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Slc25a31 antibody - middle region

Rabbit Polyclonal Antibody
Catalog # AI13622

Product Information

Application	WB
Primary Accession	Q3V132
Other Accession	NM_178386, NP_848473
Reactivity	Human, Mouse, Rat, Rabbit, Pig, Dog, Guinea Pig, Horse, Bovine
Predicted	Mouse, Rat, Pig, Dog, Guinea Pig
Host	Rabbit
Clonality	Polyclonal
Calculated MW	35258

Additional Information

Gene ID	73333
Alias Symbol	1700034J06Rik, Ant4, Sfec
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	Liquid. Purified antibody supplied in 1x PBS buffer with 0.09% (w/v) sodium azide and 2% sucrose.
Reconstitution & Storage	Add 50 ul of distilled water. Final anti-Slc25a31 antibody concentration is 1 mg/ml in PBS buffer with 2% sucrose. For longer periods of storage, store at 20°C. Avoid repeat freeze-thaw cycles.
Precautions	Slc25a31 antibody - middle region is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	Slc25a31 {ECO:0000303|PubMed:18667754, ECO:0000312|MGI:MGI:1920583}
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). 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, PubMed:17681941,

PubMed:19556438). 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 (PubMed:19556438). In addition to its ADP:ATP antiporter activity, also involved in mitochondrial uncoupling and mitochondrial permeability transition pore (mPTP) activity (PubMed:31489369). 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 (By similarity). 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 (PubMed:31489369). It is however unclear if SLC25A31/ANT4 constitutes a pore-forming component of mPTP or regulates it (PubMed:31489369).

Cellular Location

Mitochondrion inner membrane {ECO:0000250|UniProtKB:P02722, ECO:0000250|UniProtKB:Q9H0C2}; Multi- pass membrane protein. Membrane {ECO:0000250|UniProtKB:Q9H0C2}; 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 (By similarity). May localize to non-mitochondrial membranes (By similarity) {ECO:0000250|UniProtKB:Q9H0C2}

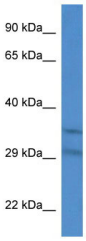
Tissue Location

Specifically expressed in undifferentiated embryonic stem cells and germ cells (PubMed:16051982, PubMed:31489369) Expression is down-regulated after embryonic stem cells differentiation (PubMed:16051982). In adults, only expressed in developing gametes in testis (PubMed:16051982). In testis, expressed at higher level in spermatocytes. Expression is probably associated with entry of the male germ cells into meiosis (PubMed:17681941). Expressed at very low level in Sertoli cells (PubMed:17681941).

References

Kim Y.-H.,et al.Dev. Biol. 302:463-476(2007).
Carninci P.,et al.Science 309:1559-1563(2005).

Images



WB Suggested Anti-Slc25a31 Antibody Titration: 1.0 µg/ml
Positive Control: Mouse Heart

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.