abcam

ab59477

Anti-CD81 antibody [TS81] - BSA and Azide free

KO Validated

Key facts

Isotype	IgG2a
Host species	Mouse
Storage buffer	pH: 7.3 - 7.5 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Cell preparation containing CD81 protein. The exact immunogen used to generate this antibody is proprietary information. Database link P60033
Carrier free	Yes
Clone number	TS81
Purification technique	Ion exchange chromatography
Specificity	Recognises the TAPA-1 antigen, a 23 kDa (smear) protein.
Light chain type	kappa
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	ab59477 is sterile-filtered through 0.22 µm and treated to remove endotoxins.

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	5 µg/mL
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	0.5 µg for 10^6 Cells
Notes	ab170191 - Mouse monoclonal IgG2a, is suitable for use as an isotype control with this antibody.

WB

Tested

Species	Human
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1 µg/mL
Notes	-

Target data

See full target information CD81

Function	Structural component of specialized membrane microdomains known as tetraspanin-enriched microdomains (TERMs), which act as platforms for receptor clustering and signaling. Essential for trafficking and compartmentalization of CD19 receptor on the surface of activated B cells (PubMed:16449649, PubMed:20237408, PubMed:27881302). Upon initial encounter with microbial pathogens, enables the assembly of CD19-CR2/CD21 and B cell receptor (BCR)

complexes at signaling TERMs, lowering the threshold dose of antigen required to trigger B cell clonal expansion and antibody production (PubMed:15161911, PubMed:20237408). In T cells, facilitates the localization of CD247/CD3 zeta at antigen-induced synapses with B cells, providing for costimulation and polarization toward T helper type 2 phenotype (PubMed:22307619, PubMed:23858057, PubMed:8766544). Present in MHC class II compartments, may also play a role in antigen presentation (PubMed:8409388, PubMed:8766544). Can act both as positive and negative regulator of homotypic or heterotypic cell-cell fusion processes. Positively regulates sperm-egg fusion and may be involved in acrosome reaction (By similarity). In myoblasts, associates with CD9 and PTGFRN and inhibits myotube fusion during muscle regeneration (By similarity). In macrophages, associates with CD9 and beta-1 and beta-2 integrins, and prevents macrophage fusion into multinucleated giant cells specialized in ingesting complement-opsonized large particles (PubMed:12796480). Also prevents the fusion of mononuclear cell progenitors into osteoclasts in charge of bone resorption (By similarity). May regulate the compartmentalization of enzymatic activities. In T cells, defines the subcellular localization of dNTPase SAMHD1 and permits its degradation by the proteasome, thereby controlling intracellular dNTP levels (PubMed:28871089). Also involved in cell adhesion and motility. Positively regulates integrin-mediated adhesion of macrophages, particularly relevant for the inflammatory response in the lung (By similarity). (Microbial infection) Acts as a receptor for hepatitis C virus (HCV) in hepatocytes. Association with CLDN1 and the CLDN1-CD81 receptor complex is essential for HCV entry into host cell. (Microbial infection) Involved in SAMHD1-dependent restriction of HIV-1 replication. May support early replication of both R5- and X4-tropic HIV-1 viruses in T cells, likely via proteasome-dependent degradation of SAMHD1. (Microbial infection) Specifically required for Plasmodium falciparum infectivity of hepatocytes, controlling sporozoite entry into hepatocytes via the parasitophorous vacuole and subsequent parasite differentiation to exoerythrocytic forms.

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
Storage information	Avoid freeze / thaw cycle

Supplementary info

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

Activity summary	CD81 also known as TAPA-1 or 26 kDa protein is a member of the tetraspanin family featuring four transmembrane domains. The molecular weight of CD81 is

