Electronic Supplementary Information (ESI)

Accurate Detection of Matrix Metalloproteinase-2 Activity in Clinical Gastric Cancer Tissues Using A Fluorescent Probe

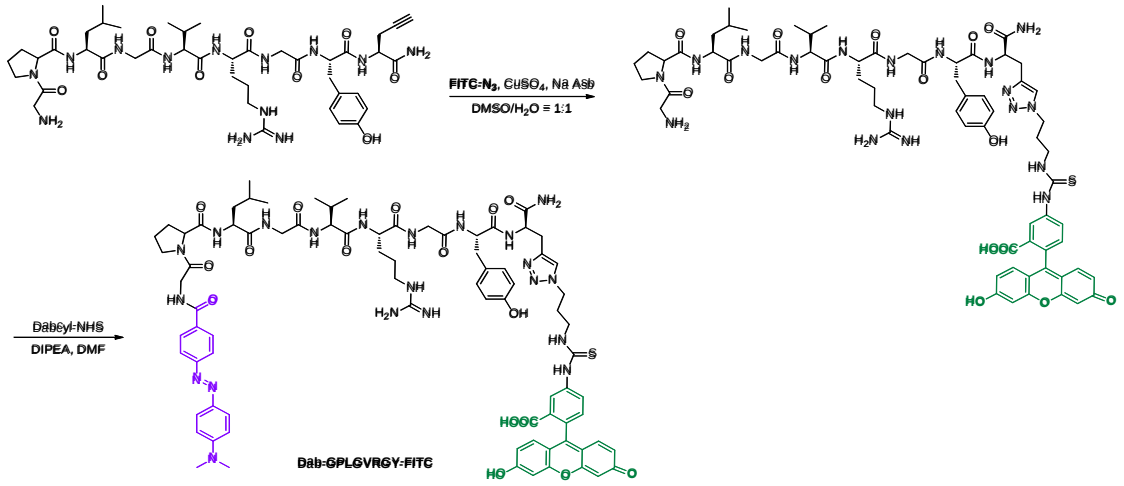
Fujuan Luan,[a] Zuhong Yu,[a] Ling Yin,[c,d] Xia Leng,[a] Yuxue Shi,[a] Jie Wang,[a] Haibin Shi[b]* and Weichang Chen[a]*

[a] Department of Gastroenterology, the First Affiliated Hospital of Soochow University, Suzhou 215006, P. R. China
[b] State Key Laboratory of Radiation Medicine and Protection, School for Radiological and Interdisciplinary Sciences (RAD-X) and Collaborative Innovation Center of Radiological Medicine of Jiangsu Higher Education Institutions, Soochow University, Suzhou 215123, P. R. China
[c] Key Laboratory of Organic Synthesis of Jiangsu Province, College of Chemistry, Chemical Engineering and Materials Science & Collaborative Innovation Center of Suzhou Nano Science and Technology, Soochow University, Suzhou 215123, P. R. China
[d] Department of Chemistry and Chemical Engineering, Jining University, Qufu 273155, P. R. China

***Corresponding Authors:**

Prof. Haibin Shi, Email: hbshi@suda.edu.cn

Prof. Weichang Chen, Email: weichangchen@126.com



Scheme S1. The synthetic route of Dab-PLGVRGY-FITC (DF)

