

Supporting Information

Na-montmorillonite dispersed sustainable polymer nanocomposite hydrogel films for anticancer drug delivery

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Cover Sheet

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| 1. Total number of Pages: | S1-6 (6 Pages) |
| 2. Total number of Figures: | 3 |
| 3. Total number of Tables | 3 |

Figure and Figure Captions

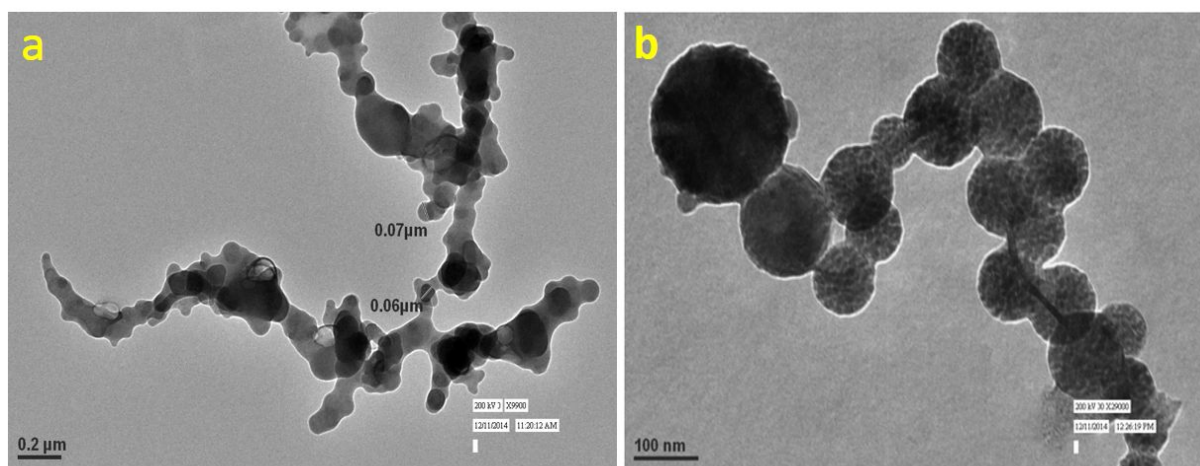


Figure S1. TEM images of NaCHAP-3 (a) at 200kvj× 29000, and (b) at 200kvj×2900.

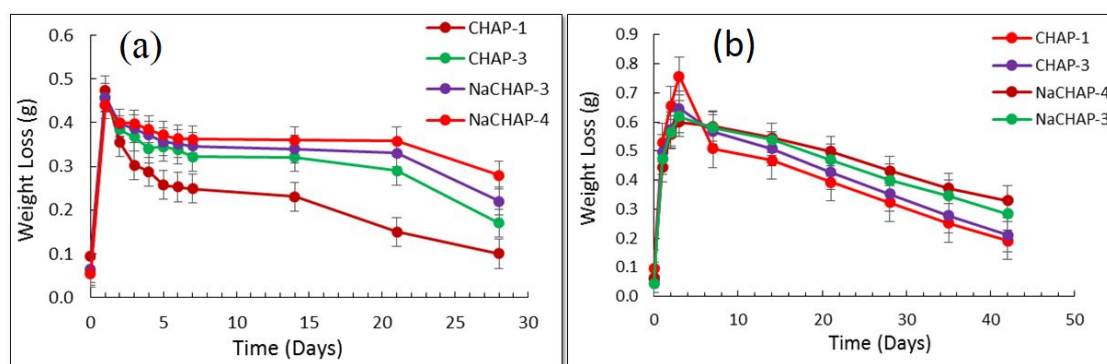


Figure S2. Hydrolytic degradation of CHAP-1, CHAP-3, NaCHAP-3 and NaCHAP-4 at pH 7.4 for 28 days (a). Degradation curves of CHAP-1, CHAP-3, NaCHAP-3 and NaCHAP-4 films in soil for 42 days (b).

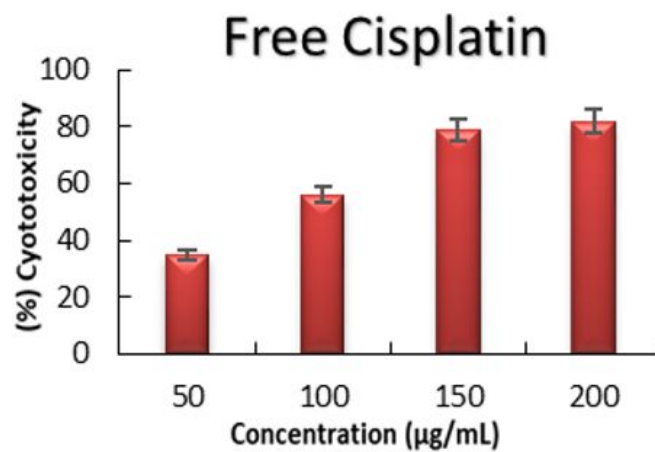


Figure S3. In vitro cytotoxicity of free cisplatin evaluated by MTT assay test on human breast (MCF-7) cancer cells for 48h. The error bars in the graph represent standard deviations ($n = 5$).

Tables and Table captions

Table S1. Feed composition of CHAP and NaCHAP based nanocomposite hydrogel films

Sample Code	Carboxy methylcellulose (CMC) ml (2%)	Hydroxyethyl cellulose (HEC) ml (2%)	Polyol (ml) (1%)	Acrylonitrile (ml)	Na-montmorillonite (mg)
CHAP-1	20	20	0	5	-
CHAP-3	20	20	6	5	-
NaCHAP-3	20	20	10	5	3
NaCHAP-4	20	20	15	5	6

Table S2. % EWS of plain and nanocomposite hydrogel films at various pH solutions.

Sample Name	%EWS at pH-7.4	%EWS at pH-9.0	%EWS at pH-4.0
CHAP-1	6100	3041	2890
CHAP-3	4826	2641	1837
NaCHAP-3	3039	1722	422
NaCHAP-4	2944	1812	378

Table.S3. Comparative studies of present work with earlier reported system using cisplatin drug.

S.No.	Drug delivery system	Drug Release behavior and retention time in PBS		Reference
		Reported results	Present work	
1.	Synthetic polymer (polyethylene glycol and alpha cyclodextron) hydrogels	Complete release rate lasted for 15h only.	Complete release rate lasted for 72h.	(1)
2.	Macrocycle cucurbit, uril, gelatin and polyvinyl alcohol	Drug retention time 24h		(2)
3.	Novel cisplatin-loaded collagen,hydroxyapatite composite materials	Drug retention time 18h		(3)

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- (2) Oun, R.; Plumb, J. A.; Wheate, N. J. A Cisplatin Slow-Release Hydrogel Drug Delivery System Based on a Formulation of the Macrocycle Cucurbit[7]Uril, Gelatin and Polyvinyl Alcohol. *J. Inorg. Biochem.* **2014**, *134*, 100–105.
- (3) Andronesu, E.; Ph, D.; Fikai, A.; Ph, D.; Albu, M. G.; Mitran, V.; Ph, D.; Sonmez, M.; Ph, D.; Fikai, D.; et al. Collagen-Hydroxyapatite / Cisplatin Drug Delivery Systems for Locoregional Treatment of Bone Cancer. **2013**, *12* (4), 91–95.