



ENGINEERING *E. COLI* FOR PRODUCTION OF ADVANCED BIOFUELS

Michelle C. Chang

Departments of Chemistry and Molecular & Cell Biology, Berkeley, CA 94720-1460 USA
mcchang@berkeley.edu

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Introduction. Living systems have evolved the capacity to carry out many chemical transformations of interest to synthetic chemistry if they could be redesigned for targeted purposes. However, our ability to mix and match enzymes to construct *de novo* pathways for the cellular production of small molecule targets is limited by insufficient understanding how chemistry works inside a living cell.

Results. Our group is interested in using synthetic biology as a platform to understand the molecular principles needed to design high-flux synthetic pathways. Towards these goals, we have built a robust pathway for the production of *n*-butanol from individual enzyme components and explore how enzyme mechanism can be used as a kinetic control element to push a reversible pathway to high yielding production of second-generation biofuels.

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