Supporting Information

For

A self-activated cascade nanoreactor based on Pd-Ru/GOx for

bacterial infection treatment

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No conflict of interest was reported by the authors of this article.

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Contents:

Figure S1: TEM image of Pd NSs.

Figure S2. FTIR spectrum of Pd-Ru/GOx and the standard curve of BSA.

Figure S3. The hydrodynamic size changes of Pd-Ru/GOx dispersed in PBS (pH 7.4) for 5 days.

Figure S4. The POD-like activities of Pd-Ru NSs and Pd-Ru/GOx.

Figure S5. Influence of pH and temperature on the POD-like catalytic activity of Pd-Ru/GOx.

Figure S6. Reaction kinetics of Pd-Ru/GOx with the POD-like activity against H_2O_2 and TMB respectively.

Figure S7. The relative POD activity changes of Pd-Ru/GOx dispersed in PBS (pH 7.4) for 5 days.

Figure S8. Standard photographs of phosphate buffers at different pH values upon the addition of methyl red (pH=3-6).

Figure S9. Reaction kinetics of Pd-Ru/GOx with the GOx activity against glucose.

Figure S10. The relative GOx activity changes of Pd-Ru/GOx and GOx in different pH and temperature.

Figure S11. Photographs of bacterial colonies obtained from wound tissues.

Figure S12. Cell viability of Pd-Ru/GOx incubated with PC12, L929 and b.End cells for 12 h.



Figure S1. TEM image of Pd NSs.



Figure S2. (a) FTIR spectra of Pd-Ru/GOx and Pd-Ru NSs respectively. (b) The standard curve of BSA.



Figure S3. The hydrodynamic size changes of Pd-Ru/GOx dispersed in PBS (pH 7.4) for 5 days.



Figure S4. The POD-like activities of Pd-Ru NSs and Pd-Ru/GOx. The concentrations of Pd-Ru NSs, Pd-Ru/GOx, TMB and H_2O_2 were 1.25 µg/mL, 1.25 µg/mL, 0.5 mM and 10 mM, respectively.



Figure S5. Influence of pH (a) and temperature (b) on the POD-like catalytic activity of Pd-Ru/GOx. The concentrations of Pd-Ru/GOx, TMB and H_2O_2 were 1 µg/mL, 0.5 mM and 10 mM, respectively.



Figure S6. Reaction kinetics of Pd-Ru/GOx with the POD-like activity against H_2O_2 (a, b) and TMB (c, d), respectively. The concentration of Pd-Ru/GOx was 1 µg/mL.



Figure S7. The relative POD activity changes of Pd-Ru/GOx dispersed in PBS (pH 7.4) for 5 days.



Figure S8. Standard photographs of phosphate buffers at different pH values upon the addition of methyl red (pH=3-6).



Figure S9. Reaction kinetics of Pd-Ru/GOx with the GOx activity against glucose. The concentration of Pd-Ru/GOx was 5 μ g/mL.



Figure S10. The GOx activity changes of GOx and Pd-Ru/GOx in different temperature (a, b) and pH (c, d) by monitoring their catalytic reaction with glucose to generate H_2O_2 . The activities of GOx and Pd-Ru/GOx at 20 min in 37 °C and pH 4.5 were taken as 100%.



Figure S11. Photographs of bacterial colonies obtained from wound tissue. From a to f: PBS-band-aid, glucose-band-aid, glucose + Pd-Ru -band-aid, glucose + GOx-band-aid, Pd-Ru/GOx-band-aid, and glucose + Pd-Ru/GOx-band-aid, respectively.



Figure S12. Cell viability of Pd-Ru/GOx incubated with PC12 (a), L929 (b) and b.End (c) cells for 12 h.