

Special Issue

Biomedical Optics

Message from the Guest Editor

Biomedical optics play an increasing role in the diagnosis and treatment of patients, as well as in advanced studies of biology. Novel methods of 3D microscopy based on various kinds of illumination patterns (wide field, focused laser beam, structured, or light sheet) are adapted for investigations of 3-dimensional cell cultures, tissues or whole organs. In addition, laser-assisted micromanipulation, e.g., optical tweezers or optoporation techniques, have been revealed as helpful tools for the diagnosis or treatment of single cells. In vitro diagnostics often requires methods of (super-resolution) microscopy, hyperspectral imaging or fluorescence lifetime imaging as well as the application of opto-acoustic methods, high-content reader systems or optical biosensors. Deconvolution, automated image processing and machine learning have become valuable tools for the evaluation of large data sets. Contributions on all these and related techniques, as well as their applications in various fields of biology, are welcome in this Special Issue.

Guest Editor

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