

# In-plane oriented highly ordered lamellar structure formation of poly(*N*-dodecylacrylamide) induced by humid annealing

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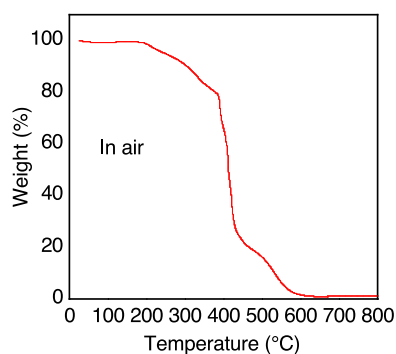
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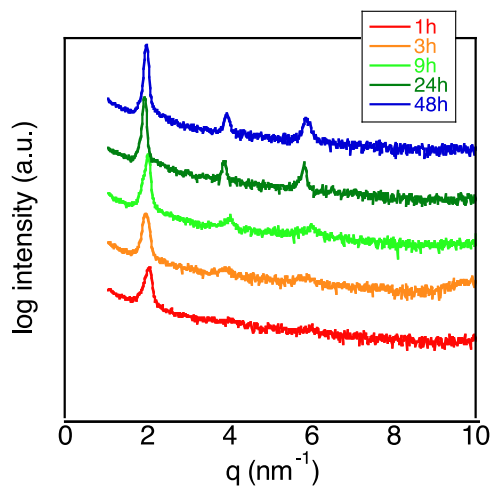
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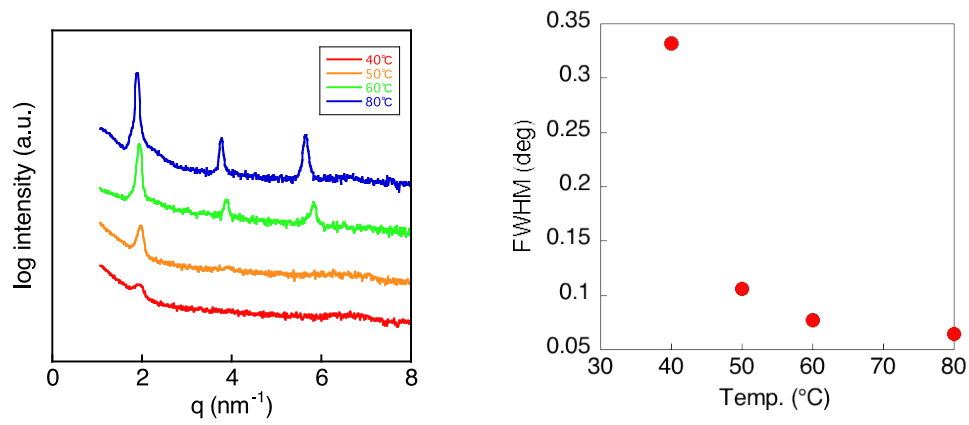
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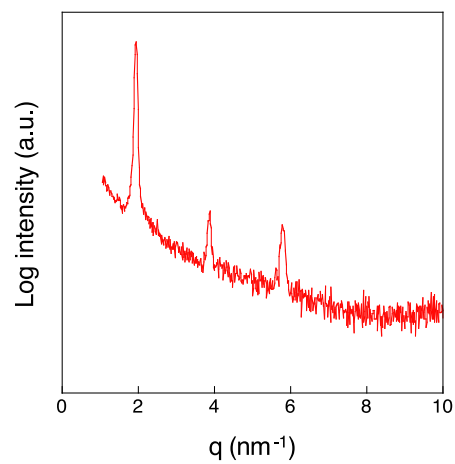
**Figure S1.** TGA thermogram of pDDA.



**Figure S2.** XRD pattern of pDDA film humidified under 98% RH, 60 °C at different time.

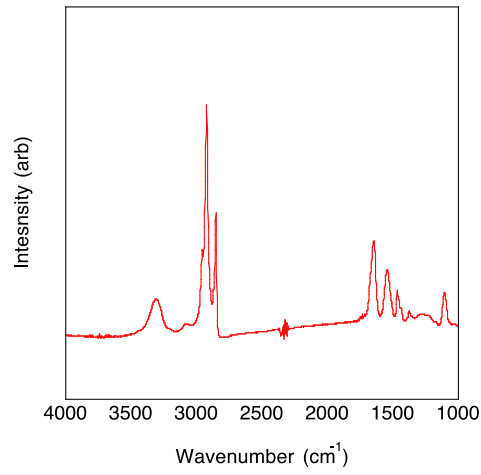


**Figure S3.** (a) XRD pattern and (b) FWHM values of the first peak of pDDA film humidified at 98% for 24 h at different temperatures.

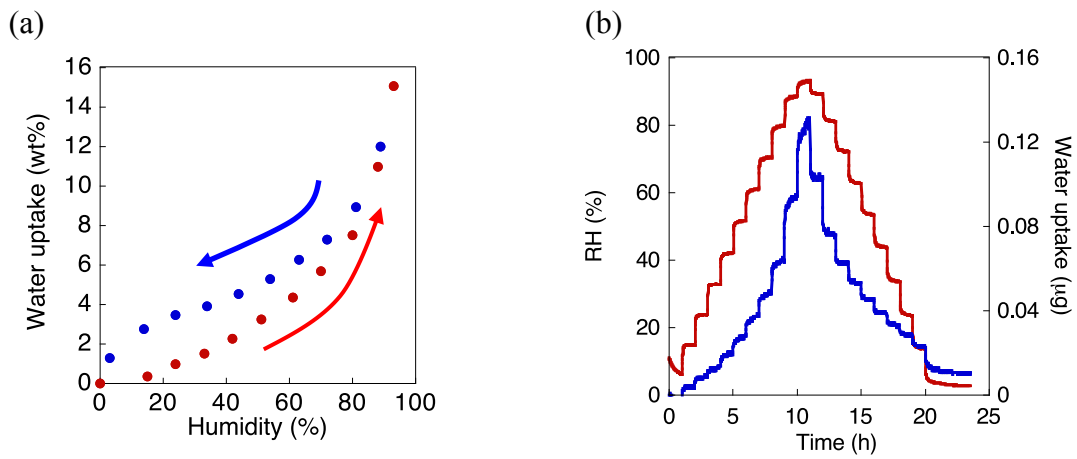


**Figure S4.** XRD pattern of humidified annealed pDDA film on a hydrophilic silicon substrate.

The film was annealed at 98% RH, 60 °C for 24 h.



**Figure S5** FT-IR spectrum of as cast pDDA film



**Figure S6** (a) Water uptake amount of pDDA with different humidity. Red circle absorption and blue circle desorption process. (b) Water uptake dynamics of pDDA film. Dotted red line: change of humidity with time. Solid blue line: change of water uptake with time. The measurement is carried out at 25 °C.