

Product Information

Anti-Arc (N-terminal)

produced in rabbit, affinity isolated antibody

Catalog Number **SAB4200461**

Product Description

Anti-Arc (N-terminal) is produced in rabbit using as immunogen a synthetic peptide corresponding to a sequence at the N-terminal region of human Arc (GeneID: 23237), conjugated to KLH. The corresponding sequence is highly conserved (90% sequence identity) in rat and mouse Arc. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-Arc (N-terminal) specifically recognizes human and rat Arc. The antibody may be used in several immunochemical techniques including immunoblotting (~55 kDa), immunoprecipitation and immunohistochemistry. Detection of the Arc band by immunoblotting is specifically inhibited by the Arc immunizing peptide.

Arc (activity-regulated cytoskeleton-associated protein, also known as Arg3.1) is a growth factor and immediate early gene that is enriched in brain and affects synaptic plasticity.^{1,2} Stimulation of neuronal activity is essential for induction of synaptic plasticity and normal development in the central nervous system (CNS). Similar to growth factors, neurotransmitter stimulation of neurons induces the rapid and transient expression of immediate early genes (IEG). IEG are believed to regulate long term neuronal changes in synaptic activity, known as long-term potentiation (LTP), a process involved in memory consolidation. Arc expression is tightly regulated by neuronal activity and its mRNA is rapidly localized to neuronal dendrites and spines where it undergoes local translation.^{3,4} Arc induction is required for late LTP and memory consolidation, as well as LTP-induced cofilin phosphorylation and F-actin stabilization. Arc has been shown to regulate endocytosis of AMPA receptors, through its interaction with endocytic proteins endophilin 3 and dynamin 2, Notch signaling and spine morphology.^{4,6}

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Antibody Concentration: ~1.0 mg/mL

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working concentration of 1.5-3.0 µg/mL is recommended using extracts of HEK-293T cells over-expressing human Arc.

Immunoprecipitation: a working amount of 2-4 µg is recommended using lysates of HEK-293T cells over-expressing human Arc.

Immunohistochemistry: A working concentration of 20-30 µg/mL is recommended using formalin-fixed, paraffin-embedded rat brain.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining the optimal working dilutions by titration.

References

1. Korb, E., and Finkbeiner, S., *Trends Neurosci.*, **34**, 591-598 (2011).

2. Bramham, C.R., et al., *Exp. Brain Res.*, **200**, 125-140 (2010).
3. Messaoudi, E., et al., *J. Neurosci.*, **27**, 10445-10455 (2007).
4. Pebbles, C.L., et al., *Proc. Natl. Acad. Sci. USA*, **107**, 18173-18178 (2010).

5. Chowdhury, S., et al., *Neuron*, **52**, 445-459 (2006).
6. Shepherd, J.D., et al., *Neuron*, **52**, 475-484 (2006).

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