

New Journal of Chemistry

Supporting Information

Luminescent Layered Hybrid Ag-Ru/LDH as Photocatalytic Antibacterial Agent[†]

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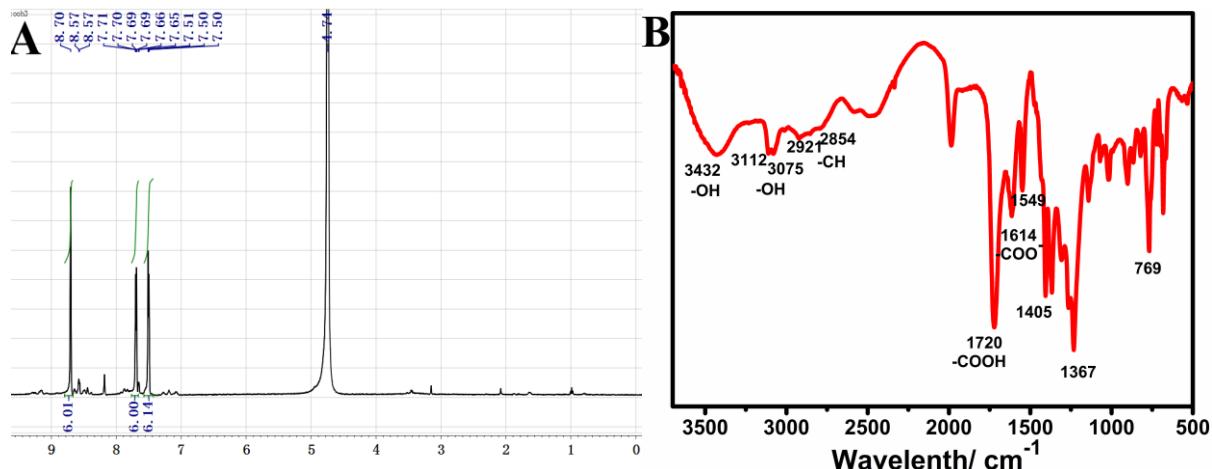


Fig. S1 (A) ^1H NMR spectra and **(B)** FTIR spectra of Ru complex.

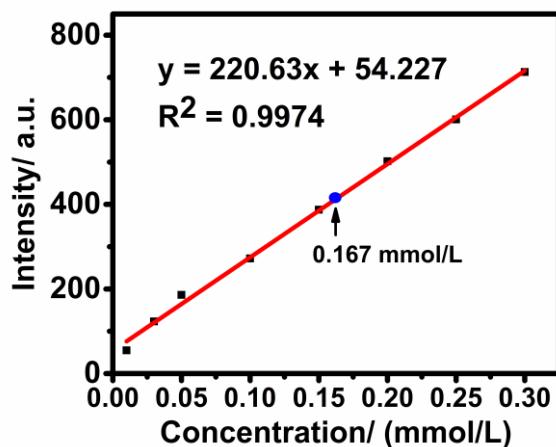


Fig. S2 Quantitative analysis of Ru complex in the Ag-Ru/LDH hybrids. The amount of Ru was determined by measuring the Photoluminescence (PL) intensity of Ru at 630 nm. From the PL intensity of Ag-Ru/LDH (10 mg/ml), the content of Ru in the Ag-Ru/LDH was quantified to be 16.7 nmol/mg (0.17 % (w/w)).

$$C_{Ru} = 0.167 \text{ mmol/L} \div 10 \text{ mg/ml} = 16.7 \text{ nmol/mg}$$

$$C_{Ru} = 16.7 \text{ nmol/mg} \times 101 \text{ g/mol} \times 100 \% = 0.17 \%$$

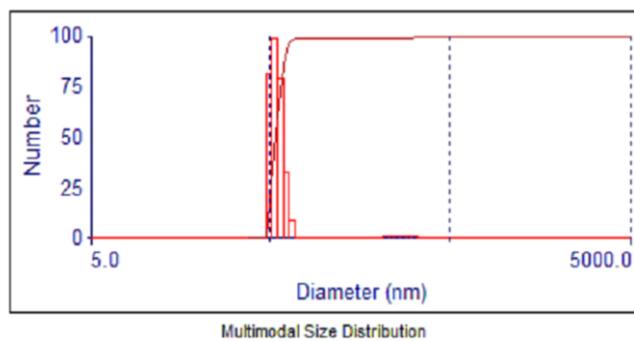


Fig. S3 Dynamic Light Scattering measurement data of Ag-Ru/LDH.

