# Anti-Glucose Transporter GLUT1 Antibody [SA0377]

# ET1601-10

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|---|---|
| **Product Type:** | Recombinant Rabbit monoclonal IgG, primary antibodies |
| **Species reactivity:** | Human, Mouse, Rat |
| **Applications:** | WB, IF-Cell, IF-Tissue, IHC-P, FC |
| **Molecular Wt:** | Predicted band size: 54 kDa |
| **Clone number:** | SA0377 |

**Description:** Glucose transporter 1 (or GLUT1), also known as solute carrier family 2, facilitated glucose transporter member 1 (SLC2A1), is a uniporter protein that in humans is encoded by the SLC2A1 gene. GLUT1 facilitates the transport of glucose across the plasma membranes of mammalian cells. This gene encodes a major glucose transporter in the mammalian blood-brain barrier. The encoded protein is found primarily in the cell membrane and on the cell surface, where it can also function as a receptor for human T-cell leukemia virus (HTLV) I and II. One good source of GLUT1 is erythrocyte membranes. GLUT1 accounts for 2 percent of the protein in the plasma membrane of erythrocytes. GLUT1, found in the plasma membrane of erythrocytes, is a classic example of a uniporter. After glucose is transported into the erythrocyte, it is rapidly phosphorylated, forming glucose-6-phosphate, which cannot leave the cell. Mutations in this gene can cause GLUT1 deficiency syndrome 1, GLUT1 deficiency syndrome 2, idiopathic generalized epilepsy 12, dystonia 9, and stomatin-deficient cryohydrocytosis.

**Immunogen:** Synthetic peptide within Human GLUT1 aa 443-492 / 492.

**Positive control:** HeLa cell lysate, PC-12 cell lysate, HeLa, HT-29 cell lysate, HepG2 cell lysate, NIH/3T3 cell lysate, L-929 cell lysate, mouse brain tissue lysate, rat brain tissue lysate, Jurkat, NIH/3T3, C6, human liver tissue, human placenta tissue, human liver carcinoma tissue, human kidney tissue, mouse liver tissue, mouse kidney tissue, HepG2, human lung cancer tissue, human liver tissue.

**Subcellular location:** Cell membrane, Melanosome

**Database links:** SwissProt: P11166 Human | P17809 Mouse | P11167 Rat

**Recommended Dilutions:**

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|---|---|
| **WB** | 1:50,000-1:100,000 |
| **IF-Cell** | 1:500-1:1,000 |
| **IHC-P** | 1:5,000-1:10,000 |
| **IF-Tissue** | 1:500-1:1,000 |
| **FC** | 1:500-1:1,000 |

**Storage Buffer:** 1*TBS (pH7.4), 0.05% BSA, 40% Glycerol. Preservative: 0.05% Sodium Azide.

**Storage Instruction:** Shipped at 4℃. Store at +4℃ short term (1-2 weeks). It is recommended to aliquot into single-use upon delivery. Store at -20℃ long term.

**Purity:** Protein A affinity purified.

## Images

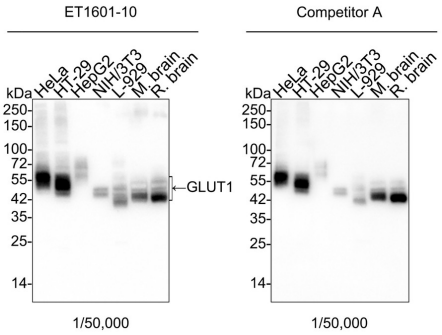


**Fig1:** Western blot analysis of Glucose Transporter GLUT1 on different lysates with Rabbit anti-Glucose Transporter GLUT1 antibody (ET1601-10) at 1/50,000 dilution and competitor's antibody at 1/50,000 dilution.

Lane 1: HeLa cell lysate (no heat) (20 µg/Lane)
Lane 2: HT-29 cell lysate (no heat) (20 µg/Lane)
Lane 3: HepG2 cell lysate (no heat) (20 µg/Lane)
Lane 4: NIH/3T3 cell lysate (no heat) (20 µg/Lane)
Lane 5: L-929 cell lysate (no heat) (20 µg/Lane)
Lane 6: Mouse brain tissue lysate (no heat) (20 µg/Lane)
Lane 7: Rat brain tissue lysate (no heat) (20 µg/Lane)

Notice: no heat means the lysate is not boiled.

Predicted band size: 54 kDa
Observed band size: 45-60 kDa
Exposure time: Lane 1-7 (left): 20 seconds; Lane 1-7 (right): 1 minute 30 seconds; ECL: K1801;
4-20% SDS-PAGE gel.

