

Per2 (19-J6): sc-101105

BACKGROUND

Biological timepieces called circadian clocks are responsible for the regulation of hormonal rhythms, sleep cycles and other behaviors. The suprachiasmatic nucleus (SCN), which is located in the brain, was the first mammalian circadian clock to be discovered. A number of transcription factors appearing to be molecular components of the SCN clock have been identified. Mutations within the clock gene increase the length of the endogenous period and cause a loss of rhythmicity of circadian oscillations. Three mammalian period proteins, designated Per1, Per2 and Per3, exhibit circadian rhythms in the SCN. During subjective night, Per1 and Per2 RNA levels increase in response to light pulses while Per3 RNA levels show no change in response to light pulses. Tim, for timeless, interacts with Per1 as well as Per2; and Tim and Per1 negatively regulate Clock-BMAL1-induced transcription.

REFERENCES

1. Morell, V. 1995. A 24-hour circadian clock is found in the mammalian retina. *Science* 272: 349.
2. King, D.P., et al. 1997. The mouse clock mutation behaves as an antimorph and maps within the W19H deletion, distal of Kit. *Genetics* 146: 1049-1060.
3. Antoch, M.P., et al. 1997. Functional identification of the mouse circadian clock gene by transgenic BAC rescue. *Cell* 89: 655-667.
4. Zylka, M.J., et al. 1998. Three period homologs in mammals: differential light responses in the suprachiasmatic circadian clock and oscillating transcripts outside of brain. *Neuron* 20: 1103-1110.

CHROMOSOMAL LOCATION

Genetic locus: PER2 (human) mapping to 2q37.3.

SOURCE

Per2 (19-J6) is a mouse monoclonal antibody raised against recombinant Per2 of human origin.

PRODUCT

Each vial contains 50 µg IgG_{2b} kappa light chain in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Per2 (19-J6) is recommended for detection of Per2 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Per2 siRNA (h): sc-36209, Per2 shRNA Plasmid (h): sc-36209-SH and Per2 shRNA (h) Lentiviral Particles: sc-36209-V.

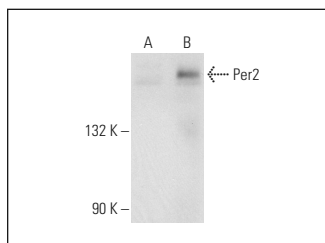
Molecular Weight of Per2: 140 kDa.

Positive Controls: Per2 (h): 293T Lysate: sc-129449.

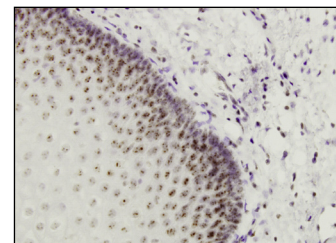
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



Per2 (19-J6): sc-101105. Western blot analysis of Per2 expression in non-transfected: sc-117752 (A) and human Per2 transfected: sc-129449 (B) 293T whole cell lysates.



Per2 (19-J6): sc-101105. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human esophagus tissue showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Benegiamo, G., et al. 2013. Mutual antagonism between circadian protein period2 and hepatitis C virus replication in hepatocytes. *PLoS ONE* 8: e60527.
2. Suzuki, K., et al. 2018. Methotrexate upregulates circadian transcriptional factors PAR bZIP to induce apoptosis on rheumatoid arthritis synovial fibroblasts. *Arthritis Res. Ther.* 20: 55.
3. Katamune, C., et al. 2019. Mutation of the gene encoding the circadian clock component Period2 in oncogenic cells confers chemoresistance by up-regulating the Aldh3a1 gene. *J. Biol. Chem.* 294: 547-558.
4. Aroca-Siendones, M.I., et al. 2021. Core circadian clock proteins as biomarkers of progression in colorectal cancer. *Biomedicine* 9: 967.
5. Xiong, Y., et al. 2022. Period 2 suppresses the malignant cellular behaviors of colorectal cancer through the epithelial-mesenchymal transformation process. *Cancer Control* 29: 10732748221081369.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.