abcam

ab270296

Anti-CD74 antibody [CLIP/3127R] - BSA and Azide free

Recombinant | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Cell preparation containing CD74 protein. The exact immunogen used to generate this antibody is proprietary information. Database link P04233
Carrier free	Yes
Clone number	CLIP/3127R
Purification technique	Affinity purification Protein A/G
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Purified from bioreactor concentrate.

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	1-2 µg
Notes	-

WB

Tested

Species	Human
Dilution info	1-2 µg/mL
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1-2 µg/mL
Notes	-

Target data

See full target information CD74

Function

Plays a critical role in MHC class II antigen processing by stabilizing peptide-free class II alpha/beta heterodimers in a complex soon after their synthesis and directing transport of the complex from the endoplasmic reticulum to the endosomal/lysosomal system where the antigen processing and binding of antigenic peptides to MHC class II takes place. Serves as cell surface receptor for the cytokine MIF. Class-II-associated invariant chain peptide. Binds to the peptide-binding site of MHC class II alpha/beta heterodimers forming an alpha-beta-CLIP complex, thereby preventing the loading of antigenic peptides to the MHC class II complex until its release by HLA-DM in the endosome. Isoform p41. Stabilizes the conformation of mature CTSL by binding to its active site and serving as a chaperone to help maintain a pool of mature enzyme in endocytic compartments and extracellular space of antigen-presenting cells (APCs). Has antiviral activity by stymieing the endosomal entry of Ebola virus and coronaviruses, including SARS-CoV-2 (PubMed:32855215). Disrupts cathepsin-mediated Ebola virus glycoprotein processing, which prevents viral fusion and entry. This antiviral activity is specific to p41 isoform (PubMed:32855215).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

ab270296 is a carrier free version of ab270265.
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.

Supplementary info

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

Activity summary	CD74 also known as the invariant chain or Ii is a protein with a mass of about 33 kDa. It is widely expressed on the surface of immune cells such as B cells dendritic cells and macrophages. CD74 plays an important role in the immune system by acting as a chaperone for major histocompatibility complex class II (MHC II) molecules guiding their migration to endosomes where they encounter antigenic peptides. The CD74 protein also functions as a cell surface receptor for macrophage migration inhibitory factor (MIF) enhancing the immune response process.

Biological function summary	CD74 facilitates multiple immune regulatory processes. It forms a complex with the MHC II molecules aiding in their proper folding and peptide loading in the endoplasmic reticulum. This complex then travels through the Golgi apparatus towards the lysosomal compartments where antigens are presented to initiate adaptive immune responses. In addition CD74 is involved in signal transduction pathways that regulate cell proliferation and survival influenced by interactions with MIF and other molecules.
Pathways	The role of CD74 extends into both the antigen presentation and MIF signaling pathways. Within the antigen presentation pathway CD74's activity is tightly connected with MHC II and subsequently to CD4+ T cells facilitating the activation of these immune cells. The MIF signaling pathway involves CD74 interacting with CD44 a receptor that further propagates the signaling cascades essential for immune modulation and cell survival.
Associated diseases and disorders	CD74 is linked to inflammatory and autoimmune conditions such as rheumatoid arthritis and systemic lupus erythematosus. Aberrant expression of CD74 influences the presentation of autoantigens and may contribute to the chronic inflammation seen in these disorders. Its connection to MIF which is a pro-inflammatory cytokine further implicates CD74 in these autoimmune scenarios by promoting persistent immune activation. Researchers are also exploring CD74 as a therapeutic target in certain cancers due to its influence on immune surveillance and tumor 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

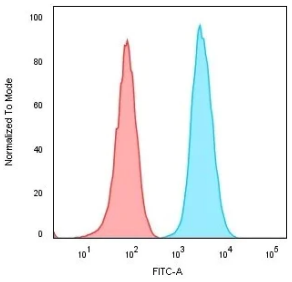
We do not recommend this combination. It is not covered by our product promise.

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:
Terms & Conditions.

