

Fabrication of Non-Biofouling Polyethylene Glycol Micro- and Nanochannels

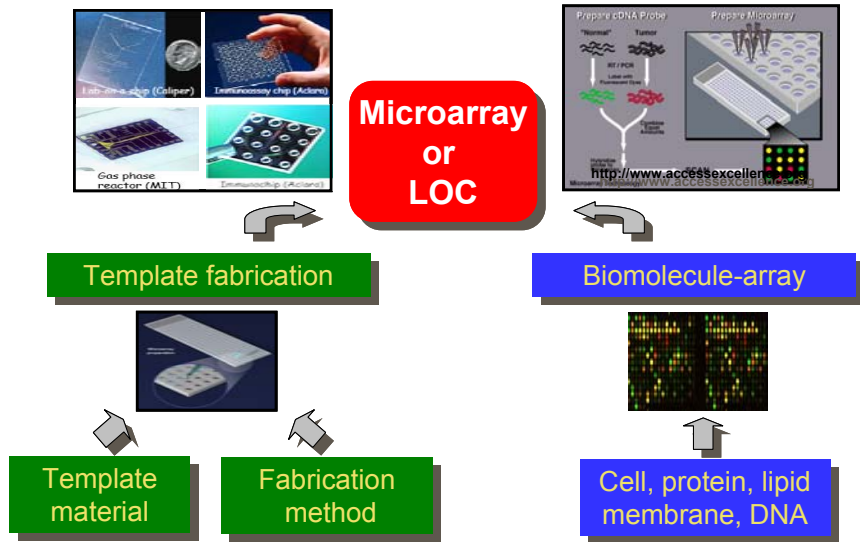
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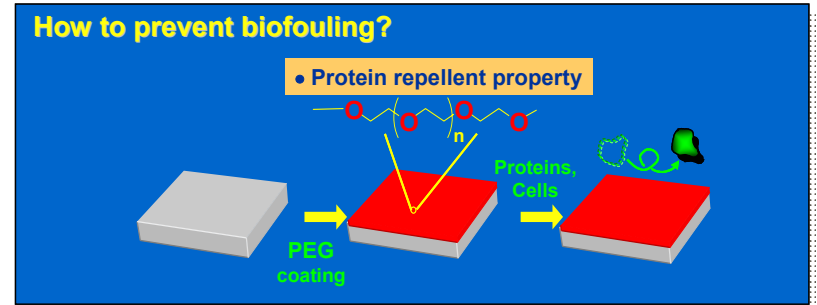
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Introduction and Background



Needs **surface modification** for bioassay or biosensor → **PEG!**



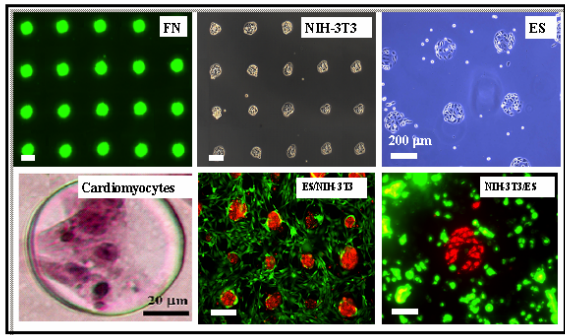
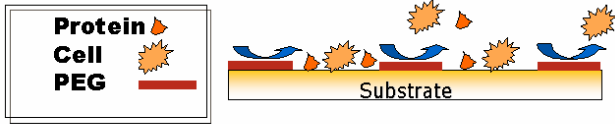
Choice of Material !!



□ PEG (polyethylene glycol)

- Good bio-compatibility
- **Non-biofouling**
(Resistance against protein and cell adsorption)
- **High resolution (sub 100 nm)**
- Fast & easy prototyping
- Transparency
- **Hydrophilic**: Pumpsless

