ACS chemical biology

INTRODUCING OUR AUTHORS

pubs.acs.org/acschemicalbiology

Ramy R. Attia

Image courtesy of Peter Barta.

Current position St. Jude Children's Research Hospital, Department of Chemical Biology and Therapeutics, Postdoctoral Researcher Associate with Prof. R. Kiplin Guy

Education School of Pharmacy Cairo University, B.S. in pharmacy, 2001; University of Tennessee Health Science Center, Ph.D. in Biochemistry and Cell Biology with Prof. Edwards A. Park, 2009; University of Tennessee Health Science Center, Department of Pharmacology, Postdoctoral Researcher with Prof. Edwards A. Park, 2009−2010

Nonscientific interests Chess, soccer, history, movies

My research interests have been focused on exploring the genetic basis of a broad range of diseases such as leukemia, diabetes, and thyroid hormone abnormalities. In an attempt to move my basic research from discoveries in the laboratory to actual clinical applications, I am using high-throughput screening techniques to perform cellular and biochemical genetic analysis to find therapeutic molecular entities that can modulate the transcriptional activity of nuclear receptors for the treatment of either hyperthyroidism or childhood leukemia. In this paper, we describe the activity of a new β-aminoketone compound that modulates the effects of thyroid hormone signaling by inhibiting of thyroid receptor (TR)-coactivator interactions in comparison to an established ligand-competitive inhibitor of TR, NH-3. This new class of inhibitors can provide an alternative pharmacological tool to modulate TR function. (Read Attia's article, DOI: 10.1021/cb200092v)

Jennifer A. Getz

Image courtesy of Ian Shieh.

Current position University of California, Santa Barbara, Department of Chemical Engineering, Ph.D. candidate with Prof. Patrick S. Daugherty

Education Pennsylvania State University, B.S. in Chemical Engineering, 2006

Nonscientific interests Reading, traveling, kayaking, going to the beach

Our lab at UCSB focuses on using peptide libraries displayed on the surface of bacteria to discover ligands and substrates for a wide variety of protein and protease targets. Through recombinant techniques and cell sorting via flow cytometry, our high-throughput approach allows us to rapidly discover peptides relevant for therapeutic or diagnostic use. In this paper, we address the poor stability of peptides that limits many of their *in vivo* applications. By creating a surface-displayed peptide library based on a naturally occurring, remarkably stable peptide scaffold, we isolated ligands for human thrombin that retained the enzymatic stability of the native scaffold. It is an exciting first step on the road to developing a general strategy for engineering highly protease-resistant peptide ligands for any given protein target. (Read Getz's article, DOI: 10.1021/cb200039s)

Riki Kawaguchi

Image courtesy of Riki Kawaguchi.

Current position Assistant Researcher at University of California− Los Angeles

Education Tokyo Institute of Technology, B.S. in Bioengineering, 1995; Tokyo Institute of Technology, M.S., in Biotechnology; University of California Riverside, in Plant Genetics, 2003; Pennsylvania State University, Post-Doctoral Fellow with Prof. Dr. Sarah Assmann, 2004; University of California Los Angeles, Post-Doctoral Fellow with Prof. Dr. Hui Sun, 2008

Nonscientific interests Mechanics in general, basketball, automobile, Austrian economics, computer programming, playing with my daughter

I studied genomics and bioinformatics during graduate school and received training in membrane protein biochemistry and mass spectrometry during my postdoc, all of which turned out to be very useful for identifying STRA6, a retinol binding protein receptor that had eluded discovery for more than 30 years. My laboratory recently acquired a high sensitivity ion-rap mass spectrometry coupled with nano-LC, which has allowed me to analyze thousands of complex protein samples, including membrane proteins. It is tricky to study membrane proteins (*e.g.*, STRA6) because of their hydrophobic nature and the presence of the membrane. However, they are major drug targets. I believe overcoming these challenges will lead to a major discovery and mass spec will likely be the key tool. (read Kawaguchi's article, DOI: 10.1021/cb200178w)

   dx.doi.org/10.1021/cb2003863 | *ACS Chem. Biol.* 2011, 6, 974–976

Dan Kraut

Image courtesy of Anita Engh.

