Self-assembly of porphyrin-grafted lipid into nanoparticles encapsulating doxorubicin for synergistic chemo-photodynamic therapy and fluorescence imaging

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Supporting Information

Supplementary Table S1: Physiochemical Properties of Different Formulations of PGL-DOX NPs

<table>
<thead>
<tr>
<th>Lipid composition DSPC:Chol:PGL:DSPE-PEG 2000</th>
<th>Effective Diameter (nm) ± SD</th>
<th>PDI</th>
<th>EE (%)</th>
<th>DL (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50:30:10:10</td>
<td>113.27±3.5</td>
<td>0.168</td>
<td>&gt;82</td>
<td>7.4±0.9</td>
</tr>
<tr>
<td>50:35:10:5</td>
<td>108.45±3.28</td>
<td>1.94</td>
<td>&gt;85</td>
<td>9.9±0.1</td>
</tr>
<tr>
<td>52:33:10:5</td>
<td>82.13±6.71</td>
<td>0.151</td>
<td>&gt;99</td>
<td>10±0.3</td>
</tr>
</tbody>
</table>

PGL: porphyrin-grafted lipid; PDI: polydispersity index; EE: encapsulation efficiency

Supplementary Figure S1: Image representing the encapsulation of DOX into PGL NPs.
Supplementary Figure S2: Colloidal stability test for PGL-DOX NPs in water.

Supplementary Figure S3: Temperature elevation monitoring during PDT process; *in vitro* temperature-time curves of PBS, PGL-NPs and PGL-DOX NPs solution upon irradiation of 650nm laser.

Supplementary Figure S4: (A) absorption spectra of DOX in the presence of singlet oxygen (B) relative absorbance of DOX in the presence of singlet oxygen. Data are presented as mean ± SD (n=3).
**Supplementary Figure S5:** The combination index (CI)-plot of HeLa cells treated with PGL-DOX NPs mediated chemophotodynamic therapy. CI was calculated with Compusyn software.

**Supplementary Figure S6:** Flow cytometry analysis of tumor cells apoptosis induced by PGL NPs with and without laser irradiation based on Annexin V-FITC/PI staining.
Supplementary Figure S7: Plasma clearance of PGL NPs measured by fluorescence intensity of PGL in the blood (n = 3). Fluorescence intensities $F_0$ and $F_t$ of the porphyrin molecules at the initial and the given time, respectively.
Supplementary Figure S8: Representative photographs of tumor bearing mice after different treatments.