



Supplementary Material

Lipidic Cubic-Phase Nanoparticles (Cubosomes) Loaded with Doxorubicin and Labeled with ^{177}Lu as a Potential Tool for Combined Chemo and Internal Radiotherapy for Cancers

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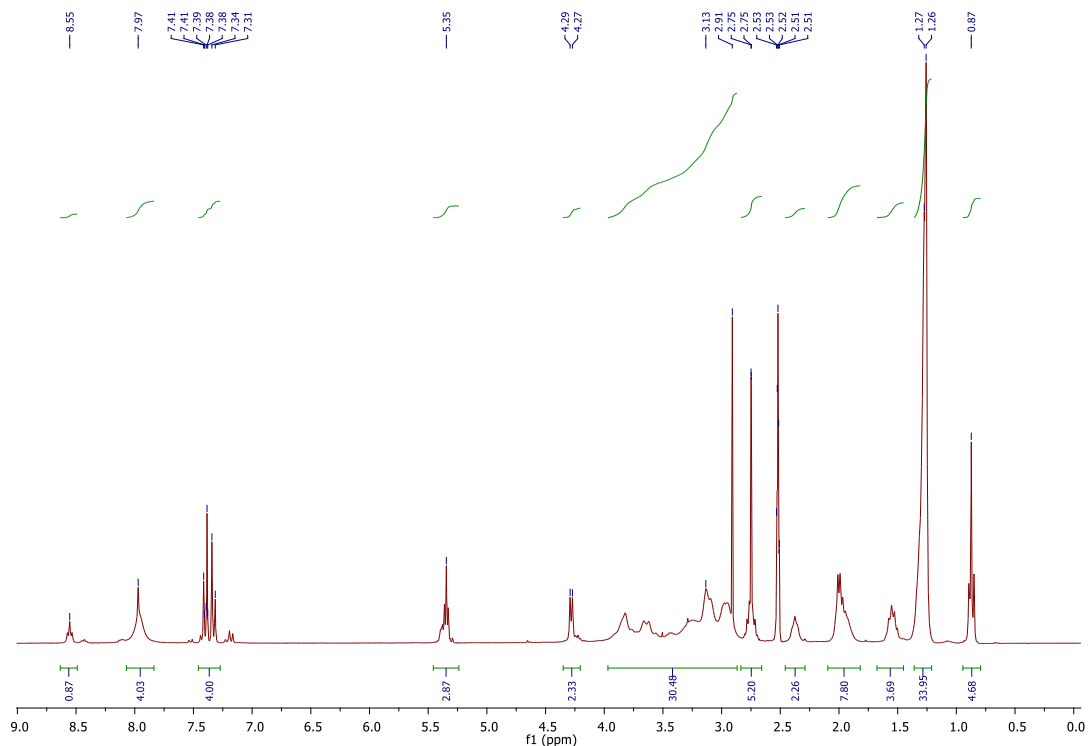


Figure S1. ^1H NMR spectrum of *p*-NCS-benzyl-DOTAGA-oleylamine in $\text{DMSO-}d_6$ (298 K).

