

Supplementary Information

Nanotopography Featured Polycaprolactone/Polyethyleneoxide Microfibers Modulates Endothelial Cell Response

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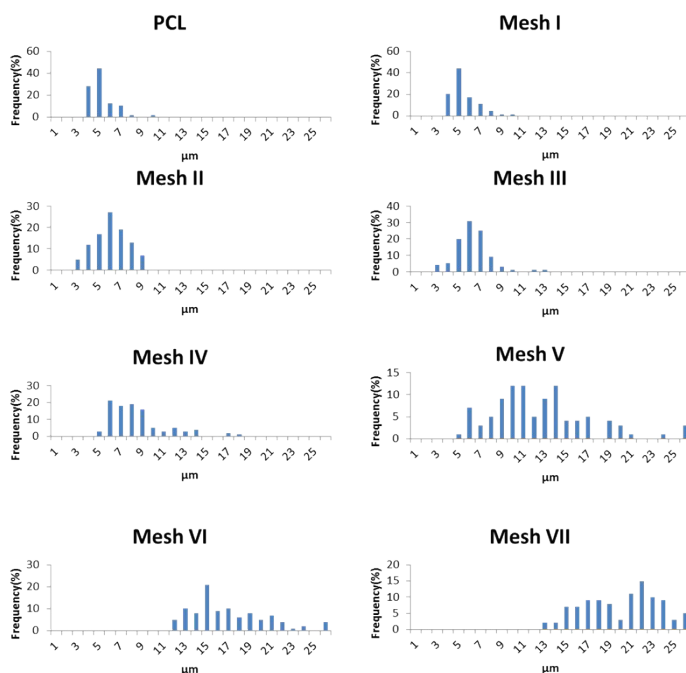
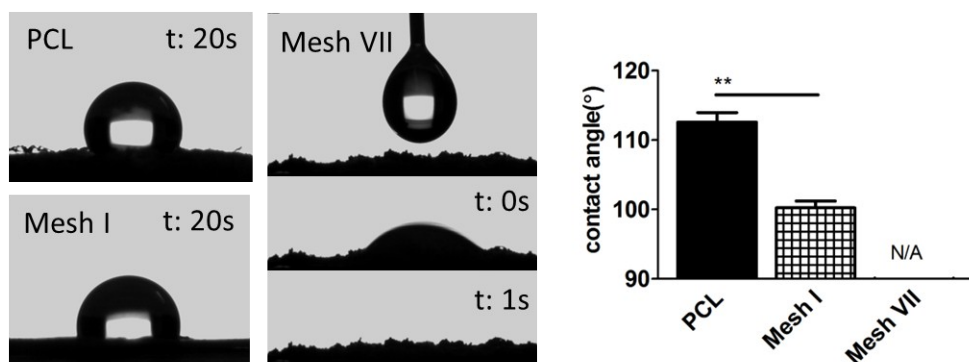


Figure S1 Histograms of fiber diameters acquired from different type of meshes



Fig

ure S2 Contact angle measurements of water drops on fabricated meshes together with representative drop images

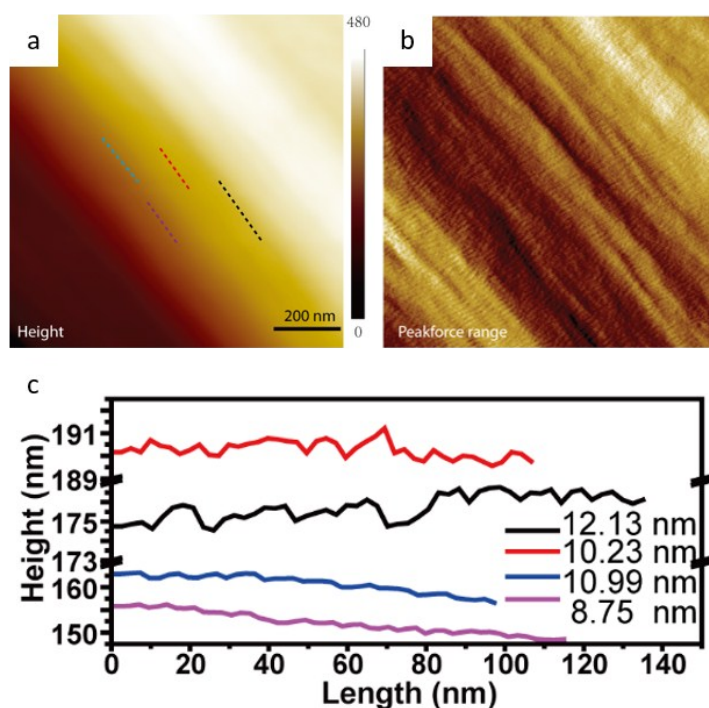


Figure S3 Apart from sub-micron wide grooves, close nanotopographical investigation of Mesh I fiber surface (a) and (c) revealed that the Mesh I surface consist of densely packed ~10 nm sized lamellae. Such lamellae was clearly visualized in (b) peakforce image

