

Arc

Cat.No. 156 002; Polyclonal rabbit antibody, 200 µl antiserum (lyophilized)

Data Sheet

Reconstitution/Storage	200 µl antiserum, lyophilized. For reconstitution add 200 µl H ₂ O, then aliquot and store at -20°C until use.
Applications	WB: 1 : 500 up to 1 : 2000 (AP staining) IP: yes ICC: 1 : 1000 (see remarks) IHC: 1 : 1000 IHC-P/FFPE: not tested yet
Immunogen	Recombinant protein corresponding to AA 1 to 396 from mouse Arc (UniProt Id: Q9WV31)
Reactivity	Reacts with: rat (Q63053), mouse (Q9WV31). No signal: zebrafish. Other species not tested yet.
Specificity	Specific for arc.
matching control	156-0P
Remarks	ICC: ICC/IHC: The affinity purified antibody is recommended.

TO BE USED IN VITRO / FOR RESEARCH ONLY NOT TOXIC, NOT HAZARDOUS, NOT INFECTIOUS, NOT CONTAGIOUS

Immediate-early genes (IEGs) are rapidly induced after patterned synaptic activity. Genes that are involved in this complex response code for transcription and growth factors, metabolic and signaling enzymes, small GTP binding proteins and structural proteins. Some of these proteins may play a crucial role in long term plasticity which is important for learning processes. The activity regulated cytoskeleton associated protein **Arc** or **Arg 3.1** is enriched in dendrites and colocalizes with F-Actin. Direct interaction of Arc with actin has also been demonstrated by biochemical studies.

Selected References SYSY Antibodies

Memory-enhancing intra-basolateral amygdala infusions of clenbuterol increase Arc and CaMKIIα protein expression in the rostral anterior cingulate cortex.

Holloway-Erickson CM, McReynolds JR, McIntyre CK
Frontiers in behavioral neuroscience (2012) 6: 17. **WB**

The selective alpha7 nicotinic acetylcholine receptor agonist A-582941 activates immediate early genes in limbic regions of the forebrain: Differential effects in the juvenile and adult rat.

Thomsen MS, Mikkelsen JD, Timmermann DB, Peters D, Hay-Schmidt A, Martens H, Hansen HH
Neuroscience (2008) 154(2): 741-53. **IHC; tested species: rat**

Distinct miRNA expression in dorsal striatal subregions is associated with risk for addiction in rats.

Quinn RK, Brown AL, Goldie BJ, Levi EM, Dickson PW, Smith DW, Cairns MJ, Dayas CV
Translational psychiatry (2015) 5: e503. **WB**

c-Fos, Arc, and stargazin expression in rat eyeblink conditioning.

Kim S, Thompson RF

Behavioral neuroscience (2011) 125(1): 117-23. **IHC; tested species: rat**

Selected General References

Regulation of activity-regulated cytoskeleton protein (Arc) mRNA after acute and chronic electroconvulsive stimulation in the rat.

Larsen MH, Olesen M, Woldbye DP, Hay-Schmidt A, Hansen HH, Rønn LC, Mikkelsen JD
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Memory-influencing intra-basolateral amygdala drug infusions modulate expression of Arc protein in the hippocampus.

McIntyre CK, Miyashita T, Setlow B, Marjon KD, Steward O, Guzowski JF, McGaugh JL
Proceedings of the National Academy of Sciences of the United States of America (2005) 102(30): 10718-23.

Sparse, environmentally selective expression of Arc RNA in the upper blade of the rodent fascia dentata by brief spatial experience.

Chawla MK, Guzowski JF, Ramirez-Amaya V, Lipa P, Hoffman KL, Marriott LK, Worley PF, McNaughton BL, Barnes CA
Hippocampus (2005) 15(5): 579-86.

Experience-dependent coincident expression of the effector immediate-early genes arc and Homer 1a in hippocampal and neocortical neuronal networks.

Vazdarjanova A, McNaughton BL, Barnes CA, Worley PF, Guzowski JF
The Journal of neuroscience : the official journal of the Society for Neuroscience (2002) 22(23): 10067-71.

Inhibition of activity-dependent arc protein expression in the rat hippocampus impairs the maintenance of long-term potentiation and the consolidation of long-term memory.

Guzowski JF, Lyford GL, Stevenson GD, Houston FP, McGaugh JL, Worley PF, Barnes CA
The Journal of neuroscience : the official journal of the Society for Neuroscience (2000) 20(11): 3993-4001.

The activity-regulated cytoskeletal-associated protein arc is expressed in different striosome-matrix patterns following exposure to amphetamine and cocaine.

Tan A, Moratalla R, Lyford GL, Worley P, Graybiel AM
Journal of neurochemistry (2000) 74(5): 2074-8.

Environment-specific expression of the immediate-early gene Arc in hippocampal neuronal ensembles.

Guzowski JF, McNaughton BL, Barnes CA, Worley PF
Nature neuroscience (1999) 2(12): 1120-4.

Synaptic activation causes the mRNA for the IEG Arc to localize selectively near activated postsynaptic sites on dendrites.

Steward O, Wallace CS, Lyford GL, Worley PF
Neuron (1998) 21(4): 741-51.

Arc, a growth factor and activity-regulated gene, encodes a novel cytoskeleton-associated protein that is enriched in neuronal dendrites.

Lyford GL, Yamagata K, Kaufmann WE, Barnes CA, Sanders LK, Copeland NG, Gilbert DJ, Jenkins NA, Lanahan AA, Worley PF
Neuron (1995) 14(2): 433-45.