

Anaheim, California Clinical Lab Expo 2010 AACC Show

July, 2010

Enplas Corporation is participating in the annual meeting of the American Association for Clinical Chemistry (AACC) held in Anaheim, California July 27-29. We exhibit our new microfluidics chip. Our booth number is #605. For more information, please contact Enplas Corporation at Bio-sales@enplas.com

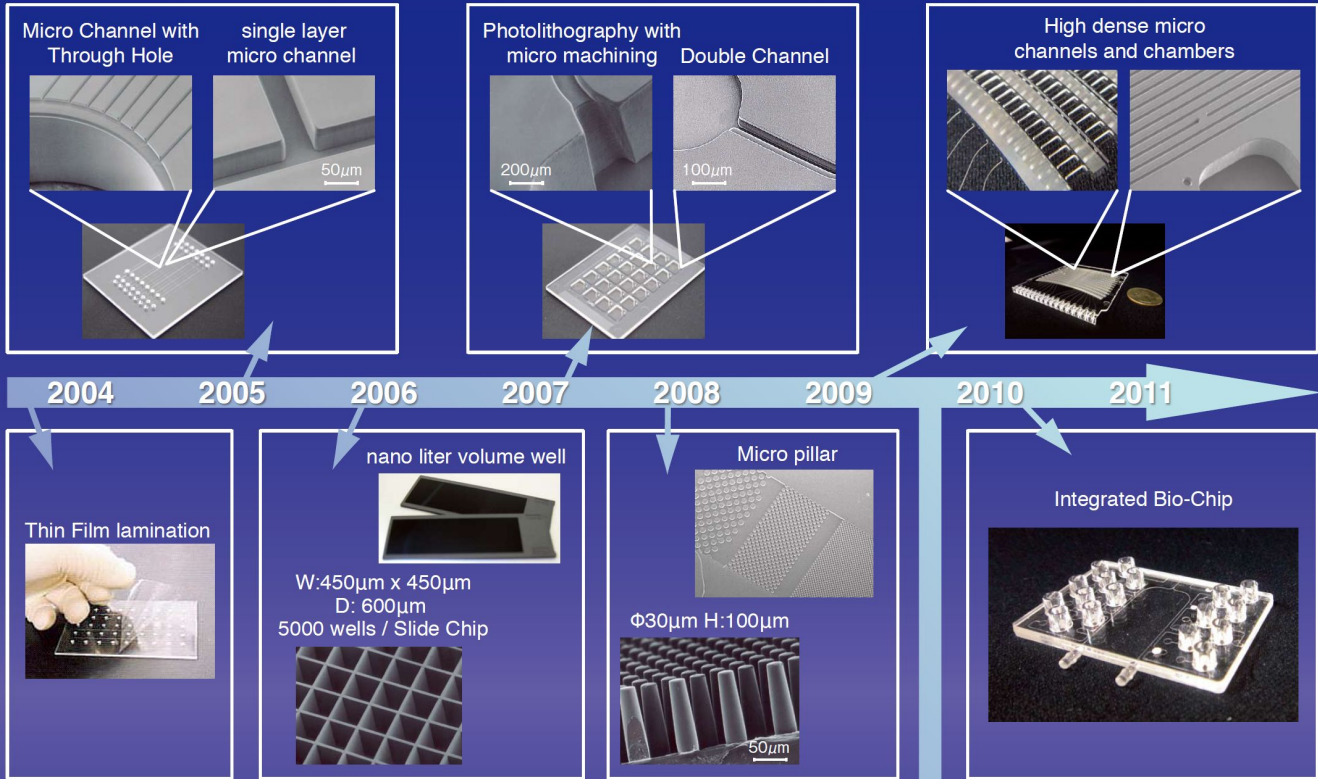


CLINICAL LAB EXPO 2010
July 27-29, 2010
ANAHEIM CONVENTION CENTER, ANAHEIM, CA

Contact us

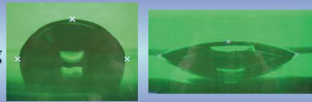
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Development Division
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Technical Milestone of Microfluidics-Chip Development

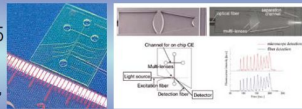


Chip Design & Development

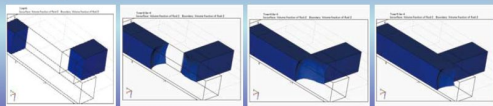
- Hydrophilic and Hydrophobic coating → High durability



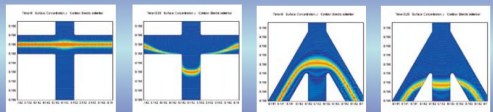
- Academic activity → μ TAS2003 - μ TAS2005 "On-Chip Lens" "Single-Step Electrophoresis"



