Electronic supplementary information (ESI):

Hollow hierarchical hydroxyapatite@Au@polyelectrolyte hybrid microparticles for multi-responsive drug delivery

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Table S1. Parameters k, n and R^2 determined by Eq. (1) for the DOX release of samples at different release conditions

Sample	Release condition	k	n	R^2
H-HAP/Au/PUA/PSS	pH 7.4, 37 °C	0.225	0.226	0.921
H-HAP/Au/PUA/PSS	pH 4.5, 37 °C	0.451	0.091	0.934
H-HAP/Au/PUA/PSS	pH 2.1, 37 °C	0.752	0.023	0.572
H-HAP/Au/PUA/PSS	pH 7.4, 55 °C	0.386	0.149	0.922
H-HAP/Au/PUA/PSS	pH 7.4, laser	0.227	0.586	0.971
H-HAP/Au/PUA/PSS	pH 7.4, without laser	0.168	0.401	0.948
H-HAP/PUA/PSS	pH 7.4, 37 °C	0.224	0.332	0.932
HAP	pH 7.4, 37 °C	0.296	0.245	0.935

Figure captions:

Fig. S1. UV-vis light transmittance spectrum as a functional of temperature measured for 2.0 wt% of aqueous solution of PUA. The photograph in the left shows the solutions below LCST and the right one shows the solutions above LCST.

Fig. S2. Plots of $\ln(M_t/M_\infty)$ versus $\ln t$ for pH- and thermal- dependent release profiles of H-HAP/Au/PUA/PSS hybrid microparticles (A), plots of $\ln(M_t/M_\infty)$ versus $\ln t$ for H-HAP/Au/PUA/PSS hybrid microparticles with and without NIR laser at pH 7.4 (B), and plots of $\ln(M_t/M_\infty)$ versus $\ln t$ for HAP, H-HAP/PUA/PSS and H-HAP/Au/PUA/PSS hybrid microparticles at pH 7.4 and 37 ^{o}C (C).

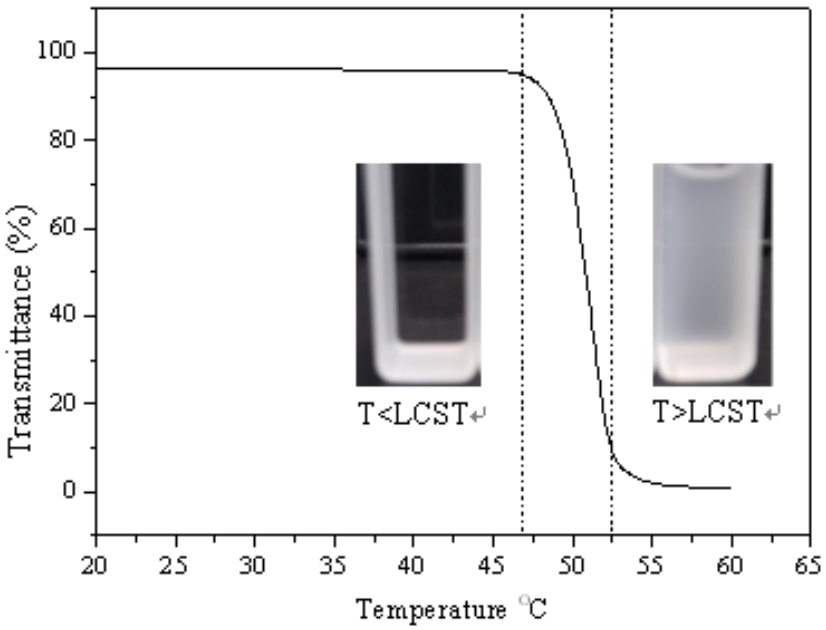
Transmittance (%)
100
80
60
40
20
0
20
25
30
35
40
45
50
55
60
65
Temperature °C
T<LCST
T>LCST

