Supporting Information for manuscript:

Flexible biosensors for the impedimetric detection of protein targets using silk-conductive polymer biocomposites

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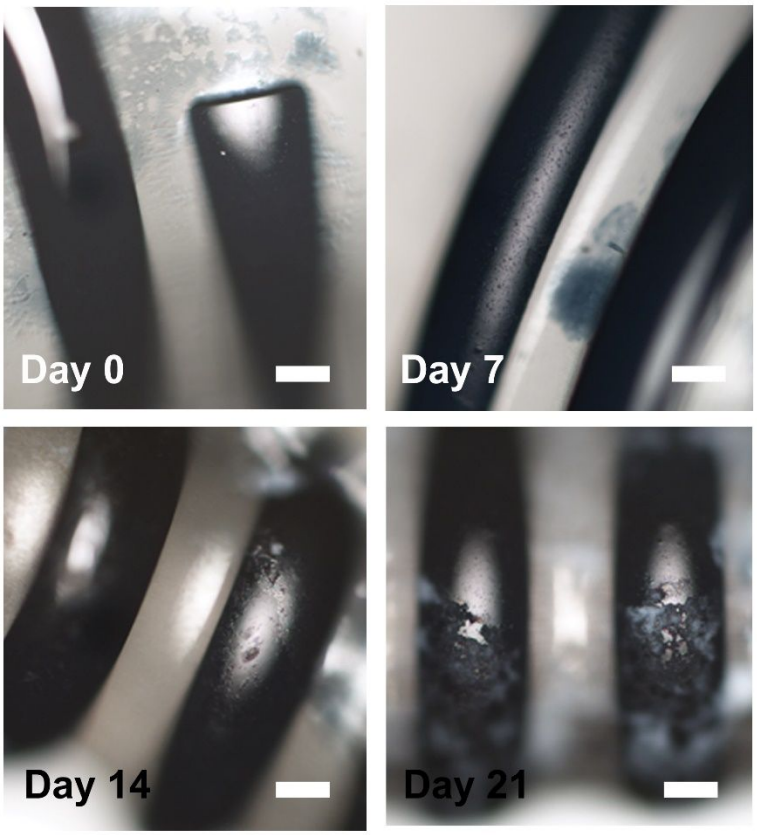

Figure S1: Optical images showing the gradual degradation of the electrodes composed of SPP/PEDOT: PSS in a proteolytic solution (*Protease XIV*). Following 21 days, the electrodes completely broke down and could not be imaged. This degradation behavior itself can be controlled over a period of weeks to months.

