

## Supporting Information

### Dual lights-induced *in situ* antibacterial activities of biocompatible TiO<sub>2</sub>/MoS<sub>2</sub>/PDA/RGD nanorod arrays on titanium

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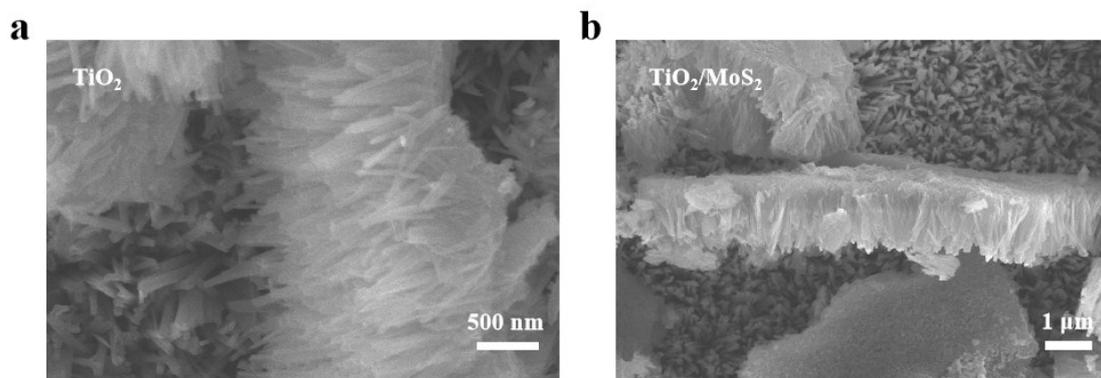
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**Table S1.** Relative surface elemental composition (at%) of TiO<sub>2</sub>/MoS<sub>2</sub>, TiO<sub>2</sub>/MoS<sub>2</sub>/PDA, and TiO<sub>2</sub>/MoS<sub>2</sub>/PDA/RGD determined by XPS.

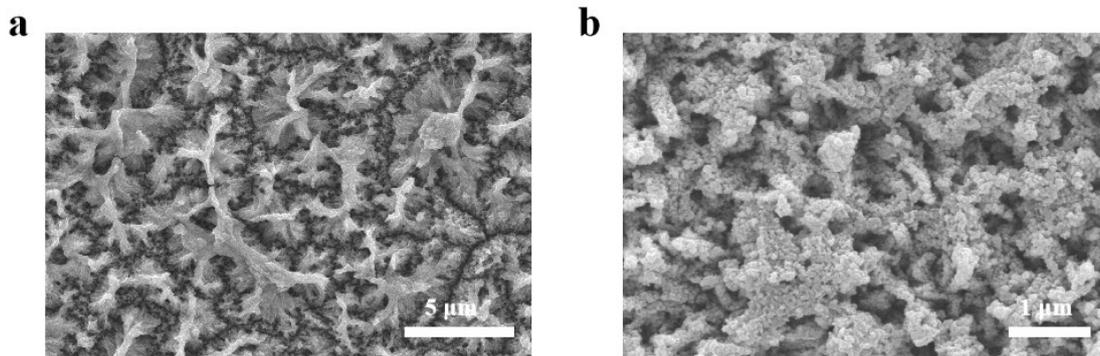
Samples	Ti 2p (%)	Mo 3d (%)	S 2p (%)	O 1s (%)	C 1s (%)	N 1s (%)
TiO <sub>2</sub> /MoS <sub>2</sub>	1.5	26.7	36.34	11.3	22.49	1.03
TiO <sub>2</sub> /MoS <sub>2</sub> /PDA	1.18	2.7	6.23	23.82	56.87	5.12
TiO <sub>2</sub> /MoS <sub>2</sub> /PDA/RGD	0.25	1.42	3.13	19.65	63.56	10.74

