abcam

Product datasheet

Anti-Glucose Transporter GLUT1 antibody ab14683

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Overview

Product name	Anti-Glucose Transporter GLUT1 antibody
Description	Rabbit polyclonal to Glucose Transporter GLUT1
Host species	Rabbit
Tested applications	**Suitable for:** IHC-P, ICC/IF, WB
Species reactivity	**Reacts with:** Human **Predicted to work with:** Horse, Chicken, Cat, Pig, Chimpanzee, Monkey, Baboon
Immunogen	Synthetic peptide corresponding to Rat Glucose Transporter GLUT1 aa 481-492 (C terminal) (Cysteine residue). Sequence: [C]GLFHPLGADSQV Database link: **P11167** Run BLAST with Run BLAST with
General notes	The Life Science industry has been in the grips of a reproducibility crisis for a number of years. Abcam is leading the way in addressing this with our range of recombinant monoclonal antibodies and knockout edited cell lines for gold-standard validation. Please check that this product meets your needs before purchasing. If you have any questions, special requirements or concerns, please send us an inquiry and/or contact our Support team ahead of purchase. Recommended alternatives for this product can be found below, along with publications, customer reviews and Q&As

Properties

Form	Liquid
Storage instructions	Shipped at 4°C. Upon delivery aliquot and store at -20°C. Avoid freeze / thaw cycles.
Purity	Immunogen affinity purified
Purification notes	Purified antibody was isolated from immobilized antigen sepharose affinity column.
Clonality	Polyclonal
Isotype	IgG

Applications

The Abpromise guarantee Our **Abpromise guarantee** covers the use of ab14683 in the following tested applications.

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

Application	Abreviews	Notes
IHC-P		Use at an assay dependent concentration. Perform heat mediated antigen retrieval before commencing with IHC staining protocol.
ICC/IF		1/200.
WB		1/2500. Detects a band of approximately 50 kDa (predicted molecular weight: 55 kDa). We suggest that samples should not be heated or frozen.

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.

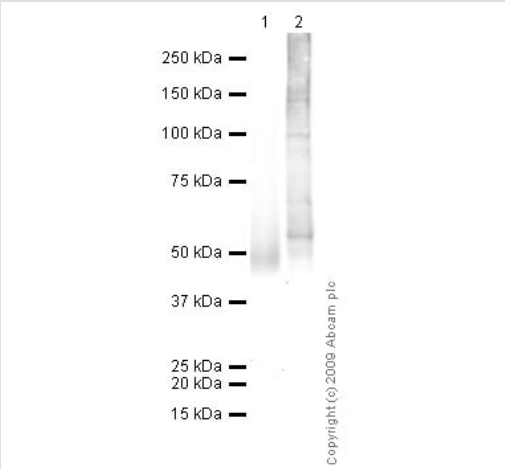
Involvement in disease Defects in SLC2A1 are the cause of glucose transporter type 1 deficiency syndrome (GLUT1DS) [MIM:606777]; also known as blood-brain barrier glucose transport defect. This disease causes a defect in glucose transport across the blood-brain barrier. It is characterized by infantile 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.

Images



Western blot - Anti-Glucose Transporter GLUT1 antibody (ab14683)

All lanes : Anti-Glucose Transporter GLUT1 antibody (ab14683) at 1/2500 dilution

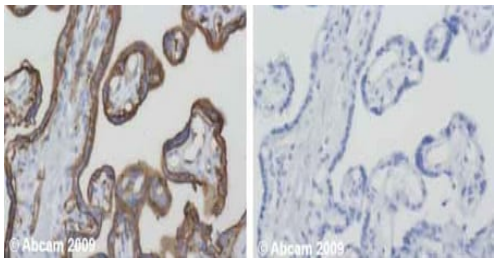
Lane 1 : Human placenta tissue lysate - total protein (**ab29745**)
Lane 2 : SW480 (Human colon adenocarcinoma cell line) Whole Cell Lysate

Lysates/proteins at 10 µg per lane.

