

Engineering Cellular Metabolism - DTU Orbit (09/11/2017)

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Metabolic engineering is the science of rewiring the metabolism of cells to enhance production of native metabolites or to endow cells with the ability to produce new products. The potential applications of such efforts are wide ranging, including the generation of fuels, chemicals, foods, feeds, and pharmaceuticals. However, making cells into efficient factories is challenging because cells have evolved robust metabolic networks with hard-wired, tightly regulated lines of communication between molecular pathways that resist efforts to divert resources. Here, we will review the current status and challenges of metabolic engineering and will discuss how new technologies can enable metabolic engineering to be scaled up to the industrial level, either by cutting off the lines of control for endogenous metabolism or by infiltrating the system with disruptive, heterologous pathways that overcome cellular regulation.

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