## **Supporting information**

## **3D** Printed Smart Silk Wearable Sensors

Tianshu Chu<sup>a,#</sup>, Huili Wang<sup>b,#</sup>, Yumeng Qiu<sup>a</sup>, Haoxi Luo<sup>a</sup>, Bingfang He<sup>a</sup>, Bin Wu<sup>c,\*</sup> and Bingbing Gao<sup>a,\*</sup>

<sup>a</sup> School of Pharmaceutical Sciences, Nanjing Tech University, Nanjing 211816, China.

<sup>b</sup> Sir Run Run Hospital, Nanjing Medical University, Nanjing, China.

<sup>c</sup> College of Biotechnology and Pharmaceutical Engineering, Nanjing Tech University, Nanjing

211816, China.

<sup>#</sup> Tianshu Chu and Huili Wang contributed equally to this work and should be considered as cofirst authors

\*E-mail: wubin1977@njtech.edu.cn; gaobb@njtech.edu.cn.



Figure S1: a) Correspondence between stretching ratio and stress before and after healing; b) Correspondence between stretching ratio and resistance; c) Reusable performance of conductive devices



Figure S2: a) Self-healing performance of silk-film device with microchannel inside (original(i), cut(ii) and healing(iii)); b) Stretching demonstration of silk-film device; c) Fluid performance in the channel before and after self-healing; d) Resistance response ability before and after self-healing

Video S1: the preparation process of 3d printing