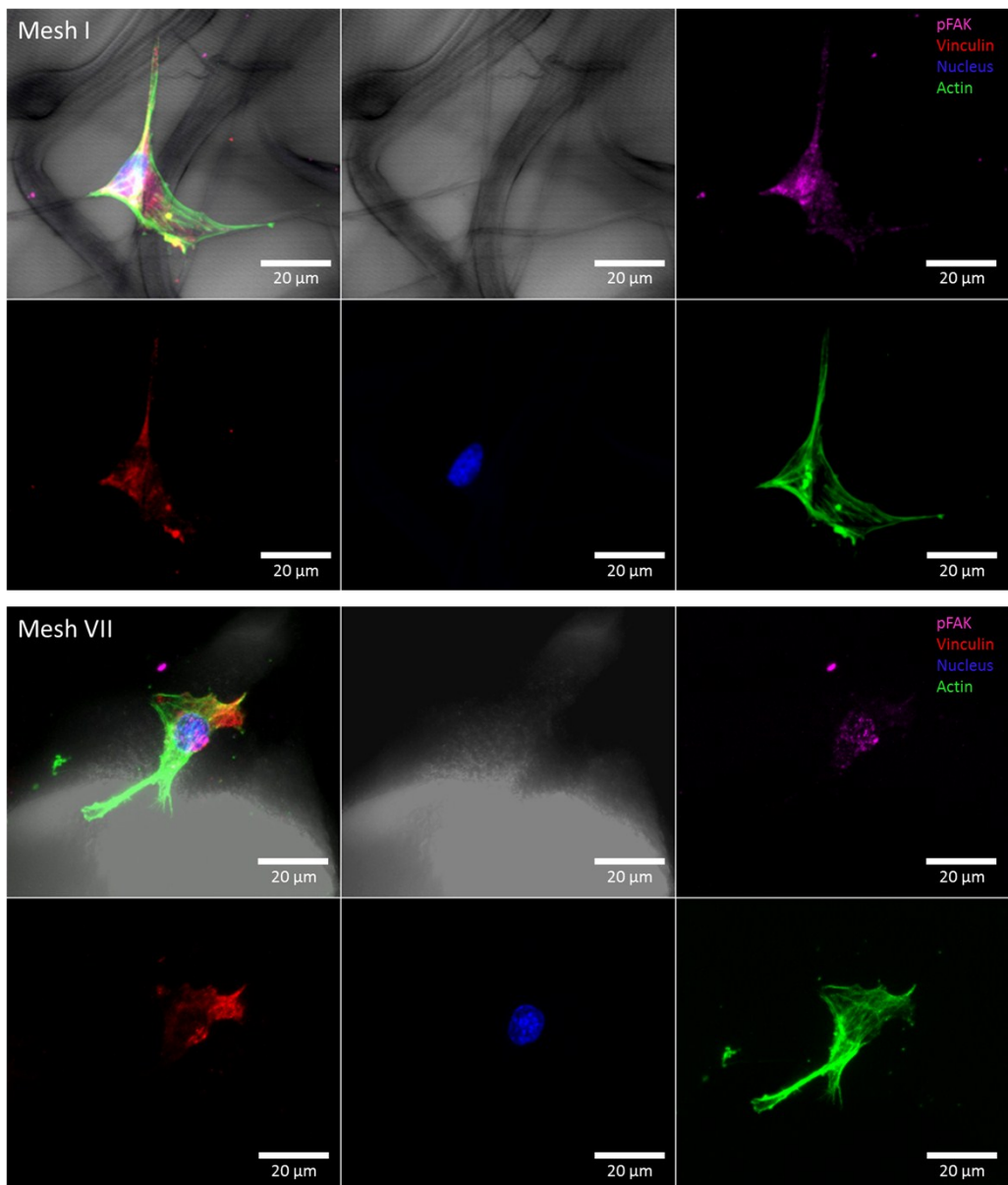


Figure S4 Scaffold-fiber interactions demonstrated by immunofluorescence images of HUVECs overlaid on bright field images of the nano-featured underlying fibers

