

Supporting Information

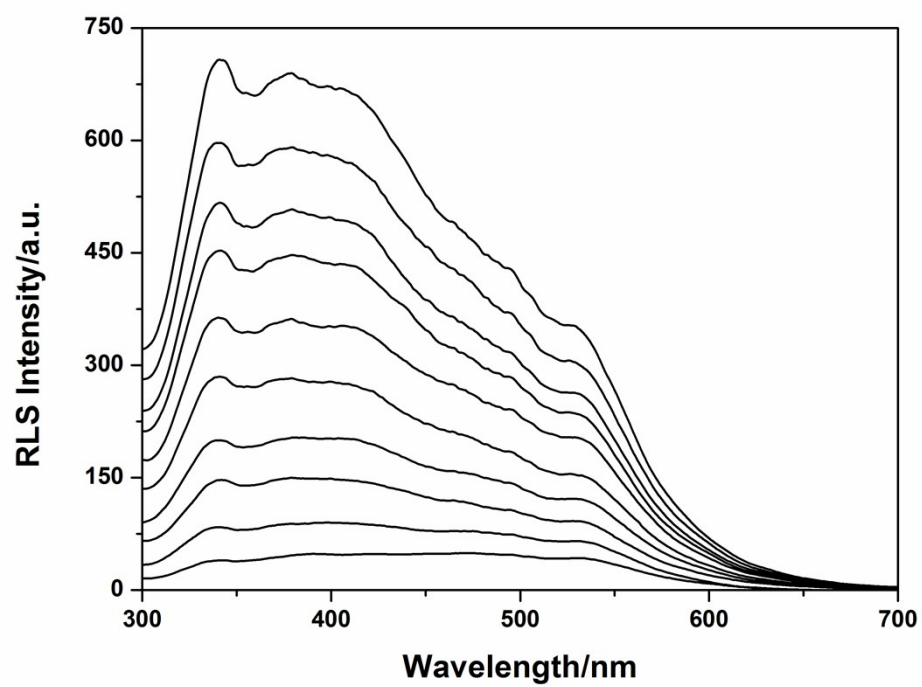


Fig. S1 The RLS spectra of GQDs in the presence of different concentrations of PDMA in the range from 0 to $22.5 \mu\text{g mL}^{-1}$ (0, 2.5, 5, 7.5, 10, 12.5, 15, 17.5, 20 and $22.5 \mu\text{g mL}^{-1}$).

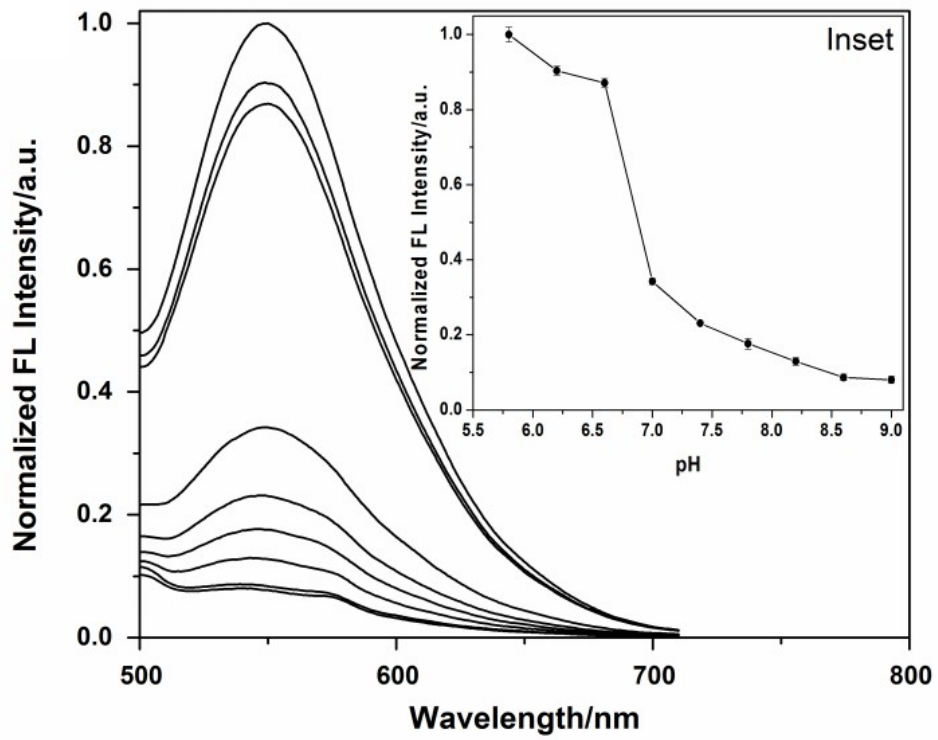


Fig. S2 The effect of pH on the fluorescence spectra of GQDs. Inset: The effect of pH on the fluorescence intensity of GQDs.

