Supporting Information

A triblock Copolymer Design Leads to Robust Hybrid Hydrogels for High Performance Flexible Supercapacitors

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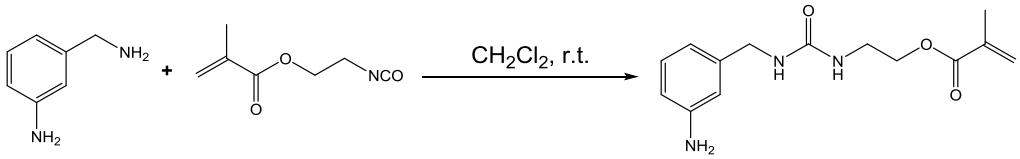
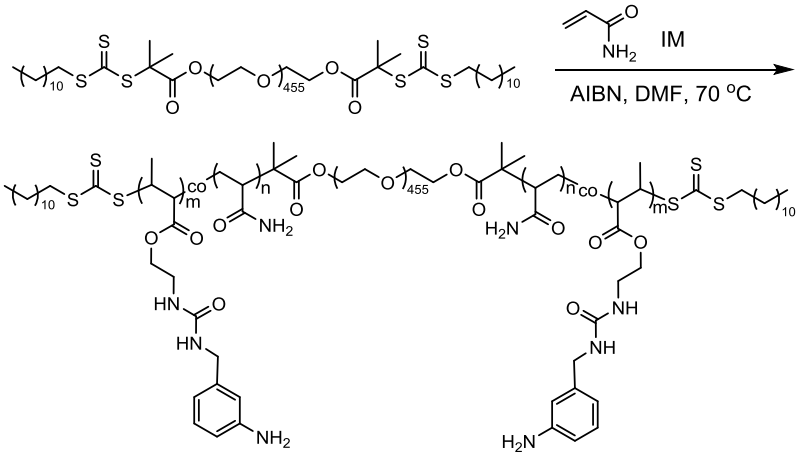
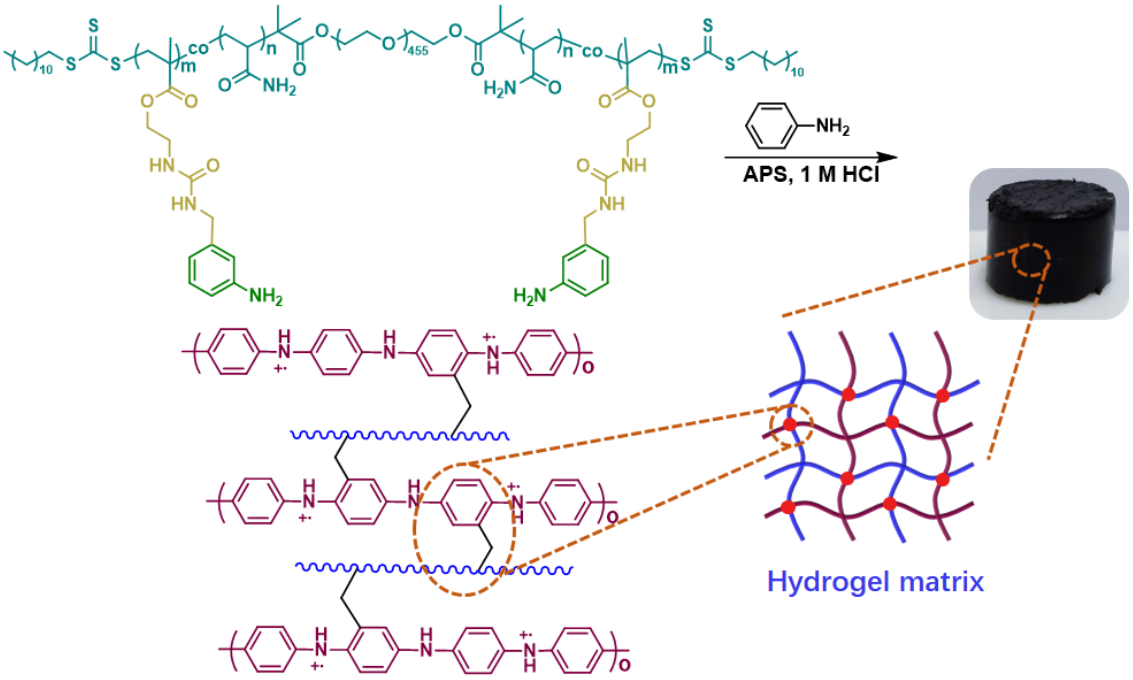


Scheme S1. Synthesis route of 2-(3-(3-aminobenzyl)ureido)ethyl methacrylate (IM).



