

HADHSC siRNA (h): sc-75222

BACKGROUND

HADHSC (hydroxyacyl-coenzyme A (CoA) dehydrogenase, short chain), also known as HAD, HHF4, HADH1, SCHAD or M/SCHAD (Medium and short chain L-3-hydroxyacyl-CoA dehydrogenase), is a mitochondrial matrix protein expressed in pancreas, liver, heart, kidney and skeletal muscle. HADHSC exists as a homodimer that participates in lipid metabolism and is essential for the β -oxidation of medium and short chain fatty acids. More specifically, HADHSC catalyzes the dehydrogenation of 3-hydroxyacyl-CoAs to their corresponding 3-ketoacyl-CoAs while NAD⁺ is simultaneously reduced to NADH. Defects in HADHSC can lead to HADH (3- α -hydroxyacyl-CoA dehydrogenase) deficiency and familial hyperinsulinemic hypoglycemia 4 (HHF4). HADH deficiency is characterized as a metabolic disorder with patients exhibiting hepatocerebralopathy, hypoglycemia, myopathy or cardiomyopathy and sometimes experiencing sudden death. HHF4 is a disorder characterized by elevated Insulin secretion that, if left untreated, can cause brain damage from recurrent hypoglycemia episodes.

REFERENCES

1. He, X.Y., et al. 1989. Assay of L-3-hydroxyacyl-coenzyme A dehydrogenase with substrates of different chain lengths. *Anal. Biochem.* 180: 105-109.
2. Vredendaal, P.J., et al. 1996. Human short-chain L-3-hydroxyacyl-CoA dehydrogenase: cloning and characterization of the coding sequence. *Biochem. Biophys. Res. Commun.* 223: 718-723.
3. Bennett, M.J., et al. 1996. Mitochondrial short-chain L-3-hydroxyacyl-coenzyme A dehydrogenase deficiency: a new defect of fatty acid oxidation. *Pediatr. Res.* 39: 185-188.
4. He, X.Y., et al. 1999. Identity of heart and liver L-3-hydroxyacyl coenzyme A dehydrogenase. *Biochim. Biophys. Acta* 1437: 119-123.
5. Treacy, E.P., et al. 2000. Short-chain hydroxyacyl-coenzyme A dehydrogenase deficiency presenting as unexpected infant death: A family study. *J. Pediatr.* 137: 257-259.

CHROMOSOMAL LOCATION

Genetic locus: HADH (human) mapping to 4q25.

PRODUCT

HADHSC 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 HADHSC shRNA Plasmid (h): sc-75222-SH and HADHSC shRNA (h) Lentiviral Particles: sc-75222-V as alternate gene silencing products.

For independent verification of HADHSC (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-75222A, sc-75222B and sc-75222C.

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 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

HADHSC siRNA (h) is recommended for the inhibition of HADHSC 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

HADHSC (A-5): sc-376525 is recommended as a control antibody for monitoring of HADHSC 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 HADHSC gene expression knockdown using RT-PCR Primer: HADHSC (h)-PR: sc-75222-PR (20 μ l). 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.