**Supplementary materials**

**Design of photoluminescence point-of-care membrane strip for the detection of dopamine**

Punuri Jayasekhar Babua,c,d\*, Sibyala Saranyab, Ashok M Raichurc, Mukesh Doble d\*

aBiomaterials and Bioengineering Research Laboratory, Department of Biotechnology, Pachhunga University College, Mizoram University (A Central University), Aizwal-796 001, Mizoram.

bClinical Biochemistry Laboratory, Department of Biochemistry, Sri Venkateswara University, Tirupathi, AP- 517 502, India.

cBiomaterials Laboratory, Department of Materials Engineering, Indian Institute of Science, Bangalore, Karnataka-560 012, India.

dBioengineering and Drug Design Laboratory, Department of Biotechnology, Indian Institute of Technology Madras,Chennai-600 036, Tamil Nadu, India.



**S1.** Incapability of various molecules tested for PL recovery.

We have plotted a graph (Fig. 3f) of PL recovery as a function of DA concentration and obtained the K value 3 X 10-4µM. We have compared the lower detection levels of dopamine with already published reports and found that our method is superior over many methods. The following table demonstrates the various detection methods of dopamine. (This is added as a supplementary material)

|  |  |  |
| --- | --- | --- |
| **S.No** | **Lower limit detection** | **Reference** |
| 1 | 5nM | S Zhuo, et al., Facile fabrication of fluorescent Fe-doped carbon quantum dots for dopamine sensing and bioimaging application, Analyst, 2019, 144, 656. |
| 2 | 0.5nM | U Baruah, et al., Carbon Dot Based Sensing of Dopamine and Ascorbic Acid. Journal of Nanoparticles Volume 2014, Article ID 178518, 8 pages. |
| 3 | 68nM | K Qu, et al., Carbon Dots Prepared by Hydrothermal Treatment of Dopamine as an Effective Fluorescent Sensing Platform for the Label-Free Detection of Iron(III) Ions and Dopamine. Chem. Eur. J. 2013, 19, 7243 – 7249 |
| 4 | 10nM | Y Suzuki, Design and synthesis of fluorescent reagents for selective detection of dopamine, Sensors and Actuators B 239 (2017) 383–389. |
| 5 | 0.83nM | S Govindaraju et al., Fluorescent Gold Nanoclusters for Selective Detection of Dopamine in Cerebrospinal fluid, Scientific Reports 7:40298 |
| 6 | 100nM | Keren Jiang et al, Rapid and Highly Sensitive Detection of Dopamine Using Conjugated Oxaborole-Based Polymer and Glycopolymer Systems. ACS Appl. Mater. Interfaces 2017, 9, 15225−15231. |
| 7.  | 0.3 nM | Our Current work  |

**T1.** Table demonstrating the Current method is superior over many methods of detecting DA