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Supporting Information for

A simple molecular beacon with duplex-specific nuclease amplification for detection of microRNA

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Content

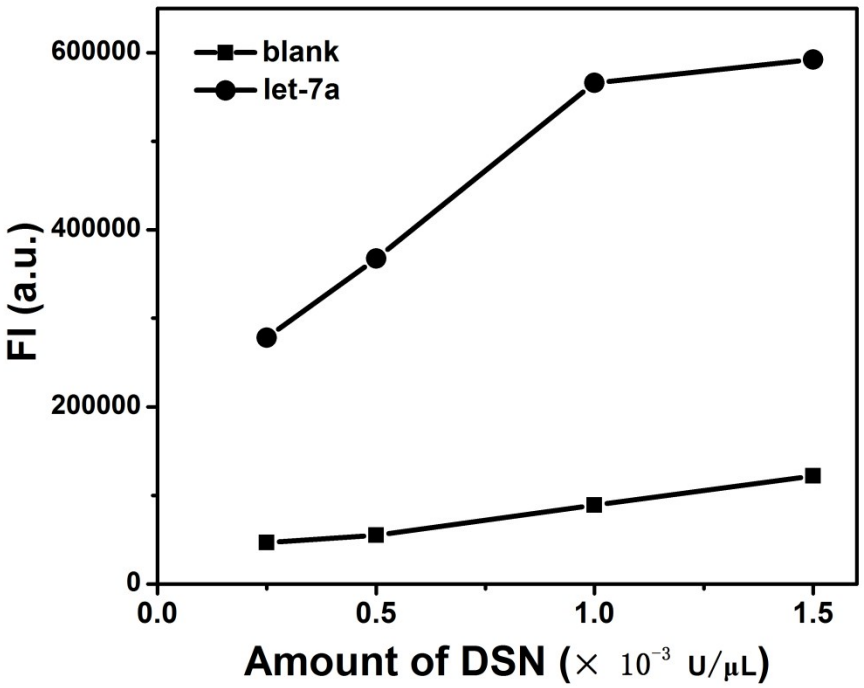

Fig. S1 The effect of DSN amount. The concentration of let-7a in the blank and the sample was 0 pM, 250 pM respectively. The reaction volume was 10 μL and reaction products were diluted by 20 times with TE buffer solution (10 mM Tris-HCl (pH 8.0) 1 mM EDTA) before fluorescence measurement.

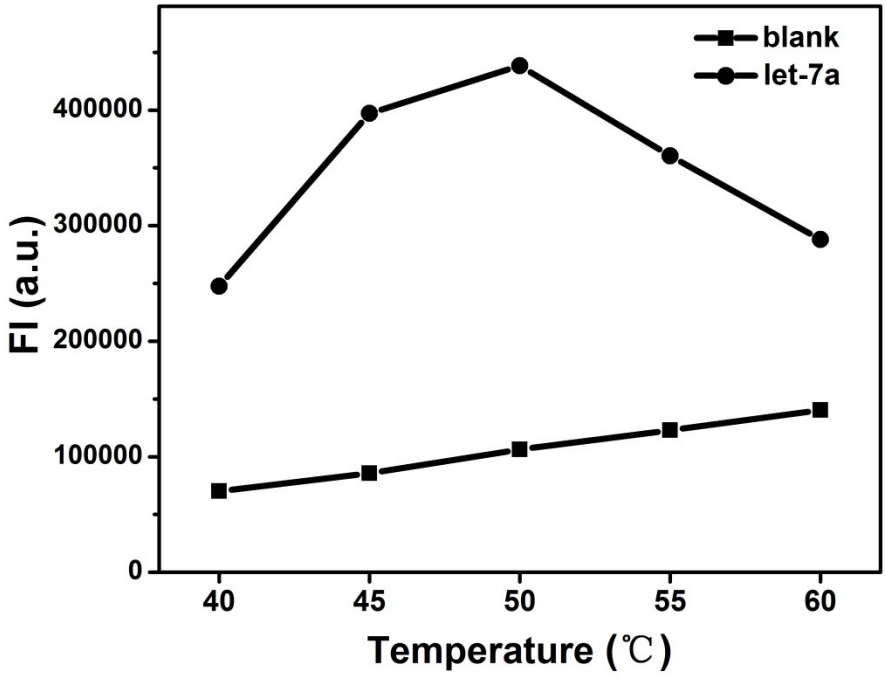

Fig. S2 The effect of the reaction temperature. The concentration of let-7a in the blank and the sample was 0 pM, 250 pM respectively. The reaction volume was 10 μL and reaction products were diluted by 20 times with TE buffer solution before fluorescence measurement.

