Introducing our AUTHORS

Image courtesy of Sandra Bruckmaier.

Natalie Arenas

Current position: Research associate in cell biology at Molecular Partners AG, a biotechnology company in Zurich, Switzerland

Education: ESIL (Ecole Supérieure d'Ingénieurs de Luminy), Marseille, France, postgraduate school for advanced studies in engineering technology, M.Sc. specializing in biotechnology for healthcare industries, 2008

Nonscientific interests: Tennis and basketball, traveling and going for holidays to my home country, Colombia, discovering new places and cultures, concerts, reading, and cooking

My interest in protein biochemistry research began during my undergraduate studies in France. I was interested in understanding the synthesis and maturation of proteins. Indeed, post-translational modifications of proteins play a key role in regulating important signaling pathways such as apoptosis and tumorigenesis. Therefore, developing chemical reporters for probing and imaging proteins in cells can be very useful for analyzing the behavior of modified proteins. This allows the design of therapeutic agents for the treatment of diseases like cancer or arthritis. In this work we report novel chemical reporters based on ω-alkynyl fatty acids for probing and cellular imaging of lipid-modified proteins. As a research associate in Molecular Partners I am working toward the development of novel binding proteins for applications in diagnostics and therapeutics. (Read Arenas' article, DOI: 10.1021/cb900085z)

Image courtesy of Chris Jewell.

Amy Karlsson

Current Position: Cornell University, Postdoctoral researcher with Prof. Matthew DeLisa in the Department of Chemical and Biomolecular Engineering

Education: Iowa State University, B.S. in chemical engineering, 2003; University of Wisconsin–Madison, Ph.D. in chemical engineering with Prof. Sean Palecek, 2009

Nonscientific interests: Playing hockey, camping, reading

My graduate research focused on the antifungal properties of β-peptides. Using the structural properties of helical, cationic antimicrobial α-peptides as a template, we designed β-peptides that are toxic to the human fungal pathogen *Candida albicans* at concentrations producing relatively low levels of toxicity to human red blood cells. In this work, we varied the sequence of the β-peptides to gain insight into the mechanism of β-peptide toxicity to fungal cells. We also showed that β-peptides have activity against *C. albicans* biofilms, which can form on medical devices and contribute to the drug resistance of infections. Our work expands the understanding of the antifungal activity of β-peptides and provides motivation for exploring β-peptide-functionalized surfaces to inhibit fungal biofilm formation. (Read Karlsson's article, DOI: 10.1021/cb900093r)

Image courtesy of Soren Schou.

Matthew O. Kitching

Current position: University of Cambridge, Department of Chemistry, Ph.D. student in the laboratories of Prof. Steven V. Ley

Education: University of Cambridge, M.Sc. (Hons) in natural science, 2006

Nonscientific interests: Snowboarding, diving, interpretative dance, traveling, spending time with friends

During my PhD, my research has focused on the application of enabling technologies in organic chemistry and investigating the benefits these systems have in chemical synthesis. As part of this, we have studied the immobilization of metal catalysts using our EnCat system, investigating ways to increase both the selectivity and reactivity of these polymer-supported species. More recently, my work has focused on the application of automation and flow chemistry in the synthesis of the neurotensin antagonists SR 48692 and SR 142948A. (Read Kitching's article, DOI: 10.1021/cb900038e)

Published online July 17, 2009 • 10.1021/cb900148f CCC: $40.75

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Image courtesy of Yasuhiro Magata.

Mikako Ogawa

Education: Kyoto University, B.S., 1998 (Prof. Hideo Saji, advisor); Kyoto University, M.S., 2000 (Prof. Hideo Saji, advisor); Kyoto University, Ph.D. in pharmaceutical sciences, 2007 (Dr. Kengo Ito and Dr. Kentaro Hatano, advisors)
Postdoctoral work: Visiting Fellow, Molecular Imaging Program, NCI/NIH, 2007 with Dr. Hisataka Kobayashi and Dr. Peter L. Choyke
Nonscientific interests: Swimming, playing tennis, trips around the world

I have been doing nuclear imaging for more than 10 years. Nuclear imaging and optical imaging are the most common *in vivo* molecular imaging techniques. In nuclear imaging, it is impossible to switch ON/OFF the emitting signals. Therefore, sometimes this causes nonspecific and background signals. On the other hand, in optical imaging, we can control the signal emission depending on the biological circumstances. That is, target-specific visualization is possible by optical imaging. In this paper, we focused on the mechanism to make "activatable" probes and found that H-dimer formation-derived fluorescence quenching effectively occurs when fluorophores are conjugated to some proteins. I believe that the next step will be multimodal imaging to make the best use of each imaging modality. (Read Ogawa's article, DOI: 10.1021/cb900089j)

Image courtesy of David France.

