

Supporting information

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2 **Caption:**

3 **Fig. S1** The synthesis of vitamin B₁-HS.

4 **Fig. S2** Liquid chromatography tandem mass spectrometry (LC-MS/MS) of vitamin
5 B₁

6 **Fig. S3** Characterization of vitamin B₁-HS. (a) The ¹H NMR of vitamin B₁-HS; (b) The
7 chromatogram spectrum of vitamin B₁-HS; (c) The mass spectrum of vitamin B₁-HS.

8 **Fig. S4** The UV-Vis spectroscopy of hapten, proteins and conjugates. (a) Confirmation
9 of immunogen vitamin B₁-HS-BSA; (b) Confirmation of coating antigen vitamin B₁-
10 HS-OVA.

11 **Fig. S5** Characterization of the colloidal gold. (a) TEM images; (b) UV-Vis spectrum.

12 **Fig. S6** The optimization of ICT strip. (a) Optimization of two coating antigen: 1, 2
13 represent the concentration of coating antigen at 0.05 mg/mL and 0.1 mg/mL,
14 respectively; (b) Optimization of pH values: 1, 2, and 3 represent the pH value at 7.4,
15 8.0 and 9.0, respectively; (c) Optimization the concentration of mAb: 1, 2, 3, 4, 5, and
16 6 represent the concentration of mAb at 4, 8, 10, 12, and 16 µg/mL, respectively. N: 0
17 ng/mL; P: 250 ng/mL.

18 **Fig. S7** The calibration curve for the LC-MS/MS of vitamin B₁.

