

# Clock (dC-17): sc-27070

## BACKGROUND

*Drosophila melanogaster*, a proven and effective model for studying developmental and cellular processes common to higher eukaryotes, contains a genome encoding approximately 13,600 genes, which were elucidated from more than 120 megabases of euchromatin. These genes are organized among chromosomes 2, 3, 4, X, and Y, with the Y chromosome being predominately heterochromatic. *Drosophila* genes, which are categorized based on the type of protein for which they encode, represent six major classifications, including intracellular signaling proteins, transmembrane proteins, RNA binding proteins, secreted factors, transcription regulators (basic helix-loop-helix, homeodomain containing, zinc finger containing, and chromatin associated), and other functional proteins. In *Drosophila*, two interlocked transcriptional feedback loops control circadian rhythms. In one loop, the Clock (Clk) and Cycle (Cyc) bHLH-PAS transcription factors activate Per and Tim transcription, while repressing Clk transcription. Whereas in the second loop, Per and Tim inhibit Clk and Cyc-mediated transcription, which leads to the activation of Clk.

## REFERENCES

1. Adams, M.D., Celniker, S.E., Holt, R.A., Evans, C.A., Gocayne, J.D., Amanatides, P., et al. 2000. The genome sequence of *Drosophila melanogaster*. *Science* 287: 2185-2195.
2. Bae, K., Lee, C., Hardin, P.E. and Edery, I. 2000. dClock is present in limiting amounts and likely mediates daily interactions between the dClock-Cyc transcription factor and the PER-TIM complex. *J. Neurosci.* 20: 1746-1753.
3. Cyran, S.A., Buchsbaum, A.M., Reddy, K.L., Lin, M.C., Glossop, N.R., Hardin, P.E., Young, M.W., Storti, R.V. and Blau, J. 2004. Vrille, Pdp1, and dClock form a second feedback loop in the *Drosophila* circadian clock. *Cell* 112: 329-341.
4. Glossop, N.R., Houl, J.H., Zheng, H., Ng, F.S., Dudek, S.M. and Hardin, P.E. 2004. Vrille feeds back to control circadian transcription of Clock in the *Drosophila* circadian oscillator. *Neuron* 37: 249-261.
5. The Interactive Fly. <http://www.sdbonline.org/fly/aimain/1aahome.htm>. <http://www.sdbonline.org/fly/aimain/6biochem.htm>

## SOURCE

Clock (dC-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of Clock of *Drosophila melanogaster* origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-27070 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## STORAGE

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

## APPLICATIONS

Clock (dC-17) is recommended for detection of Clock of *Drosophila melanogaster* 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).

Molecular Weight (predicted) of Clock: 95 kDa.

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

## 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.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.