

Supporting Information

For

Visual detection of cancer cells by using in situ grown functional Cu_{2-x}Se/reduced graphene oxide hybrids acting as the efficient nanozyme

Qing Juan Guo, ^a Zi Yu Pan, ^a Chen Men, ^b Wen Yi Lv, ^a Hong Yan Zou ^{*a} and Cheng Zhi Huang ^{*a, b}

^a Key Laboratory of Luminescence and Real-Time Analytical Chemistry (Southwest University), Ministry of Education, College of Pharmaceutical Sciences, Southwest University, Chongqing, 400716, P. R. China. E-mail: zhy2013@swu.edu.cn.

^b College of Chemistry and Chemical Engineering, Southwest University, Chongqing, 400715, P. R. China. E-mail: chengzhi@swu.edu.cn, Tel: (+86) 23 68254659, Fax: (+86) 23 68367257.

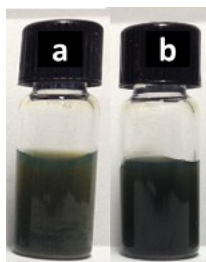


Figure S1 Photographs of (a) FA-Cu_{2-x}Se/rGO and (b) FA-Cu_{2-x}Se/rGO for one month.

Table S1 Colorimetric Detection of Cancer Cells using Cu_{2-x}Se/rGO Hybrid as compared to Other Methods.

Colorimetric methods	Cells visually detected (number)	LOD (number)	Cell types	Time	Reference
Cu _{2-x} Se/rGO	63	45	MCF-7	15 min	This work
Fe-MIL-101	10	50	HELA	5 min	[1]
Pt NPs/GO	125	30	MCF-7	15 min	[2]
CS-AgX (X= Cl, Br, I)	1000	100	MDA-MB-231	10 min	[3]
MnCo ₂ O ₄ nanotube	50	50	HELA	/	[4]
GSF@Au NPs	50	50	HELA	/	[5]
TMV-FA-Pt	/	1.0×10 ⁴ /mL	HELA	30 min	[6]
MnFe ₂ O ₄ NPs	/	100	HELA	20 min	[7]
ANSB	4000	800	Ramos	15 min	[8]
ACG NPs	1000	90	CCRF-CEM	/	[9]
THAAP	/	3.3×10 ³	CCRF-CEM	45 min	[10]
GO_MNP-Pt	/	100	SKBR-3	/	[11]

References

- [1] D. Chen, B. Li, L. Jiang, D. Duan, Y. Li, J. Wang, J. He and Y. Zeng, *RSC Adv.*, 2015, **5**, 97910-97917.
- [2] L. N. Zhang, H. H. Deng, F. L. Lin, X. W. Xu, S. H. Weng, A. L. Liu, X. H. Lin, X. H. Xia and W. Chen, *Anal. Chem.*, 2014, **86**, 2711-2718.
- [3] G. L. Wang, X. F. Xu, L. Qiu, Y. M. Dong, Z. J. Li and C. Zhang, *ACS Appl. Mater. Inter.*, 2014, **6**, 6434-6442.

- [4] E. Ding, J. Hai, F. Chen and B. Wang, *ACS Appl. Nano Mater.*, 2018, **1**, 4156-4163.
- [5] S. K. Maji, A. K. Mandal, K. T. Nguyen, P. Borah and Y. Zhao, *ACS Appl. Mater. Inter.*, 2015, **7**, 9807-9816.
- [6] J. Guo, X. Zhao, J. Hu, Y. Lin and Q. Wang, *Mol. Pharm.*, 2018, **15**, 2946-2953.
- [7] P. Y, W. Z, L. W, Z. H, Z. W, T. H, C. F and W. B, *Dalton. T.*, 2015, **44**, 12871-12877.
- [8] G. Liu, X. Mao, J. A. Phillips, H. Xu, W. Tan and L. Zeng, *Anal. Chem.*, 2009, **81**, 10013-10018.
- [9] C. D. Medley, J. E. Smith, Z. Tang, Y. Wu, A. Suwussa Bamrungsap and W. Tan, *Anal. Chem.*, 2008, **80**, 1067-1072.
- [10] H. Shi, D. Li, F. Xu, X. He, K. Wang, X. Ye, J. Tang and C. He, *Analyst*, 2014, **139**, 4181-4184.
- [11] D. Chen, B. Li, L. Jiang, D. Duan, Y. Li, J. Wang, J. He and Y. Zeng, *RSC Adv.*, 2015, **5**, 97910-97917.