SANTA CRUZ BIOTECHNOLOGY, INC.

# Per3 (4B9D7): sc-517227

SANTA CRUZ BIOTECHNOLOGY

*The Power to Question*

## BACKGROUND

Biological timepieces called circadian clocks are responsible for the regulation of hormonal rhythms, sleep cycles and other behaviors. The superchiasmatic 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 rhythyms 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. Sangoram, A.M., et al. 1998. Mammalian circadian autoregulatory loop: a timeless ortholog and mPer1 interact and negatively regulate CLOCK-BMAL1-induced transcription. Neuron 21: 1101-1113.
5. 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.
6. Nadkarni, N.A., et al. 2005. Evolution of a length polymorphism in the human PER3 gene, a component of the circadian system. J. Biol. Rhythms 20: 490-499.
7. Numano, R., et al. 2006. Constitutive expression of the Period1 gene impairs behavioral and molecular circadian rhythms. Proc. Natl. Acad. Sci. USA 103: 3716-3721.
8. Zvonic, S., et al. 2007. Circadian oscillation of gene expression in murine calvarial bone. J. Bone Miner. Res. 22: 357-365.
9. Viola, A.U., et al. 2007. PER3 polymorphism predicts sleep structure and waking performance. Curr. Biol. 17: 613-618.


## CHROMOSOMAL LOCATION

Genetic locus: PER3 (human) mapping to 1p36.23.

## SOURCE

Per3 (4B9D7) is a mouse monoclonal antibody raised against a recombinant protein corresponding to amino acids 723-954 of Per3 of human origin.

## RESEARCH USE

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

## PRODUCT

Each vial contains 100 µg $IgG_{2b}$ in 1.0 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

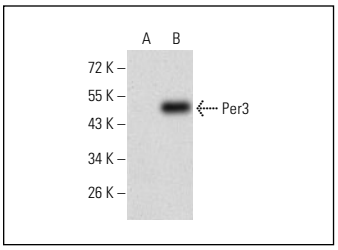
## APPLICATIONS

Per3 (4B9D7) is recommended for detection of Per3 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), flow cytometry (1 µg per 1 x $10^6$ cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

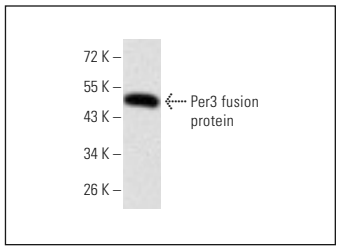
Suitable for use as control antibody for Per3 siRNA (h): sc-38173, Per3 shRNA Plasmid (h): sc-38173-SH and Per3 shRNA (h) Lentiviral Particles: sc-38173-V.

Positive Controls: human Per3 (723-954)-hIgGFc transfected HEK293 whole cell lysate.

## DATA




Per3 (4B9D7): sc-517227. Western blot analysis of Per3 expression in non-transfected (**A**) and human Per3 (723-954)-hIgGFc transfected (**B**) HEK293 whole cell lysates.




Per3 (4B9D7): sc-517227. Western blot analysis of human recombinant Per3 (723-954) fusion protein.

## SELECT PRODUCT CITATIONS


1. Wan, X., et al. 2021. hPER3 promotes adipogenesis via hHSP90AA1-mediated inhibition of Notch1 pathway. Cell Death Dis. 12: 301.


## STORAGE

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

## PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.