Proteins were transferred to a PVDF membrane and blocked with 5% NFDM/TBST for 1 hour at room temperature. The primary antibody (ET1601-10) at 1/50,000 dilution and competitor's antibody at 1/50,000 dilution were used in 5% NFDM/TBST at 4℃ overnight. Goat Anti-Rabbit IgG - HRP Secondary Antibody (HA1001) at 1/50,000 dilution was used for 1 hour at room temperature.

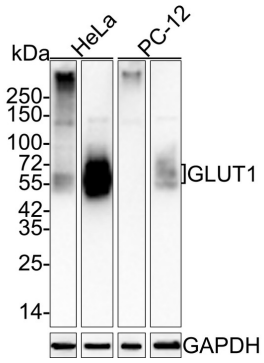


**Fig2:** Western blot analysis of Glucose Transporter GLUT1 on different lysates with Rabbit anti-Glucose Transporter GLUT1 antibody (ET1601-10) at 1/50,000 dilution.

Lane 1: HeLa cell lysate (RIPA lysis) (10 µg/Lane)
Lane 2: HeLa cell lysate (hot lysis) (10 µg/Lane)
Lane 3: PC-12 cell lysate (RIPA lysis) (10 µg/Lane)
Lane 4: PC-12 cell lysate (hot lysis) (10 µg/Lane)

Predicted band size: 54 kDa
Observed band size: 54 kDa
Exposure time: 30 seconds; ECL: K1801;
4-20% SDS-PAGE gel.

Proteins were transferred to a PVDF membrane and blocked with 5% NFDM/TBST for 1 hour at room temperature. The primary antibody (ET1601-10) at 1/50,000 dilution was used in 5% NFDM/TBST at room temperature for 2 hours. Goat Anti-Rabbit IgG - HRP Secondary Antibody (HA1001) at 1/100,000 dilution was used for 1 hour at room temperature

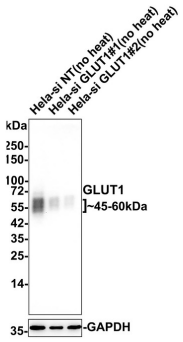


**Fig3:** Western blot analysis of GLUT1 on different lysates with Rabbit anti-GLUT1 antibody (ET1601-10) at 1/50,000 dilution.

Lane 1: Hela-si NT cell lysate (no heat)
Lane 2: Hela-si GLUT1#1 cell lysate (no heat)
Lane 3: Hela-si GLUT1#2 cell lysate (no heat)

Notice: no heat means the lysate is not boiled.

Lysates/proteins at 10 µg/Lane.

Predicted band size: 54 kDa
Observed band size: 45-60 kDa

Exposure time: 1minute 50 seconds; ECL: K1801;

4-20% SDS-PAGE gel.

ET1601-10 was shown to specifically react with GLUT1 in Hela-si NT cells. Weakened band was observed when Hela-si GLUT1 sample was tested. Hela-si NT and Hela-si GLUT1 samples were subjected to SDS-PAGE. Proteins were transferred to a PVDF membrane and blocked with 5% NFDM in TBST for 1 hour at room temperature. The primary antibody (ET1601-10, 1/50,000) and Loading control antibody (Rabbit anti-GAPDH, ET1601-4, 1/10,000) were used in 5% BSA at 4℃ overnight. Goat Anti-rabbit IgG-HRP Secondary Antibody (HA1001) at 1:50,000 dilution was used for 1 hour at room temperature.

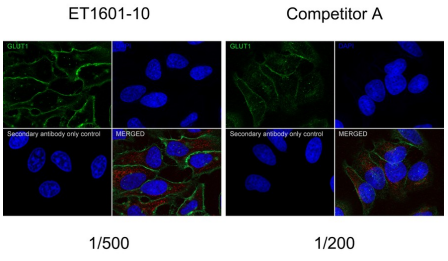


**Fig4:** Immunocytochemistry analysis of HeLa cells labeling Glucose Transporter GLUT1 with Rabbit anti-Glucose Transporter GLUT1 antibody (ET1601-10) at 1/500 dilution and competitor's antibody at 1/200 dilution.

