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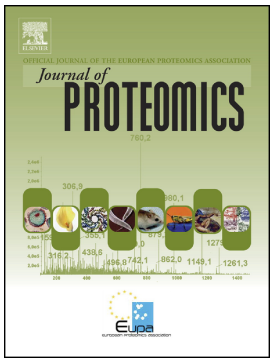

Protein biomarkers for early detection of diseases: The decisive contribution of combinatorial peptide ligand libraries

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Protein biomarkers for early detection of diseases: the decisive contribution of combinatorial peptide ligand libraries.

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Abstract:

The present review deals with biomarker discovery, especially in regard to sample treatment via combinatorial peptide ligand libraries, perhaps the only technique at present allowing deep exploration of biological fluids and tissue extracts in search for low- to very-low-abundance proteins, which could possibly mark the onset of most pathologies. Early-stage biomarkers, in fact, might be the only way to detect the beginning of most diseases thus permitting proper intervention and care. The following cancers are reviewed, with lists of potential biomarkers suggested in various reports: hepatocellular carcinoma, ovarian cancer, breast cancer and pancreatic cancer, together with some other interesting applications. Although panels of proteins have been presented, with robust evidence, as potential early-stage biomarkers in these different pathologies, their approval by FDA as novel biomarkers in routine clinical chemistry settings would require plenty of additional work and efforts from the pharma industry. The science environment in universities could simply not afford such heavy monetary investments.

Key words: combinatorial ligand libraries; biomarkers; ovarian cancer; breast cancer; pancreatic cancer; hepatocellular carcinoma.

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