



E-FABP siRNA (h): sc-41237

BACKGROUND

Fatty acid-binding proteins, designated FABPs, are a family of homologous cytoplasmic proteins that are expressed in a highly tissue-specific manner and play an integral role in the balance between lipid and carbohydrate metabolism. FABPs mediate fatty acid (FA) and/or hydrophobic ligand uptake, transport and targeting within their respective tissues. The mechanisms underlying these actions can give rise to both passive diffusional uptake and protein-mediated transmembrane transport of FAs. FABPs are expressed in adipocytes (A-FABP), brain (B-FABP), epidermis (E-FABP, also designated psoriasis-associated FABP or PA-FABP), muscle and heart (H-FABP, also designated mammary-derived growth inhibitor or MDGI), intestine (I-FABP), liver (L-FABP), myelin (M-FABP) and testis (T-FABP). Epithelial fatty acid-binding protein (E-FABP) binds stearic acid and may play a role in keratinocyte differentiation. E-FABP is upregulated in rat dorsal root ganglia after sciatic nerve crush and in differentiating neurons during development.

REFERENCES

1. Veerkamp, J.H. and Maatman, R.G. 1995. Cytoplasmic fatty acid-binding proteins: their structure and genes. *Prog. Lipid Res.* 34: 17-52.
2. Hotamisligil, G.S., et al. 1996. Uncoupling of obesity from Insulin resistance through a targeted mutation in aP2, the adipocyte fatty acid binding protein. *Science* 274: 1377-1379.
3. Storch, J. and Thumser, A.E. 2000. The fatty acid transport function of fatty acid-binding proteins. *Biochim. Biophys. Acta* 1486: 28-44.
4. Allen, G.W., et al. 2000. Depletion of a fatty acid-binding protein impairs neurite outgrowth in PC-12 cells. *Brain Res. Mol. Brain Res.* 76: 315-324.

CHROMOSOMAL LOCATION

Genetic locus: FABP5 (human) mapping to 8q21.13.

PRODUCT

E-FABP 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 E-FABP shRNA Plasmid (h): sc-41237-SH and E-FABP shRNA (h) Lentiviral Particles: sc-41237-V as alternate gene silencing products.

For independent verification of E-FABP (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-41237A, sc-41237B and sc-41237C.

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

E-FABP siRNA (h) is recommended for the inhibition of E-FABP 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

E-FABP (A-9): sc-365236 is recommended as a control antibody for monitoring of E-FABP 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 E-FABP gene expression knockdown using RT-PCR Primer: E-FABP (h)-PR: sc-41237-PR (20 μ l, 397 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Ju, J., et al. 2018. 4-amino-2-trifluoromethyl-phenyl retinate inhibits proliferation, invasion, and migration of breast cancer cells by independently regulating CRABP2 and FABP5. *Drug Des. Devel. Ther.* 12: 997-1008.
2. Lin, R., et al. 2020. Fatty acid oxidation controls CD8⁺ tissue-resident memory T cell survival in gastric adenocarcinoma. *Cancer Immunol. Res.* 8: 479-492.
3. Chen, N.N., et al. 2023. Doxorubicin resistance in breast cancer is mediated via the activation of FABP5/PPAR γ and CaMKII signaling pathway. *Front. Pharmacol.* 14: 1150861.

RESEARCH USE

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