Cells were fixed in 100% precooled methanol for 5 minutes at room temperature, then blocked with 1% BSA in 10% negative goat serum for 1 hour at room temperature. Cells were then incubated with Rabbit anti-Glucose Transporter GLUT1 antibody (ET1601-10) at 1/500 dilution and competitor's antibody at 1/200 dilution in 1% BSA in PBST overnight at 4 ℃. Goat Anti-Rabbit IgG H&L (iFluor™ 488, HA1121) was used as the secondary antibody at 1/1,000 dilution. PBS instead of the primary antibody was used as the secondary antibody only control. Nuclear DNA was labelled in blue with DAPI.

Beta tubulin (M1305-2, red) was stained at 1/100 dilution overnight at +4℃. Goat Anti-Mouse IgG H&L (iFluor™ 594, HA1126) was used as the secondary antibody at 1/1,000 dilution.

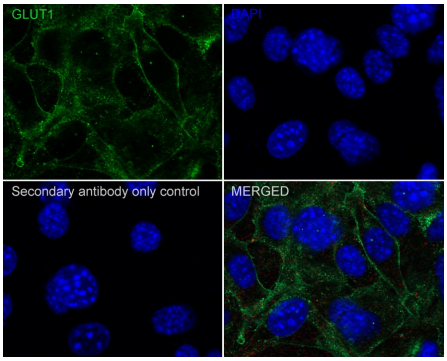


**Fig5:** Immunocytochemistry analysis of NIH/3T3 cells labeling Glucose Transporter GLUT1 with Rabbit anti-Glucose Transporter GLUT1 antibody (ET1601-10) at 1/500 dilution.

Cells were fixed in 100% precooled methanol for 5 minutes at room temperature, then blocked with 1% BSA in 10% negative goat serum for 1 hour at room temperature. Cells were then incubated with Rabbit anti-Glucose Transporter GLUT1 antibody (ET1601-10) at 1/500 dilution in 1% BSA in PBST overnight at 4 ℃. Goat Anti-Rabbit IgG H&L (iFluor™ 488, HA1121) was used as the secondary antibody at 1/1,000 dilution. PBS instead of the primary antibody was used as the secondary antibody only control. Nuclear DNA was labelled in blue with DAPI.

Beta tubulin (M1305-2, red) was stained at 1/100 dilution overnight at +4℃. Goat Anti-Mouse IgG H&L (iFluor™ 594, HA1126) was used as the secondary antibody at 1/1,000 dilution.

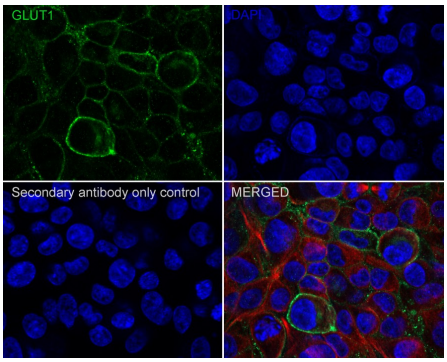


**Fig6:** Immunocytochemistry analysis of C6 cells labeling Glucose Transporter GLUT1 with Rabbit anti-Glucose Transporter GLUT1 antibody (ET1601-10) at 1/500 dilution.

Cells were fixed in 100% precooled methanol for 5 minutes at room temperature, then blocked with 1% BSA in 10% negative goat serum for 1 hour at room temperature. Cells were then incubated with Rabbit anti-Glucose Transporter GLUT1 antibody (ET1601-10) at 1/500 dilution in 1% BSA in PBST overnight at 4 ℃. Goat Anti-Rabbit IgG H&L (iFluor™ 488, HA1121) was used as the secondary antibody at 1/1,000 dilution. PBS instead of the primary antibody was used as the secondary antibody only control. Nuclear DNA was labelled in blue with DAPI.

Beta tubulin (M1305-2, red) was stained at 1/100 dilution overnight at +4℃. Goat Anti-Mouse IgG H&L (iFluor™ 594, HA1126) was used as the secondary antibody at 1/1,000 dilution.

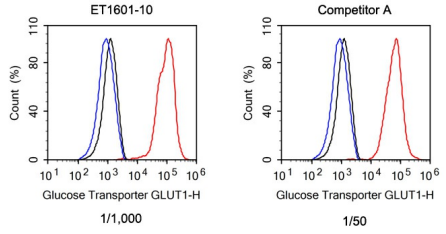


**Fig7:** Flow cytometric analysis of Jurkat cells labeling Glucose Transporter GLUT1.

Cells were fixed and permeabilized. Then stained with the primary antibody (ET1601-10, red) at 1/1,000 dilution and competitor's antibody (red) at 1/50 dilution, compared with Rabbit IgG Isotype Control (blue). After incubation of the primary antibody at +4℃ for an hour, the cells were stained with a iFluor™ 488 conjugate-Goat anti-Rabbit IgG Secondary antibody (HA1121) at 1/1,000 dilution for 30 minutes at +4℃. Unlabelled sample was used as a control (cells without incubation with primary antibody; black).

