Introducing our AUTHORS

Image courtesy of Joseph Wang.

Sarah Katen

Current position: Indiana University, Bloomington, Department of Molecular and Cellular Biochemistry, Ph.D. candidate with Prof. Adam Zlotnick
Education: University of Oklahoma, B.S. in Chemical Engineering, 2005
Nonscientific interests: Jewelry making, writing, cooking, and hiking

My graduate research has focused on understanding and quantifying the physical chemical processes of hepatitis B virus capsid assembly. Specifically, I have worked toward understanding conformational changes in the capsid protein as mechanisms of allosteric regulation of capsid assembly. In this paper I have characterized the phenylpropenamide family of small molecules as a new class of potential HBV antiviral compounds by illustrating their effects on the rate and extent of capsid assembly. This work has illustrated the importance of reaction rate and assembly pathway in the HBV lifecycle and that relatively small disruptions in reaction kinetics can severely impair virus assembly, revealing a new and tempting target for future antiviral compounds. (Read Katen's article, DOI: 10.1021/cb100275b)

Image courtesy of Ted Lakowski.

Ted Lakowski

Current position: The University of British Columbia, Postdoctoral Fellow with Dr. Adam Frankel
Education: The University of British Columbia, Ph.D. in Pharmaceutical Chemistry with Dr. Ronald Reid, 2006; The University of British Columbia, B.S. in Pharmacy, 1999
Nonscientific interests: Spending time with my wife and son, as well as hockey, football, classical and jazz music, and ancient Roman history

Protein arginine *N*-methyltransferases (PRMTs) are a family of enzymes that catalyze the post-translational methylation of arginine residues within proteins. PRMTs affect many cellular processes and are now considered targets for drug discovery. I am interested in studying the enzymatic activity of PRMTs and the effects of novel inhibitors on PRMTs. Such inhibitors may lead to treatments for cancer. My previous work revealed that some PRMTs favor substrates with monomethyl-arginine over nonmethylated substrates. This observation led to the hypothesis that substituted arginyl peptides may be inhibitors of PRMTs. In this paper my coauthors and I show that peptides with a single arginine residue substituted at the guanidine nitrogen (N^{η}) with an ethyl group bearing zero to three fluorine atoms are inhibitors of PRMTs. (Read Lakowski's article, DOI: 10.1021/cb100161u)

Image courtesy of Alexander Mayorov.

Alexander V. Mayorov

Current position: Research Scientist, Henry M. Jackson Foundation for Advancement of Military Medicine/The Military HIV Research Program, Department of Adjuvant and Antigen Research.
Education: Perm State University, Russia, B.S. (equivalent) in Chemistry, 1995; University of Louisville, Ph.D. in Organic Chemistry, 2001; University of Arizona, Department of Chemistry, with Victor Hruby, 2001–2007; The Scripps Research Institute, Department of Chemistry, with Kim Janda, 2007–2009
Nonscientific interests: retro music, literature (both classical and contemporary), hiking, camping, and various other wholesome activities.

My research interests revolve around engaging structural and synthetic aspects of organic chemistry in addressing complex biology and medicinal chemistry problems. In addition to small molecule chemistry and chemistry of peptides and proteins, I am also interested in developing immunotherapies that affect circulating levels of endogenous hormones and neurotransmitters, toxins, or synthetic compounds, such as drugs of abuse. (Read Mayorov's article, DOI: 10.1021/cb1002366)

Published online November 18, 2010 • 10.1021/cb100364b

Introducing our AUTHORS

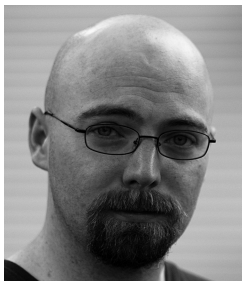

Image courtesy of Kevin Bell.

Patrick McEnaney

Current position: Yale University, Department of Chemistry, Ph.D. candidate with Prof. David Spiegel
Education: University of Massachusetts Lowell, B.S. in Chemistry, 2006
Nonscientific interests: Kayaking, traveling, reading and fishing

The research presented focuses on functionalizing the cell wall of *Staphylococcus aureus*, a Gram-positive bacterial pathogen. Using small molecules that serve as substrates for the enzyme sortase A, which ordinarily incorporates proteins into the *S. aureus* cell wall, we have been able to label the cell wall with numerous chemical moieties without disrupting bacterial viability. We believe that this strategy might have numerous applications, ranging from imaging to therapeutics/vaccine design. (Read McEnaney's article, DOI: 10.1021/cb100195d)

Image courtesy of Kirsty Muirhead.

Kirsty Muirhead

Current position: School of Biology, University of St. Andrews, Ph.D. student with Dr. Frank Gunn-Moore, 2007–present
Education: University of Aberdeen, Aberdeen, Scotland, Master of Chemistry, 2007
Nonscientific interests: Scottish country dancing, baking

My research is focused on developing novel therapeutics for the treatment of Alzheimer's disease (AD). In particular I am interested in targeting the mitochondrial enzyme, amyloid-binding alcohol dehydrogenase HSD10, which is a known intracellular binding partner of the toxic AD-associated peptide, β-amyloid. In addition to developing molecules capable of interrupting this interaction, I am also developing tools for studying the enzyme in a variety of systems. The current work describes the use of a fluorogenic molecular probe to study the activity of the enzyme in living cells, setting the framework for a cellular assay for screening potential drugs that interact with HSD10 activity. This work is particularly exciting as it demonstrates the first measurement of HSD10 inhibition by β-amyloid in living cells. (Read Muirhead's article, DOI: 10.1021/cb100199m)

Image courtesy of Kelly Phelps.

Hayden Peacock

Current position: Peter Beal's research group at University of California, Davis
Education: University of Canterbury, Christchurch, New Zealand
Nonscientific interests: I play the piano and dabble in composition. I enjoy the Davis farmer's market and riding my bike around town.

I am interested in using organic synthesis to understand and address vital problems in biology. An example of an important biological problem that will have a chemical solution is that of off-target effects in RNA interference. The problem is laid out: we need siRNAs with increased specificity, decreased off-target receptor binding, and improved delivery; the reward is high: effective RNAi therapeutics. Creativity and chemistry must combine to bring RNAi to the clinic. Our contribution is one of many small steps toward this attractive goal. (Read Peacock's article, DOI: 10.1021/cb100245u)