

Supplementary information

Figures

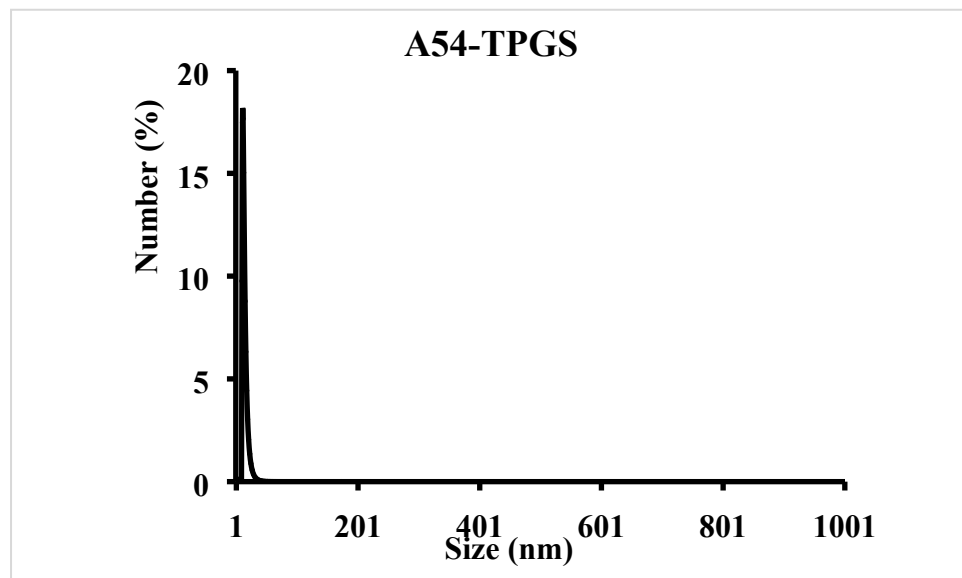


Figure S1. Size distribution of A54-TPGS determined by dynamic light scattering.

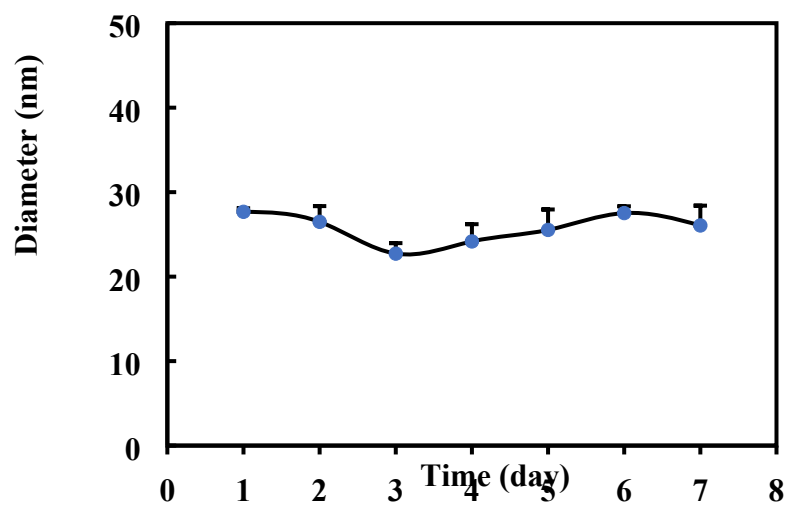
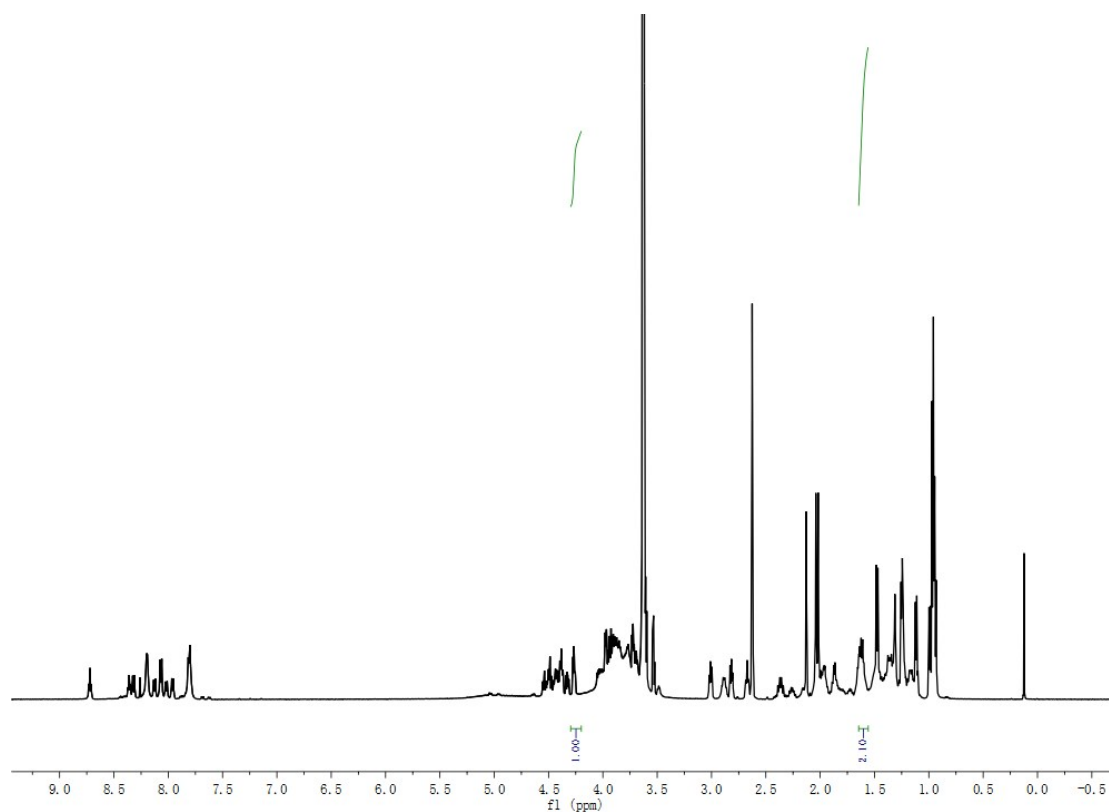
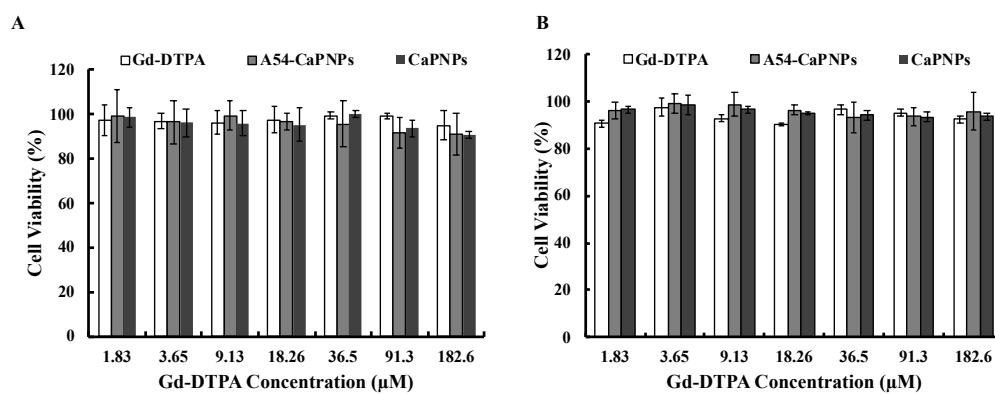


