

## GS6-4 From disease proteomics to biomarker development -Establishment of antibody proteomics technology and exploration of cancer-related biomarkers-

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Molecular biomarkers are key to the development of new diagnostic protocols and therapies. Recently, significant research effort has been devoted to the development of these biomarkers using various approaches. Perhaps the most promising approach is disease proteomics. This method involves analyzing and identifying changes in the expression pattern at the protein level in the diseased condition (disease-related proteins) by using two-dimensional differential gel electrophoresis analysis (2D-DIGE). In the case of disease proteomics, hundreds of candidate disease-related proteins can be identified at a time. Therefore, how to pick the really valuable proteins up from a number of candidate drug targets is a most important issue to be solved in world-wide. Here, we introduce a novel approach, termed “antibody proteomics”, which addresses this issue. Using antibody proteomics it is possible to identify a variety of disease-related proteins by 2D-DIGE and simultaneously prepare monoclonal antibodies to these proteins by using a phage antibody library. The advantage of this technology is that the target proteins are identified in a high-throughput manner. Our approach relies on the fact that tissue microarray analysis can evaluate the relationship between disease-related proteins and disease progression, based on clinical and pathological information. In this symposium, we will discuss the development and application of antibody proteomics and give an overview of future work.