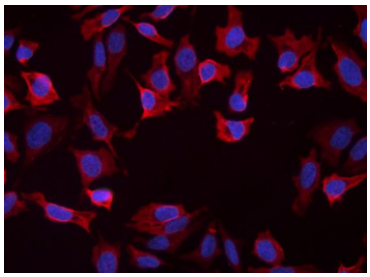
SLC25A1 Antibody / Solute carrier family 25 member 1 (FY13398)

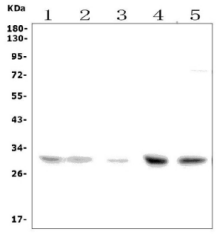
Catalog No.	Formulation	Size
FY13398	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	P53007
Localization	Cytoplasm
Applications	Western Blot : 0.25-0.5ug/ml Immunocytochemistry/Immunofluorescence : 5 ug/ml Immunohistochemistry (FFPE) : 2-5ug/ml
Limitations	This SLC25A1 antibody is available for research use only.



Immunofluorescent staining of FFPE human HeLa cells with SLC25A1 antibody (red) and DAPI nuclear stain (blue). HIER: steam section in pH6 citrate buffer for 20 min.



Western blot testing of 1) human HeLa, 2) human Jurkat, 3) human CCRF-CEM, 4) rat brain and 5) mouse brain tissue lysate with SLC25A1 antibody. The SLC25A1 antibody detects a single band at approximately 30 kDa in all samples, which matches the reported apparent molecular weight (30-34 kDa) of the mitochondrial citrate carrier SLC25A1 despite its calculated mass of ~34 kDa.

Description

SLC25A1 antibody recognizes Solute carrier family 25 member 1, also known as the mitochondrial citrate transporter or tricarboxylate carrier. Encoded by the SLC25A1 gene on chromosome 22q11.21, this protein resides in the inner mitochondrial membrane and mediates the exchange of citrate and isocitrate with cytosolic malate. Through this transport activity, it links mitochondrial metabolism to cytosolic acetyl-CoA production, lipid synthesis, and cellular energy balance. SLC25A1 is expressed in metabolically active tissues including liver, muscle, adipose tissue, brain, and proliferating cell populations that require robust lipid and nucleotide biosynthesis. Structural studies place the transporter within the mitochondrial carrier family, characterized by transmembrane helices forming a central substrate translocation pore.

Solute carrier family 25 member 1 is central to metabolic processes that couple mitochondrial activity to cytosolic biosynthetic pathways. By exporting citrate to the cytosol, SLC25A1 supports production of acetyl-CoA for fatty acid and cholesterol synthesis, regulates NADPH generation through the cytosolic isocitrate dehydrogenase pathway, and influences histone acetylation via acetyl-CoA availability. The transporter is also involved in the tricarboxylate cycle that integrates carbohydrate, lipid, and amino acid metabolism. Its function is critical for cells with high biosynthetic demand, such as developing neurons, activated immune cells, and cancer cells undergoing metabolic rewiring.

Dysfunction of SLC25A1 is associated with a spectrum of metabolic and neurological disorders. Mutations in SLC25A1 cause combined D-2-hydroxyglutaric aciduria, a condition characterized by elevated levels of 2-hydroxyglutarate, neurodevelopmental delay, seizures, and metabolic acidosis. Reduced transporter activity disrupts mitochondrial to cytosolic metabolite flow, leading to impaired lipid synthesis, altered redox balance, and accumulation of tricarboxylic acid cycle intermediates. In cancer biology, SLC25A1 is frequently upregulated in tumors including lung, breast, prostate, and glioblastoma, where it supports anabolic metabolism, tumor growth, and resistance to metabolic stress. Increased transporter expression promotes lipid biosynthesis, nucleotide synthesis, mitochondrial integrity, and survival under hypoxic or nutrient limited conditions.

At the subcellular level, SLC25A1 localizes exclusively to the inner mitochondrial membrane where it co-localizes with markers such as COX4 and TIMM23. Its transport activity depends on the proton motive force, and conformational changes within the transmembrane helices regulate substrate binding and release. Isoforms produced by alternative splicing may differ in stability or regulatory interactions, though the canonical isoform dominates in most tissues. Developmentally, SLC25A1 expression increases during periods of rapid growth or differentiation when biosynthetic demands rise, including neuronal maturation and early postnatal metabolic transitions.

This SLC25A1 antibody is suitable for detecting Solute carrier family 25 member 1 expression in research focused on mitochondrial metabolism, lipid and nucleotide biosynthesis, metabolic disease models, neurodevelopmental disorders, and cancer metabolism. NSJ Bioreagents includes this reagent within its mitochondrial and metabolic biology antibody collection.

Application Notes

Optimal dilution of the SLC25A1 antibody should be determined by the researcher.

Immunogen

E.coli-derived human Slc25a1 recombinant protein (amino acids I38-D311) was used as the immunogen for the SLC25A1

antibody.

Storage

After reconstitution, the SLC25A1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.