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


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.