# A sensitive FRET biosensor based on carbon dots modified nanoporous membrane for 8-hydroxy-2'-deoxyguanosine (8-OHdG) detection with Au@ZIF-8 nanoparticles as signal quenchers

**Weiwei Ye [1,2,\*], Yu Zhang [3], Wei Hu [3], Liwen Wang [3], Yu Zhang [4], Kejing Ying [5] and Ping Wang [6]**

[1] Key Laboratory of E&M, MOE, Zhejiang University of Technology, Hangzhou 310023, China;

[2] College of Mechanical Engineering, Zhejiang University of Technology, Hangzhou 310023, China;

[3] Department of Food Science and Technology, Zhejiang University of Technology, Hangzhou 310014, China; zhangyuzjut@163.com (Y.Z.); weihu1995@163.com (W.H.); Wlw4712@163.com (L.W.);

[4] Mechanical and Automotive Engineering, School of Engineering, RMIT University, Melbourne, Victoria 3004, Australia; fiona.zhang@rmit.edu.au

[5] Department of Respiratory Medicine, Sir Run Run Shaw Hospital, Zhejiang University, Hangzhou 310016, China; warsky.com@126.com

[6] Biosensor National Special Laboratory, Key Laboratory for Biomedical Engineering of Education Ministry, Department of Biomedical Engineering, Zhejiang University, Hangzhou, 310027, China; cnpwang@zju.edu.cn
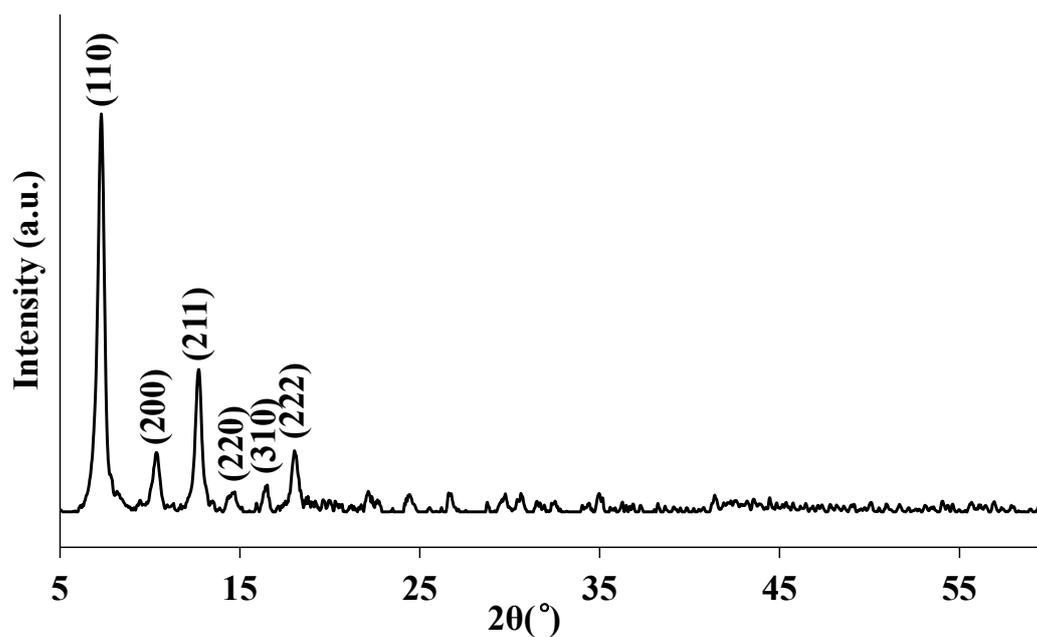
\* Correspondence: yeweiwei@zjut.edu.com.

