abcam

ab109517

# Anti-Islet 1 antibody [EP4182] - Neural Stem Cell Marker

Anti-Islet 1 antibody [EP4182] - Neural Stem Cell Marker (ab109517) is a rabbit monoclonal antibody detecting Islet 1 in **Western Blot, Flow Cytometry (Intra), IP, ICC/IF**. Suitable for **Chicken, Human, Mouse**.

- Biophysical QC for unrivalled batch-batch consistency
- Over 50 publications

Lab Essentials | Recombinant | RabMAb | 20ul selling size

## Key facts

| | |
|---|---|
| **Isotype** | IgG |
| **Host species** | Rabbit |
| **Storage buffer** | pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA |
| **Form** | Liquid |
| **Clonality** | Monoclonal |
| **Immunogen** | The exact immunogen used to generate this antibody is proprietary information. |
| **Clone number** | EP4182 |
| **Purification technique** | Affinity purification Protein A |
| **Specificity** | 86% identities with Islet 2 |
| **Concentration** | 0.586 mg/mL The concentration of this product may be batch-dependent<br>Batch concentration finder → |

## Reactivity data

## IP

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/10 - 1/100 |
| **Notes** | - |

### Expected

| | |
|---|---|
| **Species** | Mouse, Chicken |
| **Dilution info** | Use at an assay dependent concentration. |
| **Notes** | - |

## WB

### Tested

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | 1/10000 - 1/50000 |
| **Notes** | - |

| | |
|---|---|
| **Species** | Chicken |
| **Dilution info** | 1/10000 - 1/50000 |
| **Notes** | - |

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/10000 - 1/50000 |
| **Notes** | - |

## ICC/IF

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/250 |
| **Notes** | **For unpurified use at 1/50 - 1/100.** |

### Expected

| | |
|---|---|
| **Species** | Mouse, Chicken |
| **Dilution info** | Use at an assay dependent concentration. |
| **Notes** | - |

## Flow Cyt (Intra)

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | - |
| **Notes** | ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody. |

### Expected

| | |
|---|---|
| **Species** | Mouse, Chicken |
| **Dilution info** | Use at an assay dependent concentration. |
| **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** | Conditional Ambient |
| **Appropriate short-term storage duration** | 1-2 weeks |
| **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

Insulin gene enhancer protein ISL-1 is a protein encoded by the ISL1 gene. Among other roles, ISL-1 plays a part in the embryogenesis of pancreatic islets of Langerhans and some models, deficiency have shown failure of neural tube motor neurons to differentiate.

Rat: We have preliminary testing data to indicate this antibody may not react with these species. Please contact us for more information.

**Product Specifications**
Anti-Islet 1 antibody [EP4182] - Neural Stem Cell Marker (ab109517) was developed by Abcam using patented rabbit monoclonal antibody technology and is validated for use in Flow Cyt (Intra), ICC/IF, IP, WB in chicken, human, mouse samples.
Anti-Islet 1 antibody [EP4182] - Neural Stem Cell Marker (ab109517) specifically detects Islet 1 (UniProt ID: P61371; Molecular weight: 39kDa) and is sold in 100 µL and 1 mL selling sizes.

**Quality and Validation**
Abcam's high quality manufacturing and validation processes ensure Anti-Islet 1 antibody [EP4182] - Neural Stem Cell Marker (ab109517) has high sensitivity and specificity alongside high lot-to-lot consistency and reproducibility.
Anti-Islet 1 antibody [EP4182] - Neural Stem Cell Marker (ab109517) has been cited over 59 times in peer reviewed journals and is trusted by the scientific community.
Anti-Islet 1 antibody [EP4182] - Neural Stem Cell Marker (ab109517) has 6 independent reviews from customers.

**Related Products**
Antibody clone EP4182 is also available pre-conjugated to a variety of labels for your convenience - Alexa Fluor® 594, Alexa Fluor® 555, Alexa Fluor® 568, Alexa Fluor® 488, Alexa Fluor® 647, APC, PE (ab203404, ab203405, ab203406, ab275990, ab277925, ab310815, ab310894).

**Patented technology**
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

**What are the advantages of a recombinant monoclonal antibody?**
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

## 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.

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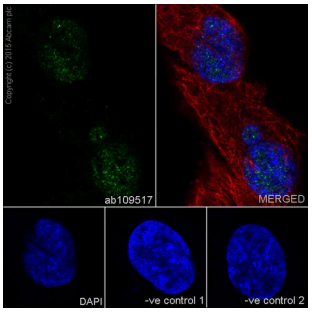
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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## 11 product images



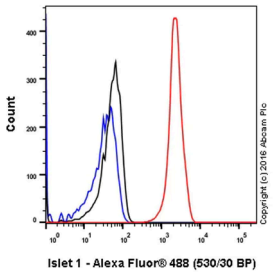

### Immunocytochemistry/ Immunofluorescence - Anti-Islet 1 antibody [EP4182] - Neural Stem Cell Marker (ab109517)

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

Immunocytochemistry/Immunofluorescence analysis of SH-SY-5Y (human neuroblastoma) cells labelling Islet 1 with purified ab109517 at 1/250. Cells were fixed with 4% paraformaldehyde and permeabilized with 0.1% Triton X-100. ab150077, an Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/500) was used as the secondary antibody. DAPI (blue) was used as the nuclear counterstain. ab7291, a mouse anti-tubulin (1/1000) and ab150120, an Alexa Fluor® 594-conjugated goat anti-mouse IgG (1/1000) were also used.
**Control 1:** primary antibody (1/100) and secondary antibody, ab150120, an Alexa Fluor® 594-conjugated goat anti-mouse IgG (1/500).

