

Supporting Information

Flow-dependent optical trapping of 20 nm polystyrene nanospheres using a double-nanohole in a gold film

Ana Zehtabi-Oskuie, Jarrah Gerald Bergeron, Reuven Gordon*

For fabricating the microfluidics chip, the first step is pouring PDMS in the petri-dish and spin coat it to create a thin layer and then put a glass cover slip on top of the PDMS. Then it is baked at 75 Celsius to harden the PDMS (Fig S1a). The cover slip and the PDMS under it are cut out. Then the channel is cut out diagonally on the cover slip (Fig S1b). Another layer of PDMS is prepared in a separate petri-dish and a piece with the same size of the cover slip is cut out of it. A hole is cut out at the centre and it is placed on the top of the channel on cover slip (Fig S1c). Then the gold film in which the double-nanohole has been fabricated is placed on top of this hole (Fig S1d). The whole configuration is then placed in another petri-dish and PDMS is added into it so that it covers all of these parts (Fig S1e). In this step the PDMS will penetrate below the cover slip and lift it a little. After that the PDMS is baked, two holes are punched for tubing (Fig S1f). Four holes are punched for screws which hold the whole configuration on an aluminium clamp (Fig S1g). Wiring is used in order to support the tubes so that tubes' fitting is not affected by any movement. Figure S2 shows the configuration view from top and side and also the aluminum clamp.

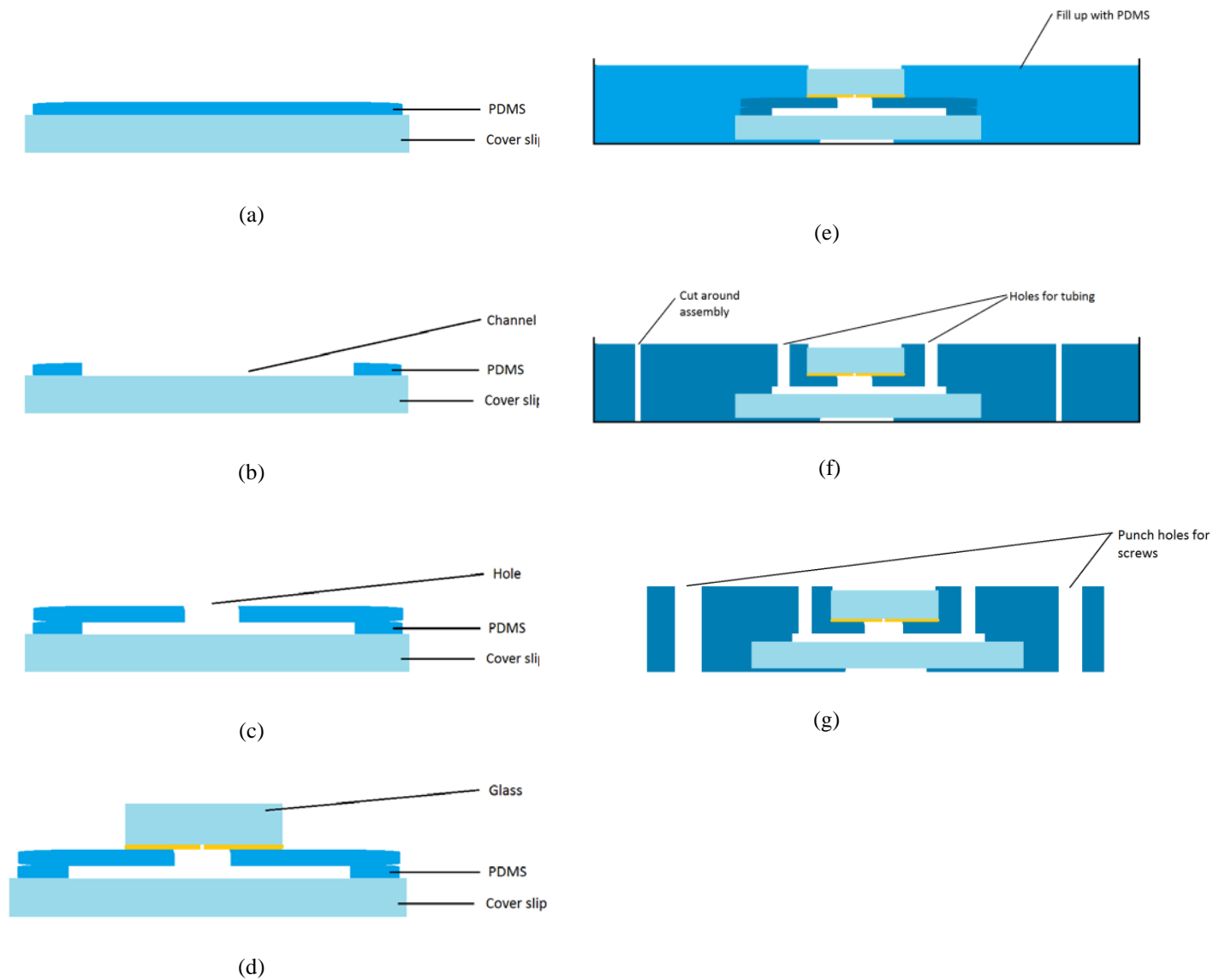
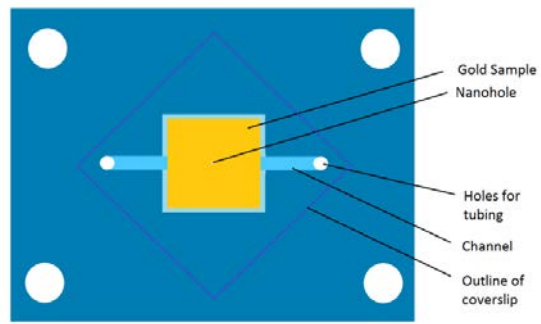
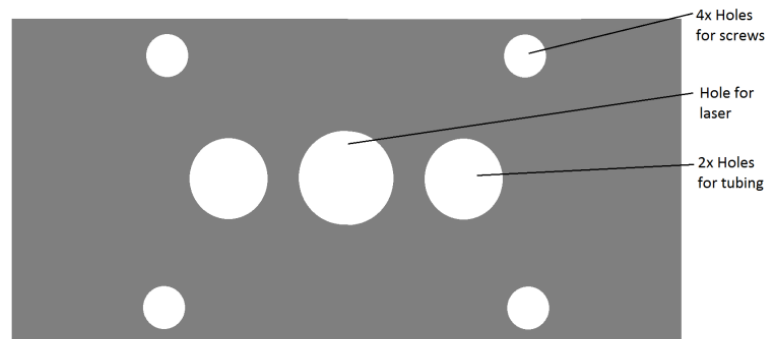


