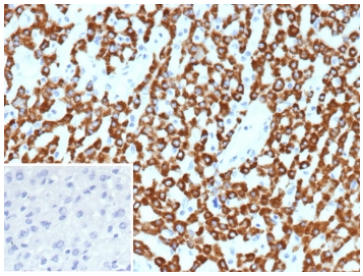
CPS1 Antibody / Carbamoyl Phosphate Synthetase 1 Antibody [clone CPS1/9859] (V5677)

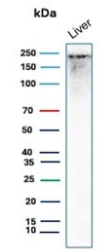
Catalog No.	Formulation	Size
V5677-100UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	100 ug
V5677-20UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	20 ug
V5677SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

Bulk quote request

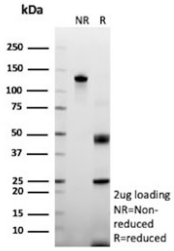
Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Mouse
Clonality	Monoclonal (mouse origin)
Isotype	Mouse IgG, kappa
Clone Name	CPS1/9859
Purity	Protein A/G affinity
UniProt	P31327
Localization	Cytoplasm
Applications	Immunohistochemistry (FFPE) : 1-2ug/ml Western Blot : 2-4ug/ml
Limitations	This CPS1 Antibody / Carbamoyl Phosphate Synthetase 1 Antibody is available for research use only.



CPS1 Antibody Hepatocellular Carcinoma IHC. Immunohistochemistry of Carbamoyl Phosphate Synthetase 1 / CPS1 in FFPE human hepatocellular carcinoma tissue using mouse monoclonal CPS1 antibody, clone CPS1/9859. Strong HRP-DAB brown cytoplasmic staining highlights tumor cells of hepatocellular origin, consistent with retained hepatocyte differentiation and supporting its use as a hepatocyte-associated marker, while nuclei are counterstained blue. Inset: PBS was used in place of primary antibody as a negative control to confirm specificity of staining. Heat induced epitope retrieval was performed by boiling tissue sections in pH 9 10 mM Tris with 1 mM EDTA for 20 min followed by cooling prior to staining.



CPS1 Antibody Liver WB. Western blot analysis of Carbamoyl Phosphate Synthetase 1 / CPS1 in human liver tissue lysate using mouse monoclonal CPS1 antibody, clone CPS1/9859. A band is detected at approximately 165 kDa, consistent with the predicted molecular weight of CPS1, with signal occasionally observed at higher apparent molecular weights reflecting post-translational modification or protein complex association of this mitochondrial urea cycle enzyme.



SDS-PAGE analysis of purified, BSA-free CPS1 antibody (clone CPS1/9859) as confirmation of integrity and purity.

Description

Carbamoyl phosphate synthetase 1 (CPS1) is a mitochondrial enzyme that catalyzes the first and rate-limiting step of the urea cycle, converting ammonia into carbamoyl phosphate in hepatocytes. CPS1 Antibody / Carbamoyl Phosphate Synthetase 1 Antibody is widely used to study liver-specific metabolism and ammonia detoxification pathways, where CPS1 plays a central role. CPS1 antibody, also referred to as Carbamoyl phosphate synthetase 1 antibody in the literature, is a key tool for evaluating hepatocyte function and urea cycle activity in both normal and disease states.

CPS1 is predominantly expressed in hepatocytes within the liver, where it localizes to the mitochondrial matrix and supports nitrogen metabolism. Its restricted tissue distribution makes it a highly specific marker of hepatocellular identity, with minimal expression in most non-hepatic tissues. In immunohistochemistry, CPS1 is typically detected as strong cytoplasmic staining in hepatocytes, reflecting its mitochondrial localization, while surrounding stromal or non-parenchymal cells remain largely negative. This pattern supports its use as a hepatocyte-associated marker in tissue analysis.

Functionally, CPS1 initiates the urea cycle by incorporating ammonia into carbamoyl phosphate, which is subsequently processed through downstream enzymatic steps to form urea for excretion. This pathway is essential for preventing ammonia accumulation and maintaining metabolic homeostasis. CPS1 antibody is therefore commonly used in studies of liver function, metabolic disorders, and diseases associated with impaired nitrogen metabolism, including urea cycle disorders and hepatic dysfunction.

In cancer research, CPS1 expression is frequently evaluated in hepatocellular carcinoma and other liver-associated malignancies, where it can help distinguish hepatocellular origin from metastatic tumors. Immunohistochemical staining of CPS1 in tumor tissue typically highlights hepatocyte-derived tumor cells, providing useful context for tumor classification and microenvironment analysis. The presence of strong cytoplasmic staining in hepatocellular carcinoma supports its continued role as a marker of hepatocyte lineage even in transformed cells.

Western blot analysis of CPS1 typically reveals a band at approximately 165 kDa, consistent with the predicted molecular weight of the full-length enzyme. In some samples, CPS1 may be observed at higher apparent molecular weights, which can reflect post-translational modification or protein complex formation associated with its mitochondrial function. This characteristic banding pattern supports reliable detection of CPS1 in liver lysates and provides complementary confirmation of its expression alongside tissue-based methods.

The mouse monoclonal clone CPS1/9859 antibody provides robust detection of CPS1 in both immunohistochemistry and western blot applications. Its strong hepatocyte staining pattern in FFPE liver-derived tissues and consistent detection of

high molecular weight CPS1 in biochemical assays make it well suited for studies of liver metabolism, urea cycle function, and hepatocellular biology.

This antibody is part of a broader antibody panel offered by NSJ Bioreagents.

Application Notes

Optimal dilution of the CPS1 Antibody / Carbamoyl Phosphate Synthetase 1 Antibody should be determined by the researcher.

Immunogen

A portion of amino acids 800-1000 from human CPS1 protein was used as the immunogen for the CPS1 antibody.

Storage

Aliquot the CPS1 antibody and store frozen at -20oC or colder. Avoid repeated freeze-thaw cycles.

Alternate Names

Carbamoyl phosphate synthetase 1 antibody, CPS1 protein antibody, Urea cycle enzyme CPS1 antibody, Mitochondrial CPS1 antibody, Liver enzyme CPS1 antibody