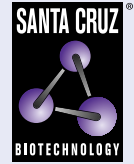


Clock (C-8): sc-271603



The Power to Question

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. Clock, a member of the basic-helix-loop-helix-PAS (bHLH-PAS) family of transcription factors, has also been identified as having circadian function. Mutations within the Clock gene have been shown to increase the length of the endogenous period and to cause a loss of rhythmicity of circadian oscillations. Clock contains a DNA-binding domain, a protein dimerization domain and a glutamine-rich C-terminal region, which indicates transactivation capabilities. It has been speculated that Clock may regulate circadian rhythmicity in combination with other proteins such as Per. Per is also a PAS-domain containing protein that exhibits circadian function. Highest expression of Clock is seen in the hypothalamus and the eye.

REFERENCES

- Morell, V. 1996. A 24-hour circadian Clock is found in the mammalian retina. *Science* 272: 349.
- Reppert, S.M., et al. 1997. Forward genetic approach strikes gold: cloning of a mammalian Clock gene. *Cell* 89: 487-490.
- King, D.P., et al. 1997. Positional cloning of the mouse circadian Clock gene. *Cell* 89: 641-653.

CHROMOSOMAL LOCATION

Genetic locus: CLOCK (human) mapping to 4q12; Clock (mouse) mapping to 5 C3.3.

SOURCE

Clock (C-8) is a mouse monoclonal antibody raised against amino acids 571-846 of Clock of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} 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-271603 X, 200 µg/0.1 ml.

Clock (C-8) is available conjugated to agarose (sc-271603 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271603 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271603 PE), fluorescein (sc-271603 FITC), Alexa Fluor® 488 (sc-271603 AF488), Alexa Fluor® 546 (sc-271603 AF546), Alexa Fluor® 594 (sc-271603 AF594) or Alexa Fluor® 647 (sc-271603 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271603 AF680) or Alexa Fluor® 790 (sc-271603 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

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

APPLICATIONS

Clock (C-8) is recommended for detection of Clock 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Clock siRNA (h): sc-35074, Clock siRNA (m): sc-35075, Clock siRNA (r): sc-270115, Clock shRNA Plasmid (h): sc-35074-SH, Clock shRNA Plasmid (m): sc-35075-SH, Clock shRNA Plasmid (r): sc-270115-SH, Clock shRNA (h) Lentiviral Particles: sc-35074-V, Clock shRNA (m) Lentiviral Particles: sc-35075-V and Clock shRNA (r) Lentiviral Particles: sc-270115-V.

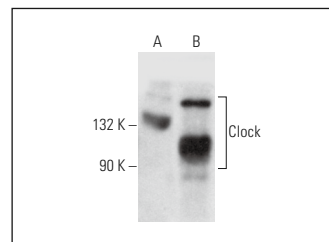
Clock (C-8) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight (predicted) of Clock: 95 kDa.

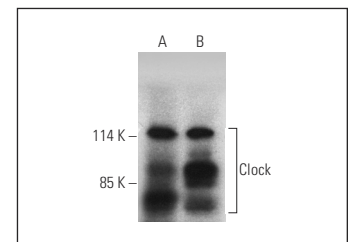
Molecular Weight (observed) of Clock: 90-110 kDa.

Positive Controls: rat brain extract: sc-2392, A-673 cell lysate: sc-2414 or Sol8 cell lysate: sc-2249.

DATA



Clock (C-8): sc-271603. Western blot analysis of Clock expression in A-673 (A) and Sol8 (B) whole cell lysates.



Clock (C-8) HRP: sc-271603 HRP. Direct western blot analysis of Clock expression in rat brain (A) and rat hypothalamus (B) tissue extracts.

SELECT PRODUCT CITATIONS

- Guo, D., et al. 2018. Tyrosine hydroxylase down-regulation after loss of Abelson helper integration site 1 (AH1) promotes depression via the circadian Clock pathway in mice. *J. Biol. Chem.* 293: 5090-5101.
- Wang, Q., et al. 2022. Circadian protein Clock modulates regulatory B cell functions of nurses engaging day-night shift rotation. *Cell. Signal.* 96: 110362.
- Huang, L., et al. 2023. Clock inhibits the proliferation of porcine ovarian granulosa cells by targeting ASB9. *J. Anim. Sci. Biotechnol.* 14: 82.
- Xing, C., et al. 2024. Sleep deprivation reduced LPS-induced IgG_{2b} production by up-regulating BMAL1 and Clock expression. *Biochem. Biophys. Res. Commun.* 691: 149326.

RESEARCH USE

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