MULTI-FOCUS OPTICAL-RESOLUTION PHOTOACOUSTIC MICROSCOPY WITH ULTRASONIC ARRAY DETECTION

Maslov, Konstantin, Rao, Bin, Song, Liang, Wang, Lihong

Dahl, Lisa

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In clinical practice, high imaging speed is critical to reduce motion artifacts, cost, and patient discomfort. Researchers at Washington University have developed multi-focal optical-resolution photoacoustic microscopy (MFOR-PAM) capable of high-resolution imaging of hemoglobin concentration and oxygenation in individual microvessels in vivo at high speed. Compared with a single focus, multiple foci reduce the scanning load and increase the imaging speed significantly. The current multi-focal system can acquire 1000× 500 × 200 voxels at ~10-micron lateral resolution within 4 minutes,three to four times faster than existing mechanical scanning single focus optical resolution photoacoustic-microscopy.