

Peptide-Conjugated Aggregation-Induced Emission Fluorogenic Probe for Glypican-3 Protein Detection and Hepatocellular Carcinoma Cells Imaging

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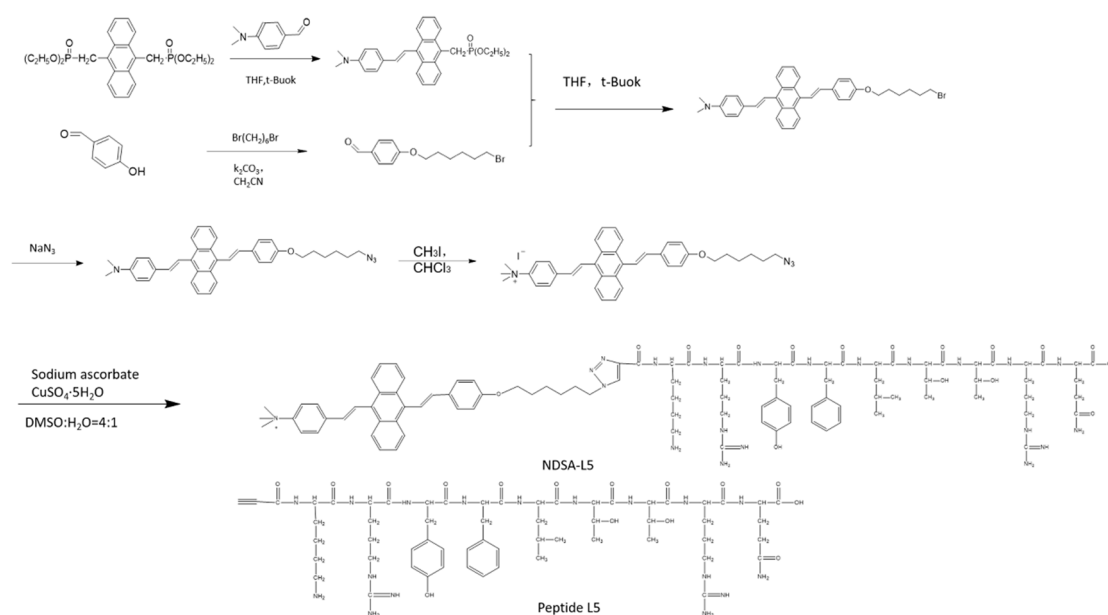
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Scheme S1. The synthetic route of NDSA-L5.

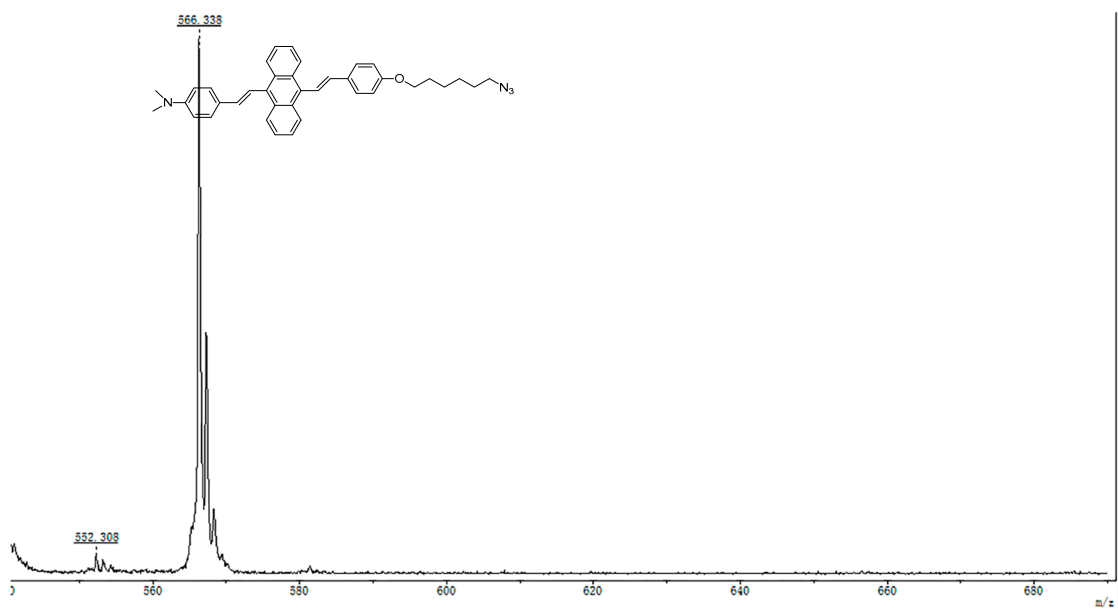


Figure S1. MALDI-TOF mass spectra of compound 5.

