abcam

ab317032

Anti-Glutaminase antibody [EPR28716-72]

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
Immunogens	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR28716-72
Purification technique	Affinity purification Protein A
Concentration	0.527 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Dot

Tested

Species	Synthetic peptide - Mouse
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	Synthetic peptide - Mouse
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Mouse
Dilution info	1/500
Notes	-

Expected

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

Not recommended

Species	Synthetic peptide - Mouse
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Mouse
Dilution info	1/50
Notes	-

Expected

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

Not recommended

Species	Synthetic peptide - Mouse
Dilution info	-
Notes	-

IHC-P

Not recommended

Species	Human, Mouse, Rat, Synthetic peptide - Mouse
Dilution info	-

Notes	-

IP

Not recommended

Species	Human, Mouse, Rat, Synthetic peptide - Mouse
Dilution info	-
Notes	-

Target data

See full target information Glutaminase

Function	Catalyzes the first reaction in the primary pathway for the renal catabolism of glutamine. Plays a role in maintaining acid-base homeostasis. Regulates the levels of the neurotransmitter glutamate, the main excitatory neurotransmitter in the brain.

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	Glutaminase also known as GLS or GLS1 is an enzyme that catalyzes the conversion of glutamine to glutamate an important step in cellular nitrogen and energy metabolism. This enzyme weighs approximately 65 kDa and is expressed in various tissues particularly in the brain kidney and liver. Glutaminase exists in two isoforms GLS1 and GLS2 with GLS1 being the more studied due to its role in cancer metabolism.
Biological function summary	Glutaminase plays a central role in cellular processes by facilitating the production of glutamate which is an important neurotransmitter in the brain and a precursor for the synthesis of gamma-aminobutyric acid (GABA). It is not part of a larger complex but acts independently in the mitochondrial matrix where it performs the glutaminase reaction. The activity of this enzyme is monitored closely because it affects multiple cellular functions and has implications in many diseases.
Pathways	Glutaminase is instrumental in the glutaminolysis and tricarboxylic acid (TCA) cycles. These pathways are essential for cellular energy production and biosynthesis. GLS1 activity influences other proteins such as alanine transaminase (ALT) and aspartate transaminase (AST) which also play roles in amino acid metabolism and energy production. Glutaminase inhibitors have been explored as potential therapeutic agents by disrupting the glutaminolysis pathway in cancer cells leading to decreased tumor growth.
Associated diseases and disorders	Glutaminase has a significant link to cancer and neurodegenerative diseases. In cancer GLS1 activity is often upregulated as tumor cells require increased glutamine metabolism for growth and survival making GLS1 inhibitors a target in cancer therapy. Neurodegenerative disorders such as Alzheimer's disease also show altered glutamate levels implicating glutaminase in disease progression. These disorders highlight the enzyme's potential connections with proteins like NMDA receptors in the brain where glutamate acts as a neurotransmitter affecting synaptic activity.

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.

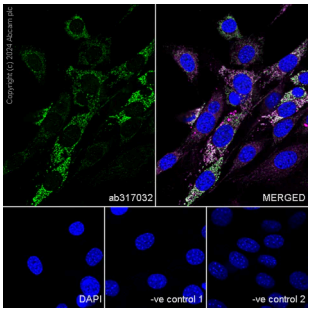
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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

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6 product images



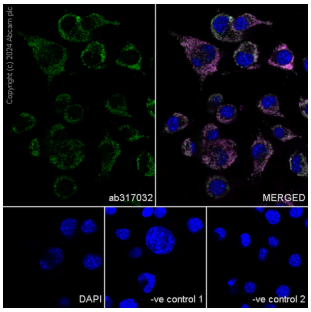
Immunocytochemistry/ Immunofluorescence - Anti-Glutaminase antibody [EPR28716-72] (ab317032)

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized NIH/3T3 (mouse embryonic fibroblast) cells labelling Glutaminase with ab317032 at 1/500 (1.016 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 mitochondrial staining in NIH/3T3 cell line (shown in green). The counterstain was observed in magenta. Nuclear DNA was labeled with DAPI (shown in blue). Image was taken with a confocal microscope(Leica-Microsystems, TCS SP8).

anti-COX IV mouse monoclonal antibody - Mitochondrial Marker was used to counterstain at 1/200 (2.5ug/ml) dilution (Magenta). 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.



