

FAT1 siRNA (h): sc-88872

BACKGROUND

The FAT proteins are members of the cadherin superfamily homologous to the *Drosophila* Fat protein that functions as a positive regulator of planar cell polarity in the *Drosophila* wing. FAT1 is an unusual cadherin that controls cell growth and planar polarity while acting as a tumor suppressor. FAT1 is a proximal element of a signaling pathway that determines both cellular polarity in the plane of the monolayer and directed Actin-dependent cell motility. FAT1 is localized at the leading edge of lamellipodia, filopodia and microspike tips where it directly interacts with Ena/VASP proteins to regulate the Actin polymerization complex. When targeted to mitochondrial outer leaflets, the cytoplasmic domain of FAT1 recruits components of the Actin polymerization machinery sufficient to induce ectopic Actin polymerization. FAT1 expression in vascular smooth muscle cells (VSMCs) increases significantly after arterial injury or growth factor stimulation, implicating FAT1 in the control of VSMC functions central to vascular remodeling by facilitating migration and limiting proliferation. FAT1 is also involved in psychic disorders, and its action may be of patho-physiological importance.

REFERENCES

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- Rock, R., et al. 2005. Expression of mouse dchs1, fmx1, an cell polarity pathway identified in *Drosophila*. *Dev. Dyn.* 234: 747-755.
- Tanoue, T. and Takeichi, M. 2005. New insights into Fat cadherins. *J. Cell Sci.* 118: 2347-2353.
- Berg, F., et al. 2006. Refined localization of the FAT1 quantitative trait locus on pig chromosome 4 by marker-assisted backcrossing. *BMC Genetics* 7: 17.
- Hou, R., et al. 2006. The FAT1 cadherin integrates vascular smooth muscle cell growth and migration signals. *J. Cell Biol.* 173: 417-429.
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CHROMOSOMAL LOCATION

Genetic locus: FAT1 (human) mapping to 4q35.2.

PRODUCT

FAT1 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see FAT1 shRNA Plasmid (h): sc-88872-SH and FAT1 shRNA (h) Lentiviral Particles: sc-88872-V as alternate gene silencing products.

For independent verification of FAT1 (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-88872A, sc-88872B and sc-88872C.

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

FAT1 siRNA (h) is recommended for the inhibition of FAT1 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 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

FAT1 (1634CT464.1.9): sc-517329 is recommended as a control antibody for monitoring of FAT1 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor FAT1 gene expression knockdown using RT-PCR Primer: FAT1 (h)-PR: sc-88872-PR (20 μ l, 403 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

- Lin, S.C., et al. 2018. FAT1 somatic mutations in head and neck carcinoma are associated with tumor progression and survival. *Carcinogenesis* 39: 1320-1330.

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.