Supplementary information for

Endosomal escape by photo-activated fusion of liposomes containing a malachite green derivative: A novel class of photoresponsive liposomes for drug delivery vehicles

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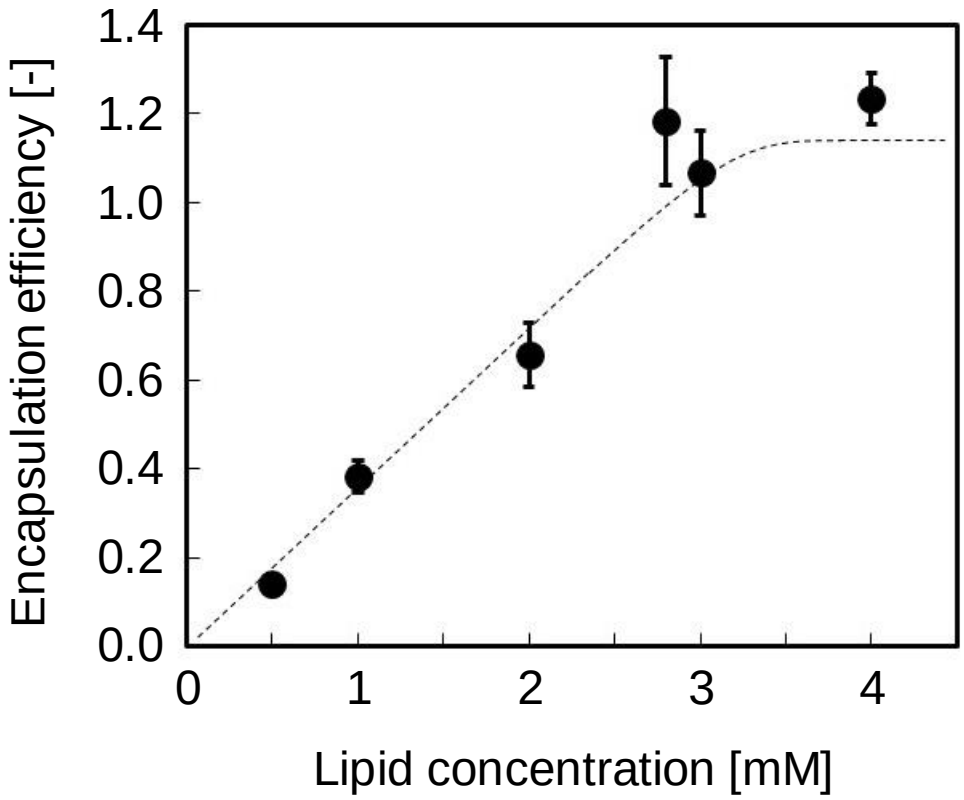

Figure S1 Encapsulation efficiency of DOX in the MGL liposome. Data are presented as the average (n = 3) ± standard deviation.

DOX-MGL liposomes were prepared and kept at 4 °C for 21 h, 3 day, and 10 day. The distributions of DOX-MGL liposomes after the storage were measured by dynamic light scattering (DLS) using a Nanotrac Wave UT151 (Nikkiso, Japan) and shown in Figure S2. Because any significant difference was not observed among them, the results of Figure S2 indicate that DOX-MGL liposomes were stable at 4 °C without aggregation in the time range measured.

