



Figure 1. Embedded foam 3D printing. a) Schematic illustration of EF3DP. b) Storage and loss moduli for albumin liquid as prepared (8 wt% ALB), treated with 10 mM NaOH (8% ALB-NaOH), mechanically foamed (8 wt% ALB-Foam), and thermally treated (8 wt% ALB-Foam/NaOH-heated) (mean \pm SD, $**p < 0.001$). Scale bar = 15 mm. c) A 3D printed hydrogel fiber (8 wt% ALB, 10 mM NaOH) within the insulating foam (8 wt%), a 2-layer constructs fiber connected to an LED (Scale bar = 15 mm) and d) its sensitivity values under cyclic strain ($\epsilon = 100\%$). Foam characterization: e) brightfield images of foam precursor bath, f) air bubbles distributions post heat treatment (Scale bar = 500 μm), and g) self-healing properties of foam precursor. h) moisture permeability of non-porous and foam hydrogels (mean \pm SD, $*p < 0.05$).