

*Supporting Information*

# Co-Axial Extrusion of Tubular Tissue Constructs Using A Gelatin/GelMA Blend Bioink

Ying Wang,<sup>†</sup> Ranjith Kumar Kankala,<sup>†,‡</sup> Kai Zhu,<sup>§</sup> Shi-Bin Wang,<sup>†,‡</sup> Yu Shrike Zhang,<sup>||,\*</sup> Ai-Zheng Chen<sup>†,‡,\*</sup>

<sup>†</sup>*Institute of Biomaterials and Tissue Engineering, Huaqiao University, Xiamen 361021, P. R. China*

<sup>‡</sup>*Fujian Provincial Key Laboratory of Biochemical Technology (Huaqiao University), Xiamen 361021, P. R. China*

<sup>§</sup>*Department of Cardiac Surgery, Zhongshan Hospital, Fudan University, Shanghai 200032, P. R. China*

<sup>||</sup>*Division of Engineering in Medicine, Department of Medicine, Brigham and Women's Hospital, Harvard Medical School, Cambridge, MA 02139, USA*

\*Corresponding authors:

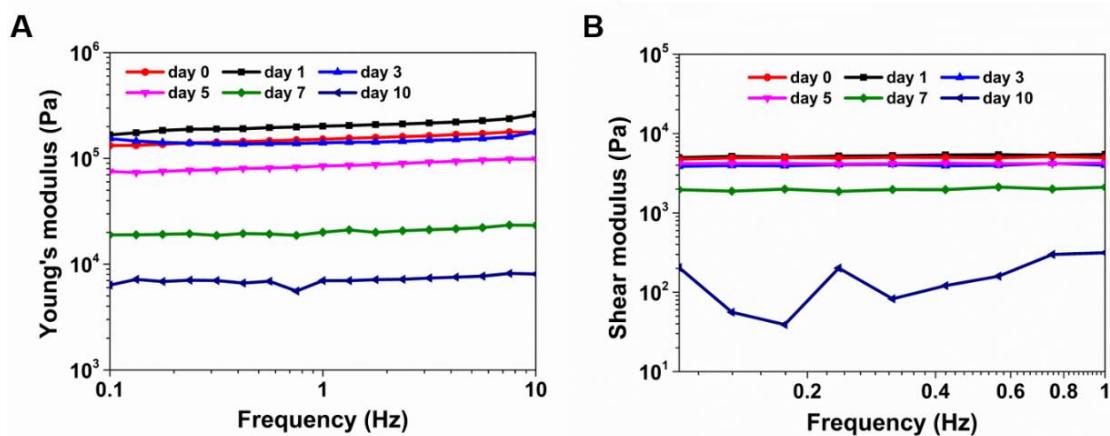
Email addresses: [yszhang@research.bwh.harvard.edu](mailto:yszhang@research.bwh.harvard.edu) (Y. S. Zhang)

[azchen@hqu.edu.cn](mailto:azchen@hqu.edu.cn) (A. Z. Chen)

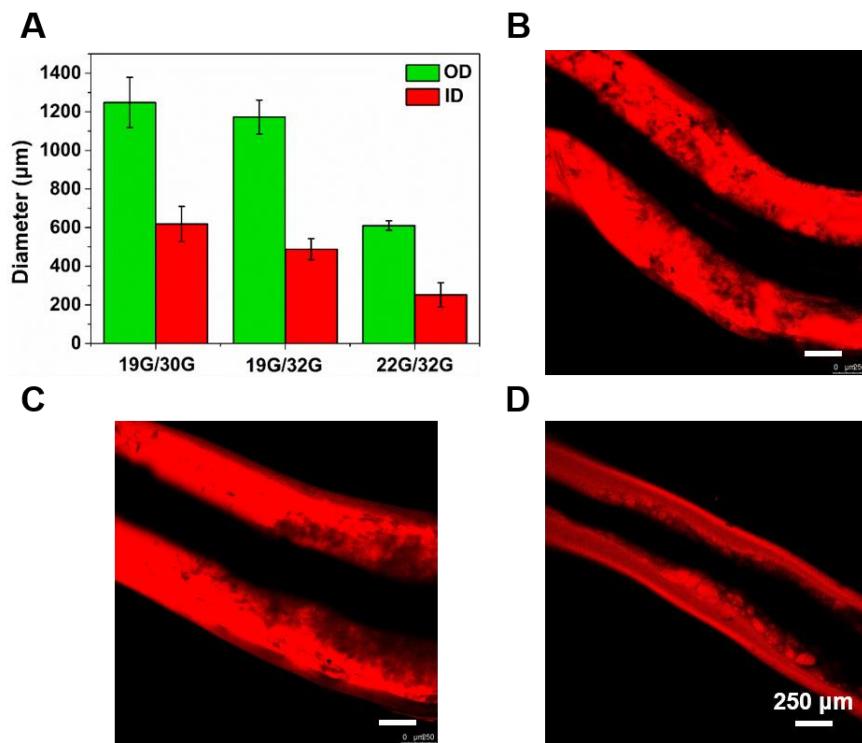
Number of pages: 3 pages

Number of Figures: 2 figures

Number of Tables: 1 table



**Figure S1. Mechanical properties of the GelMA/Gel hydrogels.** Changes in (A) Young's modulus and (B) shear modulus of the GelMA/Gel hydrogels at different incubation periods in culture medium.



**Figure S2. GelMA/Gel hollow microfibers fabricated at different gauge combinations of the needles.** (A) ODs and IDs of the hollow microfibers fabricated at the different gauge combinations of the co-axial nozzles. (B-D) CLSM images of longitudinal cross-sections of the hollow microfibers corresponding to the different gauge combinations of the co-axial nozzles shown in (A).

**Table S1.** Processing variables used for the preparation of hollow microfibers fabricated with various gauge combinations of the co-axial nozzles.

Nozzle size	Sample flow rate	Core flow rate	OD	ID	Wall thickness <sup>a</sup>
	( $\mu\text{L}/\text{min}$ )	( $\mu\text{L}/\text{min}$ )	( $\mu\text{m}$ )	( $\mu\text{m}$ )	( $\mu\text{m}$ )
19G/30G	450	40	1248.1	618.4	314.9
19G/32G	450	40	1172.2	479.9	346.2
22G/30G	300	40	610.2	251.4	179.4

<sup>a</sup> Wall thickness = (OD-ID)/2