abcam

ab315168

Anti-Glucose Transporter GLUT3 + GLUT14 antibody [EPR28481-54]

Recombinant | RabMAb | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR28481-54
Purification technique	Affinity purification Protein A
Concentration	0.52 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Dot

Tested

Species	Transfected cell lysate - Human
Dilution info	1/1000
Notes	-

Expected

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

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

Not recommended

Species	Transfected cell lysate - Human
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/2000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Mouse
Dilution info	1/2000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Rat
Dilution info	1/2000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Not recommended

Species	Transfected cell lysate - Human
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/100
Notes	-

Expected

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

Not recommended

Species	Transfected cell lysate - Human
Dilution info	-
Notes	-

IP

Tested

Species	Human
Dilution info	1/30
Notes	-

Expected

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

Not recommended

Species	Transfected cell lysate - Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/500
Notes	-

Expected

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

Not recommended

Species	Transfected cell lysate - Human

Dilution info	-
Notes	-

Target data

See full target information SLC2A3

Function	Facilitative glucose transporter (PubMed:26176916, PubMed:32860739, PubMed:9477959). Can also mediate the uptake of various other monosaccharides across the cell membrane (PubMed:26176916, PubMed:9477959). Mediates the uptake of glucose, 2-deoxyglucose, galactose, mannose, xylose and fucose, and probably also dehydroascorbate (PubMed:26176916, PubMed:9477959). Does not mediate fructose transport (PubMed:26176916, PubMed:9477959). Required for mesendoderm differentiation (By similarity).

Storage

Shipped at conditions	Conditional Ambient
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

Notes

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.

Supplementary info

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

Activity summary	GLUT3 also known as glucose transporter type 3 is a protein responsible for transporting glucose across cell membranes. It is part of the solute carrier family 2A with an approximate molecular weight of 54 kDa. GLUT3 expression is highest in the human brain especially in neurons allowing for efficient glucose uptake in these energy-demanding cells. The related transporter GLUT14 shares similarities with GLUT3 in function but is expressed at different levels in other tissues like the testes.
Biological function summary	GLUT3 facilitates the uptake of glucose which is important for the high metabolic demands of the brain. It does not require insulin for its function making it essential for energy metabolism under low glucose conditions. GLUT3 operates independently and is not reported as part of a larger protein complex. Its role ensures neurons maintain energy homeostasis for optimal functioning.
Pathways	GLUT3 plays an important role in the cellular glucose transport pathways. It greatly impacts the glycolysis pathway which is vital for energy production in neurons. Its function complements GLUT1 another glucose transporter by providing glucose access when neuronal energy demands rise. Both transporters collaboratively contribute to maintaining adequate glucose levels in the central nervous system allowing efficient cellular respiration.
Associated diseases and disorders	Aberrations in GLUT3 function or expression associate with neurological disorders such as Alzheimer's disease. Altered glucose metabolism in the brain associated with impaired GLUT3 activity may exacerbate the development of such disorders. Moreover GLUT3 dysfunction links to certain types of cancer where altered glucose uptake and metabolism characterize the disease. GLUT3 affects glucose availability impacting cellular proliferation and survival pathways in tumorigenic processes with potential interaction with the protein PI3K known to play a role in cancer signaling pathways.

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.

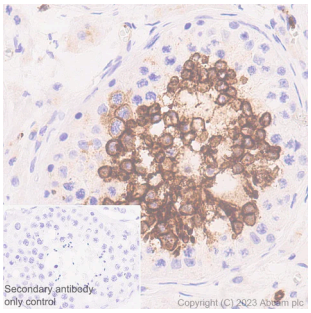
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

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14 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Glucose Transporter GLUT3 + GLUT14 antibody [EPR28481-54] (ab315168)

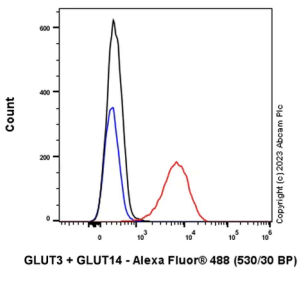
Immunohistochemical analysis of paraffin-embedded Human testis tissue labeling Glucose Transporter GLUT3 + GLUT14 with ab315168 at 1/2000 (0.26 ug/ml) dilution, followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Positive staining on human testis. The section was incubated with ab315168 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins

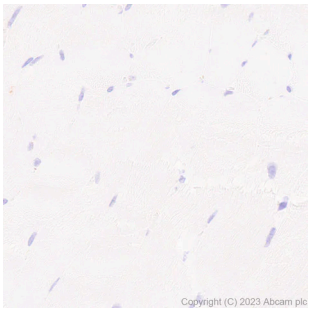
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Flow Cytometry (Intracellular) - Anti-Glucose Transporter GLUT3 + GLUT14 antibody [EPR28481-54] (ab315168)

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized SW480 (human colorectal adenocarcinoma epithelial cell) cells labelling Glucose Transporter GLUT3 + GLUT14 with ab315168 at 1/500 dilution (0.1 ug)/Red compared with a Rabbit monoclonal IgG (ab172730) (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue).

