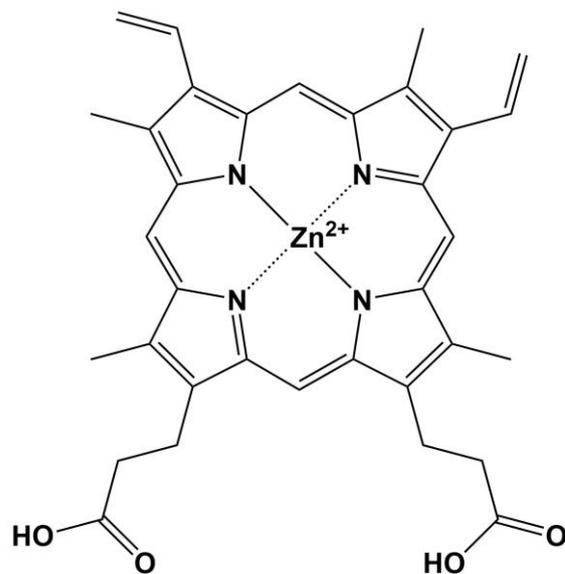


Supplemental Information



Scheme 1. 2D structure of ZnPPIX.

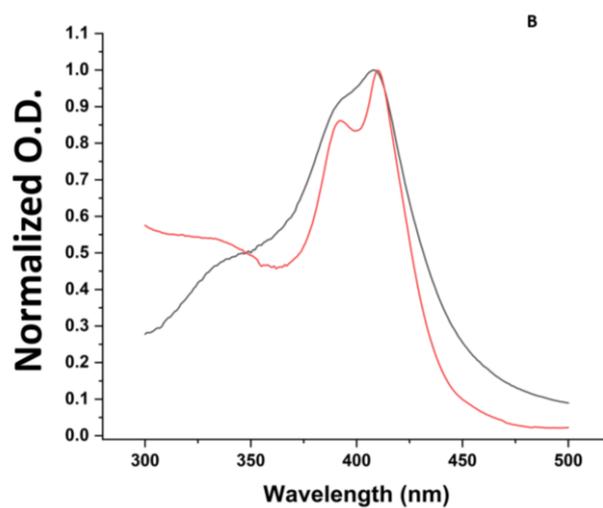
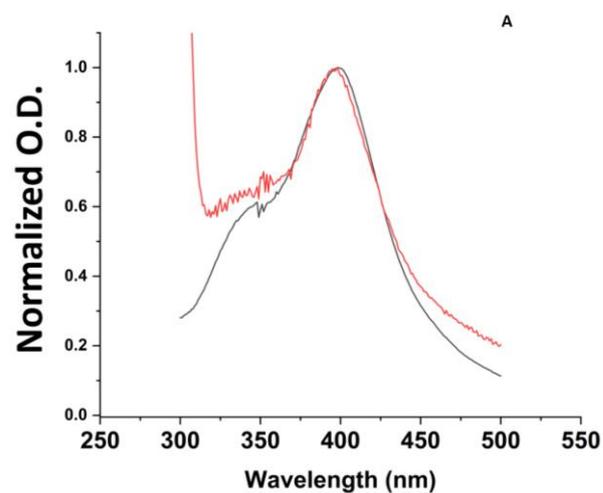


Figure S1. Absorption spectra in the Soret band region of ZnPPIX in buffer vs. the ZnPPIX:BLG complex. (–) ZnPPIX in buffer, (–) ZnPPIX:BLG complex. (A) pH 5, (B) pH 9.

