

Pmp24 siRNA (h): sc-76178

BACKGROUND

Peroxisomes perform many functions within the eukaryotic cell, including metabolism of fatty acids and toxins, importing proteins into organelles and aiding in proliferation. Proliferation of peroxisomes is independent of cell division and can be chemically induced. Pmp24 (peroxisomal intrinsic membrane protein, 24 kDa), also known as Peroxisomal membrane protein 4, is a 212 amino acid hydrophobic peroxisomal membrane protein that does not fully span the lipid bilayer. Pmp24 may play a role in promoting peroxisomal proliferation and participating in peroxisomal elongation and fission. The gene encoding Pmp24 undergoes DNA hypermethylation during cancer progression in the androgen-sensitive human prostate adenocarcinoma (LNCap) cell line, suggesting that silencing the pmp24 gene is associated with prostate cancer advancement to androgen independence. Pmp24 interacts with Peroxin 19, a protein that necessary for early peroxisomal biogenesis.

REFERENCES

1. Kunau, W.H. and Hartig, A. 1992. Peroxisome biogenesis in *Saccharomyces cerevisiae*. *Antonie Van Leeuwenhoek* 62: 63-78.
2. Marshall, P.A., Krimkevich, Y.I., Lark, R.H., Dyer, J.M., Veenhuis, M. and Goodman, J.M. 1995. Pmp27 promotes peroxisomal proliferation. *J. Cell Biol.* 129: 345-355.
3. Reguenga, C., Oliveira, M.E., Gouveia, A.M., Eckerskorn, C., Sá-Miranda, C. and Azevedo, J.E. 1999. Identification of a 24 kDa intrinsic membrane protein from mammalian peroxisomes. *Biochim. Biophys. Acta* 1445: 337-341.
4. Sacksteder, K.A., Jones, J.M., South, S.T., Li, X., Liu, Y. and Gould, S.J. 2000. PEX19 binds multiple peroxisomal membrane proteins, is predominantly cytoplasmic, and is required for peroxisome membrane synthesis. *J. Cell Biol.* 148: 931-944.
5. Jones, J.M., Morrell, J.C. and Gould, S.J. 2004. PEX19 is a predominantly cytosolic chaperone and import receptor for class 1 peroxisomal membrane proteins. *J. Cell Biol.* 164: 57-67.
6. Wu, M. and Ho, S.M. 2004. PMP24, a gene identified by MSRF, undergoes DNA hypermethylation-associated gene silencing during cancer progression in an LNCaP model. *Oncogene* 23: 250-259.
7. Gabaldón, T., Snel, B., van Zimmeren, F., Hemrika, W., Tabak, H. and Huynen, M.A. 2006. Origin and evolution of the peroxisomal proteome. *Biol. Direct.* 1: 8.
8. Fletcher, J.M., Jordan, M.A., Snelgrove, S.L., Slattery, R.M., Dufour, F.D., Kyparissoudis, K., Besra, G.S., Godfrey, D.I. and Baxter, A.G. 2008. Congenic analysis of the NKT cell control gene Nkt2 implicates the peroxisomal protein Pmp4. *J. Immunol.* 181: 3400-3412.
9. Angermüller, S., Islinger, M. and Völkl, A. 2009. Peroxisomes and reactive oxygen species, a lasting challenge. *Histochem. Cell Biol.* 131: 459-463.

PROTOCOLS

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

CHROMOSOMAL LOCATION

Genetic locus: PXMP4 (human) mapping to 20q11.22.

PRODUCT

Pmp24 siRNA (h) 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 Pmp24 shRNA Plasmid (h): sc-76178-SH and Pmp24 shRNA (h) Lentiviral Particles: sc-76178-V as alternate gene silencing products.

For independent verification of Pmp24 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-76178A, sc-76178B and sc-76178C.

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

Pmp24 siRNA (h) is recommended for the inhibition of Pmp24 expression in human 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 Pmp24 gene expression knockdown using RT-PCR Primer: Pmp24 (h)-PR: sc-76178-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.