SANTA CRUZ BIOTECHNOLOGY, INC.

VAMP-1/2 (SP10): sc-20039

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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), 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.
2. Bennett, M.K., et al. 1993. The Syntaxin family of vesicular transport receptors. Cell 74: 863-873.

CHROMOSOMAL LOCATION

Genetic locus: VAMP1 (human) mapping to 12p13.31, VAMP2 (human) mapping to 17p13.1; Vamp1 (mouse) mapping to 6 F3, Vamp2 (mouse) mapping to 11 B3.

SOURCE

VAMP-1/2 (SP10) is a mouse monoclonal antibody raised against synaptic vesicle-containing fractions of immunoprecipitated human brain homogenate.

PRODUCT

Each vial contains 200 µg IgM kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

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

APPLICATIONS

VAMP-1/2 (SP10) is recommended for detection of VAMP-1 (amino acids 1-118) and VAMP-2 (amino acids 33-96) of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

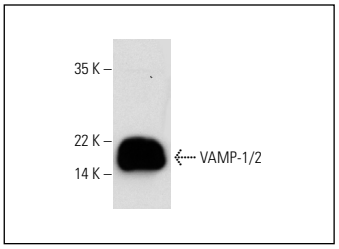
Molecular Weight of VAMP-1/2: 18 kDa.

Positive Controls: rat brain extract: sc-2392, mouse brain extract: sc-2253 or U-87 MG cell lysate: sc-2411.

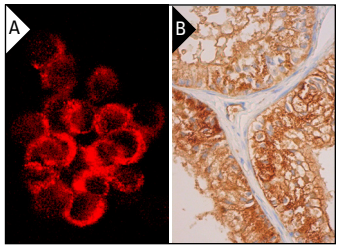
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein L-Agarose: sc-2336 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



VAMP-1/2 (SP10): sc-20039. Western blot analysis of VAMP-1/2 expression in mouse brain tissue extract.



VAMP-1/2 (SP10): sc-20039. Immunofluorescence staining of methanol-fixed PC-12 cells showing membrane staining (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human epididymis tissue showing membrane and cytoplasmic staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Tozawa, T., et al. 2012. The shortest isoform of dystrophin (Dp40) interacts with a group of presynaptic proteins to form a presumptive novel complex in the mouse brain. Mol. Neurobiol. 45: 287-297.
2. Lee, J.Y., et al. 2012. Alteration of the cerebral zinc pool in a mouse model of Alzheimer disease. J. Neuropathol. Exp. Neurol. 71: 211-222.
3. Sarkar, S., et al. 2016. Expression of microRNA-34a in Alzheimer's disease brain targets genes linked to synaptic plasticity, energy metabolism, and resting state network activity. Brain Res. 1646: 139-151.
4. Arnold, M.G., et al. 2017. Munc18a clusters SNARE-bearing liposomes prior to *trans*-SNARE zippering. Biochem. J. 474: 3339-3354.
5. Mustafa, F.E.A., et al. 2020. Melatonin induces a stimulatory action on the scrotal skin components of Soay ram in the non-breeding season. Sci. Rep. 10: 10154.
6. Popek, M., et al. 2022. The effect of TGF-β1 reduced functionality on the expression of selected synaptic proteins and electrophysiological parameters: implications of changes observed in acute hepatic encephalopathy. Int. J. Mol. Sci. 23: 1081.

STORAGE

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