

# Gl Syn (F-4): sc-398034

## BACKGROUND

Glutamine synthetase (Gl 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

- Gibbs, C.S., et al. 1987. Sequence of a human glutamine synthetase cDNA. *Nucleic Acids Res.* 15: 6293.
- 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.
- 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.
- Mill, J.F., et al. 1991. Cloning and functional characterization of the rat glutamine synthetase gene. *Brain Res. Mol. Brain Res.* 9: 197-207.
- van den Hoff, M.J., et al. 1991. cDNA sequence of the long mRNA for human glutamine synthase. *Biochim. Biophys. Acta* 1090: 249-251.
- Christa, L., et al. 1994. Overexpression of glutamine synthetase in human primary liver cancer. *Gastroenterology* 106: 1312-1320.
- 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

Gl Syn (F-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 281-310 near the C-terminus of Gl Syn of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-398034 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## RESEARCH USE

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

## APPLICATIONS

Gl Syn (F-4) is recommended for detection of Gl Syn of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Gl Syn (F-4) is also recommended for detection of Gl Syn in additional species, including equine, canine, bovine and porcine.

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

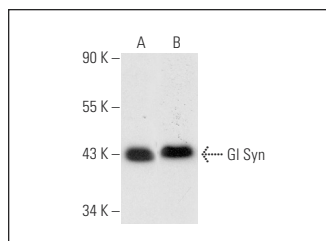
Molecular Weight of Gl Syn: 49 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, Neuro-2A whole cell lysate: sc-364185 or human liver extract: sc-363766.

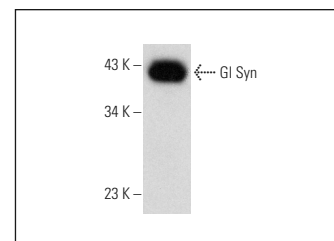
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## DATA



Gl Syn (F-4): sc-398034. Western blot analysis of Gl Syn expression in Jurkat whole cell lysate (A) and human liver tissue extract (B).



Gl Syn (F-4): sc-398034. Western blot analysis of Gl Syn expression in Neuro-2A whole cell lysate.

## STORAGE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.