

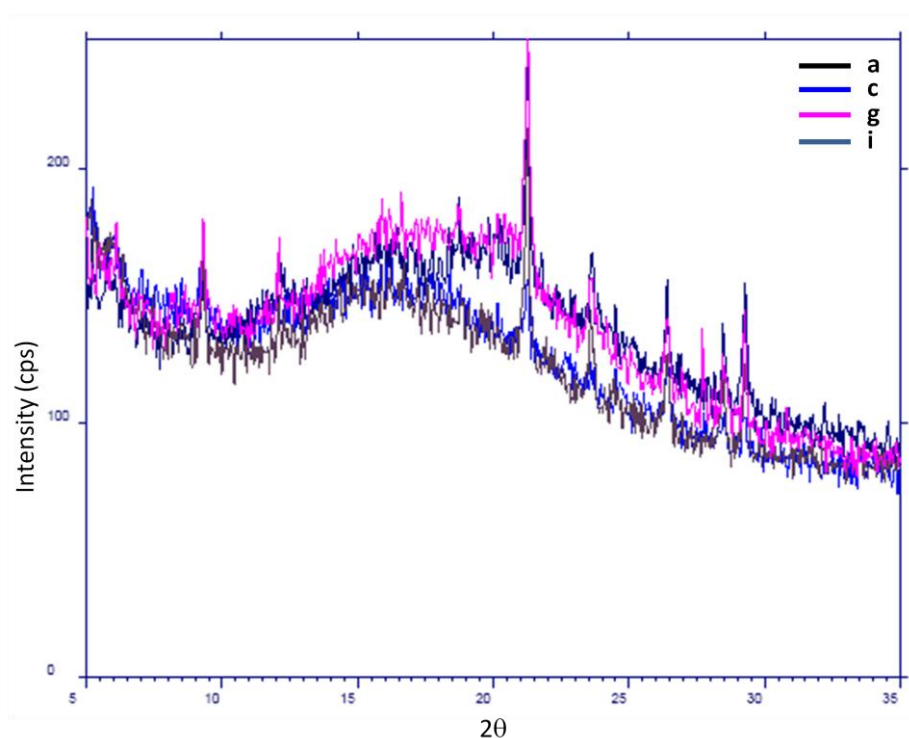
## Supplementary Information Material

### XRD measurement of silk fibroin films

Silk fibroin films were formed by pipetting a volume (50  $\mu$ l) of the aqueous or HFIP solutions (1-5 % - w/v) from regenerated silk fibroin onto the substrate to cover the available surface area of PDMS or patterned PDMS. The films were dried in air in a fume hood overnight. One from each pair was immersed in methanol to induce structural change. XRD method was used to study crystalline structure of silk fibroin film.

	silk fibroin % and solvent	Casting surface	post treatment
<b>a</b>	2% AASF11 (w/v) H <sub>2</sub> O	PDMS	untreated
<b>c</b>	2% AASF11 (w/v) HFIP	patterned PDMS	untreated
<b>g</b>	2% AASF6 (w/v) H <sub>2</sub> O	PDMS	treated in MeOH (2 h)
<b>i</b>	2% AASF11 (w/v) HFIP	patterned PDMS	treated in MeOH (10 min) and water (4 days)

X-ray diffractograms of the silk fibroin films:



Diffraction peaks at 8.7, 19.6, 23.3° corresponding to  $\beta$ -sheet crystalline spacing and 10.1, 4.5, 3.8° to amorphous state.\*

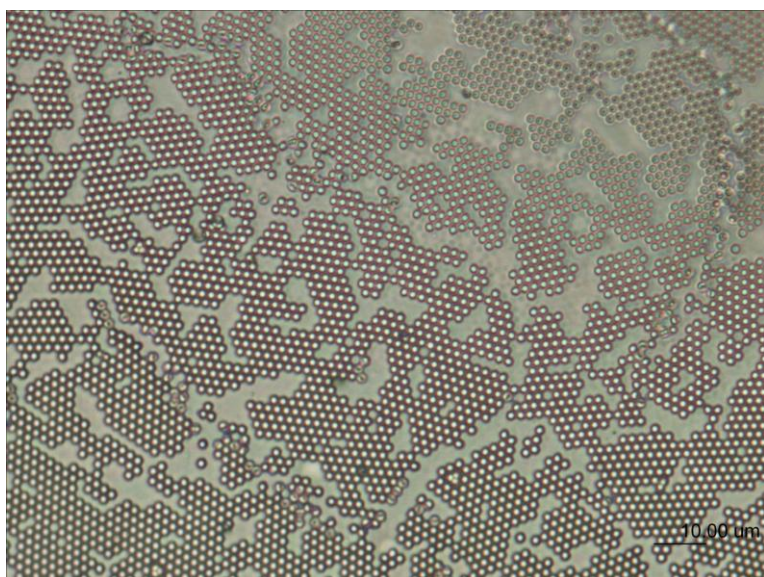
\*Um et al. *International Journal of Biological Macromolecules* **2001**, 29, 91.



