Sample Preparation

Quik PREP
a brand of Harvard Bioscience, Inc.

Product Catalog

Chromatography

Sample Dialysis

Equilibrium Dialysis

Electrodialysis

Sample Filtration

Easy-to-Use Quick Start Guides

Complete with assembly diagrams, step-by-step instructions, and related product ordering information.

Hard copy included with every QuikPrep sample preparation product shipment.

Available for electronic download from the Harvard Apparatus website.

www.harvardapparatus.com/manuals

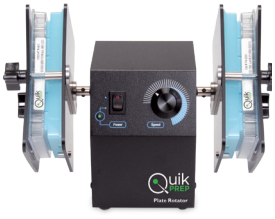
QuikPrep® Sample Preparation Products

Small Volume Sample Preparation Made Easy

QuikPrep® is a novel line of sample preparation products uniquely designed for the purification, separation or enrichment of samples as small as 1 µl in volume.

QuikPrep products in this catalog use common technologies such as chromatography and sample dialysis to prepare samples for further analysis with high reliability and recovery. Application and technology selection guides help you choose the sample preparation method and QuikPrep product best suited for your sample and application. Our technical support team is happy to assist with recommendations regarding the QuikPrep products that may be right for your needs.

96-Well DispoEquilibrium Dialyzer™



Dual Plate Rotator

Ultra-Fast Dialyzers

QuikPrep SpinColumns™

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Introduction to Sample Preparation

Target materials in biological samples, such as proteins, peptides and nucleic acids, are commonly present in trace amounts among larger quantities of numerous impurities or components. Sample preparation methods remove impurities such as detergents, salts or other contaminants which can interfere with downstream processing and analysis. Additionally, without sample preparation, samples can become degraded or lost, resulting in inaccurate data. Some target materials must be enriched or fractionated before they can be quantified or characterized. Without sample preparation, some instrumental methods like mass spectroscopy may not allow direct identification of specific molecules due to high background signals from contaminating molecules in the sample.

No single method of sample preparation is applicable to all samples because the type of target material, sample composition, and downstream application vary greatly. The table below is a guide to which sample preparation method (chromatography, dialysis, equilibrium dialysis, electrodialysis or filtration) is best suited for each target application.

Sample Preparation Application Guide

Application	Chromatography	Dialysis	Equilibrium Dialysis	Electrodialysis	Filtration
Acrylamide Removal	•				
Buffer Exchange		•		•	
Carbohydrate Purification	•				
CaCl Removal				•	
Detergent Removal	•	•		•	
DNA Binding Assays			•		
Dye Removal	•	•		•	
Electrophoresis				•	
Extraction from Gels				•	
Glycoprotein/Glycopepetide Purification	•				
Immunoblotting				•	
Large Molecule Removal	•			•	•
Ligand Binding Assays			•		
Lipid Purification	•				
Nick Translation	•				
PCR Cleanup	•			•	
Peptide Removal	•	•		•	
Plasmid Purification	•				
Primer Removal	•			•	
Protein Binding Assays			•		
Protein Purification for HPCC/HPCE/GC	•	•		•	
Protein Purification for Mass Spectroscopy (MALDI, GC/MS, MS NMR, ESI MS)	•	•		•	
Protein/Drug Binding Assays			•		
Protein/Protein Interactions			•		
Purification of Samples by Isoelectric Points				•	
Pyridoxal-5-Phosphate Removal				•	
Radiolabel Removal	•	•			
Radiopharmaceutical Marker Testing	•	•			
Receptor Binding Assays			•		
Salt Removal	•	•		•	
Sample Concentration	•	•		•	•
SDS Removal	•	•		•	
Silicate Removal after Chromatography				•	
Size Fractionation	•			•	•
Small Molecule Removal	•	•		•	

Technology Selection Guide

The table that follows lists the technical attributes of each sample preparation method (chromatography, dialysis, equilibrium dialysis, electrodialysis or sample filtration) as a guide to selecting the best method for your needs.

	Chromatography A physical separation method which separates molecules of interest by their aqueous/organic nature, size, or charge. Chromatography columns are available with media for hydrophilic, hydrophopbic, size exclusion, or ion exchange separation methods.			**Sample Dialysis** A physical separation method in which small molecules pass through pores of a size-selective membrane while the larger molecules are retained in the dialysis bag or chamber. In order to drive the equilibrium mechanism the volume on the outside must be about 200 times the volume of the retained volume and devoid of the small molecules of interest.
	Absorption	**Size Exclusion**	**Ion Exchange**	
Methods Development Time	Moderate to considerable	Minimal	Moderate to considerable	Minimal
Average Time/Speed of Separation Methods	5 minutes	5 minutes	5 minutes	1 to 24 hours
Ability to Collect Specific Sample Fractions: Small Molecules	Excellent	Good	Excellent	Poor
Ability to Collect Specific Sample Fractions: Large Molecules	Good	Good	Good	Good
Ability to Separate More Than One Set of Components Simultaneously	Excellent	Fair	Excellent	Poor
Sample Volumes	A few microliters to >1 ml	A few microliters to >5 ml	A few microliters to >5 ml	A few microliters to >5 ml
Number of Samples Run Simultaneously	1 to 96	1 to 96	1 to 96	1 to 96
Materials Compatibility for Maximum Activity Recovery	Medium to high	Medium to high	Medium to high	Medium to high
Auxiliary Equipment	Centrifuge, pipettor	Centrifuge, pipettor	Centrifuge, pipettor	Stirrer, temperature controller
Sterilizable	Chemically	Chemically	Chemically	Chemically
Suitable for Organic and Aqueous Solutions	Yes	Yes	Yes	Yes
Suitable for High Throughput Screening (HTS)	Yes	Yes	Yes	Yes

Equilibrium Dialysis	Electrodialysis	Sample Filtration
An application of dialysis used to measure the amounts of free ligand diffusing through a dialysis membrane versus ligand bound to a larger macromolecule of interest which is confined by the MWCO of the membrane. The concentrations of free versus bound ligand on either side of the membrane at equilibrium allow one to determine binding parameters such as binding constants, binding capacity, and the number of binding sites.	A physical separation method in which the movement of the molecules through a semi-permeable membrane is accelerated by an electric field, separating the molecules quickly by both size and charge. This technique is useful in separation, collection and fractionation of large and small ionic molecules.	A physical separation method in which the movement of molecules through a semi permeable membrane is accelerated by centrifugal force or vacuum pressure. Molecules are separated by size. Retentate above the filter contains molecules above MWCO whereas filtrate passing through filter contains molecules below MWCO.
Minimal	Minimal for dialysis, size fractionation applications; moderate to considerable for combined size and charge fractionation applications	Minimal
3 to 24 hours	5 to 10 minutes	5 minutes
Fair	Excellent	Excellent
Good	Good	Fair
Poor	Excellent	Poor
50 to 200 µl = (96-well)	A few microliters to >1 ml	A few microliters to >5 ml
1 to 96	1	1 to 384
Medium to high	Medium to high	Medium to high
Shaker, tube rotator, or plate rotator	200 VDC, 100 mA power supply	Centrifuge or vacuum manifold, pipettor
Chemically	Chemically	No, sterile single use only
Yes	Yes	Yes
Yes	No	Yes

Features

- Rapid sample preparation time
- High sample recovery
- Single use, disposable centrifuge tube format
- Unrivaled selection of column packing materials
- Micro and Ultra-Micro products also may be used as tips for micropipette aspiration through columns

Applications

- Protein purification
- Peptide purification
- DNA purification
- Small molecule, carbohydrate removal
- Radiolabel removal
- Nick translation
- Affinity separation
- Salt removal
- Buffer exchange

QuikPrep SpinColumns™

QuikPrep SpinColumns™ are designed for the purification of small samples (10 µl to 150 µl) in either single column or high-throughput 96-well format with a standard centrifuge.

Our SpinColumns are pre-filled with a wide selection of matrices for gel filtration, ion exchange, normal phase, and reverse phase chromatography, as well as specific materials such as charcoal or cellulose. The columns can also be provided empty or pre-filled with custom materials you request.

Simply place the SpinColumn containing sample in a centrifuge tube and centrifuge the tube briefly to separate your sample. The column material binds and purifies the sample according to size and shape, chemical composition, charge or other physiochemical properties. Five types of SpinColumns are available for different sample volumes.

QuikPrep SpinColumn Selection Guide

Column Type	Sample Volume	Sample Capacity	Suggested Elution Volume	Included
Ultra-Micro	10 µl to 25 µl	3 to 30 µg	28.5 µl	Two 2 ml centrifuge tubes with top caps
Micro	25 µl to 75 µl	5 to 60 µg	50 µl	Two 2 ml centrifuge tubes with top caps
Macro	75 µl to 150 µl	30 to 300 µg	143 µl	Two 2 ml centrifuge tubes with top and bottom caps
96-Well Micro	25 µl to 100 µl	5 to 60 µg	50 µl	Two 96-well collection plates (1.1 ml per well)
96-Well Macro	25 µl to 150 µl	30 to 300 µg	143 µl	Two 96-well collection plates (1.1 ml per well)

SpinColumn Matrices (Packing Materials)

Gel Filtration Chromatography (Size Exclusion)

Matrix	Particle Diameter	Fractionation Range	Exclusion Limit	Applications
G-10	40 µm to 120 µm (dry)	<700 Da	700 Da	Desalting peptides
G-25	40 µm to 120 µm (dry)	1,000 to 5,000 Da	5,000 Da	Desalting proteins and nucleic acids
G-50	20 µm to 80 µm (dry)	1,000 to 30,000 Da	30,000 Da	Removal of free labels from labeled macromolecules
G-100	40 µm to 120 µm (dry)	4,000 to 150,000 Da	150,000 Da	Molecular weight determination
P-2	< 45 µm (wet)	100 to 1,800 Da	1,800 Da	Rapid carbohydrate and small peptide separation and desalting
P-6	90 µm to 180 µm (wet)	1,000 to 6,000 Da	6,000 Da	Purification of polypeptides and proteins
P-30	90 µm to 180 µm (wet)	2,500 to 40,000 Da	40,000 Da	Purification of proteins

G-10, G-25, G-50, G-100 = Sephadex P-2, P-6, P-30 = Porous polyacrylamide beads

Normal & Reverse Phase Chromatography

	Hydrophilic (Normal Phase)			Hydrophobic (Reverse Phase)			
Matrix	NH_2	CN	PHEA	C18	C8	C4	TARGA C18
Particle Size, µm	25 to 40	25 to 40	12	10	5	4.5	10
Pore Size, Å	60	60	300	300	300	300	120
Pore Volume, ml/gm	0.75	0.75	0.9	0.9	0.9	0.9	0.8
Surface Area, 100 m^2/gm	350	350	100	100	100	100	330
% Carbon (w/w)	N/A	N/A	N/A	8	5	3	18
Silica Class	Irregular	Irregular	Type B	Type B	Type B	Type B	Type B
Acid and Alkali Stable	pH 2 to 8	pH 2 to 8	pH 4.0 to 6.5	pH 1.5 to 10	pH 1.5 to 10	pH 1.5 to 10	pH 1.5 to 10

CN = Cyano NH_2 = Amino PHEA = Polyhydroxyethyl Aspartamide (Hydrophilic) C18, C8, C6 = Reverse phase bonding materials of different alkyl chain lengths. TARGA C18 = Monofunctional C18 phase with unique polar and bulky end-capping.