**Control 2:** ab7291 (1/1000) and secondary antibody, ab150077, an Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/500).

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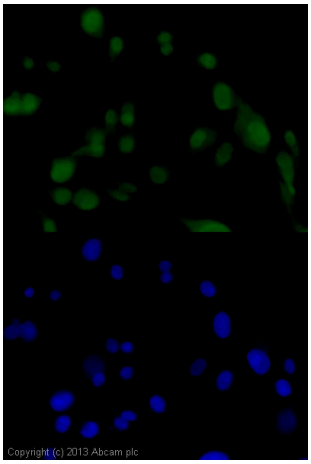



### Flow Cytometry (Intracellular) - Anti-Islet 1 antibody [EP4182] - Neural Stem Cell Marker (ab109517)

Islet 1 Flow Cytometry (Intracellular) staining using rabbit Anti-Islet 1 antibody

Intracellular Flow Cytometry analysis of SH-SY5Y (human neuroblastoma) cells labeling Islet 1 with purified ab109517 at 1/50 dilution (10µg/ml) (red). Cells were fixed with 4% paraformaldehyde and permeabilized with 90% methanol. A Goat anti rabbit IgG (Alexa Fluorr® 488) (1/2000) was used as the secondary antibody. Rabbit monoclonal IgG (Black) was used as the isotype control, cells without incubation with primary antibody and secondary antibody (Blue) was used as the unlabeled control.

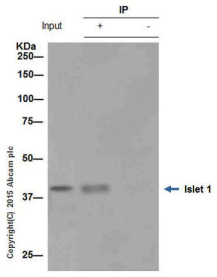
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## Immunocytochemistry/ Immunofluorescence - Anti-Islet 1 antibody [EP4182] - Neural Stem Cell Marker (ab109517)

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

Immunocytochemistry/Immunofluorescence analysis of U-87 MG (Human glioblastoma-astrocytoma epithelial cell line) cells labeling Islet 1 with unpurified ab109517.

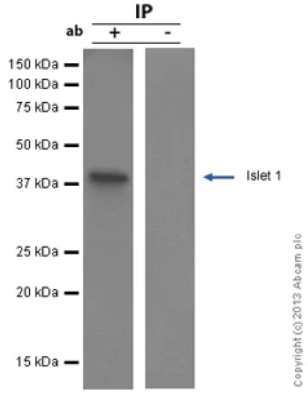



## Immunoprecipitation - Anti-Islet 1 antibody [EP4182] - Neural Stem Cell Marker (ab109517)

ab109517 (purified) at 1/30 immunoprecipitating Islet 1 in Jurkat (Human T cell leukemia cell line from peripheral blood) whole cell lysate. 10 µg of cell lysate was present in the input. For western blotting, a HRP-conjugated Veriblot for IP Detection Reagent (ab131366) (1/1,500) was used for detection. A rabbit monoclonal IgG (ab172730) was used intead of ab128913 as a negative control (Lane 3).
Blocking/Dilution buffer and concentration: 5% NFDM/TBST.

All lanes:
Immunoprecipitation - Anti-Islet 1 antibody [EP4182] - Neural Stem Cell Marker (ab109517)

Predicted band size: 39 kDa



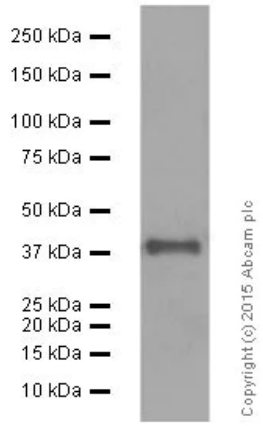

## Immunoprecipitation - Anti-Islet 1 antibody [EP4182] - Neural Stem Cell Marker (ab109517)

ab109517 (unpurified) immunoprecipitating Islet 1 in Jurkat (Human T cell leukemia cell line from peripheral blood) whole cell lysate.
All lanes:
Immunoprecipitation - Anti-Islet 1 antibody [EP4182] - Neural Stem Cell Marker (ab109517)

Predicted band size: 39 kDa

Observed band size: 39 kDa

Exposure time: 30s




## Western blot - Anti-Islet 1 antibody [EP4182] - Neural Stem Cell Marker (ab109517)

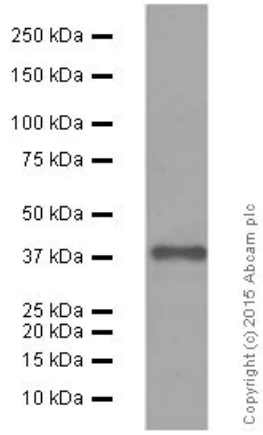
Blocking/Dilution buffer and concentration: 5% NFDM/TBST.
All lanes:
Western blot - Anti-Islet 1 antibody [EP4182] - Neural Stem Cell Marker (ab109517) at 1/50000 dilution

