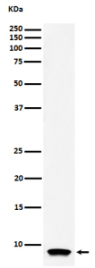
ATP5G1 Antibody / ATP5MC1 [clone 29A75] (FY13076)

Catalog No.	Formulation	Size
FY13076	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	29A75
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 Immunocytochemistry/Immunofluorescence: 1:50-1:200
Limitations	This ATP5MC1 antibody is available for research use only.



Western blot analysis of ATP5G1 expression in human HL-60 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

ATP5MC1 antibody detects ATP synthase membrane subunit c locus 1, mitochondrial, encoded by the ATP5MC1 gene. This protein is a component of the F0 sector of mitochondrial ATP synthase, also known as Complex V of the oxidative

phosphorylation system. ATP5MC1 contributes to the proton translocation ring that drives rotary catalysis, coupling the proton gradient across the mitochondrial inner membrane to the synthesis of ATP. ATP5MC1 antibody provides researchers with a specific reagent for exploring mitochondrial energy metabolism, oxidative phosphorylation, and metabolic disorders.

Mitochondrial ATP synthase consists of a catalytic F1 domain and a membrane embedded F0 domain. ATP5MC1 belongs to the subunit c family of small hydrophobic proteins that form a ring structure in the F0 domain. This ring serves as the proton channel, allowing proton flow to power rotation of the central stalk, driving ATP synthesis. Research using ATP5MC1 antibody has revealed that this protein is essential for energy transduction, ensuring efficient conversion of electrochemical gradients into chemical energy. Without proper function, cells face energy deficits that compromise survival and function.

Mutations in ATP5MC1 and related subunits have been associated with mitochondrial disease, including encephalomyopathy, developmental delay, and neuromuscular weakness. Studies with ATP5MC1 antibody have demonstrated that defects disrupt assembly and function of ATP synthase, leading to decreased ATP production. Because high energy organs such as the brain, heart, and skeletal muscle depend heavily on oxidative phosphorylation, ATP5MC1 dysfunction has widespread clinical consequences. These findings underscore its importance in human health.

Beyond rare mitochondrial disorders, alterations in ATP synthase subunit expression have been linked to aging, neurodegeneration, and cancer. Research with ATP5MC1 antibody has shown that tumor cells can modulate expression of ATP synthase components to reprogram metabolism, balancing oxidative phosphorylation and glycolysis to support growth. In neurodegeneration, reduced ATP synthase function impairs neuronal survival and synaptic activity, contributing to cognitive decline. This positions ATP5MC1 as a valuable target for both basic and translational research.

ATP5MC1 antibody is widely used in western blotting, immunohistochemistry, and immunofluorescence. Western blotting confirms its abundance in mitochondria rich tissues, immunohistochemistry highlights distribution in energy demanding organs, and immunofluorescence demonstrates mitochondrial localization through colocalization with established mitochondrial markers. These applications make ATP5MC1 antibody indispensable in mitochondrial biology research.

By providing validated ATP5MC1 antibody reagents, NSJ Bioreagents supports studies into mitochondrial energy metabolism, disease, and cancer biology. Detection of ATP synthase membrane subunit c locus 1 helps researchers explore how ATP production is maintained and how its disruption contributes to pathology.

Application Notes

Optimal dilution of the ATP5MC1 antibody should be determined by the researcher.

Immunogen

A synthesized peptide derived from human ATP5G1 was used as the immunogen for the ATP5MC1 antibody.

Storage

Store the ATP5MC1 antibody at -20oC.

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