

# Arc (H-300): sc-15325

## BACKGROUND

Growth factor stimulation has been shown to induce the expression of immediate early genes in non-neuronal cells, which encode a variety of molecules that are potentially involved in long-term cellular responses. Similar responses induced by neurotransmitter stimulation have also been seen in neuronal cells and evidence suggests that protein synthesis is required for long-term synaptic plasticity. Arc (for activity-regulated cytoskeleton-associated protein) is a growth factor and immediate early gene that is enriched in brain. Arc mRNA and protein levels are induced by neuronal activity, which is necessary to stimulate neuroplasticity, indicating a potential role for Arc in activity-dependent changes in dendrite function. Arc expression has been detected in neuronal cell bodies and dendrites in the hippocampus, amygdala, hypothalamus, striatum and cortex. Arc has been shown to localize to the cytoskeleton of neuronal cells and appears to co-localize with F-actin, although it may associate with an actin-associated protein rather than directly with F-actin. It has been shown that cocaine-stimulated neuronal activity results in increased Arc mRNA levels in striatum.

## CHROMOSOMAL LOCATION

Genetic locus: ARC (human) mapping to 8q24.3; Arc (mouse) mapping to 15 D3.

## SOURCE

Arc (H-300) is a rabbit polyclonal antibody raised against amino acids 1-300 mapping near the N-terminus of Arc of human origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

Arc (H-300) is recommended for detection of Arc of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Arc (H-300) is also recommended for detection of Arc in additional species, including bovine.

Suitable for use as control antibody for Arc siRNA (h): sc-29721, Arc siRNA (m): sc-29724, Arc shRNA Plasmid (h): sc-29721-SH, Arc shRNA Plasmid (m): sc-29724-SH, Arc shRNA (h) Lentiviral Particles: sc-29721-V and Arc shRNA (m) Lentiviral Particles: sc-29724-V.

Molecular Weight of Arc: 55 kDa.

Positive Controls: Arc (h): 293T Lysate: sc-117312, PC-12 cell lysate: sc-2250.

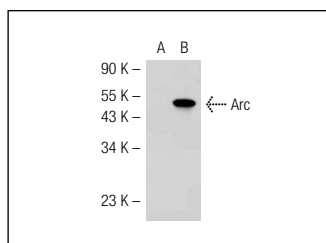
## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

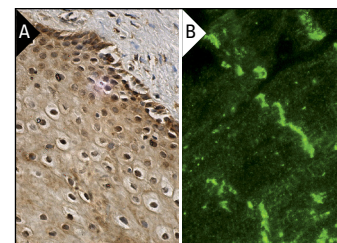
## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## DATA



Arc (H-300): sc-15325. Western blot analysis of Arc expression in non-transfected: sc-117752 (A) and human Arc transfected: sc-117312 (B) 293T whole cell lysates.



Arc (H-300): sc-15325. Immunoperoxidase staining of formalin fixed, paraffin-embedded human cervix tissue showing cytoplasmic and nuclear staining of squamous epithelial cells (A). Immunofluorescence staining of normal mouse heart frozen section showing cytoplasmic staining (B).

## SELECT PRODUCT CITATIONS

1. Maier, B., et al. 2003. Developmental association of the synaptic activity-regulated protein Arc with the mouse acrosomal organelle and the sperm tail. *Biol. Reprod.* 68: 67-76.
2. Herring, A., et al. 2009. Environmental enrichment enhances cellular plasticity in transgenic mice with Alzheimer-like pathology. *Exp. Neurol.* 216: 184-192.
3. O'Keeffe, S.M., et al. 2012. The noradrenaline reuptake inhibitor atomoxetine phase-shifts the circadian clock in mice. *Neuroscience* 201: 219-230.
4. Soulé, J., et al. 2012. Balancing Arc synthesis, mRNA decay, and proteasomal degradation: maximal protein expression triggered by rapid eye movement sleep-like bursts of muscarinic cholinergic receptor stimulation. *J. Biol. Chem.* 287: 22354-22366.
5. Cao, C., et al. 2013. Impairment of TrkB-PSD-95 signaling in Angelman syndrome. *PLoS Biol.* 11: e1001478.
6. Fan, Y., et al. 2013. Aquaporin-4 promotes memory consolidation in morris water maze. *Brain Struct. Funct.* 218: 39-50.
7. Lv, X.F., et al. 2015. NAc shell Arc/Arg3.1 protein mediates reconsolidation of morphine CPP by increased GluR1 cell surface expression: activation of ERK-coupled CREB is required. *Int. J. Neuropsychopharmacol.* 18.
8. Bojovic, O., et al. 2015. Time course of immediate early gene protein expression in the spinal cord following conditioning stimulation of the sciatic nerve in rats. *PLoS ONE* 10: e0123604.



Try **Arc (C-7): sc-17839** or **Arc (E-7): sc-55475**, our highly recommended monoclonal alternatives to Arc (H-300). Also, for AC, HRP, FITC, PE, Alexa Fluor<sup>®</sup> 488 and Alexa Fluor<sup>®</sup> 647 conjugates, see **Arc (C-7): sc-17839**.