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Iñaki de Diego

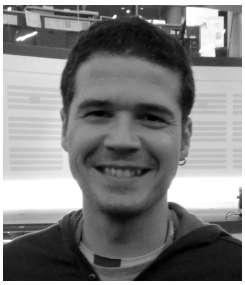

Image courtesy of Iñaki de Diego.

Current position: Molecular Biology Institute of Barcelona (IBMB) — Spanish Research Council (CSIC), Postdoctoral Fellow with Prof. Gomis-Rüth

Education: University of Barcelona, B.S. in Biology, 1999; University of Barcelona, Ph.D. in Cell Biology with Prof. Carles Enrich, 2004; EMBL-Hamburg, PostDoc in Structural Biology/X-ray Crystallography, 2011

Nonscientific interests: Mountain-biking, tennis, painting, music

During my Ph.D. studies I focused my research on the role of annexins (calcium- and phospholypid-binding proteins) on membrane domain compartimentalization, endocytosis, and calcium-dependent signaling. After a brief period in the biotech industry (Oryzon Genomics, S.A.), I continued my career with a postdoc in X-ray crystallography in the group of Matthias Wilmanns, at the European Molecular Biology Laboratory — Hamburg Outstation, to work on the family of death associated protein kinases (DAPKs). Our interest concentrated in DAPK-1 regulation by binding to Ca^{2+}/calmodulin, a mechanism shared by the superfamily of calmodulin dependent kinase related kinases (CAMKs). The previous expertise on the design of FRET-based CAMK reporters by the group of Dr. Schultz together with the structural data obtained for the DAPK-1 kinase domain/calmodulin complex prompted us to rapidly develop signaling sensors that accurately reflect conformational changes induced by Ca^{2+}/calmodulin leading to kinase activation. (Read de Diego's article, DOI: 10.1021/cb100402n)

Ian Gut

Image courtesy of Patrick Knerr.

Current Position: Postdoctoral researcher with the Department of Defense at USAMRICD. Advisors: Patrick McNutt, USAMRICD and Henry S. Gibbobs, ECBC

Education: B.S. in Biology, Benedictine University, 2003; M.S. in Microbiology, University of Illinois-Urbana/Champaign, 2008; Ph.D. in Microbiology, University of Illinois-Urbana/Champaign, 2011; Advisors: Wilfred A. van der Donk, Department of Chemistry and Steven R. Blanke, Department of Microbiology

Nonscientific interests: Soccer, golf, skiing, movies

My graduate research was centered on determining the mechanistic and cellular effects that facilitate nisin inhibition of spore outgrowth utilizing the spore-forming pathogen *Bacillus anthracis* as a model organism. Our interest for this area of research arose from the limited understanding of how nisin inhibits bacterial spores as well as the desire to identify relevant options for the treatment of spore-forming pathogen infections. My work presented in this paper indicates that nisin inhibits bacterial spore outgrowth *via* membrane disruption utilizing the penultimate precursor for bacterial cell wall biogenesis, lipid II, as a cellular target for the inhibition of germinated spores. Moreover, membrane disruption to dissipate or prevent membrane potential establishment can function as a unique mechanism to inhibit germinated spores. (Read Gut's article, DOI: 10.1021/cb1004178)

Kabirul Islam

Image courtesy of Kabirul Islam.

Current position: Memorial Sloan-Kettering Cancer Center, Molecular Pharmacology and Chemistry Program, Postdoctoral Researcher with Prof. Minkui Luo.

Education: Indian Institute of Technology-Kharagpur, Department of Chemistry, M.S. in Chemistry, 1999; Indian Institute of Science, Department of Organic Chemistry, Ph.D. with Prof. Goverdhan Mehta, 2005; Rockefeller university, Laboratory of Chemistry and Cell Biology, Postdoctoral researcher with Prof. Tarun Kapoor, 2009

Nonscientific interests: Reading

My Ph.D. work is in the field of total synthesis of natural products. I successfully completed enantioselective syntheses of ottelione A and B, epoxyquinol A and B, cycloepoxydon, and panepophenanthrin. Useful biological properties of these natural products geared my research interests toward chemical biology. During my first postdoctoral work, I developed a small-molecule inhibitor called MyoVin-1 for the motor protein myosin V. At Rockefeller, I was introduced to many exciting areas of biological research, and epigenetics was surely one of them. My current work is primarily based on developing chemical biology approaches to study protein methyltransferases (PMTs), one of the important players in epigenetic regulation. Our goal is to unravel the substrate

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profiles of this class of enzymes for a better understanding of their roles in normal physiology and disease processes. (Read Islam's article, DOI: 10.1021/cb2000567)

Da Woon Jung

Image courtesy of Darren Williams.