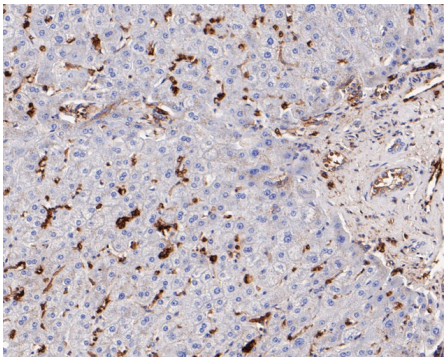

**Fig8:** Immunohistochemical analysis of paraffin-embedded human liver tissue with Rabbit anti-Glucose Transporter GLUT1 antibody (ET1601-10) at 1/5,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with $ddH_2O$ and PBS, and then probed with the primary antibody (ET1601-10) at 1/5,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

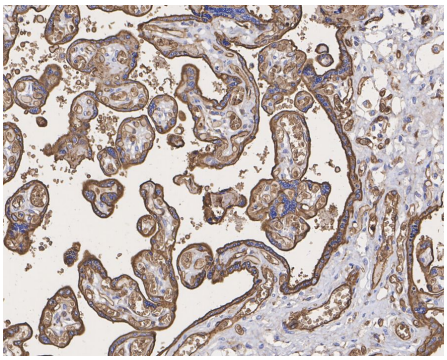

**Fig9:** Immunohistochemical analysis of paraffin-embedded human placenta tissue with Rabbit anti-Glucose Transporter GLUT1 antibody (ET1601-10) at 1/5,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with $ddH_2O$ and PBS, and then probed with the primary antibody (ET1601-10) at 1/5,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

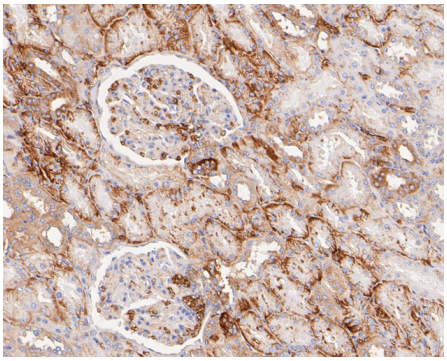

**Fig10:** Immunohistochemical analysis of paraffin-embedded human kidney tissue with Rabbit anti-Glucose Transporter GLUT1 antibody (ET1601-10) at 1/10,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with $ddH_2O$ and PBS, and then probed with the primary antibody (ET1601-10) at 1/10,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

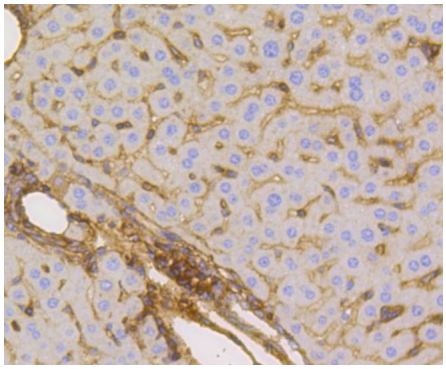

**Fig11:** Immunohistochemical analysis of paraffin-embedded mouse liver tissue with Rabbit anti-Glucose Transporter GLUT1 antibody (ET1601-10) at 1/5,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with $ddH_2O$ and PBS, and then probed with the primary antibody (ET1601-10) at 1/5,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

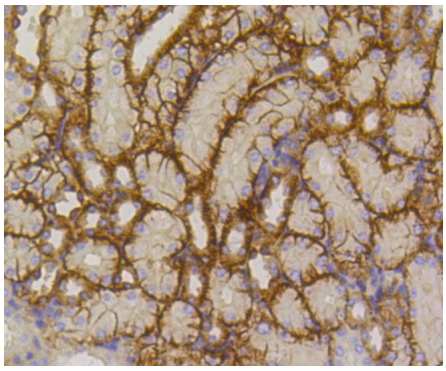

**Fig12:** Immunohistochemical analysis of paraffin-embedded mouse kidney tissue with Rabbit anti-Glucose Transporter GLUT1 antibody (ET1601-10) at 1/5,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with $ddH_2O$ and PBS, and then probed with the primary antibody (ET1601-10) at 1/5,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

