

Arc

Cat.No. 156 003; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

Data Sheet

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| Reconstitution/ Storage | 50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Rabbit serum albumin was added for stabilization. For reconstitution add 50 µl H ₂ O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C until use. |
| Applications | WB: 1 : 500 up to 1 : 2000 (AP staining) IP: yes ICC: 1 : 1000 IHC: 1 : 1000 IHC-P/FFPE: 1 : 1000 ELISA: yes (see remarks) |
| 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. (K.O. verified) |
| Remarks | ELISA: Suitable as detector antibody for sandwich-ELISA with cat. no. 156 011 as capture antibody (protocol for sandwich-ELISA). |

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

- BDNF in Lower Brain Parts Modifies Auditory Fiber Activity to Gain Fidelity but Increases the Risk for Generation of Central Noise After Injury.
Chumak T, Rüttiger L, Lee SC, Campanelli D, Zuccotti A, Singer W, Popelář J, Gutsche K, Geisler HS, Schraven SP, Jaumann M, et al.
Molecular neurobiology (2016) 53(8): 5607-27. **WB, IHC**
- Rapid translation of Arc/Arg3.1 selectively mediates mGluR-dependent LTD through persistent increases in AMPAR endocytosis rate.
Waung MW, Pfeiffer BE, Nosyreva ED, Ronesi JA, Huber KM
Neuron (2008) 59(1): 84-97. **IHC, ICC; tested species: rat**
- Activity-Regulated Cytoskeleton-Associated Protein Controls AMPAR Endocytosis through a Direct Interaction with Clathrin-Adaptor Protein 2.
DaSilva LL, Wall MJ, P de Almeida L, Wauters SC, Januário YC, Müller J, Corrêa SA
eNeuro () 3(3): . **IP, WB**
- The Temporal Dynamics of Arc Expression Regulate Cognitive Flexibility.
Wall MJ, Collins DR, Chery SL, Allen ZD, Pastuzyn ED, George AJ, Nikolova VD, Moy SS, Philpot BD, Shepherd JD, Müller J, et al.
Neuron (2018) : . **WB, ICC; tested species: mouse**
- Evidence for a fragile X mental retardation protein-mediated translational switch in metabotropic glutamate receptor-triggered Arc translation and long-term depression.
Niere F, Wilkerson JR, Huber KM
The Journal of neuroscience : the official journal of the Society for Neuroscience (2012) 32(17): 5924-36. **WB, ICC; KO verified; tested species: mouse**
- Post-training disruption of Arc protein expression in the anterior cingulate cortex impairs long-term memory for inhibitory avoidance training.
Holloway CM, McIntyre CK
Neurobiology of learning and memory (2011) 95(4): 425-32. **WB, IHC; tested species: rat**
- Memory-enhancing corticosterone treatment increases amygdala norepinephrine and Arc protein expression in hippocampal synaptic fractions.
McReynolds JR, Donowho K, Abdi A, McGaugh JL, Roozendaal B, McIntyre CK
Neurobiology of learning and memory (2010) 93(3): 312-21. **WB, IHC; tested species: rat**
- Crucial role of feedback signals from prelimbic cortex to basolateral amygdala in the retrieval of morphine withdrawal memory.
Song J, Shao D, Guo X, Zhao Y, Cui D, Ma Q, Sheng H, Ma L, Lai B, Chen M, Zheng P, et al.
Science advances (2019) 5(2): eaat3210. **IHC; tested species: mouse**
- StaPLs: versatile genetically encoded modules for engineering drug-inducible proteins.
Jacobs CL, Badiie RK, Lin MZ
Nature methods (2018) 15(7): 523-526. **WB; tested species: human**
- Developmental changes in plasticity, synaptic, glia, and connectivity protein levels in rat medial prefrontal cortex.
Jia M, Travaglia A, Pollonini G, Fedele G, Alberini CM
Learning & memory (Cold Spring Harbor, N.Y.) (2018) 25(10): 533-543. **WB; tested species: rat**
- MEF2A regulates mGluR-dependent AMPA receptor trafficking independently of Arc/Arg3.1.
Carmichael RE, Wilkinson KA, Craig TJ, Ashby MC, Henley JM
Scientific reports (2018) 8(1): 5263. **WB; tested species: rat**
- Evidence supporting a role for astrocytes in the regulation of cognitive flexibility and neuronal oscillations through the Ca²⁺ binding protein S100β.
Brockett AT, Kane GA, Monari PK, Briones BA, Vigneron PA, Barber GA, Bermudez A, Dieffenbach U, Kloth AD, Buschman TJ, Gould E, et al.
PloS one (2018) 13(4): e0195726. **IHC; tested species: rat**
- Chronic pregabalin treatment decreases excitability of dentate gyrus and accelerates maturation of adult-born granule cells.
Lempel AA, Coll L, Schinder AF, Uchitel OD, Piriz J
Journal of neurochemistry (2017) 140(2): 257-267. **IHC; tested species: mouse**
- Delayed Degradation and Impaired Dendritic Delivery of Intron-LackingEGFP-Arc/Arg3.1mRNA inEGFP-ArcTransgenic Mice.
Steward O, Matsudaira Yee K, Farris S, Pirbhoy PS, Worley P, Okamura K, Okuno H, Bito H
Frontiers in molecular neuroscience (2017) 10: 435. **IHC; tested species: mouse**
- Hierarchical organization and genetically separable subfamilies of PSD95 postsynaptic supercomplexes.
Frank RAW, Zhu F, Komiyama NH, Grant SGN
Journal of neurochemistry (2017) 142(4): 504-511. **WB; tested species: mouse**
- Homeostatic Changes in GABA and Glutamate Receptors on Excitatory Cortical Neurons during Sleep Deprivation and Recovery.
Del Cid-Pellitero E, Plavski A, Mainville L, Jones BE
Frontiers in systems neuroscience (2017) 11: 17. **IHC; tested species: mouse**