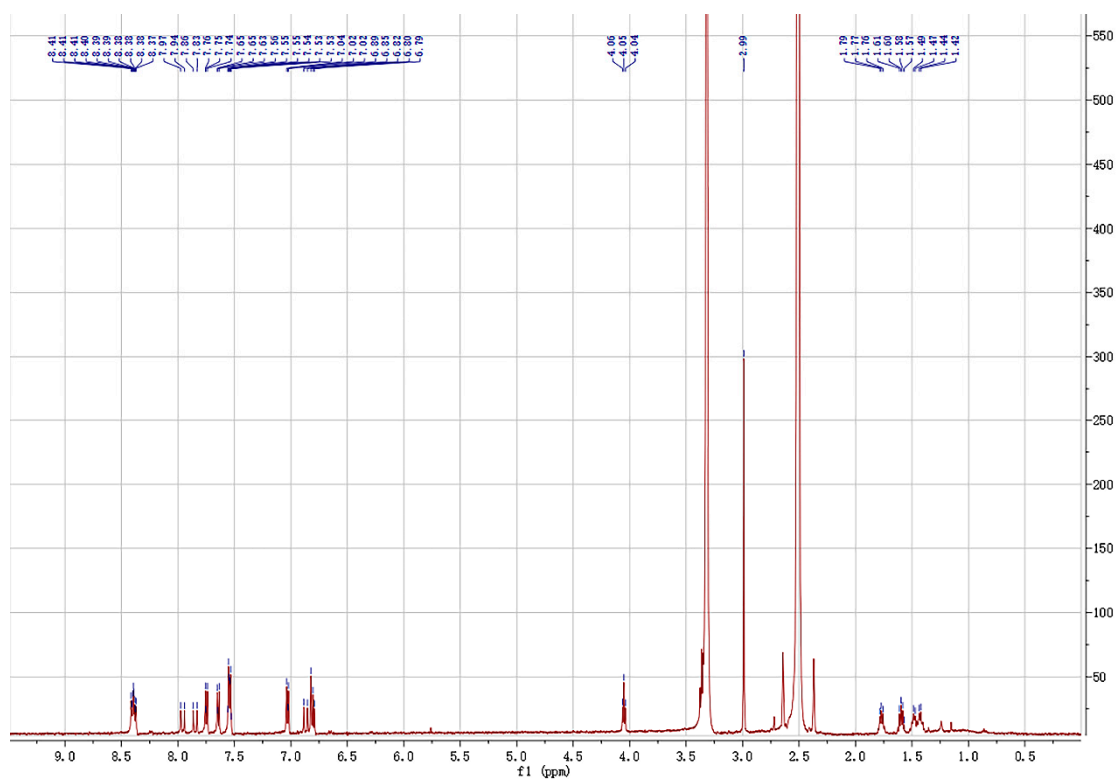


Figure S2. ¹H NMR spectrum of compound 5 recorded in DMSO-D₆.