**Table S2.** Specific forward and reverse primer sequences of  $\beta$ -actin, RUNX2, and OCN genes.

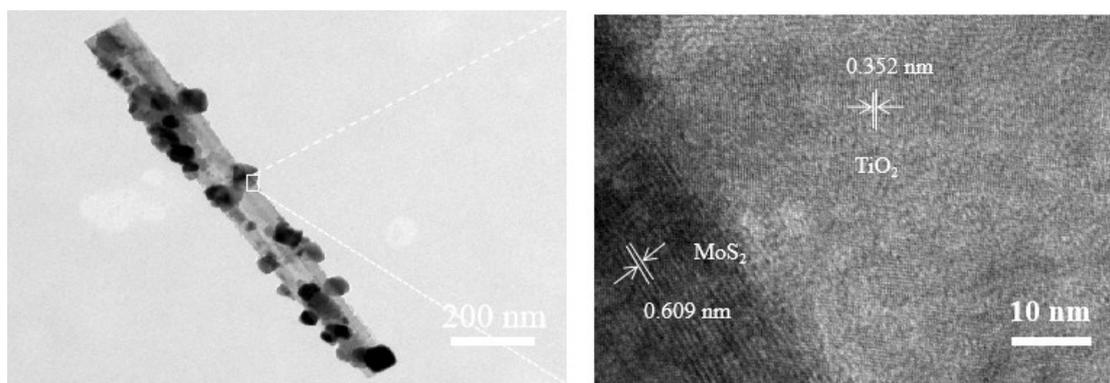
Gene	Gene forward primer sequence (5'–3')	Reverse primer sequence (5'–3')
GAPDH	GGTTGTCTCCTGCGACTTCA	TGGTCCAGGGTTTCTTACTCC
RUNX2	AACCCACGAATGCACTACCCA	GGAACTGATAGGATGCTGACGAA G
OCN	AGACTCCGGCGCTACCTTGG	CGGTCTTCAAGCCATACTGGTCTG



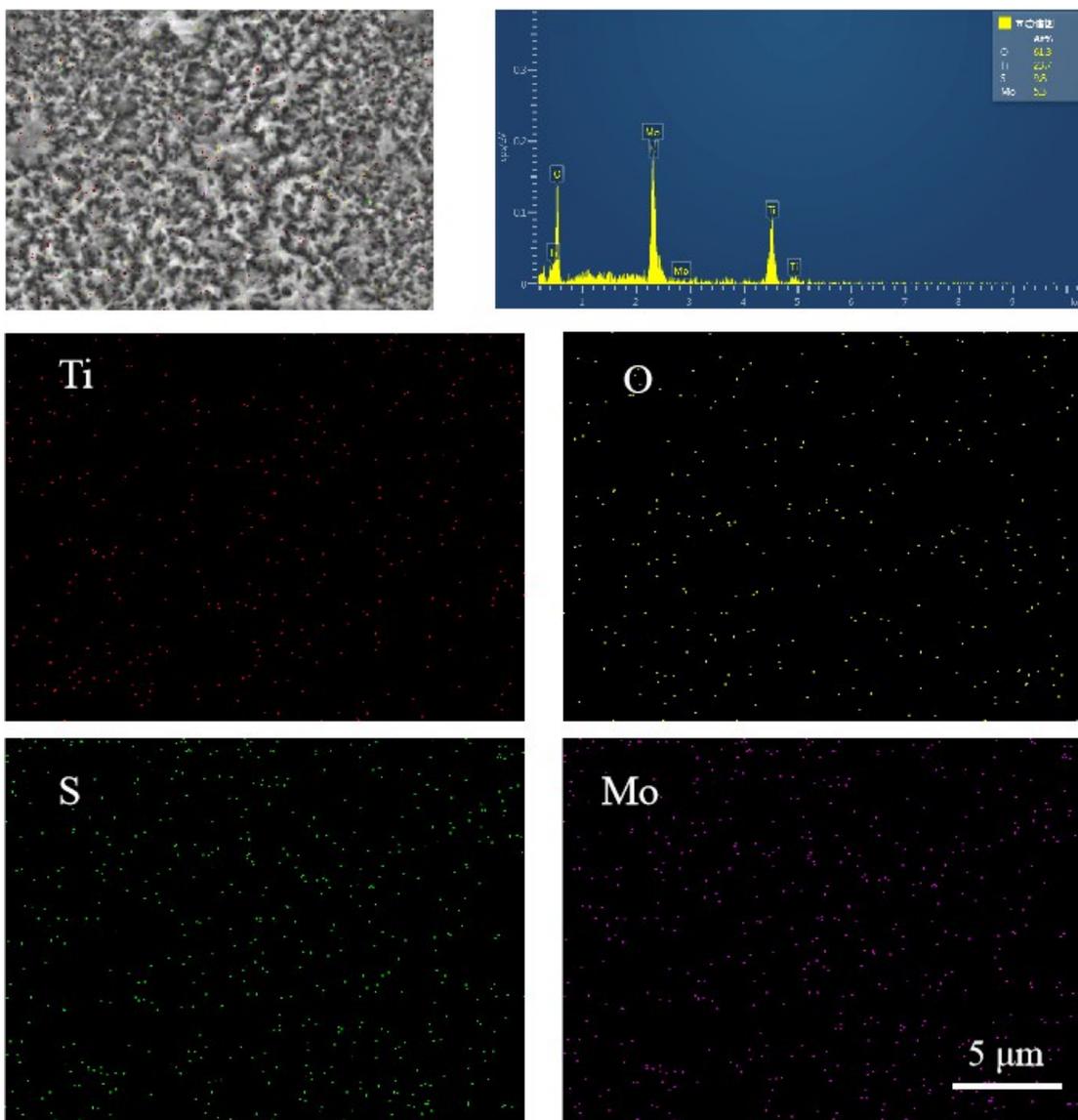
**Figure S1.** Cross-sectional SEM images of the nanorods: (a) TiO<sub>2</sub>; (b) TiO<sub>2</sub>/MoS<sub>2</sub>.



