CDB SEMINAR

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Wednesday, October 31, 2012
16:00~17:00 C1F Auditorium

Identifying a novel small-molecule inhibitor of the giant AAA+ ATPase using fission yeast chemical genetics

Summary

Chemical inhibitors can help analyze dynamic cellular processes, particularly when probes are active in genetically tractable model systems such as yeast. Yeast genetics can also help identify novel chemical inhibitors and their targets. In addition, it is a good starting point for developing new drugs as fundamental cellular mechanisms are highly conserved between yeast and human. However, as yeast has robust multidrug resistance (MDR) mechanisms, its use for chemical biology has been limited. Using genomics and genetics approaches, we identified the key transcription factors and drug-efflux transporters responsible for fission yeast MDR and designed MDR-sup (for MDR suppressed) strain that is sensitive to a wide-range of chemical inhibitors. Using this strain and "chemical synthetic lethality screen" strategy, we identified several potential first-in-class small-molecule inhibitors. I would like to present our strategy for efficient identification of specific chemical probes and their targets, and discuss about the potential of our compounds as a chemical probe to dissect dynamic cellular processes and a potential drug for cancer.

Host:
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