Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

Supporting information

to

Heme is responsible for enhanced singlet oxygen deactivation in cytochrome *c*

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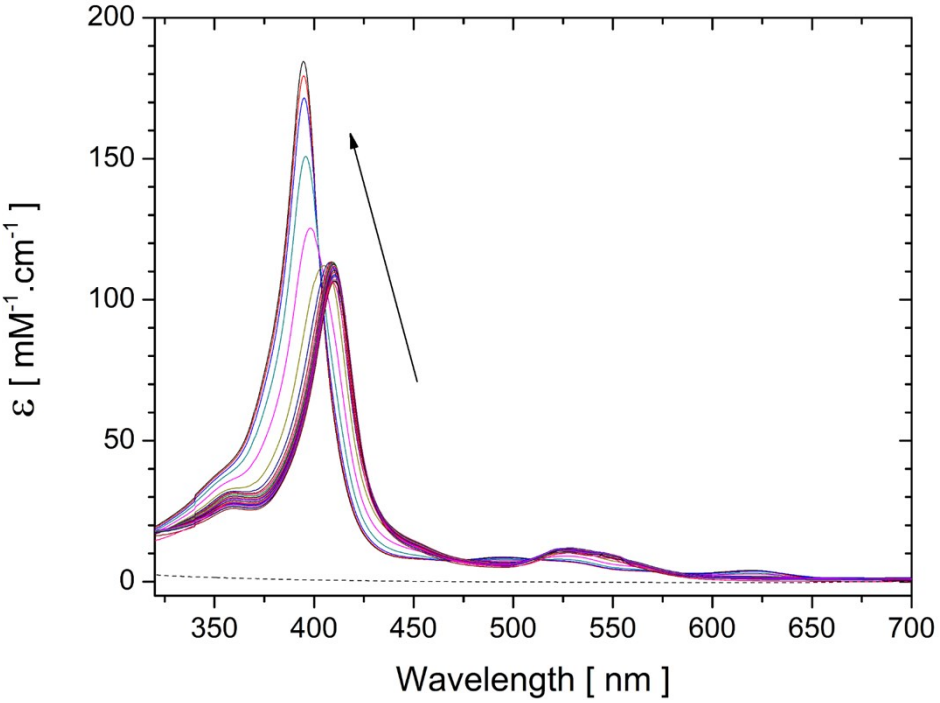

Figure S1. The pH dependence of the absorbance spectrum of cyt *c* (thin lines), from pH 7.4 to pH ~1.8. The arrow indicates changes in the absorbance spectrum of cyt *c* with pH decrease. The spectrum of apocyt *c* at pH 7.4 is shown by dashed line. The spectrum of apocyt *c* at pH 2.0 is identical with the one at pH 7.4 (data not shown).

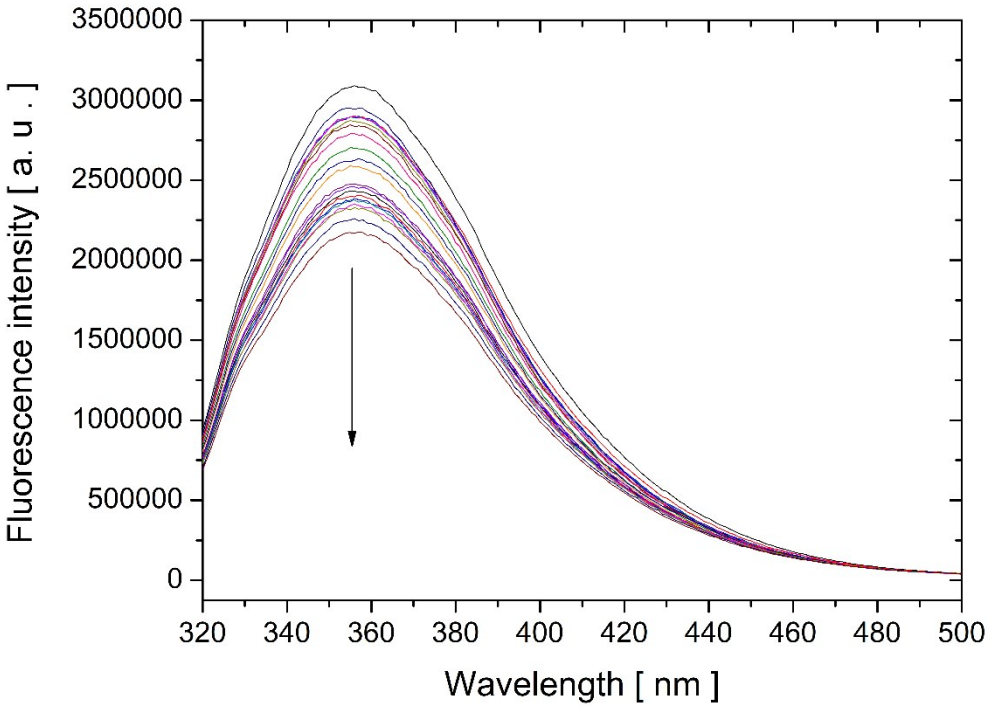

Figure S2. The pH dependence of the apocyt *c* fluorescence spectrum (thin lines), from pH 7.4 to pH ~1.8. The arrow indicates changes in the fluorescence spectrum of apocyt *c* with pH decrease.

