SANTA CRUZ BIOTECHNOLOGY, INC.

Arc (R-20): sc-6381

SANTA CRUZ BIOTECHNOLOGY
The Power to Question

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 (R-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of Arc of rat origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-6381 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Arc (R-20) 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Arc (R-20) 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.

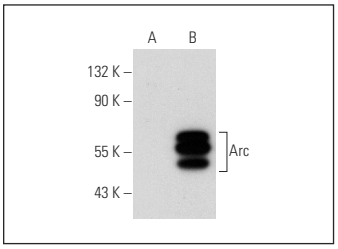
Molecular Weight of Arc: 55 kDa.

Positive Controls: Arc (h2): 293T Lysate: sc-170557, PC-12 cell lysate: sc-2250 or mouse brain extract: sc-2253.

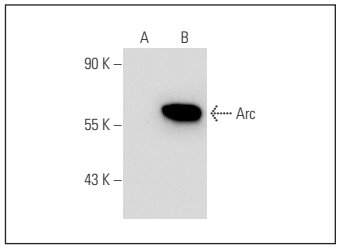
STORAGE

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

DATA



Arc (R-20): sc-6381. Western blot analysis of Arc expression in non-transfected: sc-117752 (**A**) and human Arc transfected: sc-170140 (**B**) 293T whole cell lysates.



Arc (R-20): sc-6381. Western blot analysis of Arc expression in non-transfected: sc-117752 (**A**) and human Arc transfected: sc-170557 (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Kelly, M.P., et al. 2003. Experience-dependent regulation of the immediate-early gene Arc differs across brain regions. J. Neurosci. 23: 6443-6451.
2. Wang, H., et al. 2004. Activity-regulated cytoskeleton-associated protein Arc is targeted to dendrites and coexpressed with µ-opioid receptors in postnatal rat caudate-putamen nucleus. J. Neurosci. Res. 77: 323-333.
3. Monti, B., et al. 2005. Dysregulation of memory-related proteins in the hippocampus of aged rats and their relation with cognitive impairment. Hippocampus 15: 1041-1049.
4. Wang, K.H., et al. 2006. *In vivo* two-photon imaging reveals a role of Arc in enhancing orientation specificity in visual cortex. Cell 126: 389-402.
5. Monti, B., et al. 2006. Subchronic rolipram delivery activates hippocampal CREB and arc, enhances retention and slows down extinction of conditioned fear. Neuropsychopharmacology 31: 278-286.
6. Gómez-Climent, M.A., et al. 2008. A population of prenatally generated cells in the rat paleocortex maintains an immature neuronal phenotype into adulthood. Cereb. Cortex 18: 2229-2240.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.

MONOS Satisfaction Guaranteed

Try **Arc (C-7): sc-17839** or **Arc (E-7): sc-55475**, our highly recommended monoclonal aternatives to Arc (R-20). Also, for AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647 conjugates, see **Arc (C-7): sc-17839**.