

Supporting information

Oxygen Vacancies Regulation in Ag-decorated CeO₂ Hollow Multishelled Structure for-Bacterial Elimination and Oxidative Stress Alleviation

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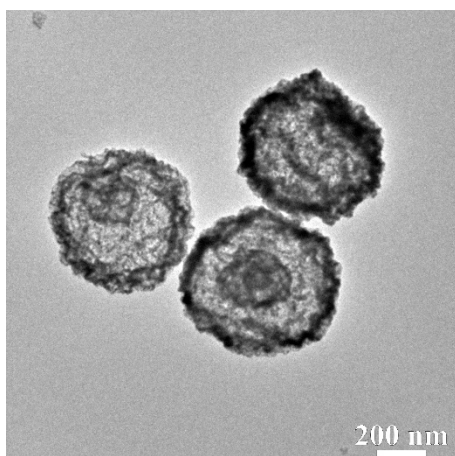


Figure S1. TEM images of CeO₂ HoMS.

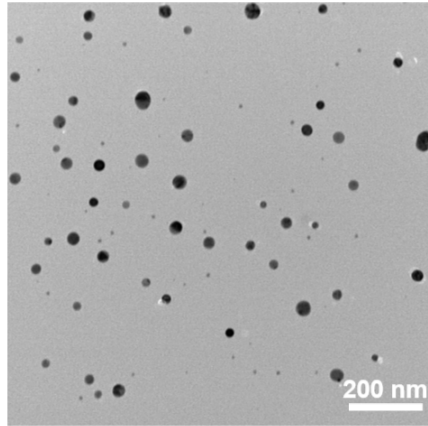


Figure S2. TEM images of AgNPs.

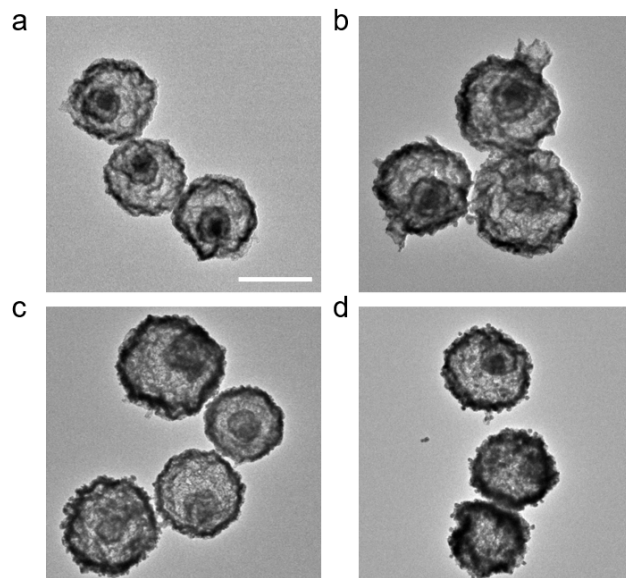


Figure S3. TEM images of (a) CeO₂ HoMS, (b) Ce HoMS/Ag₁, (c) Ce HoMS/Ag₂, and (d) Ce HoMS/Ag₃. Scale bars: 200 nm.

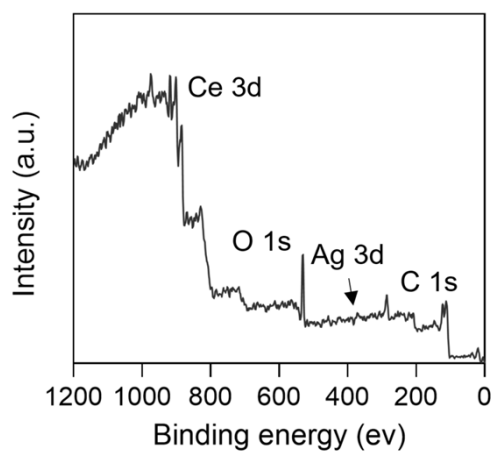


Figure S4. X-ray photoelectron spectroscopy (XPS) survey spectrum of Ce HoMS/Ag.

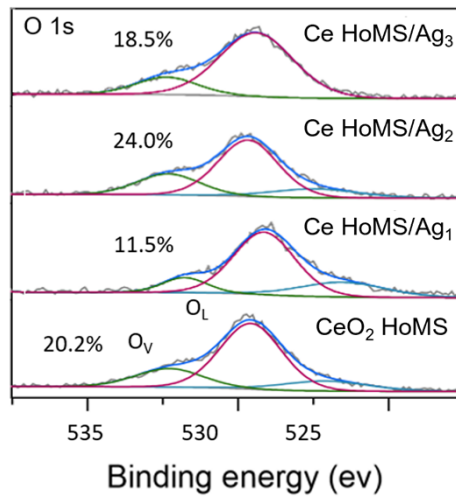


Figure S5. O_v concentration in CeO₂ HoMS, Ce HoMS/Ag₁, Ce HoMS/Ag₂, and Ce HoMS/Ag₃ from XPS O 1s spectra.

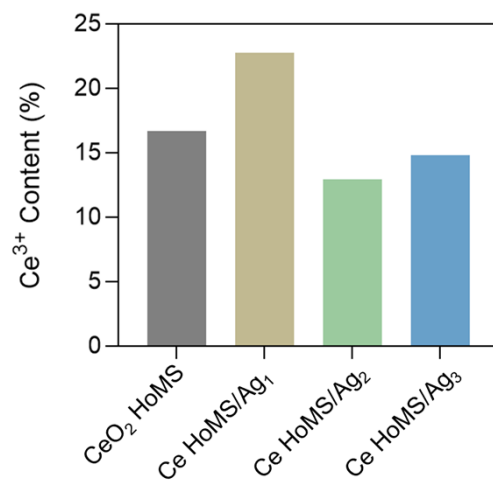


Figure S6. Ce³⁺ content in CeO₂ HoMS, Ce HoMS/Ag₁, Ce HoMS/Ag₂, and Ce HoMS/Ag₃ determined from XPS Ce 3d spectra.

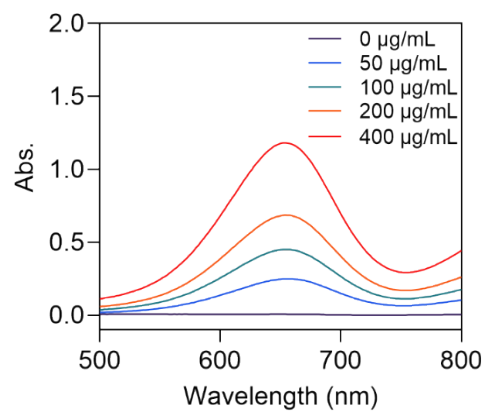


Figure S7. POD-like activity of CeO₂ HoMS nanozyme, assessed by the formation of oxidized TMB (TMB⁺) in the presence of H₂O₂, measured by UV-vis absorption spectroscopy.

Table R1 Kinetic parameters of CAT-like activities of CeO₂ HoMS, Ce HoMS/Ag₁, Ce HoMS/Ag₂, and Ce HoMS/Ag₃.

| | Vmax ($\mu\text{M min}^{-1}$) | Km (μM) |
|-------------------------|---------------------------------|----------------------|
| CeO ₂ HoMS | 5.163 | 2.612 |
| Ce HoMS/Ag ₁ | 4.623 | 5.624 |
| Ce HoMS/Ag ₂ | 4.139 | 7.354 |
| Ce HoMS/Ag ₃ | 5.546 | 5.497 |