

Electronic Supplementary information

Plasmonic nanoprobe on single AuNTs for evaluating and monitoring dynamic release of 2D drug carrier

Zejie Yu,^{†a} Yi Wang,^{†a} Miaomiao Cai,^a Jiachang Chen,^a Qirong Zou,^a Quli Fan,^a and Zhang Lei^{*a}

^a State Key Laboratory of Organic Electronics and Information Displays & Institute of Advanced Materials (IAM), Nanjing University of Posts & Telecommunications, Nanjing 210023, China. E-mail: iamlzhang@njupt.edu.cn

[†] These authors contributed equally.

S1 Supporting Figures

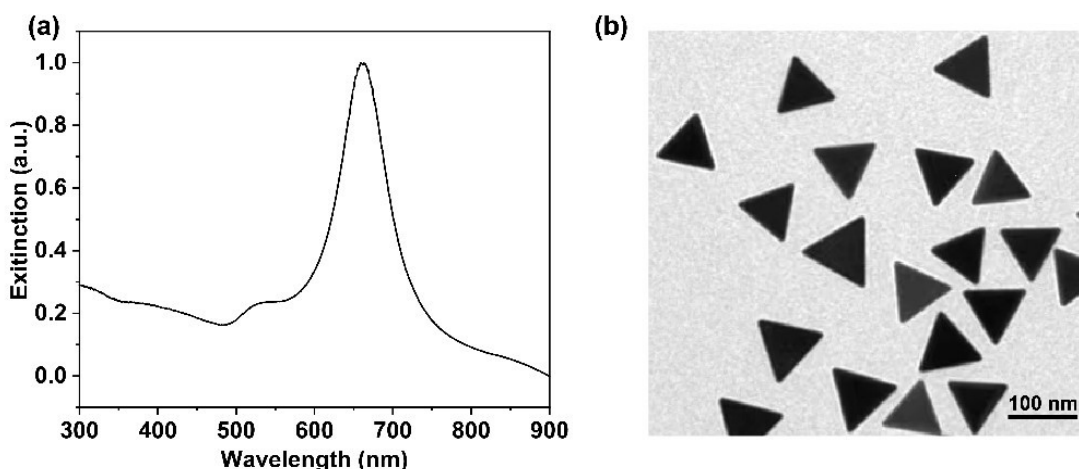


Fig S1 (a) UV-Vis absorption spectra of AuNTs. (b) TEM image of the AuNTs.

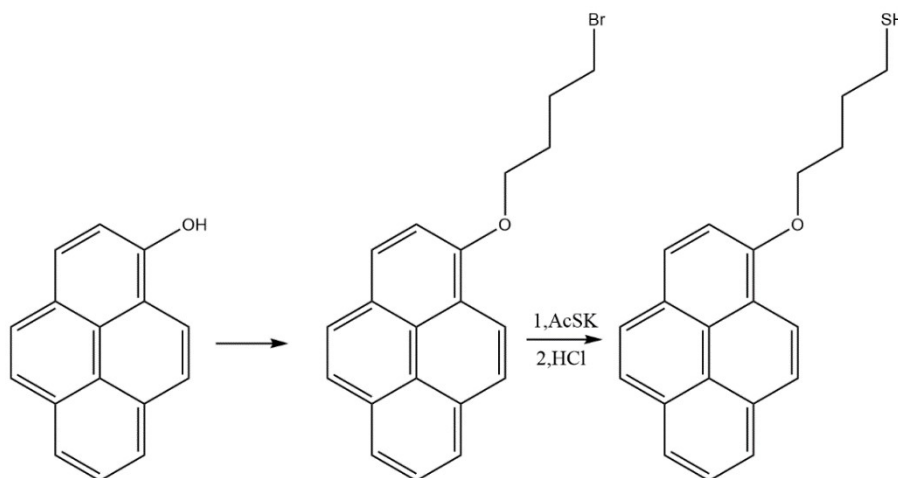


Fig S2 Schematic diagram of the synthesis of TMP.