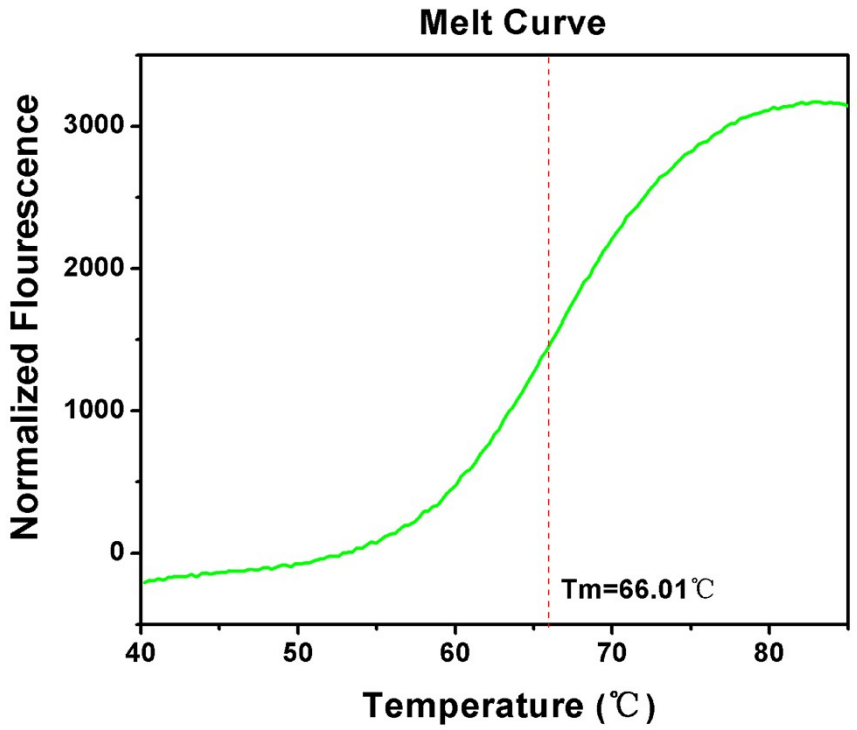

Fig. S3 Melting temperature (Tm) measurement of MB probe. Tm measurement was performed in the StepOne Real Time PCR System. The concentration of probe mb-a1 was 200 nM in 10 μL reaction solution.

