

Quantum dot nanobeads-based fluorescence-linked immunosorbent assay for  
detection of glycinin in soybeans and soy products

Qinglong Song<sup>†</sup>, Anguo Liu<sup>†</sup>, Shimin Zhang, Runxian Li, Shiyan Qiao, Pingli He\*

State Key Laboratory of Animal Nutrition, College of Animal Science and  
Technology, China Agricultural University, Beijing 100193, China;

[sql19972002@126.com](mailto:sql19972002@126.com) (S.Q.); [angelo524@foxmail.com](mailto:angelo524@foxmail.com) (A.L.);

[1109446827@qq.com](mailto:1109446827@qq.com) (S.Z.); [lr1024@cau.edu.cn](mailto:lr1024@cau.edu.cn)(R.L.); [qiaoshiyan@cau.edu.cn](mailto:qiaoshiyan@cau.edu.cn)

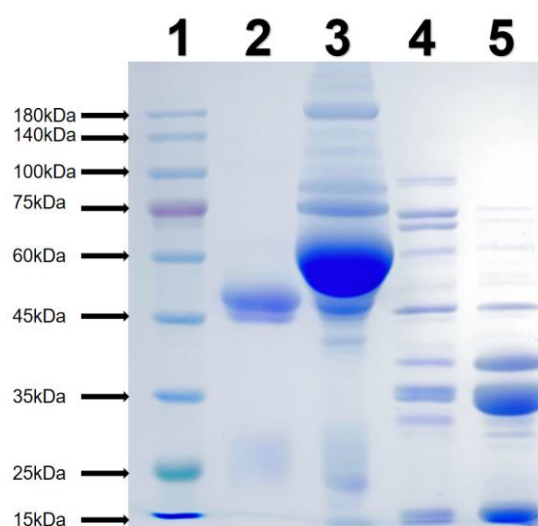
[\(S.Q.\)](mailto:sql19972002@126.com)

\* Correspondence: [hepingli@cau.edu.cn](mailto:hepingli@cau.edu.cn); Tel.: + 86-10-62733588

<sup>†</sup> These authors contributed equally to this work.

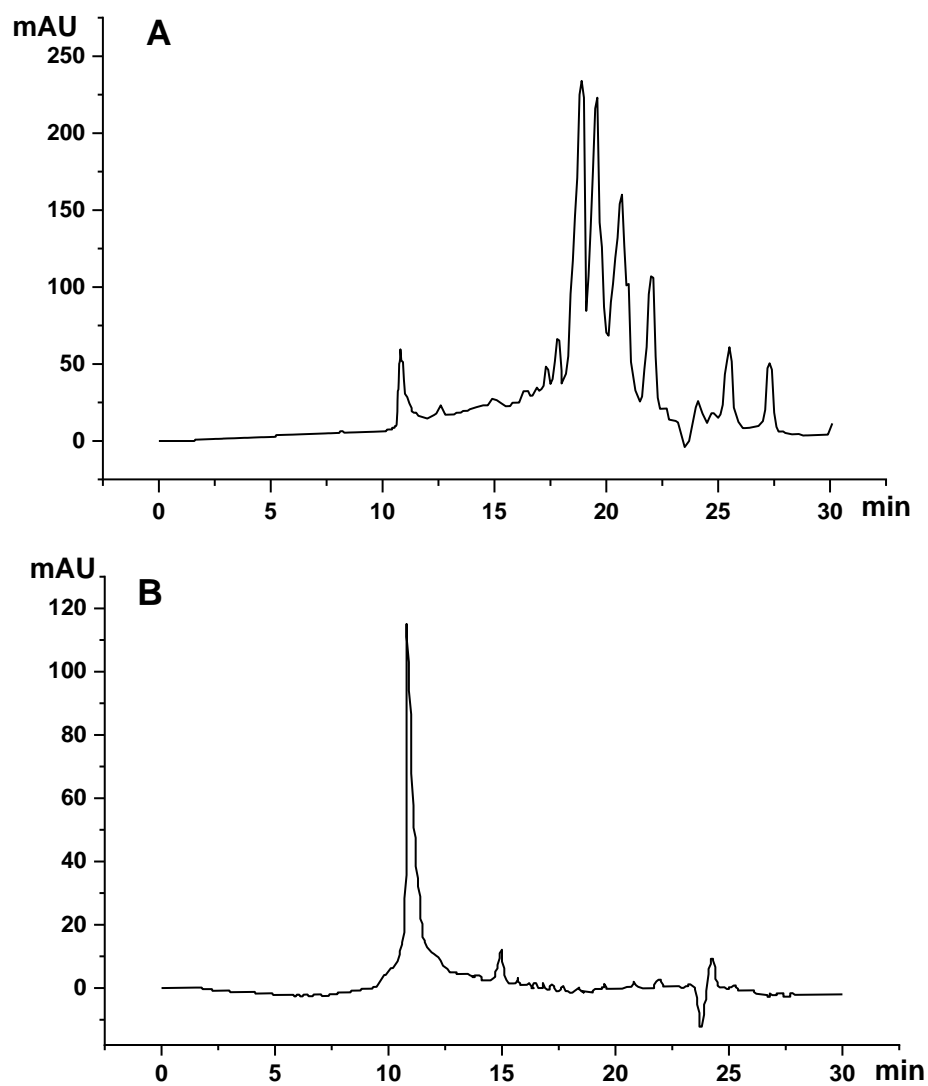
## Characterization of purified glycinin and antibodies

Size exclusion chromatography (SEC) is a chromatographic technique used to separate proteins by their size in solution, which could significantly increase resolution compared to currently available separation columns, such as SE-HPLC. In this study, glycinin was extracted with Tris-HCl and precipitated at isoelectric point, and further purified with size exclusion chromatography (SEC) by HPLC. The SDS-PAGE and HPLC analysis results show that the purity of soybean glycinin is greater than 90% (Figure S1 & Figure S2). The preparation of high purity glycinin provides a good quantitative reference for accurate determination of its content in soybean and soy products. Meanwhile, after purification using protein A sepharose column according to the recommended procedure, the pAbs had high purity with a titer of more than 1:50000 (Figure S1 & Table S1).



**Figure S1.** Purification of glycinin and anti-glycinin polyclonal antibody determined by SDS-PAGE. From left to right: Line 1, protein molecular weight

marker(kDa); Line 2, Purified antibody; Line 3, rabbit serum; Line 4, soybean extract; Line 5, the purified glycinin.



**Figure S2.** The high performance liquid chromatograms of (A) the soybean extract and (B) purified glycinin.

**Table S1.** OD450 values of wells with different anti-glycinin pAbs dilutions.

Item	Dilution of anti-glycinin serum (Times)					Negative control
	500	1,000	5,000	10,000	50,000	
OD <sub>450</sub> value	2. 891	2.487	1.312	0.325	0.092	0.020