ACS SyntheticBiology

Editorial

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The Sixth International Meeting on Synthetic Biology (SB6.0) Special Issue Editorial

As two of the co-organizers of the sixth International Meeting on Synthetic Biology (SB6.0), we are pleased to present you the SB6.0 special edition of *ACS Synthetic Biology*. SB6.0 was the largest synthetic biology conference to date, with contributions from over 100 speakers and 332 poster presentations. In this issue, we present 10 papers that highlight some of the great work presented at SB6.0. Additionally, Palmer and Jewett discuss how SB6.0 provided a platform to assess the state of the synthetic biology community and future directions it could take.

A key theme of SB6.0 and a major aspect of designing novel biological systems is the control of gene expression. This issue contains three papers focusing on ways to better control gene expression in various host organisms. Sakai *et al.* engineer noncoding sRNA to better regulate gene expression in *E. coli*, Vogl and co-workers use a rational design approach to develop a library of synthetic core promoters for *Pichia pastoris*, and Nishikata *et al.* develop and present PromoterCAD, a computational design tool to design synthetic promoters for mammals and plants.

Measurement is also essential to synthetic biology and was a major focus of SB6.0. Pothoulakis *et al.* show how a GFP-mimic RNA aptamer can be used to measure the transcriptional contribution to gene expression, increasing the precision of part characterization. Gorochowski *et al.* created a diversified library of constructs via combinatorial assembly in *E. coli* and measure their gene expression and growth effects across various conditions with a microbioreactor. Finally, Choi and co-workers developed a generalized and automated enzyme screening system.

Two papers showcase applications of synthetic biology. Kurumbang *et al.* engineered *E. coli* to convert highly toxic compounds to glycerol, with guidance of a mathematical model. Santala *et al.* rewire the wax ester production pathway of *Acinetobacter baylyi* ADP1, by replacing the natural fatty acyl-CoA reductase acr1 with an arabinose-controlled LuxCDE fatty acid reductase complex.

Finally, on the major SB6.0 themes of design and redesign, Kiga *et al.* demonstrate how the genetic code itself can be simplified to encode fewer than 20 amino acids and Agapakis provides a thought-provoking review paper reflecting on the value of design in the way we approach synthetic biology, the way we collaborate with one another, and the way we develop our ideas.

Enjoy!

Yizhi Cai[†]

Tom Ellis*[,‡]

[†]School of Biological Sciences, University of Edinburgh, Old College, South Bridge, Edinburgh EH8 9YL, United Kingdom

[‡]Centre for Synthetic Biology and Innovation, and Department of Bioengineering, Imperial College London, London SW7 2AZ, United Kingdom

AUTHOR INFORMATION

Notes

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