abcam

ab300062

# Anti-CEACAM1 antibody [EPR26490-88] (BSA and Azide free)

Recombinant | RabMAb | KO Validated

## Key facts

| | |
|---|---|
| **Isotype** | IgG |
| **Host species** | Rabbit |
| **Storage buffer** | pH: 7.2 - 7.4 Constituents: PBS |
| **Form** | Liquid |
| **Clonality** | Monoclonal |
| **Immunogen** | The exact immunogen used to generate this antibody is proprietary information. |
| **Carrier free** | Yes |
| **Clone number** | EPR26490-88 |
| **Purification technique** | Affinity purification Protein A |
| **Concentration** | 1.013 mg/mL The concentration of this product may be batch-dependent<br>Batch concentration finder → |

## Reactivity data

## WB

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | - |

| | |
|---|---|
| **Notes** | - |

### Not recommended

| | |
|---|---|
| **Species** | Mouse, Rat |
| **Dilution info** | - |
| **Notes** | - |

## IHC-P

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | - |
| **Notes** | - |

### Not recommended

| | |
|---|---|
| **Species** | Mouse, Rat |
| **Dilution info** | - |
| **Notes** | - |

## ICC/IF

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | - |
| **Notes** | - |

### Not recommended

| | |
|---|---|
| **Species** | Mouse, Rat |
| **Dilution info** | - |
| **Notes** | - |

## Flow Cyt

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | - |
| **Notes** | - |

### Not recommended

| | |
|---|---|
| **Species** | Mouse, Rat |
| **Dilution info** | - |
| **Notes** | - |

## IP

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | - |
| **Notes** | - |

### Not recommended

| | |
|---|---|
| **Species** | Mouse, Rat |
| **Dilution info** | - |
| **Notes** | - |

## IHC-Fr

### Not recommended

| | |
|---|---|
| **Species** | Rat, Mouse, Human |
| **Dilution info** | - |
| **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:18424730, PubMed:23696226, PubMed:25363763). Its coinhibitory receptor function is phosphorylation- and PTPN6 -dependent, which in turn, suppress signal transduction of associated receptors by dephosphorylation of their downstream effectors. Plays a role in immune response, of T cells, natural killer (NK) and neutrophils (PubMed:18424730, 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:18424730). 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:25363763). 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. Down-regulates neutrophil production by acting as a coinhibitory receptor for CSF3R by down-regulating the CSF3R-STAT3 pathway through recruitment of PTPN6 that dephosphorylates CSF3R (By similarity). Also regulates insulin action by promoting INS clearance and regulating lipogenesis in liver through regulating insulin signaling (By similarity). 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. Also regulates vascular permeability through the VEGFR2 signaling pathway resulting in control of nitric oxide production (By similarity). 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 (By similarity). Negatively regulates platelet aggregation by decreasing platelet adhesion on type I collagen through the GPVI-FcRgamma complex (By similarity). Inhibits cell migration and cell scattering through interaction with FLNA; interferes with the interaction of FLNA with RALA (PubMed:16291724). Mediates bile acid transport activity in a phosphorylation dependent manner (By similarity). Negatively regulates osteoclastogenesis (By similarity). Isoform 8. Cell adhesion protein that mediates homophilic cell adhesion in a calcium-independent manner (By similarity). Promotes populations of T cells regulating IgA production and secretion associated with control of the commensal microbiota and resistance to enteropathogens (By similarity).

## Storage

| | |
|---|---|
| **Shipped at conditions** | Blue Ice |
| **Appropriate short-term storage conditions** | +4°C |
| **Appropriate long-term storage conditions** | +4°C |
| **Aliquoting information** | Upon delivery aliquot |

## Notes

**Conjugation ready**
Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

**Patented technology**
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

**Compatibility**
This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

**What are the advantages of a recombinant monoclonal antibody?**
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

## 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**

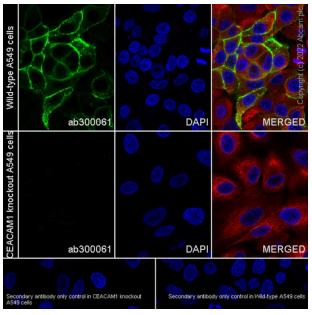
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:

## 10 product images



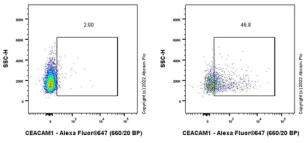

### Immunocytochemistry - Anti-CEACAM1 antibody [EPR26490-88] (BSA and Azide free) (ab300062)

CEACAM1 Immunocytochemistry staining of CEACAM1 KO A549 cells using rabbit Anti-CEACAM1 antibody

This data was developed using ab300061, the same antibody clone in a different buffer formulation.
Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeilized CEACAM1 KO A549 (CEACAM1 knockout human lung carcinoma epithelial cell) (ab267047) cells lebelling CEACAM1 with ab300061 at 1/500 dilution, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/1000 dilution (Green). Confocal image showing membrane and cytoplasmic staining in parental A549 cells, no staining in CEACAM1 KO A549 cells.

ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 dilution (Red). The Nuclear counterstain was DAPI (Blue).