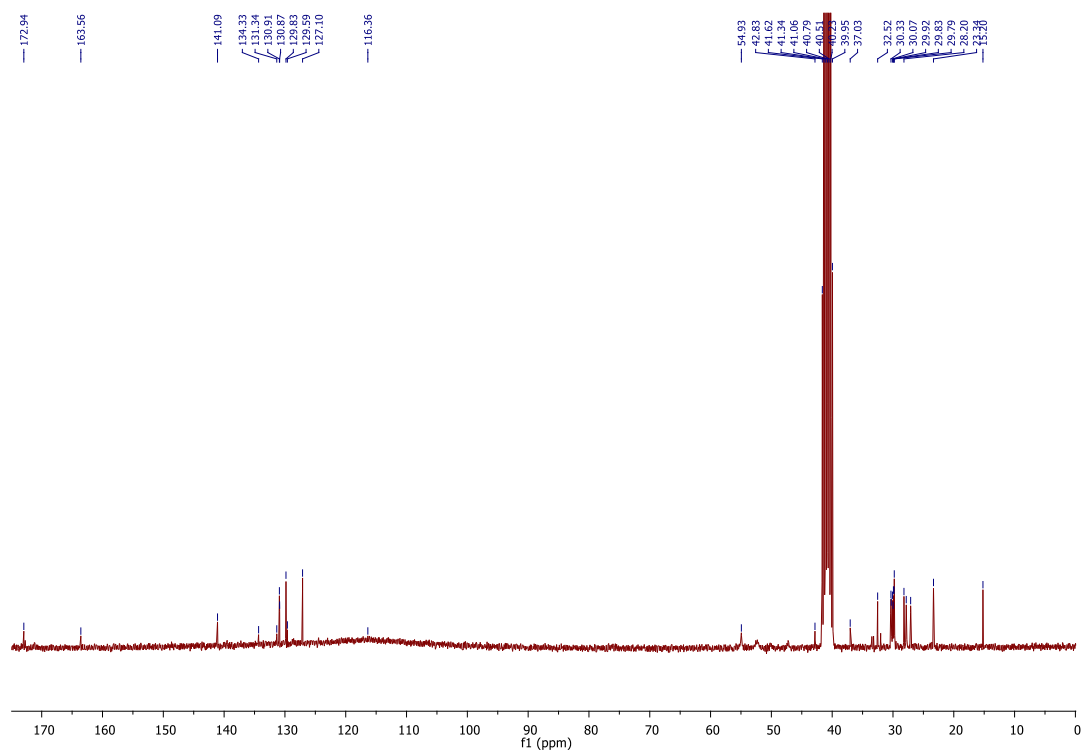


Figure S2. ^{13}C NMR spectrum of *p*-NCS-benzyl-DOTAGA-oleylamine in $\text{DMSO-}d_6$ (298 K).

