Supporting Materials for "Multiplex Chemiluminescent Immunoassay for Screening of Mycotoxins Using Photonic crystal Microsphere Suspension Array"

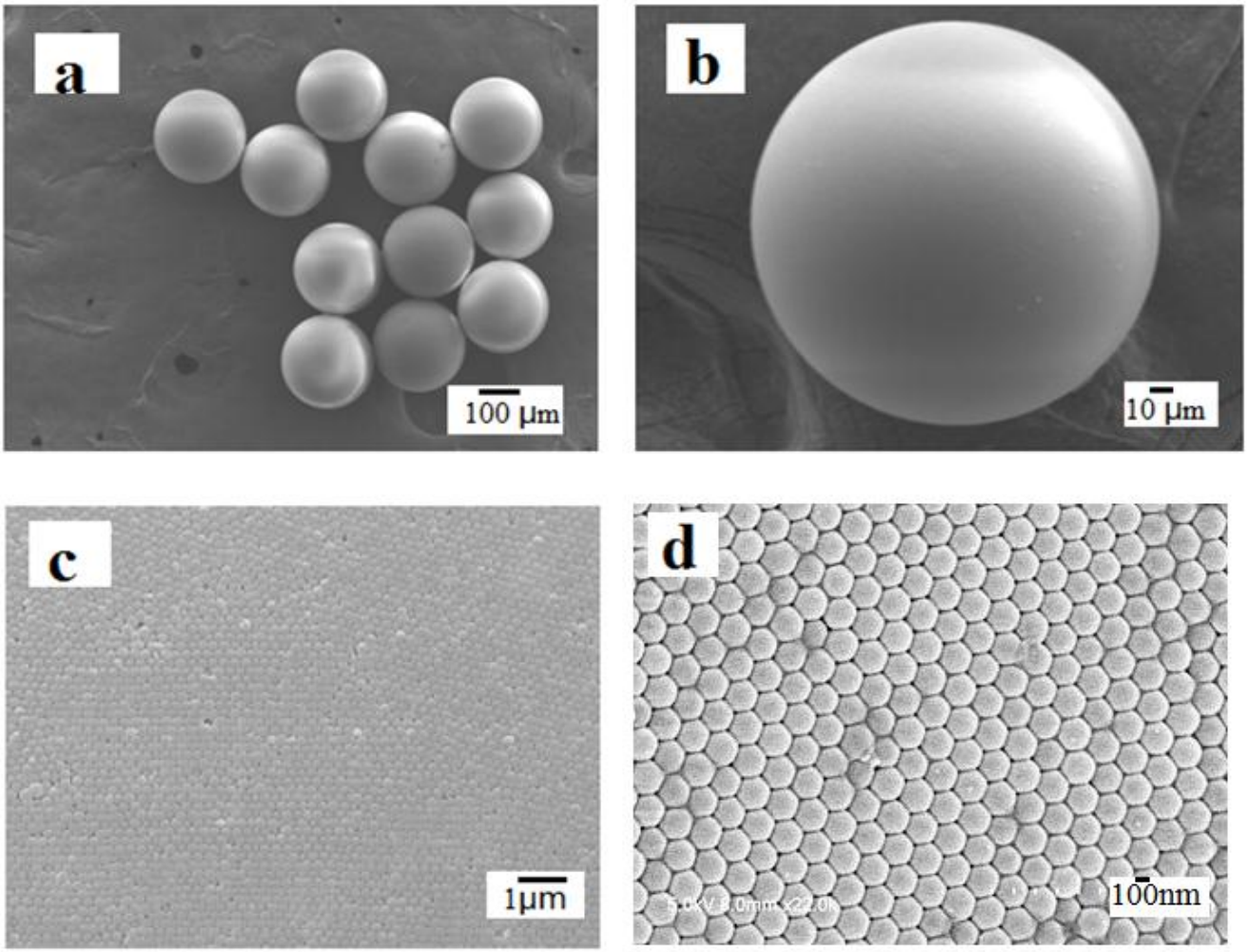
Kun Xu[†], Yue Sun[†], Wei Li[†‡], Jie Xu[†], Bin Cao[†], Yunkun Jiang [†], Tiesong Zheng[†], Jianlin Li[†]*, and Daodong Pan[†]*

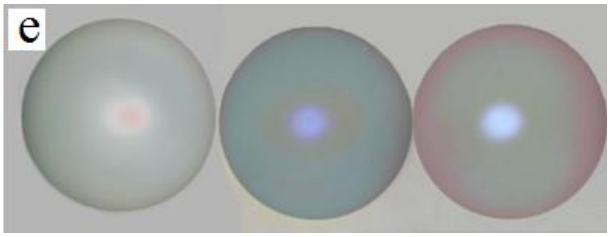
†Department of Food Science and Nutrition, Nanjing Normal University, Nanjing 210097, China

‡ Department of Chemistry, Glyndŵr University, Wrexham, LL11 2AW, UK.

