

AFG3L1 siRNA (m): sc-140898

BACKGROUND

AFG3L1 (AFG3-like protein 1) is a 789 amino acid multi-pass membrane protein that is a putative ATP-dependent protease. The N-terminal section of AFG3L1 belongs to the AAA ATPase family, while the C-terminal region belongs to the peptidase M41 family. AFG3L1 is highly homologous to paraplegin, a mitochondrial protein that is thought to be involved in signal transduction and chaperone-like activities, as well as other ATP-dependent zinc metalloprotease family members. Found at high levels in mitral cells, Purkinje cells, deep cerebellar nuclei cells, neocortical and hippocampal pyramidal neurons, and brainstem motor neurons, AFG3L1 has a similar cellular pattern of expression to AFG3L2-which forms a complex with paraplegin that is believed to regulate essential protein quality control. AFG3L1 exists as two alternatively spliced isoforms, encoded by a gene that maps to mouse chromosome 8 E1. The orthologous human AFG3L1 gene is a pseudogene.

REFERENCES

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3. Koppen, M., Metodiev, M.D., Casari, G., Rugarli, E.I. and Langer, T. 2007. Variable and tissue-specific subunit composition of mitochondrial m-AAA protease complexes linked to hereditary spastic paraplegia. *Mol. Cell. Biol.* 27: 758-767.
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5. Koppen, M., Bonn, F., Ehses, S. and Langer, T. 2009. Autocatalytic processing of m-AAA protease subunits in mitochondria. *Mol. Biol. Cell* 20: 4216-4224.
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CHROMOSOMAL LOCATION

Genetic locus: Afg3l1 (mouse) mapping to 8 E1.

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.

PRODUCT

AFG3L1 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see AFG3L1 shRNA Plasmid (m): sc-140898-SH and AFG3L1 shRNA (m) Lentiviral Particles: sc-140898-V as alternate gene silencing products.

For independent verification of AFG3L1 (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-140898A, sc-140898B and sc-140898C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

AFG3L1 siRNA (m) is recommended for the inhibition of AFG3L1 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 μ M in 66 μ l. 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 AFG3L1 gene expression knockdown using RT-PCR Primer: AFG3L1 (m)-PR: sc-140898-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.