Metabolic engineering with systems biology tools to optimize production of prokaryotic secondary metabolites

Metabolic engineering using systems biology tools is increasingly applied to overproduce secondary metabolites for their potential industrial production. In this Highlight, recent relevant metabolic engineering studies are analyzed with emphasis on host selection and engineering approaches for the optimal production of various prokaryotic secondary metabolites: native versus heterologous hosts (e.g., Escherichia coli) and rational versus random approaches. This comparative analysis is followed by discussions on systems biology tools deployed in optimizing the production of secondary metabolites. The potential contributions of additional systems biology tools are also discussed in the context of current challenges encountered during optimization of secondary metabolite production.

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