**Supplementary Information**

Development of synthetic high-density lipoprotein-based ApoA-I mimetic peptide loaded docetaxel as a drug delivery nanocarrier for breast cancer chemotherapy

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Figure S1. The structure of DMPC, DPPC, HSPC, and POPC.

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Figure S2. The appearance of different types of sHDL nanoparticles.

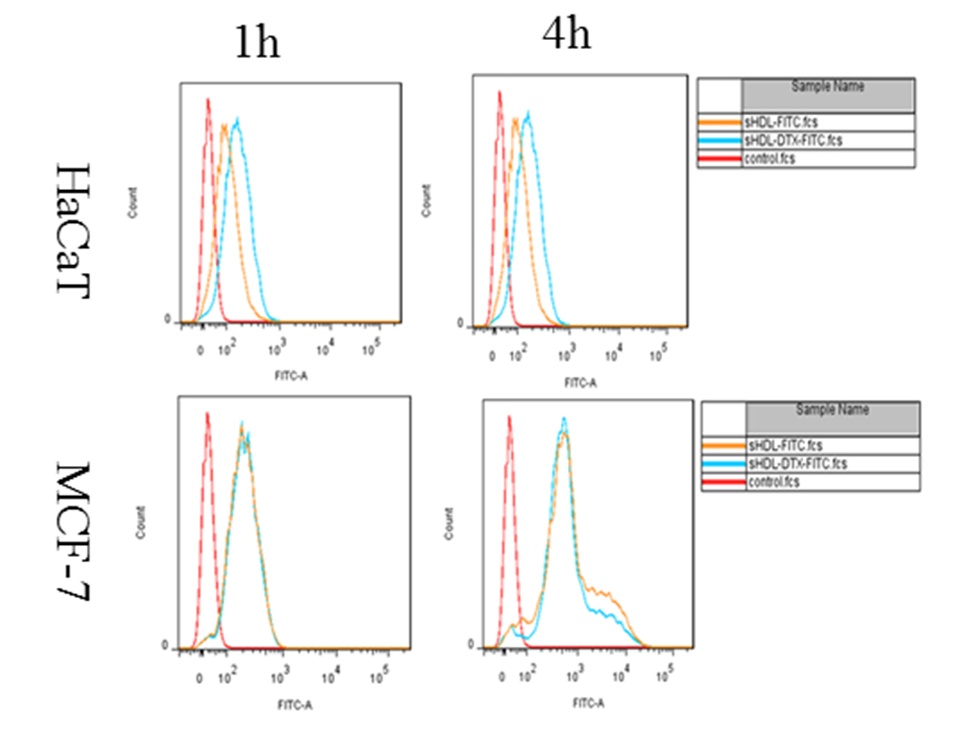


Figure S3. FCM results of cellular uptake in HaCaT cells and MCF-7 cells after incubation with sHDL-FITC nanoparticle and DTX-sHDL-FITC nanoparticle for 1 h and 4 h, respectively.

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Figure S4. The image of resected tumor treated with Saline, DTX-sol, sHDL, and DTX-sHDL nanoparticles.

Table S1 The properties of blank sHDL made with different types of phospholipids

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | DMPC | DPPC | HSPC | POPC |
| Size | 12.58±0.34 | 20.84±0.13 | 30.09±0.27 | 118.84±61.07 |
| Turbidity | 0.022±0.002 | 0.061±0.001 | 0.292±0.002 | 0.598±0.0006 |
| Enthalpy | -233.08 | -278.14 | -301.43 | -307.78 |
| Binding Energy | -357.798 | -320.962 | -259.296 | -281.279 |

Table S2 *In vitro* release kinetics parameters.

|  |  |  |  |
| --- | --- | --- | --- |
| Model | Equation | Equation pH 7.4 | R2 |
| Zero order | R=kt+C | R=0.0138t+0.2795 | 0.8785 |
| First order | In(1-R)=kt+C | In(1-R)= -0.057t-0.0639 | 0.9729 |
| Higuchi | R= kt**1/2** +C | R=0.1323t**1/2** +0.0342 | 0.9811 |
| Riger-Peppas | InR=kInt +C | InR=0.488Int -1.9129 | 0.9894 |