CDB SEMINAR

Takashi Fukaya

HFSP fellow, Princeton University

Tuesday, August 2, 2016

16:00-17:30 Seminar Room A7F

Enhancer control of transcriptional bursting

Summary

Transcription is episodic, consisting of a series of discontinuous bursts. Using live-imaging methods and quantitative analysis, we examine transcriptional bursting in living Drosophila embryos. Different developmental enhancers positioned downstream of synthetic reporter genes produce transcriptional bursts with similar amplitudes and duration but generate very different bursting frequencies, with strong enhancers producing more bursts than weak enhancers. Insertion of an insulator reduces the number of bursts and the corresponding level of gene expression, suggesting that enhancer regulation of bursting frequency is a key parameter of gene control in development. We also show that linked reporter genes exhibit coordinated bursting profiles when regulated by a shared enhancer, challenging conventional models of enhancer-promoter looping.

Reference: Fukaya et al. 2016 Cell 166 (2), 358-368

Host:
Yoo Sa-kan
Physiological Genetics, RIKEN
sakan.yoo@riken.jp
Tel:078-306-3150 (ext:3150)