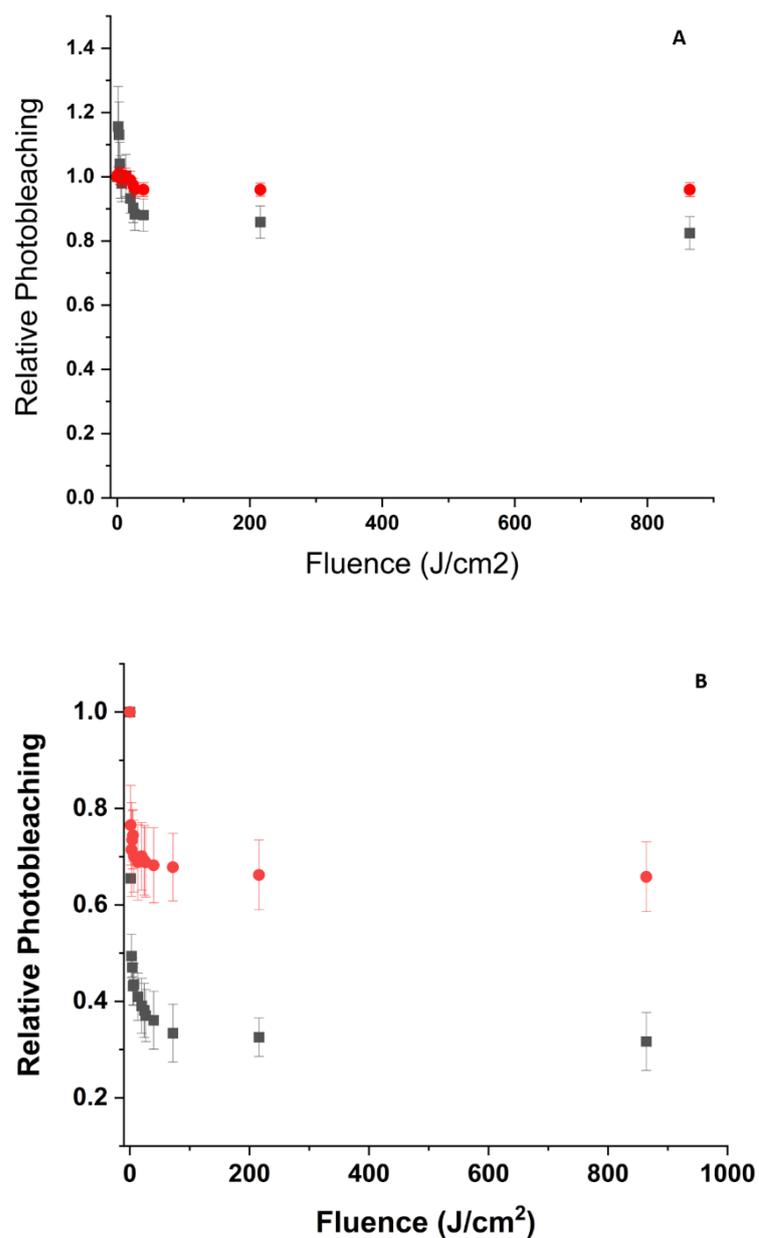


Figure S2. Comparison of the relative photobleaching of the Soret band of ZnPPIX, i.e., values of the ratio of the maximum of the Soret band of irradiated samples divided by the intensity of the non-irradiated sample. (●) ZnPPIX in buffer, (●) ZnPPIX:BLG complex. (A) pH 5, (B) pH 9.

