abcam

ab243915

Anti-Glucose Transporter GLUT1 antibody [SP168] - BSA and Azide free

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	SP168
Purification technique	Affinity purification Protein A/G
Concentration	1.018 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Purified from TCS by protein A/G.

Reactivity data

IHC-P

Tested

Species	Human

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

Predicted

Species	Mouse, Rat, Rabbit, Chicken, Cow, Pig
Dilution info	-
Notes	-

WB

Expected

Species	Mouse, Human
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Rat, Rabbit, Chicken, Cow, Pig
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Predicted

Species	Mouse, Rat, Rabbit, Chicken, Cow, Pig
Dilution info	-

Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Predicted

Species	Mouse, Rat, Rabbit, Chicken, Cow, Pig
Dilution info	-
Notes	-

Target data

See full target information SLC2A1

Function Facilitative glucose transporter, which is responsible for constitutive or basal glucose uptake (PubMed:10227690, PubMed:10954735, PubMed:18245775, PubMed:19449892, PubMed:25982116, PubMed:27078104, PubMed:32860739). Has a very broad substrate specificity; can transport a wide range of aldoses including both pentoses and hexoses (PubMed:18245775, PubMed:19449892). Most important energy carrier of the brain: present at the blood-brain barrier and assures the energy-independent, facilitative transport of glucose into the brain (PubMed:10227690). In association with BSG and NXNL1, promotes retinal cone survival by increasing glucose uptake into photoreceptors (By similarity). Required for mesendoderm differentiation (By similarity).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab243915 is the carrier-free version of ab150299.

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.

Conjugation ready
Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility
This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

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

Activity summary	The Glucose Transporter GLUT1 also known as SLC2A1 is an important protein responsible for the transport of glucose across cell membranes. The GLUT1 transporter has a molecular weight of approximately 55 kDa. This protein is highly expressed in erythrocytes endothelial cells lining blood vessels and in the blood-brain barrier. Its primary role is to facilitate the basal glucose uptake necessary for cellular metabolism particularly in tissues where glucose is a critical energy source.
Biological function summary	This glucose transporter plays a significant role in maintaining glucose homeostasis in the human body. GLUT1 functions independently and not as part of a complex. It ensures that glucose is available to cells with high metabolic demands including the brain and red blood cells where it remains important for survival and function. Its expression level can be influenced by various factors including hypoxia and insulin.
Pathways	GLUT1 is involved in the glycolysis and hypoxia-related pathways. It supports the glycolytic pathway by ensuring a sufficient supply of glucose to the cells which is then metabolized to produce ATP. Additionally during hypoxic conditions GLUT1 expression can increase aligning with proteins like HIF-1α which helps cells adapt by modifying their metabolism. This coordinated regulation permits cells to adjust their energy systems according to the oxygen availability.

Associated diseases and disorders	GLUT1 is implicated in glucose transporter type 1 deficiency syndrome (GLUT1 DS) and various forms of cancer. GLUT1 DS results from inadequate glucose transport into the brain presenting neurological symptoms due to energy deficiency. In cancer overexpression of GLUT1 links to increased glucose uptake and tumor growth a condition known to involve proteins like hexokinase. These associations underline GLUT1's contribution to both genetic defects and metabolic shifts in cancerous tissues.

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

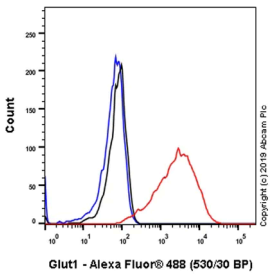
We do not recommend this combination. It is not covered by our product promise.

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.

8 product images

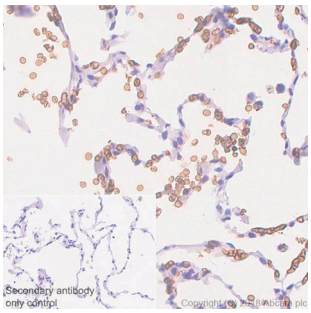


Flow Cytometry (Intracellular) - Anti-Glucose Transporter GLUT1 antibody [SP168] - BSA and Azide free (ab243915)

Glucose Transporter GLUT1 Flow Cytometry (Intracellular) staining using rabbit Anti-Glucose Transporter GLUT1 antibody

Intracellular Flow Cytometry analysis of HepG2 (Human hepatocellular carcinoma epithelial cell) cells labeling Glucose Transporter GLUT1 with purified ab150299 at 1/200 dilution (1.24µg/ml) (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) secondary antibody was used at 1/2000 dilution. Isotype control - Rabbit monoclonal IgG (ab172730) / Black. Unlabeled control - Unlabelled cells /

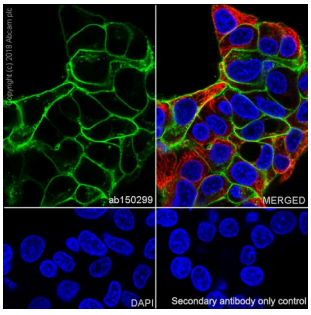
blue. This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab150299).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Glucose Transporter GLUT1 antibody [SP168] - BSA and Azide free (ab243915)

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

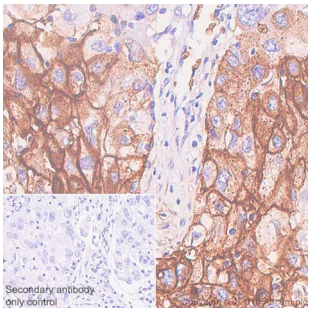
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of Human lung tissue sections labeling Glucose Transporter GLUT1 with ab150299 at 1/200 dilution (1.24 µg/ml). Heat mediated antigen retrieval was performed Heat mediated antigen retrieval with sodium citrate buffer (pH 6.0, epitope retrieval solution 1) for 10 mins. Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) was used as the secondary antibody. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab150299)



