SANTA CRUZ BIOTECHNOLOGY, INC.

VAMP-2 (3E5): sc-69706

BACKGROUND

Syntaxins were originally thought to be docking proteins, but have more recently been categorized as anchoring proteins that anchor themselves to the cytoplasmic surfaces of cellular membranes. Syntaxins have been shown to bind to various proteins involved in exocytosis, including VAMPs (vesicle-associated membrane proteins), NSF (N-ethylmaleimide-sensitive factor), SNAP 25 (synaptosomal-associated protein of 25 kDa), SNAPs (soluble NSF attachment proteins) and synaptotagmin. VAMPs, also designated synaptobrevins, including VAMP-1 and VAMP-2, and synaptotagmin, a protein that may function as an inhibitor of exocytosis, are vesicular proteins. SNAPs, including α- and γ-SNAP, are cytoplasmic proteins that bind to a membrane receptor complex composed of VAMP, SNAP 25 and Syntaxin. SNAPs mediate the membrane binding of NSF, which is essential for membrane fusion reactions. An additional protein designated synaptophysin may regulate exocytosis by competing with SNAP 25 and syntaxins for VAMP binding.

REFERENCES

1. Elferink, L.A., et al. 1993. A role for synaptotagmin (p65) in regulated exocytosis. Cell 72: 153-159.
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3. Yamaguchi, K. and Akagawa, K. 1994. Exocytosis relating proteins in the nervous system. Neurosci. Res. 20: 289-292.
4. Hayashi, T., et al. 1994. Synaptic vesicle membrane fusion complex: action of clostridial neurotoxins on assembly. EMBO J. 13: 5051-5061.
5. Edelmann, L., et al. 1995. Synaptobrevin binding to synaptophysin: a potential mechanism for controlling the exocytosis fusion machine. EMBO J. 14: 224-231.
6. McMahon, H.T. and Sudhof, T.C. 1995. Synaptic core complex of synaptobrevin, Syntaxin, and SNAP25 forms high affinity α-SNAP binding site. J. Biol. Chem. 270: 2213-2217.
7. Lin, R.C. and Scheller, R.H. 1997. Structural organization of the synaptic exocytosis core complex. Neuron 19: 1087-1094.

CHROMOSOMAL LOCATION

Genetic locus: VAMP2 (human) mapping to 17p13.1; Vamp2 (mouse) mapping to 11 B3.

SOURCE

VAMP-2 (3E5) is a mouse monoclonal antibody raised against a recombinant protein corresponding to amino acids 1-89 of VAMP-2 of human origin.

PRODUCT

Each vial contains 50 µg IgG_1 in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

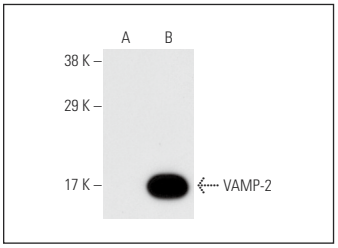
VAMP-2 (3E5) is recommended for detection of VAMP-2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for VAMP-2 siRNA (h): sc-43519, VAMP-2 siRNA (m): sc-43520, VAMP-2 shRNA Plasmid (h): sc-43519-SH, VAMP-2 shRNA Plasmid (m): sc-43520-SH, VAMP-2 shRNA (h) Lentiviral Particles: sc-43519-V and VAMP-2 shRNA (m) Lentiviral Particles: sc-43520-V.

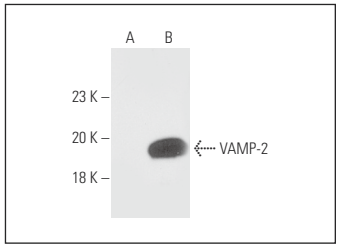
Molecular Weight of VAMP-2: 18 kDa.

Positive Controls: VAMP-2 (m): 293T Lysate: sc-126209 or VAMP-2 (h): 293T Lysate: sc-113891.

DATA



VAMP-2 (3E5): sc-69706. Western blot analysis of VAMP-2 expression in non-transfected: sc-117752 (**A**) and mouse VAMP-2 transfected: sc-126209 (**B**) 293T whole cell lysates.



VAMP-2 (3E5): sc-69706. Western blot analysis of VAMP-2 expression in non-transfected: sc-117752 (**A**) and human VAMP-2 transfected: sc-113891 (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Calvo-Gallardo, E., et al. 2015. Depressed excitability and ion currents linked to slow exocytotic fusion pore in chromaffin cells of the $SOD1^{G93A}$ mouse model of amyotrophic lateral sclerosis. Am. J. Physiol., Cell Physiol. 308: C1-C19.
2. Bu, L., et al. 2016. Activated central galanin type 1 receptor alleviated Insulin resistance in diabetic rat muscle. J. Neurosci. Res. 94: 947-955.
3. Lee, J.G., et al. 2019. Buforin-1 blocks neuronal SNARE-mediated membrane fusion by inhibiting SNARE complex assembly. Biochem. Biophys. Res. Commun. 514: 105-111.
4. Marin, B.K., et al. 2019. Protein restriction in early life increases intracellular calcium and Insulin secretion, but does not alter expression of SNARE proteins during pregnancy. Exp. Physiol. 104: 1029-1037.
5. Merlo, S., et al. 2022. Microglial polarization differentially affects neuronal vulnerability to the β-Amyloid protein: modulation by melatonin. Biochem. Pharmacol. 202: 115151.
6. Flintoaca Alexandru, P.R., et al. 2023. EDEM1 regulates the insulin mRNA level by inhibiting the endoplasmic reticulum stress-induced IRE1/JNK/c-Jun pathway. iScience 26: 107956.

RESEARCH USE

For research use only, not for use in diagnostic procedures.