

Supplementary Materials

Ratiometric electrochemical biosensor based on hybridization chain reaction signal amplification for sensitive microRNA-155 detection

Yan Ma, Mengyao Li and Yuzhong Zhang*

*College of Chemistry and Materials Science, Anhui Key Laboratory of Biomedical Materials and chemical Measurement,
Anhui Normal University, Wuhu 241002, People's Republic of China*

* Corresponding author. Tel: +86 553 3869303; Fax: +86 553 3869303
E-mail address: zhyz65@mail.ahnu.edu.cn (Y. Zhang)

Optimization of experimental conditions

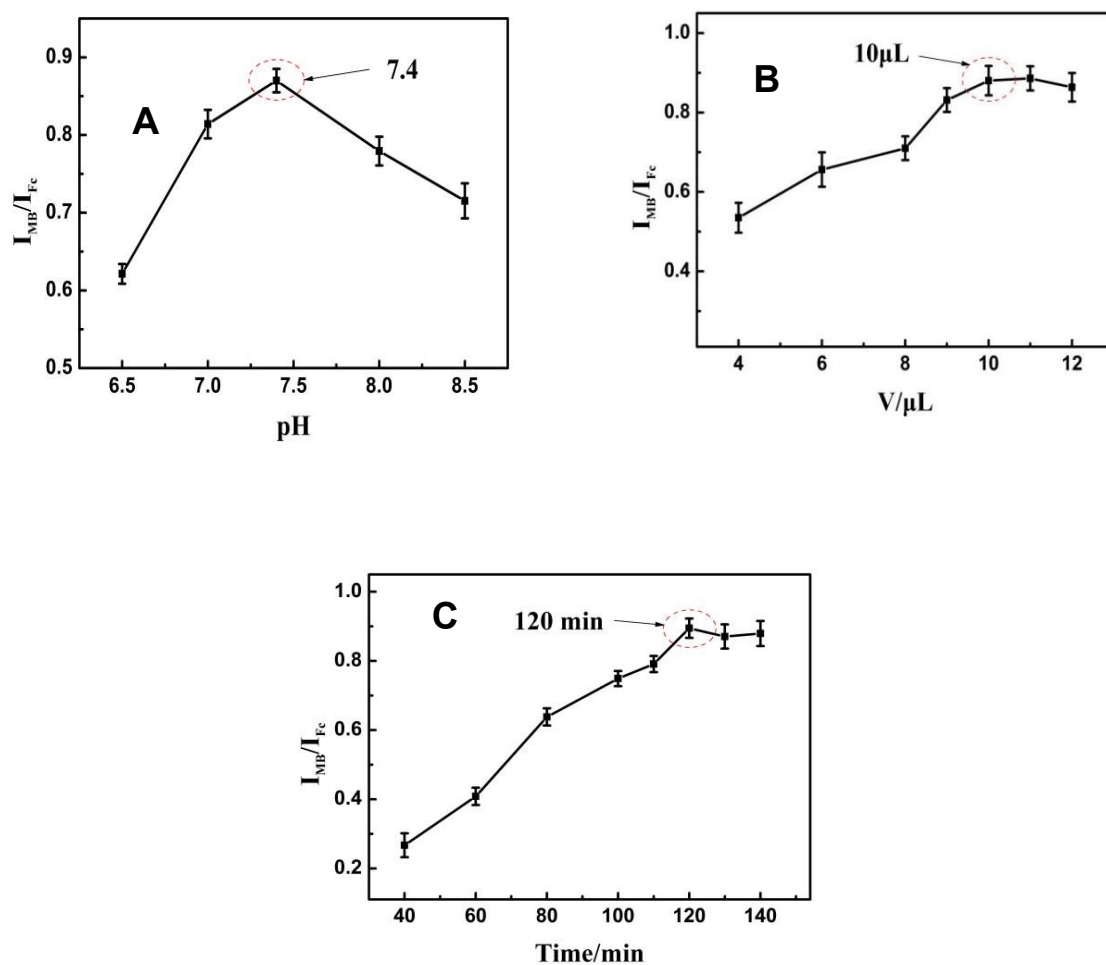


Fig. S1. Optimization of experimental conditions (A) pH; (B) Amount of CP; (C) Incubation time
The concentration of miRNA-155 is 1 nM.

Table S1 Comparison of different electrochemical methods for miRNA detection

Measure technology	signal	Used material	Signal Amplification	Target miRNA	Linear range	Detection limit	Ref.
DPV	ratio	Au NPS	HCR +DSM	miRNA-141	0.1fM-100pM	11aM	[18]
DPV	single	MnO ₂ -Au NPs	HCR+HCR	miRNA-21	0.10fM-100nM	0.063 fM	[20]
DPV	single	CdTe QDs	HCR	miRNA-21	0.1 fM-0.1 nM	0.033 fM	[22]
DPV	single	Au NPs-GO	HCR	miRNA-155	10 fM-1.0 nM	3.3 fM	[23]
SWV	single	Cu-NMOF@pt NPs/HRP	Pt NPs/HRP	miRNA-155	0.5-1.0×10 ⁵ M	0.13f M	[24]
SWV	single	/	/	miRNA-155	10aM-1.0nM	5.7aM	[25]
CC	single	GO QDs	HRP	miRNA-155	1 fM-100pM	0.14fM	[26]
DPV	ratio	Au NPs	HCR	miRNA-155	100fM - 100 nM	33fM	This work

Notes: NPs: Nanoparticles ; HCR: Hybridization chain reaction ; QD: Quantum dot ; GO : Graphene oxide; MOF : metal organic frame ; HRP::Horseradish peroxidase; DSM:duplex-specific nuclease

DPV: Differential pulse voltammetry; SWV: Square wave voltammetry; CC : Chronocoulometry