

## Technical Tip

T-1

### Maximizing sample recovery when using Centri-Spin™ columns for desalting Proteins

#### Introduction:

*Reduced recovery of protein samples may occur when using Centri-Spin spin columns due to specific or non-specific interaction with the column matrix. Below is a list of common modes of interaction and suggestions for minimizing their effect on sample recovery.*

Interaction	Possible Solution(s)
<p><u>Hydrophobic Interaction</u> Hydrophobic proteins in high molarity lyotropic salts solutions may adsorb to the Centri-Spin matrix. Subsequent elution of the protein with water is indicative of a hydrophobic interaction.</p>	<p>Decrease ionic strength of hydration buffer. Increase pH of hydration buffer. Add organic solvent to hydration buffer (ie. 5% isopropanol or ethanol) Add 10 % ethylene glycol to hydration buffer Add suitable non-ionic detergent to 0.1 % v/v (ie. Tween, Triton, Nonidet P40, Brij, Span, Lubrol)</p>
<p><u>Ionic Interactions</u> The Centri-Spin matrix has a slight net negative charge at neutral pH. Positively charged molecules may be slightly retained.</p>	<p>Increase ionic strength of hydration buffer (&gt;50mM)</p>
<p><u>Sample Precipitates on Column</u> Precipitation may be caused by salt removal, sample dilution, or a change in pH.</p>	<p>Increase ionic strength of hydration buffer</p>
<p><u>Protease Degradation</u></p>	<p>Add suitable inhibitor</p>
<p><u>Lectin Binding</u> Carbohydrate binding proteins may adsorb to the Centri-Spin matrix.</p>	<p>Add suitable competing binding sugar to the hydration buffer</p>

Using the above guide, modify the Centri-Spin hydration buffer to reduce the suspected interaction. In addition, check that the molecular weight of the sample exceeds the exclusion limit of the Centri-Spin column used.