

Sample Preparation



ProteoMiner™ Protein Enrichment Technology

Digging Deeper in
the Proteome

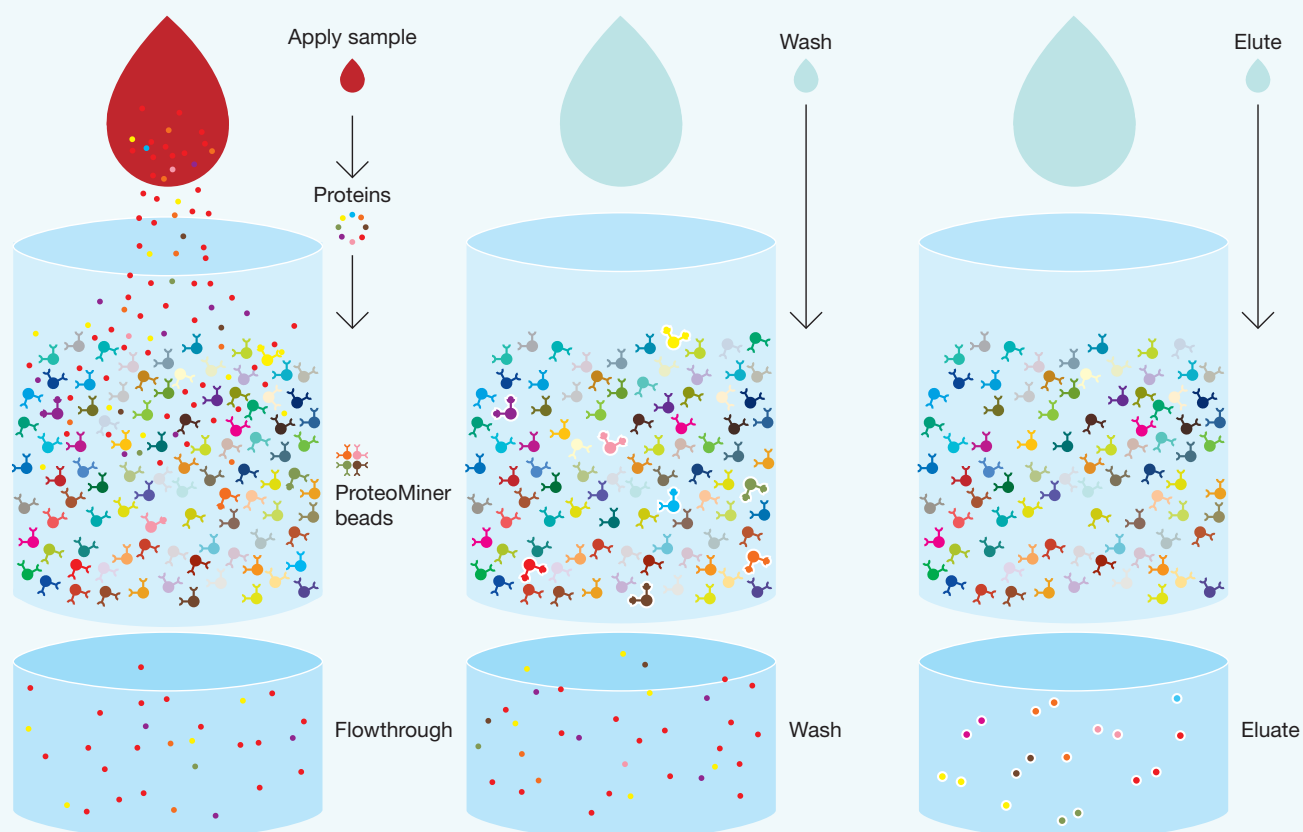
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ProteoMiner Protein Enrichment Kits

