SANTA CRUZ BIOTECHNOLOGY, INC.

ACOT12 siRNA (h): sc-91923

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. ACOT12 (acyl-CoA thioesterase 12), also known as CACH, CACH1 or STARD12, is a 555 amino acid protein that localizes to the cytoplasm and contains one START domain and two acyl coenzyme A hydrolase domains. Existing as either a homodimer or a homotetramer, ACOT12 plays a role in pyruvate metabolism, specifically by catalyzing the hydrolysis of acetyl-CoA to acetate and CoA. The gene encoding ACOT12 maps to human chromosome 5, which contains 181 million base pairs and comprises nearly 6% of the human genome. Deletion of the p arm of chromosome 5 leads to Cri du chat syndrome, while deletion of the q arm or of chromosome 5 altogether is common in therapy-related acute myelogenous leukemias and myelodysplastic syndrome.

REFERENCES

1. Suematsu, N., et al. 2001. Molecular cloning and functional expression of rat liver cytosolic acetyl-CoA hydrolase. Eur. J. Biochem. 268: 2700-2709.
2. Hunt, M.C., et al. 2002. The role acyl-CoA thioesterases play in mediating intracellular lipid metabolism. Prog. Lipid Res. 41: 99-130.
3. Suematsu, N., et al. 2003. Simple and unique purification by size-exclusion chromatography for an oligomeric enzyme, rat liver cytosolic acetyl-coenzyme A hydrolase. J. Chromatogr. B Analyt. Technol. Biomed. Life Sci. 790: 239-244.
4. Mashek, D.G., et al. 2004. Revised nomenclature for the mammalian long-chain acyl-CoA synthetase gene family. J. Lipid Res. 45: 1958-1961.
5. Hunt, M.C., et al. 2005. A revised nomenclature for mammalian acyl-CoA thioesterases/hydrolases. J. Lipid Res. 46: 2029-2032.
6. Suematsu, N., et al. 2006. Molecular cloning and functional expression of human cytosolic acetyl-CoA hydrolase. Acta Biochim. Pol. 53: 553-561.

CHROMOSOMAL LOCATION

Genetic locus: ACOT12 (human) mapping to 5q14.1.

PRODUCT

ACOT12 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 ACOT12 shRNA Plasmid (h): sc-91923-SH and ACOT12 shRNA (h) Lentiviral Particles: sc-91923-V as alternate gene silencing products.

For independent verification of ACOT12 (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-91923A, sc-91923B and sc-91923C.

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

ACOT12 siRNA (h) is recommended for the inhibition of ACOT12 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 ACOT12 gene expression knockdown using RT-PCR Primer: ACOT12 (h)-PR: sc-91923-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.