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SLC25A31 Antibody (Center) Blocking peptide
Synthetic peptide
Catalog # BP12028c

Specification

SLC25A31 Antibody (Center) Blocking peptide - Product Information

Primary Accession Q9H0C2

SLC25A31 Antibody (Center) Blocking peptide - Additional Information

Gene ID 83447

Other Names
ADP/ATP translocase 4, ADP, ATP carrier protein 4, Adenine nucleotide translocator 4, ANT 4, Solute carrier family 25 member 31, Sperm flagellar energy carrier protein, SLC25A31, AAC4, ANT4, SFEC

Format
Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

Storage
Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

Precautions
This product is for research use only. Not for use in diagnostic or therapeutic procedures.

SLC25A31 Antibody (Center) Blocking peptide - Protein Information

Name SLC25A31 (HGNC:25319)

Function
ADP:ATP antiporter that mediates import of ADP into the mitochondrial matrix for ATP synthesis, and export of ATP out to fuel the cell (PubMed:15670820) (By similarity). Cycles between the cytoplasmic-open state (c-state) and the matrix-open state (m-state): operates by the alternating access mechanism with a single substrate- binding site intermittently exposed to either the cytosolic (c-state) or matrix (m-state) side of the inner mitochondrial membrane (By similarity). Specifically required during spermatogenesis, probably to mediate ADP:ATP exchange in spermatocytes (PubMed:17137571). Large ATP supplies from mitochondria may be critical for normal progression of spermatogenesis during early stages of meiotic prophase I, including DNA double-strand break repair and chromosomal synapsis (By similarity). In addition to its ADP:ATP antiporter activity, also involved in mitochondrial uncoupling and mitochondrial permeability transition pore (mPTP) activity (By similarity). Plays a role in mitochondrial uncoupling by acting as a proton transporter: proton transport uncouples the proton flows via the electron transport chain and ATP synthase to reduce the efficiency of ATP production and cause mitochondrial thermogenesis (By similarity). Proton transporter activity is

inhibited by ADP:ATP antiporter activity, suggesting that SLC25A31/ANT4 acts as a master regulator of mitochondrial energy output by maintaining a delicate balance between ATP production (ADP:ATP antiporter activity) and thermogenesis (proton transporter activity) (By similarity). Proton transporter activity requires free fatty acids as cofactor, but does not transport it (By similarity). Among nucleotides, may also exchange ADP for dATP and dADP (PubMed:15670820). Also plays a key role in mPTP opening, a non-specific pore that enables free passage of the mitochondrial membranes to solutes of up to 1.5 kDa, and which contributes to cell death (By similarity). It is however unclear if SLC25A31/ANT4 constitutes a pore-forming component of mPTP or regulates it (By similarity).

Cellular Location
Mitochondrion inner membrane; Multi-pass membrane protein. Membrane; Multi-pass membrane protein. Cell projection, cilium, flagellum membrane; Multi-pass membrane protein. Note=In sperm flagellum this protein is located in the fibrous sheath, a non-mitochondrial region (PubMed:17137571). May localize to non-mitochondrial membranes (PubMed:27641616)

Tissue Location
Expressed in brain, liver, sperm and testis (PubMed:15670820, PubMed:17137571). In testis, expressed at higher level in spermatocytes, while it is expressed at lower level in spermatogonial cells (PubMed:17681941). Expressed in erythrocytes (at protein level) (PubMed:27641616).

SLC25A31 Antibody (Center) Blocking peptide - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Blocking Peptides

SLC25A31 Antibody (Center) Blocking peptide - Images

SLC25A31 Antibody (Center) Blocking peptide - Background

Mitochondrial ADP/ATP carriers, such as SLC25A31, arenuclear-coded mitochondrial proteins that catalyze the exchange ofATP generated in mitochondria by ATP synthase (see MIM 108729)against ADP produced in cytosol by most energy-consuming reactions(Dolce et al., 2005 [PubMed 15670820]).

SLC25A31 Antibody (Center) Blocking peptide - References

Gallerne, C., et al. Int. J. Biochem. Cell Biol. 42(5):623-629(2010)Kim, Y.H., et al. Dev. Biol. 302(2):463-476(2007)Dolce, V., et al. FEBS Lett. 579(3):633-637(2005)Simpson, J.C., et al. EMBO Rep. 1(3):287-292(2000)