

SAPAP4 siRNA (m): sc-153221

BACKGROUND

A guanylate kinase is a phosphotransferase that produces ADP and GDP from the substrates ATP and GMP. SAPAP4, also known as DAP-4 (disks large-associated protein 2) and PSD-95/SAP90-binding protein 4, is a 992 amino acid protein that likely localizes to the postsynaptic membrane of neurons to enhance neuronal signaling. SAPAP4 could act as a signaling molecule which interacts with the human genes DLG1 and DLG4/PSD-95. The gene encoding SAPAP4, DLGAP4, maps to human chromosome 20. Comprising approximately 2% of the human genome, chromosome 20 contains nearly 63 million bases that encode over 600 genes, some of which are associated with Creutzfeldt-Jakob disease, amyotrophic lateral sclerosis, spinal muscular atrophy, ring chromosome 20 epilepsy syndrome and Alagille syndrome. Additionally, chromosome 20 contains a region with numerous genes which are thought important for seminal production and may be potential targets for male contraception.

REFERENCES

1. Satoh, K., Yanai, H., Senda, T., Kohu, K., Nakamura, T., Okumura, N., Matsumine, A., Kobayashi, S., Toyoshima, K. and Akiyama, T. 1997. DAP-1, a novel protein that interacts with the guanylate kinase-like domains of hDLG and PSD-95. *Genes Cells* 2: 415-424.
2. Takeuchi, M., Hata, Y., Hirao, K., Toyoda, A., Irie, M. and Takai, Y. 1997. SAPAPs. A family of PSD-95/SAP90-associated proteins localized at postsynaptic density. *J. Biol. Chem.* 272: 11943-11951.
3. Naisbitt, S., Kim, E., Weinberg, R.J., Rao, A., Yang, F.C., Craig, A.M. and Sheng, M. 1997. Characterization of guanylate kinase-associated protein, a postsynaptic density protein at excitatory synapses that interacts directly with postsynaptic density-95/synapse-associated protein 90. *J. Neurosci.* 17: 5687-5696.
4. Ranta, S., Zhang, Y., Ross, B., Takkunen, E., Hirvasniemi, A., de la Chapelle, A., Gilliam, T.C. and Lehesjoki, A.E. 2000. Positional cloning and characterization of the human DLGAP2 gene and its exclusion in progressive epilepsy with mental retardation. *Eur. J. Hum. Genet.* 8: 381-384.
5. Hirao, K., Hata, Y., Deguchi, M., Yao, I., Ogura, M., Rokukawa, C., Kawabe, H., Mizoguchi, A. and Takai, Y. 2000. Association of synapse-associated protein 90/postsynaptic density-95-associated protein (SAPAP) with neurofilaments. *Genes Cells* 5: 203-210.
6. Ville, D., Kaminska, A., Bahi-Buisson, N., Biraben, A., Plouin, P., Telvi, L., Dulac, O. and Chiron, C. 2006. Early pattern of epilepsy in the ring chromosome 20 syndrome. *Epilepsia* 47: 543-549.
7. Joó, J.G., Beke, A., Tóth-Pál, E., Hargitai, B., Szigeti, Z., Papp, C. and Papp, Z. 2006. Trisomy 20 mosaicism and nonmosaic trisomy 20: a report of 2 cases. *J. Reprod. Med.* 51: 209-212.
8. Kazantsev, A.G. 2007. Cellular pathways leading to neuronal dysfunction and degeneration. *Drug News Perspect.* 20: 501-509.

PROTOCOLS

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

CHROMOSOMAL LOCATION

Genetic locus: *Dlgap4* (mouse) mapping to 2 H1.

PRODUCT

SAPAP4 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see SAPAP4 shRNA Plasmid (m): sc-153221-SH and SAPAP4 shRNA (m) Lentiviral Particles: sc-153221-V as alternate gene silencing products.

For independent verification of SAPAP4 (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-153221A, sc-153221B and sc-153221C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

SAPAP4 siRNA (m) is recommended for the inhibition of SAPAP4 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 μ M in 66 μ l. 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 SAPAP4 gene expression knockdown using RT-PCR Primer: SAPAP4 (m)-PR: sc-153221-PR (20 μ l). 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.