



acib Project Offer

BOSS – Biotechnological Optimizations by Selection Systems

acib has developed a novel method for selection strategies based on microbial survival. These new platform enables easy, cost-efficient and ultra-fast screenings of billions of mutations.

BACKGROUND

Current (robotic-assisted) screening systems are time consuming and result in high costs, often requiring counter screenings and tedious exclusion of false positives.

TECHNOLOGY

We have developed a true bacterial selection system, rendering the survival of bacteria dependent on the desired improved property (of the strain or expressed protein). Strong selection pressure ensures the optimization of a protein/enzyme or strain, allowing for overnight selection out of billions of unbiased mutants varying the right position and type of alterations in an evolutionary way. Only the bacteria harbouring the right mutations survive the selection. This technology can be adapted to solve diverse problems, like optimizations of protein expression/folding/secretion or enzyme activity/solubility/specificity/stereoselectivity. Such *in-vivo* enzyme optimizations also offer the advantage of intrinsic counter selection against inhibitor-sensitivity or toxic properties (like problematic off-target activities of specific proteases). This (r)evolutionary selection platform has been gradually developed and successfully used for i) an industrially applied autoprotease (Achmueller et al., Nature Methods 2007); ii) a method for producing an industrially interesting recombinant protein (Patent US20140170701 A1); iii) expression strains with improved Fab-producing capacity (A. Erler 2015, PhD Thesis); iv) optimized circularly permuted single chain proteases (patent application pending) and other currently non-disclosed projects.

OFFER

Under protection of a CDA we offer to evaluate possible strategies for the solution of a given optimization problem (protein and/or production strains) by evolutionary bacterial selection. Once we have confirmed that the problem can be tackled by our unique technology platform, we will offer a comprehensive project plan for the realization of this method!

KEYWORDS:

- screening
- optimization
- bacterial selection
- protein engineering
- host cell engineering

acib-Experts:

Prof. Dr. Rainer Schneider

AVAILABLE FOR:

- Joint Research Project
- Contract Research

Development Status:

proof of concept
TRL 2-4

IPR:

patent applications pending

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