- Microfluidics Simulation & Analysis
- Capillary effect and surface tension



- Electrophoresis Simulation

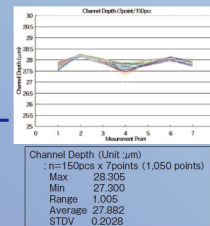
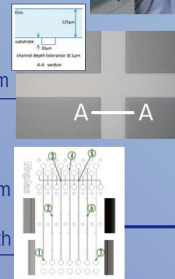


Mass-production

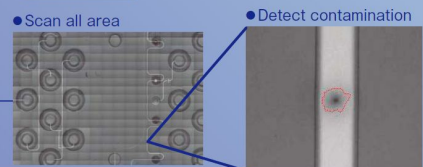
- Clean room injection molding (Class 500)
- Mass Production volumes
Lens - 60MM/month
Bio Chips - 50K/month



- High precision bonding system
Flat lamination technology
- Automatic inspection system
- Measurement of channel depth
High reproducible bonding



- Visual inspection
No foreign particles in all of the channel

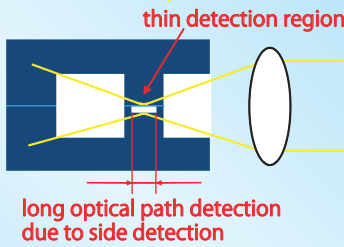
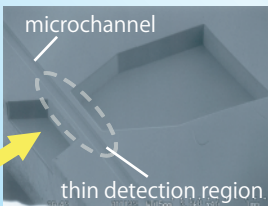
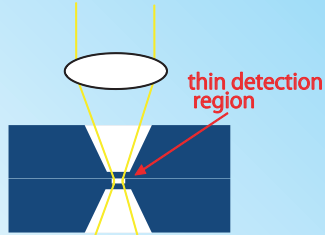
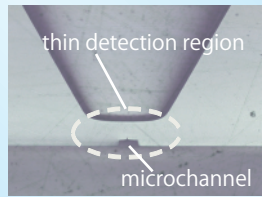


Enplas microfluidic chips achieve comparable performance to glass and PDMS chip with

- low background noise fluorescent detection technology
- hydrophilic surface coating technology
- plastic pneumatic valve technology

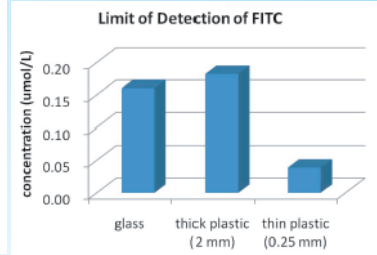
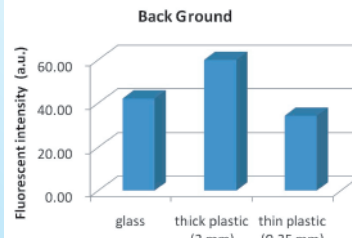


Low background fluorescent detection



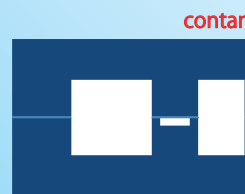
- Reducing Auto-Fluorescence by making irradiated volume smaller
- Increasing fluorescent signal by long optical path detection.
- > increasing signal to noise ratio

detection condition : fluorescent microscope (BX51), objective lens (UPlanFI10X), ICCDcamera (gain :10), optical filter (UMWIB2)



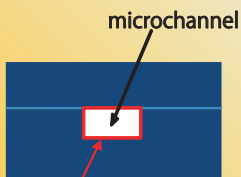
Background of plastic chip with thin detection region has almost same as glass chip

Plastic chip with thin detection region and long optical path side detection has best detection limit.

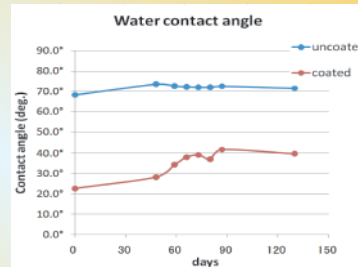


Furthermore contamination protect wall can prevent background noise due to foreign material.

Hydrophilic surface coating



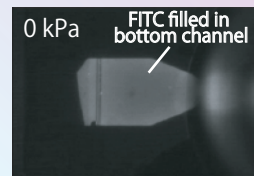
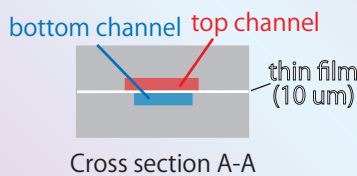
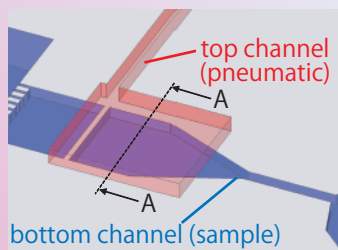
All of inside channel wall can be coated



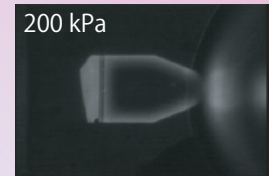
Surface property has very small aging variation. The coated surface is still hydrophilic after 4 month.

