SANTA CRUZ BIOTECHNOLOGY, INC.

Complexin-4 siRNA (m): sc-142491

BACKGROUND

Members of the Complexin protein family promote SNARE (soluble N-ethyl-maleimide-sensitive factor attachment protein receptors) precomplex formation by binding to Syntaxin via an α-helical domain. Complexins are important regulators of transmitter release at a late step in calcium-dependent neurotransmitter release or immediately after the calcium-triggering step of fast synchronous transmitter release. Neurons lacking Complexins show reduced transmitter release efficiency due to decreased calcium sensitivity of the synaptic secretion process. Complexin-4 is a 160 amino acid protein that weakly binds to the SNARE complex containing VAMP-2, Syntaxin 1 and SNAP 25. Complexin-4 may also be post-translationally modified with the addition of a farnesyl group, which mediates presynaptic targetting.

REFERENCES

1. McMahon, H.T., Missler, M., Li, C. and Südhof, T.C. 1995. Complexins: cytosolic proteins that regulate SNAP receptor function. Cell 83: 111-119.
2. Pabst, S., Hazzard, J.W., Antonin, W., Südhof, T.C., Jahn, R., Rizo, J. and Fasshauer, D. 2000. Selective interaction of complexin with the neuronal SNARE complex. Determination of the binding regions. J. Biol. Chem. 275: 19808-19818.
3. Huang, G.Z., Ujihara, H., Takahashi, S., Kaba, H., Yagi, T. and Inoue, S. 2000. Involvement of complexin II in synaptic plasticity in the CA1 region of the hippocampus: the use of complexin II-lacking mice. Jpn. J. Pharmacol. 84: 179-187.
4. Eastwood, S.L. and Harrison, P.J. 2000. Hippocampal synaptic pathology in schizophrenia, bipolar disorder and major depression: a study of complexin mRNAs. Mol. Psychiatry 5: 425-432.
5. Reim, K., Mansour, M., Varoqueaux, F., McMahon, H.T., Südhof, T.C., Brose, N. and Rosenmund, C. 2001. Complexins regulate a late step in Ca^{2+}-dependent neurotransmitter release. Cell 104: 71-81.
6. Tokumaru, H., Umayahara, K., Pellegrini, L.L., Ishizuka, T., Saisu, H., Betz, H., Augustine, G.J. and Abe, T. 2001. SNARE complex oligomerization by synaphin/complexin is essential for synaptic vesicle exocytosis. Cell 104: 421-432.
7. Yoon, T.Y., Lu, X., Diao, J., Lee, S.M., Ha, T. and Shin, Y.K. 2008. Complexin and Ca^{2+} stimulate SNARE-mediated membrane fusion. Nat. Struct. Mol. Biol. 15: 707-713.
8. Xue, M., Stradomska, A., Chen, H., Brose, N., Zhang, W., Rosenmund, C. and Reim, K. 2008. Complexins facilitate neurotransmitter release at excitatory and inhibitory synapses in mammalian central nervous system. Proc. Natl. Acad. Sci. USA 105: 7875-7880.

CHROMOSOMAL LOCATION

Genetic locus: Cplx4 (mouse) mapping to 18 E1.

PROTOCOLS

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

PRODUCT

Complexin-4 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 Complexin-4 shRNA Plasmid (m): sc-142491-SH and Complexin-4 shRNA (m) Lentiviral Particles: sc-142491-V as alternate gene silencing products.

For independent verification of Complexin-4 (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-142491A, sc-142491B and sc-142491C.

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

Complexin-4 siRNA (m) is recommended for the inhibition of Complexin-4 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 Complexin-4 gene expression knockdown using RT-PCR Primer: Complexin-4 (m)-PR: sc-142491-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.