abcam

ab224797

Anti-CD80 antibody [EPR1157(2)] - Low endotoxin, 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	EPR1157(2)
Purification technique	Affinity purification Protein A
Concentration	1.026 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	-

Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	-
Notes	-

ICC/IF

Not recommended

Species	Human
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	-
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

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
Storage information	Do Not Freeze

Notes

ab224797 is the carrier-free version of ab134120.

Species reactivity
Mouse, Rat: We have preliminary internal testing data to indicate this antibody may not react with these species. Please contact us for more information.

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.

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.

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.

What does low endotoxin mean?
Our low endotoxin, azide-free formats have low endotoxin level (1 EU/mg, determined by the TAL assay) and are free from azide, to achieve consistent experimental results in functional assays.

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.

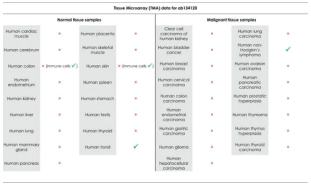
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

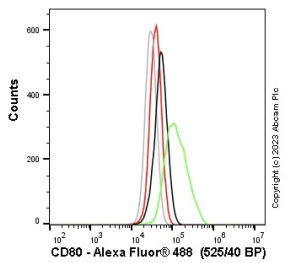
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7 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CD80 antibody [EPR1157(2)] - Low endotoxin, Azide free (ab224797)

Tissue Microarrays stained for "Anti-CD80 antibody [EPR1157(2)]" using "ab134120"in immunohistochemical analysis. This table provides a detailed overview of positive (tick mark) and negative (cross mark) staining per sample type tested. The sections were pre-treated using Heat mediated antigen retrieval using Bond™ Epitope Retrieval Solution 2 (pH 9.0) for 20 minutes. The sections were incubated with ab134120 for 30 mins at room temperature followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). The immunostaining was performed on a Leica Biosystems BOND® RX instrument.



Flow Cytometry (Intracellular) - Anti-CD80 antibody [EPR1157(2)] - Low endotoxin, Azide free (ab224797)

CD80 Flow Cytometry (Intracellular) staining using rabbit Anti-CD80 antibody

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab134120).

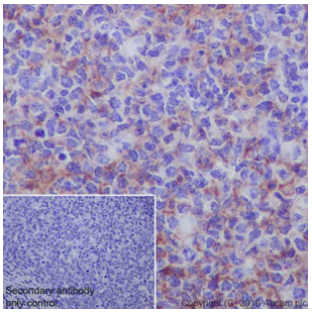
Flow cytometry overlay histogram showing wild-type Raji (green line) and CD80 knockout Raji stained with ab134120 (red line). The cells were fixed with 4% formaldehyde (10 min) and then permeabilised with 0.1% PBS-Triton X-100 for 15 min. The cells were then incubated in 1x PBS containing 10µg/ml human IgG and 10% normal goat serum to block FC receptors and non-specific protein-protein interaction followed by the antibody (ab134120) (1x 106 in 100µl at 0.2 µg/ml (1/10150)) for 30min at 22°C.

The secondary antibody Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed was incubated at 1/4000 for 30min at 22°C

Isotype control antibody Recombinant Rabbit IgG, monoclonal [EPR25A] - Isotype Control was used at the same concentration and conditions as the primary antibody (wild-type Raji - black line, CD80 knockout Raji - grey line). Unlabelled sample was also used as a control (this line is not shown for the purpose of simplicity).

Acquisition of >5000 events were collected using a 50 mW Blue laser (488nm) and 525/40 bandpass filter.

This antibody gave a positive signal in Raji Fixed with 80% methanol (5 min) / permeabilised with 0.1% PBS-Triton X-100 for 15 min under the same conditions.

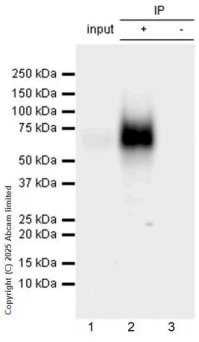


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CD80 antibody [EPR1157(2)] - Low endotoxin, Azide free (ab224797)

CD80 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-CD80 antibody

This IHC data was generated using the same anti-CD80 antibody clone [EPR1157(2)] in a different buffer formulation (cat# ab134120).
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human tonsil tissue labelling CD80 with ab134120 at a dilution of 1/1000. Heat mediated antigen retrieval was performed using Trs/EDTA buffer pH9 (ab93684). ImmunoHistoProbe one step HRP Polymer was used. Counter stained with hematoxylin.

The image shows cytoplasmic and membrane staining.



Immunoprecipitation - Anti-CD80 antibody [EPR1157(2)] - Low endotoxin, Azide free (ab224797)

This data was developed using the same antibody clone in a different buffer formulation (ab134120).