Ion Exchange Chromatography

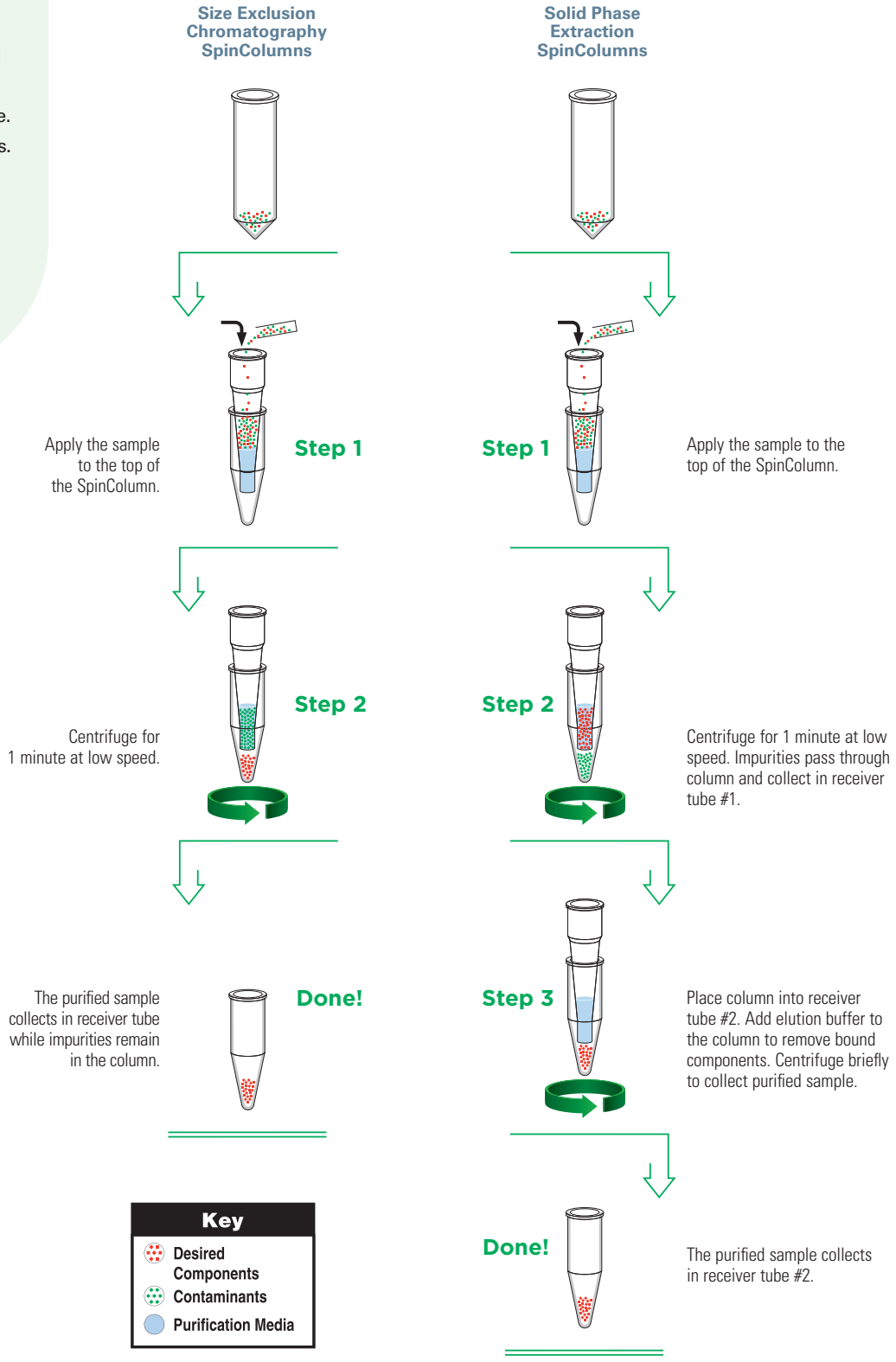
Matrix	Functional Group	pH Range	Ionic Capacity	Applications
Strong Anion Q	Quaternary ammonium	2 to 12	0.18 to 0.25 mmol (sulfate ion)/ml	High molecular weight protein separation
Weak Anion DEAE	Cross-linked diethylamino-ethyl-cellulose	5 to 9	0.11 to 0.16 mmol (Cl-)/ml	Protein separation
Weak Anion Linear PEI	Linear polyethylenimine	4 to 8	0.4 to 0.5 mmol (OH-)/g	Peptide, protein, nucleic acid, and oligonucleotide separation
Strong Cation SA	Poly 2-sulfoethyl aspartamide	2.7 to 4.0	0.4 to 0.5 mmol (K+)/g	High molecular weight protein separation
Strong Cation SP	Sulfopropyl	6 to 10	0.18 to 0.25 mmol (Na+)/ml	Peptide and protein separation
Weak Cation AA	Poly (aspartic acid)	4 to 8	0.4 to 0.5 mmol (triethylammonium ion)/g	Protein separation
Weak Cation CM	Carboxymethyl	5 to 9	0.09 to 0.13 mmol (Na+)/ml	Protein separation

Q = Q-Sepharose Fast Flow (quaternary amine sepharose) DEAE = Diethylaminoethlyl-cellulose
Linear PEI = PolyWAX LP™ (silica based) SA = Polysulfoethyl A™ (silica based) SP = SP-Sepharose Fast Flow
AA = PolyCAT A™ (poly aspartic acid attached to silica) CM = Carboxymethyl-cellulose

Other Matrices

SpinColumns with activated charcoal packing materials can be used for DNA, protein and peptide purification; small molecule, carbohydrate, salt and radiolabel removal; Nick translation; affinity separation and buffer exchange. Activated charcoal retains polar solutes. Salt will not be retained. SpinColumns with cellulose or detergent removal matrices are for special uses.

How to Use QuikPrep SpinColumns



Ordering Information

For Single Samples

	Ultra-Micro SpinColumns™		Micro SpinColumns™	
Packing Material	**Qty. of 24**	**Qty. of 96**	**Qty. of 24**	**Qty. of 96**
Gel Filtration (Size Exclusion)				
Sephadex, G-10 (700 D)	74-7220	74-7200	74-4504	74-4500
Sephadex, G-25 (5 kD)	74-7221	74-7201	74-4505	74-4501
Sephadex, G-50 (30 kD)	74-7222	74-7202	74-4506	74-4502
Sephadex, G-100 (100 kD)	74-7223	74-7203	74-4507	74-4503
Polyacrylamide, P-2 (2 kD)	74-7224	74-7204	74-4808	74-4802
Polyacrylamide, P-6 (6 kD)	74-7225	74-7205	74-4809	74-4803
Polyacrylamide, P-30 (40 kD)	-	-	-	-
Hydrophobic (Reverse Phase)				
C4	74-7228	74-7208	74-4609	74-4603
C8	74-7227	74-7207	74-4608	74-4602
C18	74-7226	74-7206	74-4607	74-4601
TARGA C18	74-7242	74-7243	74-4613	74-4614
Hydrophilic (Normal Phase)				
Amino (NH_2)	74-7231	74-7211	74-4611	74-4605
Cyano (CN)	74-7230	74-7210	74-4610	74-4604
PHEA	74-7232	74-7212	74-4811	74-4805
Silica	74-7229	74-7209	74-4606	74-4600
Ion Exchange				
Strong Anion Q	74-7233	74-7213	74-4704	74-4700
Weak Anion DEAE	74-7234	74-7214	74-4705	74-4701
Weak Anion Linear PEI	-	74-4423	74-4411	74-4410
Strong Cation SP	74-7235	74-7215	74-4706	74-4702
Strong Cation SA	74-4426	74-4425	74-4413	74-4412
Weak Cation CM	74-7236	74-7216	74-4707	74-4703
Weak Cation AA	-	74-4427	74-4415	74-4414
Other				
Activated Charcoal	-	-	74-4806	74-4800
Cellulose	74-7237	74-7217	74-4807	74-4801
Detergent Removal	74-7238	74-7218	74-4810	74-4804
Empty Column, 5 to 10 µm Frit	74-4421	74-4420	74-4421	74-4420
Empty Column, 20 µm Frit	74-4401	74-4400	74-4401	74-4400
Empty Column, 40 µm Frit	74-4431	74-4430	74-4431	74-4430

Ordering Information

For Multiple Samples

	96-Well Micro SpinColumns™	96-Well Macro SpinColumns™
Packing Material	**1.1 ml Reservoir Plate, Qty. of 1**	**1.1 ml Reservoir Plate, Qty. of 1**
Gel Filtration (Size Exclusion)		
Sephadex, G-10 (700 D)	74-5611	74-5651
Sephadex, G-25 (5 kD)	74-5612	74-5652
Sephadex, G-50 (30 kD)	74-5613	74-5653
Sephadex, G-100 (100 kD)	74-5614	74-5654
Polyacrylamide, P-2 (2 kD)	74-5615	74-5655
Polyacrylamide, P-6 (6 kD)	74-5616	74-5656
Hydrophobic (Reverse Phase)		
C4	74-5619	74-5659
C8	74-5618	74-5658
C18	74-5617	74-5657
TARGA C18	74-5637	74-5676
Hydrophilic (Normal Phase)		
Amino (NH_2)	74-5622	74-5662
Cyano (CN)	74-5621	74-5661
PHEA	74-5623	74-5663
Silica	74-5620	74-5660
Ion Exchange		
Strong Anion Q	74-5624	74-5664
Weak Anion DEAE	74-5626	74-5666
Weak Anion PEI	74-5633	74-5673
Strong Cation SP	74-5625	74-5665
Strong Cation SA	74-5632	74-5672
Weak Cation CM	74-5627	74-5667
Weak Cation AA	-	74-5674
Other		
Activated Charcoal	74-5629	74-5669
Cellulose	74-5630	74-5670
Detergent Removal	74-5628	74-5668
Empty Column, 7 µm Frit	74-5635	74-5649
Empty Column, 25 µm Frit	74-5610	74-5650

QuikPrep Sample Dialyzers

The QuikPrep sample dialyzer portfolio is a family of products for the dialysis of small volumes of proteins, peptides, nucleic acids, and other biomolecular samples. We offer products suited for ultra-micro volumes as little as 1 µl to larger volumes up to 10 ml, and a range of reusable, disposable and equilibrium dialyzers.

QuikPrep Sample Dialyzer Selection Guide

Reusable Dialyzers	
Single-Sided Dialyzers	Simple, reusable device for the dialysis of biological samples with sample volumes ranging from 10 µl to 5 ml
Ultra-Fast Dialyzers	Reusable double-sided sample dialyzer, allowing for a more rapid rate of dialysis than a single-sided dialyzer
SpinDialyzers and Fast SpinDialyzers	Reusable, leak-proof dialyzers with an internal magnetic bar, available with one or two dialysis ports
Disposable Dialyzers	
Fast Macro DispoDialyzers	Ideal for dialysis of large sample volumes 1 ml to 10 ml
Micro DispoDialyzers	Unique disposable dialyzer for sample volumes from 5 µl to 100 µl
Ultra-Micro DispoDialyzers	Disposable dialyzer for processing extremely small samples from 1µl to 5 µl
96-Well DispoDialyzers	For the simultaneous preparation of 96 samples using sample volumes from 25 µl to 300 µl
Equilibrium Dialyzers	
Fast Micro Equilibrium Dialyzers	Reusable two-chamber system designed to be used in binding or interaction studies. For sample volumes from 25 µl to 500 µl
DispoEquilibrium Dialyzers	Single use dialyzer for small samples from 25 µl to 75 µl
96-Well DispoEquilibrium Dialyzers	Unique 96-well dialyzer for simultaneous assay of 96 samples from 50 µl to 200 µl
Multi-Equilibrium Dialyzer System	Reusable dialyzer system for simultaneous and highly reproducible equilibrium dialysis of up to 20 samples with volumes from 0.2 ml to 5 ml

Reusable Dialyzer Surface Area/Volume Ratio

QuikPrep reusable dialyzer surface area to volume ratios are listed in the table below.
As the surface area to volume ratio increases, the time required to reach equilibrium decreases.

	Surface Area/Volume Ratio (mm^2/µl)		
Chamber Volume (µl)	**Single-Sided Dialyzer**	**SpinDialyzer and Fast SpinDialyzer**	**Ultra-Fast Dialyzer**
10	20.11	40.22	-
20	10.05	20.11	-
25	-	-	35.24
50	9.89	19.78	22.49
100	4.94	9.89	22.71
200	2.47	4.94	-
250	-	-	22.65
500	5.73	11.47	18.16
1,000	2.87	5.73	9.08
1,500	1.91	3.82	6.05
3,000	2.03	-	2.60
5,000	1.22	-	2.44

Membrane Selection Guide

QuikPrep membranes for reusable dialyzers are available in three different materials to best suit your application. Membranes are pre-cut to different diameters to fit different sized chambers or links.

Membrane Type	Available MWCO	Description
Regenerated Cellulose	1 to 50 kDa MWCO	More stable in organic solvents than other types of membranes and low protein binding. Ready to use after rinsing with deionized water and buffer. Glycerol, sulfur, and heavy metals are not present in these membranes.
Cellulose Acetate	500 Da to 300 kDa MWCO	Low protein binding with a sharp MWCO range. Supplied in 0.05% sodium azide solution and ready to use after rinsing with deionized water and buffer. Glycerol, sulfur, and heavy metals are not present in these membranes. Intended only for aqueous solutions, and the presence of an organic solvent is not recommended.
Polycarbonate	0.01 µm to 0.60 µm Pore Sizes	Chemically resistant and ideal for use with acids and organic solvents. Shipped dry and must be rehydrated before use.

Note: Membranes are supplied dry or in 0.05% sodium azide solution. They are ready to use after rinsing or rehydrating with deionized water and buffer.

