SANTA CRUZ BIOTECHNOLOGY, INC.

SV2A (E-8): sc-376234

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

In all vertebrates, SV2 proteins are abundant, hydrophobic, membrane glycoproteins that are expressed as two major isoforms, SV2A and SV2B, and one minor isoform, SV2C. SV2 proteins are differentially expressed in the brain and are present on all synaptic vesicles, independent of transmitter type. SV2A is abundantly expressed in the subcortex, specifically in the synaptic vesicles of all presynaptic nerve terminals, and also in most neuroendocrine secretory granules. SV2B displays a more restricted pattern of expression in that it is only present on a small subset of synapses in the hippocampus and cortex. SV2A and SV2B are funtionally redundant and are required for maintaining normal brain function in vertebrates. SV2A and SV2B mediate synaptic transmission by regulating cytoplasmic Ca^{2+} levels in the nerve terminal during repetitive stimulation.

REFERENCES

1. Buckley, K., et al. 1985. Identification of transmembrane glycoprotein specific for secretory vesicles of neural and endocrine cells. J. Cell Biol. 100: 1284-1294.
2. Lowe, A.W., et al. 1988. Endocrine secretory granules and neuronal synaptic vesicles have three integral membrane proteins in common. J. Cell Biol. 106: 51-59.

CHROMOSOMAL LOCATION

Genetic locus: SV2A (human) mapping to 1q21.2; Sv2a (mouse) mapping to 3 F2.1.

SOURCE

SV2A (E-8) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 2-25 at the N-terminus of SV2A of rat origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

SV2A (E-8) is available conjugated to agarose (sc-376234 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376234 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376234 PE), fluorescein (sc-376234 FITC), Alexa Fluor® 488 (sc-376234 AF488), Alexa Fluor® 546 (sc-376234 AF546), Alexa Fluor® 594 (sc-376234 AF594) or Alexa Fluor® 647 (sc-376234 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376234 AF680) or Alexa Fluor® 790 (sc-376234 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-376234 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

APPLICATIONS

SV2A (E-8) is recommended for detection of SV2A of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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).

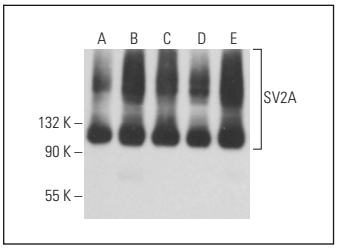
SV2A (E-8) is also recommended for detection of SV2A in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for SV2A siRNA (h): sc-36575, SV2A siRNA (m): sc-36576, SV2A shRNA Plasmid (h): sc-36575-SH, SV2A shRNA Plasmid (m): sc-36576-SH, SV2A shRNA (h) Lentiviral Particles: sc-36575-V and SV2A shRNA (m) Lentiviral Particles: sc-36576-V.

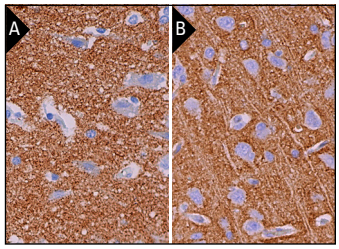
Molecular Weight of SV2A: 93 kDa.

Positive Controls: mouse brain extract: sc-2253, rat cerebellum extract: sc-2398 or rat brain extract: sc-2392.

DATA



SV2A (E-8): sc-376234. Western blot analysis of SV2A expression in rat cerebellum (**A**), mouse cerebellum (**B**), rat brain (**C**), human brain (**D**) and mouse brain (**E**) tissue extracts.



SV2A (E-8): sc-376234. Immunoperoxidase staining of formalin fixed, paraffin-embedded human cerebral cortex tissue (**A**) and rat brain tissue (**B**) showing neuropil staining.

SELECT PRODUCT CITATIONS

1. Florenzano, F., et al. 2017. Extracellular truncated Tau causes early presynaptic dysfunction associated with Alzheimer's disease and other tauopathies. Oncotarget 8: 64745-64778.
2. Zhang, L., et al. 2019. Development of a dual-functional conjugate of antigenic peptide and Fc-III mimetics (DCAF) for targeted antibody blocking. Chem. Sci. 10: 3271-3280.
3. Martín-Flores, N., et al. 2020. Synaptic RTP801 contributes to motor-learning dysfunction in Huntington's disease. Cell Death Dis. 11: 569.
4. García-García, E., et al. 2021. Unraveling the spatiotemporal distribution of VPS13A in the mouse brain. Int. J. Mol. Sci. 22: 13018.
5. Chen, X.Q., et al. 2022. Reduced synaptic proteins and SNARE complexes in Down syndrome with Alzheimer's disease and the Dp16 mouse Down syndrome model: impact of APP gene dose. Alzheimers Dement. 19: 2095-2116.

RESEARCH USE

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