SANTA CRUZ BIOTECHNOLOGY, INC.

SynGAP siRNA (h): sc-42283

BACKGROUND

The PSD-95/SAP 90 family of proteins, which are known to bind to and cluster various membrane proteins, are involved in the organization of synaptic structure. SynGAP (for synaptic GTPase activating protein), a novel synaptic RasGAP, is a brain-specific protein abundant in the cortex, hippocampus and olfactory bulb. SynGAP interacts with all three PDZ domains within PSD-95/SAP 90 proteins. It represents one of three classes of mammalian RasGAPs and is specifically localized to excitatory synapses possessing NMDA receptors. SynGAP may be involved in the regulation of BDNF as well as Ras signaling. Its activity is inhibited by phosphorylation by CaMKII, which could result in the activation of the MAP kinase pathway.

REFERENCES

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5. Chen, H.J., et al. 1998. A synaptic Ras-GTPase activating protein (p135 SynGAP) inhibited by CaM kinase II. Neuron 20: 895-904.
6. Komiyama, N.H., et al. 2002. SynGAP regulates ERK/MAPK signaling, synaptic plasticity, and learning in the complex with postsynaptic density 95 and NMDA receptor. J. Neurosci. 22: 9721-9732.
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8. Krapivinsky, G., et al. 2004. SynGAP-MUPP1-CaMKII synaptic complexes regulate p38 MAP kinase activity and NMDA receptor-dependent synaptic AMPA receptor potentiation. Neuron 43: 563-574.
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CHROMOSOMAL LOCATION

Genetic locus: SYNGAP1 (human) mapping to 6p21.32.

PRODUCT

SynGAP 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 SynGAP shRNA Plasmid (h): sc-42283-SH and SynGAP shRNA (h) Lentiviral Particles: sc-42283-V as alternate gene silencing products.

For independent verification of SynGAP (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-42283A, sc-42283B and sc-42283C.

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

SynGAP siRNA (h) is recommended for the inhibition of SynGAP 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 SynGAP gene expression knockdown using RT-PCR Primer: SynGAP (h)-PR: sc-42283-PR (20 µl, 552 bp). 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.