Human CEACAM-1/CD66a Antibody

Monoclonal Mouse IgG_1 Clone # 283324

Catalog Number: MAB22441

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human CEACAM-1 in ELISAs and Western blots. In ELISAs and Western blots, no cross-reactivity with recombinant human (rh) CD31, rhICAM-1, -2, -3, recombinant mouse MAdCAM-1, or rhVCAM-1 was observed. In sandwich ELISAs, no cross-reactivity with rhCEACAM-3, rhCEACAM-5, or rhCEACAM-6 was observed.
Source	Monoclonal Mouse IgG_1 Clone # 283324
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Mouse myeloma cell line NS0-derived recombinant human CEACAM-1 Gln35-Gly428 Accession # P13688
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.

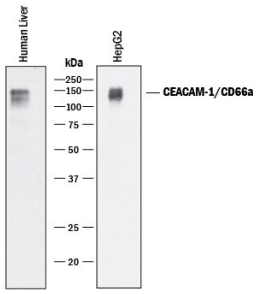
APPLICATIONS

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	2 µg/mL	See Below
Immunohistochemistry	8-25 µg/mL	See Below
Human CEACAM-1/CD66a Sandwich Immunoassay		**Reagent**
ELISA Capture	2-8 µg/mL	Human CEACAM-1/CD66a Antibody (Catalog # MAB22441)
ELISA Detection	0.1-0.4 µg/mL	Human CEACAM-1/CD66a Biotinylated Antibody (Catalog # BAF2244)
Standard		Recombinant Human CEACAM-1/CD66a (Catalog # 2244-CM)

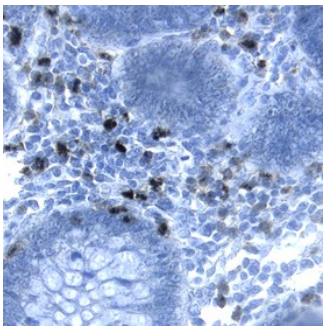
DATA

Western Blot



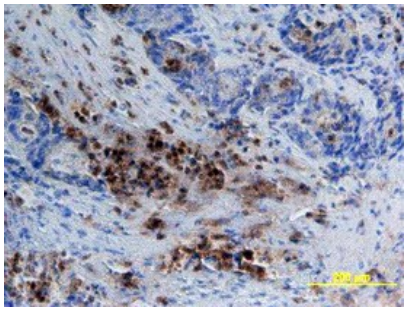
Detection of Human CEACAM-1/CD66a by Western Blot. Western blot shows lysates of human liver tissue and HepG2 human hepatocellular carcinoma cell line. PVDF membrane was probed with 2 µg/mL of Mouse Anti-Human CEACAM-1/CD66a Monoclonal Antibody (Catalog # MAB22441) followed by HRP-conjugated Anti-Mouse IgG Secondary Antibody (Catalog # HAF018). Specific bands were detected for CEACAM-1/CD66a at approximately 100-150 kDa (as indicated). This experiment was conducted under reducing conditions and using Immunoblot Buffer Group 1.

Immunohistochemistry



CEACAM-1/CD66a in Human Colon. CEACAM-1/CD66a was detected in immersion fixed paraffin-embedded sections of human colon using Mouse Anti-Human CEACAM-1/CD66a Monoclonal Antibody (Catalog # MAB22441) at 25 µg/mL overnight at 4 °C. Tissue was stained using the Anti-Mouse HRP-DAB Cell & Tissue Staining Kit (brown; Catalog # CTS002) and counterstained with hematoxylin (blue). Specific labeling was localized to stromal cells. View our protocol for Chromogenic IHC Staining of Paraffin-embedded Tissue Sections.

Immunohistochemistry



CEACAM-1/CD66a in Human Colon Cancer Tissue. CEACAM-1/CD66a was detected in immersion fixed paraffin-embedded sections of human colon cancer tissue using Mouse Anti-Human CEACAM-1 /CD66a Monoclonal Antibody (Catalog # MAB22441) at 25 µg/mL overnight at 4 °C. Tissue was stained using the Anti-Mouse HRP-DAB Cell & Tissue Staining Kit (brown; Catalog # CTS002) and counterstained with hematoxylin (blue). View our protocol for Chromogenic IHC Staining of Paraffin-embedded Tissue Sections.

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Human CEACAM-1/CD66a Antibody

Monoclonal Mouse IgG_1 Clone # 283324

Catalog Number: MAB22441

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.5 mg/mL in sterile PBS.
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

Carcinoembryonic antigen (CEA)-related cell adhesion molecule 1 (CEACAM-1; also called BGP and designated CD66a) is a 160 kDa member of the CEACAM branch of the CEA gene family of the immunoglobulin superfamily (1-3). It is one of seven human CEACAM subfamily genes that are essentially divided equally between type I transmembrane proteins (CEACAM-1, 3, and 4) and GPI-linked molecules (CEACAM-5-8). There is no CEACAM-2 in human. The gene for human CEACAM-1 codes for a 526 amino acid (aa) type I transmembrane protein that contains a 34 aa signal sequence, a 394 aa extracellular domain (ECD), a 24 aa transmembrane segment, and a 74 aa cytoplasmic region (4, 5). The ECD contains one N-terminal V-type Ig-like domain, followed by three C2-type Ig-like domains. It shows considerable glycosylation, including high mannose residues and (sialyl) $Lewis^X$ (1). The cytoplasmic region shows one ITIM motif and a calmodulin binding site (1-3). In addition to the full length form, ten alternate splice forms have been reported (1, 4, 6-8). There are three soluble and seven transmembrane isoforms, with variations occurring in both the ECD and cytoplasmic region. All ten alternate splice forms contain the V-type Ig-like domain (aa's 35-142). The three soluble forms also contain the first two C2-type Ig-like domains (aa's 145-317), with differences coming in the third C2-type Ig-like domain (6). The seven transmembrane isoforms are highly divergent. Five of the seven contain the V-type plus the first two C2-type domains and then diverge considerably both in the ECD and cytoplasmic region. The remaining two contain only the V-type Ig-like domain, the transmembrane region, and either a full-length or truncated cytoplasmic tail (1, 8). The actual functions of the isoforms are unclear. Full-length mouse and rat CEACAM-1 are approximately 57% aa identical to human CEACAM-1; in the V-type Ig-like domain, they are 58% and 56% aa identical, respectively. The full-length molecule is found on neutrophils, bile duct epithelium, activated NK cells, colonic columnar epithelium and endothelium. It is known to act as an intercellular adhesion molecule, forming both homotypic, and heterotypic bonds with CEA and CEACAM-6/NCA (3, 9). On neutrophils, CEACAM-1 also binds to dendritic cell CD-SIGN via its Le^X moiety, inducing dendritic cell maturation and a subsequent Th1-type response (10,11).

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