

Supplementary Information

Rapid and sensitive detection of NGAL for prediction of acute kidney injury via polydopamine nanosphere/aptamer nanocomplex coupled with DNase I-assisted recycling amplification

Yiting Hu,^{a,1} Xie-an Yu,^{a,1} Ying Zhang,^a Ran Zhang,^a Xuefei Bai,^a Mi Lu,^a Jiwei Li,^a Lifei Gu,^a Ji-Hua Liu,^a Bo-Yang Yu^{a,*} and Jiangwei Tian^{a,*}

^a State Key Laboratory of Natural Medicines, Jiangsu Key Laboratory of TCM Evaluation and Translational Research, Research Center for Traceability and Standardization of TCMs, School of Traditional Chinese Pharmacy, China Pharmaceutical University, Nanjing 211198, P.R. China.

¹ These authors contributed equally to this work.

* Corresponding authors: Bo-Yang Yu, Email: boyangyu59@163.com; Jiangwei Tian, Email: jwtian@cpu.edu.cn

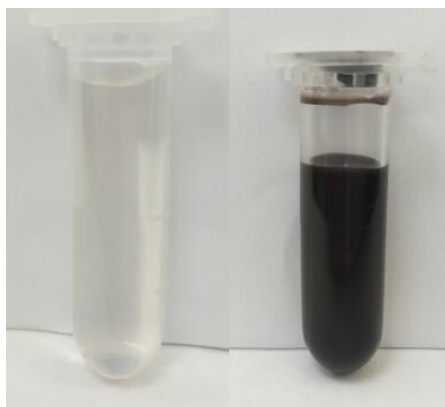


Fig. S1 Clarity and color of the DA and PDANS solution.

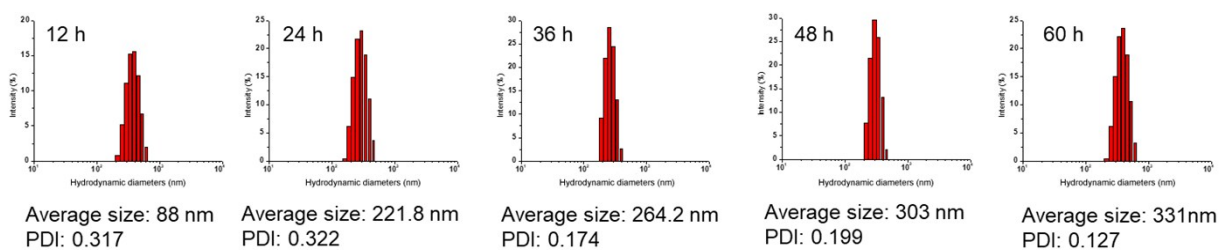


Fig. S2 Hydrodynamic diameters and PDI of PDANS with different stirring times.

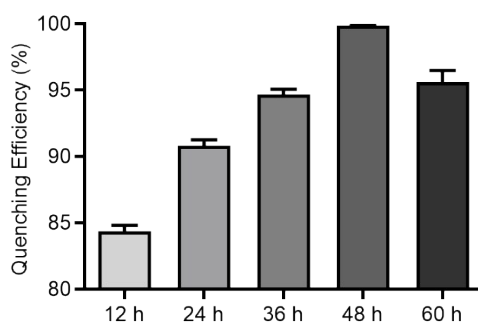


Fig. S3 Quenching efficiency of PDANS with different stirring times.

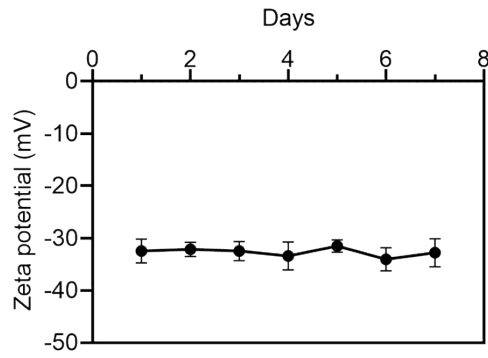


Fig. S4 Stability of Zeta potential for PDANS.

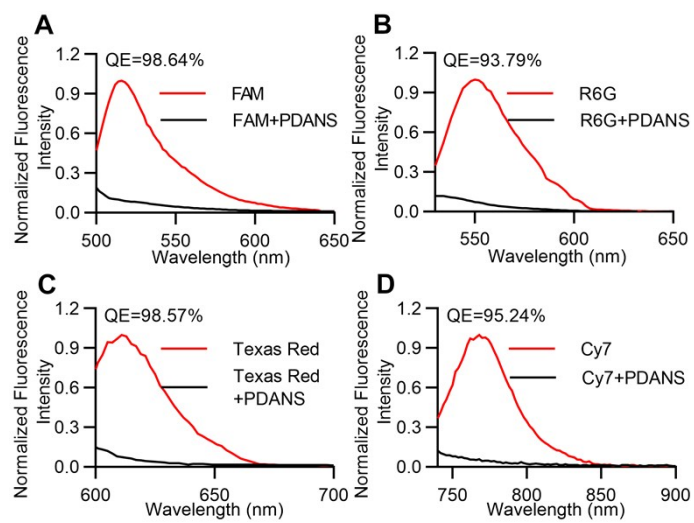


Fig. S5 Normalized fluorescence spectra of different fluorophores-labeled DNA (red lines) and their corresponding fluorescence spectra with enough amounts of PDANS (black lines): (A) FAM, (B) R6G, (C) Texas Red, (D) Cy7.

