Recombinant Human CEACAM-3/CD66d

Catalog Number: 9868-CM

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived human CEACAM-3/CD66d protein Lys35-Gly155, with a C-terminal 6-His tag Accession # P40198-1
N-terminal Sequence Analysis	Lys35
Predicted Molecular Mass	14 kDa

SPECIFICATIONS

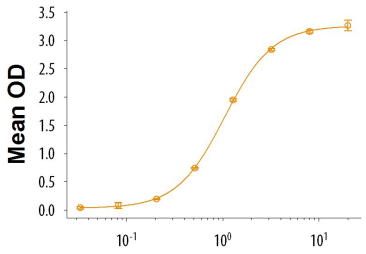
SDS-PAGE	19-25 kDa, reducing conditions
Activity	Measured by its binding ability in a functional ELISA. When Recombinant Human CEACAM-3/CD66d is immobilized at 2 µg/mL (100 µL/well), the concentration of Recombinant Human CEACAM-7 (Catalog # 9010-CM) that produces 50% of the optimal binding response is 0.6-3.6 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 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	• 12 months from date of receipt, ≤ -20 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, ≤ -20 °C under sterile conditions after reconstitution.

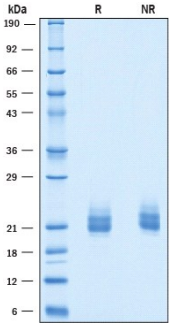
DATA

Binding Activity



When Recombinant Human CEACAM-3/CD66d (Catalog # 9868-CM) is coated at 2 µg/mL, Recombinant Human CEACAM-7 (Catalog # 9010-CM) binds with an ED_{50} of 0.3-3.6 µg/mL.

SDS-PAGE



2 µg/lane of Recombinant Human CEACAM-3 was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® blue staining, showing bands at 19-25 kDa.

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BACKGROUND

Carcinoembryonic Antigen-related Cell Adhesion Molecule 3 (CEACAM-3), or CD66d, is part of the CEA protein family consisting of CEACAMs and the pregnancy-specific glycoproteins (PSGs). Both CEACAM and PSG molecules have been identified in humans and belong to the much larger glycosylphosphatidylinositol (GPI)-linked immunoglobulin (Ig) superfamily (1, 2). Mature human CEACAM-3 is approximately 35 kDa, consisting of an extracellular domain (ECD) containing one IgV-like domain, a single transmembrane domain and a cytoplasmic tail. The cytoplasmic tail of CEACAM-3 contains an immunoreceptor tyrosine-based activation motif (ITAM), which recruits kinases to propagate pro-inflammatory signaling cascades (3). CEACAM-3 appears to be primate specific, with no non-primate orthologs currently identified (4). Originally discovered as a biomarker for colorectal cancer (5), CEACAMs have now been associated with numerous intracellular signaling processes including cell adhesion, cell growth, recognition and differentiation, angiogenesis, and apoptosis (6-8). Unlike other CEA family members, CEACAM-3 has not been shown to form cell–cell adhesion interactions with other CEACAM family members (9). CEACAM-3 has been found to be specifically expressed on human neutrophils and other granulocytes and appears to be ann adaptation of the innate immune system to handle specific host pathogens (9). The granulocyte-specific CEACAM epitope is present on at least four CEA family members, CEACAM-1 -3, -6 and -8, which upon engagement on the neutrophil surface triggers a transient activation signal that requires extracellular calcium and regulates the adhesive activity of the beta2 integrin, CD11/CD18 (10, 11). CEACAM-3 is critical for opsonin-independent phagocytosis and bacterial clearance (3). CEACAM-3 binds to the colony opacity-associated (Opa) outer membrane proteins of bacteria, such as Neisseria gonorrhoeae, and triggers uptake of the pathogen and subsequent elimination (3, 9).

References:

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