abcam

ab195020

Alexa Fluor® 647 Anti-Glucose Transporter GLUT1 antibody [EPR3915]

Anti-Glucose Transporter GLUT1 antibody [EPR3915] - Alexa Fluor® 647 conjugated (ab195020) is a rabbit recombinant monoclonal antibody detecting Glucose Transporter GLUT1 in **Flow Cytometry (Intra), ICC/IF**. Suitable for **Human**.

- Biophysical QC for unrivalled batch-batch consistency
- Over 20 publications

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Conjugation	Alexa Fluor® 647
Excitation/Emission	Ex: 650nm, Em: 665nm
Storage buffer	pH: 7.4 Preservative: 0.02% Sodium azide Constituents: PBS, 30% Glycerol (glycerin, glycerine), 1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR3915
Purification technique	Affinity purification Protein A
Dissociation constant	7.7×10^{-12} M
Concentration	0.5 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Human
Dilution info	1 µg/mL
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/500
Notes	ab199093 - Rabbit monoclonal IgG (Alexa Fluor®; 647), is suitable for use as an isotype control with this antibody.

Expected

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

IHC-P

Expected

Species	Human

Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Mouse, Rat, Mouse, Rat
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 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, Store in the dark

Notes

What is this antibody validated in?
Alexa Fluor® 647 Anti-Glucose Transporter GLUT1 antibody [EPR3915] (ab195020) is a rabbit recombinant monoclonal antibody and is validated for use in Flow Cytometry (Intra), Flow Cytometry (Flow Cyt), Immunocytochemistry/immunofluorescence (ICC/IF) in Human samples.

Trusted by the scientific community
Anti-Glucose Transporter GLUT1 [EPR3915] Alexa Fluor® 647 (ab195020) was first used in a scientific publication in 2014 and has been cited over 20 times in peer-reviewed journals.

Reviewed by scientists
Anti-Glucose Transporter GLUT1 [EPR3915] Alexa Fluor® 647 (ab195020) has over 5 independent reviews from customers.

Related products
Antibody clone EPR3915 is also available pre-conjugated to a variety of labels for your convenience – Anti-Glucose Transporter GLUT1 Alexa Fluor® 647 [EPR3915] (ab195020).

Other related products
We have a range of other formats of antibody clone [EPR3915] also available for your convenience: ab115730, Alexa Fluor® 647 - ab195020, HRP - ab195021, Alexa Fluor® 488 - ab195359, Carrier free - ab196357, Alexa Fluor® 594 - ab206360, PE - ab209449, Alexa Fluor® 405 - ab210438, Carrier free - ab252403, APC - ab316298, FITC - ab322306, Biotin - ab323677

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.

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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

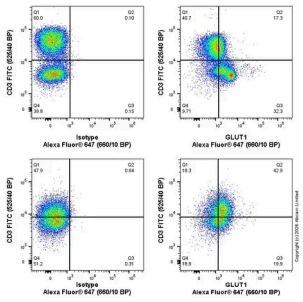
We do not recommend this combination. It is not covered by our product promise.

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.

5 product images



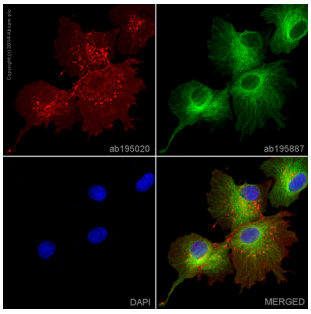
Flow Cytometry (Intracellular) - Alexa Fluor® 647 Anti-Glucose Transporter GLUT1 antibody [EPR3915] (ab195020)

Glucose Transporter GLUT1 Flow Cytometry (Intracellular) staining of human peripheral mononuclear cells (PBMCs) using rabbit Anti-Glucose Transporter GLUT1 antibody

Flow cytometry scatter plots showing untreated human peripheral mononuclear cells (PBMCs) (top) and PBMCs activated with 5 µg/ml PHA for 18h (bottom), either stained with ab195020 (right) or isotype control (left). The cells were fixed using BD CytoFix/CytoPerm™ (20 min). The cells were incubated in 1x PBS containing 10 µg/ml human IgG and 10% normal goat serum to block FC receptors and non-specific protein-protein interaction followed by the antibody (ab195020) (1x 10^6 in 100µl at 0.04 µg/ml (1/12500)) for 30min on ice. Isotype control antibody was Alexa Fluor® 647 Rabbit IgG, monoclonal [EPR25A] - Isotype Control. The cells were simultaneously stained with CD3.

