

Protein immobilization with parylene family

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A new covalent immobilization method for small proteins and short peptides is presented by using parylene-H film which, is a polymer of p-xylene having formyl groups. The covalent coupling of proteins to the parylene-H film is produced by only one step of incubation of proteins or peptides without additional coupling reagents. In this work, the parylene-H film is coated on a 96-well microplate for immunoassays. The immobilization efficiency to the parylene-H film was compared with the conventional physical adsorption by using human chorionic gonadotrophin protein and a small peptide called circulated citrullinated peptide as model molecules. Additionally, the applicability of this immobilization method for short peptides is demonstrated by detecting autoantibodies in rheumatoid arthritis patient serum.