

## Supporting Information

# **Carbon Nanotubes/Regenerated Silk Composite as 3D-Printable Bio-Adhesive Ink with Self-Powering Properties**

*Silvia Bittolo Bon<sup>a,b</sup>, Irene Chiesa<sup>c</sup>, Micaela Degli Esposti<sup>b,d</sup>, Davide Morselli<sup>b,d</sup>, Paola Fabbri<sup>b,d</sup>, Carmelo De Maria<sup>c</sup>, Antonino Morabito<sup>e,f</sup>, Riccardo Coletta<sup>e,g</sup>, Martino Calamai<sup>h,i</sup>, Francesco Saverio Pavone<sup>h,l</sup>, Rodolfo Tonin<sup>m</sup>, Amelia Morrone<sup>f,m</sup>, Giacomo Giorgi<sup>n,o</sup> and Luca Valentini<sup>a,b,\*</sup>*

<sup>a</sup> Dipartimento di Ingegneria Civile e Ambientale, Università degli Studi di Perugia, Strada di Pentima 4, 05100, Terni, Italy

<sup>b</sup> Italian Consortium for Science and Technology of Materials (INSTM), Via Giusti 9, 50121 Firenze, Italy

<sup>c</sup> Department of Ingegneria dell'Informazione and Research Center E. Piaggio, University of Pisa, Largo Lucio Lazzarino 1, 56122 Pisa, Italy

<sup>d</sup> Department of Civil Chemical, Environmental and Materials Engineering (DICAM), Università di Bologna, Via Terracini 28, Bologna 40131, Italy

<sup>e</sup> Department of Pediatric Surgery, Meyer Children's Hospital, Viale Pieraccini 24, 50139 Firenze, Italy

<sup>f</sup> Dipartimento Neuroscienze, Psicologia, Area del Farmaco e della Salute del Bambino NEUROFARBA, Università degli Studi di Firenze, Viale Pieraccini 6, 50121 Firenze, Italy

<sup>g</sup> School of Health and Society, University of Salford, Salford, United Kingdom

<sup>h</sup> European Laboratory for non-linear Spectroscopy (LENS), University of Florence, Sesto Fiorentino (FI), Italy

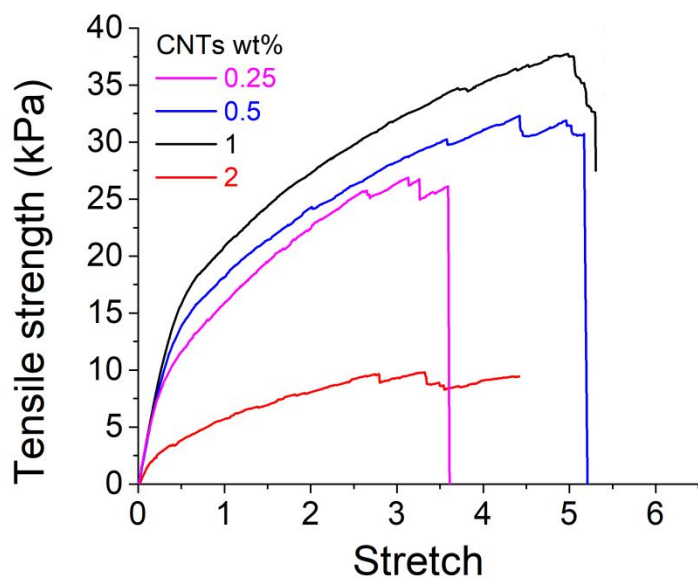
<sup>i</sup> National Institute of Optics -National Research Council (CNR-INO), Sesto Fiorentino (FI), Italy

<sup>l</sup> Department of Physics, University of Florence, Sesto Fiorentino (FI), Italy

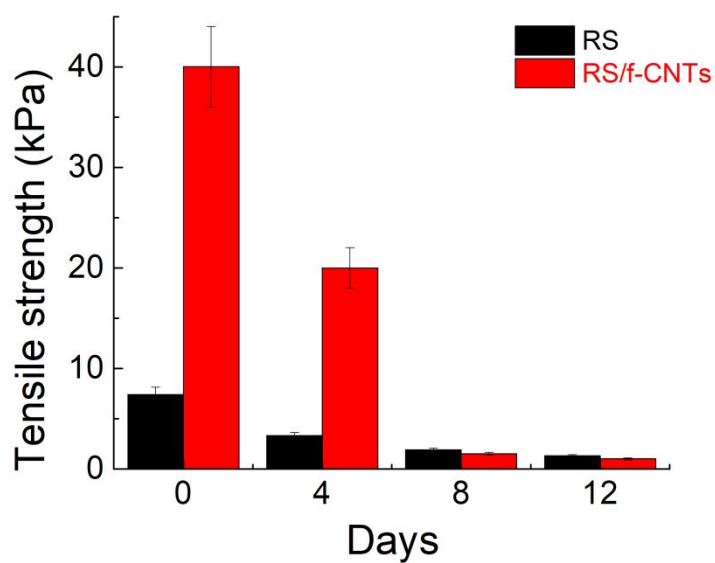
<sup>m</sup> Molecular and Cell Biology Laboratory, Paediatric Neurology Unit and Laboratories, Neuroscience Department, Meyer Children's Hospital, Firenze, Italy

