

Supporting Information

Thermographic Detection and Analysis of the
Temporal and Spatial Evolution of Temperature
upon Optical Heating of Gold Nanorod Assembly
Immobilized in Agar

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1. Optical density of the 1% agar matrix in visible and near infrared regions.

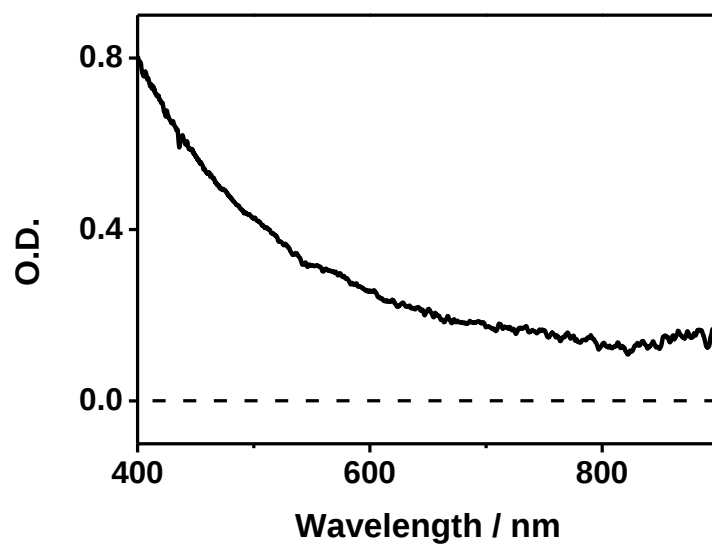


Figure S1. The extinction spectrum of the 1% agar matrix of 10 mm thickness. The optical density was about 0.11.

2. The spatial and temporal evolutions of the temperature change of the agar matrix surface with the AuNR agar cube embedded at different depths upon 808 nm laser excitation with different powers.

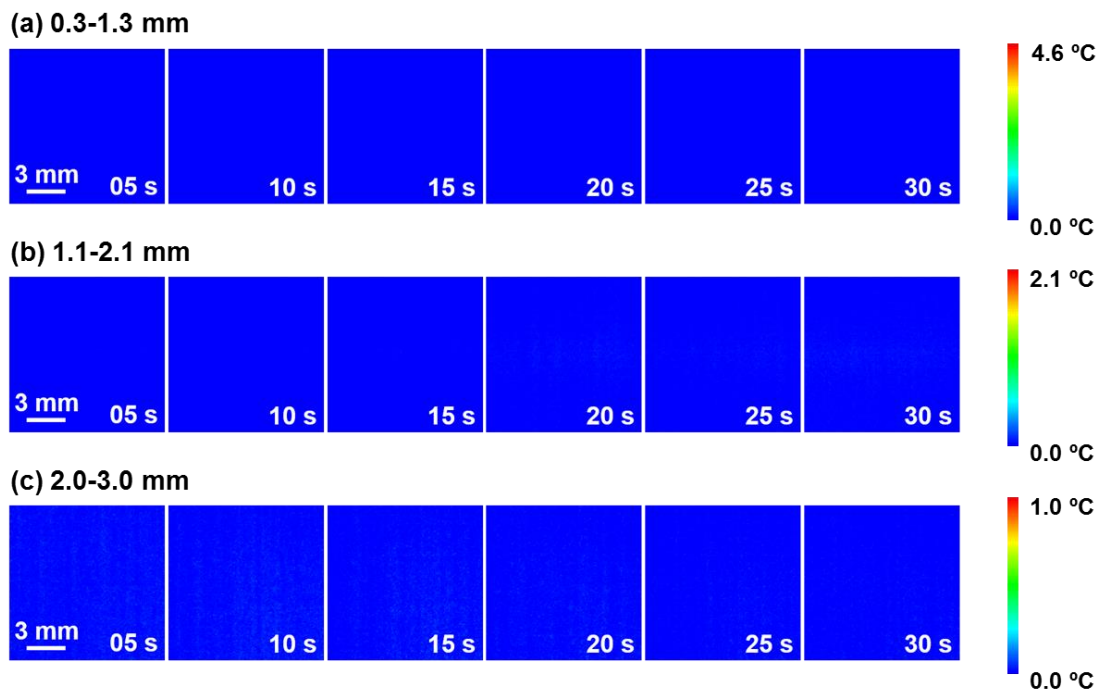


Figure S2. The spatial and temporal evolutions of the temperature change of the agar matrix surface without the AuNR agar cube upon 808 nm laser excitation at different depths: (a) 0.3–1.3 mm, (b) 1.1–2.1 mm, and (c) 2.0–3.0 mm. The incident laser power without correction by 80% was 45 mWatt.

