

Abstract Submitted
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pH Dependent Photoinduced Effects of Protoporphyrin IX to Human Serum Albumin SARAH ROZINEK, JORGE PALOS-CHAVEZ, LORENZO BRANCALEON, University of Texas at San Antonio — Irradiation of the non-covalent complex between protoporphyrin IX (PPIX) and β -lactoglobulin (Blg), causes a modest unfolding of the protein localized to Trp19. That binding site is affected by pH of the solution. At physiological pH, PPIX is known to bind HSA in hydrophobic binding sites. However, no evidence is presented for the binding behavior of PPIX to HSA in non-physiological pH confirmations, nor on the effects of irradiation on the bound system at any pH. The combination of spectroscopic data and molecular simulations suggests that distinct PPIX-compatible binding sites become available at each confirmation of HSA at pH 7.4, and 9 while the pH 3 conformation is unfavorable for binding. Photoinduced mechanisms produce changes in the ligand as well as the protein but they do not appear to be dependent on the presence of O₂ in solution. Therefore, the mechanism is not mediated by the formation of singlet oxygen and is likely the result of electron transfer between the porphyrin and amino acid residues.

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