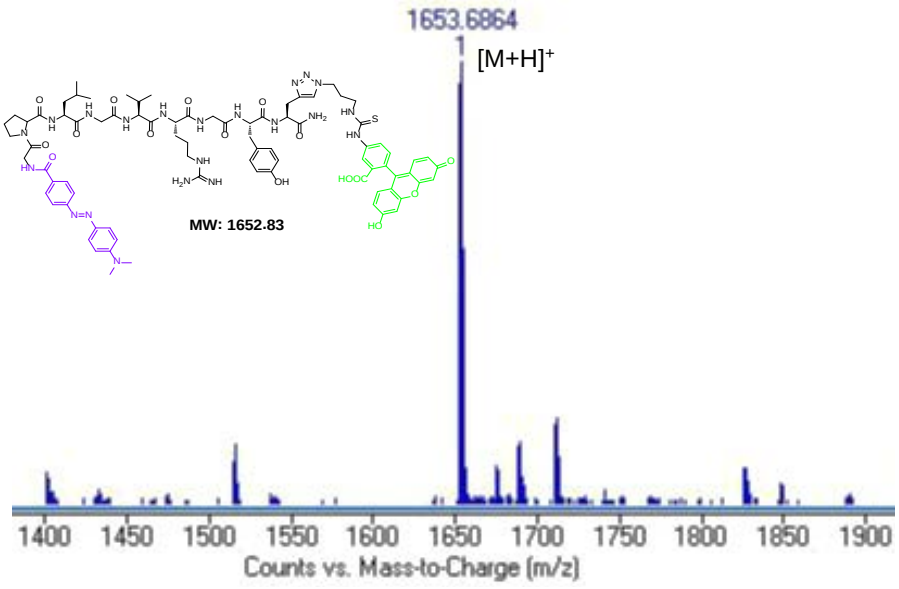


Fig. S1 HRMS of probe DF.

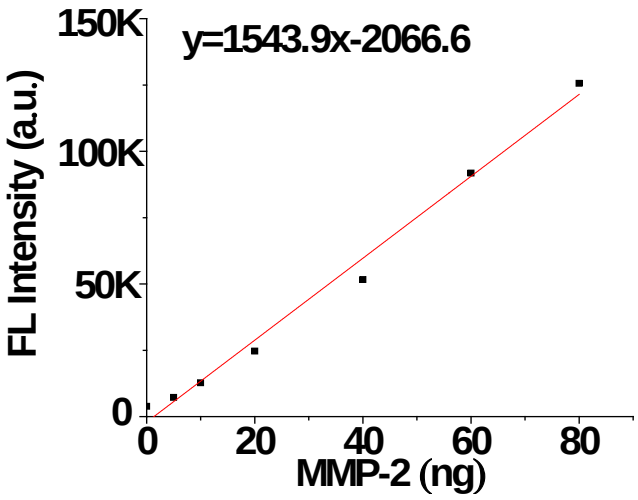


Fig. S2 Normalized MMP-2 concentration-dependent fluorescence of DF probe.

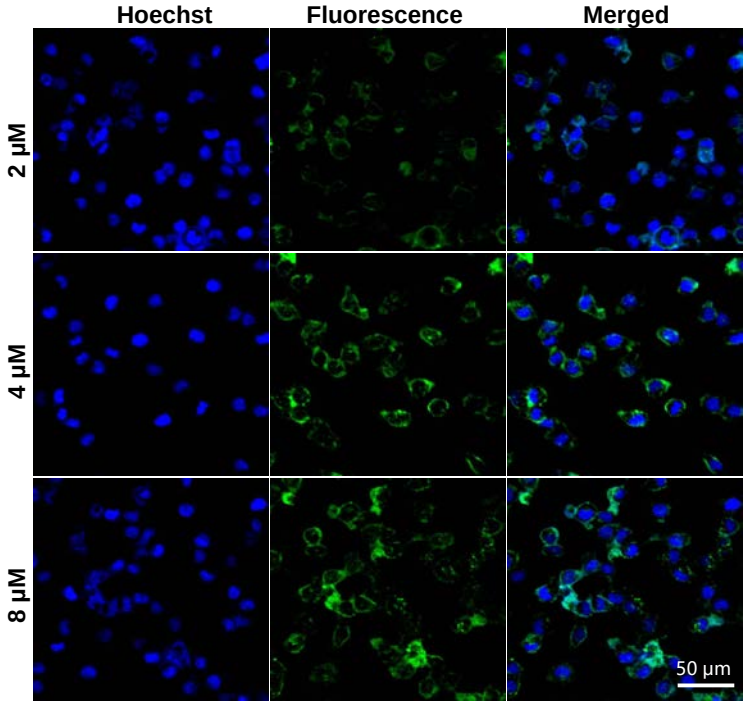


Fig. S3. Confocal imaging of MGC-803 cells after incubation with different concentrations of probe DF. The nucleuses were stained with Hoechst. All images share the same scale bar (50 μm).