Silk fibroin film with convex microlens patterning obtained by casting from water solution on a PS template pre-treated with plasma

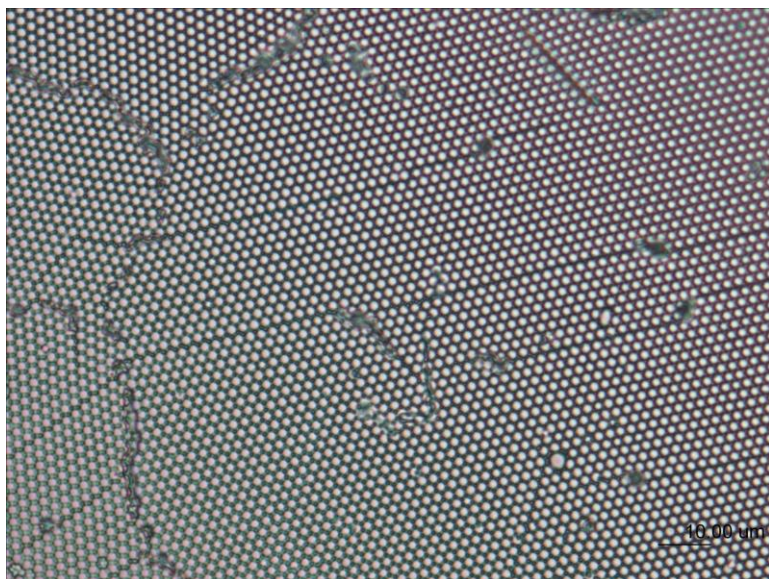


Silk fibroin film with convex microlens patterning obtained by casting from water solution on a PS template pre-treated with MeOH

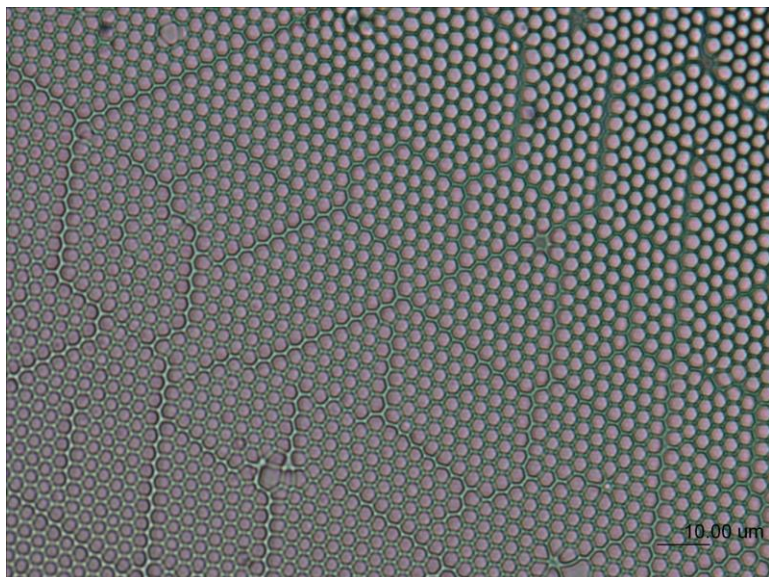


Silk fibroin film with convex microlens patterning obtained by casting from water solution on a PS template without pre-treatment

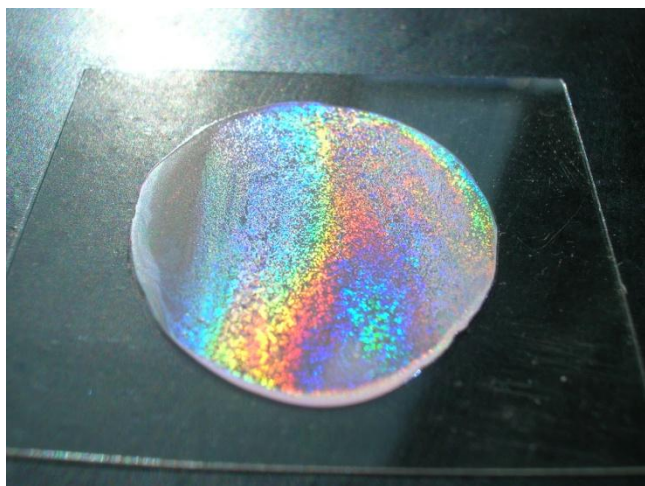




Silk fibroin film with concave microlens patterning obtained by casting from water solution on a PMDS template without pre-treatment



Silk fibroin film with concave microlens patterning (bigger size) obtained by casting from water solution on a PMDS template without pre-treatment



PS patterned film prepared by breath figure method, showing structural colors.