

UCP1/2/3 (FL-307): sc-28766

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

- Nicholls, D.G., et al. 1984. Thermogenic mechanisms in brown fat. *Physiol. Rev.* 64: 1-64.
- 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.
- Cassard, A.M., et al. 1990. Human uncoupling protein gene: structure, comparison with rat gene and assignment to the long arm of chromosome 4. *J. Cell. Biochem.* 43: 255-264.
- Himms-Hagen, J. 1990. Brown adipose tissue thermogenesis: interdisciplinary studies. *FASEB J.* 4: 2890-2898.

CHROMOSOMAL LOCATION

Genetic locus: UCP1 (human) mapping to 4q31.1, UCP2/UCP3 (human) mapping to 11q13.4; Ucp1 (mouse) mapping to 8 C2, Ucp2/Ucp3 (mouse) mapping to 7 E3.

SOURCE

UCP1/2/3 (H-300) is a rabbit polyclonal antibody raised against amino acids 1-300 mapping at the N-terminus of UCP1 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.

APPLICATIONS

UCP1/2/3 (H-300) is recommended for detection of UCP1, and to a lesser extent, UCP2 and 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), 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).

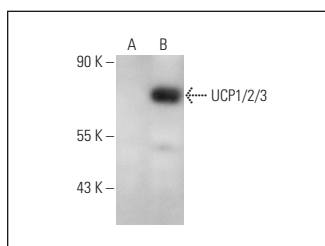
Molecular Weight of UCP1/2/3: 33 kDa.

Positive Controls: UCP1 (m): 293T Lysate: sc-124439, mouse heart extract: sc-2254 or rat skeletal muscle extract: sc-364810.

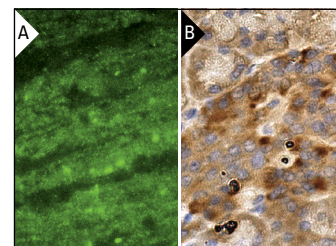
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 4) Immunohistochemistry: use ImmunoCruz™: sc-2051 or ABC: sc-2018 rabbit IgG Staining Systems.

DATA



UCP1/2/3 (FL-307): sc-28766. Western blot analysis of UCP1/2/3 expression in non-transfected: sc-117752 (A) and mouse UCP1 transfected: sc-124439 (B) 293T whole cell lysates.



UCP1/2/3 (FL-307): sc-28766. Immunofluorescence staining of normal mouse heart frozen section showing cytoplasmic staining (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human pancreas tissue showing cytoplasmic staining of Islets of Langerhans and glandular cells (B).

SELECT PRODUCT CITATIONS

- Moreno-Navarrete, J.M., et al. 2013. Decreased RB1 mRNA, protein, and activity reflect obesity-induced altered adipogenic capacity in human adipose tissue. *Diabetes* 62: 1923-1931.

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.

MONOS
Satisfaction
Guaranteed

Try **UCP1 (4E5): sc-293418** or **UCP2 (G-6): sc-390189**, our highly recommended monoclonal alternatives to UCP1/2/3 (FL-307). Also, for AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647 conjugates, see **UCP1 (4E5): sc-293418**.