SANTA CRUZ BIOTECHNOLOGY, INC.

SV2A (E-15): sc-11936

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.

CHROMOSOMAL LOCATION

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

SOURCE

SV2A (E-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of SV2A of rat origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-11936 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

SV2A (E-15) is recommended for detection of SV2A 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

SV2A (E-15) 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: SV2A (h3): 293T Lysate: sc-178004, rat cerebellum extract: sc-2398 or mouse brain extract: sc-2253.

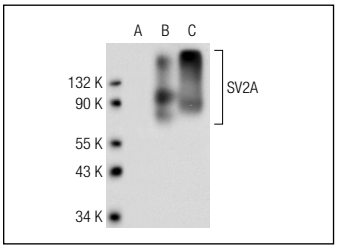
STORAGE

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

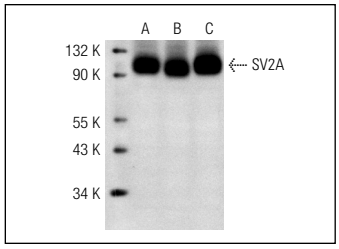
RESEARCH USE

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

DATA



SV2A (E-15): sc-11936. Western blot analysis of SV2A expression in non-transfected: sc-117752 (**A**) and human SV2A transfected: sc-178004 (**B**) 293T whole cell lysates and mouse brain tissue extract (**C**).



SV2A (E-15): sc-11936. Western blot analysis of SV2A expression in mouse brain (**A**), rat cerebellum (**B**) and rat hypothalamus (**C**) extracts.

SELECT PRODUCT CITATIONS

1. Lynch, B.A., et al. 2004. The synaptic vesicle protein SV2A is the binding site for the antiepileptic drug levetiracetam. Proc. Natl. Acad. Sci. USA 101: 9861-9866.
2. Lambeng, N., et al. 2005. Characterization of [(3)H]ucb 30889 binding to synaptic vesicle protein 2A in the rat spinal cord. Eur. J. Pharmacol. 520: 70-76.
3. Lambeng, N., et al. 2006. Solubilization and immunopurification of rat brain synaptic vesicle protein 2A with maintained binding properties. Neurosci. Lett. 398: 107-112.
4. Ohno, Y., et al. 2009. Preferential increase in the hippocampal synaptic vesicle protein 2A (SV2A) by pentylenetetrazole kindling. Biochem. Biophys. Res. Commun. 390: 415-420.
5. Kaminski, R.M., et al. 2009. Proepileptic phenotype of SV2A-deficient mice is associated with reduced anticonvulsant efficacy of levetiracetam. Epilepsia 50: 1729-1740.
6. Meehan, A.L., et al. 2011. A new mechanism for antiepileptic drug action: vesicular entry may mediate the effects of levetiracetam. J. Neurophysiol. 106: 1227-1239.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.