***In vivo* cellular imaging using fluorescent proteins**
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Robert M. Hoffman (ed)
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The discovery and genetic engineering of fluorescent proteins has revolutionized cell biology. What was previously invisible to the cell often can be made visible with the use of fluorescent proteins. With this words, Robert M. Hoffman introduces *In vivo Cellular Imaging Using Fluorescent proteins*, the eighteen chapters book dedicated to the description of how fluorescence proteins have changed the way to analyze cellular processes *in vivo*.

Modern researches aim to study new and less invasive methods able to follow the behavior of different cell types in different biological contexts: for example, how cancer cells migrate or how they respond to different therapies. Also, *in vivo* systems can help researchers to better understand animal embryonic development so as how fluorescence proteins may be used to monitor different processes in living organisms at the molecular and cellular level.

This book is very well structured with several colored figures and some pictures of the systems and tools used for the *in vivo* experiments. Protocols are very detailed and easy to follow. Chapters 1-11 are dedicated to the description of the *in vivo* imaging system to visualize, for instance, cancer cell migration, individual cancer cells labeled with fluorescent proteins, imaging of tumor-host interaction, three dimensional imaging of tumors in mice, responses to anticancer therapy in live mice. Chapters 12, 13 and 18 describe how GFP-transgenic mice can be used for *in vivo* imaging in preclinical applications, to label cancer cells and to follow the spread of cancer at the subcellular level. Chapter 14 is focused on embryo culture and, in particular, on the analysis of cardiovascular defects in mutant animals that can be followed using vital fluorescent reporter lineages. Chapters 16 and 17 are more *technical* paragraphs focused on the new improved fluorescent proteins that can be used for different *in vivo* applications, like the design of new far red and infra red fluorescent proteins that nowadays are not yet optimal for a reliable *in vivo* image acquisition. Chapter 17 is focused on the bioluminescence imaging as an optical method to study RNAi *in vivo*.

Last but not least, chapter 15 is dedicated to the discovery of multicolored fluorescent proteins (FPs), a new multitude of genetically-expressible proteins used in fluorescence imaging applications. It is interesting to note that these fluorescent proteins derive from hard reef corals, soft corals (like anemones, zoanthids, corallimorphs) and other marine organisms like crustaceans and amphioxus and they pave the way to the use of FPs as a new source of GFP-like proteins.

In conclusion, this is a useful book not only for those who study the biology of different cancer cells, but also for those who are interested in following the *in vivo* dynamic of cellular processes.

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