Overview

**Product name**: Anti-Glucose Transporter GLUT1 antibody [EPR3915]  
**Description**: Rabbit monoclonal [EPR3915] to Glucose Transporter GLUT1  
**Host species**: Rabbit  
**Tested applications**: Suitable for: ICC/IF, WB, IHC-P, Flow Cyt  
**Species reactivity**: Reacts with: Mouse, Rat, Human  
**Immunogen**: Synthetic peptide (the amino acid sequence is considered to be commercially sensitive) corresponding to Human Glucose Transporter GLUT1 aa 450 to the C-terminus. (Peptide available as ab202335)  
**Positive control**: WB: NIH/3T3, HepG2, HT-29, SW480, 3T3-L1 and PC-12 whole cell lysates; IHC-P: Rat kidney tissue; mouse liver tissue; human lung carcinoma, cervical carcinoma, colon carcinoma, liver, colon, kidney carcinoma, skeletal muscle, urinary bladder, heart and breast tissue. ICC/IF: HepG2 cells Flow cyt: HeLa and Jurkat cells.  

**General notes**

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

We are constantly working hard to ensure we provide our customers with best in class antibodies. As a result of this work we are pleased to now offer this antibody in purified format. We are in the process of updating our datasheets. The purified format is designated 'PUR' on our product labels. If you have any questions regarding this update, please contact our Scientific Support team.

This product is a recombinant rabbit monoclonal antibody.

Properties

**Form**: Liquid  
**Storage instructions**: Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C. Avoid freeze / thaw cycle.
Dissociation constant ($K_D$)

$$K_D = 7.70 \times 10^{-12} \text{ M}$$

Learn more about $K_D$

Storage buffer

- pH: 7.20
- Preservative: 0.01% Sodium azide
- Constituents: 49% PBS, 50% Glycerol, 0.05% BSA

Purity

- Protein A purified

Clonality

- Monoclonal

Clone number

- EPR3915

Isotype

- IgG

Applications

Our Abpromise guarantee covers the use of ab115730 in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

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<th>Application</th>
<th>Abreviews</th>
<th>Notes</th>
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<tr>
<td>ICC/IF</td>
<td>1/100 - 1/500.</td>
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<tr>
<td>WB</td>
<td>1/100000. Detects a band of approximately 40-60 kDa (predicted molecular weight: 54 kDa). Can be blocked with Glucose Transporter GLUT1 peptide (ab202335). We would not recommend boiling due to the possible irreversible aggregation of glucose transporters. If samples are boiled it can prevent some of the protein from entering the gel or produce multimers which are often mistaken for background. Samples should be solubilized in standard SDS Laemmli buffer and maintained at room temperature before loading.</td>
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<tr>
<td>IHC-P</td>
<td>1/250 - 1/500. Perform heat mediated antigen retrieval before commencing with IHC staining protocol. See IHC antigen retrieval protocols.</td>
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<tr>
<td>Flow Cyt</td>
<td>1/40. For unpurified, use 1/100 - 1/1000. ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.</td>
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Target

Function

- Facilitative glucose transporter. This isoform may be responsible for constitutive or basal glucose uptake. Has a very broad substrate specificity; can transport a wide range of aldoses including both pentoses and hexoses.

Tissue specificity

- Expressed at variable levels in many human tissues.

Involvement in disease

- Defects in SLC2A1 are the cause of glucose transporter type 1 deficiency syndrome (GLUT1DS) [MIM:606777]; also known as blood-brain barrier glucose transport defect. This disease causes a defect in glucose transport across the blood-brain barrier. It is characterized by infantile seizures, delayed development, and acquired microcephaly.
Defects in SLC2A1 are the cause of dystonia type 18 (DYT18) [MIM:612126]. DYT18 is an exercise-induced paroxysmal dystonia/dyskinesia. Dystonia is defined by the presence of sustained involuntary muscle contraction, often leading to abnormal postures. DYT18 is characterized by attacks of involuntary movements triggered by certain stimuli such as sudden movement or prolonged exercise. In some patients involuntary exertion-induced dystonic, choreoathetotic, and ballistic movements may be associated with macrocytic hemolytic anemia.

**Sequence similarities**
Belongs to the major facilitator superfamily. Sugar transporter (TC 2.A.1.1) family. Glucose transporter subfamily.

