

P-Rex2 siRNA (m): sc-151955

BACKGROUND

P-Rex2 (phosphatidylinositol 3,4,5-trisphosphate-dependent Rac exchanger 2 protein), also designated DEP domain-containing protein 2, is a 1,606 amino acid guanine nucleotide exchange factor (GEF) that activates Rac, a small GTPase. P-Rex2 confers substrate specificity and recognition through its PH domain. Activated by the $\beta\gamma$ subunits of heterotrimeric G protein and phosphatidylinositol-3,4,5-triphosphate, P-Rex2 activates Rac 1 in a PI3K-dependent manner. In cerebellum, P-Rex2 is specifically expressed in Purkinje neurons. P-Rex2-deficient mice exhibit impaired motor function, ataxia and Purkinje cell structural abnormalities, suggesting that P-Rex2 plays an important role in cerebellar function and Purkinje cell morphology. There are three isoforms of P-Rex2 which are produced as a result of alternative splicing events.

REFERENCES

- Rosenfeldt, H., Vázquez-Prado, J. and Gutkind, J.S. 2004. P-REX2, a novel PI-3-kinase sensitive Rac exchange factor. *FEBS Lett.* 572: 167-171.
- Donald, S., Hill, K., Lecureuil, C., Barnouin, R., Krugmann, S., John Coadwell, W., Andrews, S.R., Walker, S.A., Hawkins, P.T., Stephens, L.R. and Welch, H.C. 2004. P-Rex2, a new guanine-nucleotide exchange factor for Rac. *FEBS Lett.* 572: 172-176.
- Joseph, R.E. and Norris, F.A. 2005. Substrate specificity and recognition is conferred by the pleckstrin homology domain of the Dbl family guanine nucleotide exchange factor P-Rex2. *J. Biol. Chem.* 280: 27508-27512.
- Hill, K. and Welch, H.C. 2006. Purification of P-Rex1 from neutrophils and nucleotide exchange assay. *Meth. Enzymol.* 406: 26-41.
- Hernández-Negrete, I., Carretero-Ortega, J., Rosenfeldt, H., Hernández-García, R., Calderón-Salinas, J.V., Reyes-Cruz, G., Gutkind, J.S. and Vázquez-Prado, J. 2007. P-Rex1 links mammalian target of rapamycin signaling to Rac activation and cell migration. *J. Biol. Chem.* 282: 23708-23715.9
- Urano, D., Nakata, A., Mizuno, N., Tago, K. and Itoh, H. 2008. Domain-domain interaction of P-Rex1 is essential for the activation and inhibition by G protein $\beta\gamma$ subunits and PKA. *Cell. Signal.* 20: 1545-1554.
- Donald, S., Humby, T., Fyfe, I., Segonds-Pichon, A., Walker, S.A., Andrews, S.R., Coadwell, W.J., Emson, P., Wilkinson, L.S. and Welch, H.C. 2008. P-Rex2 regulates Purkinje cell dendrite morphology and motor coordination. *Proc. Natl. Acad. Sci. USA* 105: 4483-4488.
- Online Mendelian Inheritance in Man, OMIM™. 2008. Johns Hopkins University, Baltimore, MD. MIM Number: 612139. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

CHROMOSOMAL LOCATION

Genetic locus: *Prex2* (mouse) mapping to 1 A2.

PROTOCOLS

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

PRODUCT

P-Rex2 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 P-Rex2 shRNA Plasmid (m): sc-151955-SH and P-Rex2 shRNA (m) Lentiviral Particles: sc-151955-V as alternate gene silencing products.

For independent verification of P-Rex2 (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-151955A, sc-151955B and sc-151955C.

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

P-Rex2 siRNA (m) is recommended for the inhibition of P-Rex2 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 P-Rex2 gene expression knockdown using RT-PCR Primer: P-Rex2 (m)-PR: sc-151955-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.