Rebecca Myers

Current position: University of Cambridge, Department of Chemistry, Postdoctoral researcher with Prof. Steven V. Ley and course co-ordinator of the CRUK PhD Training Programme in Medicinal Chemistry
Education: Imperial College, London B.Sc. (Hons) in chemistry, 1997; University of Cambridge, Ph.D. in organic chemistry, 2001; Postdoctoral researcher in the Ley group since 2001
Nonscientific interests: Art, cooking, running, reading, fire-eating

The Ley group is a traditional organic synthesis lab where the syntheses of complex natural products and the development of novel synthetic methodology and chemical technologies, *e.g.*, solid-supported reagents and flow reactor chemistry, are the staple diet. As course co-ordinator of the CRUK PhD Training Programme in Medicinal Chemistry for the past few years, my personal interests within the group have been to stimulate interdisciplinary Ph.D. level research at the chemistry/cancer interface. Areas of research that we are nurturing, in addition to the focus of this Review, include the synthesis and biological investigation of natural product inspired antiangiogenic agents, alkaloid-derived antitubulin agents, and methods to identify circulating tumor cells using the folate receptor. (Read Myer's article, DOI: 10.1021/cb900038e)

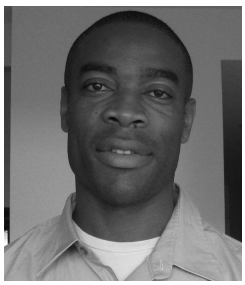

Image courtesy of Nicole Blaquire.

Chudi Ndubaku

Current position: Genentech, Inc., South San Francisco, CA, Scientist, Medicinal Chemistry
Education: University of California, Berkeley, B.S. in chemistry, 2001 (Paul A. Bartlett, undergraduate research advisor); Massachusetts Institute of Technology, Ph.D. in organic chemistry, 2006 (Timothy F. Jamison, graduate research advisor)
Nonscientific interests: Traveling, good food and wine, music and active sports.

My research at Genentech revolves around the design and synthesis small molecule agents that probe the myriad of cancer signaling pathways. In one of these pathways, tumor cells can evade apoptosis in response to various apoptotic stimuli. The inhibitor of apoptosis (IAP) proteins are critical mediators of this apoptotic resistance. There are eight members of the mammalian IAP protein family, including XIAP and c-IAP1 and 2. In order to study the contribution of these IAP proteins in the apoptotic pathways, we used structure-guided design to generate an IAP antagonist with high selectivity for c-IAP1 and 2 over XIAP. We found that even though the c-IAP-selective antagonist stimulated c-IAP degradation and NF-kB activation with comparable efficiency to that of a pan-IAP antagonist, antagonism of the XIAP and c-IAP proteins is needed for promotion of apoptosis in a number of tumor cells. (Read Ndubaku's article, DOI: 10.1021/cb900083m)

Introducing our AUTHORS

Image courtesy of Antonio Ramos-Montoya.

Antonio Ramos-Montoya

Current position: University of Cambridge, Department of Oncology, Postdoctoral researcher in the lab of Prof. David E. Neal in the Cambridge Research Institute
Education: University of Barcelona, Spain, B.S. in Biology, 2000; B.S. in Biochemistry, 2000; Ph.D. in biochemistry with Prof. Marta Cascante, 2006
Nonscientific interests: Traveling, astronomy, cooking, friends, and languages

I have always been interested in cancer cell regulation. During my Ph.D. I focused my work on the metabolomic regulation of cancer cells when nucleic acid synthesis or cell cycle are inhibited. During that period I could confirm the importance of the pentose phosphate pathway for the tumor cell and I was involved in the development of specific non-ATP-competitive inhibitors for cdk4/6. Now, in Prof. David Neal's lab I am focusing my reseach in one type of cancer, prostate cancer, and I am studying the mechanisms regulating the transition from the benign prostate hyperplasia toward more malignant forms of prostate cancer, such as the hormone-refractory prostate carcinoma. (Read Ramos-Montoya's article, DOI: 10.1021/cb900038e)

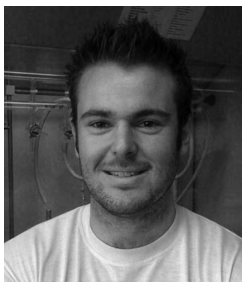

Image courtesy of Rebecca Myers.

James W. Shearman

Current position: University of Cambridge, Department of Chemistry and the Cambridge Research Institute, Ph.D. student in the CRUK Medicinal Chemistry Programme Prof. Steven V. Ley and Dr. James Brenton
Education: University of Cambridge, M.Sc. (Hons) in natural sciences, 2006
Nonscientific interests: Rugby League, competitive eating, keeping fit, the Porcupines

As part of the CRUK Medicinal Chemistry Programme I have a unique opportunity to conduct interdisciplinary research at the chemistry/biology interface. My current research project aims to use natural products as an inspiration to develop novel small molecule anticancer agents. More specifically, I am particularly interested in the potential use of brominated natural products as tubulin inhibitors. My work has focused on the synthesis of these natural products and their analogues along followed by *in vivo* screening to evaluate their pharmacological effects. Some members of this compound library have exhibited moderate potency and, interestingly, produced unusual cellular phenotypes in a number of cancer cell lines. (Read Shearman's article, DOI: 10.1021/cb900038e)