Use of extension-deformation-based crystallisation of silk fibres to differentiate their functions in nature

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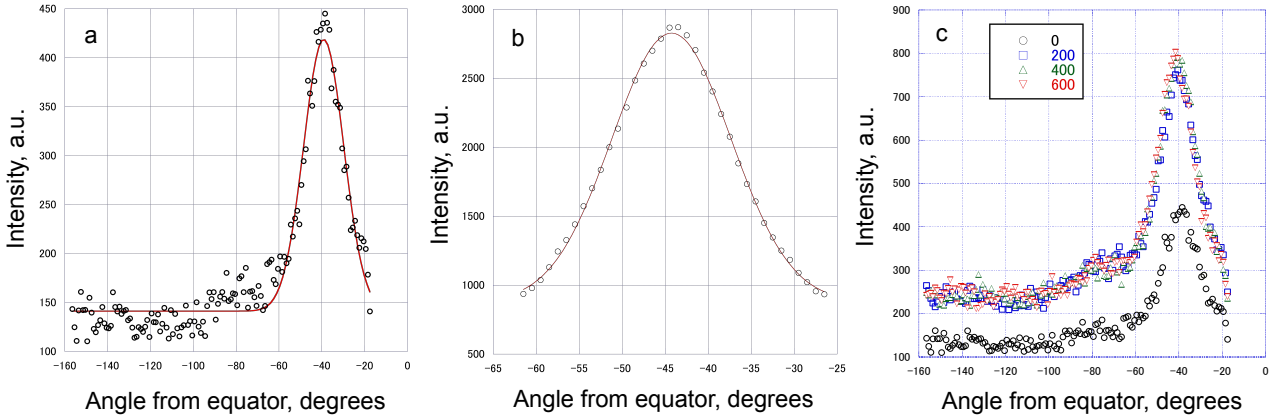

Fig. S1 Intensity as a function of angle from the equator: (a) a typical peak originated from the spider silk dragline (210) reflection, (b) a typical peak originated from silkworm silk (210) reflection and (c) typical peaks originated from the spider silk dragline (210) reflection before and after the stretching (0: before stretching, 200: 200 μm stretching and 6.7% deformation, 400: 400 μm stretching and 13.3% deformation, and 600: 600 μm stretching and 20% deformation).

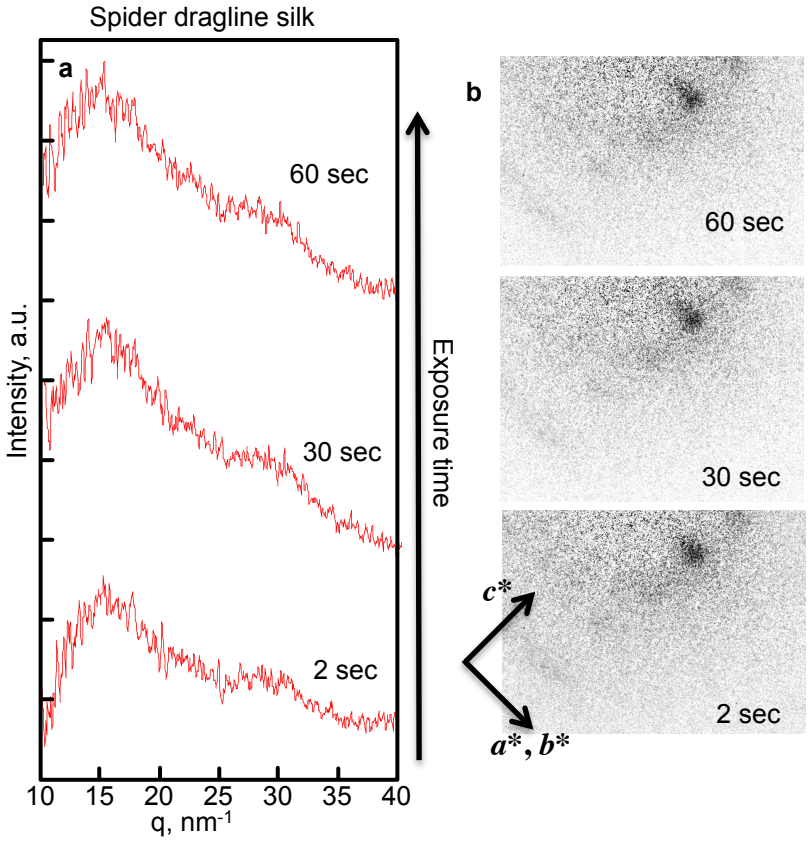

Fig. S2 One-dimensional WAXS profiles (a) and the 2D WAXS patterns of single spider dragline silk fiber (b) before and during stretching deformation. Each profile and pattern was taken at different exposure time (2, 30 and 60 sec) to evaluate radiation damage to the single fiber.

The radiation damage of the single spider dragline silk fiber was evaluated using an exposure time from 2 to 60 seconds (Fig. S4). The scattering intensity of the beta-sheet crystal was maintained even after 60 seconds of the X-ray radiation, indicating that the crystal structure was not changed or degraded significantly by the radiation of 10 seconds in this study.