Introducing our AUTHORS

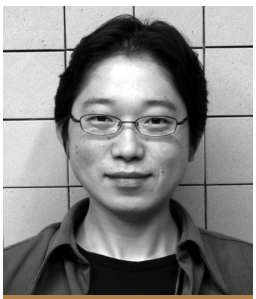
acs chemical biology

Yoshiaki Yano

Image courtesy of Akiko Yano.

Current position: Kyoto University, Graduate School of Pharmaceutical Sciences, Assistant Professor
Education: Kyoto University, B.S. in biophysical chemistry, 2000; Kyoto University, Ph.D. in biophysical chemistry with Prof. Katsumi Matsuzaki, 2005
Nonscientific interests: Swimming

My graduate research has focused on interactions between hydrophobic model transmembrane helices and lipid bilayers to elucidate the physical principles of the folding and stability of membrane proteins. Recently, we have also become interested in behaviors of proteins in living cell membranes that are composed of diverse proteins and lipids. We thought that development of a novel methodology for labeling of cell surface proteins was essential in this field. The method described in the work is a useful tool for detailed investigation of behaviors of membrane proteins in living cells, such as receptor oligomerization and internalization. (Read Yano's article on p 341.)



Takahiro Nakajima

Image courtesy of Takahiro Nakajima.

Current position: The University of Tokyo, Graduate School of Arts and Sciences, Postdoctoral Fellow with Prof. Moritoshi Sato
Education: The University of Tokyo, Department of Chemistry, Ph.D. in analytical chemistry with Prof. Yoshio Umezawa, 2006
Nonscientific interests: Playing jazz drums

Cells secrete a wide variety of biological substances that regulate cellular functions, such as growth factors, cytokines, hormones, and neurotransmitters. My research interest is to develop general methods for visualizing these secreted molecules. We have developed a cell-based fluorescent indicator, Bescell, for brain-derived neurotrophic factor (BDNF). BDNF is secreted from neurons and plays a crucial role in the formation, maintenance, and function of neuronal circuits. Bescell is a highly sensitive, selective, and reversible indicator for BDNF. We cocultured Bescell with hippocampal neurons to detect BDNF secreted from its adjacent hippocampal neurons. We showed that Bescell visualizes picomolar concentrations of endogenous BDNF secreted from hippocampal neurons. We previously developed a cell-based indicator for nitric oxide, Piccell. Bescell and Piccell demonstrate that the present approach based on "cell-based fluorescent indicator" provides a powerful tool for imaging secreted molecules. (Read Nakajima's article on p 352.)

Brock F. Binkowski

Image courtesy of Brock F. Binkowski.

Current position: Promega Corporation, Department of Cellular Proteomics, Senior Scientist
Education: University of Wisconsin–Madison, B.S. in chemical and biological engineering, 1995; University of Wisconsin–Madison, Ph.D. in biochemistry with Peter Belshaw, 2005; Promega Corporation, Postdoctoral Researcher with Frank Fan and Keith Wood, 2005–2006
Nonscientific interests: Spending time with my wife and son

My research is focused on the development of genetically encoded biosensors with the ability to detect changes in the concentration of second messengers or post-translational modifications in living cells. This work has been inspired by the many existing reports of intracellular, FRET-based biosensors that have appeared in the literature in recent years. However, instead of using variants of GFP, we have chosen firefly luciferase as our reporter protein. By fusing polypeptides to wild-type or mutant forms of luciferase, our group has generated biosensors against multiple targets. We feel the large change in light output and the ease of measurement of this new class of biosensor will be useful for basic research and drug discovery. (Read Binkowski's article on p 346 and Point of View on p 335.)

Sung Bae Kim

Image courtesy of Sung Bae Kim.

Current position: National Institute of Advanced Industrial Science and Technology, Research Institute for Environmental Management Technology, Postdoctoral Research Fellow with Dr. Hiroaki Tao
Education: University of Tokyo, Department of Chemistry, Ph.D. in analytical chemistry with Prof. Yoshio Umezawa, 2004
Nonscientific interests: Traveling, bike riding, shopping with my wife

Since I joined Prof. Umezawa's lab at the University of Tokyo, my research has focused on developing new bioluminescent probes for visualizing intracellular signaling in response to exogenous stimulators. Molecular imaging with genetically engineered functional proteins is a main component of my research. Previously, coworkers and I presented a protein-splicing technique for imaging nuclear trafficking of target proteins. Since then, we engineered a single-molecule-format bioluminescent probe, in which all the components required for signal sensing and visualization are integrated. I anticipate that the future technology for molecular imaging will be directed to mimic sense organs of living subjects and trace temporal dynamics of cellular molecules. (Read Kim's article on p 359 and Point of View on p 338.)

Published online June 20, 2008 • 10.1021/cb8001304 CCC: $40.75