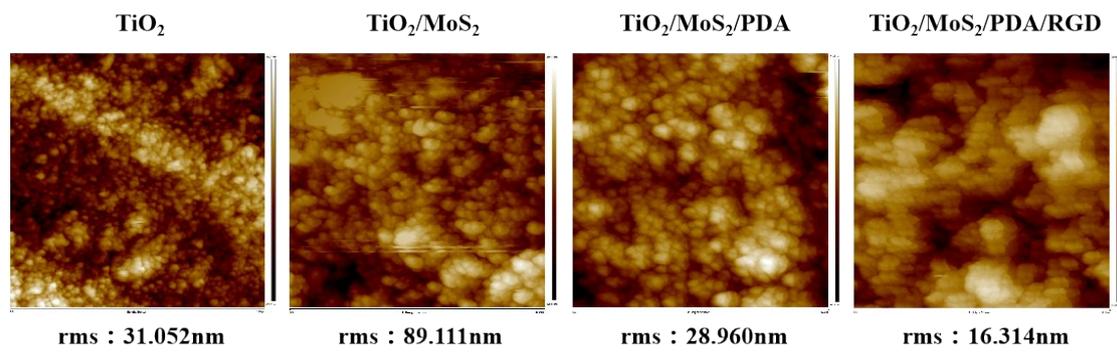
**Figure S2.** MoS<sub>2</sub> morphologies on NA: (a) 200 mg of thioacetamide and 100 mg of sodium molybdate as hydrothermal solvents; (b) 100 mg of thioacetamide and 50 mg of sodium molybdate as hydrothermal solvents.



**Figure S3.** TEM images of TiO<sub>2</sub>/MoS<sub>2</sub>.



**Figure S4.** EDS elemental maps of TiO<sub>2</sub>/MoS<sub>2</sub> NA.



**Figure S5.** AFM images of TiO<sub>2</sub>, TiO<sub>2</sub>/MoS<sub>2</sub>, TiO<sub>2</sub>/MoS<sub>2</sub>/PDA, and TiO<sub>2</sub>/MoS<sub>2</sub>/PDA/RGD.

