biosensors

MDPI

# Supplementary Material

# Disposable Voltammetric Immunosensor for D-Dimer Detection as Early Biomarker of Thromboembolic Disease and of COVID-19 Prognosis

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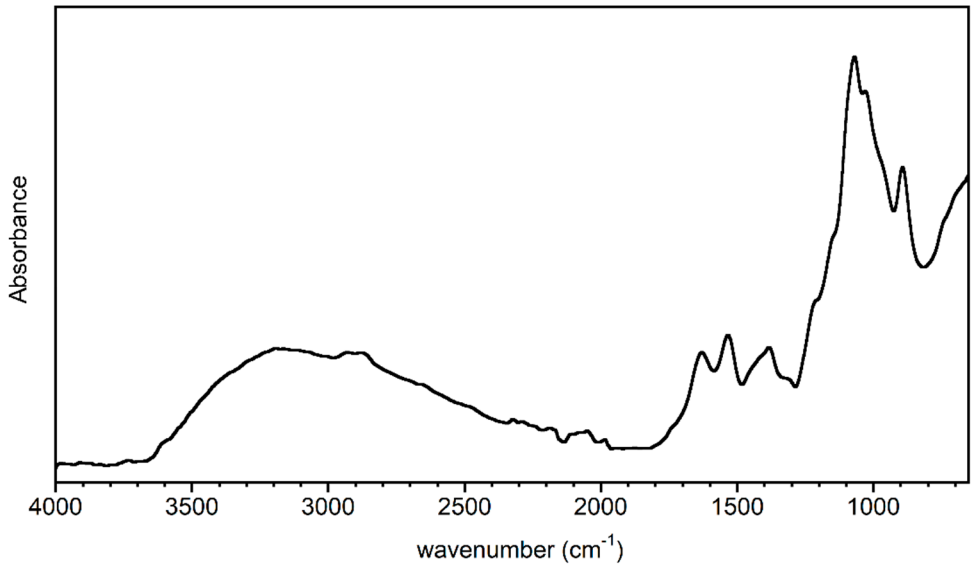



**Figure S1.** FTIR spectrum of freeze-dried CSNPs.

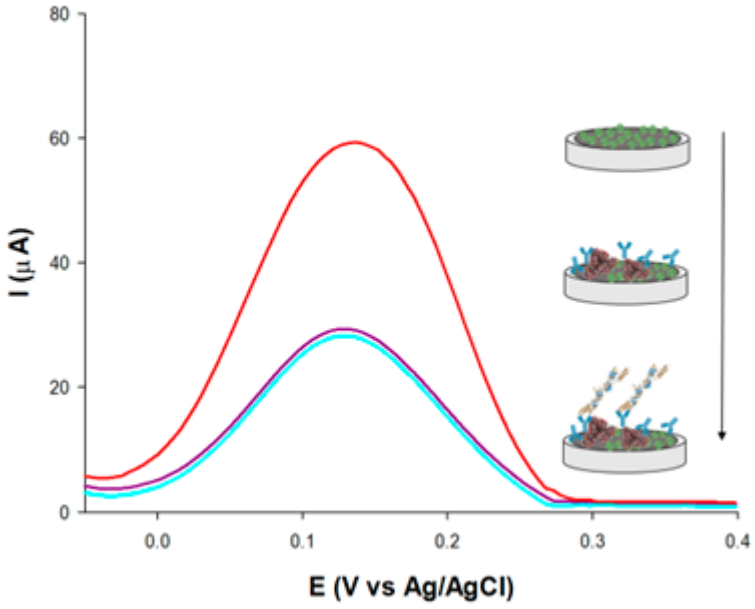
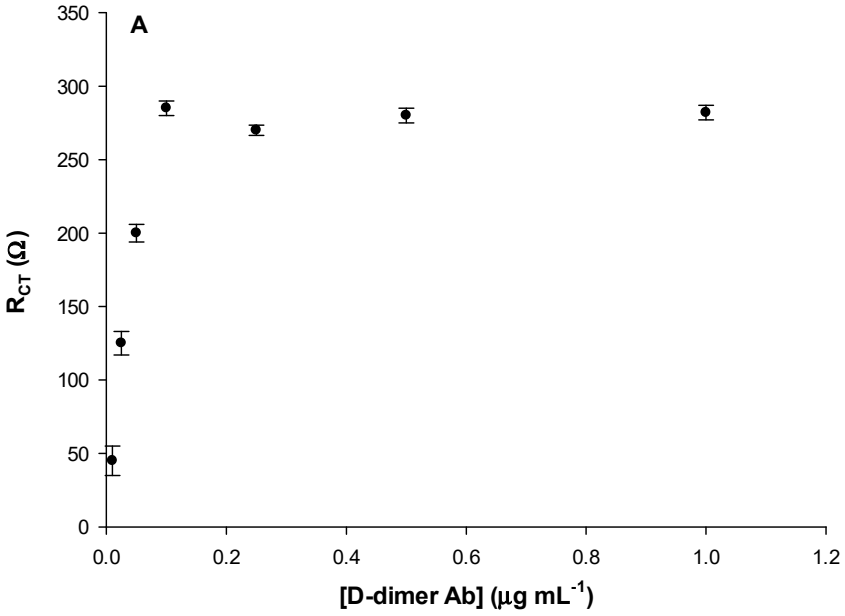



