

Electronic Supplementary Information

A polyhedral oligomeric silsesquioxane/molecular sieve codoped molecularly imprinted polymer for gastroretentive drug-controlled release *in vivo*

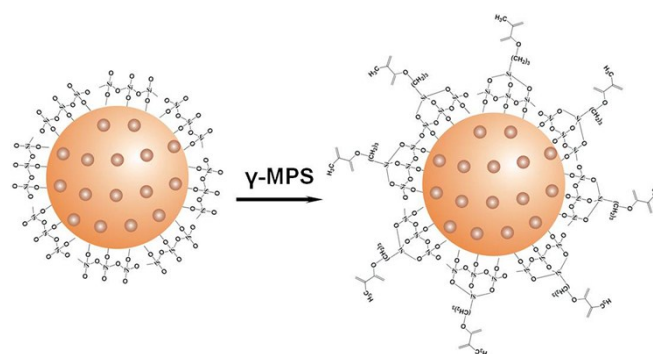
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Scheme S1 Schematic illustration of the preparation of MCM-41-MPS.

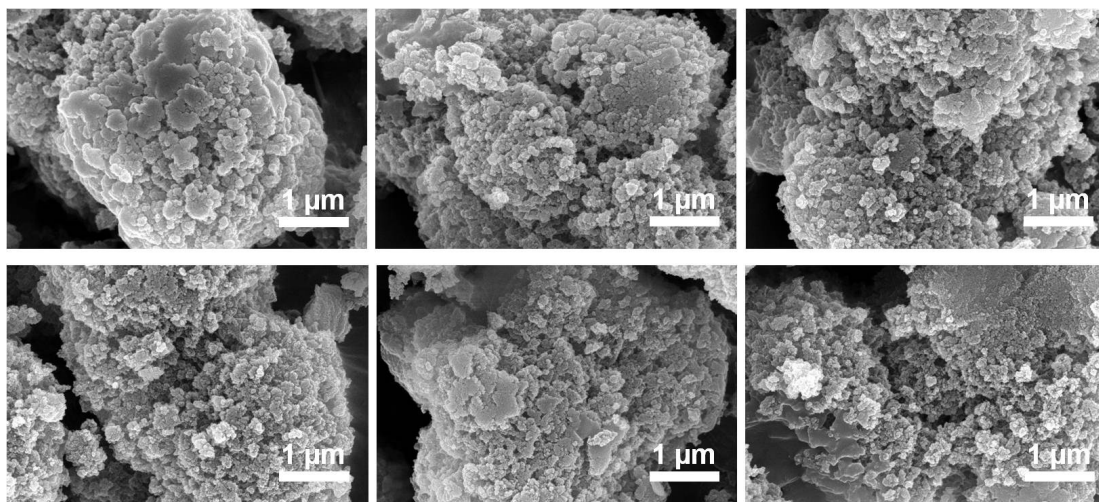


Fig. S1 (A-F) SEM images of MIPs: POSS/MCM-41 codoped MIPs (A), POSS doped MIPs (B), MCM-41 doped MIPs (C), AAm-based MIPs (D), AMPS-based MIPs (E) and MIPs without any dopant (F).

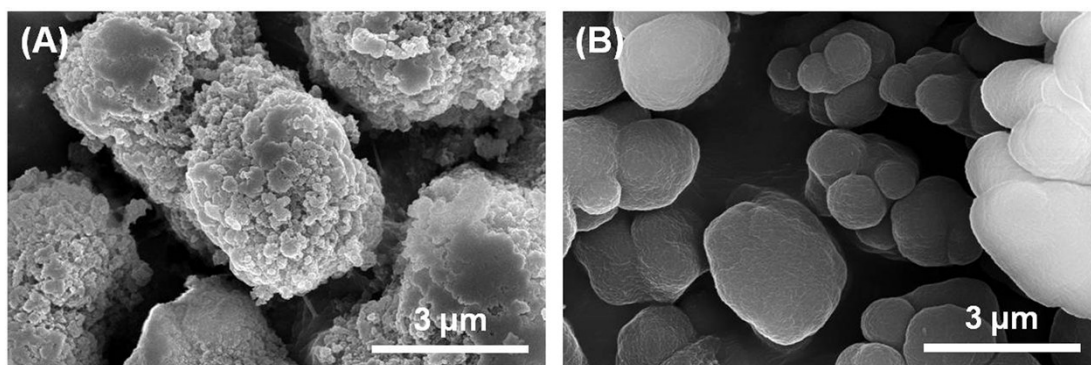


Fig. S2 (A, B) SEM images of MIPs: CAP-impinted MIPs using AAm/AMPS as the dual-functional monomer (A), and S-NAP-impinted MIPs using 4-VP as the sole-functional monomer (B).