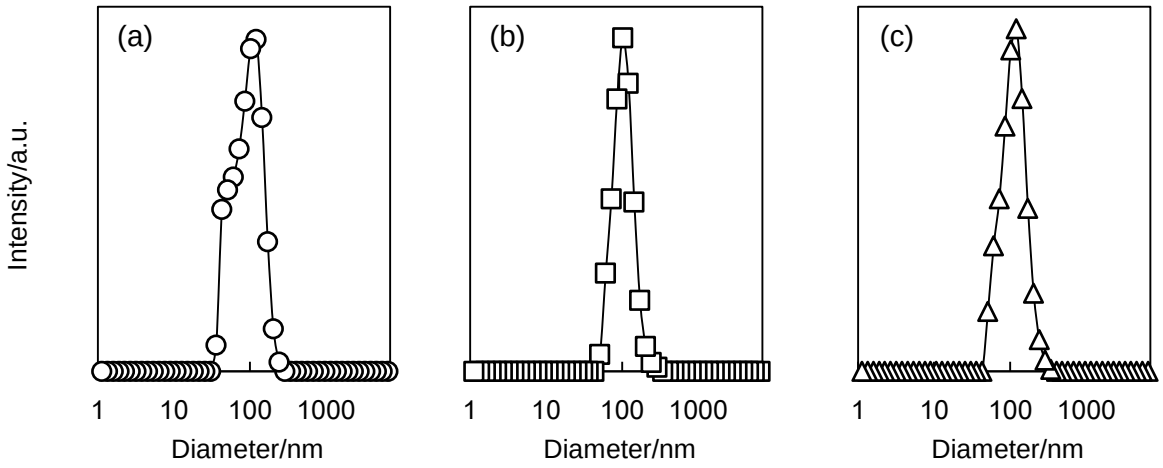

Figure S2 Size distribution of DOX-MGL liposomes measured by DLS at room temperature. (a) 21 h, (b) 3 day, and (c) 10 day storage. [POPC] = 0.7 mM.

The effect of the storage of DOX-MGL liposomes at 4 °C on the cellar uptake was further evaluated by flow cytometry. Colon 26 cells were seeded and cultured as described in the experimental section. DOX-MGL liposomes were prepared and kept at 4 °C for 18 h, 3day, and 10day and then they were added to Colon 26 cells. After incubation, fluorescence intensities of DOX in the cells were measured using a flow cytometer. From the results of Figure S3, it is deduced that the storage at 4 °C hardly affected the uptake behavior of DOX-MGL liposomes.

