ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

Uncoupling Protein 3 (UCP3) Antibodies

Cat. UCP31-S	Rabbit Anti-Human UCP3 Antiserum # 1	**SIZE**: 100 ul
Cat. UCP31-A	Rabbit Anti-Human UCP3 IgG #1 (affinity pure)	**SIZE**: 100 ug
Cat. UCP31-P	Human UCP3 Control/blocking peptide # 1	**SIZE**: 100 ug

The regulation of body weight depends upon the calorie intake and expenditure. It is a very complex and highly regulated process. It involves multiples neural circuits with specific neuropeptides, neurotransmitter transporters and receptors and influenced by peripheral signals. The product of obese gene (Leptin) may influence many of these processes. White and brown adipose tissues (BAT and WAT, respectively) play a central role in body weight and energy expenditure. WAT is the major site for energy storage via triglyceride synthesis and mobilization via lipolysis. **Uncoupling proteins (UCP1-5)** are a family of mitochondria transport proteins that play a critical role in thermoregulatory heat production and maintenance of basal metabolic rate. BAT is able to dissipate energy as heat via uncoupled mitochondrial respiration by a mitochondrial anion carrier, uncoupling protein 1 (UCP1). UCP1 is predicted to contain 6 trans-membrane (TM) domains, a putative purine nucleotide-binding domain (PNBD) and three-mitochondrial energy transfer protein domains (ETPDs). Both amino and C-termini are predicted to be cytoplasmic.

Human **UCP3** long form (UCP3L; gene accession # P55916) is a 312 aa mitochondrial uncoupling protein (1, 2). It is only 57% and 73% homologous with human UCP1 and UCP2 respectively. Like other UCPs, UCP3 is predicted to contain 6 transmembrane domains. The UCP3S (275 aa, gene accession # NP_073714) lacks the 6th transmembrane domain and it is only 275 aa long (2). UCP3 has preferential expression in muscle and it is unaffected by cold acclimation.

Source of Antigen and Antibodies

Antigen	17-aa peptide from **human UCP3** (gene accession # P55916; refs 1); **Designation (UCP31-P, control peptide**) conjugated to KLH; epitope location ~ between 2nd and the 3rd TM Domain
Ab Host/type	Rabbit, Polyclonal Unpurified antiserum (cat # UCP31-S) and aff pure IgG (cat # UCP31-A) purified over antigen-agarose column
2-ab	**Goat Anti-rabbit IgG-HRP** cat # 20320 (AP, biotin, FITC conjugates also available)
-ve control	# 20009-1, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as –ve control

Form & Storage of Antibodies/Peptide Control

Antiserum (unpurified)
100ul solution lyophilized powder
Supplied 0.05% azide, **Reconstitute** powder in 100 ul PBS

Affinity pure IgG
100 ug/100ul solution lyophilized powder
Supplied in **Buffer**: PBS+0.1% BSA
Reconstitute powder in PBS at 1mg/ml

Control/blocking peptide
100 ug/100 ul solution lyophilized powder
Supplied in Buffer: PBS pH 7.5,
Reconstitute powder in PBS at 1 mg/ml.

Storage
Short-term: unopened, undiluted liquid vials at -20OC and powder at 4oC or -20oC..
Long-term: at –20C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

Stability: 6-12 months at –20oC or below.

Recommended Usage

Western Blotting (1:1K-5K for neat serum and 1-10 ug/ml for affinity pure using Chemiluminescence technique). **See published refs at the web site.**

ELISA (1:10K-1:100K; using 50-100 ng control peptide/well).

Histochemistry & Immunofluorescence: we recommend the use of affinity purified antibody at 2-20 ug/ml in formaldehyde fixed tissue. **See published refs at the web site.**

Specificity & Cross-reactivity

The human UCP31-P peptide sequences is 100% conserved in long and short form of human UCP3, 88% in monkey, 78% in humming bird, 76% in canine and pig, 70% in mouse, bovine, hamster, and 64% in rat UCP3. UCP31-P has no significant homology with UCP1-2 or UCP4-5. Antibody cross-reactivity in various species has not been studied. Control peptide, because of its low mol. Wt (<3 kDa), is not suitable for Western. It should be used for ELISA or antibody blocking experiments (use 5-10 ug control peptide per 1 ug of aff pure IgG or 1 ul antiserum) to confirm antibody specificity (see detailed protocol at the web site.

General References: (1) Boss, O et al (1997) FEBS Lett. 408, 39-42; (2)Vidal-Puig A et al (1997) BBRC 235, 79-82.

Citations of for UCP3(see updated list at the web site)
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*This product is for in vitro research use only.

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