

A Candidate Gene Selection Strategy by in silico Knockout Simulation

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In recent years, in silico simulation of biological systems has become the powerful tool for the metabolic engineering. In this study, a candidate gene selection strategy is proposed using following steps. First, a genome scale metabolic model is constructed for a constraint-based metabolic flux analysis. Second, a multi-objective metabolic flux analysis is used for handling multiple objectives such as, maximization of cell growth or product formation and minimization of byproduct formation. Third, flux distributions of the Pareto solutions are clustered and a target candidate group is selected. Second and third steps are iterated to find a optimal gene knockout targets.

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