**Figure S1.** XRD pattern of Au@ZIF-8 nanoparticles.
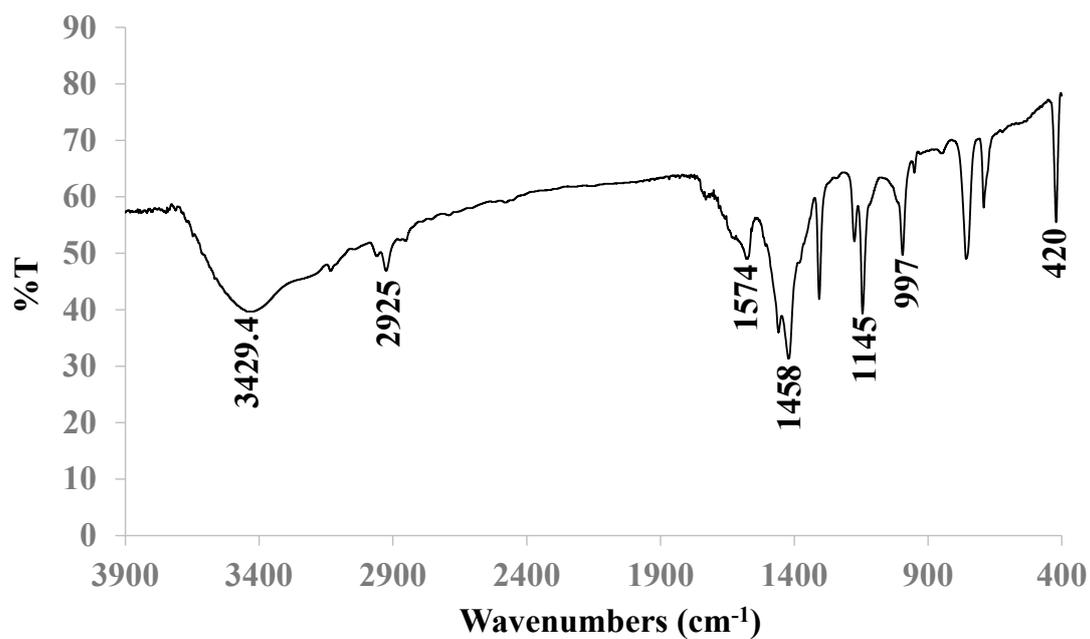
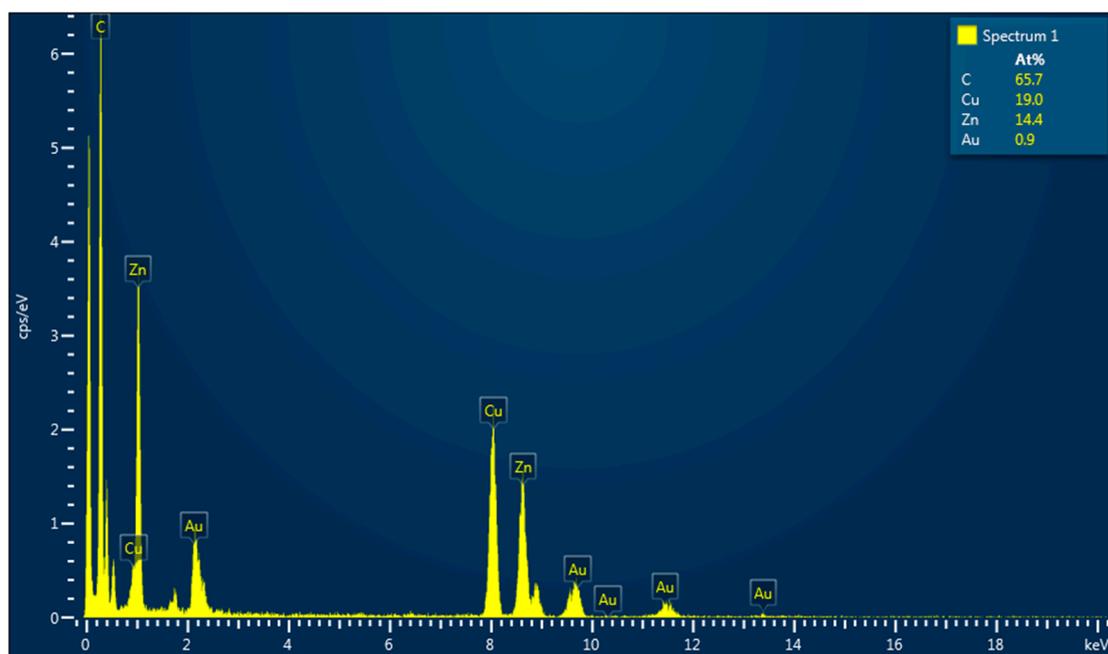**Figure S2.** FTIR spectrum of Au@ZIF-8 nanoparticles.



