Introducing our AUTHORS

acs chemical biology

Nicholas Aberle

Image courtesy of Timothy W. Corson.

Current position: Yale University, Department of Molecular, Cellular and Developmental Biology, Postdoctoral Fellow with Prof. Craig M. Crews
Education: University of Melbourne, B.Sc. (Hons.)/LL.B.(Hons.) in chemistry, 2002; The Walter and Eliza Hall Institute of Medical Research (Melbourne), Ph.D. in medicinal chemistry with Dr. Keith G. Watson, 2007
Nonscientific interests: Soccer, rock-climbing, hiking, environmental issues, current affairs

After completing a Ph.D. involving both total synthesis and natural product mechanism of action studies, I became interested in investigating ways in which small molecules could be used to selectively disrupt biological systems, with the ultimate aim of making clinically relevant discoveries. One aspect of my research in the Crews lab has revolved around the design, synthesis, and evaluation of heterobifunctional molecules that can be used to control subcellular localization of specific proteins and thus affect their function. I believe bifunctional molecules such as those outlined in our review hold great potential for making important breakthroughs in our understanding of cellular function and disease mechanisms. (Read Aberle's article on p 677.)

Timothy W. Corson

Image courtesy of Nicholas Aberle.

Current position: Yale University, Department of Molecular, Cellular and Developmental Biology, Postdoctoral Fellow with Prof. Craig M. Crews
Education: University of Toronto, Hon.B.Sc. in molecular biology, 1999; M.Sc. in neuroscience with Prof. Jerry J. Warsh, 2002; Ph.D. in molecular genetics with Prof. Brenda L. Gallie, 2007
Nonscientific interests: History, travel, good food and drink, recent fatherhood

In my doctoral work, I used genetic methods to identify *KIF14*, a novel human oncogene and promising drug target. In the Crews laboratory, we are pursuing the opposite approach: using chemical biology to devise potential therapeutic approaches for diverse, known disease mechanisms. However, to me, the great advantage of a chemical biology approach is that a drug is not the only goal: new chemical tools and probes for cell biology are just as exciting and useful. In our review, we discuss the power and promise of the growing genre of bifunctional molecules as research tools and potential therapeutics. (Read Corson's article on p 677.)

Charles Olea, Jr.

Image courtesy of Dorothée Murat.

Current position: University of California, Berkeley, Department of Molecular and Cell Biology, Ph.D. candidate with Prof. Michael A. Marletta
Education: Arizona State University, B.S. in biochemistry with Prof. Wilson A. Francisco, 2004
Nonscientific interests: Movies, golf

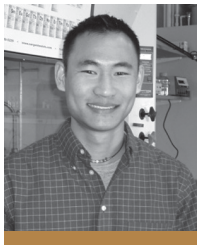
My research focuses on the chemical properties of heme cofactors in biology. Specifically, I'm interested in protein-induced heme deviations from planarity and how they affect heme chemistry and relate to protein structure. Heme-containing H-NOX domains are important for sensing diatomic ligands and cell signaling. We have recently discovered that the heme in these domains is highly distorted. The main goal in this study was to probe the significance of this distortion in an H-NOX domain by engineering a planar heme through mutation of a conserved residue in the heme pocket. Electrochemical and ligand binding properties of the planar heme changed significantly from wild-type, and surprisingly, heme distortion is correlated to N-terminal movement of the H-NOX domain. (Read Olea's article on p 703 and Point of View on p 673.)

Margaret M. Stratton

Image courtesy of Jonathan Nardozzi.

Current position: State University of New York, Upstate Medical University, Ph.D. candidate with Prof. Stewart N. Loh
Education: Stonehill College, B.S. in biochemistry, 2005
Nonscientific interests: Running, reading, spending time with friends and family

Rational protein design not only aids in the construction of new "tools" for scientists and clinicians but also expands our knowledge of protein folding, which is the overall focus of our laboratory. Currently, my research project is focused on protein engineering and creating useful molecules, such as the biosensor presented in this journal. We hope to use the ideas shown here to create additional sensor molecules that have applications in laboratory, clinical, and/or environmental settings. (Read Stratton's article on p 723.)



Mathew Tantama

Image courtesy of Mary Farbman.

Current position: Harvard Medical School, Department of Neurobiology, Postdoctoral Fellow with Prof. Gary Yellen
Education: University of North Carolina at Chapel Hill, B.S. in chemistry and mathematics, 2001; Massachusetts Institute of Technology, Ph.D. in biological chemistry with Prof. Stuart Licht, 2008
Nonscientific interests: Hiking, travel, piano

During my graduate studies with Prof. Stuart Licht at MIT, I had the opportunity to investigate the nature of binding interactions between the muscle-type nicotinic acetylcholine receptor and small molecules. In this work, we were interested in the conformation-dependence of the cation–π interaction, which occurs between agonists and the neurotransmitter binding sites of the acetylcholine receptor. In particular, we explored the utility of a computational estimate of the cation–π binding energy as a correlate of ion channel gating efficiency. The results of the study suggest that cation–π binding energy might be a useful parameter for structure–activity relationships used in rational drug design. (Read Tantama's article on p 693.)

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