abcam

ab2730

Anti-alpha Adaptin antibody [AP6]

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	Preservative: 0.05% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Clone number	AP6
Purification technique	Affinity purification
Specificity	Detects assembly polypeptide 2 (AP2) It recognizes the products of both alpha-adaptin genes, alpha A and alpha C as well as an alternatively spliced isoform of alpha A found in neurons.
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 µg for 10^6 Cells
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Expected

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

Predicted

Species	Primates
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Mouse
Dilution info	5 µg/mL
Notes	-

Species	Human
Dilution info	5 µg/mL
Notes	-

Predicted

Species	Primates
Dilution info	-
Notes	-

Target data

See full target information AP2A1

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 (PubMed:23676497). 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

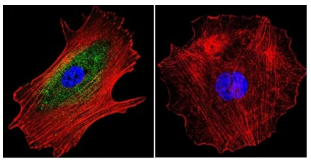
We do not recommend this combination. It is not covered by our product promise.

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.

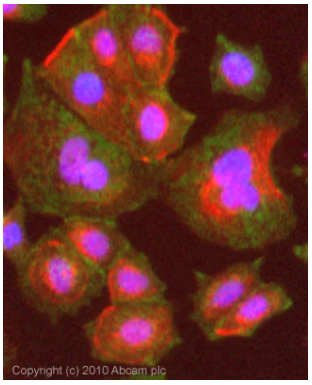
5 product images



Immunocytochemistry/ Immunofluorescence - Anti-alpha Adaptin antibody [AP6] (ab2730)

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

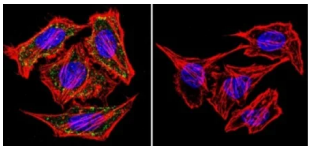
Immunofluorescent analysis of alpha Adaptin using alpha Adaptin Monoclonal Antibody (AP6) (ab2720) shows staining in MCF-7 Cells. alpha Adaptin (green) F-Actin staining with Phalloidin (red) and nuclei with DAPI (blue) is shown. Cells were grown on chamber slides and fixed with formaldehyde prior to staining. Cells were probed without (control) or with an antibody recognizing alpha Adaptin (ab2730) at a dilution of 1:20 over night at 4 C and incubated with a DyLight-488 conjugated secondary antibody. Images were taken at 60X magnification.



Immunocytochemistry/ Immunofluorescence - Anti-alpha Adaptin antibody [AP6] (ab2730)

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

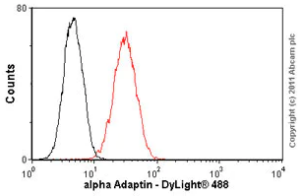
ICC/IF image of ab2730 stained MCF7 cells. The cells were 4% formaldehyde fixed (10 min) and then incubated in 1%BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1h to permeabilise the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab2730, 5µg/ml) overnight at +4°C. The secondary antibody (green) was Alexa Fluor® 488 goat anti-mouse IgG (H+L) used at a 1/1000 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1h. DAPI was used to stain the cell nuclei (blue) at a concentration of 1.43µM.



Immunocytochemistry/ Immunofluorescence - Anti-alpha Adaptin antibody [AP6] (ab2730)

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

Immunofluorescent analysis of alpha Adaptin using alpha Adaptin Monoclonal Antibody (AP6) (ab2730) shows staining in Hela Cells. alpha Adaptin (green) F-Actin staining with Phalloidin (red) and nuclei with DAPI (blue) is shown. Cells were grown on chamber slides and fixed with formaldehyde prior to staining. Cells were probed without (control) or with an antibody recognizing alpha Adaptin (ab2720) at a dilution of 1:20 over night at 4 C and incubated with a DyLight-488 conjugated secondary antibody. Images were taken at 60X magnification.

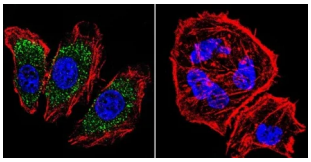


Flow Cytometry - Anti-alpha Adaptin antibody [AP6] (ab2730)

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

Overlay histogram showing MCF7 cells stained with ab2730 (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 (ab2730, 1µg/1x10^6 cells) for 30 min at 22°C.

The secondary antibody used was a goat anti-mouse DyLight® 488 (IgG; H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed.



Immunocytochemistry/ Immunofluorescence - Anti-alpha Adaptin antibody [AP6] (ab2730)

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

Immunofluorescent analysis of alpha Adaptin using alpha Adaptin Monoclonal Antibody (AP6) (ab2730) shows staining in U251 Cells. alpha Adaptin (green) F-Actin staining with Phalloidin (red) and nuclei with DAPI (blue) is shown. Cells were grown on chamber slides and fixed with formaldehyde prior to staining. Cells were probed without (control) or with an antibody recognizing alpha Adaptin (ab2730) at a dilution of 1:20 over night at 4C and incubated with a DyLight-488 conjugated secondary antibody. Images were taken at 60X magnification.

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