Figure S1. ESI-MS (m/z)(MeOH/MeOH + DEA): calcd. for \( \text{C}_4\text{H}_{26}\text{N}_7\text{O}_2 \): 661.2142 found (M-H)\(^-\): 660.2153.
Figure S2. ESI-MS (m/z) (MeOH + NH4OAc): calcd. for 3 (C9H19N2O3): 202.1387; found (MH)+: 203.1387
Figure S3. Absorption spectra of 4 in CH₂Cl₂.
Figure S4. $^1$H NMR spectrum of 4 in DMSO-$d_6$ *impurity (CH$_2$Cl$_2$)

Figure S5. ESI-MS (m/z) (MeOH + NH$_4$OAc): calcd. for 4 (C$_{51}$H$_{43}$N$_9$O$_4$): 845.34; found (M+ Na$^+$) 868.3330.
**Figure S6.** ESI-MS (m/z) (MeOH + NH₄OAc): calcd. for 5 (C₅₄H₅₂N₉O₄Cl₃): 296.8050 (z=3); found (M – 3Cl)⁺ 296.8042.

**Figure S7.** ¹H NMR spectrum of 5 in DMSO-ｄ₆
Figure S8. H-H COSY of 5 in DMSO-$d_6$
Figure S9. $^1$H NMR spectrum of 5 in D$_2$O
Figure S10 (a). Absorption spectra of 5 and 6 in PBS (pH=6.0).
Figure S10 (b). Wavelength range 500-660 nm, absorption spectra of 5 and 6 in PBS (pH=6.0).

Compound 5 + 6 co-injection
**Figure S11.** HPLC trace of the water soluble porphyrin 5 and 6 conjected for qualitative comparison. Gradient: see Material and Methods.

**Figure S12.** Superimposition of $^1$H NMR spectrum of 6 in DMSO-$d_6$ (bottom) and $^1$H NMR spectrum of 5 in DMSO-$d_6$(up).
Figure S13 (a). Absorption spectra of 5 and 7 in PBS.
Figure S13 (b). Wavelength range 500-660 nm, absorption spectra of 5 and 7 in PBS.
**Figure S14.** ESI-MS (m/z) (MeOH + NH₄OAc),: calcd. for 7 (C₅₄H₅₂N₉O₄Cl₃): 317.1091 (z=3); found (M – 3Cl)³⁺ 317.1088.

**Figure S15.** HPLC trace of the water soluble porphyrin 5 and 7 conjected for qualitative comparison. Gradient: see Material and Methods.
**Figure S16.** Absorption spectra of 5 and 9.
Figure S17. Absorption spectra of 6 and 10.

Figure S18. Absorption spectra of 7 and 11.
Figure S19. Kill curves obtained for the 1 mg/cm³, 2 mg/cm³ and 4 mg/cm³ photoantimicrobial hydrogel previously cut in 4 squares against *E. coli* under light illumination (a) for 25 min (fluence rate of 14.5 mW/cm² and a total light dose 21.8 J/cm²) 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 triangles correspond to the killing curve obtained adding 1 mg/cm³ to the *E. coli* suspension while the filled circles correspond to the killing curve obtained adding 2 mg/cm³ to the *E. coli* suspension. The filled squares corresponds to the killing curve obtained adding 4 mg/cm³ hydrogel to the *E. coli* suspension.
Figure S20. Control experiment on an E. coli suspension irradiated and in the dark indicated that light doses alone up to 21.8 J cm$^2$. 