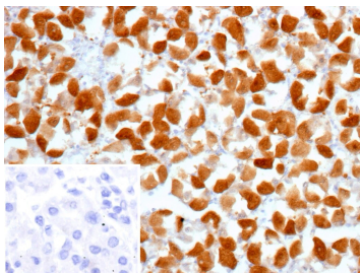
GLUL Antibody / Glutamine synthetase [clone GLUL/12902R] (V5907)

Catalog No.	Formulation	Size
V5907-100UG	0.2 mg/ml in 1X PBS with 0.05% BSA, 0.05% sodium azide	100 ug
V5907-20UG	0.2 mg/ml in 1X PBS with 0.05% BSA, 0.05% sodium azide	20 ug
V5907SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

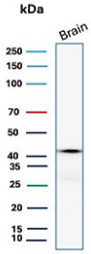
Recombinant RABBIT MONOCLONAL

Bulk quote request

Species Reactivity	Human
Format	Purified
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG, kappa
Clone Name	GLUL/12902R
UniProt	P15104
Localization	Cytoplasm, Mitochondrion
Applications	Immunohistochemistry (FFPE) : 1-2ug/ml Western Blot : 2-4ug/ml
Limitations	This GLUL/Glutamine synthetase antibody is available for research use only.



Formalin-fixed, paraffin-embedded human stomach tissue stained with recombinant GLUL/Glutamine synthetase antibody (clone GLUL/12902R). Strong cytoplasmic brown chromogenic staining is observed in gastric epithelial cells, consistent with Glutamine synthetase expression, while nuclei are counterstained blue. Inset shows a PBS-only negative control processed without primary antibody, demonstrating minimal non-specific background staining.



Western blot analysis of human brain tissue lysate using recombinant GLUL/Glutamine synthetase antibody (clone GLUL/12902R). Predicted molecular weight ~42 kDa.

Description

GLUL antibody targets Glutamine synthetase, a cytosolic enzyme encoded by the GLUL gene that catalyzes the ATP-dependent conversion of glutamate and ammonia into glutamine. This reaction represents a critical step in nitrogen metabolism, amino acid homeostasis, and detoxification of excess ammonia. Glutamine synthetase is ubiquitously expressed but shows particularly high and regulated expression in liver, brain, and certain epithelial tissues, reflecting its essential role in metabolic compartmentalization and tissue-specific nitrogen handling.

In the liver, Glutamine synthetase displays a highly zonated expression pattern, with strong enrichment in pericentral hepatocytes surrounding the central vein. In this context, the enzyme functions as a secondary ammonia detoxification system, capturing residual ammonia that escapes the urea cycle in periportal hepatocytes. A GLUL antibody is therefore widely used in liver biology research to study hepatic metabolic zonation, nitrogen flux, and responses to metabolic stress or injury.

Within the central nervous system, Glutamine synthetase is predominantly localized to astrocytes, where it plays a central role in the glutamate-glutamine cycle. By converting synaptically released glutamate into glutamine, astrocytic Glutamine synthetase prevents excitotoxicity and supplies neurons with glutamine for neurotransmitter resynthesis. A Glutamine synthetase antibody is commonly applied as a marker of astrocytic metabolic function and glial support activity in studies of normal brain physiology and neurological disease.

Glutamine synthetase is also implicated in cellular proliferation and metabolic reprogramming in cancer. Many tumor types exhibit altered glutamine metabolism to support rapid growth, redox balance, and biosynthetic demands. Elevated or dysregulated GLUL expression has been reported in hepatocellular carcinoma, colorectal cancer, glioma, and other malignancies, where it may contribute to tumor cell survival under nutrient-limited conditions. Use of a GLUL antibody enables investigation of glutamine metabolism pathways and metabolic heterogeneity within tumor tissues.

Structurally, Glutamine synthetase forms a multimeric enzyme complex and is subject to regulation through transcriptional control, substrate availability, and post-translational modification. Because GLUL expression reflects both metabolic state and cell identity, Glutamine synthetase antibody staining is frequently used to assess functional metabolic zoning, astrocyte integrity, and metabolic adaptations across tissues.

Clone GLUL/12902R is designed to recognize Glutamine synthetase and supports detection of GLUL expression in research applications. NSJ Bioreagents offers this GLUL antibody to support studies of nitrogen metabolism, hepatic physiology, astrocyte biology, and cancer-associated metabolic remodeling.

Application Notes

1. Optimal dilution of the GLUL/Glutamine synthetase antibody should be determined by the researcher.

2. This GLUL/Glutamine synthetase antibody is recombinantly produced by expression in CHO cells.

Immunogen

A recombinant fragment (around amino acids 100-200) of human GLUL protein (exact sequence is proprietary) was used as the immunogen for the GLUL/Glutamine synthetase antibody.

Storage

GLUL/Glutamine synthetase antibody with sodium azide - store at 2 to 8oC; antibody without sodium azide - store at -20 to -80oC.