*Corresponding authors. Tel.: +86 25 83598286; fax: +86 25 83598901.

E-mail addresses: jianlinli82003@aliyun.com, daodongpan@163.com





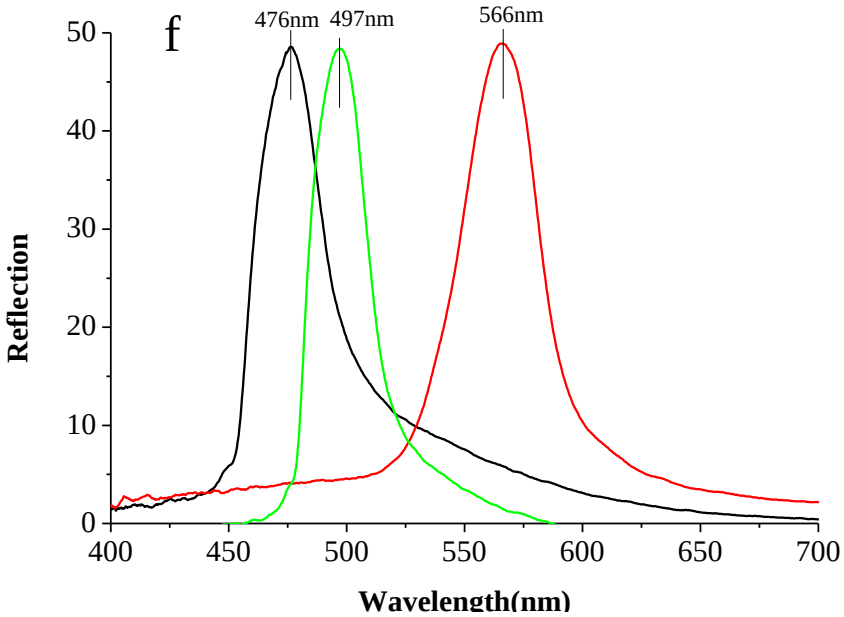


Figure1S. The characteristics of SPCMs. (a, b) Low magnification of SPCMs; (c, d) the surfaces of SPCMs at high magnification; (e) The bright-field microscopic images of three kinds of SPCMs; (f) Reflectance spectra of three kinds of SPCMs.

