abcam

ab277129

Anti-CEACAM1 antibody [117] - BSA and Azide free

Recombinant

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Fragment Protein within Mouse Ceacam1 aa 1-450. The exact immunogen used to generate this antibody is proprietary information. Database link P31809
Carrier free	Yes
Clone number	117
Purification technique	Affinity purification Protein A

Reactivity data

ICC

Tested

Species	Mouse
Dilution info	1/20 - 1/100
Notes	-

Flow Cyt

Tested

Species	Mouse
Dilution info	1/25 - 1/100
Notes	-

Target data

See full target information Ceacam1

Function

Isoform 1. Cell adhesion protein that mediates homophilic cell adhesion in a calcium-independent manner (By similarity). Plays a role as coinhibitory receptor in immune response, insulin action and also functions as an activator during angiogenesis (PubMed:16680193, PubMed:17081782, PubMed:18544705, PubMed:21029969, PubMed:21081647, PubMed:22496641, PubMed:22962327, PubMed:23696226). Its coinhibitory receptor function is phosphorylation- and PTPN6 -dependent, which in turn, suppress signal transduction of associated receptors by dephosphorylation of their downstream effectors (PubMed:17081782, PubMed:21029969, PubMed:22496641). Plays a role in immune response, of T-cells, natural killer (NK) and neutrophils (PubMed:17081782, PubMed:21029969, PubMed:22496641, PubMed:23696226). Upon TCR/CD3 complex stimulation, inhibits TCR-mediated cytotoxicity by blocking granule exocytosis by mediating homophilic binding to adjacent cells, allowing interaction with and phosphorylation by LCK and interaction with the TCR/CD3 complex which recruits PTPN6 resulting in dephosphorylation of CD247 and ZAP70 (PubMed:22496641). Also inhibits T-cell proliferation and cytokine production through inhibition of JNK cascade and plays a crucial role in regulating autoimmunity and anti-tumor immunity by inhibiting T-cell through its interaction with HAVCR2 (PubMed:17081782). Upon natural killer (NK) cells activation, inhibit KLRK1-mediated cytolysis of CEACAM1-bearing tumor cells by trans-homophilic interactions with CEACAM1 on the target cell and lead to cis-interaction between CEACAM1 and KLRK1, allowing PTPN6 recruitment and then VAV1 dephosphorylation (PubMed:23696226). Upon neutrophils activation negatively regulates IL1B production by recruiting PTPN6 to a SYK-TLR4-CEACAM1 complex, that dephosphorylates SYK, reducing the production of reactive oxygen species (ROS) and lysosome disruption, which in turn, reduces the activity of the inflammasome (PubMed:22496641). Down-regulates neutrophil production by acting as a coinhibitory receptor for CSF3R by downregulating the CSF3R-STAT3 pathway through recruitment of PTPN6 that dephosphorylates CSF3R (PubMed:21029969). Also regulates insulin action by promoting INS clearance and regulating lipogenesis in liver through regulating insulin signaling (PubMed:18544705). Upon INS stimulation, undergoes phosphorylation by INSR leading to INS clearance by increasing receptor-mediated insulin endocytosis. This inernalization promotes interaction with FASN leading to receptor-mediated insulin degradation and to reduction of FASN activity leading to negative regulation of fatty acid synthesis. INSR-mediated phosphorylation also provokes a down-regulation of cell proliferation through SHC1 interaction resulting in decrease coupling of SHC1 to the MAPK3/ERK1-MAPK1/ERK2 and phosphatidylinositol 3-kinase pathways (By similarity). Functions as activator in

