Technical Data Sheet

Purified Rat Anti-Mouse CD56

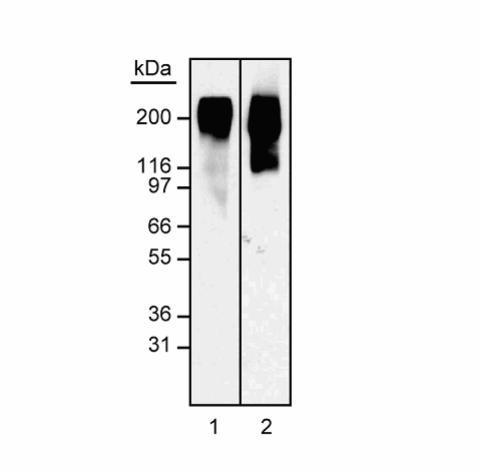
Product Information

Material Number:	**556323**
Alternate Name:	N-CAM
Size:	0.1 mg
Concentration:	0.5 mg/ml
Clone:	12F11
Immunogen:	BALB/c mouse thymocytes
Isotype:	Rat IgG2a
Reactivity:	QC Testing: Mouse Tested in Development: Chicken, Human, Rat
Target MW:	varies
Storage Buffer:	Aqueous buffered solution containing ≤0.09% sodium azide.

Description

CD56 or N-CAM (Neural cell adhesion molecule) is a member of a family of adhesion molecules including L1, contactin, TAG-1 and others, which mediate neuronal attachment, process extension and cell-cell interaction(s) in the central nervous system (CNS). N-CAM has been shown to play a role during the development and maintenence of synaptic connectivity of the hippocampus, as well as other organs within the CNS. In addition to facilitating cell adhesive properties, N-CAM may play a role signal transduction pathways. N-CAM can participate in regulation of astrocyte proliferation *via* a mechanism which involves the mitogen-activated protein kinase (MAPK) pathway. N-CAM associates directly with L1 to form a complex which participates in signal pathways promoting neurite outgrowth. N-CAM exists in several isoforms which result from alternative splicing of mRNA. These isoforms contain posttranslational modifications such as addition of polysialic residues and carbohydrate epitopes. Embryonic N-CAM (~200-230 kD) is highly sialylated; whereas adult N-CAM isoforms (~120, 140 and 180 kD) are less so, yet are more adhesive. These modifications, along with the diversity of local distribution of the isoforms, may contribute to distinct roles for these forms. Adult N-CAM isoforms of 120, 140 and 180 kDa are observed by SDS-PAGE.

Clone 12F11 recognizes an intracellular epitope of N-CAM and has been shown to react with human, rat, mouse, and chick N-CAM. The antibody specifically recognizes the 140 and 180 kDa isoforms of N-CAM, but does not recognize the 120 kDa isoform. Higher molecular weight (MW) isoforms may also be observed, particularly in samples from embryonic brain tissue.



Western blot analysis of N-CAM. *Brain tissue extracts from embryonic or adult BALB/c mice were separated by SDS-PAGE and probed with anti-N-CAM (Cat. No. 556323). In embryonic extracts, highly sialylated isoforms of N-CAM, ≥200 kDa, are observed (lane 1); whereas in extracts from adult mice additional N-CAM isoforms, which are less sialylated, are also observed ≤180 kDa (lane 2).*

Preparation and Storage

The monoclonal antibody was purified from tissue culture supernatant or ascites by affinity chromatography.
Store undiluted at 4° C.

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Application Notes

Application

Western blot	Routinely Tested
Immunohistochemistry-frozen	Reported

Recommended Assay Procedure:

The MW of N-CAM isoforms may vary due to the degree of posttranslational modification of the proteins, thus the staining pattern of 12F11 may appear as a wide “smear”in some samples. Other application not routinely tested at BD Biosciences Pharmingen includes immunohistochemical staining of paraformaldehyde-fixed, frozen tissue sections of human, mouse and rat origin. Please refer to methods described by Miller *et al*., 1993 for details regarding the use of 12F11 in this application.

Product Notices

1. Since applications vary, each investigator should titrate the reagent to obtain optimal results.
2. Please refer to www.bdbiosciences.com/pharmingen/protocols for technical protocols.
3. Caution: Sodium azide yields highly toxic hydrazoic acid under acidic conditions. Dilute azide compounds in running water before discarding to avoid accumulation of potentially explosive deposits in plumbing.

References

Chung WW, Lagenaur CF, Yan Y, and Lund JS. Developmental expression of neural cell adhesion molecules in the mouse neocortex and olfactory bulb. *J Comp Neurol.* 1991; 314:290-305.(Clone-specific: Western blot)

Cunningham BA, Hemperly JJ, Murray BA, Prediger EA, Brackenbury R, and Edelman GM. Neural cell adhesion molecule: Structure, immunoglobulin-like domains, cell surface modulation, and alternative RNA splicing. *Science.* 1987; 236:799-806.(Immunogen: Western blot)

Heiland PC, Griffith LS, Lange R, Schachner M, Hertlein B, Traub O, and Schmitz B. Tyrosine and serine phosphorylation of the neural cell adhesion molecule L1 is implicated in its oligomannosidic glycan dependent association with NCAM and neurite outgrowth. *Eur J Cell Biol.* 1998; 75:97-106.(Biology)

Krushel LA, Tai MH, Cunningham BA, Edelman GM, and Crossin KL. Neural cell adhesion molecule (N-CAM) domains and intracellular signaling pathways involved in the inhibition of astrocyte proliferation. *Proc Natl Acad Sci U S A.* 1998; 95:2592-2596.(Biology)

Miller PD, Chung WW, Lagenaur CF, and DeKosky ST. Regional distribution of neural cell adhesion molecule (N-CAM) and L1 in human and rodent hippocampus. *J Comp Neurol.* 1993; 327:341-349.(Clone-specific: Immunohistochemistry)

Santoni MJ, Barthels D, Barbas J, Hirsch M, Steinmetz M, Goridis C, and Wille W. Analysis of cDNA clones that code for the transmembrane forms of the mouse neural cell adhesion molecule (NCAM) and are generated by alternative RNA splicing. *Nucleic Acids Res.* 1987; 15:8621-8641.(Biology)