

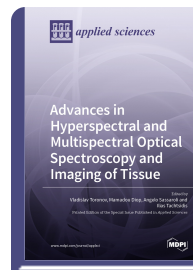
Special Issue Reprint

Advances in Hyperspectral and Multispectral Optical Spectroscopy and Imaging of Tissue

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The purpose of this SI is to provide an overview of recent advances made in the methods used for tissue imaging and characterization, which benefit from using a large range of optical wavelengths. Guerouah et al. has contributed a profound study of the responses of the adult human brain to breath-holding challenges based on hyperspectral near-infrared spectroscopy (hNIRS). Lange et al. contributed a timely and comprehensive review of the features and biomedical and clinical applications of supercontinuum laser sources. Blaney et al. reported the development of a calibration-free hNIRS system that can measure the absolute and broadband absorption and scattering spectra of turbid media. Slooter et al. studied the utility of measuring multiple tissue parameters simultaneously using four optical techniques operating at different wavelengths of light—optical coherence tomography (1300 nm), sidestream darkfield microscopy (530 nm), laser speckle contrast imaging (785 nm), and fluorescence angiography (~800 nm)—in the gastric conduit during esophagectomy. Caredda et al. showed the feasibility of accurately quantifying the oxy- and deoxy-hemoglobin and cytochrome-c-oxidase responses to neuronal activation and obtaining spatial maps of these responses using a setup consisting of a white light source and a hyperspectral or standard RGB camera. It is interest for the developers and potential users of clinical brain and tissue optical monitors, and for researchers studying brain physiology and

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