SANTA CRUZ BIOTECHNOLOGY, INC.

# p-MBP (D-11): sc-365621

SANTA CRUZ BIOTECHNOLOGY

*The Power to Question*

## BACKGROUND

Myelin basic protein (MBP) is the major extrinsic membrane protein of central nervous system myelin. Myelin basic protein 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 in-creased neuronal activity, calcium activates axonal nitric oxide synthase, which generates the intercellular messengers nitric oxide and superoxide and regulates the phospho-rylation state of MBP by MAPK.

## REFERENCES


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., Hashim, G.A. and Day, E.D. 1986. Identification of an antigenic determinant within the phylogenetically conserved triprolyl region of myelin basic protein. J. Immunol. 136: 516-520.
3. Persaud, R., Fraser, P., Wood, D.D. and Moscarello, M.A. 1988. The glycosylation of human myelin basic protein at Threonines 95 and 98 occurs sequentially. Biochim. Biophys. Acta 966: 357-361.
4. Yon, M., Ackerley, C.A., Mastronardi, F.G., Groome, N. and Moscarello, M.A. 1996. Identification of a mitogen-activated protein kinase site in human myelin basic protein *in situ*. J. Neuroimmunol. 65: 55-59.
5. Atkins, C.M., Yon, M., Groome, N.P. and Sweatt, J.D. 1999. Regulation of myelin basic protein phosphorylation by mitogen-activated protein kinase during increased action potential firing in the hippocampus. J. Neurochem. 73: 1090-1097.


## CHROMOSOMAL LOCATION

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

## SOURCE

p-MBP (D-11) is a mouse monoclonal antibody epitope corresponding to a short amino acid sequence containing Thr 125 phosphorylated MBP of human origin.

## PRODUCT

Each vial contains 200 µg $IgG_3$ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-365621 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

p-MBP (D-11) is recommended for detection of Thr 125 phosphorylated MBP 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), immunohistochemistry (including paraffin-embedded sections) (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.

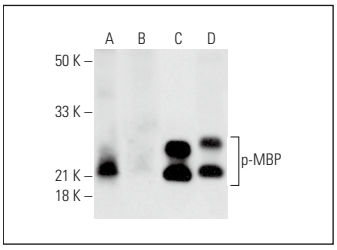
Molecular Weight of p-MBP isoforms: 14-22 kDa.

Positive Controls: rat cerebellum extract: sc-2398, rat brain extract: sc-2392 or mouse brain extract: sc-2253.

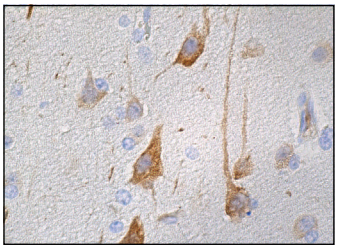
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Lambda Phosphatase: sc-200312A and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

## DATA




Western blot analysis of MBP phosphorylation in untreated (**A**,**C**) and lambda protein phosphatase (sc-200312A) treated (**B**,**D**) rat cerebellum tissue extract. Antibodies tested include p-MBP (D-11): sc-365621 (**A**,**B**) and MBP (BM15): sc-52070 (**C**,**D**).



p-MBP (D-11): sc-365621. Immunoperoxidase staining of formalin fixed, paraffin-embedded human brain tissue showing cytoplasmic staining of neuronal cells and nerve fibers.

## RESEARCH USE

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

## PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.