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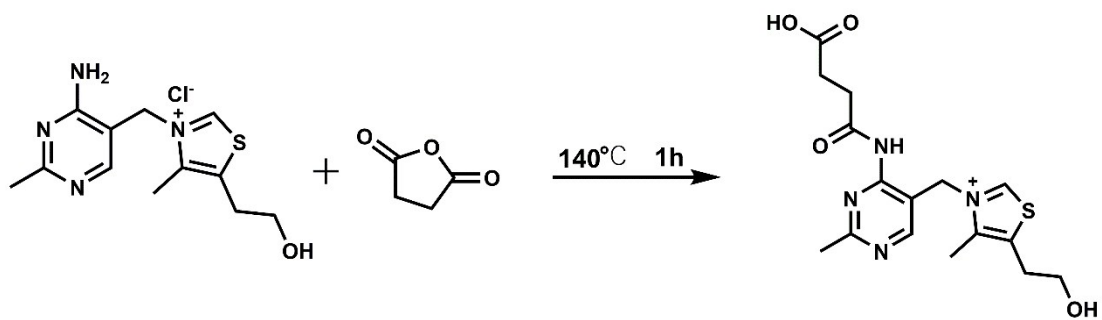
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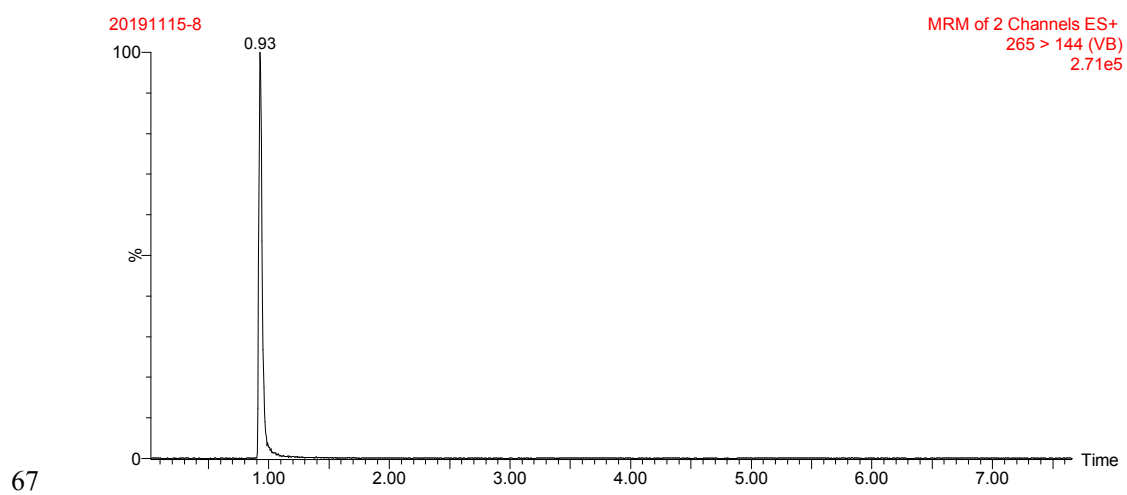
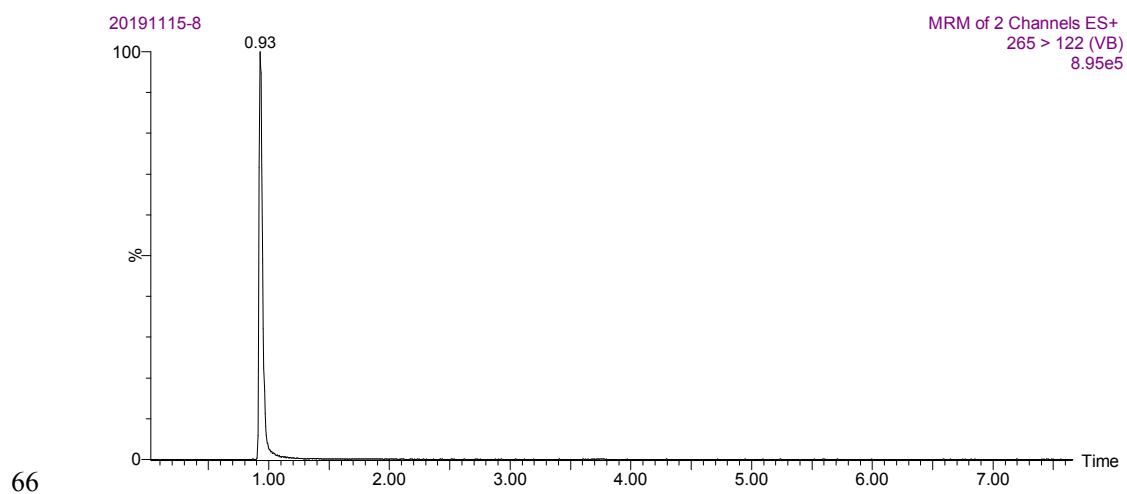
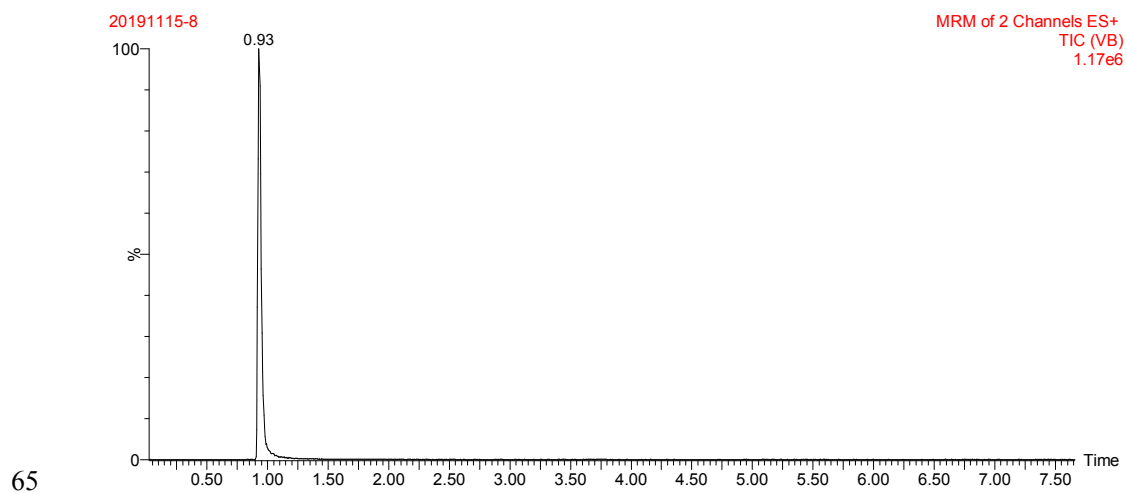
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Fig. S1 The synthesis of vitamin B₁-HS



