

## Supporting Information

### Photobactericidal Porphyrin-Cellulose Nanocrystals: Synthesis, Characterization and Antimicrobial Properties<sup>†</sup>

Elke Feese<sup>†</sup>, Hasan Sadeghifar<sup>‡</sup>, Hanna S. Gracz<sup>#</sup>, Dimitris S. Argyropoulos<sup>†,‡,##</sup>  
and Reza A. Ghiladi<sup>†</sup>

<sup>†</sup>Department of Chemistry, North Carolina State University, Raleigh, North Carolina, 27695-8204

<sup>‡</sup>Department of Forest Biomaterials, North Carolina State University, Raleigh, North Carolina, 27695-8005

<sup>##</sup>Department of Chemistry, University of Helsinki, Helsinki Finland

<sup>#</sup>Department of Molecular and Structural Biochemistry, North Carolina State University, Raleigh, North Carolina, USA

Running Title: Photobactericidal Porphyrin-Cellulose Nanocrystals

#### Table of Contents

**Table SD1.** Light control experiments with azide surface-modified CNC-N<sub>3</sub> (3).<sup>a</sup>

**Figure SD1.** TEM image of CNC (1).

**Figure SD2.** IR spectra of CNC (1), CNC-Tos (2) and CNC-N<sub>3</sub> (3).

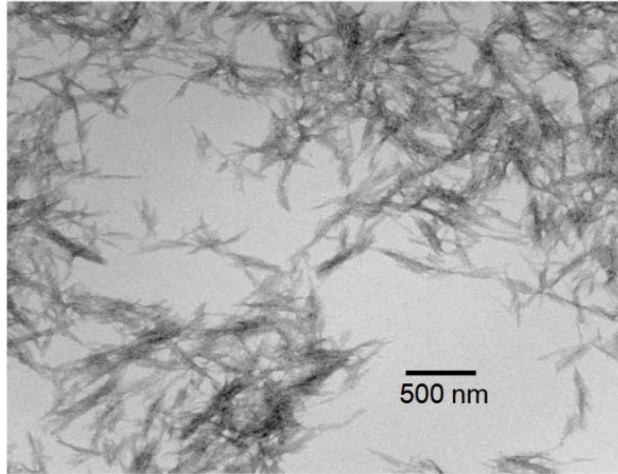
**Figure SD3.** Graphical representation of the loss in proton signal intensity for PFGSE <sup>1</sup>H-NMR experiments comprised from data shown in Figure 3.

**Figure SD4.** Concentration dependence of PDI for *M. smegmatis* and *S. aureus* using CNC-Por (5) at constant incubation (30 min) and illumination times (15 min).

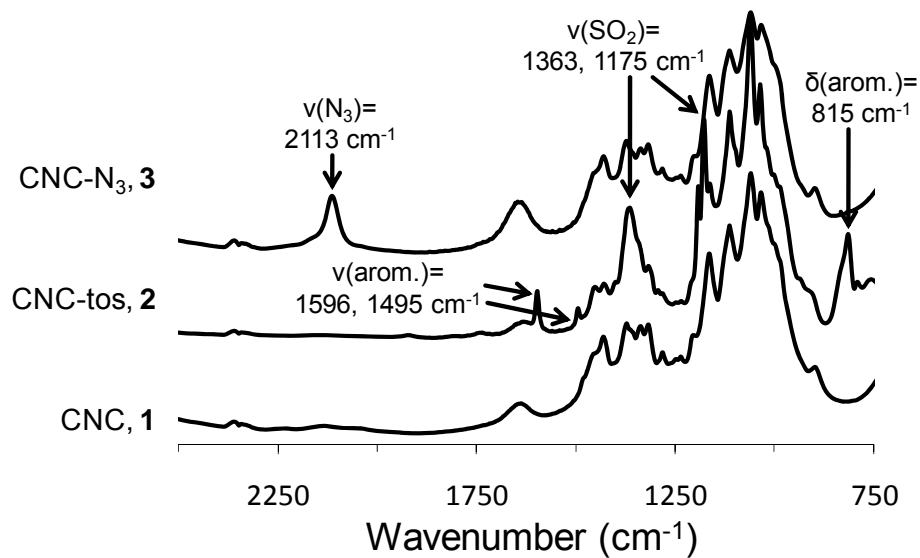
**Table SD1.** Light control experiments with azide surface-modified CNC-N<sub>3</sub> (**3**).<sup>a</sup>

