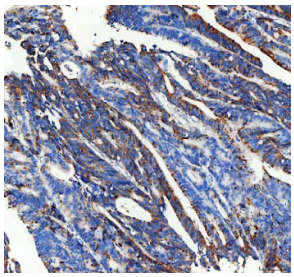
CPT2 Antibody / Carnitine O-palmitoyltransferase 2 (RQ8943)

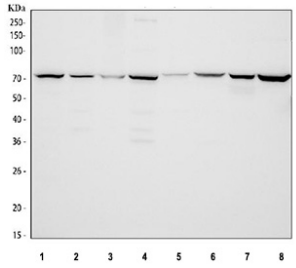
Catalog No.	Formulation	Size
RQ8943	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

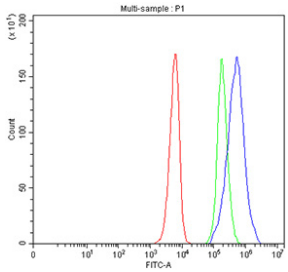
Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Purified
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen Affinity purified
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	P23786
Localization	Cytoplasmic (Mitochondria), nuclear
Applications	Western Blot : 1-2ug/ml Immunohistochemistry (FFPE) : 2-5ug/ml ELISA : 0.1-0.5ug/ml Flow Cytometry : 1-3ug/million cells
Limitations	This CPT2 antibody is available for research use only.



IHC staining of FFPE human colon cancer tissue with CPT2 antibody, HRP-secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Western blot testing of 1) human ThP-1, 2) human HEL, 3) human RT-4, 4) human SiHa, 5) rat small intestine, 6) rat kidney, 7) mouse small intestine and 8) mouse kidney tissue lysate with CPT2 antibody. Predicted molecular weight ~74 kDa.



Flow cytometry testing of fixed and permeabilized human SiHa cells with CPT2 antibody at 1ug/million cells (blocked with goat sera); Red=cells alone, Green=isotype control, Blue= CPT2 antibody.

Description

CPT2 antibody is a widely used reagent for studying fatty acid metabolism, mitochondrial function, and energy homeostasis. The encoded protein, carnitine O-palmitoyltransferase 2 (CPT2), is a key enzyme in the carnitine shuttle system that transports long-chain fatty acids into mitochondria for beta-oxidation. Located on the inner mitochondrial membrane, CPT2 catalyzes the conversion of acylcarnitine back to acyl-CoA, enabling fatty acids to undergo oxidation and generate ATP. This function makes CPT2 essential for energy production, particularly during fasting, exercise, and other metabolic stresses.

CPT2 operates in close coordination with CPT1, which resides on the outer mitochondrial membrane, and carnitine-acylcarnitine translocase (CACT), which shuttles acylcarnitines across the inner membrane. Together, these enzymes form a highly regulated system ensuring the efficient use of fatty acids as fuel. By facilitating long-chain fatty acid oxidation, CPT2 contributes to metabolic flexibility, energy balance, and cellular survival under nutrient-limited conditions.

Genetic defects in the CPT2 gene are the cause of carnitine palmitoyltransferase II deficiency, a rare inherited metabolic disorder. Clinical presentations include lethal neonatal forms, severe infantile hepatocardiomuscular disease, and the most common myopathic form characterized by recurrent episodes of muscle weakness, rhabdomyolysis, and myoglobinuria. These conditions highlight the indispensable role of CPT2 in energy metabolism and underscore its clinical significance. Mutations affecting CPT2 disrupt fatty acid oxidation, leading to impaired ATP production and accumulation of toxic lipid intermediates.

In addition to its metabolic importance, CPT2 has been implicated in broader biological processes, including thermogenesis and regulation of lipid signaling pathways. Research has also linked altered CPT2 activity to metabolic syndromes, insulin resistance, and susceptibility to muscle-related disorders. Its central role in lipid utilization makes CPT2 a critical subject of investigation in both basic and translational research.

The CPT2 antibody is widely applied in western blotting, immunohistochemistry, immunofluorescence, and flow cytometry to measure protein expression, localization, and regulation. These applications are useful for assessing mitochondrial metabolism, characterizing genetic deficiencies, and exploring therapeutic approaches for metabolic disease. For researchers focused on lipid metabolism, muscle biology, or mitochondrial disorders, the CPT2 antibody provides a reliable detection tool. NSJ Bioreagents offers validated antibodies that ensure reproducibility and accuracy in advanced molecular studies.

Application Notes

Optimal dilution of the CPT2 antibody should be determined by the researcher.

Immunogen

Amino acids Q33-D646 from the human protein were used as the immunogen for the CPT2 antibody.

Storage

After reconstitution, the CPT2 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.