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ZFYVE1 siRNA (m): sc-155602

BACKGROUND

ZFYVE1 (zinc finger FYVE domain-containing protein 1), also known as double FYVE-containing protein 1, SR3 or tandem FYVE fingers-1, is a 777 amino acid protein that mainly localizes to the cisternal stacks of Golgi apparatus. ZFYVE1 has two FYVE-type zinc fingers and exists as two isoforms formed by alternative splicing events. Isoform 1 is expressed in brain, placenta, lung, liver, skeletal muscle, pancreas and kidney while isoform 2 is detected in the testis. Both isoforms 1 and 2 are highly expressed in the heart. The gene encoding ZFYVE1 maps to human chromosome 14, which houses over 700 genes and comprises nearly 3.5% of the human genome. Chromosome 14 encodes the presenilin 1 (PSEN1) gene, which is one of the three key genes associated with the development of Alzheimer's disease (AD). The SERPINA1 gene is also located on chromosome 14 and, when defective, leads to the genetic disorder α 1-antitrypsin deficiency, which is characterized by severe lung complications and liver dysfunction.

REFERENCES

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2. Cheung, P.C., Trinkle-Mulcahy, L., Cohen, P. and Lucocq, J.M. 2001. Characterization of a novel phosphatidylinositol 3-phosphate-binding protein containing two FYVE fingers in tandem that is targeted to the Golgi. *Biochem. J.* 355: 113-121.
3. Ridley, S.H., Ktistakis, N., Davidson, K., Anderson, K.E., Manifava, M., Ellson, C.D., Lipp, P., Bootman, M., Coadwell, J., Nazarian, A., Erdjument-Bromage, H., Tempst, P., Cooper, M.A., Thuring, J.W., Lim, Z.Y., Holmes, A.B., Stephens, L.R. and Hawkins, P.T. 2001. FENS-1 and DFCP1 are FYVE domain-containing proteins with distinct functions in the endosomal and Golgi compartments. *J. Cell Sci.* 114: 3991-4000.
4. Avramopoulos, D., Fallin, M.D. and Bassett, S.S. 2005. Linkage to chromosome 14q in Alzheimer's disease (AD) patients without psychotic symptoms. *Am. J. Med. Genet. B Neuropsychiatr. Genet.* 132B: 9-13.

CHROMOSOMAL LOCATION

Genetic locus: Zfyve1 (mouse) mapping to 12 D1.

PRODUCT

ZFYVE1 siRNA (m) 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see ZFYVE1 shRNA Plasmid (m): sc-155602-SH and ZFYVE1 shRNA (m) Lentiviral Particles: sc-155602-V as alternate gene silencing products.

For independent verification of ZFYVE1 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-155602A, sc-155602B and sc-155602C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

ZFYVE1 siRNA (m) is recommended for the inhibition of ZFYVE1 expression in mouse 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 μ M in 66 μ l. 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

ZFYVE1 (A-9): sc-515049 is recommended as a control antibody for monitoring of ZFYVE1 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 ZFYVE1 gene expression knockdown using RT-PCR Primer: ZFYVE1 (m)-PR: sc-155602-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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

PROTOCOLS

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