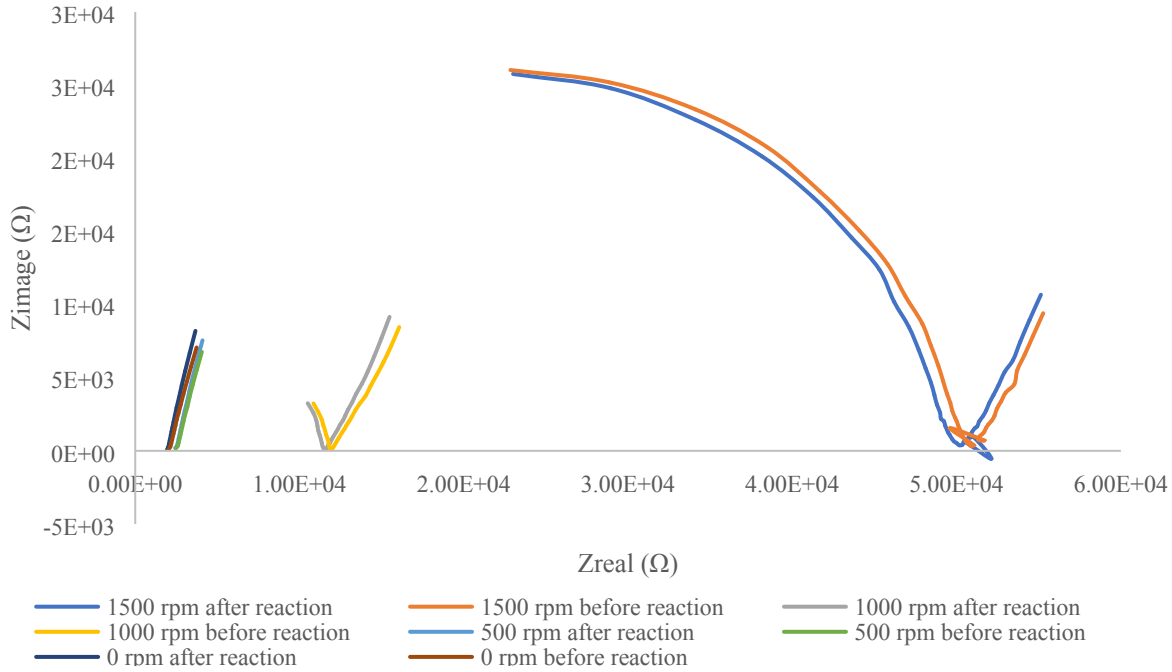

Figure S2: Nyquist plots of different spin-coating rates for the fabrication of conductive patterns. (A). The speed of spin-coating was evaluated using EIS. The target was BSA, as a surrogate for VEGF. 1 µM of BSA was detected with electrodes containing BSA antibody (SPP/PEDOT: PSS/Ab). The same parameters were used for the VEGF antibody.

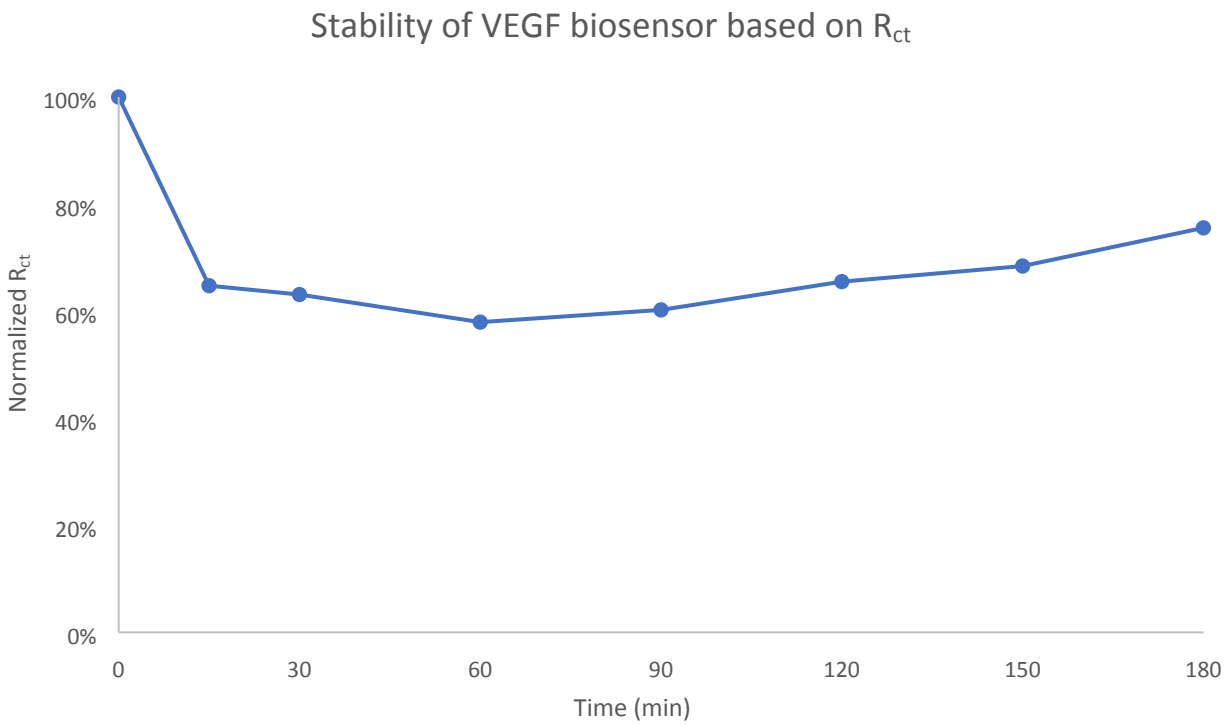

Figure S3: Equilibration of the electrodes in buffer solution over time. Since the electrodes are fabricated in a dry condition, it is important to test their stability and equilibration needed in order to achieve a fast response.

