



Proteomic and Genomic Sample Preparation and Enrichment



Albumin Depletion

Enrichment of Low Abundance Serum/Plasma Proteins

AlbuVoid™

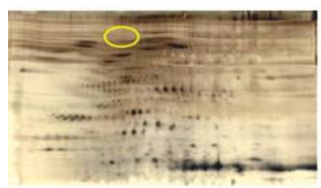
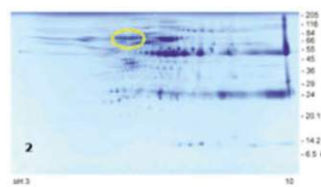
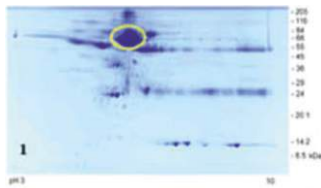
Selectively Voids Albumin

- Albumin voids in flow through, >95%
- <30 minute protocol
- Low abundance enrichment equivalent or better than hexapeptides or antibodies
- On-bead digestion protocols, efficient LC-MS workflows
- Disposable, cost-effective, no column regeneration or cross-contamination
- Mild elution maintains native structure with retained enzymatic and functional activities
- Species agnostic

Typical Performance*

Serum Sample Volume	: 200 µl
Albumin Removal	: >95%
LC-MS unique peptides	: 600-800
Protocol Time	: 30 min.
Total Low Abundance Protein Recovery	: >95%

2DE analysis of AlbuVoid™ treated sheep serum. Samples were reduced, alkylated and total protein normalized. The circled regions indicate the albumin zone.
Gel 1: Sheep serum sample.
Gel 2: AlbuVoid™ Eluate.
Gel 3: Same as 2 - AlbuVoid™ Eluate but restained with SilverQuest (Invitrogen) silver stain. The differences between the gels illustrate the efficiency of albumin removal, with no intrinsic pI or MW bias.



* Estimates based on SDS-PAGE visualization combined with Total Protein Assay.

Product	Size	Item No.
AlbuVoid™	5 Preps	AVK-05
AlbuVoid™	10 Preps	AVK-10
AlbuVoid™	50 Preps	AVK-50

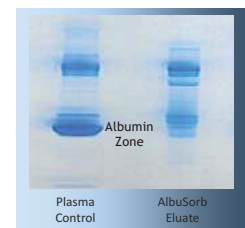
Based on 200 µl serum preps

AlbuSorb™

Selectively Binds Albumin

- Removes 30 mg albumin/ml, >90%
- Economical small ligand-type surface architecture, affinity-type selectivity
- Disposable, cost-effective, no column regeneration or cross-contamination
- Mild elution maintains native structure with retained enzymatic and functional activities
- Species agnostic
- Compatible with:

1. LC-MS
2. Chemical
3. Functional Proteomics



Product	Size	# of preps	Item No.
AlbuSorb™	6 gm	170	A185-6
AlbuSorb™	18 gm	510	A185-18

Based on 25 µl serum preps

AlbuTrial™ Kit

Don't know which one to try? Try both. AlbuTrial™ kit is a combination of AlbuSorb™ and AlbuVoid™ with respective buffers.

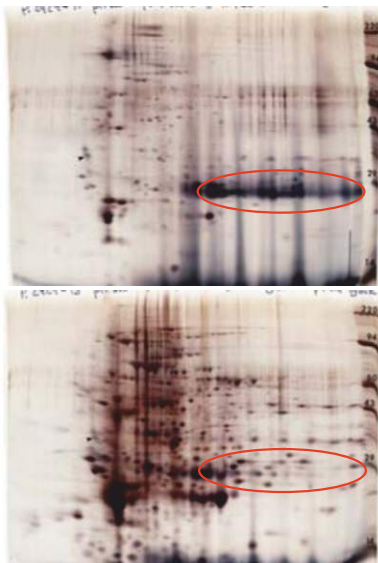
Product	Size	Item No.
AlbuTrial™ Kit	1 gram AlbuSorb™ 5 Preps AlbuVoid™	AVS-05

