Electronic Supplementary Information (ESI)

pH/temperature-sensitive hydrogel-based molecularly imprinted polymers (hydroMIPs) for drug delivery by frontal polymerization

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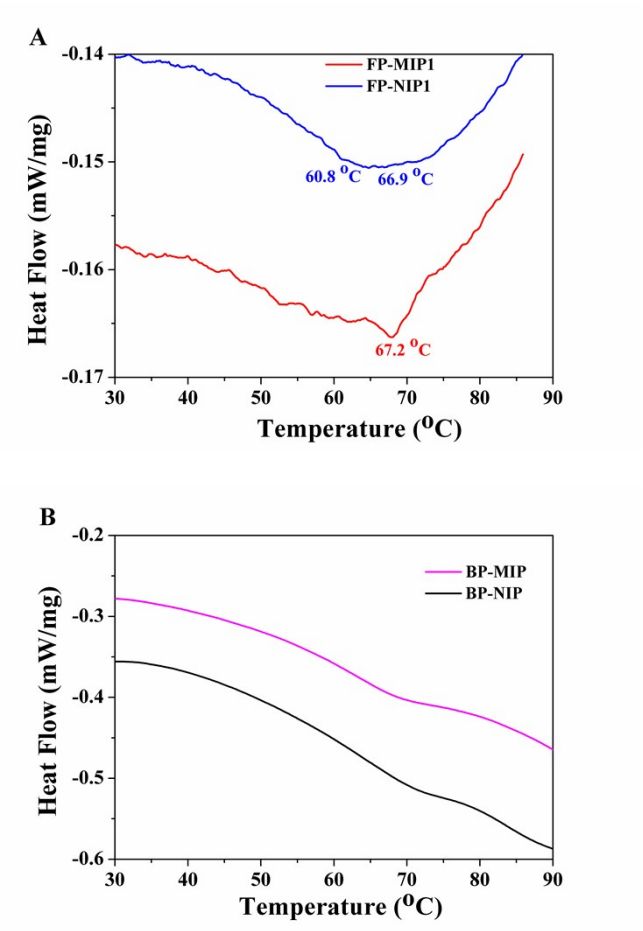

Fig. S1. DSC heating thermograms: A) FP based hydroMIP/NIP; B) BP based hydroMIP/NIP. Heating rates were 2 °C/min.

Table S1 Parameters characterising the porous structure of hydrogel (calculated by mercury intrusion-extrusion porosimetry)

Polymers	Total surface area (m^2/g)	Porosity (%)	Mean pore diameter (nm)	Median pore diameter (nm)
FP-MIP1	1.105	40.8	1283.4	5387.6
FP-NIP1	15.124	14.3	38.9	286.1
BP-MIP1	29.939	9.4	10.6	50.4
BP-NIP1	35.984	18.0	17.7	350.5

Table S2 Adsorption parameters of hydroMIPs with different amount of template

Polymer	Amount of template	Q_m (mmol/g)	K_L (L/mmol)	R^2	IF
MIP2	0.24	1.448	0.756	0.980	1.04
MIP1	0.48	1.851	0.680	0.990	1.33
MIP12	0.72	1.452	0.945	0.986	1.04
MIP13	0.96	1.552	0.845	0.994	1.12

Table S3 Adsorption parameters of hydroMIPs with different crosslining degree

Polymer	Crosslining degree	Q_m (mmol/g)	K_L (L/mmol)	R^2	IF
FP-MIP8	1‰	2.359	0.441	0.946	0.89
FP-NIP8	1‰	2.641	0.287	0.958	
FP-MIP9	2‰	1.821	0.617	0.982	1.00
FP-NIP9	2‰	1.651	0.741	0.977	
FP-MIP1	3.60‰	1.851	0.680	0.990	1.33
FP-NIP1	3.60‰	1.391	0.825	0.991	
FP-MIP4	1%	1.647	0.456	0.976	1.41
FP-NIP4	1%	1.164	0.887	0.981	
FP-MIP5	2%	1.395	0.579	0.985	1.32
FP-NIP5	2%	1.059	0.811	0.979	

Table S4

The amount of drug loaded, the entrapment efficiency, final release amount and time required achieving final release of the FP-based hydroMIPs and hydroNIPs loading through in three different soaking solutions.

Soaking solution (μg/mL)	FP-based hydrogel	Amount of drug loaded (mg/g)	Entrapment efficiency (%)	Final release (%)	Time to Final release (h)
75	MIP	16.9	84.5	45.0	14.5
	NIP	18.1	90.5	90.5	7.0
100	MIP	8.9	44.5	98.1	10.3
	NIP	9.1	45.5	57.9	1.0
150	MIP	8.9	44.5	98.1	10.3
	NIP	9.1	45.5	57.9	1.0

Table S5

Pharmacokinetic analyses in Wistar rats following intragastric administration.

	T_{max} (h)	C_{max} (ng/mL)	AUC_{0-12} (ng mL^{-1} h)
FP-hydroMIP	1.5	29.9	220.9
BP-hydroMIP	2	37.3	131.1
FP-hydroNIP	3	20.1	56.7