QBiC

QBiC SEMINAR

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Wednesday, June 20, 2012

10:30 ~ 12:00

RIKEN CDB Bldg. D, E-206 (2-2-3 Minatojima-minamimachi, Chuo-ku, Kobe)

There will be a video broadcast in OLABB 3F conference room

A Mechanism for Robust Circadian Timekeeping in Multicellular Organisms

Summary

Circadian clocks persist with a constant period (~24-hour) even after a significant change of the expression level of clock genes. While many gene components involved in feedback loops of the circadian clocks have been identified, how they work together to generate robust rhythms with a nearly constant period remains unclear. To understand the functions of the complex feedback networks of the circadian clocks, we use various approaches: the simulation of both detailed and simple model, global and local stability analysis, and experimental data. Through these combined studies, we find that essential feedback mechanisms and network structures for the robust rhythm generation in multicellular organisms (e.g. *Drosophila* and mammals) differ significantly from those of unicellular organisms (e.g. *Neurospora*). Moreover, these features of the circadian clocks in multi-cellular organisms propose a new network motif for general biological oscillatory systems where maintaining a period is crucial.

Host:

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