

# ECH1 siRNA (m): sc-143282

## BACKGROUND

ECH1 (enoyl coenzyme A hydratase 1), also known as HPXEL, is a 328 amino acid protein that localizes to both the mitochondrion and the peroxisome and belongs to the hydratase/isomerase superfamily. Existing as a homohexamer, ECH1 is involved in the fatty acid- $\beta$  oxidation pathway, specifically functioning to catalyze the isomerization of 3-*trans*,5-*cis*-dienoyl-CoA to 2-*trans*,4-*trans*-dienoyl-CoA. The gene encoding ECH1 maps to human chromosome 19, which is the genetic home for a number of immunoglobulin superfamily members, including the killer cell and leukocyte Ig-like receptors, a number of ICAMs, the CEACAM and PSG family and Fc receptors (FcRs).

## REFERENCES

1. FitzPatrick, D.R., et al. 1995. Isolation and characterization of rat and human cDNAs encoding a novel putative peroxisomal enoyl-CoA hydratase. *Genomics* 27: 457-466.
2. Filppula, S.A., et al. 1998.  $\Delta^{3,5}$ - $\Delta^{2,4}$ -dienoyl-CoA isomerase from rat liver. Molecular characterization. *J. Biol. Chem.* 273: 349-355.
3. Davoli, R., et al. 2003. Radiation hybrid mapping of three skeletal muscle genes (CKM, ECH1 and TNNT1) to porcine chromosome 6. *Anim. Genet.* 34: 302-303.
4. Jia, Y., et al. 2003. Overexpression of peroxisome proliferator-activated receptor- $\alpha$  (PPAR $\alpha$ )-regulated genes in liver in the absence of peroxisome proliferation in mice deficient in both L- and D-forms of enoyl-CoA hydratase/dehydrogenase enzymes of peroxisomal  $\beta$ -oxidation system. *J. Biol. Chem.* 278: 47232-47239.
5. Online Mendelian Inheritance in Man, OMIM™. 2005. Johns Hopkins University, Baltimore, MD. MIM Number: 600696. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
6. Kovalyov, L.I., et al. 2006. Polymorphism of  $\Delta^{3,5}$ - $\Delta^{2,4}$ -dienoyl-coenzyme A isomerase (the ECH1 gene product protein) in human striated muscle tissue. *Biochemistry Mosc.* 71: 448-453.
7. de Boer, V.C., et al. 2006. Chronic quercetin exposure affects fatty acid catabolism in rat lung. *Cell. Mol. Life Sci.* 63: 2847-2858.

## CHROMOSOMAL LOCATION

Genetic locus: Ech1 (mouse) mapping to 7 A3.

## PRODUCT

ECH1 siRNA (m) is a target-specific 19-25 nt siRNA 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 ECH1 shRNA Plasmid (m): sc-143282-SH and ECH1 shRNA (m) Lentiviral Particles: sc-143282-V as alternate gene silencing products.

## PROTOCOLS

See our web site at [www.scbt.com](http://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  $\mu$ 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

ECH1 siRNA (m) is recommended for the inhibition of ECH1 expression in mouse 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

ECH1 (B-3): sc-515270 is recommended as a control antibody for monitoring of ECH1 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 $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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 $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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 ECH1 gene expression knockdown using RT-PCR Primer: ECH1 (m)-PR: sc-143282-PR (20  $\mu$ 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.