SANTA CRUZ BIOTECHNOLOGY, INC.

AFG3L2 siRNA (m): sc-140899

BACKGROUND

AFG3L2 (ATPase family gene 3-like 2), also known as Paraplegin-like protein, is a multi-pass membrane metalloprotease that contains one AAA (ATPase associated with diverse cellular activities) domain, a zinc-dependent binding motif, an RNA-binding region and an ATP/GTP binding site. Localizing to the mitochondrial membrane, AFG3L2 is ubiquitously expressed with highest expression levels in skeletal muscle and heart. AFG3L2 shares 69% similarity with the yeast AFG3 protein and 49% similarity with Paraplegin, a protein of mitochondria that is thought to be involved in signal transduction and chaperone-like activities. In mitochondria, AFG3L2 forms a complex with Paraplegin that is believed to regulate essential protein quality control. Mutations in the gene encoding either one of these proteins can result in hereditary spastic paraplegia, a degenerative spinal cord disorder that is characterized by muscle spasms, stiffness in the legs and, in some cases, incontinence.

REFERENCES

1. Banfi, S., et al. 1999. Identification and characterization of AFG3L2, a novel paraplegin-related gene. Genomics 59: 51-58.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 604581. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Olstad, O.K., et al. 2003. Molecular heterogeneity in human osteosarcoma demonstrated by enriched mRNAs isolated by directional tag PCR subtraction cloning. Anticancer Res. 23: 2201-2216.
4. Atorino, L., et al. 2003. Loss of m-AAA protease in mitochondria causes complex I deficiency and increased sensitivity to oxidative stress in hereditary spastic paraplegia. J. Cell Biol. 163: 777-787.
5. Nasir, J., et al. 2006. Unbalanced whole arm translocation resulting in loss of 18p in dystonia. Mov. Disord. 21: 859-863.

CHROMOSOMAL LOCATION

Genetic locus: Afg3l2 (mouse) mapping to 18 E1.

PRODUCT

AFG3L2 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 AFG3L2 shRNA Plasmid (m): sc-140899-SH and AFG3L2 shRNA (m) Lentiviral Particles: sc-140899-V as alternate gene silencing products.

For independent verification of AFG3L2 (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-140899A, sc-140899B and sc-140899C.

PROTOCOLS

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

AFG3L2 siRNA (m) is recommended for the inhibition of AFG3L2 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 AFG3L2 gene expression knockdown using RT-PCR Primer: AFG3L2 (m)-PR: sc-140899-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.