# Supporting Information

Quantification of protein in complex sample by gel electrophoresis with online intrinsic fluorescence imaging and Gaussian fitting arithmetic

Xinke Zhai[a,+], Yiren Cao[b,+], Youli Tian[b], Ke-er Chen[b], Zixian Yu[b], Qiang Zhang[b], Chengxi Cao[b,*], and Xu Xu[a,*1]

[a] *School of Chemical and Environmental Engineering, Shanghai Institute of Technology, Shanghai 201418, China*
[b] *School of Automation and Sensing, Shanghai Jiao Tong University, Shanghai, 200240, China*
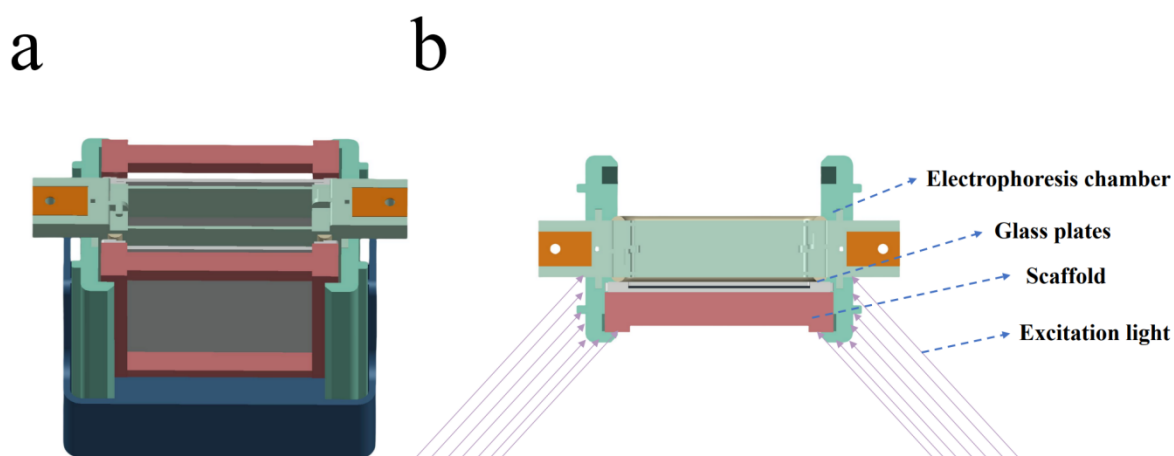
Fig. S1. Design of our previous semi-open GEA (a) and limited imaging area of 8 lanes (b). The scaffold and electrophoresis chamber of semi-open GEA were placed in front of the glass plates[1]. Therefore, the irradiation was partially blocked.