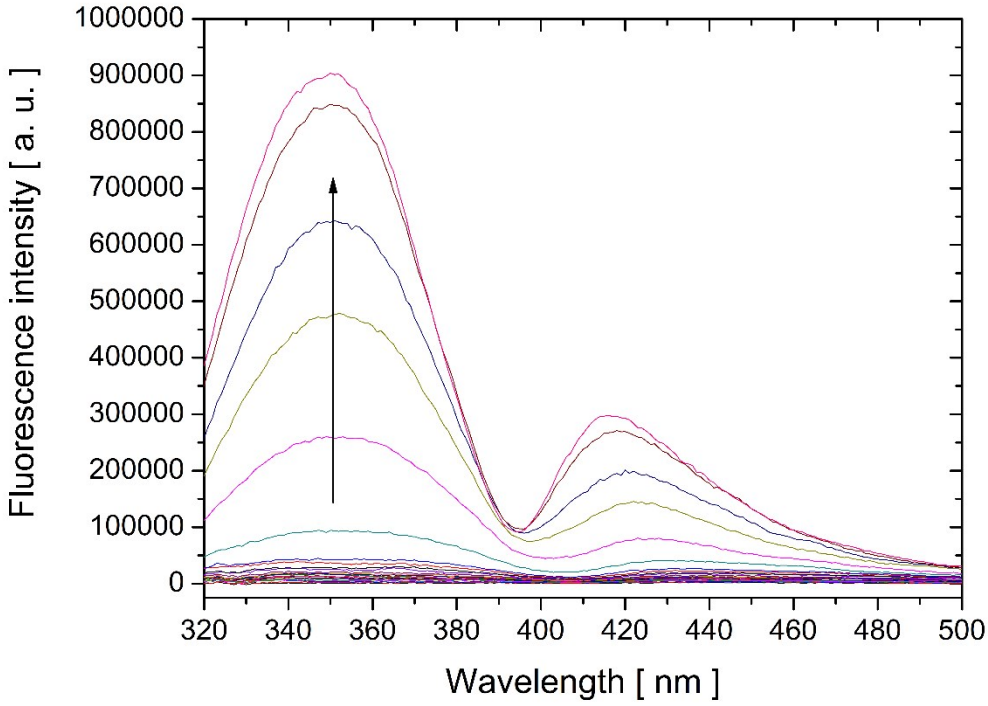

Figure S3. The pH dependence of the cyt *c* fluorescence spectrum (thin lines), from pH 7.4 to pH ~1.8. The arrow indicates changes in the fluorescence spectrum of cyt *c* with pH decrease.

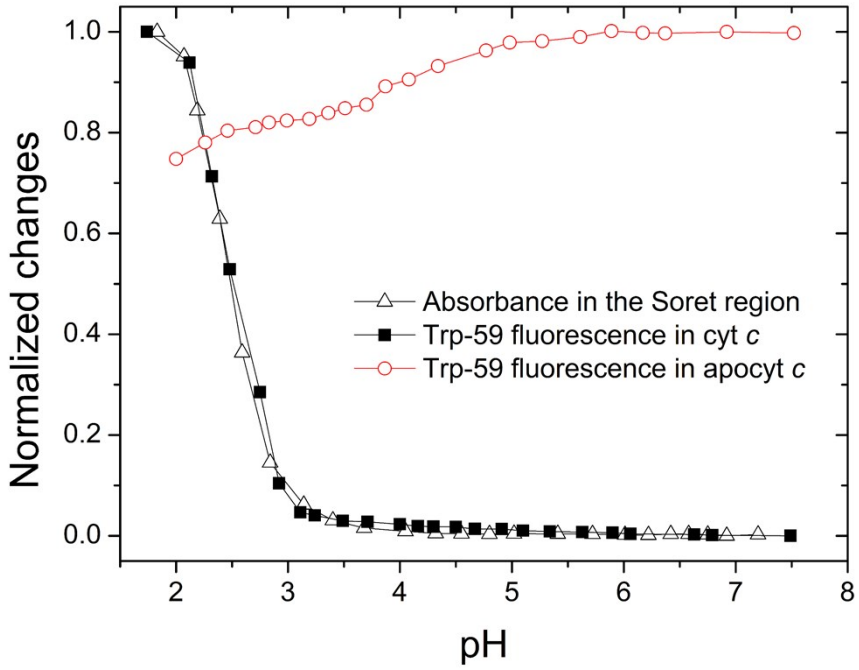

Figure S4. Absorbance in the Soret region (△) and tryptophan fluorescence of cyt *c* at 350 nm (■) and apocyt *c* at 355 nm (○). The data of absorbance and fluorescence changes of cyt *c* were normalized on difference between signals at pH~2 and at pH 7.4. The data of fluorescence of apocyt c were normalized on the maximal value.