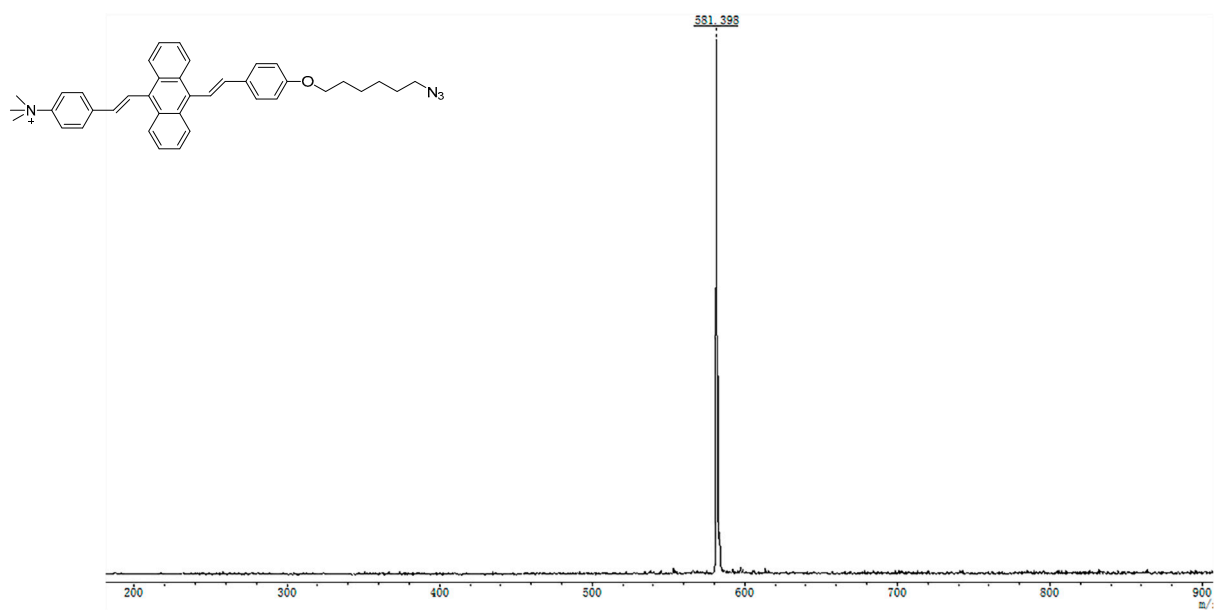


Figure S3. MALDI-TOF mass spectra of NDSA-N3.

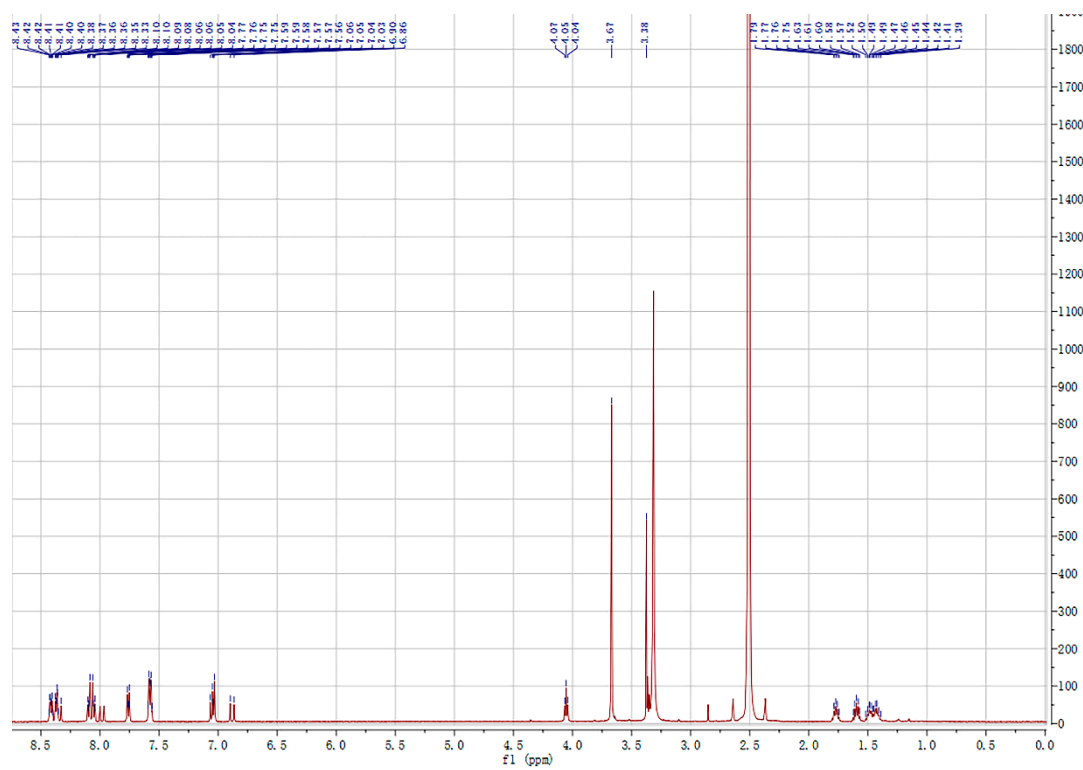


Figure S4. ¹H NMR spectrum of NDSA-N3 recorded in DMSO-D₆.

