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SANTA CRUZ BIOTECHNOLOGY, INC.

PRG-3 siRNA (m): sc-152461

BACKGROUND

PRG-3 (plasticity-related gene 3), also known as PRG3 or LPPR1 (lipid phosphate phosphatase-related protein type 1), is a 325 amino acid multi-pass membrane protein that belongs to the PA-phosphatase related phosphoesterase family. Strongly expressed in brain, PRG-3 exhibits dynamic expression regulation during brain development and neuronal excitation. In mature brain, PRG-3 is strongly expressed in hippocampus and cerebellum. PRG-3 is known to induce both filopodia formation and neurite growth. Similar to other family members, PRG-3 mediates lipid phosphate phosphatase activity in neurons and is involved in neuronal plasticity. Contrary to other family members, PRG-3 does not function by way of enzymatic phospholipid degradation. PRG-3 also functions as a key enzyme involved in the metabolism of phospholipids, such as LPA and S1P, in the nervous system. The gene that encodes PRG-3 maps to human chromosome 9q31.1.

REFERENCES

1. Savaskan, N.E., Bräuer, A.U. and Nitsch, R. 2004. Molecular cloning and expression regulation of PRG-3, a new member of the plasticity-related gene family. Eur. J. Neurosci. 19: 212-220.
2. Brindley, D.N. 2004. Lipid phosphate phosphatases and related proteins: signaling functions in development, cell division, and cancer. J. Cell. Biochem. 92: 900-912.
3. Wang, W.Z. and Molnár, Z. 2005. Dynamic pattern of mRNA expression of plasticity-related gene-3 (PRG-3) in the mouse cerebral cortex during development. Brain Res. Bull. 66: 454-460.
4. Bräuer, A.U. and Nitsch, R. 2008. Plasticity-related genes (PRGs/LRPs): a brain-specific class of lysophospholipid-modifying proteins. Biochim. Biophys. Acta 1781: 595-600.
5. Trimbuch, T., Beed, P., Vogt, J., Schuchmann, S., Maier, N., Kintscher, M., Breustedt, J., Schuelke, M., Streu, N., Kieselmann, O., Brunk, I., Laube, G., Strauss, U., Battefeld, A., Wende, H., Birchmeier, C., Wiese, S., et al. 2009. Synaptic PRG-1 modulates excitatory transmission via lipid phosphate-mediated signaling. Cell 138: 1222-1235.
6. Broggini, T., Nitsch, R. and Savaskan, N.E. 2010. Plasticity-related gene 5 (PRG5) induces filopodia and neurite growth and impedes lysophosphatidic acid- and nogo-A-mediated axonal retraction. Mol. Biol. Cell 21: 521-537.

CHROMOSOMAL LOCATION

Genetic locus: E130309F12Rik (mouse) mapping to 4 B1.

PRODUCT

PRG-3 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 PRG-3 shRNA Plasmid (m): sc-152461-SH and PRG-3 shRNA (m) Lentiviral Particles: sc-152461-V as alternate gene silencing products.

For independent verification of PRG-3 (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-152461A, sc-152461B and sc-152461C.

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

PRG-3 siRNA (m) is recommended for the inhibition of PRG-3 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 PRG-3 gene expression knockdown using RT-PCR Primer: PRG-3 (m)-PR: sc-152461-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.