Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B. This journal is © The Royal Society of Chemistry 2023

Supplementary Information

Wen Li^a, Xioale Hu^a, Hongsheng Liu^a, Jinhuan Tian^{a, b}, Lihua Li^{a, b}, Binghong Luo

^{a, b}, Changren Zhou ^{a, b}, Lu Lu ^{a, b *}

a Department of Materials Science and Engineering, College of Chemistry and Materials Science, Jinan University, Guangzhou 510632, China

b Engineering Research Center of Artificial Organs and Materials, Ministry of

Education, Guangzhou 510632, China

* Corresponding author.

E-mail address: tlulu@jnu.edu.cn (L. Lu)



Supplementary Figure 1. ¹H NMR of PEGDA.



Supplementary Figure 2. Tensile tests of PEGDA hydrogels with different molecular

weights.



mentary Figure 3. Optical microscope diagrams of different octopus sucker structures.(a) circular table type. (b) cylindrical perforated circular table type. (c) hemispherical perforated circular table type. (d) conical perforated circular table type, scale bar:



pplementary Figure 4. Finite element analysis. (a) Simulation of hydrogel material; variation curves of fluid cavity volume with time for different suction cup structures subjected to the same load. (b) Cylindrical hole type. (c) Hemispherical perforated type. (d) Conical hole type.



Supplementary Figure 5. Adhesion test. (a) Schematic diagram of adhesion test. (b) Cyclic test curve of the bionic patch with flat plate structure. (c) Cyclic test curve of the octopus-bionic patch.



Supplementar

y Figure 6. Fidelity of patches with four different structures.



Supplementary Figure 7. Cyclic mechanical test. (a) Cyclic tensile test. (b) Cyclic

compression test.