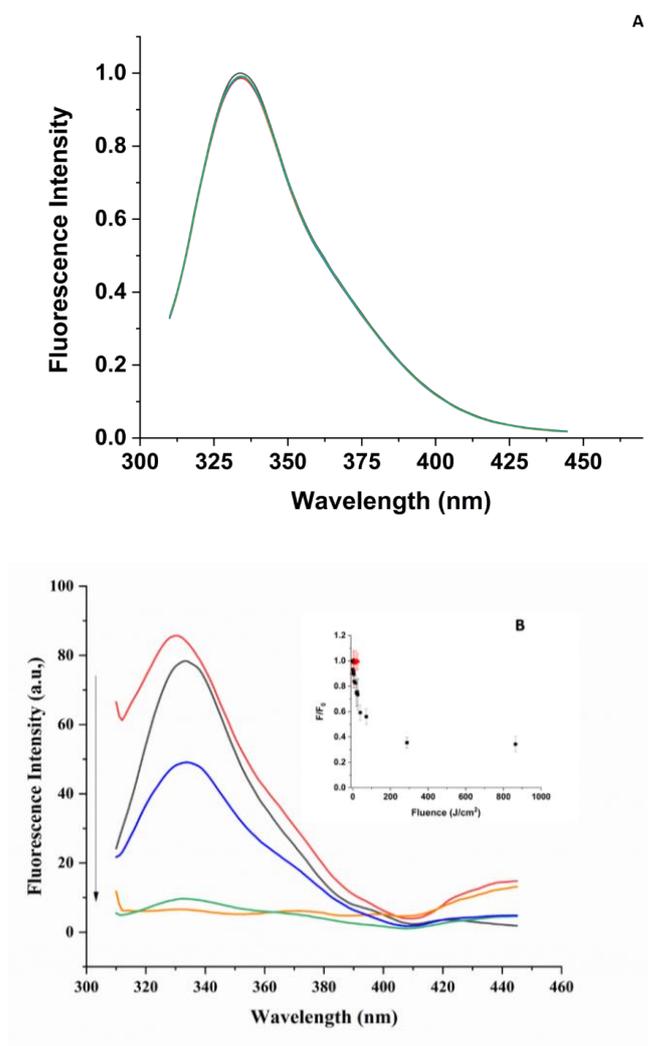


Figure S3. Fluorescence spectra of the ZnPPIX:BLG complex as a function of irradiation energy density upon excitation at 294 nm. (A) pH 5. (Black) = 0 J/cm²; (Red) = 48 J/cm²; (Blue) = 216 J/cm²; (Green) = 864 J/cm². (B) pH 9. (Black) = 0 J/cm²; (Red) = 24 J/cm²; (Blue) = 72 J/cm²; (Green) = 288 J/cm²; (Orange) = 884 J/cm².

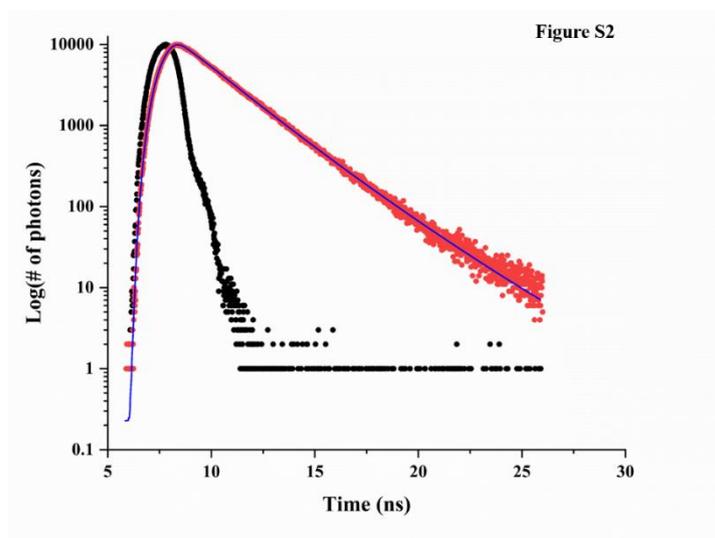


Figure S4. Fluorescence decays of ZnPPIX in the ZnPPIX:BLG complex. The decay was obtained using $\lambda_{ex} = 388 \text{ nm}$ and emission at $630 \pm 16 \text{ nm}$. The average lifetime of the decay is 2.15 ns.

