

# Cacna2d2 (C-18): sc-34768

## BACKGROUND

CACNA2D2 is a gene coding for the protein calcium channel, voltage-dependent  $\alpha_2\delta$ -2 (Cacna2d2), a regulatory subunit of the voltage dependent calcium channels. The protein interacts with  $\alpha$ -1,  $\beta$  and  $\gamma$  subunits in a 1:1:1 ratio to form a channel mediating calcium influx. Protein expression occurs in the brain, heart and other tissues, and is involved in central nervous system function. Disruptions of the CACNA2D2 gene may be involved in cerebellar ataxias and epileptic episodes in humans. The gene is localized to the tumor suppressor region of chromosome 3p21.31 in humans. Expression deficiency occurs in lung, breast and other cancers in humans. Part of a family of  $\alpha_2\delta$  subunits involved in voltage-dependent calcium influx, Cacna2d2 shares 56% amino acid homology with the  $\alpha_2\delta$ -1 subunit, although they have different patterns of tissue expression.

## REFERENCES

1. Gao, B., et al. 2000. Functional properties of a new voltage-dependent calcium channel  $\alpha_2\delta$  auxiliary subunit gene (CACNA2D2). J. Biol. Chem. 275: 12237-12242.
2. Alden, K.J., et al. 2001. Differential effect of gabapentin on neuronal and muscle calcium currents. J. Pharmacol. Exp. Ther. 297: 727-735.
3. Barclay, J., et al. 2001. Ducky mouse phenotype of epilepsy and ataxia is associated with mutations in the Cacna2d2 gene and decreased calcium channel current in cerebellar Purkinje cells. J. Neurosci. 21: 6095-6104.
4. Brodbeck, J., et al. 2002. The ducky mutation in Cacna2d2 results in altered Purkinje cell morphology and is associated with the expression of a truncated  $\alpha_2\delta$ -2 protein with abnormal function. J. Biol. Chem. 277: 7684-7693.
5. Ji, L., et al. 2002. Expression of several genes in the human chromosome 3p21.3 homozygous deletion region by an adenovirus vector results in tumor suppressor activities *in vitro* and *in vivo*. Cancer Res. 62: 2715-2720.
6. Braga, E.A., et al. 2003. New tumor suppressor genes in hot spots of human chromosome 3: new methods of identification. Mol. Biol. 37: 194-211.
7. Carboni, G.L., et al. 2003. CACNA2D2-mediated apoptosis in NSCLC cells is associated with alterations of the intracellular calcium signaling and disruption of mitochondria membrane integrity. Oncogene 22: 615-626.
8. Chow, L.S., et al. 2004. RASSF1A is a target tumor suppressor from 3p21.3 in nasopharyngeal carcinoma. Int. J. Cancer 109: 839-847.
9. Ivanov, S.V., et al. 2004. Cerebellar ataxia, seizures, premature death, and cardiac abnormalities in mice with targeted disruption of the Cacna2d2 gene. Am. J. Pathol. 165: 1007-1018.

## CHROMOSOMAL LOCATION

Genetic locus: CACNA2D2 (human) mapping to 3p21.31; Cacna2d2 (mouse) mapping to 9 F1.

## SOURCE

Cacna2d2 (C-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of Cacna2d2 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-34768 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

Cacna2d2 (C-18) is recommended for detection of Cacna2d2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

Cacna2d2 (C-18) is also recommended for detection of Cacna2d2 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for Cacna2d2 siRNA (h): sc-45522, Cacna2d2 siRNA (m): sc-45523, Cacna2d2 shRNA Plasmid (h): sc-45522-SH, Cacna2d2 shRNA Plasmid (m): sc-45523-SH, Cacna2d2 shRNA (h) Lentiviral Particles: sc-45522-V and Cacna2d2 shRNA (m) Lentiviral Particles: sc-45523-V.

Molecular Weight of Cacna2d2: 130 kDa.

Molecular Weight of glycosylated Cacna2d2: 150 kDa.

Positive Controls: rat cerebellum extract: sc-2398.

## 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) 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.

## 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.



Try **Cacna2d2 (42): sc-136423** or **Cacna2d2 (G-5): sc-365911**, our highly recommended monoclonal alternatives to Cacna2d2 (C-18).