

## FABPs: an Overview

Fatty acid binding proteins (FABPs) were first discovered more than 30 years ago in the cytosol of rat intestinal enterocytes.<sup>1</sup> It is now appreciated that FABPs constitute an ancient family of low molecular mass proteins (14-15 kDa) having high affinity binding constants for endogenous fatty acids and small exogenous lipophilic ligands. Even though the true physiological roles of these proteins are not known, studies have suggested that they are involved in uptake and metabolism of fatty acids, in the maintenance of cellular membrane fatty acid levels, in intracellular trafficking of these substrates, in the modulation of specific enzymes of lipid metabolic pathways and in the modulation of cell growth and differentiation.<sup>2</sup> Members of this FABP family have highly conserved three dimensional structures and 22-73% amino acid sequence similarity.

FABPs have also been shown to be good markers for tissue injury under experimental and pathological conditions. Due to their small size, high solubility, and tissue specificity their concentration in the serum can provide information as to the nature and extent of tissue damage. FABP levels in plasma may be more reliable as tissue-specific markers for hepatitis, myocardial infarction, and other important diagnostic applications.

In the research setting, FABPs can be used to solubilize hydrophobic substances such as endocannabinoids, and to stabilize highly reactive mediators such as Leukotriene A<sub>4</sub>. With recombinant FABPs only very recently made available as pure, recombinant proteins, it is almost certain that additional uses will be identified soon.

See reverse for illustrations describing leukotriene biosynthesis and fatty acid uptake.

### References:

- Ockner, R.K. Historic overview of studies on fatty acid-binding proteins. *Mol. Cell. Biochem.* **98**, 3-9 (1990).
- Massolini, G. and Calleri, E. Survey of binding properties of fatty acid-binding proteins chromatographic methods. *J. Chromatogr. B* **797**, 255-268 (2003).

### FABP1 (human recombinant) 10005200

*FABP-1, Liver-fatty acid binding protein, Liver-FABP*

A solution in 50 mM sodium phosphate, pH 7.2, containing 20% glycerol and 150 mM sodium chloride **Stability:** ≥6 months at -80°C **Purity:** ≥95%

**Summary:** Source: recombinant protein expressed in *E. coli* • M<sub>r</sub>: 18.3 kDa

### FABP2 (human recombinant) 10007938

*Fatty acid binding protein 2, I-FABP, Intestinal-FABP*

A solution in 50 mM sodium phosphate, pH 7.2, containing 20% glycerol and 100mM sodium chloride **Stability:** ≥6 months at -80°C **Purity:** ≥95%

**Summary:** Source: recombinant protein expressed in *E. coli* • M<sub>r</sub>: 19.3 kDa

### FABP3 (human recombinant) 10007432

*Fatty acid binding protein 3, Heart-FABP*

A solution in 50 mM sodium phosphate, pH 7.2, containing 20% glycerol and 150 mM sodium chloride **Stability:** ≥6 months at -80°C **Purity:** ≥95%

**Summary:** Source: recombinant protein expressed in *E. coli* • M<sub>r</sub>: 19 kDa

### FABP4 (human recombinant) 10005191

*A-FABP, ALBP, Adipocyte-FABP, Fatty acid binding protein 4*

A solution in 50 mM sodium phosphate, pH 7.2, containing 20% glycerol and 150 mM sodium chloride **Stability:** ≥6 months at -80°C **Purity:** ≥95%

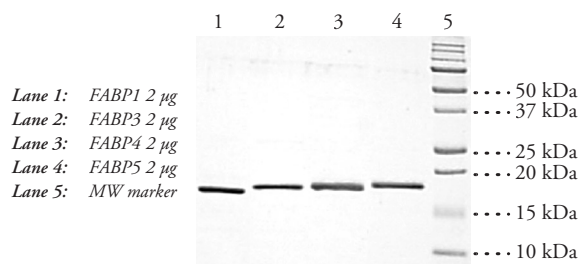
**Summary:** Source: recombinant protein expressed in *E. coli* • M<sub>r</sub>: 19.5 kDa

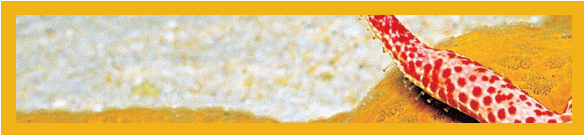
### FABP5 (human recombinant) 10007433

*E-FABP, Epidermal-fatty acid binding protein, Epidermal-FABP*

A solution in 50 mM sodium phosphate, pH 7.2, containing 20% glycerol and 150 mM sodium chloride **Stability:** ≥6 months at -80°C **Purity:** ≥95%

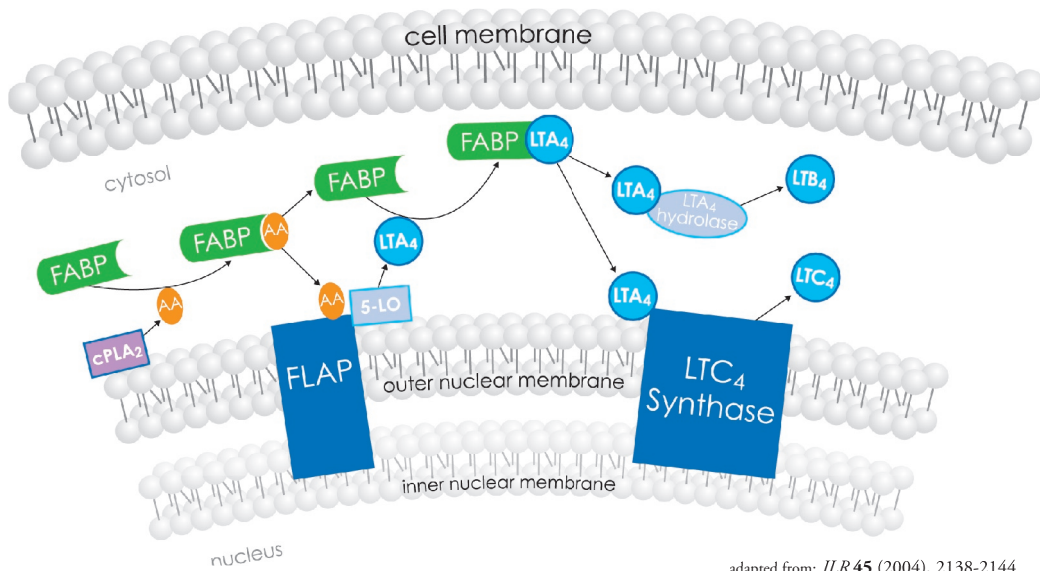
**Summary:** Source: recombinant protein expressed in *E. coli* • M<sub>r</sub>: 19.3 kDa





# Fatty Acid Binding Proteins

## The Proposed Role of FABP in Leukotriene Synthesis



## The Role of FABPs in Fatty Acid Uptake and Intracellular Fatty Acid Trafficking

