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Highly specific and sensitive serum antibodies repertoire analysis using peptide microarrays in patients with breast cancer

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Search for early diagnostic cancer biomarkers is very important. Antibodies (Abs) against tumor associated antigens are very promising can be used as an alternative to known biomarkers. The change in quantity and specificity of serum Abs can indicate the ongoing pathophysiological processes, including the development of cancer. We present the results of analysis antibody repertoire (immuno signature) using peptide microarrays in patients with breast cancer (BC). We identified 119 peptides, from 330 034 peptides presented on a microchip, which can differentiate BC patients and healthy control with statistically significance ($p<0.001$). The panel of peptides can distinguish sera from patients and healthy donors with high sensitivity and specificity. Evaluation of Ab repertoire with a panel of synthetic peptides can be used to develop diagnostic tests for early detection of BC.

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