SANTA CRUZ BIOTECHNOLOGY, INC.

Spatacsin siRNA (h): sc-90244

BACKGROUND

Spatacsin, also known as SPG11 (spastic paraplegia 11), is a 2,443 amino acid multi-pass membrane protein that mainly localizes to the cytoplasm. Expressed in all structures of brain, with high expression in cerebellum, Spatacsin is associated with autosomal recessive hereditary spastic paraplegias (HSP). Defects in the gene encoding Spatacsin are the cause of spastic paraplegia autosomal recessive type 11 (SPG11), a form of autosomal recessive hereditary spastic paraplegia (AR-HSP). HSPs are degenerative spinal cord disorders that are characterized by muscle spasms, stiffness in the legs and, in some cases, incontinence. Existing as three alternatively spliced isoforms, Spatacsin consists of three LRR (leucine-rich) repeats and is encoded by a gene located on human chromosome 15q21.1.

REFERENCES

1. Stevanin, G., et al. 2007. Mutations in SPG11, encoding Spatacsin, are a major cause of spastic paraplegia with thin corpus callosum. Nat. Genet. 39: 366-372.
2. Paisan-Ruiz, C., et al. 2008. SPG11 mutations are common in familial cases of complicated hereditary spastic paraplegia. Neurology 70: 1384-1389.
3. Pippucci, T., et al. 2009. Autosomal recessive hereditary spastic paraplegia with thin corpus callosum: a novel mutation in the SPG11 gene and further evidence for genetic heterogeneity. Eur. J. Neurol. 16: 121-126.
4. Riverol, M., et al. 2009. Forceps minor region signal abnormality "ears of the lynx": an early MRI finding in spastic paraparesis with thin corpus callosum and mutations in the Spatacsin gene (SPG11) on chromosome 15. J. Neuroimaging 19: 52-60.
5. Crimella, C., et al. 2009. Point mutations and a large intragenic deletion in SPG11 in complicated spastic paraplegia without thin corpus callosum. J. Med. Genet. 46: 345-351.
6. Anheim, M., et al. 2009. SPG11 spastic paraplegia. A new cause of juvenile parkinsonism. J. Neurol. 256: 104-108.
7. Schüle, R., et al. 2009. Frequency and phenotype of SPG11 and SPG15 in complicated hereditary spastic paraplegia. J. Neurol. Neurosurg. Psychiatr. 80: 1402-1404.

CHROMOSOMAL LOCATION

Genetic locus: SPG11 (human) mapping to 15q21.1.

PRODUCT

Spatacsin 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 Spatacsin shRNA Plasmid (h): sc-90244-SH and Spatacsin shRNA (h) Lentiviral Particles: sc-90244-V as alternate gene silencing products.

For independent verification of Spatacsin (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-90244A, sc-90244B and sc-90244C.

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

Spatacsin siRNA (h) is recommended for the inhibition of Spatacsin 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 Spatacsin gene expression knockdown using RT-PCR Primer: Spatacsin (h)-PR: sc-90244-PR (20 µl, 200 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Murmu, R.P., et al. 2011. Cellular distribution and subcellular localization of Spatacsin and spastizin, two proteins involved in hereditary spastic paraplegia. Mol. Cell. Neurosci. 47: 191-202.

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.