SANTA CRUZ BIOTECHNOLOGY, INC.

MAG (NF-J): sc-80176

BACKGROUND

Myelin-associated glycoprotein (MAG) is a nervous system cell-surface adhesion protein that is involved in linking myelinating glial cells to neuronal axons. MAG contains a sialic acid binding site and five IgG-like domains, thus identifying MAG as a member of a subgroup of the immunoglobulin superfamily. Like myelin, MAG inhibits axonal outgrowth and contributes to the inhibitory properties of myelin. Growth inhibition by MAG has been shown to be blocked when cerebellar neurons are pre-incubated with the neurotrophins BDNF or GDNF. It is suggested that this neurotrophin priming elevates cAMP and activates PKA.

REFERENCES

1. Lai, C., et al. 1987. Neural protein 1B236/myelin-associated glycoprotein (MAG) defines a subgroup of the immunoglobulin superfamily. Immunol. Rev. 100: 129-151.
2. McKerracher, L., et al. 1994. Identification of myelin-associated glycoprotein as a major myelin-derived inhibitor of neurite growth. Neuron 13: 805-811.
3. Quarles, R.H. 1997. Glycoproteins of myelin sheaths. J. Mol. Neurosci. 8: 1-12.
4. Collins, B.E., Yet al. 1997. Sialic acid specificity of myelin-associated glycoprotein binding. J. Biol. Chem. 272: 1248-1255.
5. Shen, Y.J., et al. 1998. Myelin-associated glycoprotein in myelin and expressed by Schwann cells inhibits axonal regeneration and branching. Mol. Cell. Neurosci. 12: 79-91.
6. Cai, D., et al. 1999. Prior exposure to neurotrophins blocks inhibition of axonal regeneration by MAG and myelin via a cAMP-dependent mechanism. Neuron 22: 89-101.
7. Schachner, M., et al. 2000. Multiple functions of the myelin-associated glycoprotein MAG (Siglec-4a) in formation and maintenance of myelin. Glia 29: 154-165.
8. Vyas, A.A., et al. 2002. Gangliosides are functional nerve cell ligands for myelin-associated glycoprotein (MAG), an inhibitor of nerve regeneration. Proc. Natl. Acad. Sci. USA 99: 8412-8417.
9. Paivalainen, S., et al. 2003. Degraded myelin-associated glycoprotein (dMAG) formation from pure human brain myelin-associated glycoprotein (MAG) is not mediated by Calpain or cathepsin L-like activities. J. Neurochem. 84: 533-545.

CHROMOSOMAL LOCATION

Genetic locus: Mag (rat) mapping to 1q21.

SOURCE

MAG (NF-J) is a mouse monoclonal antibody raised against the extracellular domain of MAG of rat origin, with epitope mapping to amino acids 1-516.

PROTOCOLS

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

PRODUCT

Each vial contains 100 µg IgG_{2a} in 1.0 ml PBS with < 0.1% sodium azide and protein stabilizer.

Available azide-free for neutralization, sc-80176 L, 100 µg/0.1 ml.

APPLICATIONS

MAG (NF-J) is recommended for detection of MAG of rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000).

Molecular Weight of MAG: 100 kDa.

Positive Controls: rat brain extract: sc-2392.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

RESEARCH USE

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