Supporting Information

Portable and Sensitive Detection of Cancer Cells via Handheld Luminometer

Jing Lei, Lu Shi, Wei Liu, Baoxin Li, Yan Jin*

Key Laboratory of Analytical Chemistry for Life Science of Shaanxi Province, Key Laboratory of Applied Surface and Colloid Chemistry, Ministry of Education, School of Chemistry and Chemical Engineering, Shaanxi Normal University, Xi'an 710119, China.

* Corresponding author: Prof. Yan Jin, Email: jinyan@snnu.edu.cn, Fax: 86-29-81530727

Table of contents

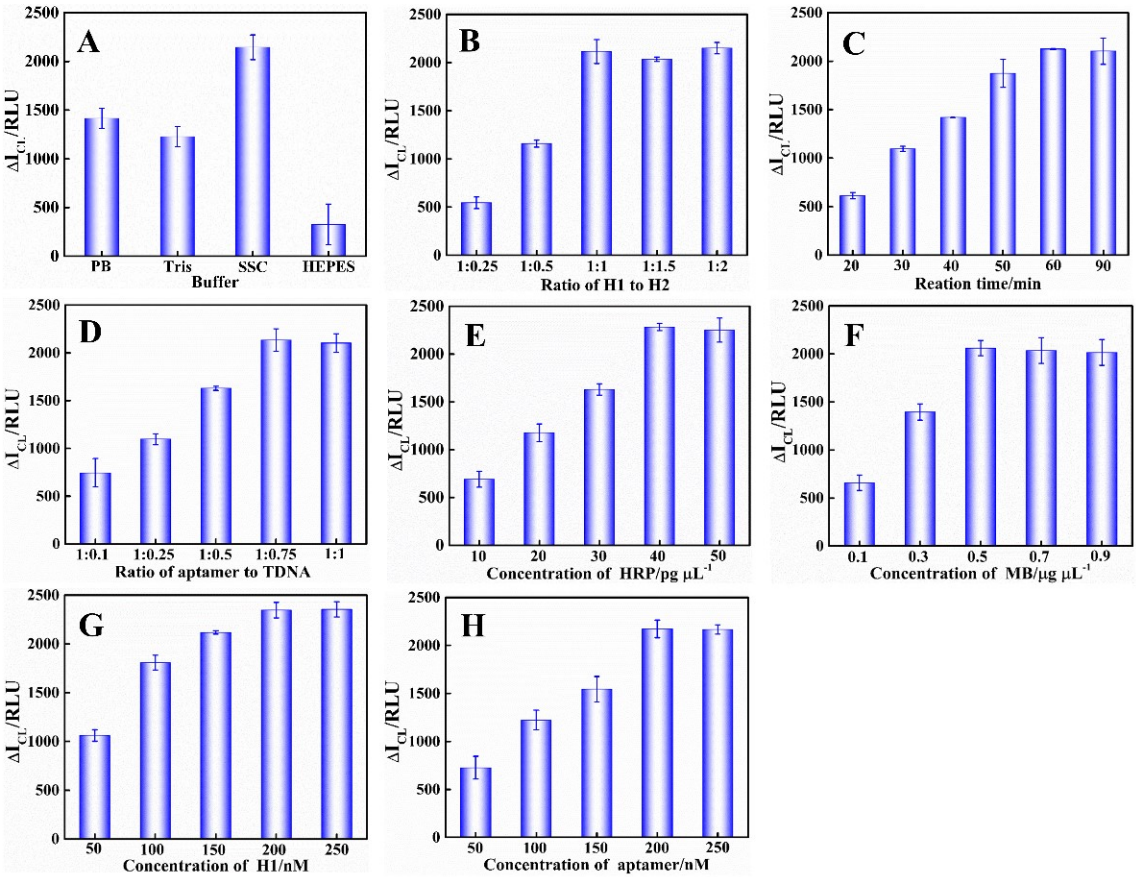

Fig. S1. Effects of (A) buffer (B) ratio of H1 to H2 (C) time (D) ratio of aptamer to TDNA (E) concentration of HRP (F) concentrations of MB (G) concentration of H1 (H) concentration of aptamer on the CL intensity respectively.

Table S1. Comparision of the analytical performance of different methods for cancer cell detection.