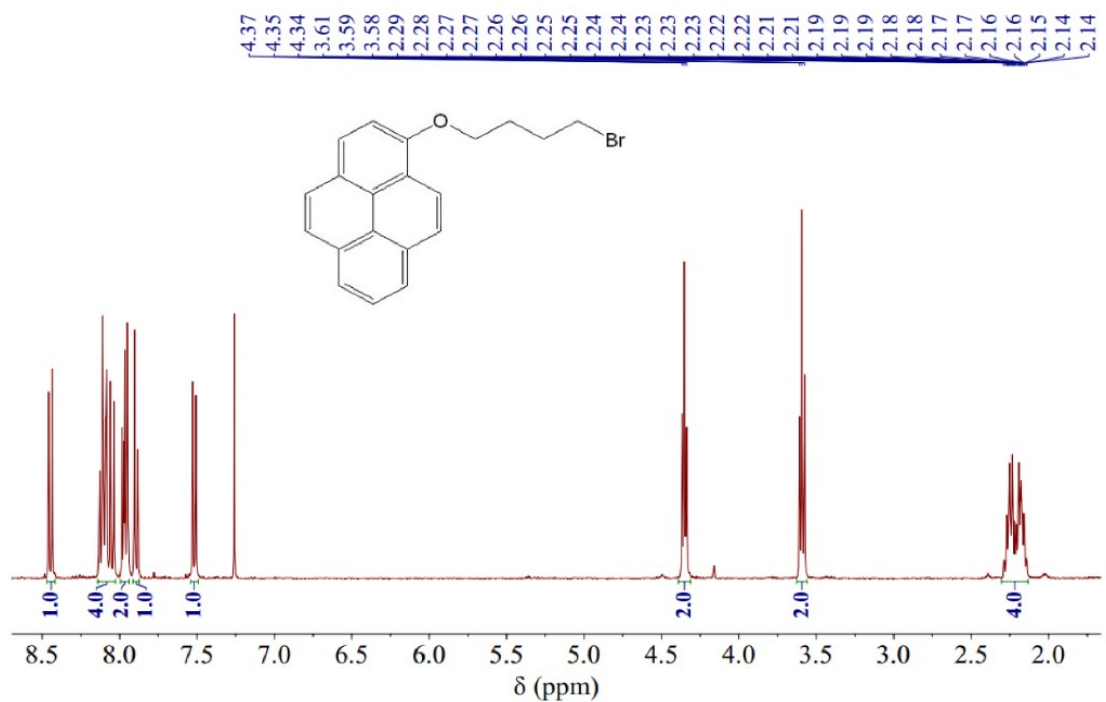


Fig S3 TBH's proton nuclear magnetic resonance spectra.

