

Self-Healable and Super-Tough Double-Network Hydrogel Fibers from Dynamic Acylhydrazone Bonding and Supramolecular Interactions

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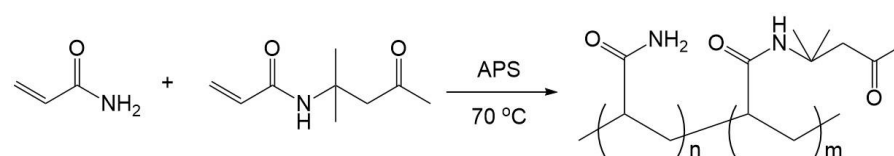


Figure S1. Scheme of radical copolymerization of PAD.

Table S1. Molecular weight (Mw) and polydispersity of synthesized polymers determined by GPC.

Polymers	DAAM feeding ratio (mol%)	Mw (kDa)	PDI
PAM	0	220	1.57
PAD-1	1.0	235	1.62
PAD-5	5.0	239	1.61
PAD-10	10.0	243	1.64

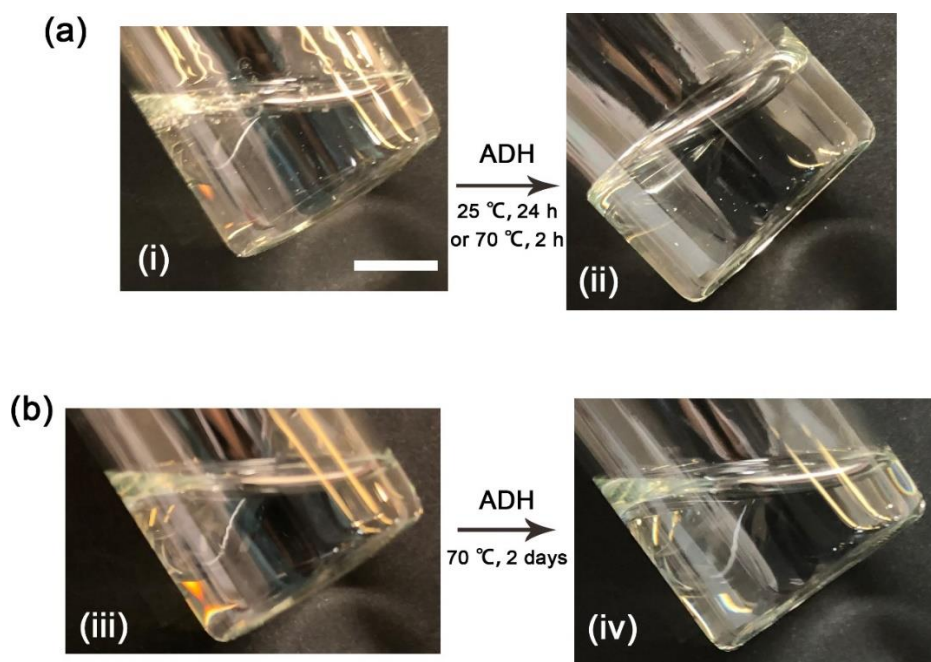


Figure S2. (a) Synthesis of PAD hydrogel; (i) PAD aqueous solution (6 wt%); (ii) crosslinked PAD SN hydrogel. (b) No gelation occurred in PAM solution; (iii) PAM aqueous solution (6 wt%); (iv) PAM and ADH mixture solution (All images share the same scale bar of 1 cm).

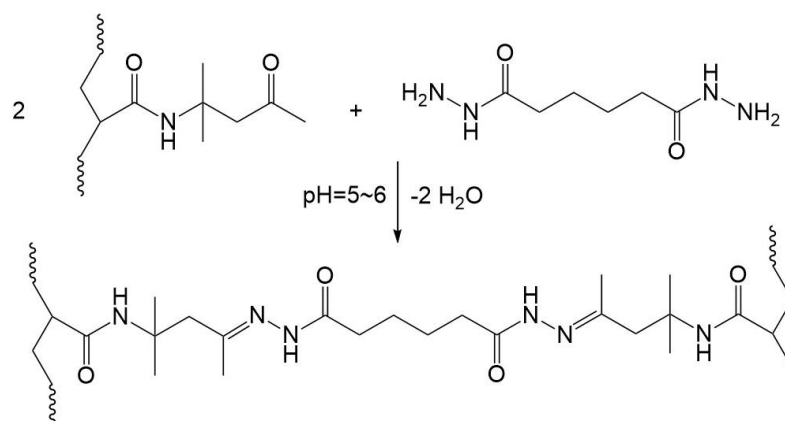


Figure S3. Crosslinking reaction between DAAM units on PAD and ADH (pH condition correspond to reaction in Figure S2a).