Plastic pneumatic valve

underdevelopment



Fluorescence is high due to film is flat



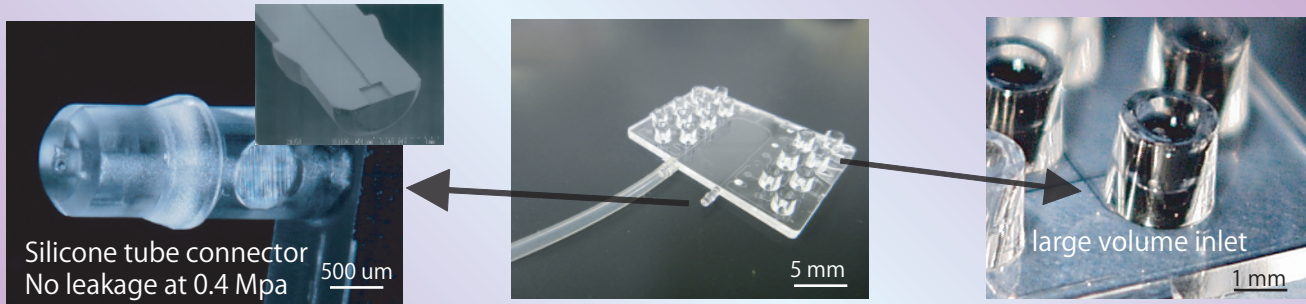
Fluorescence is low due to film bent with pneumatic operation

Enplas microfluidic chips provide superior value than glass and PDMS chip with

- combination with additional structures
- side open channels
- various channel forms

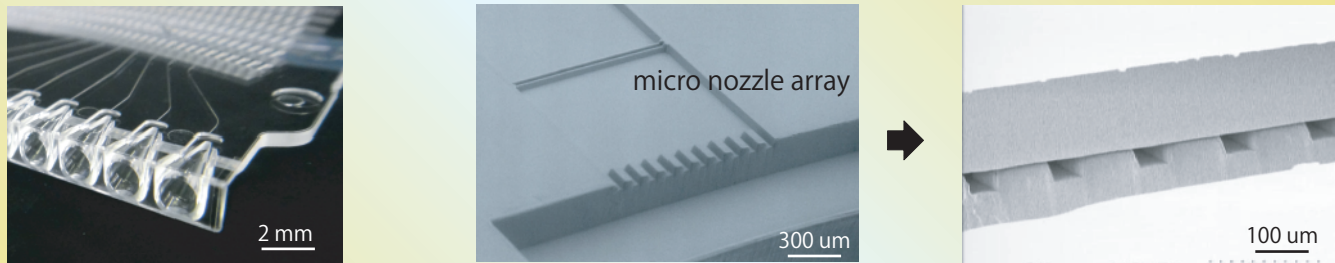


Combination with additional structures



→ Total cost can be reduced by a single tool product design

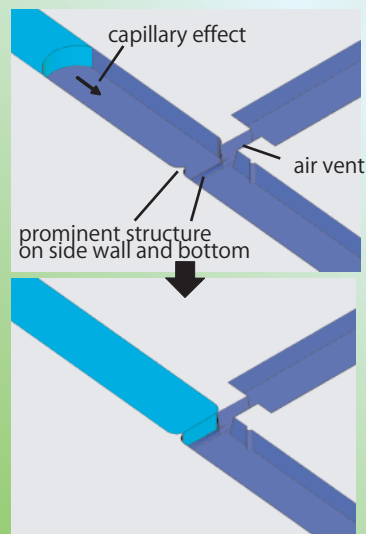
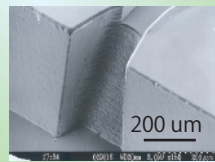
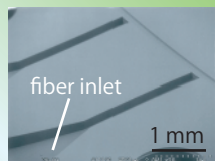
Side open channels



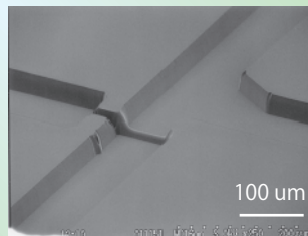
Minimum risk in injection molding.
Suitable for mass production.

After bonding

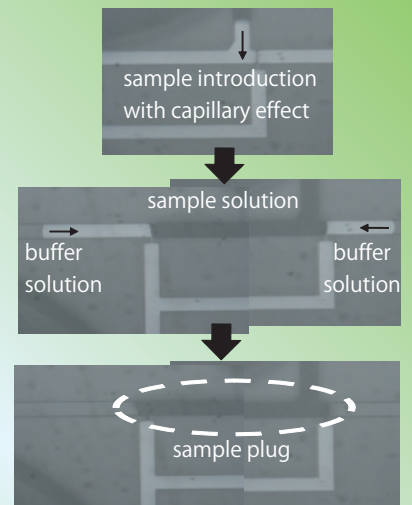
Various channel forms



Liquid can stop because of surface tension



SEM picture of prominent structure and air vent



Sample plug formation with combination of stop valve and air vent

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