abcam

ab315858

Anti-CD80 antibody [RM1104] - 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	Multiclonal
Immunogens	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	RM1104
Purification technique	Affinity purification Protein A
Specificity	Unsuitable for mouse IP and mouse FC.

Reactivity data

WB

Tested

Species	Human, Mouse
Dilution info	-
Notes	-

Not recommended

Species	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-P

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

ICC/IF

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

Target data

See full target information CD80

Function

Costimulatory molecule that belongs to the immunoglobulin superfamily that plays an important role in T-lymphocyte activation (PubMed:38467718). Acts as the primary auxiliary signal augmenting the MHC/TCR signal in naive T-cells by acting as a ligand for the CD28 receptor which is constitutively expressed on the cell surface of T-cells (PubMed:12196291). In turn, activates different signaling pathways such as NF-kappa-B or MAPK leading to the production of different cytokines (PubMed:10438913). Also acts as an inhibitor of T-cell activation by acting as a ligand for CTLA4, a decoy receptor, thereby blocking CD28-mediated T-cell priming (PubMed:10583602, PubMed:11279502). In addition, CD28/CD80 costimulatory signal stimulates glucose metabolism and ATP synthesis of T-cells by activating the PI3K/Akt signaling pathway (PubMed:12121659). Also acts as a regulator of PDL1/PDCD1 interactions to limit excess engagement of PDL1 and its inhibitory role in immune responses (PubMed:36727298). Expressed on B-cells, plays a critical role in regulating interactions between B-cells and T-cells in both early and late germinal center responses, which are crucial for the generation of effective humoral immune responses (By similarity). (Microbial infection) Acts as a receptor for adenovirus subgroup B.

Storage

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

Notes

ab315858 is the carrier-free version of ab315857.

What are recombinant multiclonals?

Recombinant multiclonals are a mixture of recombinant antibodies co-expressed from a library of heavy and light chains. They offer several advantages including:

- The sensitivity of polyclonal antibodies by recognising multiple epitopes
- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

View our range of recombinant multiclonal antibodies.

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.

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.

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.

Supplementary info

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

Activity summary	CD80 also known as B7-1 is a cell surface protein with a molecular weight of approximately 60 kDa. It is expressed on antigen-presenting cells such as dendritic cells macrophages and B cells. The CD80 protein plays a mechanical role in immune response modulation by providing necessary signals for T cell activation and survival. CD80 interacts with receptors CD28 and CTLA-4 on T cells serving as a costimulatory molecule important for productive immune responses.
Biological function summary	CD80 plays a significant role in the immune system's ability to distinguish between self and non-self. It belongs to the B7 family and participates in the formation of immunological synapses between T cells and antigen-presenting cells. This interaction is essential for triggering T cell proliferation and cytokine production forming a part of the adaptive immune response. CD80's expression increases in response to pathogen recognition enhancing the immune system's efficiency.
Pathways	CD80 is integral to the regulation of T cell-mediated immune responses. It is involved in the CD28 co-stimulatory pathway which is vital for T cell activation and

	function. In this pathway CD80 interacts with proteins like CD28 and CTLA-4 to modulate immune activation and regulate immune tolerance. The proper function of CD80 within this pathway ensures a balanced immune reaction preventing autoimmunity while allowing effective defense against pathogens.
Associated diseases and disorders	CD80 plays a role in autoimmune conditions and transplantation rejection. Its overexpression or dysregulation can contribute to diseases such as rheumatoid arthritis where it modifies T cell response and inflammation. Additionally CD80 is implicated in organ transplantation influencing graft rejection outcomes due to its role in modulating immune activation. Understanding CD80 interactions with CTLA-4 and CD28 offers insight into these conditions providing potential targets for therapeutic intervention.