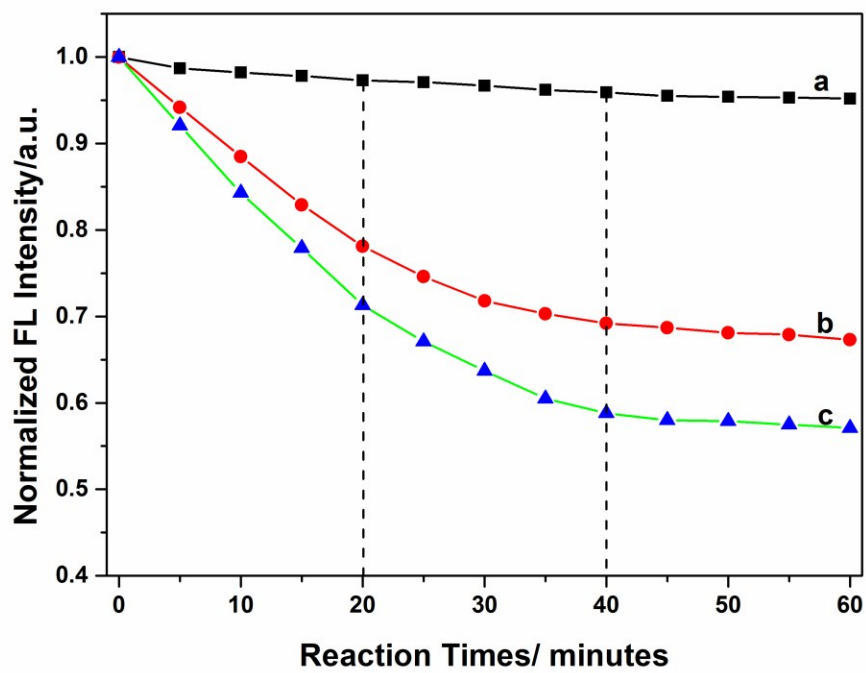


Fig. S3 The fluorescence intensity of GQDs-PDDA-(NaPO_3)₆-ACP system in the presence of (a)10, (b)300 and (c)750 nU/mL ACP at different incubation time.

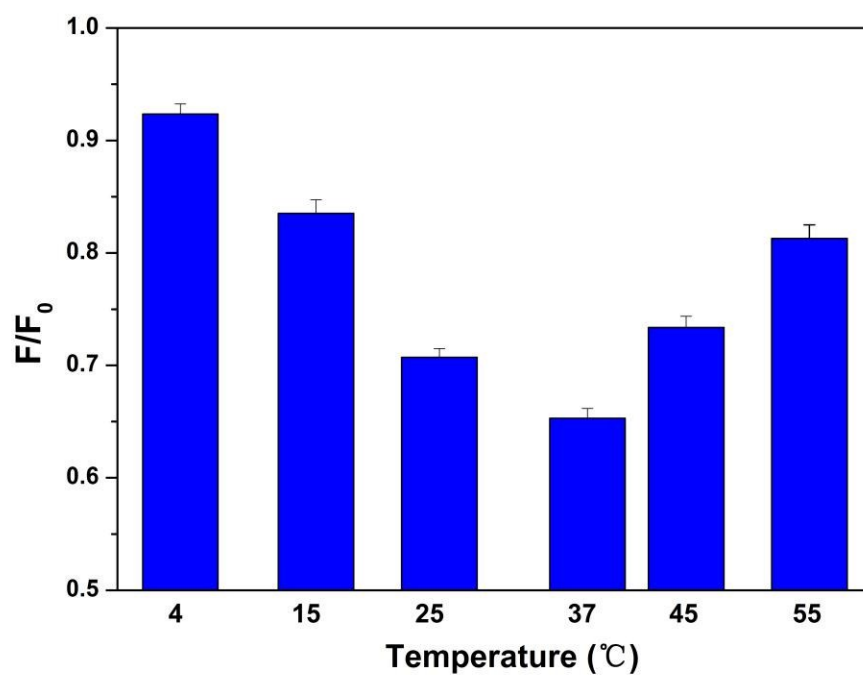


Fig. S4 Effect of incubation temperature on the fluorescence intensity ratio F/F_0 of GQDs-PDDA- $(\text{NaPO}_3)_6$ -ACP system. F_0 and F are the fluorescence intensities of the PDDA-GQDs- $(\text{NaPO}_3)_6$ system in absence and presence of 300 nU/mL ACP.