angiogenesis by promoting blood vessel remodeling through endothelial cell differentiation and migration and in arteriogenesis by increasing the number of collateral arteries and collateral vessel calibers after ischemia (PubMed:16680193, PubMed:22962327). Also regulates vascular permeability through the VEGFR2 signaling pathway resulting in control of nitric oxide production (PubMed:21081647). Down-regulates cell growth in response to EGF through its interaction with SHC1 that mediates interaction with EGFR resulting in decrease coupling of SHC1 to the MAPK3/ERK1-MAPK1/ERK2 pathway (PubMed:15467833). Negatively regulates platelet aggregation by decreasing platelet adhesion on type I collagen through the GPVI-FcRgamma complex (PubMed:19008452). Inhibits cell migration and cell scattering through interaction with FLNA; interferes with the interaction of FLNA with RALA (By similarity). Mediates bile acid transport activity in a phosphorylation dependent manner (By similarity). Negatively regulates osteoclastogenesis (PubMed:25490771). Isoform 2. Cell adhesion protein that mediates homophilic cell adhesion in a calcium-independent manner (PubMed:1633107). Promotes populations of T-cells regulating IgA production and secretion associated with control of the commensal microbiota and resistance to enteropathogens (PubMed:23123061). (Microbial infection) In case of murine coronavirus (MHV) infection, serves as receptor for MHV S1 spike glycoprotein.

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	CEACAM1 also known as CD66a is a cell adhesion molecule that plays a critical role in various cellular processes. The protein weighs around 120 kDa and is part of the immunoglobulin superfamily. CEACAM1 is expressed on the surface of various cell types including epithelial cells leukocytes and endothelial cells. The presence of CEACAM1 is important in tissues such as the liver lungs and gastrointestinal tract where it performs essential roles in cell signaling and communication.
Biological function summary	CEACAM1 influences cellular adhesion and immune responses by mediating cell-cell interactions. It forms homophilic dimers at the cell surface and it can participate in heterophilic interactions with other proteins making it part of complex cell signaling networks. These interactions regulate immune cell functions contributing to innate immune responses and cellular homeostasis. CEACAM1 also modulates angiogenesis endothelial cell permeability and apoptosis.

Pathways	CEACAM1 is involved in signaling and regulatory pathways important for immune surveillance and inflammation. It is a part of the TGF-beta signaling pathway affecting cellular proliferation and differentiation. CEACAM1 interacts with proteins such as SHP-1 and SHP-2 which are essential in modulating immune responses. Additionally CEACAM1 influences the MAPK/ERK pathway which plays a role in cell growth and survival.
Associated diseases and disorders	CEACAM1 is associated with cancer and inflammatory diseases. In colorectal cancer altered expression of CEACAM1 contributes to tumor progression and metastasis. The protein also plays a role in inflammatory bowel disease where it affects the epithelial barrier function and immune cell interaction. Through these conditions CEACAM1 interacts with other proteins like CEA and IL-6 which are pivotal in disease development and progression.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

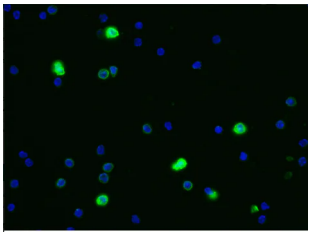
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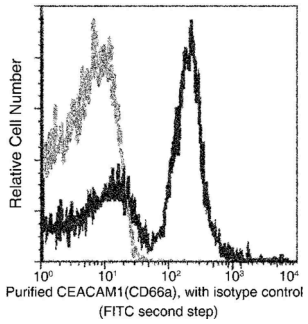
2 product images



Immunocytochemistry - Anti-CEACAM1 antibody [117] - BSA and Azide free (ab277129)

CEACAM1 Immunocytochemistry staining using rabbit Anti-CEACAM1 antibody

Immunofluorescence staining of CEACAM1 in mouse splenocytes. Cells were fixed with 4% PFA, blocked with 10% serum, and incubated with ab277129 at 1/60 dilution at 4°C overnight. Then cells were stained with the Alexa Fluor® 488-conjugated Goat Anti-rabbit IgG secondary antibody (green) and counterstained with DAPI (blue).



Flow Cytometry - Anti-CEACAM1 antibody [117] - BSA and Azide free (ab277129)

CEACAM1 Flow Cytometry staining using rabbit Anti-CEACAM1 antibody

Flow cytometric analysis of CEACAM1 expression on mouse BABL/c splenocytes. Cells were stained with ab277129 at 1/25 dilution, then a FITC-conjugated second step antibody (Black). Cells were also stained with an isotype control (Grey). The fluorescence histograms were derived from gated events with the forward and side light-scatter characteristics of intact cells.

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