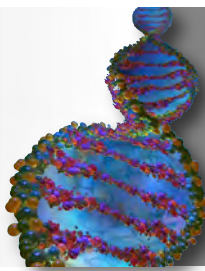


# MiniSpin™ Columns



Ideal for quick desalting or removal of unbound reactants for the purification of Peptides, Proteins, Sugars or DNA!

This new generation of Harvard Apparatus SpinColumns™ is designed for the purification of small samples (10µl to 150µl), in either single column or high-throughput, 96- or 384-well, formats. These MiniSpin™ columns use centrifugal force to drive the separation process, so they are more efficient than Tips. Results are not as sample composition dependent as can happen when using Tips.

The Nest Group offers pre-filled MiniSpin™ Columns with a wide selection of chromatographic medias including gel-filtration, ion-exchange, silica-based reversed phase (C4 & C18) and HILIC materials contained by frits and/or caps. Specific materials are available for special applications such as desalting of sugars (charcoal & cellulose) or phospho-peptide isolation (IMAC & PolyWAX LP). Empty columns can be customer-filled with unique resins, used as filters to remove gel particles, or supplied with caps to use as microchemical reaction & filtration devices.

To use, place the columns, with our supplied tubes, into a benchtop centrifuge, or use a plate centrifuge. Spin for two minutes. The column material binds and purifies the sample according to size, shape, chemical composition, charge or other physiochemical properties.

- Ultra-Micro SpinColumns™ Sample volumes 10 to 25µl
- Micro SpinColumns™ Sample volumes 25 to 75µl
- Macro SpinColumns™ Sample volumes 75 to 150µl
- 96-Well Micro SpinColumns™ Sample volumes 25 to 75µl
- 96-Well Macro SpinColumns™ Sample volumes 75 to 150µl

## PACKING MATERIALS AVAILABLE

- Gel Filtration
- G-10, G-25, G-50, G-100, P-2, P-6
- Hydrophobic (non-polar)
- C4, C18
- Hydrophilic (polar)
- Silica, Cyano (CN), Amino (NH<sub>2</sub>), Hydrophilic
- Ion Exchange
- Strong Anion, Weak Anion, Strong Cation, Weak Cation
- Specialized
- Activated Charcoal, Cellulose, Detergent Removal, Empty



Ultra-Micro SpinColumn™



Micro SpinColumn™



Macro SpinColumn™



96-Well SpinColumn™



BioPureSPN™



# MiniSpin™ Column Kits

Simple Solutions for Small Samples!

## MiniSpin Column Kits

MiniSpin Columns are made in RPC solvent resistant polypropylene housings for SPE purification and desalting of small samples (5-200µL).

### Applications:

- ◆ Affinity Chromatography
- ◆ Buffer Exchange
- ◆ Carbohydrate
- ◆ DNA
- ◆ Detergent Removal
- ◆ Nick Translation
- ◆ Peptide
- ◆ Primer Removal
- ◆ Protein
- ◆ Radiolabel Removal
- ◆ Removal of Salt
- ◆ Removal of Small Molecules
- ◆ Particle Removal

Product	Sample Capacity	Empty Volume	Void Vol.
Ultra MicroSpin™ Column	3-30µg	50µL	15µL
MicroSpin™ Column	5-60µg	200µL	30µL
MacroSpin™ Column	30-300µg	500µL	95µL
BioPureSPN™ Midi	6-60µg	300µL	50µL
BioPureSPN™ Macro	30-300µg	300µL	100µL
96-Well Spin Plate	10-100µg	300µL	30µL
96-Well MACRO-Spin Plate	30-300µg	450µL	95µL
Histidine Removal Column	0.2 – 0.5mg	-	-
Empty µ-Reactors™ /w caps	2-200µL	0.1µL	-
Page*Eraser™ µFilter Tips	2-200µL	0.1µL	-

### UltraMicroSpin and UltraMicroTIP Columns:

UltraMicroSpin and UltraMicroTIP columns offer a wide variety of packing materials including ion-exchange, silica based reverse and normal phase materials, as well as custom materials like IMAC and activated charcoal. UltraMicroSpin columns have industry standard fittings which allow use with a syringe adapter or in a centrifuge (Figure 1).

