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ANT4 Antibody

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP51517

Product Information

Application	WB, IP, ICC
Primary Accession	Q9H0C2
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Calculated MW	35022

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
Dilution	WB~~1:1000 IP~~N/A ICC~~N/A
Format	0.01M PBS, pH 7.2, 0.09% (W/V) Sodium azide, Glycerol 50%
Storage	Store at -20 °C.Stable for 12 months from date of receipt

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 (By similarity) (PubMed:15670820). 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).

Background

Catalyzes the exchange of cytoplasmic ADP with mitochondrial ATP across the mitochondrial inner membrane. May serve to mediate energy generating and energy consuming processes in the distal flagellum, possibly as a nucleotide shuttle between flagellar glycolysis, protein phosphorylation and mechanisms of motility.

References

Dolce V.,et al.FEBS Lett. 579:633-637(2005).
Kim Y.-H.,et al.Dev. Biol. 302:463-476(2007).
Wiemann S.,et al.Genome Res. 11:422-435(2001).
Hillier L.W.,et al.Nature 434:724-731(2005).
Mural R.J.,et al.Submitted (SEP-2005) to the EMBL/GenBank/DDBJ databases.

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