

## **Adaptive Laboratory Evolution as an Efficient Technology for Strain Construction**

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**Project Goals: Establish the scientific knowledge and new technologies to transform the maximum amount of carbon available in bioenergy crops into biofuels and bioproducts.**

Harnessing the process of natural selection to obtain and understand new microbial phenotypes has become increasingly possible due to advances in culturing techniques, DNA sequencing, bioinformatics, and genetic engineering. Accordingly, Adaptive Laboratory Evolution (ALE) experiments represent a powerful approach to both investigate the evolutionary forces influencing strain phenotypes, performance, and stability, and to acquire production strains that contain beneficial mutations. This poster describes a full technology platform focused on ALE and successful use cases applying the platform to solve important issues in industrial biotechnology. Further, a list of current and future application areas is provided highlighting how ALE can be utilized as an efficient design and build tool for strain construction.

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