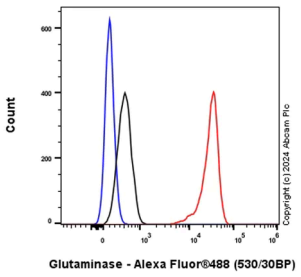
Immunocytochemistry/ Immunofluorescence - Anti-Glutaminase antibody [EPR28716-72] (ab317032)

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized Neuro-2a (mouse neuroblastoma neuroblast) cells labelling Glutaminase with ab317032 at 1/500 (1.016 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 mitochondrial staining in Neuro-2a cell line (shown in green). The counterstain was observed in magenta. Nuclear DNA was labeled with DAPI (shown in blue). Image was taken with a confocal microscope(Leica-Microsystems, TCS SP8).

anti-COX IV mouse monoclonal antibody - Mitochondrial Marker was used to counterstain at 1/200 (2.5ug/ml) dilution (Magenta). The Nuclear counterstain was DAPI (Blue).

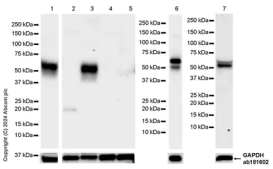
Secondary antibody only control: Secondary antibody is ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 (2 ug/ml) dilution.



Flow Cytometry (Intracellular) - Anti-Glutaminase antibody [EPR28716-72] (ab317032)

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized NIH/3T3 (mouse embryonic fibroblast) cells labelling Glutaminase with ab317032 at 1/50 dilution (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.



Western blot - Anti-Glutaminase antibody [EPR28716-72] (ab317032)

Glutaminase Western blot staining using rabbit Anti-Glutaminase antibody

Negative control: liver (PMID:19428809).

This antibody could detect 2 isoforms produced by alternative splicing.

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

Exposure time: Lane 1-5: 15 seconds, Lane 6: 3 seconds, Lane 7: 70 seconds

All lanes:
Western blot - Anti-Glutaminase antibody [EPR28716-72] (ab317032) at 1/1000 dilution

Lane 1:
Mouse kidney tissue lysate at 50 µg

Lane 2:
Mouse liver tissue lysate at 50 µg

Lane 3:
Rat kidney tissue lysate at 50 µg

Lane 4:
Rat liver tissue lysate at 50 µg

Lane 5:
Human liver tissue lysate at 50 µg

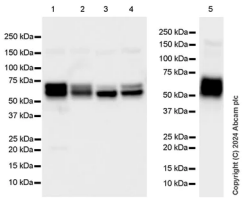
Lane 6:
Human kidney tissue lysate at 20 µg

Lane 7:
Human lung tissue lysate at 50 µg

Secondary

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

Observed band size: 66 kDa, 73 kDa, 36 kDa



Western blot - Anti-Glutaminase antibody [EPR28716-72] (ab317032)

Glutaminase Western blot staining using rabbit Anti-Glutaminase antibody

This antibody could detect 2 isoforms produced by alternative splicing.

Exposure time: Lane 1-4: 10 seconds, Lane 5: 15 seconds

All lanes:
Western blot - Anti-Glutaminase antibody [EPR28716-72] (ab317032) at 1/1000 dilution

Lane 1:
Neuro-2a (mouse neuroblastoma neuroblast) whole cell lysate at 50 µg

Lane 2:
B16-F10 (Mouse skin melanoma), whole cell lysate at 50 µg

Lane 3:
HEK-293 (human embryonic kidney epithelial cell) whole cell lysate at 50 µg

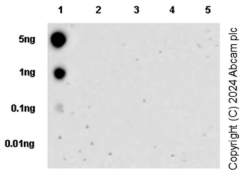
Lane 4:
G-401(human rhabdoid tumor kidney epithelial cell) whole cell lysate at 50 µg

Lane 5:
NIH/3T3 (mouse embryonic fibroblast) whole cell lysate at 50 µg

Secondary

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

Observed band size: 66 kDa, 73 kDa



Dot Blot - Anti-Glutaminase antibody [EPR28716-72] (ab317032)

Glutaminase Dot Blot staining using rabbit Anti-Glutaminase antibody

Dot blot analysis of Glutaminase using ab317032 at 1:1000 (0.508 ug/ml) followed by a Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated (ab97051) at 1:100,000 dilution.

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

This antibody does not cross-react with human/Mouse/Rat GLS2.

All lanes:
Dot Blot - Anti-Glutaminase antibody [EPR28716-72] (ab317032) at 1/1000 dilution

Lane 1:
Mouse GLS1 peptide a

Lane 2:
Human GLS2 peptide b

Lane 3:
Mouse/Rat GLS2 peptide c

Lane 4:
Human GLS2 peptide d

Lane 5:
Mouse/Rat GLS2 peptide e

Secondary

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

Exposure time: 180s

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