

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.

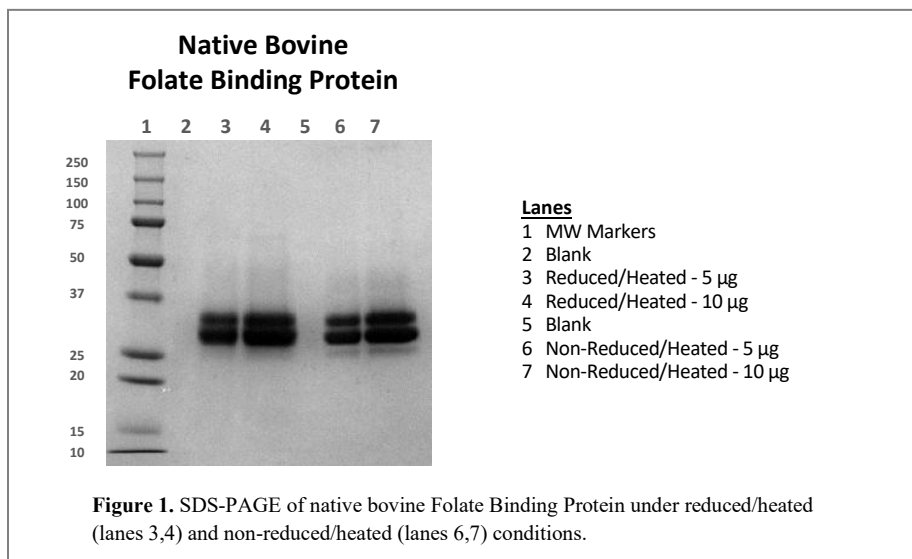
SDS-PAGE

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.

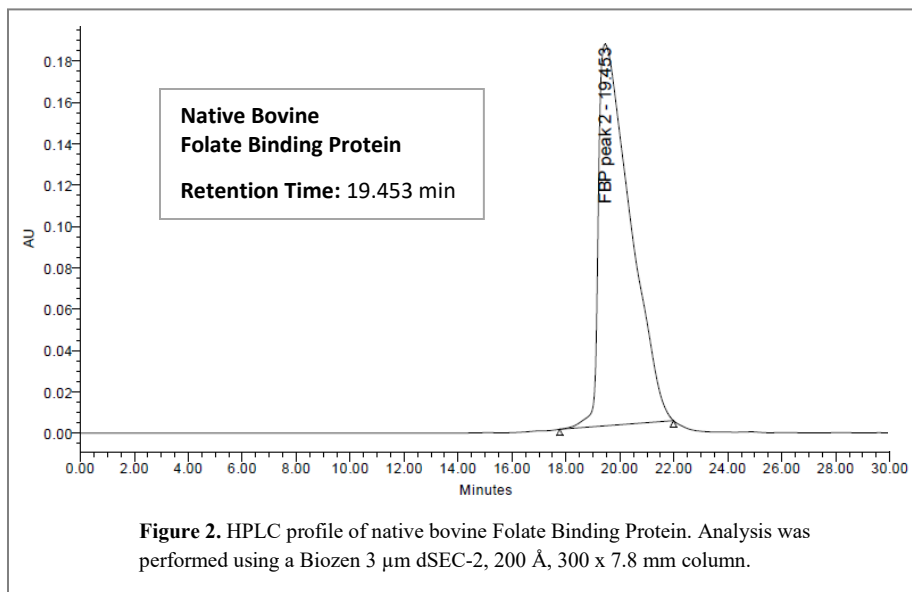
HPLC

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



HPLC



**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 folate-binding activity is assessed using an in-house assay, employing a commercial immunoassay system.

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 folate-binding activity of native bovine FBP. A specially designed in-house assay was used to determine the folate-binding capacity of FBP, using a commercial immunoassay system to measure folate. Results are expressed as micrograms of folate/vitamin B9 bound per milligram of total protein.

Ordering Information

<u>Product Description</u>	<u>Cat. No.</u>	<u>Part No.</u>	
Folate Binding Protein, Bovine	F0524	90589	View F0524-90589