<sup>n</sup> Dipartimento di Ingegneria Civile e Ambientale (DICA), Università degli Studi di Perugia, Via G. Duranti 93, 06125, Perugia, Italy

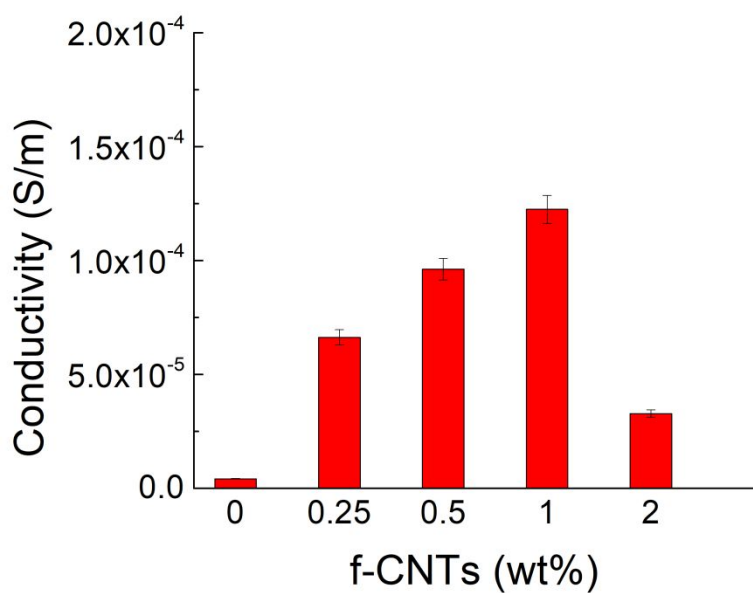
\* Corresponding Author: Luca Valentini (luca.valentini@unipg.it)



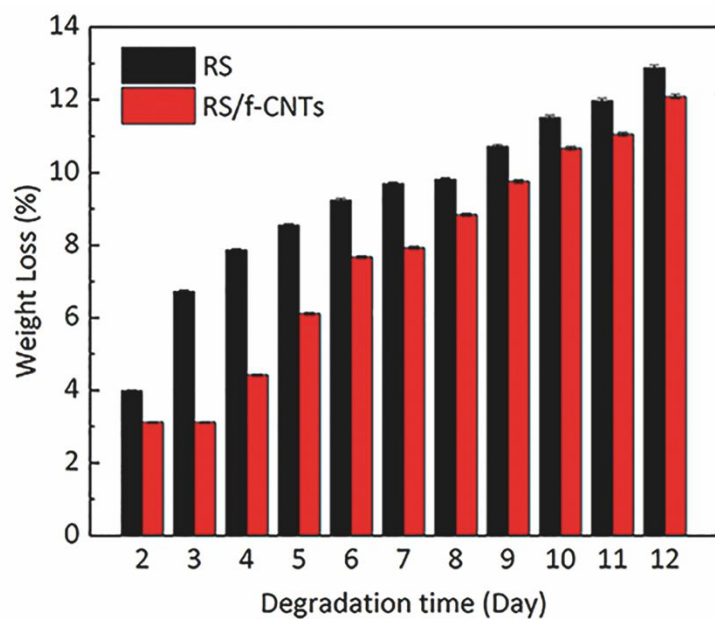
**Figure S1.** Stress/stretch curves for the RS/f-CNTs films with different f-CNTs content.



**Figure S2.** Shear strengths between porcine intestine and RS and RS/f-CNTs films as a function of the elapsed time from the preparation in environmental conditions.



**Figure S3.** Electrical conductivity of RS/f-CNTs films as a function of different f-CNTs content.



**Figure S4.** Weight loss as a function of the elapsed time of RS and RS/f-CNTs films in PBS, 1X Solution, pH 7.4, incubated at 37°C.