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21 | Rapid confocal imaging of large areas of excised tissue with strip mosaicing

Abeytunge S, Li Y, Larson B, Toledo-Crow R, Rajadhyaksha.; J Biomed Opt. 2011 May;16(5):050504.

ABSTRACT

Imaging large areas of tissue rapidly and with high resolution may enable rapid pathology at the bedside. The limited field of view of high-resolution microscopes requires the merging of multiple images that are taken sequentially to cover a large area. This merging or mosaicing of images requires long acquisition and processing times, and produces artifacts. To reduce both time and artifacts, we developed a mosaicing method on a confocal microscope that images morphology in large areas of excised tissue with sub-cellular detail. By acquiring image strips with aspect ratios of 10:1 and higher (instead of the standard ?1:1) and ?stitching? them in software, our method images 10×10 mm2 area of tissue in about 3 min. This method, which we call ?strip mosaicing,? is currently three times as fast as our previous method.