Tannic Acid-Based Multifunctional Hydrogels with Facile Adjustable Adhesion and Cohesion Contributed by Polyphenol Supramolecular Chemistry

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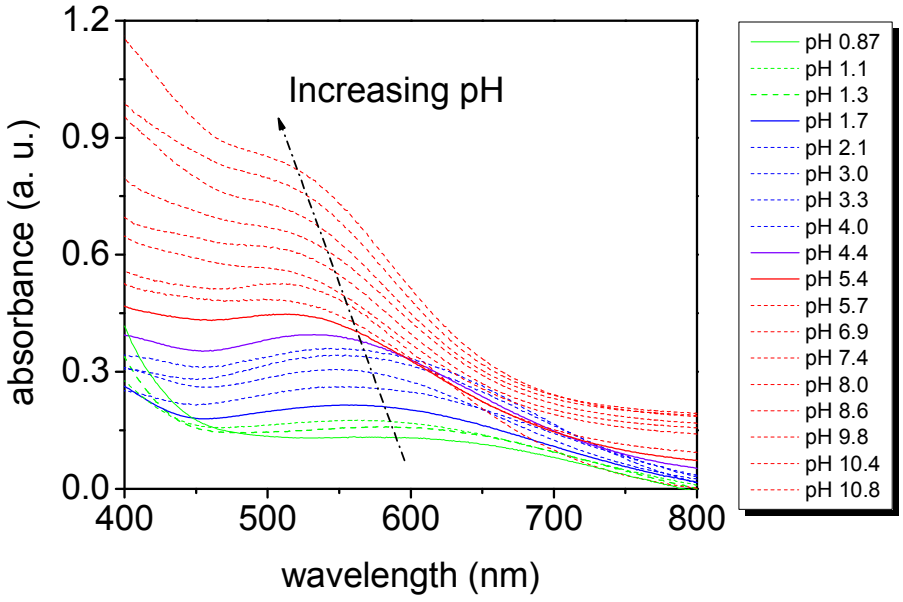

Figure S1. UV-vis absorption PDDA/TA/Fe^{III} complex at pH values from 0.5 to 11.

