

# BactoSpin: novel technology for rapid bacteria detection and antibiotic susceptibility testing

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## Supplemental materials

### List of supplemental videos:

- **Video S1:** Silicon glue deposition on a glass cover using a syringe and Hyrel3D printer.
- **Video S2:** Fully assembled chip #1 attached to a 15 ml tube holding 10 ml of colored water. The liquid easily enters and exits the chip – thus enabling flow-back of sample after centrifugation.
- **Video S3 and Video S6:** Demonstration of the spontaneous flow-back of liquid and channel separation in a chip with hydrophilic and hydrophobic coatings.
- **Video S4 and Video S5:** Demonstration of absence of spontaneous flow-back of liquid in a chip without hydrophilic and hydrophobic coatings.

### Supplemental figures:

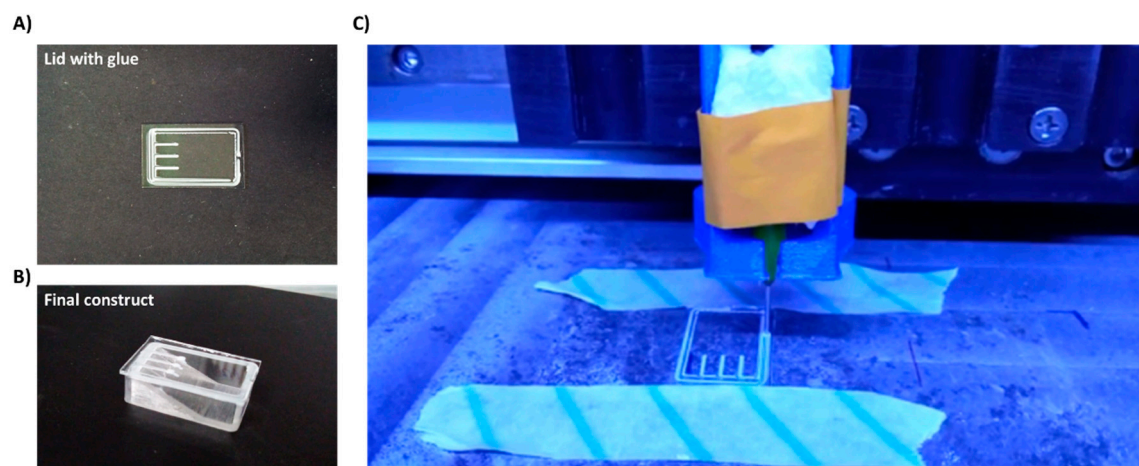


Figure S1: Chip assembling process. A) A glass cover (cap) of the chip with silicon glue on it. B) An assembled chip with all coatings and with the cap. C) A photo of the glue deposition process using a Hyrel3D printer.

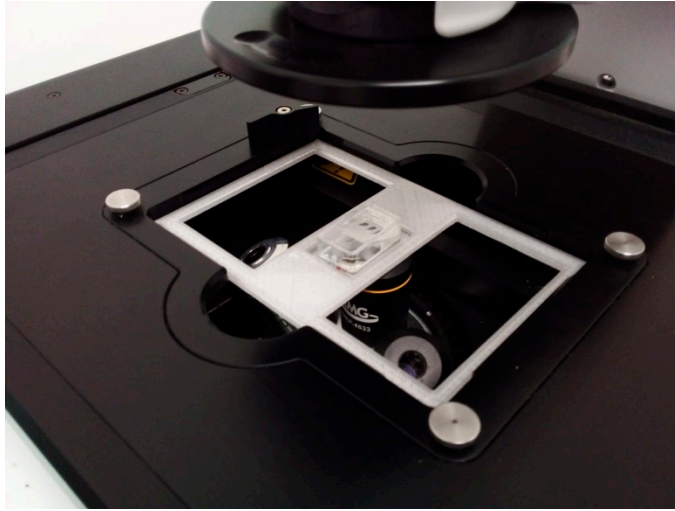


Figure S2: An EVOS microscope adaptor to hold the chip.

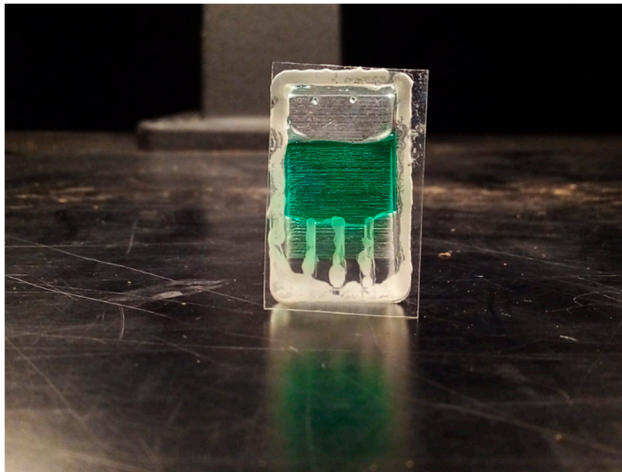


Figure S3: Demonstration of lack of spontaneous liquid flow into the channels of the chip coated with superhydrophobic and hydrophilic coatings without centrifugation.

