Human MAG/Siglec-4a Antibody

Monoclonal Mouse IgG_{2B} Clone # 1099506

Catalog Number: MAB11687

DESCRIPTION

Species Reactivity	Human
Specificity	Detects recombinant human MAG protein in Direct ELISA.
Source	Monoclonal Mouse IgG_{2B} Clone # 1099506
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Human embryonic kidney cell, HEK293-derived human MAG/Siglec-4a Gly20-Pro516
Formulation	Lyophilized from a 0.2 μm filtered solution in PBS with Trehalose.

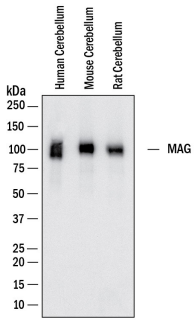
APPLICATIONS

Please Note: *Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.*

	Recommended Concentration	Sample
Western Blot	0.1 µg/mL	Human cerebellum, mouse cerebellum and rat cerebellum
Simple Western	10 µg/mL	Human hippocampus, mouse hippocampus and rat hippocampus

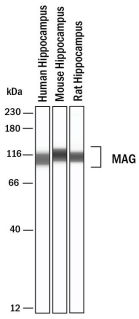
DATA

Western Blot



Detection of Human, Mouse and Rat MAG/Siglec-4a by Western Blot. Western Blot shows lysates of human cerebellum, mouse cerebellum and rat cerebellum. PVDF membrane was probed with 0.1 µg/ml of Mouse Anti-Human MAG/Siglec-4a Monoclonal Antibody (Catalog # MAB11687) followed by HRP-conjugated Anti-Mouse IgG Secondary Antibody (Catalog # HAF018). A specific band was detected for MAG/Siglec-4a at approximately 100 kDa (as indicated). This experiment was conducted under reducing conditions and using Western Blot Buffer Group 1.

Simple Western



Detection of Human, Mouse and Rat MAG/Siglec-4a by Simple Western™. Simple Western lane view shows lysates of human hippocampus, mouse hippocampus and rat hippocampus, loaded at 0.5 mg/ml. A specific band was detected for MAG/Siglec-4a at approximately 110-130 kDa (as indicated) using 10 µg/ml of Mouse Anti-Human MAG/Siglec-4a Monoclonal Antibody (Catalog # MAB11687) followed by HRP-conjugated Goat Anti-Mouse Secondary Antibody (Catalog # 042-205). This experiment was conducted under reducing conditions and using the 12-230kDa separation system.

PREPARATION AND STORAGE

Reconstitution	Reconstitute lyophilized material at 0.2 mg/ml in sterile PBS. For liquid material, refer to CoA for concentration.
Shipping	Lyophilized product is shipped at ambient temperature. Liquid small pack size (-SP) is shipped with polar packs. Upon receipt, store immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 6 months, -20 to -70 °C under sterile conditions after reconstitution.

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BACKGROUND

Myelin-Associated Glycoprotein (MAG), also known as Siglec-4a, is a type I transmembrane glycoprotein belonging to the Siglec family, a subgroup of the Ig superfamily (1). It is composed of an extracellular segment containing five Ig-like domains, a single transmembrane segment, and a cytoplasmic domain. Mature MAG exists as two isoforms, termed S-MAG (short) and L-MAG (long), due to alternative splicing of the cytoplasmic domain (1, 2). S-MAG has a predicted molecular weight of 67 kDa while L-MAG has a predicted molecular weight of 71 kDa (1, 2). Additionally, proteolytic cleavage of the extracellular domain produces a soluble MAG (3). Within shared regions in the extracellular domain, human MAG shares 95% aa sequence identity with mouse and rat MAG. MAG functions as an adhesion molecule during neural development. It preferentially binds to α-2,3-linked sialic acid terminal structures found on cell surface molecules (1, 4, 5). MAG is selectively expressed by myelinating oligodendrocytes and Schwann cells and plays an important role in axon-myelin stability (1, 4). Specifically, L-MAG is involved in myelination in the central nervous system (CNS) while S-MAG is the predominate isoform expressed during myelination in the peripheral nervous system (1). MAG is also reported to regulate the axon cytoskeleton and support the distribution of axon molecules at the nodes of Ranvier (1, 4). In addition, it has been identified as a major inhibitor of neurite outgrowth (1, 4, 6). However, MAG has also been reported to protect neurons from excitotoxicity (1, 7). MAG is believed to utilize the gangliosides GD1a and GT1b, the Nogo receptors NgR1 and NgR2/NgRH1, Integrin β1/CD29, and PIR-B to mediate its effects (1, 4, 5, 8, 9). Soluble MAG, which is released from myelin in large quantities, has been identified in normal human tissues and in tissues from patients with neurological disorders (3). It is believed that this soluble MAG might contribute to the lack of CNS neuron regeneration after injury (3).

References:

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