abcam

ab2807

Anti-alpha Adaptin antibody [AC1-M11]

Key facts

Isotype	IgG2a
Host species	Mouse
Storage buffer	Preservative: 0.05% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Native Full Length Protein corresponding to Cow AP2A2. Database link Q0VCK5
Clone number	AC1-M11
Purification technique	Affinity purification Protein A
Concentration	2 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	1/100
Notes	ab170191 - Mouse monoclonal IgG2a, is suitable for use as an isotype control with this antibody.

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Tested

Species	Mouse
Dilution info	2 µg/mL
Notes	-

Expected

Species	Human, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/20
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

ICC/IF

Tested

Species	Rat

Dilution info	1/100
Notes	-

Expected

Species	Human, Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information AP2A2

Function

Component of the adaptor protein complex 2 (AP-2). Adaptor protein complexes function in protein transport via transport vesicles in different membrane traffic pathways. Adaptor protein complexes are vesicle coat components and appear to be involved in cargo selection and vesicle formation. AP-2 is involved in clathrin-dependent endocytosis in which cargo proteins are incorporated into vesicles surrounded by clathrin (clathrin-coated vesicles, CCVs) which are destined for fusion with the early endosome. The clathrin lattice serves as a mechanical scaffold but is itself unable to bind directly to membrane components. Clathrin-associated adaptor protein (AP) complexes which can bind directly to both the clathrin lattice and to the lipid and protein components of membranes are considered to be the major clathrin adaptors contributing the CCV formation. AP-2 also serves as a cargo receptor to selectively sort the membrane proteins involved in receptor-mediated endocytosis. AP-2 seems to play a role in the recycling of synaptic vesicle membranes from the presynaptic surface. AP-2 recognizes Y-X-X-[FILMV] (Y-X-X-Phi) and [ED]-X-X-X-L-[LI] endocytosis signal motifs within the cytosolic tails of transmembrane cargo molecules. AP-2 may also play a role in maintaining normal post-endocytic trafficking through the ARF6-regulated, non-clathrin pathway. During long-term potentiation in hippocampal neurons, AP-2 is responsible for the endocytosis of ADAM10 (By similarity). The AP-2 alpha subunit binds polyphosphoinositide-containing lipids, positioning AP-2 on the membrane. The AP-2 alpha subunit acts via its C-terminal appendage domain as a scaffolding platform for endocytic accessory proteins. The AP-2 alpha and AP-2 sigma subunits are thought to contribute to the recognition of the [ED]-X-X-X-L-[LI] motif (By similarity).

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

Supplementary info

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

Activity summary	Alpha adaptin also known as AP2A1 is a component of the AP-2 complex carrying a molecular mass of about 110 kDa. This protein functions mechanically by mediating the formation of clathrin-coated vesicles at the plasma membrane. It facilitates the cargo selection process in clathrin-mediated endocytosis. Alpha adaptin is expressed broadly with significant presence in tissues like the brain and kidneys. This protein interacts strongly with clathrin and cargo receptors to regulate the internalization of various membrane-bound molecules.
Biological function summary	Alpha adaptin contributes to cellular homeostasis by managing the uptake and recycling of receptors and nutrients. It is an integral part of the adaptor protein complex 2 (AP-2) which orchestrates cargo binding and vesicle formation on the plasma membrane. This complex includes other subunits like beta adaptin mu adaptin and sigma adaptin all working collaboratively to ensure proper endocytic function. Alpha adaptin's role is essential in maintaining cell surface receptor levels and nutrient uptake.
Pathways	This protein is involved in endocytic pathways and is critical in synaptic vesicle recycling. Through this process it regulates neurotransmitter release by facilitating synaptic vesicle endocytosis a vital mechanism in neuron function. Alpha adaptin also interacts with dynamin another significant player in clathrin-mediated endocytosis which pinches off vesicles from the plasma membrane. This interaction supports its role in vesicle trafficking and cellular communication.
Associated diseases and disorders	Alpha adaptin has implications in neurological disorders and cancer. Dysregulation of clathrin-mediated endocytosis involving alpha adaptin can influence the pathogenesis of neurodegenerative diseases like Alzheimer's disease. Perturbations in the AP-2 complex including alpha adaptin can misregulate receptor internalization impacting cell proliferation and migration therefore having potential links with oncogenesis. Moreover its interaction with proteins involved in receptor signaling pathways highlights its relevance to these conditions.

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

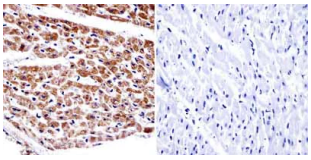
We do not recommend this combination. It is not covered by our product promise.

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.

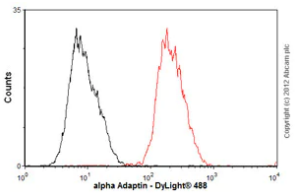
7 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-alpha Adaptin antibody [AC1-M11] (ab2807)

Alpha Adaptin Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-alpha Adaptin antibody

Immunohistochemistry was performed on normal biopsies of deparaffinized Human heart tissue. To expose target proteins heat induced antigen retrieval was performed using 10mM sodium citrate (pH6.0) buffer and microwaved for 8-15 minutes. Following antigen retrieval tissues were blocked in 3% BSA-PBS for 30 minutes at room temperature. Tissues were then probed at a dilution of 1:20 with a Mouse monoclonal antibody recognizing alpha Adaptin (ab2807) or without primary antibody (negative control) overnight at 4°C in a humidified chamber. Tissues were washed extensively with PBST and endogenous peroxidase activity was quenched with a peroxidase suppressor. Detection was performed using a biotin-conjugated secondary antibody and SA-HRP followed by colorimetric detection using DAB. Tissues were counterstained with hematoxylin and prepped for mounting.