Hemoglobin Depletion and /or Enrichment

HemoVoid™

Hemoglobin Depletion For Erythrocyte Proteomics

- Hemoglobin voids in flow-through >98%
- <30 minute bind/wash/elute protocol
- Ideal for erythrocyte proteomics
- Depletion from heavily hemolyzed serum, blood and dried blood spot/blood card
- Applicable to hemoglobin variant analysis
- Low abundance protein and enzyme enrichment
- Disposable, cost-effective
- Native structure uncompromised with simple transfer to post-treatment interrogations
- Species and tissue agnostic
- Compatible with LC-MS, activity-probe profiling and virtually all proteomic analyses
- On-bead digestion protocols



2DE Comparison

Red circles indicate the Hemoglobin subunits region. The HemoVoid™ eluate (bottom) has been severely depleted of Hemoglobin. The remainder of the red cell proteins are substantially enriched (visualized) and are better resolved in the HemoVoid™ eluate. Many more proteins are detectable after HemoVoid™ treatment with extensive protein coverage across both dimensions.

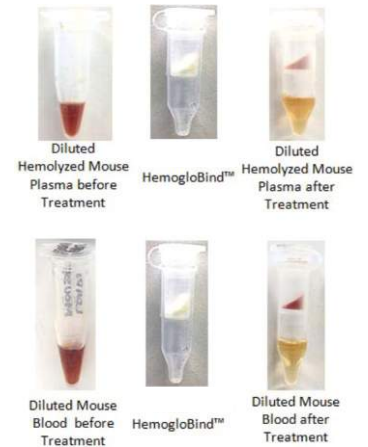
Product	Size	Item No.
HemoVoid™	10 Preps	HVK-10
HemoVoid™	50 Preps	HVK-50
HemoVoid™	100 Preps	HVK-100

Based on 300 µl preps

HemogloBind™

Removes Hemoglobin Interference

- Has a high degree of specificity for hemoglobin binding up to 10 mg/ml
- Depletion from hemolyzed serum and whole blood
- Applicable to hemoglobin variant analysis
- Native structure uncompromised with simple transfer to post-treatment interrogations
- Species and tissue agnostic
- Compatible with LC-MS, activity-probe profiling and proteomic analyses



Product	Size	Item No.
HemogloBind™	15ml	H0145-15
HemogloBind™	50ml	H0145-50

1:1 v:v ratio processes up to 10 mg/ml hemolyzed serum

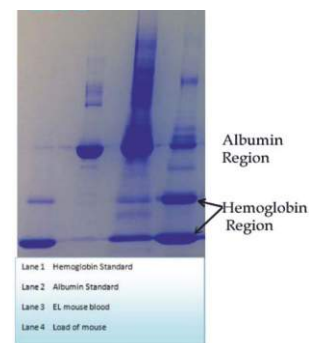
HemoTrial™ Kit

Don't know which one to try? Try both. HemoTrial™ kit is a combination of HemogloBind™ and HemoVoid™ with respective buffers.

Product	Size	Item No.
HemoTrial™ Kit	5 ml HemogloBind™ + 5 Preps HemoVoid™	HTK-05

HemoVoid™ Blood Card Kit

The HemoVoid™ Blood Card kit was designed to substantially reduce hemoglobin interference from dried blood card protein analytes.



Product	Size	Item No.
HemoVoid™ Blood Card	10 Preps	HVBC-10
HemoVoid™ Blood Card	50 Preps	HVBC-50

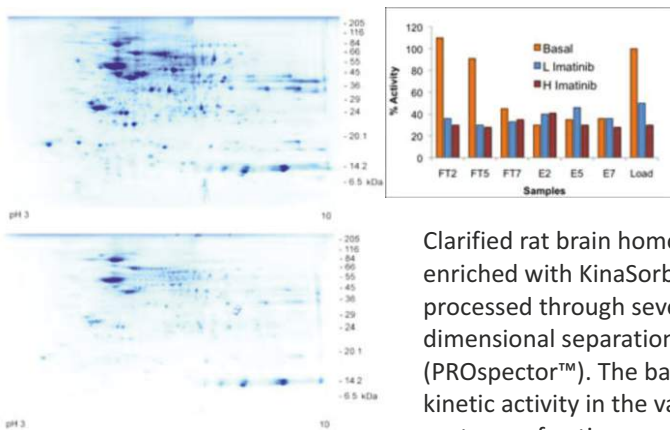
Based on 0.5" dried blood spot, ~ 15 µl whole blood