[1*] Corresponding authors E-mail address: cxcao@sjtu.edu.cn (Prof. C. X. Cao) and xuxu3426@sina.com (Prof. X Xu).
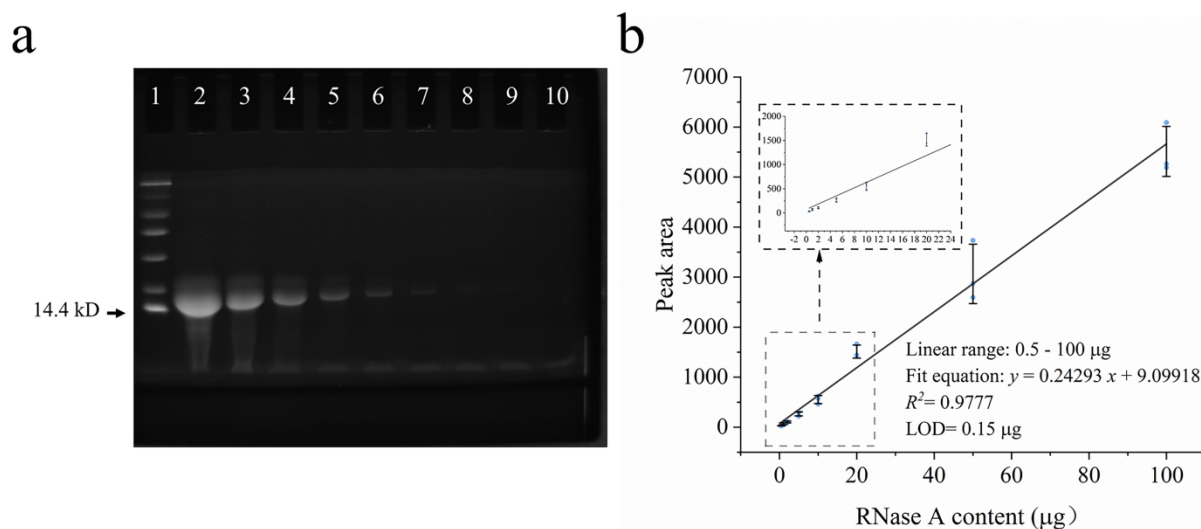
[+] These authors contributed equally to this work.
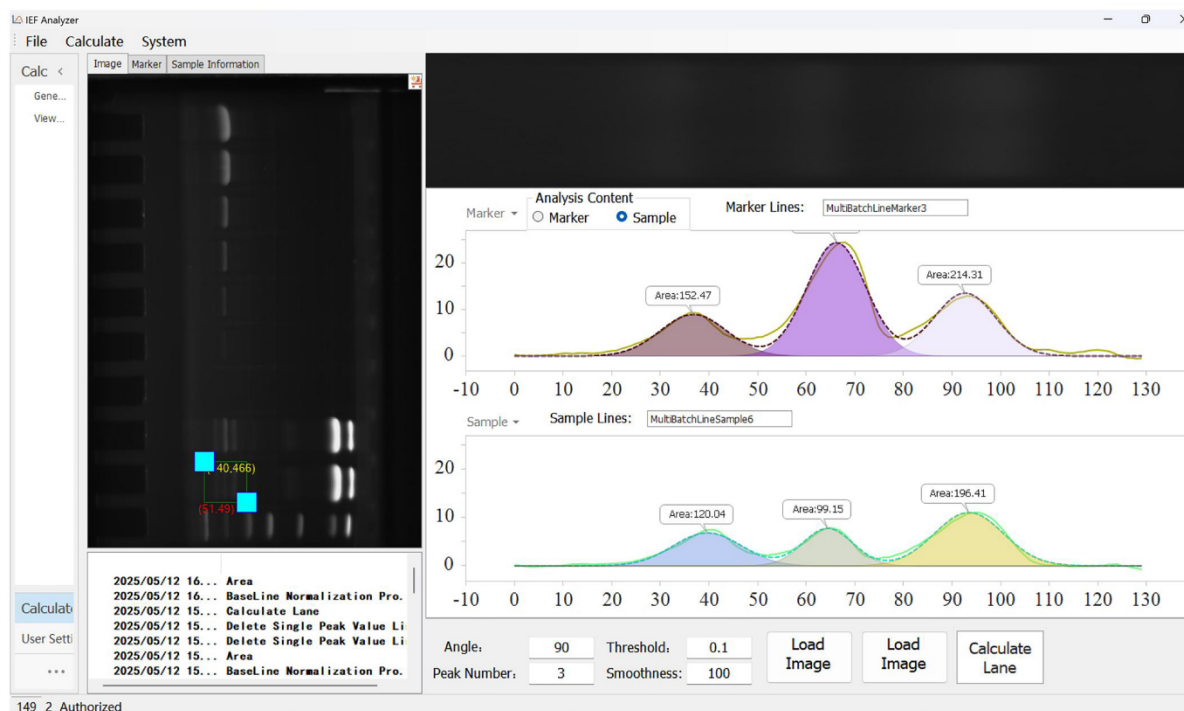
Fig. S2. The interface of the analysis software, the image is Gaussian fitting-based analyzer.
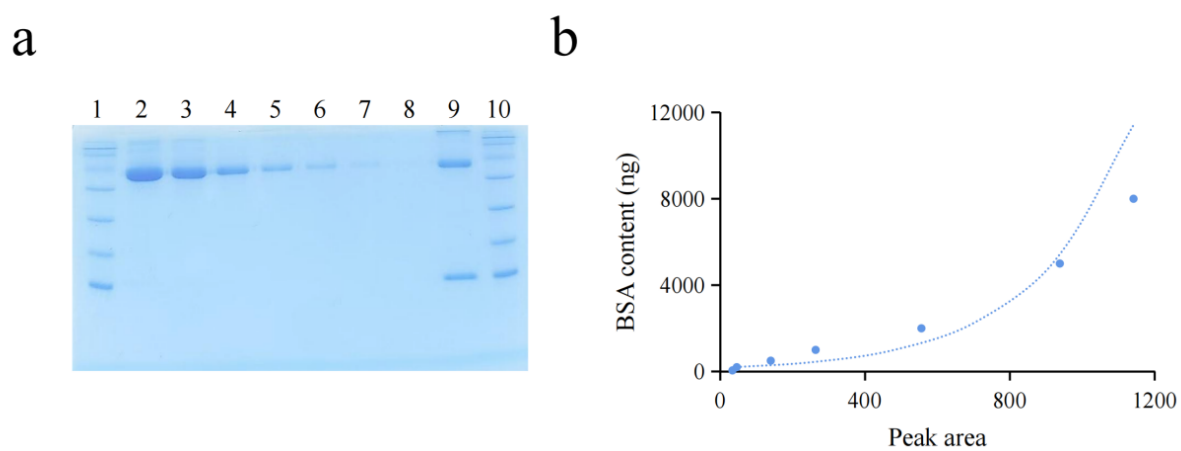

