## **Supplementary Information**

Selective and Sensitive SERS Sensor for Detection of Hg<sup>2+</sup> in Environmental Water base on Rhodamine-bonded and Amino Group Functionalized SiO<sub>2</sub>-coated Au-Ag Core-shell Nanorods

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## FIGURES



Fig. S1 FT-IR spectrum of Au@Ag@SiO<sub>2</sub>-NH<sub>2</sub> NRs in KBr pellets.



Fig. S2 Fluorescence spectrum of the supernatant of the centrifuged solution of NRs-

R and Hg<sup>2+</sup>. Excitation was at 520 nm, pH=1.94.



Fig. S3 HR-ESI -MS spectrum of the supernatant of the centrifuged solution of

NRs-R and Hg<sup>2+</sup>. Excitation was at 520 nm, pH=1.94.







Fig. S5 ESI-MS spectrum of R-NH<sub>2</sub> in MeOH.







Fig. S7 ESI-MS spectrum of R-CHO in MeOH.