Human N-Cadherin Antibody

Monoclonal Mouse IgM Clone # 691723
Catalog Number: MAB13881

DESCRIPTION

Species Reactivity	Human
Specificity	Detects mouse N-Cadherin in direct ELISAs and Western blots. In direct ELISAs approximately 50% cross-reactivity with recombinant mouse N-Cadherin is observed, and no cross-reactivity with recombinant human (rh) E-Cadherin, rhP-Cadherin, rhVE-Cadherin, rhCadherin-4, -8, -11, -12, or -13 is observed.
Source	Monoclonal Mouse IgM Clone # 691723
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Mouse myeloma cell line NS0-derived recombinant mouse N-Cadherin Asp160-Ala724 Accession # P19022.4
Formulation	Lyophilized from a 0.2 μm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied as a 0.2 μm filtered solution in PBS.

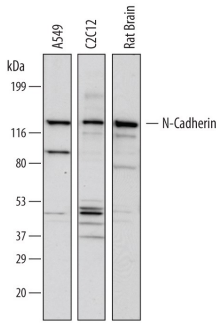
APPLICATIONS

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	1 µg/mL	See Below
Flow Cytometry	2.5 µg/10^6 cells	See Below
Immunohistochemistry	8-25 µg/mL	See Below
CyTOF-ready	Ready to be labeled using established conjugation methods. No BSA or other carrier proteins that could interfere with conjugation.	

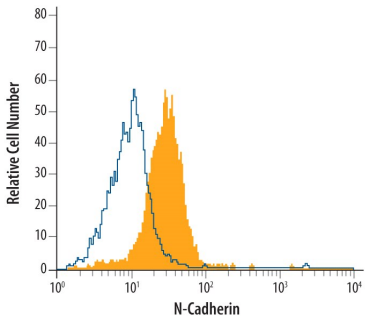
DATA

Western Blot



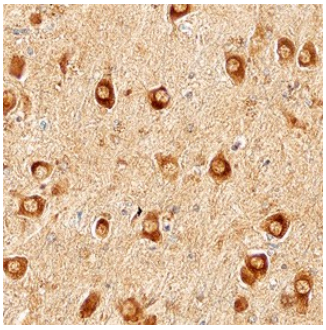
Detection of Human, Mouse, and Rat N-Cadherin by Western Blot. Western blot shows lysates of A549 human lung carcinoma cell line, C2C12 mouse myoblast cell line, and rat brain tissue. PVDF membrane was probed with 1 µg/mL of Mouse Anti-Human N-Cadherin Monoclonal Antibody (Catalog # MAB13881) followed by HRP-conjugated Anti-Mouse IgG Secondary Antibody (Catalog # HAF007). A specific band was detected for N-Cadherin at approximately 130 kDa (as indicated). This experiment was conducted under reducing conditions and using Immunoblot Buffer Group 1.

Flow Cytometry



Detection of N-Cadherin in HeLa Human Cell Line by Flow Cytometry. HeLa human cervical epithelial carcinoma cell line was stained with Mouse Anti-Human N-Cadherin Monoclonal Antibody (Catalog # MAB13881, filled histogram) or isotype control antibody mouse IgM (open histogram), followed by Phycoerythrin-conjugated Anti-Mouse IgM Secondary Antibody (Catalog # F0116).

Immunohistochemistry



N-Cadherin in Human Brain. N-Cadherin was detected in immersion fixed paraffin-embedded sections of Alzheimer's human brain using Mouse Anti-Human N-Cadherin Monoclonal Antibody (Catalog # MAB13881) at 15 µg/mL overnight at 4 °C. Before incubation with the primary antibody, tissue was subjected to heat-induced epitope retrieval using Antigen Retrieval Reagent-Basic (Catalog # CTS013). Tissue was stained using the Anti-Mouse HRP-DAB Cell & Tissue Staining Kit (brown; Catalog # CTS002) and counterstained with hematoxylin (blue). Specific staining was localized to cytoplasm of neurons. View our protocol for Chromogenic IHC Staining of Paraffin-embedded Tissue Sections.

bio-techne
bio-techne.com
Global info@bio-techne.com techsupport@bio-techne.com
North America TEL 800 343 7475 Europe | Middle East | Africa TEL +44 (0)1235 529449
China info.cn@bio-techne.com TEL +86 (21) 52380373
Rest of World bio-techne.com/find-us/distributors TEL +1 612 379 2956

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PREPARATION AND STORAGE

Reconstitution	Sterile PBS to a final concentration of 0.5 mg/mL.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
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.

BACKGROUND

Neuronal Cadherin (N-Cadherin or NCAD), also known as Cadherin-2 (CDH2), is a 130 kDa type I membrane protein belonging to the Cadherin superfamily of calcium-dependent adhesion molecules. Cadherins are involved in multiple processes including embryonic development, cell migration, and maintenance of epithelial integrity (1, 2). Human N-Cadherin is synthesized with a 25 amino acid (aa) signal peptide and a 134 aa N-terminal propeptide. The mature cell surface-expressed protein consists of a 565 amino acid (aa) extracellular domain (ECD) that contains five Cadherin repeats, a 21 aa transmembrane segment, and a 161 aa cytoplasmic domain (3). Within the ECD, human N-Cadherin shares 98% aa sequence identity with mouse and rat N-Cadherin. In the nervous system, N-Cadherin mediates adhesion between the opposing faces of developing neuronal synapses and between Schwann cells and neuronal axons (4, 5). It interacts *in cis* or *in trans* homophilically and with the GluR2 subunit of neuronal AMPA receptors (1, 6). During synaptic maturation, its expression is lost from inhibitory terminals but maintained at excitatory terminals (5). ADAM10-mediated shedding of the N-Cadherin ECD alters cell-cell adhesion, synaptic development, and AMPA receptor activity (7, 8). N-Cadherin can also be cleaved at multiple additional sites within the intracellular or extracellular domains by Calpain, γ-Secretase, and several MMPs (9 - 13). Cleavage of N-Cadherin in atherosclerotic plaques contributes alternatively to vascular smooth muscle cell proliferation (MMP-9 and -12) or apoptosis (MMP-7) (12, 13). Aberrant cell surface expression of the pro and mature forms of N-Cadherin in cancer results in increased tumor progression and invasiveness (14, 15). N-Cadherin also mediates the adhesion between hematopoeitic progenitor cells and mesenchymal stromal cells of the bone marrow (16).

References:

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Global info@bio-techne.com techsupport@bio-techne.com
North America TEL 800 343 7475 Europe | Middle East | Africa TEL +44 (0)1235 529449
China info.cn@bio-techne.com TEL +86 (21) 52380373
Rest of World bio-techne.com/find-us/distributors TEL +1 612 379 2956