**Post-translational modifications**
Phosphorylated upon DNA damage, probably by ATM or ATR.

**Cellular localization**
Cell membrane. Melanosome. Localizes primarily at the cell surface (By similarity). Identified by mass spectrometry in melanosome fractions from stage I to stage IV.

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**Images**

**GLUT1 and GLUT3 are downregulated in KSHV-infected cells in human KS tumors**
Representative illustration of dual immunofluorescence detection of LANA and GLUT1 or in a normal human skin section and a Karposi Sarcoma (KS) tumor section. Tissues were fixed with paraformaldehyde and paraffin-embedded.

**Immunohistochemical expression of Glut1 in normal tongue epithelium and tongue cancer.** Expression was greatest in lymphocytes (arrows in left upper and lower panels). In the normal oral epithelium, Glut1 was weakly expressed in the basal and spinous cells (left upper panel). In OSCC, Glut1 was upregulated, showing a level of expression comparable with lymphocytes (left and right lower panels). Scale bar, 100 μm.

Note: Glut1 = SLC2A (alternative names for the same target).
All lanes: Anti-Glucose Transporter GLUT1 antibody [EPR3915] (ab115730) at 1/100000 dilution (purified)

Lane 1: NIH/3T3 whole cell lysate
Lane 2: PC-12 whole cell lysate

Lysates/proteins at 20 µg per lane.

Secondary
All lanes: Anti-Rabbit IgG (HRP), specific to the non-reduced form of IgG at 1/1000 dilution

Predicted band size: 54 kDa
Observed band size: 40-60 kDa
why is the actual band size different from the predicted?

Blocking buffer: 5% NFDM/TBST
Dilution buffer: 5% NFDM/TBST

Immunohistochemical staining of paraffin embedded rat kidney with purified ab115730 at a working dilution of 1/500. The secondary antibody used is ab97051, a goat anti-rabbit IgG (H&L) at a dilution of 1/500. The sample is counter-stained with hematoxylin. Antigen retrieval was perfomed using Tris-EDTA buffer, pH 9.0. PBS was used instead of the primary antibody as the negative control, and is shown in the inset.
Immunofluorescence staining of HepG2 cells with purified ab115730 at a working dilution of 1/100, counter-stained with DAPI. The secondary antibody was Alexa Fluor® 488 goat anti-rabbit (ab150077), used at a dilution of 1/1000. ab7291, a mouse anti-tubulin antibody (1/1000), was used to stain tubulin along with ab150120 (Alexa Fluor® 594 goat anti-mouse, 1/1000), shown in the top right hand panel. The cells were fixed in 4% PFA and permeabilized using 0.1% Triton X 100. The negative controls are shown in bottom middle and right hand panels - for negative control 1, purified ab115730 was used at a dilution of 1/500 followed by an Alexa Fluor® 594 goat anti-mouse antibody (ab150120) at a dilution of 1/500. For negative control 2, ab7291 (mouse anti-tubulin) was used at a dilution of 1/500 followed by an Alexa Fluor® 488 goat anti-rabbit antibody (ab150077) at a dilution of 1/400.

Overlay histogram showing Jurkat cells fixed in 4% PFA and stained with purified ab115730 at a dilution of 1/40 (red line). The secondary antibody used was Alexa Fluor® 488 goat anti-rabbit at a dilution of 1/500. Rabbit monoclonal IgG was used as an isotype control (black line) and cells incubated in the absence of both primary and secondary antibody were used as a negative control (blue line).
Immunohistochemical staining of paraffin embedded mouse liver with purified ab115730 at a working dilution of 1/500. The secondary antibody used is ab97051, a goat anti-rabbit IgG (H&L) at a dilution of 1/500. The sample is counter-stained with hematoxylin. Antigen retrieval was performed using Tris-EDTA buffer, pH 9.0. PBS was used instead of the primary antibody as the negative control, and is shown in the inset.