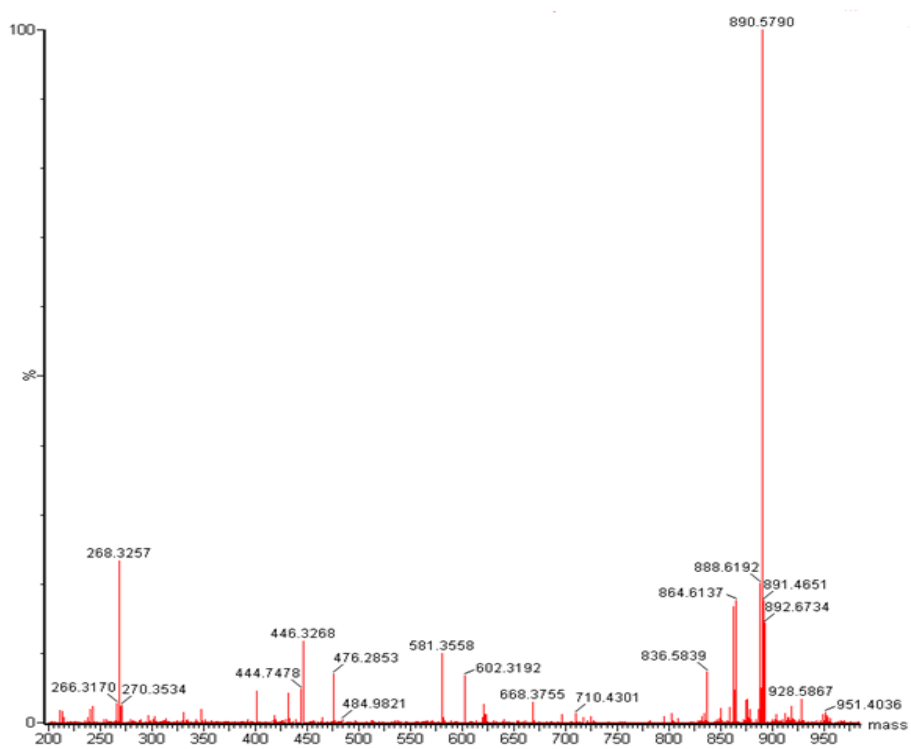


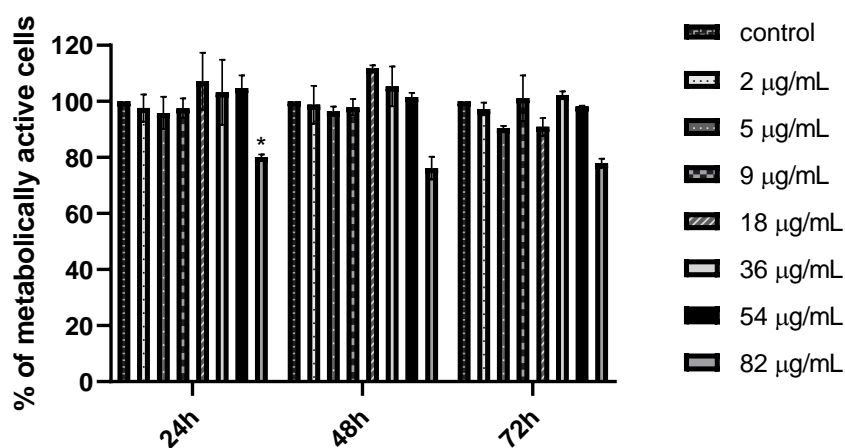
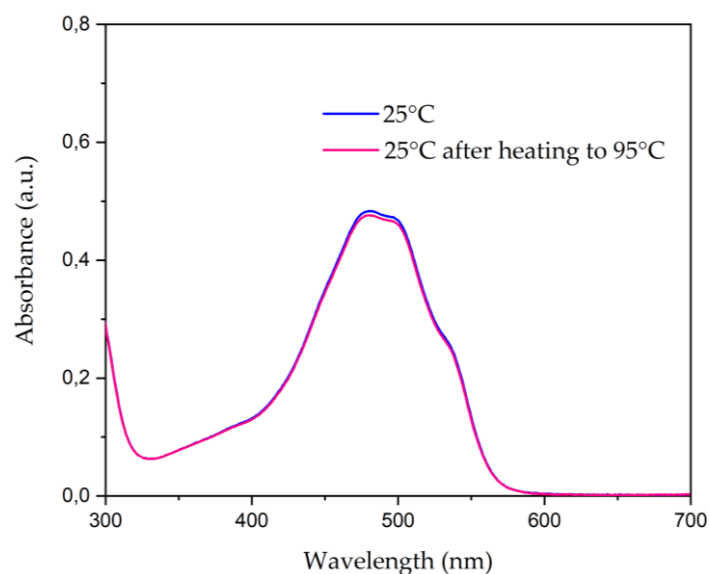
Figure S3. ESI-MS spectrum of *p*-NCS-benzyl-DOTAGA-oleylamine.

Table S1. Stability of the blank cubosomes in time.

Time (h)	PDI	Zeta Potential (mV)
0	0.16 ± 0.03	-28.7 ± 0.4
8	0.19 ± 0.01	-25.9 ± 1.3
24	0.19 ± 0.01	-23.5 ± 1.2
48	0.16 ± 0.02	-22.9 ± 1.1
72	0.21 ± 0.01	-23.3 ± 1.3
96	0.23 ± 0.01	-21.9 ± 0.8

Table S2. IC_{50} of DOX cubosomes.

DOX Cubosomes	
Incubation Time	IC_{50} ($\mu\text{g/mL}$)
24 h	1.26 ± 0.33
48 h	0.51 ± 0.14
72 h	0.20 ± 0.09

**Figure S4.** Viability of HeLa cells treated with cubosomes at various GMO concentrations. Non-treated cells were used as a control. Data points and SD are taken from three or more measurements. Statistical significance was considered if $p \leq 0.05$ (*).**Figure S5.** UV-Vis spectra of DOX solution in 25 °C (blue line) and heated to 95 °C (measured at 25 °C following equilibration after heating – pink line).

