Electronic supplementary information (ESI)

**Figure S1.** ESI-MS (m/z)(MeOH + NH₄OAc): calcd. for 2 (C₁₄H₁₃N₂S) 241.0794 found (M⁺): 241.0793
Figure S2. $^1$H NMR spectrum of 2 in DMSO-$d_6$
Figure S3. ESI-MS (m/z) (MeOH + NH₄OAc): calcd. for 5 (C₉H₁₉N₂O₃): 202.1387; found (MH⁺): 203.1387
Figure S4. $^1$H NMR spectrum of 5 in D$_2$O
Figure S5. H-H COSY of 6 in DMSO-$d_6$

Figure S6. HPLC trace of phenothiazinium derivative 6. Gradient: see Material and Methods
Figure S7. HPLC trace of phenothiazinium derivative 6 and Azure I conjected for qualitative comparison. Gradient: see Material and Methods.
Figure S8. SEM surface images of 7 after irradiation with visible light for 25 minutes.

Figure S9. Absorption spectra of 6 in PBS solution and immobilized (1 mg/cm²)
Figure S10. Absorption spectra of ABDA (150 μ mol L⁻¹) in PBS solution (pH=7.0) photosensitized by 7 (a), 8 (b) and 6 (c).
Figure S11. Kill curves obtained for the 1 mg/cm$^3$ photoantimicrobial hydrogel previously cut in 2, 4, 8 squares against *E. coli* under light illumination (a) for 25 min (fluence rate of 14.5 mW/cm$^2$ and a total light dose 21.8 J/cm$^2$) and in the dark (b). Dark and light experiments were done with the cell suspensions of $2 \times 10^6$ CFU ml$^{-1}$. The optical fiber was placed 6 cm from the plates. Values represent the mean of two separate experiments.

The filled squares correspond to the killing curve obtained adding 2 pieces of 7 to the *E. coli* suspension. The open squares corresponds to the killing curve obtained adding 4 pieces of 7 to the *E. coli* suspension while the filled triangles correspond to the killing curve obtained adding 8 pieces of 7 to the *E. coli* suspension.