

Supporting Information

**Fabrication of Novel MXene (Ti₃C₂)/Polyacrylamide Nanocomposite
Hydrogels with Enhanced Mechanical and Drug Release Properties**

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1 **Table of Contents**

- 2 1. Table S1 Compositions of reactants for as-prepared BIS/PAM (T₀PAM) and Ti₃C₂/PAM
- 3 (T₂PAM, T₄PAM, T₆PAM) hydrogels.
- 4 2. Figure S1 XRD patterns of T₀PAM, T₂PAM and T₄PAM.
- 5 3. Table S2 Mechanical properties of NC hydrogels reported in literatures.
- 6 4. Figure S2 UV-vis spectra of chloramphenicol after xerogels swelling for 60h.
- 7 5. Figure S3 UV-Vis spectra of chloramphenicol in vitro release from hydrogels in HCl solution
- 8 (pH=1.2) (A) T₂PAM, (B) T₄PAM, (C) T₆PAM and (D) T₀PAM (BIS/PAM).
- 9 6. References.

10

1. Table S1

Table S1 Compositions of reactants for as-prepared BIS/PAM (T_0 PAM) and Ti_3C_2 /PAM (T_2 PAM, T_4 PAM, T_6 PAM) hydrogels.

Sample	AM(g)	Ti_3C_2 (mL)	H_2O (mL)	BIS(mg)	KPS(mL)	$m_{Ti_3C_2}$ (mg)	$m_{Ti_3C_2}$ (wt%)	Water contents (%)	
								Before swelling	After swelling
T_0 PAM	2.0	0	8	15	1.0	—	—	81.7	89.6
T_2 PAM	2.0	8.0	—	—	1.0	1.6	0.0145	81.8	97.0
T_4 PAM	2.0	8.0	—	—	1.0	3.2	0.0291	81.8	95.0
T_6 PAM	2.0	8.0	—	—	1.0	4.8	0.0436	81.8	93.8

2. Figure S1

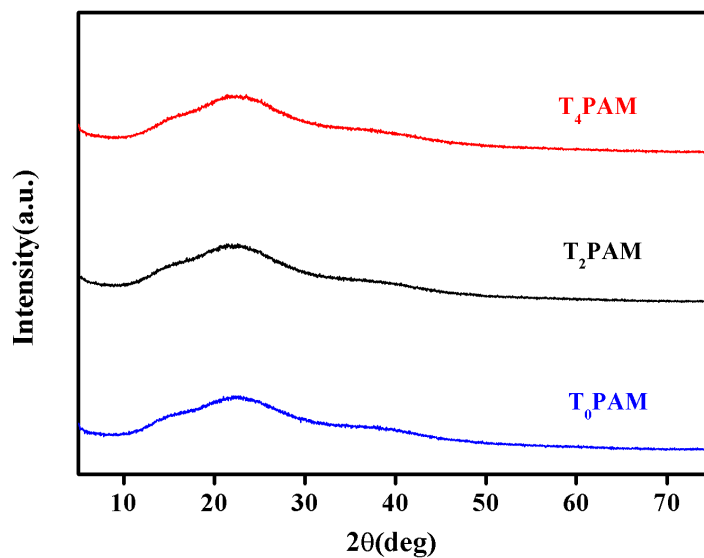


Figure S1 XRD patterns of T_0 PAM, T_2 PAM and T_4 PAM hydrogels.

3. Table S2

Table S2 Mechanical properties of NC hydrogels reported in literatures.

Sample	Nanocomposite content (%)	λ_{ts} (%)	σ_f (kPa)
Clay/PNIPAM ^[1]	0.6	1424	41
	1.8	1112	69
	2.9	857	109
GO/PAM ^[2]	0.01	3111	282.7
	0.03	3169	314.7
	0.06	3435	385.0
	0.12	3525	268.5
	0.15	3399	96.5
GO/PNIPAM ^[3]	0.25	1500	180
	0.41	1600/860	330/173
Mg-Al LDH/PAM ^[4]	0.8	2355	29.3
	1.6	4068	43.2
	2.3	4361	45.8
Zn-Al LDH/PAM ^[5]	1.1	3800	21
	2.1	4936	67
C-Dots/PAM ^[6]	0.5	2100	34
	1	2940	48
	2.5	4450	21

4. Figure S2

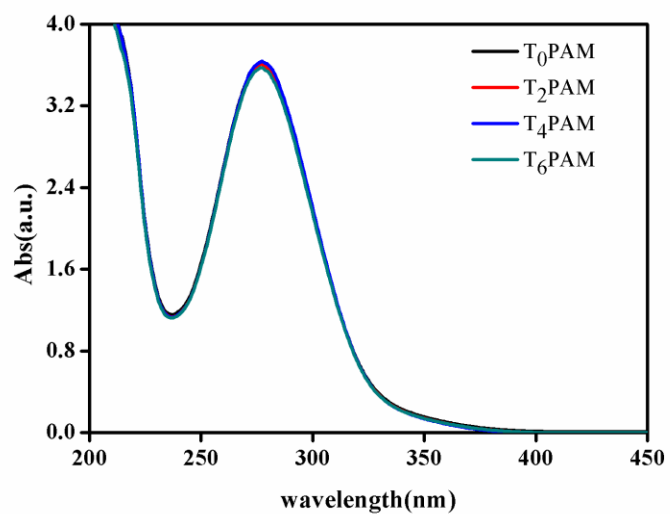


Figure S2 UV-Vis spectra of chloramphenicol (dilution ratio 1:15) after xerogels swelling for 60h in chloramphenicol solution.

5. Figure S3

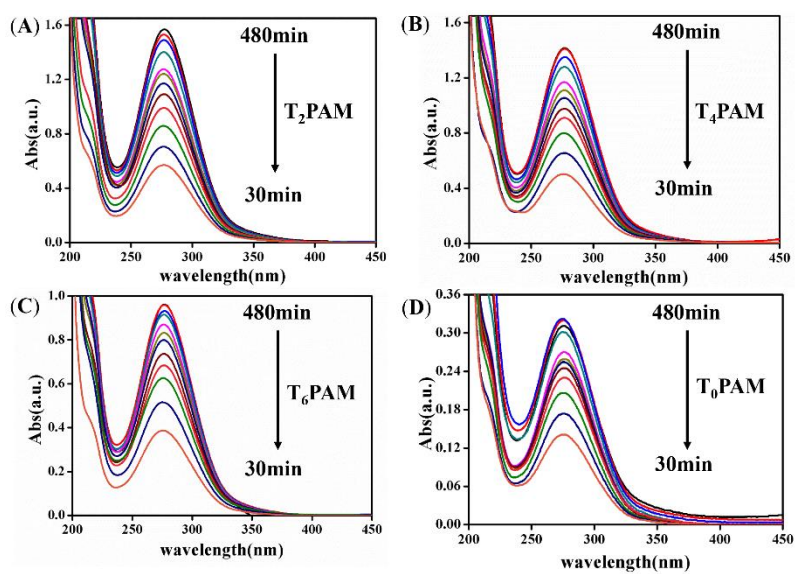


Figure S3 UV-Vis spectra of chloramphenicol in vitro release from hydrogels in HCl solution (pH=1.2) (A) T₂PAM, (B) T₄PAM, (C) T₆PAM and (D) T₀PAM (BIS/PAM).

6. References

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