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PLP siRNA (m): sc-42035

BACKGROUND

PLP (myelin proteolipid protein or lipophilin) is a major constituent of myelin. The two isoforms of the myelin proteolipid protein, PLP and DM20, are very hydrophobic integral membrane proteins that account for about half of the protein content of adult CNS myelin. A mutation in the gene which encodes PLP is linked to Pelizaeus-Merzbacher disease (PMD), a chronic infantile type of diffuse cerebral sclerosis. The gene which encodes PLP maps to human chromosome Xq22. The glycoprotein zero (also designated P-zero or myelin peripheral protein) is the primary structural protein of peripheral myelin, and accounts for more than 50% of the protein present in the peripheral nerve sheath. Zero is an integral membrane glycoprotein. Expression of zero is restricted to Schwann cells. The gene which encodes zero maps to human chromosome 1q22. PMP22 (peripheral myelin protein 22) is a growth-regulated membrane protein which is expressed by Schwann cells and is localized primarily in compact peripheral nervous system myelin. The gene which encodes PMP22 maps to human chromosome 17p11.2.

REFERENCES

1. Ford, F.R. 1960. Diseases of the Nervous System in Infancy, Childhood and Adolescence, 4th ed. Springfield, IL: Charles C. Thomas Pub. Ltd., 831-833.
2. Willard, H.F. and Riordan, J.R. 1985. Assignment of the gene for myelin proteolipid protein to the X chromosome: implications for X-linked myelin disorders. *Science* 230: 940-942.
3. Mattei, M.G., et al. 1986. The gene encoding for the major brain proteolipid (PLP) maps on the q22 band of the human X chromosome. *Hum. Genet.* 72: 352-353.
4. Patel, P.I., et al. 1992. The gene for the peripheral myelin protein PMP22 is a candidate for Charcot-Marie-Tooth disease type 1A. *Nat. Genet.* 1: 159-165.
5. Suter, U., et al. 1992. A leucine-to-proline mutation in the putative first transmembrane domain of the 22 kDa peripheral myelin protein in the trembler-J mouse. *Proc. Natl. Acad. Sci. USA* 89: 4382-4386.
6. Hayasaka, K., et al. 1993. Structure and chromosomal localization of the gene encoding the human myelin protein zero (MPZ). *Genomics* 17: 755-758.

CHROMOSOMAL LOCATION

Genetic locus: Plp1 (mouse) mapping to X F1.

PRODUCT

PLP 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 PLP shRNA Plasmid (m): sc-42035-SH and PLP shRNA (m) Lentiviral Particles: sc-42035-V as alternate gene silencing products.

For independent verification of PLP (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-42035A, sc-42035B and sc-42035C.

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

PLP siRNA (m) is recommended for the inhibition of PLP 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.

GENE EXPRESSION MONITORING

PLP (853I2F): sc-517649 is recommended as a control antibody for monitoring of PLP gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PLP gene expression knockdown using RT-PCR Primer: PLP (m)-PR: sc-42035-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.

PROTOCOLS

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