Synaptic Systems

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RIM 1

Cat.No. 140 003; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

Data Sheet

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_2O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C until use.
Applications	**WB**: 1 : 100 up to 1 : 1000 (AP staining) **IP**: not tested yet **ICC**: 1 : 200 up to 1 : 500 **IHC**: yes , paraformaldehyde and methanol fixation **IHC-P/FFPE**: 1 : 500
Immunogen	Recombinant protein corresponding to AA 596 to 705 from rat Rim1 (UniProt Id: Q9JIR4)
Reactivity	Reacts with: human (Q86UR5), rat (Q9JIR4), mouse (Q99NE5), hamster, chicken, frog. Other species not tested yet.
Specificity	Specific for RIM 1 with weak cross reactivity to RIM 2.

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

RIMs are presynaptic active zone proteins that regulate Ca^{2+} triggered release of neurotransmitters. RIM 1α and RIM 2α are composed of an N-terminal zinc-finger domain, a central PDZ domain and two C-terminal C2 domains that are seperated by long alternatively spliced sequences.
RIM 1α is a putative Rab 3a effector and has been shown to interact with other active zone proteins like Munc13-1, ERC 1b, ERC 2 and α-liprins. Deletion of RIM 1α in mice impaired neurotransmitter release without changing the structure of the synapse.

Selected References SYSY Antibodies

Active zone protein expression changes at the key stages of cerebellar cortex neurogenesis in the rat.
Juranek JK, Mukherjee K, Siddiqui TJ, Kaplan BJ, Li JY, Ahnert-Hilger G, Jahn R, Calka J
Acta histochemica (2013) 115(6): 616-25. **WB, ICC, IHC**

Rab3a interacting molecule (RIM) and the tethering of pre-synaptic transmitter release site-associated CaV2.2 calcium channels.
Wong FK, Stanley EF
Journal of neurochemistry (2010) 112(2): 463-73. **WB, IP; tested species: chicken**

RIM1/2-Mediated Facilitation of Cav1.4 Channel Opening Is Required for Ca2+-Stimulated Release in Mouse Rod Photoreceptors.
Grabner CP, Gandini MA, Rehak R, Le Y, Zamponi GW, Schmitz F
The Journal of neuroscience : the official journal of the Society for Neuroscience (2015) 35(38): 13133-47. **IHC, WB**

Composition of isolated synaptic boutons reveals the amounts of vesicle trafficking proteins.
Wilhelm BG, Mandad S, Truckenbrodt S, Kröhnert K, Schäfer C, Rammner B, Koo SJ, Claßen GA, Krauss M, Haucke V, Urlaub H, et al.
Science (New York, N.Y.) (2014) 344(6187): 1023-8. **ICC, IHC; tested species: mouse,rat**

RIM, Munc13, and Rab3A interplay in acrosomal exocytosis.
Bello OD, Zanetti MN, Mayorga LS, Michaut MA
Experimental cell research (2012) 318(5): 478-88. **WB, ICC**

RIM C2B Domains Target Presynaptic Active Zone Functions to PIP2-Containing Membranes.
de Jong APH, Roggero CM, Ho MR, Wong MY, Brautigam CA, Rizo J, Kaeser PS
Neuron (2018) 98(2): 335-349.e7. **ICC; tested species: mouse**

Analysis of SUMO1-conjugation at synapses.
Daniel JA, Cooper BH, Palvimo JJ, Zhang FP, Brose N, Tirard M
eLife (2017) 6: . **WB; tested species: mouse**

Dynamic Partitioning of Synaptic Vesicle Pools by the SNARE-Binding Protein Tomosyn.
Cazares VA, Njus MM, Manly A, Saldate JJ, Subramani A, Ben-Simon Y, Sutton MA, Ashery U, Stuenkel EL
The Journal of neuroscience : the official journal of the Society for Neuroscience (2016) 36(44): 11208-11222. **WB; tested species: rat**

Epac2 Mediates cAMP-Dependent Potentiation of Neurotransmission in the Hippocampus.
Fernandes HB, Riordan S, Nomura T, Remmers CL, Kraniotis S, Marshall JJ, Kukreja L, Vassar R, Contractor A
The Journal of neuroscience : the official journal of the Society for Neuroscience (2015) 35(16): 6544-53. **WB**

Cannabinoid type 1 receptors transiently silence glutamatergic nerve terminals of cultured cerebellar granule cells.
Ramírez-Franco J, Bartolomé-Martín D, Alonso B, Torres M, Sánchez-Prieto J
PloS one (2014) 9(2): e88594. **ICC; tested species: rat**

Studying synaptic efficiency by post-hoc immunolabelling.
Ramírez-Franco J, Alonso B, Bartolomé-Martín D, Sánchez-Prieto J, Torres M
BMC neuroscience (2013) 14: 127. **ICC**

Molecular in situ topology of Aczonin/Piccolo and associated proteins at the mammalian neurotransmitter release site.
Limbach C, Laue MM, Wang X, Hu B, Thiede N, Hultqvist G, Kilimann MW
Proceedings of the National Academy of Sciences of the United States of America (2011) 108(31): E392-401. **WB**

Early steps in the assembly of photoreceptor ribbon synapses in the mouse retina: the involvement of precursor spheres.
Regus-Leidig H, Tom Dieck S, Specht D, Meyer L, Brandstätter JH
The Journal of comparative neurology (2009) 512(6): 814-24. **IHC**

Piccolo modulation of Synapsin1a dynamics regulates synaptic vesicle exocytosis.
Leal-Ortiz S, Waites CL, Terry-Lorenzo R, Zamorano P, Gundelfinger ED, Garner CC
The Journal of cell biology (2008) 181(5): 831-46. **ICC**

Binding to Rab3A-interacting molecule RIM regulates the presynaptic recruitment of Munc13-1 and ubMunc13-2.
Andrews-Zwilling YS, Kawabe H, Reim K, Varoqueaux F, Brose N
The Journal of biological chemistry (2006) 281(28): 19720-31. **ICC; tested species: mouse**

Impaired synapse function during postnatal development in the absence of CALEB, an EGF-like protein processed by neuronal activity.
Jüttner R, Moré MI, Das D, Babich A, Meier J, Henning M, Erdmann B, Mu Ller EC, Otto A, Grantyn R, Rathjen FG, et al.
Neuron (2005) 46(2): 233-45. **WB**