

INVITED LECTURE H4

A native antigen “reverse capture” protein microarray platform for autoantibody profiling and biomarker discovery

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One of the most critical goals of clinical proteomics today is the discovery of new diagnostic and therapeutic biomarkers. The identification of new, novel biomarkers will directly impact patients and clinicians through early diagnosis, identification of patient subsets with differential disease etiologies, and determining disease prognosis. With some diseases, such as cancers and various inflammatory conditions, the immune system plays a vital role. For these diseases, identification of antigens and the detection of autoantibody reactivity are useful in biomarker discovery and for elucidating the potential biochemical pathways.

However, one the main challenges to working with autoantibodies is their sensitivity. Thus, the ability to detect multiple autoantigens using a platform such as a high-density antigen microarray would improve sensitivity and specificity of detection for autoantibody profiling. To date, studies of antigen-autoantibody reactivity using microarrays have relied on recombinant proteins or synthetic peptides as arrayed features. However, recombinant proteins and/or peptides may fail to accurately detect autoantibody binding due to the lack of proper post-translational modifications. In this presentation, we will describe the use of a native antigen “reverse capture” platform that facilitates the autoantibody reactivities to native antigens, and provide examples of its use in the clinical setting.