Electronic Supplementary Material (ESI) for Analyst.

A novel fluorescence method for activity assay and drug screening of T4 PNK coupling rGO with ligase reaction

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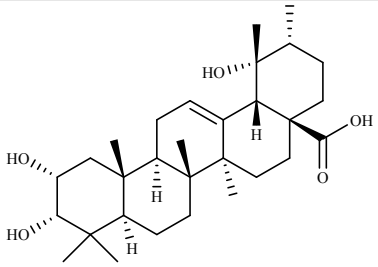
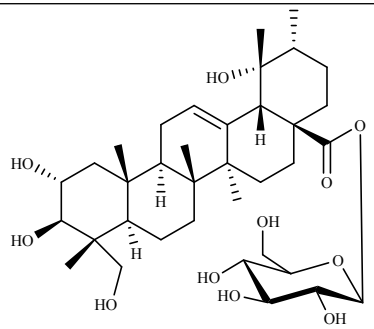
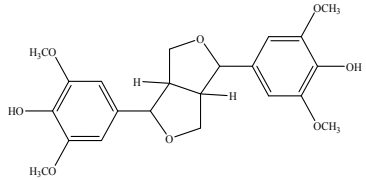
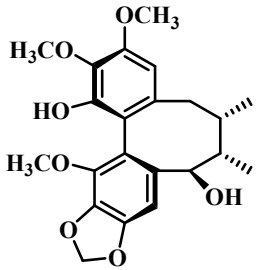
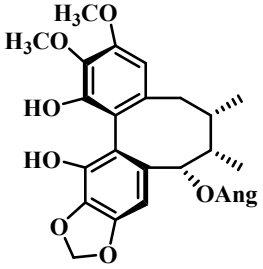
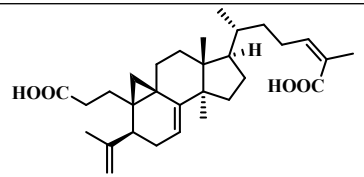
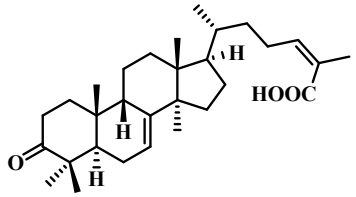
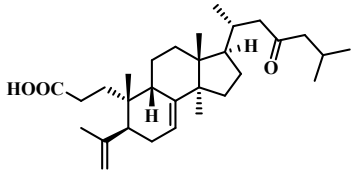
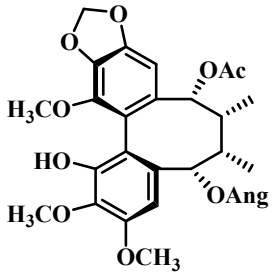
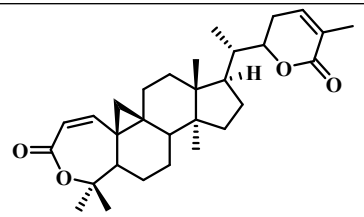
Table.S1 Sequences of Oligonucleotide probes used in this work

Oligo name	Base sequence (5' to 3')	Bases	5 'modification	Tm(℃)
P1	CACGCCATGTCGAAATTCTTGCGTGCCTAT	30		76.5
P2	GCAAGAATTTCGACATGGCGTG	22		67
P3	ATAGGCAC	8	FAM	<10
P4	GCAAGAATTTCGACATGGCGTG	22	phosphorylation	67
P5	ATAGGCAC	8		<10

