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#### Sensitivity and specificity for detecting basal cell carcinomas in Mohs excisions with confocal fluorescence mosaicing microscopy.

Gareau DS, Karen JK, Dusza SW, Tudisco M, Nehal KS, Rajadhyaksha M.; *J Biomed Opt.* 2009 May-Jun;14(3) DOI: 10.1117/1.3130331.2009: 034012.

#### ABSTRACT

Recent studies have demonstrated the ability of confocal fluorescence mosaicing microscopy to rapidly detect basal cell carcinomas (BCCs) directly in thick and fresh Mohs surgical excisions. Mosaics of confocal images display large areas of tissue with high resolution and magnification equivalent to 2x, which is the standard magnification when examining pathology. Comparison of mosaics to Mohs frozen histopathology was shown to be excellent for all types of BCCs. However, comparisons in the previous studies were visual and qualitative. In this work, we report the results of a semiquantitative preclinical study in which 45 confocal mosaics are blindly evaluated for the presence (or absence) of BCC tumor. The evaluations are made by two clinicians: a senior Mohs surgeon with prior expertise in interpreting confocal images, and a novice Mohs fellow with limited experience. The blinded evaluation is compared to the gold standard of frozen histopathology. BCCs are detected with an overall sensitivity of 96.6%, specificity of 89.2%, positive predictive value of 93.0%, and negative predictive value of 94.7%. The results demonstrate the potential clinical utility of confocal mosaicing microscopy toward rapid surgical pathology at the bedside to expedite and guide surgery.