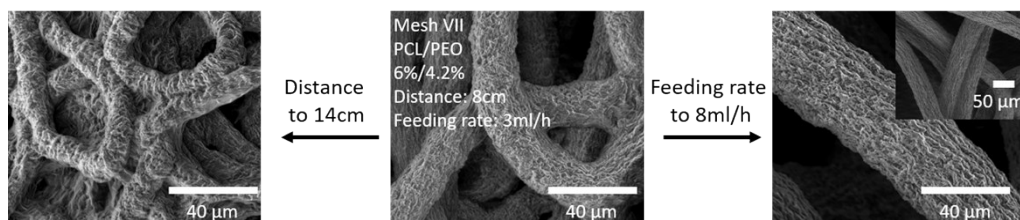


Figure S5 SEM images of fibers from polymer solution VII(6% PCL/4.8%PEO) when wet spun at a distance of 14 cm instead of 8 cm resulting melded fibers whereas it results in much wider fibers while neatly preserving fibrous morphology and distinct transverse topography at a higher feeding rate of 8 ml/h instead of 3ml/h.

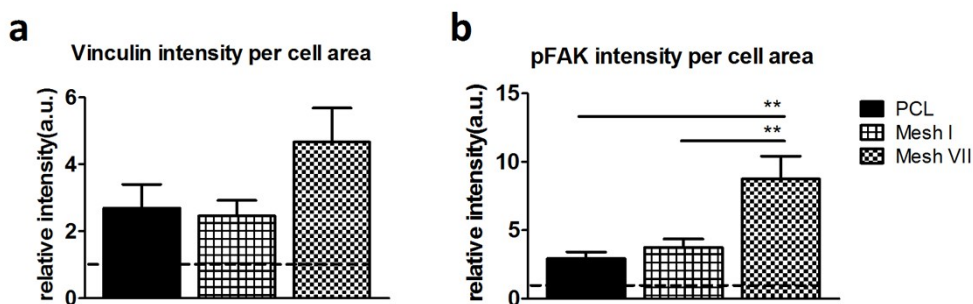


Figure S6 Relative intensity per cell area values were calculated via dividing the pixel intensity value for each cell by the area of the corresponding cell, (a) vinculin and (b) pFAK. Obtained values were normalized to the values from the cells cultured on TCPs (dashed lines (1) correspond relative intensity values from TCP group). * $p < 0.05$, ** $p < 0.01$.

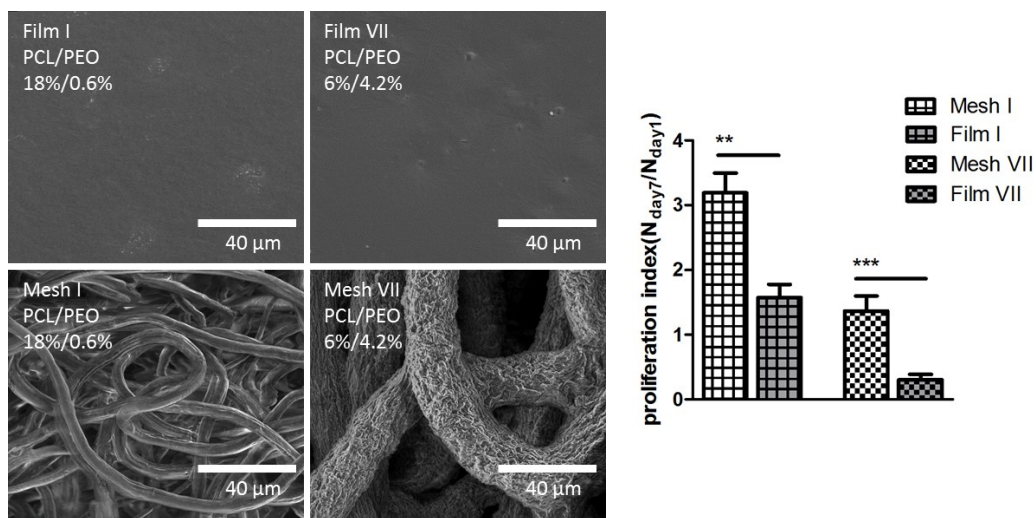


Figure S7 SEM images of both spin coated smooth polymer films and wet electrospun fiber prepared from their respective polymer solutions. Plot shows comparisons of a 7-day proliferation performance of HUVECs on PCL/PEO meshes and their corresponding type of spin coated film substrates. Results show that in both types of fibrous meshes, HUVEC proliferation was more favorable than their film counterpart. ** $p<0.01$, *** $p<0.001$.