Seminar/Talk

FriSBi: Interferon codes in innate immunity / Hidden memory in cell-cycle times

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Host: Gasper Tkacik

In multicellular organisms, the cell cycle faces two unrelatedrequirements: well-defined cell size and adequate cell number. In the first part of the talk, I will argue that by measuring cell cycle durations in single-cell progenies, we can understand how the cell cycle regulatory machinery reconciles these two requirements. We found that cycle lengths are correlated between distantly related pairs of cells within the same generation. This observation is incompatible with simple models of inheritance of cycle-controlling factors; instead cycles are under the control of at least two antagonistic regulatory mechanisms. We identify the mechanisms as cycle progression and growth. The second part will be concerned with cell-cell communication in innate immunity. We study the type-I interferon system, which can transmit multiple inflammatory messages via multiple cytokines but only a single receptor.The unique biochemical architecture of this system can be understood as a digital communication channel, optimized for robust transmission of a set of messages, immune to concentration fluctuations.

Friday, April 6, 2018 03:00pm - 04:00pm
Mondi Seminar Room 3, Central Building

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