Table S1 The comparison of different method for the detection of ACP

Detection method	LOD	Linear range	Ref
Fluorometry	1 nM	1-30 nM	[1]
Fluorometry	5 $\mu\text{U mL}^{-1}$	5-100 $\mu\text{U mL}^{-1}$	[5]
Fluorometry	9 nU mL ⁻¹	75-1500 nU mL ⁻¹	[8]
Fluorometry	0.18 nM	0-20 nM	[24]
Fluorometry	0.17 nM	0-20 nM	[25]
Fluorometry	12 nU mL ⁻¹	30-420 nU mL ⁻¹	This work

The ACP in [1], [24] and [25] was obtained from Sigma (USA). 1 nM, which is corresponding to 0.3-1 mU/mL.

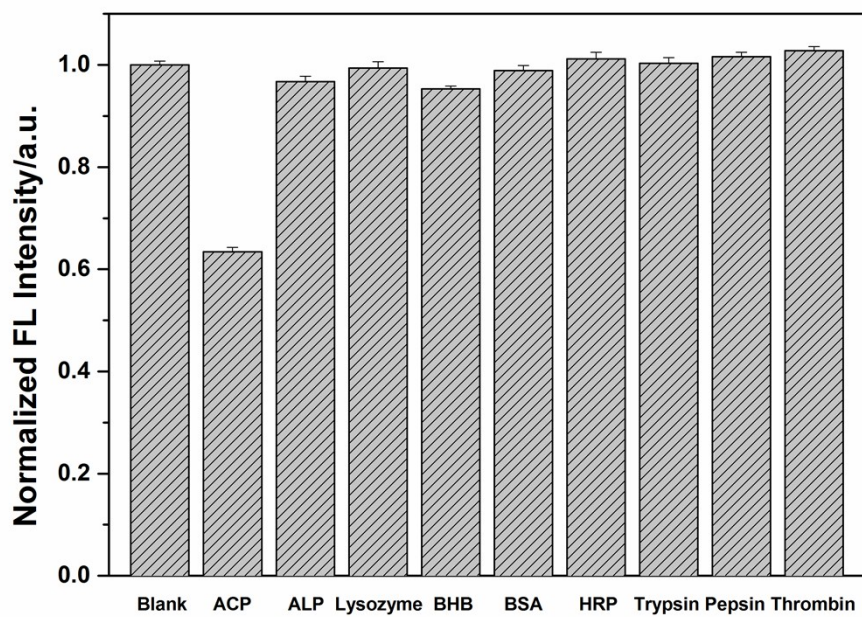


Fig. S5 The fluorescence intensity of GQDs-PDDA-(NaPO_3)₆ system in the presence of 420 nU mL^{-1} ACP and other 8 common proteins, including alkaline phosphatase (ALP), lysozyme, bovine hemoglobin (BHB), bovine serum albumin (BSA), horseradish peroxidase (HRP), trypsin, pepsin and thrombin.

Table S2 The interference of coexisting ions on the detection of ACP (300 nU mL⁻¹)

Coexisting substances	Tolerable concentration (μmol mL ⁻¹)	ΔF/F (%)
NaCl	10.00	1.46
KCl	10.00	1.58
MgCl ₂	10.00	2.72
Zn(NO ₃) ₂	10.00	2.06
Ca(NO ₃) ₂	10.00	3.17
Na ₃ PO ₄	10.00	3.66
Na ₂ HPO ₄	10.00	3.13
NaH ₂ PO ₄	10.00	3.26
FeCl ₃	0.10	-4.77
FeCl ₂	2.00	-2.36

$\Delta F/F = F_0 - F$, where F_0 and F are the fluorescence intensities of the PDDA-GQDs-(NaPO₃)₆-ACP system in absence and presence of interfering ions.