

Product Specification Sheet

**Uncoupling Protein 4 (UCP4) Antibodies**

<b>Cat.</b> UCP41-S	Rabbit Anti-Human UCP4 Antiserum # 1	<b>SIZE:</b> 100 ul
<b>Cat.</b> UCP41-A	Rabbit Anti-Human UCP4 IgG #1 (aff pure)	<b>SIZE:</b> 100 ug
<b>Cat.</b> UCP41-P	Human UCP4 Control/blocking peptide #1	<b>SIZE:</b> 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. UCP4 (mouse/rat 322 aa; human 323 aa; chromosome 6p11.2-q12) is expressed in both fetal and adult brain tissues. It is ~32% related to mammalian UCP1-3 and plant/nematode UCPs (~38-46% identity).

**Source of Antigen and Antibodies**

<b>Antigen</b>	16-aa peptide from <b>Human UCP4 (1)</b> ; <b>Designation (UCP41-P, control peptide /blocking peptide)</b> conjugated to KLH; epitope location ~ ~N-terminus Cytoplasmic domain
<b>Ab Host/type</b>	Rabbit, Polyclonal unpurified antiserum (# <b>UCP41-S</b> ) and IgG, purified over antigen-agarose (Cat # <b>UCP41-A</b> )
<b>2-Ab</b>	Cat # 20320, goat anti-rabbit IgG-HRP (AP, biotin, FITC conjugates also available).
<b>-ve control IgG</b>	# 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.

**Shipping:** 4oC for solutions and room temp for powder

**Recommended Usage**

**Western Blotting** (1:1K-5K for neat serum and 1-10 ug/ml for affinity pure using Chemiluminescence technique).

**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.

**Specificity & Cross-reactivity**

The Human UCP41-P peptide sequences is 69% conserved in mouse and rat UCP4. UCP41-P has no significant homology with UCP1-3 or UCP-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) Mao W et al (1999) FEBS Lett. 443, 326-330; Carninici P et al (1999) Methods Enzymol. 303, 19; Shibata K et al (2001) Nature 409, 685

(2) Citations of ADI's Antibodies (see web site for updated list)

Sullivan PJ 2003 Epilepsia (Series 4), Sep2003 Supplement 9, Vol. 44, p176  
Razmara A 2007 Brain Res. In press  
Ho W-L 2005 J. Neurosci. 81, 261-268  
Chan SL2006 JBC 281: 37391 - 37403

\*This product is for in vitro research use only.

Related material available from ADI

Anti-**UCP1-5**; Leptin, leptin receptor, CART, Orexins

**Western Blot recycling kit** (Use the same blot to probe with multiple antibodies UCP or other antibodies)

UCP41-S-A-P 71208A

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