

GI Syn (E-21): sc-32557

BACKGROUND

Glutamine synthetase (GI Syn) forms a homooctamer that serves as a catalyst for the amination of glutamic acid to form glutamine. This enzyme is a marker for astrocytes, which serve as the primary site of conversion of glutamic acid to glutamine in the brain. Induction of glutamine synthetase is seen upon astrocyte cell contact with neurons. Elevated expression of glutamine synthetase in glial cells has been shown to protect neurons from degeneration due to excess glutamate. Glutamine synthetase is also present in the liver and is involved in nitrogen homeostasis. Overexpression of glutamine synthetase has been shown in primary liver cancers, indicating a potential role for glutamine synthetase in hepatocyte transformation.

REFERENCES

1. Gibbs, C.S., et al. 1987. Sequence of a human glutamine synthetase cDNA. *Nucleic Acids Res.* 15: 6293.
2. Linser, P.J., et al. 1987. Gliogenesis in the embryonic avian optic tectum: neuronal-glial interactions influence astroglial phenotype maturation. *Brain Res.* 428: 277-290.
3. Vardimon, L., et al. 1988. Cell contacts are required for induction by cortisol of glutamine synthetase gene transcription in the retina. *Proc. Natl. Acad. Sci. USA* 85: 5981-5985.
4. Mill, J.F., et al. 1991. Cloning and functional characterization of the rat glutamine synthetase gene. *Brain Res. Mol. Brain Res.* 9: 197-207.
5. Van den Hoff, M.J., et al. 1991. cDNA sequence of the long mRNA for human glutamine synthase. *Biochim. Biophys. Acta* 1090: 249-251.
6. Christa, L., et al. 1994. Overexpression of glutamine synthetase in human primary liver cancer. *Gastroenterology* 106: 1312-1320.
7. Gorovits, R., et al. 1997. Glutamine synthetase protects against neuronal degeneration in injured retinal tissue. *Proc. Natl. Acad. Sci. USA* 94: 7024-7029.

CHROMOSOMAL LOCATION

Genetic locus: GLUL (human) mapping to 1q25.3; Glul (mouse) mapping to 1 G3.

SOURCE

GI Syn (E-21) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of GI Syn of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-32557 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

GI Syn (E-21) is recommended for detection of Glutamine synthetase of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

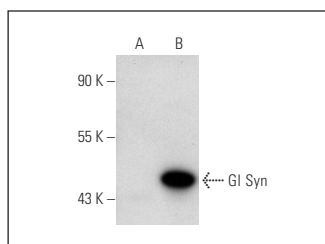
GI Syn (E-21) is also recommended for detection of Glutamine synthetase in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for GI Syn siRNA (h): sc-35481, GI Syn siRNA (m): sc-35482, GI Syn shRNA Plasmid (h): sc-35481-SH, GI Syn shRNA Plasmid (m): sc-35482-SH, GI Syn shRNA (h) Lentiviral Particles: sc-35481-V and GI Syn shRNA (m) Lentiviral Particles: sc-35482-V.

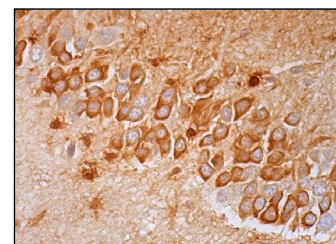
Molecular Weight of GI Syn: 49 kDa.

Positive Controls: GI Syn (h2): 293T Lysate: sc-170514, rat brain extract: sc-2392 or mouse brain extract: sc-2253.

DATA



GI Syn (E-21): sc-32557. Western blot analysis of GI Syn expression in non-transfected: sc-117752 (A) and human GI Syn transfected: sc-170514 (B) 293T whole cell lysates.



GI Syn (E-21): sc-32557. Immunoperoxidase staining of formalin fixed, paraffin-embedded human hippocampus tissue showing cytoplasmic staining of neuronal cells and cytoplasmic and nuclear staining of glial cells.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.



Try **GI Syn (E-4): sc-74430** or **GI Syn (D-6): sc-376767**, our highly recommended monoclonal alternatives to GI Syn (E-21).