Optogenetics combines genetic engineering with optics to control the function of cells using light. Optogenetics is primarily an analytic technology but with some clinical implications such as restoration of vision and treatment of neurological diseases. As a new discipline much of the basic science and methods are currently under investigation and active development, thus there is a strong need for introductory literature in this field. This graduate level textbook provides an overview of the field of optogenetics in 19 concise chapters: Optogenetic tools, Applications in cellular systems, Mapping neuronal networks, Clinical applications and Restoration of vision and hearing. The concept and content was developed with top international researchers and students at a prestigious Dahlem Conference workshop.

- A concise overview of the methodology, basic research and new clinical applications for optogenetics
- Content developed with top international scientists and students in a "Dahlem Conference" workshop
- Color illustrations for better visualization of complex structures

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