Table S1 Pore properties of MIPs (n = 3)

Polymers	$S_{\text{BET}} / \text{m}^2\text{g}^{-1}$	$S_{\text{t}} / \text{m}^2\text{g}^{-1}$	$V_{\text{p}} / 10^{-3}\text{cm}^3\text{g}^{-1}$	$D_{\text{mean}} / \text{nm}$
POSS/MCM-41 MIP (M1)	214.82	224.94	0.37	6.57
POSS MIP (M2)	74.84	77.43	0.14	7.30
MCM-41 MIP (M3)	181.86	190.28	0.31	6.47
MIP (M4)	22.63	23.20	0.40	68.32
AAm MIP (M5)	27.73	29.03	0.21	28.30
AMPS MIP (M6)	167.37	176.00	0.35	7.85
POSS/MCM-41 NIP	203.72	214.74	0.32	6.00

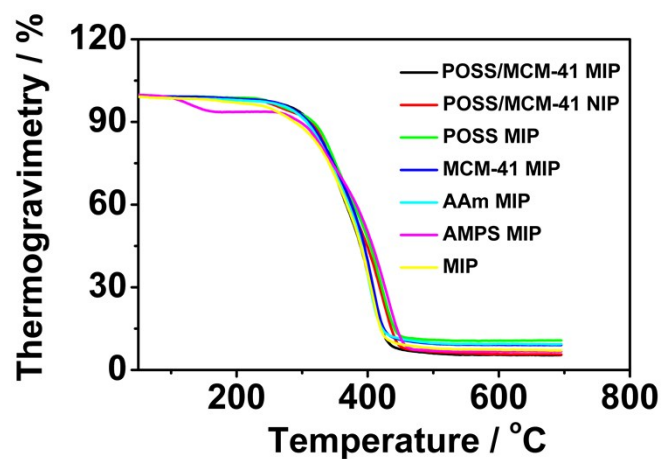


Fig. S3 TGA curves of POSS/MCM-41 codoped MIP, POSS/MCM-41 codoped NIP, POSS doped MIP, MCM-41 doped MIP, AAm based MIP, AMPS based MIP and MIPs without any dopant.

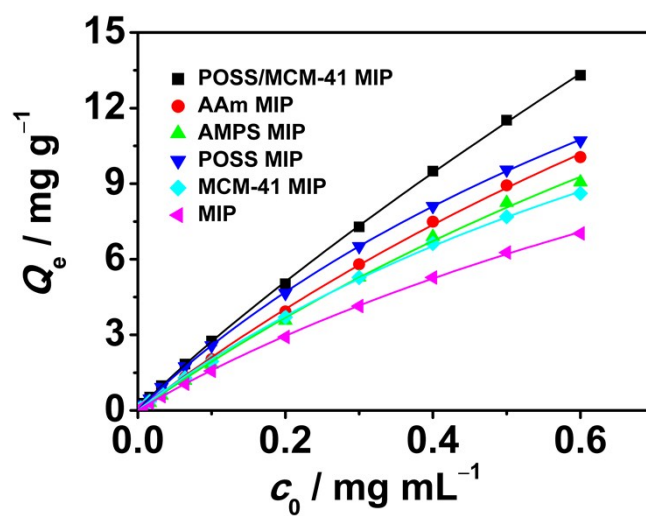


Fig. S4 Adsorption isotherms for POSS/MCM-41 codoped MIPs, AAm based MIPs, AMPS based MIPs, POSS doped MIPs, MCM-41 doped MIPs and MIPs without any dopant.

Table S2 Fitting parameters of Langmuir-Freundlich model

Polymers	$N_t / \text{mg g}^{-1}$	a / mM^{-1}	m	K_0 / mM^{-1}	R^2
POSS/MCM-41 MIP (M1)	158.98	0.147	0.925	0.126	0.999
POSS MIP (M2)	33.83	0.762	0.965	0.754	0.999
MCM-41 MIP (M3)	26.91	0.789	0.985	0.786	0.999
MIP (M4)	25.72	0.626	0.976	0.619	0.999
AAM MIP (M5)	43.24	0.513	1	0.513	0.999
AMPS MIP (M6)	38.42	0.530	1	0.530	0.999