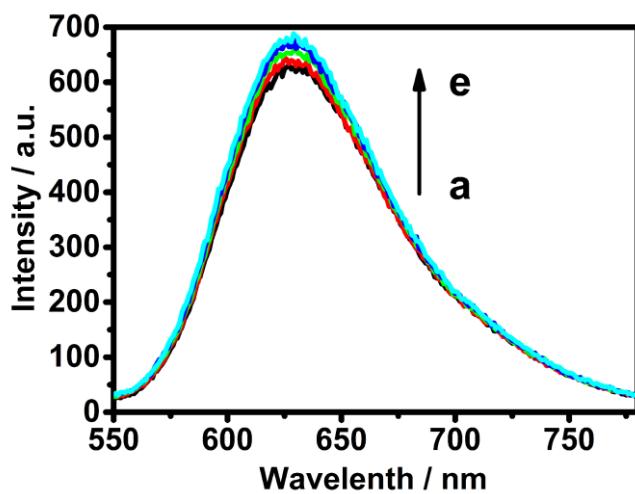


Fig. S4 Fluorescence emission spectra of Ru/LDH titrated by varying concentrations of AgNPs in a pH 7 solution. The volumes of AgNPs solution were (a) 0, (b) 10 μ L, (c) 20 μ L, (d) 30 μ L, (e) 40 μ L.

