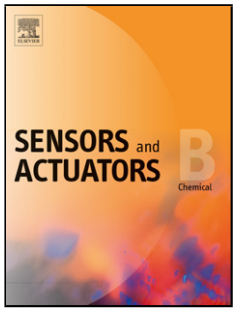

Title: Novel aptasensor for the ultrasensitive detection of kanamycin based on grapheneoxide quantum-dot-linked single-stranded DNA-binding protein

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PII: S0925-4005(18)30515-X
DOI: https://doi.org/10.1016/j.snb.2018.03.029
Reference: SNB 24314

To appear in: *Sensors and Actuators B*

Received date: 28-12-2017
Revised date: 6-3-2018
Accepted date: 7-3-2018

Please cite this article as: Yanhua He, Xiaoye Wen, Bingyan Zhang, Zhefeng Fan, Novel aptasensor for the ultrasensitive detection of kanamycin based on grapheneoxide quantum-dot-linked single-stranded DNA-binding protein, Sensors and Actuators B: Chemical https://doi.org/10.1016/j.snb.2018.03.029

Novel aptasensor for the ultrasensitive detection of kanamycin based on grapheneoxide quantum-dot-linked single-stranded DNA-binding protein

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Highlights:

- A novel aptasensor based on Graphene oxide quantum dots linked single-stranded DNA-binding protein is designed.
- The detection principle of this aptasensor based on SSB has a strong affinity for aptamer in the free state but not in the collapsed state.
- This platform has the potential to achieve rapid, simple, and sensitive biological detection

Abstract:

We coupled single-stranded DNA-binding protein (SSB) with graphene oxide quantum dots (GOQDs) to form QDs–SSB, as a new type of fluorescent probe. Considering the superiority of FRET and the urgency of realizing kanamycin (KAN) sensitive detection, we combined this fluorescent probe with Apt-BHQ_1, and applied the FRET principle to achieve ultra-trace detection of KAN. The superiority of detection depends on: SSB has a strong affinity for aptamer (apt) in free state but not in collapsed state; The aptamer is in a free state when not bound to the target and is

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