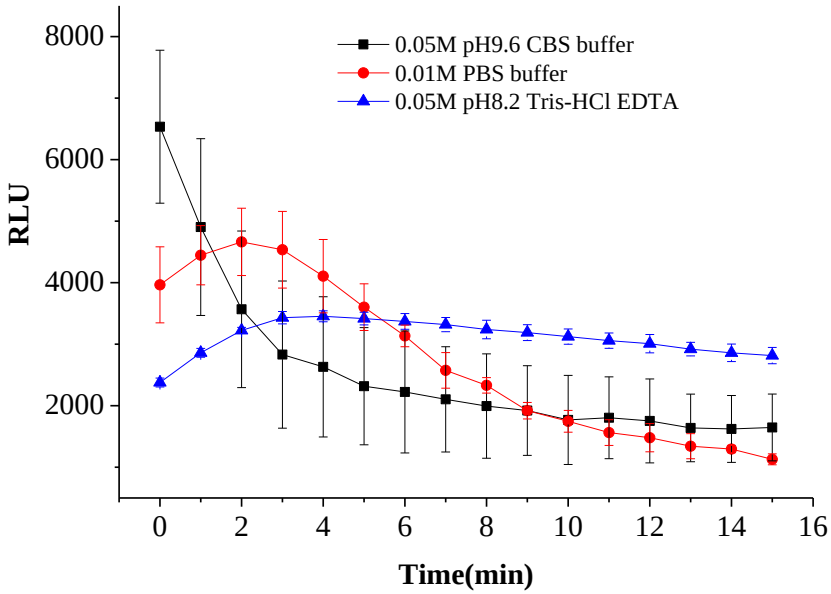
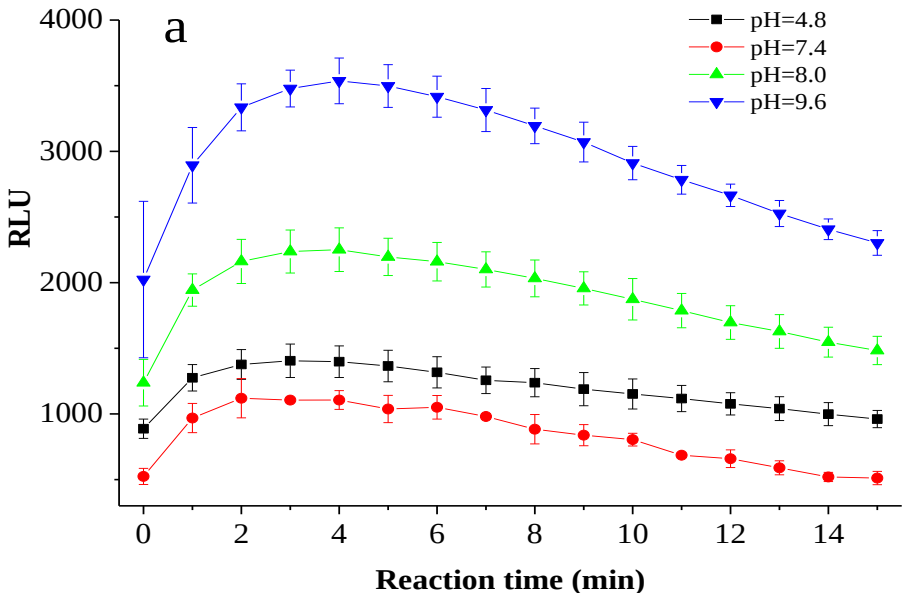


Figure2S. The influences of CL substrate buffer solutions on the RLU. The concentrations of AFB1-BSA, AFB1 standard substrate and HRP-labeled second antibody were 500, 0.1 ng/mL and 1: 2000 dilution, respectively. The concentrations of luminol, PIP and H_2O_2 were 0.5, 0.4 and 4 mM, respectively.



