SANTA CRUZ BIOTECHNOLOGY, INC.

ACOT4 siRNA (h): sc-72437

BACKGROUND

Acyl-CoA thioesterases (ACOTs) are a group of enzymes that catalyze the hydrolysis of acyl-CoA to form coenzyme A (CoA) and a free fatty acid. Through their catalytic activity, ACOTs are able to regulate the level of fatty acids and acyl-CoAs within the cell. Specifically, several ACOT proteins, including ACOT1, ACOT2 and ACOT 4, catalyze the conversion of palmitoyl-CoA and water to free CoA and palmitate. ACOT4, also designated peroxisomal acyl coenzyme A thioester hydrolase Ib (PTEIB), is a 421 amino acid protein that is localized to the peroxisome. Highest expression levels of ACOT4 are found in liver and kidney with weaker expression in placenta, heart, and muscle. ACOT4 appears to have obtained the functionality of three mouse genes, ACOT3, ACOT4 and ACOT5, acting on substrates of succinyl-CoA and medium to long chain acyl-CoAs.

REFERENCES

1. Jones, J.M., et al. 2000. Identification of PTE2, a human peroxisomal long-chain acyl-CoA thioesterase. Biochem. Biophys. Res. Commun. 275: 233-240.
2. Ishizuka, M., et al. 2004. Overexpression of human acyl-CoA thioesterase upregulates peroxisome biogenesis. Exp. Cell Res. 297: 127-141.
3. Westin, M.A., et al. 2005. The identification of a succinyl-CoA thioesterase suggests a novel pathway for succinate production in peroxisomes. J. Biol. Chem. 280: 38125-38132.
4. Hunt, M.C., et al. 2005. A revised nomenclature for mammalian acyl-CoA thioesterases/hydrolases. J. Lipid Res. 46: 2029-2032.
5. Hunt, M.C., et al. 2006. Analysis of the mouse and human acyl-CoA thioesterase (ACOT) gene clusters shows that convergent, functional evolution results in a reduced number of human peroxisomal ACOTs. FASEB J. 20: 1855-1864.
6. Rudolph, M.C., et al. 2007. Lipid synthesis in lactation: diet and the fatty acid switch. J. Mammary Gland Biol. Neoplasia 12: 269-281.

CHROMOSOMAL LOCATION

Genetic locus: ACOT4 (human) mapping to 14q24.3.

PRODUCT

ACOT4 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see ACOT4 shRNA Plasmid (h): sc-72437-SH and ACOT4 shRNA (h) Lentiviral Particles: sc-72437-V as alternate gene silencing products.

For independent verification of ACOT4 (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-72437A, sc-72437B and sc-72437C.

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

ACOT4 siRNA (h) is recommended for the inhibition of ACOT4 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 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor ACOT4 gene expression knockdown using RT-PCR Primer: ACOT4 (h)-PR: sc-72437-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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