Supplemental Figures and text

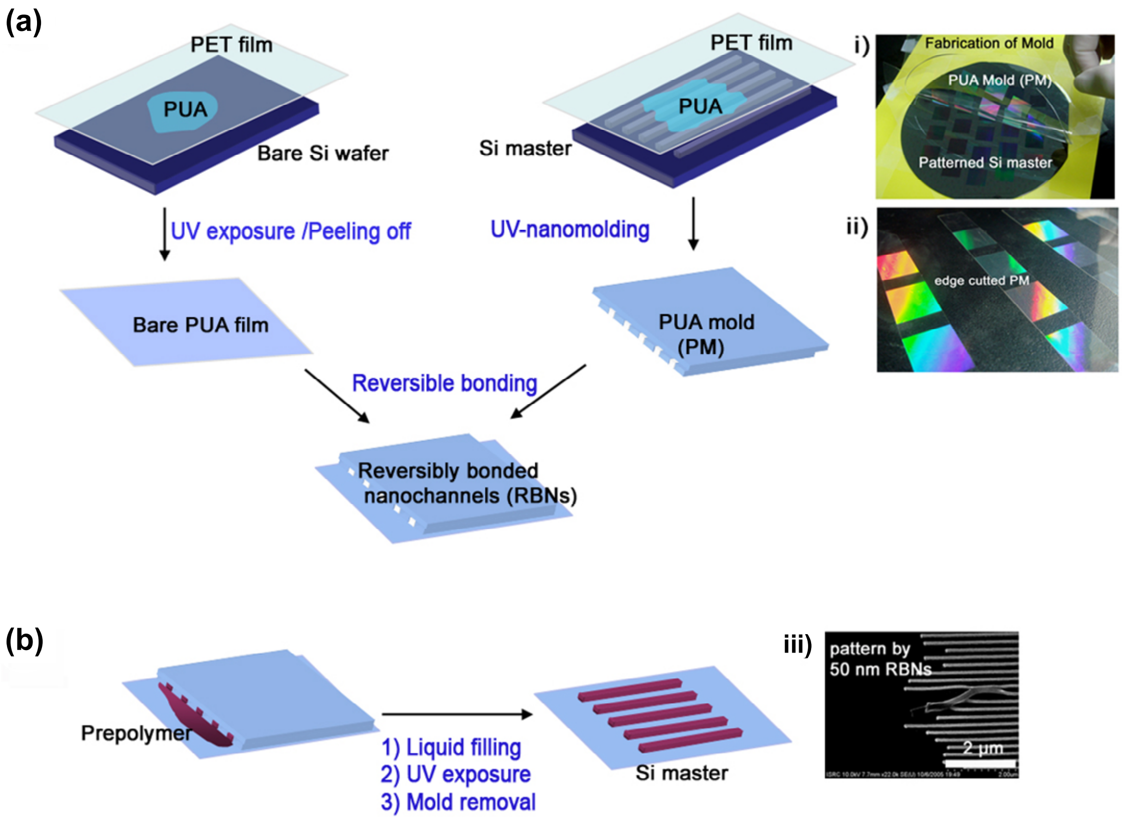

Figure S1. Schematic diagram for the experimental procedure of fabricating reversibly bonded nanochannels (RBNs) and subsequent capillarity-driven flow. **(a)** A PET support of 50 μm thickness was used to peel off the cured PUA layer from the silicon master. The channel mold and flat layers of PUA were prepared by drop-casting a small of amount of the PUA prepolymer onto a bare and a patterned silicon wafer, respectively, followed by post UV exposure. RBNs were generated by induced electrostatic attraction upon close contact between the two layers (i). **(b)** The RBNs were used as a channel guide for flowing the UV curable prepolymer (NOA 71 or PEG DA) via capillary action (ii). After capillary filling, the sample was exposed to UV, leaving behind the cured nanostructures after removal of the mold as shown in (iii).

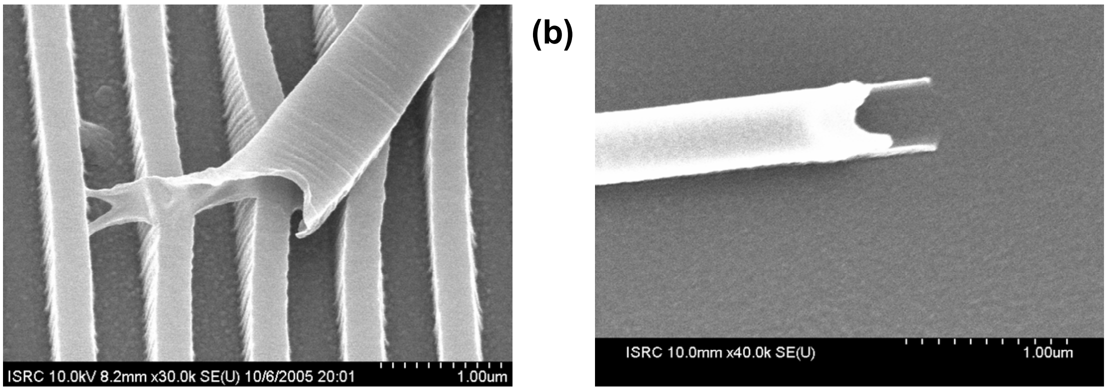

Figure S2 . SEM image showing the meniscus with a pre-spreading film of the NOA71 on the gold supported channel **(a)** 300 nm width, 1000 nm height and **(b)**) 400 nm width, 200 nm height.

