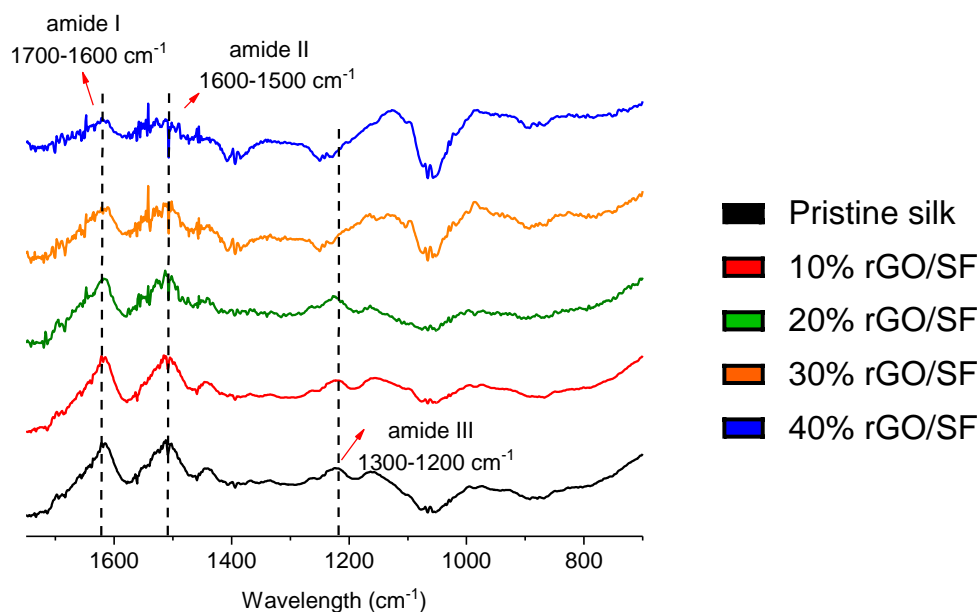
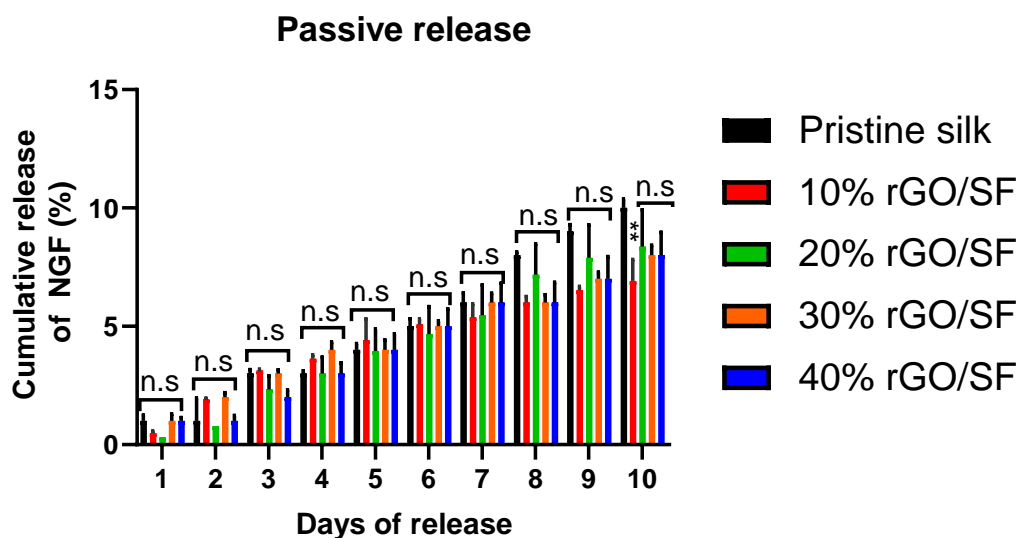


# Supplementary Materials: Electroresponsive Silk-Based Biohybrid Composites for Electrochemically Controlled Growth Factor Delivery

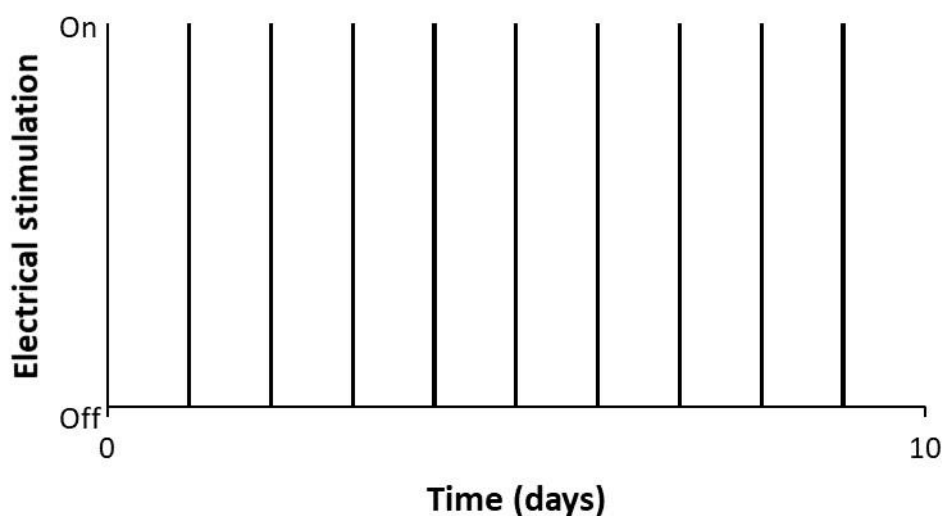
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**Figure S1.** Chemical structure of silk. Representative FTIR-ATR spectrum of the electroconductive/active silk-based films.



**Figure S2.** Re-scaled version of Figure 2 of the main manuscript showing cumulative NGF- $\beta$  release from the films ( $n=3$  per type); passive release. The differences between the experimental groups were analyzed by two-way ANOVA using Tukey's post hoc test for multiple comparison (p-value with respect to neat silk). n.s non-significant; \*\* $p<0.01$ .



**Figure S3.** Electrical stimulation paradigm. 10 cycles of: 62 seconds on, 24 hours off.

**Table S1.** Molecular descriptors.

PDB Code	5LSD
Total Hydrophobic surface area	14006.4
No. of H-bond acceptors	302
No. of H-bond donors	304
Molecular globularity	0.21105774
Molecular flexibility	535.1393
Total aromatic bonds	208
Molecular weight ( $\text{g mol}^{-1}$ )	26518.16

