abcam

ab64613

Anti-Glutamine Synthetase antibody [3B6] - BSA and Azide free

Anti-Glutamine Synthetase antibody [3B6] - BSA and Azide free (ab64613) is a mouse monoclonal antibody for **Western Blot, Flow Cytometry, IHC-P, ICC/IF, ELISA**. Suitable for **Drosophila melanogaster, Human, Mouse, Rat, Zebrafish**.

- BSA, sodium azide, and glycerol-free for easy conjugation
- Over 50 publications
- Trusted since 2008

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	pH: 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Fragment Protein within Human GLUL aa 250 to C-terminus. The exact immunogen used to generate this antibody is proprietary information. Database link P15104
Carrier free	Yes
Clone number	3B6
Purification technique	Affinity purification Protein A
Concentration	0.5 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

Predicted

Species	Horse, Cow, Dog, Pig, Chimpanzee, Drosophila melanogaster, Cynomolgus monkey, Opossum, Chinese hamster
Dilution info	-
Notes	-

Not recommended

Species	Transfected cell lysate, Recombinant full length protein
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Rat
Dilution info	-
Notes	-

Expected

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

Predicted

Species	Horse, Cow, Dog, Pig, Chimpanzee, Drosophila melanogaster, Cynomolgus monkey, Opossum, Chinese hamster
Dilution info	-
Notes	-

Not recommended

Species	Transfected cell lysate, Recombinant full length protein
Dilution info	-
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	-
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Expected

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

Predicted

Species	Horse, Cow, Dog, Pig, Chimpanzee, Drosophila melanogaster, Cynomolgus monkey, Opossum, Chinese hamster

Dilution info	-
Notes	-

Not recommended

Species	Transfected cell lysate, Recombinant full length protein
Dilution info	-
Notes	-

WB

Tested

Species	Mouse, Rat, Zebrafish, Human, Transfected cell lysate
Dilution info	-
Notes	-

Expected

Species	Drosophila melanogaster
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Horse, Cow, Dog, Pig, Chimpanzee, Cynomolgus monkey, Opossum, Chinese hamster
Dilution info	-
Notes	-

Not recommended

Species	Recombinant full length protein
Dilution info	-
Notes	-

sELISA

Tested

Species	Recombinant full length protein
Dilution info	-
Notes	-

Expected

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

Predicted

Species	Horse, Cow, Dog, Pig, Chimpanzee, Drosophila melanogaster, Cynomolgus monkey, Opossum, Chinese hamster
Dilution info	-
Notes	-

Not recommended

Species	Transfected cell lysate
Dilution info	-
Notes	-

Target data

See full target information GLUL

Function Glutamine synthetase that catalyzes the ATP-dependent conversion of glutamate and ammonia to glutamine (PubMed:16267323, PubMed:30158707, PubMed:36289327). Its role depends on tissue localization: in the brain, it regulates the levels of toxic ammonia and converts neurotoxic glutamate to harmless glutamine, whereas in the liver, it is one of the enzymes responsible for the removal of ammonia (By similarity). Plays a key role in ammonium detoxification during erythropoiesis: the glutamine synthetase activity is required to remove ammonium generated by porphobilinogen deaminase (HMBS) during heme biosynthesis to prevent ammonium accumulation and oxidative stress (By

similarity). Essential for proliferation of fetal skin fibroblasts (PubMed:18662667). Independently of its glutamine synthetase activity, required for endothelial cell migration during vascular development: acts by regulating membrane localization and activation of the GTPase RHOJ, possibly by promoting RHOJ palmitoylation (PubMed:30158707). May act as a palmitoyltransferase for RHOJ: able to autopalmitoylate and then transfer the palmitoyl group to RHOJ (PubMed:30158707). Plays a role in ribosomal 40S subunit biogenesis (PubMed:26711351). Through the interaction with BEST2, inhibits BEST2 channel activity by affecting the gating at the aperture in the absence of intracellular L-glutamate, but sensitizes BEST2 to intracellular L-glutamate, which promotes the opening of BEST2 and thus relieves its inhibitory effect on BEST2 (PubMed:36289327).

Storage

Shipped at conditions	Blue Ice
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

What is this antibody validated in?
Anti-Glutamine Synthetase antibody [3B6] - BSA and Azide free (ab64613) is a mouse monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Flow Cyt), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF), ELISA in Drosophila melanogaster, Human, Mouse, Rat, Zebrafish samples.

What is the molecular weight of Glutamine Synthetase?
Anti-Glutamine Synthetase [3B6] - BSA and Azide free (ab64613) specifically detects a band for Glutamine Synthetase (UniProt: P15104) at a molecular weight of 42kDa.

Trusted by the scientific community
Anti-Glutamine Synthetase [3B6] - BSA and Azide free (ab64613) was first used in a scientific publication in 2008 and has been cited over 50 times in peer-reviewed journals.

