

Supplementary Information

Human induced pluripotent stem cell-derived cardiac muscle rings for biohybrid self-beating actuator

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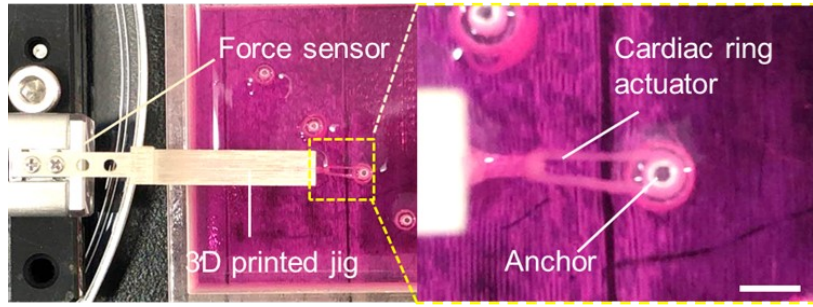


Figure S1. Setup for measuring the contractile force of a cardiac ring. *Scale bar; 2 mm.*

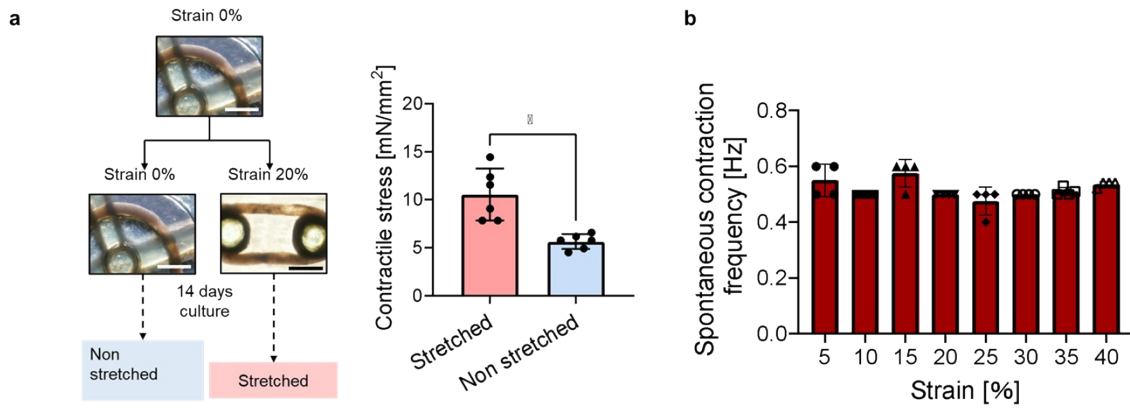


Figure S2. Spontaneous contractile property with applied strain. (a) A functional evaluation of cardiac muscle rings, with antagonistic muscle structures added after removal from the substrate, and those that continued cultivation within the substrate. (b) Spontaneous contractile frequency with applied strain. All scale bars; 1.5 mm.

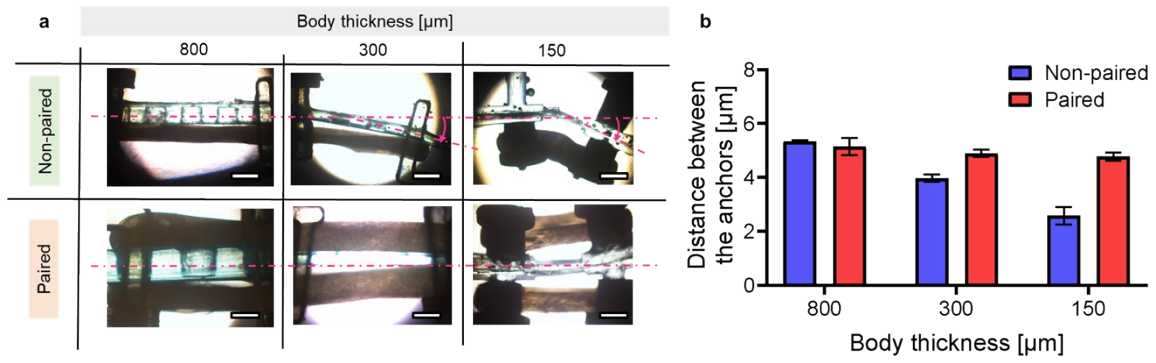


Figure S3. Presence and absence of tension balance by antagonistic pair structure. (a) Images of driving parts of the biohybrid self-beating actuators with and without antagonistic structure on the 5th day of culture. To observe the muscle shortening phenomenon, we verified the thickness of the PDMS body to 800, 300, and 150 μm . **(b)** Distance between the anchors vs body thickness. All scale bars; 500 μm .