Current position Northwestern University, Dept. of Molecular Biosciences, American Cancer Society Postdoctoral Fellow with Prof. Andreas Matouschek

Education Swarthmore College, B.A. in Biochemistry, 2000; Stanford University, Ph.D. in Biochemistry with Prof. Dan Herschlag, 2006

Nonscientific interests Cooking, following politics, reading books to my son

My research is focused on enzymology of the proteasome, a large macromolecular machine that unfolds and degrades proteins within eukaryotic cells. In graduate school I used techniques and concepts from physical organic chemistry to try and understand how enzymes catalyze chemical reactions. In my postdoc, I have tried to take these or analogous approaches and apply them to a much more complicated biological system, the proteasome. We have found that when the proteasome initiates degradation of a protein from an internal site flanked by two folded domains, the domains remotely stabilize one another without having a direct interaction, making degradation more likely to be incomplete. I will continue exploring the processivity of the proteasome as an assistant professor at Villanova University. (Read Kraut's article, DOI: 10.1021/cb2002285)

Byung Cheon Lee

Image courtesy of Byung Cheon Lee.

Current position Postdoctoral researcher in the Genetic Division of the Department of Medicine at the Brigham and Women's Hospital and Harvard Medical School in Boston

Education Korea University, B.S. in Agricultural Chemistry, 2002; Korea University, M.S. in Biochemistry and Biotechnology, 2004; University of Nebraska-Lincoln, Ph.D. in Biochemistry, 2010

Nonscientific interests Food, travel, soccer, and baseball

My research interest in this project has been focused on identifying new drug metabolism relevant to selective reduction of methylsulfinyl group by methionine sulfoxide reductases (Msr). Many drugs and natural compounds contain a methylsulfinyl group, which exists in a form of either *S*-sulfoxide or *R*-sulfoxide, and we proved that only mammalian MsrA is capable of reducing *S*-stereomer of methylsulfinyl in some drugs, but MsrBs are not. This finding suggests important strategy to improve drug efficacy and reduce toxicity through targeted use of stereomers. If the reduced form is active or less toxic, the *S*-stereomer can be utilized, but if the oxidized form is active or less toxic, the *R*-stereomer should be selected for improved efficacy or reduced toxicity. (Read Lee's article, DOI: 10.1021/cb2001395)

Yuelong Ma

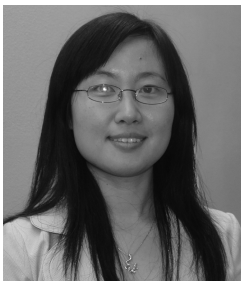

Image courtesy of Yuelong Ma.

Current position City of Hope Beckman Research Institute, Staff Scientist with Dr. David A. Horne

Education East China Normal University B.S. and M.S. in Chemistry, 2004; Oregon State University, M.S. in Organic Chemistry with Dr. David A. Horne, 2006; City of Hope Irell & Manella Graduate School of Biological Sciences, Ph.D. in Biochemistry with Dr. David A. Horne, 2010

Nonscientific interests Traveling, movies

My general research interest focused on drug discovery and drug delivery related with cancer research. One of my Ph.D. projects using Hu3S193, a Lewis-Y specific antibody as a drug delivery vehicle for STAT3 siRNA. The selective gene knockdown property of siRNA provides many benefits for treatment of various diseases. However, specific delivery is a major challenge for siRNA to become "super" drugs. Hu3S193 recognizes Lewis-Y antigen which expressed largely on cancer cell surface but limited to normal cells attracts our attention. In our paper, we compared two methods for STAT3 siRNA delivery using Hu3S193. The noncovalent method introduced 70% STAT3 knockdown and 50% cell proliferation inhibition in antigen positive cells but not antigen negative control cells. (Read Ma's article, DOI: 10.1021/cb200176v)

Jessica Perrin

Image courtesy of Jessica Perrin.