Reviewed by scientists
Anti-Glutamine Synthetase [3B6] - BSA and Azide free (ab64613) has over 5 independent reviews from customers.

Supplementary info

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

Activity summary	Glutamine synthetase also known as glutamine s synthetase or glnA is an enzyme that catalyzes the ATP-dependent conversion of glutamate and ammonia into glutamine. This reaction plays an important role in nitrogen metabolism. Glutamine synthetase has a molecular weight of approximately 620 kDa and forms a multimeric structure commonly seen in bacteria plants and animal tissues with significant expression in the brain liver and kidneys.
Biological function summary	This enzyme supports the detoxification of ammonia by incorporating it into glutamine an essential amino acid and nitrogen donor. Glutamine synthetase operates independently rather than as part of a larger protein complex. It assists in maintaining cellular nitrogen balance and facilitates the synthesis of proteins and other nitrogen-containing molecules. Glutamine peptides serve vital roles in cellular processes underlining the significance of their synthesis.
Pathways	Glutamine synthetase integrates into the glutamate and glutamine cycle between neurons and glial cells highlighting its part in neurotransmitter metabolism. It also features prominently in the urea cycle influencing nitrogen disposal in organisms. Glutamine synthetase interacts with glutaminase which assists in transforming glutamine back to glutamate maintaining a balance of nitrogenous compounds within these pathways.
Associated diseases and disorders	Glutamine synthetase abnormalities link to hepatic encephalopathy and neurodegenerative disorders such as Alzheimer's disease. Altered enzyme expression contributes to increased ammonia levels adversely affecting brain function. In Alzheimer's disease connections with tau and amyloid-beta proteins suggest a link between glutamine synthetase activity and neurotoxic events. Understanding these interactions may offer insights into therapeutic approaches for these conditions.

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

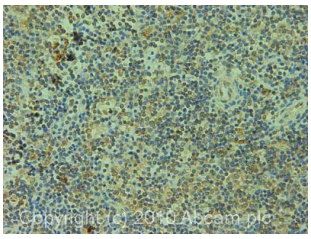
We do not recommend this combination. It is not covered by our product promise.

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

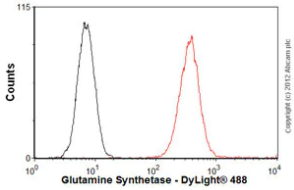


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Glutamine Synthetase antibody [3B6] - BSA and Azide free (ab64613)

Glutamine Synthetase Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-Glutamine Synthetase antibody

IHC image of ab64613 staining in human tonsil formalin fixed paraffin embedded tissue section, performed on a Leica Bond™ system using the standard protocol F. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH6, epitope retrieval solution 1) for 20 mins. The section was then incubated with ab64613, 1µg/ml, for 15 mins at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.

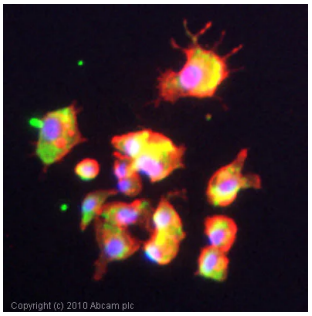
For other IHC staining systems (automated and non-automated) customers should optimize variable parameters such as antigen retrieval conditions, primary antibody concentration and antibody incubation times.
This image was generated using the ascites version of the product.



Flow Cytometry - Anti-Glutamine Synthetase antibody [3B6] - BSA and Azide free (ab64613)

Glutamine Synthetase Flow Cytometry staining using mouse Anti-Glutamine Synthetase antibody

Overlay histogram showing Jurkat cells stained with ab64613 (red line). The cells were fixed with 80% methanol (5 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 (ab64613, 1µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a positive signal in Jurkat cells fixed with 4% paraformaldehyde (10 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.
This image was generated using the ascites version of the product.

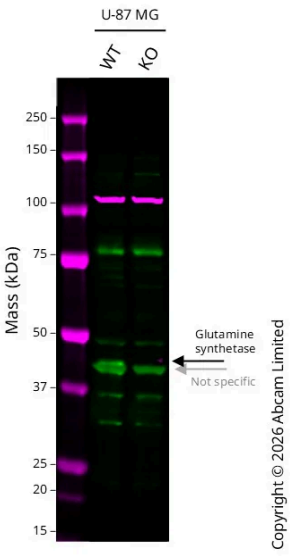


Immunocytochemistry/ Immunofluorescence - Anti-Glutamine Synthetase antibody [3B6] - BSA and Azide free (ab64613)

Glutamine Synthetase Immunocytochemistry/ Immunofluorescence staining using mouse Anti-Glutamine Synthetase antibody

ICC image of ab64613 stained PC12 cells. The cells were 100% methanol fixed (5 min) and then incubated in 1%BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1h to permeabilise the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab64613, 5µg/ml) overnight at +4°C. The secondary antibody (green) was Alexa Fluor® 488 goat anti-mouse IgG (H+L) used at a 1/1000 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1h. DAPI was used to stain the cell nuclei (blue) at a concentration of 1.43µM.

