

Product Specification Sheet

Uncoupling Protein 4 (UCP4) Antibodies

Cat. UCP42-S	Rabbit Anti-Rat UCP4 Antiserum # 2	SIZE: 100 ul
Cat. UCP42-A	Rabbit Anti-Rat UCP4 IgG #2 (affinity pure)	SIZE: 100 ug
Cat. UCP42-P	Rat UCP4 Control/blocking peptide #2	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.

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

Antigen	14-aa peptide from Rat UCP4 (1); Designation (UCP42-P, control peptide) epitope location ~ NT, 1 st extracellular region
Ab Host/type	Rabbit, Polyclonal Unpurified antiserum (cat # UCP42-S) and aff pure IgG (cat # UCP42-A)
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 -200C 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 Rat UCP42-P peptide sequences is 100% conserved in alternatively spliced isoforms a-c of rat, 85% in human, an d71% in mouse UCP4. UCP42-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)

UCP42-S-A-P 71208A

India Contact:

Life Technologies (India) Pvt. Ltd.

306, Aggarwal City Mall, Opposite M2K Pitampura, Delhi - 110034 (INDIA). Ph: +91-11-42208000, 42208111, 42208222, Mobile: +91-9810521400, Fax: +91-11-42208444
Email: customerservice@lifetechindia.com Website: www.lifetechindia.com