

Cologne Evolution Colloquium

Molecular Basis of
Evolutionary Innovations
SFB 680

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Intragenic epistasis and shifting fitness landscapes

One of the most controversial questions in evolutionary biology is the role of adaptation in molecular evolution. After decades of debate between selectionists and neutralists, new high-throughput methods are beginning to illuminate the full distribution of fitness effects (DFE) of new mutations. Here, we shed light on the adaptive potential in *Saccharomyces cerevisiae* by presenting systematic high-throughput fitness measurements for hundreds of engineered mutations in a region of the heat-shock protein Hsp90. We obtain data sets that allow for the evaluation of fitness consequences of the same mutations in different environments, and on different genetic backgrounds. We demonstrate that the change in the DFE upon environmental challenges is largely consistent with expectations derived from Fisher's geometric model. Furthermore, we observe intragenic epistasis to be ubiquitous, which suggests a concave shape of the underlying local fitness landscape.

Wednesday, January 7, 2015, 17:00
University of Cologne, Institute for Genetics
Seminar Room 0.46

Hosted by Joachim Krug