



Fatso siRNA (h): sc-75002

BACKGROUND

Fatso, also known as FTO or KIAA1752, is a 505 amino acid protein that has an N-terminal nuclear localization signal. Expressed in a variety of tissues, with highest levels present in brain and pancreatic tissue, Fatso exists as four alternatively spliced isoforms, one of which is associated with a predisposition to childhood and adult obesity. Due to its involvement in the development of obesity, Fatso is associated with an increased BMI and may be involved in the pathogenesis of type 2 diabetes. The gene encoding Fatso maps to human chromosome 16, which encodes over 900 genes and comprises nearly 3% of the human genome. The GAN gene is located on chromosome 16 and, with mutation, may lead to giant axonal neuropathy, a nervous system disorder characterized by increasing malfunction with growth. The rare disorder Rubinstein-Taybi syndrome is also associated with chromosome 16, as is Crohn's disease, which is a gastrointestinal inflammatory condition.

REFERENCES

1. Peters, T., et al. 1999. Cloning of Fatso (Fto), a novel gene deleted by the Fused toes (Ft) mouse mutation. *Mamm. Genome* 10: 983-986.
2. Pascoe, L., et al. 2007. Common variants of the novel type 2 diabetes genes CDKAL1 and HHEX/IDE are associated with decreased pancreatic β -cell function. *Diabetes* 56: 3101-3104.
3. Field, S.F., et al. 2007. Analysis of the obesity gene FTO in 14,803 type 1 diabetes cases and controls. *Diabetologia* 50: 2218-2220.
4. Dina, C., et al. 2007. Variation in FTO contributes to childhood obesity and severe adult obesity. *Nat. Genet.* 39: 724-726.

CHROMOSOMAL LOCATION

Genetic locus: FTO (human) mapping to 16q12.2.

PRODUCT

Fatso 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 Fatso shRNA Plasmid (h): sc-75002-SH and Fatso shRNA (h) Lentiviral Particles: sc-75002-V as alternate gene silencing products.

For independent verification of Fatso (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-75002A, sc-75002B and sc-75002C.

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

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

Fatso (C-3): sc-271713 is recommended as a control antibody for monitoring of Fatso 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 Fatso gene expression knockdown using RT-PCR Primer: Fatso (h)-PR: sc-75002-PR (20 μ l, 550 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Martin, S.E., et al. 2021. The m⁶A landscape of polyadenylated nuclear (PAN) RNA and its related methylome in the context of KSHV replication. *RNA* 27: 1102-1125.
2. Yang, Z., et al. 2024. The m⁶A reader YTHDC2 regulates UVB-induced DNA damage repair and histone modification. *Photochem. Photobiol.* 100: 1031-1040.
3. Zhou, W., et al. 2024. A novel AML1-ETO/FTO positive feedback loop promotes leukemogenesis and Ara-C resistance via stabilizing IGF2BP2 in t(8;21) acute myeloid leukemia. *Exp. Hematol. Oncol.* 13: 9.

RESEARCH USE

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