SANTA CRUZ BIOTECHNOLOGY, INC.

FIG4 siRNA (h): sc-72208

BACKGROUND

FIG4, also known as SAC3, ALS11 or hSac3, is a 907 amino acid protein that contains one SAC domain through which it is thought to function as a phosphoinositide phosphatase that may play an important role in signal transduction and vesicle trafficking. Defects in the gene encoding FIG4 are the cause of Charcot-Marie-Tooth disease type 4J (CMT4J) and amyotrophic lateral sclerosis type 11 (ALS11), both of which negatively affect the nervous system. CMT4J is a recessive demyelinating disorder of the peripheral nervous system and is characterized by reduced motor nerve conduction velocities and axonal degeneration. Unlike CMT4J, ALS11 is characterized by the degeneration of upper motor neurons in the brain and lower neurons in the spinal cord, causing paralysis and, ultimately, death.

REFERENCES

1. Nagase, T., et al. 1996. Prediction of the coding sequences of unidentified human genes. VI. The coding sequences of 80 new genes (KIAA0201-KIAA0280) deduced by analysis of cDNA clones from cell line KG-1 and brain. DNA Res. 3: 321-329, 341-354.
2. Minagawa, T., et al. 2001. Identification and characterization of a sac domain-containing phosphoinositide 5-phosphatase. J. Biol. Chem. 276: 22011-22015.
3. Chow, C.Y., et al. 2007. Mutation of FIG4 causes neurodegeneration in the pale tremor mouse and patients with CMT4J. Nature 448: 68-72.
4. Zhang, Y., et al. 2007. Loss of Vac14, a regulator of the signaling lipid phosphatidylinositol 3,5-bisphosphate, results in neurodegeneration in mice. Proc. Natl. Acad. Sci. USA 104: 17518-17523.
5. Zhang, X., et al. 2008. Mutation of FIG4 causes a rapidly progressive, asymmetric neuronal degeneration. Brain 131: 1990-2001.
6. Marks, M.S. 2008. FIG4, Charcot-Marie-Tooth disease, and hypopigmentation: a role for phosphoinositides in melanosome biogenesis? Pigment Cell Melanoma Res. 21: 11-14.
7. Chow, C.Y., et al. 2009. Deleterious variants of FIG4, a phosphoinositide phosphatase, in patients with ALS. Am. J. Hum. Genet. 84: 85-88.

CHROMOSOMAL LOCATION

Genetic locus: FIG4 (human) mapping to 6q21.

PRODUCT

FIG4 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 FIG4 shRNA Plasmid (h): sc-72208-SH and FIG4 shRNA (h) Lentiviral Particles: sc-72208-V as alternate gene silencing products.

For independent verification of FIG4 (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-72208A, sc-72208B and sc-72208C.

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

FIG4 siRNA (h) is recommended for the inhibition of FIG4 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 FIG4 gene expression knockdown using RT-PCR Primer: FIG4 (h)-PR: sc-72208-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.

PROTOCOLS

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