Selecting a Membrane MWCO

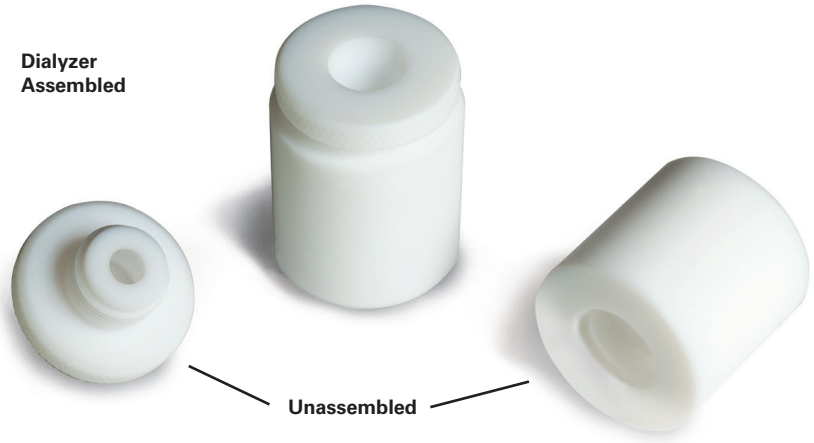
There are a number of variables to consider when choosing your membrane MWCO:

- The pore size of the membrane is determined by the molecular weight at which 90% of the solution will be retained.
  - This is usually achieved by a 25 to 1 ratio between the molecule being retained and the molecule passing through the membrane.

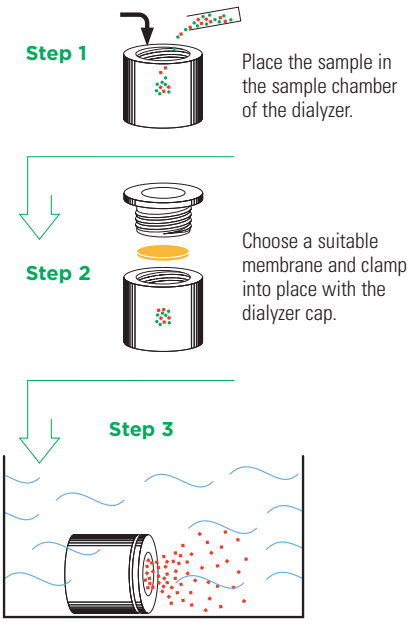
$$\frac{\text{MW retained}}{\text{MW passed}} = \geq 25$$

  - Molecule shape, nature of the solvent, degree of hydration, pH, ionic strength and charge all affect permeability.
- In general choose a MWCO that is half the molecular weight of the solute that is to be retained.

Single-Sided Dialyzers (Reusable)



How to Use QuikPrep Single-Sided Dialyzers



Place the entire unit into a large beaker of dialysis buffer. Dialysis time is 3 hours to overnight depending upon sample and buffer chemistry, temperature and volume.

Key

- Desired Component
- Contaminants
- Dialysis Buffer
- Membrane

These single-sided, reusable and simple dialyzers are for the dialysis of biological samples with sample volumes ranging from 10 µl to 5 ml. They are ideal for the simple dialysis of salts, buffer exchange, sample concentration, and more. Made of PTFE, the QuikPrep Single-Sided Dialyzer is inert, allowing for a very low protein binding capacity to maximize your sample recovery.

Pre-cut dialysis membranes are available in molecular weight cut offs from 500 Da to 300,000 Da. When fully assembled the cap and chamber create a 100% leak-proof seal. Single-Sided Dialyzers are supplied with dialysis chamber and cap.

Features

- High sample recovery
- Low protein binding
- Reusable
- Leak proof
- Autoclavable

Applications

- Biomolecule purification
- Buffer exchange
- Detergent removal
- Sample concentration
- HPLC, HPCE
- Removal of excess radiolabel
- Post-PCR clean up
- GC, GC-MS, NMR

Ordering Information

Single-Sided Dialyzers

Chamber Volume	10 µl	20 µl	50 µl	100 µl	200 µl	500 µl	1,000 µl	1,500 µl	3,000 µl	5,000 µl
Chamber Inner Diameter	7/16"	7/16"	7/16"	7/16"	7/16"	11/16"	11/16"	11/16"	15/16"	15/16"
Qty. of 1	74-0210	74-0211	74-0212	74-0213	74-0214	74-0215	74-0216	74-0217	74-0218	74-0219
Qty. of 5	74-0200	74-0201	74-0202	74-0203	74-0204	74-0205	74-0206	74-0207	74-0208	74-0209

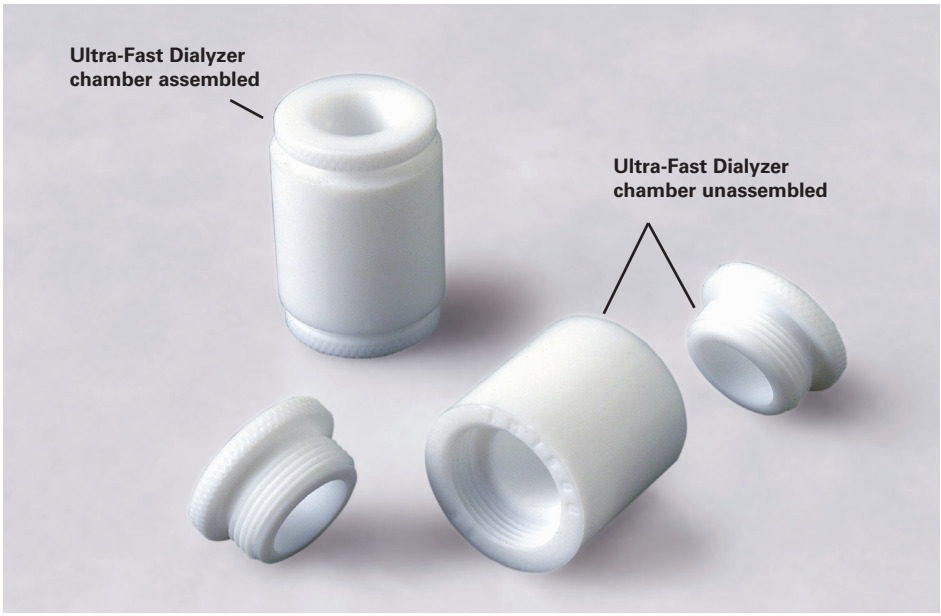
Single-Sided Dialyzer Membranes (Qty. of 25)

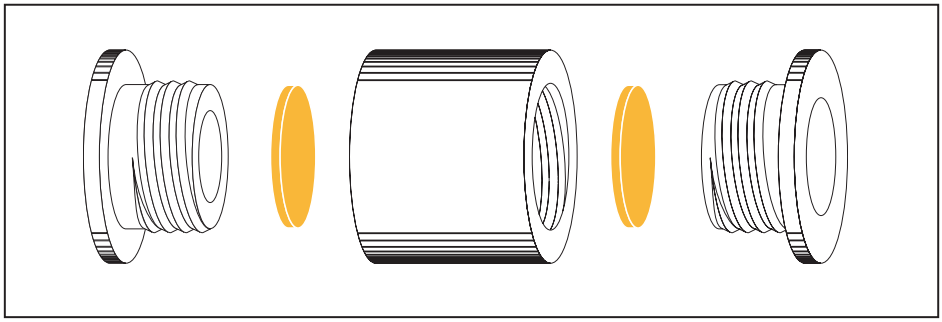
For Chamber Volume	10 µl to 200 µl	500 µl to 1,500 µl	3,000 µl or 5,000 µl
Membrane Type, MWCO & Size	7/16" (11.1 mm) dia.	11/16" (17.1 mm) dia.	15/16" (23.8mm) dia.
Regenerated Cellulose			
1 kDa MWCO	7424-RC1K	7425-RC1K	7420-RC1K
2 kDa MWCO	7424-RC2K	7425-RC2K	7420-RC2K
3.5 kDa MWCO	7424-RC3.5K	7425-RC3.5K	7420-RC3.5K
10 kDa MWCO	7424-RC10K	7425-RC10K	7420-RC10K
25 kDa MWCO	7424-RC25K	7425-RC25K	7420-RC25K
50 kDa MWCO	7424-RC50K	7425-RC50K	7420-RC50K
Cellulose Acetate			
500 Da MWCO	7424-CA500	7425-CA500	7420-CA500
1 kDa MWCO	7424-CA1K	7425-CA1K	7420-CA1K
2 kDa MWCO	7424-CA2K	7425-CA2K	7420-CA2K
5 kDa MWCO	7424-CA5K	7425-CA5K	7420-CA5K
10 kDa MWCO	7424-CA10K	7425-CA10K	7420-CA10K
25 kDa MWCO	7424-CA25K	7425-CA25K	7420-CA25K
50 kDa MWCO	7424-CA50K	7425-CA50K	7420-CA50K
100 kDa MWCO	7424-CA100K	7425-CA100K	7420-CA100K
300 kDa MWCO	7424-CA300K	7425-CA300K	7420-CA300K
Polycarbonate			
0.01 µm Pore Size	7424-PC01	7425-PC01	7420-PC01
0.05 µm Pore Size	7424-PC05	7425-PC05	7420-PC05
0.10 µm Pore Size	7424-PC10	7425-PC10	7420-PC10
0.60 µm Pore Size	7424-PC60	7425-PC60	7420-PC60

Accessories

Item #	Description
74-1114	End Cap, with hole, for 7/16" Chamber Inner Dia., qty. of 1
74-1115	End Cap, with hole, for 11/16" Chamber Inner Dia., qty. of 1
74-1116	End Cap, with hole, for 15/16" Chamber Inner Dia., qty. of 1

Ultra-Fast Dialyzers (Double-Sided, Reusable)





The Ultra-Fast Dialyzer offers all the features of the original Single-Sided Dialyzer with the addition of a second dialysis port allowing for a more rapid rate of dialysis. Due to the increased membrane surface area of the Ultra-Fast Dialyzer it can process samples 5 to 10 times faster than the Single-Sided Dialyzer.

Ultra-Fast Dialyzers can accommodate sample volumes from 25 µl to 5 ml. Made of PTFE, the Ultra-Fast Dialyzer is inert allowing for a very low protein binding capacity to maximize your sample recovery. Pre-cut dialysis membranes are available in molecular weight cut offs of 500 Da to 300,000 Da. When fully assembled the cap and chamber create a 100% leak proof seal. Ultra-Fast Dialyzers are supplied with dialysis chamber and two caps.

Features

- Rapid dialysis/purification
- High sample recovery
- Low protein binding
- Reusable
- Leak proof
- Autoclavable

Applications

- Biomolecule purification
- Buffer exchange
- Detergent removal
- Sample concentration
- Sample preparation for HPLC, HPCE
- Removal of excess radiolabel
- Post-PCR clean up
- Sample preparation for GC, GC-MS, NMR

Ordering Information

Ultra-Fast Dialyzers

Chamber Volume	25 µl	50 µl	100 µl	250 µl	500 µl	1,000 µl	1,500 µl	3,000 µl	5,000 µl
Chamber Inner Diameter	11/16"	11/16"	11/16"	15/16"	15/16"	15/16"	15/16"	15/16"	15/16"
Qty. of 1	7404-251D	7404-501D	7404-1001D	7404-2501D	7404-5001D	7404-10001D	7404-15001D	7404-30001D	7404-50001D
Qty. of 5	7404-255D	7404-505D	7404-1005D	7404-2505D	7404-5005D	7404-10005D	7404-15005D	7404-30005D	7404-50005D