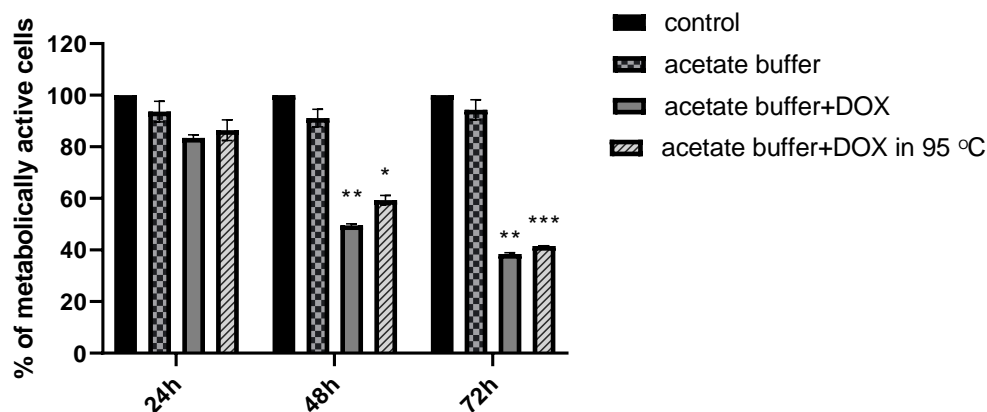


Figure S6. Viability of HeLa cells treated with acetate buffer, acetate buffer with DOX and acetate buffer with DOX heated in 95 °C. Non-treated cells were used as a control. Data points and SD are taken from three or more measurements. Statistical significance was considered if $p \leq 0.05$ (*), $p \leq 0.01$ (**), and $p \leq 0.001$ (***)

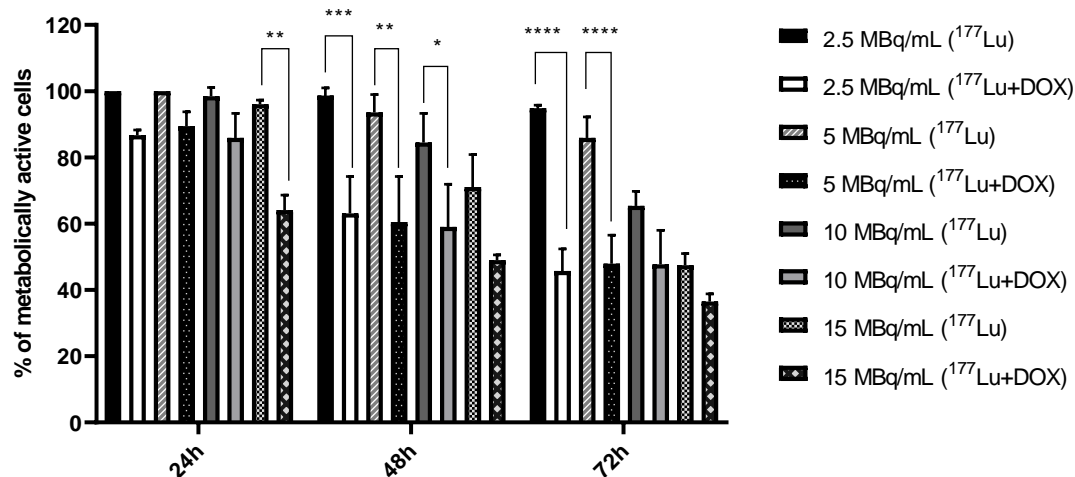


Figure S7. Viability of HeLa cells treated with cubosomes doped with: DOTAGA-OA-¹⁷⁷Lu (¹⁷⁷Lu) and DOX DOTAGA-OA-¹⁷⁷Lu (¹⁷⁷Lu + DOX). Data points and SD are taken from three or more measurements. Statistical significance was considered if $p \leq 0.05$ (*), $p \leq 0.01$ (**), $p \leq 0.001$ (***) and $p \leq 0.0001$ (****).

