abcam

ab202027

Anti-Glutaminase C antibody [EPR19525]

Recombinant | RabMAb | KO Validated | 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	EPR19525
Purification technique	Affinity purification Protein A
Concentration	0.603 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	1/30
Notes	-

Expected

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

WB

Tested

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

Species	Human
Dilution info	1/1000
Notes	-

ICC/IF

Tested

Species	Mouse
Dilution info	1/500
Notes	-

Species	Human
Dilution info	1/500
Notes	-

Expected

Species	Rat
Dilution info	Use at an assay dependent concentration.

Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/600
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

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

Target data

See full target information GLS

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 (PubMed:30239721, PubMed:30575854, PubMed:30970188). Isoform 2. Lacks catalytic activity.

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 C also known as kidney-type glutaminase or GLS2 is an enzyme with a high molecular mass of approximately 65 kDa. This enzyme belongs to the mitochondrial compartment and carries out the conversion of glutamine to glutamate releasing ammonia in the process. It is expressed in various tissues including brain kidney and liver where it plays an important role in cellular metabolism. The enzyme demonstrates increased expression levels under specific conditions where cellular proliferation and energy requirements are high.
Biological function summary	Glutaminase C acts as an important player in nitrogen metabolism and cellular bioenergetics. It functions within the mitochondria facilitating the glutaminolysis pathway which provides intermediates for the tricarboxylic acid (TCA) cycle. Although glutaminase C mainly acts as a monomer in certain conditions it might participate in multiprotein complexes that aid its regulation and activity. This regulatory mechanism plays a vital role in energy homeostasis and cellular growth demands.
Pathways	Glutaminase C is involved in the glutaminolysis and TCA cycle pathways contributing significantly to energy production and biosynthesis in proliferating cells. It works in concert with related proteins like glutamate dehydrogenase which further converts the produced glutamate into α-ketoglutarate feeding into the TCA cycle. These combined actions support cellular adaptations during increased metabolic demand especially in cancerous cells where metabolic shifts are noticeable.
Associated diseases and disorders	Glutaminase C has a strong connection to cancer and neurological disorders. Cancer cells frequently exhibit heightened glutaminase C activity to sustain rapid growth associating with proteins such as c-Myc that drive metabolic reprogramming. Additionally in neurological ailments like epilepsy dysregulation of glutaminase C may alter neurotransmitter levels disturbing normal synaptic

function. The enzyme's activity links to proteins involved in neuronal signaling suggesting its influence extends beyond mere metabolic processes.

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

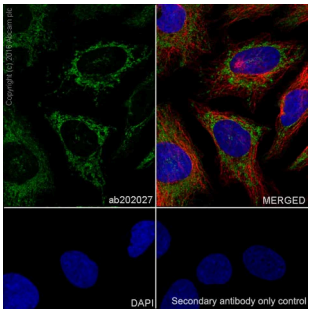
We do not recommend this combination. It is not covered by our product promise.

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.

9 product images

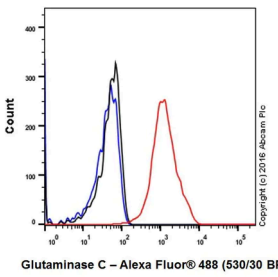


Immunocytochemistry/ Immunofluorescence - Anti-Glutaminase C antibody [EPR19525] (ab202027)

Glutaminase C Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Glutaminase C antibody

Immunofluorescent analysis of 100% methanol-fixed, 0.1% Triton X-100 permeabilized HeLa (Human epithelial cell line from cervix adenocarcinoma) cells labeling Glutaminase C with ab202027 at 1/500 dilution, followed by Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic staining on HeLa cell line.
The nuclear counter stain is DAPI (blue). Tubulin is detected with ab195889 (Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594)) at 1/200 dilution (red).

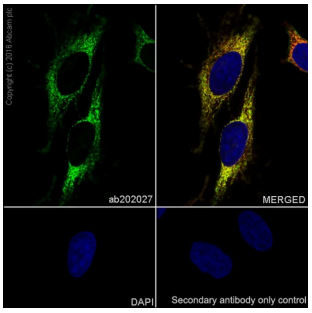
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) at 1/1000 dilution.



