

Medical > Ex Vivo > Overview (ex vivo)

3

Immunofluorescence and confocal microscopy for ex-vivo diagnosis of melanocytic and non-melanocytic skin tumors: A pilot study.

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ABSTRACT

BACKGROUND: Ex-vivo confocal laser scanning microscopy (ex-vivo CLSM) offers rapid examination of freshly excised tissue. During the conventional examination immunohistochemistry enables to distinguish various cell types. The possibility of immunofluorescent techniques could enhance the accuracy of the diagnosis performed by ex-vivo CLSM. **METHODS:** The tissue probes from various skin tumors were stained with FITC-labeled S-100A10, Melan-A and anti-Ber-EP4 antibodies before examination with ex-vivo CLSM in the fluorescence and reflectance modes. Results were compared to negative controls and conventional histopathology. The staining protocols were evaluated by establishing a scoring system according to the signal intensity found in ex-vivo CLSM. **RESULTS:** S100 immunostaining was successful in 55.6%. Dilution of 1:200 resulted in the best possible evaluation of the tumor. The best suitable protocol was protocol B (phosphate buffered saline [PBS], without blocking agent). Melan A immunostaining was positive in 66.7%, the best dilution was 1:500 and protocol B (PBS, without blocking agent) was the most suitable. Ber-EP4 immunostaining presented a signal in 85.7%, the best dilutions were 1:200 and 1:500 and protocol A (PBS, with blocking agent) showed most optimal results. **CONCLUSION:** The use of fluorescent-labeled antibodies in ex-vivo CLSM is possible and could improve intraoperative diagnostics of skin tumors. © 2017 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim. **KEYWORDS:** basal cell carcinoma; diagnostics in dermatology; fluorescence confocal microscopy; immunofluorescence; melanoma; metastasis; skin surgery; skin tumors
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