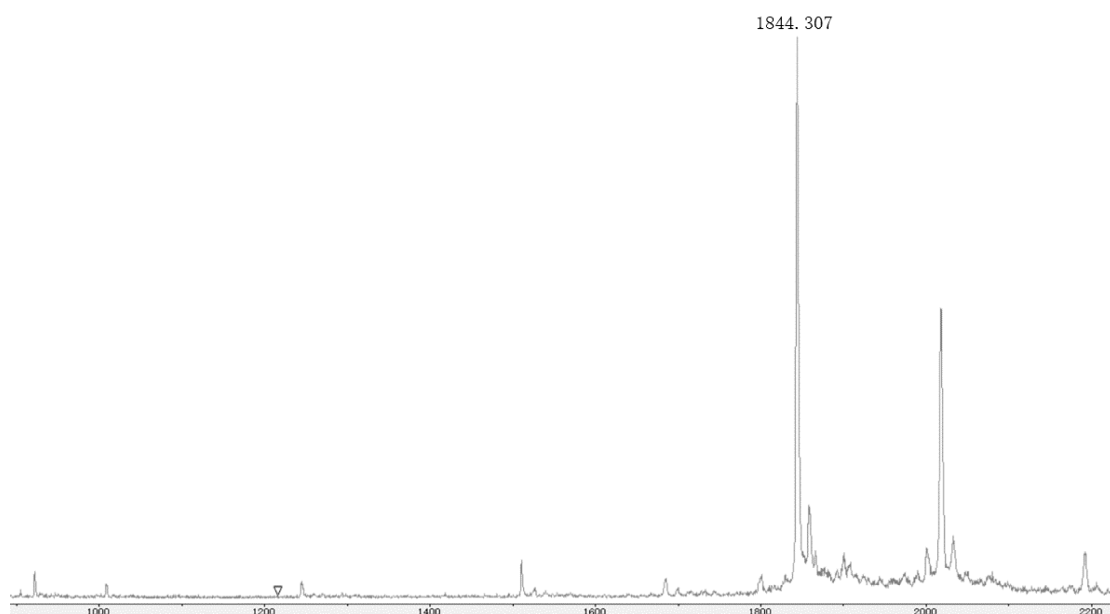


Figure S5. MALDI-TOF mass spectra of NDSA-L5.

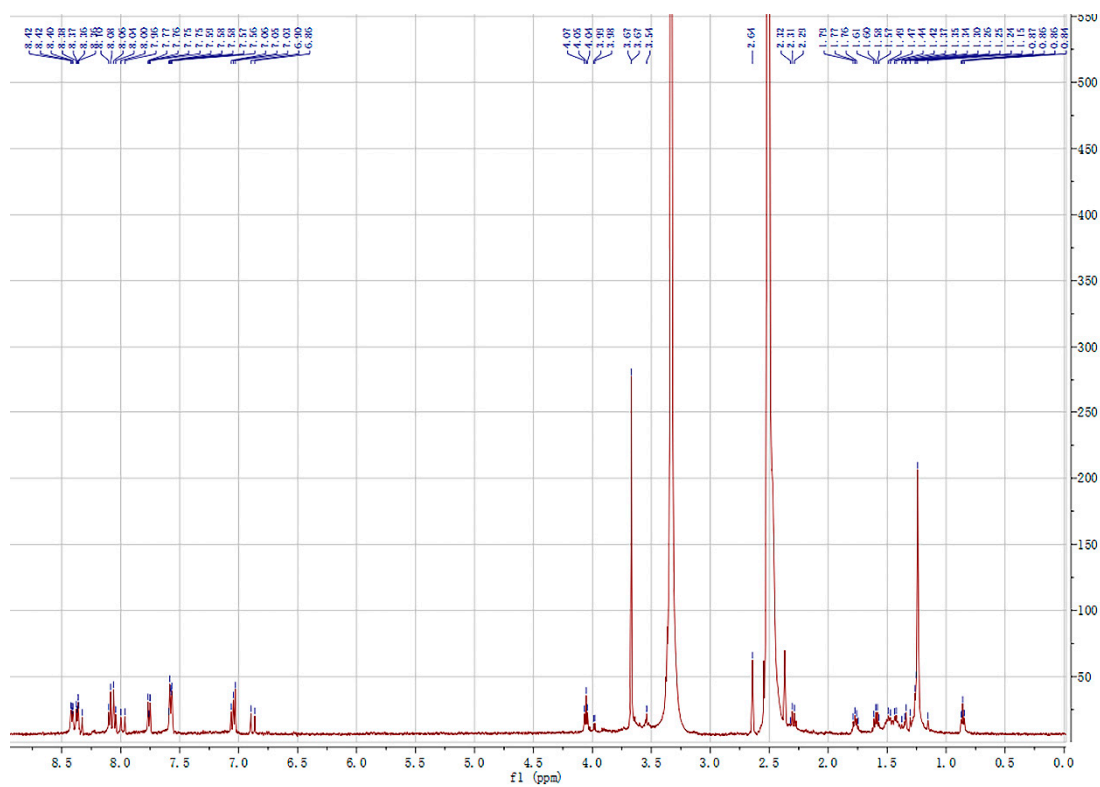


Figure S6. ¹H NMR spectrum of NDSA-L5 recorded in DMSO-D6.

