SANTA CRUZ BIOTECHNOLOGY, INC.

VILIP-1 siRNA (h): sc-106299

BACKGROUND

The VSNL1 gene to the short arm of chromosome 2 encodes VILIP-1 (visinin-like protein 1). VILIP-1 contains four EF-hands and a double-stranded RNA-binding domain and is a member of the neuronal calcium sensor family, which is included in the calcium-binding protein superfamily. VILIP-1 is expressed in the membrane, cytoplasm and cytoskeleton of the sympathetic and parasympathetic neurons throughout the brain, except for the caudate-putamen region. The rate of VILIP-1 expression decreases significantly with age. VILIP-1 associates with Actin in the cytoskeleton, which may translocate VILIP-1 to the membrane. VILIP-1 binds the 3'-untranslated region of trkB double-stranded mRNA in a calcium dependent manner. VILIP-1 associates with G protein-receptor kinase 1 and inhibits its binding to the membrane. VILIP-1 is involved in membrane calcium signaling and may play a role in the sensitivity of G-protein cascades to cytosolic. Decreased amounts of VILIP-1 were found in Alzheimer disease brains, suggesting it may play a role in the disease.

REFERENCES

1. Cox, J.A., et al. 1994. Cation binding and conformational changes in VILIP and NCS-1, two neuron-specific calcium-binding proteins. J. Biol. Chem. 269: 32807-32813.
2. Polymeropoulos, M.H., et al. 1995. Sequence characterization and genetic mapping of the human VSNL1 gene, a homologue of the rat visinin-like peptide RNVP1. Genomics 29: 273-275.
3. Lenz, S.E., et al. 1996. The neuronal EF-hand Ca^{2+}-binding protein VILIP: interaction with cell membrane and Actin-based cytoskeleton. Biochem. Biophys. Res. Commun. 22: 1078-1083.
4. Mathisen, P.M., et al. 1999. Visinin-like protein (VILIP) is a neuron-specific calcium-dependent double-stranded RNA-binding protein. J. Biol. Chem. 274: 31571-31576.
5. Paterlini, M., et al. 2000. Expression of the neuronal calcium sensor protein family in the rat brain. Neuroscience 99: 205-216.
6. Sallese, M., et al. 2000. Regulation of G protein-coupled receptor kinase subtypes by calcium sensor proteins. Biochim. Biophys. Acta 1498: 112-121.

CHROMOSOMAL LOCATION

Genetic locus: VSNL1 (human) mapping to 2p24.2.

PRODUCT

VILIP-1 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 VILIP-1 shRNA Plasmid (h): sc-106299-SH and VILIP-1 shRNA (h) Lentiviral Particles: sc-106299-V as alternate gene silencing products.

For independent verification of VILIP-1 (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-106299A, sc-106299B and sc-106299C.

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

VILIP-1 siRNA (h) is recommended for the inhibition of VILIP-1 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

VILIP-1 (2F1-E3): sc-293209 is recommended as a control antibody for monitoring of VILIP-1 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 VILIP-1 gene expression knockdown using RT-PCR Primer: VILIP-1 (h)-PR: sc-106299-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. Li, F., et al. 2012. Identification of NME5 as a contributor to innate resistance to gemcitabine in pancreatic cancer cells. FEBS J. 279: 1261-1273.

RESEARCH USE

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