CD80 was immunoprecipitated from 0.35 mg Raji (human Burkitt's lymphoma B lymphocyte) whole cell lysate with ab134120 at 1/30 dilution (2µg in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab134120 at 1/1000 dilution. VeriBlot for IP secondary antibody(HRP)(ab131366) was used at 1/5000 dilution.

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

Lane 1:
Raji (human Burkitt's lymphoma B lymphocyte) whole cell lysate 10 µg

Lane 2:
Raji (human Burkitt's lymphoma B lymphocyte) whole cell lysate

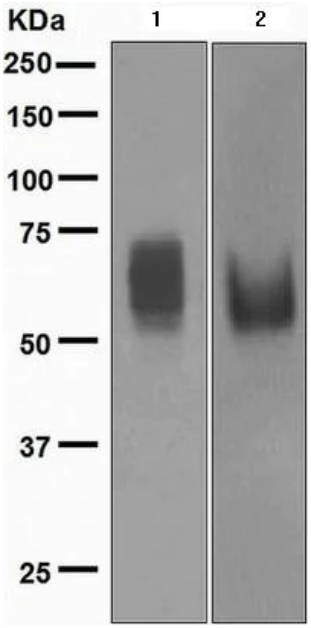
Lane 3:
Rabbit monoclonal IgG (ab172730) instead of ab134120 in Raji whole cell lysate

Secondary

All lanes:
Immunoprecipitation - VeriBlot for IP Detection Reagent (HRP) (ab131366)

Observed band size: 60 kDa

Exposure time: 6s



Western blot - Anti-CD80 antibody [EPR1157(2)] - Low endotoxin, Azide free (ab224797)

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab224797)
All lanes:
Western blot - Anti-CD80 antibody [EPR1157(2)] (ab134120) at 1/1000 dilution

Lane 1:
Raji cell lysate at 10 µg

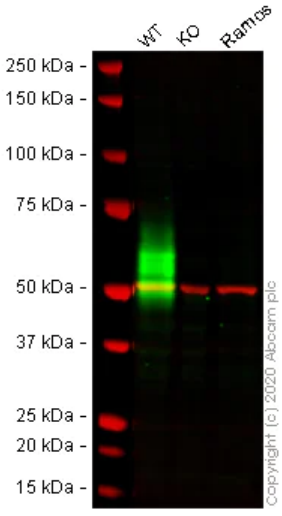
Lane 2:
Ramos cell lysate at 10 µg

Secondary

All lanes:
Goat anti-rabbit HRP conjugated antibody at 1/2000 dilution

Predicted band size: 33 kDa, 43 kDa

Observed band size: 43 kDa, 60 kDa



Western blot - Anti-CD80 antibody [EPR1157(2)] - Low endotoxin, Azide free (ab224797)

CD80 Western blot staining using rabbit Anti-CD80 antibody

This data was developed using the same antibody clone in a different buffer formulation (ab134120).
Lanes 1 - 3: Merged signal (red and green). Green - ab134120 observed at 55 kDa. Red - loading control ab7291 (Mouse anti-Alpha Tubulin [DM1A]) observed at 55kDa.

ab134120 was shown to react with CD80 in wild-type Raji cells in western blot with loss of signal observed in CD80 knockout sample. Wild-type and CD80 knockout Raji cell lysates were subjected to SDS-PAGE. Membranes were blocked in 3% milk in TBS-T (0.1% Tween®) before incubation with ab134120 and ab7291 (Mouse anti-Alpha Tubulin [DM1A]) overnight at 4°C at a 1 in 1000 Dilution and a 1 in 20000 dilution respectively. Blots were incubated with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preabsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-CD80 antibody [EPR1157(2)] (ab134120) at 1/1000 dilution

Lane 1:
Wild-type Raji (Human Burkitt's lymphoma cell line) whole cell lysate at 20 µg

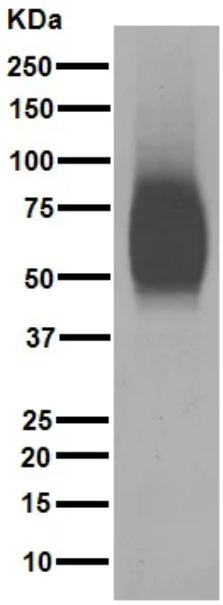
Lane 2:
Western blot - Human CD80 knockout Raji cell lysate (ab273827) at 20 µg

Lane 3:
Ramos (Human Burkitt's lymphoma cell line) whole cell lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 33 kDa

Observed band size: 55 kDa



Western blot - Anti-CD80 antibody [EPR1157(2)] - Low endotoxin, Azide free (ab224797)

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab224797)
All lanes:
Western blot - Anti-CD80 antibody [EPR1157(2)] (ab134120) at 1/2500 dilution

All lanes:
Raji cell lysate at 20 µg

Secondary

All lanes:
Peroxidase-conjugated goat anti-rabbit IgG (H+L) at 1/1000 dilution

Predicted band size: 33 kDa

Observed band size: 60 kDa

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