All lanes:
HeLa (Human epithelial cell line from cervix adenocarcinoma) cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/50000 dilution

Predicted band size: 39 kDa




## Western blot - Anti-Islet 1 antibody [EP4182] - Neural Stem Cell Marker (ab109517)

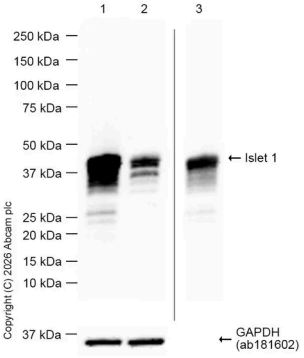
Blocking/Dilution buffer and concentration: 5% NFDM/TBST.
All lanes:
Western blot - Anti-Islet 1 antibody [EP4182] - Neural Stem Cell Marker (ab109517) at 1/50000 dilution

All lanes:
K562 (Human chronic myelogenous leukemia cell line from bone marrow) cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/50000 dilution

Predicted band size: 39 kDa




## Western blot - Anti-Islet 1 antibody [EP4182] - Neural Stem Cell Marker (ab109517)

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

Blocking and diluting buffer and concentration: 5% NFDM/TBST.

Lane 1, 2: 10 seconds Lane 3: 3 seconds

All lanes:
Western blot - Anti-Islet 1 antibody [EP4182] - Neural Stem Cell Marker (ab109517) at 1/1000 dilution

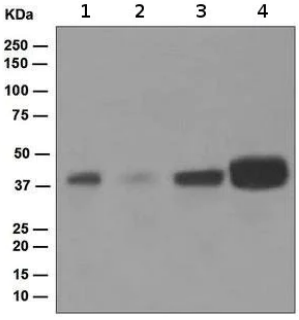
Lanes 1 - 3:
SH-SY5Y (human neuroblastoma epithelial cell) whole cell lysate at 20 µg

Lane 2:
Neuro-2a (mouse neuroblastoma neuroblast) whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Observed band size: 40 kDa, 36 kDa




## Western blot - Anti-Islet 1 antibody [EP4182] - Neural Stem Cell Marker (ab109517)

All lanes:
Western blot - Anti-Islet 1 antibody [EP4182] - Neural Stem Cell Marker (ab109517) at 1/10000 dilution

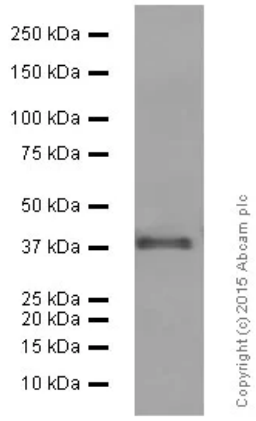
Lane 1:
K562 (Human chronic myelogenous leukemia cell line from bone marrow) cell lysate at 10 µg

Lane 2:
HeLa (Human epithelial cell line from cervix adenocarcinoma) cell lysate at 10 µg

Lane 3:
Jurkat (Human T cell leukemia cell line from peripheral blood) cell lysate at 10 µg

Lane 4:
SH-SY5Y (Human neuroblastoma cell line from bone marrow) cell lysate at 10 µg

Predicted band size: 39 kDa




## Western blot - Anti-Islet 1 antibody [EP4182] - Neural Stem Cell Marker (ab109517)

Islet 1 Western blot staining of RAW 264.7 (Mouse macrophage cell line transformed with Abelson murine leukemia virus) cell lysate using rabbit Anti-Islet 1 antibody

**Blocking/Dilution buffer and concentration:** 5% NFDM/TBST.
All lanes:
Western blot - Anti-Islet 1 antibody [EP4182] - Neural Stem Cell Marker (ab109517) at 1/50000 dilution

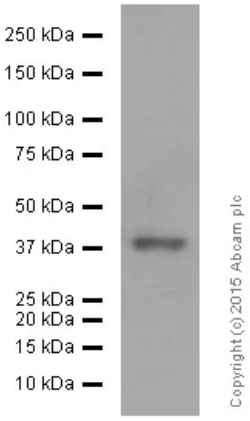
All lanes:
RAW 264.7 (Mouse macrophage cell line transformed with Abelson murine leukemia virus) cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/50000 dilution

Predicted band size: 39 kDa, 54 kDa

Observed band size: 80 kDa




# Western blot - Anti-Islet 1 antibody [EP4182] - Neural Stem Cell Marker (ab109517)

Blocking buffer and concentration: 5% NFDM/TBST.
Diluting buffer and concentration: 5% NFDM /TBST.
All lanes:
Western blot - Anti-Islet 1 antibody [EP4182] - Neural Stem Cell Marker (ab109517) at 1/10000 dilution

All lanes:
UMNSAH/DF-1 cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/50000 dilution

Predicted band size: 39 kDa

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