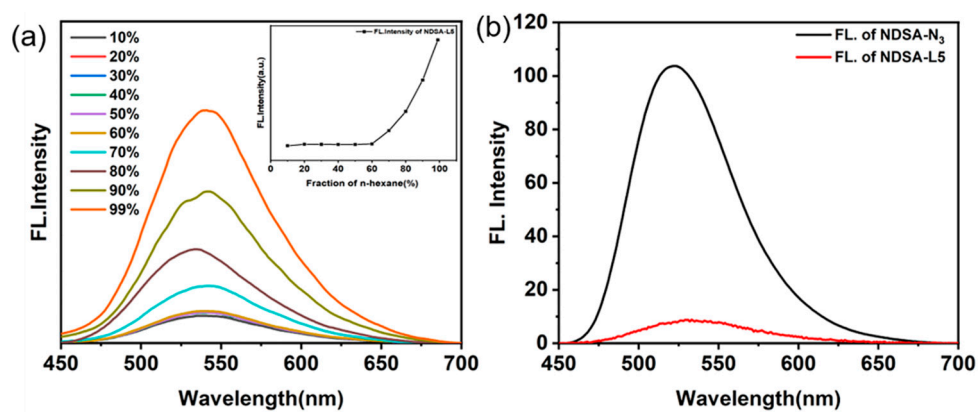


Figure S7. a) Fluorescence spectrum of NDSA-L5 in different n-hexane concentration n-hexane/DMSO solution and NDSA-L5 in n-hexane/DMSO. Line graph of emission intensity of n-hexane volume fraction change, b) The PL intensities of NDSA-N3 and NDSA-L5 in the PBS buffer.

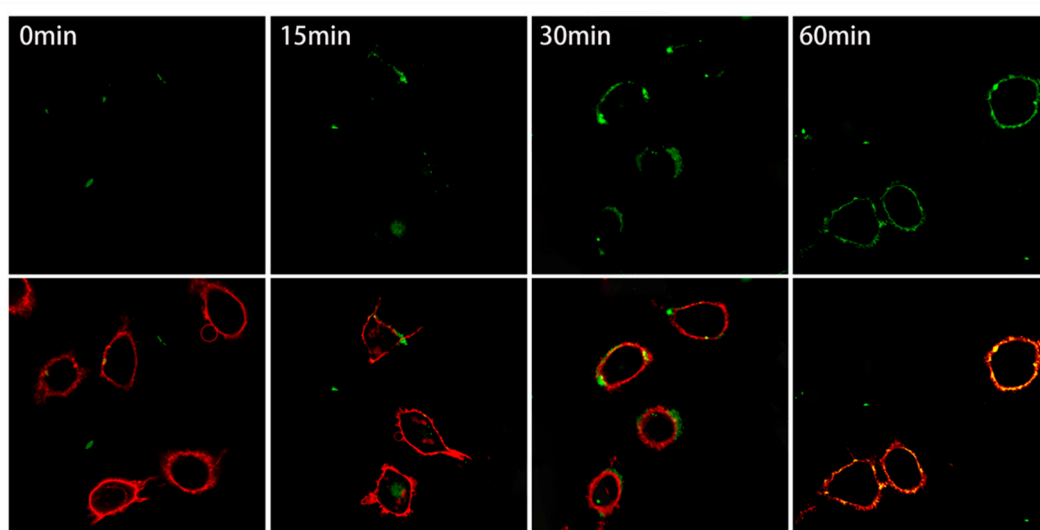


Figure S8. Time-uptake fluorescence imaging results of probe NDSA-L5 on Hep-G2 cells.

