Biotinylated Recombinant Human CEACAM-1/CD66a Fc Chimera Avi-tag

Catalog Number: AVI11074

DESCRIPTION

Source

Human embryonic kidney cell, HEK293-derived human CEACAM-1/CD66a protein

Human CEACAM-1 (Gln35-Gly428) Accession # P13688.2	IEGRMD	Human IgG_1 (Pro100-Lys330)	Avi-tag

N-terminus C-terminus

N-terminal Sequence Analysis	Protein identity confirmed by mass spectrometry
Structure / Form	Disulfide-linked homodimer Biotinylated via Avi-tag
Predicted Molecular Mass	72 kDa

SPECIFICATIONS

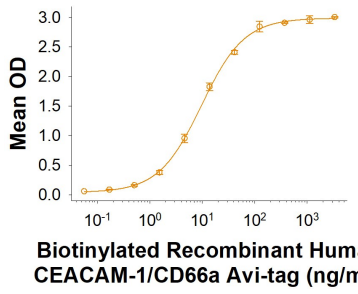
SDS-PAGE	115-135 kDa, under reducing conditions.
Activity	Measured by its binding ability in a functional ELISA. When Recombinant Human CEACAM-1/CD66a (Catalog # 2244-CM) is immobilized at 0.5 µg/mL (100 µL/well), Biotinylated Recombinant Human CEACAM-1/CD66a Fc Chimera Avi-tag (Catalog # AVI11074) binds with an ED_{50} of 5.00-50.0 ng/mL.
Endotoxin Level	<0.50 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 with Trehalose. 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. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, -20 to -70 °C under sterile conditions after reconstitution.

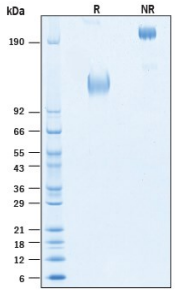
DATA

Binding Activity



Biotinylated Recombinant Human CEACAM-1/CD66a Fc Chimera Avi-tag Protein Binding Activity When Recombinant Human CEACAM-1/CD66a (Catalog # 2244-CM) is immobilized at 0.5 µg/mL (100 µL/well), Biotinylated Recombinant Human CEACAM-1/CD66a Fc Chimera Avi-tag Protein (Catalog # AVI11074) binds with an ED_{50} of 5.00-50.0 ng/mL.

SDS-PAGE



Biotinylated Recombinant Human CEACAM-1/CD66a Fc Chimera Avi-tag Protein SDS-PAGE 2 µg/lane of Biotinylated Recombinant Human CEACAM-1/CD66a Fc Chimera Avi-tag Protein (Catalog # AVI11074) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 115-135 kDa and 230-270 kDa, respectively.

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BACKGROUND

Carcinoembryonic antigen-related cell adhesion molecule 1 (CEACAM-1), also known as cluster of differentiation 66a (CD66a) and biliary glycoprotein (BGP), is a member of the CEACAM subfamily of glycoproteins in the immunoglobulin (Ig) superfamily. The CEACAM family is involved in diverse cellular functions from cell adhesion and differentiation to proliferation, and survival and are utilized by several bacterial pathogens to bind and invade host cells (1-3). Mature human CEACAM-1 consists of an extracellular domain (ECD) with 1 V-type Ig-like domain and 3 C2-type Ig-like domains, a transmembrane domain, and a cytoplasmic region shows one ITIM motif and a calmodulin binding site (4). CEACAM-1 is unique among the CEACAM family as it is the only family member to contain the inhibitory ITIM domains. The ECD of human CEACAM-1 shares 54% and 52% amino acid sequence identity with mouse and rat CEACAM-1, respectively. Several alternative splice variants of CEACAM-1 have been reported with alterations occurring in both the ECD and cytoplasmic region, though the function of the isoforms remain poorly understood (5). CEACAM-1 can be expressed in human epithelial, endothelial, and hematopoietic cells and is involved in morphogenesis, apoptosis, angiogenesis, and cell proliferation as well as playing a role in innate and adaptive immunity (6,7). CEACAM-1 functions through either homophilic interactions with CEACAM-1 variants or binds in a heterophilic manner to other CEACAMs, including CEACAM-5, CEACAM-6, and CEACAM-8 (7). Several pathogens from Escherichia coli and Neisseria gonorrhoeae to N. meningitidis use CEACAM-1 as a ligand as a step in bacterial invasion of the host (8). CEACAM-1 signaling is associated with inhibition of proliferation and misregulation of its expression is often reported in cancer (5,9,10). As such, CEACAM-1 is being studied as a clinical biomarker and/or promising therapeutic target for several cancer types including: non-small cell lung cancer, pancreatic, colorectal, bladder, and melanomas (5,9,10). Our Avi-tag Biotinylated CEACAM-1 features biotinylation at a single site contained within the Avi-tag, a unique 15 amino acid peptide. Protein orientation will be uniform when bound to streptavidin-coated surface due to the precise control of biotinylation and the rest of the protein is unchanged so there is no interference in the protein's bioactivity.

References:

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