

RESEARCH ARTICLE

Magnetically programmable 3D printing of liquid metal robots for targeted therapy

Supplementary Files

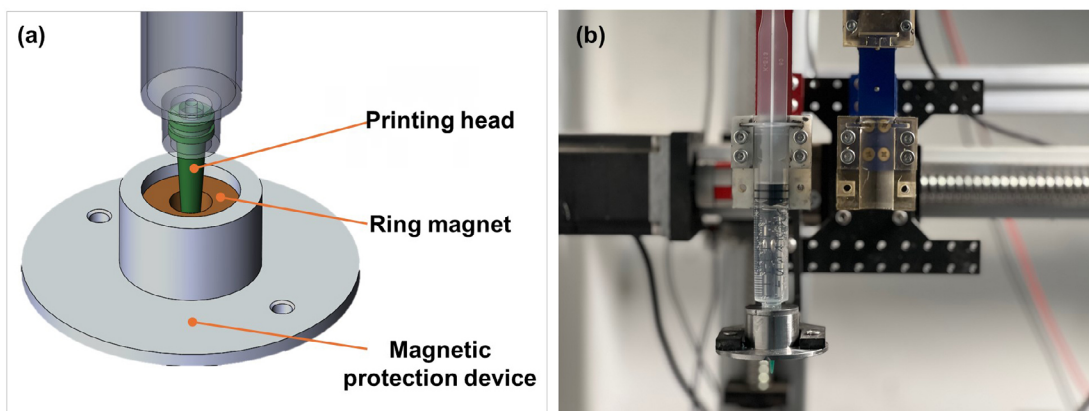


Figure S1. (a) Schematic diagram and (b) photo of the device of magnetic field-assisted direct ink writing 3D printing

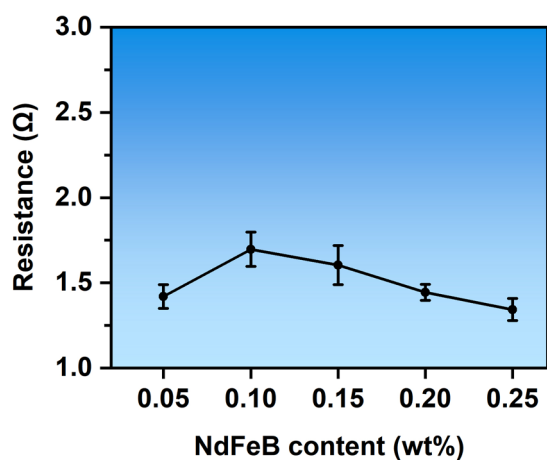


Figure S2. Resistance of magnetic liquid metal at different neodymium–iron–boron (NdFeB) mass ratios

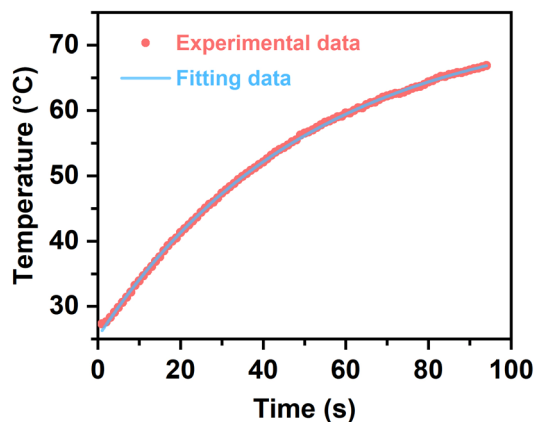


Figure S3. Temperature-rise fitting curve for magnetic liquid metal-elastomer

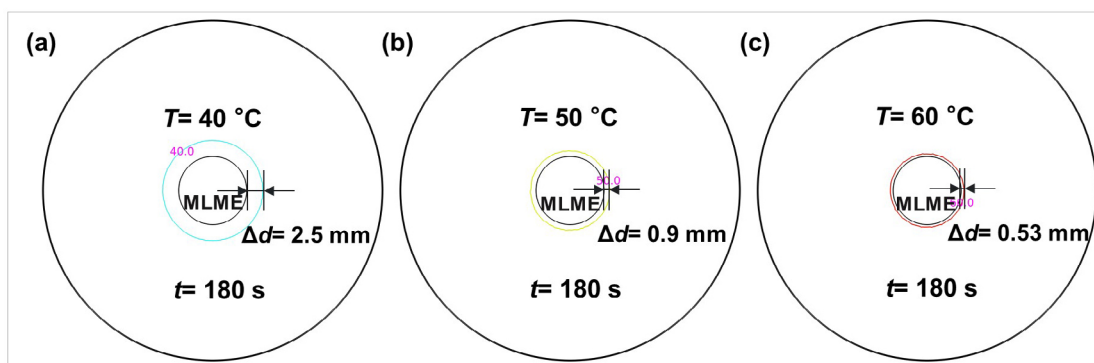


Figure S4. Isothermal contour analysis of thermal diffusion in the simulated intestinal tissue. (a)  $T = 40\text{ }^{\circ}\text{C}$ ; (b)  $T = 50\text{ }^{\circ}\text{C}$ ; (c)  $T = 60\text{ }^{\circ}\text{C}$ . The inner black circle represents the outer boundary of the circular MLME heater, and the outer black circle represents the boundary of the intestinal tissue model. Abbreviation: MLME: Magnetic liquid metal-elastomer.

**Video S1.** Magnetic filed-assisted direct ink writing process of magnetic liquid metal elastomer

**Video S2.** Grasping motion of magnetic liquid metal elastomer soft robot under magnetic field control

**Video S3.** Crawling motion of magnetic liquid metal elastomer soft robot under magnetic field control

**Video S4.** Rolling motion of magnetic liquid metal elastomer soft robot under magnetic field control

**Video S5.** Magneto-thermal heating of MLME soft robot on ex vivo porcine intestine tissue