

## Per1 (C-20): sc-7723

### 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. 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

- Morell, V. 1995. A 24-hour circadian clock is found in the mammalian retina. *Science* 272: 349.
- King, D.P., et al. 1997. The mouse Clock mutation behaves as an anti-morph and maps within the W19H deletion, distal of Kit. *Genetics* 146: 1049-1060.
- Antoch, M.P., et al. 1997. Functional identification of the mouse circadian Clock gene by transgenic BAC rescue. *Cell* 89: 655-667.
- 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.
- 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.

### CHROMOSOMAL LOCATION

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

### SOURCE

Per1 (C-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of Per1 of human origin.

### PRODUCT

Each vial contains 200 µg IgG 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-7723 X, 200 µg/0.1 ml.

Blocking peptide available for competition studies, sc-7723 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

### RESEARCH USE

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

### APPLICATIONS

Per1 (C-20) is recommended for detection of Per1 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (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 shRNA Plasmid (h): sc-38171-SH and Per1 shRNA (h) Lentiviral Particles: sc-38171-V.

Per1 (C-20) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

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

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

Positive Controls: K-562 whole cell lysate: sc-2203.

### RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

### SELECT PRODUCT CITATIONS

- Yeh, K.T., et al. 2005. Abnormal expression of period 1 (Per1) in endometrial carcinoma. *J. Pathol.* 206: 111-120.
- Chen, S.T., et al. 2005. Deregulated expression of the Per1, Per2 and Per3 genes in breast cancers. *Carcinogenesis* 26: 1241-1246.

### 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](http://www.scbt.com) or our catalog for detailed protocols and support products.



Try **Per1 (E-8): sc-398890** or **Per1 (2715C2): sc-81574**, our highly recommended monoclonal alternatives to Per1 (C-20).