Fig. S1

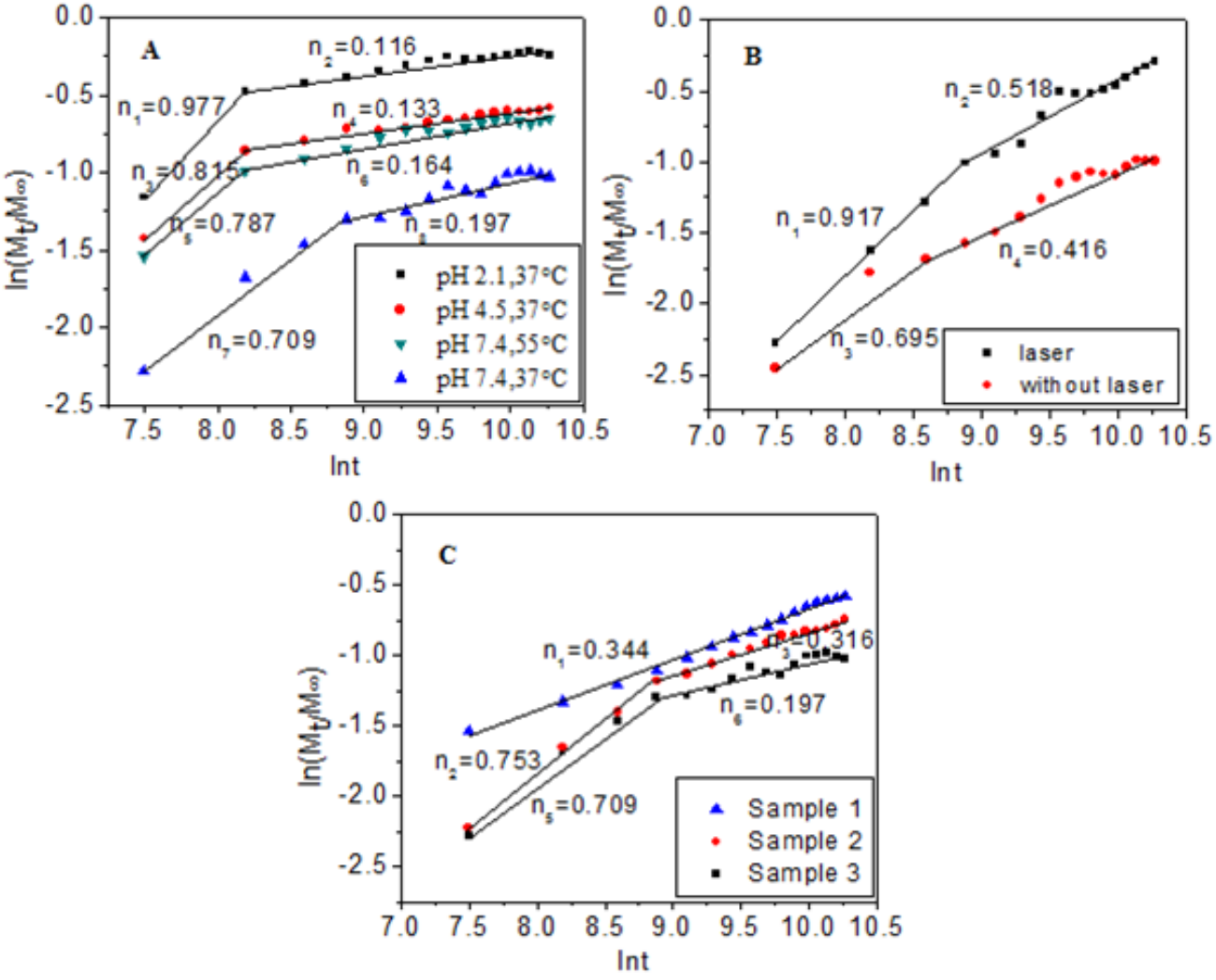
A
n1=0.977
n2=0.116
n3=0.815
n4=0.133
n5=0.787
n6=0.164
n7=0.709
n8=0.197
pH 2.1,37°C
pH 4.5,37°C
pH 7.4,55°C
pH 7.4,37°C
ln(Mt/M∞)
Int
B
n1=0.917
n2=0.518
n3=0.695
n4=0.416
laser
without laser
ln(Mt/M∞)
Int
C
n1=0.344
n2=0.753
n3=0.316
n5=0.709
n6=0.197
Sample 1
Sample 2
Sample 3
ln(Mt/M∞)
Int

Fig. S2.