Class Specific Enrichment

KinaSorb™

Kinase (& ATP binding proteins) enrichment reagent

- Non-covalent immobilization of phosphate group with optimal nucleotide orientation & specificity
- Enrichment 3-5X, binding protein recoverable, ~200 µg
- 60 minute, scalable protocol compatible with functional assays, electrophoresis and LC-MS
- Phosphatase activity & cyclic nucleotide phosphodiesterase (PDE) activity not detectable
- Improves protein normalization when comparing heterogeneous tissues
- On-bead digestion protocols



Clarified rat brain homogenate was enriched with KinaSorb™ and then processed through several multi-dimensional separations surfaces (PROspector™). The bars reflect kinetic activity in the various sub-proteome fractions as a percentage of activity in the load applied to the surfaces. The numbers designate the different surface architectures. FT: Flow through, E: elution, L: low Imatinib inhibitor concentration, H: high Imatinib inhibitor concentration.

Top – Rat Brain Homogenate. Bottom – after KinaSorb™, ATP binding proteins, and presumably some small carryover proteins are visualized. Methods to monitor drug response are provided in the example on right.

Product	Size	Item No.
KinaSorb™ 10	10	KE785-10
KinaSorb™ 50	50	KE785-50

Based on 100 µl tissue homogenate preps

Viraffinity™ / ViraPrep™

Virus Enrichment & Purification

- Purifies whole infectious non-enveloped virus, isolates antigenic virions
- Enriches for viral proteins and nucleic acids
- No ultracentrifugation
- Used for monitoring vaccine immune response

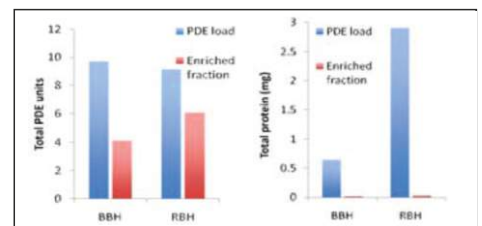
Product	Size	Item No.
Viraffinity™	15 ml reagent only	V1062-15
Viraffinity™	50 ml reagent only	V1062-50
ViraPrep™ Mammal	For 40 ml cell culture	VPM-40
ViraPrep™ Mammal	For 400 ml cell culture	VPM-400

ViraPrep™ Lambda processes Lambda information. DNA. See Price List for order

PDEnrich™

Cyclic Nucleotide Phosphodiesterase Enrichment Reagent

- Enrichment 4-10X, PDE protein recoverable, ~70 µg
- Up to 50X concentration of PDE volume
- 45 minute, scalable protocol
- Improves protein normalization when comparing heterogeneous tissues
- On-bead digestion protocols



On the left is a comparison of enriched Bovine Brain Homogenate (BBH) and Rat Brain Homogenate (RBH) before and after treatment with PDEnrich™. A substantial amount of cAMP hydrolysis activity* is recovered in both cases with a severe reduction in total protein content.

Product	Size	Item No.
PDEnrich™	10	PD545-10
PDEnrich™	50	PD545-50

Based on 100 µl tissue homogenate

NuGel™ PBA Kit

Glycoprotein Enrichment Using Phenyl Boronic Acid

- Enriches heterogeneous sets of glycoprotein's, N-linked & O-linked
- Disposable, no column regeneration
- Species and tissue agnostic
- Sorbitol elution; compatible with functional assays, electrophoresis and LC-MS

Sample Type	%Glycoprotein relative to starting sample (Sorbitol Elution)
Mouse Plasma	33
Rat Serum	44
Sheep Serum	18
Bovine Serum	40
Bovine Brain Homogenate	9