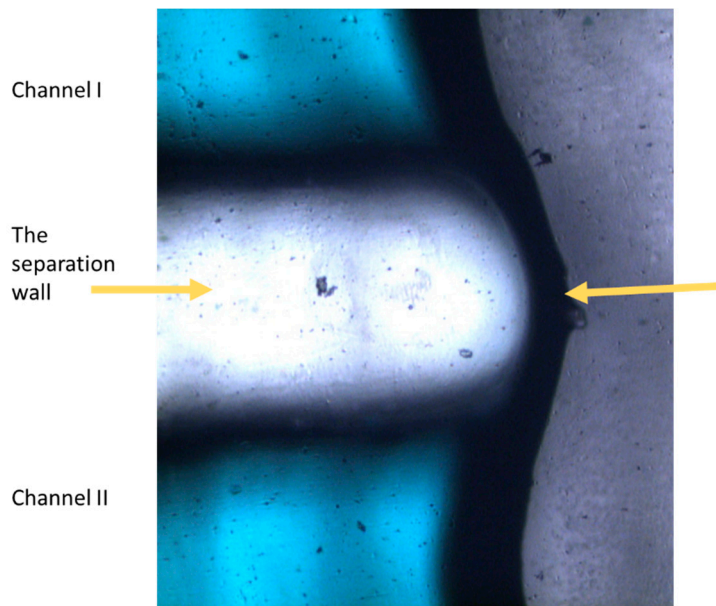


Figure S4: Flow between two channels when no superhydrophobic coating is applied.



Figure S5: Demonstration of titanium dioxide-based superhydrophobic coating of a glass slide with no coating on the left side and coating on the right side. A water drop shows a very low contact angle with the uncoated glass, versus a very high contact angle on the coated side.

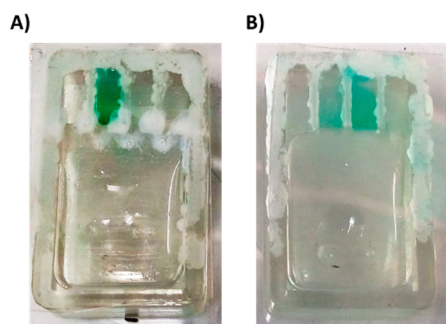


Figure S6: The green dye does not diffuse out of the microchannel after 4 hours of incubation in a chip with a superhydrophobic coating, (A) while it does diffuse when no coating is applied (B).

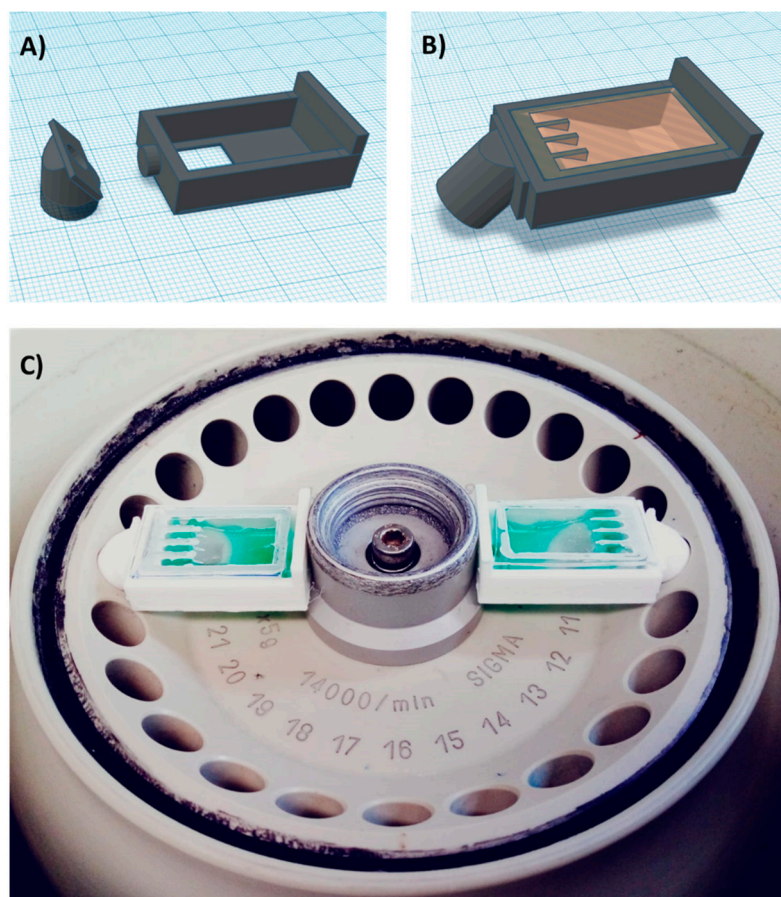


Figure S7: A custom-made adapter for a standard table centrifuge. A) A 3D model of the adapter. B) A 3D model of the adapter holding the chip. C) A photo of the printed adapter carrying an assembled chip.



