SUPPORTING INFORMATION FOR:

The therapeutic efficacy of camptothecin-encapsulated supramolecular nanoparticles

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1. Synthesis of poly(L-glutamic acid) (PGA)

Poly(γ-benzyl-L-glutamate) ($PBLG_{50}$) was synthesized according to the procedure previously published.[1, 2] The N-terminus of PBLG was capped by a carbobenzyloxy (Cbz) group. The M_n was 12,600 g/mol and the MW distributions (MWD = M_w/M_n) was 1.05 as determined by GPC (Fig. S1). The deprotection of $PBLG_{50}$ was performed using standard HBr condition as described below: $PBLG_{50}$ (500 mg, 2.28 mmol glutamate residues) was dissolved in TFA (15 mL) in an ice bath. HBr (33 wt% in HOAc, 4 mL) was added dropwise into stirred solution. The reaction mixture was stirred in the ice bath for an additional 2 h and then poured into cold ether (60 mL) in two 50-mL centrifuge tubes. The polymer precipitate was collected by centrifuge and washed with ether (30 mL × 3). The polymer was dried under vacuum to give the crude product. The polymer was dissolved in NaOH (2M × 10 mL) and was stirred at room temperature (rt) overnight. The clear solution was acidified by 2M HCl to pH 2. The product was purified by dialysis against DI water and dried by lyophilization to give a white powder. ^{1}H NMR (D_2O, 500 MHz): δ 4.86 (1H), 2.68 (2H), 2.34 (1H), 2.19 (1H).

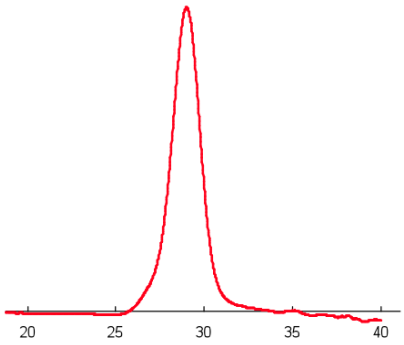

Fig. S1. GPC curve of the synthesized $PBLG_{50}$. M_n calculated = 10,950 g/mol; M_n obtained = 12,600 g/mol; PDI = 1.05.

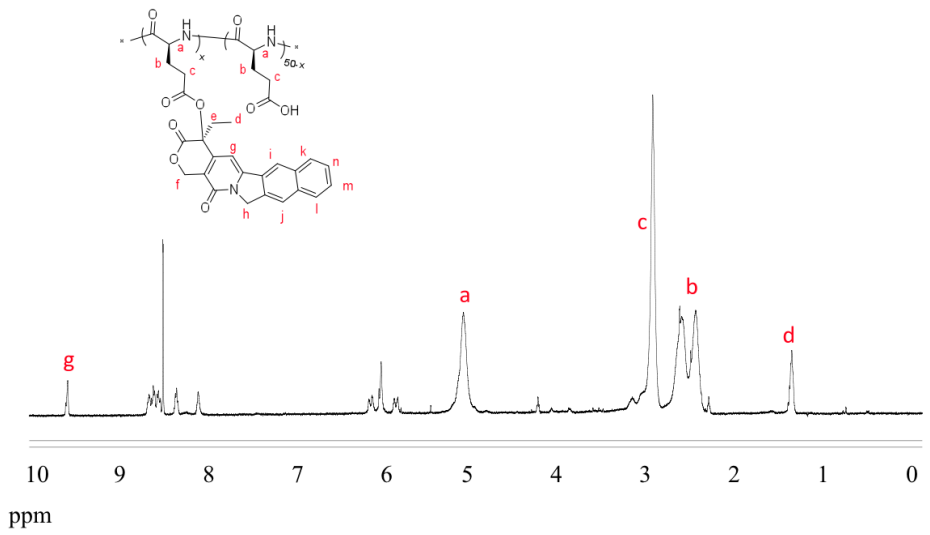

Fig. S2. ^{1}H NMR of CPT-PGA in TFA-d. The loading of CPT was determined as 20-22 wt%.

2. *Ex vivo* blood retention study

An additional *ex vivo* blood retention study was investigated 24 h after intravenous injection of 100-µL 37-nm and 104-nm ^{64}Cu (150 µCi) labeled DOTA-grafted CPT-PGA⊂SNPs solution. Two LLC tumor bearing C57Bl/6 mice were euthanized and sacrificed. Blood was collected and weighed in respective vials and the radioactivity associated with each sample was analyzed using gamma counter (Perkin Elmer, Waltham, MA). Results were summarized in Fig. S3 and expressed as a cycle per measurement (CPM) per gram of blood (CPM/gram). Error bar denotes standard deviations from three repeated measurements.

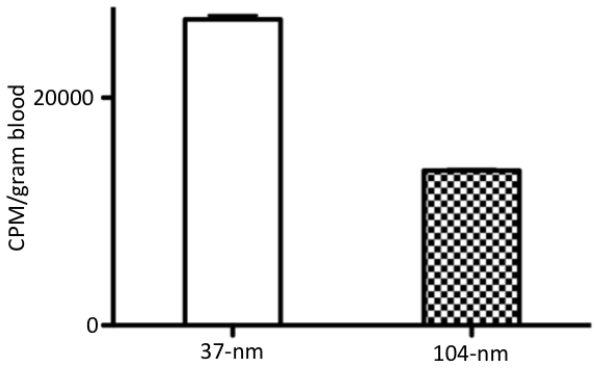

Fig. S3. *Ex vivo* blood retention study of 37-nm and 104-nm ^{64}Cu-labeled CPT-PGA⊂SNPs at 24 h post injection.

Reference:

[1] Lu H, Cheng JJ. Hexamethyldisilazane-mediated controlled polymerization of alpha-amino acid N-carboxyanhydrides. J Am Chem Soc 2007;129(46):14114-14115.
[2] Lu H, Wang J, Bai Y, Lang J, Liu S, Lin Y, et al. Ionic polypeptides with unusual helical stability. Nature Communications 2011;2:206.