Analtical Method	Linear range	Detection limit	Reference
Fluorometric assay	10-1×10^6 cells/200 μL	9 cells/200 μL	(Sun et al., 2020)
Fluorometric assay	17-20000 cells/200 μL	9 cells/200 μL	(Chen et al., 2021)
Fluorometric assay	0-2×10^5 cells/mL	100 cells/mL	(Tang et al., 2017)
Fluorometric assay	0-5000 cells/mL	100 cells/mL	(Chen et al., 2017)
Localized surface plasmon resonance	100-10^5 cells/mL	100 cells/mL	(Li et al., 2016)
Electrochemical assay	100-5×10^4 cells/mL	25 cells/mL	(Yang et al., 2020)

Electrochemical assay	50-2×10^6 cells/mL	15 cells/mL	(Li et al., 2019)
Electrochemical assay	200-4000 cells/mL	162 cells/mL	(Jie et al., 2011)
Colorimetric assay	0-2000 cells/mL	75 cells/mL	(Liu et al., 2021)
Colorimetric assay	-	100 cells/mL	(Lu et al., 2010)
Pressure-based assay	0-10^3 cells/mL	50 cells/mL	(Ding et al., 2019)
Pressure-based assay	50-400 cells/mL	50 cells/mL	(Wang et al., 2019)
Temperature-based assay	100-700 cells/mL	100 cells/mL	(Zhang et al., 2016)
Chemiluminescent assay	200-10^4 cells/mL	100 cells/mL	(Ding et al., 2020)
Chemiluminescent assay	200-9000 cells/mL	150 cells/mL	(Wang et al., 2016)
Chemiluminescent assay	100-5×10^4 cells/mL	85 cells/mL	This work

REFERENCES

1. S.J. Sun, S.L. Yang, X.M. Hu, C. Zheng, H.X. Song, L.S. Wang, Z.F. Shen, Z.S. Wu, *ACS Sens.,* 2020, **5**, 3870-3878.
2. J.L. Chen, J.R. Xu, T. Wan, H.L. Deng, D.R. Li, *ACS Biomater. Sci. Eng.,* 2021, **7**, 1169-1180.
3. J.L. Tang, X.X. He, Y.L. Lei, H. Shi, Q.P. Guo, Ji.B. Liu, D.G. He, L.A. Yan, K.M. Wang, *Chem. Commun.,* 2017, **53**, 11889-11892
4. J. Chen, H. Jiang, H.P. Zhou, Z.Z. Hu, N. Niu, S.A. Shahzad, C. Yu, *Chem. Commun.,* 2017, **53**, 2398-2401.
5. Y. Li, Y.L. Zhang, M. Zhao, Q.Q. Zhou, L.L. Wang, H.Z. Wang, X.H. Wang, L.S. Zhan, *Chem. Commun.,* 2016, **52**, 3959-3961.
6. J.M. Yang, X.L. Li, B.Y. Jiang, R. Yuan, Yun Xiang, *Anal. Chem.,* 2020, **92**, 7893-7899
7. L.L. Li, B. Han, Y. Wang, J. Zhao, Y. Cao, *Biosens. Bioelectron.,* 2019, **145**, 111714.
8. G.F. Jie, L.Wang, J.X. Yuan, S.S. Zhang, *Anal. Chem.,* 2011, **83**, 3873-3880.

9. M.X. Liu, H. Zhang, S. Chen, Y.L. Yu, J.H. Wang, *Anal. Bioanal. Chem.,* 2021, **413**, 4451-4458.
10. W.T. Lu, S.R. Arumugam, D. Senapati, A.K. Singh, T. Arbneshi, S. A. Khan, H.T. Yu, P.C. Ray, *ACS NANO* 2010, **4**, 1739-1749.
11. E.L. Ding, J. Hai, F.J. Chen, B.D. Wang, *ACS Appl. Nano Mater.,* 2018, **1**, 4156-4163.
12. Z.Y. Wang, J. Hai, T.R. Li, E.L. Ding, J.X. He, B.D. Wang, *ACS Sustainable Chem. Eng.,* 2018, **6**, 9921-9929.
13. H.Y. Zhang, Z. Zhang, Y.H. Wang, C.C. Wu, Q.L. Li, B. Tang, *ACS Appl. Mater. Inter.,* 2016, **8**, 29933-29938.
14. L.H. Ding, Y.J. Wu, Y.J. Duan, S.C. Yu, F. Yu, J. Wang, Y.M. Tian, Z.B. Gao, Z.Z. Wan, L.L. He, *ACS Sens.,* 2020, **5**, 440-446.
15. Y.Z. Wang, N. Hao, Q.M. Feng, H.W. Shi, J.J. Xu., H.Y. Chen, *Biosens. Bioelectron.,* 2016, **77**, 76-82.