

# A-FABP siRNA (h): sc-43592

## 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). The human A-FABP gene is organized into four exons, maps to chromosome 8q21.13, and encodes a 132-amino acid protein. A-FABP protein comprises approximately 1% of the total cytosolic protein in human adipose tissue.

## REFERENCES

1. Baxa, C.A., et al. 1989. Human adipocyte lipid-binding protein: purification of the protein and cloning of its complementary DNA. *Biochemistry* 28: 8683-8690.
2. Veerkamp, J.H. and Maatman, R.G. 1995. Cytoplasmic fatty acid-binding proteins: their structure and genes. *Prog. Lipid Res.* 34: 17-52.
3. 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.
4. Storch, J. and Thumser, A.E. 2000. The fatty acid transport function of fatty acid-binding proteins. *Biochim. Biophys. Acta* 1486: 28-44.

## CHROMOSOMAL LOCATION

Genetic locus: FABP4 (human) mapping to 8q21.13.

## PRODUCT

A-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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see A-FABP shRNA Plasmid (h): sc-43592-SH and A-FABP shRNA (h) Lentiviral Particles: sc-43592-V as alternate gene silencing products.

For independent verification of A-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-43592A, sc-43592B and sc-43592C.

## STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at  $-20^{\circ}$  C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at  $-20^{\circ}$  C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

A-FABP siRNA (h) is recommended for the inhibition of A-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  $\mu$ M in 66  $\mu$ 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

A-FABP (B-4): sc-271529 is recommended as a control antibody for monitoring of A-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).

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor A-FABP gene expression knockdown using RT-PCR Primer: A-FABP (h)-PR: sc-43592-PR (20  $\mu$ l). Annealing temperature for the primers should be  $55-60^{\circ}$  C and the extension temperature should be  $68-72^{\circ}$  C.

## SELECT PRODUCT CITATIONS

1. Zhu, Q., et al. 2015. Expression and function of fatty acid-binding protein 4 in epithelial cell of uterine endometrium. *Cell Biol. Int.* 39: 540-547.
2. Yan, Y., et al. 2016. Increased expression of fatty acid binding protein 4 in preeclamptic placenta and its relevance to preeclampsia. *Placenta* 39: 94-100.
3. Wang, P., et al. 2017. Fatty acid-binding protein 4 in endometrial epithelium is involved in embryonic implantation. *Cell. Physiol. Biochem.* 41: 501-509.
4. Wu, G., et al. 2018. FABP4 induces asthmatic airway epithelial barrier dysfunction via Ros-activated FoxM1. *Biochem. Biophys. Res. Commun.* 495: 1432-1439.
5. Gong, Y., et al. 2018. FABP4 inhibitors suppress inflammation and oxidative stress in murine and cell models of acute lung injury. *Biochem. Biophys. Res. Commun.* 496: 1115-1121.
6. Lin, R., et al. 2020. Fatty acid oxidation controls CD8<sup>+</sup> tissue-resident memory T cell survival in gastric adenocarcinoma. *Cancer Immunol. Res.* 8: 479-492.

## RESEARCH USE

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