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Method; 3.2.1 The Basic FDTD Numerical Scheme
3.2.2 Input Wave Excitation3.2.3 Uniaxial Perfectly Matched Layer Absorbing Boundary Conditions; 3.2.4 FDTD Formulation of the Light Scattering Properties from Single Cells; 3.2.5 FDTD Formulation of Optical Phase Contrast Microscopic (OPCM) Imaging; 3.3 FDTD Simulation Results of Light Scattering Patterns from Single Cells; 3.3.1 Effect of Extracellular Medium Absorption on the Light Scattering Patterns; 3.4 FDTD OPCM Nanobioimaging Simulation Results; 3.4.1 Cell Structure; 3.4.2 Optical Clearing Effect; 3.4.3 The Cell Imaging Effect of Gold Nanoparticles
3.4.3.1 A Cell with a Cluster of Gold Nanoparticles Located in the Cytoplasm3.4.3.2 A Cell with a Cluster of Gold Nanoparticles Randomly Distributed on the Surface of its Nucleus; 3.5 Conclusion; Acknowledgment; References; 4 Optics of White Blood Cells: Optical Models, Simulations, and Experiments; 4.1 Introduction; 4.1.1 White Blood Cells; 4.1.2 Particle Identification and Characterization; 4.1.3 Experimental Techniques; 4.2 Optical Models of White Blood Cells; 4.2.1 Confocal Imaging of White Blood Cells; 4.2.2 Optical Models of Mononuclear Cells; 4.2.3 Optical Models of Granular Cells
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4.4 Experimental Measurement of Light Scattering by White Blood Cells

Sommario/riassunto

A detailed look at the latest research in non-invasive in vivo cytometry and its applications, with particular emphasis on novel biophotonic methods, disease diagnosis, and monitoring of disease treatment at single cell level in stationary and flow conditions. This book thus covers the spectrum ranging from fundamental interactions between light, cells, vascular tissue, and cell labeling particles, to strategies and opportunities for preclinical and clinical research. General topics include light scattering by cells, fast video microscopy, polarization, laser-scanning, fluorescence, Raman,