A Disposable Polymer Lab-On-A-Slide For Point-Of-Care Diagnostics Of Methicillin-Resistant Staphylococcus Aureus (Mrsa) - DTU Orbit (13/12/2018)

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This paper reports the design, fabrication and experimental verification of a polymer microfluidic lab-on-a-slide for rapid detection of methicillin-resistant Staphylococcus aureus (MRSA). MRSA cells were captured in a lysis chamber using magnetic beads, followed by thermal lysis. The released DNA was transferred into a second chamber for polymerase chain reaction (PCR) amplification. Fluidic control in the device was accomplished by pneumatic actuation of a micropump and five microvalves integrated on the device. The mecA gene from MRSA was successfully amplified by real-time PCR within 35 min. Presence of the correct PCR amplicon (186 bp) was verified using capillary electrophoresis. The results demonstrate the utility of a low-cost disposable polymer microfluidic system for rapid pathogen detection for point-of-care diagnostics.

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