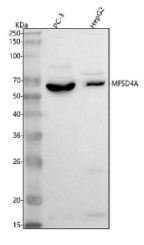
MFSD4A Antibody / Major facilitator superfamily domain-containing protein 4A (FY13317)

Catalog No.	Formulation	Size
FY13317	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
Format	Lyophilized
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	Q8N468
Applications	Western Blot : 0.25-0.5ug/ml ELISA : 0.1-0.5ug/ml
Limitations	This MFSD4A antibody is available for research use only.



Western blot analysis of MFSD4A using anti-MFSD4A antibody. Lane 1: human PC-3 whole cell lysates, Lane 2: human HepG2 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-MFSD4A antibody at 0.5 ug/ml 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 enhanced chemiluminescent. A predominant band is detected at an approximately 65 kDa in both samples, running above the predicted ~56 kDa mass but consistent with the higher apparent molecular weight typical of glycosylated multi pass membrane transporters such as MFSD4A.

Description

MFSD4A antibody detects Major facilitator superfamily domain-containing protein 4A, a predicted membrane transporter encoded by the MFSD4A gene located on chromosome 1p33. MFSD4A is a member of the major facilitator superfamily (MFS), one of the largest groups of secondary transporters responsible for moving small solutes across biological

membranes. The MFSD4A protein localizes to the plasma membrane and intracellular vesicles, where it is believed to participate in nutrient sensing and metabolite transport. Although its substrate specificity is still under investigation, MFSD4A shares structural features with sugar and amino acid transporters, suggesting a role in metabolic regulation and intercellular signaling.

MFSD4A antibody identifies a multi-pass transmembrane protein that contains 12 predicted alpha-helical transmembrane domains arranged in a canonical MFS fold. This structure allows alternating access transport of solutes driven by proton or sodium gradients. The cytoplasmic loops and termini of MFSD4A may interact with signaling molecules that modulate transporter activity in response to nutrient status or hormonal cues. Expression profiling reveals that MFSD4A is enriched in liver, pancreas, and brain tissues, consistent with its proposed role in metabolic homeostasis and neuronal energy regulation.

Functionally, MFSD4A may participate in glucose or amino acid transport pathways and contribute to the regulation of insulin secretion and energy metabolism. Emerging transcriptomic data indicate that MFSD4A expression is responsive to fasting, insulin signaling, and circadian rhythm regulators. In neurons, it may be involved in neurotransmitter or metabolite shuttling across synaptic membranes. Given its homology with nutrient transporters, MFSD4A is under study as a potential metabolic sensor that links energy availability to intracellular signaling pathways such as mTOR and AMPK.

From a structural and evolutionary perspective, MFSD4A belongs to the major facilitator superfamily, which includes transporters for sugars, ions, and small molecules. Members of this family typically share conserved sequence motifs such as the MFS signature (GXXXDRXGRR) involved in proton coupling and conformational switching. These features support the hypothesis that MFSD4A mediates solute exchange across cell membranes. Its expression in metabolically active tissues suggests integration with pathways governing glucose utilization and lipid metabolism.

Dysregulation of MFSD4A has been observed in metabolic disorders and certain cancers. Genome analyses have identified associations between MFSD4A variants and altered plasma metabolite levels, insulin resistance, and hepatocellular carcinoma progression. In the nervous system, perturbations in MFSD4A expression may influence neuronal excitability and cognitive function through metabolic imbalance. The protein's role in membrane transport and nutrient sensing positions it as a potential target for metabolic and neurological research.

Immunohistochemical staining using MFSD4A antibody reveals membrane localization in hepatocytes, pancreatic islets, and neurons. MFSD4A antibody from NSJ Bioreagents is an important reagent for studying membrane transport, metabolic regulation, and nutrient signaling mechanisms at the cellular level.

Application Notes

Optimal dilution of the MFSD4A antibody should be determined by the researcher.

Immunogen

E.coli-derived human MFSD4A recombinant protein (Position: S48-R514) was used as the immunogen for the MFSD4A antibody.

Storage

After reconstitution, the MFSD4A antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.