Immunocytochemistry/ Immunofluorescence - Anti-Glucose Transporter GLUT1 antibody [SP168] - BSA and Azide free (ab243915)

Glucose Transporter GLUT1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Glucose Transporter GLUT1 antibody

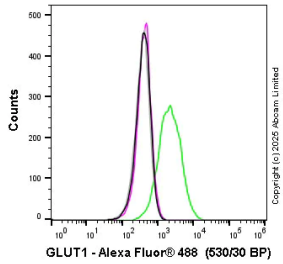
Immunocytochemistry/ Immunofluorescence analysis of HepG2 (human hepatocellular carcinoma epithelial cell) cells labeling Glucose Transporter GLUT1 with purified ab150299 at 1/100 (2.5 µg/ml). Cells were fixed in 4% paraformaldehyde and permeabilized with 0.1% Triton X-100. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1/200 (2.5 µg/ml). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody at 1/1000 (2 µg/ml) dilution. DAPI (blue) was used as nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab150299).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Glucose Transporter GLUT1 antibody [SP168] - BSA and Azide free (ab243915)

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

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of Human lung carcinoma tissue sections labeling Glucose Transporter GLUT1 with ab150299 at 1/200 dilution (1.24 µg/ml). Heat mediated antigen retrieval was performed Heat mediated antigen retrieval with sodium citrate buffer (pH 6.0, epitope retrieval solution 1) for 10 mins. Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) was used as the secondary antibody. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab150299)



Flow Cytometry (Intracellular) - Anti-Glucose Transporter GLUT1 antibody [SP168] - BSA and Azide free (ab243915)

Glucose Transporter GLUT1 Flow Cytometry (Intracellular) staining of A-549 using rabbit Anti-Glucose Transporter GLUT1 antibody

This data was developed using ab150299, the same antibody clone in a different buffer formulation.

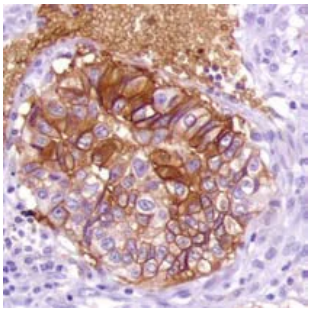
Flow cytometry overlay histogram showing wild-type A-549 (green line) and SLC2A1 knockout A-549 stained with ab150299 (magenta line). The cells were fixed with 4% formaldehyde (10 min) and then permeabilised with 0.1% PBS-Triton X-100 for 15 min. The cells were then incubated in 1x PBS containing 10% normal goat serum to block non-specific protein-protein interaction followed by the antibody (ab150299) (1x 10^6 in 100µl at 1/12500) for 30min at 22°C.

The secondary antibody Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed was incubated at 1/4000 for 30min at 22°C.

Unlabelled control in A-549 WT cells (black line) and A-549-SLC2A1 KO cells (grey line), at the same conditions as the primary antibody.

Acquisition of >5000 events were collected using a 50 mW Blue laser (488nm) and 530/30 bandpass filter.

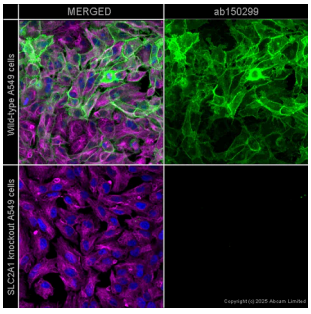
This antibody gave a positive signal in wild-type A-549 fixed with 80% methanol (5 min) and then permeabilised with 0.1% PBS-Triton X-100 for 15 min under the same conditions.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Glucose Transporter GLUT1 antibody [SP168] - BSA and Azide free (ab243915)

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

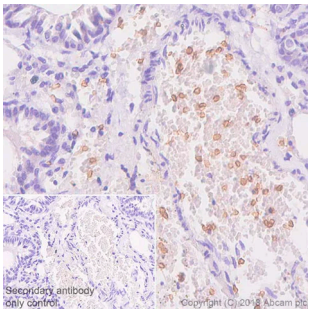
Immunohistochemical analysis of formalin fixed, paraffin embedded Human lung carcinoma tissue labelling Glucose Transporter GLUT1 with ab150299 at 1/200 dilution.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, and sodium azide (ab150299).



Immunocytochemistry/ Immunofluorescence - Anti-Glucose Transporter GLUT1 antibody [SP168] - BSA and Azide free (ab243915)

Glucose Transporter GLUT1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Glucose Transporter GLUT1 antibody

This data was developed using ab150299, the same antibody clone in a different buffer formulation.
Immunofluorescent analysis of 4% PFA-fixed 0.1% Triton X-100 permeabilized A549 WT and A549-SLC2A1 KO cells labelling Glucose Transporter GLUT1 with ab150299 at 1 µg/ml concentration, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/1000 dilution (Green). ab7291 Anti-alpha Tubulin antibody [DM1A] was used to counterstain tubulin at 1/1000 dilution (Magenta). The nuclear counterstain was DAPI (Blue).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Glucose Transporter GLUT1 antibody [SP168] - BSA and Azide free (ab243915)

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

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of Mouse lung tissue sections labeling Glucose Transporter GLUT1 with ab150299 at 1/200 dilution (1.24 µg/ml). Heat mediated antigen retrieval was performed Heat mediated antigen retrieval with sodium citrate buffer (pH 6.0, epitope retrieval solution 1) for 10 mins. Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) was used as the secondary antibody. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab150299)

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