“Nail” and “Comb” effects of cholesterol modified NIPAm oligomers on cancer targeting liposomes†

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Preparation and characterization of NIPAm oligomers.

Fig. S1. 1H NMR spectra of important molecules in the synthesis: A. TEG-cholesterol (2, Fig. 1), B. cholesterol monomer (8, Fig 1) and C. biotinylated cholesterol (3, Fig. 1).
Fig. S2. $^1$H NMR spectra of cholesterol modified oligomers: A. main-chain NIPAm oligomers (MCNOs), B. side-chain NIPAm oligomers (SCNOs).

Fig. S3. GPC for SCNO (left) and MCNO (right). GPC data was obtained by Agilent 1200 GPC in THF, $M_{n,MNCO}=2270$, DPI=1.26; $M_{n,SCNO}=2130$, DPI=1.24.
Fig. S4 LCST data determined with turbidity method of A. MCNOs (30.8 °C) and B. SCNOs (31.8 °C).

Fig. S5. Release profile of MCNO, SCNO (Mw 2200) and SCNO’ (Mw 4500) liposomes at 25 and 37 °C.
Liposomal fusion test

Fig. S6. Tb³⁺/DPA assays (Ext: 276 nm; Ems:545 nm) of liposomes at 37 °C for 300 s: A. pristine, B. SCNO and C. MCNO.
Fig. S7. NBD/RhB assays of liposomes at RT and heated at 37 °C for 5 min (NBD/RhB-labeled liposomes: pure liposomes=1:9):
A. pristine, B. MCNO and C. SCNO.
In vitro characterizations for pristine, MCNO and SCNO liposomes.

Fig. S8. In vitro cytotoxicity of pristine and modified liposomes (A. pristine liposomes, B. SCNO liposomes, C. MCNO liposomes) incubated with HeLa cells for 24 hrs (37 °C) and (D) MTT assays for dox loaded SCNO and MCNO liposomes incubated with HeLa cells for 2 hrs (37 °C).
Localization and cellular uptake of biotinylated liposomes.

Fig. S10. Z-stack CLSM image for Biotinylated liposomes incubated with HeLa cells for 30 min.