

Rab 3

Cat.No. 107 011; Monoclonal mouse antibody, 100 µg purified IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µg purified IgG, lyophilized. For reconstitution add 100 µl H ₂ O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C until use.
Applications	WB: 1 : 1000 (AP staining) IP: not recommended ICC: 1 : 100 up to 1 : 1000 IHC: yes IHC-P/FFPE: 1 : 200 EM: yes
Clone	42.1
Subtype	IgG1 (kappa light chain)
Immunogen	Recombinant protein corresponding to AA 1 to 220 from rat Rab3a (UniProt Id: P63012)
Epitop	Epitop: AA 95 to 151 from rat Rab3a (UniProt Id: P63012)
Reactivity	Reacts with: human (P20336, P20337, Q96E17, O95716), rat (P63012, Q63941, P62824, Q63942), mouse (P63011, Q9CZT8, P62823, P35276), vertebrates. Other species not tested yet.
Specificity	Specific for all four Rab 3 isoforms a, b, c d.

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

Rab 3 is a member of the Rab protein family that belongs to the ras-related superfamily of small monomeric GTPases. Four related isoforms of Rab 3 are known (**Rab 3a**, **3b**, **3c**, and **3d**). Rab 3a and 3c are predominantly expressed in neurons and neuroendocrine cells where they are localized to synaptic vesicles. Unlike the integral membrane proteins of synaptic vesicles, Rab 3a/c is absent from the Golgi complex and thus does not result in immunostaining of the axo-dendritic region as sometimes seen with e.g. synaptophysin, synaptobrevin/VAMP, or synaptogyrin. Rab 3b and 3d are expressed in non-neuronal tissues such as adipocytes and the exocrine pancreas (3d). It has been shown that overexpression of Rab 3 inhibits Ca²⁺ regulated exocytosis and converts it into an constitutive Ca²⁺ independent exocytosis mechanism.

Selected References SYSY Antibodies

Rab3 proteins involved in vesicle biogenesis and priming in embryonic mouse chromaffin cells.
Schonn JS, van Weering JR, Mohrmann R, Schlüter OM, Südhof TC, de Wit H, Verhage M, Sørensen JB
Traffic (Copenhagen, Denmark) (2010) 11(11): 1415-28. **WB, ICC**

Synaptic targeting of rabphilin-3A, a synaptic vesicle Ca²⁺/phospholipid-binding protein, depends on rab3A/3C.
Li C, Takei K, Geppert M, Daniell L, Stenius K, Chapman ER, Jahn R, De Camilli P, Südhof TC
Neuron (1994) 13(4): 885-98. **WB, IHC**

JIP3 localises to exocytic vesicles and focal adhesions in the growth cones of differentiated PC12 cells.
Caswell PT, Dickens M
Molecular and cellular biochemistry (2017) : . **WB, ICC; tested species: rat**

Association of Rab3A with synaptic vesicles at late stages of the secretory pathway.
Matteoli M, Takei K, Cameron R, Hurlbut P, Johnston PA, Südhof TC, Jahn R, De Camilli P
The Journal of cell biology (1991) 115(3): 625-33. **ICC, WB; tested species: rat**

Microtubule-dependent transport of secretory vesicles in RBL-2H3 cells.
Smith AJ, Pfeiffer JR, Zhang J, Martinez AM, Griffiths GM, Wilson BS
Traffic (Copenhagen, Denmark) (2003) 4(5): 302-12. **EM; tested species: rat**

Parkinson Sac Domain Mutation in Synaptojanin 1 Impairs Clathrin Uncoating at Synapses and Triggers Dystrophic Changes in Dopaminergic Axons.
Cao M, Wu Y, Ashrafi G, McCartney AJ, Wheeler H, Bushong EA, Boassa D, Ellisman MH, Ryan TA, De Camilli P
Neuron (2017) 93(4): 882-896.e5. **WB; tested species: mouse**

Ubiquitin-Synaptobrevin Fusion Protein Causes Degeneration of Presynaptic Motor Terminals in Mice.
Liu Y, Li H, Sugiura Y, Han W, Gallardo G, Khvotchev M, Zhang Y, Kavalali ET, Südhof TC, Lin W
The Journal of neuroscience : the official journal of the Society for Neuroscience (2015) 35(33): 11514-31. **WB**

Synaptotagmin-12 phosphorylation by cAMP-dependent protein kinase is essential for hippocampal mossy fiber LTP.
Kaesler-Woo YJ, Younts TJ, Yang X, Zhou P, Wu D, Castillo PE, Südhof TC
The Journal of neuroscience : the official journal of the Society for Neuroscience (2013) 33(23): 9769-80. **WB**

Rabconnectin3a promotes stable activity of the H⁺ pump on synaptic vesicles in hair cells.
Einhorn Z, Trapani JG, Liu Q, Nicolson T
The Journal of neuroscience : the official journal of the Society for Neuroscience (2012) 32(32): 11144-56. **IHC; tested species: zebrafish**

Intracellular distribution of amyloid beta peptide and its relationship to the lysosomal system.
Zheng L, Cedazo-Minguez A, Hallbeck M, Jerhammar F, Marcusson J, Terman A
Translational neurodegeneration (2012) 1(1): 19. **ICC; tested species: human**

Impaired activity-dependent plasticity of quantal amplitude at the neuromuscular junction of Rab3A deletion and Rab3A earlybird mutant mice.
Wang X, Wang Q, Yang S, Bucan M, Rich MM, Engisch KL
The Journal of neuroscience : the official journal of the Society for Neuroscience (2011) 31(10): 3580-8. **IHC**

Doc2b is a high-affinity Ca²⁺ sensor for spontaneous neurotransmitter release.
Groffen AJ, Martens S, Díez Arazola R, Cornelisse LN, Lozovaya N, de Jong AP, Goriounova NA, Habets RL, Takai Y, Borst JG, Brose N, et al.
Science (New York, N.Y.) (2010) 327(5973): 1614-8. **WB; tested species: mouse**

Synaptic and vesicular co-localization of the glutamate transporters VGLUT1 and VGLUT2 in the mouse hippocampus.
Herzog E, Takamori S, Jahn R, Brose N, Wojcik SM
Journal of neurochemistry (2006) 99(3): 1011-8. **WB; tested species: mouse**

Large scale protein identification in intracellular aquaporin-2 vesicles from renal inner medullary collecting duct.
Barile M, Pisitkun T, Yu MJ, Chou CL, Verbalis MJ, Shen RF, Knepper MA
Molecular & cellular proteomics : MCP (2005) 4(8): 1095-106. **WB**

Mutations in the LGI1/Epitempin gene on 10q24 cause autosomal dominant lateral temporal epilepsy.
Morante-Redolat JM, Gorostidi-Pagola A, Piquer-Sirerol S, Sáenz A, Poza JJ, Galán J, Gesk S, Sarafidou T, Mautner VF, Binelli S, Staub E, et al.
Human molecular genetics (2002) 11(9): 1119-28. **ICC**

Structure of the murine rab3A gene: correlation of genomic organization with antibody epitopes.
Baumert M, Fischer von Mollard G, Jahn R, Südhof TC
The Biochemical journal (1993) 293 (Pt 1): 157-63. **WB**