**Figure S2.** DPVs of: MWCNTs-CSNPs (red), MWCNTs-CSNPs-Ab-BSA (violet), MWCNTs-CSNPs-Ab-BSA-Ag (light blue) SPEs, measured in Zobell's solution.



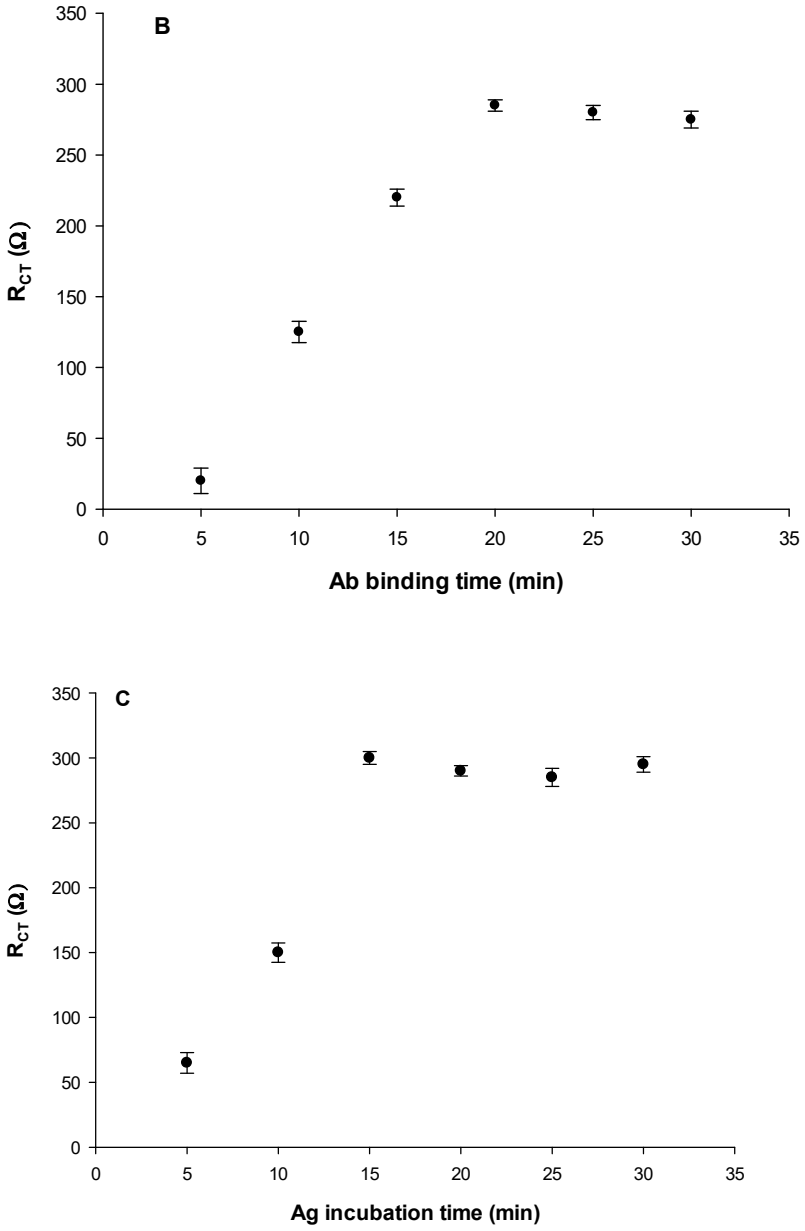



**Figure S3.** Optimization of: (A) D-dimer antibody concentration; (B) antibody binding time; (C) antigen incubation time. Experimental conditions: Zobell's solution; frequency range: 0.1-105 Hz; AC signal amplitude: 10 mV.

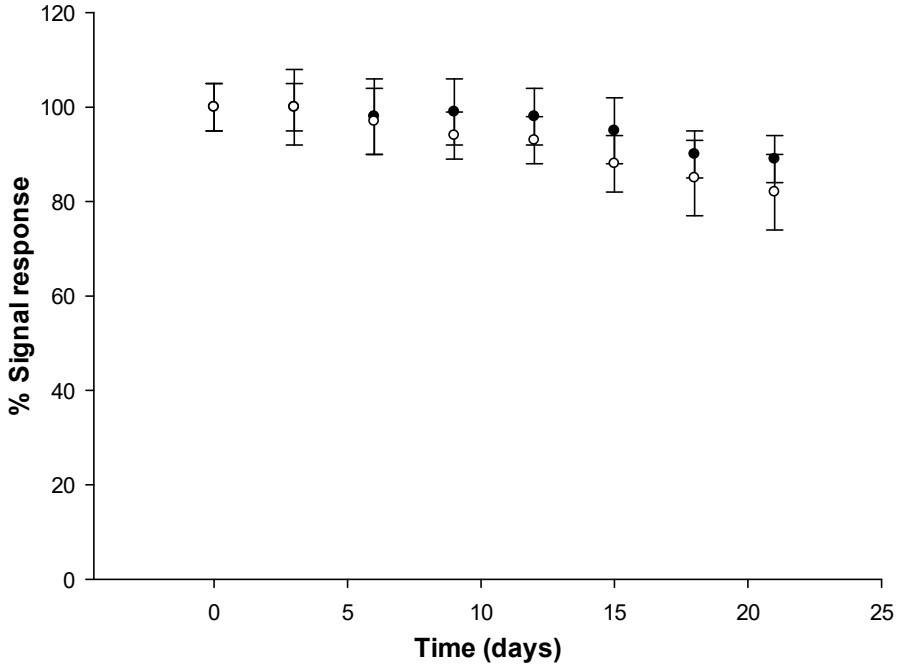



**Figure S4.** Stability assay of the D-dimer immunosensor for standard solution (●) and for human plasma sample (patient 4, (○). Experimental conditions: Zobell's solution; potential applied: 0.150 V (vs. Ag/AgCl).

**Table S1.** Riproducibility and repeatibility measurements and parameters for one human plasma sample (patient 4).

| **Platform** | **Measure** | | | | | **mean** | **SD** | **CV** |
|---|---|---|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** | | | |
| **1** | 839 | 887 | 856 | 887 | 873 | 868 | 20.8 | 2.4 |
| **2** | 856 | 858 | 894 | 834 | 844 | 857 | 22.7 | 2.7 |
| **3** | 903 | 852 | 843 | 900 | 883 | 876 | 27.5 | 3.1 |
| **4** | 886 | 886 | 851 | 888 | 856 | 873 | 18.3 | 2.1 |
| **5** | 835 | 828 | 899 | 844 | 879 | 857 | 30.6 | 3.6 |
| **mean** | 864 | 862 | 869 | 871 | 867 | | | |
| **SD** | 29.7 | 24.9 | 25.9 | 29.5 | 16.5 | | | |
| **CV** | 3.4 | 2.9 | 3.0 | 3.4 | 1.9 | | | |

* SD: standard deviation; CV: coefficient of variation (SD/mean*100).