SANTA CRUZ BIOTECHNOLOGY, INC.

MICAL1 siRNA (h): sc-95537

BACKGROUND

MICAL1 (microtubule associated monoxygenase, calponin and LIM domain containing 1), also known as MICAL or NICAL, is a 1,067 amino acid protein that localizes to both the cytoplasm and the cytoskeleton and contains one LIM zinc-binding domain and one calponin-homology domain. Expressed in kidney, thymus, spleen, lung and testis, MICAL1 interacts with the SH3 domain of Cas-L and, via this interaction, is thought to function as a cytoskeletal regulator that connects Cas-L to intermediate filaments. MICAL1 also interacts with Rab 1B, plexin-A3 and Vimentin, further regulating cytoskeletal events and possibly playing a role in axonal repulsion. Three isoforms of MICAL1 exist due to alternative splicing events.

REFERENCES

1. Terman, J.R., et al. 2002. MICALs, a family of conserved flavoprotein oxidoreductases, function in plexin-mediated axonal repulsion. Cell 109: 887-900.
2. Suzuki, T., et al. 2002. MICAL, a novel Cas-L interacting molecule, associates with Vimentin. J. Biol. Chem. 277: 14933-14941.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 607129. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Weide, T., et al. 2003. MICAL1 isoforms, novel Rab 1 interacting proteins. Biochem. Biophys. Res. Commun. 306: 79-86.
5. Bayer, M., et al. 2005. Identification and characterization of iporin as a novel interaction partner for Rab 1. BMC Cell Biol. 6: 15.
6. Fischer, J., et al. 2005. The MICAL proteins and Rab 1: a possible link to the cytoskeleton? Biochem. Biophys. Res. Commun. 328: 415-423.
7. Jin, X., et al. 2007. Investigation of the four cooperative unfolding units existing in the MICAL1 CH domain. Biophys. Chem. 129: 269-278.
8. Schmidt, E.F., et al. 2008. Release of MICAL autoinhibition by semaphorin-plexin signaling promotes interaction with collapsin response mediator protein. J. Neurosci. 28: 2287-2297.

CHROMOSOMAL LOCATION

Genetic locus: MICAL1 (human) mapping to 6q21.

PRODUCT

MICAL1 siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see MICAL1 shRNA Plasmid (h): sc-95537-SH and MICAL1 shRNA (h) Lentiviral Particles: sc-95537-V as alternate gene silencing products.

For independent verification of MICAL1 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-95537A, sc-95537B and sc-95537C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

MICAL1 siRNA (h) is recommended for the inhibition of MICAL1 expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

MICAL1 (D-3): sc-515814 is recommended as a control antibody for monitoring of MICAL1 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MICAL1 gene expression knockdown using RT-PCR Primer: MICAL1 (h)-PR: sc-95537-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Hou, S.T., et al. 2015. Semaphorin3A elevates vascular permeability and contributes to cerebral ischemia-induced brain damage. Sci. Rep. 5: 7890.

RESEARCH USE

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