Introducing our AUTHORS

Image courtesy of Marisa Crawford.

Jason M. Crawford

Current position: Harvard Medical School, Department of Biological Chemistry & Molecular Pharmacology, Damon Runyon Cancer Research Foundation Postdoctoral Fellow with Prof. Jon Clardy, 2007–present
Education: Johns Hopkins University, M.A. in chemistry, 2003; Johns Hopkins University, Ph.D. in chemistry (bioorganic) with Prof. Craig A. Townsend, 2007
Nonscientific interests: Traveling, foodie, hiking, movies

My research involves the development of new methods to accelerate natural product discovery through regulatory, biosynthetic, and chemical signaling studies. I have focused on symbiotic associations to gain an ecological foothold in the lab for discovering microbial small molecules that govern their symbiotic relationships and hold biomedical potential. I am particularly interested in applying these methods to find new leads for improved anticancer therapeutics. In this paper, we deleted a global transcriptional repressor, which led to the upregulation of secondary metabolites and to the identification of a series of new stilbene small molecules. The bacteria-produced stilbenes regulate developmental transformations in a trilateral symbiosis among the bacterium, its mutualistic nematode host, and the pathogenic insect host upon which they feed. (Read Crawford's article, DOI: 10.1021/cb100117k)

Image courtesy of Geneviève Deschuyteneer.

Geneviève Deschuyteneer

Current position: Université catholique de Louvain (Belgium), Institute of Live Sciences, Laboratory of Biochemistry and Molecular Genetics of Bacteria, Postdoctoral Researcher with Prof. P. Soumillion
Education: Université catholique de Louvain, Belgium, Ph.D. in biochemistry with Prof. P. Soumillion, 2010
Nonscientific interests: Triathlon (Ironman), cinema, mountain hiking trips

With the increase of antibiotic resistance, there is a growing pressure to develop new antimicrobial compounds. Peptides represent an attractive class of therapeutic agents due to their high activity and specificity. However, a major problem in their use is their instability to proteases. Cyclic peptides are intrinsically resistant to proteolytic cleavage, and strategies for their synthesis have been developed. An elegant *in vivo* approach uses split inteins for generating collections that can reach more than 10^8 different compounds. As part of my thesis, the possibility of cyclizing polypeptides by an intein in the periplasm of *E. coli* was evaluated in order to extend the applications of the technology. In another part, I am developing a new genetic selection strategy for identifying peptides with antibiotic activity. (Read Deschuyteneer's article, DOI: 10.1021/cb100072u)

Image courtesy of Dr. Boris Nachtsheim.

Renee Kontik

Current position: Research Investigator at Eisai, Inc. in Andover, MA
Education: Williams College, B.A. in chemistry, 2005; Harvard University, Ph.D. in chemical biology with Prof. Jon Clardy, 2010
Nonscientific interests: Baking, biking, reading, traveling, food

Natural systems represent remarkable sources of small molecules with new chemical structures and biological functions. These compounds have been evolutionarily refined by nature to perfect their specific biological interactions, thereby maximizing their potency and drug-like properties. Because small molecules are used in nature for a variety of purposes including defense and signaling, elucidating the structures, biological functions, and mechanisms of action of these molecules can provide promising insights for drug discovery as well as tools for understanding biology. Natural product discovery is often hindered by the tight regulatory control of secondary metabolite biosynthesis, but our work describes a powerful genetic method to expose previously cryptic small molecules, which allowed us to characterize a number of new bioactive metabolites from insect-pathogenic bacteria. (Read Kontik's article, DOI: 10.1021/cb100117k)

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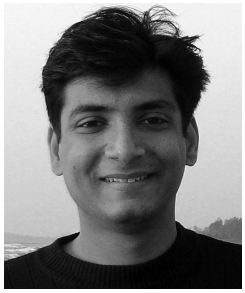

Image courtesy of Tapan Nayak.

Tapan Nayak

Current position: Translational Imaging Scientist, Pharma Research and Early Development, Hoffmann-La Roche Ltd., Basel, Switzerland

Education: University of Mumbai, India, B. Pharm., 2001; University of New Mexico, M.S. in radiopharmacy, 2004; University of New Mexico, Ph.D. in biomedical sciences, 2007 with Dr. Eric Prossnitz; National Cancer Institute, National Institute of Health, Postdoctoral fellowship with Dr. Martin W. Brechbiel, 2008–2010)

Nonscientific interests: Sports, music, abstract art and history

Currently, as a translational imaging scientist at Hoffmann-La Roche Ltd., my research focus is on application of imaging modalities to facilitate drug discovery and development. My graduate work in Dr. Prossnitz's lab focused on developing radioimaging agents targeting classical estrogen receptors, ER α/β, and the novel G protein coupled estrogen receptor, GPR30. The primary purpose of these agents is to understand the role of these receptors, particularly GPR30 in normal and pathological conditions such as cancer. In this study, we illustrate the intracellular localization of GPR30 using GPR30-selective, indium-labeled nonsteroidal analogues bearing net neutral or negative charge. In addition, these agents were also developed as potential cancer imaging agents in tumors with GPR30 overexpression. (Read Nayak's article, DOI: 10.1021/cb1000636)

Image courtesy of Michelle Davison.

Susanne Wisén

Current position: University of Michigan, Life Sciences Institute, Postdoctoral research fellow with Prof. Jason Gestwicki

Education: Linköping University, Sweden, M.Sc. in chemistry, 1995; Uppsala University, Ph.D. in biochemistry, 2003; University of Michigan, Life Sciences Institute, Postdoctoral research fellow with Prof. Rowena Matthews, 2004–2005

Industrial work: The Swedish National Laboratory of Forensic Science, forensic chemist, 1995–1997

Nonscientific interests: Swimming, table tennis, golf

My research interests have focused on protein folding, both as a physical phenomenon and as a process underlying disease. Toward that goal, our approach has been to manipulate the function of molecular chaperones, which are nature's own regulators of protein folding. In this study, we used small molecules to target the interaction between one chaperone, heat shock protein 70 (Hsp70) and its co-chaperone, Hsp40. Using a screening and design approach, we found compounds that either promote or inhibit this protein–protein interaction. Importantly, the compound that promotes the Hsp70–Hsp40 interaction blocks misfolding of a truncated mutant of the Huntington protein in a yeast model. Thus, these studies suggest that the complex between Hsp70 and Hsp40 is important in protein folding and, potentially, in Huntington's disease. (Read Wisen's article, DOI: 10.1021/cb1000422)