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

Supplementary Information for Integration of sample preparation and analysis on an optofluidic chip for multi-target disease detection

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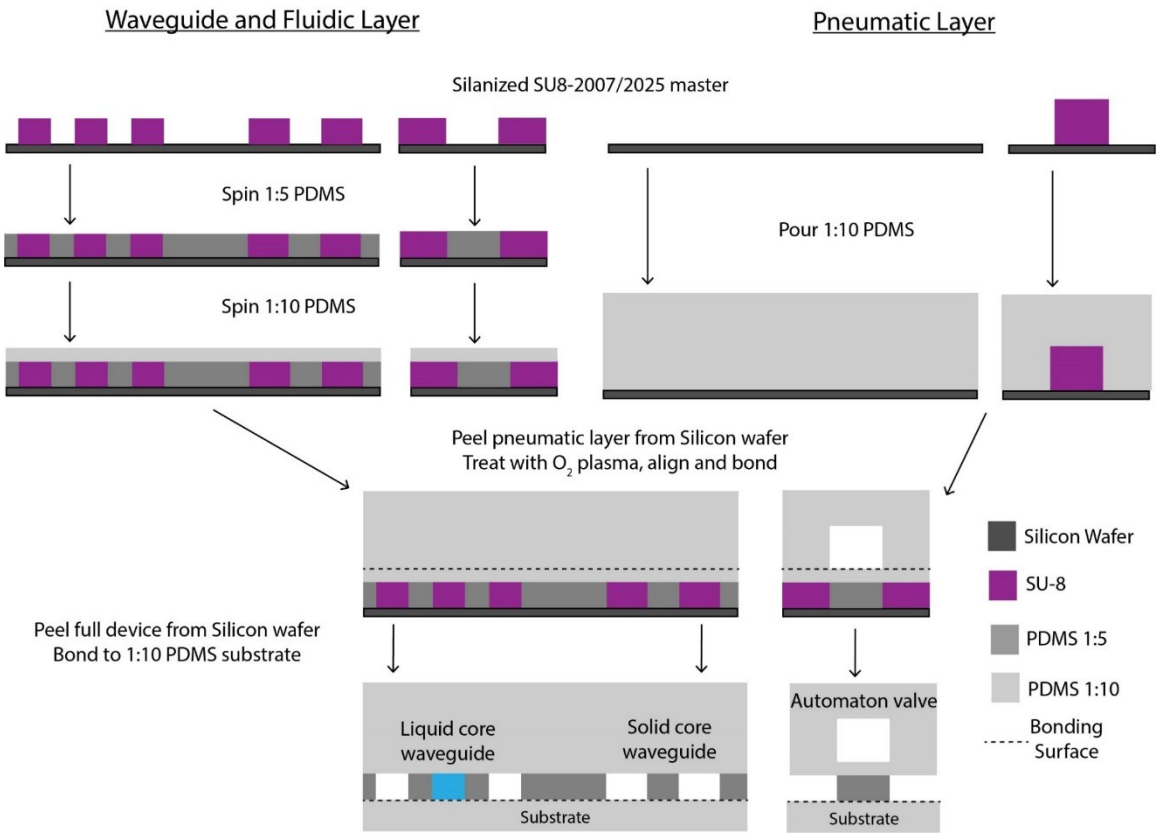
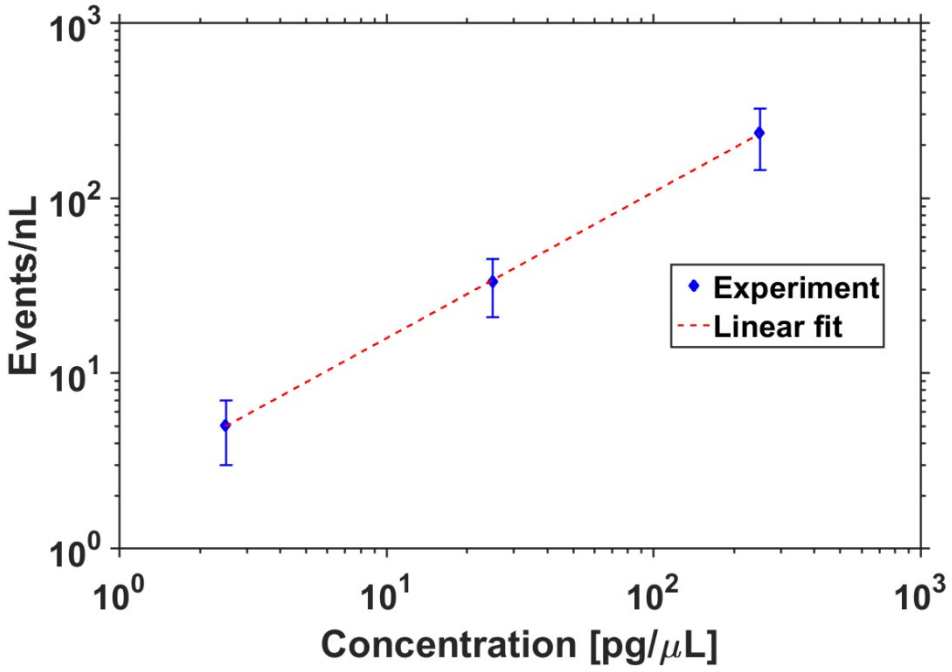
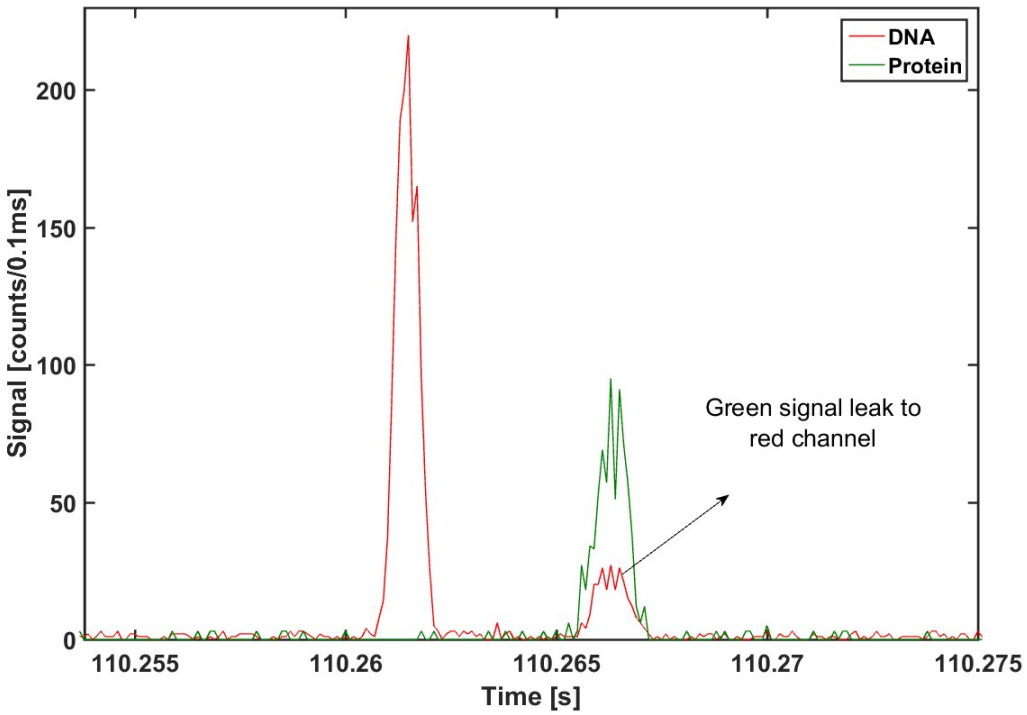
SUPPLEMENTARY FIGURES