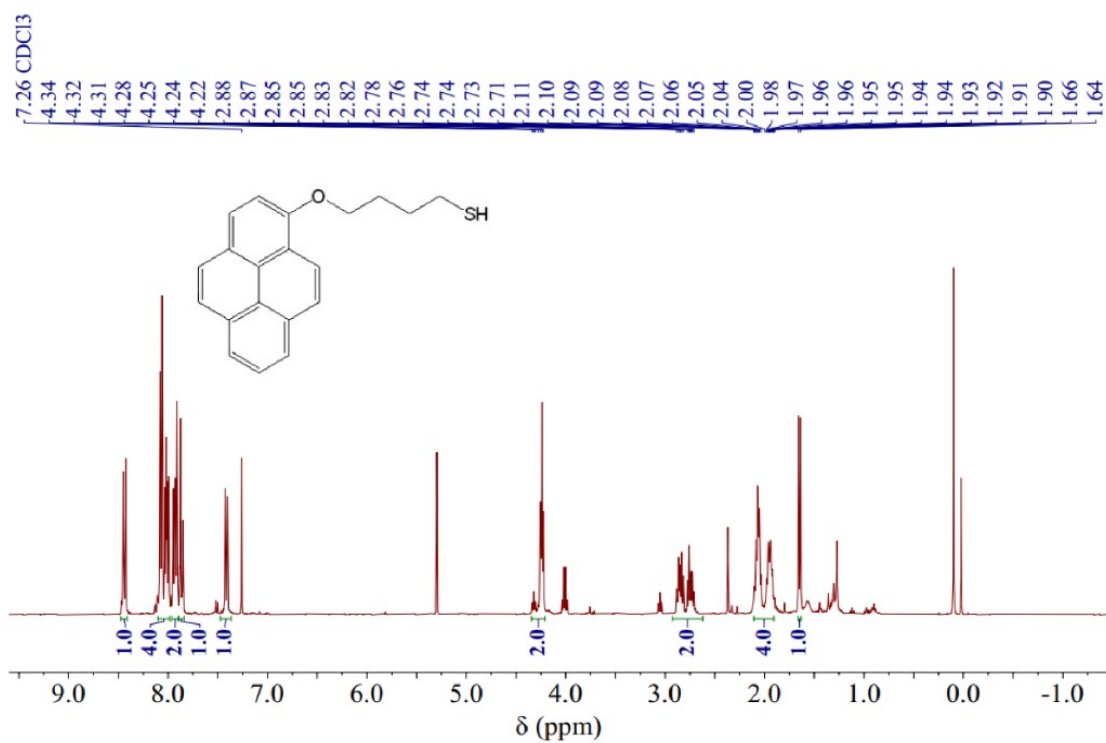


Fig S4 TMP's proton nuclear magnetic resonance spectra.

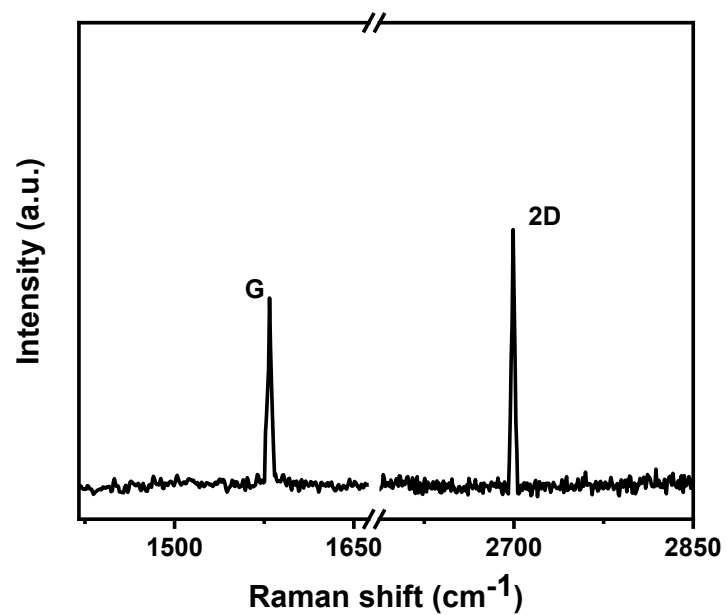


Fig S5 Characteristic Raman spectra of monolayer graphene.

