SANTA CRUZ BIOTECHNOLOGY, INC.

R7BP siRNA (h): sc-61431

BACKGROUND

The regulators of G protein signaling (RGS proteins) bind directly to the G protein α (G_α) subunits in brain and other tissues to determine the strength, duration and fidelity of neurotransmitter receptor signaling. They also regulate the kinetics of the G protein signaling. Members of the R7 subfamily, part of the RGS family, bind to $G_{\beta 5}$ (R7-$G_{\beta 5}$) and shuttle between the plasma membrane and the nucleus with assistance from a shuttle protein, R7BP, in neurons. R7BP binds directly to R7-$G_{\beta 5}$, and the protein complex becomes tethered to the plasma membrane by the addition of palmitate, a lipid, onto R7BP. Removal of palmitate results in the translocation of the R7BP-R7-$G_{\beta 5}$ complex to the nucleus, presumably for nontraditional signaling functions.

REFERENCES

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2. Zhang, J.H., et al. 2001. Nuclear localization of G protein β 5 and regulator of G protein signaling 7 in neurons and brain. J. Biol. Chem. 276: 10284-10289.
3. Drenan, R.M., et al. 2005. Palmitoylation regulates plasma membrane-nuclear shuttling of R7BP, a novel membrane anchor for the RGS7 family. J. Cell Biol. 169: 623-633.
4. Hepler, J.R. 2005. R7BP: a surprising new link between G proteins, RGS proteins, and nuclear signaling in the brain. Sci. STKE 2005: pe38.
5. Martemyanov, K.A., et al. 2005. R7BP, a novel neuronal protein interacting with RGS proteins of the R7 family. J. Biol. Chem. 280: 5133-5136.
6. Song, J.H., et al. 2006. Subcellular tar-geting of RGS9-2 is controlled by multiple molecular determinants on its membrane anchor, R7BP. J. Biol. Chem. 281: 15361-15369.
7. Drenan, R.M., et al. 2006. R7BP augments the function of RGS7*$G_{\beta 5}$ complexes by a plasma membrane-targeting mechanism. J. Biol. Chem. 281: 28222-28231.

CHROMOSOMAL LOCATION

Genetic locus: RGS7BP (human) mapping to 5q12.3.

PRODUCT

R7BP 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 R7BP shRNA Plasmid (h): sc-61431-SH and R7BP shRNA (h) Lentiviral Particles: sc-61431-V as alternate gene silencing products.

For independent verification of R7BP (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-61431A, sc-61431B and sc-61431C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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

R7BP siRNA (h) is recommended for the inhibition of R7BP 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 R7BP gene expression knockdown using RT-PCR Primer: R7BP (h)-PR: sc-61431-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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