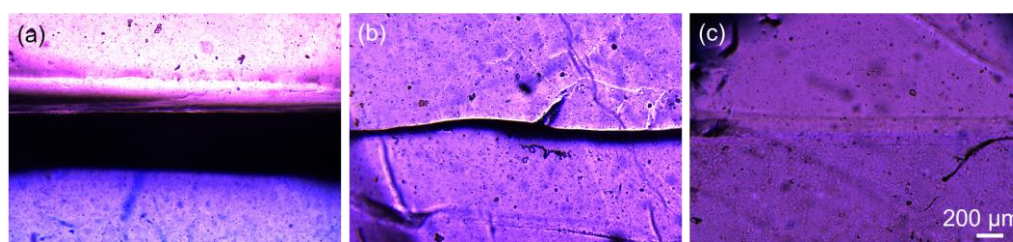


Figure S4. Interface crosssection images of PAD-5/IC hydrogel segments with healing time of (a) 0, (b) 2 and (c) 4 hours (dye stained: above by rhodamine B, below by methylene blue).

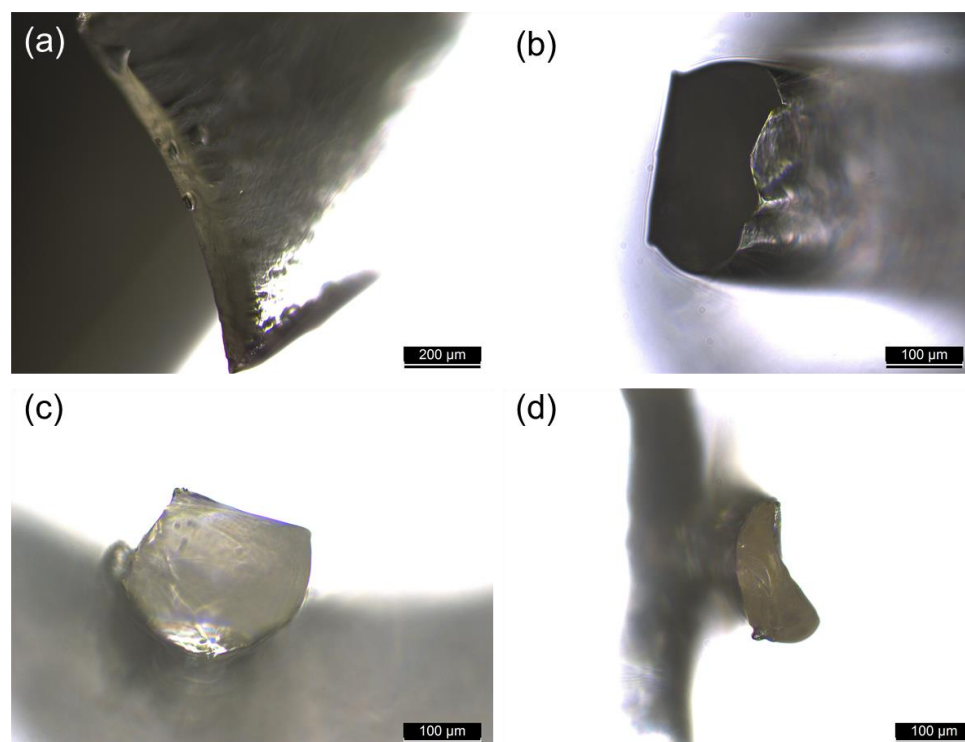


Figure S5. Crosssection images of (a) DR1, (b) DR2, (c) DR4 and (d) DR8 PAD/IC fibers.