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 Mₐ > 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 µl 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 Mₐ > 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 by 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 µl for PD MultiTrap G-25 and 100-180 µl 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 µl 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).

**Vivasin sample concentrators**

Vivasin provides fast, non-denaturing 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. Vivasin concentrators cater for sample volumes from 100 µl to 20 ml, with a range of molecular weight cut-off values from Mₐ = 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 µl 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.
### Selection guide

<table>
<thead>
<tr>
<th>Column</th>
<th>Selection guide</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.</strong></td>
<td>Gravity flow</td>
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<tr>
<td><strong>2.</strong></td>
<td>Centrifugation</td>
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<td><strong>3.</strong></td>
<td>Syringe</td>
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</tbody>
</table>

### Ordering information

<table>
<thead>
<tr>
<th>Code no.</th>
<th>Peak size</th>
<th>Sample stabilization/Protease inhibition</th>
<th>Characterized biomolecules of interest</th>
<th>Desalting/Buffer exchange/Cleanup</th>
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<tbody>
<tr>
<td>57-1030-03</td>
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<tr>
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<tr>
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### Protein analysis workflow

- Samples: Blood, tissue, cells, bacteria, yeast etc.
- Semi-purified sample
- 2D Electrophoresis/DIGE
- Lysis/Tissue homogenization
- Protein capture and Cleavage of tag
- Sample stabilization/Protease inhibition
- Desalting/Buffer exchange/Cleanup
- Concentration
- Optional steps
- Characterized biomolecules of interest
- Protein analysis workflow