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SANTA CRUZ BIOTECHNOLOGY, INC.

Fatty Acid Synthase siRNA (m): sc-41516

BACKGROUND

Fatty acid biosynthesis is mediated by seven catalytic enzymes and an acyl carrier protein (ACP), to which various acyl intermediates are covalently attached. Fatty Acid Synthase (FAS) is the anabolic enzyme that contains the seven unique catalytic sites and mediates the conversion of acetyl-CoA and malonyl-CoA, in the presence of the cofactor NADPH, into long-chain saturated fatty acids, such as palmitate. Human Fatty Acid Synthase cDNA encodes a 2,504 amino acid protein. Catalytically active Fatty Acid Synthase is a homodimer. Human Fatty Acid Synthase mRNA is variably expressed with abundant levels present in brain, lung and liver. Fatty acid synthetic metabolism is abnormally elevated in tumor cells and may support cell growth or survival of malignant cancers.

REFERENCES

1. Smith, S. 1994. The animal Fatty Acid Synthase: one gene, one polypeptide, seven enzymes. FASEB J. 8: 1248-1259.
2. Jayakumar, A., et al. 1994. Isolation and chromosomal mapping of genomic clones encoding the human Fatty Acid Synthase gene. Genomics 23: 420-424.
3. Jayakumar, A., et al. 1995. Human Fatty Acid Synthase: properties and molecular cloning. Proc. Natl. Acad. Sci. USA 92: 8695-8699.
4. Chirala, S.S., et al. 2001. Human Fatty Acid Synthase: role of interdomain in the formation of catalytically active synthase dimer. Proc. Natl. Acad. Sci. USA 98: 3104-3108.
5. Pizer, E.S., et al. 2001. Increased Fatty Acid Synthase as a therapeutic target in androgen-independent prostate cancer progression. Prostate 47: 102-110.
6. Li, J.N., et al. 2001. Pharmacological inhibition of Fatty Acid Synthase activity produces both cytostatic and cytotoxic effects modulated by p53. Cancer Res. 61: 1493-1499.

CHROMOSOMAL LOCATION

Genetic locus: Fasn (mouse) mapping to 11 E2.

PRODUCT

Fatty Acid Synthase 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Fatty Acid Synthase shRNA Plasmid (m): sc-41516-SH and Fatty Acid Synthase shRNA (m) Lentiviral Particles: sc-41516-V as alternate gene silencing products.

For independent verification of Fatty Acid Synthase (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-41516A, sc-41516B and sc-41516C.

PROTOCOLS

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

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

Fatty Acid Synthase siRNA (m) is recommended for the inhibition of Fatty Acid Synthase 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 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

Fatty Acid Synthase (G-11): sc-48357 is recommended as a control antibody for monitoring of Fatty Acid Synthase 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 Fatty Acid Synthase gene expression knockdown using RT-PCR Primer: Fatty Acid Synthase (m)-PR: sc-41516-PR (20 µl, 452 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Jung, M.Y., et al. 2018. Fatty Acid Synthase is required for profibrotic TGF-β signaling. FASEB J. 32: 3803-3815.

RESEARCH USE

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