SANTA CRUZ BIOTECHNOLOGY, INC.

Islet-1 siRNA (h): sc-37121

BACKGROUND

Islet-1 (ISL1 transcription factor, LIM/homeodomain) and Islet-2 (ISL2 transcription factor, LIM/homeodomain) contain amino-terminal LIM domains and a carboxy-terminal homeodomain and both influence developmental events. Islet-1 influences embryogenesis of the pancreatic islets of Langerhans and neural tube motor neuron differentiation. In developing mouse teeth, Islet-1 mediates patterning of dentition as an activator of Bmp4 expression in incisor (distal) areas of the stomatodeal epithelium. Islet-1 expression defines cardiac progenitor cell populations and is required for normal cardiac development and asymmetry. Islet-2 activity in newly generated motor neurons permits the diversification of visceral and somatic motor neuron subtypes in the developing spinal cord. Murine Islet-2 specifies retinal ganglion cell (RGC) laterality by repressing an ipsilateral pathfinding program unique to the ventral-temporal crescent (VTC) of RGCs in a Zic2- and EphB1-dependent manner.

REFERENCES

1. Wang, M., et al. 1994. The LIM domain homeobox gene ISL-1: conservation of human, hamster, and rat complementary deoxyribonucleic acid sequences and expression in cell types of nonneuroendocrine lineage. Endocrinology 134: 1416-1422.
2. Tanizawa, Y., et al. 1994. Isolation of the human LIM/homeo-domain gene Islet-1 and identification of a simple sequence repeat polymorphism. Diabetes 43: 935-941.
3. Pfaff, S., et al. 1996. Requirement for LIM homeobox gene ISL1 in motor neuron generation reveals a motor neuron-dependent step in interneuron differentiation. Cell 84: 309-320.
4. Mitsiadis, T.A., et al. 2003. Role of Islet1 in the patterning of murine dentition. Development 130: 4451-4460.
5. Cai, C.L., et al. 2003. Isl1 identifies a cardiac progenitor population that proliferates prior to differentiation and contributes a majority of cells to the heart. Dev. Cell 5: 877-889.
6. Yeo, S.Y., et al. 2004. Involvement of Islet-2 in the Slit signaling for axonal branching and defasciculation of the sensory neurons in embryonic zebrafish. Mech. Dev. 121: 315-324.

CHROMOSOMAL LOCATION

Genetic locus: ISL1 (human) mapping to 5q11.1.

PRODUCT

Islet-1 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Islet-1 shRNA Plasmid (h): sc-37121-SH and Islet-1 shRNA (h) Lentiviral Particles: sc-37121-V as alternate gene silencing products.

For independent verification of Islet-1 (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-37121A, sc-37121B and sc-37121C.

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 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Islet-1 siRNA (h) is recommended for the inhibition of Islet-1 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 µM in 66 µl. 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

Islet-1 (B-1): sc-390793 is recommended as a control antibody for monitoring of Islet-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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 Islet-1 gene expression knockdown using RT-PCR Primer: Islet-1 (h)-PR: sc-37121-PR (20 µl, 428 bp). 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.