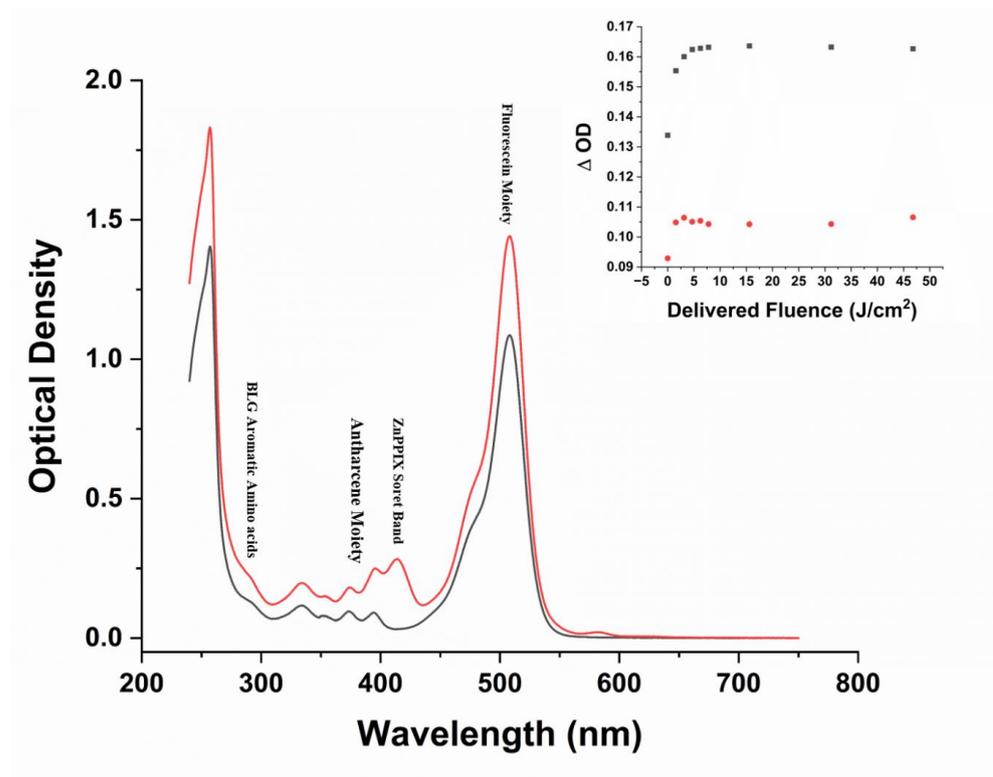


Figure S5. Absorption spectra of SOSG (black) and SOSG with ZnPPIX:BLG (red) in solution at pH 9 before laser irradiation. Inset: change in OD at 507 nm (fluorescein moiety) of SOSG as a function of laser irradiation (at 405 nm) in the presence of ZnPPIX:BLG (■) and without ZnPPIX:BLG (●). The moieties of the various molecular components are indicated.

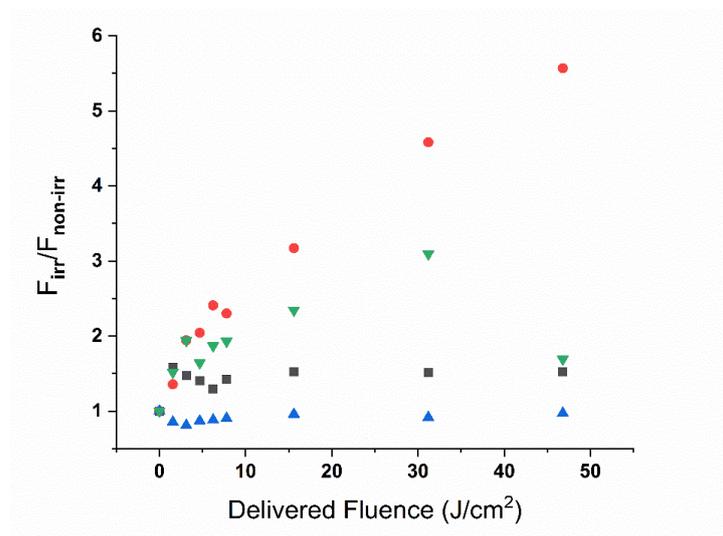


Figure S6. Fluorescence intensity of SOSG in solutions as a function of laser irradiation. SOSG spectra were recorded with excitation at 470 nm. (■) pH 5, irradiation 405 nm, in the presence of ZnPPIX:BLG; (▲) pH 5, irradiation 405 nm, without ZnPPIX:BLG; (●) pH 9, irradiation 405 nm, in the presence of ZnPPIX:BLG; (▼) pH 9, irradiation 405 nm, with ZnPPIX:BLG.

