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

Supplementary information

Lab-on-a-disc with reversible and thermally stable diaphragm valves

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Supplementary Movies

Movie 1. Single and multiple additions of the reagent after the metering by ID valve. Blue arrow represents transferred reagent.

Supplementary Figures

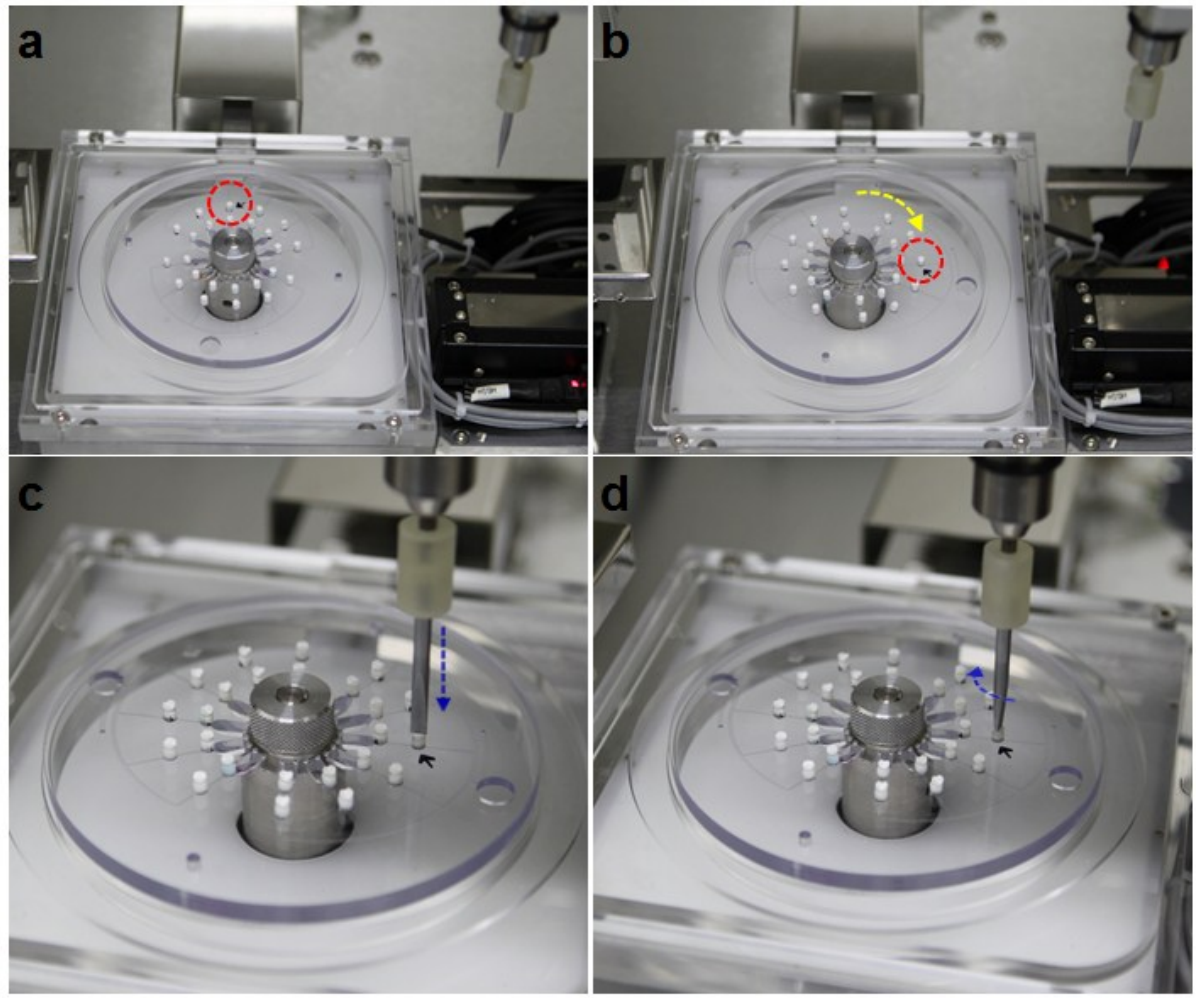

Fig S1. Images showing the actuation process of the ID valves: (a) Disc is stopped for the actuation of an ID, (b) Disc is rotated to align to the pre-programmed angular value (θ) of the ID valve, (c) automatic driver approaches to the position (x, z) by controlling the linear stages moving in x and z axis, (d) driver is rotated by 90º to actuate the ID valve and driver is returned to the original position.

