Recent Development of Protein Microarray and Proteogen Platform

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Abstract

There are many different surface technologies currently applied for preparation of protein chips. However, it requires innovative surface chemistry for capture proteins to be immobilized on chip surface keeping their conformation and activity intact and their orientation right, while they bind tightly and densely in a given array spot.

Proteogen has developed "ProteoChip BP" coated with novel proprietary linker molecules (ProLinker™) for efficient and robust immobilizations of capture proteins by improving surface properties of molecular captures. It was demonstrated that ProLinker™ gave the best surface performance in preparation of protein microarray chip base plates among others currently available on the market. In particular, the ProLinker™-based surface chemistry has demonstrated to provide excellent performance in preparation of "Antibody Chip" for analysis of biomarkers as well as proteome expression profiles. The linker molecule has also shown to be well applicable for development of biosensors and micro-beads as well as protein microarray and nano-array.

ProteoChip BP can be used either for preparation of high-density array by using a microarrayer or for preparation of "Well-on-a-Chip" with low density array, which is better applicable for quantitative analysis of biomarkers or protein-protein interactions. The biomarker assay can be performed either by direct or sandwich methods of fluorescence immunoassay. Application of ProteoChip BP has been well demonstrated by the extensive studies of 1) tumor-marker assays, 2) new drug screening by using "Integrin Chip" and 3) protein expression profile analysis. Some of experimental results will be presented.