Supporting information

**Figure S1.** Photographs of 5 mg/mL collagen solution filled inside a dialysis bag (a), shrunk after being immersed in 5 mg/mL alginate solution for 24 h (b) and 48 h (c) and formed a gel membrane after 1 week (d).

**Figure S2.** Effects of alginate concentration and washing time on the mechanical performance of COL fiber. Fibers extruded from 1 wt% alginate solution with washing time of 1d, 30 min and without wash are denoted as W1d, W30 min and W0, while those from 0.5 wt% alginate and 2 wt% alginate with wash time of 30 min are denoted as 0.5% alg-W30min and 2% alg-W30 min.
Figure S3. SEM images of 5 mg/mL CNFs suspension gelated by 20 v/v % PBS solution (substituted with tert-butyl alchol and freeze dried) under different magnification. (Scale bar 1μm in a and 0.2 μm in b).