SANTA CRUZ BIOTECHNOLOGY, INC.

Per1 (E-8): sc-398890

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.

CHROMOSOMAL LOCATION

Genetic locus: PER1 (human) mapping to 17p13.1; Per1 (mouse) mapping to 11 B3.

SOURCE

Per1 (E-8) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 17-43 near the N-terminus of Per1 of human origin.

PRODUCT

Each vial contains 200 µg IgM kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-398890 X, 200 µg/0.1 ml.

Blocking peptide available for competition studies, sc-398890 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

Per1 (E-8) is recommended for detection of Per1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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 Per1 siRNA (h): sc-38171, Per1 siRNA (m): sc-38172, Per1 siRNA (r): sc-108034, Per1 shRNA Plasmid (h): sc-38171-SH, Per1 shRNA Plasmid (m): sc-38172-SH, Per1 shRNA Plasmid (r): sc-108034-SH, Per1 shRNA (h) Lentiviral Particles: sc-38171-V, Per1 shRNA (m) Lentiviral Particles: sc-38172-V and Per1 shRNA (r) Lentiviral Particles: sc-108034-V.

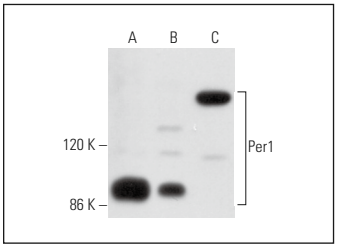
Per1 (E-8) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of Per1: 140 kDa.

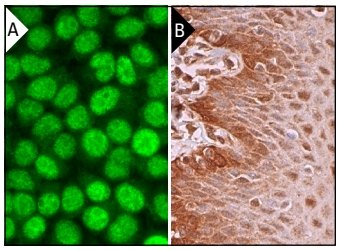
STORAGE

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

DATA



Per1 (E-8): sc-398890. Western blot analysis of Per1 expression in NCI-H292 (**A**) and A549 (**B**) whole cell lysates and mouse testis tissue extract (**C**). Detection reagent used: m-IgGκ BP-HRP: sc-516102.



Per1 (E-8): sc-398890. Immunofluorescence staining of formalin-fixed HeLa cells showing nuclear localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human esophagus tissue showing nuclear and cytoplasmic staining of squamous epithelial cells (**B**).

SELECT PRODUCT CITATIONS

1. Murayama, Y., et al. 2019. Glucocorticoid receptor suppresses gene expression of Rev-erbα (Nr1d1) through interaction with the Clock complex. FEBS Lett. 593: 423-432.
2. Angelousi, A., et al. 2020. Expression of Clock-related genes in benign and malignant adrenal tumors. Endocrine 68: 650-659.
3. Guo, X., et al. 2020. RNA demethylase ALKBH5 prevents pancreatic cancer progression by posttranscriptional activation of Per1 in an m^6A-YTHDF2-dependent manner. Mol. Cancer 19: 91.
4. Lin, Y.S., et al. 2020. Mangiferin inhibits lipopolysaccharide-induced epithelial-mesenchymal transition (EMT) and enhances the expression of tumor suppressor gene Per1 in non-small cell lung cancer cells. Environ. Toxicol. 35: 1070-1081.
5. Negri, M., et al. 2021. Cortisol circadian rhythm and Insulin resistance in muscle: effect of dosing and timing of hydrocortisone exposure on Insulin sensitivity in synchronized muscle cells. Neuroendocrinology 111: 1005-1028.
6. Wang, J., et al. 2022. Disrupting circadian rhythm via the PER1-HK2 axis reverses trastuzumab resistance in gastric cancer. Cancer Res. 82: 1503-1517.
7. Yang, T., et al. 2023. The PRMT6/PARP1/CRL4B complex regulates the circadian clock and promotes breast tumorigenesis. Adv. Sci. 10: e2202737.

RESEARCH USE

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

PROTOCOLS

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