The use of confocal microscopy and sulforhodamine B assay in visualisation of elastin fibers in human *fascia lata*

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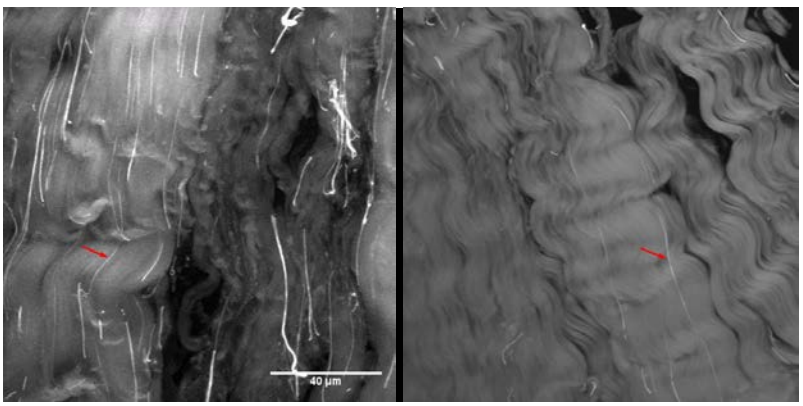
BACKGROUND Elastin fibers influence biomechanical properties of the fascial tissues to a great extent, not only due to theirs extensibility but also to their unique, three dimensional arrangement within collagen bundles. Because of collagen abundance precise organization of elastic fibbers within fascial structures is difficult to determined. The use of confocal microscopy and sulforhodamine B assay may help to visualise elastin elements in more efficient way.
METHODS The 40 μm thick samples of normal, unfixed human *fascia lata* were used in this study. Material was collected *post mortem* from 8 adult males. This study was carried out in strict accordance with the recommendations from the Bioethics Committee of the Wrocław Medical University (No. KB-262/2010). The observations were carried out using a confocal microscope LSM 510 META (Zeiss). For sample staining Sulforhodamine B (SRB) powder (Sigma-Aldrich) was used, after dissolving it in PBS to obtain 1 mg/ml SRB solution. The laser at 561 nm was used to excite SRB and the corresponding signal from elastin was collected at 565 to 590 nm.
RESULTS Sulforhodamine B, which stains specifically elastin allowed for efficient visualisation of elastin network within examined tissue. Elastin fibers had different thickness and length. In general, they were organised parallel to the main orientation of much more numerous and undulating collagen bundles "sewing them through". Some elastin fibres were forming anastomoses with each other.
CONCLUSIONS The use of the confocal microscopy with sulforhodamine B assay allowed for selective visualisation of fascia lata elastin fibers. The big advantage of implied method was its non-destructive nature and no need of samples fixation.



Elastin fibers (arrows) within human *fascia lata* selectively stained with sulfroadmiane B (SRB)

This research project is supported by grant NCN no. N N518 286540