Abstract:
A useful microfluidic system was designed for biological assay, including assay volume control, biomolecule capturing, and assay result monitoring.

Summary:
Our goal is to build a miniaturized fluidic system on the basis of the existing microparticle array technology we have developed through the past a few years [1]. In a microfluidic bioassay system, volume control is a particularly important issue. We designed and fabricated fluidic systems that employ capillary force to achieve fluid volume control. In addition to volume control, we also addressed the issue of surface modification in the fluidic system.

A well-controlled surface was designed to capture desired biomolecules. The captured biomolecules can serve multiple purposes, e.g., as a reagent to participate in subsequent reaction or as detecting reagent to monitor the reaction progress in the fluidic system. Surface modification can be achieved chemically or physically. Physical modification of the surface is achieved by reactive ion etching to render desired surface topology. Chemical functionalization enables the substrate surface to selectively bind desired biomolecules.

References:
Integrated On-Chip Bioanalytical Processor

CNF Project # 854-00

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No pictorial report was submitted for this project