Anti-Glutamine Synthetase Antibody [A3G2]

EM1902-39

Product Type:	Mouse monoclonal IgG2a, primary antibodies
Species reactivity:	Human, Mouse, Rat
Applications:	WB, IHC-P, FC, mIHC, IF-Tissue
Molecular Wt:	Predicted band size: 42 kDa
Clone number:	A3G2

Description: The protein encoded by this gene belongs to the glutamine synthetase family. It catalyzes the synthesis of glutamine from glutamate and ammonia in an ATP-dependent reaction. This protein plays a role in ammonia and glutamate detoxification, acid-base homeostasis, cell signaling, and cell proliferation. Glutamine is an abundant amino acid, and is important to the biosynthesis of several amino acids, pyrimidines, and purines. Mutations in this gene are associated with congenital glutamine deficiency, and overexpression of this gene was observed in some primary liver cancer samples. There are six pseudogenes of this gene found on chromosomes 2, 5, 9, 11, and 12. Alternative splicing results in multiple transcript variants.

Immunogen: Recombinant protein within human Glutamine synthetase aa 190-373.

Positive control: HeLa cell lysate, MCF7 cell lysate, HepG2 cell lysate, K-562 cell lysate, Jurkat cell lysate, HEK-293 cell lysate, SK-Br-3 cell lysate, human liver tissue lysate, human spleen tissue, mouse liver tissue, rat liver tissue, THP-1.

Subcellular location: Microsome, Cytosol, Mitochondrion, Cell membrane.

Database links: SwissProt: P15104 Human | P15105 Mouse | P09606 Rat

Recommended Dilutions:

WB	1:500-1:2,000
IHC-P	1:500-1:2,000
FC	1:50-1:100
mIHC	1:2,000
IF-Tissue	1:200-1:500

Storage Buffer: 1*TBS (pH7.4), 0.2% BSA, 50% Glycerol. Preservative: 0.05% Sodium Azide.

Storage Instruction: Shipped at 4℃. Store at +4℃ short term (1-2 weeks). It is recommended to aliquot into single-use upon delivery. Store at -20℃ long term.

Purity: Protein G affinity purified.

Images

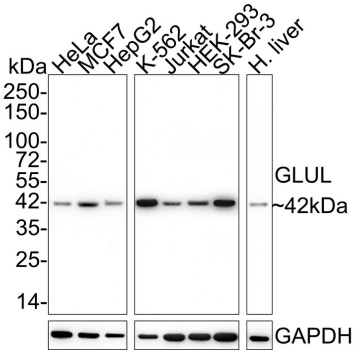

Fig1: Western blot analysis of Glutamine Synthetase on different lysates with Mouse anti-Glutamine Synthetase antibody (EM1902-39) at 1/2,000 dilution.

Lane 1: HeLa cell lysate
Lane 2: MCF7 cell lysate
Lane 3: HepG2 cell lysate
Lane 4: K-562 cell lysate
Lane 5: Jurkat cell lysate
Lane 6: HEK-293 cell lysate
Lane 7: SK-Br-3 cell lysate
Lane 8: Human liver tissue lysate

Lysates/proteins at 20 µg/Lane.

Predicted band size: 42 kDa
Observed band size: 42 kDa

Exposure time: 30 seconds;

4-20% SDS-PAGE gel.

Proteins were transferred to a PVDF membrane and blocked with 5% NFDM/TBST for 1 hour at room temperature. The primary antibody (EM1902-39) at 1/2,000 dilution was used in 5% NFDM/TBST at 4℃ overnight. Goat Anti-Mouse IgG - HRP Secondary Antibody (HA1006) at 1/50,000 dilution was used for 1 hour at room temperature.

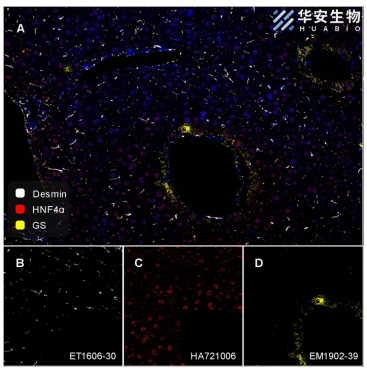

Fig2: Fluorescence multiplex immunohistochemical analysis of mouse liver (Formalin/PFA-fixed paraffin-embedded sections). Panel A: the merged image of anti-Desmin (ET1606-30, White), anti-HNF4α (HA721006, Red) and anti-GS (EM1902-39, Yellow) on liver. HRP Conjugated UltraPolymer Goat Polyclonal Antibody HA1119/HA1120 was used as a secondary antibody. The immunostaining was performed with the Sequential Immunostaining Kit (IRISKit™MH010101, www.luminiris.cn). The section was incubated in three rounds of staining: in the order of ET1606-30 (1/800 dilution), HA721006 (1/5,000 dilution) and EM1902-39 (1/2,000 dilution) for 20 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system. Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 30 mins at 95℃. DAPI (blue) was used as a nuclear counter stain. Image acquisition was performed with Zeiss Observer 7 Inverted Fluorescence Microscope.

