Supporting Information

for

Freezing-induced silk I crystallization of silk fibroin

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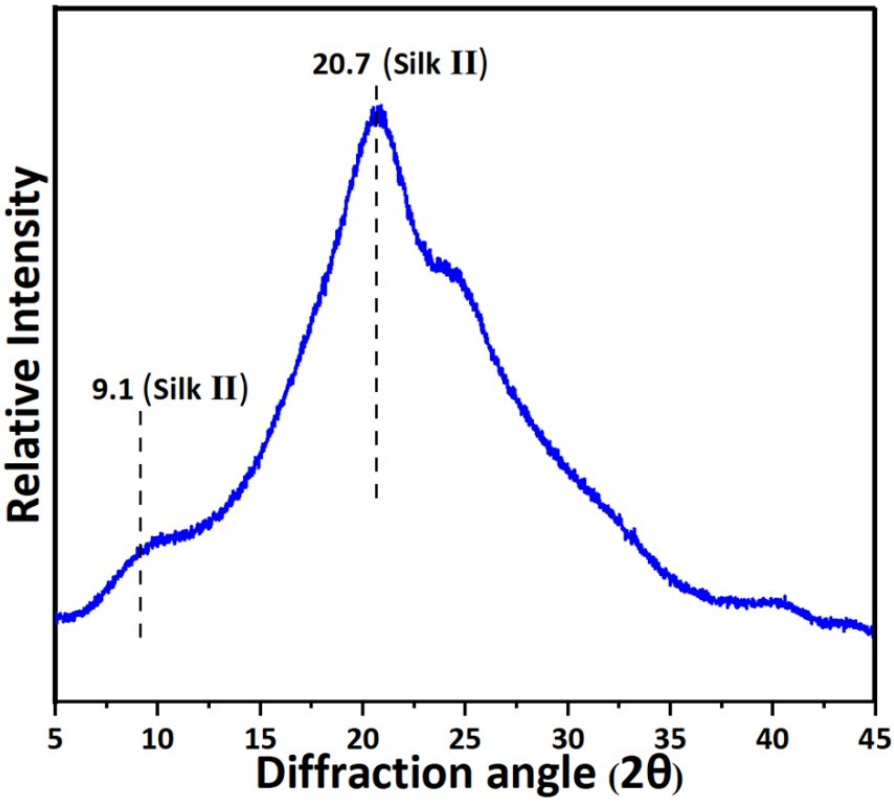

Figure S1. XRD curves of silk fibroin after 75% ethanol treatment.

In order to obtain silk fibroin sample with silk II structure, the silk I sponge was immersed into 75% ethanol for 2 h to induce structural change. After ethanol treatment, the sample was characterized by the diffraction peaks at 9.1° and 20.7° (Figure S1), corresponding to typical silk II structure.

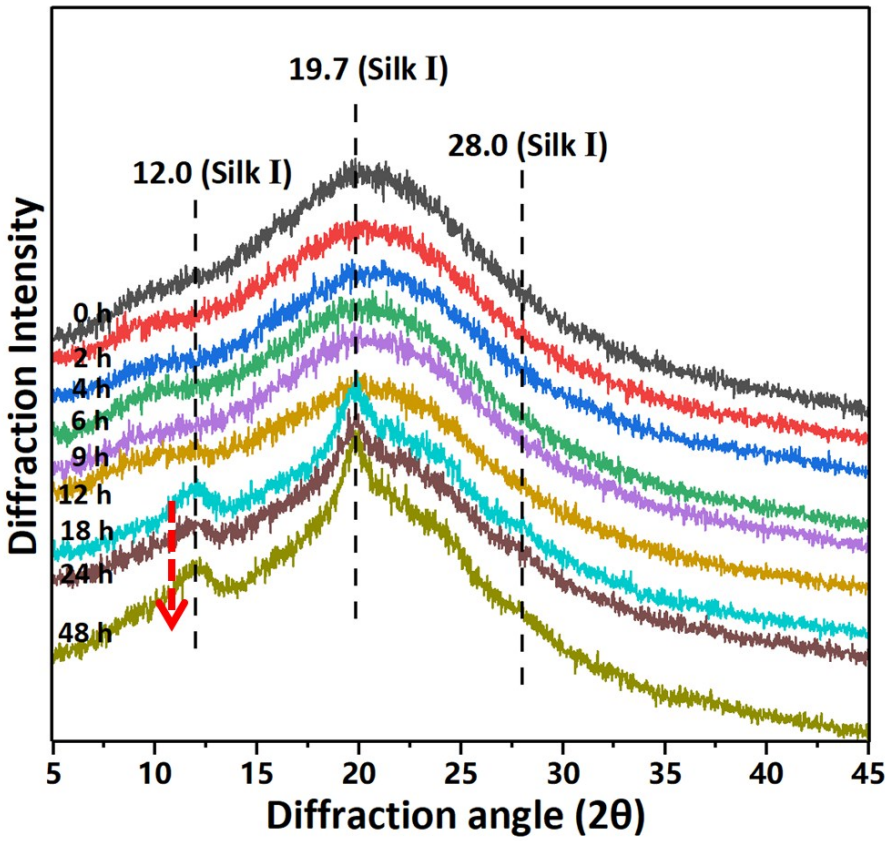

Figure S2. The crystallization kinetics of frozen 1.0 wt% silk fibroin solution after annealing.

After freezing 1.0% silk fibroin solution at -40 °C and subsequent annealing treatment, the crystallization kinetics was determined by XRD (Figure S2). At 18 h, the typical silk I peaks at 12.0°, 19.7° and 28.0° appeared, indicating the formation of silk I crystallization after annealing for 18 h.