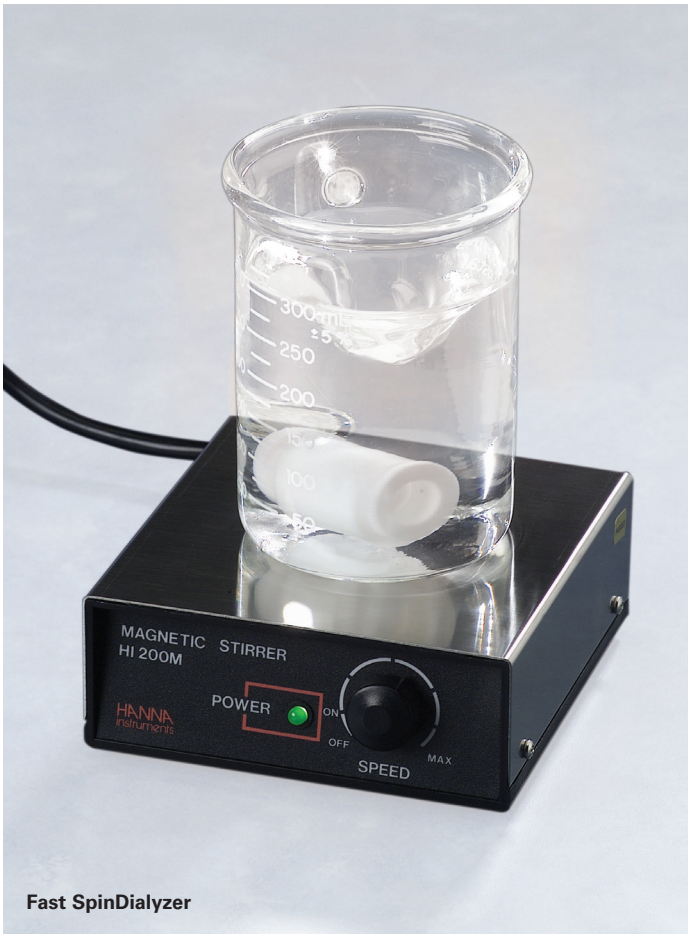
Ultra-Fast Dialyzer Membranes (Qty. of 25)

For Chamber Volume	25 µl to 100 µl	3,000 µl or 5,000 µl
Membrane Type, MWCO & Size	11/16" (17.1 mm) dia.	15/16" (23.8 mm) dia.
Regenerated Cellulose		
1 kDa MWCO	7404-RC1K	7403-RC1K
2 kDa MWCO	7404-RC2K	7403-RC2K
3.5 kDa MWCO	7404-RC3.5K	7403-RC3.5K
10 kDa MWCO	7404-RC10K	7403-RC10K
25 kDa MWCO	7404-RC25K	7403-RC25K
50 kDa MWCO	7404-RC50K	7403-RC50K
Cellulose Acetate		
500 Da MWCO	7404-CA500	7403-CA500
1 kDa MWCO	7404-CA1K	7403-CA1K
2 kDa MWCO	7404-CA2K	7403-CA2K
5 kDa MWCO	7404-CA5K	7403-CA5K
10 kDa MWCO	7404-CA10K	7403-CA10K
25 kDa MWCO	7404-CA25K	7403-CA25K
50 kDa MWCO	7404-CA50K	7403-CA50K
100 kDa MWCO	7404-CA100K	7403-CA100K
300 kDa MWCO	7404-CA300K	7403-CA300K
Polycarbonate		
0.01 µm Pore Size	7404-PC01	7403-PC01
0.05 µm Pore Size	7404-PC05	7403-PC05
0.10 µm Pore Size	7404-PC10	7403-PC10
0.60 µm Pore Size	7404-PC60	7403-PC60

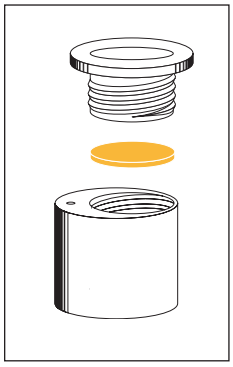
Accessories

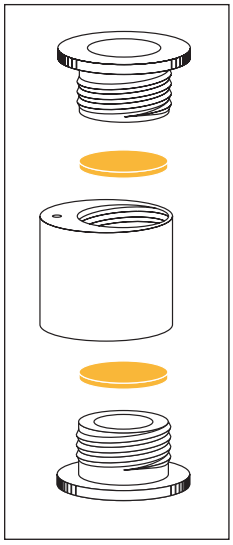
Item #	Description
74-1115	End Cap with hole, for 11/16" Chamber Inner Dia., qty. of 1
74-1116	End Cap with hole, for 15/16" Chamber Inner Dia., qty. of 1

SpinDialyzers & Fast SpinDialyzers (Single-Sided or Double-Sided, Reusable)



Fast SpinDialyzer





SpinDialyzers and Fast SpinDialyzers are reusable, leak-proof dialyzers with internal magnetic bars. The Fast SpinDialyzer has two dialysis ports, while the SpinDialyzer has one.

The constant motion of the sample using a magnetic stirrer results in dialysis times that are 50 to 100% faster than with the Single-Sided Dialyzer or Ultra-Fast Dialyzer. Made of PTFE, the SpinDialyzers are inert, providing very low protein binding capacity, allowing for high sample recovery.

SpinDialyzers include a single-sided chamber plus cap. Fast SpinDialyzers include a two-sided chamber plus two caps.

Features

- Rapid dialysis/purification
- High sample recovery
- Low protein binding
- Reusable
- Leak proof
- Autoclavable

Applications

- Buffer exchange
- Detergent removal
- Sample concentration
- Sample preparation for HPLC, HPCE
- Purification of proteins, DNA and RNA
- Removal of excess radiolabel or PCR primers
- Sample preparation for GC, GC-MS, NMR

Ordering Information

SpinDialyzers

Chamber Volume	10 µl	20 µl	50 µl	100 µl	200 µl	500 µl	1000 µl	1500 µl
Chamber Inner Diameter	7/16"	7/16"	7/16"	7/16"	7/16"	11/16"	11/16"	11/16"
Qty. of 1	74-0308	74-0309	74-0310	74-0311	74-0312	74-0313	74-0314	74-0315
Qty. of 5	74-0300	74-0301	74-0302	74-0303	74-0304	74-0305	74-0306	74-0307

Fast SpinDialyzers

Chamber Volume	50 µl	100 µl	200 µl	500 µl	1,000 µl	1,500 µl
Chamber Inner Diameter	7/16"	7/16"	7/16"	11/16"	11/16"	11/16"
Qty. of 1	74-0506	74-0507	74-0508	74-0509	74-0510	74-0511
Qty. of 5	74-0500	74-0501	74-0502	74-0503	74-0504	74-0505

SpinDialyzers & Fast SpinDialyzers Membranes (Qty. of 25)

For Chamber Volume	10 µl to 200 µl	500 µl to 1,500 µl
Membrane Type, MWCO & Size	7/16" (11.1 mm) dia.	11/16" (17.1 mm) dia.
Regenerated Cellulose		
1 kDa MWCO	7424-RC1K	7425-RC1K
2 kDa MWCO	7424-RC2K	7425-RC2K
3.5 kDa MWCO	7424-RC3.5K	7425-RC3.5K
10 kDa MWCO	7424-RC10K	7425-RC10K
25 kDa MWCO	7424-RC25K	7425-RC25K
50 kDa MWCO	7424-RC50K	7425-RC50K
Cellulose Acetate		
500 Da MWCO	7424-CA500	7425-CA500
1 kDa MWCO	7424-CA1K	7425-CA1K
2 kDa MWCO	7424-CA2K	7425-CA2K
5 kDa MWCO	7424-CA5K	7425-CA5K
10 kDa MWCO	7424-CA10K	7425-CA10K
25 kDa MWCO	7424-CA25K	7425-CA25K
50 kDa MWCO	7424-CA50K	7425-CA50K
100 kDa MWCO	7424-CA100K	7425-CA100K
300 kDa MWCO	7424-CA300K	7425-CA300K
Polycarbonate		
0.01 µm Pore Size	7424-PC01	7425-PC01
0.05 µm Pore Size	7424-PC05	7425-PC05
0.10 µm Pore Size	7424-PC10	7425-PC10
0.60 µm Pore Size	7424-PC60	7425-PC60

Accessories

Item #	Description
74-1114	End Cap, with hole, for 7/16" Chamber Inner Dia., qty. of 1
74-1115	End Cap, with hole, for 11/16" Chamber Inner Dia., qty. of 1

Ultra-Micro DispoDialyzers (Single Use)

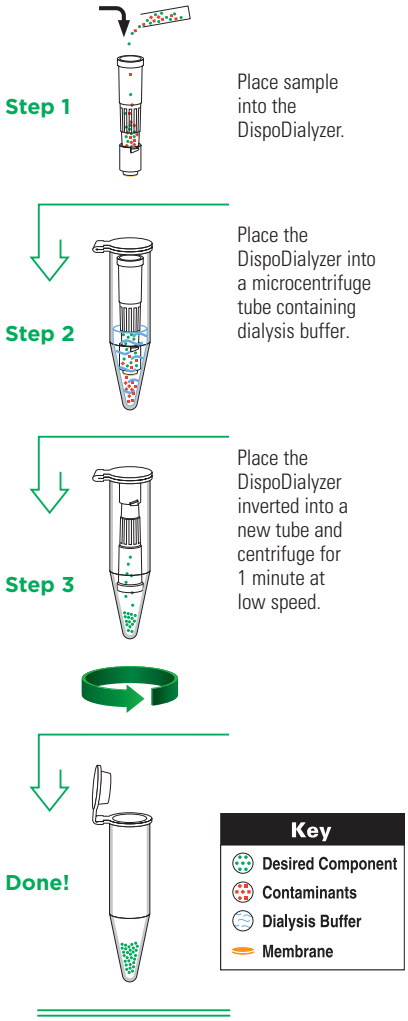
Ultra-Micro DispoDialyzer

The Ultra-Micro DispoDialyzer is a disposable dialyzer for the processing of extremely small samples from 1 µl to 5 µl. Dialysis is carried out inside a micro centrifuge tube.

Membrane options are available with molecular weight cut offs from 1,000 to 50,000 Daltons. Each Ultra-Micro DispoDialyzer includes two 1.5 ml capped micro centrifuge collection tubes.

Sample recovery is easy with almost 100% sample recovery. Once dialysis is complete, either extract your sample with a pipette, or invert the dialyzer into a new collection tube and briefly centrifuge (500 to 2,000 rpm for 1 to 2 seconds).

How to Use Ultra-Micro DispoDialyzers



Features

- Micro-volume dialysis
- Rapid dialysis/purification
- High sample recovery
- Low protein binding
- Easy to use

Applications

- Buffer exchange
- Detergent removal
- Sample concentration
- Sample preparation for HPLC, HPCE
- Purification of proteins, DNA and RNA
- Removal of excess radiolabel or PCR primers
- Sample preparation for GC, GC-MS, NMR

Ordering Information

Membrane Type & MWCO	Qty. of 25	Qty. of 50	Qty. of 100
Regenerated Cellulose			
1 kDa MWCO	74-0609	74-0610	74-0611
2 kDa MWCO	74-0612	74-0613	74-0614
3.5 kDa MWCO	74-0021	74-0022	74-0023
10 kDa MWCO	74-0602	74-0600	74-0601
25 kDa MWCO	74-0618	74-0619	74-0620
50 kDa MWCO	74-0621	74-0622	74-0623
Cellulose Acetate			
5 kDa MWCO	74-0024	74-0025	74-0026

Features

- Can handle sample sizes 5 µl to 100 µl
- Rapid dialysis/purification
- High sample recovery
- Low protein binding
- Leak proof
- Easy to use

Applications

- Buffer exchange
- Detergent removal
- Sample concentration
- Purification of proteins, DNA and RNA
- Removal of excess radiolabel or PCR primers
- Sample preparation for HPLC, HPCE
- Sample preparation for GC, GC-MS, NMR

Micro DispoDialyzers (Single Use)

Micro DispoDialyzer

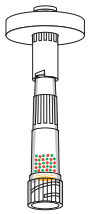
The Micro DispoDialyzer is a unique disposable dialyzer for sample volumes from 5 µl to 100 µl. The entire unit floats directly in the dialysis buffer. Place in a beaker containing dialysis buffer and a stir bar on a magnetic stirrer for constant agitation of the sample to reduce dialysis times.

The Micro DispoDialyzer offers preinstalled membranes ranging from 500 to 5,000 Da MWCO cellulose acetate membranes and 1,000 to 50,000 Da MWCO regenerated cellulose membranes. Once dialysis is complete simply invert the dialyzer into a new collection tube and briefly centrifuge (500 to 2000 rpm for 1 to 2 seconds).

Each Micro DispoDialyzer comes with a foam float, cap and two 1.5 ml collection tubes.

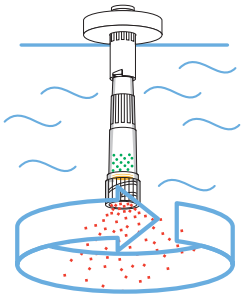
How to Use Micro DispoDialyzers

Step 1



The sample is placed in the sample chamber as shown in the diagram below. It is separated from the dialysis buffer by the membrane.

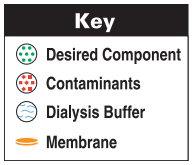
Step 2



The entire unit is placed in a beaker and floats vertically due to the flotation ring attached to the unit. Stirring the dialysis buffer results in faster dialysis times.

Done!

Simply invert the Micro DispoDialyzer into a microcentrifuge tube and centrifuge briefly to recover the sample.



