SANTA CRUZ BIOTECHNOLOGY, INC.

CRY2 (3H4): sc-293263

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 superchiasmatic 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.
3. 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.
4. Zylka, M.J., et al. 1998. Molecular analysis of mammalian timeless. Neuron 21: 1115-1122.
5. Griffin, E.A., Jr., et al. 1999. Light-independent role of CRY1 and CRY2 in the mammalian circadian Clock. Science 286: 768-771.
6. Vitaterna, M.H., et al. 1999. Differential regulation of mammalian period genes and circadian rhythmicity by crytochromes 1 and 2. Proc. Natl. Acad. Sci. USA 96: 12114-12119.
7. Jin, X., et al. 1999. A molecular mechanism regulating rhythmic output from the suprachiasmatic circadian Clock. Cell 96: 57-68.

CHROMOSOMAL LOCATION

Genetic locus: CRY2 (human) mapping to 11p11.2.

SOURCE

CRY2 (3H4) is a mouse monoclonal antibody raised against amino acids 141-231 of CRY2 of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

CRY2 (3H4) is recommended for detection of CRY2 of 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).

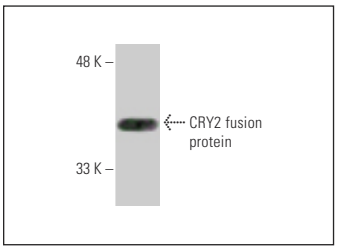
Suitable for use as control antibody for CRY2 siRNA (h): sc-43707, CRY2 shRNA Plasmid (h): sc-43707-SH and CRY2 shRNA (h) Lentiviral Particles: sc-43707-V.

Molecular Weight of CRY2: 67 kDa.

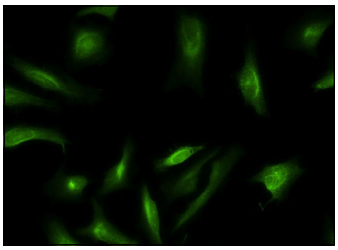
RECOMMENDED SUPPORT REAGENTS

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



CRY2 (3H4): sc-293263. Western blot analysis of human recombinant CRY2 fusion protein.



CRY2 (3H4): sc-293263. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Murgo, E., et al. 2023. The circadian Clock circuitry modulates leukemia initiating cell activity in T-cell acute lymphoblastic leukemia. J. Exp. Clin. Cancer Res. 42: 218.

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.