Recombinant Human NCAM-1/CD56 Fc Chimera

Catalog Number: 10136-NC

DESCRIPTION

Source

Human embryonic kidney cell, HEK293-derived human NCAM-1/CD56 protein

Human NCAM-1/CD56 (Leu20-Gly708) Accession # P13591-1	IEGRMD	Human IgG_1 (Pro100-Lys330)

N-terminus C-terminus

N-terminal Sequence Analysis	Leu20
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	103 kDa

SPECIFICATIONS

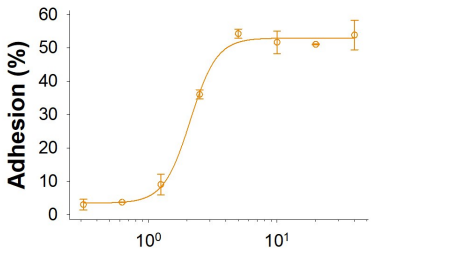
SDS-PAGE	115-135 kDa, under reducing conditions
Activity	Measured by the ability of the immobilized protein to support the adhesion of Neuro-2A mouse neuroblastoma cells. The ED_{50} for this effect is 1-6 µg/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 500 µg/mL in PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it 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. • 2 weeks, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, -20 to -70 °C under sterile conditions after reconstitution.

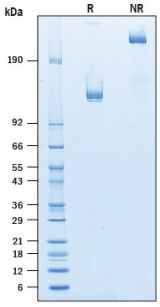
DATA

Bioactivity



Immobilized Recombinant Human NCAM-1/CD56 Fc Chimera (Catalog # 10136-NC) supports the adhesion of Neuro-2A mouse neuroblastoma cells. The ED_{50} for this effect is 1-6 µg/mL.

Binding Activity



2 µg/lane of Recombinant Human NCAM-1/CD56 Fc Chimera (Catalog # 10136-NC) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® blue staining, showing single bands at 115-135 kDa and 230-270 kDa, respectively.

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Recombinant Human NCAM-1/CD56 Fc Chimera

Catalog Number: 10136-NC

BACKGROUND

Neural cell adhesion molecule 1 (NCAM-1), also known as CD56, is a multifunctional member of the Ig superfamily. It belongs to a family of membrane-bound glycoproteins that are involved in Ca^{++} independent cell matrix and homophilic or heterophilic cell-cell interactions. There are three main forms of human NCAM-1 that arise by alternate splicing. These are designated NCAM-120/NCAM-1 761 amino acid (aa), NCAM-140 (848 aa), and NCAM-180 (1120 aa). NCAM-120 is GPI-linked, while NCAM-140 and NCAM-180 are type I transmembrane glycoproteins (1-3). Additional alternate splicing adds considerable diversity to all three forms, and extracellular proteolytic processing is possible for NCAM-180 (4, 5). Human NCAM-1 is synthesized as a 761 aa preproprecursor, containing a signal sequence, a large GPI-linked extracellular domain (ECD), and a short C-terminal prosegment (1). The mature ECD contains five C-2 type Ig-like domains and two fibronectin type III domains. The mature human ECD shares 93% and 95% aa sequence identity with the mouse and rat NCAM-1 ECD, respectively. NCAM-1 appears to be highly sialylated. The polysialyation of NCAM-1 reduces its adhesive property and increases its neurite outgrowth promoting features (6). NCAM-1 in the adult brain shows a decline of sialylation relative to earlier developmental periods. In regions that retain a high degree of neuronal plasticity, however, the adult brain continues to express polysialylated-NCAM-1, suggesting sialylation of NCAM-1 is involved in regenerative processes and synaptic plasticity (7-10). NCAM can function as a receptor for GDNF family of ligands. GDNF stimulates Schwann cell migration and neurite outgrowth in hippocampal and cortical neurons through binding to NCAM-1 and activation of Fyn, independently of RET (11). NCAM-1 also interacts with Ig IIIC isoform of the FGFR1 and plays an important role in developmental events as well as tumor progression (12). It promotes ovarian cancer progression through FGF R1 interaction and stimulates dissemination of tumor to organs of peritoneal cavity (13). NCAM-1 is preferentially expressed in NK cells and a subset of T lymphocytes that mediate MHC-unrestricted cell-mediated cytotoxicity (14). High expression of CD56/NCAM-1 differentiates NK cells as having an activated phenotype. CD56(+high) NK cells mediate heightened effector functions (proliferation, IFN-gamma and IL-10 but not IL-13 production) in response to IL-12 (15). NCAM-1 functions as pathogen recognition receptor during an innate immune response (16). $CD56^{+}$ T cells can inhibit HIV infection of macrophages (17). Due to expression on immune cells NCAM-1 has great implications on tumor progression, infection, and disease development.

References:

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