SANTA CRUZ BIOTECHNOLOGY, INC.

L-type Ca^{++} CP β4 (m): 293T Lysate: sc-127077

BACKGROUND

Voltage-dependent calcium channels are important for the release of neurotransmitters in neurons. L-type (long lasting current) voltage-dependent calcium channels are composed of four subunits: an α1 subunit, a β subunit, a γ subunit and an α2δ subunit. The β subunit is encoded by four genes, β1-β4, differing by about 20%. The various β subunits contribute to the diversity of calcium currents and are also involved in membrane trafficking of the α1 subunit. L-type Ca^{++} CP β4 (calcium channel voltage-dependent subunit β4), also known as CACNB4, belongs to the calcium channel β subunit family. It is the most highly expressed subunit in the cerebellum. L-type Ca^{++} CP β4 localizes to the cytoplasm and functions by regulating G protein inhibition, current amplitude and voltage dependence of activation and inactivation. A splice variant exists for L-type Ca^{++} CP β4 which enhances cellular excitability. Mutations in the gene encoding L-type Ca^{++} CP β4 are associated with idiopathic generalized epilepsy (IGE) and juvenile myoclonic epilepsy (JME).

REFERENCES

1. Walker, D., et al. 1998. A β_4 isoform-specific interaction site in the carboxyl-terminal region of the voltage-dependent Ca^{2+} channel α_{1A} subunit. J. Biol. Chem. 273: 2361-2367.
2. Escayg, A., et al. 2000. Coding and noncoding variation of the human calcium-channel β_4-subunit gene CACNB4 in patients with idiopathic generalized epilepsy and episodic ataxia. Am. J. Hum. Genet. 66: 1531-1539.
3. Pagani, R., et al. 2003. Differential expression of α1 and β subunits of voltage dependent Ca^{2+} channel at the neuromuscular junction of normal and P/Q Ca^{2+} channel knockout mouse. Neuroscience 123: 75-85.
4. Takahashi, E. and Nagasu, T. 2005. Expression pattern of voltage-dependent calcium channel α_1 and β subunits in adrenal gland of N-type Ca^{2+} channel α_{1B} subunit gene-deficient mice. Mol. Cell. Biochem. 271: 91-99.
5. Suzuki, T., et al. 2006. Mutation analyses of genes on 6p12-p11 in patients with juvenile myoclonic epilepsy. Neurosci. Lett. 405: 126-131.
6. Ma, S., et al. 2006. Mutations in the GABRA1 and EFHC1 genes are rare in familial juvenile myoclonic epilepsy. Epilepsy Res. 71: 129-134.

CHROMOSOMAL LOCATION

Genetic locus: Cacnb4 (mouse) mapping to 2 C1.1.

PRODUCT

L-type Ca^{++} CP β4 (m): 293T Lysate represents a lysate of mouse L-type Ca^{++} CP β4 transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

PROTOCOLS

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

APPLICATIONS

L-type Ca^{++} CP β4 (m): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive L-type Ca^{++} CP β4 antibodies. Recommended use: 10-20 µl per lane.

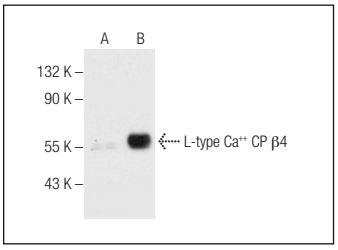
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

L-type Ca^{++} CP β4 (H-7): sc-376432 is recommended as a positive control antibody for Western Blot analysis of enhanced mouse L-type Ca^{++} CP β4 expression in L-type Ca^{++} CP β4 transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

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.

DATA



L-type Ca^{++} CP β4 (H-7): sc-376432. Western blot analysis of L-type Ca^{++} CP β4 expression in non-transfected: sc-117752 (**A**) and mouse L-type Ca^{++} CP β4 transfected: sc-127077 (**B**) 293T whole cell lysates.

RESEARCH USE

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