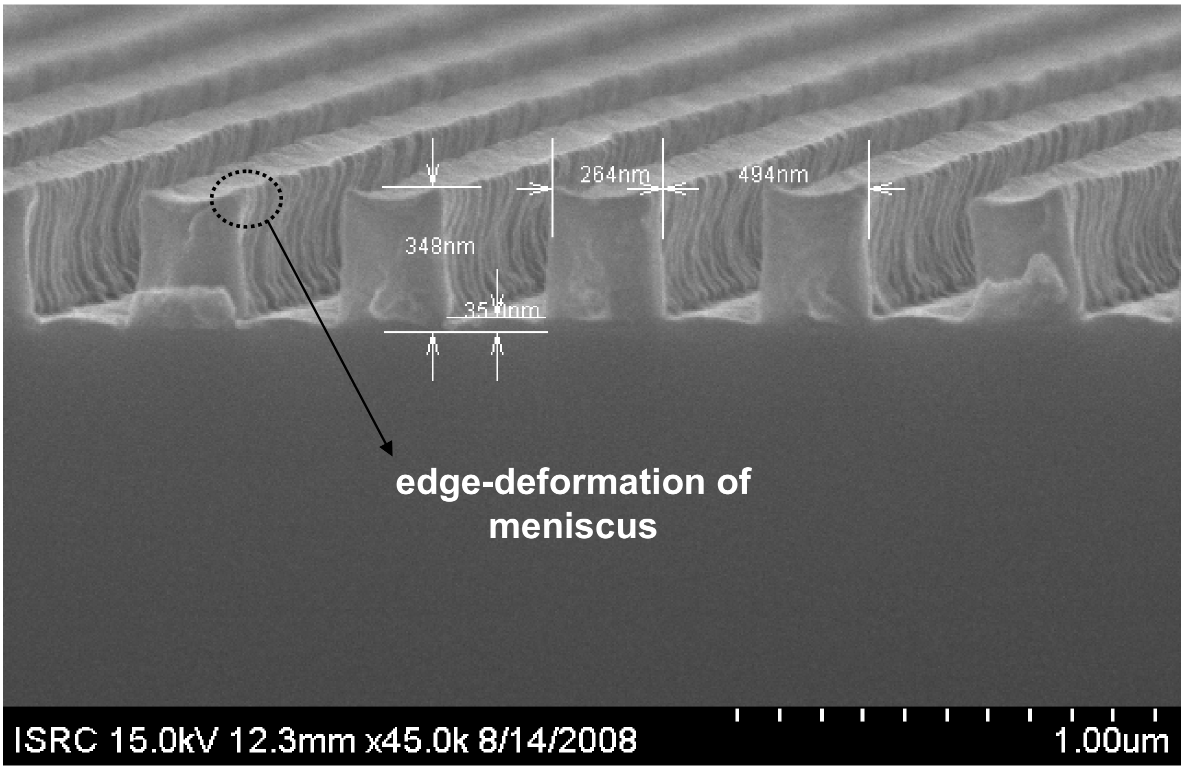

Figure S3 . SEM image showing the meniscus of the PMMA melt that was pulled into the void spaces of a PUA mold (400 nm width, 800 nm height) at 130 °C for 6 hrs. A similar multi-curvature meniscus is seen from the figure.