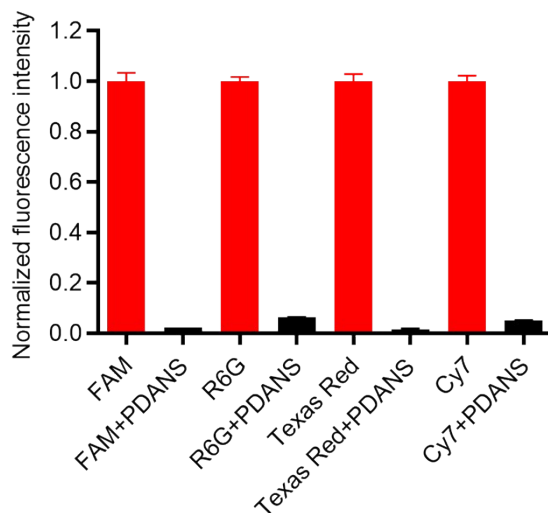


Fig. S6 Normalized fluorescence intensity of different types of DNAs-labeled fluorophores after binding to PDANS.

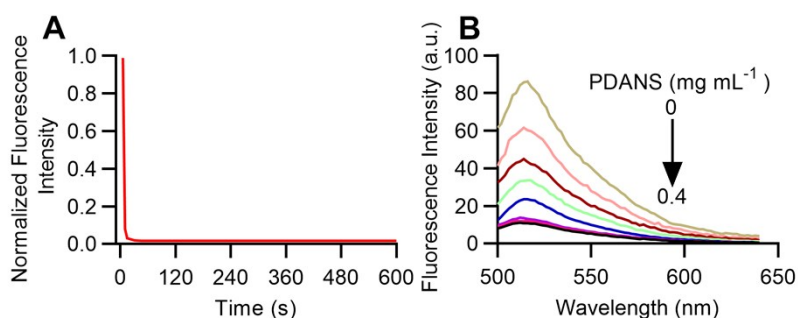


Fig. S7 (A) Fluorescence quenching kinetics of 600 nM FAM-labelled DNA in the presence of 0.3 mg mL⁻¹ PDANS. (B) Fluorescence intensity of 600 nM FAM-labelled DNA versus PDANS concentrations.

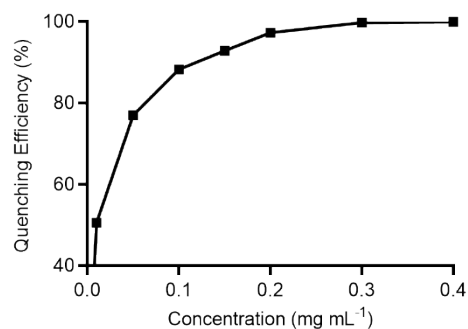


Fig. S8 Quenching efficiency of different concentrations of PDANS in the present of 600 nM FAM-labeled aptamer.

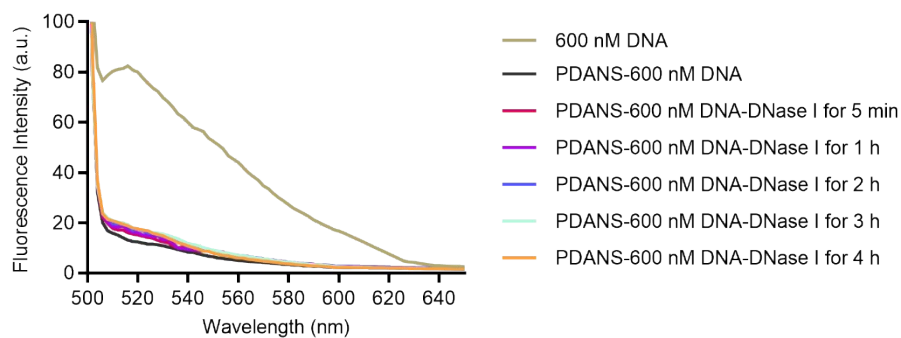


Fig. S9 Fluorescence intensity of FAM-labeled aptamer in the present of 5 U DNase I for different incubating times.