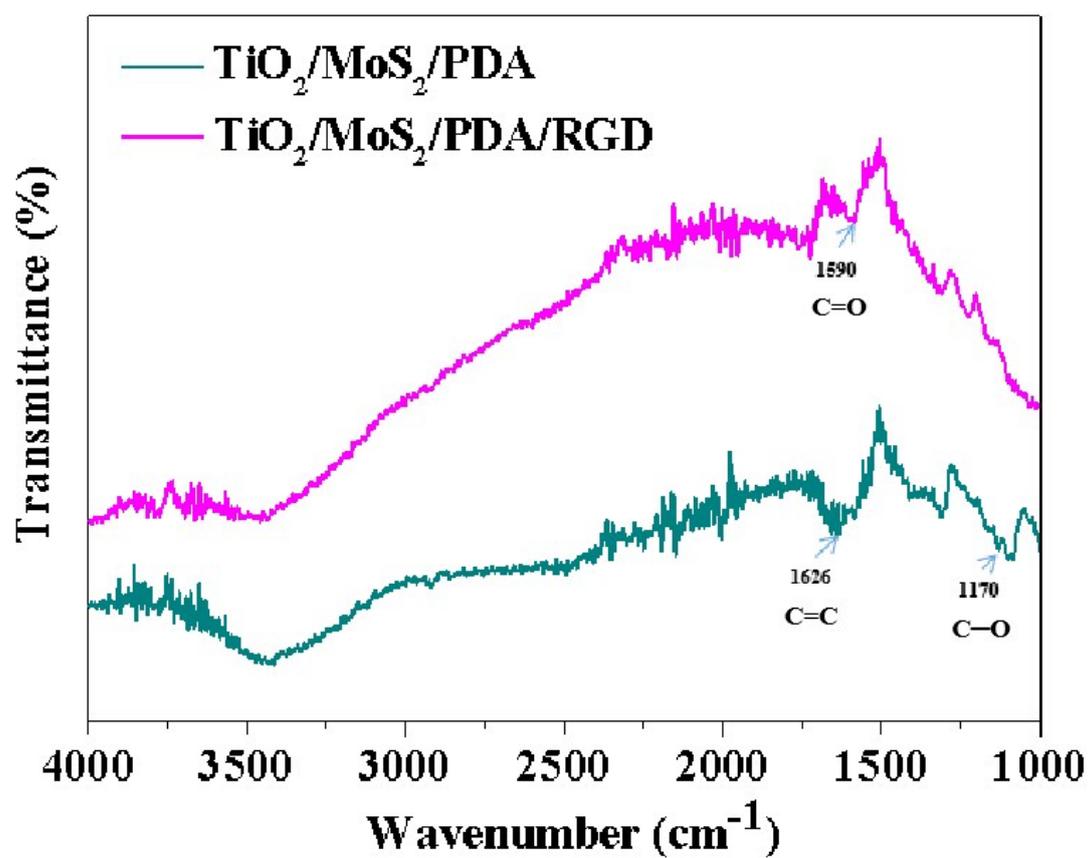
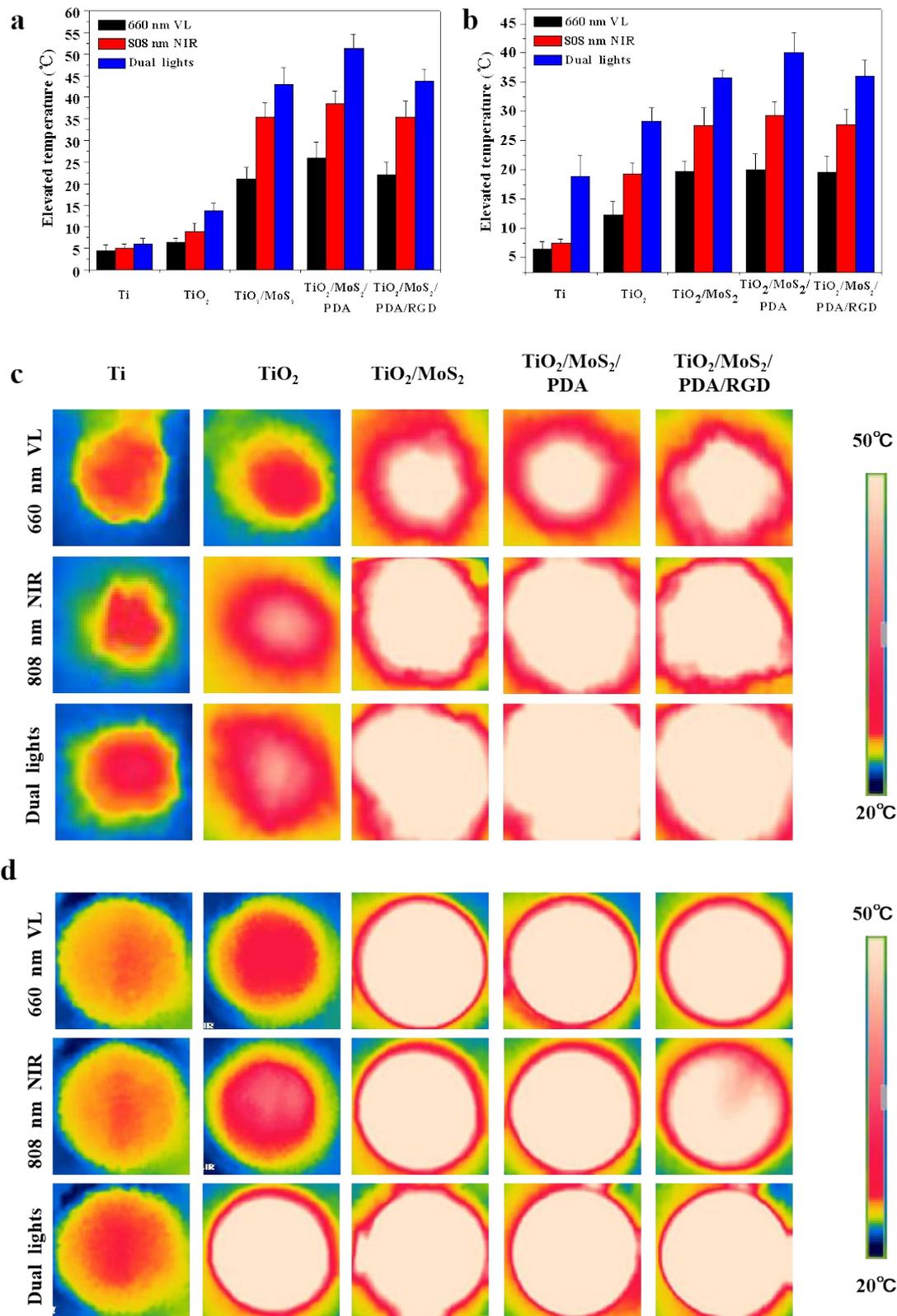
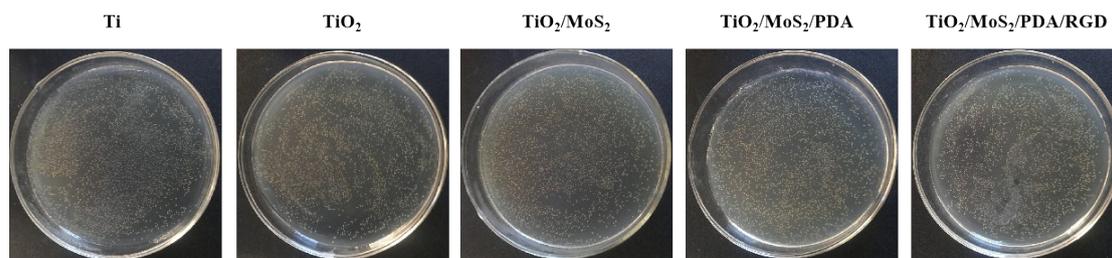


