

SLC25A5 Protein, Human (Sf9, His, MBP, FLAG)

Cat. No.:	HY-P702020
Synonyms:	SLC25A5; ADP/ATP translocase 2; ADP; ATP carrier protein 2; ADP; ATP carrier protein; fibroblast isoform; Adenine nucleotide translocator 2; ANT 2; Solute carrier family 25 member 5
Species:	Human
Source:	Sf9 insect cells
Accession:	P05141 (T2-T298)
Gene ID:	292
Molecular Weight:	

PROPERTIES

Appearance	Solution.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconstitution	Please use rapid thawing with running water to thaw the protein.
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice.

DESCRIPTION

Background

SLC25A5 Protein, an ADP:ATP antiporter, facilitates the import of ADP into the mitochondrial matrix for ATP synthesis and the export of ATP to fuel cellular processes. Operating through the alternating access mechanism, it cycles between the cytoplasmic-open state (c-state) and the matrix-open state (m-state) on the inner mitochondrial membrane. Beyond its ADP:ATP antiporter activity, SLC25A5 is involved in mitochondrial uncoupling and mitochondrial permeability transition pore (mPTP) activity. Acting as a proton transporter, it induces mitochondrial uncoupling, disrupting the efficiency of ATP production and promoting mitochondrial thermogenesis. Notably, its proton transporter activity is regulated by ADP:ATP antiporter activity, positioning SLC25A5 as a master regulator of mitochondrial energy output. This delicate balance between ATP production and thermogenesis is further influenced by the requirement of free fatty acids as cofactors for proton transporter activity. SLC25A5 likely mediates mitochondrial uncoupling in tissues lacking UCP1 expression. Additionally, it plays a crucial role in mPTP opening, a non-specific pore contributing to cell death, although its exact role in pore formation remains unclear. Independently of its antiporter activity, SLC25A5 serves as a regulator of mitophagy, promoting mitophagy through interaction with TIMM44, inhibiting TIMM23, and stabilizing PINK1. Moreover, as part of the mitotic spindle-associated MMXD complex, SLC25A5 may contribute to chromosome segregation during mitosis.

Caution: Product has not been fully validated for medical applications. For research use only.

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