## Supporting information

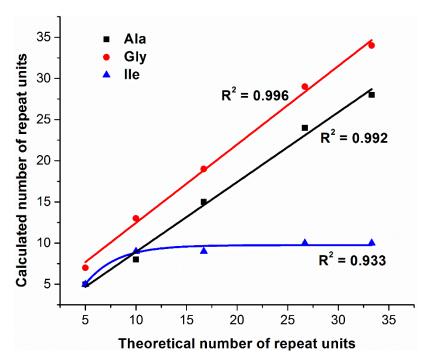
for

## Multi-responsive polypeptide hydrogels derived from *N*-carboxyanhydride terpolymerizations for delivery of nonsteroidal anti-inflammatory drugs (NSAIDs)

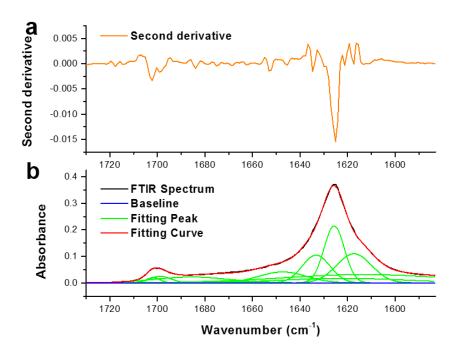
Jingwei Fan, Richen Li, Hai Wang, Xun He, Tan P. Nguyen, Rachel A. Letteri, Jiong Zou, Karen L. Wooley\*

Departments of Chemistry, Chemical Engineering, Materials Science and Engineering, and Laboratory for Synthetic-Biologic Interactions, Texas A&M University, P.O. BOX 30012, 3255 TAMU, College Station, TX, 77842 (USA).

\*Corresponding author: Email: wooley@chem.tamu.edu Tel: (979)845-4077.



**Figure S1**. Calculated number of repeat units as a function of theoretical number of repeat units of Ala, Gly and Ile in the polymers **1** - **5**.



**Figure S2**. (a) Second derivative and (b) ATR-FTIR spectra (black), fitting curve (red), baseline (blue) and fitting peaks (green) for a hydrogel formed from polymer 1 in the solid state.

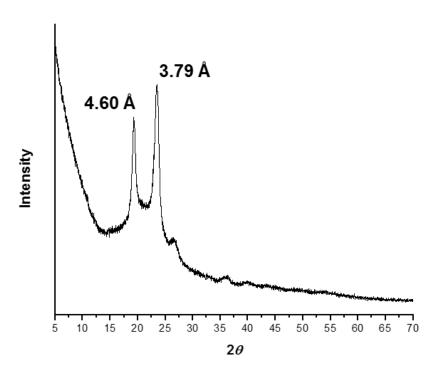
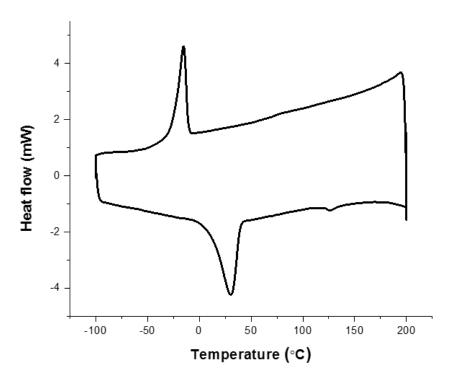
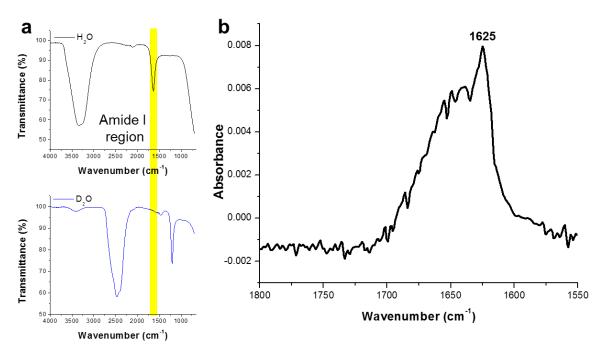


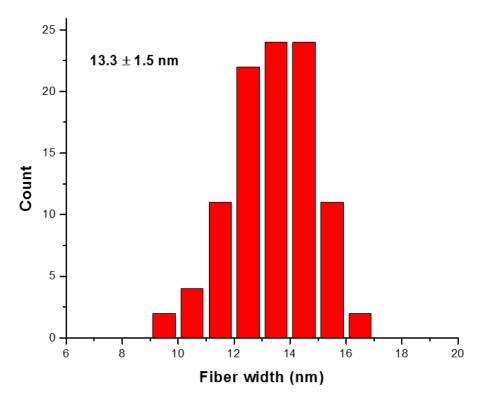
Figure S3. WAXS pattern of polymer 1 in the solid state.



**Figure S4**. DSC traces of polymer **1** in the solid state. In the DSC traces, the sample was heated from -100 °C to 200 °C, then cooled to -100 °C, each with a rate of 10 °C/min. The second heating and cooling traces are shown.



**Figure S5**. (a) FTIR spectra of  $H_2O$  and  $D_2O$ . (b) *In situ* FTIR spectrum of a hydrogel formed from polymer 1 in the gel state hydrated with  $D_2O$ .



**Figure S6**. Fiber width distribution in a hydrogel formed from polymer **1** obtained from the TEM image by counting 100 fibers.