SANTA CRUZ BIOTECHNOLOGY, INC.

CRY1 (W-L5): sc-101006

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Circadian clocks are biological timepieces that regulate hormonal rhythms, sleep cycles and feeding behaviors. These rhythms are generated in the super-chiasmatic nucleus (SCN), a cell-autonomous circadian oscillator located within the brain that is synchronized with the environment by light. A number of transcription factors, including Clock and BMAL1, are molecular components of the SCN that induce the expression of proteins involved in light/dark cycle entrainment, which include Per1 and Per2. Tim, for timeless, generates a negative feedback loop that regulates the activity of Clock by suppressing the expression of Clock target genes. Tim forms heterodimers with Per1 and Per2 that bind Clock and block the activation of Clock-BMAL1 dimers to repress Per gene expression. Additionally, the CRY proteins, which are cryptochrome photoreceptors for the circadian Clock, function as light-independent inhibitors of the circadian Clock. CRY1 and CRY2 negatively regulate SCN components by associating with the activators Clock-BMAL1 and also with the various feedback inhibitors Per1, Per2 and Tim.

REFERENCES

1. Morell, V. 1996. A 24-hour circadian Clock is found in the mammalian retina. Science 272: 349.
2. Albrecht, U., et al. 1997. A differential response of two putative mammalian circadian regulators, mPer1 and mPer2, to light. Cell 91: 1055-1064.

CHROMOSOMAL LOCATION

Genetic locus: CRY1 (human) mapping to 12q23.3; Cry1 (mouse) mapping to 10 C1.

SOURCE

CRY1 (W-L5) is a mouse monoclonal antibody raised against recombinant CRY1 of human origin.

PRODUCT

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

APPLICATIONS

CRY1 (W-L5) is recommended for detection of CRY1 of mouse, rat and 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for CRY1 siRNA (h): sc-43706, CRY1 siRNA (m): sc-44835, CRY1 shRNA Plasmid (h): sc-43706-SH, CRY1 shRNA Plasmid (m): sc-44835-SH, CRY1 shRNA (h) Lentiviral Particles: sc-43706-V and CRY1 shRNA (m) Lentiviral Particles: sc-44835-V.

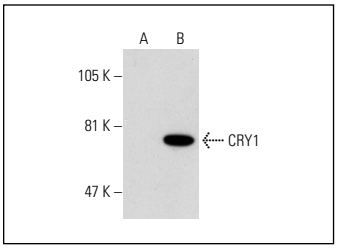
Molecular Weight of CRY1: 66 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, HeLa nuclear extract: sc-2120 or CRY1 (h): 293T Lysate: sc-114880.

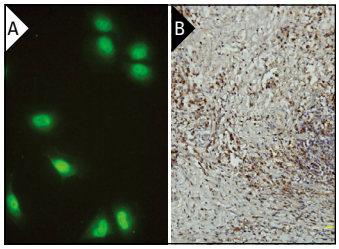
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



CRY1 (W-L5): sc-101006. Western blot analysis of CRY1 expression in non-transfected: sc-117752 (**A**) and human CRY1 transfected: sc-114880 (**B**) 293T whole cell lysates.



CRY1 (W-L5): sc-101006. Immunofluorescence staining of paraformaldehyde-fixed manual cells showing nuclear localization (**A**). Immunoperoxidase staining of formalin-fixed, paraffin-embedded human colon adenocarcinoma tissue showing nuclear and cytoplasmic localization (**B**).

SELECT PRODUCT CITATIONS

1. Tong, X., et al. 2015. CUL4-DDB1-CDT2 E3 ligase regulates the molecular Clock activity by promoting ubiquitination-dependent degradation of the mammalian CRY1. PLoS ONE 10: e0139725.
2. Litlekalsoy, J., et al. 2016. Expression of circadian Clock genes and proteins in urothelial cancer is related to cancer-associated genes. BMC Cancer 16: 549.
3. Tong, X., et al. 2017. DDB1-mediated CRY1 degradation promotes FOXO1-driven gluconeogenesis in liver. Diabetes 66: 2571-2582.
4. Tong, X., et al. 2020. DDB1 E3 ligase controls dietary fructose-induced ChREBPα stabilization and liver steatosis via CRY1. Metabolism 107: 154222.
5. Németh, V., et al. 2021. Expression patterns of clock gene mRNAs and clock proteins in human psoriatic skin samples. Int. J. Mol. Sci. 23:121.

STORAGE

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

RESEARCH USE

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