



PROX1 siRNA (h): sc-106451

BACKGROUND

Homeodomain proteins are key regulators in the growth and development of tissues undergoing morphogenesis. PROX1 (homeobox prospero-like protein) is a 737 amino acid transcription factor necessary for progenitor-cell proliferation and cell-fate determination in embryonic tissue. PROX1 is actively expressed in the developing lens and can be detected in embryonic brain, kidney, liver and lung. During maturation, predominant expression is found in heart and liver rather than brain and kidney. The expression pattern of the PROX1 suggests that PROX1 has a role in determining cell fate in a variety of embryonic tissues. PROX1 contains a prospero-type homeobox DNA-binding domain, which conveys PROX1 function as a transcription factor. Decreased PROX1 expression due to hypermethylation suggests that PROX1 may also act as a tumor suppressor.

REFERENCES

1. Zinovieva, R.D., et al. 1996. Structure and chromosomal localization of the human homeobox gene PROX1. *Genomics* 35: 517-522.
2. Wigle, J.T. and Oliver, G. 1999. PROX1 function is required for the development of the murine lymphatic system. *Cell* 98: 769-778.
3. Wigle, J.T., et al. 1999. PROX1 function is crucial for mouse lens-fibre elongation. *Nat. Genet.* 21: 318-322.
4. Sosa-Pineda, B., et al. 2000. Hepatocyte migration during liver development requires PROX1. *Nat. Genet.* 25: 254-255.
5. Dyer, M.A., et al. 2003. PROX1 function controls progenitor cell proliferation and horizontal cell genesis in the mammalian retina. *Nat. Genet.* 34: 53-58.

CHROMOSOMAL LOCATION

Genetic locus: PROX1 (human) mapping to 1q32.3.

PRODUCT

PROX1 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 PROX1 shRNA Plasmid (h): sc-106451-SH and PROX1 shRNA (h) Lentiviral Particles: sc-106451-V as alternate gene silencing products.

For independent verification of PROX1 (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-106451A, sc-106451B and sc-106451C.

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

PROX1 siRNA (h) is recommended for the inhibition of PROX1 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.

GENE EXPRESSION MONITORING

PROX1 (FM-79): sc-81983 is recommended as a control antibody for monitoring of PROX1 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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PROX1 gene expression knockdown using RT-PCR Primer: PROX1 (h)-PR: sc-106451-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Zhang, B., et al. 2016. miR-489 acts as a tumor suppressor in human gastric cancer by targeting PROX1. *Am. J. Cancer Res.* 6: 2021-2030.
2. Rudzinska, M., et al. 2017. The role of prospero homeobox 1 (PROX1) expression in follicular thyroid carcinoma cells. *Oncotarget* 8: 114136-114155.
3. Pozo, K., et al. 2021. ASCL1, NKX2-1, and PROX1 co-regulate subtype-specific genes in small-cell lung cancer. *iScience* 24: 102953.

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.