SANTA CRUZ BIOTECHNOLOGY, INC.

neuroligin X/Y siRNA (h): sc-61186

BACKGROUND

Neuroligins are a family of plasma membrane proteins that possess an N-terminal hydrophobic sequence, a large esterase homology domain, a single transmembrane region and a short cytoplasmic domain. Neuroligins are expressed in excitatory, synaptic clefts and play a role in the formation and remodeling of CNS synapses by binding to β-neurexins, a family of neuronal cell surface proteins. Neuroligins also bind to PSD-95, which may recruit ion channels and neurotransmitter receptors to the synapse. A single-copy X-degenerate gene within the male-specific region of chromosome Y (MSY), which is not involved in X-Y crossover events, encodes neuroligin X/Y (NLGN4Y). Neuroligin X/Y and its X-linked homolog, NLGN4, contain all amino acids essential for neuroligin function, including the cysteines, the transmembrane domain and the PDZ-binding domain. Expression of NLGN4 and neuroligin X/Y is observed in all male brain regions examined, while female brain tissue only demonstrates NLGN4 expression.

REFERENCES

1. Nagase, T., et al. 1999. Prediction of the coding sequences of unidentified human genes. XIII. The complete sequences of 100 new cDNA clones from brain which code for large proteins *in vitro*. DNA Res. 6: 63-70.
2. Jamain, S., et al. 2003. Mutations of the X-linked genes encoding neuroligins NLGN3 and NLGN4 are associated with autism. Nat. Genet. 34: 27-29.
3. Skaletsky, H., et al. 2003. The male-specific region of the human Y chromosome is a mosaic of discrete sequence classes. Nature 423: 825-837.
4. Laumonnier, F., et al. 2004. X-linked mental retardation and autism are associated with a mutation in the NLGN4 gene, a member of the neuroligin family. Am. J. Hum. Genet. 74: 552-557.
5. Vincent, J.B., et al. 2004. Mutation screening of X-chromosomal neuroligin genes: no mutations in 196 autism probands. Am. J. Med. Genet. B Neuropsychiatr. Genet. 129B: 82-84.
6. Zhang, Z. and Henzel, W.J. 2004. Signal peptide prediction based on analysis of sites. Protein Sci. 13: 2819-2824.

CHROMOSOMAL LOCATION

Genetic locus: NLGN4X (human) mapping to Xp22.32, NLGN4Y (human) mapping to Yq11.221.

PRODUCT

neuroligin X/Y 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 neuroligin X/Y shRNA Plasmid (h): sc-61186-SH and neuroligin X/Y shRNA (h) Lentiviral Particles: sc-61186-V as alternate gene silencing products.

For independent verification of neuroligin X/Y (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-61186A, sc-61186B and sc-61186C.

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

neuroligin X/Y siRNA (h) is recommended for the inhibition of neuroligin X/Y 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 neuroligin X/Y gene expression knockdown using RT-PCR Primer: neuroligin X/Y (h)-PR: sc-61186-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.