Product	# of preps	Item No.
NuGel™ PBA Kit	10	NGPBA-10
NuGel™ PBA Kit	50	NGPBA-50

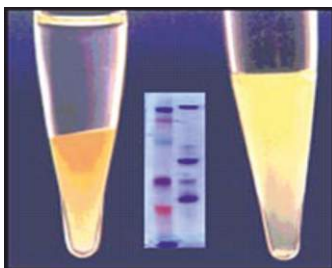
Based on 50 µl serum preps

Sample Preparation

Cleanascite™

Lipid Adsorption & Clarification

- Effectively replaces chlorinated/fluorinated hydrocarbons (eg. freon)
- Helps purify antibodies, proteins, nucleic acids, proteoglycans, and assorted serum components
- Ideal for clarifying ascites, serum, cell & tissue culture, bile and organ homogenates
- Clarifies saliva and feces
- Cited in over 35 bioseparation articles
- Extends the life of membrane and chromatographic apparatus
- Ideal for bioprocessing of recombinant proteins, monoclonal antibodies



Egg Yolk Clarification

Insert : PAGE Showing

Left : Markers

Right : IgY and other major protein fractions recovered

Product	Quantity (ml)	Process Volume (ml)*	Item No.
Cleanascite™	100	400	X2555-100
Cleanascite™	1000	4000	X2555-1000

*Based on typical volume ratios, can be adjusted to lipid load

Cleanascite™ PRO

Lipid Adsorption for Proteomics

- 2nd generation product based on highly cited lipid removal platform; < non-specific binding
- Removes phospholipid matrix interference
- Enrich lipid associated proteins
- On-bead digestion protocols
- Compatible with N-Octyl Glucoside and other membrane protein detergents
- Simple and fast

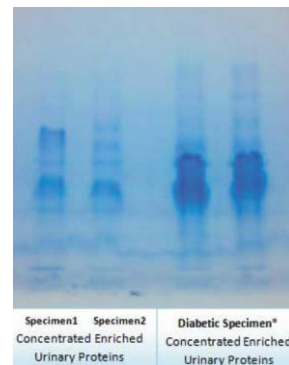
Product	Quantity (ml)	Process Volume (ml)*	Item No.
Cleanascite™	100	400	X2555-100
Cleanascite™	1000	4000	X2555-1000

*Based on typical volume ratios, can be adjusted to lipid load

UPCK™ Kit

Urine Protein Enrichment & Concentration

- Linearly scaleable, unlike ultrafiltration
- Alternative to solvent/alcohol precipitation
- On-bead digestion protocols
- <60 min. bind, wash and elute protocol
- Applicable to >1 & 2 DE> LC-MS > microarrays
- The eluted fractions retain their enzymatic and biological activity



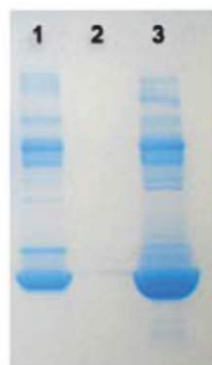
Product	# of Preps	Item No.
UPCK™ Kit	10	UPCK-10
UPCK™ Kit	25	UPCK-25

Based on 10 ml urine samples

BindPro™ Metabolomics

Protein Removal & Enrichment of Metabolites/Analytes

- Serum and plasma protein removal, >95%
- Linearly scaleable, unlike chemical precipitation or membrane filtration.
- < 30 minute protocol
- Applicable for drug binding/screening and metabolomics
- Tissue, species agnostic



Lane 1 : Plasma Control

Lane 2 : Plasma after treatment with BindPro™ Metabolomics.

Note: Protein bands are not present. Indicated quantitative protein binding to BindPro™ Metabolomics surface.

Lane 3 : Eluent from BindPro™ Metabolomics.

Note: If necessary, proteins bound can be quantitatively recovered from BindPro™ Metabolomics.

Product	# of Preps	Item No.
BindPRO™	15	BPM55-15
BindPRO™	50	BPM55-50

Based on 25-30 µl serum

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