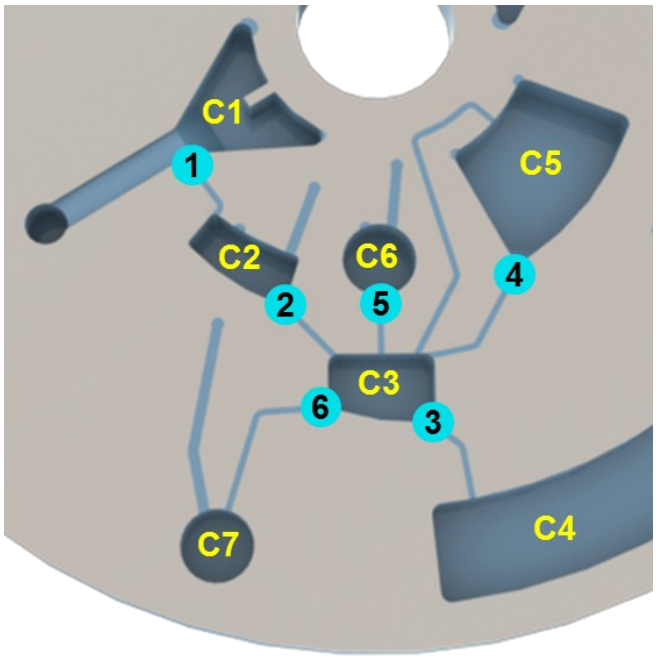

Fig S2. The layout of a disc for fully integrated ELISA. C1: blood separation chamber, C2: detection antibodies storage chamber, C3: reaction chamber, C4: waste chamber, C5: washing buffer chamber, C6: TMB chamber, C7: detection chamber. Light blue colour circles represent the position of the ID valves and are numbered according to the order of their operation.

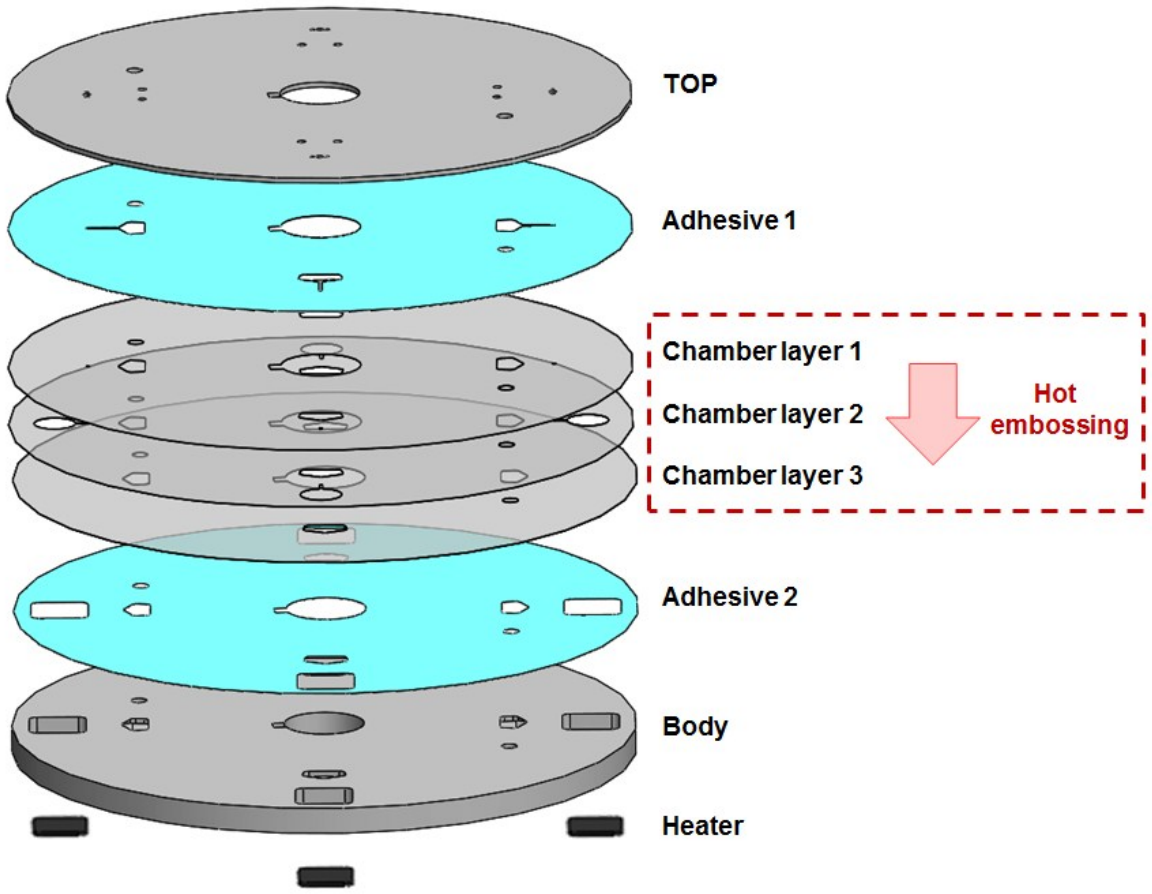

Fig S3. PCR disc is comprised of top, bottom, two adhesives, heater and three chamber layers. Chamber layers contain PCR chamber and three polycarbonate films were cut and thermally bonded. Then, top, bottom, and thermally laminated chamber layers were assembled with adhesive layers. Finally, metal heaters were inserted for PCR.