

The Fluorescent Protein Revolution

Advances in fluorescent proteins, live-cell imaging, and superresolution instrumentation have ushered in a new era of investigations in cell biology, medicine, and physiology. From the identification of the green fluorescent protein in the jellyfish *Aequorea victoria* to the engineering of novel fluorescent proteins, *The Fluorescent Protein Revolution* explores the history, properties, and applications of these important probes.

The book first traces the history of fluorescent proteins and the revolution they enabled in cellular imaging. It then discusses fluorescent proteins with novel photophysical properties. The book also covers several cutting-edge imaging applications. These include superresolution microscopy of cellular fine structures, FRET microscopy to visualize protein interactions and cell-signaling activities inside living cells, photobleaching and photoactivation techniques to visualize protein behaviors, techniques that exploit plant and algal photoreceptors to enable light-regulated control of enzymatic activities, and the noninvasive imaging of tumor-host interactions in living animals.

Features

- Examines the use of fluorescent proteins in biomedical research and the development of novel pharmaceuticals
- Explores novel imaging techniques that exploit new fluorescent probes
- Describes the photophysical properties of new fluorescent probes, particularly important red fluorescent probes from corals
- Discusses the applications of fluorescent probes in a variety of optical techniques

In color throughout, this book presents the fundamental principles and latest advances in the field, including the associated development of imaging techniques that exploit fluorescent proteins. It is accessible to a broad audience, from optical imaging experts to novices needing an introduction to the field.



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