Supporting Information:

Janus Ag/Ag₂S Beads as Efficient Photothermal Agents for

Eradication of Inflammation and Artery Stenosis

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Fig. S1. SEM images show synthesis of Ag and S compound with different concentrations of PVP: (a) 0, (b) 5 mg·mL⁻¹, (c) 10 mg·mL⁻¹, (d) 15 mg·mL⁻¹ (Experimental details are the same as that in the Experimental Section with a different mass of AgNO₃ (68 mg), DDTCNa (100 mg) and PVP).



Fig. S2. TEM images of the sample in S1 (d) (a) and the sample synthesized with a reaction time of 4 h and under other same conditions as in S2 (a) (b).



Fig. S3. SEM images of the samples synthesized with 34 mg of $AgNO_3$ and 50 mg of DDTCNa (a) and 17 mg of $AgNO_3$ and 25 mg of DDTCNa (b), under other same condition of S1 (d).



Fig. S4. STEM line scan of an Ag/Ag_2S Janus bead.



Fig. S5. XPS spectrum of the AAS JBs.



Fig. S6. Fourier transform infrared spectrum of the AAS JBs.



Fig. S7. Photos of the Ag/Ag_2S particles' aqueous dispersion and PBS dispersion at different time.



Fig. S8. Thermal gravimetric analysis of the AAS JBs.



Fig. S9. (a) UV-Vis absorption of solid Ag/Ag_2S particles. (b) Diffuse reflection spectrum of the solid Ag/Ag_2S .



Fig. S10. UV-Vis-NIR absorption spectrum of the AAS JBs in deionized water (a) and PBS (b) before and after a week. (c) TEM image of the AAS JBs after being dispersed in PBS for a week and after irradiation (d).



Fig. S11. (a) UV-Vis-NIR absorption spectrum of Ag, Ag₂S, Ag/Ag₂S, respectively.
(b) Schematic illustration of broadband absorption spectrum caused by varying the thickness of Ag₂S on Ag.



Fig. S12. (a) Photothermal effect of the AAS JBs' aqueous dispersions (125 μg·mL⁻¹) upon four cycles of irradiation using an 808 nm laser at a power density of 0.7 W·cm⁻².
(b) Photothermal effect of Ag and Ag₂S aqueous dispersion irradiated by 808 nm laser

for 5 min (0.7 W·cm⁻²) and then turning off. Time constant of Ag_2S (c) and Ag (d) obtained from the cooling period of panels shown in (b).

| | Ambient temperature/°C | | 26.2 |
|-----------------------|------------------------|---------------|-------|
| | | Laser power/W | 0.269 |
| Sample | Ag_2S | Ag | Water |
| Temperature (max.)/°C | 31.9 | 29.4 | 27.8 |
| 5Absorbance (808 nm) | 0.0951 | 0.120 | |
| $	au_s$ | 78.7 | 57.6 | |

Table 1. Parameters for the calculated photothermal conversion efficiency (τ s) of the Ag and Ag₂S nanoparticles.



Fig. S13. Pro-inflammatory indexes in vitro: (a) IL-6 and (b) TNF- α tested from supernatants of RAW 264.7 macrophages cultured with a series of different concentrations (i.e., 0, 50, 100, 250, 500 µg·mL⁻¹, n=3) of the AAS JBs.



Fig. S14. Biodistribution of Ag, determined by ICP-AES (n = 3) in major organs.