SANTA CRUZ BIOTECHNOLOGY, INC.

ATP5I siRNA (m): sc-105106

BACKGROUND

Mitochondrial ATP synthases (ATPases) transduce the energy contained in membrane electrochemical proton gradients into the energy required for synthesis of high-energy phosphate bonds. ATPases contain two linked complexes: F_1, the hydrophilic catalytic core; and F_0, the membrane-embedded protein channel. The two complexes are linked by a central stalk and a peripheral stalk. During catalysis, ATP synthesis in the catalytic domain of F_1 is coupled, via a rotary mechanism of the central stalk subunits, with proton translocation across the membrane. ATP5I, also known as mitochondrial ATP synthase subunit E or ATP5K, is a 69 amino acid protein member of the ATPase E subunit family. Localized to the inner membrane of the mitochondria, ATP5I is a part of the F_0 complex.

REFERENCES

1. Prescott, M., et al. 1994. Properties of yeast cells depleted of the OSCP subunit of mitochondrial ATP synthase by regulated expression of the ATP5 gene. Biochem. Mol. Biol. Int. 34: 789-799.
2. Maak, S., et al. 2001. Rapid communication: Chromosomal localization and partial cDNA sequence of the porcine ATP synthase, H^+ transporting, mitochondrial F_0 complex, subunit e (ATP5I) gene. J. Anim. Sci. 79: 1352-1353.
3. Ying, H., et al. 2001. Antisense of ATP synthase subunit e inhibits the growth of human hepatocellular carcinoma cells. Oncol. Res. 12: 485-490.
4. Carbajo, R.J., et al. 2005. Structure of the F1-binding domain of the stator of bovine F_1F_0-ATPase and how it binds an α-subunit. J. Mol. Biol. 351: 824-838.
5. Dunnick, J., et al. 2006. Critical pathways in heart function: bis(2-chloroethoxy)methane-induced heart gene transcript change in F344 rats. Toxicol. Pathol. 34: 348-356.
6. Ackerman, S.H. and Tzagoloff, A. 2007. Methods to determine the status of mitochondrial ATP synthase assembly. Methods Mol. Biol. 372: 363-377.
7. Grover, G.J., et al. 2008. Energetic signalling in the control of mitochondrial F_1F_0 ATP synthase activity in health and disease. Int. J. Biochem. Cell Biol. 40: 2698-2701.
8. Scanlon, J.A., et al. 2008. A rotor-stator cross-link in the F_1-ATPase blocks the rate-limiting step of rotational catalysis. J. Biol. Chem. 283: 26228-26240.

CHROMOSOMAL LOCATION

Genetic locus: Atp5k (mouse) mapping to 5 F.

PRODUCT

ATP5I 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see ATP5I shRNA Plasmid (m): sc-105106-SH and ATP5I shRNA (m) Lentiviral Particles: sc-105106-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

ATP5I siRNA (m) is recommended for the inhibition of ATP5I 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.

SELECT PRODUCT CITATIONS

1. Liu, P., et al. 2021. TRESK regulates Gm11874 to induce apoptosis of spinal cord neurons via ATP5I mediated oxidative stress and DNA damage. Neurochem. Res. 46: 1970-1980.

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.