Uncover Low-Abundance Proteins

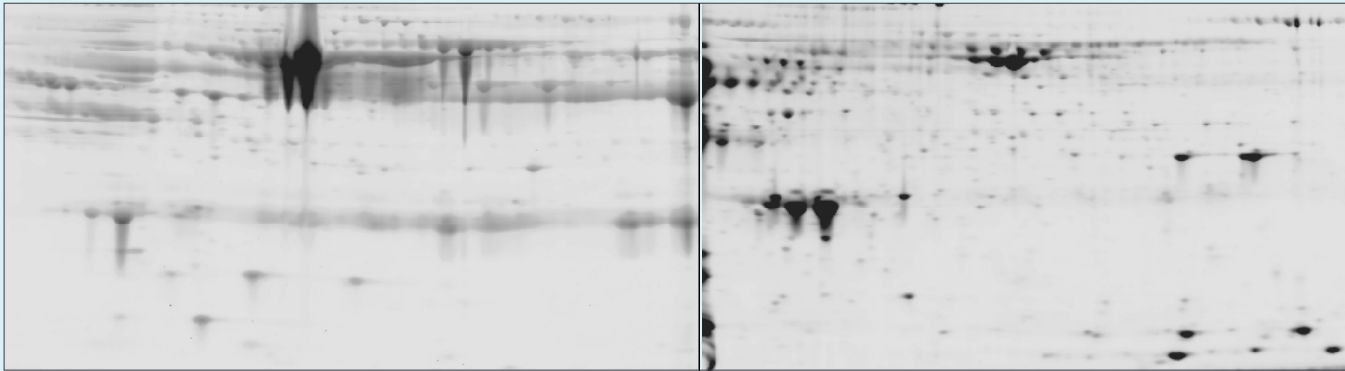
ProteoMiner protein enrichment technology is a novel sample preparation tool used for the compression of the dynamic range of protein concentrations in complex biological samples. The presence of high-abundance proteins in complex biological samples (for example, albumin and IgG in serum or plasma) makes the detection of medium- and low-abundance proteins extremely challenging. ProteoMiner technology provides a method for overcoming this challenge, allowing the exploration of the entire proteome.



ProteoMiner technology is based on treatment of complex protein samples with a large, highly diverse library of hexapeptides bound to chromatographic supports. In theory, each unique hexapeptide binds to a unique protein sequence. Because the bead capacity limits binding capacity, high-abundance proteins quickly saturate their ligands and excess protein is washed out during the procedure. In contrast, low-abundance proteins are concentrated on their specific ligands, thereby decreasing the dynamic range of proteins in the sample. When analyzed in downstream applications, the number of proteins detected is dramatically increased.

Untreated

Treated



The ProteoMiner protein enrichment kit improves resolution and spot counts in 2-D gels. In an untreated sample, albumin and other high-abundance proteins dominate the gel, obscuring signals from less abundant proteins. In a gel generated using an equal amount of total protein from a treated serum sample, however, resolution is dramatically improved and a greater number of protein spots are visualized.

Key Benefits

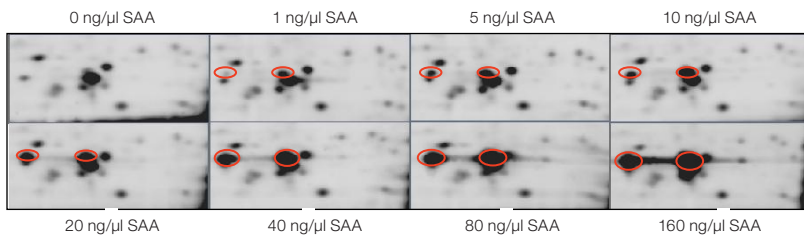
- Decreases the amount of high-abundance proteins without immunodepletion; prevents the loss of proteins bound to high-abundance proteins, which are inadvertently lost with immunodepletion products
- Enriches and concentrates low-abundance proteins that cannot be detected through traditional methods
- Can be used to decrease the dynamic range of the protein concentration in a variety of samples and is not dependent on a predefined set of antibodies as are immunodepletion products
- Can be used for differential expression analysis
- Is compatible with current downstream protein analysis techniques

Convenient Format

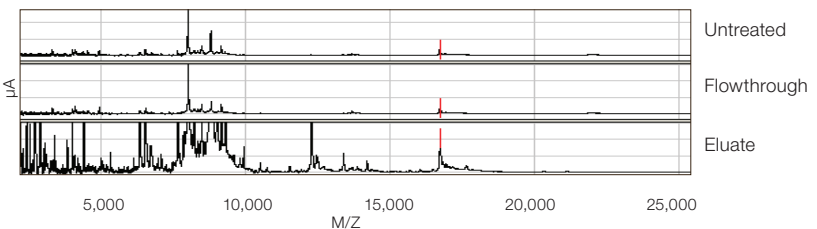
- Spin column format is easy to use
- Onetime use avoids potential for contamination from carryover between samples
- All necessary columns and reagents provided in kit format

Discover More Proteins

Whether you use one- or two-dimensional (1-D or 2-D) gel electrophoresis, chromatography, surface-enhanced laser desorption/ionization (SELDI), or other mass spectrometry technologies for your downstream analysis, ProteoMiner kits provide a tool for digging deeper in the proteome.