**Figure S3.** Energy dispersive X-ray spectroscopy (EDX) result for the CDs modified nanoporous alumina membranes with 8-OHdG capture and Au@ZIF-8 nanoparticles attachment.
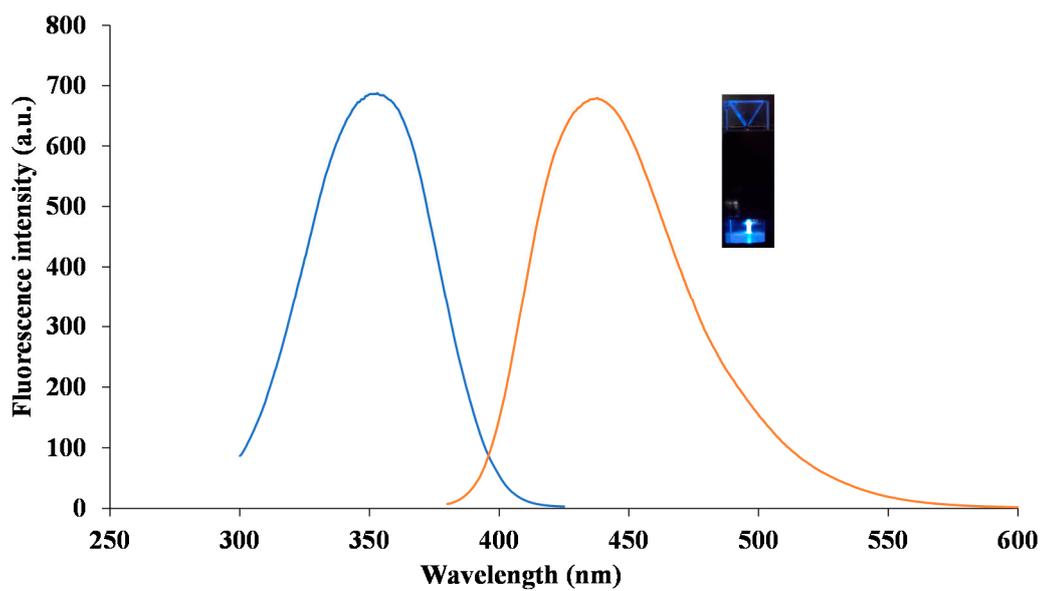
**Figure S4.** The excitation spectrum and emission spectrum of CDs. Inset: photoluminescence of CDs in solution.
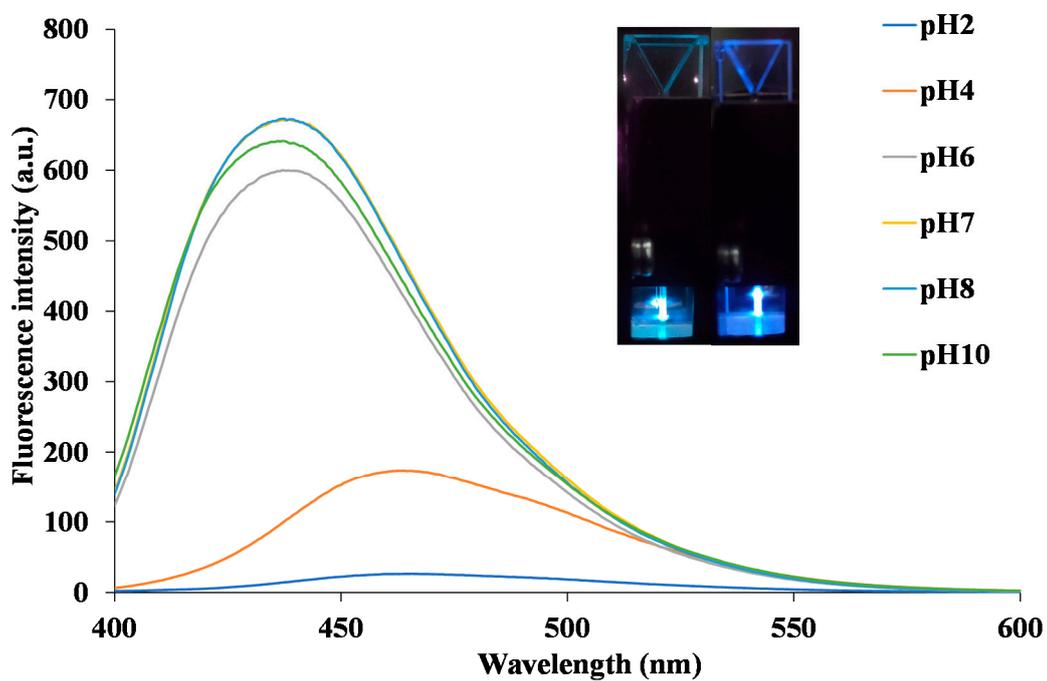