Ordering Information

Membrane Type & MWCO	Qty. of 25	Qty. of 50	Qty. of 100
Regenerated Cellulose			
1 kDa MWCO	74-0715	74-0702	74-0703
2 kDa MWCO	74-0716	74-0704	74-0705
3.5 kDa MWCO	74-0027	74-0028	74-0029
10 kDa MWCO	74-0718	74-0708	74-0709
25 kDa MWCO	74-0719	74-07010	74-0711
50 kDa MWCO	74-0720	74-07012	74-0713
Cellulose Acetate			
500 Da MWCO	74-0721	74-0722	74-0723
5 kDa MWCO	74-0030	74-0031	74-0032

Fast Macro DispoDialyzers (Single Use)

Fast Macro DispoDialyzer Assembled

Unassembled

The Fast Macro DispoDialyzer is ideal for dialysis of large samples. Capable of handling sample volumes of 1 ml to 10 ml, this disposable dialyzer is built of inert PTFE allowing for high levels of sample recovery. The double-sided design creates large membrane surface areas, 4.5 cm^2 on each side, which helps to increase the rate of dialysis. It is supplied with 10K MWCO regenerated cellulose membranes. The Fast Macro DispoDialyzer includes a chamber, two rings and two membranes. Assembly required.

Fast Macro DispoDialyzer

Features

- Macro-volume dialysis
- Rapid dialysis/purification
- High sample recovery
- Low protein binding
- Leak proof
- Easy to use

Applications

- Buffer exchange
- Detergent removal
- Sample concentration
- Sample preparation for HPLC, HPCE
- Purification of proteins, DNA and RNA
- Removal of excess radiolabel
- Sample preparation for GC, GC-MS, NMR

Ordering Information

Membrane Type & MWCO	Qty. of 25	Qty. of 50	Qty. of 100
Regenerated Cellulose			
10 kDa MWCO	74-0802	74-0800	74-0801

Features

- High recovery (>95%)
- Individual membranes means no cross-contamination between wells
- High well-to-well reproducibility
- Built-in high quality regenerated cellulose membranes
- Membranes are free from sulphur and heavy metal contamination

Applications

- Salt removal
- Buffer exchange
- Parallel sample prep after fraction collection
- Oligonucleotide purification
- Detergent removal
- Sample preparation for HPLC, HPLC-MS

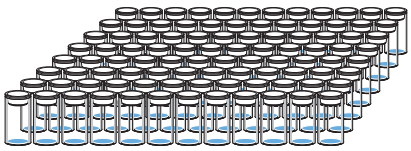
96-Well DispoDialyzers (Single Use)

96-Well DispoDialyzer

The dialysis of 96 samples from 25 µl to 300 µl can be performed easily with the 96-well DispoDialyzer. Each well has an individual membrane which eliminates the possibility of cross contamination between wells. The 96-well DispoDialyzer is available with built-in regenerated cellulose membranes with MWCO's ranging from 1 kDa to 25 kDa. The entire 96-well DispoDialyzer plate floats directly in the dialysis buffer, allowing for faster dialysis. Each plate comes with twelve 8-cap strips which ensure tight seals on every well.

How to Use 96-Well DispoDialyzers

The 96-Well DispoDialyzer

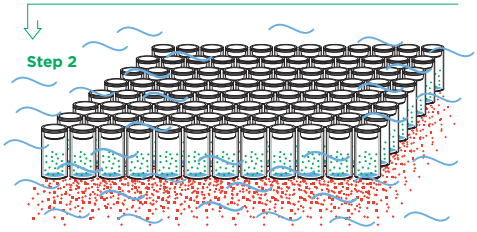


Step 1

Place the sample into the wells of the 96-Well DispoDialyzer and assemble strip caps.

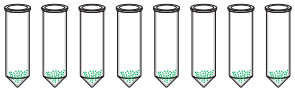
Step 2

Float the entire plate in dialysis buffer.



Retrieve the purified samples for downstream applications.

Done!



Ordering Information

Membrane Type & MWCO	Qty. of 2
Regenerated Cellulose	
1 kDa MWCO	74-0900
2 kDa MWCO	74-0901
3.5 kDa MWCO	74-0033
10 kDa MWCO	74-0903
25 kDa MWCO	74-0904

Sample Dialysis Accessories

Mini Vacuum Desiccator

Mini Vacuum Desiccator

It's easy to concentrate dialysis samples with this convenient small device. Simply place any dialyzer, complete with membrane, into the Mini Vacuum Desiccator. The liquid is evaporated through the membrane and removed by the concentrator. When concentration is complete simply puncture the membrane and remove your sample. This technique is superior to other concentration methods, such as centrifugation, in which the sample may stick to the membrane surface or burst through the membrane.

Ordering Information

Item #	Description
74-1112	Mini Vacuum Desiccator (Dialysis Sample Concentrator), pkg. of 1

Magnetic Stirrer

Magnetic Stirrers and Stir Bars

Magnetic Stirrers for use with SpinDialyzers and Fast SpinDialyzers are lightweight and compact (120 x 120 x 45 mm or 4.8 x 4.8 x 1.8 in) requiring less bench space. This stirrer has electronic speed controls for accuracy and precision with a limiting maximum speed of 1,000 rpm for safety. The stirrer has chemical resistant ABS plastic housing and is supplied with an AISI 316 stainless steel cover.

PTFE-coated Magnetic Stir Bar, 25 mm (1.0 in) long and 7 mm (0.3 in) diameter, is available for use with the stirrer.

Ordering Information

Item #	Description
74-0106	Magnetic Stirrer, 110/115 V
74-0111	Magnetic Stirrer, 220/240 V
74-0112	Variable Speed Magnetic Stirrer, 115 V
74-0113	Variable Speed Magnetic Stirrer, 230 V
74-0110	Magnetic Stir Bar, 10 pcs

Applications

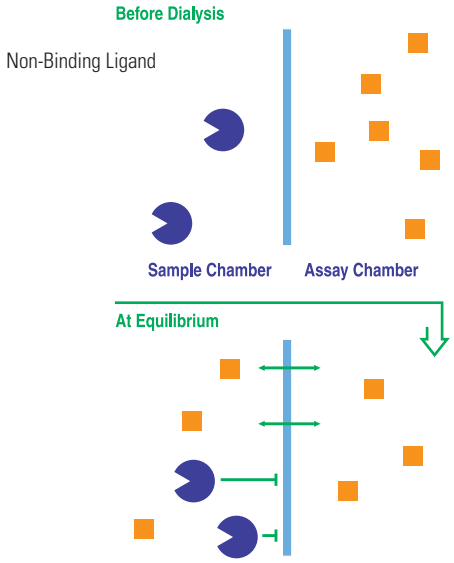
- Protein-drug binding assays
- Receptor binding assays
- Ligand binding assays
- Protein-protein interactions
- Protein-DNA interactions
- Serum protein binding

QuikPrep Equilibrium Dialyzers

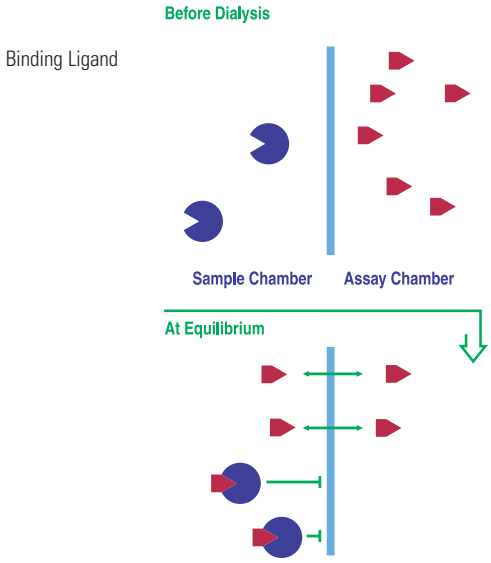
Equilibrium dialysis is a specific application of dialysis useful to study the binding of small molecules and ions by proteins. It is one of several methods available for this purpose, and its attractive feature continues to be its physical simplicity. Another attractive feature of equilibrium dialysis is the ability to perform interaction studies without the use of fluorescent or radiolabeled tags.

Generally, the objective of an equilibrium dialysis experiment is to measure the amount of a ligand bound to a macromolecule. This is typically done through an indirect process because in any mixture of the ligand and macromolecule, it is difficult to distinguish between the bound and free ligand. If, however, the free ligand can be dialyzed through a membrane until its concentration across the membrane is at equilibrium, the free ligand concentration can be measured easily. Data obtained under different experimental conditions then provides information on various binding parameters of the compounds such as the binding constants and the number of binding sites or binding capacity.

How Equilibrium Dialysis Works

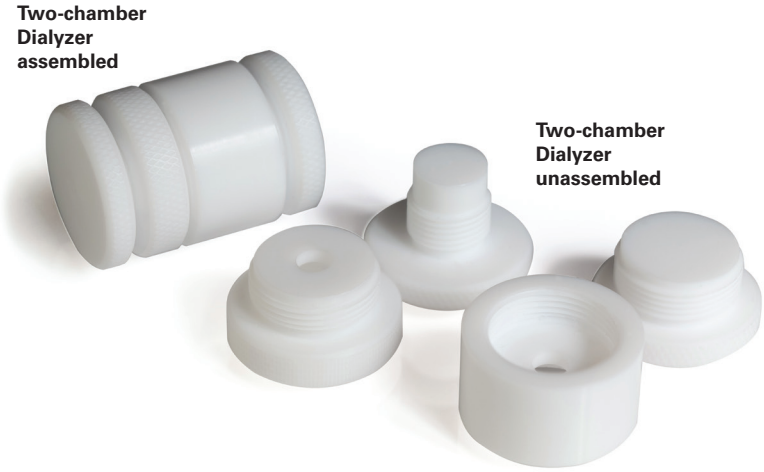


If the ligand and protein do not bind to each other the ligand is free to cross the membrane. At equilibrium, the concentration of the ligand in the assay chamber will be exactly half that initially placed in the sample chamber.



If the ligand and protein form a complex, the bound ligand will be unable to diffuse across the membrane and will remain in the sample chamber. The concentration of the ligand will still be equivalent on either side of the membrane upon reaching equilibrium. In this case, however, the ligand concentration in the assay chamber is reduced by the total amount of ligand bound to the protein divided by two.

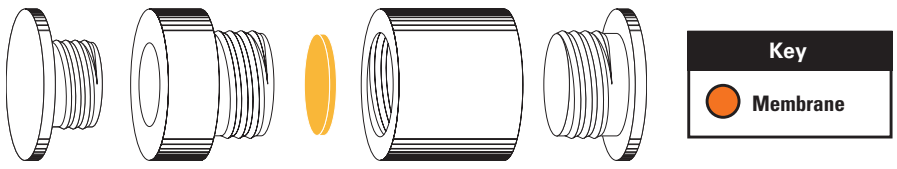
Fast Micro Equilibrium Dialyzers (Reusable)



The Fast Micro Equilibrium Dialyzer is a unique equilibrium dialysis chamber for small samples 25 µl to 1,500 µl. It is ideally suited for binding assays or interaction studies. Two chambers with equivalent sample volumes are joined together with a membrane. In binding studies, one chamber contains a macromolecule while the other holds the ligand. The macromolecules are bound to their chamber while ligands are able to pass freely across the membranes to bind with the proteins. Once the chambers are at equilibrium samples can be extracted and the binding affinity determined. The entire assembly can be placed into a water bath for temperature controlled dialysis.

Membranes with molecular weight cut off from 500 Da to 300,000 Da are available to suit a wide range of applications. The large membrane surface to volume ratio allows for decreased dialysis times. The inert PTFE material allows for maximum sample retention, and allows the dialyzer unit to be autoclaved for reuse.

Each Fast Micro Equilibrium Dialyzer includes a body chamber, a link chamber, and two solid caps. Additional links may be purchased for more complex configurations. Membranes are sold separately.



The binding and ligand elements are placed in one chamber (the sample chamber) while the other chamber (the assay chamber) contains an equivalent volume of the same buffer without either element. When equilibrium has been reached the concentration of the ligand in the assay chamber can be measured and analyzed to obtain the results of the assay. When the ligand is free in solution it can readily pass through the membrane, but when complexed, it is too large and is retained by the membrane.

