SANTA CRUZ BIOTECHNOLOGY, INC.

UCP2 (C-20): sc-6525

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 UCP. UCP2 is thought to play a role in body weight regulation.

REFERENCES

1. Nicholls, D.G., et al 1984. Thermogenic mechanisms in brown fat. Physiol. Rev. 64: 1-64.
2. Jacobsson, A., et al. 1985. Mitochondrial uncoupling protein from mouse brown fat. Molecular cloning, genetic mapping, and mRNA expression. J. Biol. Chem. 260: 16250-16254.

CHROMOSOMAL LOCATION

Genetic locus: UCP2/UCP3 (human) mapping to 11q13.4; Ucp2/Ucp3 (mouse) mapping to 7 E3.

SOURCE

UCP2 (C-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of UCP2 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-6525 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

UCP2 (C-20) is recommended for detection of UCP2 and, to a lesser extent, UCP3 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

UCP2 (C-20) is also recommended for detection of UCP2 and, to a lesser extent, UCP3 in additional species, including equine, canine, bovine and porcine.

Molecular Weight of UCP2 monomer: 35 kDa.

Molecular Weight of UCP2 dimer: 70 kDa.

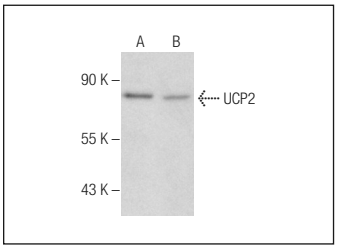
STORAGE

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 (C-20): sc-6525. Western blot analysis of UCP2 expression in HL-60 (**A**) and WI 38 (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Zhang, C.Y., et al. 2001. Uncoupling protein-2 negatively regulates Insulin secretion and is a major link between obesity, β cell dysfunction, and type 2 diabetes. Cell 105: 745-755.
2. Degasperi, G.R., et al. 2008. UCP2 protects hypothalamic cells from TNF-α-induced damage. FEBS Lett. 582: 3103-3110.
3. Liu, Y., et al. 2009. Both ischemic preconditioning and ghrelin administration protect hippocampus from ischemia/reperfusion and upregulate uncoupling protein-2. BMC Physiol. 9: 17.
4. Denis, R.G., et al. 2010. TNF-α transiently induces endoplasmic reticulum stress and an incomplete unfolded protein response in the hypothalamus. Neuroscience 170: 1035-1044.
5. Kuai, X.Y., et al. 2010. Mitochondrial uncoupling protein 2 expression in colon cancer and its clinical significance. World J. Gastroenterol. 16: 5773-5778.
6. Rottlaender, D., et al. 2010. Connexin 43 acts as a cytoprotective mediator of signal transduction by stimulating mitochondrial KATP channels in mouse cardiomyocytes. J. Clin. Invest. 120: 1441-1453.
7. Azzu, V., et al. 2010. Degradation of an intramitochondrial protein by the cytosolic proteasome. J. Cell Sci. 123: 578-585.
8. Takami, G., et al. 2010. Effects of atypical antipsychotics and haloperidol on PC12 cells: only aripiprazole phosphorylates AMP-activated protein kinase. J. Neural Transm. 117: 1139-1153.
9. Sun, X.L., et al. 2011. Uncoupling protein 2 knockout exacerbates depression-like behaviors in mice via enhancing inflammatory response. Neuroscience 192: 507-514.