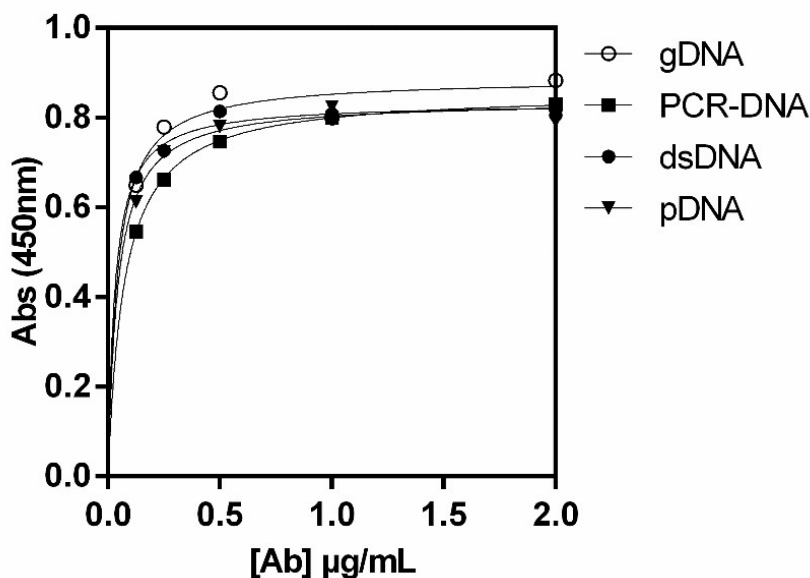


An electrochemical biosensor for rapid detection of anti-dsDNA antibodies in absolute scale.

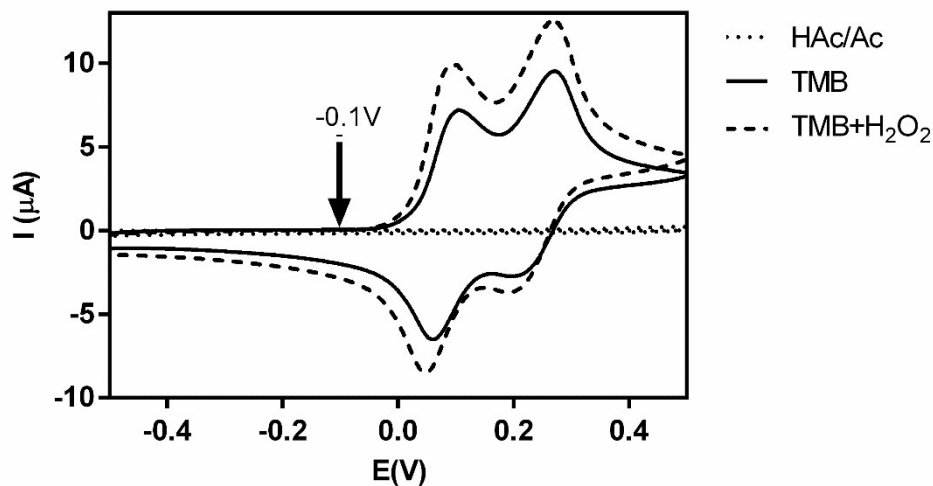
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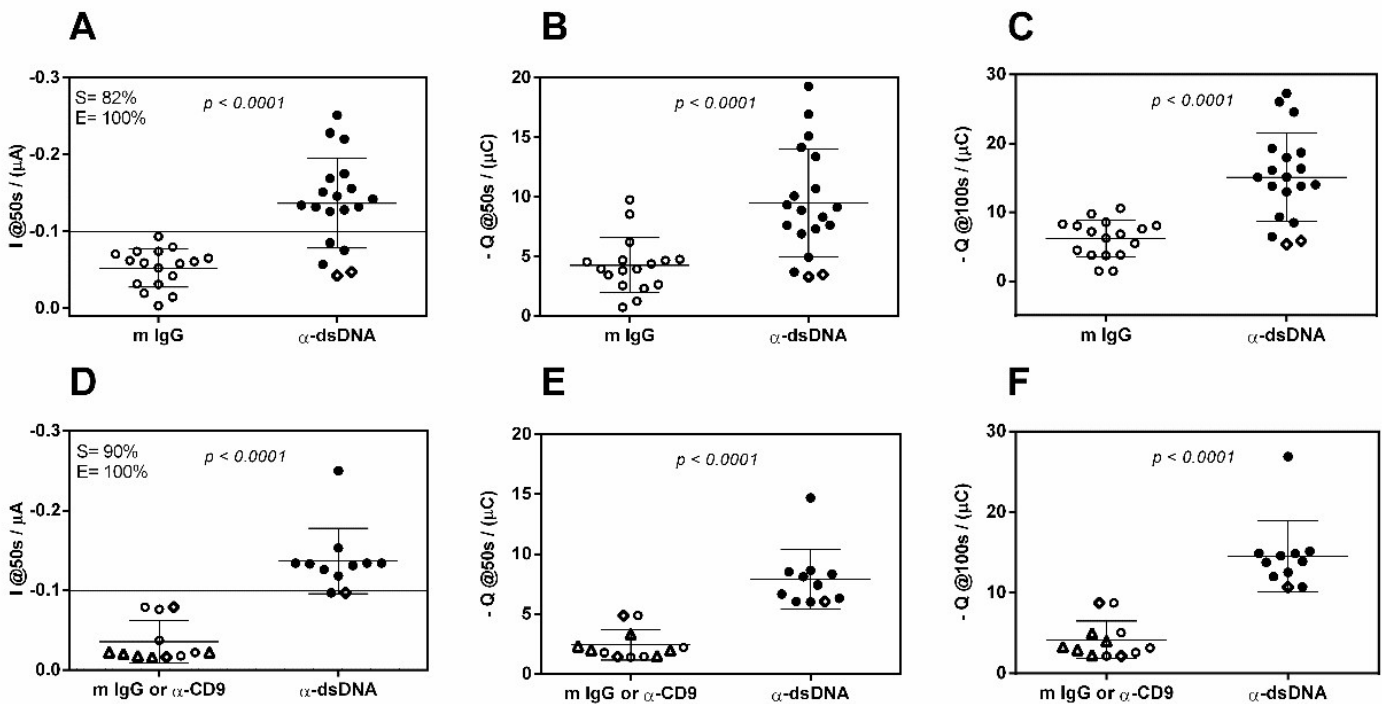
Supplementary Figures



