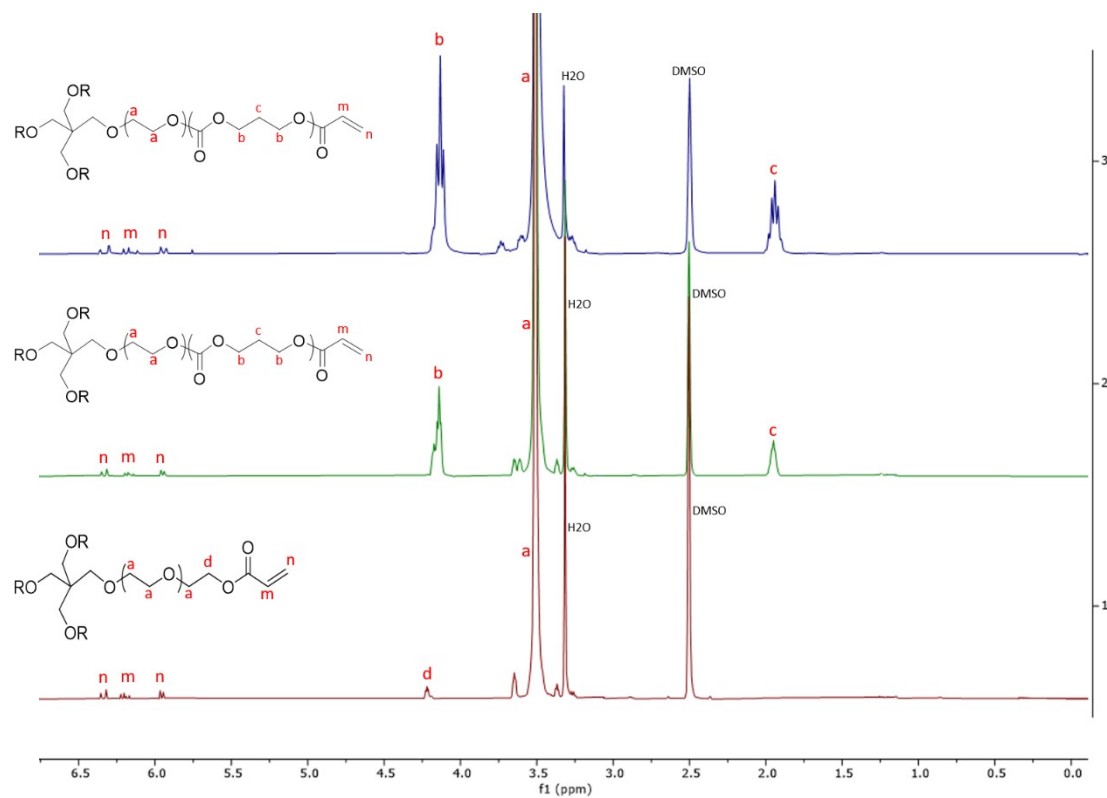**Supplemental Information**

Figure S1. Chemical structure and ^{1}H NMR spectra (DMSO, 400 MHz) with peak assignments of: 1) 4a-[P(EG)$_{3.75}$-AC], 2) 4a-[P(EG)$_{3.75}$-b-P(TMC)$_{0.42}$-AC], and 3) 4a-[P(EG)$_{3.75}$-b-P(TMC)$_{0.65}$-AC].
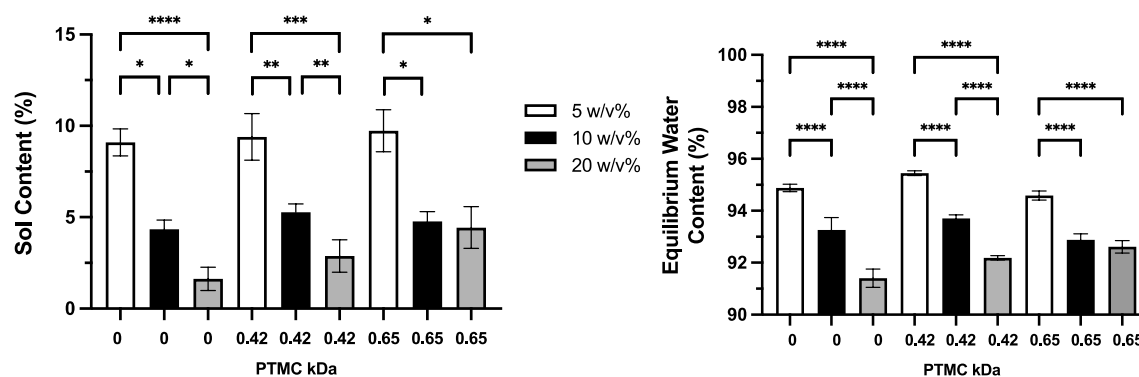

