Electronic Supplementary Material (ESI) for Lab on a Chip.

Early detection of *E. coli* and total coliform using an automated, colorimetric and fluorometric fiber optics-based device

Supplementary Information

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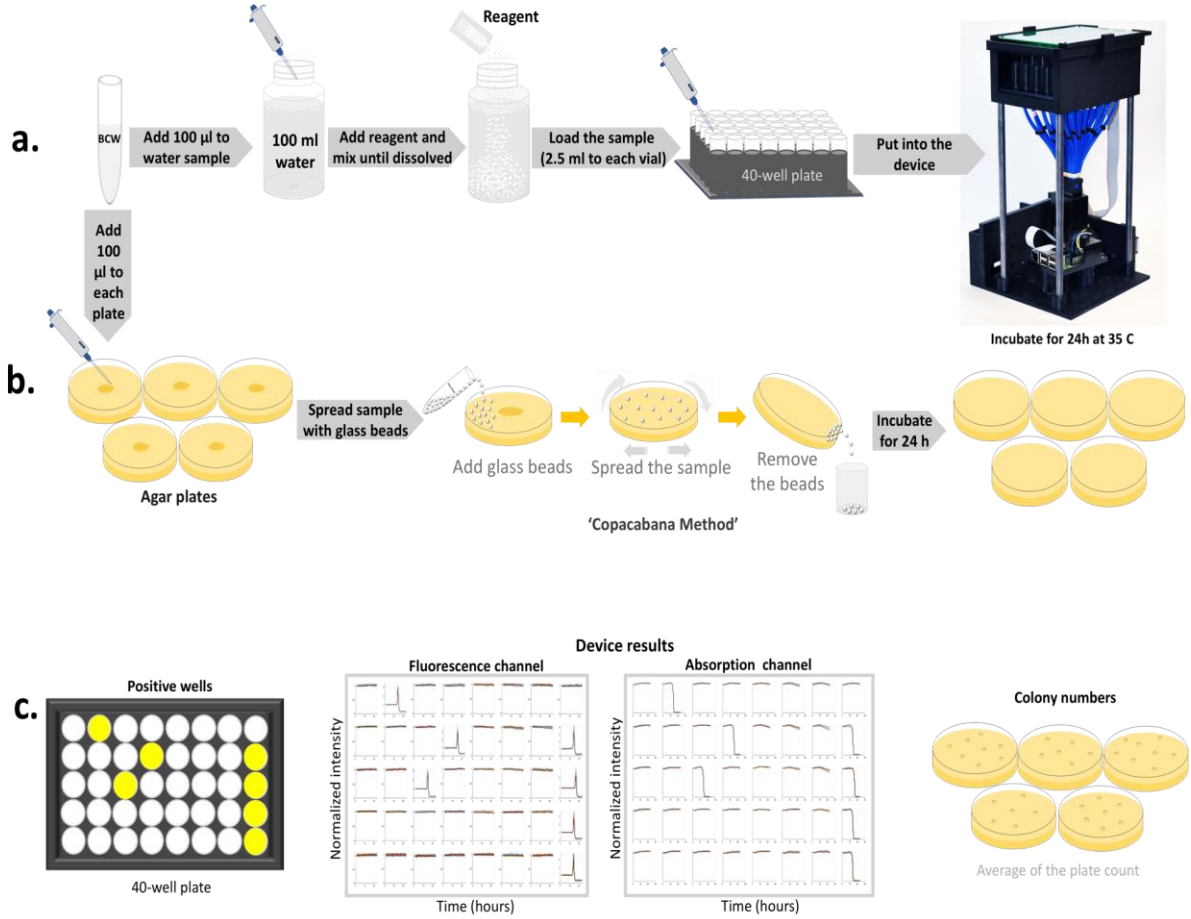
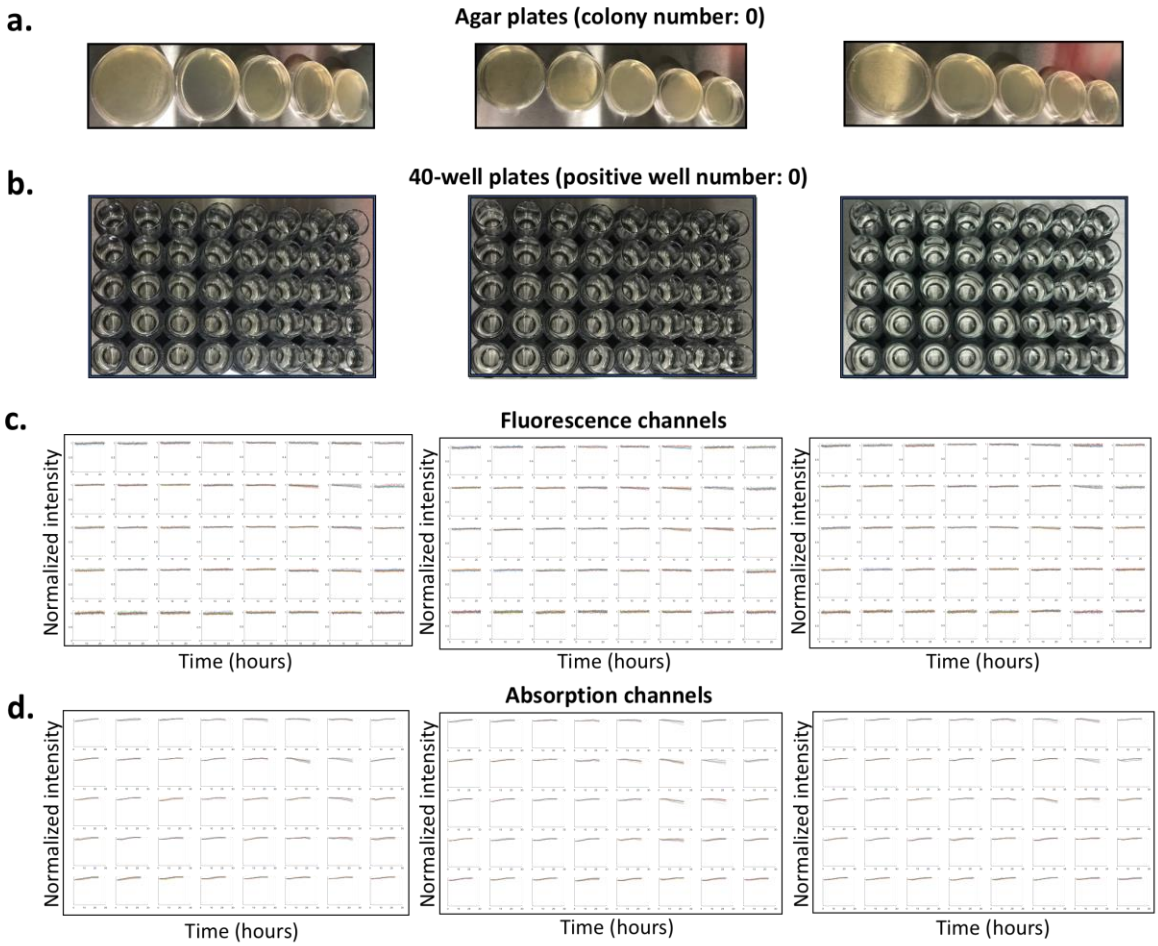
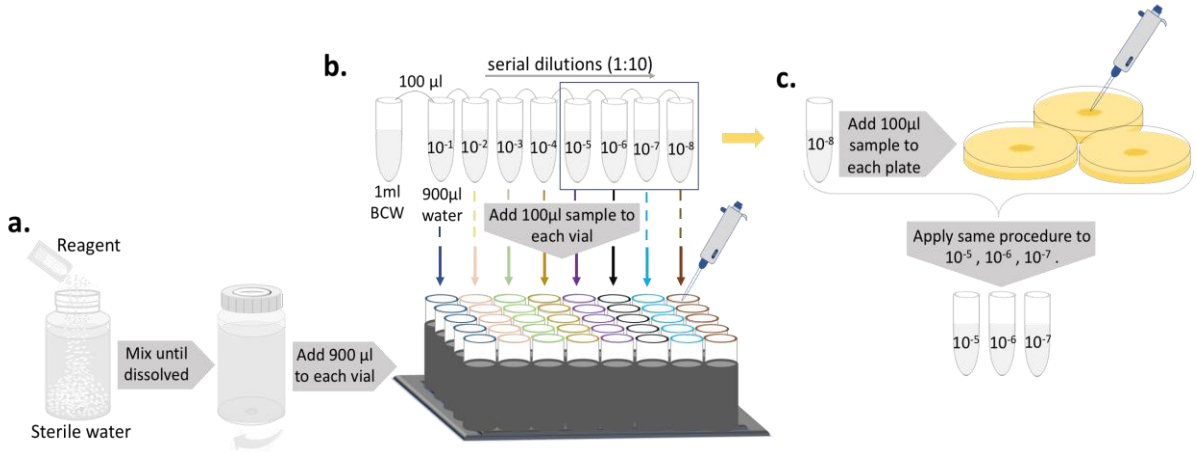
Supplementary Figures