Flow Cytometry (Intracellular) - Anti-Glutaminase C antibody [EPR19525] (ab202027)

Glutaminase C Flow Cytometry (Intracellular) staining using rabbit Anti-Glutaminase C antibody

Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed HeLa (Human epithelial cell line from cervix adenocarcinoma) cells labeling Glutaminase Cwith ab202027 at 1/600 dilution (red) compared with a rabbit monoclonal IgG isotype control (ab172730; black) and an unlabelled control (cells without incubation with primary antibody and secondary antibody; blue). Goat anti rabbit IgG (Alexa Fluorr® 488) at 1/2000 dilution was used as the secondary antibody.

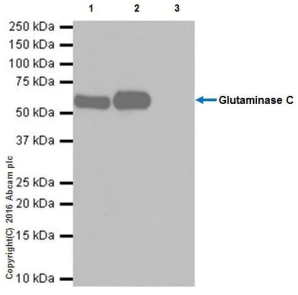


Immunocytochemistry/ Immunofluorescence - Anti-Glutaminase C antibody [EPR19525] (ab202027)

Glutaminase C Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Glutaminase C antibody

Immunofluorescent analysis of 100% methanol-fixed, 0.1% Triton X-100 permeabilized HeLa (Human epithelial cell line from cervix adenocarcinoma) cells labeling Glutaminase C with ab202027 at 1/500 dilution, followed by Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing mitochondrial staining on HeLa cell line.
The nuclear counter stain is DAPI (blue). COX IV is detected with ab33985 (anti-COX IV(mouse mAb)) at 1/1000 dilution and ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/1000 dilution (red).

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) at 1/1000 dilution.



Immunoprecipitation - Anti-Glutaminase C antibody [EPR19525] (ab202027)

Glutaminase was immunoprecipitated from 0.35 mg of HeLa (Human epithelial cell line from cervix adenocarcinoma) whole cell lysate with ab202027 at 1/30 dilution. Western blot was performed from the immunoprecipitate using ab202027 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/10000 dilution.
Lane 1: HeLa whole cell lysate, 10 µg (Input).

Lane 2: ab202027 IP in HeLa whole cell lysate.

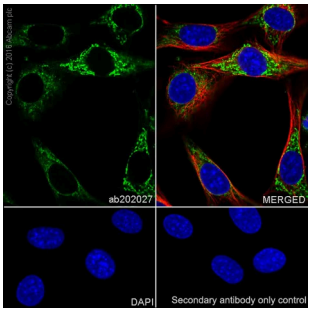
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab202027 in HeLa whole cell lysate.

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

Exposure time: 10 seconds.

All lanes:
Immunoprecipitation - Anti-Glutaminase C antibody [EPR19525] (ab202027)

Observed band size: 65 kDa

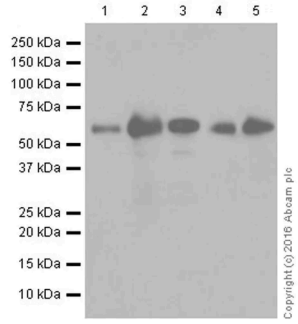


Immunocytochemistry/ Immunofluorescence - Anti-Glutaminase C antibody [EPR19525] (ab202027)

Glutaminase C Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Glutaminase C antibody

Immunofluorescent analysis of 100% methanol-fixed, 0.1% Triton X-100 permeabilized NIH/3T3 (Mouse embryonic fibroblast cell line) cells labeling Glutaminase C with ab202027 at 1/500 dilution, followed by Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic staining on NIH/3T3 cell line. The nuclear counter stain is DAPI (blue). Tubulin is detected with ab195889 (Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594)) at 1/200 dilution (red).

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) at 1/1000 dilution.



Western blot - Anti-Glutaminase C antibody [EPR19525] (ab202027)

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-Glutaminase C antibody [EPR19525] (ab202027) at 1/1000 dilution

Lane 1:
HepG2 (Human liver hepatocellular carcinoma cell line) whole cell lysate at 20 µg

Lane 2:
HeLa (Human epithelial cell line from cervix adenocarcinoma) whole cell lysate at 20 µg

Lane 3:
K562 (Human chronic myelogenous leukemia cell line from bone marrow) whole cell lysate at 20 µg

Lane 4:
Jurkat (Human T cell leukemia cell line from peripheral blood) whole cell lysate at 20 µg

Lane 5:
Hepa1-6 (Mouse epithelial hepatoma cell line) whole cell lysate at 20 µg

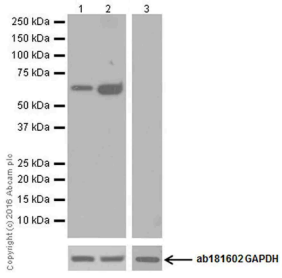
Secondary

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

Predicted band size: 65 kDa

Observed band size: 65 kDa

Exposure time: 15s



Western blot - Anti-Glutaminase C antibody [EPR19525] (ab202027)

Glutaminase C Western blot staining using rabbit Anti-Glutaminase C antibody

Blocking/Dilution buffer: 5% NFDM/TBST.
The observed expression profile is consistent with what has been described in UniProtKB (Glutaminase C is highly expressed in heart and pancreas, but is not detected in liver).