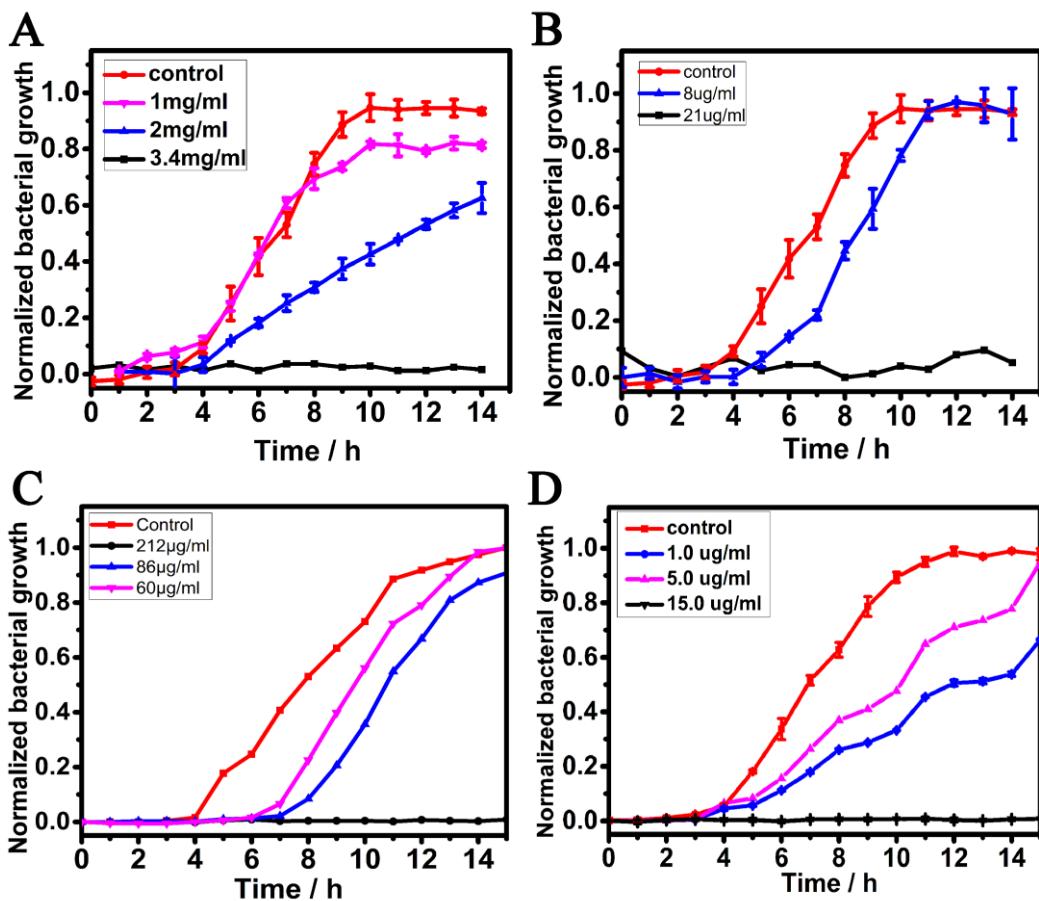


Fig. S5 Bacterial growth curve of (A) *E. coli* and (C) *S. aureus* in LB liquid medium in the presence of different concentration of Ru/LDH in light. Bacterial growth curve of (B) *E. coli* and (D) *S. aureus* in LB liquid medium in the presence of different concentration of AgNPs.

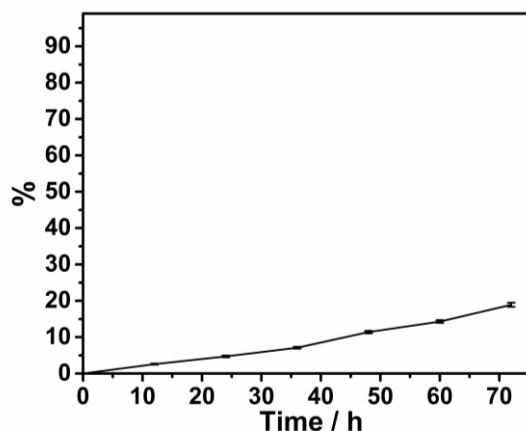


Fig. S6 The Ru release property of Ag-Ru/LDH hybrid. A dialysis bag of Ag-Ru/LDH were immersed and shaken in PBS solution (pH 7.4) at 37 °C. The concentration of Ru is determined by the emission intensity of Ru.

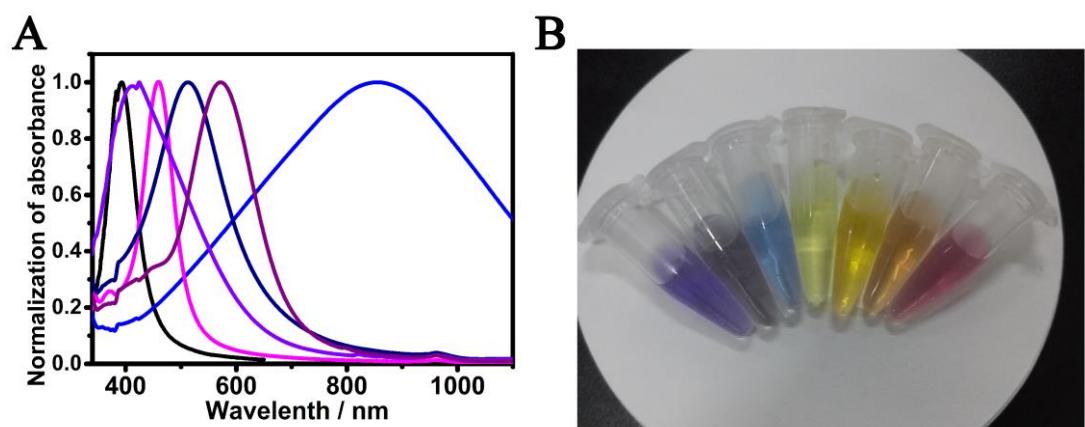


Fig. S7 UV-*vis* spectra (**A**) and images (**B**) of AgNPs.