Table. S2 Natural compounds information

S.no	Source	Name	Structure	Molecular Formula	Molecular Weight
a	***Cherokee Rose***	**Euscaphic acid**		$C_{30}H_{48}O_5$	**488.70**

b	***Cherokee Rose***	**Laevigatanoside A**		**$C_{36}H_{58}O_{11}$**	**666.84**
c	***Cherokee Rose***	**Syringaresinol**		**$C_{22}H_{26}O_8$**	**418.45**
d	***kadsura coccinea***	**Kadsuphilol A**		**$C_{22}H_{26}O_7$**	**402.1679**
e	***kadsura coccinea***	**Kadsutherin A**		**$C_{26}H_{30}O_8$**	**470.1941**

f	***kadsura coccinea***	**Abiesatrine J**		**$C_{30}H_{46}O_4$**	**470.3396**
g	***kadsura coccinea***	**Masticadienoic acid**		**$C_{30}H_{46}O_3$**	**454.3447**
h	***kadsura coccinea***	**Seco-coccinic acid A**		**$C_{30}H_{48}O_3$**	**456.3603**
i	***kadsura coccinea***	**Kadsurarin**		**$C_{29}H_{34}O_{10}$**	**542.2152**
j	***kadsura coccinea***	**Schisanlactone B**		**$C_{30}H_{42}O_4$**	**466.3083**