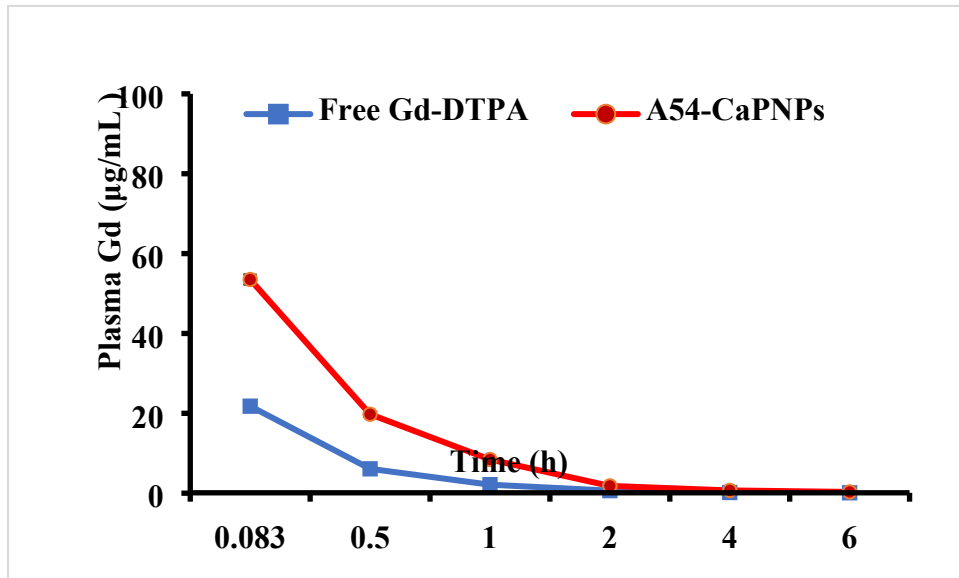
Figure S2: The time-dependent diameter of A54-CaPNPs at pH 7.4 stored at 4°C.



**Figure S3:** The <sup>1</sup>H-NMR spectrum of A54-TPGS.



**Figure S4.** The cell viability of (A) BEL-7402 cells and (B) LO2 treated with A54-CaPNPs, CaPNPs and free Gd-DTPA.



**Figure S5:** The plasma concentration of Gd in rats following intravenous injection of free Gd-DTPA and A54-CaPNPs at a dose of 0.05mmol /kg Gd-DTPA. Data are plotted as mean  $\pm$  SD; n = 3 in each group.