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

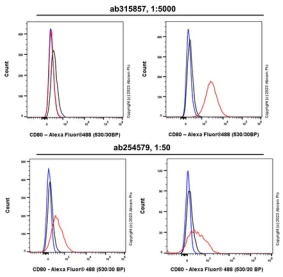
We do not recommend this combination. It is not covered by our product promise.

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:
Terms & Conditions.

5 product images



Flow Cytometry - Anti-CD80 antibody [RM1104] - BSA and Azide free (ab315858)

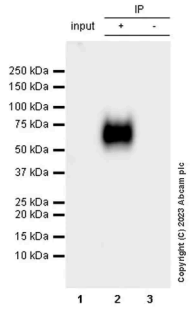
This data was developed using ab315857, the same antibody clone in a different buffer formulation.

Flow cytometric analysis of CD80 KO Raji (human CD80 knockout Burkitt's lymphoma B lymphocyte, Left) / Parental Raji (Right) cells labelling CD80 with ab315857 at 1/5000 dilution (0.01 ug)/Red compared with a Rabbit monoclonal IgG (ab172730) (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue).

Goat Anti-Rabbit IgG (Alexa Fluor® 488, ab150081) at 1/5000 dilution was used as the secondary antibody.

In flow cytometry, ab315857 (upper) shows positive staining on Raji and no staining on CD80 KO Raji, while ab254579 (lower) was shown non-specific binding CD80.

The upper images are applied with Anti-CD80 antibody (ab315857) at 1/5000 dilution and the lower images are applied with Anti-CD80 antibody (ab254579) at 1/50 dilution.



Immunoprecipitation - Anti-CD80 antibody [RM1104] - BSA and Azide free (ab315858)

This data was developed using ab315857, the same antibody clone in a different buffer formulation.

CD80 was immunoprecipitated from 0.35 mg Raji (human Burkitt's lymphoma B lymphocyte) whole cell lysate with ab315857 at 1/30 dilution (2ug in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab315857 at 1/1000 dilution. VeriBlot for IP secondary antibody(HRP)(ab131366) was used at 1/5000 dilution.

Blocking and diluting buffer and concentration: 5% NFDM/TBST.

All lanes:
Immunoprecipitation - Anti-CD80 antibody [RM1104] (ab315857) at 1/1000 dilution

Lane 1:
Raji (human Burkitt's lymphoma B lymphocyte) whole cell lysate

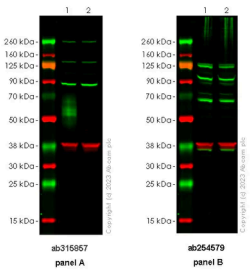
Lane 2:
ab315857 at 1/30 IP in Raji (human Burkitt's lymphoma B lymphocyte) whole cell lysate

Lane 3:
Rabbit monoclonal IgG (ab172730) instead of ab315857 in Raji whole cell lysate

Secondary

All lanes:
Immunoprecipitation - VeriBlot for IP Detection Reagent (HRP) (ab131366) at 1/5000 dilution

Exposure time: 15s



Western blot - Anti-CD80 antibody [RM1104] - BSA and Azide free (ab315858)

CD80 Western blot staining using rabbit Anti-CD80 antibody

This data was developed using ab315857, the same antibody clone in a different buffer formulation.

Western blot: Anti-CD80 antibody (panel A: ab315857, panel B: ab254579) staining at 1/1000 dilution, shown in green; Mouse anti-GAPDH antibody [6C5](ab8245) loading control staining at 1/20000 dilution, shown in red.

In Western blot, ab315857 (panel A) was shown to bind specifically to CD80, while ab254579 (panel B) was shown non-specific binding CD80. Target of interest was observed at 55-60 kDa in wild-type Raji cell lysates (lane 1) with no signal observed at this size in CD80 knockout cell line (lane 2, knockout cell line ab273873/knockout cell lysate ab273827). To generate this image, samples were first run on an SDS-PAGE gel then transferred onto an immobilon-FL PVDF membrane. Membranes were blocked in a fluorescent western blot (TBS-based) blocking solution before incubation with primary antibodies overnight at 4 °C. Blots were washed in TBS-T, incubated with secondary antibodies Goat anti-Rabbit IgG H&L 800CW and Goat anti-Mouse IgG H&L 680RD at 1/20000 dilution for 1 h at room temperature, washed again then imaged.