Current position: Gwangju Institute of Science and Technology School of Life Sciences, Republic of Korea, Research Professor with Prof. Darren R. Williams

Education: Chonnam National Univeristy, Korea: B.S. in Pharmacy, 1990; M.S. in Pharmacy, 1992; Ph.D. in Pharmacy 1997; Supervisor Prof. Chung Ki Sung; New York University, Department of Chemistry, Postdoctoral Researcher with Prof. Young-Tae Chang, 2002−2004

Nonscientific interests: Literature and poetry, film, gardening

My research focuses on using small molecule probes to modulate cell behavior. When I started chemical genetics at New York University, I was fascinated by the phenomenon that tiny molecules (synthetically or naturally originated) can so simply manipulate functions of macromolecules such as proteins. At that time, I identified a couple of small molecule-protein axes that modulate pigmentation in melanocytes and zebrafish through chemical library screening and target protein pull-down assays. My other research interests include developing high-throughput screening systems (*in vitro* and *in vivo*) for anticancer agents. In this paper, Prof. Williams and I described a small molecule cocktail that was used in stages to mimic salamander limb regeneration in mammalian tissue, implicating potential for both regenerative medicine and stem cell biology. (Read Jung's article, DOI: 10.1021/cb2000154)

Alison Kim

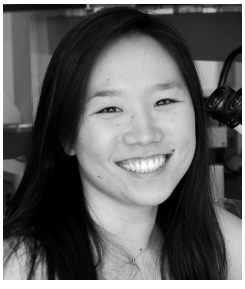

Image courtesy of Alison Kim.

Current position: Grant Manager, The Endocrine Society

Education: Bryn Mawr College, A.B. in Chemistry, 2005; Northwestern University, Ph.D. in Biological Sciences with Teresa Woodruff and Thomas O'Halloran, 2010; Northwestern University, Department of Obstetrics and Gynecology, Postdoctoral Fellow with Teresa Woodruff, 2010−2011

Nonscientific interests: Volleyball, biking, piano

Transition metals are more than just "trace elements." In fact, many research groups including our own have now shown that the total intracellular concentration of transition metals can be in the millimolar range. My graduate and postdoctoral work focused on the role of zinc within the context of the mouse egg, which is truly a unique and important cell: together with the sperm, it gives rise to the next generation. Through an interdisciplinary approach, we showed that intracellular fluxes in zinc contribute to the regulation of the meiotic cell cycle in the egg. This article describes the zinc sparks and the critical importance of lowering zinc bioavailability at the time of fertilization, thus allowing the newly created embryo to progress in development. (Read Kim's article, DOI: 10.1021/cb200084y)

Patrick J. Knerr

Image courtesy of Ian Gut.

Current position: University of Illinois at Urbana−Champaign, Department of Chemistry, Ph.D. candidate with Prof. Wilfred A. van der Donk

Education: University of Delaware, B. S. in Biochemistry with Prof. Joel P. Schneider, 2004

Nonscientific interests: Exercise, softball, music and the Philadelphia Phillies

My research involves the synthesis and evaluation of thioether-containing cyclic peptides with interesting biological properties. These compounds include the lantipeptide family of natural products as well as thioether analogues of disulfide-containing peptides. Such cyclic topologies serve important roles both in bioactivity and proteolytic stability and can yield improved pharmacological properties in peptide therapeutics. In this paper, my collaborators and I describe a versatile and high-yielding synthesis of thioether-containing analogues of compstatin, a complement immune system inhibitor with potential utility in treating inflammatory, autoimmune and cardiovascular diseases. We hope this general synthetic approach can be applied to other bioactive peptides in an effort to improve metabolic stability while maintaining potency. (Read Knerr's article, DOI: 10.1021/cb2000378)

Sameer S. Kulkarni

Image courtesy of Mario Martinez.

Current position: University of South Florida, Department of Chemistry, Ph.D. candidate in Organic Chemistry with Prof. Roman Manetsch

Education: Institute of Chemical Technology, Mumbai, India, B. Tech. in Intermediates and Dyestuff Technology, 2006.