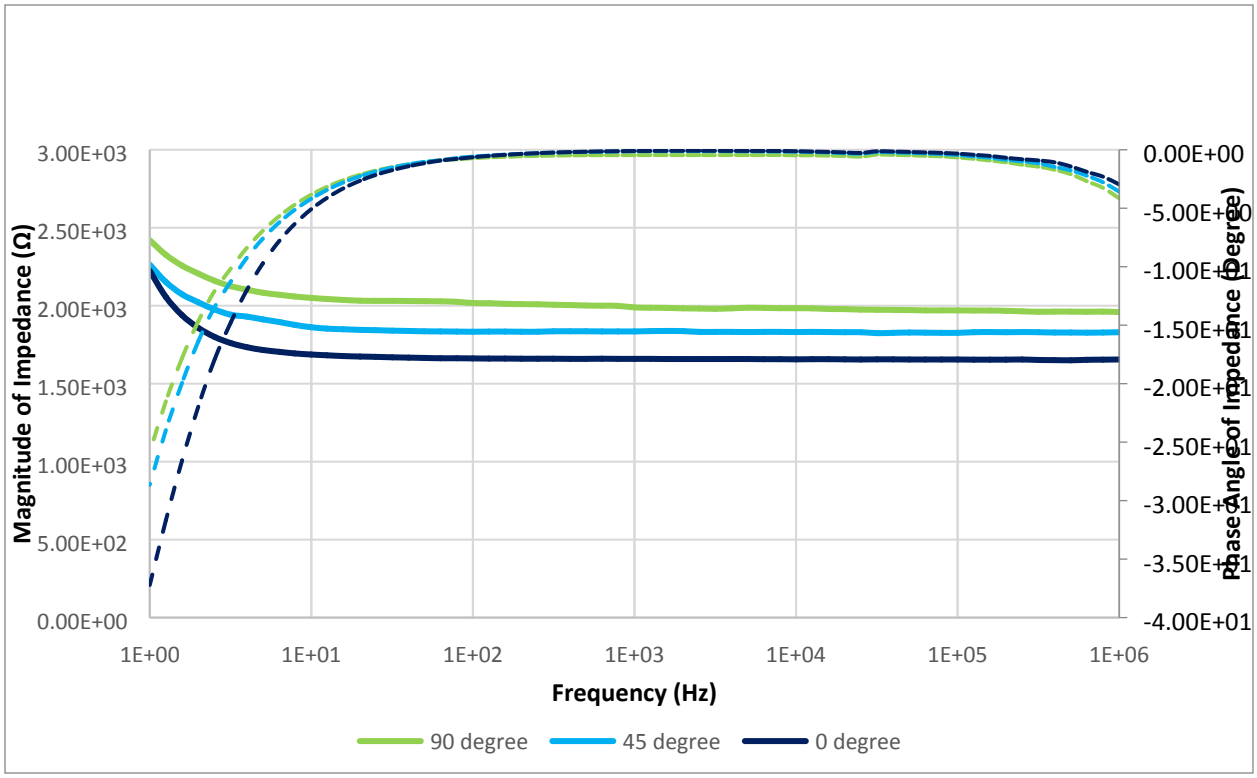

Figure S4: The electrochemical impedance of the developed flexible biosensor at no-bending (0^o) and inward bending (45^o and 90^o) states. Experiments were conducted in PBS. The solid and dotted lines are the magnitude and the phase angle of the impedance, respectively.