Revision 4

Store at -20C

#14558

Synaptotagmin-1 (D33B7) Rabbit mAb

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, W-S, IP	H M R	Endogenous	60	Rabbit IgG	#P21579	6857

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Simple Western™	1:10 - 1:50
Immunoprecipitation	1:50

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. *Do not aliquot the antibody.*

Specificity/Sensitivity

Synaptotagmin-1 (D33B7) Rabbit mAb recognizes endogenous levels of total synaptotagmin-1 protein. This antibody may also cross-react with an unidentified protein of approximately 45 kDa.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Arg400 of human synaptotagmin-1 protein.

Background

Synaptotagmin 1 (SYT1) is an integral membrane protein found in synaptic vesicles thought to play a role in vesicle trafficking and exocytosis (1). Individual SYT1 proteins are composed of an amino-terminal transmembrane region, a central linker region and a pair of carboxy-terminal C2 domains responsible for binding Ca^{2+} (2). The C2 domains appear to be functionally distinct, with the C2A domain responsible for regulating synaptic vesicle fusion in a calcium-dependent manner during exocytosis while the C2B domain allows for interaction between adjacent SYT1 proteins (3). Because synaptotagmin 1 binds calcium and is found in synaptic vesicles, this integral membrane protein is thought to act as a calcium sensor in fast synaptic vesicle exocytosis. Evidence suggests possible roles in vesicle-mediated endocytosis and glucose-induced insulin secretion as well (4,5). SYT1 binds several different SNARE proteins during calcium-mediated vesicle endocytosis and an association between SYT1 and the SNARE protein SNAP-25 is thought to be a key element in vesicle-mediated exocytosis (6).

Background References

1. Fukuda, M. and Mikoshiba, K. (2001) *Biochem Biophys Res Commun* 281, 1226-33.
2. Südhof, T.C. (2002) *J Biol Chem* 277, 7629-32.
3. Fernández-Chacón, R. et al. (2001) *Nature* 410, 41-9.
4. Lynch, K.L. et al. (2007) *Mol Biol Cell* 18, 4957-68.
5. Gauthier, B.R. and Wollheim, C.B. (2008) *Am J Physiol Endocrinol Metab* 295, E1279-86.
6. Bai, J. et al. (2004) *Neuron* 41, 929-42.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v nonfat dry milk, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting **W-S:** Simple Western™ **IP:** Immunoprecipitation

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat

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Limited Uses

force or effect.

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