Bacterium	% Survival <sup>b</sup>	
	15 min illumination <sup>c</sup>	30 min illumination <sup>c</sup>
<i>E. coli</i>	107.23 ± 13.29	80.75 ± 16.41
<i>M. smegmatis</i>	92.42 ± 11.50	100.53 ± 22.95
<i>S. aureus</i>	106.15 ± 26.03	74.25 ± 13.66

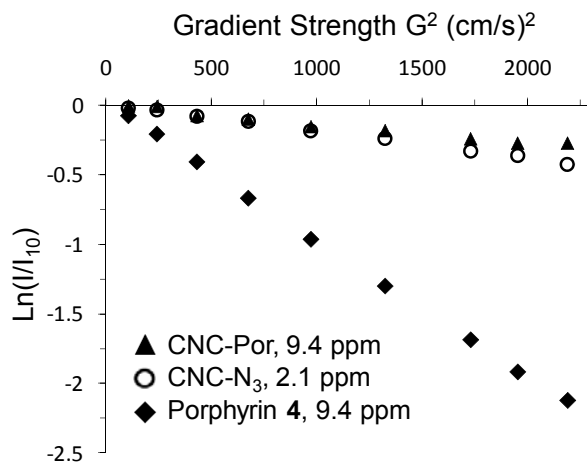
<sup>a</sup> CNC-N<sub>3</sub> (**3**) concentration in control experiments was equivalent to 20 μM CNC-Por (**5**) content for PDI experiments; <sup>b</sup> Percent survival when compared to CNC-N<sub>3</sub> (**3**) dark controls; <sup>c</sup> illumination with white light (400-700 nm, 60 mW/cm<sup>2</sup>).



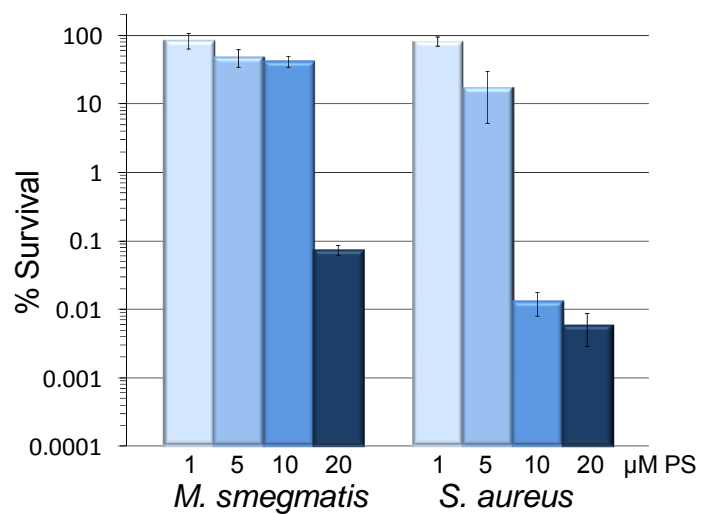
**Figure SD1.** TEM image of CNC (1).



**Figure SD2.** IR spectra of CNC (1), CNC-Tos (2) and CNC-N<sub>3</sub> (3).



**Figure SD3.** Graphical representation of the loss in proton signal intensity for PFGSE  $^1\text{H}$ -NMR experiments comprised from data shown in Figure 3.



**Figure SD4.** Concentration dependence of PDI for *M. smegmatis* and *S. aureus* using CNC-Por (5) at constant incubation (30 min) and illumination times (15 min).