abcam

ab203056

Anti-Arc antibody

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.4 Preservative: 0.02% Proclin 300 Constituents: 50% Glycerol (glycerin, glycerine), 48.98% TBS, 1X, 1% BSA
Form	Liquid
Clonality	Polyclonal
Immunogen	Synthetic Peptide within Human ARC conjugated to Keyhole Limpet Haemocyanin. The exact immunogen used to generate this antibody is proprietary information. Database link Q7LC44
Purification technique	Affinity purification Protein A

Reactivity data

IHC-P

Tested

Species	Rat
Dilution info	1/100 - 1/500
Notes	Use at 1/50 - 1/200 with fluorescent detection methods. Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

Expected

Species	Human

Dilution info	Use at an assay dependent concentration.
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	ab171870 - Rabbit polyclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

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

Target data

See full target information ARC

Function

Master regulator of synaptic plasticity that self-assembles into virion-like capsids that encapsulate RNAs and mediate intercellular RNA transfer in the nervous system. ARC protein is released from neurons in extracellular vesicles that mediate the transfer of ARC mRNA into new target cells, where ARC mRNA can undergo activity-dependent translation. ARC capsids are endocytosed and are able to transfer ARC mRNA into the cytoplasm of neurons. Acts as a key regulator of synaptic plasticity: required for protein synthesis-dependent forms of long-term potentiation (LTP) and depression (LTD) and for the formation of long-term memory. Regulates synaptic plasticity by promoting endocytosis of AMPA receptors (AMPARs) in response to synaptic activity: this endocytic pathway maintains levels of surface AMPARs in response to chronic changes in neuronal activity through synaptic scaling, thereby contributing to neuronal homeostasis. Acts as a postsynaptic mediator of activity-dependent synapse elimination in the developing cerebellum by mediating elimination of surplus climbing fiber synapses. Accumulates at weaker synapses, probably to prevent their undesired enhancement. This suggests that ARC-containing virion-like capsids may be required to eliminate synaptic material. Required to transduce experience into long-lasting changes in visual cortex plasticity and for long-term memory (By similarity). Involved in postsynaptic trafficking and processing of amyloid-beta A4 (APP) via interaction with PSEN1 (By similarity). In addition to its role in synapses, also involved in the regulation of the immune system: specifically expressed in

skin-migratory dendritic cells and regulates fast dendritic cell migration, thereby regulating T-cell activation (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	The Arc protein also known as Activity-regulated cytoskeleton-associated protein weighs approximately 45 kDa. This protein expresses mainly in the brain specifically in the neurons. It is particularly active in the synaptic regions where it plays a role in synaptic plasticity. The Arc protein belongs to an emerging class of proteins that show similarities with viral proteins. Its structural and functional properties help facilitate the dynamic regulation of synapses and neuronal activity.
Biological function summary	The Arc protein influences synaptic plasticity and memory formation. It does not operate alone; instead it interacts within complexes that regulate synaptic strength. These complexes contain other proteins critical for actin cytoskeleton remodeling which impacts synaptic efficacy. Through these interactions Arc supports the internalization of AMPA receptors playing a role in long-term depression (LTD) and long-term potentiation (LTP) of synapses essential mechanisms for learning and memory.
Pathways	The Arc protein forms integral parts of the synaptic signaling pathways. It connects with the BDNF-TrkB signaling pathway which is important for neuronal development and synaptic modulation. Arc also relates to the mTOR signaling pathway which governs cellular growth and protein synthesis. Through these pathways Arc interacts with proteins like Neuro2a and SynGAP highlighting its comprehensive role in synaptic regulation and plasticity.
Associated diseases and disorders	Arc protein has a connection to neurological disorders such as Alzheimer's disease and schizophrenia. Researchers found altered Arc expression and function in the brains of affected individuals. These disorders show a link to disrupted synaptic

plasticity where Arc plays a significant role. Arc connects to other proteins like Neuro-2a and Caspase-3 in the pathology of these conditions indicating potential targets for therapeutic intervention.

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

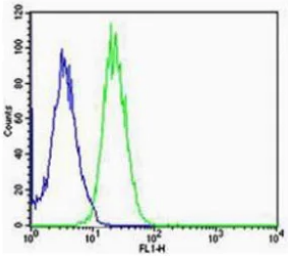
We do not recommend this combination. It is not covered by our product promise.

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.

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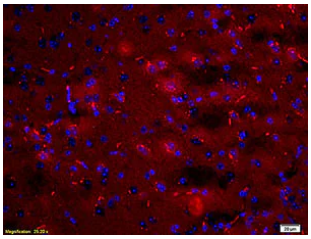
2 product images



Flow Cytometry (Intracellular) - Anti-Arc antibody (ab203056)

Arc Flow Cytometry (Intracellular) staining using rabbit Anti-Arc antibody

A549 cells probed with ab203056at 1/100 for 60 minutes at room temperature followed by Goat Anti-Rabbit IgG (H L) Alexa Fluor 488 Conjugated Secondary.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Arc antibody (ab203056)

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

Immunohistochemical analysis of formalin-fixed paraffin-embedded rat brain tissue labeling ARC with ab203056 at 1/200 dilution, followed by secondary antibody Goat Anti-Rabbit IgG, PE conjugated at 1:200 for 40 minutes at 37°C. DAPI (5ug/ml, blue) was used to stain the cell nuclei.

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