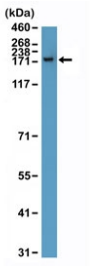
CPS1 Antibody Cross-Context Validation [clone RM395] (R20411)

Catalog No.	Formulation	Size
R20411-0.1ML	Antibody in PBS with 50% glycerol, 1% BSA and 0.09% sodium azide	100 ul

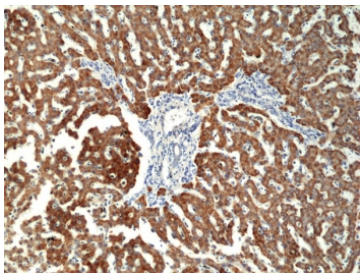
Recombinant RABBIT MONOCLONAL

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	RM395
Purity	Protein A purified from animal origin-free supernatant
UniProt	P31327
Localization	Finely granular cytoplasmic
Applications	Immunohistochemistry (FFPE) : 1:100-1:200 Western Blot : 1:5000-1:10000
Limitations	This CPS1 Antibody Cross-Context Validation is available for research use only.



CPS1 Antibody T-cell WB. Western blot analysis of Carbamoyl Phosphate Synthetase 1 / CPS1 in human T-cell lysate using recombinant rabbit monoclonal CPS1 antibody, clone RM395. A band is detected at approximately 165 kDa, consistent with the predicted molecular weight of CPS1, demonstrating antibody detection of CPS1 under non-classical lysate conditions and supporting cross-context validation of target recognition.



CPS1 Antibody Liver IHC. Immunohistochemistry of Carbamoyl Phosphate Synthetase 1 / CPS1 in FFPE human liver tissue using recombinant rabbit monoclonal CPS1 antibody, clone RM395. Strong HRP-DAB brown cytoplasmic staining highlights hepatocytes, consistent with mitochondrial localization of this urea cycle enzyme and supporting its use as a hepatocyte-associated marker, while surrounding non-parenchymal cells remain largely negative and nuclei are counterstained blue. 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.

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 within hepatocytes. CPS1 Antibody Cross-Context Validation is designed to assess CPS1 detection across both canonical tissue expression and broader lysate conditions, combining strong liver immunohistochemistry staining with detectable signal in western blot outside strictly hepatocyte-derived samples. CPS1 antibody, also referred to as Carbamoyl phosphate synthetase 1 antibody in the literature, is widely used to study liver metabolism, ammonia detoxification, and mitochondrial enzyme function.

CPS1 is predominantly expressed in hepatocytes, where it localizes to the mitochondrial matrix and supports nitrogen metabolism through the urea cycle. This enzyme plays a central role in maintaining metabolic homeostasis by preventing ammonia accumulation. In immunohistochemistry, CPS1 is typically observed as strong cytoplasmic staining in hepatocytes, reflecting mitochondrial localization, while surrounding stromal and non-parenchymal cells show minimal staining. This pattern remains consistent with established CPS1 biology and 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 generate urea. Disruption of CPS1 activity is associated with metabolic disorders and liver dysfunction, making it an important target in studies of hepatic physiology, mitochondrial biology, and nitrogen metabolism.

Western blot analysis demonstrates detection of CPS1 at approximately 165 kDa, consistent with the predicted molecular weight of the full-length enzyme. In human T-cell lysate, a band at this molecular weight is observed under the conditions tested, indicating that this antibody is capable of detecting CPS1 beyond classical liver-derived samples. This observation provides an additional validation context, demonstrating antibody performance across different lysate environments while maintaining expected molecular weight recognition.

In contrast, immunohistochemistry of human liver tissue shows strong and well-defined staining of hepatocytes, consistent with established CPS1 expression patterns. The combination of canonical hepatocyte staining and detectable signal in non-liver lysate highlights the cross-context performance of this antibody, supporting its use in experimental settings that require both tissue localization and robust detection in biochemical assays.

The recombinant rabbit monoclonal clone RM395 antibody provides reliable detection of CPS1 with consistent performance in immunohistochemistry and western blot applications. Its ability to maintain expected staining patterns in liver tissue while demonstrating detection across lysate types makes it well suited for studies of liver biology, metabolic regulation, and assay performance evaluation.

For a validated reference of CPS1 expression in liver and hepatocellular tumors, see the CPS1 antibody clone CPS1/9859 with supporting IHC and western blot data.

Application Notes

The stated application concentrations are suggested starting points. Titration of the CPS1 Antibody Cross-Context Validation may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

A peptide corresponding to human CPS1 was used as the immunogen for the recombinant CPS1 antibody.

Storage

Store the CPS1 antibody at -20oC.

Alternate Names

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