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Technical Brief

Native Bovine Folate Binding Protein

Folate Binding Protein (FBP) from bovine milk is now available from Scripps Laboratories for research use or diagnostic assay development. Bovine FBP has a high affinity for human folate (vitamin B9), making it a valuable component of clinical assays for serum folate. Folate is a key nutrient for growth, development and for the normal function of red blood cells and neural tissue. Low serum levels of folate are associated with anemia and several neurological conditions. Structurally, FBP is a single-chain monomer with multiple N-linked glycosylation sites. It contains significant glycosylation and has a MW range of 30-35 kDa.[1,2] The MW variability can be seen in the SDS-PAGE data below.

1. Salter and Blakeborough. Br. J. Nutr., 1988, (59): 497-507.
2. Svendsen, Martin, Pedersen, et al. Carlsberg Res. Commun., 1979, (44): 89-99.

SDS-PAGE

Figure 1 presents an SDS-PAGE image of purified native bovine FBP. Two MW variants are apparent in both the reduced/heated and non-reduced/heated samples. The two bands fall within the reported MW range of 30-35 kDa and are likely due to glycosylation differences.

HPLC

Analyzed by HPLC, the profile of native bovine FBP in Figure 2 displays a single peak with a retention time of 19.453 min. The absence of any minor peaks confirms it is a highly purified protein with no discernible contaminants.

SDS-PAGE

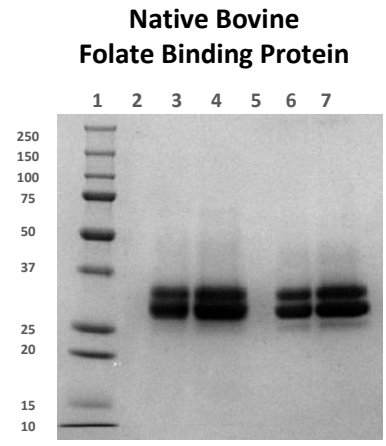

Figure 1. SDS-PAGE of native bovine Folate Binding Protein under reduced/heated (lanes 3,4) and non-reduced/heated (lanes 6,7) conditions.

HPLC

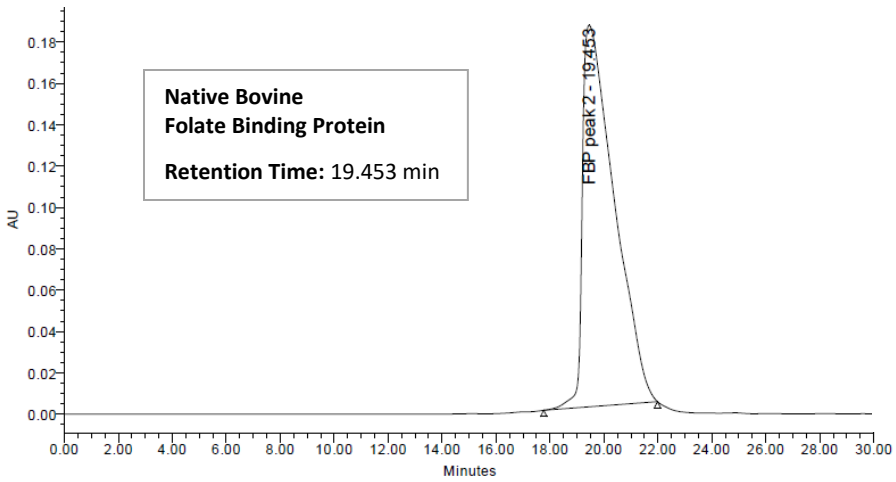

Figure 2. HPLC profile of native bovine Folate Binding Protein. Analysis was performed using a Biozen 3 µm dSEC-2, 200 Å, 300 x 7.8 mm column.

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FOLATE (VITAMIN B9) BINDING ASSAY

The key characteristic of FBP in a clinical assay format is its ability to consistently and reliably bind folate. Table 1 displays the purity and folate-binding activity of three lots of FBP from Scripps Laboratories. Purity is consistently 99% among all three lots and the binding activities vary by less than 10%. Purity is determined by HPLC and binding activity is assessed using a competitive-binding folate assay on a Roche cobas® 8000 instrument.

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The data presented here demonstrate that native bovine FBP from Scripps Laboratories is a highly-purified protein and displays consistent folate-binding capabilities. It is isolated from bovine milk, which enables large-scale manufacturing for the long term. Bulk lots are available with excellent lot-to-lot consistency. FBP from Scripps is suitable for use in a research setting or in the development of a clinical diagnostic assay for folate.

Bovine Folate Binding Protein is in stock and available now. Use the link at right to learn more.

LOT-SPECIFIC PURITY & BINDING ACTIVITY

FBP SAMPLE	PURITY BY HPLC	BINDING ACTIVITY
Lot 2845403	99%	40.5 µg folate/mg protein
Lot 2857901	99%	37.1 µg folate/mg protein
Lot 2882701	99%	37.4 µg folate/mg protein

Table 1. Analysis of the binding activity of native bovine Folate Binding Protein. Binding activity was determined using a competitive-binding folate assay on a Roche cobas® 8000. Results are expressed as micrograms of folate/vitamin B9 bound per milligram of total protein.

Ordering Information

Product Description	Cat. No.	Part No.	
Folate Binding Protein, Bovine	F0524	90589	*View F0524-90589*

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