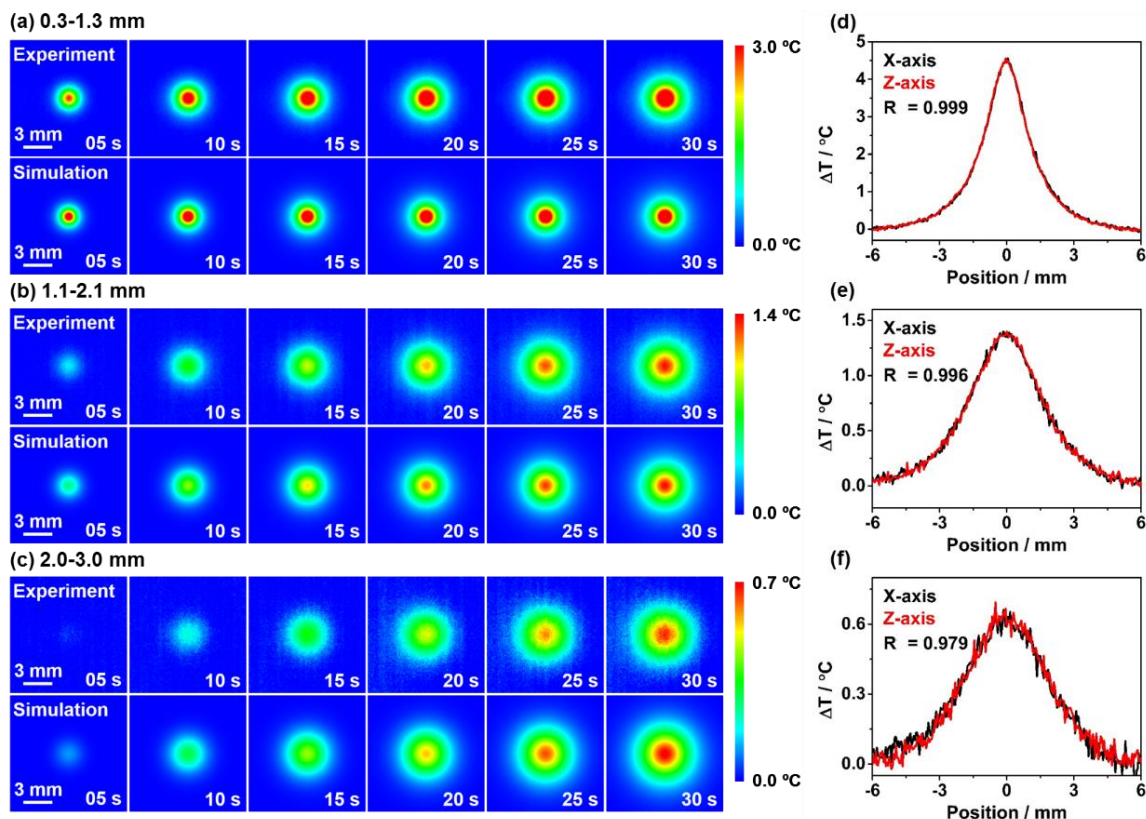


Figure S3. The spatial and temporal evolutions of the temperature change of the agar matrix surface with AuNR agar cubes embedded at different depths upon 808 nm laser excitation with effective power of 24 mWatt: (a) 0.3–1.3 mm, (b) 1.1–2.1 mm, and (c) 2.0–3.0 mm. The observed and simulated contours are shown in the upper and lower panels, respectively. Their corresponding temperature change distributions along the x and z axes through the heating center after irradiation of 30 seconds are shown in black and red traces, respectively, in (d)–(f).