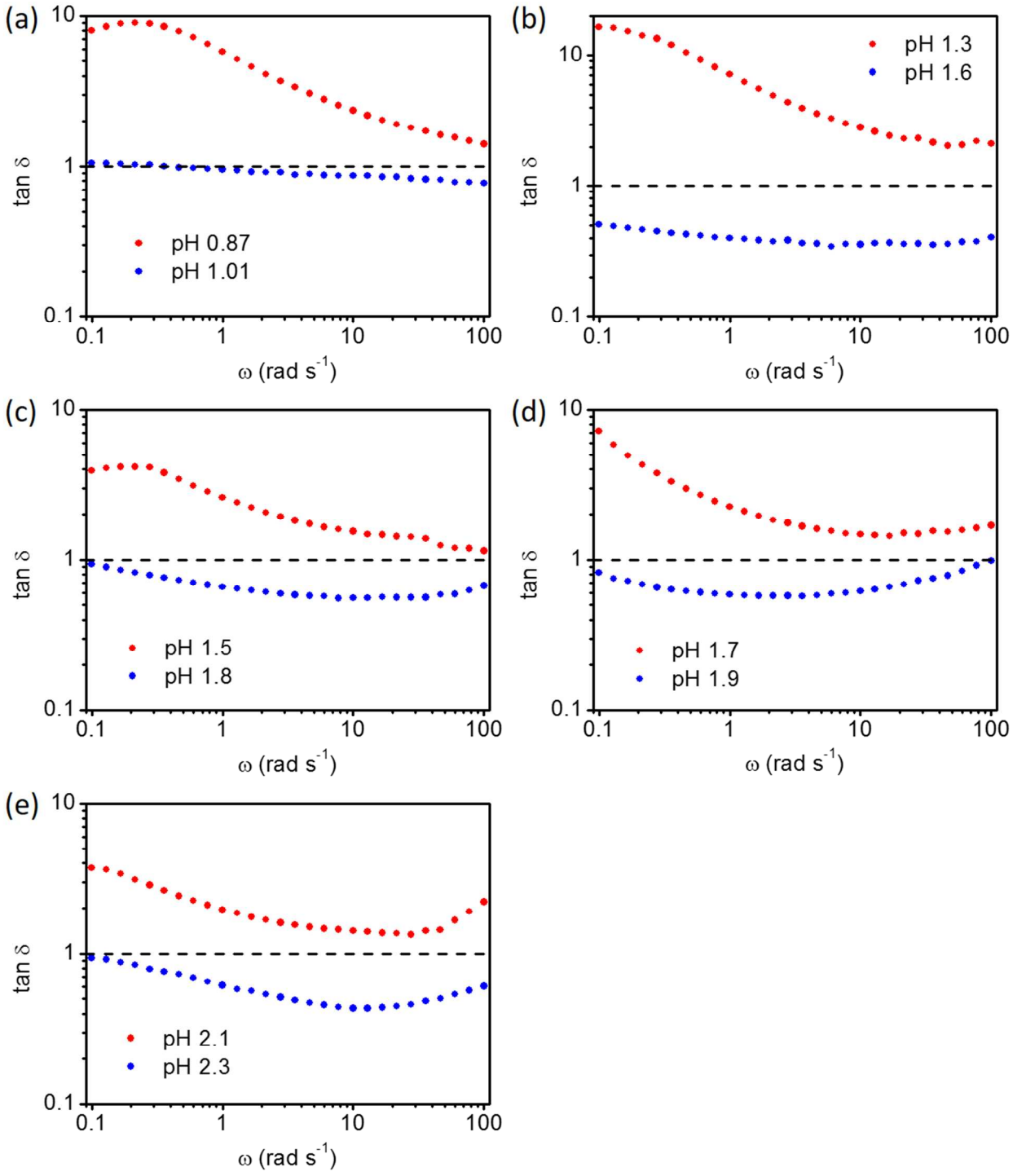

Figure S2. Loss tangent (tan δ) plotted as a function of the angular frequency of initial PTFe solution and that of hydrogels at critical gelation pH values. (a) PTFe-1, (b) PTFe-2, (c) PTFe-3, (d) PTFe-4, and (e) PTFe-5.

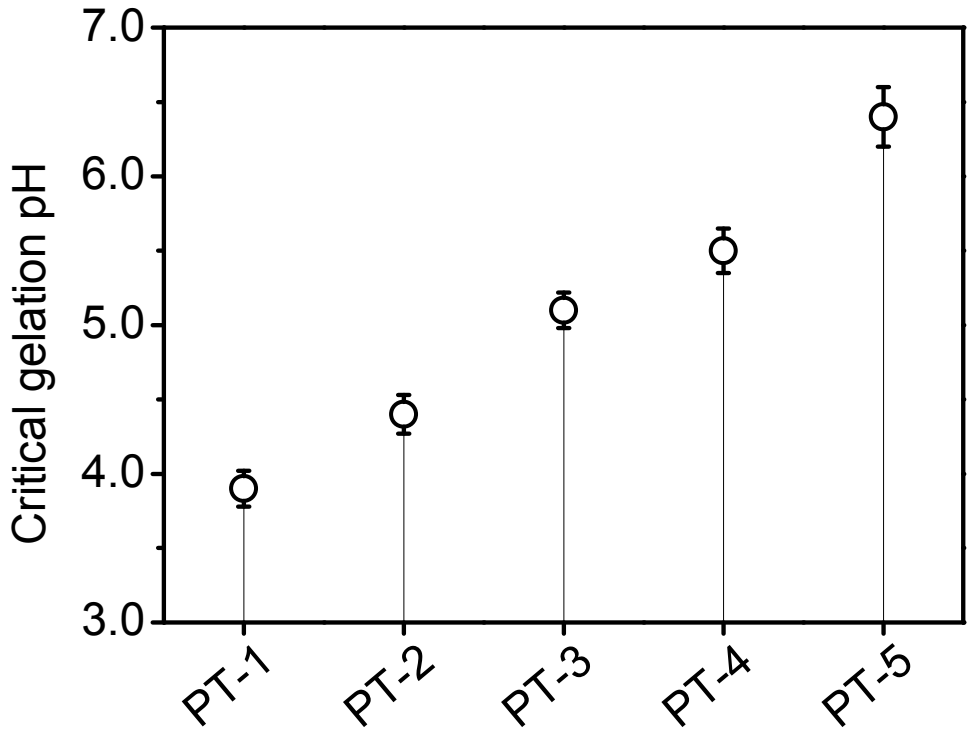

Figure S3. The critical gelation pH of PT hydrogels. The weight ratio of PDDA to TA of PT-1 to PT-5 was 2:1, 4:1, 10:1, 15:1, and 20:1, respectively.