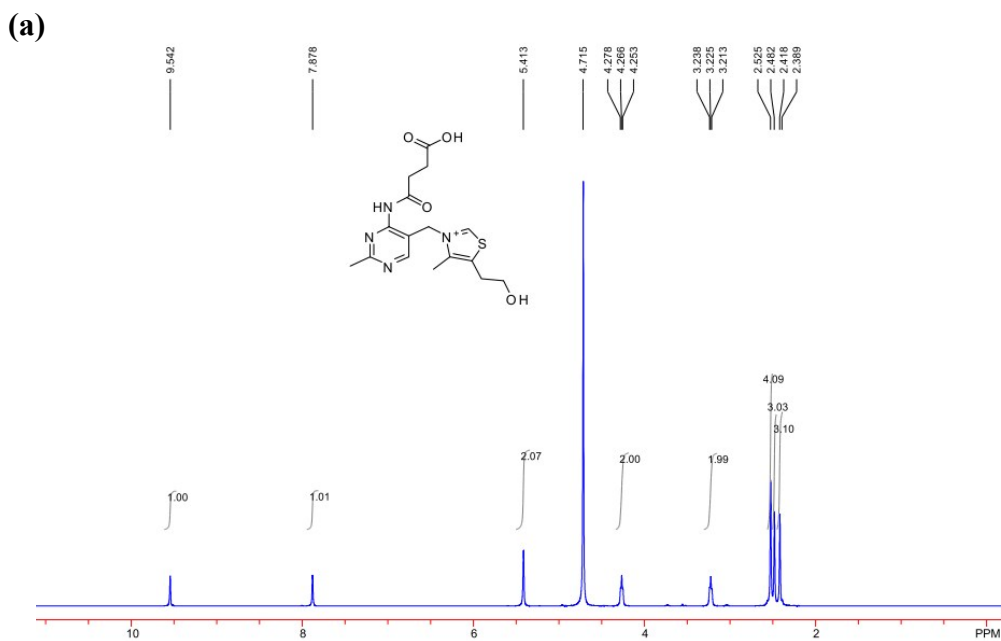
68 **Fig. S2** Liquid chromatography tandem mass spectrometry (LC-MS/MS) of vitamin

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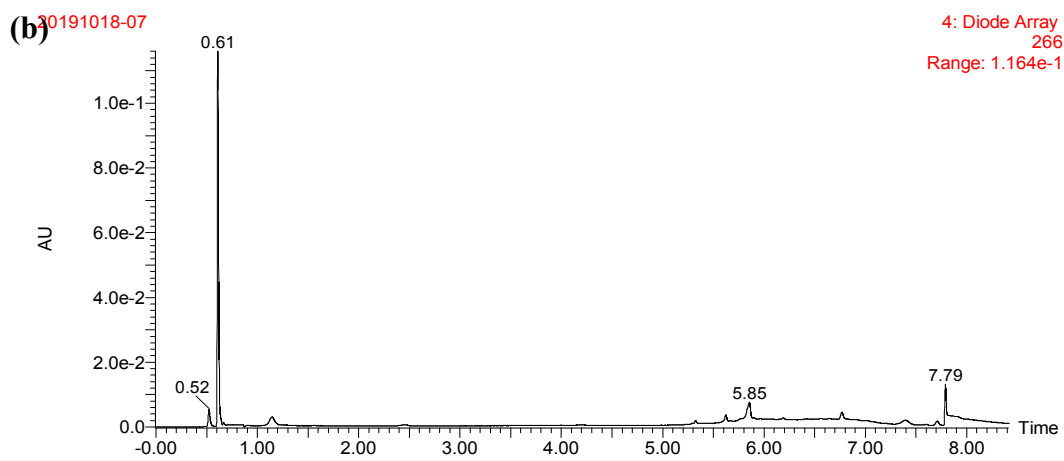
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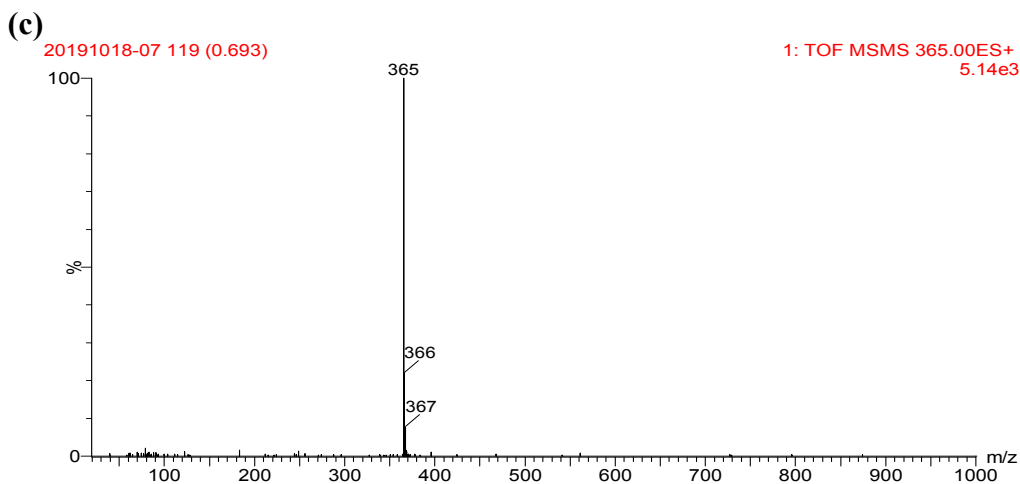


