

Supporting Information

Integration of poly(3-hexylthiophene) conductive stripe patterns with 3D tubular structures for tissue engineering applications

Yingjuan Sun,^{a, c} Hongyan Li,^{b, c} Yuan Lin,^{* a} Li Niu^b and Qian Wang^{a, d}

a. State Key Laboratory of Polymer Physics and Chemistry, Changchun Institute of Applied Chemistry, Changchun, 130022, P. R. China

b. State Key Laboratory of Electroanalytical Chemistry, c/o Engineering Laboratory of Modern Analytical Techniques, Changchun Institute of Applied Chemistry, Changchun, 130022, P. R. China

c. University of Chinese Academy of Sciences, Beijing, 100049, P. R. China

d. Department of Chemistry and Biochemistry, University of South Carolina, 631 Sumter Street, Columbia, South Carolina, 29208, USA

** E-mail: linyuan@ciac.ac.cn*

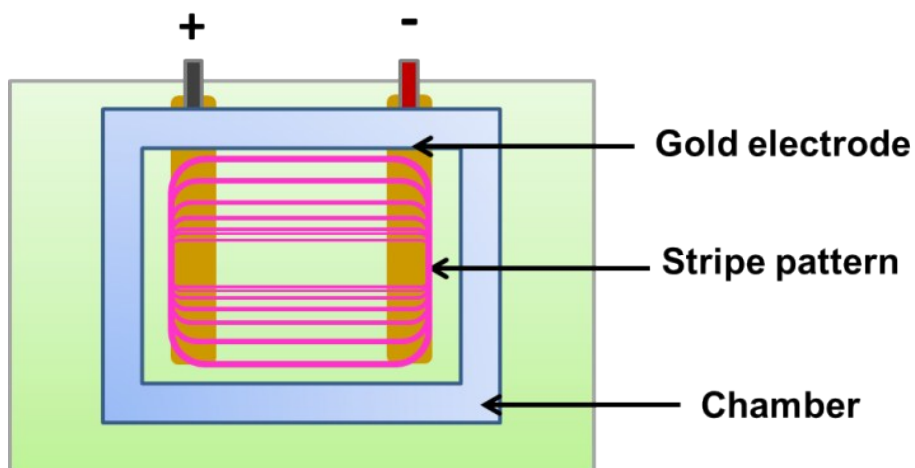


Fig. S1 Schematic illustration of electrical stimulation process of cells cultured on the stripes on PI film.

Samples	Conductance (S)	Resistance (Ω)
P3HT:PLA (1:1)	5.19×10^{-9}	1.93×10^{10}
P3HT:PLA (1:5)	4.45×10^{-10}	2.25×10^{11}
P3HT:PLA (1:10)	1.48×10^{-11}	6.76×10^{12}

Table S1. Conductivity and resistance of stripe patterns self-assembled on the PI films.

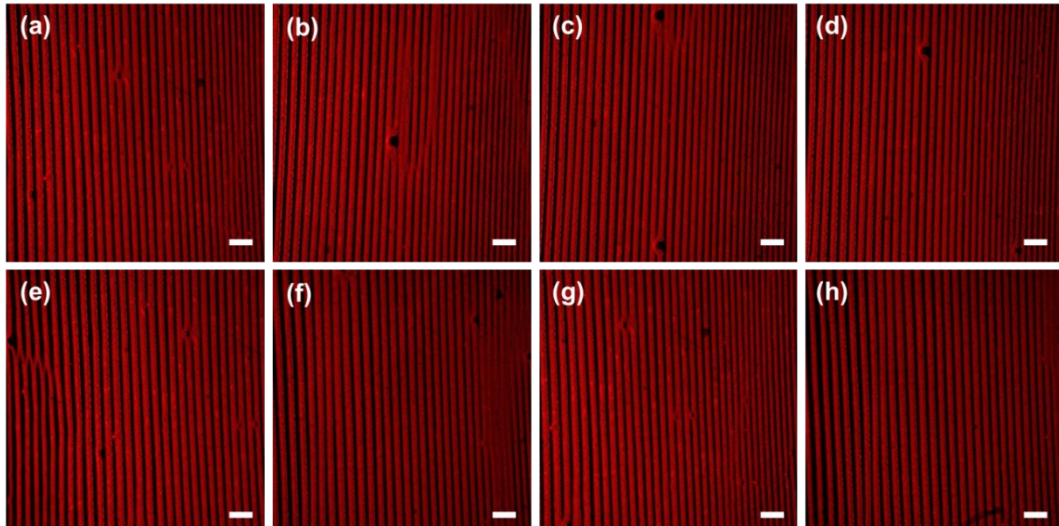


Fig. S2 Fluorescence images of P3HT:PLA (1:5) patterns on PI films soaked in cell culture medium for different days. (a) for 0 d, (b) for 2 d, (c) for 4 d, (d) for 6 d, (e) for 8 d, (f) for 10 d, (g) for 12 d, (h) for 14 d. Scale bars are all 50 μm .

