

Supporting Information

A dual-mode of homogeneous electrochemical-colorimetric biosensing sensor for carcinoembryonic antigen detection based on microfluidic paper-based analysis device

Yao Zhang^a, Jiaqi Xu^a, Jianing Shen^a, Bo Zhang^a, Tianhao Xue^a, Xiaoqing Lv^{b*}, Xiaofang Zhang^{c*},
Guixian Zhu^{a*}

^aSchool of Instrument Science and Optoelectronic Engineering, Beijing Information Science and
Technology University, No.12 Xiaoying Road, Beijing,100192, China

^bState Key Laboratory of Integrated Optoelectronics, Institute of Semiconductor, Chinese Academy of
Sciences, Beijing 100083, China

^cDepartment of Clinical Laboratory, Tianjin Medical University General Hospital, Tianjin, 300070,
China

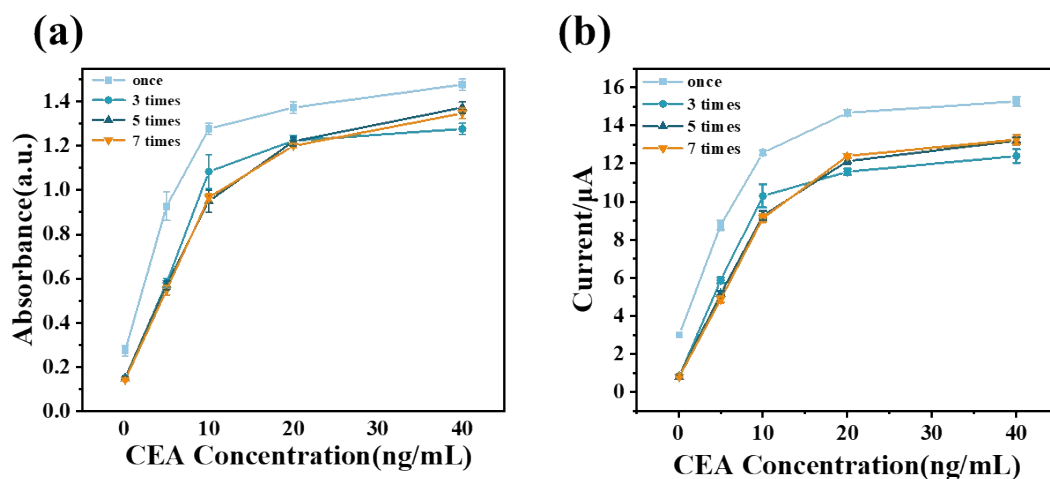


Figure S1 Influence of flushing times on experimental results. Colorimetric results of immunoassay (a) and electrochemical response curve (b) based on different times of washing steps

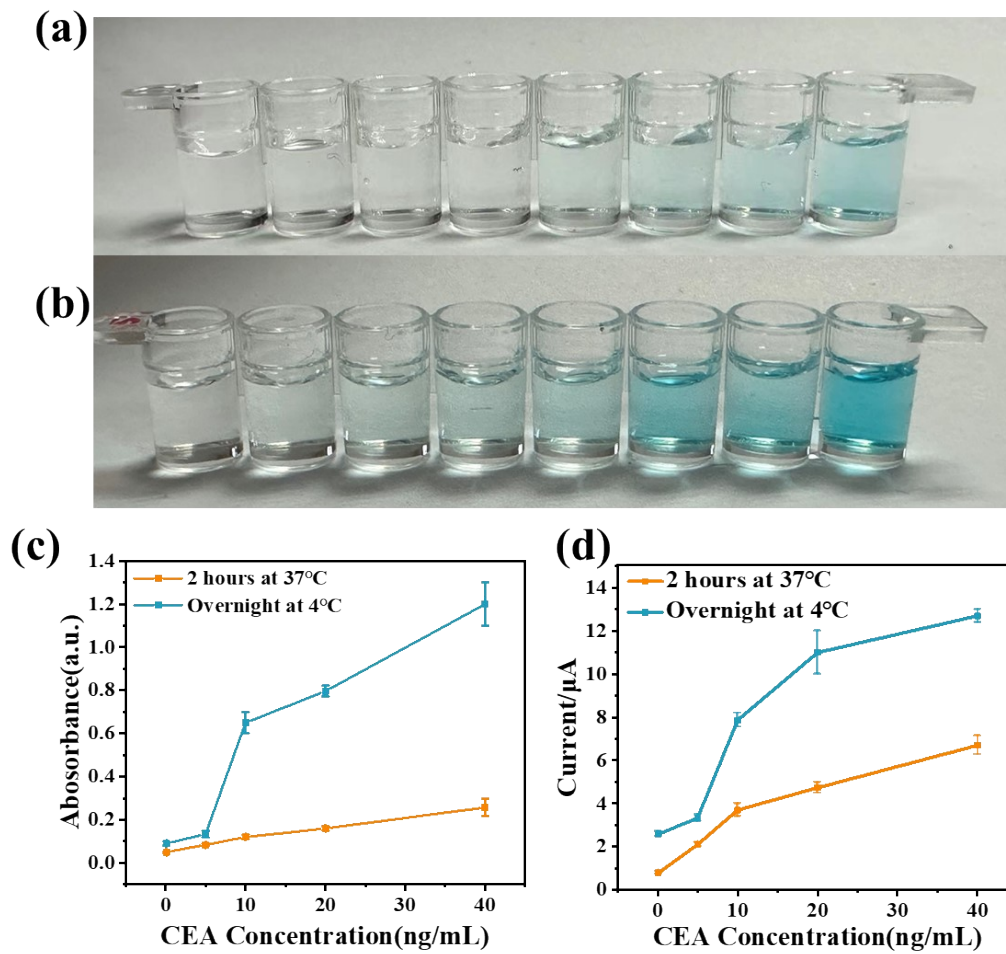


Figure S2 Comparison of chromogenic results (a) and (b) of experimental results with different antibody coating conditions, colorimetric results (c) and electrochemical response curves (d) of immunoassay based on different antibody coating conditions

