

Supplementary Material

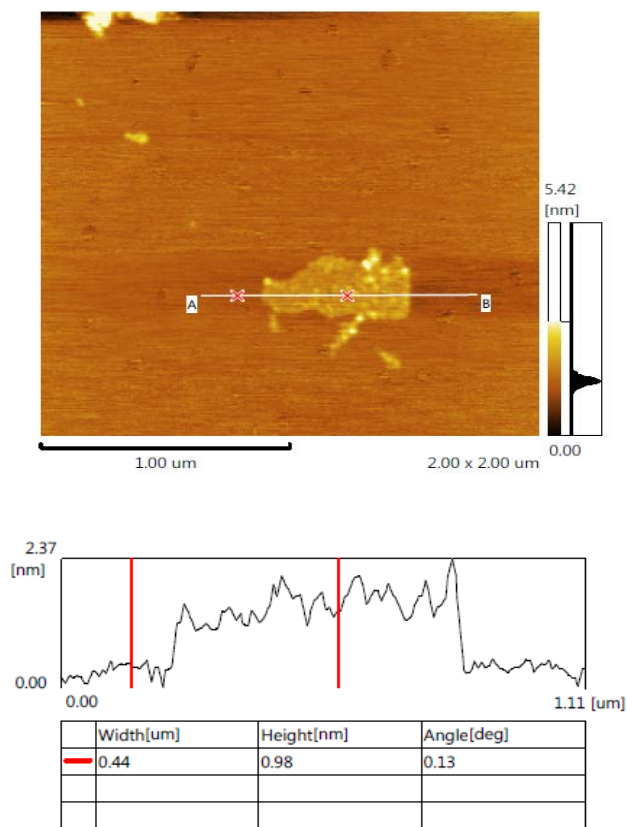


Figure S1 AFM image of MoS₂.

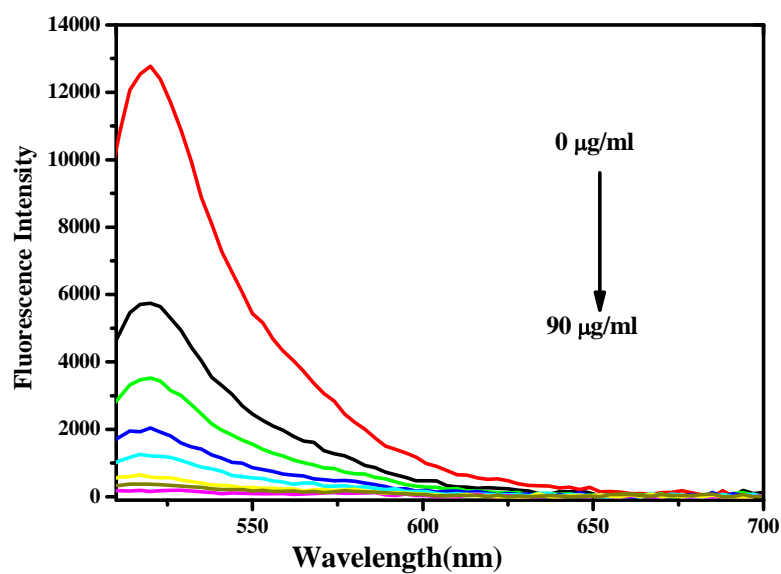


Figure S2 The fluorescence intensity of FAM-modified aptamer (10 nM) in the presence of various concentrations of (20, 40, 50, 60, 70, 80, 90 µg/ml) MoS₂.