This image was generated using the ascites version of the product.



Western blot - Anti-Glutamine Synthetase antibody [3B6] - BSA and Azide free (ab64613)

Glutamine Synthetase Western blot staining of Wild-type U-87 MG using mouse Anti-Glutamine Synthetase antibody

Western blot: Anti-Glutamine Synthetase antibody [3B6] - BSA and Azide free ab64613 staining at 1 µg/mL, shown in green; Rabbit anti-ACTN4 ab108198 loading control staining at 1/20000 dilution, shown in magenta. A band was observed at 42 kDa in Wild-type U-87 MG cell lysates with no signal observed at this size in GLUL knockout U-87 MG cell line. To generate this image, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 3% Milk in TBS-0.1 % Tween® 20 (TBS-T) before incubation with primary antibodies overnight at 4 °C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat anti-Mouse 800CW and Goat anti-Rabbit 680RD at 1/20,000 dilution.
All lanes:
Western blot - Anti-Glutamine Synthetase antibody [3B6] - BSA and Azide free (ab64613) at 1 µg/mL

Lane 1:
Wild-type U-87 MG at 20 µg

Lane 2:
GLUL knockout U-87 MG at 20 µg

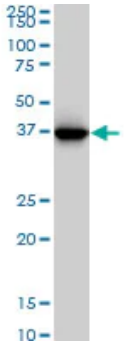
Secondary

All lanes:
Goat anti-Mouse 800CW & Goat anti-Rabbit 680RD at 1/20000 dilution

Performed under reducing conditions.

Predicted band size: 42 kDa

Observed band size: 42 kDa

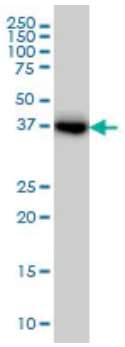


Western blot - Anti-Glutamine Synthetase antibody [3B6] - BSA and Azide free (ab64613)

This image was generated using the ascites version of the product.
All lanes:
Western blot - Anti-Glutamine Synthetase antibody [3B6] - BSA and Azide free (ab64613)

All lanes:
HepG2 cell lysate

Predicted band size: 42 kDa



Western blot - Anti-Glutamine Synthetase antibody [3B6] - BSA and Azide free (ab64613)

This image was generated using the ascites version of the product.
All lanes:
Western blot - Anti-Glutamine Synthetase antibody [3B6] - BSA and Azide free (ab64613) at 1 µg/mL

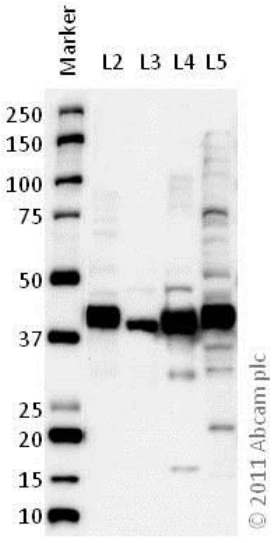
All lanes:
Jurkat cell lysate at 50 µg

Secondary

All lanes:
Goat Anti-Mouse IgG (H&L)-HRP at 1/2500 dilution

Predicted band size: 42 kDa

Observed band size: 37 kDa



Western blot - Anti-Glutamine Synthetase antibody [3B6] - BSA and Azide free (ab64613)

This image was generated using the ascites version of the product.
All lanes:
Western blot - Anti-Glutamine Synthetase antibody [3B6] - BSA and Azide free (ab64613) at 0.5 µg/mL

Lane 1:
Marker

Lane 2:
Zebrafish brain homogenate at 20 µg

Lane 3:
Zebrafish liver homogenate at 20 µg

Lane 4:
Zebrafish skeletal muscle homogenate at 20 µg

Lane 5:
JURKAT (Human T cell lymphoblast-like cell line) whole cell lysate at 20 µg

Secondary

All lanes:
Goat polyclonal to Mouse IgG – H&L – Pre-Adsorbed (HRP) at 1/6000 dilution

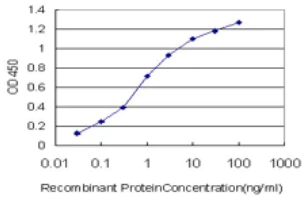
Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 42 kDa

Observed band size: 42 kDa

Exposure time: 4min



Sandwich ELISA - Anti-Glutamine Synthetase antibody [3B6] - BSA and Azide free (ab64613)

Detection limit for recombinant GST tagged Glutamine Synthetase is approximately 0.03ng/ml as a capture antibody.
This image was generated using the ascites version of the product.

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