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Epitope profiling the plasma proteome via specific monoclonal antibody libraries results in high accuracy for the detection of lung, breast, colon and prostate cancers

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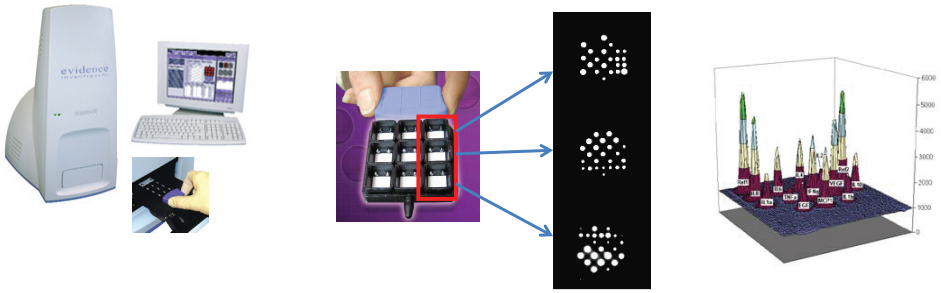
The ultimate biological function is associated with proteins not nucleic acids, thus there is considerable interest in understanding proteome variability and its association with disease. Genetic code dependent proteome variability (splice variation, coding SNPs, etc.) is only a part of proteome variability, which includes genetic code independent heterogeneity such as post-translational modification, protein interactions and folding variation.

We show here that disease diagnosis may benefit from the large scale profiling of proteins and their genetic code dependent and independent variability at the level of protein epitopes in the human plasma. Monoclonal antibody targeted detection and quantification of the multitude of protein variability is feasible via epitope profiling, in contrast to MS based or other affinity reagent based technologies which fail to detect genetic code dependent and independent variability.

Epitope specific non-redundant mAb libraries running on suitable antibody biochip platforms, such as the Randox Evidence Investigator platform, provide diagnostic level combinatorial markers. We present results of human plasma proteome profiling experiments from observational studies which indicate an unprecedented >95% accuracy (AUC in ROC analysis) for the detection of lung, breast, colon and prostate cancers outperforming current multiplexed or individual markers.

Our current focus includes bringing the technology to closer to patients and to the diagnostic market.



The Randox Evidence Investigator biochip technology with Biosystems' Quatiplamsa libraries is suitable for plasma proteome profiling

Biography

Laszlo Takacs M.D., Ph.D., DSc., Foreign Member of the Hungarian Academy of Sciences. He received his education at Semmelweis Medical University in Budapest. Experience includes over 10 years of academic research in Hungary and at the NCI, NIH in the US and 20 years in industry at Amgen Inc. and Pfizer Inc. In 2004, Laszlo Takacs co-founded Biosystems International. Publications include over 70 peer reviewed scientific papers, book chapters and commercially oriented materials. Laszlo Takacs is an inventor on 10 patents and patent applications. Current interest is human plasma protein epitome profiling for the discovery of new diagnostics in cancer and chronic diseases via mAb proteomics.

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