SANTA CRUZ BIOTECHNOLOGY, INC.

ATP5H siRNA (h): sc-93691

BACKGROUND

ATP5H (ATP synthase, H^+ transporting, mitochondrial F_0 complex, subunit d), also known as ATPQ, is a 161 amino acid protein that belongs to the ATPase d subunit family. F-type ATPases, such as ATP5H, consist of two linked components: CF1, a soluble catalytic core that consists of five different subunits (α, β, γ, δ and ε), and CF0, a membrane proton channel that contains a, b, c, OSCP, d, F6, e, f, g and AL6 subunits. ATP5H encodes the d subunit of the F_0 complex. ATP5H produces ATP from ADP in the presence of a proton gradient across the membrane, which is generated by electron transport complexes of the respiratory chain. Localizing to mitochondrial inner membrane, ATP5H exists as two alternatively spliced isoforms and is encoded by a gene that maps to human chromosome 17q25.1. ATP5H also has three pseudogenes, which are located on chromosomes 9, 12 and 15.

REFERENCES

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2. Rosenberg, M.J., et al. 2002. Mutant deoxynucleotide carrier is associated with congenital microcephaly. Nat. Genet. 32: 175-179.
3. Jervis, K.M. and Robaire, B. 2003. Effects of caloric restriction on gene expression along the epididymis of the Brown Norway rat during aging. Exp. Gerontol. 38: 549-560.
4. Noh, H.S., et al. 2004. A cDNA microarray analysis of gene expression profiles in rat hippocampus following a ketogenic diet. Brain Res. Mol. Brain Res. 129: 80-87.
5. Skov, V., et al. 2007. Reduced expression of nuclear-encoded genes involved in mitochondrial oxidative metabolism in skeletal muscle of Insulin-resistant women with polycystic ovary syndrome. Diabetes 56: 2349-2355.
6. Martinvalet, D., et al. 2008. Granzyme A cleaves a mitochondrial complex I protein to initiate caspase-independent cell death. Cell 133: 681-692.
7. Yusenko, M.V., et al. 2010. Analysis of differentially expressed mitochondrial proteins in chromophobe renal cell carcinomas and renal oncocytomas by 2-D gel electrophoresis. Int. J. Biol. Sci. 6: 213-224.

CHROMOSOMAL LOCATION

Genetic locus: ATP5H (human) mapping to 17q25.1.

PRODUCT

ATP5H 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 ATP5H shRNA Plasmid (h): sc-93691-SH and ATP5H shRNA (h) Lentiviral Particles: sc-93691-V as alternate gene silencing products.

For independent verification of ATP5H (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-93691A, sc-93691B and sc-93691C.

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

ATP5H siRNA (h) is recommended for the inhibition of ATP5H 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.

GENE EXPRESSION MONITORING

ATP5H (E-1): sc-515915 is recommended as a control antibody for monitoring of ATP5H 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 ATP5H gene expression knockdown using RT-PCR Primer: ATP5H (h)-PR: sc-93691-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.

PROTOCOLS

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