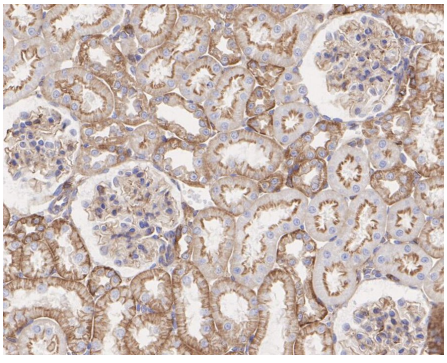

**Fig13:** Immunohistochemical analysis of paraffin-embedded rat kidney tissue with Rabbit anti-Glucose Transporter GLUT1 antibody (ET1601-10) at 1/5,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with $ddH_2O$ and PBS, and then probed with the primary antibody (ET1601-10) at 1/1,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

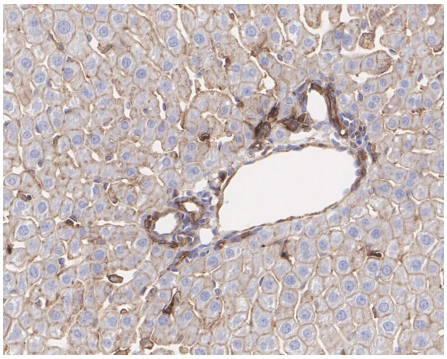

**Fig14:** Immunohistochemical analysis of paraffin-embedded rat liver tissue with Rabbit anti-Glucose Transporter GLUT1 antibody (ET1601-10) at 1/5,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with dd$H_2O$ and PBS, and then probed with the primary antibody (ET1601-10) at 1/1,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

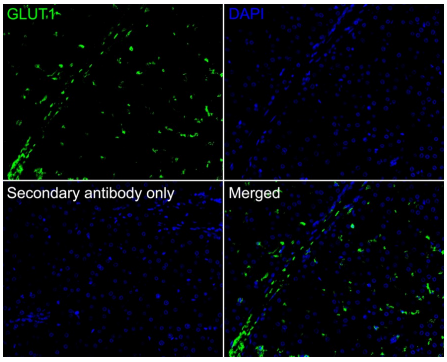


**Fig15:** Application: IF-tissue

Species: Human

Site: Liver

Sample: Paraffin-embedded section

Antibody concentration: 1/500

Goat Anti-Rabbit IgG H&L (iFluor™ 488, HA1121) was used as the secondary antibody at 1/1,000 dilution. Nuclei were counterstained with DAPI (blue).

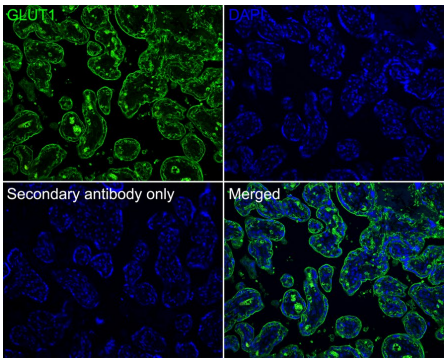


**Fig16:** Application: IF-tissue

Species: Human

Site: Placenta

Sample: Paraffin-embedded section

Antibody concentration: 1/500

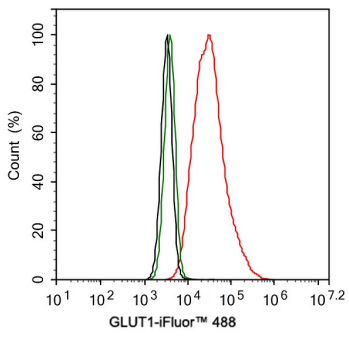


**Fig17:** Flow cytometric analysis of HepG2 cells labeling Glucose Transporter GLUT1.

Cells were fixed and permeabilized. Then stained with the primary antibody (ET1601-10, 1ug/ml) (red) compared with Rabbit IgG Isotype Control (green). After incubation of the primary antibody at +4℃ for an hour, the cells were stained with a iFluor™ 488 conjugate-Goat anti-Rabbit IgG Secondary antibody (HA1121) at 1/1,000 dilution for 30 minutes at +4℃. Unlabelled sample was used as a control (cells without incubation with primary antibody; black).

## Background References

1. Boyer-Di Ponio J et al. Instruction of circulating endothelial progenitors in vitro towards specialized blood-brain barrier and arterial phenotypes. PLoS One 9:e84179 (2014).
2. Saucillo DC et al. Leptin metabolically licenses T cells for activation to link nutrition and immunity. J Immunol 192:136-44 (2014).