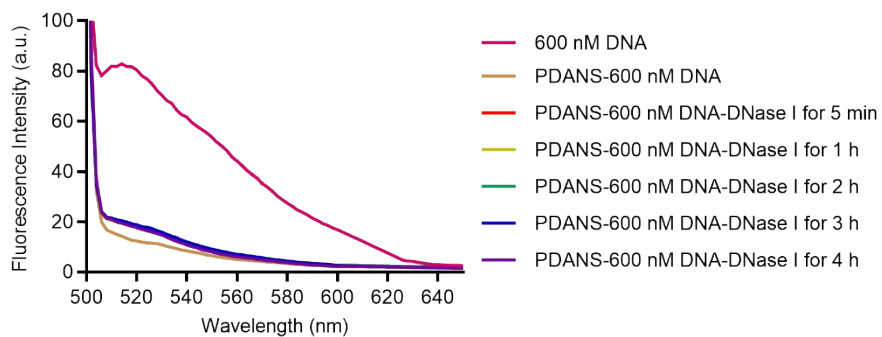


Fig. S10 Fluorescence intensity of FAM-labeled aptamer in the present of 10 U DNase I for different incubating times.

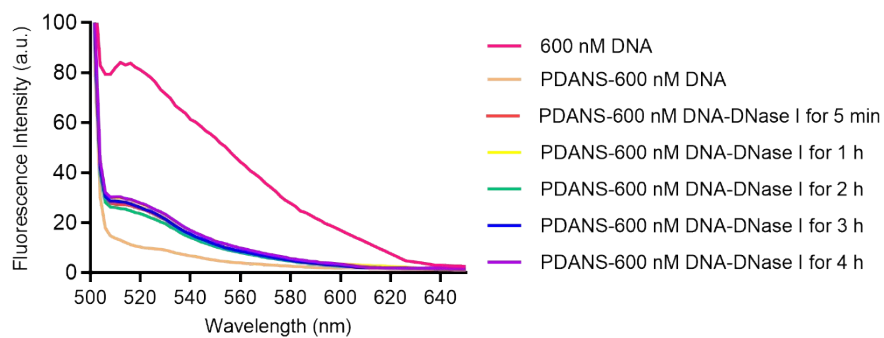


Fig. S11 Fluorescence intensity of FAM-labeled aptamer in the present of 20 U DNase I for different incubating times.

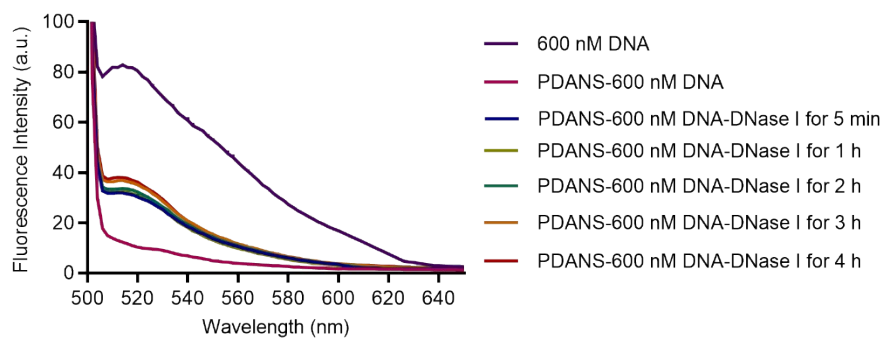


Fig. S12 Fluorescence intensity of FAM-labeled aptamer in the present of 30 U DNase I for different incubating times.

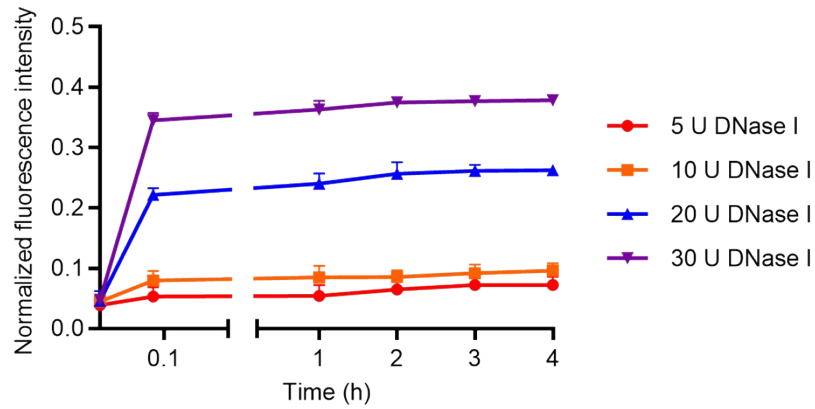


Fig. S13 Normalized fluorescence intensity of FAM-labeled aptamer in the presence of different concentrations of DNase I for different incubating times.

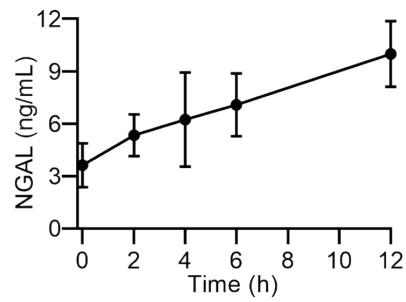


Fig. S14 Concentrations of NGAL in urine after intraperitoneal injection of Cisplatin measuring by ELISA method.