

Pax-4 siRNA (h): sc-43998

BACKGROUND

Pax-4 (paired box gene 4) protein influences normal differentiation of Insulin-producing β cells and influences normal pancreatic islet development. Pax-4 protein is a transcriptional repressor that binds to a common *cis* element in the glucagon, Insulin and somatostatin promoters. Mouse Pax-4 transcript is present in pancreatic islets, and the islet β cell lines MIN6, β TC, and NIT1. Differentiation of endoderm-derived endocrine pancreas is mediated through Pax-4 and Pax-6. Pax-4 may act as a Pax-6 repressor due to the competition for binding sites and lower transactivation potential of Pax-4. The human Pax-4 gene encodes a deduced 350 amino acid protein that is 80% identical to the deduced mouse Pax-4 protein.

REFERENCES

1. Matsushita, T., et al. 1998. Molecular cloning of mouse paired box containing gene Pax-4 from an islet β cell line and deduced sequence of human Pax-4. *Biochem. Biophys. Res. Commun.* 242: 176-180.
2. Larsson, L.I., et al. 1998. Pax-4 and -6 regulate gastrointestinal endocrine cell development. *Mech. Dev.* 79: 153-159.
3. Kalousová, A., et al. 1999. DNA binding and transactivating properties of the paired and homeobox protein Pax-4. *Biochem. Biophys. Res. Commun.* 259: 510-518.
4. Ritz-Laser, B., et al. 2002. The pancreatic β cell-specific transcription factor Pax-4 inhibits Glucagon gene expression through Pax-6. *Diabetologia* 45: 97-107.
5. Kemp, D.M., et al. 2003. Regulation of Pax-4 paired homeodomain gene by neuron-restrictive silencer factor. *J. Biol. Chem.* 278: 35057-35062.

CHROMOSOMAL LOCATION

Genetic locus: PAX4 (human) mapping to 7q32.1.

PRODUCT

Pax-4 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 Pax-4 shRNA Plasmid (h): sc-43998-SH and Pax-4 shRNA (h) Lentiviral Particles: sc-43998-V as alternate gene silencing products.

For independent verification of Pax-4 (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-43998A, sc-43998B and sc-43998C.

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

Pax-4 siRNA (h) is recommended for the inhibition of Pax-4 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

Pax (D-7): sc-514352 is recommended as a control antibody for monitoring of Pax-4 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 Pax-4 gene expression knockdown using RT-PCR Primer: Pax-4 (h)-PR: sc-43998-PR (20 μ l, 497 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Jung, D., et al. 2017. Induction of anti-aging gene klotho with a small chemical compound that demethylates CpG islands. *Oncotarget* 8: 46745-46755.

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.