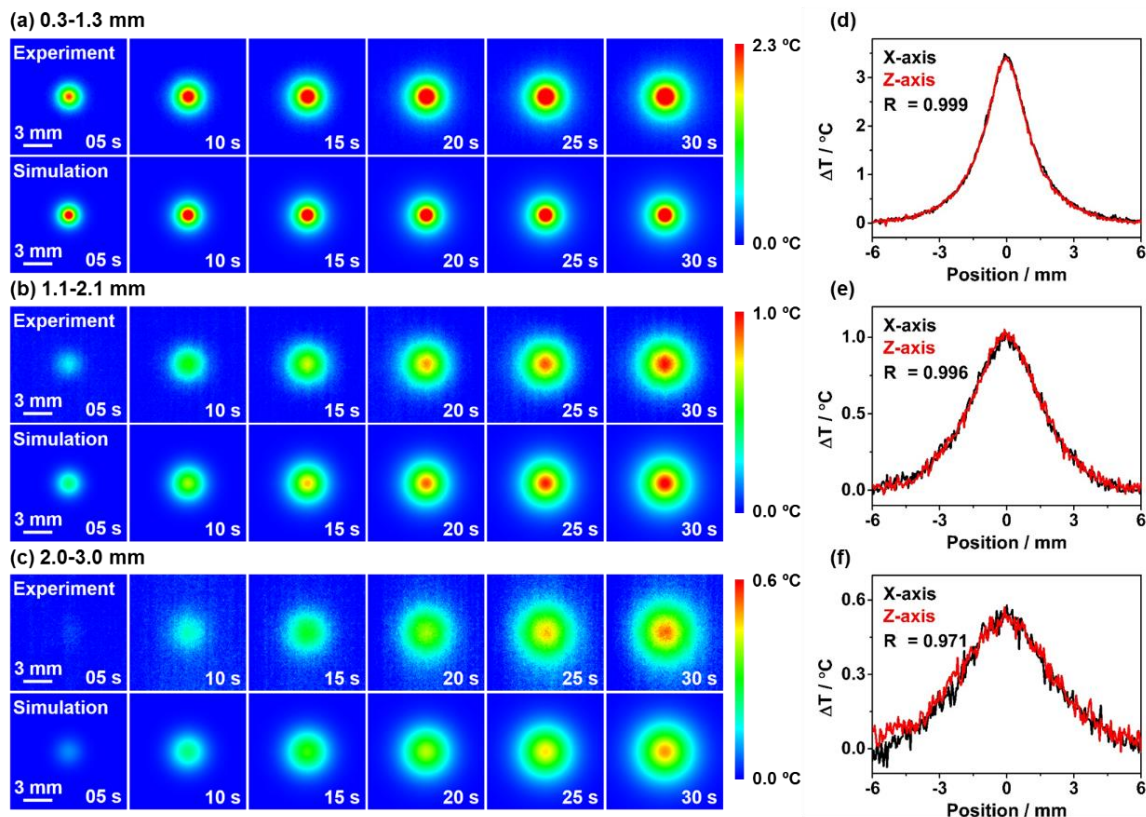


Figure S4. The spatial and temporal evolutions of the temperature change of the agar matrix surface with AuNR agar cubes embedded at different depths upon 808 nm laser excitation with effective power of 18 mWatt: (a) 0.3–1.3 mm, (b) 1.1–2.1 mm, and (c) 2.0–3.0 mm. The observed and simulated contours are shown in the upper and lower panels, respectively. Their corresponding temperature change distributions along the x and z axes through the heating center after irradiation of 30 seconds are shown in black and red traces, respectively, in (d)–(f).

3. The spatial and temporal evolutions of the temperature of the agar matrix surface with AuNR agar cubes embedded at different depths upon infrared LED excitation with different powers.