Features

- High sample recovery
- Low protein binding
- Leak proof
- Autoclavable
- Easy to use

Applications

- Protein binding assays
- Protein-drug binding assays
- Receptor binding assays
- Ligand binding assays
- Protein-protein interactions
- Protein-DNA interactions

Ordering Information

Fast Micro Equilibrium Dialyzers

Chamber Volume	25 µl	50 µl	100 µl	250 µl	500 µl	1,000 µl	1,500 µl
Qty. of 1	7416-251D	7416-501D	7416-1001D	7416-2501D	7416-5001D	7416-10001D	7416-15001D
Qty. of 5	7416-255D	7416-505D	7416-1005D	7416-2505D	7416-5005D	7416-10005D	7416-15005D

Additional (Link) Chambers

Chamber Volume	25 µl	50 µl	100 µl	250 µl	500 µl	1,000 µl	1,500 µl
Qty. of 1	7416-251L	7416-5011L	7416-1001L	7416-2501L	7416-5001L	7416-10001L	7416-15001L
Qty. of 5	7416-255L	7416-505L	7416-1005L	7416-2505L	7416-5005L	7416-10005L	7416-15005L

Membranes (Qty. of 25)

For Chamber or Link Volume	25 µl to 100 µl	250 µl to 1,500 µl
Membrane Type, MWCO & Size	11/16" (17.1 mm) dia.	15/16" (23.8 mm) dia.
Regenerated Cellulose		
1 kDa MWCO	7416-RC1K	7415-RC1K
2 kDa MWCO	7416-RC2K	7415-RC2K
3.5 kDa MWCO	7416-RC3.5K	7415-RC3.5K
10 kDa MWCO	7416-RC10K	7415-RC10K
25 kDa MWCO	7416-RC25K	7415-RC25K
50 kDa MWCO	7416-RC50K	7415-RC50K
Cellulose Acetate		
500 Da MWCO	7416-CA500	7415-CA500
1 kDa MWCO	7416-CA1K	7415-CA1K
2 kDa MWCO	7416-CA2K	7415-CA2K
5 kDa MWCO	7416-CA5K	7415-CA5K
10 kDa MWCO	7416-CA10K	7415-CA10K
25 kDa MWCO	7416-CA25K	7415-CA25K
50 kDa MWCO	7416-CA50K	7415-CA50K
100 kDa MWCO	7416-CA100K	7415-CA100K
300 kDa MWCO	7416-CA300K	7415-CA300K
Polycarbonate		
0.01 µm Pore Size	7416-PC01	7415-PC01
0.05 µm Pore Size	7416-PC05	7415-PC05
0.10 µm Pore Size	7416-PC10	7415-PC10
0.60 µm Pore Size	7416-PC60	7415-PC60

Accessories

Item #	Description
74-1108	End Caps, solid, for 11/16" Chamber Inner Dia., qty. of 2
74-1099	End Caps, solid, for 15/16" Chamber Inner Dia., qty. of 2

DispoEquilibrium Dialyzers™ (Single Use)

DispoEquilibrium Dialyzer™

The DispoEquilibrium Dialyzer™ allows for equilibrium dialysis of samples from 25 µl to 75 µl with a built-in regenerated cellulose or cellulose acetate membrane. Optimal for binding and interaction studies, the DispoEquilibrium Dialyzer is made of inert PTFE allowing for maximum sample retention. Designed for one time use, the DispoEquilibrum Dialyzer is ideal in studies which use radiolabeled compounds, saving you the time of having to clean the chamber after each use.

Each DispoEquilibrium Dialyzer comes with two caps (one black, one white), two 0.65 ml sample tubes, and two pipette tips for sample delivery and recovery.

Features

- Small sample volumes: 25 µl to 75 µl each chamber
- Rapid dialysis due to ultra-thin membrane
- Leak proof
- High-quality regenerated cellulose membranes with MWCOs of 500 Da to 1,000 kDa
- Easy to use and disposable

Applications

- Protein and protein-drug binding assays
- Receptor binding assays
- Ligand binding assays
- Protein-protein and protein-DNA interactions

Ordering Information

Membrane Type & MWCO	Qty. of 25	Qty. of 50	Qty. of 100
Regenerated Cellulose			
1 kDa MWCO	74-2206	74-2207	74-2208
3.5 kDa MWCO	74-0034	74-0035	74-0036
10 kDa MWCO	74-2205	74-2202	74-2203
25 kDa MWCO	-	-	74-2218
50 kDa MWCO	-	-	74-2217
Cellulose Acetate			
500 Da MWCO	74-2212	-	-
25 kDa MWCO	-	-	74-2210
50 kDa MWCO	-	-	74-2211
100 kDa MWCO	74-2220	-	74-2219

Accessories

Item #	Description
74-2222	Pipette Tips for DispoEquilibrium Dialyzers, qty. of 100

Features

- Excellent sample recovery (>95%)
- Individual membrane for each well eliminates cross-contamination
- High well-to-well reproducibility
- Ultra-thin regenerated cellulose membranes
- Membranes are free of sulfur and heavy metal contamination

Applications

- Protein and protein-drug binding assays
- Receptor binding assays
- Ligand binding assays
- Protein-protein and protein-DNA interactions

96-Well DispoEquilibrium Dialyzer™ (Single Use)

96-Well DispoEquilibrium Dialyzer

The 96-Well DispoEquilibrium Dialyzer™ is a disposable equilibrium dialyzer for simultaneous assay of 96 samples. Each well has a separate membrane, eliminating the chance of cross contamination, and can hold samples volumes between 50 µl and 200 µl.

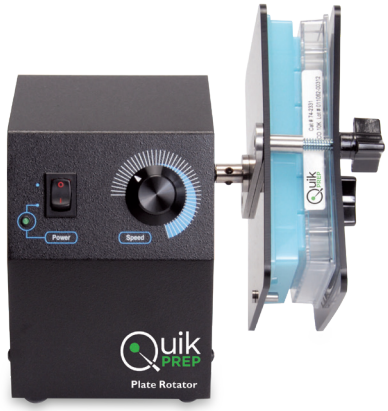
The plate is available with 10 kDa regenerated cellulose membranes. The wells can be sealed with either a pierceable self-sealing mat or through eight-cap strips which allow you to use the plate in sections, saving unneeded wells for future use. (Each plate comes with 24 eight-cap strips.)

96-Well DispoEquilibrium Dialyzer plates must be used with a plate rotator. (See Equilibrium Dialysis Accessories.)

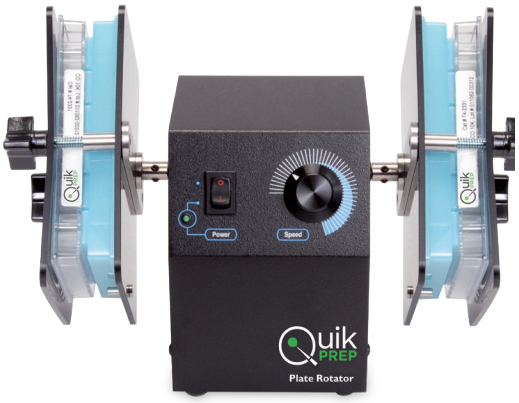
Ordering Information

Item #	Description
74-2331	96-Well DispoEquilibrium Dialyzer, 10 kDa MWCO Regenerated Cellulose Membrane, qty. of 1
74-2323	8-Cap Strip, pkg. of 12
74-2322	Plate Seal Mat, Pierceable, Self-Sealable, pkg. of 2

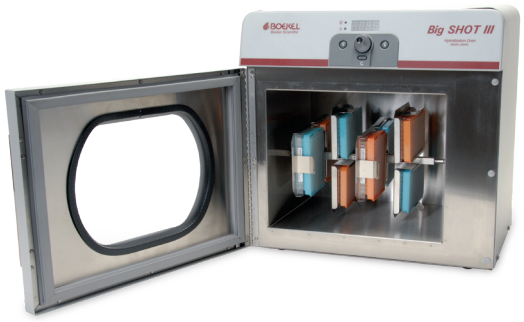
Equilibrium Dialysis Accessories



Single Plate Rotator



Dual Plate Rotator



8-Plate Rotator Incubator

Plate Rotators

QuikPrep Plate Rotators are intended for use with 96-well DispoEquilibrium Dialyzers. Single and Dual Plate Rotators have variable rotation rates. The rotator speeds up the equilibrium dialysis process by keeping the sample in constant motion thereby ensuring higher reproducibility of results.

The 8-Plate Rotator Incubator is used for temperature controlled studies. The Rotator Incubator consists of an oven and a special carousel to hold up to eight plates simultaneously.

Ordering Information

Item #	Description
74-2302	Single Plate Rotator, 110-240 V
74-2334	Dual Plate Rotator, 110-240 V
74-2335	8-Plate Rotator Incubator, 110 V
74-2336	8-Plate Rotator Incubator, 220 V
74-2337	Carousel Only for 8-Plate Rotator

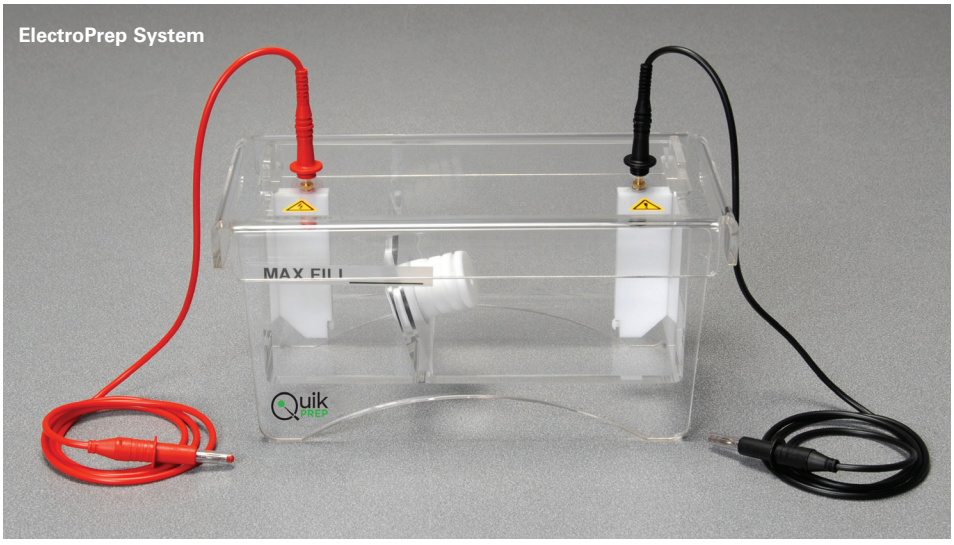
QuikPrep ElectroPrep™ Electrodialysis System

The QuikPrep ElectroPrep™ Electrodialysis System is an extremely versatile patented sample preparation technology that is capable of separating samples by both size and charge. It provides faster dialysis times due to movement of charged molecules in an electric field during dialysis, thus combining electrophoresis with dialysis. With a run-time of 5 to 10 minutes, ElectroPrep provides speed and convenience, even at the very low currents (5 to 10 mA) used with this system.

It is ideal for the rapid purification of proteins, nucleic acids, carbohydrates and other biomolecules. Membranes of different MWCO (molecular weight cut off), from 100 to 300,000 Daltons, can be used for selective buffer exchange, dialysis, filtration, concentration, fractionation and elution.

Assembly and Use

A functional ElectroPrep System consists of the ElectroPrep Tank, power supply, and one or more Dialyzer Units.



The ElectroPrep Tank (74-1196) is supplied with a tank, lid and connectors, and a replacement gasket. Power supply, power supply adapters, chambers, links, unions and membranes must be purchased separately.

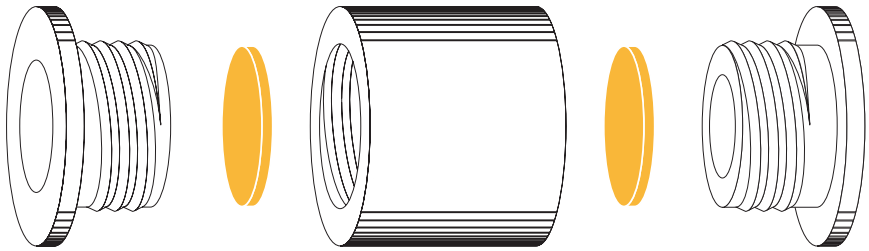
Features

- Faster dialysis times due to movement of charged molecules in the electric field
- Available for most sample sizes, large or small
- High sample recovery
- Leak proof
- Chambers made of autoclavable, inert PTFE

Applications

- Electro-elution from gels and solutions
- Electro-dialysis (with an average buffer exchange time of 5 to 10 minutes)
- Electroconcentration
- Selective electrofiltration
- Size fractionation
- Primer removal
- Salt removal
- Detergent removal
- Dye terminator removal

QuikPrep ElectroPrep™ Electrodialysis System *continued*



Example of basic Dialyzer Unit, unassembled, comprised of one dialysis chamber, two membranes and two end caps.

