SANTA CRUZ BIOTECHNOLOGY, INC.

ATP5C1 siRNA (m): sc-141345

BACKGROUND

ATP5C1 (ATP synthase, H^+ transporting, mitochondrial F_1 complex, γ polypeptide 1), also known as ATP5C or ATP5CL1, is a 298 amino acid protein that belongs to the ATPase γ chain family. F-type ATPases, such as ATP5C1, consist of two components: CF_1, a soluble, catalytic core that consists of five subunits (α3, β3, γ1, δ1 and ε1), and CF_0, a membrane proton channel that contains three main subunits (α, β and χ). ATP5C1 encodes the gamma subunit of the catalytic core. Localizing to both mitochondrial inner membrane and peripheral membrane, ATP5C1 is expressed in heart and skeletal muscle, which require rapid energy supply, as well as brain, liver, kidney, skin, intestine and stomach. ATP5C1 exists as two alternatively spliced isoforms, isoform liver (L) and isoform heart (H), and is encoded by a gene that maps to human chromosome 10p14. ATP5C1 also has a pseudogene on chromosome 14.

REFERENCES

1. Matsuda, C., et al. 1993. Gene structure of human mitochondrial ATP synthase γ-subunit. Tissue specificity produced by alternative RNA splicing. J. Biol. Chem. 268: 24950-24958.
2. Jabs, E.W., et al. 1994. Chromosomal localization of genes required for the terminal steps of oxidative metabolism: α and γ subunits of ATP synthase and the phosphate carrier. Hum. Genet. 93: 600-602.
3. Yasuda, R., et al. 1998. F_1-ATPase is a highly efficient molecular motor that rotates with discrete 120 degree steps. Cell 93: 1117-1124.
4. Hofmann, W.K., et al. 2002. Relation between resistance of Philadelphia-chromosome-positive acute lymphoblastic leukaemia to the tyrosine kinase inhibitor STI571 and gene-expression profiles: a gene-expression study. Lancet 359: 481-486.
5. Itoh, H., et al. 2004. Mechanically driven ATP synthesis by F_1-ATPase. Nature 427: 465-468.
6. Wisloff, U., et al. 2005. Cardiovascular risk factors emerge after artificial selection for low aerobic capacity. Science 307: 418-420.
7. Sun, X., et al. 2006. Downregulation in components of the mitochondrial electron transport chain in the postmortem frontal cortex of subjects with bipolar disorder. J. Psychiatry Neurosci. 31: 189-196.
8. Parikh, H., et al. 2008. Molecular correlates for maximal oxygen uptake and type 1 fibers. Am. J. Physiol. Endocrinol. Metab. 294: E1152-E1159.
9. Pihlajamäki, J., et al. 2009. Thyroid hormone-related regulation of gene expression in human fatty liver. J. Clin. Endocrinol. Metab. 94: 3521-3529.

CHROMOSOMAL LOCATION

Genetic locus: Atp5c1 (mouse) mapping to 2 A1.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

PRODUCT

ATP5C1 siRNA (m) 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 ATP5C1 shRNA Plasmid (m): sc-141345-SH and ATP5C1 shRNA (m) Lentiviral Particles: sc-141345-V as alternate gene silencing products.

For independent verification of ATP5C1 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-141345A, sc-141345B and sc-141345C.

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

ATP5C1 siRNA (m) is recommended for the inhibition of ATP5C1 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 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 ATP5C1 gene expression knockdown using RT-PCR Primer: ATP5C1 (m)-PR: sc-141345-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.