

# L-type Ca<sup>++</sup> CP β<sub>4</sub> (S-19): sc-54589

## 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 α<sub>1</sub> subunit, a β subunit, a γ subunit and an α<sub>2δ</sub> subunit. The β subunit is encoded by four genes, β<sub>1</sub>-β<sub>4</sub>, differing by about 20%. The various β subunits contribute to the diversity of calcium currents and are also involved in membrane trafficking of the α<sub>1</sub> subunit. L-type Ca<sup>++</sup> CP β<sub>4</sub> (calcium channel voltage-dependent subunit β<sub>4</sub>), 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<sup>++</sup> CP β<sub>4</sub> 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<sup>++</sup> CP β<sub>4</sub> which enhances cellular excitability. Mutations in the gene encoding L-type Ca<sup>++</sup> CP β<sub>4</sub> are associated with idiopathic generalized epilepsy (IGE) and juvenile myoclonic epilepsy (JME).

## REFERENCES

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- Pagani, R., et al. 2003. Differential expression of α<sub>1</sub> and β subunits of voltage dependent Ca<sup>2+</sup> channel at the neuromuscular junction of normal and P/Q Ca<sup>2+</sup> channel knockout mouse. *Neuroscience* 123: 75-85.
- Takahashi, E. and Nagasu, T. 2005. Expression pattern of voltage-dependent calcium channel α<sub>1</sub> and β subunits in adrenal gland of N-type Ca<sup>2+</sup> channel α<sub>1B</sub> subunit gene-deficient mice. *Mol. Cell. Biochem.* 271: 91-99.
- Suzuki, T., et al. 2006. Mutation analyses of genes on 6p12-p11 in patients with juvenile myoclonic epilepsy. *Neurosci. Lett.* 405: 126-131.
- 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 (human) mapping to 2q23.3; Cacnb4 (mouse) mapping to 2 C1.1.

## SOURCE

L-type Ca<sup>++</sup> CP β<sub>4</sub> (S-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of L-type Ca<sup>++</sup> CP β<sub>4</sub> of human 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-54589 P, (100 μg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

L-type Ca<sup>++</sup> CP β<sub>4</sub> (S-19) is recommended for detection of L-type Ca<sup>++</sup> CP β<sub>4</sub> 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).

L-type Ca<sup>++</sup> CP β<sub>4</sub> (S-19) is also recommended for detection of L-type Ca<sup>++</sup> CP β<sub>4</sub> in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for L-type Ca<sup>++</sup> CP β<sub>4</sub> siRNA (h): sc-62048, L-type Ca<sup>++</sup> CP β<sub>4</sub> siRNA (m): sc-62049, L-type Ca<sup>++</sup> CP β<sub>4</sub> shRNA Plasmid (h): sc-62048-SH, L-type Ca<sup>++</sup> CP β<sub>4</sub> shRNA Plasmid (m): sc-62049-SH, L-type Ca<sup>++</sup> CP β<sub>4</sub> shRNA (h) Lentiviral Particles: sc-62048-V and L-type Ca<sup>++</sup> CP β<sub>4</sub> shRNA (m) Lentiviral Particles: sc-62049-V.

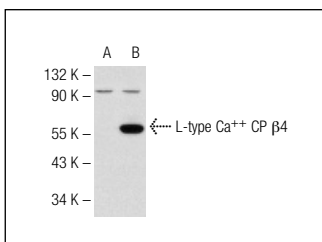
Molecular Weight of L-type Ca<sup>++</sup> CP β<sub>4</sub>: 58 kDa.

Positive Controls: L-type Ca<sup>++</sup> CP β<sub>4</sub> (m): 293T Lysate: sc-127077.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## DATA



L-type Ca<sup>++</sup> CP β<sub>4</sub> (S-19): sc-54589. Western blot analysis of L-type Ca<sup>++</sup> CP β<sub>4</sub> expression in non-transfected: sc-117752 (A) and mouse L-type Ca<sup>++</sup> CP β<sub>4</sub> transfected: sc-127077 (B) 293T whole cell lysates.

## 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.