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## **Special Section on Fluorescence Molecular Imaging Honoring Prof. Roger Tsien, a Pioneer in Biomedical Optics**

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## Special Section on Fluorescence Molecular Imaging Honoring Prof. Roger Tsien, a Pioneer in Biomedical Optics

Professor Roger Y. Tsien is a renowned world leader in chemical biology and biochemistry whose pioneering work in fluorescence sensing and imaging has revolutionized virtually all of experimental biology. He is an insightful scientist, and a cordial colleague and mentor; always invigorating with his ideas and energy, and inspiring with his vision. His work has profoundly influenced our abilities to study biochemical and molecular processes and events in live cells and animals. His early work on calcium imaging has revealed spatiotemporal characteristics of calcium signaling in various physiological processes and resulted in a widely disseminated use of his methods. But it is his seminal contributions in elucidating the biochemical mechanism of green fluorescent protein (GFP) formation that brought him major acclaim. Over a short period of time, Prof. Tsien further invented a broad spectrum of fluorescent proteins with distinctive colors and characteristics, a technology also adopted in all corners of the biology and biotechnology world. All these contributions have not only provided powerful tools for molecular and cellular imaging, but also advanced our in-depth and systematic understanding of a variety of cellular processes. To date, Prof. Tsien continues to lead and contribute to the emerging fields of molecular and cellular imaging as well as biomedical optics. Because of Prof. Tsien's seminal scientific achievements, he was awarded the 2008 Nobel Prize in Chemistry for his role in "the green fluorescent protein: discovery, expression and development" and the Wolf Prize in medicine "for his seminal contribution to the design and biological application of novel fluorescent and photolabile molecules to analyze and perturb cell signal transduction." Prof. Tsien is a member of the National Academy of Sciences and the Institute of Medicine, a Howard Hughes Medical Institute (HHMI) investigator, and a professor at University of California, San Diego.

In honor of Prof. Roger Y. Tsien's contribution in biomedical imaging, we as colleagues and former trainees have

organized this special section on "Fluorescence Molecular Imaging Honoring Prof. Roger Tsien, a Pioneer in Biomedical Optics," focusing on biomedical optics and molecular/cellular imaging. There are 18 contributions in this special section, covering the topics of developing infrared fluorescence microscopy, fluorescent dyes, and probes. The application of these tools and probes also indicates their broad impact, with the model systems of their applications ranging from tumors and cancers to cardiomyocytes and cardiovascular systems.

In all, authors who contributed papers to this special section synergize their views on how a great leader can promote a field. The guest editors are grateful to the editor-in-chief, Lihong Wang, and the JBO support staff, as well as to the contributors and the reviewers for their invaluable dedication and support.

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