ACS SyntheticBiology

Introducing Our Authors

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RICHARD T. MOORE

Shaun Terrell

Current Position. Ph.D. Candidate in Bioengineering, The University of Texas at Dallas. Advisor: Dr. Leonidas Bleris.

Education. M.S. Electrical Engineering, The University of Texas at Dallas. B.S. Electrical Engineering, Southern Methodist University.

Nonscientific Interests. Skiing at Alta and Highlands, biking, reading and music.

Transcription activator-like effectors (TALEs) motivated me to pursue graduate work in synthetic biology. As an undergraduate student of Electrical Engineering, I took the concept of a wire for granted. I found connecting electrical components one of the easier aspects of circuit design. However, connecting components in the cell can prove very difficult or nearly impossible in certain instances, limiting genetic circuit design to a small library of existing promoters and synthetic transcription factors. The discovery of TALE ushered in programmable protein−DNA binding with an ability to tether diverse functional domains to the core TALE DNA binding domain. The technology offers a versatile tool for building complex transcriptional regulation; these TALEs provide "wires" for genetic circuits. (Read Moore's article; DOI: 10.1021/sb400137b).

CORINA OßWALD

Christopher Reimann of Studio Lichtblick

Current Position. Ph.D. candidate at the Department of Pharmaceutical Biotechnology, Saarland University, and at the Helmholtz Institute for Pharmaceutical Research Saarland, Advisor: Prof. Rolf Müller.

Education. Biotechnology diploma from University of Applied Sciences Esslingen, Advisor: Prof. Dirk Schwartz.

Nonscientific Interests. I like plants, cooking, and in-line skating.

My research interests are focused on developing approaches to engineer biosynthetic pathways, especially such involved in the formation of complex natural products with pharmaceutical relevance such as bioactive polyketides. Those pathways are usually encoded by large biosynthetic gene clusters and genetic manipulation of the native producer strains is often very difficult. A prominent example is the anticancer compound epothilone produced by the myxobacterium *Sorangium cellulosum*. In this work, we used *de novo* DNA synthesis to reconstruct an artificial biosynthetic pathway for epothilone production in the related host *Myxococcus xanthus*. Although production titers still need to be improved the established system provides a valuable basis for future structure and yield improvement approaches. Our study shows the potential of synthetic DNA platforms for heterologous expression and engineering of complex biosynthetic pathways. (Read Oßwald's article; DOI: 10.1021/sb300080t).

SHINGO SUZUKI

Shingo Suzuki

Current Position. Assistant Professor, Anatomy and Neurobiology, Faculty of Medicine, Kagawa University, Japan.

Education. Ph.D. in Biological Science, Osaka University, Japan (2004); M.Sc in Biological Science, Osaka University, Japan (1999); B.Sc in Chemistry, Kanazawa University, Japan (1997).

Nonscientific Interests. Fishing, traveling, and music.

I am interested in the use of mammalian synthetic biology toward the examination of biological processes and their manipulation for therapeutic purposes. In this study, we describe the potential interface that connects innate intracellular signaling and synthetic gene networks. Neurochemistry is my other research expertise, my goal being to develop artificial proteins that work in neurons to alleviate brain disorders. An artificial system to record intracellular events in the cell itself is a third interest. (Read Suzuki's article; DOI: 10.1021/sb500070c).

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