### MicroSpin Columns:

MicroSpin columns have a packing volume of 50µL, which allows SEC sample volumes of 5-25µL. When used in combination with columns of different gel materials, specific separations can be achieved (Figure 2). This process offers many types of separation phase combinations.

Use any of these columns with centrifugation, vacuum or pressure to clean up your protein, DNA, or carbohydrate samples. The recovery is reproducible and there is almost no sample loss.

PAGE\*Eraser™ micro filter tips prolong the life of capillary LC-MS columns by removing gel particles from in-gel digests. Recovery of peptides is quantitative from this special low volume 5µm frit.

### MacroSpin Columns:

MacroSpin columns have a packing volume of 185µL, suitable for 50-95µL SEC sample volumes or up to 0.35mL for RPC. Due to their size, MacroSpin columns cannot be attached to a syringe. Other materials such as amino acid specific resins from BioMolecular Technologies are available for proteome fractionation using their amino acid selective chemistries. See:

(<http://www.nestgrp.com/protocols/bmt/pi3index.shtml>)

### 96-Well Format MicroSpin Column Kits:

96-Well Format MicroSpin columns bring speed and low cost to parallel processing, micro sample preparation and are available with 20 different types of column materials. Extended tip wells eliminate cross contamination. Plates come with their own collection wells. Volume control for SEC use is recommended to improve desalting

#### Volume Dependent Salt Removal Results by SEC:

96-Well MACRO-Spin Plate:	Bed	Load	Desalt %
	125µL	125µL	100%
	125µL	225µL	>99%
	125µL	400µL	78%



Figure 1. Semi-Reusable, Color Coded BioPureSPN™

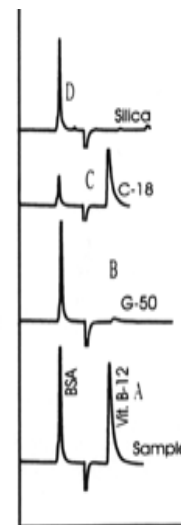
### Figure 2. HPLC - Chromatograms after sample prep with MicroSpin column; Sample Vol. 20µL.

(A) Mixture of BSA (MW 68,000) and Vitamin B-12 (MW 1355).

(B) After centrifugation with G-50 (size exclusion) spin column: Smaller molecule (Vitamin B-12) is retained and BSA is eluted. This column can be used for the removal of small molecules such as salt.

(C) After centrifugation with a C18V (PROTO™300 reverse phase) spin column: BSA is retained and Vitamin B-12 is eluted. The C18R column (TARGA C18 reverse phase) can be used for the retention of small molecules in 100% water, after the removal of protein or large molecules.

(D) After centrifugation with Silica (normal phase) spin column: BSA is eluted and Vitamin B-12 is retained. The column can be used for the analysis of small as well as large molecules. By using different eluents, small molecules can be eluted from column after removal of large molecules.



