SANTA CRUZ BIOTECHNOLOGY, INC.

Rim4 siRNA (h): sc-76406

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Rab 3, a neural/neuroendocrine-specific member of the Rab family, is involved in Ca^{2+}-regulated exocytosis. Rab 3 functions in an inhibitory capacity by controlling the recruitment of secretory vesicles into a releasable pool at the plasma membrane. Rim (Rab 3 interacting molecule), a putative effector protein for Rab 3 proteins, is thought to regulate neutrotransmitter release through its interaction with Rab 3 and other synaptic proteins. The mammalian genome contains four Rim genes that encode six forms of Rim: Rim1α, 2α, 2β, 2γ, 3γ and 4γ. Rim1α and 2α are composed of an N-terminal zinc finger, which contains the Rab 3 binding site, a central PDZ domain and two C-terminal C2 domains. Rim2β is nearly identical to Rim2α, with the exception of an N-terminal zinc-finger region which Rim2β lacks. Rim2γ, 3γ and 4γ lack the N-terminal zinc finger and PDZ domain, and consist of only the C-terminal C2 domain with neighboring sequences. Rim4 (Rab 3 interacting molecule 4), also known as Rim4γ or regulating synaptic membrane exocytosis protein 4, is a 269 amino acid protein that localizes to the cell junction and regulates synaptic membrane exocytosis.

REFERENCES

1. Wang, Y., Sugita, S. and Sudhof, T.C. 2000. The Rim/NIM family of neuronal C2 domain proteins. Interactions with Rab3 and a new class of Src homology 3 domain proteins. J. Biol. Chem. 275: 20033-20044.
2. Deng, C. and Saunders, W.S. 2001. Rim4 encodes a meiotic activator required for early events of meiosis in *Saccharomyces cerevisiae.* Mol. Genet. Genomics 266: 497-504.
3. Wang, Y., Liu, X., Biederer, T. and Südhof, T.C. 2002. A family of Rim-binding proteins regulated by alternative splicing: implications for the genesis of synaptic active zones. Proc. Natl. Acad. Sci. USA 99: 14464-14469.
4. Wang, Y. and Südhof, T.C. 2003. Genomic definition of Rim proteins: evolutionary amplification of a family of synaptic regulatory proteins (small star, filled). Genomics 81: 126-137.
5. Calakos, N., Schoch, S., Südhof, T.C. and Malenka, R.C. 2004. Multiple roles for the active zone protein Rim1α in late stages of neurotransmitter release. Neuron 42: 889-896.
6. Kaeser, P.S. and Südhof, T.C. 2005. Rim function in short- and long-term synaptic plasticity. Biochem. Soc. Trans. 33: 1345-1349.
7. Dulubova, I., Lou, X., Lu, J., Huryeva, I., Alam, A., Schneggenburger, R., Südhof, T.C. and Rizo, J. 2005. A Munc13/Rim/Rab3 tripartite complex: from priming to plasticity? EMBO J. 24: 2839-2850.
8. Fejtova, A. and Gundelfinger, E.D. 2006. Molecular organization and assembly of the presynaptic active zone of neurotransmitter release. Results Probl. Cell Differ. 43: 49-68.
9. Matsuoka, S., Ballif, B.A., Smogorzewska, A., McDonald, E.R., Hurov, K.E., Luo, J., Bakalarski, C.E., Zhao, Z., Solimini, N., Lerenthal, Y., Shiloh, Y., Gygi, S.P. and Elledge, S.J. 2007. ATM and ATR substrate analysis reveals extensive protein networks responsive to DNA damage. Science 316: 1160-1166.

CHROMOSOMAL LOCATION

Genetic locus: RIMS4 (human) mapping to 20q13.12.

PRODUCT

Rim4 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 Rim4 shRNA Plasmid (h): sc-76406-SH and Rim4 shRNA (h) Lentiviral Particles: sc-76406-V as alternate gene silencing products.

For independent verification of Rim4 (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-76406A, sc-76406B and sc-76406C.

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

Rim4 siRNA (h) is recommended for the inhibition of Rim4 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 Rim4 gene expression knockdown using RT-PCR Primer: Rim4 (h)-PR: sc-76406-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.