## **Electronic Supplementary Information**

## Spiropyran-modified upconversion nanocomposite as a fluorescent sensor

## for diagnosis of histidinemia

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**Fig. S1** (a) Fluorescent spectra (under 980 nm laser excitation) and (b) XRD patterns of sensor before and after storage in detection solution (Tris-HCl buffer, pH = 7.4, 10 mM) for 72 h.



Fig. S2 UV-vis absorption spectroscopy of UCNP@SiO<sub>2</sub> and UCNP@SiO<sub>2</sub>-SP.



Fig. S3 Upconversion fluorescence spectra of UCNP@SiO<sub>2</sub> and UCNP@SiO<sub>2</sub> with His.



**Fig. S4** Upconversion fluorescence spectra of probe, probe + His and probe + His with white light irradiation.