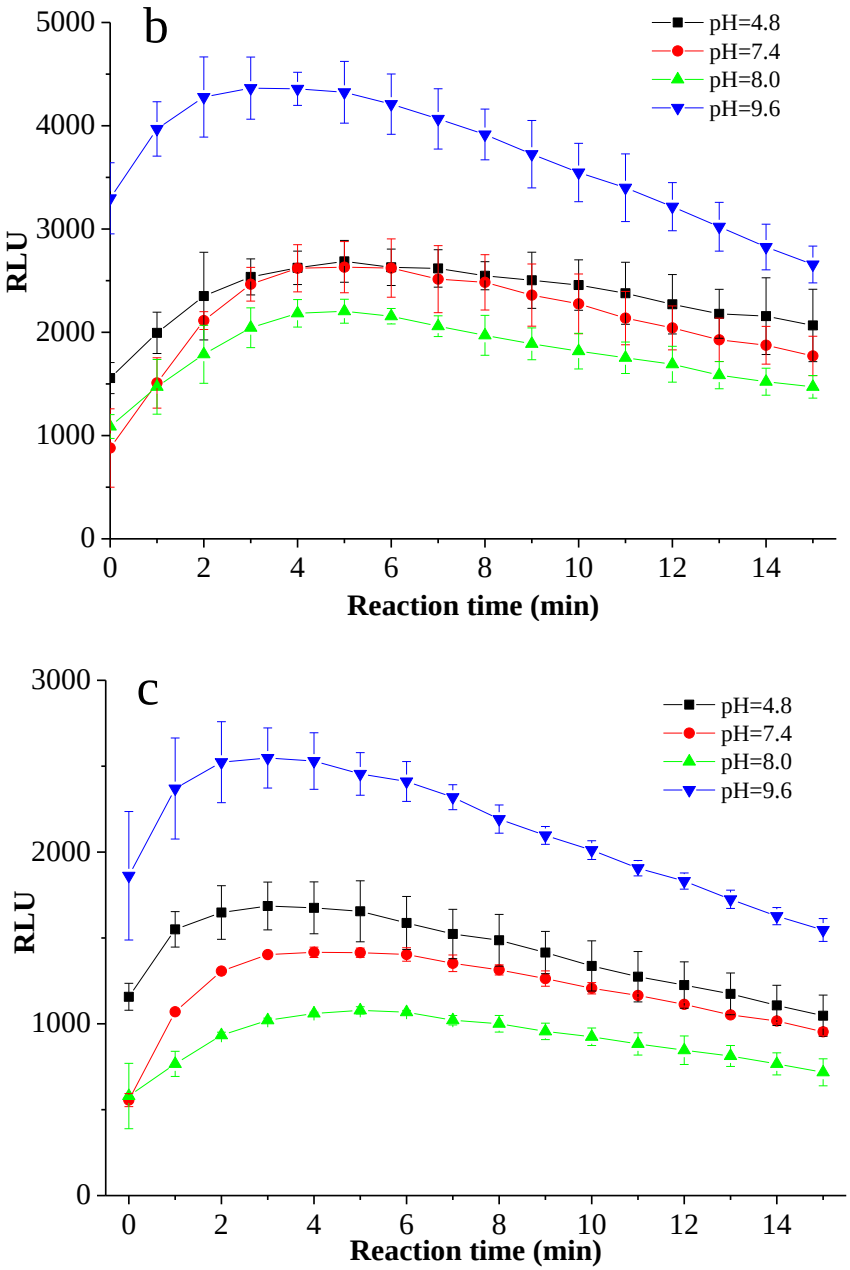
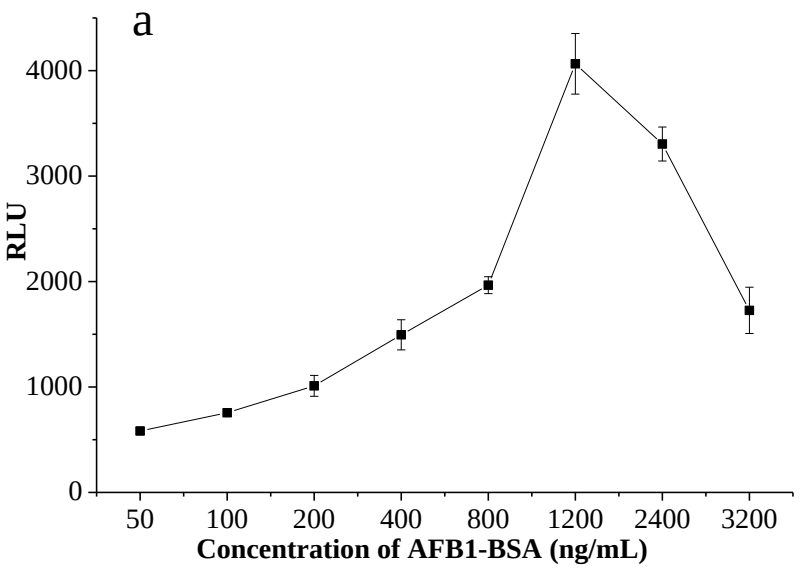
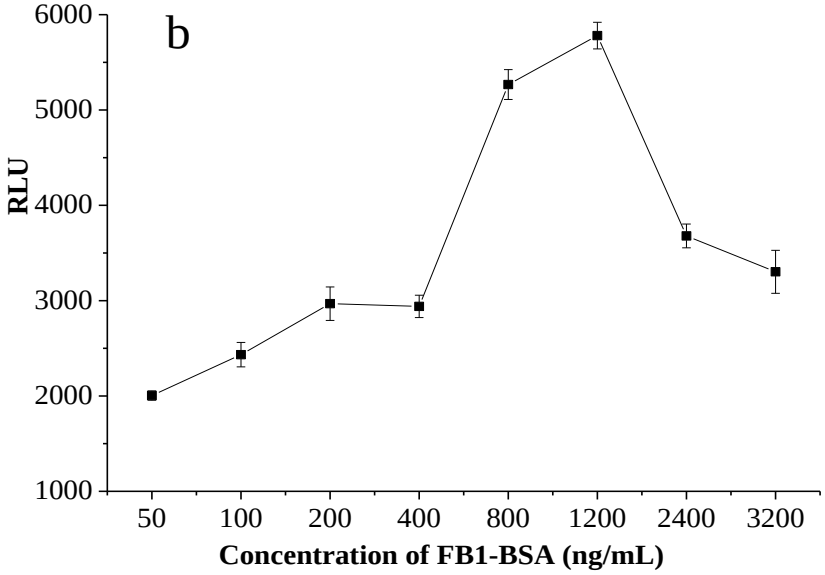


