

Conjugation method of biomolecules on a functionalized glass substrate for microarray analysis

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Microarray system on a glass substrate was developed for the detection and quantitation of biomolecules. In this study, two types of microarrays are used: peptide array and protein array. In the peptide array, we evaluated a feasibility of fluorescence-based screening of a trypsin-binding peptide using an array format on a surface-modified glass. Two representative peptides were used as ligand peptides; a 'target' heptapeptide that could specifically bind to trypsin, and a 'control' hexapeptide that had no binding affinity with trypsin. A separate experiment using a quartz crystal microbalance confirmed that the difference in binding mass (ca. 8.7-fold) was very close to that in fluorescence intensity. In the protein array, we compared conjugation method with adsorption method of immobilized rabbit IgG on a glass surface in the direct ELISA method. The method of conjugating rabbit IgG on a aldehyde coated glass slide via reductive amination was successfully in washing step and freeze-drying step, resulting in compared with adsorption method of rabbit IgG, while maintaining a conformation and a high sensitivity by reaction with FITC labeled anti rabbit IgG.