

**Product Specification Sheet**

**Melanocortin Receptor 4 (MC4-R) Antibodies**

|                       |  |                     |
|-----------------------|--|---------------------|
| <b>Cat. #</b> MCR41-S | Rabbit Anti-Rat MC4-R Antiserum # 1      | <b>SIZE:</b> 100 ul |
| <b>Cat. #</b> MCR41-A | Rabbit Anti- Rat MC4-R Ig G# 1(aff pure) | <b>SIZE:</b> 100 ug |
| <b>Cat. #</b> MCR41-P | Rat MC4-R Control peptide                | <b>SIZE:</b> 100 ug |

Melanocortins are regulatory peptides formed by post-translational processing of pro-opiomelanocortin. Melanocortin peptides have been suggested to perform a variety of physiological roles ranging from control of behavior, memory, neurotrophic properties, antipyretic and modulation of immune system, etc. Their binding sites have been found distributed in tissues ranging from lachrymal and submandibular glands, pancreas, adipose tissue, bladder, duodenum, spleen, brain, gonadal tissues and malignant melanoma tumors. Five melanocortin receptors (MC-R) have been characterized to date. These include melanocyte-specific receptor (MSH or MC1-R), corticoadrenal-specific ACTH receptor (MC2-R), melanocortin-3 (MC3-R), melanocortin-4 (MC4-R) and melanocortin-5 receptor (MC5-R). MC3-R and MC4-R are distributed in brain whereas MC5-R has a broad distribution.

Melanocyte Stimulating Hormone Receptor (MSH-R), also called Melanotropin Receptor, or Melanocortin-1 Receptor (MC1-R), is a 315 amino acid transmembrane protein belonging to the family of G-Protein coupled receptors. It is a receptor for MSH (a,b,g) and ACTH. Its activity is mediated by G-proteins, which activate adenylate cyclase. It is found in Melanocytes and corticoadrenal tissue as well as various tissues like adrenal gland, leukocytes, lung, lymph node, ovary, testis, pituitary, placenta, spleen and uterus. Melanocortin-2 receptor (MC2-R) also called Adrenocorticotrophic hormone receptor (ACTH-R) is a 297 amino acid transmembrane protein found in melanocytes and the corticoadrenal tissue. It mediates the corticotrophic effect of ACTH. Melanocortin-3 receptor (MC3-R) is expressed in brain. In humans it is a 360 AA protein whereas in mice and rats its 323 AA. MC4-R is a 332 amino acid transmembrane protein and is expressed in brain, placental and gut tissues. MC5-R is a 325 amino acid transmembrane protein expressed in the adrenals, stomach, lung and spleen and very low levels in the brain. It is also expressed in the three layers of adrenal cortex, predominantly in the aldosterone-producing zona glomerulosa cells.

**Source of Antigen and Antibodies**

|                     |   |
|---------------------|---|
| <b>Antigen</b>      | 18aa peptide of Rat MC4-R; (Gene Accession #P70956) <b>Designated (MCR41-P or control peptide). conjugated to KLH</b> |
| <b>Location</b>     | ~N-terminal, Extracellular  |
| <b>Ab Host/type</b> | Rabbit, polyclonal; Unpurified antiserum (cat #MCR41-S) Aff pure IgG (cat #MCR41-A)                                   |
| <b>2-ab</b>         | Goat Anti-rabbit IgG-HRP cat # 20320 (AP, biotin, FITC conjugates also available)                                     |
| <b>-ve control</b>  | <b># 20009-1, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as -ve control</b>                  |

**Form & Storage of Antibodies/Peptide Control**

**Antiserum (unpurified)**

100ul solution lyophilized powder  
Supplied in Buffer: 0.05% azide

MCR41-S-A-P

rev 40203S

**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 of control peptide/well).

**Histochemistry & Immunofluorescence:** Not tested. We recommend the use of affinity purified antibody at 2-20 ug/ml.

**Specificity & Cross-reactivity**

The 18 AA rat MCR41 immunogenic peptide sequence is 88% homologous with human, mouse, monkey MC4-R, 76% with pig, 78% with bovine and 64% with chicken MC4-R. No significant sequence homology of mCR41 is seen with other melanocortin receptors. ADI has another antibody that is made to human MC4-R sequence (MCR42-S). Actual crossreactivity of antibodies in all species is not established. 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: [www.4adi.com/data/abblock.html](http://www.4adi.com/data/abblock.html)).

**General References:**

Alvaro JD et al (1996) Mol Pharmacol. 50, 583; Gantz I et al (1993) JBC 268, 15174; Mountjoy KJ et al (1994) Mol. Endocrinol. 8, 1298

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