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UCP2 Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO2217a

Product Information

Application	WB, FC, ICC, E
Primary Accession	P55851
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Clone Names	3F1B9
Isotype	IgG2a
Calculated MW	33229
Description	Mitochondrial uncoupling proteins (UCP) are members of the larger family of mitochondrial anion carrier proteins (MACP). UCPs separate oxidative phosphorylation from ATP synthesis with energy dissipated as heat, also referred to as the mitochondrial proton leak. UCPs facilitate the transfer of anions from the inner to the outer mitochondrial membrane and the return transfer of protons from the outer to the inner mitochondrial membrane. They also reduce the mitochondrial membrane potential in mammalian cells. Tissue specificity occurs for the different UCPs and the exact methods of how UCPs transfer H+/OH- are not known. UCPs contain the three homologous protein domains of MACPs. This gene is expressed in many tissues, with the greatest expression in skeletal muscle. It is thought to play a role in nonshivering thermogenesis, obesity and diabetes. Chromosomal order is 5'-UCP3-UCP2-3'.
Immunogen	Purified recombinant fragment of human UCP2 (AA: 1-309) expressed in E. Coli.
Formulation	Purified antibody in PBS with 0.05% sodium azide

Additional Information

Gene ID	7351
Other Names	Mitochondrial uncoupling protein 2, UCP 2, Solute carrier family 25 member 8, UCPH, UCP2, SLC25A8
Dilution	WB~~1/500 - 1/2000 FC~~1/200 - 1/400 ICC~~N/A E~~1/10000
Storage	Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	UCP2 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

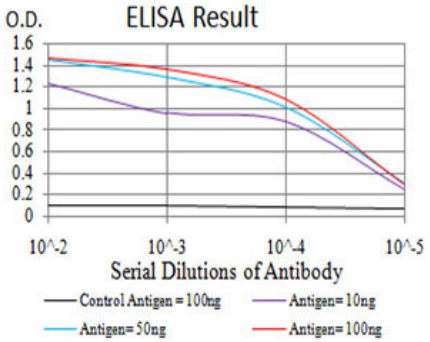
Protein Information

Name	UCP2
Synonyms	SLC25A8 {ECO:0000303|PubMed:33798544}
Function	Antiporter that exports dicarboxylate intermediates of the Krebs cycle in exchange for phosphate plus a proton across the inner membrane of mitochondria, a process driven by mitochondrial motive force with an overall impact on glycolysis, glutaminolysis and glutathione-dependent redox balance. Continuous export of oxaloacetate and related four-carbon dicarboxylates from mitochondrial matrix into the cytosol negatively regulates the oxidation of acetyl-CoA substrates via the Krebs cycle, lowering the ATP/ADP ratio and reactive oxygen species (ROS) production (PubMed:24395786). May mediate inducible proton entry into the mitochondrial matrix affecting ATP turnover as a protection mechanism against oxidative stress. The proton currents are most likely associated with fatty acid flipping across the inner membrane of mitochondria in a metabolic process regulated by free fatty acids and purine nucleotides (By similarity) (PubMed:11171965, PubMed:11278935, PubMed:22524567, PubMed:26182433, PubMed:33373220). Regulates the use of glucose as a source of energy. Required for glucose-induced DRP1-dependent mitochondrial fission and neuron activation in the ventromedial nucleus of the hypothalamus (VMH). This mitochondrial adaptation mechanism modulates the VMH pool of glucose- excited neurons with an impact on systemic glucose homeostasis (By similarity). Regulates ROS levels and metabolic reprogramming of macrophages during the resolution phase of inflammation. Attenuates ROS production in response to IL33 to preserve the integrity of the Krebs cycle required for persistent production of itaconate and subsequent GATA3-dependent differentiation of inflammation-resolving alternatively activated macrophages (By similarity). Can unidirectionally transport anions including L-malate, L-aspartate, phosphate and chloride ions (PubMed:22524567, PubMed:24395786, PubMed:26182433). Does not mediate adaptive thermogenesis (By similarity).
Cellular Location	Mitochondrion inner membrane {ECO:0000250|UniProtKB:P70406}; Multi-pass membrane protein
Tissue Location	Widely expressed in adult human tissues, including tissues rich in macrophages. Most expressed in white adipose tissue and skeletal muscle.

References

1.Endocrine. 2013 Jun;43(3):714-23. 2.Carcinogenesis. 2012 Nov;33(11):2065-75.

Images


O.D.
ELISA Result
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
10^-2
10^-3
10^-4
10^-5
Serial Dilutions of Antibody
Control Antigen = 100ng
Antigen= 10ng
Antigen= 50ng
Antigen= 100ng