Scheme S2. Synthesis of the triblock copolymer IAOAI.



Scheme S3. Fabrication of the conductive hybrid hydrogel.

Table S1. Overview of ABA block copolymers prepared by RAFT polymerizations.

	m (NMR)	n (NMR)	Mn (GPC)	Mw (GPC)	PDI
CTA-PEO-CTA	-	-	22900	24000	1.05
IAOAI-18	18	274	67400	79500	1.18
IAOAI-8	8	285	62100	75100	1.21
AOA	0	306	62700	78400	1.25

Table S2. The comparison of HCH with other conducting hydrogel based electrodes.

Active materials	Current collector	Loading mass	Specific capacitance (F/g or mF/cm^2)	Ref.
PPy hydrogel	Carbon cloth	1.8 mg/cm^2	350@0.2 A/g	(1)
PANI-PAAm hydro-gel	Carbon cloth	3.4 mg/cm^2	322@2 A/g	(2)
PANI hydrogel	Pure carbon film	-	750@1 A/g	(3)
PANI-PVA hydrogel	Carbon cloth	5.6 mg/cm^2	122 mF/cm^2 @0.2 mA/cm^2	(4)
PVA-AC hydrogel	Activated carbon	-	89 F/g@1 A/g	(5)
PEDOT/PSS hydrogel	Carbon fiber	-	202 F/cm^3 at 0.54 A/cm^3	(6)
PVA-PANI hydroge	Carbon cloth	2 mg/cm^2	928@0.5 A/g	(7)
HCH hydrogel	Carbon cloth	2 mg/cm^2	919@0.5 A/g	This work

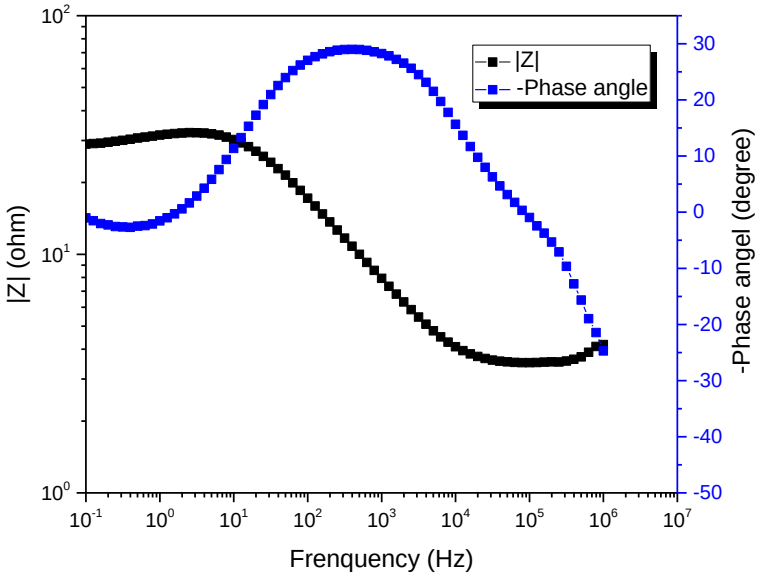


Figure S1. Bode plot of the conductive hybrid hydrogel.

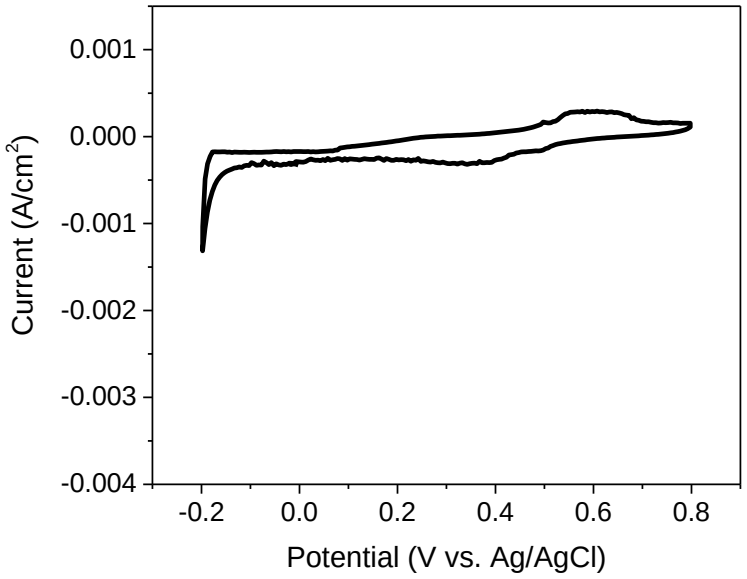


Figure S2. CV curve of the carbon cloth.