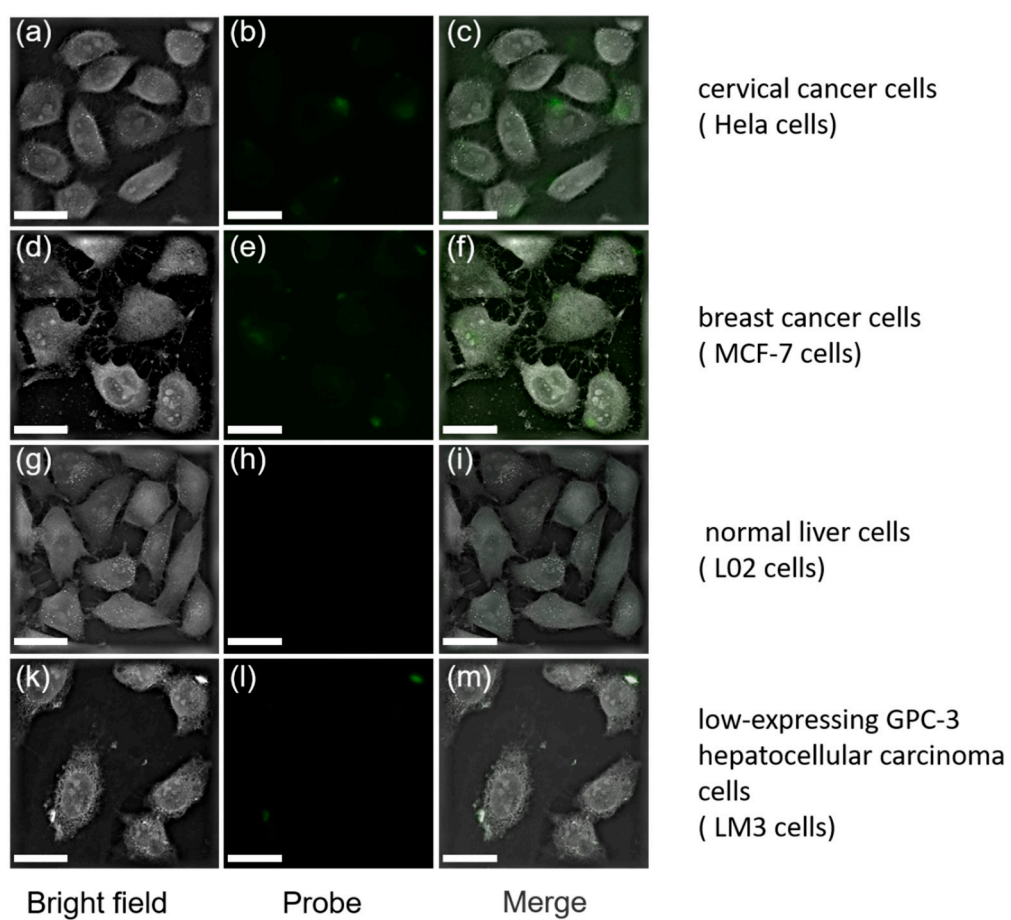


Figure S9. Fluorescence images of cervical cancer cells (Hela cells, a-c), breast cancer cells (MCF-7 cells d-f), normal liver cells (L02 cells g-i), low-expressing hepatocellular carcinoma cells (LM3 cells k-m) Overlay imaging. Scale bar, 20 μ m.

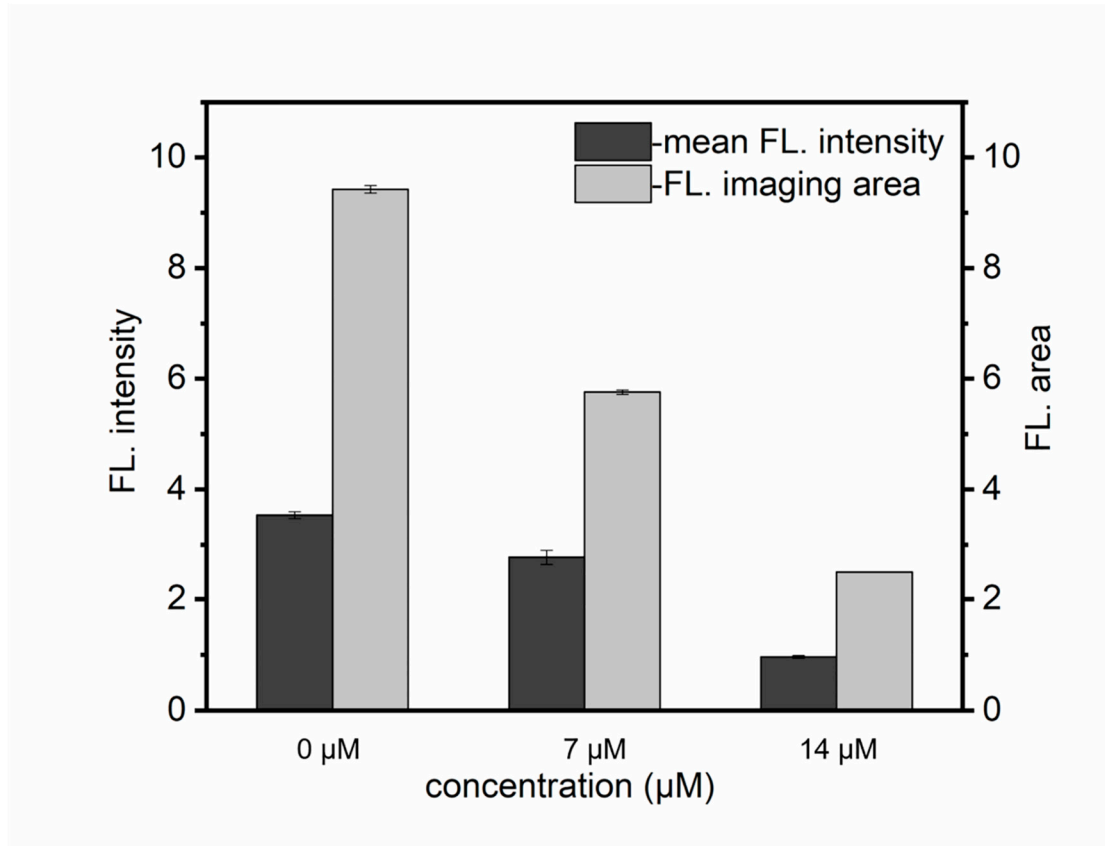


Figure S10. Mean fluorescence intensity and fluorescence imaging area of Hep-G2 cell and their corresponding with different amounts of peptides L5 prior to NDSA-L5 treatment.