All lanes:
Western blot - Anti-CD80 antibody [RM1104] (ab315857) at 1/1000 dilution

Lane 1:
Wild-type Raji (human Burkitts lymphoma B lymphocyte) whole cell lysate at 20 µg

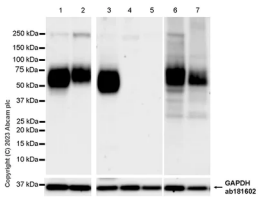
Lane 2:
CD80 knockout Raji whole cell lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG H&L (800CW) and Goat Anti-Mouse IgG H&L (680RD) at 1/20000 dilution

Performed under reducing conditions.

Observed band size: 55-60 kDa



Western blot - Anti-CD80 antibody [RM1104] - BSA and Azide free (ab315858)

This data was developed using ab315857, the same antibody clone in a different buffer formulation. Blocking and diluting buffer and concentration: 5% NFDM/TBST
Negative control: HUVEC (PMID: 15064090), 293T.

The molecular mass observed is consistent with what has been described in the literature (PMID: 7544014, PMID: 9079798); 55-60 kDa is due to glycosylation (PMID: 9654121). The band over 200 kDa is unknown band.

This blot was developed using a high sensitivity ECL substrate (Lanes 6-7). The high-sensitivity ECL substrate used allows for the detection of proteins in the mid-femtogram range.

In Western blot, Anti-GAPDH antibody [EPR16891] - Loading Control (ab181602) staining at 1/200000 dilution.

Exposure time: Lane 1-5: 70 seconds Lane 6-7: 59 seconds

All lanes:

Western blot - Anti-CD80 antibody [RM1104] (ab315857) at 1/1000 dilution

Lane 1:
Raji (human Burkitts lymphoma B lymphocyte) whole cell lysate at 20 µg

Lane 2:
Daudi (human Burkitts lymphoma lymphoblast) whole cell lysate at 20 µg

Lane 3:
HDLM-2 (human Hodgkin lymphoma cell) whole cell lysate at 20 µg

Lane 4:
HUVEC (human umbilical vein endothelial cell) whole cell lysate at 20 µg

Lane 5:
293T (human embryonic kidney epithelial cell) whole cell lysate at 20 µg

Lane 6:
Human tonsil tissue lysate at 20 µg

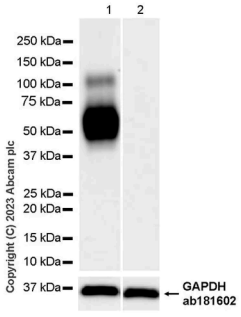
Lane 7:
Human spleen tissue lysate at 20 µg

Secondary

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

Developed using the ECL technique.

Observed band size: 55-60 kDa, 36 kDa



Western blot - Anti-CD80 antibody [RM1104] - BSA and Azide free (ab315858)

This data was developed using ab315857, the same antibody clone in a different buffer formulation. Blocking and diluting buffer and concentration: 5% NFDM/TBST. Negative control: P815 (PMID: 9237108). The band around 100 kDa is unknown band. In Western blot, Anti-GAPDH antibody [EPR16891] - Loading Control (ab181602) staining at 1/200000 dilution.
All lanes:
Western blot - Anti-CD80 antibody [RM1104] (ab315857) at 1/1000 dilution

Lane 1:
C2C12 (mouse myoblast) whole cell lysate at 20 µg

Lane 2:
P815 (mouse mastocytoma mast Cell) whole cell lysate at 20 µg

Observed band size: 55-60 kDa

Exposure time: 70s

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