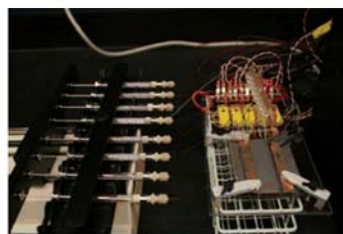
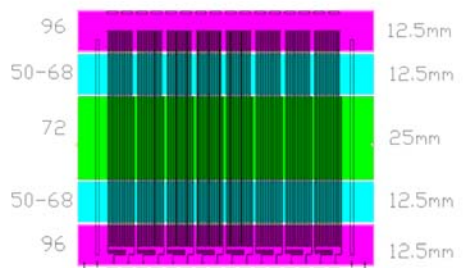


Continuous Flow Thermal Cycler Microchip for DNA Cycle Sequencing

This research is focused on developing a hybrid modular microfluidic system for Sanger sequencing, which is composed of four modules fabricated with different materials: (1) a polycarbonate (PC) continuous flow PCR microchip for amplifying DNA from plasmids or genomic samples; (2) a PC continuous flow Sanger cycling sequencing microchip for generating single strand DNA ladders with dye-terminate chemistry; (3) a solid phase reversible immobilization (SPRI) microchip fabricated from UV exposed PC for purifying DNA sequencing ladders; and (4) a glass electrophoresis microchip mounted on a modified MegaBase capillary sequencing system for electrophoretic sorting and base calling. These microchips were interconnected by PDMS gaskets and silica capillaries to minimize the dead volume.



The multichannel continuous flow PCR microchip.



Layout of the multichannel PCR microchip and the isothermal zones placed on the chip.



Gel results of PCR products generated from multichannel PCR microchip.

Continuous Flow Thermal Cycler Microchip for DNA Cycle Sequencing. *Anal. Chem.* 78 (2006) 6223-6231.