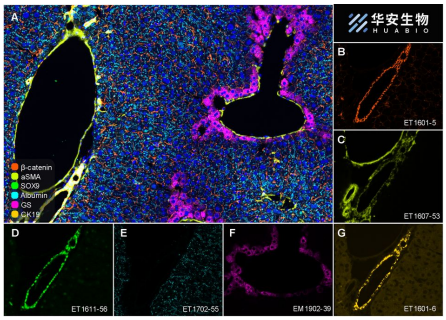

Fig3: Fluorescence multiplex immunohistochemical analysis of mouse liver (Formalin/PFA-fixed paraffin-embedded sections). Panel A: the merged image of anti-β-catenin (ET1601-5, Tangerine), anti-αSMA (ET1607-53, Yellow), anti-SOX9 (ET1611-56, Green), anti-Albumin (ET1702-55, Cyan) anti-GS (EM1902-39, Magenta) and anti-CK19 (ET1601-6, Orange) on liver. HRP Conjugated UltraPolymer Goat Polyclonal Antibody HA1119/HA1120 was used as a secondary antibody. The immunostaining was performed with the Sequential Immuno-staining Kit (IRISKit™MH010101, www.luminiris.cn). The section was incubated in six rounds of staining: in the order of ET1601-5 (1/2,000 dilution), ET1607-53 (1/3,000 dilution), ET1611-56 (1/1,500 dilution), ET1702-55 (1/3,000 dilution), EM1902-39 (1/2,000 dilution) and ET1601-6 (1/3,000 dilution) for 20 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system. Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 30 mins at 95℃. DAPI (blue) was used as a nuclear counter stain. Image acquisition was performed with Olympus VS200 Slide Scanner.

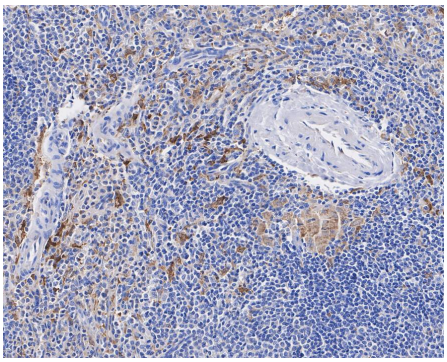

Fig4: Immunohistochemical analysis of paraffin-embedded human spleen tissue with Mouse anti-Glutamine Synthetase antibody (EM1902-39) at 1/2,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH_2O and PBS, and then probed with the primary antibody (EM1902-39) at 1/2,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

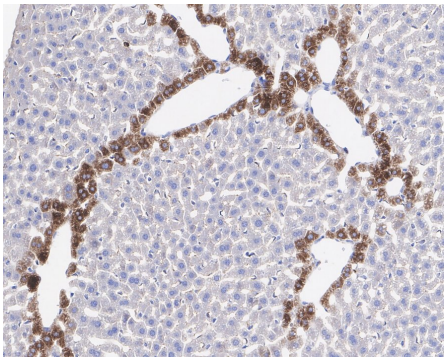

Fig5: Immunohistochemical analysis of paraffin-embedded mouse liver tissue with Mouse anti-Glutamine Synthetase antibody (EM1902-39) at 1/2,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH_2O and PBS, and then probed with the primary antibody (EM1902-39) at 1/2,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

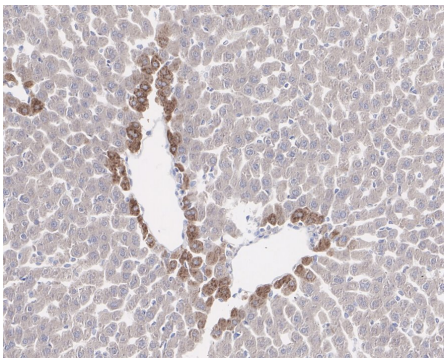

Fig6: Immunohistochemical analysis of paraffin-embedded rat liver tissue with Mouse anti-Glutamine Synthetase antibody (EM1902-39) at 1/500 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH_2O and PBS, and then probed with the primary antibody (EM1902-39) at 1/500 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

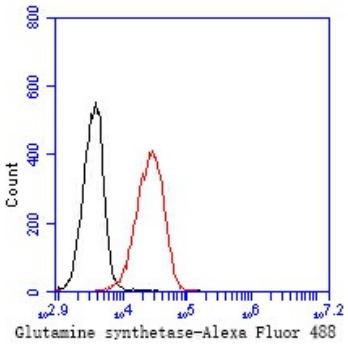

Fig7: Flow cytometric analysis of Glutamine Synthetase was done on THP-1 cells. The cells were fixed, permeabilized and stained with the primary antibody (EM1902-39, 1/50) (red). After incubation of the primary antibody at room temperature for an hour, the cells were stained with a Alexa Fluor 488-conjugated Goat anti-Mouse IgG Secondary antibody at 1/1000 dilution for 30 minutes.Unlabelled sample was used as a control (cells without incubation with primary antibody; black).

Note: All products are "FOR RESEARCH USE ONLY AND ARE NOT INTENDED FOR DIAGNOSTIC OR THERAPEUTIC USE".

Background References

1. Muthu M. et. al. GLUL Ablation Can Confer Drug Resistance to Cancer Cells via a Malate-Aspartate Shuttle-Mediated Mechanism. Cancers (Basel). 2019 Dec
2. Wang Y. et. al. GLUL Promotes Cell Proliferation in Breast Cancer. J Cell Biochem. 2017 Aug