abcam

ab23505

Anti-CD81 antibody [1D6]

KO Validated

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	pH: 7.4 Preservative: 0.09% Sodium azide 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
Clone number	1D6
Purification technique	Affinity purification Protein G
Specificity	ab23505 recognises human CD81, a 26kD cell surface antigen also known as TAPA-1, and a member of the tetraspanin family.
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	1/5 - 1/10

Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Predicted

Species	Sheep, Goat, Chimpanzee
Dilution info	-
Notes	-

WB

Not recommended

Species	Human
Dilution info	-
Notes	Although there are references supporting the use of the clone in WB, our internal testing failed to achieve suitable results. Unfortunately this antibody cannot be guaranteed for WB

Species	Sheep
Dilution info	-
Notes	-

Species	Goat
Dilution info	-
Notes	-

Species	Chimpanzee
Dilution info	-
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 duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot

Notes

This antibody induces homotypic adhesion and has powerful anti proliferative effects.

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.

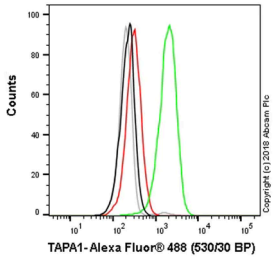
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1 product image



Flow Cytometry - Anti-CD81 antibody [1D6] (ab23505)

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 ab23505. 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 (ab23505, 0.1µg/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.

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