Secondary
All lanes : Goat polyclonal to Rabbit IgG - H&L - Pre-Adsorbed (HRP) at 1/3000 dilution

Predicted band size: 55 kDa
Observed band size: 55 kDa

This antibody labels Glut 1 protein as a smear due to large amount of glycosylation on Glut 1 transporter. We observed that boiling and freezing the Glut 1 samples resulted in aggregated form of the protein and gives a smear form high 100kDa range to 45kDa with significant reduction in Glut 1 (44-47kDa) band. We suggest that samples should not be heated or frozen. Following extraction in lysis buffer, the proteins are then dissolved in SDS-PAGE sample buffer 2X and reduced in presence of 2.5-5% BME. All samples at this time will be heated 70-80°C for 3 minutes and aliquot and stored frozen till it is time for analysis. Just before analyses the samples much be thawed at room temp or at 37°C to dissolve any precipitated SDS in the sample. The remaining sample must not be frozen again, this freeze and next thaw cycle will make aggregate in some samples.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Glucose Transporter GLUT1 antibody (ab14683)

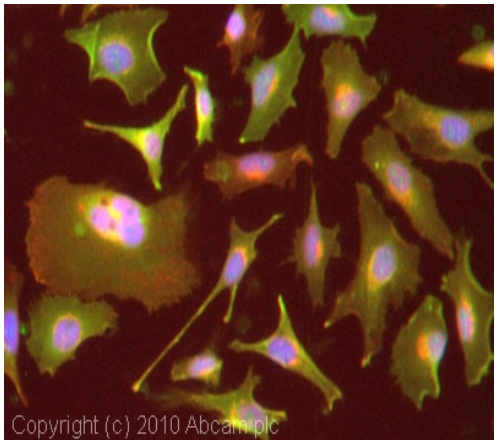
Human normal placenta. Staining is observed at the cell surface.

Left panel: Primary antibody at 2 ug/ml.

Right panel: Isotype control.

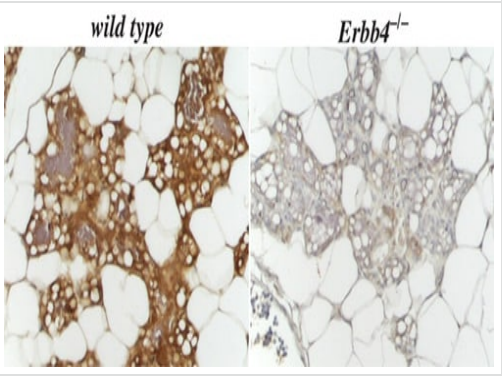
Sections were stained using an automated system DAKO Autostainer Plus , at room temperature: sections were rehydrated and antigen retrieved with the Dako 3 in 1 AR buffers citrate pH 6.1 in a DAKO PT Link. Slides were peroxidase blocked in 3% H_2O_2 in methanol for 10 minutess. They were then blocked with Dako Protein block for 10 minutes (containing casein 0.25% in PBS) then incubated with primary antibody for 20 minutes and detected with Dako envision flex amplification kit for rabbit for 30 minutes. Colorimetric detection was completed with Diaminobenzidine for 5 minutes. Slides were counterstained with haematoxylin and coverslipped under DePeX.

Please note that for manual staining we recommend to optimize the primary antibody concentration and incubation time (overnight incubation), and amplification may be required.



Immunocytochemistry/ Immunofluorescence - Anti-Glucose Transporter GLUT1 antibody (ab14683)

ICC/IF image of ab14683 stained HeLa (Human epithelial cell line from cervix adenocarcinoma) cells. The cells were 4% formaldehyde fixed (10 minutes) and then incubated in 1% BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1 hour to permeabilize the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab14683, 5 µg/ml) overnight at +4°C. The secondary antibody (green) was Alexa Fluor® 488 goat anti-rabbit IgG (H+L) used at a 1/1000 dilution for 1 hour. Alexa Fluor® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1 hour. DAPI was used to stain the cell nuclei (blue) at a concentration of 1.43 µM.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Glucose Transporter GLUT1 antibody (ab14683)

Image from Paatero I et al., J Biol Chem. 2012 Mar 23;287(13):9659-71. Epub 2012 Feb 3. Fig 1.; doi: 10.1074/jbc.M111.299537; March 23, 2012 The Journal of Biological Chemistry, 287, 9659-9671.

Immunohistochemical analysis of mammary glands taken from wild-type or *Erbb4*$^{-/-}$ lactating mice, staining Glucose Transporter GLUT1 with ab14683.

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