



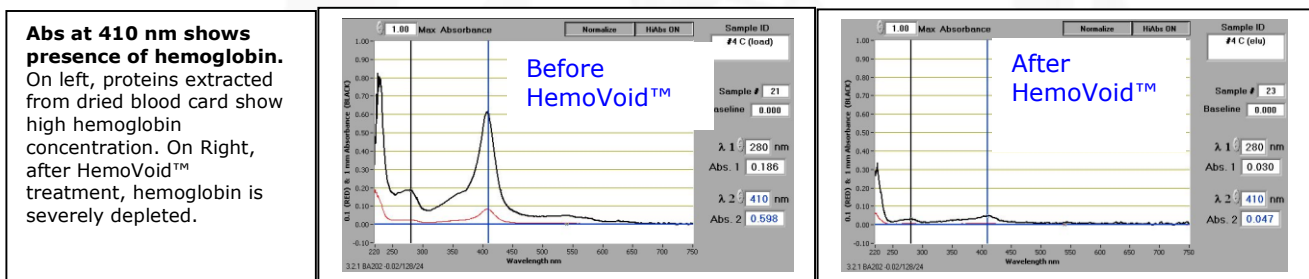
BIOTECH SUPPORT GROUP

HemoVoid™ Blood Card Reagent *Hemoglobin Depletion And Protein Enrichment From Dried Whole Blood Cards*

- Hemoglobin voids in flow-through >98%, with <30 minute bind/wash/elute protocol
- Hemoglobin removal from whole blood lysates extracted from dried blood cards
- Blood proteins and enzymes are enriched for potential biomarker and proteomic studies.
- Hemoglobin removal from frozen and fresh whole blood.
- Removes hemoglobin from diverse species incl. human, sheep, bovine, goat, rat, etc.

Hemoglobin is a common contaminant from dried whole blood cards and not normally found in serum samples. The HemoVoid™ Blood Card protocol was designed to substantially reduce the presence of hemoglobin and its associated interference with many serum protein analytes.

HemoVoid™, a silica-based mixed mode matrix, removes hemoglobin from dried whole blood card samples. The HemoVoid™ protocol uses mild buffers; the protocol conditions are so gentle that native enzyme activity is retained in elution fractions.



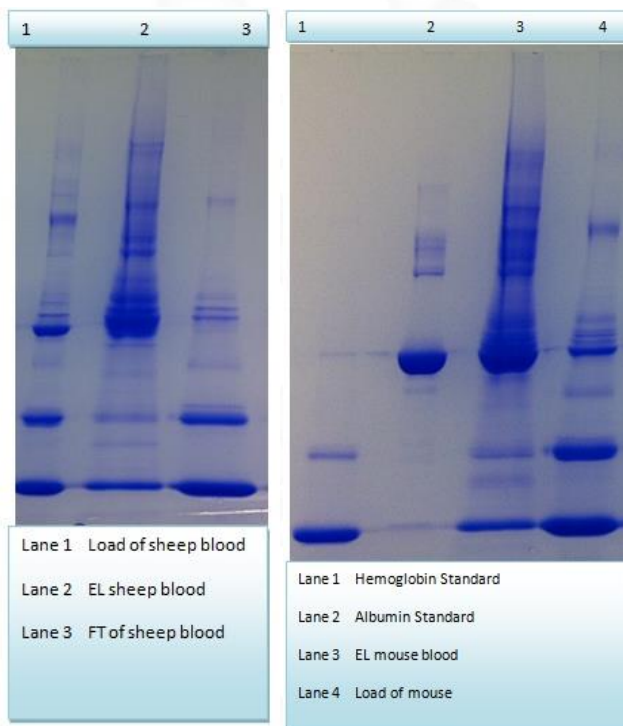


BIOTECH SUPPORT GROUP

SDS Page (4-20%)

Sheep Blood(left)

Mouse blood (right)



Product	# of samples processed	Item No.
HemoVoid™ Blood Card	10 Dried Whole Blood Card 0.5" Spots	HVBC-10
HemoVoid™ Blood Card	50 Dried Whole Blood Card 0.5" Spots	HVBC-50
NOTE: Please contact sales@biotechsupportgroup.com for prices in bulk amount.		

