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AlbuSorb™

Albumin Depletion From Serum or Plasma

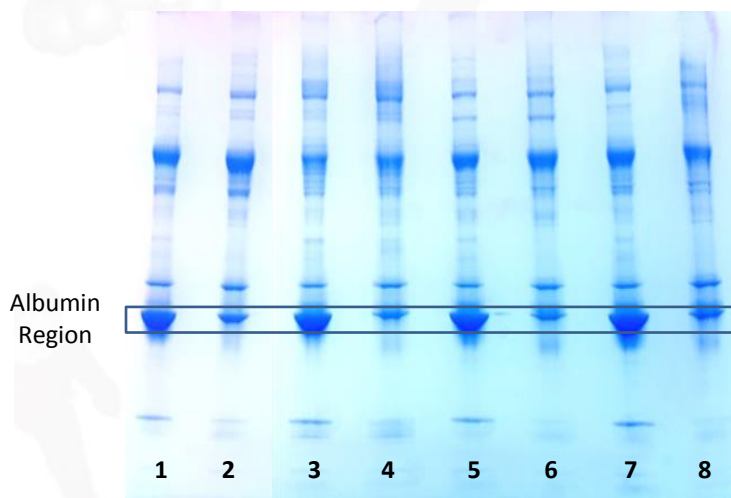
- Removes 30 mg albumin/ml, >90%
- Affinity-type equivalence, virtually no cross-reactivity with other proteins
- Disposable, no column regeneration or cross-contamination
- Economical new surface technology, not based on blue-dye or immuno-affinity chromatography
- Mild binding conditions maintains tertiary structure and simple transfer to secondary analysis
- The flow-through (unbound) fractions retain their enzymatic and biological activity
- Removes albumin from most species including human, sheep, bovine, mouse, goat, rat, and calf.

Poly-electrolytes are polymers with repeating units of stationary charges. **AlbuSorb™** comes from a class of solid-phase, or bead-based, elastomeric poly-electrolytic beads that bind proteins through an empirically derived chemistry combining elements of polymer composition, cross-linking architecture and charge properties. As with bio-polymers like DNA and Heparin, governing their reactivity is the spatial presentation of the electrostatic groups along a flexible polymer chain.

Unlike immuno-affinity, the surfaces utilized are disposable eliminating cycle to cycle variance and cross-contamination. **AlbuSorb™** is supplied as a powder. Simply weigh, centrifuge and/or filter, and recover the albumin depleted serum in the supernatant.

Cancer Sera Before and After AlbuSorb™

- 1: Normal pooled serum control
- 2: Flow-through from normal serum
- 3: Breast cancer pooled serum control
- 4: Flow-through from breast cancer serum
- 5: Lung cancer pooled serum control
- 6: Flow-through from lung cancer serum
- 7: Pancreatic cancer pooled serum control
- 8: Flow-through from pancreatic cancer serum



Gel Image: SDS-PAGE non-reduced,
Criterion™ Tris.HCl (Bio-Rad) 4-15%

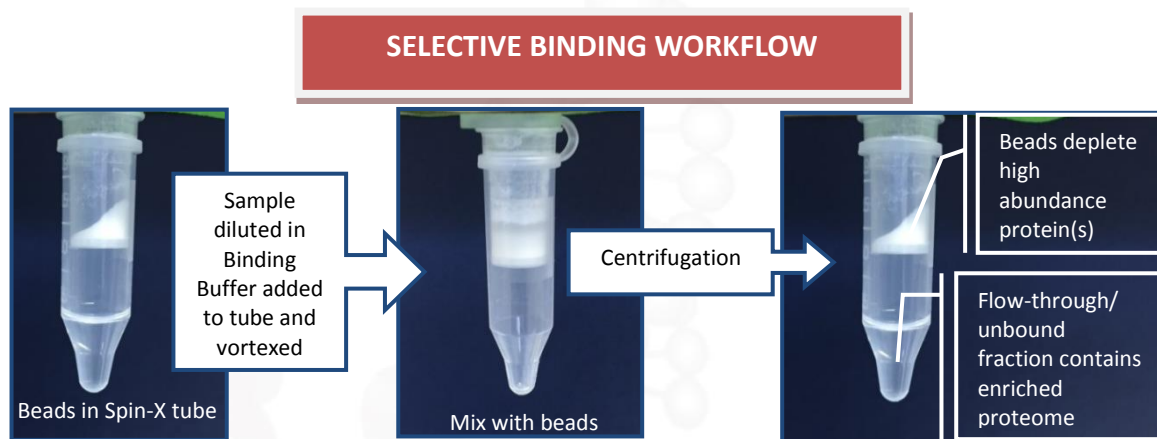
Note: All samples are from human female ages 40-60



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Product	Size	# Serum Preps	Item No.
AlbuSorb™	1 gram	20, 25 µl Serum Samples	A185-1
AlbuSorb™	6 grams	120, 25 µl Serum Samples	A185-6

