SANTA CRUZ BIOTECHNOLOGY, INC.

UCP2 (G-6): sc-390189

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The uncoupling protein UCP1 (formerly designated UCP) is an integral membrane protein unique to brown adipose tissue mitochondria. UCP1 forms a dimer that acts as a proton channel, which can uncouple oxidative phosphorylation by dissipating the electrochemical potential across the inner mitochondrial membrane. This process induces heat production in brown adipose tissue and is involved in regulation of body temperature and glucose metabolism. UCP2 is a structurally related protein that also uncouples mitochondrial respiration. It is more widely expressed in human and mouse tissues, including white adipose tissue and muscle, than is UCP1. UCP2 is thought to play a role in body weight regulation.

CHROMOSOMAL LOCATION

Genetic locus: UCP2 (human) mapping to 11q13.4; Ucp2 (mouse) mapping to 7 E3.

SOURCE

UCP2 (G-6) is a mouse monoclonal antibody raised against a peptide mapping at the N-terminus of UCP2 of human origin.

PRODUCT

Each vial contains 200 µg IgM kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-390189 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

UCP2 (G-6) is recommended for detection of UCP2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

UCP2 (G-6) is also recommended for detection of UCP2 in additional species, including equine, canine and bovine.

Suitable for use as control antibody for UCP2 siRNA (h): sc-42682, UCP2 siRNA (m): sc-42683, UCP2 shRNA Plasmid (h): sc-42682-SH, UCP2 shRNA Plasmid (m): sc-42683-SH, UCP2 shRNA (h) Lentiviral Particles: sc-42682-V and UCP2 shRNA (m) Lentiviral Particles: sc-42683-V.

Molecular Weight of UCP2 monomer: 35 kDa.

Molecular Weight of UCP2 dimer: 70 kDa.

Positive Controls: human skeletal muscle extract: sc-363776 or human bone marrow extract: sc-363752.

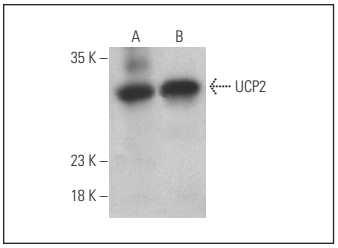
STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

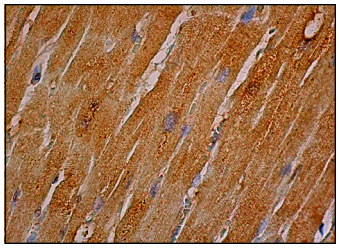
RESEARCH USE

For research use only, not for use in diagnostic procedures.

DATA



UCP2 (G-6): sc-390189. Western blot analysis of UCP2 expression in human skeletal muscle (**A**) and human bone marrow (**B**) tissue extracts. Detection reagent used: anti-mouse IgM-HRP.



UCP2 (G-6): sc-390189. Immunoperoxidase staining of formalin fixed, paraffin-embedded human heart muscle tissue showing cytoplasmic staining of myocytes.

SELECT PRODUCT CITATIONS

1. García-Ruiz, I., et al. 2014. High-fat diet decreases activity of the oxidative phosphorylation complexes and causes nonalcoholic steatohepatitis in mice. Dis. Model. Mech. 7: 1287-1296.
2. Li, P., et al. 2015. Modulation of fatty acid metabolism is involved in the alleviation of isoproterenol-induced rat heart failure by fenofibrate. Mol. Med. Rep. 12: 7899-7906.
3. Shinohara, S., et al. 2016. Ethanol extracts of chickpeas alter the total lipid content and expression levels of genes related to fatty acid metabolism in mouse 3T3-L1 adipocytes. Int. J. Mol. Med. 38: 574-584.
4. Ding, S.Y., et al. 2017. Muscular dystrophy in PTFR/cavin-1 null mice. JCI Insight 2: e91023.
5. Pan, P., et al. 2018. Melatonin balance the autophagy and apoptosis by regulating UCP2 in the LPS-induced cardiomyopathy. Molecules 23: 675.
6. Hough, R.F., et al. 2019. Endothelial mitochondria determine rapid barrier failure in chemical lung injury. JCI Insight 4: 124329.
7. Calvani, M., et al. 2020. β_3-adrenoreceptor blockade reduces hypoxic myeloid leukemic cells survival and chemoresistance. Int. J. Mol. Sci. 21: 4210.
8. Hong, J., et al. 2021. Exercise training mitigates ER stress and UCP2 deficiency-associated coronary vascular dysfunction in atherosclerosis. Sci. Rep. 11: 15449.
9. Yan, X.L., et al. 2022. Activation of UCP2 by anethole trithione suppresses neuroinflammation after intracerebral hemorrhage. Acta Pharmacol. Sin. 43: 811-828.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.