



Product Information

Myelin Basic Protein Kinase – 2 from bovine kidney

Product Number **M 1941**
Storage Temperature $-70\text{ }^{\circ}\text{C}$

Synonym: MBPK-2

Product Description

Myelin basic protein kinase – 2 (MBPK-2) is a distinct member of the mitogen-activated protein kinase (MAPK) family. With an apparent molecular weight of approximately 40 kDa, the MBPK enzyme has been implicated as an up-stream component of the MAPK cascade that phosphorylates and activates the cytosolic protamine protein kinase, cPK. MBPK-2 is a unique member of the family due to fact that it is not inactivated in the presence of protein tyrosine phosphatases. MBPK-2 shows as much as a three-fold increase in activity when autophosphorylated on its threonine residues during incubation with ATP. This autophosphorylation and activation is reversed by protein phosphatase 2A2, but not by CD45 or protein tyrosine phosphatase.¹

The MAPK family of kinases is activated as a rapid intracellular regulatory response mechanism for numerous cellular processes including cell growth and differentiation. Known to respond to a variety of extracellular signals including insulin, epidermal growth factor, platelet-derived growth factor, fetal growth factor, nerve growth factor, interleukin-1, and phorbol esters, MAPK is activated via phosphorylation on the tyrosine and either or both threonine and serine residues.¹

The product is supplied as a solution in 50 mM Tris-HCl, pH 7.0, containing 1 mM benzamidine, 0.1 mM PMSF, 14 mM 2-mercaptoethanol, 1 mM EDTA, and 50% glycerol.

Activity: approximately 1000 units/mg protein (Bradford)

Unit Definition: One unit is defined as the amount of enzyme that incorporates 1nmole of phosphoryl groups into myelin basic protein (MBP) per minute at pH 7.0 at $30\text{ }^{\circ}\text{C}$.

Purity: minimum 90% (SDS-PAGE)

Precautions and Disclaimer

This product is for laboratory use only. Please consult the Material Data Safety Sheet for information regarding hazards and safe handling practices.

Storage/Stability

The product ships on dry ice and it is recommended to store the product at $-70\text{ }^{\circ}\text{C}$. Avoid repeated freeze-thaw cycles.

References

1. Reddy, S.A., et al., Phosphorylation and activation of protamine kinase by two forms of a myelin basic protein kinase from extracts of bovine kidney cortex. *J. Biol. Chem.*, **268(20)**, 15298-15304 (1993).
2. Guo, H., et al., Purification and characterization of an autophosphorylation-activated protein serine threonine kinase that phosphorylates and inactivates protein phosphatase 2A. *J. Biol. Chem.*, **268(15)**, 11193-11198 (1993).
3. Ueki, H., et al., Orthovanadate stimulates cyclic guanosine monophosphate-inhibited cyclic adenosine monophosphate phosphodiesterase activity in isolated rat fat pads through activation of particulate myelin basic protein kinase by protein tyrosine kinase. *Endocrinology*, **138(7)**, 2784-2789 (1997).

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