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Autore	Hamblin Michael R.
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Nota di contenuto	part PART 1INTRODUCTION -- chapter 1 Looking out the optical window: Physical principles and instrumentation of imaging inphotodynamic therapy / Hui Liu -- chapter 2 Photochemistry and photophysics of PDT andphotosensitizers / Marcin Ptaszek -- part PART 2 IN VITRO MICROSCOPY FOR PHOTSENSITIZER LOCALIZATION IN CELLS -- chapter 3 Phthalocyanines in photodynamic therapy / Heidi Abrahamse -- chapter 4 Singlet oxygen luminescence imaging: A prospective tool in bioscience? / Michael Pfitzner, Jan C. Schlothauer, Lisheng Lin, BuhongLi, and Beate Rder -- chapter 5 Microbial biofilms and antimicrobial photodynamic therapy / Anil Kishen -- chapter 6 High-content imaging for photosensitizer screening / Gisela M.F. Vaz, Mathias O. Senge, Sarah-Louise Ryan, andAnthony Davies -- part PART 3: IN VITRO MICROSCOPY OF CELL DAMAGE AND DEATH PROCESSES AFTERPDT -- chapter 7 Enhanced efficacy of photodynamic therapy via an ironlysosomemitochondria connection: Studies with phthalocyanine 4 / Anna-Liisa Nieminen, Hsin-I Hung, and John J. Lemasters -- chapter 8 Role of cell death pathways in response to photodynamic therapy in gliomas / Leonardo Barcelos de Paula, Fernando Lucas Primo, andAntonio Claudio Tedesco -- chapter 9 In search of specific PDT photosensitizers: Subcellular localization and cell death pathways / Tayana M. Tsubone, Christiane Pavani, Isabel O.L.

Bacellar, and Mauricio S. Baptista -- part PART 4 THERANOSTIC AGENTS AND NANOTECHNOLOGY -- chapter 10 Quantum dots in PDT -- chapter 11 Tetrapyrrole-based theranostic combinations of photodynamic action and magnetic resonance imaging / Duygu Aydin Tekdas, Devrim Atilla, Vefa Ahsen, and Ayse GI Grek -- chapter 12 Theranostic applications of photodynamic molecular beacons / Wentao Song -- chapter 13 Tumor-specific imaging and photodynamic therapy targeting the urokinase receptor / Zafar Iqbal, Longguang Jiang, Zhuo Chen, Cai Yuan, Rui Li, Ke Zheng, Xiaolei Zhou, Jincan Chen, Ping Hu, and Mingdong Huang -- part PART 5 SMALL ANIMAL IMAGING -- chapter 14 Vascular imaging in photodynamic therapy / Bin Chen -- chapter 15 Photosensitizer activity imaging on the microscopic scale / Steffen Hackbarth -- chapter 16 Bioluminescence imaging for monitoring the effectiveness of photodynamic therapy for infections in animal models / Pawel Mroz -- part PART 6 CLINICAL IMAGING -- chapter 17 Imaging of photosensitizers in skin / Marica B. Ericson -- chapter 18 Brain tumor imaging with ALA / Herbert Stepp -- chapter 19 PDT of non-muscle-invasive bladder cancer with Hexylester Aminolevulinate: Optimization of the illumination wavelengths by fluorescence spectroscopy and imaging / Matthieu Zellweger -- chapter 20 Endoscopic imaging and photodynamic therapy / Harubumi Kato, Kinya Furukawa, Yasufumi Kato, Jitsuo Usuda, Kuniharu Miyajima, and Keishi Ohtani -- chapter 21 Spectroscopic imaging in prostate PDT / Rozhin Penjweini -- chapter 22 Fluorescent-guided resection in clinical oncology / Ron R. Allison.

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#### Sommario/riassunto

This book covers the broad field of cellular, molecular, preclinical, and clinical imaging either associated with or combined with photodynamic therapy (PDT). It showcases how this approach is used clinically for cancer, infections, and diseases characterized by unwanted tissue such as atherosclerosis or blindness. Because the photosensitizers are also fluorescent, the book also addresses various imaging systems such as confocal microscopy and small animal imaging systems, and highlights how they have been used to follow and optimize treatment, and to answer important mechanistic questions. Chapters also discuss how imaging has made important contributions to clinical outcomes in skin, bladder, and brain cancers, as well as in the development of theranostic agents for detection and treatment of disease. This book provides a resource for physicians and research scientists in cell biology, microscopy, optics, molecular imaging, oncology, and drug discovery.

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