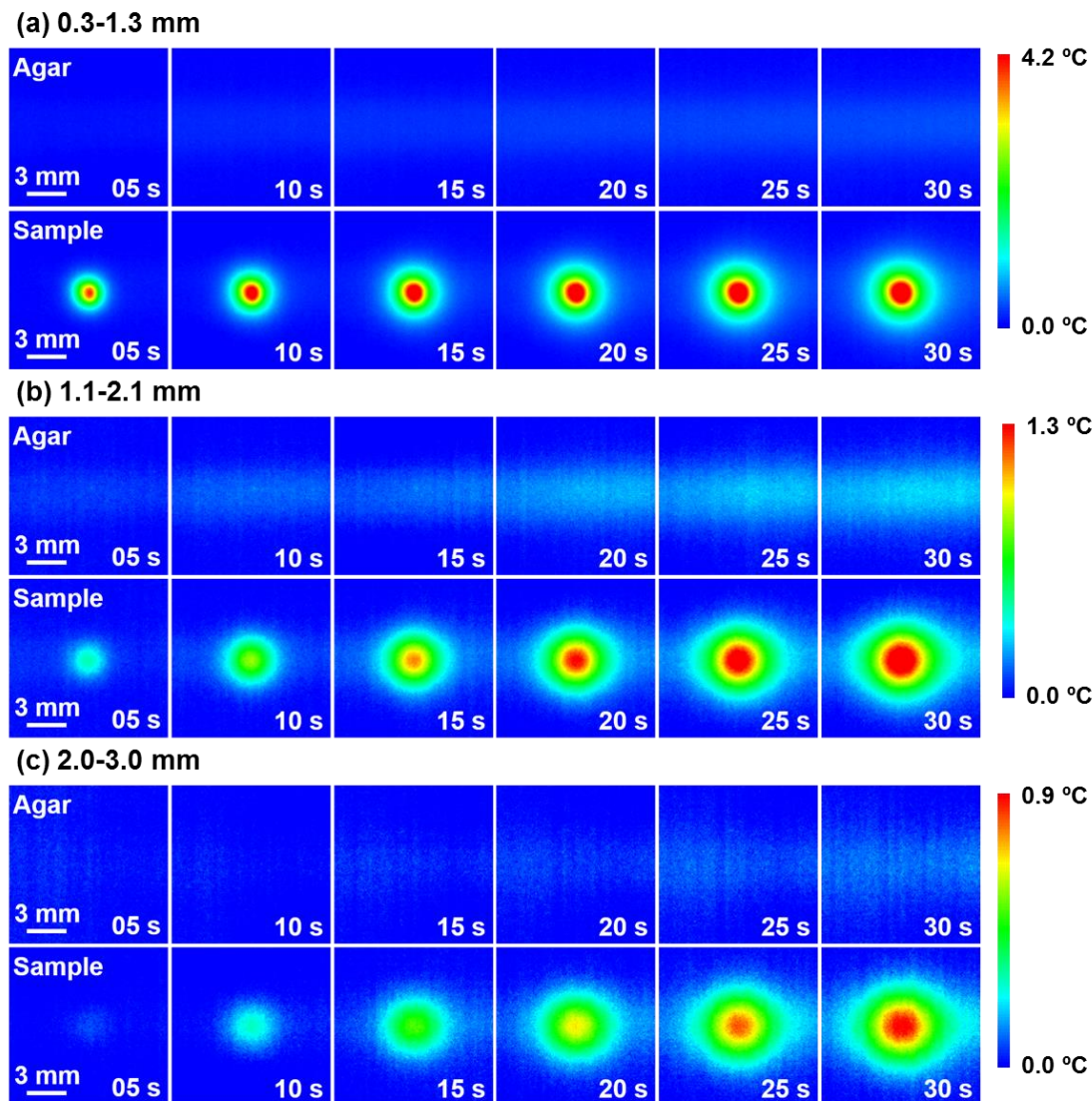


Figure S5. The raw data of the spatial and temporal evolutions of the temperature of the agar matrix surface without (upper frame) and with AuNR agar cubes at different depths (lower frame) upon infrared LED excitation of 282 mWatt: (a) 0.3–1.3 mm, (b) 1.1–2.1 mm, and (c) 2.0–3.0 mm. The corrected contours are shown in **Figure 7**.