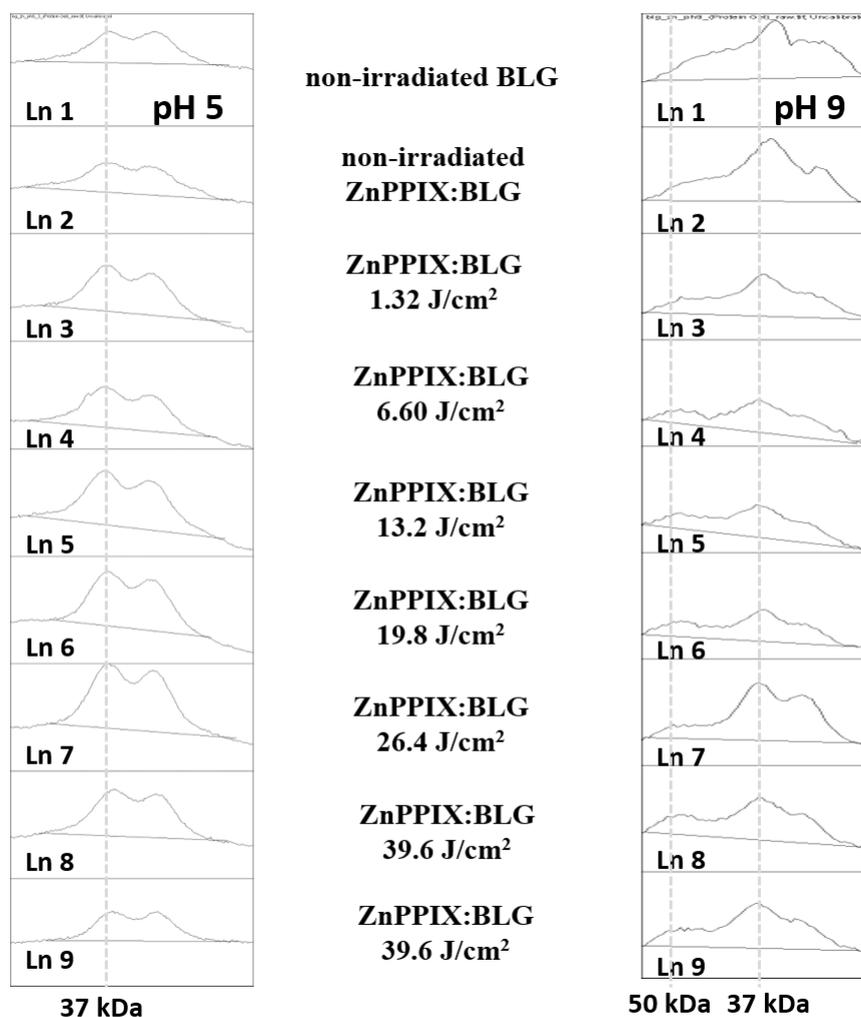


Figure S7. Panels of the contrast profiles obtained from the lanes of the gels of Figures 8A and 8B. Through ImageJ, multiple cross sections were taken for each lane and binned together to improve the overall S/N ratio. In the left panel (pH 5) one notices that the doublet (two peaks) is constant throughout all lanes. The ratio between the two peaks also appears to remain constant. The vertical line marks the position of the 37 kDa marker in the gels of Figure 8A. In the right panel (pH 9) one notices a third broad peak near 50 kDa (as marked by the labeled vertical line). In the left panel one also notices that the features do not change significantly except for changes in the ratio between the peaks that, however, provide no correlation with irradiation.