Vivaspin 2 MWCO 100 000	28-9322-58	25 concentrators	28-9356-53
Vivaspin 6 MWCO 3 000	28-9322-93	25 concentrators	28-9356-53
Vivaspin 6 MWCO 5 000	28-9322-94	25 concentrators	28-9356-53
Vivaspin 6 MWCO 10 000	28-9322-96	25 concentrators	28-9356-53
Vivaspin 6 MWCO 30 000	28-9323-17	25 concentrators	28-9356-53
Vivaspin 6 MWCO 50 000	28-9323-18	25 concentrators	28-9356-53
Vivaspin 6 MWCO 100 000	28-9323-19	25 concentrators	28-9356-53
Vivaspin 20 MWCO 3 000	28-9323-58	12 concentrators	28-9356-53
Vivaspin 20 MWCO 5 000	28-9323-59	12 concentrators	28-9356-53
Vivaspin 20 MWCO 10 000	28-9323-60	12 concentrators	28-9356-53
Vivaspin 20 MWCO 30 000	28-9323-61	12 concentrators	28-9356-53
Vivaspin 20 MWCO 50 000	28-9323-62	12 concentrators	28-9356-53
Vivaspin 20 MWCO 100 000	28-9323-63	12 concentrators	28-9356-53
Other			
Mini Dialysis Kit, 1 kDa cut-off, 250 µl	80-6483-75	For 50 samples	18-1176-06
Mini Dialysis Kit, 1 kDa cut-off, 2 ml	80-6483-94	For 50 samples	18-1176-06
Mini Dialysis Kit, 8 kDa cut-off, 250 µl	80-6484-13	For 50 samples	18-1176-06
Mini Dialysis Kit, 8 kDa cut-off, 2 ml	80-6483-32	For 50 samples	18-1176-06
2-D Clean-Up Kit	80-6484-51	For 50 samples	18-1176-06
SDS-PAGE Clean-Up Kit	80-6484-70	For 50 samples	18-1176-06

\* Available by specific customer order  
† Gel Filtration Handbook  
‡ Molecular weight cut-off

## Protein analysis workflow



Our products, adapted for downstream analysis methods in analytical scale are complemented with a product range for scale up for preparative work.

For contact information for your local office,  
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