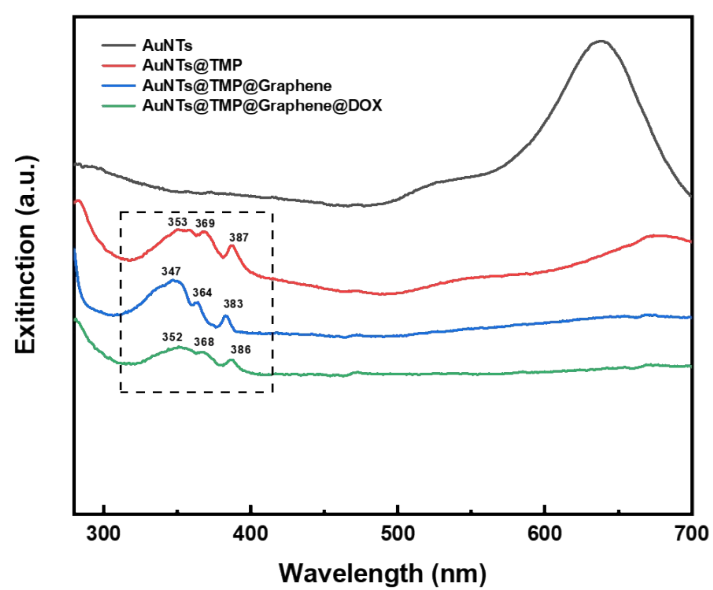


Fig S6 UV-Vis spectra of AuNTs sequentially connected to TMP, graphene and loaded DOX.

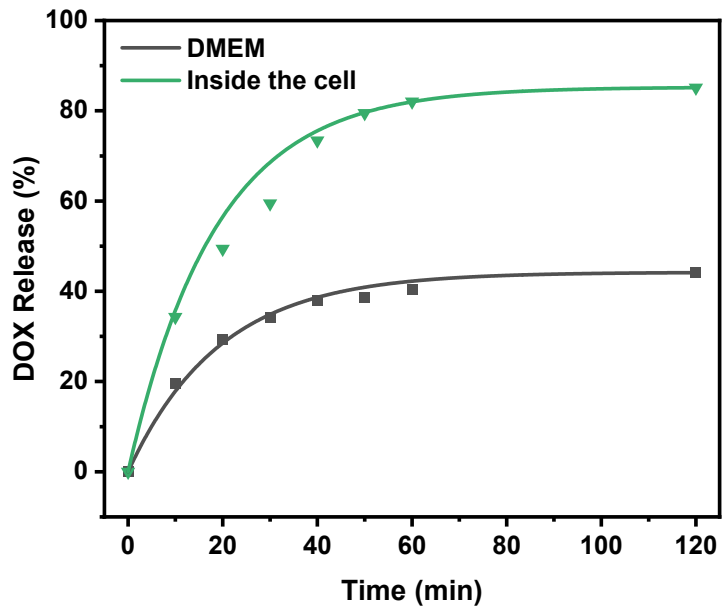


Fig S7 Fitting of Langmuir adsorption isotherm equation for DOX release rate of drug download system under DMEM.

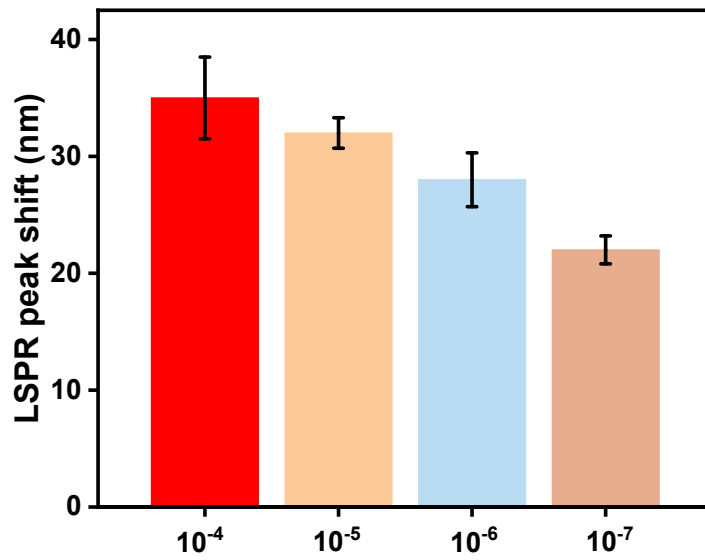


Fig S8 LSPR peak displacement due to TMP at different concentrations (n=5).

