SANTA CRUZ BIOTECHNOLOGY, INC.

MBP (A-3): sc-376995

BACKGROUND

Myelin basic protein (MBP) is the major extrinsic membrane protein of central nervous system myelin. MBP phosphorylation at Threonine 125 is a complex regulatory process that modulates the contribution of MBP to the stability of the myelin sheath. Mitogen-activated protein kinases modulate MBP phosphorylation during myelinogenesis and in the demyelinating disease multiple sclerosis. MBP phosphorylation is regulated by high-frequency stimulation but not low-frequency stimulation of the alveus, the myelinated output fibers of the hippocampus. It is proposed that during periods of increased neuronal activity, calcium activates axonal nitric oxide synthase, which generates the intercellular messengers nitric oxide and superoxide and regulates the phosphorylation state of MBP by MAPK.

REFERENCE

1. Fraser, P.E. and Deber, C.M. 1985. Structure and function of the proline-rich region of myelin basic protein. Biochemistry 24: 4593-4598.
2. Potter, N.T., et al. 1986. Identification of an antigenic determinant within the phylogenetically conserved triprolyl region of myelin basic protein. J. Immunol. 136: 516-520.
3. Persaud, R., et al. 1988. The glycosylation of human myelin basic protein at threonines 95 and 98 occurs sequentially. Biochim. Biophys. Acta 966: 357-361.

CHROMOSOMAL LOCATION

Genetic locus: MBP (human) mapping to 18q23; Mbp (mouse) mapping to 18 E3.

SOURCE

MBP (A-3) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 54-90 within an internal region of MBP of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

MBP (A-3) is available conjugated to agarose (sc-376995 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-376995 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376995 PE), fluorescein (sc-376995 FITC), Alexa Fluor® 488 (sc-376995 AF488), Alexa Fluor® 546 (sc-376995 AF546), Alexa Fluor® 594 (sc-376995 AF594) or Alexa Fluor® 647 (sc-376995 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376995 AF680) or Alexa Fluor® 790 (sc-376995 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-376995 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

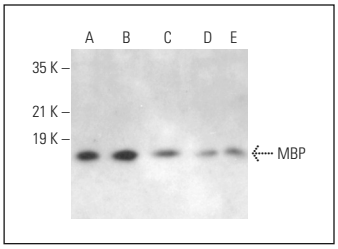
MBP (A-3) is recommended for detection of MBP isoforms 3 and 4 (also designated MBP1 and MBP2) of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for MBP siRNA (h): sc-35871, MBP siRNA (m): sc-35872, MBP shRNA Plasmid (h): sc-35871-SH, MBP shRNA Plasmid (m): sc-35872-SH, MBP shRNA (h) Lentiviral Particles: sc-35871-V and MBP shRNA (m) Lentiviral Particles: sc-35872-V.

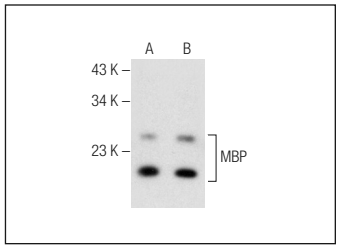
Molecular Weight of MBP isoforms: 14-22 kDa.

Positive Controls: rat brain extract: sc-2392, mouse brain extract: sc-2253 or Hep G2 cell lysate: sc-2227.

DATA



MBP (A-3): sc-376995. Western blot analysis of MBP expression in Hep G2 (**A**), SK-MEL-24 (**B**), HL-60 (**C**), c4 (**D**) and C6 (**E**) whole cell lysates.



MBP (A-3): sc-376995. Western blot analysis of MBP expression in mouse brain (**A**) and rat brain (**B**) tissue extracts.

SELECT PRODUCT CITATIONS

1. Ginkel, C., et al. 2012. Ablation of neuronal ceramide synthase 1 in mice decreases ganglioside levels and expression of myelin-associated glycoprotein in oligodendrocytes. J. Biol. Chem. 287: 41888-41902.
2. Zhu, Y., et al. 2017. Protective effect of 17β-estradiol upon hippocampal spine density and cognitive function in an animal model of vascular dementia. Sci. Rep. 7: 42660.
3. Yang, L., et al. 2018. Thioredoxin-1 protects spinal cord from demyelination induced by methamphetamine through suppressing endoplasmic reticulum stress and inflammation. Front. Neurol. 9: 49.
4. Lu, X., et al. 2022. Pulmonary visceral pleura biomaterial: elastin- and collagen-based extracellular matrix. Front. Bioeng. Biotechnol. 10: 796076.
5. Xuan, C., et al. 2023. Glutamine ameliorates hyperoxia-induced hippocampal damage by attenuating inflammation and apoptosis via the MKP-1/MAPK signaling pathway in neonatal rats. Front. Pharmacol. 14: 1096309.

RESEARCH USE

For research use only, not for use in diagnostic procedures.