CDB SEMINAR

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The Microsoft Research-University of Trento Centre
for Computational and Systems Biology

Thursday, September 15, 2011
16:00~17:00 D2F Seminar Room (E206)

Dynamics of cell cycle transitions

Summary

DNA replication, mitosis and mitotic exit are critical transitions of the cell cycle which should occur only once per cycle. The importance of various positive feedback and feed-forward loops in the irreversibility of these transitions has been investigated recently. A picture arises, where the key cell cycle regulator Cdk is controlled by positive feedback loops and Cdk enforces its downstream targets through feed-forward regulation. I will show the dynamical features of such regulatory loops and discuss how these are used at cell cycle transitions. Furthermore I will discuss how transcriptional regulation of activators and inhibitors of cell cycle transitions can influence the robustness of the transitions.

References

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Romanel, A., Cardelli, L., Jensen, L. J., and Csikasz-Nagy, A. Transcriptional regulation is a major controller of cell cycle transition dynamics, *under review* (2011).

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