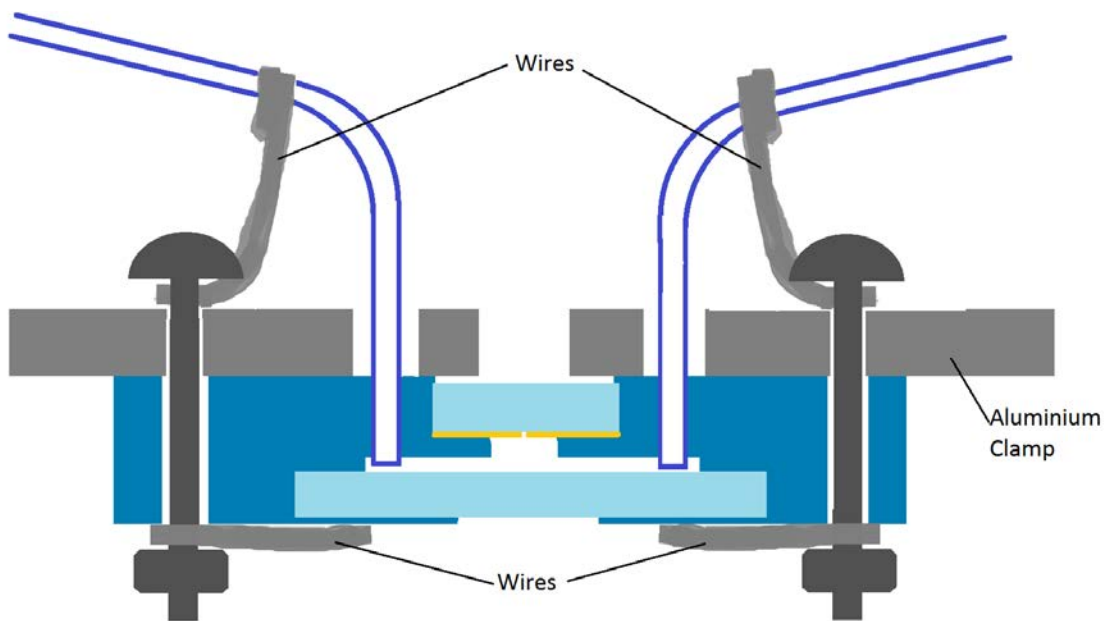
Figure S1. Fabrication steps of the microfluidics chip. (a) Spin coat PDMS in a petridish, put a coverslip on it and baked. (b) The cover slip and a channel on it has been cut out. (c) Another PDMS layer is prepared and put on the configuration. (d) Gold sample is placed on top of the chip. (e) Fill up the petridish to flush with the gold sample. (f) Punch holes for tubing. (G) Punch holes for screws and cut out the sample and put it together with the aluminum clamp.



(a)



(b)



(c)

Figure S2. (a) Top view of the chip. (b) Aluminum clamp. (c) Side view of the chip.