Nonscientific interests: Music, sports, socializing with friends

Disrupting specific protein−protein interactions has been of significant biological importance and thus holds great promise for the development of therapeutic agents. Since the protein−protein interfaces do not offer well-defined binding sites, developing molecules aimed at modulating protein−protein interactions has been a challenge with conventional drug discovery approaches. My research focuses on employing the kinetic target-guided synthesis (TGS), a

fragment-based drug discovery approach, for screening and identification of small molecules as protein−protein interaction modulators (PPIMs). In this work, we report the implementation of kinetic TGS, based on a sulfo-click reaction between sulfonyl azides and thio acids, generating acylsulfonamides as high-quality PPIMs targeting Bcl-X_L/BH3 interactions. We speculate that the herein reported sulfo-click chemistry TGS approach would serve as an efficient tool for the development of PPIMs targeting other protein−protein interactions such as MDM2/p53, IAP/caspase and others. (Read Kulkarni's article, DOI: 10.1021/cb200085q)

Christina Lünse

Image courtesy of Benjamin Weiche.

Current position: University of Bonn, Germany, LIMES, Program Unit Chemical Biology, Ph.D. candidate with Prof. Günter Mayer

Education: Studies of Molecular Biomedicine at the Rheinische Friedrich-Wilhelms-University, Bonn, Germany, 2004−2009; Diploma thesis with Prof. Michael Famulok at the Life and Medical Sciences Institute (LIMES), University of Bonn, Germany, 2009

Nonscientific interests: I sing in the Bonner Jazzchor, like to play the piano, enjoy visiting art exhibitions, traveling and socializing with friends.

I am fascinated by nucleic acids, which are made of only a few, quite simple building blocks but produce a great variety of DNA or RNA molecules that form diverse, three-dimensional structures with distinct functions. For a long time RNA has mainly been recognized as mRNA or tRNA, but it also has enzymatic functions and now increasingly emerges as regulatory element in prokaryotes as well as eukaryotes (*e.g.*, riboswitches, ribozymes, sRNA/miRNA). I wish to pursue research in this broad field and would like to combine profound basic research with the application of lately established knowledge in therapeutics, diagnostics or proof-of-principle concepts. An example of this approach can be found in our article where information gained by basic research facilitated the design, synthesis, identification and characterization of a novel compound with potential antibiotic activity. (Read Lünse's article, DOI: 10.1021/cb200016d)

Masahiro Nakano

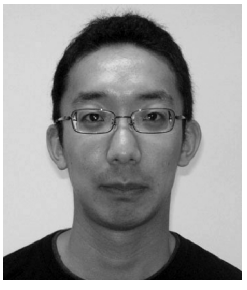

Image courtesy of Masahiro Nakano.

Current position: Hokkaido University, Research Institute for Electronic Science (Nikon Imaging Center), Research Assistant Professor with Prof. Takeharu Nagai

Education: Tokyo Institute of Technology, B.S. in Bioscience, 2003; Tokyo Institute of Technology, Ph.D. in Bioscience, 2008

Nonscientific interests: Sports, music, movies, eating sweets

My research interests have focused on visualization biological event at single molecule or single cell level. Specifically, I am interested in how molecules and ions involved in energy metabolism (*e.g.*, ATP and Ca^{2+}) are regulated in cells. I am pursuing visualization of the dynamics of these molecules in single living cells using Förster resonance energy transfer (FRET)-based genetically encoded fluorescence probes and inorganic fluorescent probes. (Read Nakano's article, DOI: 10.1021/cb100313n)

Ke Zhan

Image courtesy of Ke Zhan.

Current position: Scientist, Department of Research and Development, BioChain Institute, Inc.

Education: Shandong University, B.S. in Biochemistry, 1994; Institute of Microbiology, Chinese Academy of Sciences, M.S. in Biochemistry, 1997; Indiana University School of Medicine, Ph.D. with Prof. Ronald C. Wek in Biochemistry and Molecular Biology, 2003; Stanford University School of Medicine, Postdoctoral Fellow with Prof. William C. Mobley, 2009; Molecular Imaging Program at Stanford, Postdoctoral Fellow with Prof. Jianghong Rao, 2011.

Nonscientific interests: Photography, camping, fishing, music, wine tasting, cooking, history

My research interest has been focused on the pathogenetic role of APP and Rab5 in neurotrophic signaling pathways and the development of molecular tools in detecting abnormalities of APP secretase and Rab5 in various diseases. I am continuing the research and development tasks for such pivot targets from academic to biotech industry and eager to see any translational medical product been materialized. (Read Zhan's article, DOI: 10.1021/cb100377m)