

Islet-1 (3B8): sc-101072

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. and Drucker, D. 1994. The LIM domain homeobox gene ISL1: 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/homeodomain 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 Islet-1 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.
7. Pak, W., et al. 2004. Magnitude of binocular vision controlled by Islet-2 repression of a genetic program that specifies laterality of retinal axon pathfinding. *Cell* 119: 567-578.

CHROMOSOMAL LOCATION

Genetic locus: ISL1 (human) mapping to 5q11.1; Isl1 (mouse) mapping to 13 D2.3.

SOURCE

Islet-1 (3B8) is a mouse monoclonal antibody raised against recombinant Islet-1 of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Islet-1 (3B8) is recommended for detection of Islet-1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Islet-1 siRNA (h): sc-37121, Islet-1 siRNA (m): sc-37122, Islet-1 shRNA Plasmid (h): sc-37121-SH, Islet-1 shRNA Plasmid (m): sc-37122-SH, Islet-1 shRNA (h) Lentiviral Particles: sc-37121-V and Islet-1 shRNA (m) Lentiviral Particles: sc-37122-V.

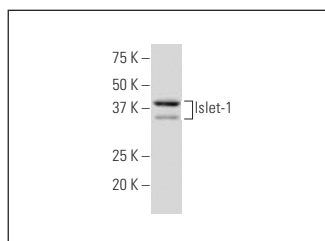
Molecular Weight of Islet-1: 39 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, K-562 whole cell lysate: sc-2203 or Jurkat nuclear extract: sc-2132.

RECOMMENDED SUPPORT REAGENTS

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



Islet-1 (3B8): sc-101072. Western blot analysis of Islet-1 expression in K-562 whole cell lysate.

SELECT PRODUCT CITATIONS

1. Jang, S., et al. 2018. Cholinergic nerve differentiation of mesenchymal stem cells derived from long-term cryopreserved human dental pulp *in vitro* and analysis of their motor nerve regeneration potential *in vivo*. *Int. J. Mol. Sci.* 19: 2434.
2. Jeong, Y.M., et al. 2020. Substance P enhances the local activation of NK1R-expressing c-kit⁺ cardiac progenitor cells in right atrium of ischemia/reperfusion-injured heart. *BMC Mol. Cell Biol.* 21: 41.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.