abcam

ab86501

Anti-Islet 1 antibody [1B1] - Neural Stem Cell Marker

Anti-Islet 1 antibody [1B1] (ab86501) is a mouse monoclonal antibody detecting Islet 1 in **Western Blot, Flow Cytometry, IHC-P, ICC/IF**. Suitable for **Human,**.

- KO validated for confirmed specificity
- Trusted since 2009

KO Validated

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	Preservative: 0.05% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Fragment Protein within Human ISL1 aa 150 to C-terminus. The exact immunogen used to generate this antibody is proprietary information. Database link P61371
Clone number	1B1
Purification technique	Affinity purification Protein G
Specificity	In western blot, we observe a specific band at ~40kDa which is not seen in KO cell lines. A cross-reactive band was observed in the wild-type and knockout cells. The additional band below this band of interest is seen at ~38kDa in both the WT and KO cells. We are unsure as to the identity of these extra bands.
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Purified from tissue culture supernatant.

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	1/1000
Notes	Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

Not recommended

Species	Transfected cell lysate - Human
Dilution info	-
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	1-2 µg for 10^6 Cells
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Not recommended

Species	Transfected cell lysate - Human
Dilution info	-
Notes	-

WB

Tested

Species	Transfected cell lysate - Human
Dilution info	1/500 - 1/2000
Notes	-

Species	Human
Dilution info	1/500 - 1/2000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/200 - 1/1000
Notes	-

Not recommended

Species	Transfected cell lysate - Human
Dilution info	-
Notes	-

Target data

See full target information ISL1

Function

DNA-binding transcriptional activator. Recognizes and binds to the consensus octamer binding site 5'-ATAATTAA-3' in promoter of target genes. Plays a fundamental role in the gene regulatory network essential for retinal ganglion cell (RGC) differentiation. Cooperates with the transcription factor POU4F2 to achieve maximal levels of expression of RGC target genes and RGC fate specification in the developing retina. Involved in the specification of motor neurons in cooperation with LHX3 and LDB1 (By similarity). Binds to insulin gene enhancer sequences (By similarity). Essential for heart development. Marker of one progenitor cell population that give rise to the outflow tract, right ventricle, a subset of left ventricular cells, and a large number of atrial cells as well, its function is required for these progenitors to contribute to the heart. Controls the expression of FGF and BMP growth factors in this cell population and is required for proliferation and survival of cells within pharyngeal foregut endoderm and adjacent splanchnic mesoderm as well as for migration of cardiac progenitors into the heart (By similarity).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

What is this antibody validated in?
Anti-Islet 1 antibody [1B1] (ab86501) is a mouse monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Flow Cyt), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF) in Human, samples.

What is the molecular weight of Islet 1?
Anti-Islet 1 [1B1] (ab86501) specifically detects a band for Islet 1 (UniProt: P61371) at a molecular weight of 39kDa.

Specificity confirmed
The specificity of Anti-Islet 1 antibody [1B1] (ab86501) has been confirmed by Western blot testing in ISL1 Knockout HAP1 cells.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	Islet 1 also known as ISL1 is a LIM-homeodomain transcription factor with a molecular mass of approximately 38 kDa. It plays an important role in regulating gene expression during the development of the nervous system and pancreas. You can find Islet 1 predominantly in motor neurons pancreatic beta cells and cardiac muscle cells. Its expression is important during embryonic stages for cell differentiation and maturation. Researchers use "Isl 1 neuronal marker" antibodies to identify this protein's presence in tissue.
Biological function summary	Islet 1 is involved in the differentiation and survival of various cell types. As part of a transcription complex it regulates downstream target genes essential for the development of motor neurons and cardiac muscle. It also contributes significantly to the developmental pathways of insulin-producing beta cells in the pancreas. The ISL1 marker is therefore an important tool for studying cell lineage and fate in developmental biology.

Pathways	Islet 1 is involved in key developmental signaling pathways including the Notch signaling and Wnt signaling pathways. In these pathways Islet 1 collaborates with other proteins like Lhx3 and Ngn2 to ensure proper gene activation for neuronal and cardiac development. Wnt signaling affects the expression of isl 1 marker genes contributing to precise spatial and temporal regulation during embryogenesis.
Associated diseases and disorders	Islet 1 has links to congenital heart defects and type 2 diabetes. Mutations or altered expression of this protein can disrupt pancreatic beta cell function and motor neuron development. In congenital heart disease the interaction of Islet 1 with proteins like Nkx2.5 is critical. Its role in type 2 diabetes ties with the functioning of other proteins involved in insulin secretion making it a potential target for therapeutic intervention in these conditions.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

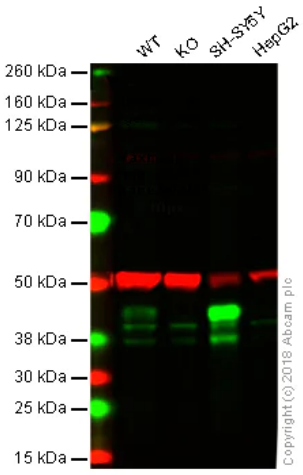
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