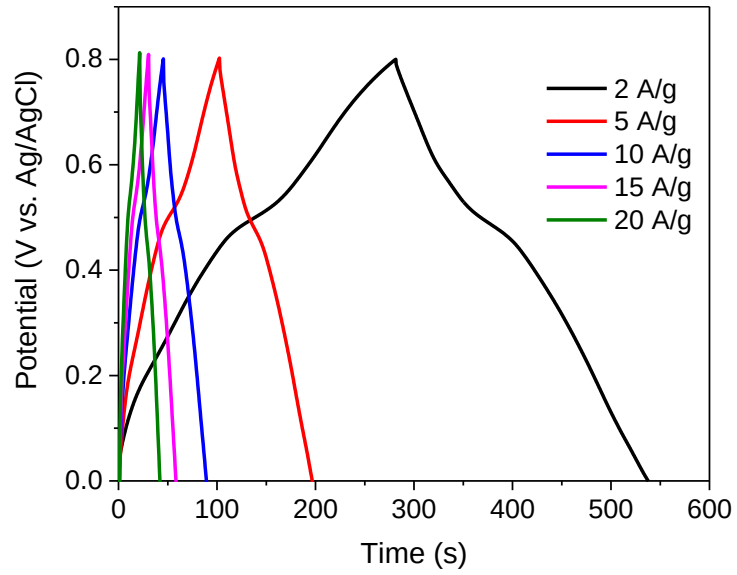


Figure S3. The charge-discharge curves of the hydrogel electrode (2 mg/cm^2) at current densities of 2-20 A/g.