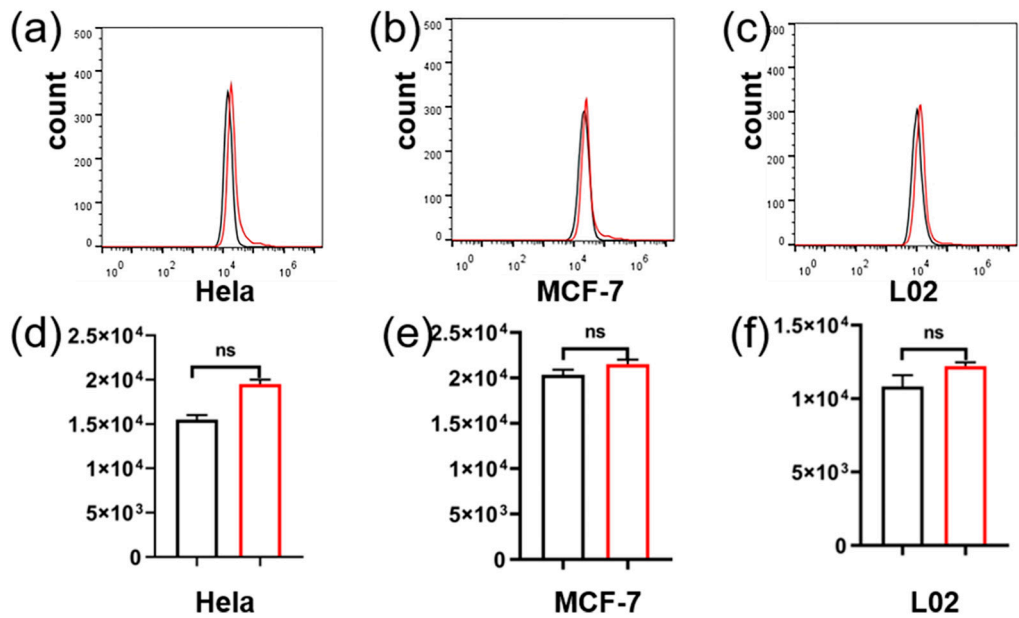


Figure S11. Flow cytometry histograms of different cell lines, a)& d) HeLa, b)& e) MCF-7, c)& f) L02, after incubation with NDSA-L5 for 90 min.

