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Editorial

Advances in Optical Imaging in Cancer Research – Part 1

Robert R. Alfano

Institute for Ultrafast Spectroscopy & Lasers The City College of New York, New York, NY 10031, USA

www.tcrt.org

TCRT continues to offer to its readers the current advances in OPTICAL BIOPSY. This special section's focus is presented in four articles in optical imaging area. The salient features of the articles touch upon the use of time and frequency domain in imaging, the use of different wavelengths of several of possible fingerprint molecules in cancer, the role of hypoxia in cancer, the use of key topical contrast agent with confocal micro-endoscope, and the use of ultrasound guided hybrid system with optical diffusive tomography for minima invasive cancer detection. Several key methods are discussed in these articles.

Ueda's group (1) presents clinical results on breast cancer screening using multichannel Time Resolved optical spectroscopy system in the development of optical mammography. Time-correlated single photon counting and Ti Sapphire laser beam irradiated the breasts. 3D images of breast were reconstructed using the time-resolved paths and algorithms. More than 200 breast cancer patients participated in the study.

Piao's group (2) present imaging using frequency domain methods; in particular, DC approach with several wavelengths in optical diffusive optical tomography probing key finger print molecules of hemoglobin, oxyhemoglobin and water for imaging cancer regions.

Zhu's group (3) combined ultrasound with diffusive optical tomography commonly called DOT by Britton Chance for mapping hypoxia region of tumors. The fingerprints molecules are hemoglobin and oxyhemoglobin concentration in blood phantoms and in vivo cancer patients.

The article from Kortum's group (4) discussed on the use and efficacy of topical fluorescent contrast agent and miroenedoscopy for detection of Barrett's neoplastic regions in 26 patients at 206 sites .The morphologic and metabolic features of gastrointestinal neoplastic lesions were delineated.

The next issue of TCRT will be a continuation of articles in Optical Imaging Advances in cancer area – part 2.

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E-mail: ralfano@sci.ccny.cuny.edu

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