Current position Cellzome AG Heidelberg, Department of Assay Development and University of Applied Sciences Mannheim, Institute for Molecular and Cell Biology, Ph. D. Student with Dr. Gitte Neubauer (Cellzome AG) and Prof. Mathias Hafner (Mannheim University of Applied Sciences)

Education University of Applied Sciences Western Switzerland, Diploma in Chemistry, 2003; University of Applied Sciences Mannheim, M.S. in Biotechnology, 2006

Nonscientific interests Badminton, cycling, skiing, classical music, reading

My research focuses on the identification of selective protein kinase inhibitors using chemical proteomics. Kinases are tightly regulated enzymes that play crucial roles in signal transduction, and disregulation of phosphorylation events has been linked to many diseases. Selectivity is one of the major issues in kinase drug discovery, due to the high homology in the ATP binding site of this large target class. We therefore profile our inhibitors against all kinases of a given tissue or cell extract with a chemoproteomics method and quantitative mass spectrometry detection. We have used this technology to discover a potent and selective leucin-rich repeat kinase-2 (LRRK2) inhibitor. Mutations in the LRRK2 gene have

been linked with familial Parkinsońs disease. (Read Perrin's, DOI: 10.1021/cb2002413)

Juan Sánchez-Cortés

Image courtesy of Juan Sánchez-Cortés.

Current position Northwestern University, Department of Chemical and Biological Engineering, Postdoctoral Researcher with Lonnie Shea

Education University of Puerto Rico, Río Piedras Campus, B.S. in Chemistry, 2005; University of Chicago, M.S. in Chemistry, 2006; University of Chicago, Ph.D. in Chemistry, 2011

Nonscientific interests Yoga, veganism, literature, sewing, electronic music

My research interests have revolved around synthetic microenvironments for cell culture. As an undergraduate, I was trained in Materials Science, with a heavy emphasis on polymer synthesis and characterization techniques. During that time, I became interested in the use of materials for biological applications. These curiosities lead me to conduct my doctoral research in the Mrksich laboratory, where I used self-assembled monolayers (SAMs) as mimics of the extracellular matrix. My studies spanned different areas of extracellular matrix biology and engineering, including: mechanistic studies of cell adhesion, cell adhesion arrays, engineering dynamic cell adhesion and microcontact printing for cell population studies. Since completion of my doctorate, I have moved on to doing postdoctoral research in the Shea laboratory, where my studies focus in the design and three-dimensional microenvironments for the study of cancer progression and signaling pathway activation. (Read Sánchez-Cortés' article, DOI: 10.1021/cb200186j)

Katherine Volzing

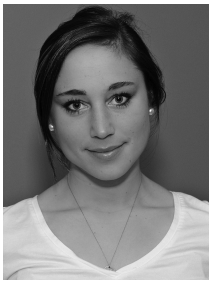

Image courtesy of Felix Völzing Photography.

Current position University of Minnesota, Twin Cities, College of Science and Engineering, Ph.D. candidate in Chemical Engineering; Advisor: Dr. Yiannis Kaznessis

Education University of Minnesota, Twin Cities, College of Biological Sciences, B.S. in Biochemistry and B.S. in Cell Biology, Development and Genetics, 2006

Nonscientific interests Traveling, cooking, running, music

My Ph.D. research focuses primarily on improving the design, construction, and characterization of synthetic gene regulatory devices while producing functional tools for industrial and academic applications. To achieve this, we have developed a methodology that combines molecular dynamic simulations and stochastic modeling with experimental efforts. Guided by this method, we are generating a library of devices that inducibly control gene expression in prokaryotic systems and have presented two of these, proTeOn and proTeOff, in "ProTeOn and ProTeOff, New Protein Devices That Inducibly Activate Bacterial Gene Expression". We are currently investigating a variety of such synthetic devices that include logic gates and feedback loops. Upon completion of my Ph.D., I intend to pursue a research career that is at the interface of biology and engineering. (Read Vozing's article, DOI: 10.1021/cb200168y)