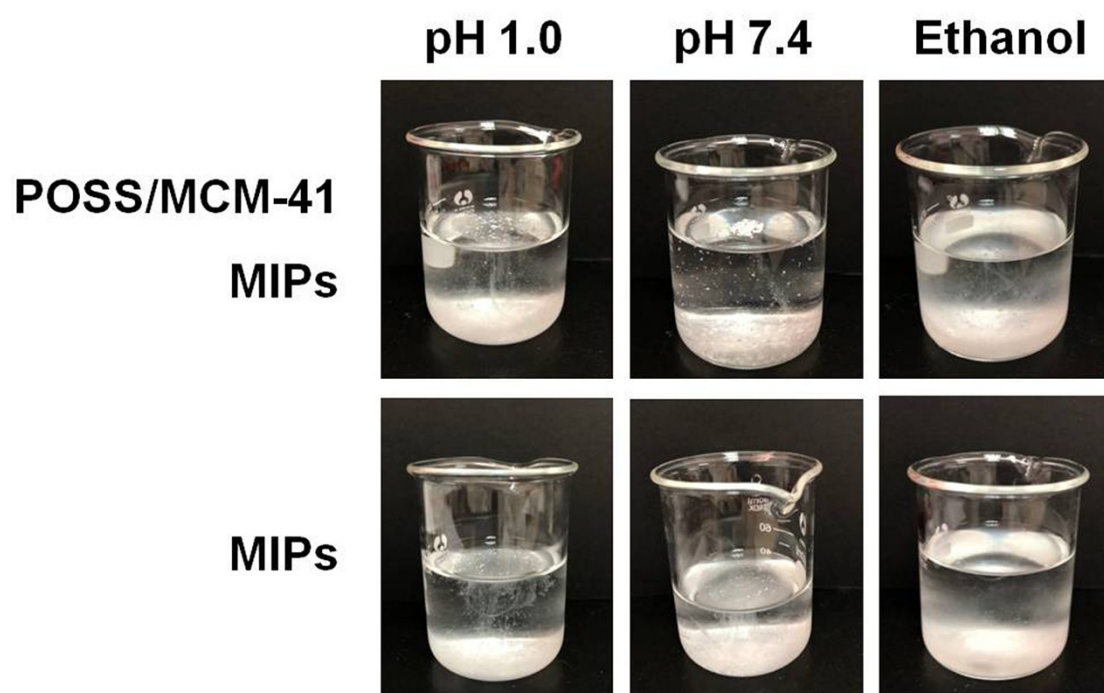


Fig. S5 Floating properties of POSS/MCM-41 doped MIPs and MIPs without any dopant in HCl buffer (pH 1.0), in PBS buffer (pH 7.4) or in ethanol.

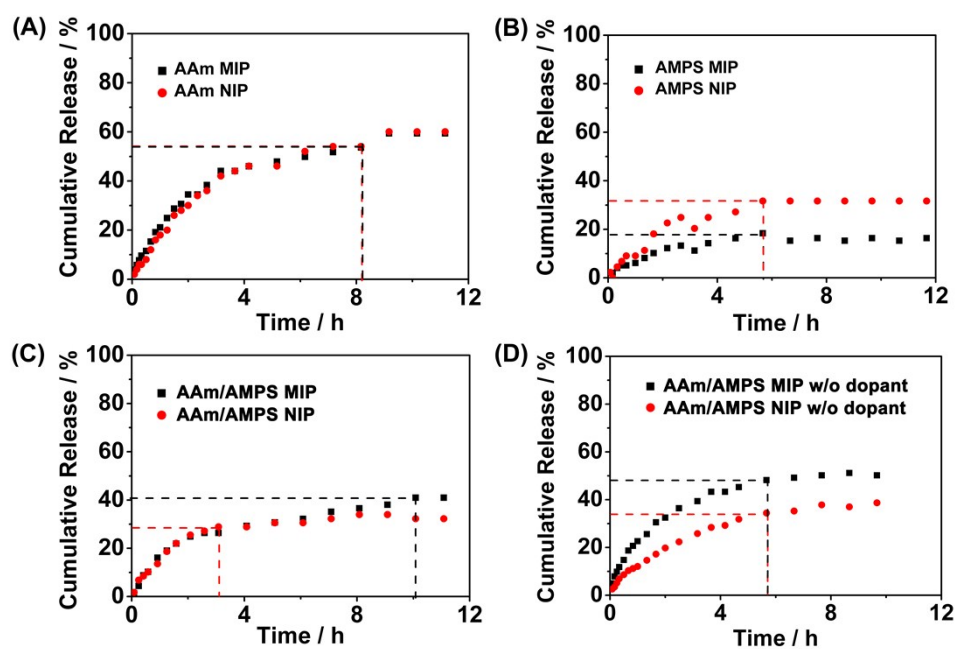


Fig. S6 Drug release behaviors of MIPs or NIPs prepared under different condition: AAm-based MIPs or NIPs (A), AMPS-based MIPs or NIPs (B), AAm/AMPS-based MIPs or NIPs (C) and AAm/AMPS-based MIPs or NIPs without any dopant (D).