Goat Anti-Rabbit IgG (Alexa Fluor® 488, ab150081) at 1/5000 dilution was used as the secondary antibody.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Glucose Transporter GLUT3 + GLUT14 antibody [EPR28481-54] (ab315168)

Glucose Transporter GLUT3 + GLUT14 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Human skeletal muscle using rabbit Anti-Glucose Transporter GLUT3 + GLUT14 antibody

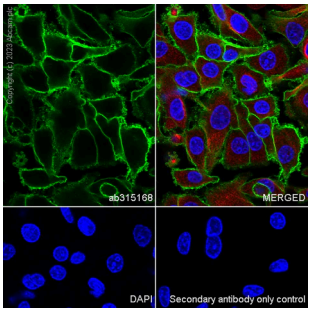
Immunohistochemical analysis of paraffin-embedded Human skeletal muscle tissue labeling Glucose Transporter GLUT3 + GLUT14 with ab315168 at 1/2000 (0.26 ug/ml) dilution, followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Low expression tissue: No staining on human skeletal muscle.The section was incubated with ab315168 for 30 mins at room temperature.The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins

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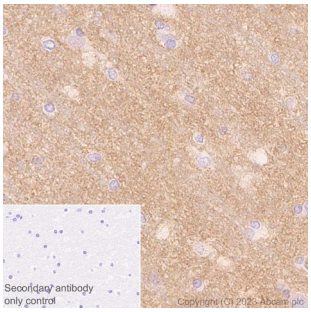
Immunocytochemistry/ Immunofluorescence - Anti-Glucose Transporter GLUT3 + GLUT14 antibody [EPR28481-54] (ab315168)

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized SW480 (human colorectal adenocarcinoma epithelial cell) cells labelling Glucose Transporter GLUT3 + GLUT14 with ab315168 at 1/100 (5.2 ug/ml) dilution, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/1000 (2 ug/ml) dilution (Green).

Confocal image showing membranous staining in SW480 cell line. Image was taken with a confocal microscope(Leica-Microsystems, TCS SP8).

ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 (2.5 ug/ml) dilution (Red). The Nuclear counterstain was DAPI (Blue).

Secondary antibody only control: Secondary antibody is ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 (2 ug/ml)dilution.



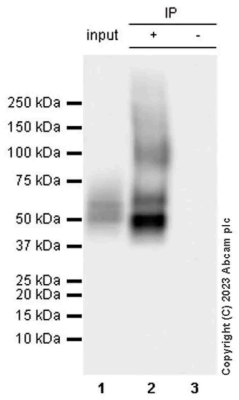
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Glucose Transporter GLUT3 + GLUT14 antibody [EPR28481-54] (ab315168)

Immunohistochemical analysis of paraffin-embedded Human cerebrum tissue labeling Glucose Transporter GLUT3 + GLUT14 with ab315168 at 1/2000 (0.26 ug/ml) dilution, followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Positive staining on human cerebrum. The section was incubated with ab315168 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins



Immunoprecipitation - Anti-Glucose Transporter GLUT3 + GLUT14 antibody [EPR28481-54] (ab315168)

Glucose Transporter GLUT3 + GLUT14 was immunoprecipitated from 0.35 mg SW480 (human colorectal adenocarcinoma epithelial cell) whole cell lysate with ab315168 at 1/30 dilution (2ug in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab315168 at 1/1000 dilution. VeriBlot for IP secondary antibody(HRP)(ab131366) was used at 1/5000 dilution.

Lane 1: SW480 (human colorectal adenocarcinoma epithelial cell) whole cell lysate

Lane 2: ab315168 IP in SW480 (human colorectal adenocarcinoma epithelial cell) whole cell lysate

Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab315168 in SW480 whole cell lysate

Blocking and dilution buffer and concentration: 5% NFDM/TBST.