Fig. S3. Quantification of BSA in protein mixture using CBB staining. (a) Gel image of quantification. (b) Calibration curve of standard solutions in lane 2-7. A non-linear relationship was obtained.

Fig. S4. Imaging of RNase A in gel electrophoresis via PAGE-IFI (a). Calibration curve of standard solution of RNase in lanes 2-9 (b).

References

1.   Z. Yu, Y. Cao, Y. Tian, W. Ji, K. E. Chen, Z. Wang, J. Ren, H. Xiao, L. Zhang, W. Liu, L. Fan, Q. Zhang and C. Cao, *Anal Chim Acta*, 2024, **1291**, 342219.
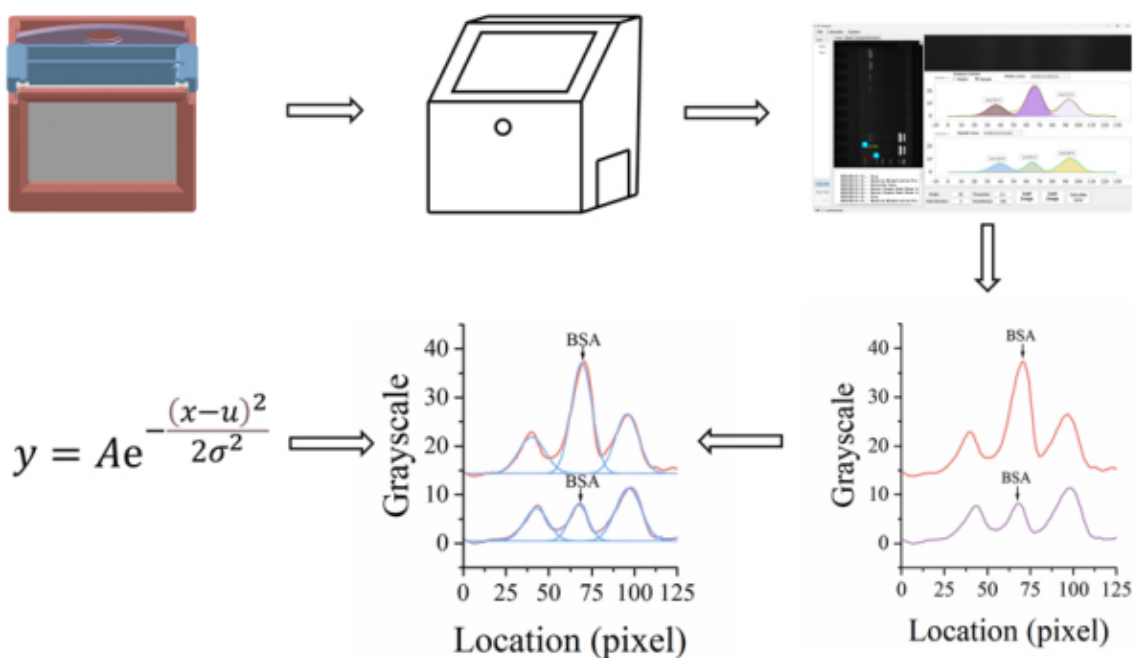
We have improved the electrophoresis tank, enabling the use of 10 lanes for protein quantification. Our online IFI analysis software can automatically process data based on gel images. This includes automatically performing Gaussian fitting on peaks.