

FNDC3B siRNA (m): sc-145212

BACKGROUND

Adipogenesis, the process of transforming pre-adipocytes into mature fat cells, is of particular interest due to the role adipocytes play in obesity and type II diabetes. Adipocytes have been shown to affect a variety of functions, including hemostasis, angiogenesis and energy balance, by secreting hormones and bioactive peptides. The FNDC3B protein, also designated FAD104 (factor for adipocyte differentiation 104) or HCV NS5A-binding protein 37, is expressed during early adipogenesis. Belonging to the FNDC3 family of proteins, FNDC3B is a 1,204 amino acid protein that contains 9 fibronectin type-III domains. FNDC3B-deficient mice die within one day of birth, suggesting that FNDC3B is crucial for postpartum survival. Mouse embryonic fibroblasts (MEFs) with loss of FNDC3B function displayed a reduction in stress fiber formation, indicating a role for FNDC3B in cell proliferation, adhesion, spreading and migration.

REFERENCES

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2. Rosen, E.D. 2002. The molecular control of adipogenesis, with special reference to lymphatic pathology. *Ann. N.Y. Acad. Sci.* 979: 143-158.
3. Tominaga, K., et al. 2004. The novel gene fad104, containing a fibronectin type III domain, has a significant role in adipogenesis. *FEBS Lett.* 577: 49-54.
4. Tominaga, K., et al. 2004. Fad24, a mammalian homolog of Noc3p, is a positive regulator in adipocyte differentiation. *J. Cell Sci.* 117: 6217-6226.
5. Ailhaud, G. 2006. Adipose tissue as a secretory organ: from adipogenesis to the metabolic syndrome. *C. R. Biol.* 329: 570-577.
6. Johmura, Y. 2007. Characterization of novel genes regulating adipocyte differentiation. *Yakugaku Zasshi* 127: 135-142.
7. Nishizuka, M., et al. 2008. Disruption of the novel gene fad104 causes rapid postnatal death and attenuation of cell proliferation, adhesion, spreading and migration. *Exp. Cell Res.* 315: 809-819.

CHROMOSOMAL LOCATION

Genetic locus: *Fndc3b* (mouse) mapping to 3 A3.

PRODUCT

FNDC3B 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 FNDC3B shRNA Plasmid (m): sc-145212-SH and FNDC3B shRNA (m) Lentiviral Particles: sc-145212-V as alternate gene silencing products.

For independent verification of FNDC3B (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-145212A, sc-145212B and sc-145212C.

RESEARCH USE

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

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

FNDC3B siRNA (m) is recommended for the inhibition of FNDC3B 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

FNDC3B (B-1): sc-393997 is recommended as a control antibody for monitoring of FNDC3B 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 FNDC3B gene expression knockdown using RT-PCR Primer: FNDC3B (m)-PR: sc-145212-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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