Towards the Next Generation of Industrial Bioethanol Production

We are looking for a cooperation partner who joins us in the development and implementation of a novel bioethanol production process based on complete carbon utilization.

Background

Today most industrial bioethanol world-wide is produced from sugar-containing agricultural crops using *Saccharomyces cerevisiae* as biocatalyst. Strikingly about 50% of the sugar carbon utilized gets lost in the form of the greenhouse gas carbon dioxide. In theory by harnessing glucose carbon completely the specific ethanol yield can be boosted by a factor of 1.5. However, corresponding suitable technologies supporting complete carbon utilization in yeast are yet not available.

acib-Technology

acib together with TU Graz has extensive expertise in metabolic engineering and systems biology of yeasts and process engineering in general. Based on comprehensive in silico flux analyses we propose novel metabolic pathways which permit complete utilization of glucose carbon towards ethanol in *S. cerevisiae*. Selected target(s) and identified additional metabolic rearrangements are introduced by genetic engineering. Constructed strains are analyzed with respect to key-process parameters and sites of limitations, if present, screened by applying appropriate systems biological tools.

acib-Offer

Under the protection of a CDA we offer you a comprehensive strain development program covering genetic engineering and process development in three phases. **Phase 1** includes an introductory meeting in which possible routes towards complete carbon utilization in the context of ethanol production by yeast are comprehensively presented and discussed. **Phase 2** targets on strain construction and in **Phase 3** physiology of constructed strain(s) is analyzed, key process parameters determined and if necessary potential bottlenecks identified.

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