Enzyme-aided amplification strategy for sensitive detection of DNA by graphene oxide-based fluorescence resonance energy transfer

Jing zhang, MangjuanTao, and Yan Jin *

Key Laboratory of Applied Surface and Colloid Chemistry, Ministry of Education, Key Laboratory of Analytical Chemistry for Life Science of Shaanxi Province, School of Chemistry and Chemical Engineering Shaanxi Normal University, Xi'an 710062, China. Fax: (+) 86-29-85307774;

E-mail: jinyan@snnu.edu.cn

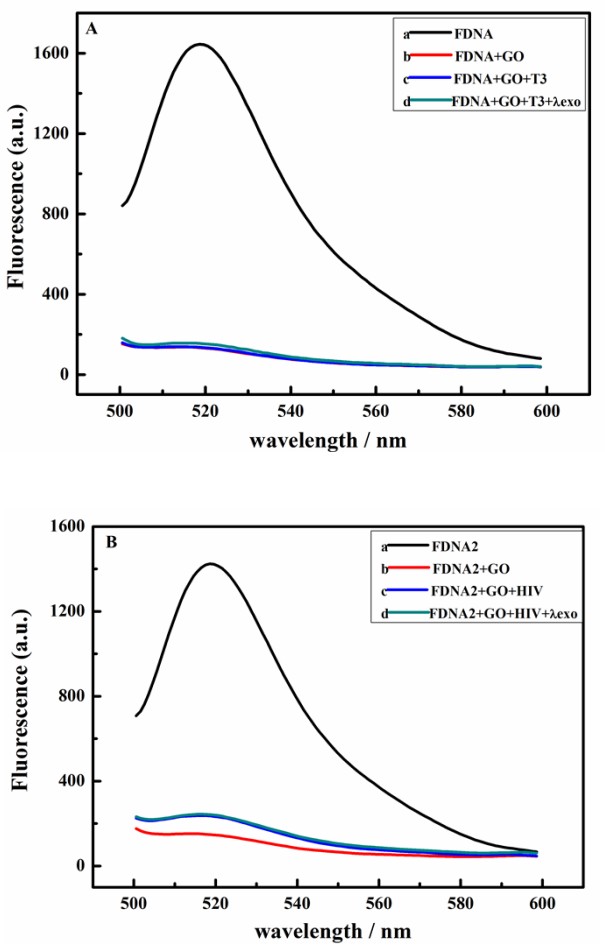

Fig. S1 Fluorescence emission spectra of FDNA at different conditions. (A) (a) 20 nM FDNA in Tris −HCl; (b) FDNA+ GO; (c) FDNA + GO + 100 nM T3; (d) FDNA + GO + 100 nM T3 + 0.005U μL^{-1} λ exo. (B) (a) 20 nM FDNA2 in Tris −HCl; (b) FDNA2+ GO; (c) FDNA2 + GO + 100 nM T1; (d) FDNA2 + GO + 100 nM T1 + 0.005 U μL^{-1} λ exo.

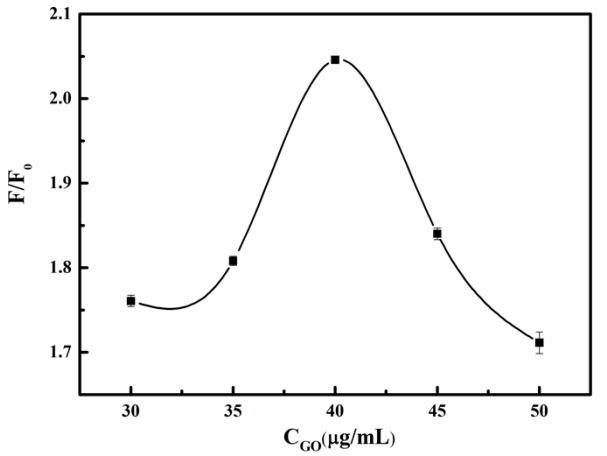

Fig. S2 The effect of GO concentration. F_0 and F are the fluorescence intensity of FDNA/GO mixture in the absence and presence of 100 nM target DNA, respectively. The concentrations of FDNA, GO were 20 nM, 40 μg mL^{-1}, respectively.

