SANTA CRUZ BIOTECHNOLOGY, INC.

Arc (1-300): sc-4513 WB

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.

REFERENCES

1. Greenberg, M.E., et al. 1986. Stimulation of neuronal acetylcholine receptors induces rapid gene transcription. Science 234: 80-83.
2. Montarolo, P.G., et al. 1986. A critical period for macromolecular synthesis in long-term heterosynaptic facilitation in Aplysia. Science 234: 1249-1254.
3. Lau, L.F., et al. 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 of Cell Regulation. Amsterdam: Elseveier Science Publishers. 257-293.
4. Lyford, G.L., et al. 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., et al. 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; Arc (mouse) mapping to 8 D1.

SOURCE

Arc (1-300) is expressed in *E. coli* as a 60 kDa tagged fusion protein corresponding to amino acids 1-300 of Arc of human origin.

PRODUCT

Arc (1-300) is purified from bacterial lysates (>98%) by glutathione agarose affinity chromatography; supplied as 10 µg in 0.1 ml SDS-PAGE loading buffer.

STORAGE

Store at -20° C; stable for one year from the date of shipment.

RESEARCH USE

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

APPLICATIONS

Arc (1-300) is suitable as a Western blotting control for sc-6382 and sc-15325.