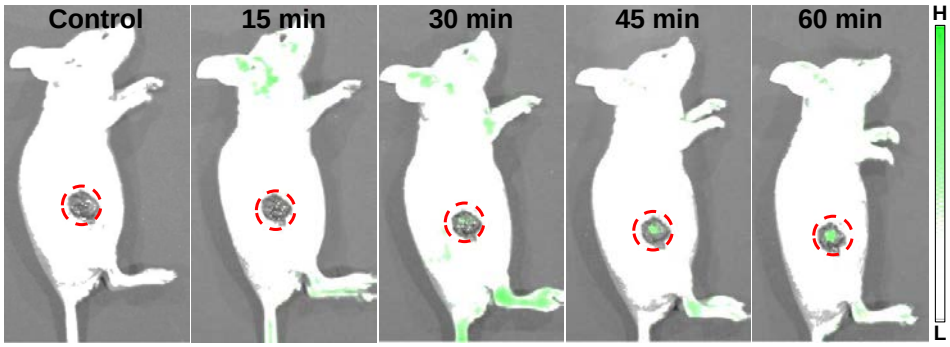


Fig. S4 *In vivo* fluorescence imaging of MGC-803 tumor-bearing nude mice injected with DF probe (200 μM, 200 μL).

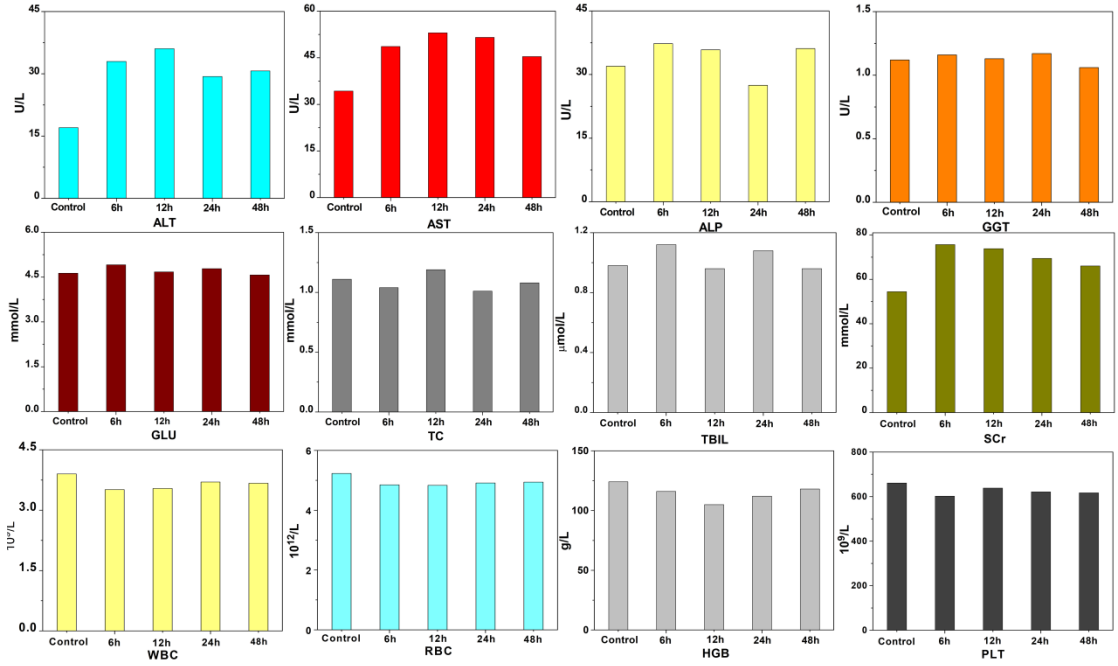


Fig. S5 Routine blood and blood biochemical tests on mice different time points postinjection. The mice without probe injection were taken as control.

