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# ProductInformation

**Myelin Basic Protein**
**from bovine brain**

Product Number **M 1891**
Storage Temperature -0 °C

## Product Description

Synonym: MBP

This product is a single-chain polypeptide containing 170 amino acids with a methyl-arginine. The molecular weight is reported to be approximately 18.4 kDa by amino acid sequencing.[1] At pH 7.4-9.0 the sedimentation coefficient increases with protein concentration, indicating self-association. At lower pH (pH 4.8), the protein remains monomeric. Dimers remain even in the presence of low concentrations of SDS (0.25 mM), but at higher SDS concentrations, monomers are the dominant form.[2] Under native conditions, the dimer has a pI of > 10.5 with a $\lambda_{max}$ of 276 nm. At 276 nm, a 10 mg/ml solution has a reported absorbance of 5.89.[3]

Myelin basic protein (MBP) is the major protein component in myelin, the white fatty substance which forms a sheath about the central nervous system and certain nerve fibers. MBP represents about 30% of the total myelin protein and is an integral structural constituent of the myelin sheath. There has been considerable interest in MBP and its relationship to demyelinating disease. As an antigen it can induce experimental autoimmune encephalomyelitis, a condition which has been used as a model for studies on the human disease multiple sclerosis. Abnormal amounts of MBP can be detected in the cerebrospinal fluid of individuals with demyelinating disease and in the serum of patients having suffered head injury. MBP has also been reported to have a role in maintenance of lipid:protein organization within myelin.[4,5,6]

MBP plays numerous roles: it is a potential neuroreceptor;[3] it is reported to cause proliferation of lymphocytes in vitro;[7] it is a major substrate in the MAP Kinase activation pathway; [8] it can be used in cancer detection based on lymphocyte stimulation.[9] In MAP kinase activation, MBP is used at 0.1 mg/ml copolymerized in a 10% SDS-polyacrylamide gel. The phosphorylation of MBP was quantitated by using $^{32}P$ labeled ATP.

MBP has been characterized as the major EAE-inducing antigen in the central nervous tissue (CNS).[10] EAE is experimental allergic encephalomyelitis, which is a T-cell mediated autoimmune CNS disease characterized clinically by ascending paralysis and histologically by perivascular mononuclear cell inflammation of the brain and spinal cord.

MBP has also been used in numerous immunological studies.[11]

## Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

## Preparation Instructions

MBP is dissolved in water (1 mg/ml), yielding a clear, colorless to faint yellow solution.

MBP can be aliquoted and stored at -70 °C. Snap-freezing would be recommended if possible. Preliminary studies on solutions stored at room temperature for a few hours showed signs of fragmentation when run on SDS gels.

## References

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