The ElectroPrep System uses at least one Dialyzer Unit to perform a sample electrodialysis. A basic Dialyzer Unit is comprised of a dialyzer chamber, dialysis membranes at one or both ends of the chamber and two end caps.

Dialyzer Units can be configured in a number of more complex ways to perform different applications using a combination of components:

- **Dialysis Chamber:** the major receptacles for either samples or dialyzed materials. Includes one main chamber with two open ports and two open end caps. The sample chambers are made of PTFE, an inert material especially suited for high sample recovery and are available in a range of 50 µl to 1,500 µl volumes. All Dialysis Chambers use 15/16" diameter membranes.

  -Two end caps may be used, one at the end of each chamber.

- **Union:** joins two dialysis chambers together.

  - Without membranes to make a larger volume chamber.

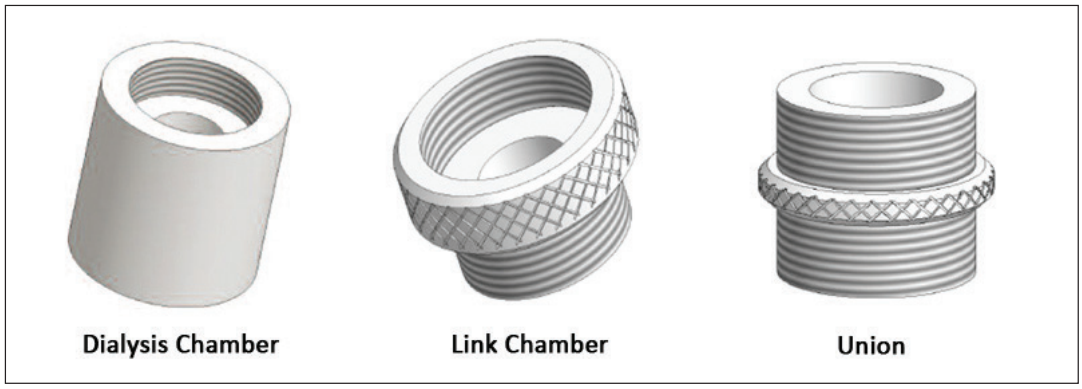
  - With dialysis membranes of appropriate MWCOs for serial dialysis. (The junction between a Dialysis Chamber and a Union accommodates the same size 15/16" diameter membranes as the junction between a Dialysis Chamber and its end cap).

- **Link Chambers:** may be used for concentration of dialyzed samples or for size fractionation of samples using membranes of different MWCOs. As with Unions, Link Chambers may also be connected to Chambers without membranes to make a larger volume chamber. Each Link Chamber comes with one open end cap. Primary and Secondary Link Chambers accept different size membranes at their junctions on either side facing the Dialysis Chamber or the Link Chamber cap.

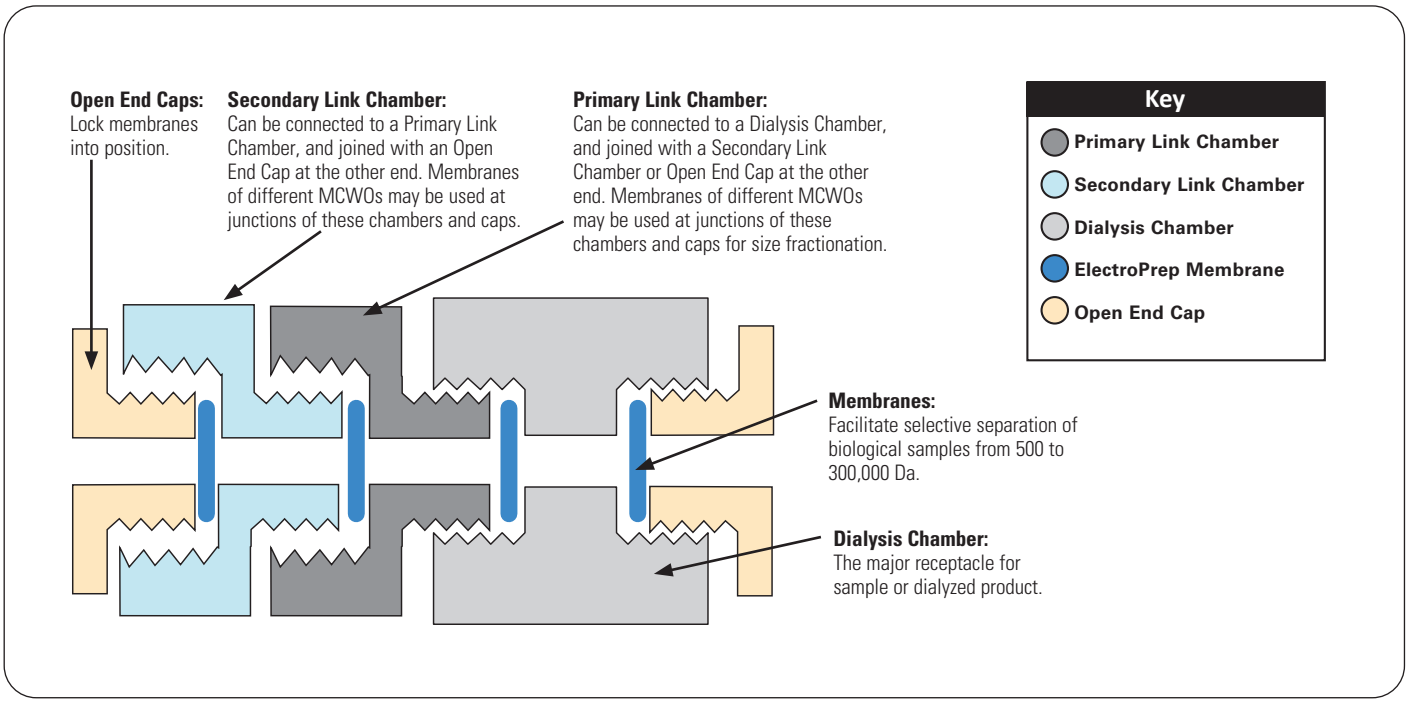
  - **Primary Link Chamber:** can be joined directly to a dialysis chamber on one end and joined to a cap or a secondary link chamber on the other end. Primary link chambers are available in a range of 50 µl to 1,500 µl volumes. The junction between a Dialysis Chamber and a Primary Link Chamber accepts a 15/16" diameter membrane and the junction between a Primary link chamber and a Secondary Link Chamber or cap accepts an 11/16" diameter membrane.

- **Secondary Link Chamber:** can be joined to a primary link chamber on one end and can be joined to a cap on the other end. Secondary link chambers are available in either 50 µl or 100 µl volumes. The junction between a Primary and Secondary Link Chambers accepts an 11/16" size membrane and the junction between a Secondary Link Chamber and its cap accepts a 7/16" diameter membrane.

• **Dialysis Membranes** are added at one or both ends or between Dialysis Chamber and/or Link Chambers and Unions. Membranes with MWCOs, ranging from 500 to 300,000 Daltons may be used in combination with different Dialysis and Link Chambers for selective elution, filtration, dialysis, fractionation and concentration of complex samples. Dialysis Membranes are available in three sizes: 7/16", 11/16", and 15/16" Membrane diameters are available. The Ordering Information at the end of this section indicates what diameter membrane is used for various components and chamber sizes.



NOTE: ElectroPrep dialysis chambers, unions, link chambers and membranes are purchased separately. Components required depend on configuration.



QuikPrep ElectroPrep™ Electrodialysis System *continued*

How to Select Your Chamber and Membrane Configuration

1. Decide upon your application, e.g., electrodialysis, electroelution, electrofiltration, electroconcentration, electroseparation.

2. Select a Dialysis Chamber able to hold the desired sample volume (50 to 1,500 µl.) Note that two Dialysis Chambers can be joined with a Union (with or without membranes added between the Union and Chambers) to increase sample volume (up to 600 or 3,500 µl).

3. Choose Dialysis Membranes of suitable size, type and MWCO depending on the application being done and the molecular weight of the biological molecule of interest.

a. Membrane Type: Take into account the membrane's suitability for use in aqueous or organic solvents.

- For organic solvents, use either regenerated cellulose or polycarbonate.
- For aqueous solutions, use cellulose acetate.

b. Membrane Size: Refer to the Ordering Information (at the end of this section) for which membrane diameter you need for each component in your configuration.

4. Assemble Dialysis Unit

- With one Dialysis Chamber, two membranes and two Open End Caps for desalting or buffer exchange. (Configuration #1)
- With two Dialysis Chambers of equal volume, three membranes, a Union, and two Open End Caps for electroseparation and electroelution. (Configuration #2)
- With Dialysis Chamber, three membranes, a smaller volume Link Chamber, and two Open End Caps for electroconcentration or electrofiltration. (Configuration #3)
- With Dialysis Chambers, six membranes of different MWCO, a Union, and multiple Link Chambers for electrofractionation. (Configuration #4)

Note: Configurations 1 to 4 are just a few examples of ElectroPrep Unit assembly. Additional configurations for electrofractionation are possible using additional combinations of Dialysis Chambers, Unions, Primary Link Chambers, and Secondary Link Chambers.

Example Configurations

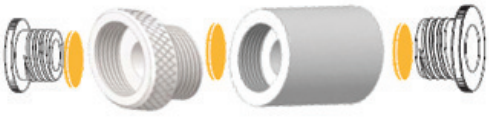
Most Basic: To Desalt or Buffer Exchange

Configuration #1: Single Chamber with two matching open-ended caps

Larger Volume Chambers: To Purify and Concentrate or Filter

Configuration #2: Two chambers connected with a union and enclosed with two matching open end caps.

Two Different Volume Chambers: To Selectively Concentrate



Configuration #3: Single chamber with primary link and two open end caps.

Complex Configuration: For Concentration/Filtration/Separation

Configuration #4: Two chambers connected with a union, each using a primary link that is enclosed with two matching open end caps.

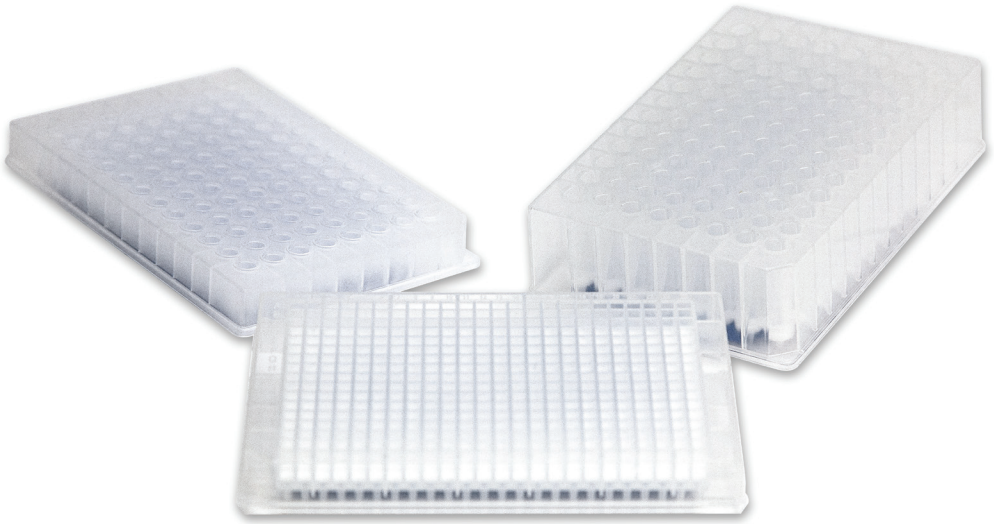
Ordering Information

Item #	Description
ElectroPrep Hardware	
74-1196	ElectroPrep Tank, with lid, gasket, 4 mm red and black connector cables
74-1197	ElectroPrep Replacement Connector Cables, 4 mm, red and black (1 each)
74-1103	Power Supply for Electroprep, 300 V, 500 mA, 90W
74-1113	Replacement Gasket, Qty. of 3
Dialysis Chambers, Qty. of 2, 15/16" Inner Diameter	
7411-502D	50 µl Chamber Volume
7411-1002D	100 µl Chamber Volume
7411-2502D	250 µl Chamber Volume
7411-5002D	500 µl Chamber Volume
7411-10002D	1,000 µl Chamber Volume
7411-15002D	1,500 µl Chamber Volume
Link Chambers, Qty. of 2	
7411-502L	50 µl Chamber Volume, (1) 11/16" Dia. Primary Link and (1) 7/16'' Dia. Secondary Link
7411-1002L	100 µl Chamber Volume, (1) 11/16" Dia. Primary Link and (1) 7/16'' Dia. Secondary Link
7411-2502L	250 µl Chamber Volume, (2) 11/16" Dia. Primary Links
7411-5002L	500 µl Chamber Volume, (2) 11/16" Dia. Primary Links
7411-10002L	1,000 µl Chamber Volume, (2) 11/16" Dia. Primary Links
7411-15002L	1,500 µl Chamber Volume, (2) 11/16" Dia. Primary Links
Unions (Dialysis Chamber Connectors), Qty. of 2, 15/16" Diameter	
74-1194	(1) 600 µl and (1) 3,500 µl to join Dialysis Chambers
ElectroPrep Membranes for All Dialysis Chambers (50 µl to 1,500 µl, 15/16" Diameter) Type and MWCO	
Regenerated Cellulose	
7410-RC1K	1 kDa MWCO
7410-RC2K	2 kDa MWCO
7410-RC3.5K	3.5 kDa MWCO
7410-RC10K	10 kDa MWCO
7410-RC25K	25 kDa MWCO
7410-RC50K	50 kDa MWCO
Cellulose Acetate	
7410-CA500	500 Da MWCO
7410-CA1K	1 kDa MWCO
7410-CA2K	2 kDa MWCO
7410-CA5K	5 kDa MWCO
7410-CA10K	10 kDa MWCO
7410-CA25K	25 kDa MWCO
7410-CA50K	50 kDa MWCO
7410-CA100K	100 kDa MWCO
7410-CA300K	300 kDa MWCO

