SANTA CRUZ BIOTECHNOLOGY, INC.

Metaxin 3 siRNA (h): sc-92062

BACKGROUND

Metaxin 3, also known as MTX3, is a 312 amino acid protein that belongs to the Metaxin family and localizes to the mitochondrial outer membrane. Like Metaxin 1 and 2, Metaxin 3 is thought to function in the transport of proteins into mitochondria. Metaxin 3 exists as three alternatively spliced isoforms and is encoded by a gene that maps to human chromosome 5q14.1. Chromosome 5 contains 181 million base pairs and comprises nearly 6% of the human genome. Chromosome 5 is associated with Cockayne syndrome through the ERCC8 gene and familial adenomatous polyposis through the adenomatous polyposis coli (APC) tumor suppressor gene. Treacher Collins syndrome is also chromosome 5-associated and is caused by insertions or deletions within the TCOF1 gene. Deletion of the p arm of chromosome 5 leads to Cri du chat syndrome, while deletion of the q arm or of chromosome 5 altogether is common in therapy-related acute myelogenous leukemias and myelodysplastic sydrome.

REFERENCES

1. Edwards, S.J., et al. 1997. The mutational spectrum in Treacher Collins syndrome reveals a predominance of mutations that create a premature-termination codon. Am. J. Hum. Genet. 60: 515-524.
2. McDaniel, L.D., et al. 1997. Confirmation of homozygosity for a single nucleotide substitution mutation in a Cockayne syndrome patient using monoallelic mutation analysis in somatic cell hybrids. Hum. Mutat. 10: 317-321.
3. Armstrong, L.C., et al. 1999. Metaxin 1 interacts with Metaxin 2, a novel related protein associated with the mammalian mitochondrial outer membrane. J. Cell. Biochem. 74: 11-22.
4. Adolph, K.W. 2004. The zebrafish Metaxin 3 gene (mtx3): cDNA and protein structure, and comparison to zebrafish metaxins 1 and 2. Gene 330: 67-73.
5. Finch, R., et al. 2005. Familial adenomatous polyposis and mental retardation caused by a *de novo* chromosomal deletion at 5q15-q22: report of a case. Dis. Colon Rectum 48: 2148-2152.
6. Vera-Carbonell, A., et al. 2009. Characterization of a *de novo* complex chromosomal rearrangement in a patient with Cri du chat and trisomy 5p syndromes. Am. J. Med. Genet. A 149A: 2513-2521.

CHROMOSOMAL LOCATION

Genetic locus: MTX3 (human) mapping to 5q14.1.

PRODUCT

Metaxin 3 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 Metaxin 3 shRNA Plasmid (h): sc-92062-SH and Metaxin 3 shRNA (h) Lentiviral Particles: sc-92062-V as alternate gene silencing products.

For independent verification of Metaxin 3 (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-92062A, sc-92062B and sc-92062C.

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

Metaxin 3 siRNA (h) is recommended for the inhibition of Metaxin 3 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 Metaxin 3 gene expression knockdown using RT-PCR Primer: Metaxin 3 (h)-PR: sc-92062-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Coscia, S.M., et al. 2023. Myo19 tethers mitochondria to endoplasmic reticulum-associated actin to promote mitochondrial fission. J. Cell Sci. 136: jcs260612.

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.