



VABILO NA PREGLOV KOLOKVIJ / INVITATION TO THE PREGL COLLOQUIUM

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**Parallel evolution of the make–accumulate–consume
strategy in *Saccharomyces* and *Dekkera* yeasts**

Vzporedna evolucija pri kvasovkah

Četrtek / Thursday, 5. 1. 2012, ob / at 13:00

Velika predavalnica Kemijskega inštituta / Lecture Hall at the
National Institute of Chemistry; Hajdrihova 19, Ljubljana

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Abstract:

Saccharomyces yeasts degrade sugars to two-carbon components, in particular ethanol, even in the presence of excess oxygen. This characteristic is called the Crabtree effect and is the background for the 'make–accumulate–consume' life strategy, which in natural habitats helps *Saccharomyces* yeasts to out-compete other microorganisms. A global promoter rewiring in the *Saccharomyces cerevisiae* lineage, which occurred around 100 mya, was one of the main molecular events providing the background for evolution of this strategy. Here we show that the *Dekkera bruxellensis* lineage, which separated from the *Saccharomyces* yeasts more than 200 mya, also efficiently makes, accumulates and consumes ethanol and acetic acid. Analysis of promoter sequences indicates that both lineages independently underwent a massive loss of a specific *cis*-regulatory element from dozens of genes associated with respiration, and we show that also in *D. bruxellensis* this promoter rewiring contributes to the observed Crabtree effect.

Predavanje bo v slovenščini / The Lecture will be given in Slovenian language.

Vljudno vabljeni! / Kindly invited!

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