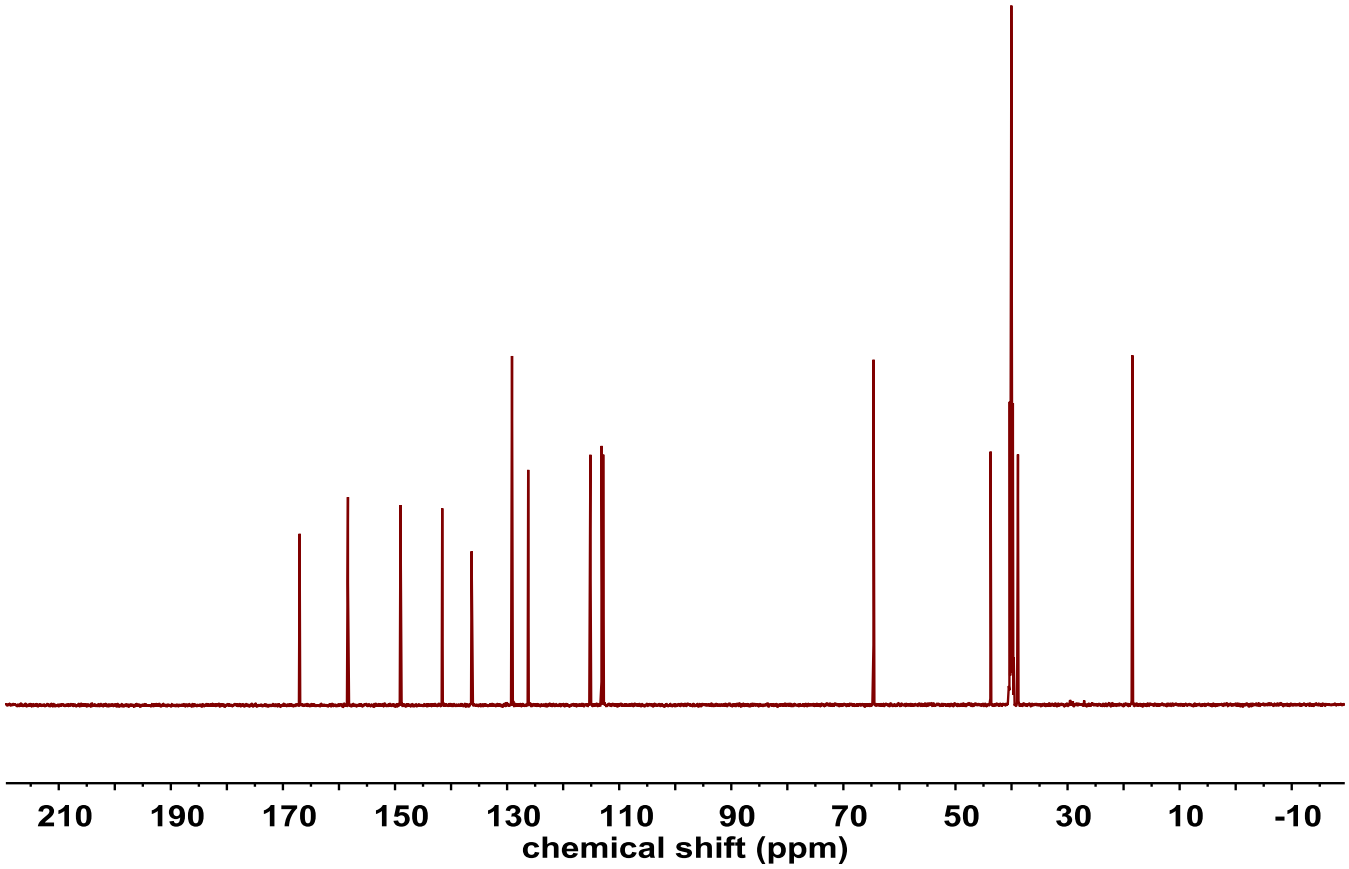


Figure S4. The ^{13}C NMR spectrum of the monomer IM.

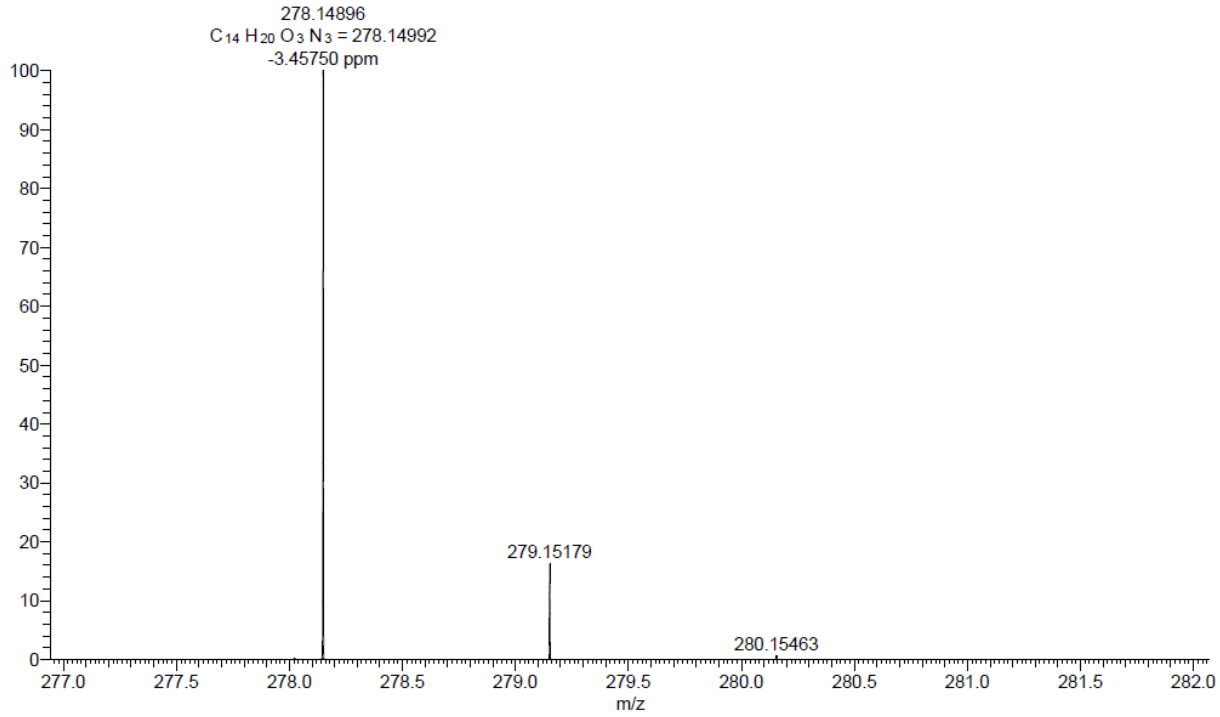


Figure S5. The MS spectrum of the monomer IM.

Reference

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