Figure3S. The influences of the different pH buffer solution for immobilization medium of AFB1 (a), FB1 (b) and OTA (c) antigens and reaction time on the RLU. The concentration of AFB1-BSA, FB1-BSA and OTA-BSA was at 1200 ng/mL in pH from 4.8 to 9.6 buffer solutions, respectively. The concentration of AFB1, FB1, and OTA was at 1ng/mL. The concentration of AFB1-Ab, FB1-Ab and OTA-Ab was diluted with 1:10000. The concentration of HRP-labeled secondary antibody was diluted with 1:6000.


a
RLU
0
1000
2000
3000
4000
50
100
200
400
800
1200
2400
3200
Concentration of AFB1-BSA (ng/mL)

52


b
RLU
1000
2000
3000
4000
5000
6000
50
100
200
400
800
1200
2400
3200
Concentration of FB1-BSA (ng/mL)

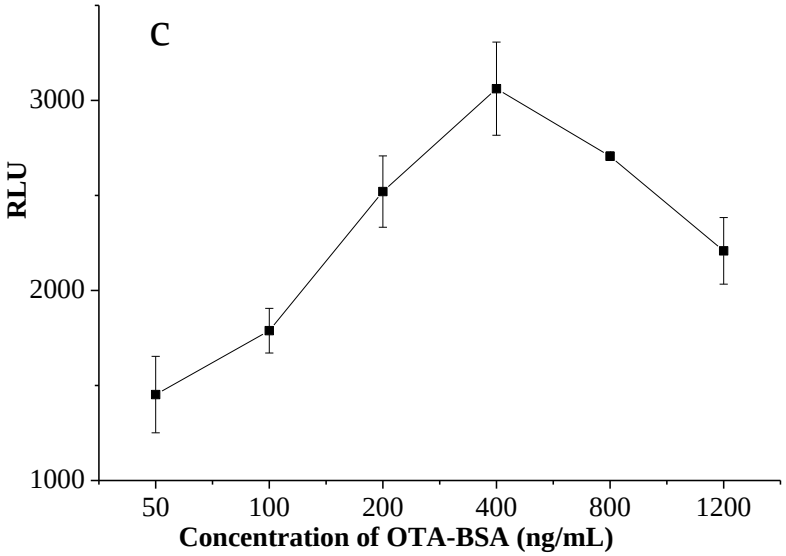
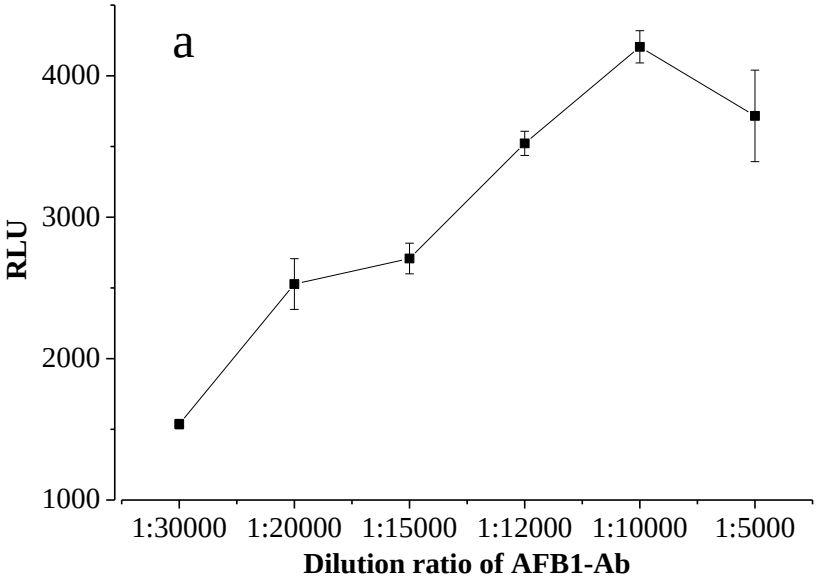
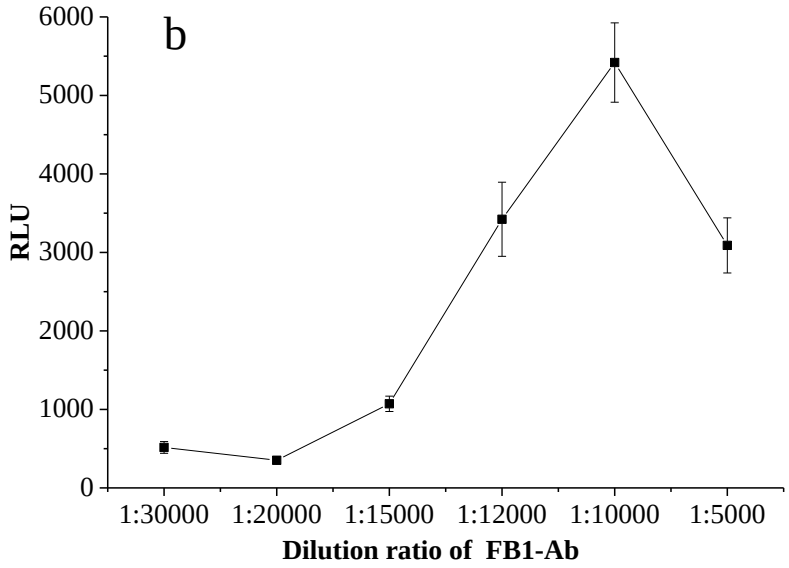