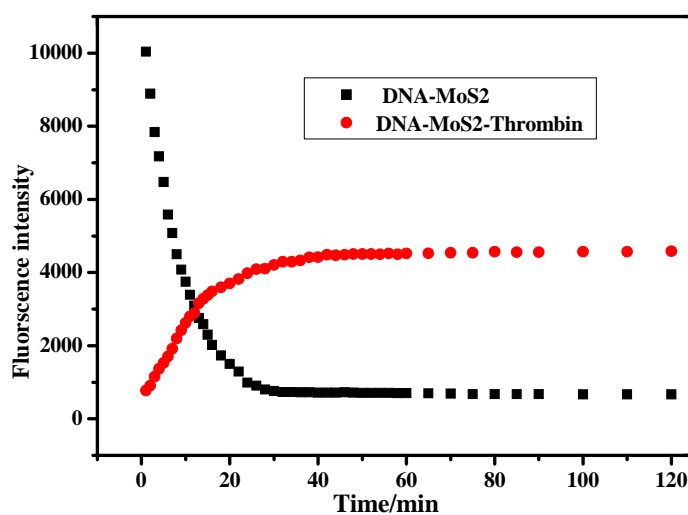
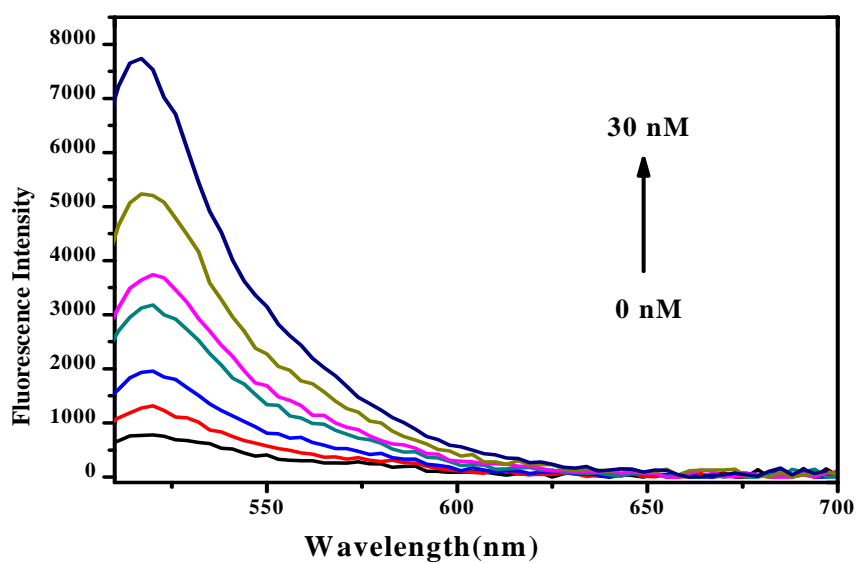
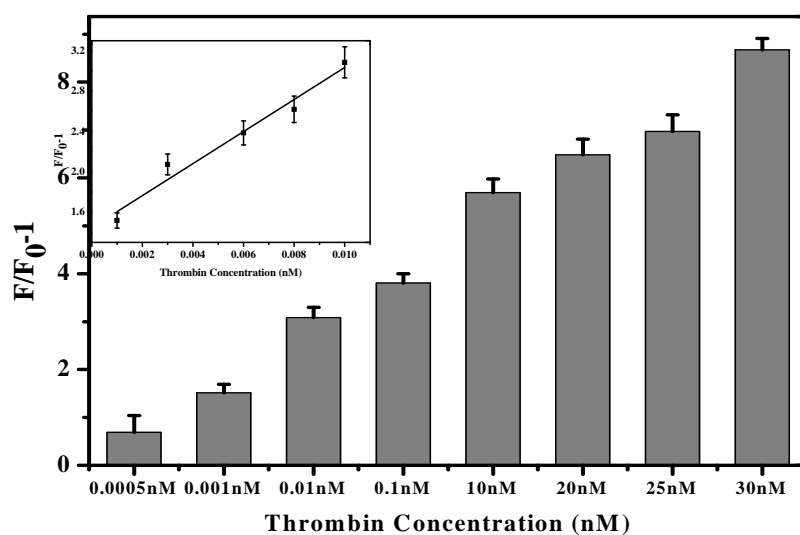


Figure S3 The fluorescence intensity of FAM-modified aptamer (10 nM) under the following conditions: (black) in MoS₂ (60 µg/mL) with the change of time; and (red) in MoS₂ (60 µg/mL) by thrombin (1nM) with the change of time.



(A)



(B)

Figure S4 (A) The fluorescence intensity of FAM-modified aptamer (10 nM)-MoS₂ (60 μg/mL) in the presence of different concentrations of thrombin (0.0005 nM, 0.001 nM, 0.01 nM, 0.1 nM, 10 nM, 20 nM, 25 nM, 30 nM). **(B)** The inset shows the values of $[F/F_0-1]$ for assay with the concentration of thrombin. F_0 and F were the values of fluorescence intensities without and with thrombin. The values shown in Figure S3 represented the average of three experiments.

