ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

Uncoupling Protein 2 (UCP2) Antibodies

Cat. UCP21-S	Rabbit Anti-Mouse UCP2 Antiserum #1	**SIZE**: 100 ul
Cat. UCP21-A	Rabbit Anti-Mouse UCP2 IgG #1 (aff pure)	**SIZE**: 100 ug
Cat. UCP21-P	Mouse UCP2 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.

Mouse/rat **UCP2** is A 309 AA (human 309 aa chromosome 7; ~95% homology) mitochondrial uncoupling protein (1). It is only 59% homologous with UCP1 found in brown adipose tissues. UCP2 has wide tissue distribution in mouse tissues (brain, kidney, liver, brown adipose tissue, heart, and muscle). UCP2 may play a critical role in energy balance, body weight, and thermoregulation (1, 2).

Source of Antigen and Antibodies

Antigen	14-aa peptide from **mouse UCP2** (1); **Designation (UCP21-P, control peptide**) conjugated to KLH; ~Between TM4-TM5 ~C-terminus
Ab Host/type	Rabbit, Polyclonal Unpurified antiserum (cat # UCP21-S) and aff pure IgG (cat # UCP21-A) purified over antigen-agarose column
2-ab	**Goat Anti-rabbit IgG-HRP** cat # 20320 (AP, biotin, FITC conjugates also available)
-ve control IgG	**# 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 ECL technique (see published refs 2.

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. see refs 2.

Specificity & Cross-reactivity

The UCP21-P peptide sequences is 100% conserved in rat, D. hamster, and 86% in human, pig, canine, and bovine UCP2. UCP21-P has no significant homology with UCP1, UCP3-5. 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 at the web site

General References: (1) Fleury C et al 91997) Nature Genetics 15, 269-272; Flier JF and Lowell BB (1997) Nature Genetics 15, 223-224; **(2)** Boss O et al (1997) FEBS Lett. 408, 39-42

Citations of for UCP2 (see updated list at the web site)

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