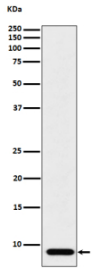
ATP5G1 Antibody / ATP5MC1 [clone 29A74] (FY13057)

Catalog No.	Formulation	Size
FY13057	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA	100 ul

Recombinant RABBIT MONOCLONAL

Bulk quote request

Availability	2-3 weeks
Species Reactivity	Human, Mouse, Rat
Format	Liquid
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	29A74
Purity	Affinity chromatography
Buffer	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA.
UniProt	P05496
Applications	Western blot: 1:500-1:2000 Immunohistochemistry: 1:50-1:200
Limitations	This ATP5G1 antibody is available for research use only.



Western blot analysis of ATP5G1 expression in human HeLa cell lysate using the ATP5G1 antibody. A single band is detected at approximately 8-9 kDa, below the unprocessed theoretical mass (~14 kDa). This mobility corresponds to the mature mitochondrial form of ATP5G1 following cleavage of its N-terminal targeting sequence. Similar migration (~7-9 kDa) has been reported for subunit c proteins in biochemical studies of the F0-ATP synthase complex.

Description

ATP5G1 antibody detects ATP synthase subunit c1, mitochondrial, also called ATP5MC1, encoded by the ATP5G1 gene. This protein is part of the F0 sector of mitochondrial ATP synthase, also known as Complex V of the oxidative

phosphorylation system. ATP5G1 contributes to the proton translocation channel that drives rotary catalysis, coupling the proton gradient to ATP production. ATP5G1 antibody provides researchers with a powerful tool to study mitochondrial bioenergetics, oxidative phosphorylation, and metabolic disease.

ATP synthase consists of two major domains: the F1 catalytic domain, which synthesizes ATP from ADP and inorganic phosphate, and the F0 membrane domain, which translocates protons across the inner mitochondrial membrane. ATP5G1 is one of the small c subunits that form the proton conducting ring of the F0 domain. Research using ATP5G1 antibody has revealed that this protein ensures efficient proton transport and rotary motion, allowing the enzyme to generate ATP that fuels cellular metabolism. Disruption of this subunit destabilizes ATP synthase and reduces energy production.

Mutations in ATP5G1 and related subunits have been associated with mitochondrial diseases, including encephalomyopathy and metabolic syndromes. Studies with ATP5G1 antibody have confirmed that defects impair ATP production and contribute to developmental delay, neuromuscular symptoms, and metabolic acidosis. Because ATP synthase is fundamental for energy metabolism, ATP5G1 remains essential for tissue homeostasis in high energy demanding organs such as brain, muscle, and heart.

In addition to inherited disorders, mitochondrial dysfunction involving ATP synthase subunits contributes to aging, neurodegeneration, and cancer. Research using ATP5G1 antibody has demonstrated altered expression in tumors, where shifts in energy metabolism favor glycolysis over oxidative phosphorylation. In neurons, reduced ATP synthase activity contributes to synaptic dysfunction and neurodegeneration. These findings highlight the broad significance of ATP5G1 in health and disease.

ATP5G1 antibody is widely used in western blotting, immunohistochemistry, and immunofluorescence. Western blotting demonstrates abundance in mitochondria rich tissues, immunohistochemistry highlights distribution in heart, muscle, and brain, and immunofluorescence reveals localization to mitochondrial networks. Together, these methods establish ATP5G1 antibody as a core tool for mitochondrial research.

By providing validated ATP5G1 antibody reagents, NSJ Bioreagents supports studies of oxidative phosphorylation, mitochondrial biology, and disease. Detection of ATP synthase subunit c1 provides a critical approach for understanding cellular energy metabolism and its disruption in pathology.

Application Notes

Optimal dilution of the ATP5G1 antibody should be determined by the researcher.

Immunogen

A synthesized peptide derived from human ATP5G1 was used as the immunogen for the ATP5G1 antibody.

Storage

Store the ATP5G1 antibody at -20oC.

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