

A simple and rapid dual-cycle amplification strategy for MicroRNA Based on Graphene Oxide and Exonuclease III-assisted fluorescence recovery

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Table S1 Oligonucleotides used in this work

Name	Sequences (5'-3')
H1	GTGACAATGGACGTAGAAGGGTCCATTGTCACACTCCA
H2	ATGGACGTAGAAGTGAGTTATTCTACGTCCATTGTCAC
P-DNA	FAM-CACTTCTACGTCCATAGCTT
miRNA-122	UGGAGUGUGACAAUGGUGUUUG
miRNA-21	UAG CUU AUC AGA CUG AUG UUG A
miRNA-155	UUA AUG CUA AUC GUG AUA GGG GA
miRNA-205	UCC UUC AUU CCA CCC GAG UCU G
miRNA-221	ACC UGG CAU ACA AUG UAG AUU U
miRNA-223	UGU CAG UUU GUC AAA UAC CCC A
Let-7a	UGA GGU AGU AGG UUG UAU AGU U
ssNC	UUG UAC UAC ACA AAA GUA CUG

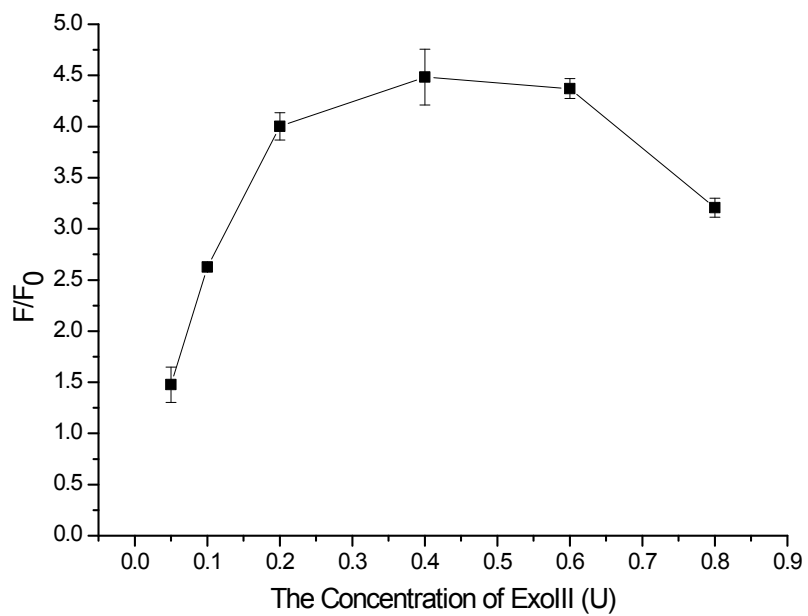


Figure S1 Effect of the mount of ExoIII on the fluorescence intensity ratio F/F_0 response. Error bars show the standard deviations of three experiments. (50 nM H_1 , 50 nM H_2 , 50 nM P-DNA, 30 nM miRNA-122, 5 μ L GO, incubation temperature 37°C and incubation time 40 min)

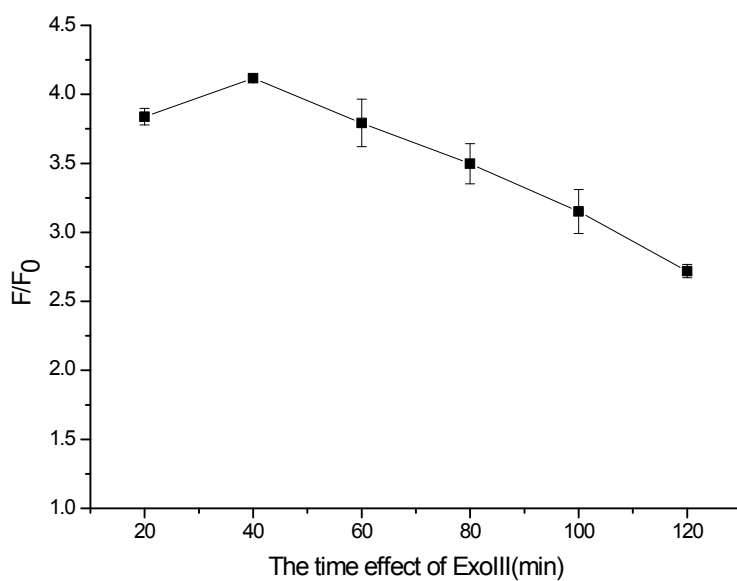


Figure S2 Effect of incubation time of the enzymatic reaction on the fluorescence intensity ratio F/F_0 response. Error bars show the standard deviations of three experiments. (50 nM H_1 , 50 nM H_2 , 50 nM P-DNA, 30 nM miRNA-122, 0.4 U ExoIII, 5 μ L GO and incubation temperature 37°C)