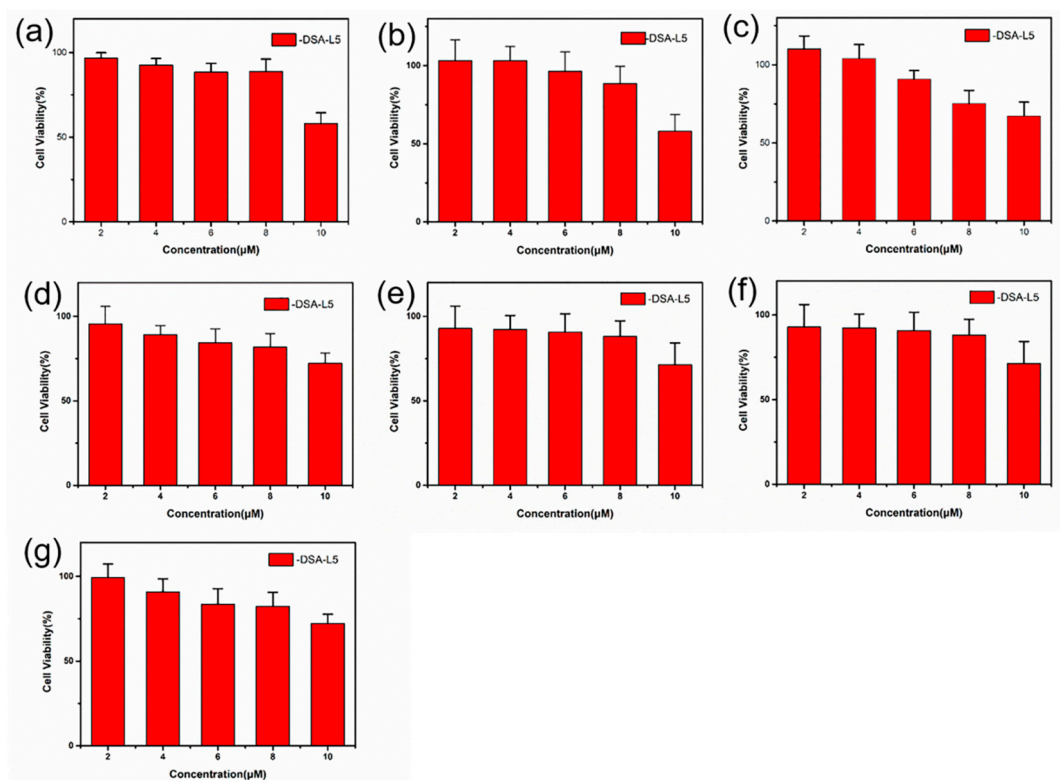


Figure S12. Biological toxicity of NDSA-L5 in Hep-G2 a), LM3 b), huh-7 c), MCF-7 d), Hepa e), Hep-3B f), L02 g).

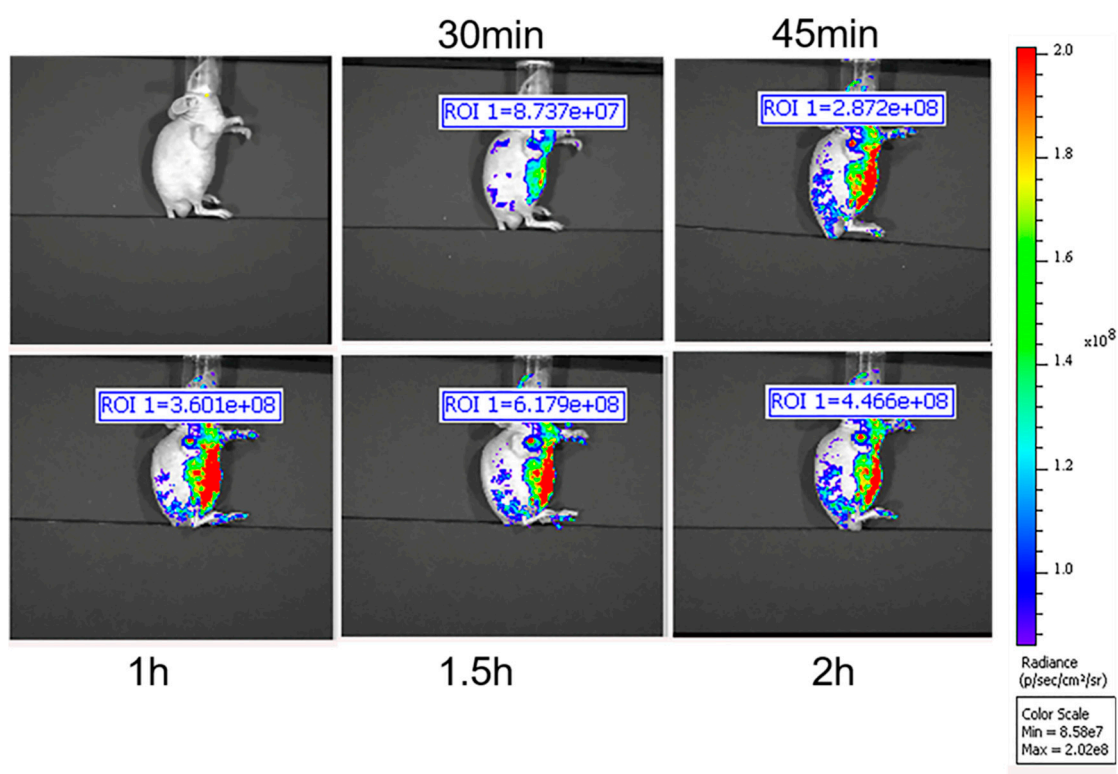


Figure S13. Image of tumor site fluorescence changing with time.

Table S1. Comparison of BTCA with other representative GPC-3 fluorescence probes.

Probes		Solvents	$\lambda_{\text{Ex}}/\lambda_{\text{Em}}$ Stokes shifts (nm)	Detection Limit	Biological Application	References
Names	Structures					
NDSA-L5	molecular imaging probe	PBS(1 mM, pH 7.4)	$\lambda_{\text{Ex}} = 410$ $\lambda_{\text{Em}} = 537$ 127nm	0.26nM	Hep-G2,Huh-7,Hep-3B,Hela,MCF-7, LM3,L02, mice	This work
P-probe	2D material-based supramolecular imaging probe	PBS(10 mM, pH 7.4)	$\lambda_{\text{Ex}} = 558$ $\lambda_{\text{Em}} = 586$ 28nm	0. 19 nM	Hep-G2,293T, tissue	38