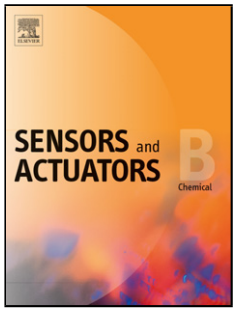

Title: Three kinds of DNA-directed nanoclusters cooperating with graphene oxide for assaying mucin 1, carcinoembryonic antigen and cancer antigen 125

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PII: S0925-4005(18)30263-6
DOI: https://doi.org/10.1016/j.snb.2018.01.235
Reference: SNB 24084

To appear in: *Sensors and Actuators B*

Received date: 8-12-2017
Revised date: 22-1-2018
Accepted date: 30-1-2018

Please cite this article as: Yingyi Wang, Shanshan Wang, Chunsong Lu, Xiaoming Yang, Three kinds of DNA-directed nanoclusters cooperating with graphene oxide for assaying mucin 1, carcinoembryonic antigen and cancer antigen 125, Sensors and Actuators B: Chemical https://doi.org/10.1016/j.snb.2018.01.235

Three kinds of DNA-directed nanoclusters cooperating with graphene oxide for assaying mucin 1, carcinoembryonic antigen and cancer antigen 125

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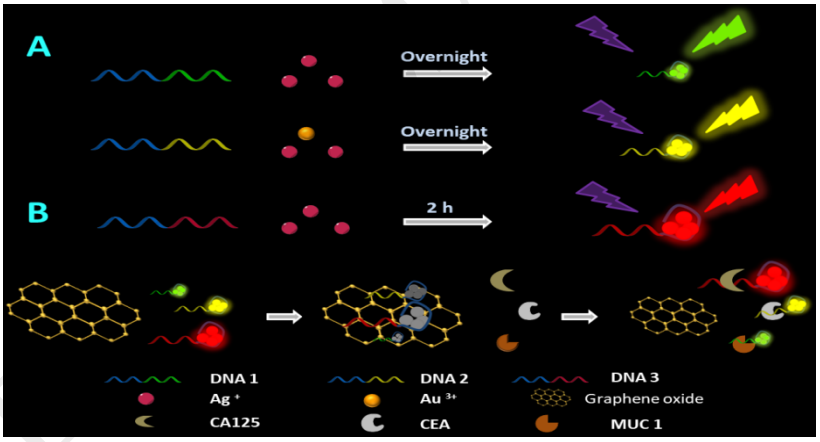
Graphical Abstract



Hereby, three kinds of aptamer-functionalized silver and silver/gold nanoclusters (DNA-AgNCs and DNA-Ag/AuNCs) have been originally synthesized, and possessed the specific recognition ability for their related targets. To be specific, the fluorescence of AgNCs or Ag/AuNCs was distinctly quenched by introducing graphene oxide(GO), and the more