Figure4S. The influence of different immobilization concentration of AFB1-BSA (a) FB_1-BSA (b) and OTA-BSA (c) on the RLU. The concentrations of standard substrate, primary antibody and HRP-labeled secondary antibody for AFB1, FB1 and OTA were 1ng/mL, dilution with 1:10000, and dilution with 1:6000 respectively.



62



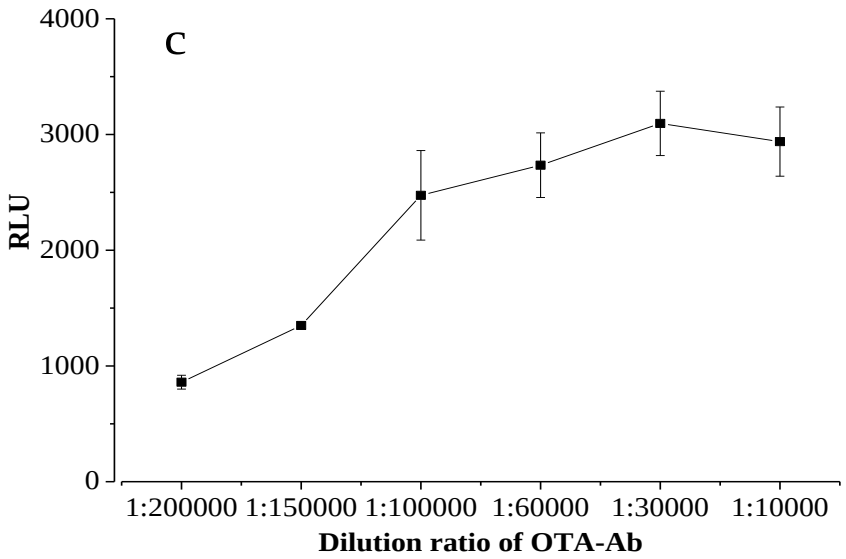


Figure5S. The influence of different dilution ratio of AFB1-Ab (a), FB_1-Ab (b) and OTA-Ab (c) on the RLU. The immobilization concentrations of AFB1-BSA, FB1-BSA, and OTA-BSA were 1200ng/mL, 1200ng/mL, and 400ng/mL, respectively. The concentrations of standard substrate and HRP-labeled secondary antibody for AFB1, FB1 and OTA were 1ng/mL, dilution with 1:6000 respectively.

