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LUN CUI

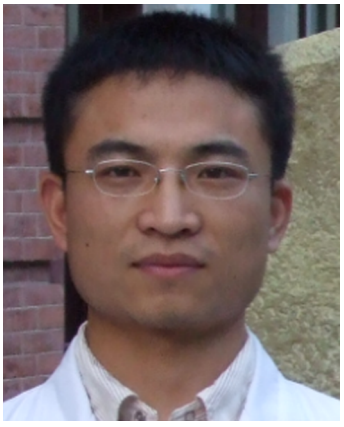

Image courtesy of Lun Cui.

Current Position: Ph.D. Candidate, Department of Biochemistry, School of Molecular and Biomedical Sciences, University of Adelaide, Adelaide, SA, Australia. Advisors: Dr. Keith E. Shearwin, Dr. Ian Dodd

Education: B.S. in Medicine, Jiangxi University of Traditional Chinese Medicine, Jiangxi, China; M.S. in Medicine, School of Medicine, Shanghai Jiao Tong University, Shanghai, China

Nonscientific Interests: Soccer, running, car racing, cooking, business

I believe in the principle of learning by doing. I am keen and curious about making new things. Specifically, I am interested in engineering bacteria for understanding basic biological mechanisms, producing valuable chemicals, or even manipulating mammalian cells. In this paper, we introduced a useful set of plasmid tools for rapidly integrating DNA sequences into bacterial chromosomes. These plasmids are modular and are compatible with BioBricks. We also developed a protocol, which we call clonetegration, for using the OSIP plasmids. The OSIP system greatly saves time and labor compared with similar systems. Avoiding plasmid purification and propagation is the main advantage of clonetegration. In the future, I want systematically engineer bacterial genomes and furthermore develop synthetic bacteria for biomedical applications. (Read Cui's article; DOI: 10.1021/sb400021j).

MICHELE FORLIN

Image courtesy of Giulia Zunino.

Current Position: Postdoctoral fellow, The Armenise-Harvard Laboratory of Synthetic and Reconstructive Biology, CIBIO—University of Trento, Italy

Education: Ph.D., Information and Communication Technology, The Microsoft Research—University of Trento Centre for Computational Biology (2010). Advisor: Corrado Priami; M.S., Statistics, University of Venice (2006).

Nonscientific Interests: I like outdoor activities and sports, mainly tennis and soccer. I'm a Fiorentina fan.

I'm fascinated by the bottom-up approach to building cell-free synthetic systems. I think that in the future it will be possible to reconstitute the basic features of life by using well-characterized parts. This paper is a step forward in that direction. We characterized a number of fluorescent proteins as well as the genetic organizations of operons in a cell-free environment that will let us (and the community) build reliable and optimized genetic circuits. Once our understanding is good enough to build predictable cell-free systems, I think that the next exciting milestone will be the building of cell-free devices capable of learning. (Read Forlin's article; DOI: 10.1021/sb400003y).

ROBERTA LENTINI

Image courtesy of Giulia Zunino.

Current Position: Ph.D. candidate, Biomolecular Sciences, University of Trento, Italy. Advisor: Sheref S. Mansy

Education: M.S., Medical and Pharmaceutical Biotechnology, University of Pavia, Italy

Nonscientific Interests: When I'm not occupied with eating challenges, I spend my time collecting shoes and clothes.

My research is focused on building genetically encoded cell-free, cellular mimics. Here, we focused on deciphering the rules regulating *in vitro* protein expression. More specifically, the influences of sequence composition and length of regions surrounding ribosome binding sites within two-gene operons were investigated and used to develop some practical rules for the construction of cell-free genetic devices. We also evaluated the expression of many fluorescent proteins that were then used to construct a ratiometric fluorescence assay to quantify *in vitro* expression levels. The described assay can be used to study the influences of other biological parts and devices,

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ultimately giving a much more complete understanding of how to control expression levels in a fully defined, cell-free system. (Read Lentini's article; DOI: 10.1021/sb400003y).

SEAN SLEIGHT

Image courtesy of Cynthia Sleight.

Current Position: Research Scientist at Matrix Genetics in Seattle, WA

Education: Postdoctoral Fellow, Bioengineering, University of Washington (2007−2013). Advisor: Herbert Sauro. Ph.D., Microbiology and Molecular Genetics, Michigan State University (2001−2007). Advisor: Richard Lenski. B.S., Molecular and Cellular Biology, University of Arizona (1994−1999)

Nonscientific Interests: Music, hiking, biking, brewing beer, film, travel, and science fiction. It may be of interest to readers that I recorded a trilogy of synthetic biology-themed musical albums under my musical pseudonym Rubber Band Banjo.

I'm generally interested in synthetic biology and evolutionary biology and the intersection between the two disciplines. Engineering biology has the potential to provide us with alternative energy, improved medicine, and someday a seed that will grow into a house, among other amazing reinventions of nature. At the same time, engineered organisms with synthetic functions will eventually fail if there is no selective pressure to maintain their function, and this has been the focus of my postdoctoral research. The two papers published in this issue describe (1) a DNA assembly method to randomize genetic circuits and metabolic pathways that I hope will be useful for developing biofuels and other valuable products and (2) the evolutionary stability dynamics of these randomized circuits that provides ideas on robust circuit design. (Read Sleight's articles; DOI: 10.1021/sb4000542 and DOI: 10.1021/sb400055h).

FRANCOIS ST-PIERRE

Image courtesy of Thi Van Anh Thach.

Current Position: Postdoctoral fellow, Departments of Bioengineering and Pediatrics, Stanford University, U.S.A. Advisor: Dr. Michael Z. Lin

Education: B.A./M.A. in Natural Sciences, University of Cambridge, U.K.; PhD, MIT. Advisor: Dr. Drew Endy

Nonscientific Interests: Hiking, snowboarding, strategy board games, fixing equipment

My research focuses on developing new interfaces for biological systems, both for input (controllers, manipulators) and output (sensors), usually by re-engineering natural functions. In this paper, we developed an optimized method (clonetegration) for rapidly assembling and integrating synthetic sequences into prokaryotic chromosomes. We hope this rapid and powerful method will facilitate engineering novel bacterial strains and promote chromosomes as easy and versatile cloning vectors. Going forward, I plan to continue repurposing functions from phages and other biological system toward making genome editing as simple as word processing. (Read St-Pierre's article; DOI: 10.1021/sb400021j).

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