

POD-1 siRNA (m): sc-38186

BACKGROUND

The basic helix-loop-helix (bHLH) class of transcription factors govern cell fate determination by controlling a variety of cellular differentiation processes. POD-1 (podocyte-expressed 1, also designated capsulin or epicardin) is a nuclear bHLH protein that is involved in the specification of select mesodermal cell populations associated with heart, cranial skeletal muscle, gut and urogenital system. POD-1 is selectively expressed in mesenchymal cells at sites of epithelial-mesenchymal interaction in the kidney, lung, intestine, pancreas and the epicardium, which gives rise to the coronary arteries. This epithelial-mesenchymal interaction is involved in the formation of numerous internal organs. POD-1 is also expressed in the mesothelium that gives rise to the spleen and in cells that give rise to smooth muscle. In addition to its role in kidney morphogenesis and spleen organogenesis, POD-1 may play a role in the development and sex determination of the mammalian gonad.

REFERENCES

1. Quaggin, S.E., et al. 1998. Pod-1, a mesoderm-specific basic-helix-loop-helix protein expressed in mesenchymal and glomerular epithelial cells in the developing kidney. *Mech. Dev.* 71: 37-48.
2. Lu, J., et al. 1998. Capsulin: a novel bHLH transcription factor expressed in epicardial progenitors and mesenchyme of visceral organs. *Mech. Dev.* 73: 23-32.
3. Hidai, H., et al. 1998. Cloning of capsulin, a basic helix-loop-helix factor expressed in progenitor cells of the pericardium and the coronary arteries. *Mech. Dev.* 73: 33-43.
4. Robb, L., et al. 1998. epicardin: A novel basic helix-loop-helix transcription factor gene expressed in epicardium, branchial arch myoblasts, and mesenchyme of developing lung, gut, kidney, and gonads. *Dev. Dyn.* 213: 105-113.
5. Quaggin, S.E., et al. 1999. The basic helix-loop-helix protein pod1 is critically important for kidney and lung organogenesis. *Development* 126: 5771-5783.
6. Miyagishi, M., et al. 2000. Molecular characterization of mesoderm-restricted basic helix-loop-helix protein, POD-1/Capsulin. *Int. J. Mol. Med.* 5: 27-31.
7. Patterson, M. 2000. A mean spleen gene. *Nat. Rev. Genet.* 1: 8.

CHROMOSOMAL LOCATION

Genetic locus: Tcf21 (mouse) mapping to 10 A3.

PRODUCT

POD-1 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 POD-1 shRNA Plasmid (m): sc-38186-SH and POD-1 shRNA (m) Lentiviral Particles: sc-38186-V as alternate gene silencing products.

For independent verification of POD-1 (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-38186A, sc-38186B and sc-38186C.

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

POD-1 siRNA (m) is recommended for the inhibition of POD-1 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

POD-1 (A-6): sc-377225 is recommended as a control antibody for monitoring of POD-1 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 MarkerTM 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 POD-1 gene expression knockdown using RT-PCR Primer: POD-1 (m)-PR: sc-38186-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.