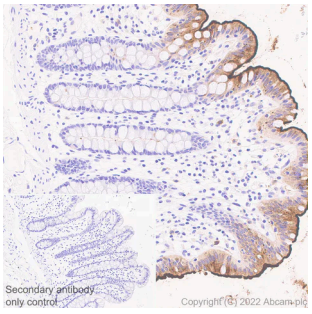
Secondary antibody only control: Secondary antibody is ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 dilution.




### Flow Cytometry - Anti-CEACAM1 antibody [EPR26490-88] (BSA and Azide free) (ab300062)

CEACAM1 Flow Cytometry staining using rabbit Anti-CEACAM1 antibody

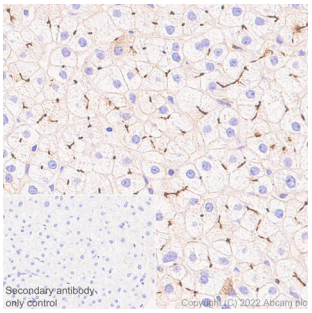
Flow cytometric analysis of Wild-type A549 (Human lung carcinoma epithelial cell, Right)/ CEACAM1 knockout A549 cells (Left) cells labelling CEACAM1 with ab300061 at 1/500 dilution/ Left and Right compared with a isotype control. Goat anti-Rabbit IgG (Alexa Fluor® 647, ab150083) at 1/2000 dilution was used as the secondary antibody. Gated on viable cells. Positive staining on A549 cells (ab255450), while no staining on CEACAM1 knockout A549 cells (ab267047).




### Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CEACAM1 antibody [EPR26490-88] (BSA and Azide free) (ab300062)

CEACAM1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Human colon tissue using rabbit Anti-CEACAM1 antibody

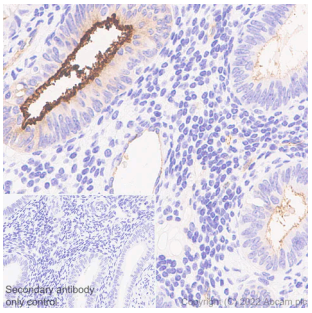
Immunohistochemical analysis of paraffin-embedded human colon tissue labelling CEACAM1 with ab300061 at 1/2000 followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Positive staining on human colon (PMID: 8543780). The section was incubated with ab300061 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin. Secondary antibody only control: PBS was used instead of primary antibody (ab300061) followed by ready to use secondary antibody LeicaDS9800 (Bond™ Polymer Refine Detection). Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.




## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CEACAM1 antibody [EPR26490-88] (BSA and Azide free) (ab300062)

CEACAM1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Human liver tissue using rabbit Anti-CEACAM1 antibody

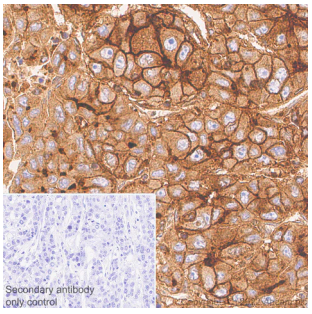
Immunohistochemical analysis of paraffin-embedded human liver tissue labelling CEACAM1 with ab300061 at 1/2000 followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Positive staining on human liver (PMID: 27377843). The section was incubated with ab300061 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin. Secondary antibody only control: PBS was used instead of primary antibody (ab300061) followed by ready to use secondary antibody LeicaDS9800 (Bond™ Polymer Refine Detection). Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.




## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CEACAM1 antibody [EPR26490-88] (BSA and Azide free) (ab300062)

CEACAM1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Human endometrium tissue using rabbit Anti-CEACAM1 antibody

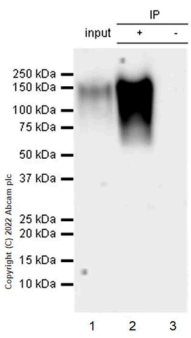
Immunohistochemical analysis of paraffin-embedded human endometrium tissue labelling CEACAM1 with ab300061 at 1/2000 followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Positive staining on human endometrium (PMID: 9626043). The section was incubated with ab300061 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin. Secondary antibody only control: PBS was used instead of primary antibody (ab300061) followed by ready to use secondary antibody LeicaDS9800 (Bond™ Polymer Refine Detection). Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.




## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CEACAM1 antibody [EPR26490-88] (BSA and Azide free) (ab300062)

CEACAM1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Human hepatic carcinoma tissue using rabbit Anti-CEACAM1 antibody

Immunohistochemical analysis of paraffin-embedded human hepatic carcinoma tissue labelling CEACAM1 with ab300061 at 1/2000 followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Positive staining on human hepatic carcinoma (PMID: 27377843). The section was incubated with ab300061 for 30 mins at room temperature The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin. Secondary antibody only control: PBS was used instead of primary antibody (ab300061) followed by ready to use secondary antibody LeicaDS9800 (Bond™ Polymer Refine Detection). Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.