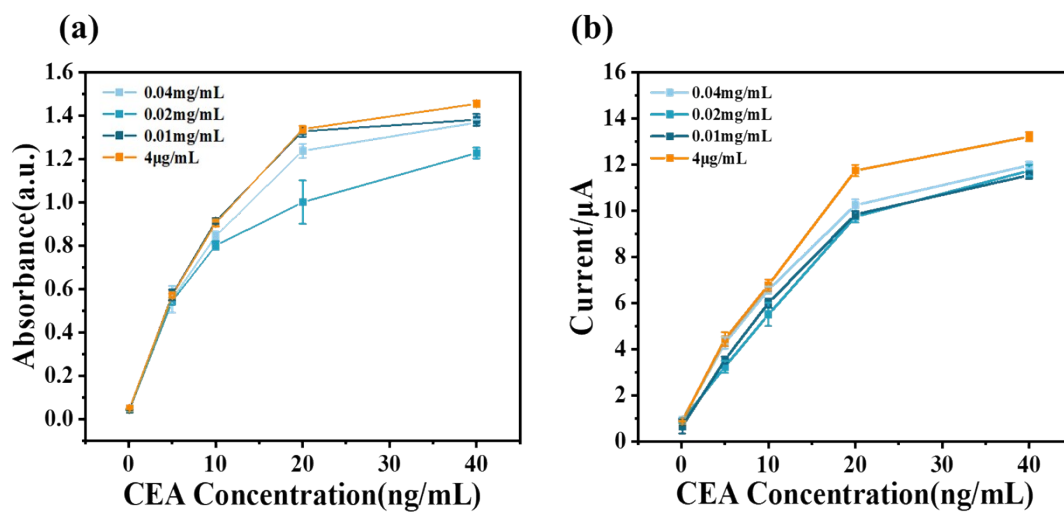


Figure S3 OD values of reaction samples at different dilution times were 0.04mg/mL(100 times),

0.02mg/mL(200b times), 0.01mg/mL (400 times) and 4 μ g/mL (100 times). (b) The electrochemical response value of the reaction sample at different dilution multiples

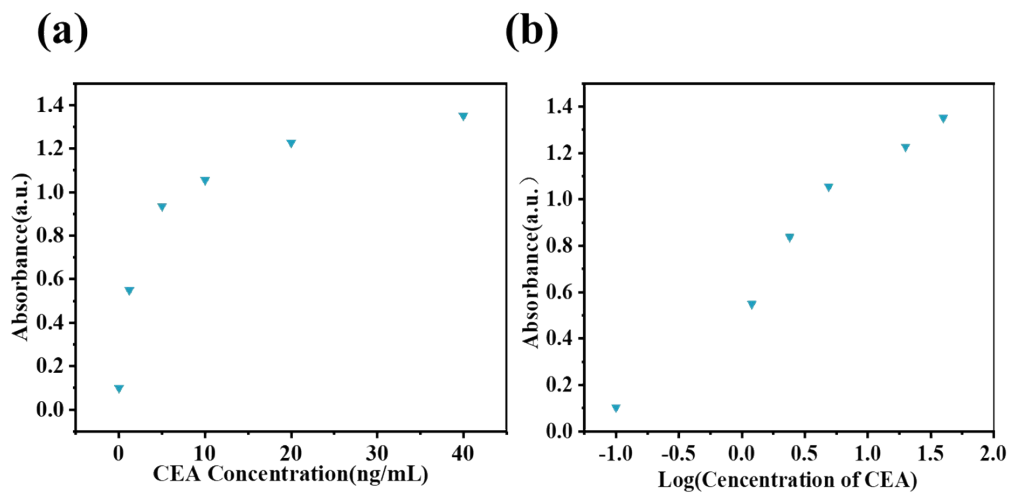


Figure S4 (a) OD values of CEA concentration at different CEA concentration (b) Logarithm of absorbance and CEA concentration

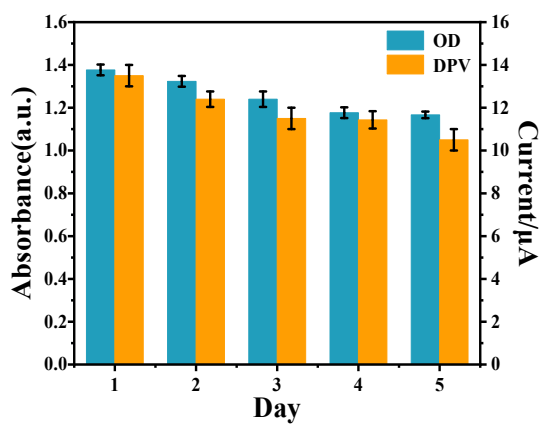


Figure S5 The stability of the dual mode sensor