Supplementary material

Table 1 The formula of buffers in the process of purifying proteins.

Resuspension buffer	Wash buffer	Elution buffer
50 mmol/L Tris 7.5	50 mmol/L Tris 7.5	50 mmol/L Tris 7.5
0.1 mmol/L EDTA	0.1 mmol/L EDTA	0.1 mmol/L EDTA
150 mmol/L NaCl	0.5 mol/L NaCl	0.15 mol/L NaCl
1 mmol/L DTT	1 mmol/L DTT	1 mmol/L DTT
5% Glycerol	5% Glycerol	10 mmol/L Maltose
1 × Protease inhibitors	–	5% Glycerol

–Not applicable.

Generic MBP-Tag purification

1. The detected positive plaques were cultured at 37 ℃, 250 rpm for 14 h.

2. The cultivation was enlarged in a ratio of 1.5:1000 at 37 ℃ until the OD_{600} was 0.8, and then induced with 1 mmol/L isopropyl-L-thio-*β*-D-galactopyranoside (IPTG) at a low temperature of 16 ℃, cultured for 20 h.

3. Cells were collected by centrifugation in a GSA rotor, at 8000 rpm for 10 min .

4. Cells were resuspended in 10–20 mL of resuspension buffer (1%–2%, *v*/*v*).

5. Add chicken white lysozyme from a 50 mg/mL stock solution prepared freshly in resuspension buffer to 0.5 mg/mL.

6. The solution was mixed well and left on ice for 20 min.

7. Add 10% deoxycholate (or 10% Triton X-100) to a final concentration of 0.2%.

8. Add 10% volume of 5 mol/L NaCl (the extract should be very viscous).

9. Sonicate for a total of 5 min (lysed for 5 s, paused for 5 s and repeated 2 times).

10. Pellet 12,000 rpm for 30 min at 4 ℃.

11. Wash the resin with 1 × wash buffer, and then combine supernatants with 1 mL amylose-resin culture volume (1‰, *v*/*v*). The solution was finally added to Lysate.

12. Mix by turning at 4 ℃ for 30 min.

13. Gently pellet resin in clinical centrifuge or pour directly into column.

14. Wash with 10–20 column volumes wash buffer.
15. Wash with 10–20 colume volumes resuspension buffer, not containing 1× protease inhibitors.
16. Stop the column.
17. Add 2 column volumes elution buffer and cap the column.
18. Leave at 4 ℃, for 10 min.
19. Remove column plug and collect elution (elution 1).
20. Flow 2 column volumes elution buffer through column and collect elution (elution 2).
21. Flow 2 column volumes elution buffer through column and collect elution (elution 3).
22. Flow 2 column volumes elution buffer through column and collect elution (elution 4).
23. Check elutions by SDS-PAGE followed by Coomassie staining.