Electronic Supplementary Material (ESI) for Analytical Methods. This journal is © The Royal Society of Chemistry 2018

1	Supporting Information
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3	A Sensitive and Quantitative Immunochromatographic Assay for Hepatitis B Surface
4	Antigen Based on Novel Red Silica Nanoparticles as Signal Materials
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Content

- 18 Fig. S1 The FTIR spectra of red-SiNPs-COOH
- 19 Fig. S2 A comparison of red SiNPs (left) and red latex beads (right) stabilities when (A) dispersed
- 20 in acetone solution, (B) centrifuged in acetone solution after incubation for 5 min, (C) re-dispersed
- 21 in aceton solution, (D) dispersed in ethanol solution, (E) centrifuged in ethanol solution after
- 22 incubation for 5 min, and (F) re-dispersed in ethanol solution.
- 23 Fig. S3 The diameter distributions of the red-SiNPs-COOH with variation of CES
- 24 Fig. S4 Zeta potentials of red-SiNPs-COOH dispersed in water with variation of CES
- 25 Fig. S5 The optimization results of the amount of red SiNPs dispensed on the release pad,
- 26 from left to right: 2 µL, 6 µL, 10 µL, 14 µL and 18 µL, the concentration of HBsAg in the
- 27 sample solution was 250 ng/mL.
- 28 Fig. S6 The specificity of the ICA platform for detecting HBsAg.
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32 Stability of red SiNPs and red latex microspheres in organic solution

33 To verify the stability of red SiNPs-COOH, we compared them to red latex microspheres. As shown in Fig.S2, the red SiNPs-COOH and red latex microspheres were separately dispersed, 34 incubated, centrifuged, and re-suspended in acetone and ethanol. The red SiNPs-COOH still show 35 bright red color and good dispersibility, almost no change is observed after incubating in acetone 36 and ethanol. In contrast, the red latex microspheres are dispersed in acetone solution, incubated for 37 5 min, there is no precipitate is visible at the bottom after centrifugation, indicating that the red 38 39 latex microspheres were completely dissolved in the acetone solution. The red latex microspheres 40 are also dispersed into ethanol solution and incubated for 5 min. After centrifugation, the supernatant was light red, indicating that the dye of the red latex microspheres leaked into the 41 ethanol. The experimental results show that compared with the red latex microspheres, red SiNPs-42 43 COOH nanoparticles have good stability in organic solvents, and the prepared ICA strips based on 44 red SiNPs-COOH are more easy to preserve.

















