Supplementary material

3D-printed point-of-care platform for genetic testing of infectious diseases directly in human samples using acoustic sensors and a smartphone

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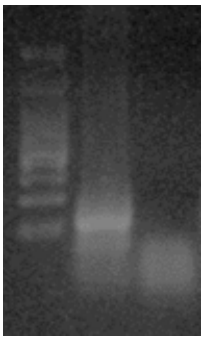

Fig S1: Gel electrophoresis image showing LAMP products after amplification for 20 min at 63°C using LAMP mix stored at room temperature for 3 days. Lane 1: DNA ladder, Lane 2: positive reaction containing 10^3 Salmonella cells, Lane 3: Negative control reaction (without Salmonella cells).

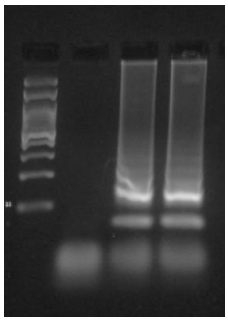

Fig S2: Gel electrophoresis image showing LAMP products after amplification for 20 min at 63°C containing different number of *Salmonella* cells. Lane 1: DNA ladder, Lane 2: 10 bacteria, Lane 3: 50 bacteria, Lane 4: 100 bacteria.

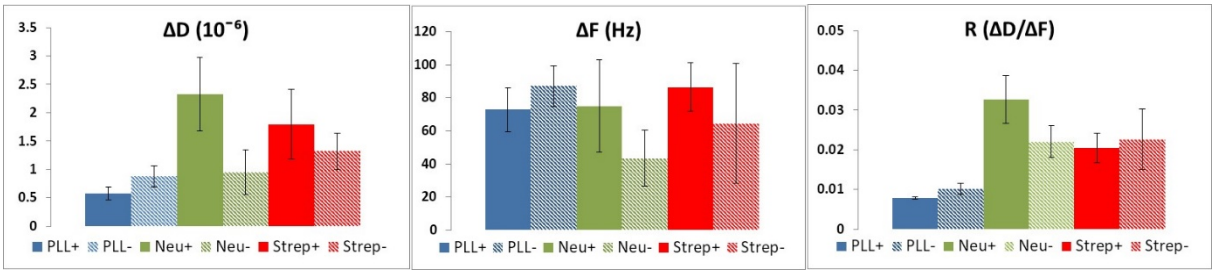

Fig S3: Biotinylated 524bp DNA molecules (BRCA 2 gene target) were produced by PCR (35 cycles) using the KAPA blood kit (KAPA biosystems). The unpurified positive PCR reactions containing 1µl of whole blood (+) were diluted with PBS in 200µl total volume and loaded over a gold QCM crystal surface covered with Pll-g-peg, NeutrAvidin or Streptavidin. Negative (-) reactions without blood were also prepared and loaded as a reference. The bar charts show the acoustic data (ΔD, ΔF, Ratio) which show that a neutravidin-coated device has the best discrimination capability among the tested surfaces.

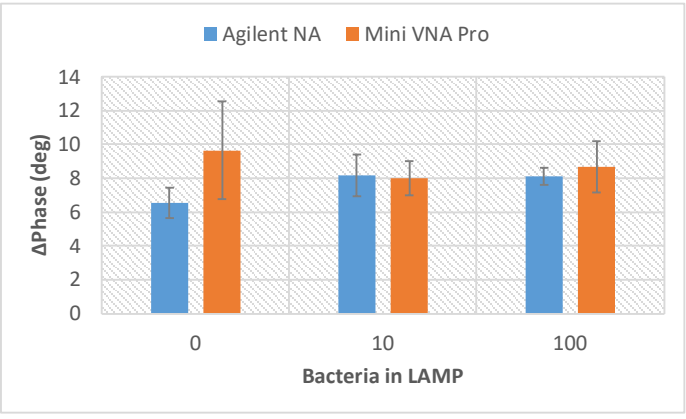

Fig S4: Comparison of phase measurements using an Agilent NA and the Mini VNA Pro. The measurements correspond to the addition of biotinylated LAMP products using 0, 10 or 100 bacteria per reaction.