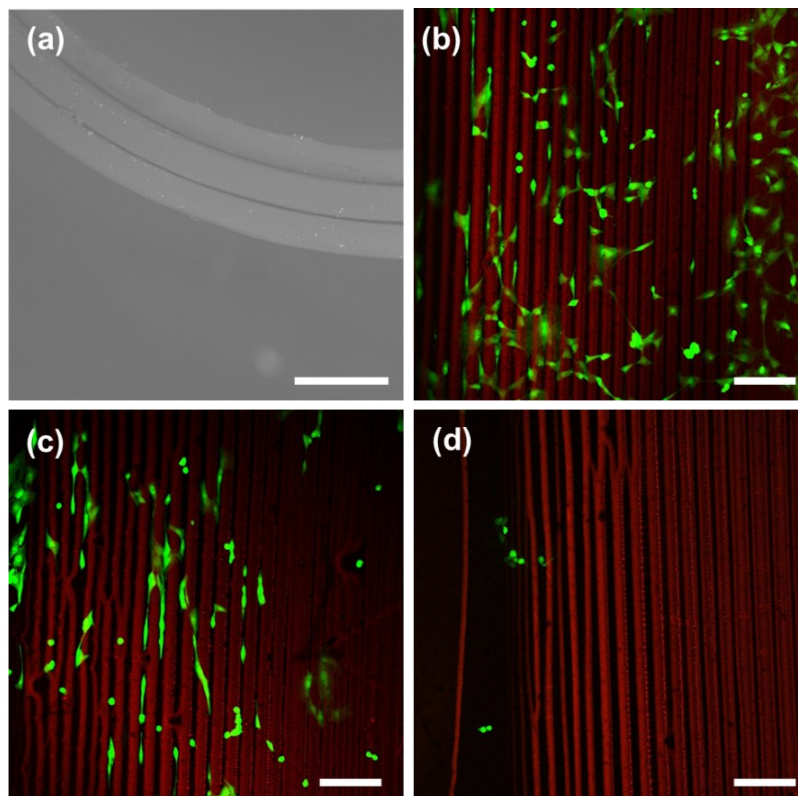


Fig. S3 (a) SEM image of the PI film rolling-up for multilayer with the diameter of 3 mm. (b-d) Fluorescence images of MC 3T3-E1 cells cultured on the multi-layer tube for 24 h. (b) the first layer, (c) the second layer, (d) the third layer. Scale bars: 300 μm for (a), 100 μm for (b-d).

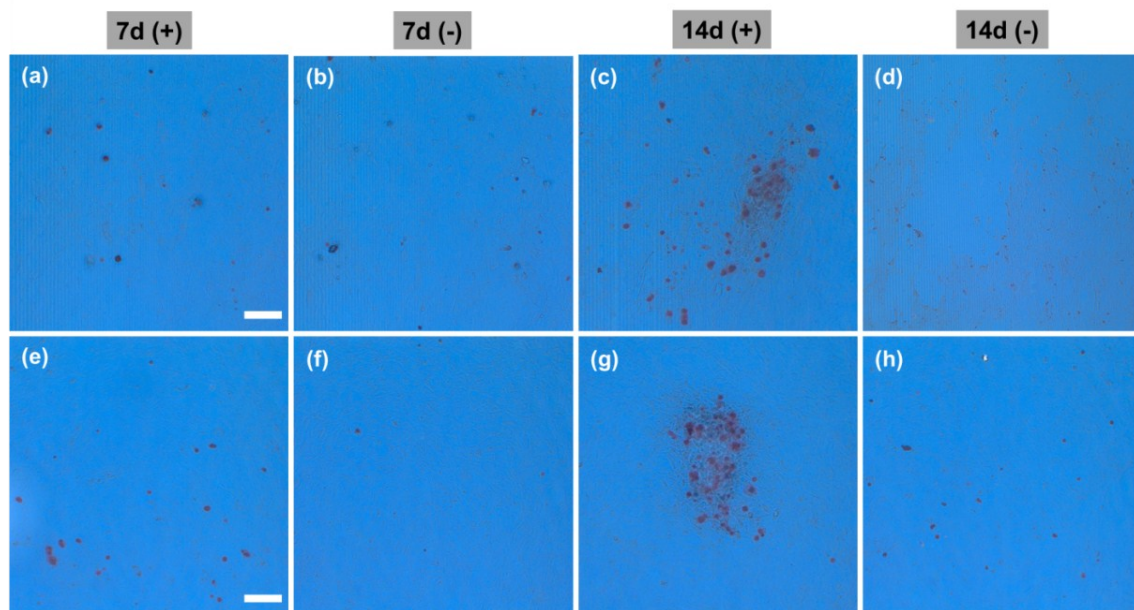


Fig. S4 Alizarin red stained of MC 3T3-E1 cells cultured on P3HT: PLA (1:5) stripe patterned tube (a, b, c, d) with the diameter 3 mm and P3HT thin film prepared *via* spin coating (e, f, g, h) with or without electric stimulation after differentiation for 7 d and 14 d. Scale bars are all 200 μm . (+) means with electric stimulation, while (-) means without electric stimulation.