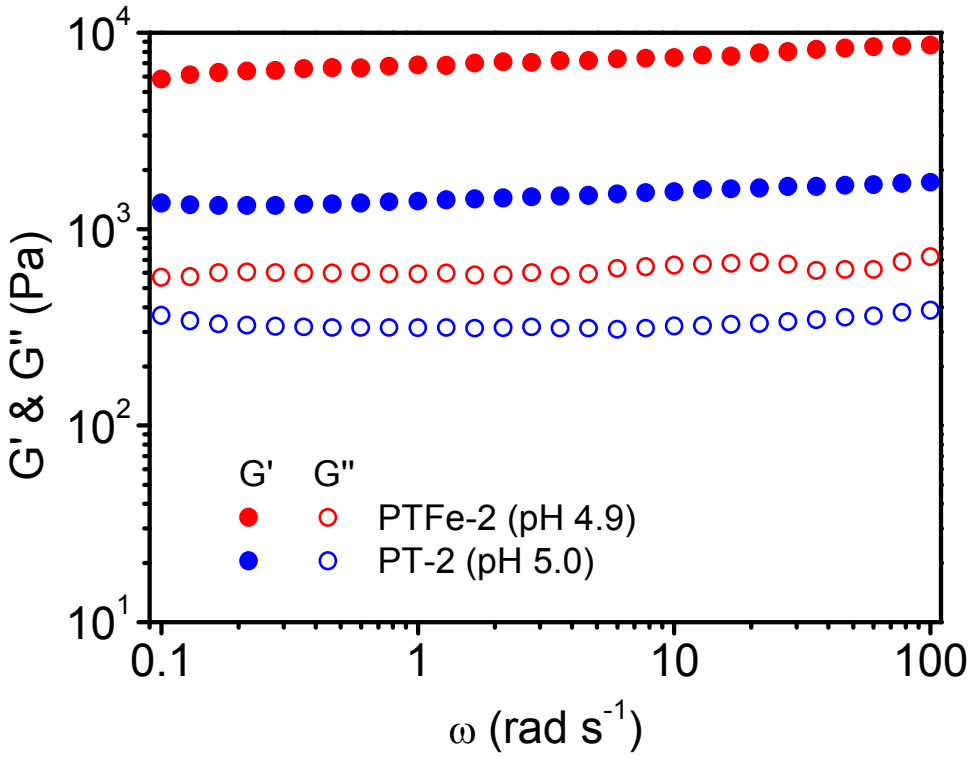

Figure S4. The storage G' and loss G'' moduli of PTFe-2 and PT-2 hydrogels with angular frequency swept between 0.1 and 100 rad s^{-1}. The weight ratio of PDDA to TA of PTFe-2 and PT-2 were 2:1.