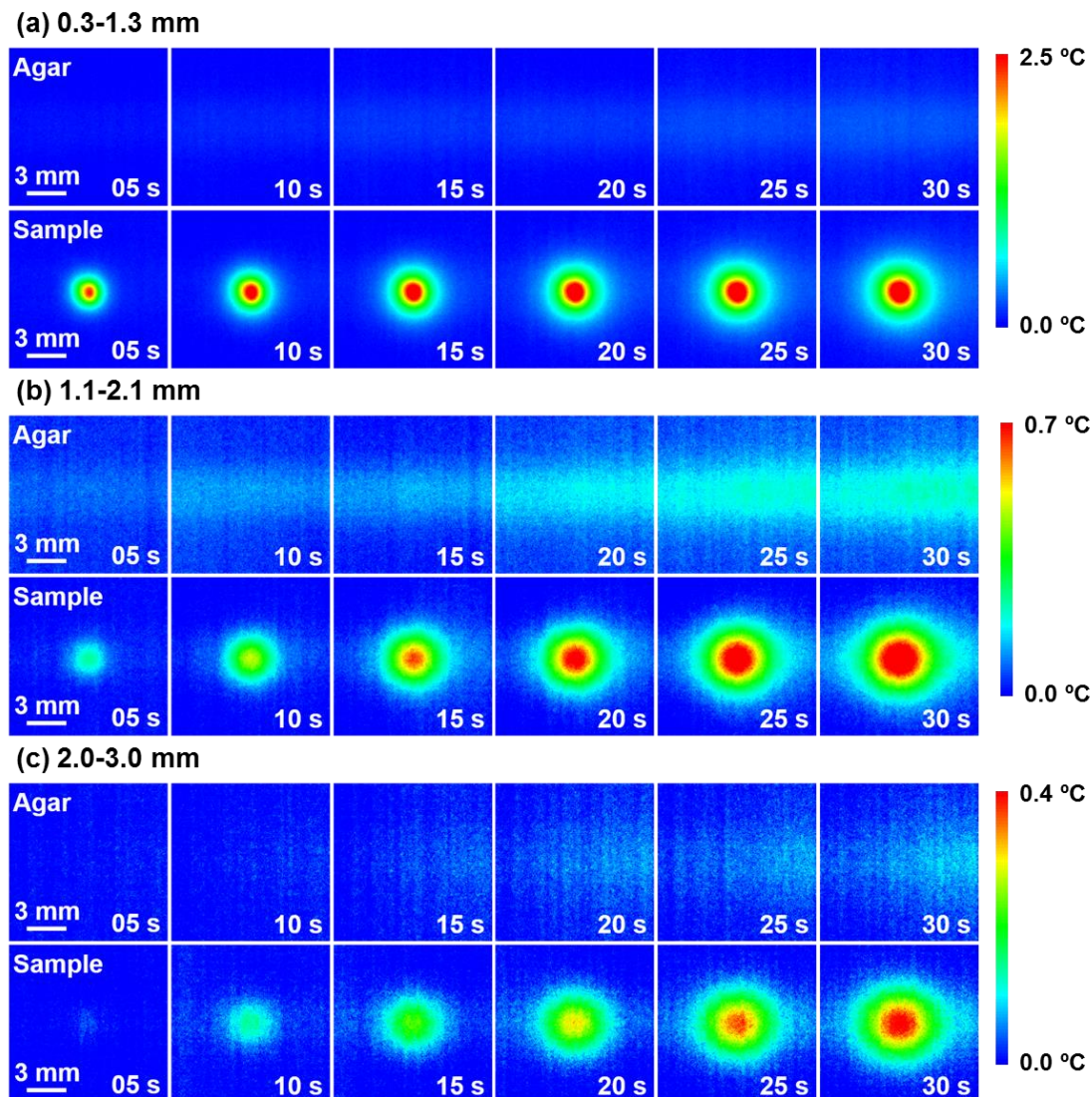


Figure S6. The raw data of the spatial and temporal evolutions of the temperature of the agar matrix surface without (upper frame) and with AuNR agar cubes at different depths (lower frame) upon infrared LED excitation of 166 mWatt: (a) 0.3–1.3 mm, (b) 1.1–2.1 mm, and (c) 2.0–3.0 mm. The corrected contours are shown in **Figure 7**.