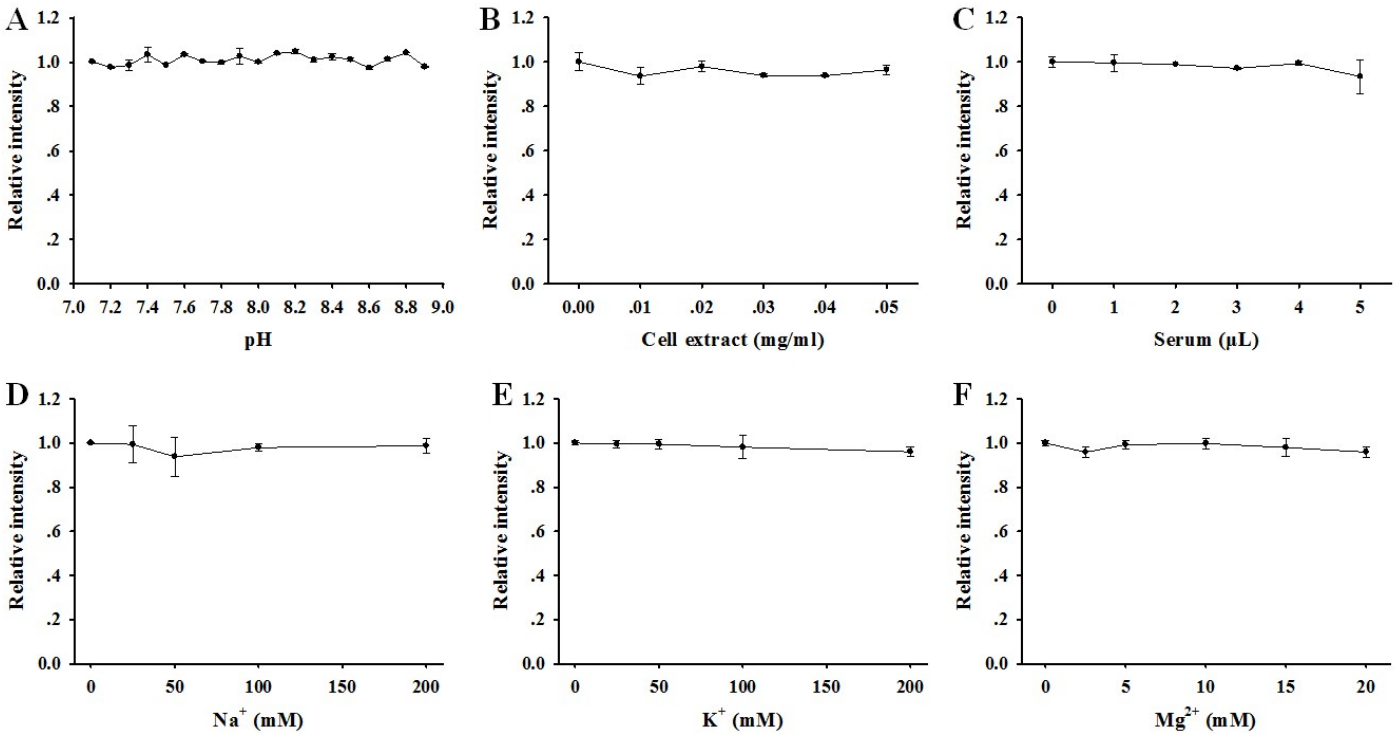


Fig.S1 (A) The effect of pH on the stability of the probe. Reaction buffer's pH is varied from 7.1 to 8.9. The concentration of Mg^{2+} is 10 mM. (B) The effect of cell extract on the stability of the probe. The concentration of Mg^{2+} and pH in reaction buffer is 10mM and 8.0, respectively. (C) The effect of serum on the stability of the probe. The concentration of Mg^{2+} and pH in reaction buffer is 10mM and 8.0, respectively. (D-F) The effect of various ions including Na^{+}(D), K^{+}(E), Mg^{2+}(F)on the stability of the probe. The pH value of reaction buffer is 8.0.

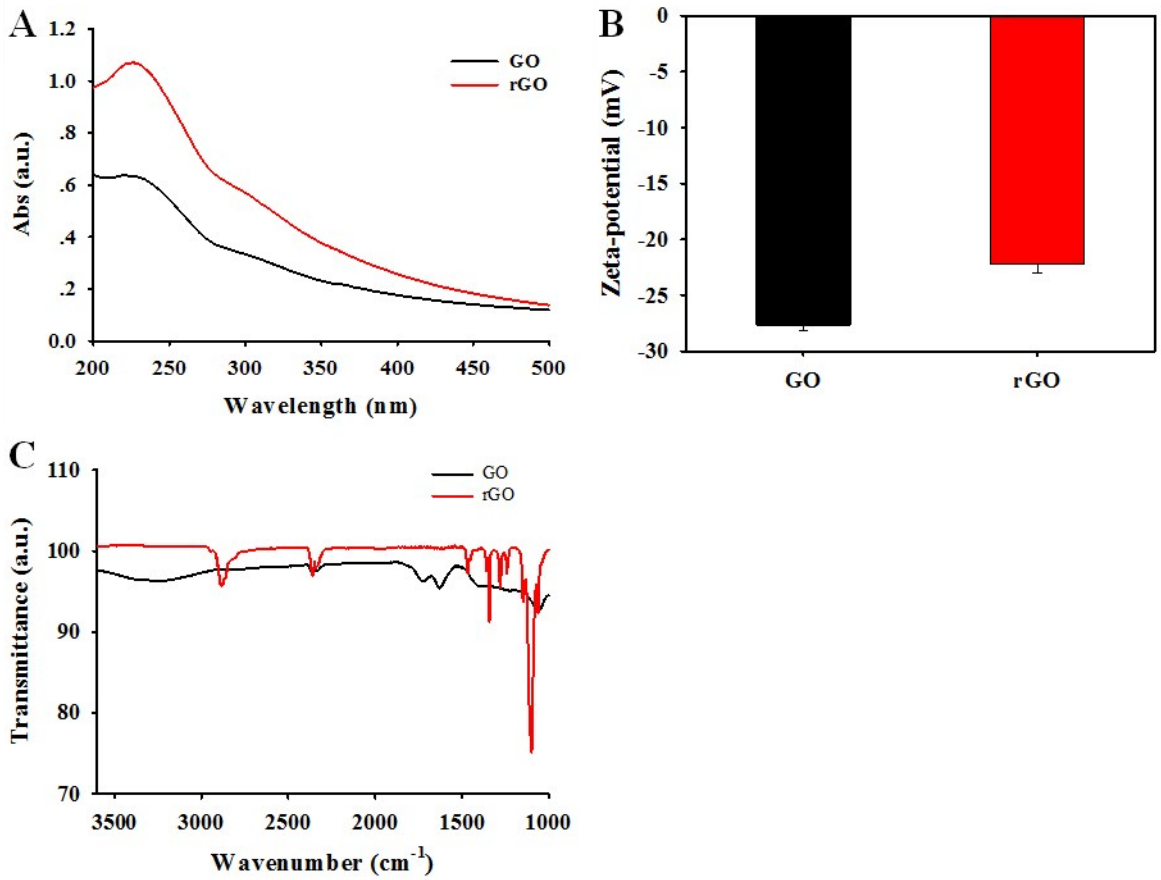


Fig.S2 (A) The UV-vis spectrum of rGO and GO, [rGO] and [GO] are 20 mg/L, respectively. (B) The ζ-potential of rGO and GO, [rGO] and [GO] are 10 mg/L, respectively. (C) The Infrared Spectroscopy of rGO and GO.