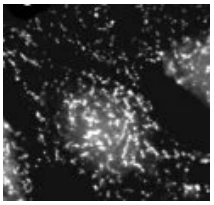


Flow Cytometry - Anti-alpha Adaptin antibody [AC1-M11] (ab2807)

Alpha Adaptin Flow Cytometry staining using mouse Anti-alpha Adaptin antibody

Overlay histogram showing HepG2 cells stained with ab2807 (red line). The cells were fixed with 80% methanol (5 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 (ab2807, 1/100 dilution) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution

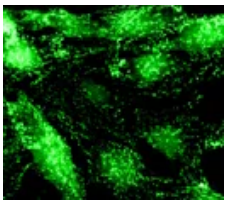
for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG2a [ICIGG2A] (ab91361, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a positive signal in HepG2 cells fixed with 4% paraformaldehyde (10 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.



Immunocytochemistry/ Immunofluorescence - Anti-alpha Adaptin antibody [AC1-M11] (ab2807)

Alpha Adaptin Immunocytochemistry/ Immunofluorescence staining using mouse Anti-alpha Adaptin antibody

Immunolocalization of alpha-adaptin in NRK cells using ab2807.



Immunocytochemistry/ Immunofluorescence - Anti-alpha Adaptin antibody [AC1-M11] (ab2807)

Alpha Adaptin Immunocytochemistry/ Immunofluorescence staining using mouse Anti-alpha Adaptin antibody

Immunolocalization of alpha-adaptin in NRK cells using ab2807 (low power image of image 2).

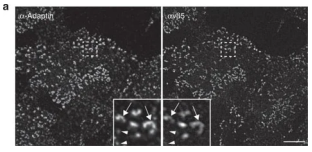


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Immunocytochemistry/ Immunofluorescence - Anti-alpha Adaptin antibody [AC1-M11] (ab2807)

Alpha Adaptin Immunocytochemistry/ Immunofluorescence staining using mouse Anti-alpha Adaptin antibody

Immunocytochemistry-immunofluorescence using Anti-alpha Adaptin antibody [AC1-M11], ab2807. Publication image from Poincloux, R. et al., 2018, Nat Commun, 30237420. Legend direct from paper.

αvβv5 integrin localizes to plaques and is required for their assembly. a HeLa cells were seeded on collagen-coated glass and fixed 24 h later before being stained forα-adaptin andαvβ5-integrin. Scale bar: 10 µm. Higher magnifications of boxed regions are shown. Arrows point to clathrin-coated plaques; arrowheads point to CCPs. b Quantification ofαvβ5 enrichment at plaques versus CCPs (*P < 0.005, two tailed Student’ s t-test. n = 3; 100 structures per experiment were counted.). c Quantification of colocalization (Pearson’ s coefficient) betweenαvβ5 andα-adaptin in cells cultured on the indicated collagen-coated substrate (*P < 0.005; **P < 0.001, one-way analysis of variance—ANOVA. n = 3). d HeLa cells treated with control (upper panel) or β5-specific (lower panel) siRNAs were seeded on collagen-coated glass and fixed 24 h later before being stained forα-adaptin. Scale bar: 15 µm. e Kymographs showing CCS dynamics in genome-edited HeLa cells treated with the indicated siRNA, seeded on collagen-coated glass, and imaged by spinning disk microscopy every 5 s for 5 min. f Quantification of the dynamics of CCSs observed as in e and treated with the indicated siRNAs (**P < 0.001, ANOVA. n = 3). g HeLa cells treated with β5-specific siRNAs were transfected with a siRNA-resistant β 5-GFP encoding construct and then fixed 24 h later before being stained forα-adaptin. Scale bar: 10 µm. The star marks a cell that is not transfected by β5-GFP. Higher magnifications of boxed regions are shown. All results are expressed as mean ± SD

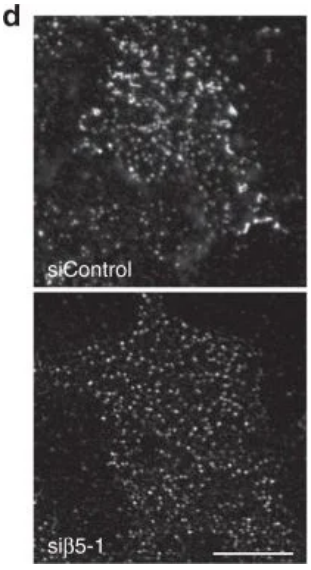


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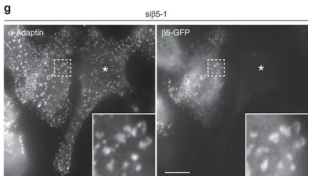


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