



SFB 680

Molecular Basis of Evolutionary Innovations

Molekulare Grundlagen evolutionärer Innovationen

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Why all this RNA? The transcriptome from the perspective of RNA binding proteins.

In eukaryotic cells mRNA levels do not directly translate into protein levels because processing, transport, translation and degradation of mRNA are controlled post-transcriptionally. The key players in this mode of gene regulation are RNA binding proteins (RBPs). Their specific substrate is the pool of cellular RNA, containing large amounts of untranslated, regulatory sequences that are oftentimes crucial to the development of complex multi-cellular organism and are linked to various human diseases. In contrast to gene promoters, the concentration of RNA regulatory elements is not fixed but linked to the highly dynamic abundances of mRNA molecules. Together with the oftentimes weak specificities of RBPs the deeper understanding of RBP:mRNA interactions requires to explicitly account for competition effects. In this talk I will present general features of transcriptomes at different leafs of the evolutionary tree of the metazoa, recent results on the human RBP HuR/ELAVL1, and the outline of a project to experimentally test predictions of a competition theory of RBP binding.

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Host: Johannes Berg

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