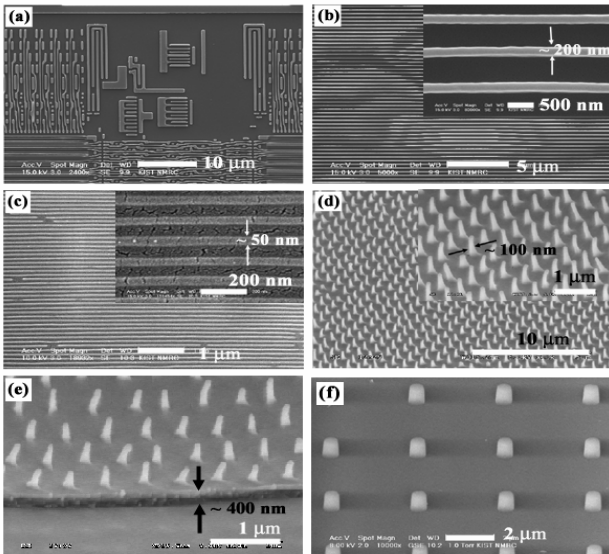
Fabrication of PEG Channels



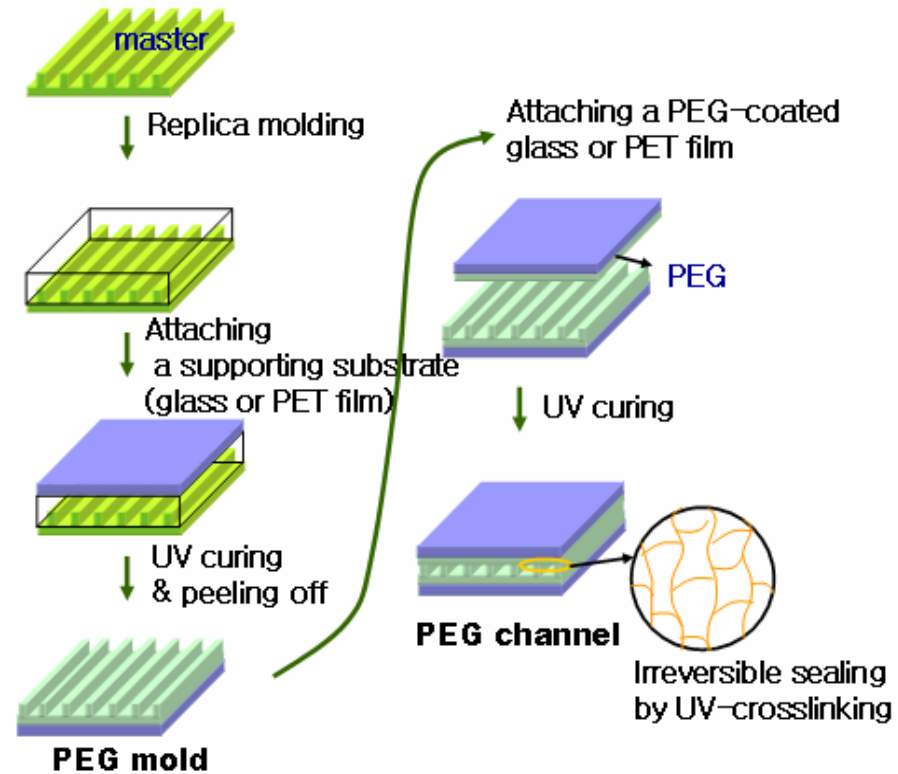
**Biomolecule
patterning
using PEG**

PEG + Micro/Nanofabrication
(UV-assisted molding)

= **PEG micro/nano fluidic device**

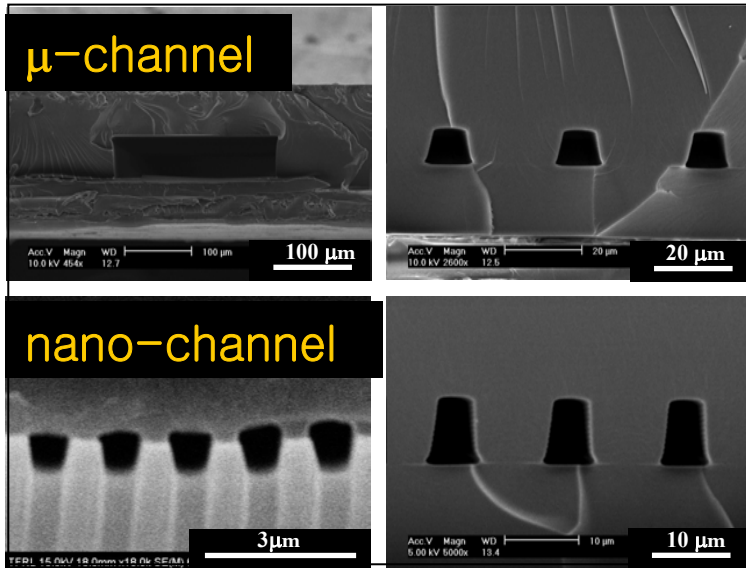


**Nano
fabrication
using PEG**

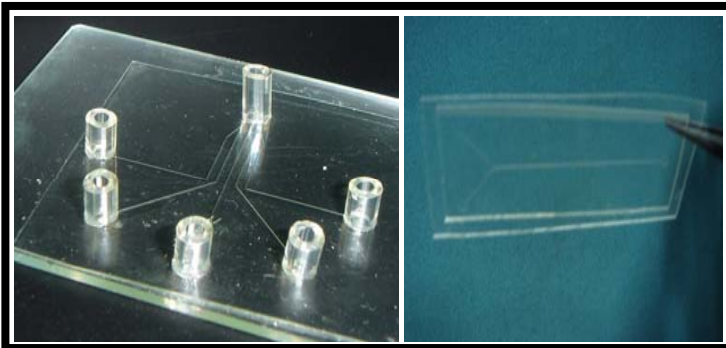


Results and discussion

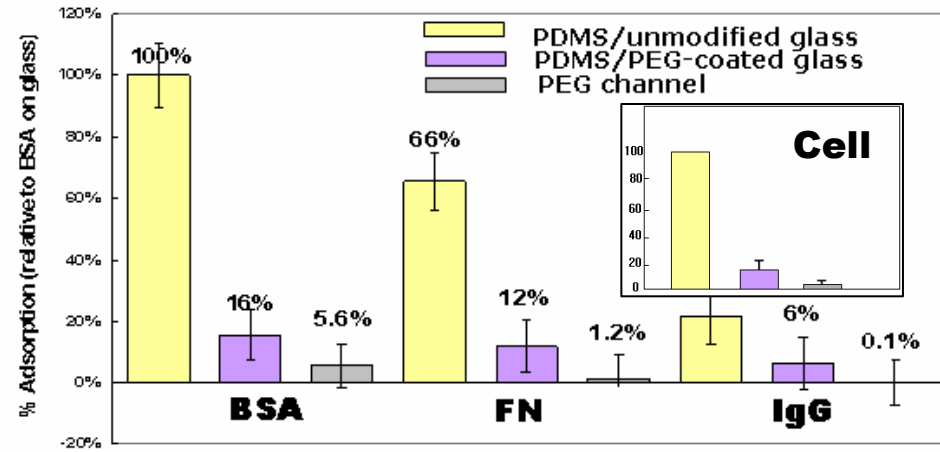
► Channel fabrication



► PEG-Microfluidic device



► Non-biofouling



► Pumpless : Hydrophilic channel