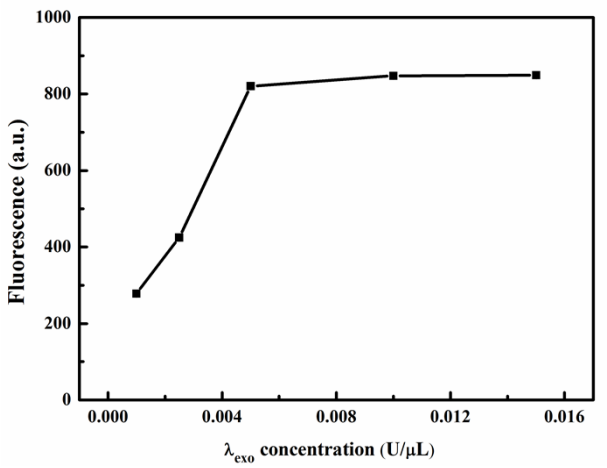

Fig. S3 Effect of λ exo concentrations on the fluorescence intensity. The λ exo concentrations is 0.001, 0.003, 0.005, 0.01, 0.015, respectively. The concentrations of FDNA, GO, HIV were 20 nM, 40 μg mL^{-1},100 nM, , respectively.

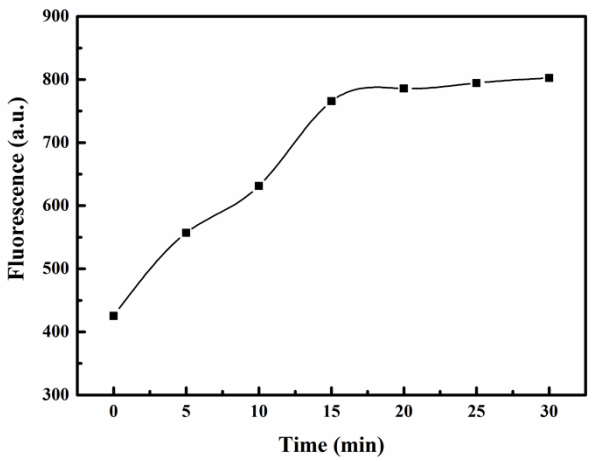

Fig. S4 Influence of enzymatic reaction time on the fluorescence intensity. The concentrations of FDNA, GO, HIV and λexo were 20 nM, 40 μg mL^{-1},100 nM, 0.005U μL^{-1}, respectively.

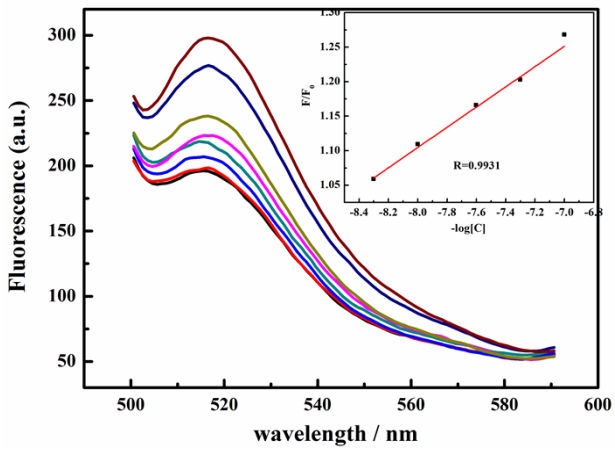

Fig. S5 Fluorescence emission spectra of FDNA/GO mixture in the presence of T1. From curve a to h the concentration of T1 is 0, 5, 10, 25, 50, 100, 500, and 1000 nM. (Inset) Linear correlation of the fluorescence change with logarithmic concentrations of T1. F_0 and F are the fluorescence intensity of FDNA/GO mixture in the absence and presence of target DNA, respectively.