	approximately 26-28 kDa. This protein exhibits expression in numerous cell types such as leukocytes endothelial cells and epithelial tissues. CD81 plays a mechanical role by facilitating membrane protein interactions and contributing to cellular processes like adhesion and morphogenesis. Researchers have identified specific isoforms like M38 and labels like 1D6 CHAN in studies involving this target often analyzing CD81 through techniques like Western blot to determine expression levels and molecular weight.
Biological function summary	CD81 interacts with other tetraspanins and forms complexes within the membrane to regulate cellular signaling trafficking and adhesion. It participates in the assembly of larger tetraspanin-enriched microdomains which are important for efficient signaling and functional variety. These complexes modulate cell morphology proliferation and development influencing immune responses and pathogen entry to cells. The presence of CD81 in diverse tissues implies its involvement in a wide range of cellular processes forming essential complexes with proteins like integrins that further engage in tissue repair and immunological defense.
Pathways	CD81 plays significant roles in the immune system and viral entry pathways. It interacts with other proteins like CD9 and CD19 within the immune response pathways regulating lymphocyte activation and differentiation. CD81 is notably a coreceptor in the hepatitis C virus (HCV) entry pathway facilitating viral attachment and fusion into host cells. These interactions illustrate CD81's involvement in modulation of immune cell responses and influence on pathogen infection processes integrating into the complex cellular pathways important for maintaining homeostasis and response to external stimuli.
Associated diseases and disorders	CD81 has connections to hepatitis C virus (HCV) infections and immunological disorders such as systemic lupus erythematosus (SLE). During HCV infection CD81 serves as an important entry point for the virus interacting with proteins like claudin-1 and scavenger receptor class B type I (SR-BI) enabling viral entry and replication within liver cells. In SLE alterations in CD81 expression can impact autoantibody production and lymphocyte behavior contributing to the disease's pathology. Understanding CD81's role in these diseases provides insight into therapeutic targets and potential interventions for managing infections and autoimmune responses.

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.

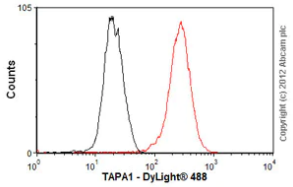
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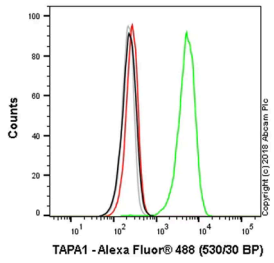
3 product images



Flow Cytometry - Anti-CD81 antibody [TS81] - BSA and Azide free (ab59477)

CD81 Flow Cytometry staining using mouse Anti-CD81 antibody

Overlay histogram showing Jurkat cells stained with ab59477 (red line). The cells were fixed with 4% paraformaldehyde (10 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab59477, 0.5µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG2a [ICIGG2A] (ab91361, 1µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a positive signal in Jurkat cells fixed with 80% methanol (5 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.



Flow Cytometry - Anti-CD81 antibody [TS81] - BSA and Azide free (ab59477)

CD81 Flow Cytometry staining using mouse Anti-CD81 antibody

Overlay histogram showing HAP1 wildtype (green line) and HAP1-CD81 knockout cells (red line) stained with ab59477. The cells were fixed with 4% formaldehyde (10 min) and then permeabilized with 0.1% PBS-Triton X-100 for 15 min. The cells were then incubated in 1x PBS / 10% normal goat serum to block non-specific protein-protein interactions followed by the antibody (ab59477, 1µg/ml) for 30 min at 22°C. The secondary antibody used was Alexa Fluor® 488 goat anti-mouse IgG (H&L) presorbed (ab150117) at 1/2000 dilution for 30 min at 22°C.

A mouse IgG1 isotype control antibody (ab170190) was used at the same concentration and conditions as the primary antibody (HAP1 wildtype - black line, HAP1-CD81 knockout - grey line). Unlabelled sample was also used as a control (this line is not shown for the purpose of simplicity).

Acquisition of >5,000 events were collected using a 50 mW Blue laser (488nm) and 530/30 bandpass filter.

This antibody can also be used in HAP1 cells fixed with 80% methanol (5 min), , permeabilized with 0.1% PBS-Triton X-100 for 15 min under the same conditions.

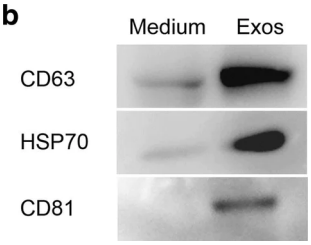


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Western blot - Anti-CD81 antibody [TS81] - BSA and Azide free (ab59477)

CD81 western blot using anti-CD81 antibody [TS81] - BSA and Azide free ab59477. Publication image and figure legend from Liu, X., Wang, S., et al., 2018, Stem Cell Res Ther, PubMed 29895333.

ab59477 was used in this publication in western blot. This may not be the same as the application(s) guaranteed by Abcam. For a full list of applications guaranteed by Abcam for ab59477 please see the product overview.

Isolation and characterization of adMSC-Exos. a Electron micrograph of exosomes isolated from adMSC-conditioned medium. The arrowheads indicate exosomes. Original scale bars = 0.5 μm. b Western blot was performed with adMSC-Exos (Exos) or adMSC-conditioned medium (Medium). CD63, HSP70 and CD81 expression levels in exosomes were detected. c Fibroblasts were incubated with Dil-labeled exosomes (Dil-Exos; Dil is shown in red) or carrier control (CON), and nuclei were stained with Hoechst 33,342 (blue). Original scale bars = 50 μm

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