SANTA CRUZ BIOTECHNOLOGY, INC.

Malcavernin (T-14): sc-67677

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The Power to Question

BACKGROUND

Cerebral cavernous malformation (CCM) is an autosomal dominant or sporadic neurovascular disease marked by vascular anomalies located mostly in the central nervous system that can cause stroke, seizures, cerebral hemorrhages, headaches and focal neurologic deficits. CCM is caused by mutations in one of three genes: CCM1, CCM2 or CCM3. CCM1 encodes the protein KRIT1, CCM2 encodes the protein Malcavernin and CCM3 shares its name with the protein it encodes. Malcavernin, also designated cerebral cavernous malformations 2 protein, is a scffolding protein for MEK kinase-3. Like KRIT1, Malcavernin is expressed in a variety of human organs including the arterial vascular endothelium, pyramidal neurons, astrocytes and their foot processes. In addition, Malcavernin is expressed in various epithelial cells that are required for the formation of the blood-organ barrier. Malcavernin is localized to the cytoplasm but is known to shuttle to and from the nucleus. Due to its lack of a nuclear export signal or nuclear localization signal, it is believed that Malcavernin accomplishes this shuttling via an attachment to KRIT1, which contains a nuclear localization signal. Two isoforms exist for Malcavernin. Isoform 1 represents the full length protein while isoform 2 contains an alternative four amino acid sequence rather than the first 10 residues of isoform 1.

REFERENCES

1. Lawton, M.T., et al. 2005. Giant infiltrative cavernous malformation: clinical presentation, intervention, and genetic analysis: case report. Neurosurgery 55: 979-980.
2. Guclu, B., et al. 2005. Mutations in apoptosis-related gene, PDCD10, cause cerebral cavernous malformation 3. Neurosurgery 57: 1008-1013.
3. Guclu, B., et al. 2005. Cerebral venous malformations have distinct genetic origin from cerebral cavernous malformations. Stroke 36: 2479-2480.
4. Zawistowski, J.S., et al. 2005. CCM1 and CCM2 protein interactions in cell signaling: implications for cerebral cavernous malformations pathogenesis. Hum. Mol. Genet. 14: 2521-2531.
5. Seker, A., et al. 2006. CCM2 expression parallels that of CCM1. Stroke 37: 518-523.
6. Labauge, P., et al. 2007. Genetics of cavernous angiomas. Lancet. Neurol. 6: 237-244.
7. Ortiz, L., et al. 2007. Study of cerebral cavernous malformation in Spain and Portugal: high prevalence of a 14 bp deletion in exon 5 of MGC4607 (CCM2 gene). J. Neurol. 254: 322-326.
8. Zhang, J., et al. 2007. Interaction between KRIT1 and Malcavernin: implications for the pathogenesis of cerebral cavernous malformations. Neurosurgery 60: 353-359.

CHROMOSOMAL LOCATION

Genetic locus: CCM2 (human) mapping to 7p13; Ccm2 (mouse) mapping to 11 A1.

STORAGE

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

SOURCE

Malcavernin (T-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of Malcavernin 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-67677 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Malcavernin (T-14) is recommended for detection of Malcavernin 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).

Malcavernin (T-14) is also recommended for detection of Malcavernin in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for Malcavernin siRNA (h): sc-62594, Malcavernin siRNA (m): sc-62595, Malcavernin shRNA Plasmid (h): sc-62594-SH, Malcavernin shRNA Plasmid (m): sc-62595-SH, Malcavernin shRNA (h) Lentiviral Particles: sc-62594-V and Malcavernin shRNA (m) Lentiviral Particles: sc-62595-V.

Molecular Weight of Malcavernin: 49 kDa.

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.

RESEARCH USE

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

PROTOCOLS

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