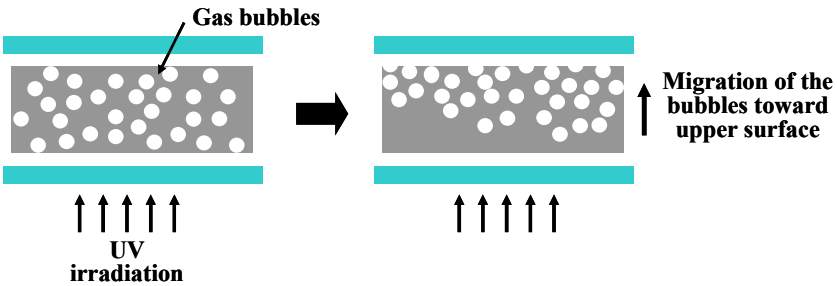
Supplementary information



$$\text{R-NCO} + H_2O \longrightarrow \text{RNHCOOH} \longrightarrow \text{RNH} + CO_2\uparrow \text{(gas)}$$

Fig. S1 The mechanism of formation of porous structures on the microfiber.

a)

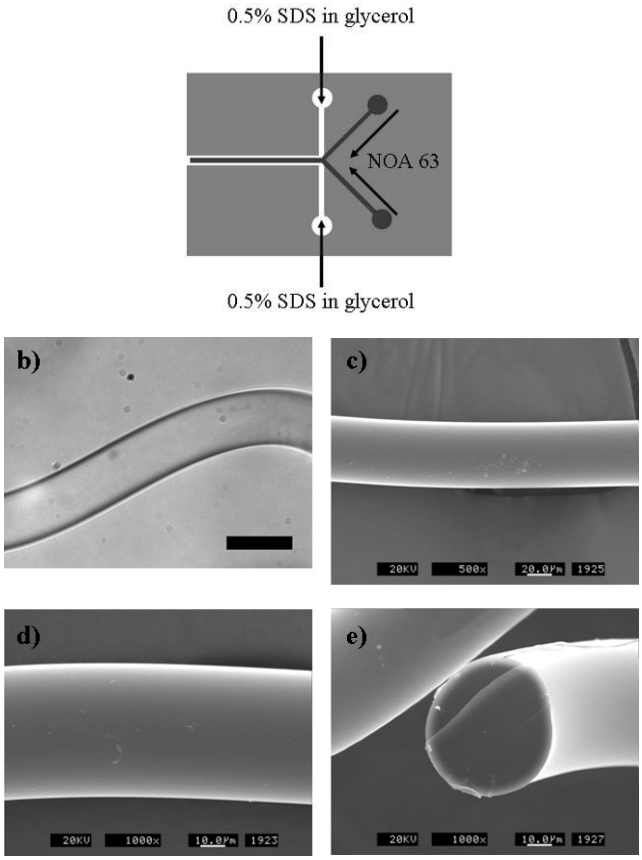
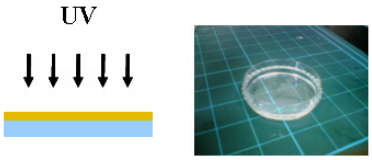
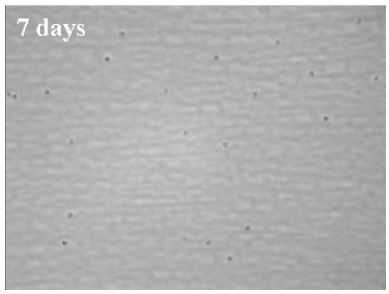


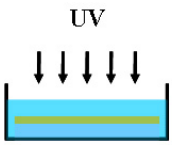
Fig. S2 a) Schematic diagram of the microfluidic system used to generate homogenous microfibers. b) Optical image of resulting microfiber. SEM images of the microfiber with c) 500×, d) 1000× magnification, and e) cross section. Nonporous microfibers were produced using glycerol as continuous phase instead of aqueous SDS solution because anhydrous glycerol does not generates CO_2 bubbles when in contact with photocurable PU.

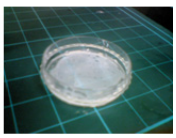
a)





b)





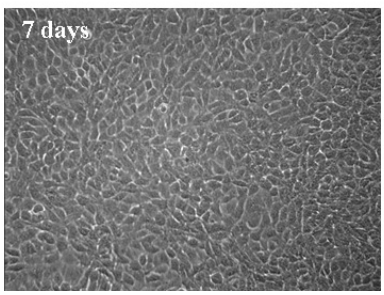


Fig. S3 Comparison of the effect of porous structures on cell adhesion and growth. a) Nonporous thin film. b) Porous thin film of photocurable PU. To make the nonporous thin film, photopolymerization was performed without an aqueous solution. The porous thin film was obtained when an aqueous SDS solution is added to the photocurable PU resin.

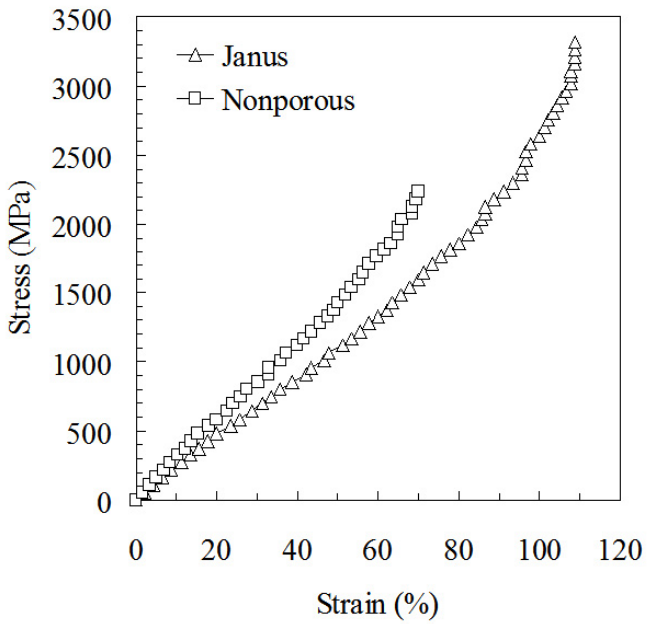


Fig. S4 Comparison of the mechanical strength of Janus and nonporous microfibers; For the measurement of elasticity of Janus and nonporous microfiber, one end of a microfiber (mean length: 4.5 cm, diameter: 60 μm) is fixed onto the glass plate and metal hook (weight: 15mg) is hung on the other end of the microfiber. The changes in length of the microfibers according to gradual increase of hanging mass are measured using a stereoscope and scale.