**MiniSpin Column Kits Part Numbers and Pricing**

Available in packs of 96 or 24	Ultra MicroSpin Ultra MicroTIP (2-12µL, SEC)		MicroSpin (5-25µL, SEC)		96-Well SEC 5-25µL, or 40-125µL (-L)		MacroSpin (40-125µL, SEC)	
Description	Part No.	Price	Part No.	Price	Part No.	Price	Part No.	Price
Empty Col. (20µ frit)	SUM 0000	\$176	SEM 0000	\$176	SNS 0000	\$141	SMM 0020	\$176
	SUM 0000.25	\$68	SEM 0000.25	\$68	SNS 0000-L	\$149	SMM 0020.25	\$68
Empty Col. (40µ frit)	SUM 0040	\$176	SEM 0040	\$176	N/A		SMM 0000	\$176
	SUM 0040.25	\$68	SEM 0040.25	\$68	N/A		SMM 0000.25	\$68
PAGE*Eraser µFilters 5µ	SUM 0007	\$176	SEM 0007	\$176	SNS 0007	\$141	SMM 0007	\$176
	SUM 0007.25	\$68	SEM 0007.25	\$68	SNS 0007-L	\$149	SMM 0007.25	\$68
Empty µ-Reactors (96/pk)	SUM 0000-BW	\$201	N/A		N/A		SMM 0000	
<b>Desalt Protein DNA</b>	<b>Gel Filtration</b>		<b>Gel Filtration</b>		<b>Gel Filtration</b>		<b>Gel Filtration</b>	
G-10 (>700Da)	SUM S010	\$365	SEM S010	\$355	SNS S010	\$155	SMM S010	\$311
	SUM S010.25	\$145	SEM S010.25	\$140	SNS S010-L	\$173	SMM S010.25	\$90
G-25 (>5KDa)	SUM S025	\$365	SEM S025	\$355	SNS S025	\$155	SMM S025	\$311
	SUM S025.25	\$145	SEM S025.25	\$140	SNS S025-L	\$173	SMM S025.25	\$89
G-50 (>30KDa)	SUM S050	\$365	SEM S050	\$355	SNS S050	\$155	SMM S050	\$311
	SUM S050.25	\$145	SEM S050.25	\$140	SNS S050-L	\$173	SMM S050.25	\$89
G-100 (>100KDa)	SUM S100	\$365	SEM S100	\$355	SNS S100	\$155	SMM S100	\$311
	SUM S100.25	\$145	SEM S100.25	\$140	SNS S100-L	\$173	SMM S100.25	\$90
<b>Carbohydrate</b>	<b>Gel Filtration</b>		<b>Gel Filtration</b>		<b>Gel Filtration</b>		<b>Gel Filtration</b>	
P-2 (>2KDa)	SUM P020	\$279	SEM P020	\$355	SNS P020	\$199	SMM P020	\$289
(for glycoproteins)	SUM P020.25	\$145	SEM P020.25	\$140	SNS P020-L	\$222	SMM P020.25	\$90
P-6 (>6KDa)	SUM P060	\$279	SEM P060	\$355	SNS P060	\$199	SMM P060	\$320
(for glycoproteins)	SUM P060.25	\$145	SEM P060.25	\$140	SNS P060-L	\$222	SMM P060.25	\$90
Active Charcoal	SUM SC00	\$408	SEM SC00	\$408	SNS SC00	\$168	SMM SC00	\$298
	SUM SC00.25	\$148	SEM SC00.25	\$148	SNS SC00L	\$211	SMM SC00.25	\$120
Cellulose	SUM SCELL	\$365	SEM SCELL	\$327	SNS SCELL	\$155	SMM SCELL	\$270
	SUM SCELL.25	\$145	SEM SCELL.25	\$148	SNS SCELLL	\$215	SMM SCELL.25	\$88

**Microchemical Extraction**

12-100µL (3-30µg)

25-200µL (5-60µg)

25-200µL (5-60µg) & 50-400µL (30-300µg) (-L)

50-300µL (30-300µg)