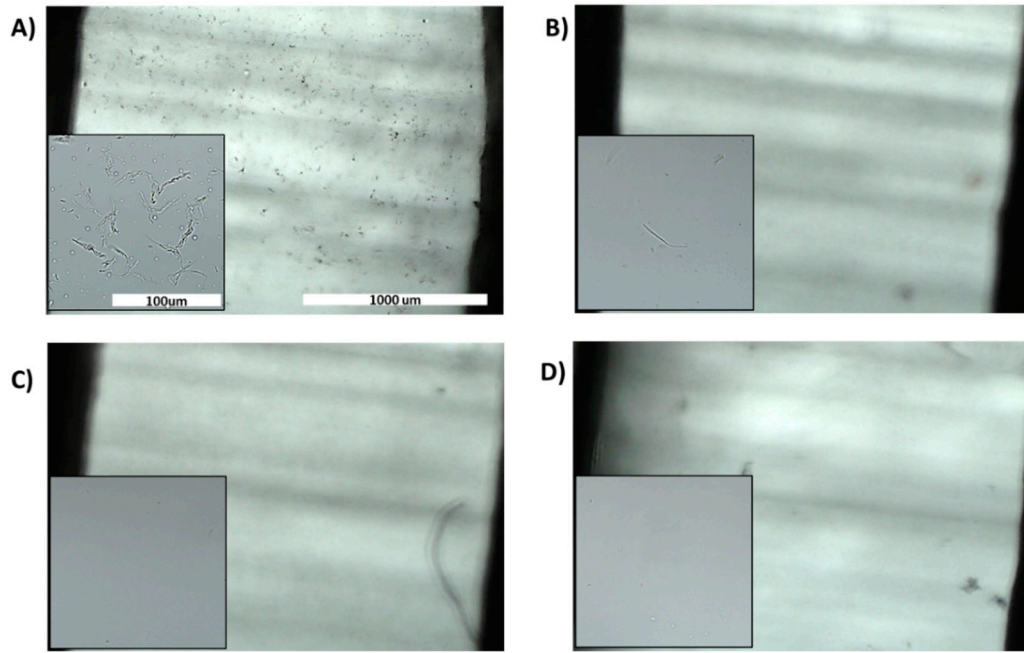


Figure S8: Brightfield microscopy photos of E.coli cells incubated for 4 hours inside microchannels in a chip with a superhydrophobic and hydrophilic coatings. A) The control channel as observed with 4x objective. The insert photo was taken using a 40x objective. A channel that contains B) ampicillin, C) gentamicin, D) amikacin.

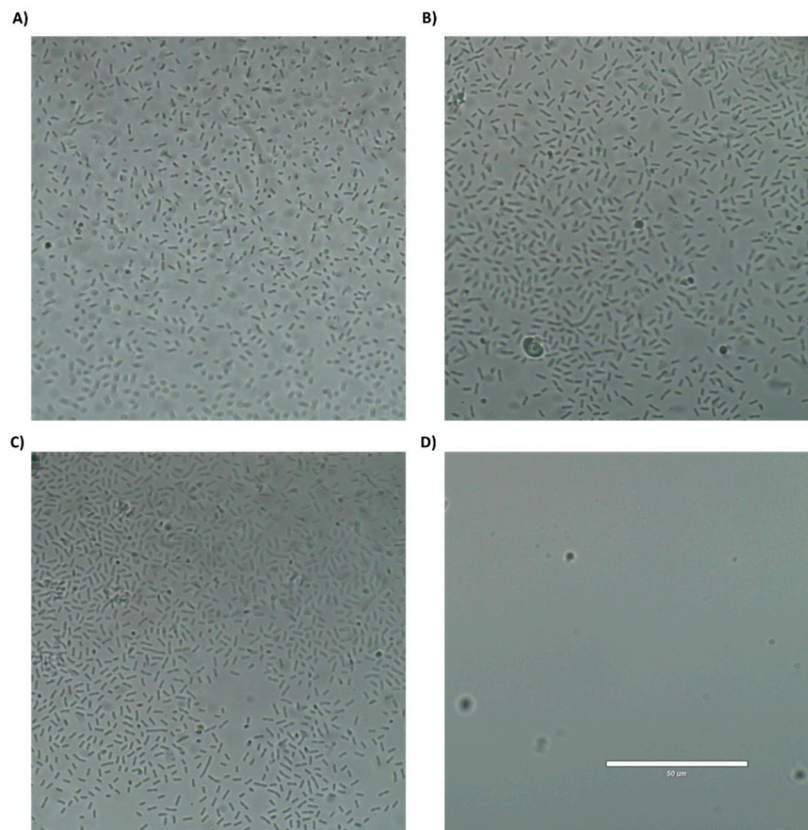


Figure S9: Klebsiella pneumoniae isolated from a clinical urine sample were incubated for 4 hours in the chip with superhydrophobic and hydrophilic coatings. A) Control channel. Channel with drop-dried B) ampicillin, C) gentamicin, D) amikacin.