Dokumenttyp: journal article

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Titel des Beitrags:
A rapid ex vivo tissue model for optimising drug detection and ionisation in MALDI imaging studies.

Abstract:
The aim of this study was to establish an ex vivo model for a faster optimisation of sample preparation procedures, for example matrix choice, in matrix-assisted laser desorption/ionisation (MALDI) drug imaging studies. The ionisation properties of four drugs, afatinib, erlotinib, irinotecan and pirfenidone, were determined in an ex vivo tissue experiment by spotting decreasing dilution series onto liver sections. Hereby, the drug signals were distinctly detectable using different matrix compounds, which allowed the selection of the optimal matrix for each drug. The analysis of afatinib and erlotinib yielded high drug signals with ?-cyano-4-hydroxycinnamic acid matrix, whereas 2,3-dihydroxybenzoic acid was identified as optimal matrix for irinotecan and pirfenidone detection. Our method was validated by a MALDI drug imaging approach of in vivo treated mouse tissue resulting in corresponding findings, indicating the spotting method as an appropriate approach to determine the matrix of choice. The present study shows the accordance between the detection of ex vivo spotted drugs and in vivo administered drugs by MALDI-TOF and MALDI-FT-ICR imaging, which has not been demonstrated so far. Our data suggest the ex vivo tissue spotting method as an easy and reliable model to optimise MALDI imaging measurements and to predict drug detection in tissue sections.
derived from treated mice prior to the recruitment of laboratory animals, which helps to save animals, time and costs.

Zeitschriftentitel / Abkürzung:
Histochem Cell Biol

Jahr: 2014
Band: 142
Heft / Issue: 4
Seiten: 361-71
Sprache: eng
Print-ISSN: 0948-6143
TUM Einrichtung:
Chirurgiesche Klinik und Poliklinik; III. Medizinische Klinik und Poliklinik

Occurences:
- Einrichtungen > Fakultäten > Fakultät für Medizin > Kliniken und Institute > III. Medizinische Klinik und Poliklinik (Hämatologie / Onkologie) > 2014
- Einrichtungen > Fakultäten > Fakultät für Medizin > Kliniken und Institute > Chirurgische Klinik und Poliklinik > 2014

entries: