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ARC Antibody (N-term)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP14546a

Product Information

Application	WB, E
Primary Accession	Q7LC44
Other Accession	Q63053, Q9WV31, NP_056008.1
Reactivity	Human
Predicted	Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB34484
Calculated MW	45316
Antigen Region	37-66

Additional Information

Gene ID	23237
Other Names	Activity-regulated cytoskeleton-associated protein, ARC/ARG31, Activity-regulated gene 31 protein homolog, Arg31, ARC {ECO:0000312|EMBL:AAG337051}
Target/Specificity	This ARC antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 37-66 amino acids from the N-terminal region of human ARC.
Dilution	WB~~1:1000 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	ARC Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	ARC {ECO:0000303|PubMed:10970730, ECO:0000312|HGNC:HGNC:648}
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).
Cellular Location	Extracellular vesicle membrane {ECO:0000250|UniProtKB:Q63053}; Lipid-anchor {ECO:0000250|UniProtKB:Q9WV31}. Postsynaptic cell membrane {ECO:0000250|UniProtKB:Q9WV31}; Lipid-anchor {ECO:0000250|UniProtKB:Q9WV31}. Synapse {ECO:0000250|UniProtKB:Q63053} Postsynaptic density {ECO:0000250|UniProtKB:Q63053}. Early endosome membrane {ECO:0000250|UniProtKB:Q63053}. Cell projection, dendrite {ECO:0000250|UniProtKB:Q63053}. Cytoplasm, cytoskeleton. Cytoplasm, cell cortex {ECO:0000250|UniProtKB:Q63053}. Cell projection, dendritic spine {ECO:0000250|UniProtKB:Q63053}. Cytoplasmic vesicle, secretory vesicle, acrosome {ECO:0000250|UniProtKB:Q9WV31}. Cytoplasmic vesicle, clathrin-coated vesicle membrane. Note=Forms virion-like extracellular vesicles that are released from neurons Enriched in postsynaptic density of dendritic spines. Targeted to inactive synapses following interaction with CAMK2B in the kinase inactive state. Accumulation at weaker synapses may be required to prevent their undesired enhancement. Associated with the cell cortex of neuronal soma and dendrites (By similarity). Associated with the sperm tail (By similarity). {ECO:0000250|UniProtKB:Q63053, ECO:0000250|UniProtKB:Q9WV31}

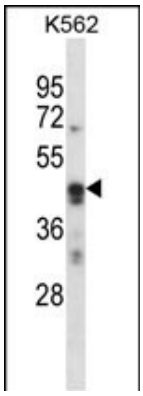
Background

ARCis required for consolidation of synaptic plasticity as well as formation of long-term memory. Regulates endocytosis of AMPA receptors in response to synaptic activity. Required for homeostatic synaptic scaling of AMPA receptors (By similarity).

References

Bloomer, W.A., et al. Brain Res. 1153, 20-33 (2007) :
Dynes, J.L., et al. J. Comp. Neurol. 500(3):433-447(2007)
Haug, K., et al. Mol. Cell. Probes 14(4):255-260(2000)
Kremerskothen, J., et al. Chromosome Res. 8 (7), 655 (2000) :

Images



ARC Antibody (N-term) (Cat. #AP14546a) western blot analysis in K562 cell line lysates (35ug/lane).This demonstrates the ARC antibody detected the ARC protein (arrow).