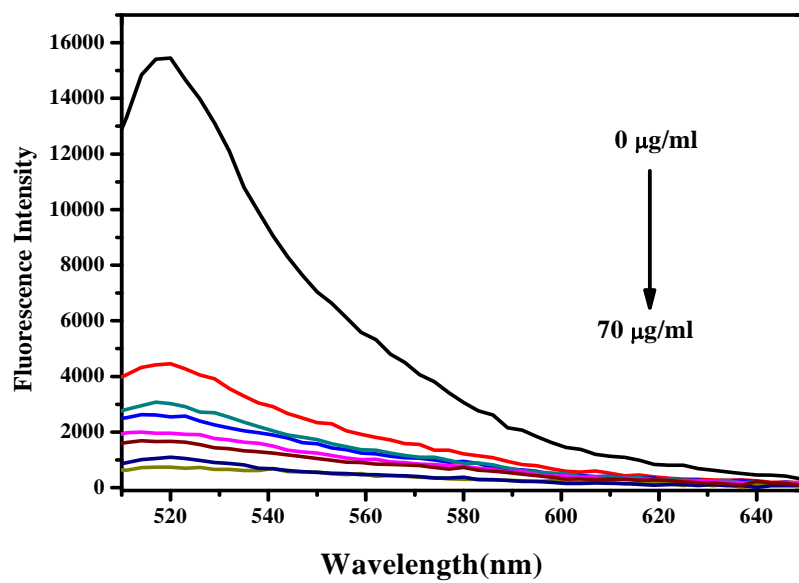
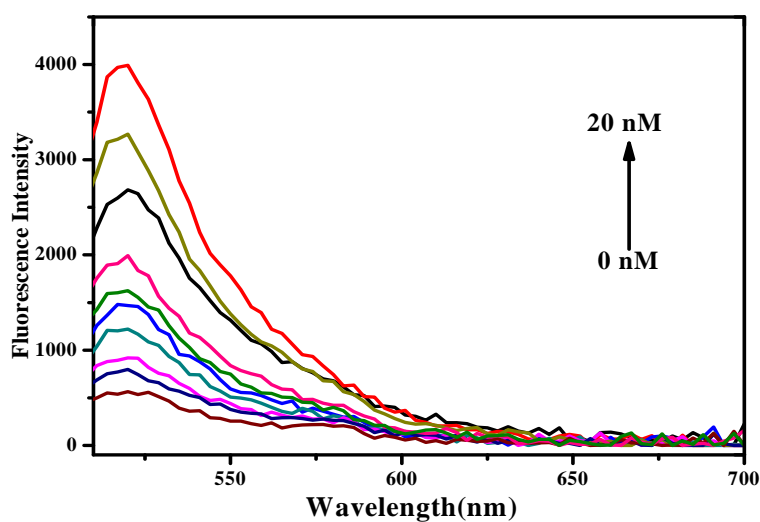
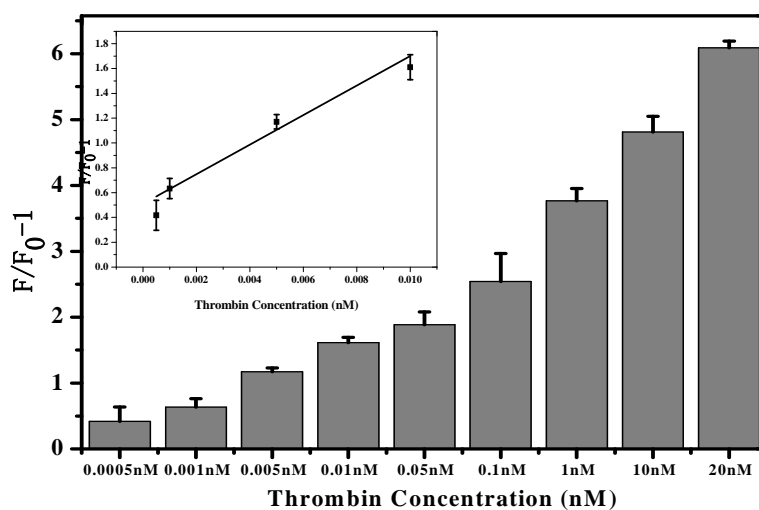


Figure S5 Fluorescence emission spectra of the aptamer (10 nM) in the presence of increasing amounts of MoS₂ (20, 30, 40, 45, 50, 55, 60, 70 µg/mL).

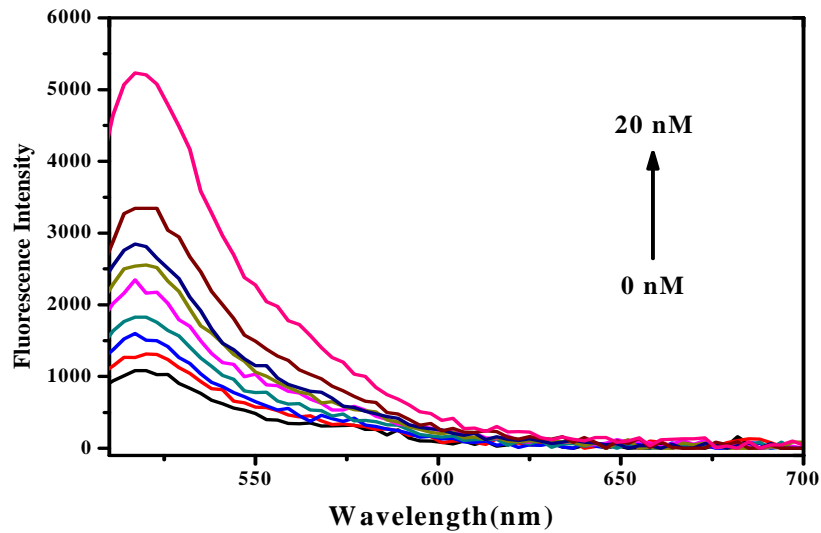


(A)