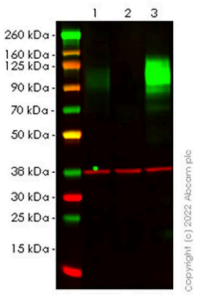

## Immunoprecipitation - Anti-CEACAM1 antibody [EPR26490-88] (BSA and Azide free) (ab300062)

CEACAM1 was immunoprecipitated from 0.35 mg A549 (human lung carcinoma epithelial cell) whole cell lysate 10 µg with ab300061 at 1/30 dilution. Western blot was performed on the immunoprecipitate using ab300061 at 1/1000 dilution. VeriBlot for IP secondary antibody(HRP) (ab131366) was used at 1/5000 dilution. Lane 1: A549 (human lung carcinoma epithelial cell) whole cell lysate 10 µg (Input). Lane 2: ab300061 IP in A549 whole cell lysate. Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab300061 in A549 whole cell lysate. Blocking and dilution buffer and concentration: 5% NFDM/TBST. Exposure time: 32 seconds
All lanes:
Immunoprecipitation - Anti-CEACAM1 antibody [EPR26490-88] (ab300061) at 1/30 dilution

Lane 1:
A549 (human lung carcinoma epithelial cell) whole cell lysate at 10 µg

Lane 2:
ab300061 IP in A549 whole cell lysate

Lane 3:
Rabbit monoclonal IgG (ab172730) instead of ab300061 in A549 whole cell lysate




## Western blot - Anti-CEACAM1 antibody [EPR26490-88] (BSA and Azide free) (ab300062)

CEACAM1 Western blot staining using rabbit Anti-CEACAM1 antibody

Lanes 1-3: Merged signal (red and green). Green - ab300061 observed at 100-180 kDa. Red - loading control ab8245 observed at 36 kDa. ab300061 Anti-CEACAM1 antibody [EPR26490-88] was shown to specifically react with CEACAM1 in wild-type A549 cells (ab255450). Loss of signal was observed when knockout cell line (ab267047) was used. Wild-type and CEACAM1 knockout samples were subjected to SDS-PAGE. ab300061 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) were incubated at 4°C overnight at 1 in 1000 dilution and 1 in 20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (ab216776) secondary antibodies at 1 in 10000 dilution for 1 hour at room temperature before imaging.
All lanes:
Western blot - Anti-CEACAM1 antibody [EPR26490-88] (ab300061) at 1/1000 dilution

Lane 1:
Wild-type A549 (ab255450) whole cell lysate at 20 µg

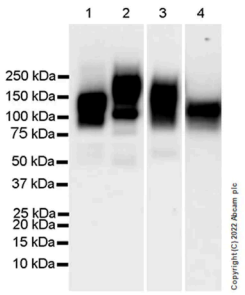
Lane 2:
Western blot - Human CEACAM1 knockout A549 cell line (ab267047) at 20 µg

Lane 3:
HepG2 (Human hepatocellular carcinoma epithelial cell) whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (ab216776) at 1/10000 dilution

Observed band size: 100 kDa, 180 kDa




## Western blot - Anti-CEACAM1 antibody [EPR26490-88] (BSA and Azide free) (ab300062)

CEACAM1 Western blot staining using rabbit Anti-CEACAM1 antibody

Blocking and dilution buffer and concentration: 5% NFDM/TBST. Exposure time: Lanes 1-3: 10 seconds; Lane 4: 48 seconds.
All lanes:
Western blot - Anti-CEACAM1 antibody [EPR26490-88] (ab300061) at 1/1000 dilution

Lane 1:
Human kidney tissue lysate at 20 µg

Lane 2:
Human colon tissue lysate at 20 µg

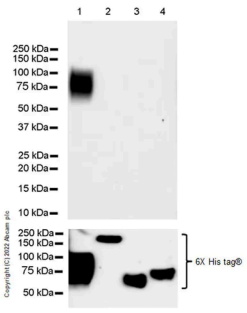
Lane 3:
A-204 (Human muscle rhabdomyosarcoma) whole cell lysate at 20 µg

Lane 4:
SW480 (Human colorectal adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Secondary

Lanes 1 - 4:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Lanes 1 - 4:
Goat Anti-Rabbit IgG (HRP) with minimal cross-reactivity with human IgG (Merck DC03L) at 1/2000 dilution




## Western blot - Anti-CEACAM1 antibody [EPR26490-88] (BSA and Azide free) (ab300062)

CEACAM1 Western blot staining using rabbit Anti-CEACAM1 antibody

Blocking and dilution buffer and concentration: 5% NFDM/TBST. Exposure time: Lanes 1-3: 10 seconds; Lane 4: 48 seconds.
All lanes:
Western blot - Anti-CEACAM1 antibody [EPR26490-88] (ab300061) at 1/1000 dilution

Lane 1:
His-tagged Human CEACAM-1 recombinant protein aa (aa35-428) at 20 ng

Lane 2:
His-tagged Human CEACAM-5/CD66e recombinant protein (aa35-685) at 20 ng

Lane 3:
His-tagged Human CEACAM-6/CD66c recombinant protein (aa35-320) at 20 ng

Lane 4:
His-tagged Human CEACAM-8/CD66b recombinant protein(aa35-320) at 20 ng

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Observed band size: 100 kDa, 180 kDa

Exposure time: 48s

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.