Acquisition of >30000 events were collected using a 40 mW Red laser (638nm) and 660/10 bandpass filter.

This data was acquired using a Beckman Coulter CytoFlexLX flow cytometer.

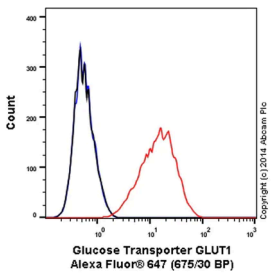


Immunocytochemistry/ Immunofluorescence - Alexa Fluor® 647 Anti-Glucose Transporter GLUT1 antibody [EPR3915] (ab195020)

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

ab195020 staining Glucose Transporter GLUT1 in HepG2 (human liver hepatocellular carcinoma cell line) cells. The cells were fixed with 4% formaldehyde (10 min), permeabilised in 0.1% Triton X-100 for 5 minutes and then blocked in 1% BSA/10% normal goat serum/0.3M glycine in 0.1%PBS-Tween for 1h. The cells were then incubated with ab195020 at a working dilution of 1 in 50 (shown in red) and ab195887, Mouse monoclonal [DM1A] to alpha Tubulin (Alexa Fluor® 488, shown in green) at 2µg/ml overnight at +4°C. Nuclear DNA was labelled in blue with DAPI.
This product gave a positive signal in 100% methanol (5 min) fixed HepG2 cells under the same testing conditions.

Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).

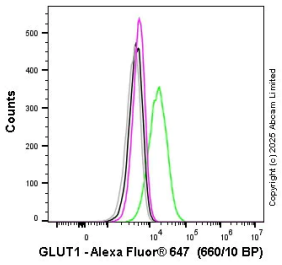


Flow Cytometry (Intracellular) - Alexa Fluor® 647 Anti-Glucose Transporter GLUT1 antibody [EPR3915] (ab195020)

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

Overlay histogram showing HepG2 (human liver hepatocellular carcinoma cell line) cells stained with ab195020 (red line). The cells were fixed with 4% formaldehyde (10 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 (ab195020, 1/500 dilution) for 30 min at 22°C. Isotype control antibody (black line) was rabbit IgG (monoclonal) Alexa Fluor® 647 used at the same concentration and conditions as the primary antibody. Unlabelled sample (blue line) was also used as a control.
Acquisition of >5,000 events were collected using a solid-state 25mW red diode laser (635 nm) and 675/30 bandpass filter.

This antibody gave a positive signal in HepG2 fixed with 80% methanol (5 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.



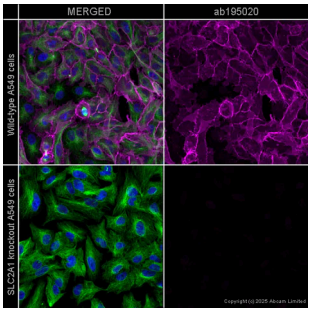
Flow Cytometry (Intracellular) - Alexa Fluor® 647 Anti-Glucose Transporter GLUT1 antibody [EPR3915] (ab195020)

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

Flow cytometry overlay histogram showing wild-type A-549 (green line) and SLC2A1 knockout A-549 stained with ab195020 (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 (ab195020) (1x 10^6 in 100µl at 0.008 µg/ml (1/62500)) for 30min at 22°C.

Isotype control antibody was Alexa Fluor® 647 Rabbit IgG, monoclonal [EPR25A] - Isotype Control in A-549 WT cells (black line) and A-549-SLC2A1 KO cells (grey line), used at the same concentration and conditions as the primary antibody.

Acquisition of >5000 events were collected using a 40 mW Red laser (638nm) and 660/10 bandpass filter.



Immunocytochemistry/ Immunofluorescence - Alexa Fluor® 647 Anti-Glucose Transporter GLUT1 antibody [EPR3915] (ab195020)

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

Immunofluorescent analysis of 4% PFA-fixed 0.1% Triton X-100 permeabilized A549 WT and A549-SLC2A1 KO cells labelling Glucose Transporter GLUT1 with ab195020 at 1 µg/ml concentration (Magenta). Cells were counterstained with ab195887 Anti-Tubulin (Alexa Fluor® 488) at 1 : 250 (2 µg/ml) (Green). The nuclear counterstain was DAPI (Blue).

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