Immunohistochemical staining of paraffin embedded human lung carcinoma with purified ab115730 at a working dilution of 1/500. The secondary antibody used is ab97051, a goat anti-rabbit IgG (H&L) at a dilution of 1/500. The sample is counter-stained with hematoxylin. Antigen retrieval was performed using Tris-EDTA buffer, pH 9.0. PBS was used instead of the primary antibody as the negative control, and is shown in the inset.
Immunohistochemical staining of paraffin embedded human cervical carcinoma with purified ab115730 at a working dilution of 1/500. The secondary antibody used is ab97051, a goat anti-rabbit IgG (H&L) at a dilution of 1/500. The sample is counter-stained with hematoxylin. Antigen retrieval was performed using Tris-EDTA buffer, pH 9.0. PBS was used instead of the primary antibody as the negative control, and is shown in the inset.

All lanes : Anti-Glucose Transporter GLUT1 antibody [EPR3915] (ab115730) at 1/1000000 dilution (purified)

Lane 1 : HepG2 whole cell lysate
Lane 2 : Human fetal liver lysate
Lane 3 : HT-29 whole cell lysate
Lane 4 : SW480 whole cell lysate

Lysates/proteins at 10 µg per lane.

Secondary

All lanes : Anti-rabbit IgG (HRP), specific to the non-reduced form of IgG at 1/1000 dilution

Predicted band size: 54 kDa
Observed band size: 40-60 kDa why is the actual band size different from the predicted?

Blocking buffer: 5% NFDM/TBST
Dilution buffer: 5% NFDM/TBST
**Western blot - Anti-Glucose Transporter GLUT1 antibody [EPR3915] (ab115730)**

*All lanes*: Anti-Glucose Transporter GLUT1 antibody [EPR3915] (ab115730) at 1/1000 dilution (Unpurified)

*Lanes*
- **Lane 1**: Jurkat lysate
- **Lane 2**: Mouse brain lysate
- **Lane 3**: Human fetal brain lysate
- **Lane 4**: 3T3L1 lysate
- **Lane 5**: Human fetal liver lysate
- **Lane 6**: HepG2 lysate

Lysates/proteins at 10 µg per lane.

**Predicted band size**: 54 kDa

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**Western blot - Anti-Glucose Transporter GLUT1 antibody [EPR3915] (ab115730)**

*All lanes*: Anti-Glucose Transporter GLUT1 antibody [EPR3915] (ab115730) at 1/200000 dilution (purified)

*Lanes*
- **Lane 1**: Mouse brain lysate
- **Lane 2**: Rat brain lysate
- **Lane 3**: 3T3-L1 brain lysate

Lysates/proteins at 10 µg per lane.

**Secondary**

*All lanes*: Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

**Predicted band size**: 54 kDa

**Observed band size**: 40-60 kDa

*Why is the actual band size different from the predicted?*

Blocking buffer: 5% NFDM/TBST

Dilution buffer: 5% NFDM/TBST
Overlay histogram showing HeLa cells stained with unpurified ab115730 (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 (ab115730, 1/1000 dilution) for 30 min at 22°C. The secondary antibody used was Alexa Fluor® 488 goat anti-rabbit IgG (H+L) (ab150077) at 1/2000 dilution for 30 min at 22°C. Isotype control antibody (black line) was rabbit IgG (monoclonal) (1μg/1x10^6 cells) used under the same conditions. Unlabelled sample (blue line) was also used as a control.

Acquisition of >5,000 events were collected using a 20mW Argon ion laser (488nm) and 525/30 bandpass filter. This antibody gave a positive signal in HeLa cells fixed with 4% paraformaldehyde (10 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.

Unpurified ab115730 at 1/250 dilution staining Glucose Transporter GLUT1 in Paraffin-embedded human cervical carcinoma tissue by Immunohistochemistry.

Unpurified ab115730 at 1/250 dilution staining Glucose Transporter GLUT1 in Paraffin-embedded human colonic adenocarcinoma tissue by Immunohistochemistry.
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Glucose Transporter GLUT1 antibody [EPR3915] (ab115730)

Unpurified ab115730 showing positive staining in normal liver tissue.

Unpurified ab115730 showing positive staining in normal breast tissue.

Unpurified ab115730 showing positive staining in normal colon tissue.
Unpurified ab115730 showing positive staining in kidney carcinoma tissue.

Unpurified ab115730 showing negative staining in skeletal muscle tissue.

Unpurified ab115730 showing positive staining in urinary bladder transitional carcinoma tissue.
Unpurified ab115730 showing negative staining in normal heart tissue.

Equilibrium disassociation constant ($K_D$)

Learn more about $K_D$.

Click here to learn more about $K_D$.

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