Item #	Description
Polycarbonate	
7410-PC01	0.01 µm Pore Size
7410-PC05	0.05 µm Pore Size
7410-PC10	0.10 µm Pore Size
7410-PC60	0.60 µm Pore Size
ElectroPrep Membranes for Primary Link Chambers (50 µl to 250 µl, 11/16" Diameter) Type and MWCO	
Regenerated Cellulose	
7416-RC1K	1 kDa MWCO
7416-RC2K	2 kDa MWCO
7416-RC3.5K	3.5 kDa MWCO
7416-RC10K	10 kDa MWCO
7416-RC25K	25 kDa MWCO
7416-RC50K	50 kDa MWCO
Cellulose Acetate	
7416-CA500	500 Da MWCO
7416-CA1K	1 kDa MWCO
7416-CA2K	2 kDa MWCO
7416-CA5K	5 kDa MWCO
7416-CA10K	10 kDa MWCO
7416-CA25K	25 kDa MWCO
7416-CA50K	50 kDa MWCO
7416-CA100K	100 kDa MWCO
7416-CA300K	300 kDa MWCO
Polycarbonate	
7416-PC01	0.01 µm Pore Size
7416-PC05	0.05 µm Pore Size
7416-PC10	0.10 µm Pore Size
7416-PC60	0.60 µm Pore Size
ElectroPrep Membranes for Primary Link Chambers (500 µl to 1,500 µl, 11/16" Diameter) Type and MWCO	
Regenerated Cellulose	
7425-RC1K	1 kDa MWCO
7425-RC2K	2 kDa MWCO
7425-RC3.5K	3.5 kDa MWCO
7425-RC10K	10 kDa MWCO
7425-RC25K	25 kDa MWCO
7425-RC50K	50 kDa MWCO

ElectroPrep Membranes for Primary Link Chambers (500 µl to 1,500 µl, 11/16" Diameter) Type and MWCO (cont)	
Item #	**Description**
Cellulose Acetate	
7425-CA500	500 Da MWCO
7425-CA1K	1 kDa MWCO
7425-CA2K	2 kDa MWCO
7425-CA5K	5 kDa MWCO
7425-CA10K	10 kDa MWCO
7425-CA25K	25 kDa MWCO
7425-CA50K	50 kDa MWCO
7425-CA100K	100 kDa MWCO
7425-CA300K	300 kDa MWCO
Polycarbonate	
7425-PC01	0.01 µm Pore Size
7425-PC05	0.05 µm Pore Size
7425-PC10	0.10 µm Pore Size
7425-PC60	0.60 µm Pore Size
ElectroPrep Membranes for Secondary Link Chambers (50 µl, to 100 µl, 7/16" Diameter) Type and MWCO	
Regenerated Cellulose	
7424-RC1K	1 kDa MWCO
7424-RC2K	2 kDa MWCO
7424-RC3.5K	3.5 kDa MWCO
7424-RC10K	10 kDa MWCO
7424-RC25K	25 kDa MWCO
7424-RC50K	50 kDa MWCO
Cellulose Acetate	
7424-CA500	500 Da MWCO
7424-CA1K	1 kDa MWCO
7424-CA2K	2 kDa MWCO
7424-CA5K	5 kDa MWCO
7424-CA10K	10 kDa MWCO
7424-CA25K	25 kDa MWCO
7424-CA50K	50 kDa MWCO
7424-CA100K	100 kDa MWCO
7424-CA300K	300 kDa MWCO
Polycarbonate	
7424-PC01	0.01 µm Pore Size
7424-PC05	0.05 µm Pore Size
7424-PC10	0.10 µm Pore Size
7424-PC60	0.60 µm Pore Size

Membrane-Bottom Filter Plates



Membrane-bottom polypropylene filter plates bring convenience and speed to sample filtration on a microliter to milliliter scale. The individual sample wells or chambers have separate high-strength single or dual filter membranes to provide rapid filtration rates and to eliminate leakage or cross-talk between adjacent wells.

All filter plates feature rigid polypropylene construction for chemical resistance and low binding and meet SBS footprint for use in robotic systems. Standard filter membranes include: glass fiber, PVDF polypropylene, polyethylene and polyethersulfone. Patent pending sealing process guarantees no well-to-well cross talk or weeping and allows superior recovery performance.

Ordering Information

Item #	# of Wells	Well Capacity	Plate Material/Membrane Type/Size	Drip Length	Qty
74-5551	96	400 µl	PP/PES/10 kDa MWCO	Short	Pkg. of 5
74-5552	96	400 µl	PP/PES/30 kDa MWCO	Short	Pkg. of 5
74-5585	96	400 µl	PP/PES/100 kDa MWCO	Short	Pkg. of 5
74-5586	96	400 µl	PP/PES/300 kDa MWCO	Short	Pkg. of 5
74-5553	96	300 µl	PP/GF/1.2 µm pore size	Short	Pkg. of 10
74-5554	96	300 µl	PP/PVDF/0.45 µm pore size	Short	Pkg. of 10
74-5555	96	400 µl	PP/PVDF/0.45 µm pore size	Long	Pkg. of 5
74-5556	96	800 µl	PP/PVDF/ 0.45 µm pore size	Long	Pkg. of 5
74-5557	96	2 ml	PP/PP/0.45 µm pore size	Long	Pkg. of 5
74-5558	96	2 ml	PP/PE, UHMW, with frit/25 µm pore size	Long	Pkg. of 5
74-5559	48	5 ml	PP/PE frit, 25 µm pore size	Long	Pkg. of 5
74-5580	384	140 µl	PP/GF/0.7 µm pore size	Long	Pkg. of 5

Key to membrane types:

PP = polypropylene PES = polyethersulfone GF = glass fiber PVDF = polyvinylidene difluoride
UHMW PE = ultra-high molecular weight polyethylene PE = polyethylene

Features

- High recoveries of both filtrates and particulate retentates
- Multi-well format for simultaneous filtration of 384, 96 or 48 different samples
- Individual filter membranes to avoid cross-talk between adjacent wells
- High well-to-well reproducibility
- Range of membrane types and sizes
- Suitable for vacuum manifold filtration or centrifugal filtration

Applications

- Nucleic acid binding
- DNA binding
- DNA/RNA purification
- Purification of PCR products
- High-throughput preparation of YAC DNA
- High-throughput drug synthesis
- Bead/resin based assays
- Cell-based receptor binding assays
- Size exclusion
- Concentrate, purify and desalt proteins, peptides, oligos, DNA and RNA
- Recover proteins, oligos and RNA from polyacrylamide gels
- Filtration and filtrate collection

Filter Plate Accessories

Storage/collection plates and reagent reservoirs are natural polypropylene, low binding, and resistant to heat, chemicals and biological materials. Robotic friendly with industry standard dimensions. Available with pyramid or V-bottom format for maximum recovery. Universal lids, pierceable and solid plate seals are compatible with all storage/collection plates and reservoirs.

Ordering Information

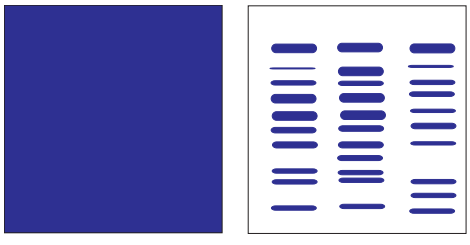
Item #	Description
74-5576	24-well Storage Plate, 10 ml, Pyramid Bottom, pkg. of 25
74-5567	48-well Storage/Collection Plate, 5 ml, Rectangle Well, Pyramid Bottom, pkg. of 5
74-5566	96-well Storage/Collection Plate, 2 ml, Square Well, Pyramid Bottom, pkg. of 5
74-5565	96-well Storage/Collection Plate, 1.1 ml, Square Well, "V" Bottom, pkg. of 5
74-5568	384-well Storage/Collection Plate, 35 µl, Square Well, Conical Bottom, pkg. of 10
74-5564	8-row Partitioned Reservoir, 32 ml, Pyramid Bottom, pkg. of 5
74-5563	12-columned Reservoir, 21 ml, Pyramid Bottom, pkg. of 5
74-5562	384-well Reservoir, Low Profile, 7 µl, Pyramid Bottom, pkg. of 5
74-5561	96-well Reservoir, 2.5 ml, Pyramid Bottom, pkg. of 5
74-5571	96-well Plate Seal, Solid, for 2 ml Storage Plate, pkg. of 10
74-5570	96-well Plate Seal, Pierceable, for 2 ml Storage Plate, pkg. of 10
74-5569	Universal Lid for Filter Plates, Polystyrene, Clear, pkg. of 10

CoZap™ Electrophoresis Destaining Pads

CoZap is used for rapid removal of Coomassie Blue stain from electrophoresis gels without the need to change the destaining solution. CoZap is a unique pad that has a high absorbence for Coomassie blue stain and is thus very effective in destaining gels. CoZap absorbs any free dye in the solution making gel destaining 20% faster than with conventional method. It is one of the most effective destaining methods on the market.

Using CoZap is easy:

1. Place the CoZap pad in your destaining tank.
2. Remove the gel after destaining.



Before After

Features

- Speeds up Coomassie destaining
- Reusable for destaining several gels
- Available in multiple sizes and quantities
- Easy to use

Applications

- Coomassie dye removal
- SDS-PAGE gel destaining
- PDF Western blot destaining

Ordering Information

Size	Qty. of 25	Qty. of 100	Qty of 200
76 x 76 x 2 mm	74-6800	74-6801	-
76 x 38 x 2 mm	-	74-6802	74-6803

Selected References

The following is a selection of published papers using QuikPrep products.

Amino SpinColumns

Benktander JD, Gizaw ST, Gaunitz S, Novotny, MV. Analytical Scheme Leading to Integrated High-Sensitivity Profiling of Glycosphingolipids Together with N-and O-Glycans from One Sample. *J Am Soc Mass Spectrom.* 2018 Jun;29(6):1125-1137. doi: 10.1007/s13361-018-1933-y.

C-4 Reverse Phase SpinColumns

Belabassi Y, Chao CK, Holly R, George KM, Nagy JO, Thompson CM. Preparation and characterization of diethoxy-and monoethoxy phosphylated ('aged') serine haptens and use in the production of monoclonal antibodies. *Chem Biol Interact.* 2014 Nov 5;223:134-40. doi: 10.1016/j.cbi.2014.09.010.

C-18 Reverse Phase SpinColumns

Ahrné E, Martinez-Segura A, Syed AP, et al. Exploiting the multiplexing capabilities of tandem mass tags for high-throughput estimation of cellular protein abundances by mass spectrometry. *Methods.* 2015 Sep 1;85:100-107. doi: 10.1016/j.ymeth.2015.04.032.

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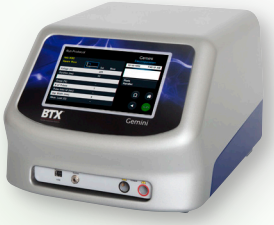

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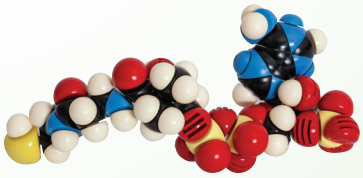

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