

GUIDING BIOPROCESSES USING PRINCIPLES OF ADAPTIVE EVOLUTION: THE CASE OF *STREPTOCOCCUS* FOR THE SKINCARE BIOINDUSTRY

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Metabolic optimization of microbial strains have been successfully achieved over the past 30 years. However, guided pathway re-wiring is insufficient for the production of competitive strains in comparison with the current unexpansive petroleum derived raw materials. The use of Systems Biotechnology experimental protocols – through a combination of adaptive laboratory evolution, random mutagenesis/screening and omics technologies has made this aim achievable. During this talk, I will show how different approaches can be applied to develop microbial strains that yield competitive titers of bioactive molecules, to achieve process feasibility. Cases of bio-products used in the skincare bioindustry will be discussed.