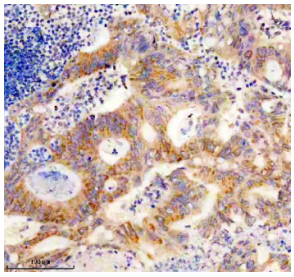
SLC25A12 Antibody / ARALAR1 [clone 30S67] (FY12984)

Catalog No.	Formulation	Size
FY12984	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

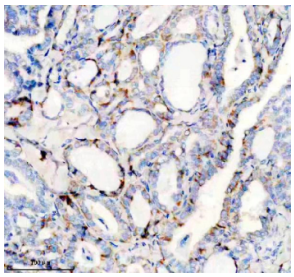
Recombinant RABBIT MONOCLONAL

Bulk quote request

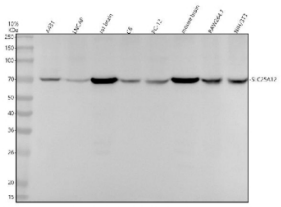
Availability	2-3 weeks
Species Reactivity	Human, Mouse, Rat
Format	Liquid
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	30S67
Purity	Affinity chromatography
Buffer	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA.
UniProt	O75746
Localization	Cytoplasm (Mitochondria)
Applications	Western blot: 1:500-1:2000 Immunoprecipitation: 1:50 Immunohistochemistry: 1:50-1:200
Limitations	This SLC25A12 antibody is available for research use only.



Immunohistochemical staining using SLC25A12 antibody on paraffin-embedded human colon cancer tissue sections. Heat-induced epitope retrieval was performed using EDTA buffer (pH 8.0) prior to antibody incubation. Sections were blocked with 10% goat serum and incubated with SLC25A12 antibody overnight at 4C. Detection was carried out using an HRP-based secondary antibody with DAB as the chromogen. Staining shows cytoplasmic immunoreactivity in tumor cells. Nuclei were counterstained with hematoxylin.



Immunohistochemical staining using SLC25A12 antibody on paraffin-embedded human thyroid cancer tissue sections. Heat-induced epitope retrieval was performed using EDTA buffer (pH 8.0) prior to antibody incubation. Sections were blocked with 10% goat serum and incubated with SLC25A12 antibody overnight at 4C. Detection was carried out using an HRP-based secondary antibody with DAB as the chromogen. Staining demonstrates cytoplasmic immunoreactivity in tumor cells. Nuclei were counterstained with hematoxylin.



Western blot analysis of SLC25A12 using anti-SLC25A12 antibody. Electrophoresis was performed on a 10% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human whole cell lysates, Lane 2: human LNCAP whole cell lysates, Lane 5: rat brain tissue lysates, Lane 6: rat C6 whole cell lysates, Lane 5: rat PC-12 whole cell lysates, Lane 7: mouse brain tissue lysates, Lane 7: mouse RAW264.7 whole cell lysates, Lane 8: mouse NIH/3T3 whole cell lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-SLC25A12 antibody at 1:500 overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using an ECL Plus Western Blotting Substrate. A single band is detected at ~70 kDa, running slightly below the ~75 kDa prediction. The shift is consistent with mitochondrial targeting-sequence cleavage and the known faster SDS-PAGE migration of the mature aralar1 mitochondrial carrier protein.

Description

SLC25A12 antibody detects Calcium binding mitochondrial carrier protein Aralar2, encoded by the SLC25A12 gene. This protein belongs to the solute carrier family 25, which consists of mitochondrial carriers responsible for transporting metabolites across the inner mitochondrial membrane. Aralar2 functions primarily as an aspartate glutamate carrier, playing a critical role in the malate aspartate shuttle, which transfers reducing equivalents from the cytosol into the mitochondria. SLC25A12 antibody provides researchers with a reliable reagent for studying mitochondrial metabolism, neurodevelopment, and energy regulation.

Calcium binding mitochondrial carrier protein Aralar2 is highly expressed in the brain, heart, and skeletal muscle, reflecting its role in tissues with high energy demand. The protein's activity is regulated by calcium ions, which bind to EF hand domains in its N terminal region. When detected with SLC25A12 antibody, Aralar2 has been shown to facilitate the exchange of cytosolic glutamate for mitochondrial aspartate, linking amino acid metabolism with cellular energy pathways. This shuttle activity supports processes such as oxidative phosphorylation, urea cycle function, and neurotransmitter synthesis.

Mutations in SLC25A12 have been associated with neurodevelopmental disorders, including a subtype of early infantile epileptic encephalopathy. Patients with pathogenic variants present with seizures, developmental delay, and structural brain abnormalities. Studies using SLC25A12 antibody have confirmed that loss of Aralar2 disrupts neuronal energy metabolism and neurotransmitter balance. Beyond rare genetic disease, altered expression of this protein has been implicated in autism spectrum disorders, highlighting its importance in brain development and synaptic signaling.

Research has also connected Aralar2 to broader metabolic functions, including regulation of insulin secretion and lipid metabolism. SLC25A12 antibody has been used to demonstrate its presence in pancreatic islets, where glutamate aspartate exchange influences insulin granule release. In liver and muscle, changes in Aralar2 expression affect metabolic flexibility, making it relevant to diabetes and obesity studies. These findings highlight the wide physiological significance of Calcium binding mitochondrial carrier protein Aralar2 beyond the nervous system.

SLC25A12 antibody is widely used in western blotting, immunohistochemistry, and immunofluorescence. Western blotting confirms expression in brain and muscle lysates, while immunohistochemistry demonstrates its localization to mitochondria within neuronal tissue. Immunofluorescence assays further confirm subcellular localization, colocalizing Aralar2 with mitochondrial markers. Functional studies using SLC25A12 antibody provide insights into how altered transporter activity affects metabolic pathways under physiological and pathological conditions.

By providing validated SLC25A12 antibody reagents, NSJ Bioreagents supports investigations into mitochondrial transport, neurobiology, and energy metabolism. Detection of Calcium binding mitochondrial carrier protein Aralar2 helps clarify how metabolite exchange and calcium regulation contribute to health and disease.

Application Notes

Optimal dilution of the SLC25A12 antibody should be determined by the researcher.

Immunogen

A synthesized peptide derived from human SLC25A12 was used as the immunogen for the SLC25A12 antibody.

Storage

Store the SLC25A12 antibody at -20oC.

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