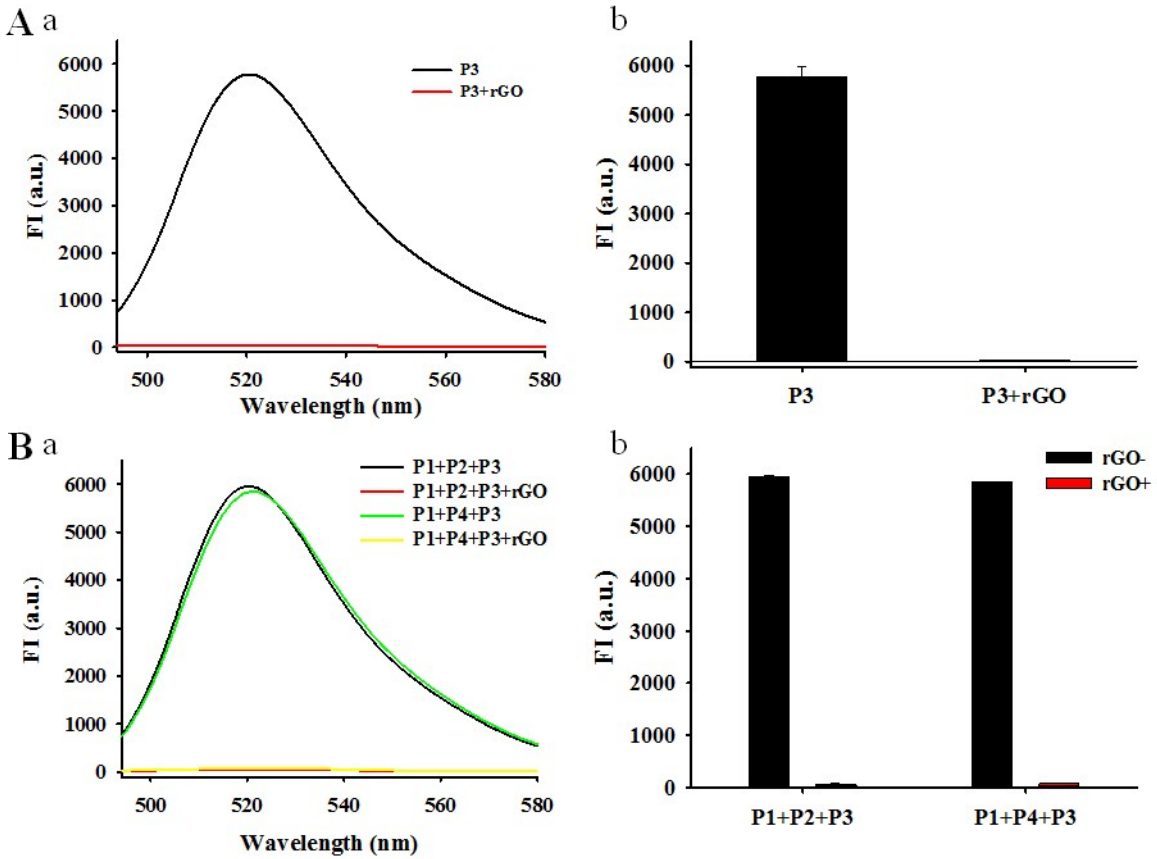


Fig.S3 The feasibility analysis. (A) The quenching effect of rGO on P3. [P3] and [rGO] are 100 nM and 10 mg/L, respectively. (B) The quenching effect of rGO on (P1+P2+P3) and (P1+P4+P3). [P1], [P2], [P3], [P4] and [rGO] are 100 nM and 10 mg/L, respectively.