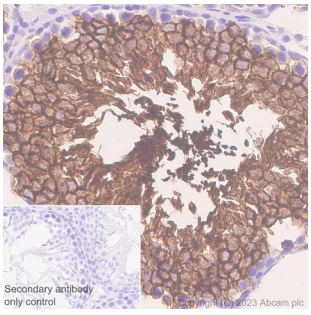
All lanes:
Immunoprecipitation - Anti-Glucose Transporter GLUT3 + GLUT14 antibody [EPR28481-54] (ab315168) at 1/30 dilution

All lanes:
SW480 (human colorectal adenocarcinoma epithelial cell) whole cell lysate

Secondary

All lanes:
Immunoprecipitation - VeriBlot for IP Detection Reagent (HRP) (ab131366) at 1/5000 dilution

Exposure time: 10s



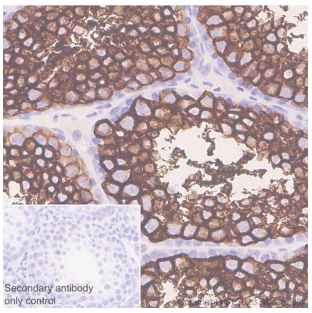
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Glucose Transporter GLUT3 + GLUT14 antibody [EPR28481-54] (ab315168)

Immunohistochemical analysis of paraffin-embedded Rat testis tissue labeling Glucose Transporter GLUT3 + GLUT14 with ab315168 at 1/2000 (0.26 ug/ml) dilution, followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Positive staining on rat testis. The section was incubated with ab315168 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Glucose Transporter GLUT3 + GLUT14 antibody [EPR28481-54] (ab315168)

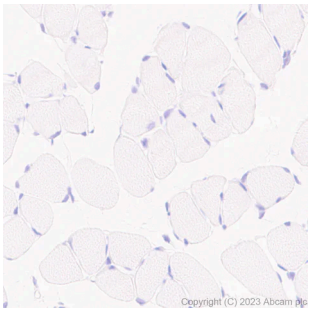
Immunohistochemical analysis of paraffin-embedded Mouse testis tissue labeling Glucose Transporter GLUT3 + GLUT14 with ab315168 at 1/2000 (0.26 ug/ml) dilution, followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Positive staining on mouse testis. The section was incubated with ab315168 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins

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Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Glucose Transporter GLUT3 + GLUT14 antibody [EPR28481-54] (ab315168)

Glucose Transporter GLUT3 + GLUT14 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Mouse skeletal muscle using rabbit Anti-Glucose Transporter GLUT3 + GLUT14 antibody

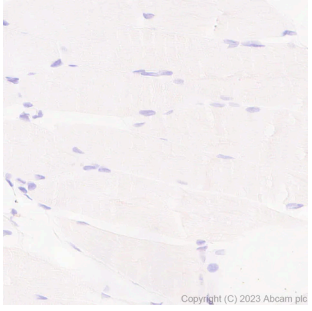
Immunohistochemical analysis of paraffin-embedded Mouse skeletal muscle tissue labeling Glucose Transporter GLUT3 + GLUT14 with ab315168 at 1/2000 (0.26 ug/ml) dilution, followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Low expression tissue: No staining on mouse skeletal muscle. The section was incubated with ab315168 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins

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Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Glucose Transporter GLUT3 + GLUT14 antibody [EPR28481-54] (ab315168)

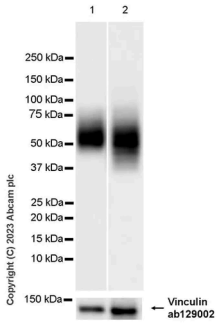
Glucose Transporter GLUT3 + GLUT14 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Rat skeletal muscle using rabbit Anti-Glucose Transporter GLUT3 + GLUT14 antibody

Immunohistochemical analysis of paraffin-embedded Rat skeletal muscle tissue labeling Glucose Transporter GLUT3 + GLUT14 with ab315168 at 1/2000 (0.26 ug/ml) dilution, followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Low expression tissue: No staining on rat skeletal muscle. The section was incubated with ab315168 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins



Western blot - Anti-Glucose Transporter GLUT3 + GLUT14 antibody [EPR28481-54] (ab315168)

Glucose Transporter GLUT3 + GLUT14 Western blot staining using rabbit Anti-Glucose Transporter GLUT3 + GLUT14 antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST.

The expression profile/ molecular weight observed is consistent with what has been described in the literature (PMID: 33061855, PMID: 25526803, PMID: 34031595).

Samples are non-boiled as boiling may cause protein aggregation.

In Western blot, Anti-Vinculin antibody [EPR8185] (ab129002) staining at 1/10000 dilution.