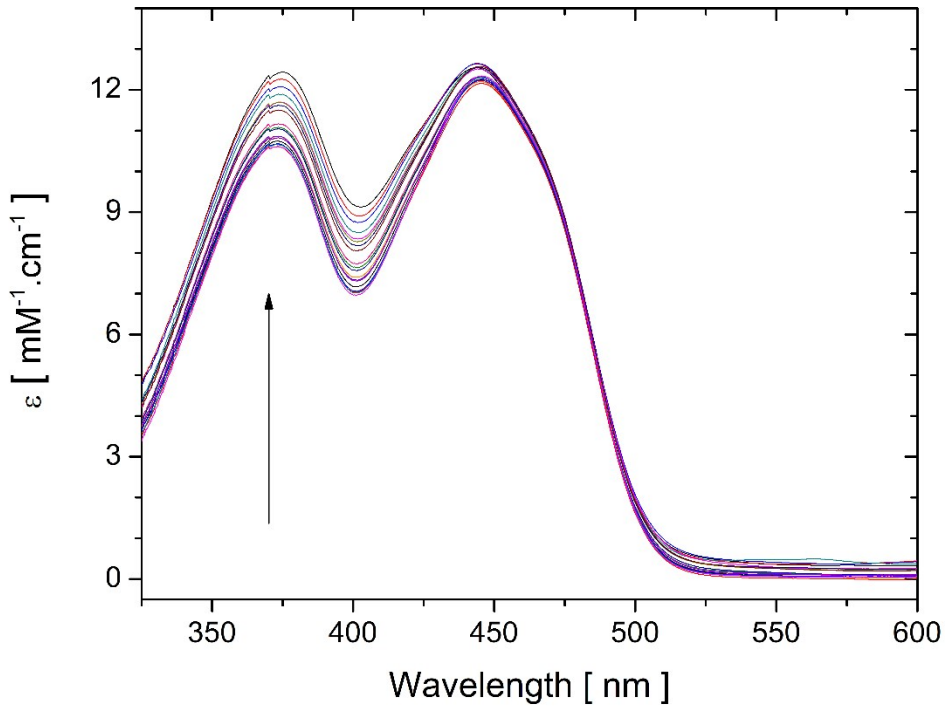

Figure S5. The pH dependence of the absorbance spectrum of FMN, from pH 7.4 to pH ~1.8. The arrow indicates changes in the absorbance spectrum of FMN with pH decrease.

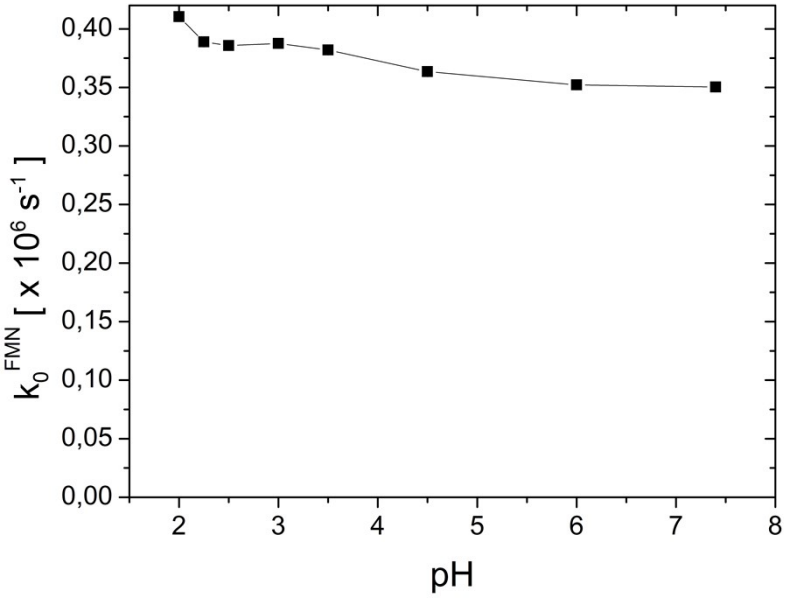

Figure S6. The pH dependence of the first order rate constants for FMN triplet state quenching in the pure solvent. The typical error of the presented points is around 0.003×10^6 s^{-1}.

Table S1. Lifetimes of FMN triplet state (τ_T) and singlet oxygen (τ_Δ) obtained in the presence of 100 mM cyt *c* and apocyt *c* and in the absence of proteins at pH 7.4 and pH 2. The lifetime values were evaluated from the transient absorption and the singlet oxygen phosphorescence experiments.

	pH 7.4			**pH 2**		
	no protein	**100 µM cyt *c***	**100 µM apocyt *c***	**no protein**	**100 µM cyt *c***	**100 µM apocyt *c***
τ_T (µs)	2.88 ±0.01	2.33 ±0.01	1.31 ±0.01	2.55 ±0.01	1.39 ±0.01	1.39 ±0.01
τ_Δ (µs)	3.49 ±0.03	3.24 ±0.03	3.36 ±0.03	3.43 ±0.03	1.61 ±0.03	3.32 ±0.03