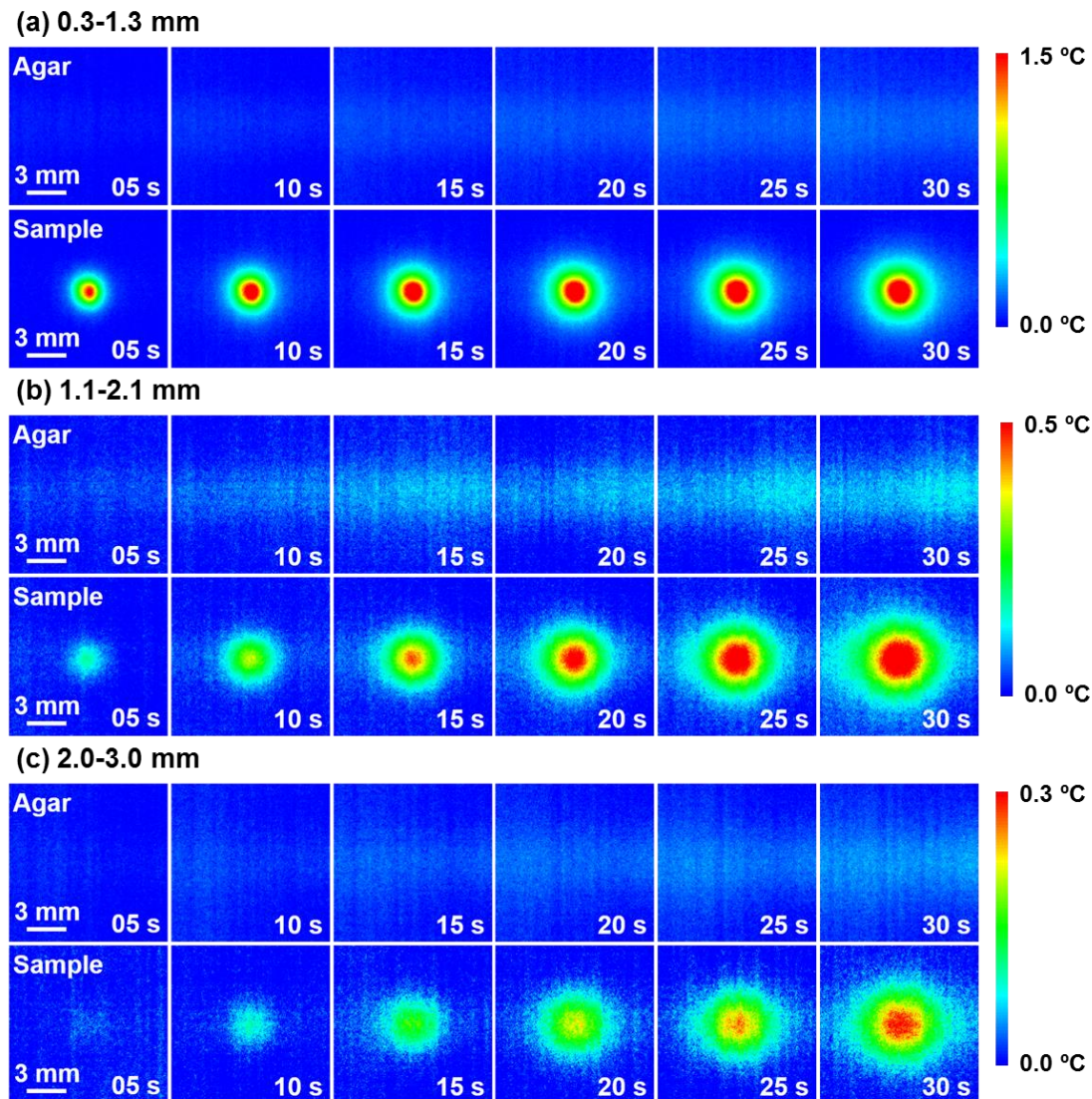


Figure S7. The raw data of the spatial and temporal evolutions of the temperature of the agar matrix surface without (upper frame) and with AuNR agar cubes at different depths (lower frame) upon infrared LED excitation of 106 mWatt: (a) 0.3–1.3 mm, (b) 1.1–2.1 mm, and (c) 2.0–3.0 mm. The corrected contours are shown in **Figure 7**.