

SUPPORTING INFORMATION

Sample introduction interface for on-chip nucleic acid-based analysis of

Helicobacter pylori from stool samples

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Fabrication of PDMS microfluidic device

Moulds for the PDMS microfluidic devices were originally to be made from aluminium that would be milled via a CNC milling machine (Datron M7). However, the smallest off-the-shelf milling tool that could be sourced had a 100 µm diameter (300 µm length, Union Tools, UK), which was not suitable for the sharp edges between the gates and their adjacent chambers in the IFAST design. This problem was circumvented by instead preparing an aluminium mould that would be used to prepare a PMMA master via injection moulding (Babypplast 6/10P) (Figure S-1). Thus, the aluminium mould was fabricated as a mimic of the final PDMS design, and meant that the 100 µm tool was no longer a limitation since the smallest feature that had to be milled was the 250 µm opening between the gates and the chambers. Once milled, the aluminium mould was inserted into the injection moulding machine, where

it was used to make PMMA masters that featured a negative relief of the final design. The PMMA master could then be housed in a container into which PDMS was poured and allowed to cure. Finally, the PDMS device was peeled off the PMMA master, ready to be set up for experimentation. In addition to avoiding issues of tool size, this fabrication technique has the added benefits of requiring only a relatively cheap aluminium mould from which multiple PMMA masters can be prepared.

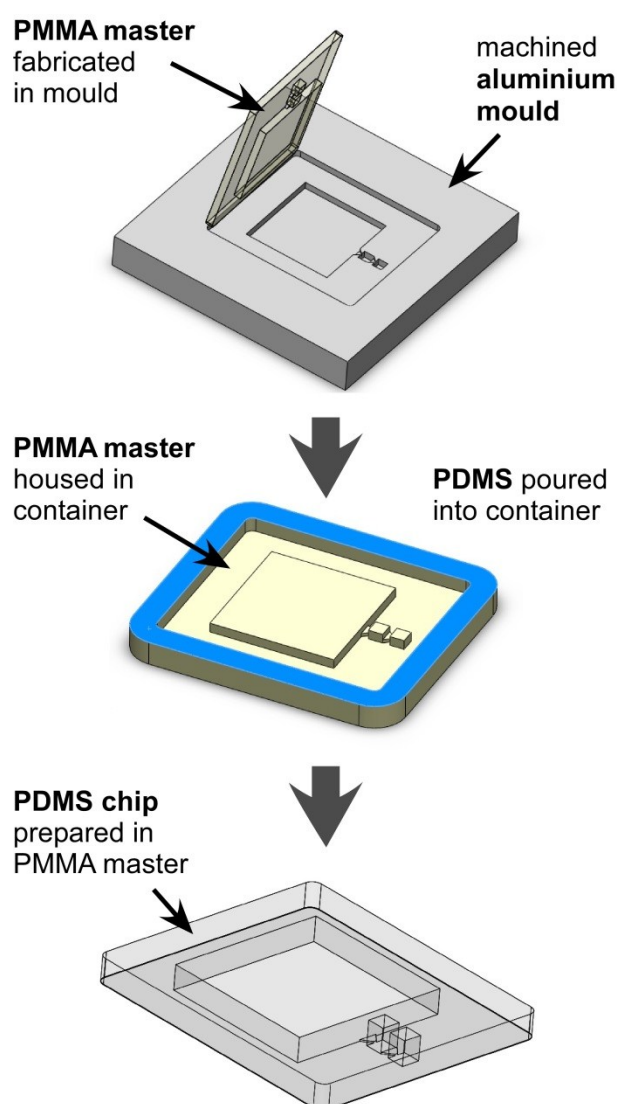


Figure S-1 Fabrication of the IFAST device. An aluminium mould was prepared from which PMMA masters could be fabricated by injection moulding. The PMMA master was then housed in a container into which PDMS was poured to produce the final PDMS device.