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Title: A simple electrochemical immunosensor platform for detection of Apolipoprotein A1 (Apo-A1) as a bladder cancer biomarker in urine



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### *Sensors and Actuators B: Chemical*

**A simple electrochemical immunosensor platform for detection of Apolipoprotein A1 (Apo-A1) as a bladder cancer biomarker in urine**

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#### Highlights

- ITO-based eELISA yields the first sensing platform for monitoring bladder cancer biomarkers with high sensitivity and repeatability using urine samples.
- Our developed immunosensor can sensitively detect the existence of Apo-A1 as low as 1 pM in both PBS and urine with a range of concentrations from 1 pM to 100 nM using only 15  $\mu$ l of sample.
- Our developed immunosensor strips are easy to handle and cost-effective solution for diagnosis of bladder cancer, which is applicable to POC diagnostic system.

#### Abstract

Bladder cancer is one of the tumors associated with the highest mortality rate. It is clinically

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