

Product Specification Sheet

**MOP4 (NPAS2) Antibodies**

|                     |                                          |                     |
|---------------------|------------------------------------------|---------------------|
| <b>Cat.</b> MOP41-S | Rabbit Anti-Human MOP4 antiserum # 1     | <b>SIZE:</b> 100 ul |
| <b>Cat.</b> MOP41-A | Rabbit Anti-Human MOP4 IgG #1 (aff pure) | <b>SIZE:</b> 100 ug |
| <b>Cat.</b> MOP41-P | Human MOP4 Control/blocking peptide #1   | <b>SIZE:</b> 100 ug |

Several endogenous factors have been linked to rhythmicity or circadian behavior of living organisms. In *Drosophila*, the genes *period (dPer)* and *timeless (tim)*, and in *Neurospora frequency (frq)*, have been proposed to be responsible for their circadian rhythm. Recently human and mouse genes encoding a basic helix-loop-helix (bHLH) and Per-ARNT-Sim (PAS)-domain with significant similarity to the *Drosophila* Period have been reported. The cDNA sequences of hPER and mPer1 (also named *RIGU1*) are predicted to encode for proteins of length 1290 and 1291 amino acids respectively. Homologues of mPer1 designated **Per 2** (1257 aa) and **Per3** (1113 aa) have also been cloned. Both Per1 and Per2 levels show circadian rhythm in the SCN and eyes. It has been suggested that mPer regulates neuronal activity in the SCN. Mouse *Clock* (855 aa) is abundantly expressed in brain (SCN, pyramidal cortex, hippocampus) as well as in other tissues (eye, total brain, testis, ovaries, liver, heart, lung, and kidney). Although, *Clock* is constitutively expressed (not rhythmic) in the SCN, it may still be an important component of circadian machinery.

Basic-helix-loop-helix-PAS orphan protein, **MOP3** (Members Of PAS Superfamily; also known as **BMAL1/JAP3/PAS3**; 626 aa) is a general dimerization partner for several PAS superfamily of transcription regulators. MOP3 interacts with **MOP4** (also known as NPAS2; 626 aa), *Clock*, HIF1 $\alpha$ , and HIF2 $\alpha$ . MOP4 is a brain specific homolog of *Clock*.

**Source of Antigen and Antibodies**

|                        |                                                                                                                                                                                |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Antigen</b>         | 19-aa peptide of <b>human MOP4</b> (protein accession #, refs 1) ; <b>Designated (MOP41-P or control peptide)</b> conjugated to KLH; <b>epitope location</b> ~ Mid-region      |
| <b>Ab Host/type</b>    | Rabbit, Polyclonal antiserum # <b>MOP41-S</b> and IgG, purified over antigen-agarose (Cat # <b>MOP41-A</b> ). This antibody is also raised in <b>chickens</b> (cat # MOP42-S). |
| <b>2-Ab</b>            | <b>Goat Anti-rabbit IgG-HRP cat # 20320 (AP, biotin, FITC conjugates also available)</b>                                                                                       |
| <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**

|                               |                                                       |                    |
|-------------------------------|-------------------------------------------------------|--------------------|
| <b>Antiserum (unpurified)</b> |                                                       |                    |
| 100ul                         | solution                                              | lyophilized powder |
| Supplied                      | 0.05% azide, <b>Reconstitute</b> powder in 100 ul PBS |                    |
| <b>Affinity pure IgG</b>      |                                                       |                    |
| 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 -20°C and powder at 4°C or -20°C..

**Long-term:** at -20°C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

**Stability:** 6-12 months at -20°C or below.  
**Shipping:** 4°C 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:** We recommend the use of affinity purified antibody at 2-20 ug/ml. This antibody has been cited in refs. 2.

**Specificity & Cross-reactivity**

Human MOP41-P sequence is 78% conserved in chicken and 73% in mouse MOP4/NPAS2. Antibody cross-reactivity with MOP4 from various species is not known. 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:**  
Hogenesch JB et al (1997) J Biol. Chem. 272, 8581-8593;  
Hogenesch JB et al (1998) PNAS 95, 5474; Zhou YD et al (1997) PNAS 94, 713-718.

**Citations of ADI's MOP4 antibodies**

Napoli C et al (2002) Circulation 105, 1360.

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

**Related material available from ADI**

Anti-Mouse/human Per1-3, *Clock*, MOP3-4; *Drosophila* Per, d*Clock*, d*BMAL*, CRY1 and CRY2.

MOP41-S-A-P 71210A