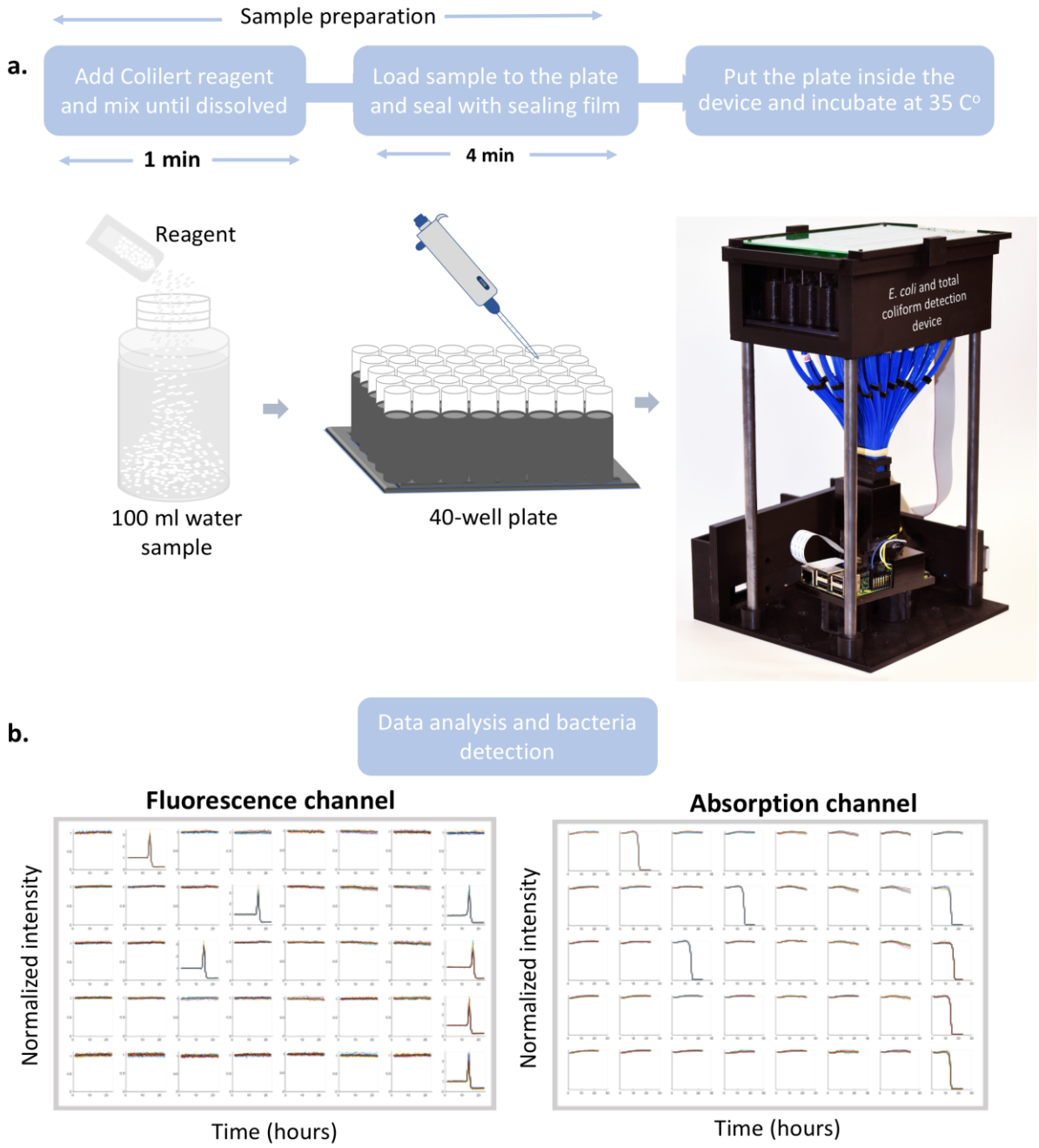
Supplementary Figure 1: Preparation of the samples used to test the device. a) Workflow used to prepare the 100 mL sample for testing. b) Workflow used to prepare the 5 agar plates used as the gold standard. c) Visualization of the results for the device, showing the positive wells, a plot of intensity over time measured by the device, and a visualization of the plate count. For the fluorescence channel, a flat line indicates a negative well, and a spike indicates the presence of *E. coli*. For the absorption channel, a flat line indicates a negative well, and a drop in the transmission intensity indicates the presence of coliform bacteria.



Supplementary Figure 2: Negative control experiments (n=3). For the negative tests, there is no bacteria growing either on the plates or within any of the wells. The time series for both the fluorescence and blue channels are flat, and the device does not classify any of the wells as positive. a) Picture of the agar plates which do not have any bacteria growing on them after 24 hours. b) Picture of the 40-well plates after 24 hours of incubation. c, d) Plot of the normalized intensity over time for the fibers in each well.



Supplementary Figure 3: A visualization of the sample preparation steps for a wide range of *E. coli* concentrations. a) Adding the Colilert reagent into the water sample and loading the desired volume to the vials of the 40-well plate. b) Diagram of the 10-fold serial dilution. c) Preparation of the agar plates (n=3), where the last four concentrations are used as the gold standard to validate our device.



Supplementary Figure 4: Sample preparation steps. a) Adding Colilert reagent into 100 mL water sample and loading it into our 40-well plate. b) Automated output of the device which reports the presence of both *E. coli* and total coliform bacteria.