Figure S2. a) Sol content and b) equilibrium water content as a function of prepolymer composition and concentration in solution. (n = 5 - 6, mean ± SD). Significance differences between hydrogels are indicated as: * 0.01 < p < 0.05, ** 0.001 < p < 0.01, *** 0.0001 < p < 0.001, **** p ≤ 0.0001.
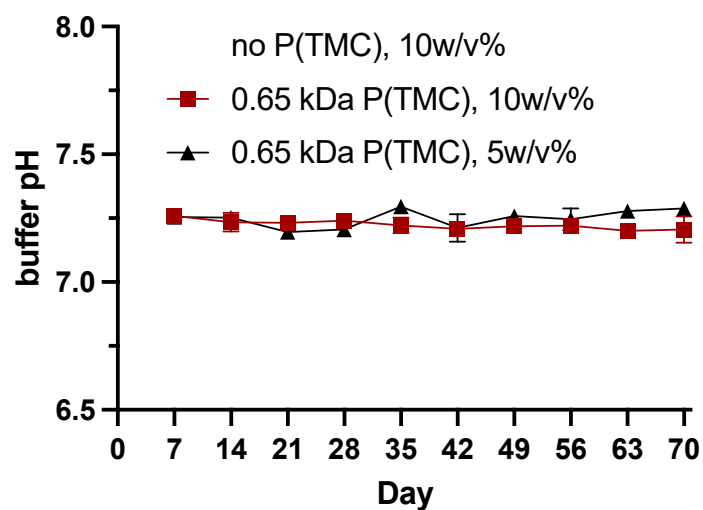
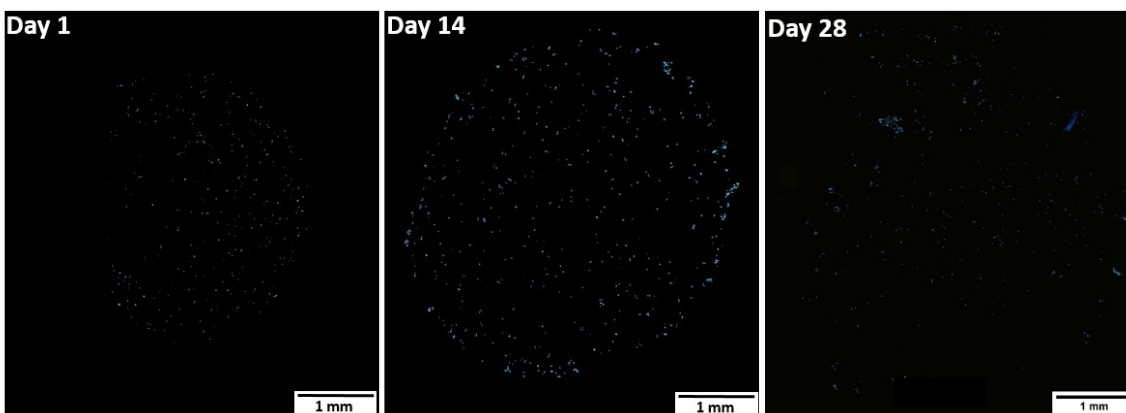**Figure S3**. Change in buffer pH during hydrogel in vitro degradation.

Figure S4: Representative images of collagen type I stained NPC-laden hydrogels at day 1, 14, and 28. Cell nuclei are stained blue. No collagen type I was observed during the culture period.