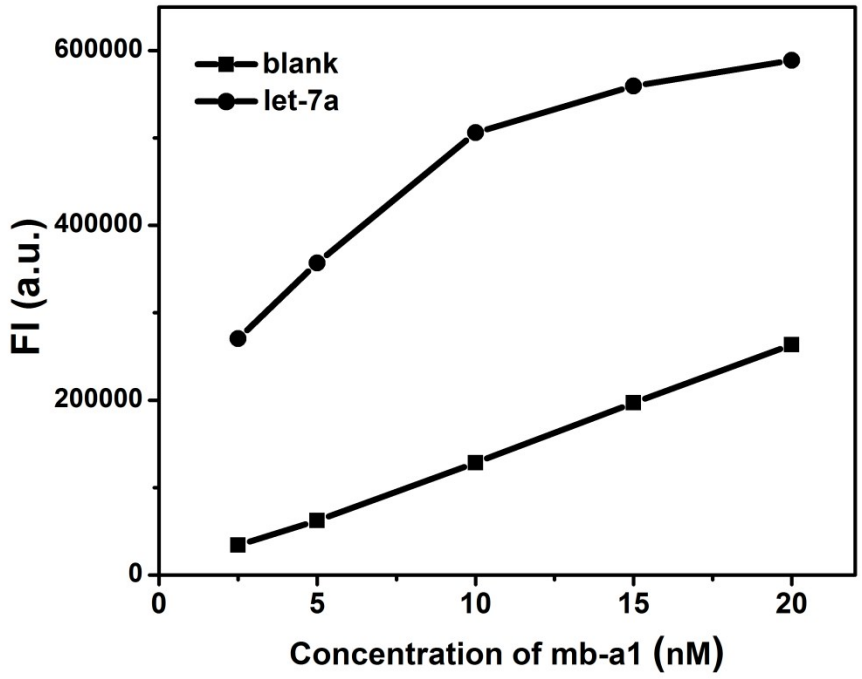

Fig. S4 The effect of the concentration of MB probe. The concentration of let-7a in the blank and the sample was 0 pM, 250 pM respectively. The reaction volume was 10 μL and reaction products were diluted by 20 times with TE buffer solution before fluorescence measurement.

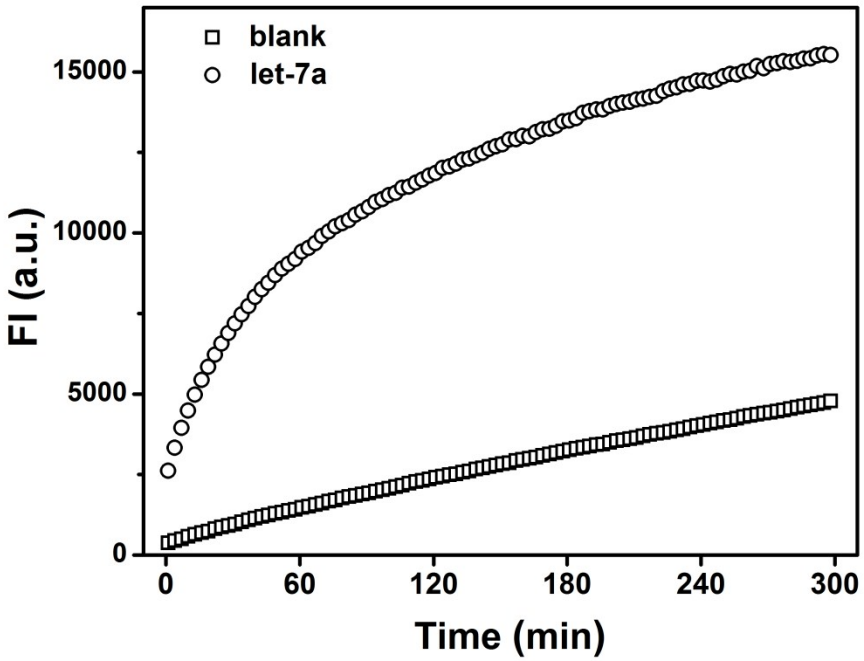

Fig. S5 The effect of the reaction time. The concentration of let-7a was 0 nM, 5 nM in the blank and the sample respectively.

Table S1 Comparison of different methods for miRNA detection

Method	Sensitivity	Selectivity	Simplicity	Time	ref
Northern Blotting with LNA probe	0.5 μg total RNA	two-base difference	complex separation procedure	>17 h	1
RCA	10 fM	one-base difference	simple probe	8 h	2
Stem-loop RT-PCR	1 aM	one-base difference	complex probe design	>2 h	3
signal-amplifying ribozymes	5 nM	—[a]	complex probe design	10 min	4
DSN with DNA peroxidase probe	20 pM	—[a]	two-step detection procedure	2 h 45 min	5
DSN with DNA– AuNP probe	5 pM	—[a]	preparation of AuNP and conjugation of DNA– AuNP	5 h	6
DSN with 2-OMe-RNA MB probe	0.5 pM	one-base difference	2-OMe-RNA modified probe	40 min	7
this work	5 pM	one-base difference	Simple probe design and procedure	2 h	

[a] "—" represents the data are not available.

References

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