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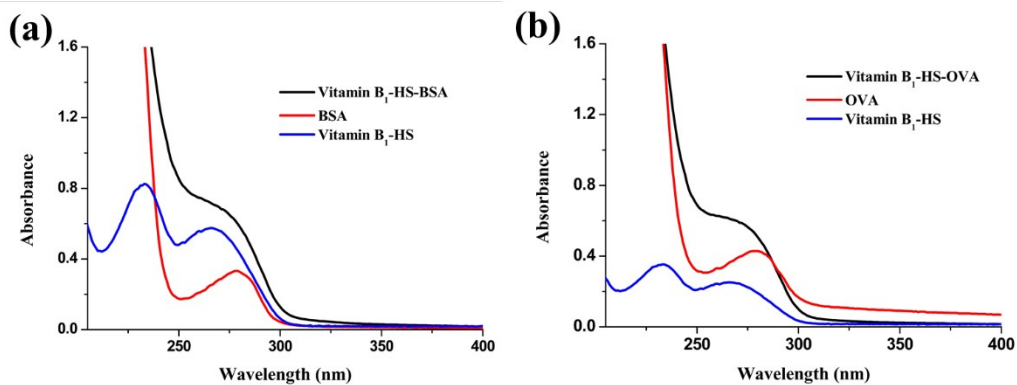
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78 **Fig. S3** Characterization of vitamin B₁-HS. (a) The ¹H NMR of vitamin B₁-HS; (b)

79 The chromatogram spectrum of vitamin B₁-HS; (c) The mass spectrum of vitamin B₁-

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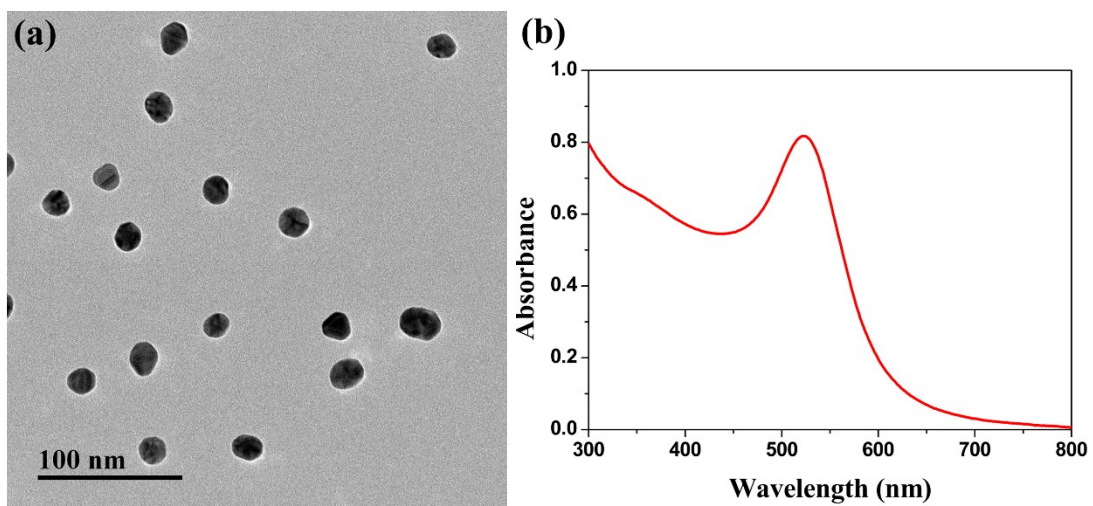
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Fig. S4 The UV-Vis spectroscopy of hapten, proteins and conjugates. (a) Confirmation of immunogen vitamin B₁-HS-BSA; (b) Confirmation of coating antigen vitamin B₁-HS-OVA.