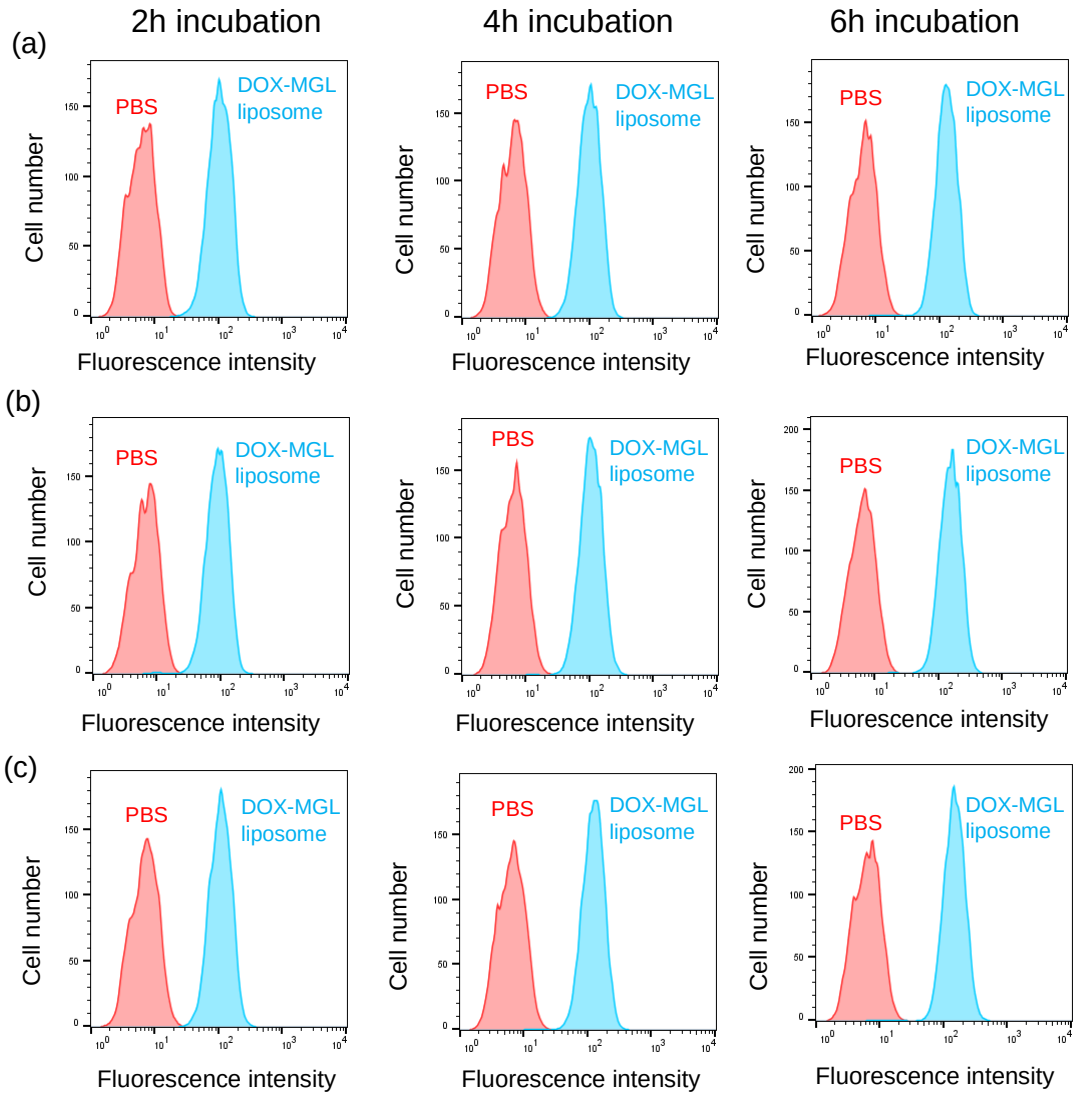

Figure S3 Flow cytometric measurement of DOX-MGL liposomes uptake by Colon 26 cells. (a) 18 h, (b) 3 day, and (c) 10 day storage. [POPC] = 0.40 mM.

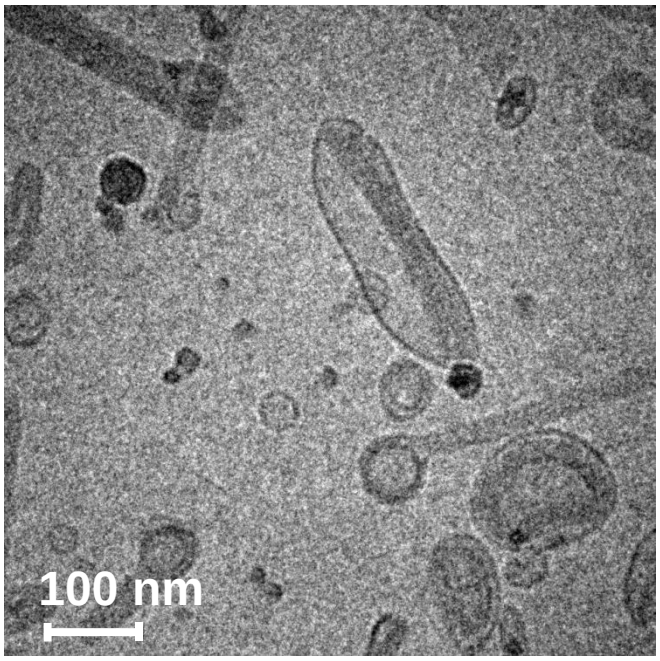

Figure S4 A cryo-TEM image of UV irradiated DOX-MGL liposomes.

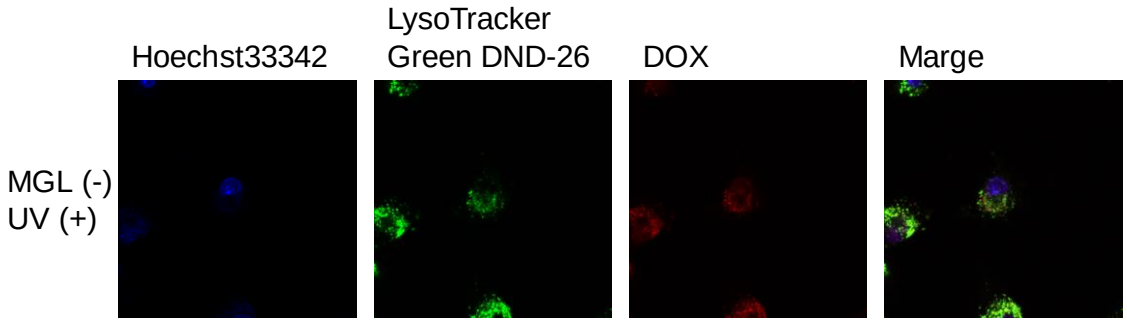

Figure S5 Observations of Colon 26 cells treated with DOX liposomes ([DOX] = 0.16 mM, [POPC] = 0.43 mM) after UV irradiation. Blue: nucleus staining by Hoechst33342. Green: lipid staining by LysoTracker Green DND-26. Red: DOX.

