



SAMPLE PREPARATION

Aurum™ Ion Exchange Mini Kits and Columns

- **Powerful separation capabilities**
- **Patented* UNOsphere™ technology**
- **Easy, flexible format**

Simplified Purification of Target Proteins

Fractionation of Complex Mixtures

Fractionation of proteins in a sample is a crucial step in a variety of research fields, including protein discovery. Ion exchange is a chromatographic technique that allows selective enrichment of either acidic or basic proteins. Easy-to-use Aurum ion exchange mini kits offer the power of ion exchange chromatography without the need for expensive chromatography systems or a sophisticated knowledge of chromatographic techniques. These kits can be used with many starting samples, such as serum, bacteria, yeast, or cultured cells, and include columns for cation exchange (CEX) or anion exchange (AEX) chromatography. Aurum ion exchange mini kits simplify protein discovery with streamlined protocols and flexible column and buffer options. They are suitable for routine prefractionation and purification as well as sample screening. Isolated proteins are suitable for most downstream proteomic applications, including 2-D gel analysis and mass spectrometry.

Ion Exchange Chromatography

Ion exchange chromatography can be used to concentrate and purify proteins based on their ionic character. Both a protein's charge at a given pH and its isoelectric point (pI), the pH at which its net charge is zero, can be exploited for purification.

When an ion is applied to an ion exchanger carrying the opposite charge, it is adsorbed to the resin, while uncharged molecules and ions of the same charge do not bind to the ion exchanger and pass through the column. Because binding of ions is competitive and reversible, adsorbed proteins or other large ions are commonly eluted by a salt or pH gradient. Cation exchangers contain negatively charged functional groups covalently bound to a solid support matrix, while anion exchangers contain positively charged functional groups. Generally, the type of exchanger to use will depend on whether your protein of interest is basic or acidic.

Support Type	Protein of Interest
CEX	Basic
AEX	Acidic



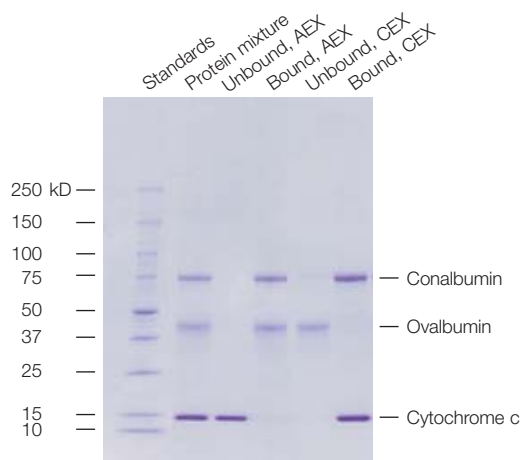
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Media and Buffers

Aurum ion exchange mini kits are packed with UNOsphere S and Q media, a new generation of hydrophilic polymers developed using Bio-Rad's patented* polymerization technology. UNOsphere ion exchange media are specially developed to deliver efficient protein capture and ultrahigh protein binding capacity.

Protein Prefractionation With Aurum Ion Exchange Mini Columns

A mixture of three proteins differing in pI and molecular weight was fractionated on Aurum AEX and CEX columns (see figure below). The complementary fractionation patterns obtained for AEX and CEX columns demonstrate both the principles of ion exchange chromatography and the effectiveness of these mini columns.



Comparison of protein fractionation characteristics of Aurum AEX and CEX columns. A mixture of three proteins, ovalbumin (pI 4.6, MW 45,000), conalbumin (pI 6.9, MW 77,000), and cytochrome c (pI 10.7, MW 12,000), was run on a Criterion™ Tris-HCl precast gel, 4–20% linear gradient (catalog #345-0033) in Tris/glycine/SDS buffer at 200 V for 60 min. Standards used were Precision Protein™ standards.

Properties of Aurum ion exchange columns.

	Aurum CEX	Aurum AEX
Type of support	UNOsphere S	UNOsphere Q
Binding capacity	12 mg protein/column*	36 mg protein/column*
Column bed volume	0.2 ml	0.2 ml
Binding buffer	20 mM sodium acetate, pH 5.0	20 mM Tris, pH 8.3
Elution buffer	Binding buffer + 1.0 M NaCl	Binding buffer + 1.0 M NaCl

* Binding capacity determined using IgG (CEX) and BSA (AEX). Capacity will differ slightly depending on the protein.

Ordering Information

Description	Kits*		Columns (Bulk)*	
	2 pack	10 pack	25 pack	100 pack
Aurum AEX mini	732-6710	732-6705	732-6706	732-6707
Aurum CEX mini	732-6711	732-6702	732-6703	732-6704
Aurum Affi-Gel® Blue mini**	732-6712	—	732-6708	732-6709
Aurum serum protein mini**	732-6713	732-6701	—	—
Catalog #	Description			
156-0101	UNOsphere Q Support, 25 ml			
156-0111	UNOsphere S Support, 25 ml			

* Kits include columns, buffers, collection tubes, instructions; columns include columns and instructions only.

** Aurum Affi-Gel Blue and serum protein mini affinity purification products are especially useful for removal of albumin and IgG prior to 2-D gel analysis.



Aurum ion exchange mini kits and columns are components of the ProteomeWorks system, the global alliance between Bio-Rad Laboratories, Inc. and Waters Corporation (Micromass MS Technologies), dedicated to furthering proteomics research.

* US patent 6,423,666

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**Bio-Rad
Laboratories, Inc.**

Life Science
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Italy 39 02 216091 Japan 03-5811-6270 Korea 82-2-3473-4460 Latin America 305-894-5950 Mexico 52 5 534 2552 to 54
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