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UCP2 Antibody
Purified Mouse Monoclonal Antibody
Catalog # AO2216a

Specification

UCP2 Antibody - Product Information

Application	**E, WB**
Primary Accession	P55851
Reactivity	**Human**
Host	**Mouse**
Clonality	**Monoclonal**
Isotype	**IgG1**
Calculated MW	**33.2kDa KDa**

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

UCP2 Antibody - Additional Information

Gene ID 7351

Other Names
Mitochondrial uncoupling protein 2, UCP 2, Solute carrier family 25 member 8, UCPH, UCP2, SLC25A8

Dilution
E~~1/10000
WB~~1/500 - 1/2000

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.

UCP2 Antibody - 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). Proton transporter activity is debated, but if it occurs it may mediate inducible proton re-entry into the mitochondrial matrix affecting ATP turnover as a protection mechanism against oxidative stress. Proton re-entry may be coupled to metabolite transport to allow for proton flux switching and optimal ATP turnover (PubMed:11171965, PubMed:33373220, PubMed:11278935, PubMed:22524567, PubMed:26182433) (By similarity). 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:24395786, PubMed:22524567, 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.

UCP2 Antibody - Protocols

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

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation

- Flow Cytomety
- Cell Culture