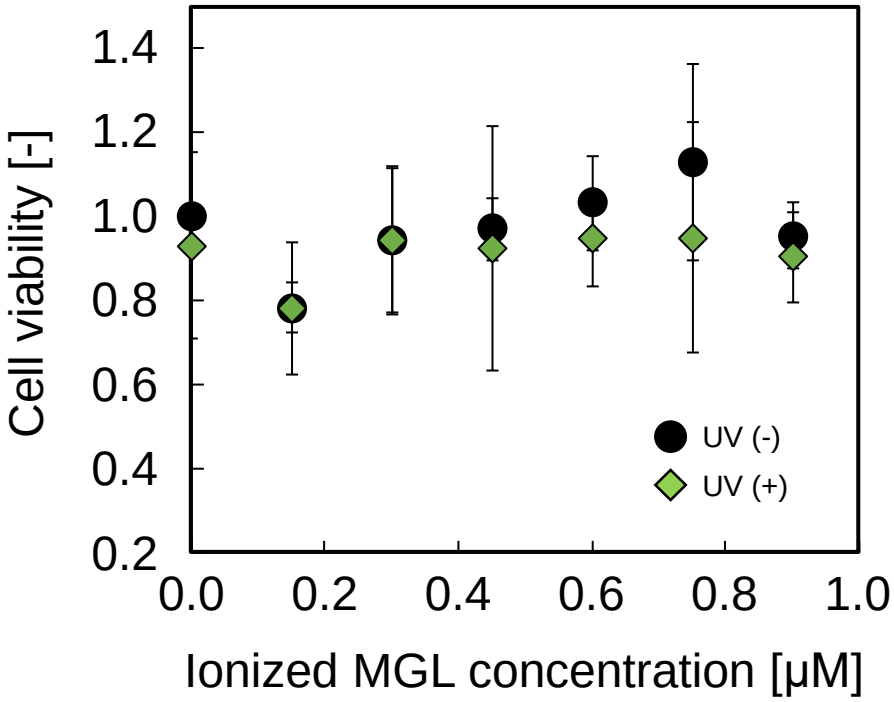

Figure S6 Cell viability measurement of Colon 26 cells treated with MGL liposome before UV irradiation (UV (-)) and after UV irradiation (UV (+)). Each data point is the average ± standard deviation of three different experiments.

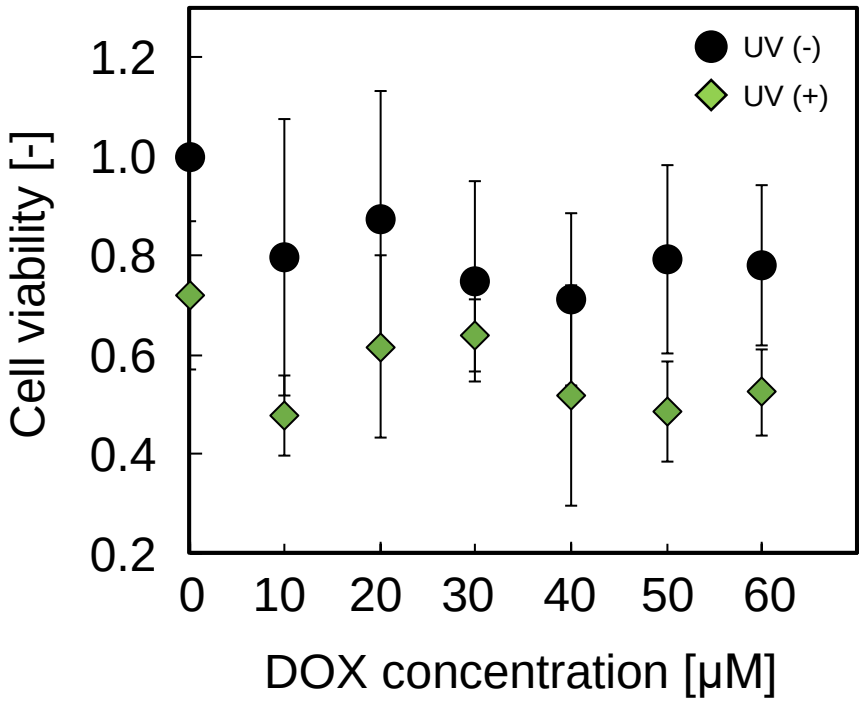

Figure S7 Cell viability measurement of Colon 26 cells treated with DOX-MGL liposomes before UV irradiation (UV (-)) and after UV irradiation (UV (+)). Each data point is the average ± standard deviation of three different experiments.