5 product images



Western blot - Anti-Islet 1 antibody [1B1] - Neural Stem Cell Marker (ab86501)

Islet 1 Western blot staining using mouse Anti-Islet 1 antibody

Lanes 1 - 4: Merged signal (red and green). Green - ab86501 observed at 40 kDa. Red - loading control, ab176560, observed at 50 kDa.
ab86501 was shown to recognize Islet 1 in wild-type HAP1 cells as signal was lost at the expected MW in Islet 1 knockout cells. Additional cross-reactive bands were observed in the wild-type and knockout cells. Wild-type and Islet 1 knockout samples were subjected to SDS-PAGE. ab86501 and ab176560 (Rabbit anti-alpha Tubulin loading control) were incubated overnight at 4°C at 1/500 dilution and 1/20000 dilution respectively. Blots were developed with Goat anti-Mouse IgG H&L (IRDye® 800CW) preabsorbed ab216772 and Goat anti-Rabbit IgG H&L (IRDye® 680RD) preabsorbed ab216777 secondary antibodies at 1/20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-Islet 1 antibody [1B1] - Neural Stem Cell Marker (ab86501) at 1/500 dilution

Lane 1:
Wild-type HAP1 whole cell lysate at 20 µg

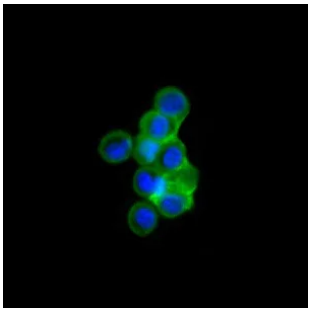
Lane 2:
Islet 1 knockout HAP1 whole cell lysate at 20 µg

Lane 3:
SH-SY5Y whole cell lysate at 20 µg

Lane 4:
HepG2 whole cell lysate at 20 µg

Predicted band size: 39 kDa

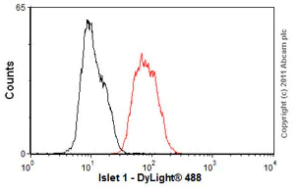
Observed band size: 40 kDa



Immunocytochemistry/ Immunofluorescence - Anti-Islet 1 antibody [1B1] - Neural Stem Cell Marker (ab86501)

Islet 1 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-Islet 1 antibody

Confocal immunofluorescence analysis of HEK293 cells trasfected with full-length Islet 1-hIgGFc using ab86501 at 1/150 dilution (green). Blue: DRAQ5 fluorescent DNA dye.

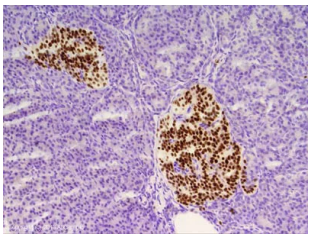


Flow Cytometry - Anti-Islet 1 antibody [1B1] - Neural Stem Cell Marker (ab86501)

Islet 1 Flow Cytometry staining using mouse Anti-Islet 1 antibody

Overlay histogram showing SH-SY5Y cells stained with ab86501 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab86501, 1µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed.

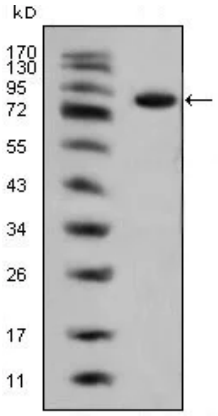
This antibody gave a positive result in SH-SY5Y cells fixed with 4% paraformaldehyde (10 min)/permeabilized in 0.1% PBS-Tween for 20 min used under the same conditions.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Islet 1 antibody [1B1] - Neural Stem Cell Marker (ab86501)

Islet 1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-Islet 1 antibody

IHC image of Islet 1 staining in Human Pancreas formalin fixed paraffin embedded tissue section, performed on a Leica Bond system using the standard protocol F. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH6, epitope retrieval solution 1) for 20 mins. The section was then incubated with ab86501, 1/1000 dilution, for 15 mins at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.



Western blot - Anti-Islet 1 antibody [1B1] - Neural Stem Cell Marker (ab86501)

Islet 1 Western blot staining of full length Islet 1-hIgGFc transfected HEK293 cell lysate using mouse Anti-Islet 1 antibody

Note: The molecular weight is larger than expected, as the recombinant protein is not the endogenouse protein, but rather the fc-fusion protein.
All lanes:
Western blot - Anti-Islet 1 antibody [1B1] - Neural Stem Cell Marker (ab86501) at 1/500 dilution

All lanes:
full length Islet 1-hIgGFc transfected HEK293 cell lysate

Predicted band size: 39 kDa

Observed band size: 80 kDa

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.