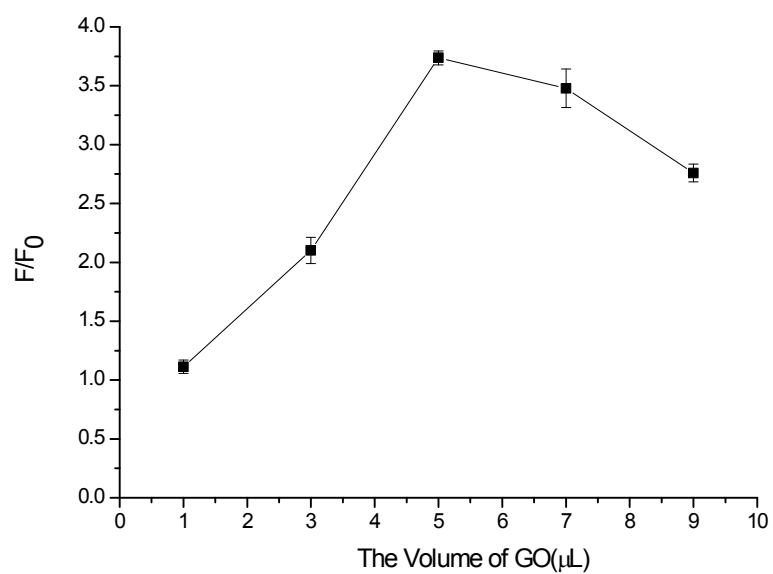


Figure S3 Effect of the volume of GO on the fluorescence intensity ratio F/F_0 response. Error bars show the standard deviations of three experiments. (50 nM H_1 , 50 nM H_2 , 50 nM P-DNA, 30 nM miRNA-122, 0.4 U ExoIII, incubation temperature 37°C and incubation time 40 min)

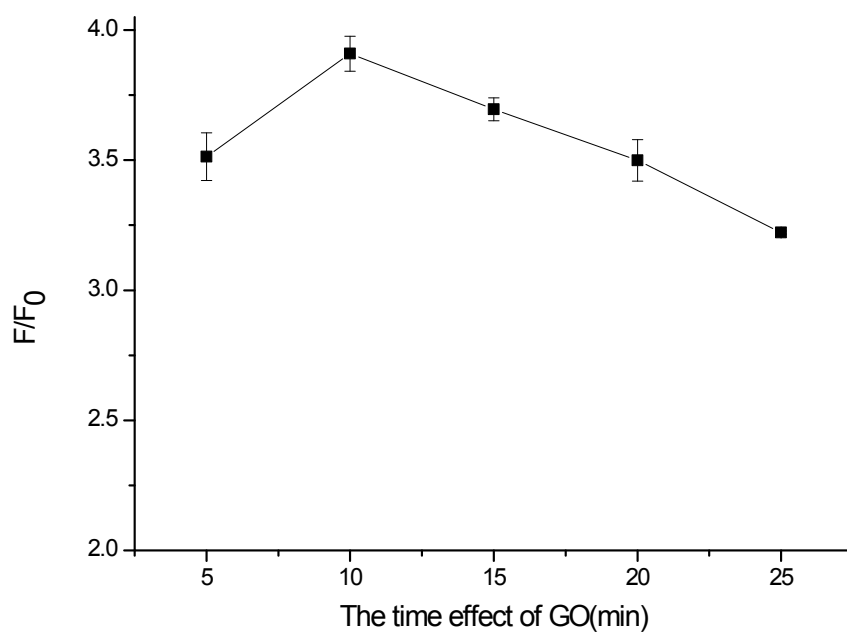


Figure S4 Effect of reaction time of GO on the fluorescence intensity ratio F/F_0 response. Error bars show the standard deviations of three experiments. (50 nM H_1 , 50 nM H_2 , 50 nM P-DNA, 30 nM miRNA-122, 0.4 U ExoIII, 5 μ L GO incubation temperature 37°C and incubation time 40min)

Table S2 Comparison of Different Strategies for miRNA Detection

Detection method	Time	Enzyme type	Detection limit	Reference
Fluorescence	150min	polymerase	0.53 nM	1
Fluorescence	90min	DNase I	40 pM	2
Chemiluminescence	120min	DSN	49.6 pM	3
Fluorescence	30min	helicase	0.18 nM	4
Phosphorescence	130min	DSN	0.16 nM	5
Fluorescence	380min	polymerase	51 pM	6
Fluorescence	50min	ExoIII	21.4 pM	This work

References

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