

## GLUL Antibody / Glutamine Synthetase [clone MSVA-750M] (V6080)

Catalog No.	Formulation	Size
V6080-100UG	Antibody in 1X PBS with 0.05% BSA, 0.05% sodium azide	100 ug
V6080-20UG	Antibody in 1X PBS with 0.05% BSA, 0.05% sodium azide	20 ug

**Bulk quote request**

Species Reactivity	Human
Format	Purified
Host	Mouse
Clonality	Monoclonal (mouse origin)
Isotype	Mouse IgG2c, kappa
Clone Name	MSVA-750M
UniProt	P15104
Localization	Cell membrane, Cytoplasm, Cytosol, Microsome, Mitochondrion
Applications	Immunohistochemistry (FFPE) : 1-2ug/ml
Limitations	This GS/Glutamine Synthetase antibody is available for research use only.



Immunohistochemistry analysis of formalin-fixed, paraffin-embedded human tissue microarrays stained with GS/Glutamine Synthetase antibody (clone MSVA-750M). Representative normal and cancer tissues show variable cytoplasmic brown chromogenic staining patterns across organ types, consistent with known tissue- and tumor-dependent expression of Glutamine synthetase, while nuclei are counterstained blue. The overall distribution and relative staining intensities observed across tissues are consistent with publicly available expression datasets for Glutamine synthetase.

### Description

GS Antibody targets Glutamine synthetase, a cytosolic enzyme encoded by the GLUL gene that catalyzes the ATP-dependent conversion of glutamate and ammonia into glutamine. Glutamine synthetase, also referred to as glutamate ammonia ligase, plays a central role in nitrogen metabolism, ammonia detoxification, and amino acid homeostasis across multiple tissues. Because this reaction links nitrogen handling with cellular metabolism, a GS antibody is widely used to study metabolic regulation in both normal physiology and disease contexts.

In the liver, Glutamine synthetase exhibits a highly defined zonation pattern, with expression enriched in pericentral

hepatocytes surrounding the central vein. In this region, the enzyme functions as a secondary ammonia scavenging system, capturing residual ammonia that escapes urea cycle processing in periportal hepatocytes. GS antibody staining is therefore commonly used as a marker of hepatic metabolic zonation and is frequently applied in studies of liver physiology, regeneration, and metabolic remodeling.

In the central nervous system, Glutamine synthetase is predominantly expressed in astrocytes, where it supports the glutamate-glutamine cycle. By converting synaptically released glutamate into glutamine, astrocytic Glutamine synthetase helps prevent excitotoxicity and supplies neurons with glutamine for neurotransmitter resynthesis. A Glutamine synthetase antibody or GS antibody is routinely used as an indicator of astrocyte metabolic function and glial support activity in both healthy and diseased brain tissue.

Beyond liver and brain, Glutamine synthetase expression has been reported in gastrointestinal epithelium, kidney, and select immune and stromal cell populations, reflecting broader roles in nitrogen balance and cellular adaptation to metabolic stress. GS antibody reagents enable investigation of tissue-specific expression patterns and metabolic compartmentalization, particularly in environments with fluctuating nutrient or ammonia availability.

Altered Glutamine synthetase expression is increasingly recognized in cancer biology. Many tumors exhibit metabolic reprogramming that favors glutamine utilization to support biosynthesis, redox control, and proliferation. Elevated or dysregulated GLUL expression has been described in hepatocellular carcinoma, colorectal cancer, glioma, and other malignancies. Use of a GS antibody allows researchers to examine glutamine metabolism pathways, tumor heterogeneity, and metabolic dependencies within the tumor microenvironment.

Structurally, Glutamine synthetase assembles into a multimeric enzyme complex and is regulated through transcriptional control, substrate availability, and post-translational mechanisms. Because GS expression reflects both metabolic state and cell identity, a Glutamine synthetase antibody serves as a versatile research tool for studies of nitrogen metabolism, astrocyte biology, liver zonation, and cancer-associated metabolic adaptation. NSJ Bioreagents offers this GS antibody to support research focused on metabolic regulation and tissue-specific glutamine handling.

## Application Notes

1. Optimal dilution of the GS/Glutamine Synthetase antibody should be determined by the researcher.
2. This GS/Glutamine Synthetase antibody is recombinantly produced by expression in CHO cells.
3. Manual Protocol: Freshly cut sections should be used (less than 10 days between cutting and staining). Heat-induced antigen retrieval for 5 minutes in an autoclave at 121°C in pH 7.8 Target Retrieval Solution buffer. Apply the antibody at a dilution of 1:150 at 37°C for 60 minutes. Visualization of bound antibody by the EnVision Kit (Dako, Agilent) according to the manufacturer's directions.

## Immunogen

A recombinant fragment (around amino acids 50-250) of human GLUL protein (exact sequence is proprietary) was used as the immunogen for the GS/Glutamine Synthetase antibody.

## Storage

GS/Glutamine Synthetase antibody with sodium azide - store at 2 to 8°C; antibody without sodium azide - store at -20 to -80°C.