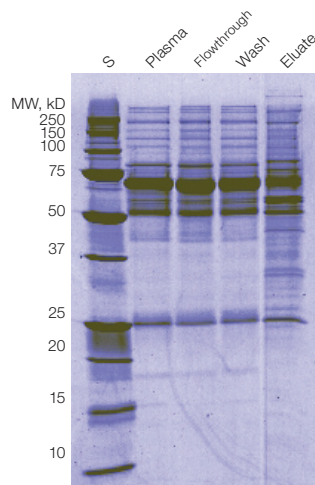


ProteoMiner technology enriches proteins while maintaining the relative expression levels of low- to medium-abundance proteins. A series of plasma samples were spiked with different concentrations of serum amyloid A (SAA), treated with the ProteoMiner protein enrichment kit, and analyzed by 2-D gel electrophoresis. The relative intensities of the SAA spots are proportional to the amount of SAA added.



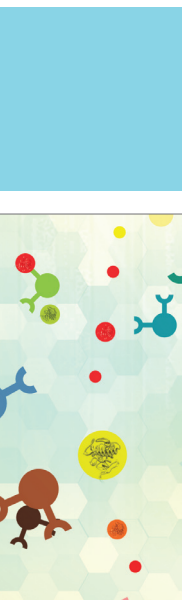
The ProteoMiner protein enrichment kit improves peak counts in SELDI analysis.

SELDI analysis of untreated plasma reveals 170 peaks, while plasma treated with the ProteoMiner protein enrichment kit (eluate) yields 263 peaks, or 55% more. One peak (red lines) was selected to show the enrichment experienced after the sample was treated with the ProteoMiner kit. The peak was very small before treatment and much larger after treatment, demonstrating enrichment of the corresponding protein.



SDS-PAGE analysis of ProteoMiner kit-treated plasma.

A plasma sample (1 ml) was treated with the ProteoMiner protein enrichment kit, and 75 μ g protein each from the original sample (lane 2), flowthrough (lane 3), wash (lane 4), and elution fractions was analyzed by SDS-PAGE. S, Precision Plus Protein™ standard.



Multiple Kits Available

To provide flexibility for use with multiple downstream applications, two kit formats are available (ProteoMiner protein enrichment kit and ProteoMiner sequential elution kit). These kits have been optimized for use with serum and plasma samples, but they may be used with other sample types with at least 50 mg total protein available.

ProteoMiner Protein Enrichment Kit

The ProteoMiner protein enrichment kit provides columns and all necessary reagents for accessing low-abundance proteins in a variety of biological samples and is compatible with the majority of downstream proteomics applications. The full-size kit can be used to process up to ten samples, while the introductory kit can be used to process two samples.

- Utilizes single elution reagent in simple, easy-to-perform process
- Provides maximum compatibility with downstream applications

ProteoMiner Sequential Elution Kit

The ProteoMiner sequential elution kit is available for researchers who wish to elute their proteins into multiple fractions to detect additional proteins. This kit has been optimized for SELDI experiments and provides columns and reagents for processing up to ten samples (reagents are not compatible for direct use with 2-D gel electrophoresis).

- Multiple elution reagents sequentially elute proteins based on different properties
- Fractionates proteins to improve detection and resolution of proteins for SELDI analysis

Ordering Information

Catalog #	Description
163-3000	ProteoMiner Protein Enrichment Kit , 10 preps, includes 10 spin columns, wash buffer, elution reagents, collection tubes
163-3001	ProteoMiner Introductory Kit , 2 preps, includes 2 spin columns, wash buffer, elution reagents, collection tubes
163-3002	ProteoMiner Sequential Elution Kit , 10 preps, includes 10 spin columns, wash buffer, 4 sequential elution reagents, collection tubes
163-3003	ProteoMiner Sequential Elution Reagents , 10 preps, includes reagents only (columns not included), to be used with catalog #163-3000

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