**Figure S5.** Photoluminescence spectra of CDs with pH 2 increased to pH 10. Inset: photoluminescence of CDs with pH 7 (right) and pH 8 (left).
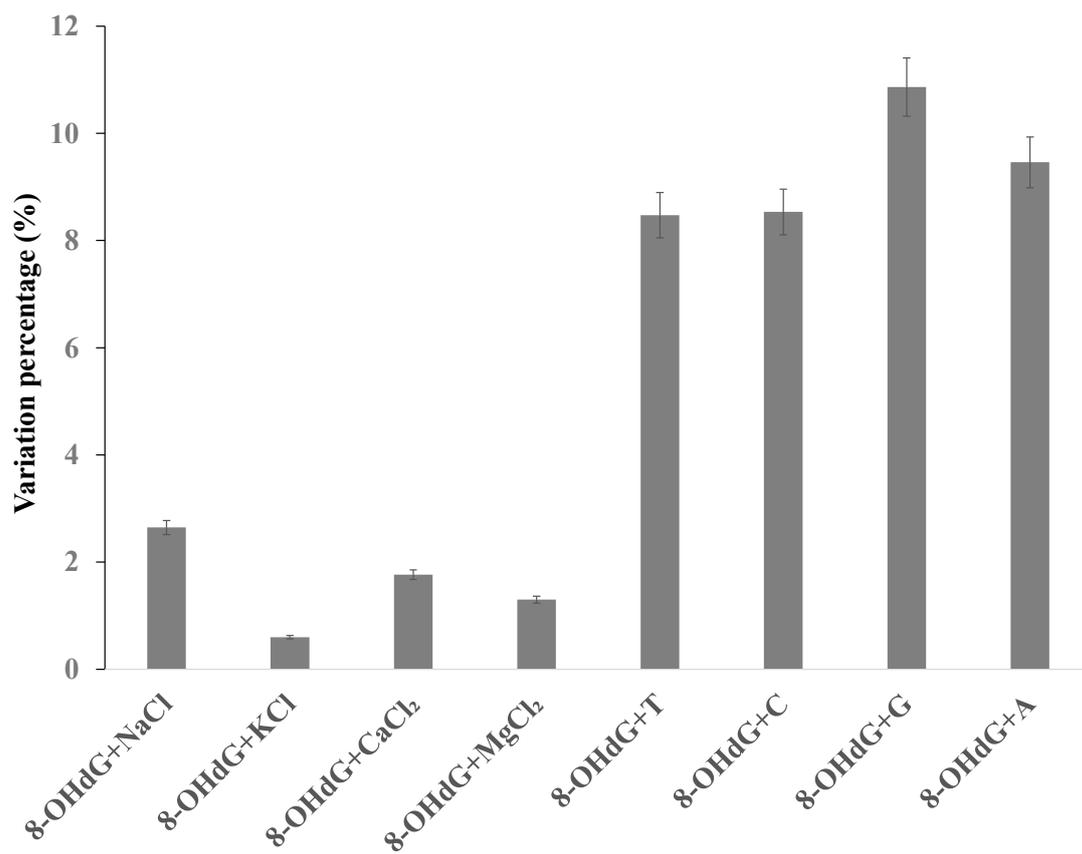
**Figure S6.** The variations of NaCl, KCl, CaCl$_2$, MgCl$_2$, thymine, cytosine, guanine, and adenine interference.