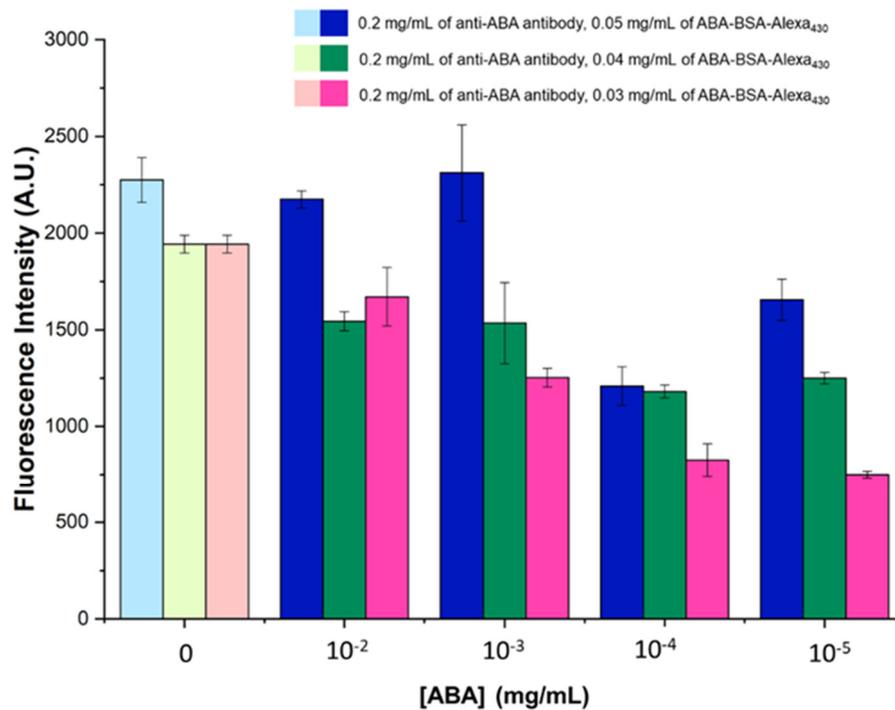
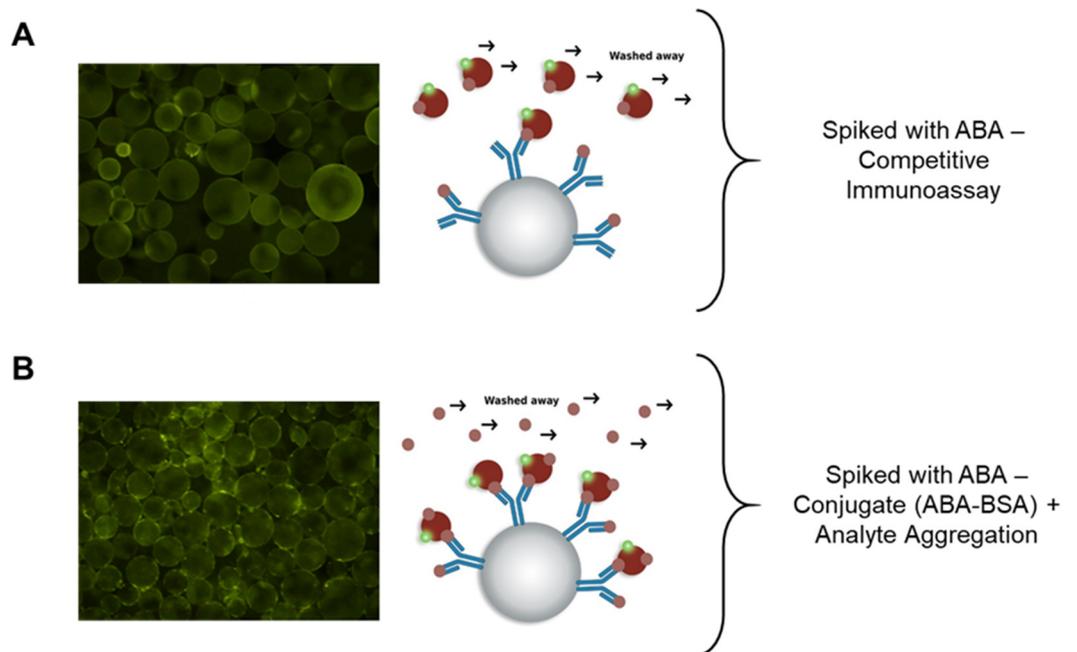


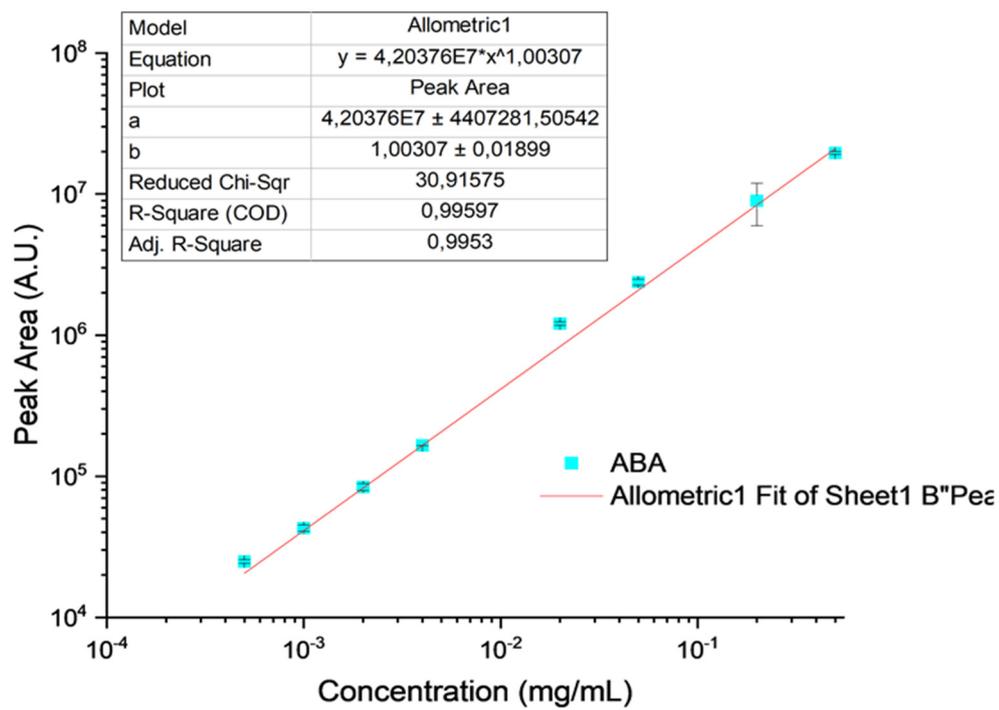
**Figure S1.** Sequence of steps involved in the fabrication of the (A) aluminum hard masks; (B) SU-8 negative photoresist mold; and (C) PDMS structures used for trapping beads.



**Figure S2.** A selection of the results of optimization assays of the concentration of ABA-BSA conjugate to be used in the competitive immunoassay.



**Figure S3.** Proposed mechanisms of ABA detection at different ABA concentrations: (A) schematic of the competitive fluorescence immunoassay, with the respective fluorescence micrograph, present at low ABA concentrations; (B) schematic of the aggregation between the ABA-BSA conjugate and the analyte, with the respective fluorescence micrograph, highlighting the presence of aggregates, present at high ABA concentrations.



**Figure S4.** Calibration curve for different concentrations of ABA using in HPLC.