biomolecular interaction analysis

Antigen-arrays for autoimmune disease testing

Developing diagnostic tests for autoimmune diseases often depends on measuring multiple biomarkers. The Biametrics SCORE (single colour reflectrometry) technology is able to detect serological autoimmune antibodies specifically. Furthermore, it enables the use of multiplexed antigen arrays and thus can help to increase speed and reliability of autoimmune diagnostic tests.

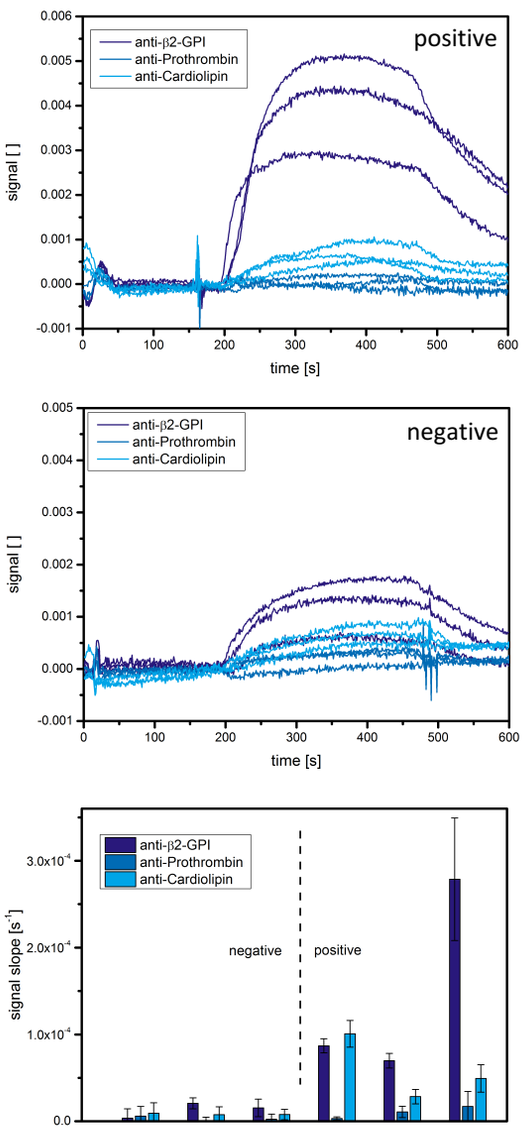

Figure 1: Detection and characterisation of autoimmune antibodies in patients' samples. Binding curves of antibodies against the diagnostic biomarkers ß2-glycoprotein I, cardiolipin and prothrombin were obtained from antiphospholipid syndrome positive serum samples (top) and healthy controls (middle). Healthy and diseased status was discriminated by evaluating the binding behaviour of these three biomarkers in parallel (bottom).

- Serum and blood samples
- No extraction or purification
- Multiple parameters
- Fast assay development

Diagnosis of antiphospholipid syndrome from patients' serum

Antiphospholipid syndrome (APS) is caused by antibodies against cell-membrane phospholipid resulting in thrombosis and complications during pregnancy like stillbirth, pre-term delivery, miscarriage or pre-eclampsia.

An array containing three different marker antigens for the diagnosis of APS was tested against three patient serum samples and three control serum samples using the label-free Biametrics technology (Figure 1). No purification or labeling of the antibodies from the serum was necessary.

Concentration as well as binding behaviour of all three antibodies were measured in parallel. Both parameters can be used to discriminate between patient and control samples (Figure 1).
Using the Biametrics label-free array technology gives access to multiple marker testing and new parameters for diagnostic assay development.

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Literature

Bleher et al., "Development of a new parallelized, optical biosensor platform for label-free detection of autoimmunity-related antibodies", Anal Bioanal Chem, 406(14):3305-14, 2014.
Schindler et al., "Diagnostic performance study of an antigen microarray for the detection of antiphospholipid antibodies in human serum", Clin Chem Lab Med, 53(5):801-8, 2015