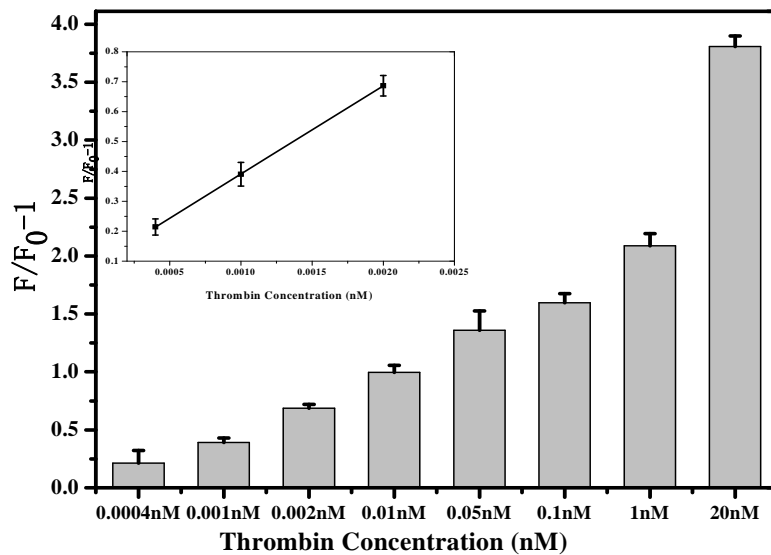


(B)

Figure S6 (A) The fluorescence intensity of FAM-modified aptamer (10 nM)-MoS₂ (60 μg/mL) in the presence of different concentrations of thrombin (0.0005 nM, 0.001 nM, 0.005 nM, 0.01 nM, 0.05 nM, 0.1 nM, 1 nM, 10 nM, 20 nM). **(B)** The inset shows the values of $[F/F_0 - 1]$ for assay with the concentration of thrombin. F_0 and F were the values of fluorescence intensities without and with thrombin. The values shown in Fig. S5 represented the average of three experiments.



(A)



(B)

Figure S7 (A) The fluorescence intensity of FAM-modified aptamer (10 nM)-MoS₂ (60 µg/mL) in the presence of different concentrations of thrombin (0.0004 nM, 0.001 nM, 0.002 nM, 0.01 nM, 0.05 nM, 0.1 nM, 1 nM, 20 nM). **(B)** The inset shows the values of $[F/F_0 - 1]$ for assay with the concentration of thrombin. F_0 and F were the values of fluorescence intensities without and with thrombin. The values shown in Fig. S6 represented the average of three experiments.

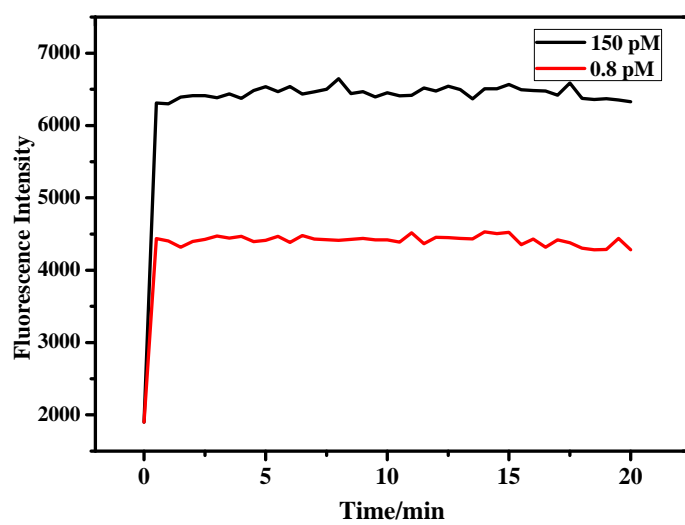


Figure S8 Fluorescence emission spectra of aptamer (10 nM)-MoS₂ (40 μg/mL) with varying concentrations of thrombin (0.8, 150 pM) Thrombin in the presence of 0.03 UμL⁻¹ exonuclease.