Supplementary material

Paper-based origami assisted and enhanced electroanalytical detection of β-Amyloid peptide in plasma samples

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Fig. S1 and Fig. S2: Cyclic voltammetry and electrochemical impedance spectroscopy data supporting the stepwise construction and characterization of a paper-based immunosensor for β-amyloid detection.

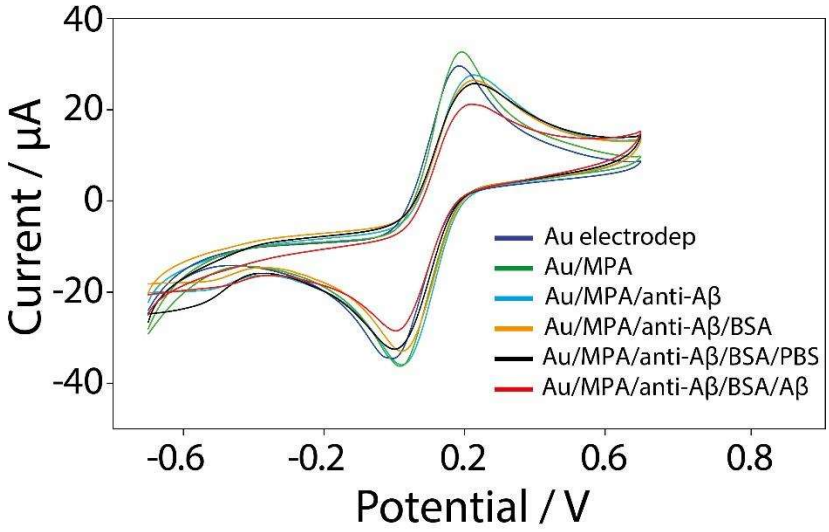

Fig. S1 Cyclic voltammetry (CV) characterization of the immunosensor construction at different modification steps performed in 1 mM $[Fe(CN)_6]^{3-/4-}$. Progressive current decrease is observed with successive surface functionalization, from bare Au electrodeposition (Au electrodep) to antibody immobilization (Au/MPA/anti-Aβ), BSA blocking (Au/MPA/anti-Aβ/BSA), incubation with buffer (PBS) and finally target binding (Au/MPA/anti-Aβ/BSA/Aβ), indicating increased surface resistance and reduced electron transfer.

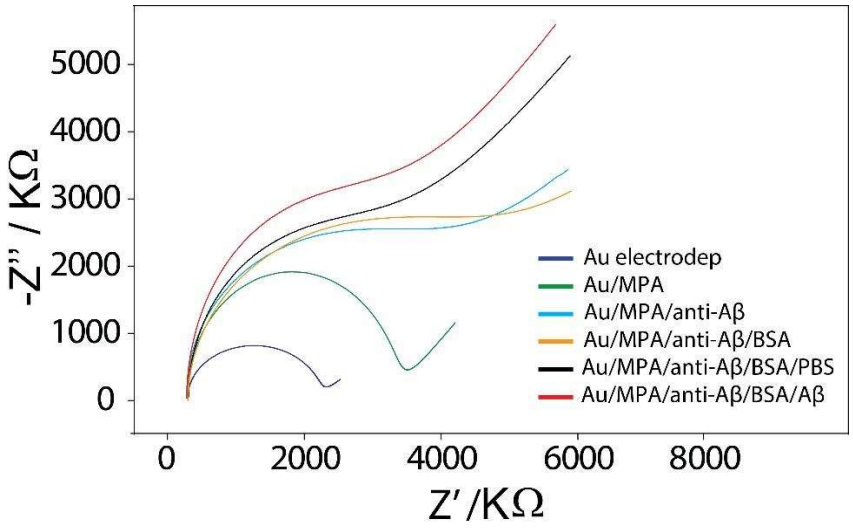

Fig. S2 Electrochemical impedance spectroscopy (EIS) of the immunosensor at various construction stages in 1 mM $[Fe(CN)_6]^{3-/4-}$. The Nyquist plots show an increase in charge transfer resistance (Rct) after each modification step, confirming successful surface assembly and progressive hindrance to electron transfer upon antibody binding, BSA blocking, and final β-amyloid (Aβ) recognition.