

Product Specification Sheet

Per2 (mPer2) Antibodies

Cat. PER21-S	Rabbit Anti-Mouse Per 2 antiserum # 1	SIZE: 100 ul
Cat. PER21-A	Rabbit Anti-Mouse Per 2 IgG # 1 (aff pure)	SIZE: 100 ug
Cat. PER21-P	Mouse Per 2 Control/blocking peptide #1	SIZE: 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* (*freq*), 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 *RIGUI*) 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. Using genetic approach, a single mutation (A to T) in the **Clock** gene affects circadian rhythmicity in mice. Clock has been mapped to chromosome 5. Mouse *Clock* encodes a transcription factor, a single polypeptide chain of 855 aa (predicted calculated mol wt ~97 kDa; pI 6.52; hClock, 846 aa). Clock is abundantly expressed in brain (SCN, pyriform cortex, hippocampus) as well as in other tissues (eye, total brain, testes, ovaries, liver, heart, and kidney).

FUNCTION: Component of the circadian clock mechanism which is essential for generating circadian rhythms. Negative element in the circadian transcriptional loop. Influences clock function by interacting with other circadian regulatory proteins and transporting them to the nucleus. Negatively regulates CLOCK|NPAS2-BMAL1|BMAL2-induced transactivation.

SUBCELLULAR LOCATION: Nucleus

SIMILARITY: Contains 1 PAC (PAS-associated C-terminal) domain. Protein name Period circadian protein homolog 2

Synonyms Circadian clock protein PERIOD 2
mPER2

Gene name Name: Per2

Source of Antigen and Antibodies

Antigen	A 23 amino acid peptide sequence (gene accession # 054943) (designated PER21-P, control peptide/blocking peptide) of mouse Per 2 conjugated to KLH; Epitope location ~C-terminus
Ab Host/type	Rabbit, Polyclonal Aff pure IgG, (Cat # PER21-A) purified over the antigen column
2-Ab	Cat # 20320, goat anti-rabbit IgG-HRP (AP, biotin, FITC conjugates also available).
-ve control	# 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 in Buffer: 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 1 mg/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 ECL). (see published refs using this antibody in 3).

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. (see published refs using this antibody in 3).

Specificity & Cross-reactivity

The mouse PER21-P peptide sequence is 77% conserved in rat Per2. No significant homology is seen with human Per2 or Per1 or Per3. Antibody cross-reactivity with Per2 from other 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

General References: Albretch U (1997) Cell 91, 1055; Shearman LP (1997) Neuron 19, 1261; Sakamoto K (1998) JBC 273, 27039-27342. (2) Nagase T (1997) DNA Res. 4, 141

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

Beaule C, 2004, Neuroscience, 121, 253-257, , IHC
Karatsoreos IN, 2004, J. Neurosci., Jan 2004; 24: 68 - 75, WB,
Amir S, 2004, J. Neurosci., Jan 2004; 24: 781 - 790., IHC
Koyanagi S, 2003, Cancer Res., Nov 2003; 63: 7277 - 7283, WB,
Bae Kiho, 2000, Neuron 30, 525-536, , IHC,
Yagita K, 2001, Science, Apr 2001; 292: 278 - 281, , IF
Field, MD, 2000, Neuron 2000 25: 437, WB., IHC,
Harmar AJ et al, 2002, Cell 109, 497-508, WB, IHC,
Kapfhamer D, 2002, Nature Genetics 32, 290 - 295, , IHC,

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

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