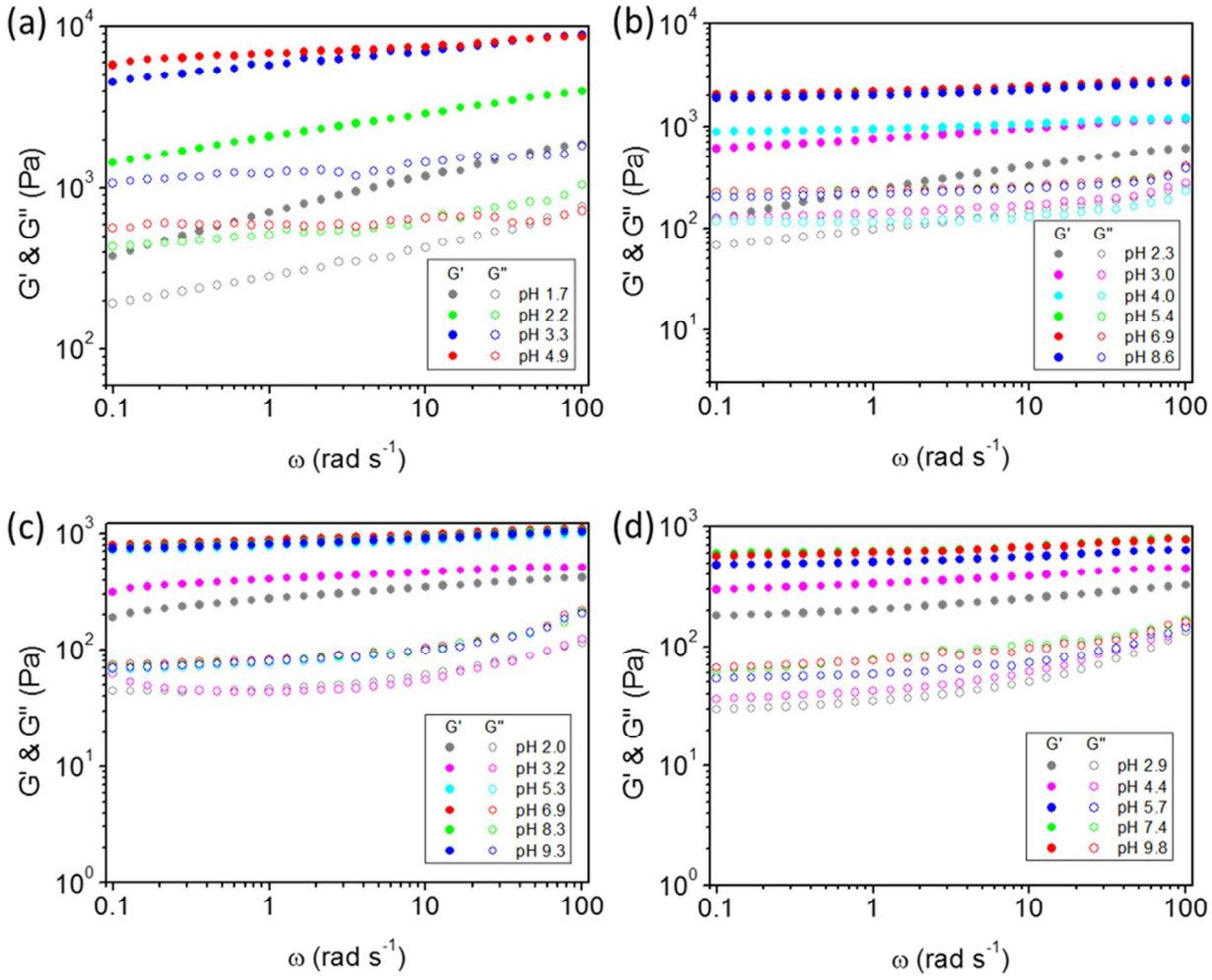

Figure S5. The storage G' and loss G'' moduli of PTFe hydrogels with angular frequency swept between 0.1 and 100 rad s^{-1}. (a) PTFe-2, (b) PTFe-3, (c) PTFe-4, and (d) PTFe-5.