Reversed Phase								
C-18, 300Å (pept-prot)	HUM S18V	\$385	HEM S18V	\$385			HMM S18V	\$399
BioPureSPN <i>Config'n</i>	HUM S18V.25	\$125	HEM S18V.25	\$125			HMM S18V.25	\$125
C-4, 300Å (pept-prot)	HUM S04V	\$385	HEM S04V	\$385			HMM S04V	\$399
BioPureSPN <i>Config'n</i>	HUM S04V.25	\$125	HEM S04V.25	\$125			HMM S04V.25	\$125
TARGA C-18 (FastEquil.)	HUM S18R	\$385	HEM S18R	\$385			HMM S18R	\$399
BioPureSPN <i>Config'n</i>	HUM S18R.25	\$125	HEM S18R.25	\$125			HMM S18R.25	\$125
C-18, 300Å (pept-prot)	SUM SS18V	\$336	SEM SS18V	\$355	SNS SS18V	\$194	SMM SS18V	\$401
	SUM SS18V.25	\$152	SEM SS18V.25	\$148	SNS SS18V-L	\$212	SMM SS18V.25	\$126
TARGA C-18 (sm. mol.)	SUM SS18R	\$421	SEM SS18R	\$408	SNS SS18R	\$336	SMM SS18R	\$447
	SUM SS18R.25	\$170	SEM SS18R.25	\$164	SNS SS18R-L	\$448	SMM SS18R.25	\$160
C4, 300Å (protein)	SUM SS04V	\$336	SEM SS04V	\$355	SNS SS04V	\$194	SMM SS04V	\$360
	SUM SS04V.25	\$152	SEM SS04V.25	\$148	SNS SS04V-L	\$212	SMM SS04V.25	\$126
CN, 125Å	SUM SSCN	\$336	SEM SSCN	\$355	SNS SSCN	\$155	SMM SSCN	\$294
	SUM SSCN.25	\$152	SEM SSCN.25	\$148	SNS SSCNL	\$188	SMM SSCN.25	\$104
<b>Hydrophilic/IEX</b>								
HILIC/Deter Removal	SUM HIL	\$484	SEM HIL	\$470	SNS HIL	\$484	SMM HIL	\$470
	SUM HIL.25	\$128	SEM HIL.25	\$128	SNS HIL-L	\$523	SMM HIL.25	\$128
DEAE PolyWAX <b>ERLIC</b>	SUM HIL-DE	\$470	SEM HIL-DE	\$470	SNS HIL-DE	\$484	SMM HIL-DE	\$470
	SUM HIL-DE.25	\$128	SEM HIL-DE.25	\$128	SNS HIL-DE-L	\$523	SMM HIL-DE.25	\$128
SCX (PolySULFO)	SUM HIL-SCX	\$470	SEM HIL-SCX	\$470	SNS HIL-SCX	\$484	SMM HIL-SCX	\$470
	SUM HIL-SCX.25	\$128	SEM HIL-SCX.25	\$128	SNS HIL-SCX-L	\$523	SMM HIL-SCX.25	\$128
WCX (PolyCAT A)	SUM HIL-WCX	\$470	SEM HIL-WCX	\$470	SNS HIL-WCX	\$484	SMM HIL-WCX	\$470
	SUM HIL-WCX.25	\$128	SEM HIL-WCX.25	\$128	SNS HIL-WCX-L	\$523	SMM HIL-WCX.25	\$128
<b>Non-Silica IEX</b>								
SAX (CHO Based)	SUM SAX	\$365	SEM SAX	\$366	SNS SAX	\$194	SMM SAX	\$474
	SUM SAX.25	\$145	SEM SAX.25	\$148	SNS SAX-L	\$209	SMM SAX.25	\$112
WAX (CHO Based)	SUM WAX	\$365	SEM WAX	\$365	SNS WAX	\$194	SMM WAX	\$302
	SUM WAX.25	\$145	SEM WAX.25	\$148	SNS WAX-L	\$209	SMM WAX.25	\$106
SCX (CHO Based)	SUM SCX	\$365	SEM SCX	\$365	SNS SCX	\$194	SMM SCX	\$345
	SUM SCX.25	\$145	SEM SCX.25	\$148	SNS SCX-L	\$209	SMM SCX.25	\$106
WCX (CHO Based)	SUM WCX	\$365	SEM WCX	\$355	SNS WCX	\$194	SMM WCX	\$302
	SUM WCX.25	\$145	SEM WCX.25	\$148	SNS WCX-L	\$209	SMM WCX.25	\$106
<b>Affinity</b>								
ConSep™ mAb Conc (100)			ID-CS-100	\$475				
ConSep mAb Conc (25 pk)			ID CS-25	\$135				
Histidine Removal (100/pk)	N/A		ID-HS-100	\$395	N/A		N/A	
Histidine Removal (25/pk)	N/A		ID HS-25	\$110	N/A		N/A	

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