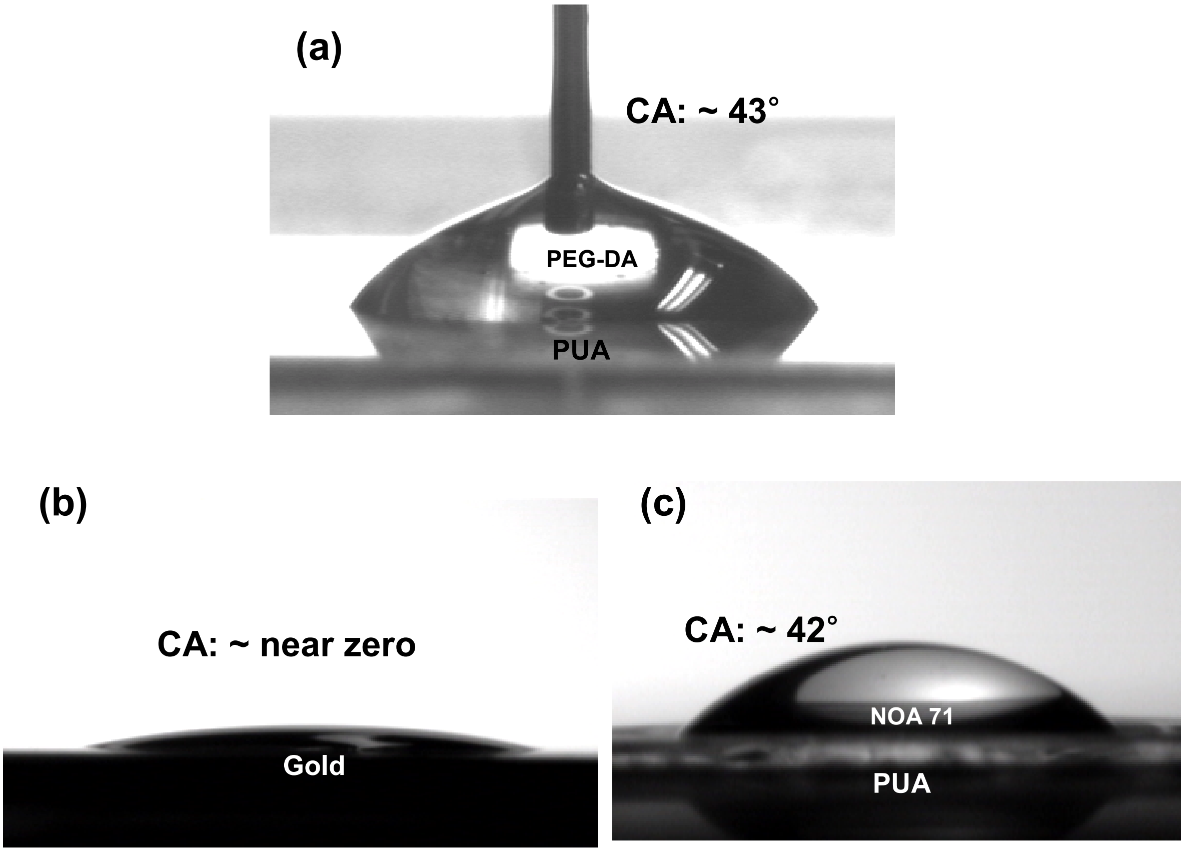

Figure S4. Contact angle measurement of **(a)** PEG-DA on PUA substrate (~43°), and NOA 71 **b)** on gold substrate (~ 7°) and **(c)** on PUA substrate (~ 42°).

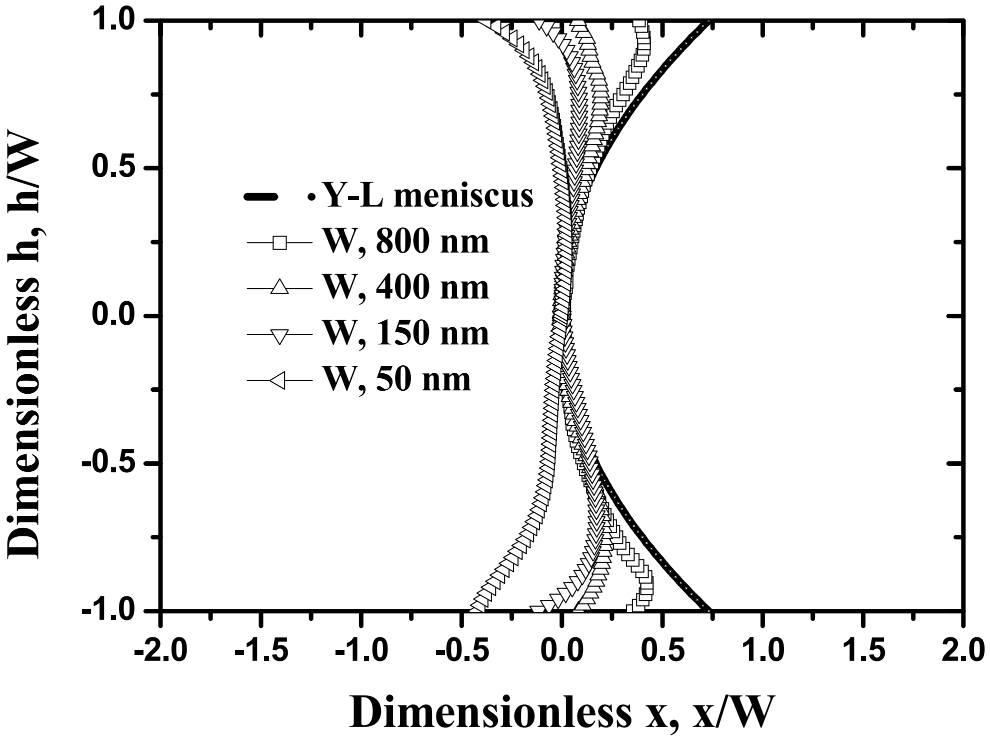

Figure S5. Plots of the meniscus profiles with different channel widths. Both axes were normalized with channel width (*W*). The data were obtained from the analysis of SEM images by LABVIEW.