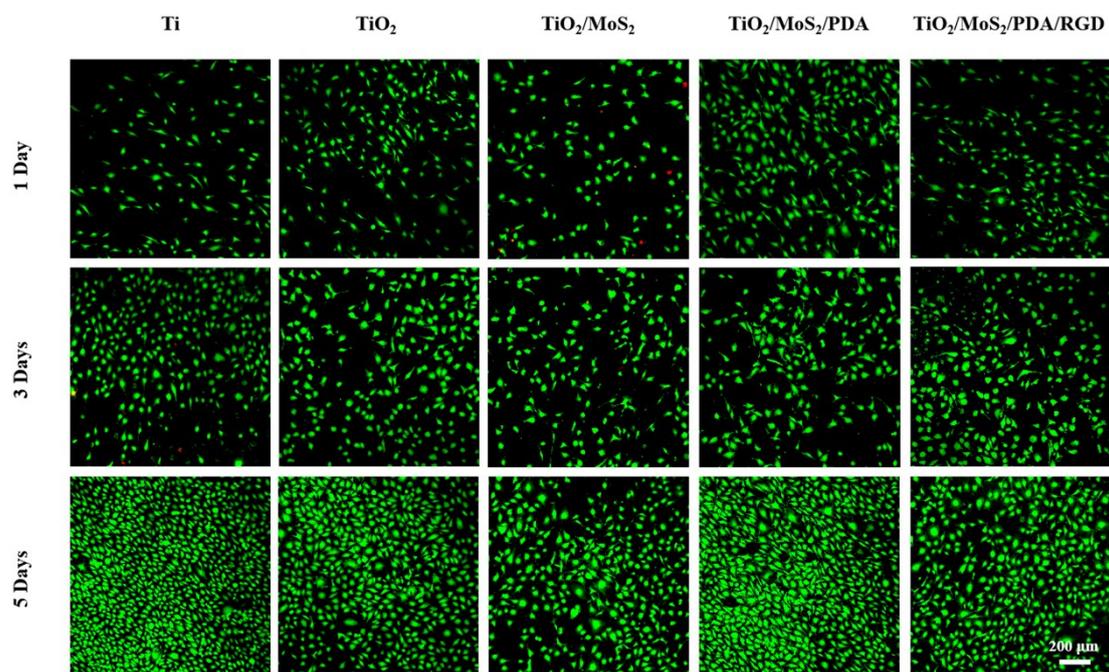
Figure S6. FTIR spectra of  $\text{TiO}_2/\text{MoS}_2/\text{PDA}$  and  $\text{TiO}_2/\text{MoS}_2/\text{PDA}/\text{RGD}$ .