Exposure time: Lane 1: 48 seconds, lane 2: 10 seconds.

All lanes:
Western blot - Anti-Glucose Transporter GLUT3 + GLUT14 antibody [EPR28481-54] (ab315168) at 1/1000 dilution

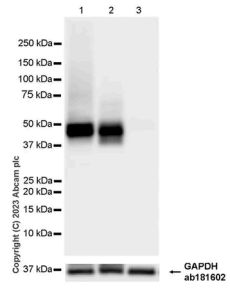
Lane 1:
HepG2 (human hepatocellular carcinoma epithelial cell) whole cell lysate at 20 µg

Lane 2:
SW480 (human colorectal adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Secondary

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

Observed band size: 49-70 kDa, 124 kDa



Western blot - Anti-Glucose Transporter GLUT3 + GLUT14 antibody [EPR28481-54] (ab315168)

Blocking and diluting buffer and concentration: 5% NFDM/TBST.

Low expression: skeletal muscle (PMID: 3170580).

The expression profile/ molecular weight observed is consistent with what has been described in the literature (PMID: 33061855, PMID: 25526803, PMID: 34031595).

Samples are non-boiled as boiling may cause protein aggregation.

In Western blot, Anti-GAPDH antibody [EPR16891] - Loading Control (ab181602) staining at 1/200000 dilution.

All lanes:

Western blot - Anti-Glucose Transporter GLUT3 + GLUT14 antibody [EPR28481-54] (ab315168) at 1/1000 dilution

Lane 1:
Human hippocampus tissue lysate at 20 µg

Lane 2:
Human cerebellum tissue lysate at 20 µg

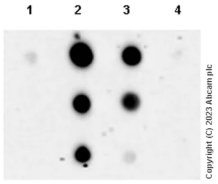
Lane 3:
Human skeletal muscle lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG (HRP) with minimal cross-reactivity with human IgG at 1/2000 dilution

Observed band size: 49 kDa, 36 kDa

Exposure time: 3s



Dot Blot - Anti-Glucose Transporter GLUT3 + GLUT14 antibody [EPR28481-54] (ab315168)

Glucose Transporter GLUT3 + GLUT14 Dot Blot staining using rabbit Anti-Glucose Transporter GLUT3 + GLUT14 antibody

Dot blot analysis of Glucose Transporter GLUT3 + GLUT14 using ab315168 at 1:1000 (0.52 µg/ml) followed by a Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated (ab97051) at 1:100,000 dilution.

Lane 1: 293T cells transfected with an empty vector containing a His-tag whole cell lysate

Lane 2: 293T cells transfected with a human SLC2A3 expression vector containing a His-tag whole cell lysate

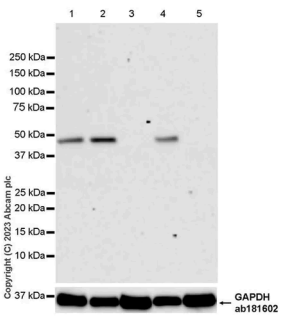
Lane 3: 293T cells transfected with a human SLC2A14 expression vector containing a His-tag whole cell lysate

Lane 4: 293T cells transfected with a human SLC2A2 expression vector containing a His-tag whole cell lysate

Exposure time: 180 seconds.

Blocking and diluting buffer and concentration: 5% NFDM/TBST.

This antibody reacts with human SLC2A3 and SLC2A14 but not SLC2A2.



Western blot - Anti-Glucose Transporter GLUT3 + GLUT14 antibody [EPR28481-54] (ab315168)

Blocking and diluting buffer and concentration: 5% NFDM/TBST.

Low expression: skeletal muscle (PMID: 3170580).

The expression profile/ molecular weight observed is consistent with what has been described in the literature (PMID: 33061855, PMID: 25526803, PMID: 34031595).

Samples are non-boiled as boiling may cause protein aggregation.

In Western blot, Anti-GAPDH antibody [EPR16891] - Loading Control (ab181602) staining at 1/200000 dilution.
All lanes:
Western blot - Anti-Glucose Transporter GLUT3 + GLUT14 antibody [EPR28481-54] (ab315168) at 1/1000 dilution

Lane 1:
Mouse cerebellum tissue lysate at 20 µg

Lane 2:
Mouse brain tissue lysate at 20 µg

Lane 3:
Mouse skeletal muscle lysate at 20 µg

Lane 4:
Rat brain tissue lysate at 20 µg

Lane 5:
Rat skeletal muscle lysate at 20 µg

Secondary

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

Observed band size: 49 kDa, 36 kDa

Exposure time: 180s

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