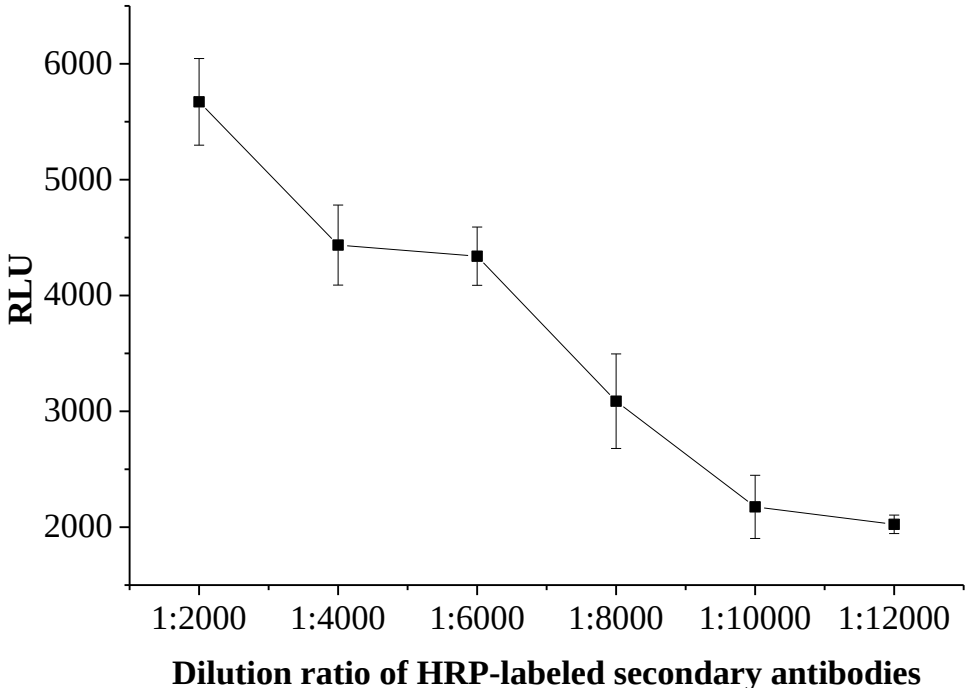


Figure6S. The influence of different dilution ratio of HRP-labeled secondary antibodies on the RLU. The concentrations of AFB1-BSA, standard substrate, and primary antibody for AFB1 were 1200ng/mL, 1ng/mL, and dilution with 1:10000, respectively.

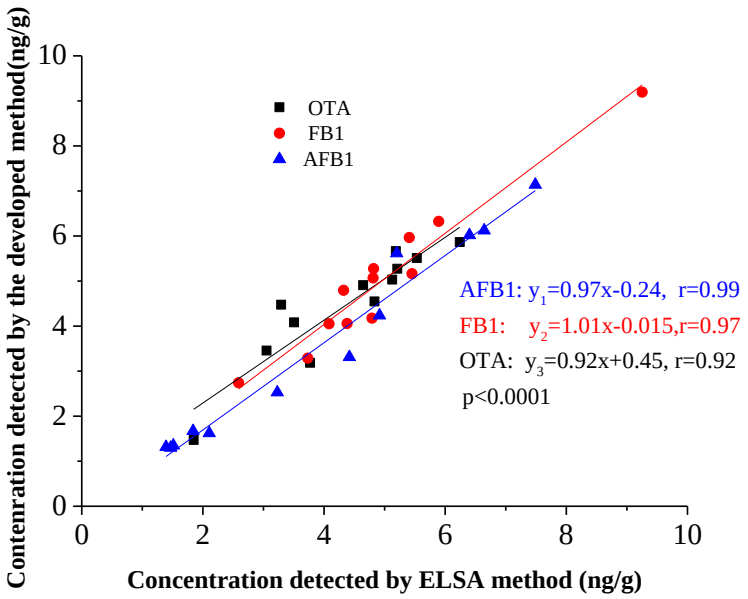


Figure7S. The relationship between the developed method and the ELISA method for AFB1 (blue), FB1 (red) and OTA (black) detection in cereal samples.

a

ng/g	AFB1	FB1	OTA
0.05	8.7%	3.2%	8.0%
0.1	3.0%	1.8%	4.2%
1	4.4%	7.9%	2.1%

b

ng/g	AFB1	FB1	OTA
0.05	6.9%	12.2%	12.3%
0.1	14.4%	14.5%	13.8%
1	10.2%	10.4%	12.0%

Table1S. The precision of the suspension array for mycotoxin assay. Intra-assay variation coefficients (a) and interassay variation coefficients (b) with different concentrations of AFB1, FB1 and OTA. N=8