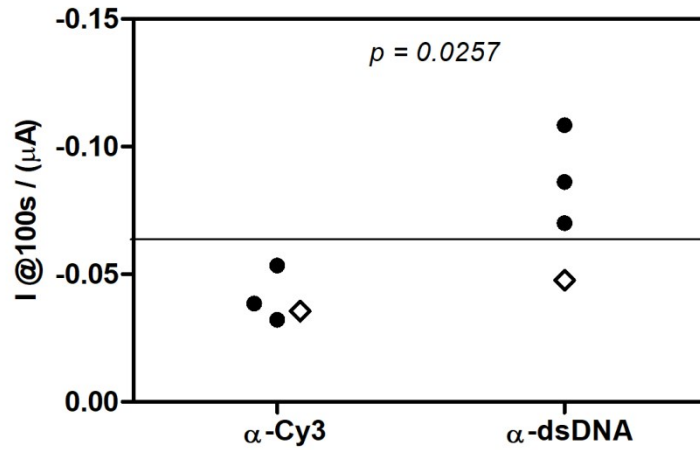
Supplementary Figure 1. ELISA assay for α -dsDNA antibodies in plates sensitized with purified genomic mammalian DNA (gDNA), a purified PCR product (PCR-DNA), commercial salmon sperm DNA (dsDNA) and plasmid DNA (pDNA).



Supplementary figure 2. Cyclic voltammetry of TMB solution (full line), acetic/acetate buffer (dots) and TMB plus H₂O₂ solution (dashed line). The arrow indicates the working potential which was chosen for constant potential measurements.



Supplementary Figure 3. Comparison of the “two-step” (A-D) or “one-step” (D-F) methods, with different readouts: intensity at 50 seconds (A, D) or electrical charge passed through the electrodes during 50 (B, E) or 100 (C, F) seconds. The same bi-electrodes strips were incubated with α -dsDNA (black circles) and mouse IgG (white circles) or monoclonal α -CD9 antibodies (white triangles). Diamonds correspond to electrodes not modified with dsDNA (negative controls). Error bars correspond to the standard error of the mean. Student t test (two-tailed) was used to address statistical significance. In all cases, antibodies were spiked-in in 1/80 fetal bovine serum.-



Supplementary Figure 4. Sensor response (“one-step” method) in positive or negative mouse serum samples (spiked with α -dsDNA or α -Cy3 monoclonal antibodies, respectively). Diamonds correspond to electrodes not modified with dsDNA (negative controls). Student t test (two-tailed) was used to address statistical significance. In all cases, antibodies were spiked-in in 1/80 adult mouse (BALB/c strain) serum.