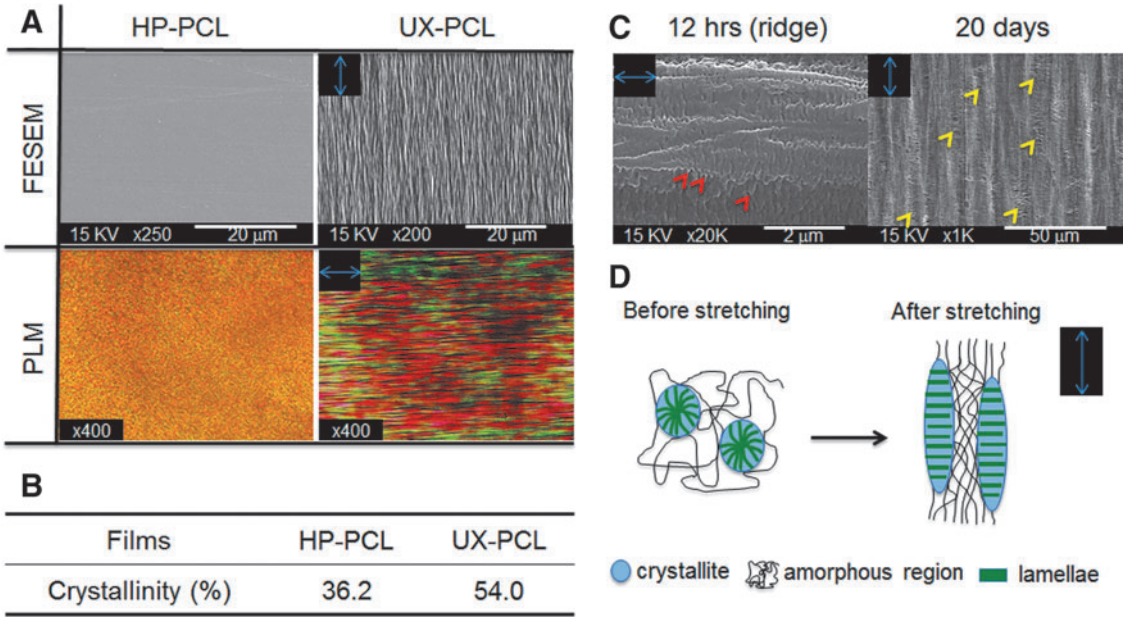
Supplementary Data



Films	HP-PCL	UX-PCL
Crystallinity (%)	36.2	54.0

SUPPLEMENTARY FIG. S1. Formation of the micro-ridge/grooves on uniaxial-stretched poly(ε-caprolactone) (UX-PCL). **(A)** Field emission scanning electron microscopy (FESEM) and polarized light microscopy images of heat-pressed poly (ε-caprolactone) (HP-PCL) and UX-PCL. Uniaxial stretching created the micro-ridge/grooves on UX-PCL, and simultaneously orientated the PCL molecular chains (scale bar = 20 µm for FESEM images). **(B)** Crystallinities of HP- and UX-PCL. Uniaxial stretching increased the crystallinities of PCL films. **(C)** Morphologies of UX-PCL after alkaline hydrolysis (NaOH, 3 M) for 12 h and 20 days. The micro-ridges of UX-PCL revealed thorn-like structures (red arrowheads; ~50 nm in width) perpendicular to the stretching direction, and were larger resistant to hydrolysis than the grooves because of less caves presented on their surfaces (yellow arrowheads: caves in the grooves; double-headed arrows: stretching direction; scale bar = 2 and 200 µm). **(D)** Schematic of the formation of micro-ridge/grooves. Uniaxial stretching resulted in the reorientation of multilayered lamellas, which packed into the new crystals following the direction of stretching. Under stretching, the superficial amorphous regions formed as grooves because of being easily deformed, while the crystals were revealed as the ridges.