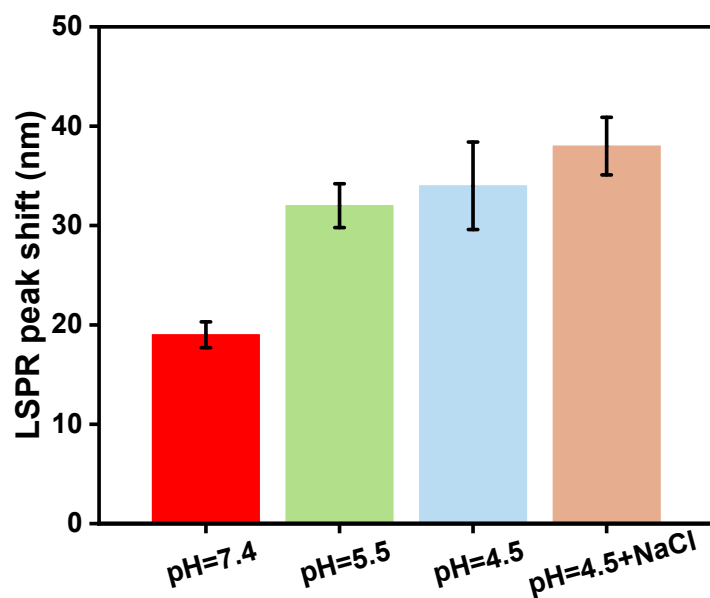


Fig S9 Repeatability test of DOX release under different external environments (n=5).

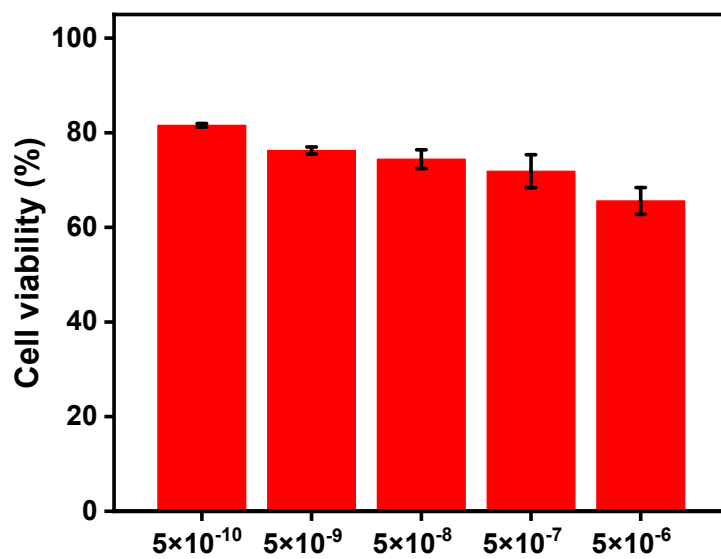


Fig S10 Cytotoxicity assessment at different concentrations after 24h (n=5).

Table S1 Statistical regression coefficients (R^2) applied to different DOX release kinetic models

Model	Equation	R^2 Value	k	b
Zero-order	$Q = kx + b$	0.8622	1.123	13.78
First-order	$\ln(100-Q) = -kt + b$	0.9612	-0.02	4.4956
Hixson-Crowell	$(W_0 - W_t)^{1/3} = -kt + b$	0.9322	-0.026	4.467
Korsmeyer-Peppas	$Q_t/Q_{max} = kt^n$	0.9279	2.1025	0.14
Higuchi	$Q = kt^{1/2}$	0.9978	9.6967	Null

Note: 't' represents the time required for a specific fraction of drug 'Q' to be released from the formulation; 'k' denotes the rate constant, and 'b' represents a constant value.

Video S1 The LSPR scattering intensity of AuNTs@Graphene nanoparticles in DFM video



AuNTs@Graphen
e 0.33fps.avi