SANTA CRUZ BIOTECHNOLOGY, INC.

Per1 (2715C2): sc-81574

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. Per1 protein isoforms display discrete cellular compartmentalization as well as tissue-specific size differences. The full size Per1 isoform is found principally in the cytoplasm while a shorter nuclear isoform also exists.

REFERENCES

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3. Antoch, M.P., Song, E.J., Chang, A.M., Vitaterna, M.H., Zha, Y., Wilsbacher, L.D., Sangoram, A.M., King, D.P., Pinto, L.H. and Takahashi, J.S. 1997. Functional identification of the mouse circadian Clock gene by transgenic BAC rescue. Cell 89: 655-667.
4. Zylka, M.J., Shearman, L.P., Weaver, D.R. and Reppert, S.M. 1998. Three period homologs in mammals: differential light responses in the suprachiasmatic circadian Clock and oscillating transcripts outside of brain. Neuron 20: 1103-1110.
5. Sangoram, A.M., Saez, L., Antoch, M.P., Gekakis, N., Staknis, D., Whiteley, A., Fruechte, E.M., Vitaterna, M.H., Shimomura, K., King, D.P., Young, M.W., Weitz, C.J. and Takahashi, J.S. 1998. Mammalian circadian autoregulatory loop: a timeless ortholog and mPer1 interact and negatively regulate Clock-BMAL1-induced transcription. Neuron 21: 1101-1113.
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CHROMOSOMAL LOCATION

Genetic locus: PER1 (human) mapping to 17p13.1.

SOURCE

Per1 (2715C2) is a mouse monoclonal antibody raised against a recombinant protein corresponding to an internal region of Per1 of human origin.

RESEARCH USE

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

PRODUCT

Each vial contains 100 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 1.0% gelatin.

APPLICATIONS

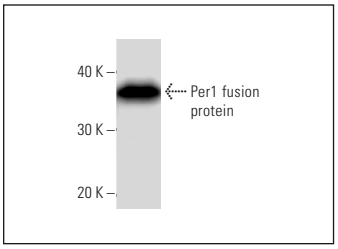
Per1 (2715C2) is recommended for detection of Per1 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for Per1 siRNA (h): sc-38171, Per1 shRNA Plasmid (h): sc-38171-SH and Per1 shRNA (h) Lentiviral Particles: sc-38171-V.

Molecular Weight of full length, cytoplasmic Per1: 140-150 kDa.

Molecular Weight of Per1 nuclear isoforms: 45-55 kDa.

DATA



Per1 (2715C2): sc-81574. Western blot analysis of human recombinant Per1 fusion protein.

SELECT PRODUCT CITATIONS

1. Kim, H.K., Kim, H.J., Kim, J.H., Kim, T.H. and Lee, S.H. 2018. Asymmetric expression level of Clock genes in left vs. right nasal mucosa in humans with and without allergies and in rats: circadian characteristics and possible contribution to nasal cycle. PLoS ONE 13: e0194018.

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.