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QBiC CDB JOINT SEMINAR

CDB
RIKEN Kobe since 2000

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Date & Location

Tuesday, January 10, 2017
15:00 - 16:00
RIKEN Kobe CDB A7F Seminar Room
(2-2-3 Minatojima-minamimachi, Chuo-ku, Kobe)
There will be a TV broadcast at RIKEN Osaka A3F seminar room.

Title

Functional Genomics, Chemical Genetics, and Natural Products Discovery

Abstract

Genetic interaction mapping and high-content phenotypic analysis provide a powerful means to characterize biological functions of chemical and genetic perturbations in living systems. We have developed mammalian cell-based assays and whole organism screens using the animal model *C. elegans* that we are using in a variety of applications. In our previous work we have performed genome-wide RNAi screens coupled with high-content profiling to identify genes that interfere with germline or embryonic development and analyze their cell biological phenotypes. We are now extending this work to pairwise genetic interactions in *C. elegans* to study how essential and non-essential genes work together to promote proper animal development and metabolic homeostasis. We have also developed panels of mammalian cell lines that allow us to monitor changes in multiple cellular compartments, the cytoskeleton, and signaling pathways using high-content imaging. We are using both of these systems to identify novel bioactive molecules isolated from unique natural habitats in coastal marine areas. The combination of genetic and chemical perturbations with high-throughput and high-content phenotypic screens offers an opportunity to rapidly identify modes of action for unknown chemical compounds. We are applying these approaches to identify and characterize bioactive natural products as candidates for novel biological probes and potential therapeutic applications.

Host

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