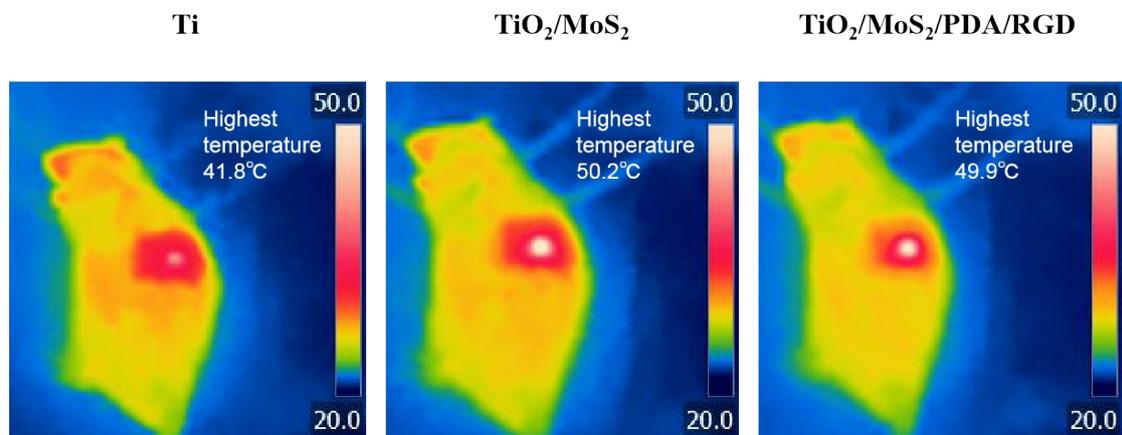
**Figure S7.** Average temperature of Ti, TiO<sub>2</sub>, TiO<sub>2</sub>/MoS<sub>2</sub>, TiO<sub>2</sub>/MoS<sub>2</sub>/PDA, and TiO<sub>2</sub>/MoS<sub>2</sub>/PDA/RGD under light irradiation: (a) Air and (b) PBS; Real-time thermal images upon light irradiation: (c) Air and (d) PBS.



**Figure S8.** Images of representative colony forming units of *S. aureus* in darkness.



**Figure S9.** Fluorescence images by live/dead staining of endothelial cells after culturing for 1, 3, and 5 days on Ti, TiO<sub>2</sub>, TiO<sub>2</sub>/MoS<sub>2</sub>, TiO<sub>2</sub>/MoS<sub>2</sub>/PDA, and TiO<sub>2</sub>/MoS<sub>2</sub>/PDA/RGD.



**Figure S10.** *In vivo* thermal images of Ti, TiO<sub>2</sub>/MoS<sub>2</sub> and TiO<sub>2</sub>/MoS<sub>2</sub>/PDA/RGD on the back of the mice under dual light irradiation (Images taken after 10 min).