Supplementary Material

Linear Maltodextrin Polymer-folic Acid Modified Graphene Oxide Nanoparticles for Targeted Delivery and pH/Photothermal-Sensitive Release of Hydrophobic Anticancer Drug in Tumor Cells

Xiaoning Li [a], Huirui zhu [a], Zihan Xing [a], Tao Gong*[a], Meining Li [a], Dan Su [a], Wenting Liang *[b] and Rui Guo*[a]

[a.] *Department of biochemistry and Molecular Biology, Shanxi Medical University, Taiyuan 030001, China; gyt830626@163.com (T. G.)；15834151276@139.com (R.G.).*

[b.] *Institute of Environmental Science, Department of Chemistry, Shanxi University, Taiyuan 030006, China; liangwt@sxu.edu.cn (W.L.).*

Xiaoning Li and Huirui Zhu contributed equally to this study.

1. Lagergren's pseudo-first-order kinetic model (Equation S1) and Ho's pseudo-second-order model (Equation S2)

$$ln(q_e - q_t) = ln(q_e) - k_1 t \quad (1)$$

$$\frac{t}{q_t} = \frac{1}{k_2 q_e^2} + \frac{t}{q_e} \quad (2)$$

where, in Eq (1) and (2): q_e (mg g^{-1}) is equilibrium adsorption capacity; q_t (mg g^{-1}) is the drug loading at different time points; t (min) is the drug loading time; k_1 and k_2 are kinetic constants.

2. Langmuir isotherm adsorption model (Equation S3) and Freundlich isotherm adsorption model (Equation S4)

$$\frac{C_e}{q_e} = \frac{C_e}{q_m} + \frac{1}{q_m K_L} \quad (3)$$

$$lnq_e = lnK_f + \frac{1}{n} lnC_e \quad (4)$$

where, in Eq (3) and (4): C_e (mg L^{-1}) is the mass concentration at the time of drug loading equilibrium; q_m (mg g^{-1}) is the drug load in the saturated state; q_e (mg g^{-1}) is the drug load at equilibrium; K_L (L mg^{-1}) is the dissociation constant; K_f is the Freundlich constant; 1/n is the Freundlich component factor.

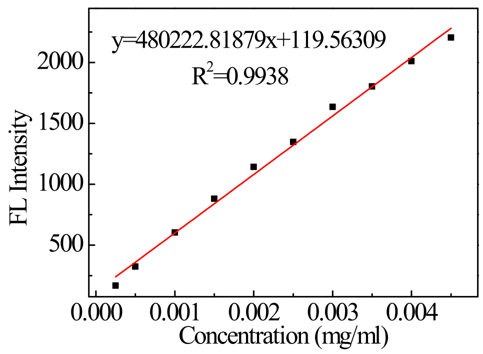

Figure S1. Plot of standard curve for DOX solutions with different concentrations.

Table S1 The pharmacokinetic parameters of DOX on GO@LM-SP-FA.

Pesudo-first-order model			Pesudo-second-order model		
q_e (mg g^{-1})	k_1 (min^{-1})	R^2	q_e (mg g^{-1})	k_2 (g mg^{-1} min^{-1})	R^2
6.102	0.01093	0.9308	39.278	0.00723	0.9999

Table S2 Related parameters of Langmuir and Freundlich isotherm adsorption models of DOX by GO@LM-SP-FA.

Langmuir isotherm model			Freundlich isotherm model		
q_m (mg g^{-1})	K_L (L mg^{-1})	R^2	n	K_f (L g^{-1})	R^2
1789.027	0.101	-0.0798	0.679	57.016	0.9429