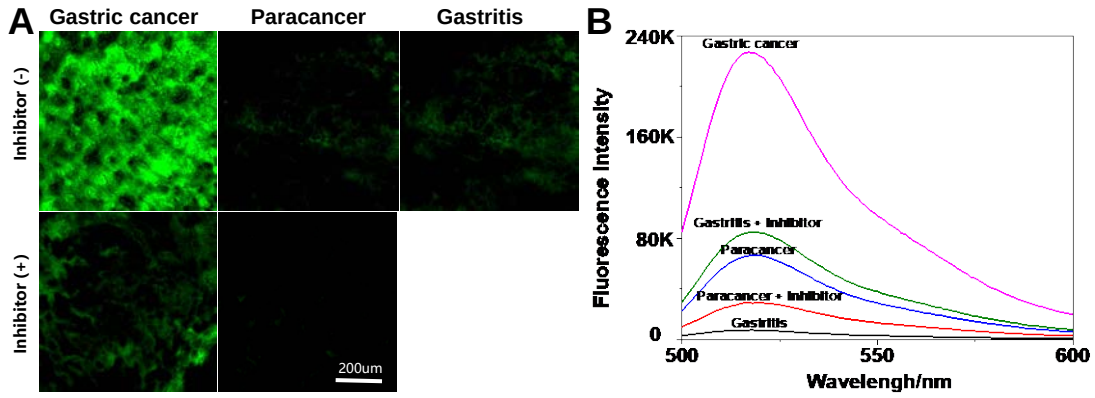


Fig. S6 (A) Confocal imaging of clinical gastritis, paracancer and gastric cancer tissues cryosection together with paracancer and gastric cancer tissues pre-treated with GM6001 (25 μM, 4 μL). The scale bar indicated 200 μm. (B) Fluorescence spectra of probe DF (2 μM) recorded after incubation with lysates of gastritis, paracancer and gastric cancer tissues (1 mg mL^{-1}), together with the spectra of the DF probe treated in the presence of inhibitor GM6001 (25 μM) at 37°C for 2 h in PBS buffer (pH=7.4).

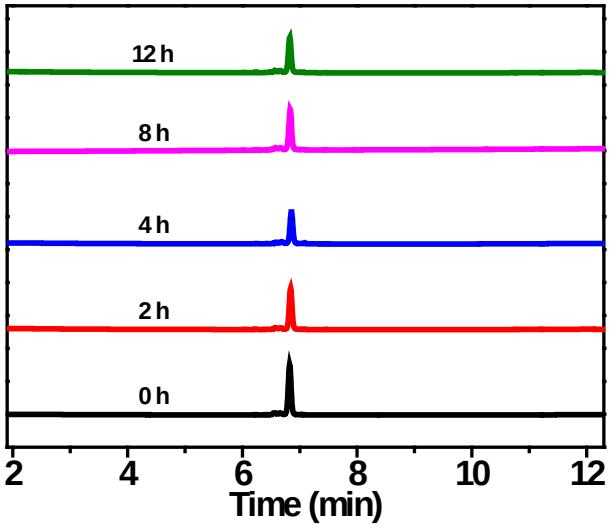


Fig. S7 HPLC profiles of probe DF incubated in PBS buffer for different time periods at 37°C.

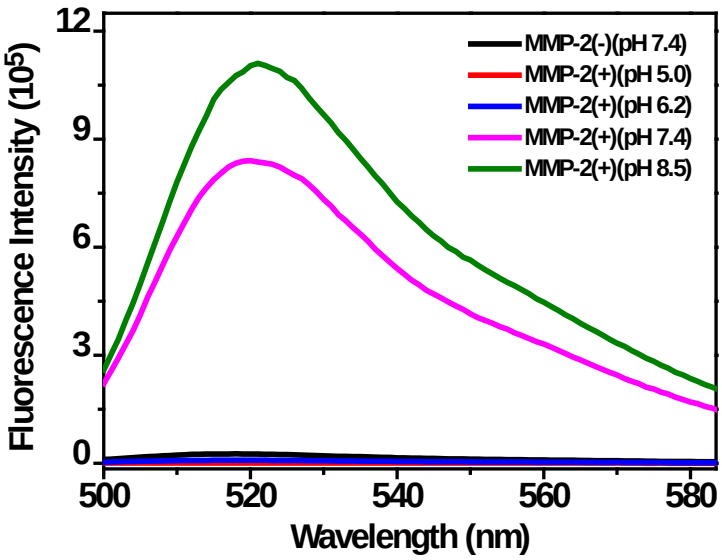


Fig. S8 Fluorescence spectra of probe DF (2 μM) recorded after incubation with MMP-2 (600 ng mL^{-1}) [denoted as MMP-2(+)] at 37°C for 6 h in PBS buffer with different pH values, together with the spectrum of DF probe treated in the absence of MMP-2 [denoted as MMP-2 (-)].