All lanes:
Western blot - Anti-Glutaminase C antibody [EPR19525] (ab202027) at 1/1000 dilution

Lane 1:
Human fetal heart lysate at 10 µg

Lane 2:
Human fetal kidney lysate at 10 µg

Lane 3:
Human fetal liver lysate at 10 µg

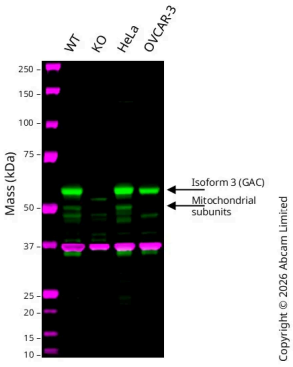
Secondary

All lanes:
Goat Anti-Rabbit IgG Peroxidase Conjugate, specific to the non-reduced form of IgG at 1/10000 dilution

Predicted band size: 65 kDa

Observed band size: 65 kDa

Exposure time: 15s



Western blot - Anti-Glutaminase C antibody [EPR19525] (ab202027)

Glutaminase C Western blot staining using rabbit Anti-Glutaminase C antibody

Western blot: Anti-Glutaminase C antibody [EPR19525] ab202027 staining at 1/1000 dilution, shown in green; Mouse anti GAPDH ab8245 loading control staining at 1/20000 dilution, shown in magenta. A band was observed at 60 kDa in Wild-type MCF7 cell lysates with no signal observed at this size in GLS knockout MCF7 cell line. To generate this image, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 5 % 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-Rabbit 800CW and Goat anti-Mouse 680RD at 1/20,000 dilution.
All lanes:
Western blot - Anti-Glutaminase C antibody [EPR19525] (ab202027) at 1/1000 dilution

Lane 1:
Wild-type MCF7 cell lysates at 20 µg

Lane 2:
Western blot - Human GLS knockout MCF7 cell line (ab287444) at 20 µg

Lane 3:
HeLa cell lysates at 20 µg

Lane 4:
OVCAR-3 cell lysates at 20 µg

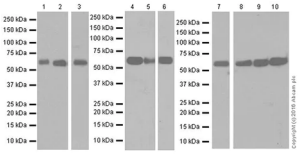
Secondary

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

Performed under reducing conditions.

Predicted band size: 73 kDa

Observed band size: 60 kDa



Western blot - Anti-Glutaminase C antibody [EPR19525] (ab202027)

Glutaminase C Western blot staining using rabbit Anti-Glutaminase C antibody

Blocking/Dilution buffer: 5% NFDM/TBST.
Exposure times: Lane 1 and 2: 3 minutes; Lane 3: 10 seconds; Lane 4, 5 and 6: 3 minutes; Lane 7: 30 seconds; Lane 8, 9 and 10: 15 seconds.

All lanes:
Western blot - Anti-Glutaminase C antibody [EPR19525] (ab202027) at 1/5000 dilution

Lane 1:
Mouse brain lysate at 10 µg

Lane 2:
Mouse heart lysate at 10 µg

Lane 3:
Mouse spleen lysate at 10 µg

Lane 4:
Rat brain lysate at 10 µg

Lane 5:
Rat heart lysate at 10 µg

Lane 6:
Rat spleen lysate at 10 µg

Lane 7:
C6 (Rat glial tumor cell line) whole cell lysate at 10 µg

Lane 8:
RAW 264.7 (Mouse macrophage cell line transformed with Abelson murine leukemia virus) whole cell lysate at 10 µg

Lane 9:
PC-12 (Rat adrenal gland pheochromocytoma cell line) whole cell lysate at 10 µg

Lane 10:
NIH/3T3 (Mouse embryonic fibroblast cell line) whole cell lysate at 10 µg

Secondary

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

Predicted band size: 65 kDa

Observed band size: 65 kDa

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