

PLP2 siRNA (m): sc-152340

BACKGROUND

Proteolipid protein 2, also known as PLP2 or A4, is a 152 amino acid, multi-pass transmembrane protein containing a MARVEL (MAL and related proteins for vesicle trafficking and membrane link) domain. Proteins containing the MARVEL domain have an M-shaped topology, with four transmembrane-helix regions and cytoplasmic N- and C-terminal regions. Localized to the membrane, PLP2 is highly enriched in colonic mucosa and is expressed in a gradient along the crypto-villus axis, with the most abundant expression in the lower half of the crypt. PLP2 has been thought to play a role in chemotaxis and cell differentiation in the intestinal epithelium. PLP2 has also been found in the pyramidal cells of hippocampus and granular cells of the cerebellum and has been implicated in X-linked mental retardation.

REFERENCES

1. Oliva, M.M., Wu, T.C. and Yang, V.W. 1993. Isolation and characterization of a differentiation-dependent gene in the human colonic cell line HT29-18. *Arch. Biochem. Biophys.* 302: 183-192.
2. Oliva, M.M., Cortese, J.F. and Yang, V.W. 1995. Promoter regulation of a differentially expressed gene in the human colonic epithelial cell lines HT29-18 and HT29-18-C1. *Gene* 159: 151-157.
3. Breitwieser, G.E., McLenithan, J.C., Cortese, J.F., Shields, J.M., Oliva, M.M., Majewski, J.L., Machamer, C.E. and Yang, V.W. 1997. Colonic epithelium-enriched protein A4 is a proteolipid that exhibits ion channel characteristics. *Am. J. Physiol.* 272: C957-C965.
4. Fisher, S.E., Ciccodicola, A., Tanaka, K., Curci, A., Desicato, S., D'urso, M. and Craig, I.W. 1997. Sequence-based exon prediction around the synaptophysin locus reveals a gene-rich area containing novel genes in human proximal Xp. *Genomics* 45: 340-347.
5. Online Mendelian Inheritance in Man, OMIM[™]. 1999. Johns Hopkins University, Baltimore, MD. MIM Number: 300112. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
6. Lee, S.M., Shin, H., Jang, S.W., Shim, J.J., Song, I.S., Son, K.N., Hwang, J., Shin, Y.H., Kim, H.H., Lee, C.K., Ko, J., Na, D.S., Kwon, B.S. and Kim, J. 2004. PLP2/A4 interacts with CCR1 and stimulates migration of CCR1-expressing HOS cells. *Biochem. Biophys. Res. Commun.* 324: 768-772.
7. Zhang, L., Jie, C., Obie, C., Abidi, F., Schwartz, C.E., Stevenson, R.E., Valle, D. and Wang, T. 2007. X chromosome cDNA microarray screening identifies a functional PLP2 promoter polymorphism enriched in patients with X-linked mental retardation. *Genome Res.* 17: 641-648.

CHROMOSOMAL LOCATION

Genetic locus: Plp2 (mouse) mapping to X A1.1.

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.

PRODUCT

PLP2 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 PLP2 shRNA Plasmid (m): sc-152340-SH and PLP2 shRNA (m) Lentiviral Particles: sc-152340-V as alternate gene silencing products.

For independent verification of PLP2 (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-152340A, sc-152340B and sc-152340C.

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

PLP2 siRNA (m) is recommended for the inhibition of PLP2 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 PLP2 gene expression knockdown using RT-PCR Primer: PLP2 (m)-PR: sc-152340-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.