

Detecting Rat's Kidney Inflammation Using Real Time Photoacoustic Tomography

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Abstract : Photoacoustic Tomography (PAT) is a promising medical imaging modality that combines optical imaging contrast with the spatial resolution of ultrasound imaging. It can also distinguish the changes in biological features. But, real-time PAT system should be confirmed due to photoacoustic effect for tissue. Thus, we have developed a real-time PAT system using a custom-developed data acquisition board and ultrasound linear probe. To evaluate performance of our system, phantom test was performed. As a result of those experiments, the system showed satisfactory performance and its usefulness has been confirmed. We monitored the degradation of inflammation which induced on the rat's kidney using real-time PAT.

Keywords : photoacoustic tomography, inflammation detection, rat, kidney, contrast agent, ultrasound

Conference Title : ICBACB 2017 : International Conference on Biomedical Applications and Computational Biology

Conference Location : New York, United States

Conference Dates : August 07-08, 2017