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106 **Fig. S5** Characterization of the colloidal gold. (a) TEM images; (b) UV-Vis spectrum.

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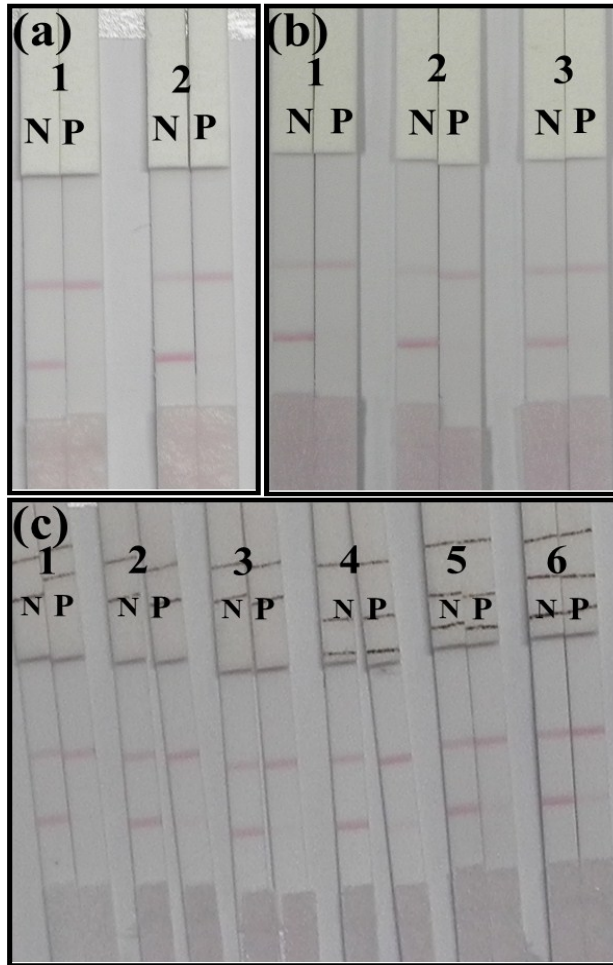
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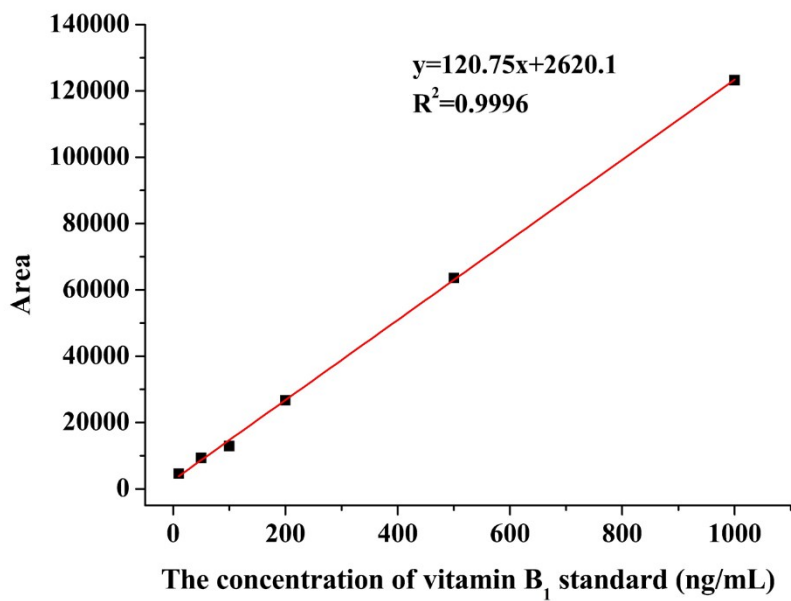
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Fig. S7 The calibration curve for the LC-MS/MS of vitamin B₁.

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