

Arc (h2): 293T Lysate: sc-170557

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 colocalize 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.

REFERENCES

1. Greenberg, M.E., Ziff, E.B. and Greene, L.A. 1986. Stimulation of neuronal acetylcholine receptors induces rapid gene transcription. *Science* 234: 80-83.
2. Montarolo, P.G., Golet, P., Castellucci, V.F., Morgan, J., Kandel, E.R. and Schacher, S. 1986. A critical period for macromolecular synthesis in long-term heterosynaptic facilitation in aplysia. *Science* 234: 1249-1254.
3. Lau, L.F. and Nathans, D. 1991. Genes induced by serum growth factors. In Cohen, P. and Foulkes, J.G., eds. *The Hormonal Control of Gene Transcription Vol. 6: Molecular Aspects*. Amsterdam: Elsevier Science Publishers, 257-293.
4. Lyford, G.L., Yamagata, K., Kaufmann, W.E., Barnes, C.A., Sanders, L.K., Copeland, N.G., Gilbert, D.J., Jenkins, N.A., Lanahan, A.A. and Worley, P.F. 1995. Arc, a growth factor and activity-regulated gene, encodes a novel cytoskeleton-associated protein that is enriched in neuronal dendrites. *Neuron* 14: 433-435.
5. Fosnaugh, J.S., Bhat, R.V., Yamagata, K., Worley, P.F. and Baraban, J.M. 1995. Activation of Arc, a putative "effector" immediate early gene, by cocaine in rat brain. *J. Neurochem.* 64: 2377-2380.

CHROMOSOMAL LOCATION

Genetic locus: ARC (human) mapping to 8q24.3.

PRODUCT

Arc (h2): 293T Lysate represents a lysate of human Arc transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

APPLICATIONS

Arc (h2): 293T Lysate is suitable as a Western Blotting positive control for human reactive Arc antibodies. Recommended use: 10-20 µl per lane.

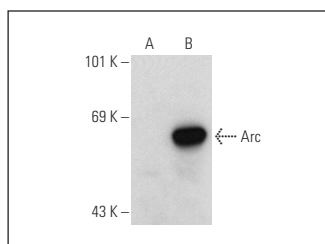
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

Arc (E-7): sc-55475 is recommended as a positive control antibody for Western Blot analysis of enhanced human Arc expression in Arc transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

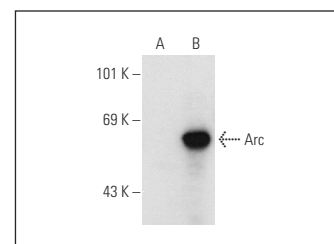
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:
1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

DATA



Arc (E-7): sc-55475. Western blot analysis of Arc expression in non-transfected: sc-117752 (A) and human Arc transfected: sc-170557 (B) 293T whole cell lysates.



Arc (C-7): sc-17839. Western blot analysis of Arc expression in non-transfected: sc-117752 (A) and human Arc transfected: sc-170557 (B) 293T whole cell lysates.

RESEARCH USE

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

PROTOCOLS

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