SANTA CRUZ BIOTECHNOLOGY, INC.

UCP3 (C-20): sc-7756

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. An additional UCP family member, UCP3, is highly muscle specific and is possibly involved in the uncoupling of oxidative phosphorylation in skeletal muscle.

CHROMOSOMAL LOCATION

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

SOURCE

UCP3 (C-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping to a domain common to the C-terminus of $UCP3_L$ and $UCP3_S$ 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-7756 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

UCP3 (C-20) is recommended for detection of $UCP3_L$ and $UCP3_S$ of human and, to a lesser extent, mouse and rat 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).

UCP3 (C-20) is also recommended for detection of UCP3L and UCP3S in additional species, including equine and canine.

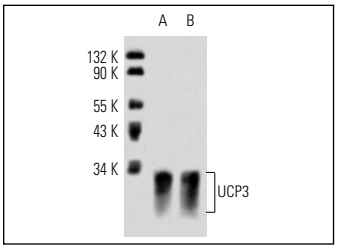
Suitable for use as control antibody for UCP3 siRNA (h): sc-42684, UCP3 siRNA (m): sc-42685, UCP3 shRNA Plasmid (h): sc-42684-SH, UCP3 shRNA Plasmid (m): sc-42685-SH, UCP3 shRNA (h) Lentiviral Particles: sc-42684-V and UCP3 shRNA (m) Lentiviral Particles: sc-42685-V.

Molecular Weight of UCP3: 33 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



UCP3 (C-20): sc-7756. Western blot analysis of UCP3 expression in rat skeletal muscle (**A**) and mouse heart (**B**) tissue extracts.

SELECT PRODUCT CITATIONS

1. Valverde, A.M., et al. 2003. Insulin-induced up-regulated uncoupling protein-1 expression is mediated by Insulin Receptor substrate 1 through the phosphatidylinositol 3-kinase/Akt signaling pathway in fetal brown adipocytes. J. Biol. Chem. 278: 10221-10231.
2. Porras, A., et al. 2003. Long-term treatment with Insulin induces apoptosis in brown adipocytes: role of oxidative stress. Endocrinology 114: 5390-5401.
3. Oliveira, R.L., et al. 2004. Cold-induced PGC-1α expression modulates muscle glucose uptake through an Insulin Receptor/Akt-independent, AMPK-dependent pathway. Am. J. Physiol. Endocrinol. Metab. 287: E686-E695.
4. Exil, V.J., et al. 2006. Abnormal mitochondrial bioenergetics and heart rate dysfunction in mice lacking very-long-chain acyl-CoA dehydrogenase. Am. J. Physiol. Heart Circ. Physiol. 290: H1289-H1297.
5. Fritz, T., et al. 2006. Low-intensity exercise increases skeletal muscle protein expression of PPARδ and UCP3 in type 2 diabetic patients. Diabetes Metab. Res. Rev. 22: 492-498.
6. Trenker, M., et al. 2007. Uncoupling proteins 2 and 3 are fundamental for mitochondrial Ca^{2+} uniport. Nat. Cell Biol. 9: 445-452.
7. Alberdi G., et al. 2013. Thermogenesis is involved in the body-fat lowering effects of resveratrol in rats. Food Chem. 141: 1530-1535.

RESEARCH USE

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