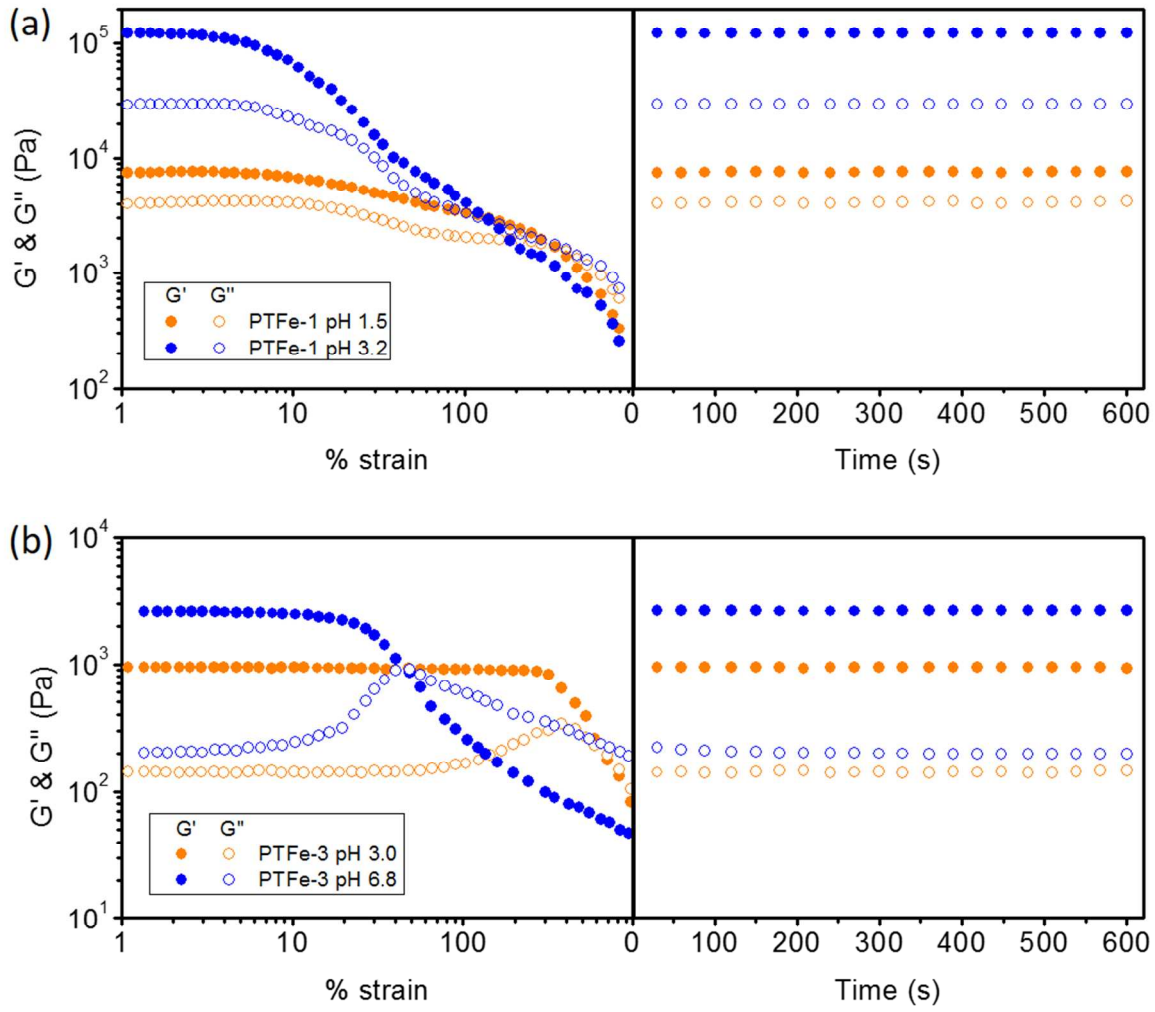

Figure S6. Quantitative tests of the self-healing properties of PTFe hydrogels. Strain was increased from 1% to 1000% at 1 Hz, and the recovery was monitored at 1% strain with 1 Hz. (a) PTFe-1, and (b) PTFe-3.

Table S1. The weight ratios of various components and the initial pH values in the fabrication of PDDA-TA bicomponent hydrogels

sample name	weight ratio of PDDA:TA	initial solution pH
PT-1	2 : 1	1.4
PT-2	4 : 1	1.8
PT-3	10 : 1	2.2
PT-4	15 : 1	2.5
PT-5	20 : 1	2.7

Table S2. The ionic conductivities of hydrogels

Sample		pH	conductivity (S m^{-1})
PTFe-2	Initial solution	1.3	4.56 ± 0.002
	hydrogel	2.0	4.30 ± 0.09
		2.7	4.03 ± 0.14
		3.2	4.32 ± 0.06
		4.9	4.42 ± 0.02
PTFe-4	Initial solution	1.9	4.25 ± 0.004
	hydrogel	3.6	4.19 ± 0.04
		4.0	4.25 ± 0.02
		6.4	4.28 ± 0.02
		8.3	4.34 ± 0.02
PDDA-TA-Fe_3O_4	Initial solution	2.9	3.55 ± 0.001
	hydrogel	4.7	3.68 ± 0.01
		5.8	3.77 ± 0.03
		7.4	3.90 ± 0.02