



ORAL PRESENTATION

Molecular high throughput analyses and automated detection systems

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High throughput equipment, like tissue arrayer and auto-stainer, has meanwhile been integrated in pathology and research on a daily-use basis and provides comparability, reproducibility and celerity of processing. Since molecular investigations possessing high throughput characteristics (transcription arrays and 2-D-electrophoresis) can be combined with this equipment, efficient strategies to find disease-relevant molecules can be developed. In this study transcription array data derived from human lungs, tumor and tumor-free specimens, was evaluated to disclose strong gene regulations. Candidate molecules, one of which was haptoglobin, were found and studied intensively employing high throughput immunohistochemistry. For evaluation of signals from immunohistochemistry, an automated stand-alone tissue microarray detection system ("Spot Browser") was used to analyze stained tissue microarrays. We describe different technical and molecular high throughput tools whose combination represents an efficient strategy for the identification of most important candidate molecules with high importance in the field of lung diseases including cancer, inflammation, allergy, and infection. All tissue conservation was further based on the formalin-, ethanol- and xylol-free HOPE-fixation which provides advantageous molecular conservation due to its gentle fixation mechanism. This technique for paraffin-embedded material maintains morphology equal to formalin and avoids protein cross-

linking and degradation of RNA and DNA in a long-term manner; moreover, all molecular-biologic and biochemical methods are compatible. In conclusion, HOPE-fixed tissues processed with high throughput equipment and analyzed using molecular high throughput techniques provide a powerful combination as the basis for multi-methodical investigations of archived tissue specimens and therefore for the fast detection of disease-associated molecules.

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