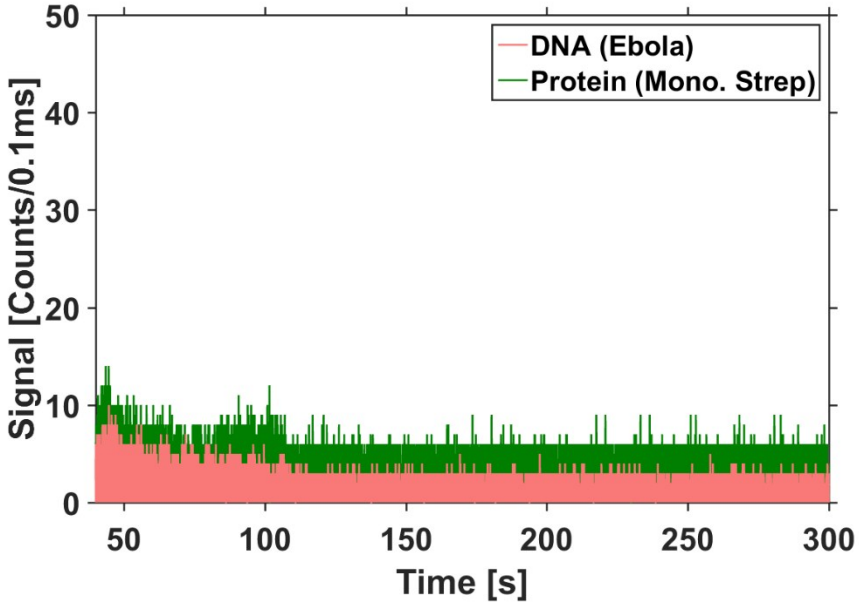
Supplementary Figure 1: Schematic of the fabrication process for the PDMS chip: The fabrication is carried out in two separate parts – one for the waveguide and the fluidic layer, while the other for the pneumatic layer. Different mixtures of PDMS are used to create a refractive index contrast – 1:5 (curing agent: base) PDMS mixture for the core, 1:10 (curing agent: base) PDMS mixture for the cladding. After each of the layers has been fabricated, the two PDMS layers are oxygen plasma treated, aligned on a custom built rig and then brought in contact to bond together. In the final step, the device is plasma bonded to a PDMS substrate.



Supplementary Figure 2: λ-DNA concentration series: Number of λ-DNA detected per unit volume is plotted as a function of initial sample concentration (in pg/μL) on a log-log scale.



Supplementary Figure 3: A magnified view of the peaks observed in Figure 4 during the dual protein-nucleic acid assay experiments. Due to the wide emission band of the Cy-3 fluorophore used as the protein label, a small signal leaks through to the nucleic acid (red) channel when a protein peak (green) is detected. These extraneous peaks are removed from the nucleic acid channel during analysis



Supplementary Figure 4: Simultaneous nucleic acid and protein detection done with non-Zika specific targets (Zaire Ebola AY354458.1, nt. 6832–6931 and monovalent streptavidin) in serum yielded no signals indicating the desired specificity of the assay.