SANTA CRUZ BIOTECHNOLOGY, INC.

CLPX siRNA (m): sc-142403

BACKGROUND

CLPX (ClpX caseinolytic peptidase X homolog), also known as ATP-dependent Clp protease ATP-binding subunit clpX-like, mitochondrial or energy-dependent regulator of proteolysis, is a 633 amino acid mitochondrial protein that exists as a heterodimer with ClpP. Expressed in heart and skeletal muscle, and belonging to the CLPX chaperone family, CLPX is also found at lower levels in pancreas, brain, liver, lung and kidney. CLPX is encoded by a gene that maps to human chromosome 15, which houses over 700 genes and comprises nearly 3% of the human genome. Angelman syndrome, Prader-Willi syndrome, Tay-Sachs disease and Marfan syndrome are all associated with defects in chromosome 15-localized genes.

REFERENCES

1. Hurowitz, G.I., et al. 1993. Neuropsychiatric aspects of adult-onset Tay-Sachs disease: two case reports with several new findings. J. Neuropsychiatry Clin. Neurosci. 5: 30-36.
2. Santagata, S., et al. 1999. Molecular cloning and characterization of a mouse homolog of bacterial ClpX, a novel mammalian class II member of the Hsp100/Clp chaperone family. J. Biol. Chem. 274: 16311-16319.
3. Corydon, T.J., et al. 2000. Human and mouse mitochondrial orthologs of bacterial ClpX. Mamm. Genome 11: 899-905.
4. Kang, S.G., et al. 2002. Functional proteolytic complexes of the human mitochondrial ATP-dependent protease, hClpXP. J. Biol. Chem. 277: 21095-21102.
5. Kang, S.G., et al. 2005. Human mitochondrial ClpP is a stable heptamer that assembles into a tetradecamer in the presence of ClpX. J. Biol. Chem. 280: 35424-35432.
6. Midla, G.S. 2008. Diagnosis and management of patients with Marfan syndrome. JAAPA 21: 21-25.
7. Martin, A., et al. 2008. Diverse pore loops of the AAA+ ClpX machine mediate unassisted and adaptor-dependent recognition of ssrA-tagged substrates. Mol. Cell 29: 441-450.

CHROMOSOMAL LOCATION

Genetic locus: Clpx (mouse) mapping to 9 C.

PRODUCT

CLPX 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 CLPX shRNA Plasmid (m): sc-142403-SH and CLPX shRNA (m) Lentiviral Particles: sc-142403-V as alternate gene silencing products.

For independent verification of CLPX (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-142403A, sc-142403B and sc-142403C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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

CLPX siRNA (m) is recommended for the inhibition of CLPX 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 CLPX gene expression knockdown using RT-PCR Primer: CLPX (m)-PR: sc-142403-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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