SANTA CRUZ BIOTECHNOLOGY, INC.

ATP5S siRNA (h): sc-92250

BACKGROUND

Mitochondrial ATP synthase catalyzes ATP synthesis, utilizing an electrochemical gradient of protons across the inner membrane during oxidative phosphorylation. ATP synthase is composed of two linked multi-subunit complexes: the soluble catalytic core, F1, and the membrane-spanning component, Fo, which comprises the proton channel. ATP5S, also known as ATP synthase subunit s, mitochondrial, ATP synthase-coupling factor B or ATP synthase, H^+ transporting, mitochondrial F0 complex, subunit s (factor B), is a 215 amino acid mitochondrial inner membrane protein that belongs to the ATP synthase subunit s family. Involved in regulation of mitochondrial membrane ATP synthase, ATP5S is necessary for H^+ conduction of ATP synthase. The ATP5S gene encodes subunit s, also known as factor B, of the proton channel. This subunit is necessary for energy transduction in ATP synthase complexes. The ATP5S gene is conserved in chimpanzee, canine, bovine, mouse, rat, chicken, zebrafish and mosquito, and maps to human chromosome 14q22.1.

REFERENCES

1. Sanadi, D.R., Pringle, M., Kantham, L., Hughes, J.B. and Srivastava, A. 1984. Evidence for the involvement of coupling factor B in the H^+ channel of the mitochondrial H^+-ATPase. Proc. Natl. Acad. Sci. USA 81: 1371-1374.
2. Elston, T., Wang, H. and Oster, G. 1998. Energy transduction in ATP synthase. Nature 391: 510-513.
3. Wang, H. and Oster, G. 1998. Energy transduction in the F_1 motor of ATP synthase. Nature 396: 279-282.
4. Kinosita, K., Yasuda, R. and Noji, H. 2000. F_1-ATPase: a highly efficient rotary ATP machine. Essays Biochem. 35: 3-18.
5. Belogrudov, G.I. and Hatefi, Y. 2002. Factor B and the mitochondrial ATP synthase complex. J. Biol. Chem. 277: 6097-6103.
6. Leyva, J.A., Bianchet, M.A. and Amzel, L.M. 2003. Understanding ATP synthesis: structure and mechanism of the F_1-ATPase (Review). Mol. Membr. Biol. 20: 27-33.
7. Cross, R.L. 2004. Molecular motors: turning the ATP motor. Nature 427: 407-408.
8. SWISS-PROT/TrEMBL (Q99766). World Wide Web URL: http://www.uniprot.org/uniprot/Q99766

CHROMOSOMAL LOCATION

Genetic locus: ATP5S (human) mapping to 14q21.3.

PRODUCT

ATP5S siRNA (h) 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see ATP5S shRNA Plasmid (h): sc-92250-SH and ATP5S shRNA (h) Lentiviral Particles: sc-92250-V as alternate gene silencing 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

ATP5S siRNA (h) is recommended for the inhibition of ATP5S 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 ATP5S gene expression knockdown using RT-PCR Primer: ATP5S (h)-PR: sc-92250-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.