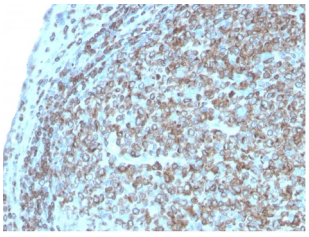
5 product images



Flow Cytometry - Anti-CD74 antibody [CLIP/3127R] - BSA and Azide free (ab270296)

CD74 Flow Cytometry staining using rabbit Anti-CD74 antibody

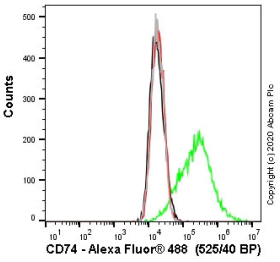
Flow cytometric analysis of Raji (Human Burkitt's lymphoma cell line) cells labeling CD74 using ab270265 at 2µg/10^6 cells followed by goat anti-mouse IgG-CF488 (Blue); isotype control (Red). This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA and sodium azide (ab270265).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CD74 antibody [CLIP/3127R] - BSA and Azide free (ab270296)

CD74 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-CD74 antibody

Formalin-fixed, paraffin-embedded human tonsil tissue stained for CD74 using ab270265 at 2 µg/ml in immunohistochemical analysis.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA and sodium azide (ab270265).



Flow Cytometry - Anti-CD74 antibody [CLIP/3127R] - BSA and Azide free (ab270296)

CD74 Flow Cytometry staining using rabbit Anti-CD74 antibody

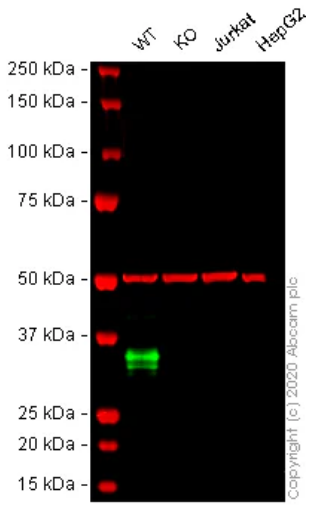
This data was developed using the same antibody clone in a different buffer formulation (ab270265).

Flow cytometry overlay histogram showing wild-type Raji (green line) and CD74 knockout Raji cells (ab273378) stained with ab270265 (red line). The cells were 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 (ab270265) (1x10^6 in 100µl at 1 µg/ml) for 30 min at 4°C.

The secondary antibody Goat anti-rabbit IgG H&L (Alexa Fluor® 488, pre-adsorbed) (ab150081) was used at 1/2000 for 30 min at 4°C.

Isotype control antibody was Rabbit IgG (monoclonal) (ab172730) used at the same concentration and conditions as the primary antibody (wild-type Raji cells - black line; CD74 knockout Raji cells ab273378 - 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.



Western blot - Anti-CD74 antibody [CLIP/3127R] - BSA and Azide free (ab270296)

CD74 Western blot staining using rabbit Anti-CD74 antibody

This data was developed using the same antibody clone in a different buffer formulation (ab270265).
Lanes 1 - 4: Merged signal (red and green). Green - ab270265 observed at 35 kDa. Red - loading control, ab7291 (Mouse anti-Alpha Tubulin [DM1A]) observed at 55 kDa.

ab270265 was shown to react with CD74 in western blot. The band observed in CD74 CRISPR/Cas9 edited cell line ab273378 (CRISPR/Cas9 edited lysate ab275529) below 35 kDa is likely to represent a truncated form. This has not been investigated further. Membranes were blocked in 3 % milk in TBS-T (0.1 % Tween®) before incubation with ab270265 and ab7291 (Mouse anti-Alpha Tubulin [DM1A]) overnight at 4 °C at 1 µg/ml 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 h at room temperature before imaging.

All lanes:
Western blot - Anti-CD74 antibody [CLIP/3127R] (ab270265) at 1 µg/mL

Lane 1:
Wild-type Raji cell lysate at 30 µg

Lane 2:
Western blot - Human CD74 knockout Raji cell lysate (ab275529) at 30 µg

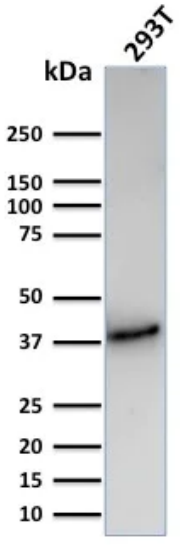
Lane 3:
Jurkat cell lysate at 30 µg

Lane 4:
HepG2 cell lysate at 30 µg

Performed under reducing conditions.

Predicted band size: 34 kDa

Observed band size: 35 kDa



Western blot - Anti-CD74 antibody [CLIP/3127R] - BSA and Azide free (ab270296)

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA and sodium azide (ab270265).
All lanes:
Western blot - Anti-CD74 antibody [CLIP/3127R] - BSA and Azide free (ab270296) at 2 µg/mL

All lanes:
HEK-293T (Human epithelial cell line from embryonic kidney transformed with large T antigen) cell lysate

Predicted band size: 34 kDa

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