Kit Content	10 Prep	50 Prep	Reagent
HemoVoid™	0.5 gram	2.5 grams	Supplied
Protein Extraction Buffer PEB	5 ml	25 ml	Supplied
Binding Buffer HVBB, PH 6.0	15 ml	75 ml	Supplied
Wash Buffer HVWB, PH 7.0	15 ml	75 ml	Supplied
Elution Buffer HVEB, PH 9.8	3 ml	15 ml	Supplied
SpinX Centrifuge tube filters	10	50	Supplied
Suggested Or Equivalent Supplier of Blood Card: Whatman 903™ Protein Saver cards			Not Supplied



BIOTECH SUPPORT GROUP

HemoVoid™ Protocol For Hemoglobin Depletion From Blood Spot/Blood Card

Based on processing 20-50 µl whole blood applied to and dried on Whatman 903™ Protein Saver cards (approximately equivalent to the imprinted 0.5" circle)

1. **Extraction of dried protein from the card.** Punch out the dried blood section from the card into a microfuge tube. Add 400 µl PEB buffer. Shake for 30 minutes at room temperature. Microfuge at 5000 rpm for 4 minutes. Transfer the protein sample to microtube.
2. Weigh out 50 mg of **HemoVoid™** matrix into the supplied SpinX filter.
3. Add 400 µl of **Binding Buffer HVBB** to the SpinX filter. Vortex or mix well for 5 minutes at room temperature followed by centrifugation at 3000 rpm. Discard the supernatant.
4. Repeat step 3.
5. Add 300 µl of **Binding Buffer HVBB** to the SpinX filter. Add 300 µl of the Sample prepared in step 1 to the same SpinX filter. Vortex for 10 min and then centrifuge for 2 minutes at 5000 rpm.
6. Discard the hemoglobin containing filtrate.
7. To the pellet, add 500 µl of **Wash Buffer HVWB**. Vortex or mix well for 5 min and centrifuge for 2 minutes at 5000 rpm. Discard the filtrate.
8. Repeat Step 7, twice.
9. To the pellet, add 200 µl of **Elution Buffer HVEB**. Vortex or mix well for 10 min and centrifuge for 2 minutes at 5000 rpm. Analyze the hemoglobin depleted elute protein.

Related HemoVoid™ References

Human Red Blood Cells (RBC)

[HemoVoid™ On Bead Digestion Application Work On RBC](#) by Irene Granlund, *Umeå University*

Red Blood Cells, Plasmodium extracts

Machado, Patrícia Isabel Pires. *Pyruvate kinase and glucose-6-phosphate dehydrogenase deficiencies and their association with malaria-population genetics and proteomic studies*. Diss. Universidade do Porto, 2013.



BIOTECH SUPPORT GROUP

Walpurgis, Katja, et al. "[Effects of gamma irradiation and 15 days of subsequent ex vivo storage on the cytosolic red blood cell proteome analyzed by 2D DIGE and Orbitrap MS.](#)" *PROTEOMICS-Clinical Applications* (2013).

P. Falciparum Clone 3D7 Cultured In Human Erythrocytes

Lasonder E, Green JL, Camarda G, Talabani H, Holder AA, Langsley G, Alano P. [The Plasmodium falciparum schizont phospho-proteome reveals extensive phosphatidylinositol and cAMP-Protein Kinase A signalling.](#) *J Proteome Research*. 2012;

Red Blood Cell Lysate

Barasa, Benjamin, and Monique Slijper. "[Challenges for red blood cell biomarker discovery through proteomics.](#)" *Biochimica et Biophysica Acta (BBA)-Proteins and Proteomics* 1844.5 (2014): 1003-1010.

Lange, Philipp F., Pitter F. Huesgen, Karen Nguyen, and Christopher M. Overall. "[Annotating N termini for the Human Proteome Project: N termini and N \$\alpha\$ -acetylation status differentiate stable cleaved protein species from degradation remnants in the human erythrocyte proteome.](#)" *Journal of proteome research* (2014).

Katja Walpurgis, Maxie Kohler, Andreas Thomas et al. [Validated hemoglobin-depletion approach for red blood cell lysate proteome analysis by means of 2D-PAGE and Orbitrap MS.](#) *Electrophoresis*.2012;

Mizukawa, B., George, A., Pushkaran, S. et al. [Cooperating G6PD mutations associated with severe neonatal hyperbilirubinemia and cholestasis.](#) *Pediatric Blood Cancer*.2011;56: 840-842.

Sudha Neelam, David G Kakhniashvili, Stephan Wilkens et al. [Functional 20S proteasomes in mature human red blood cells](#) *Experimental Biology and Medicine*.2011;236:580-591

CONTACT US

We welcome your questions, comments and concerns regarding our products.

Call	732-274-2866, Monday – Friday 9am-6pm EST.
Fax	732-274-2899
Email	sales@biotechsupportgroup.com ,
Mail	1 Deer Park Drive, Suite M, Monmouth JCT, NJ 08852, USA