Items	Item No	Item No	Reagent
AlbuSorb™	A185-1 (1 gram)	A185-6 (6 grams)	Supplied
Binding Buffer BB1 (0.05M K₂HPO₄ Dibasic, pH 7.5)	30 ml	180 ml	Supplied



Typical Performance	AlbuSorb™	AlbuSorb™ PLUS
Serum Sample Volume	25 µl	25 µl
Albumin Removal	>90%	>85%
Immunoglobulin Removal	-	>85%
Recovered Protein Mass	500-600 µg (Albumin depleted)	400-500 µg (Albumin + Ig depleted)
LC-MS/MS unique proteins (single 3 hr gradient)	350-400	350-400



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AlbuSorb™ Applications

Sample Type	Disease	Analysis
Rat serum	Cancer	MALDI
Rat serum	Diabetes	Western Blot
Human Synovial fluid	Rheumatoid Arthritis	2DE
Human Urine Exosomes	Diabetes	LC-MS/MS SRM

PROTOCOL – Based on processing 25 µl Serum

For best results – the lysate should be clear and free of colloidal material. We recommend first filtering through a 0.45 µm syringe-type filter before beginning the prep.

1. Weigh out 50 mg of **AlbuSorb™** powder in a spin-tube/microfuge tube.
2. Add 400 µl of **Binding Buffer BB1** to condition the **AlbuSorb™** powder. Shake it manually/vortex for 3 min and then centrifuge for 2 minutes at 1,000 g's. Discard the supernatant.
3. Repeat step-2
4. As a requirement for albumin binding, add 250 µl of the **BB1 Buffer** and then add 25 µl of the serum to **Step 3**. Mix for 10 minutes on a rotating shaker.
5. Centrifuge for 4 minutes at 9,000 g's, **supernatant contains serum proteins minus albumin. Note – when observing proteins on SDS-PAGE (4-15%), other proteins migrate to the same region as Albumin, and may not be fully resolved.**
6. Optionally the pellet (**mostly albumin**) can be eluted with 200 µl of **stripping buffer (0.2M Tris + 0.5M NaCl, pH 10 by mixing on a shaker for 10 min)** and centrifuge for 4 minutes at 9,000 g's.

The protocol can be scaled up or down proportionally to adjust for different serum volumes. The surface amount can be adjusted to accommodate more or less albumin removal.



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References

Exosome

Chettimada, Sukrutha, et al. "[Exosome markers associated with immune activation and oxidative stress in HIV patients on antiretroviral therapy.](#)" *Scientific Reports* 8.1 (2018): 7227.

Cerebrospinal Fluid

Gwenael Pottiez, Pawel Ciborowski. [Proteomic Profiling of Cerebrospinal Fluid Expression Profiling In Neuroscience](#) *NeuroMethods*.2012;64:245-270

Synovial fluid

Happonen KE, Fürst CM, Saxne T et al. [PRELP protein inhibits the formation of the complement membrane attack complex.](#) *Journal of Biological Chemistry*.2012;287(11):8092-100

Serum

Nelson K, Wilkinson, S. et al., [High resolution accurate mass spectrometry-based proteomics in ecotoxicology: SWATH-MS to detect differentially expressed plasma proteins in the amphibian toxicological model *Xenopus laevis*.](#) Poster: Conference: PRIMO20, May 2019

Holmberg R, Refai E, Höög A. [Lowering apolipoprotein CIII delays onset of type 1 diabetes.](#) *Proceedings of the National Academy of Sciences*.2011;108(26):10685-9.

Tang MX, Ogawa K, Asamoto M. [Effects of Nobiletin on PhIP-Induced Prostate and Colon Carcinogenesis in F344 Rats](#) *Nutrition and Cancer*.2011;63(2):227-33

Holmberg, Rebecka [Apolipoprotein CIII and Ljungan virus in diabetes](#) 2010. Doctoral Thesis

Lu Q, Zheng X, McIntosh T [Development of different analysis platforms with LC-MS for pharmacokinetic studies of protein drugs.](#) *Analytical Chemistry*.2009;81(21):8715-23

Cell/Tissue Culture Media

"AlbuSorb™ worked very well for us. We removed at least 90% of the albumin from our 10% FBS conditioned medium samples", states Joseph Sucic, University of Michigan.

Urine

Zubiri, Irene, et al. [Diabetic nephropathy induces changes in the proteome of human urinary exosomes as revealed by label-free comparative analysis.](#) *Journal of Proteomics* (2013).

Patent

Berggren, Per Olaf, Yang, Shao-Nian. 2012. [Methods For Treating And/Or Limiting Development Of Diabetes.](#) U.S. Patent 20120328630 Kind Code: A1, filed June 25, 2012, and issued December 27, 2012.



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