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研究论文

一种可逆键合电泳微芯片的制作及在蛋白质分离中的应用

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摘要 阐述了一种可逆键合电泳微芯片的制作方法, 以及电泳微芯片在蛋白质分离、临床尿蛋白检测方面的应用. 用标准光刻腐蚀技术在石英基片上腐蚀泳道, 清洗腐蚀好的基片和盖片后, 在真空条件下实现键合. 此种方法键合制作的电泳微芯片可重复键合使用, 制得的电泳微芯片成功地用于标准蛋白质分离以及临床尿蛋白分析.

关键词 可逆键合 电泳微芯片 尿蛋白

分类号

Manufacture of Reversible Electrophoresis Chip and Its Application to Protein Detection

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Abstract This paper described a low-cost and reliable process for reversible bonding fabrication of electrophoresis microchips on quartz glass substrates in ordinary laboratory without the requirement of clean room facilities, and the microchips have been used in model protein separation and clinical urinary protein detection. Patterns of microchannel were fabricated through standard photolithography and etching on the quartz glass substrate. After bonding surfaces were rigorously rinsed, bonding was realized in vacuum ovens. The chip could be separated and re-bonded for usage. The microchip in these studies was designed to realize on-chip separation of urinary proteins with UV detection. The electrophoretic buffer was 75 mmol/L borate with 0.5 mol/L lactate and pH 10.5. The chips have been used successfully for separation of model proteins and clinical urinary proteins.

Key words reversible bonding electrophoresis microchip urinary protein

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