

An Investigation into the Absorption Spectra of Protoporphyrin IX and Verteporfin

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We are currently studying the phototherapeutic drugs Protoporphyrin IX (PPIX) and Verteporfin (VP), the latter of which is used in the treatment of age-related macular degeneration (AMD). In photodynamic therapy (PDT), a photosensitizer is excited and its subsequent relaxation may produce singlet oxygen, which can interact with various biomolecules leading to apoptosis of cells¹.

In this project, we determine the extinction coefficients and the transition dipole moments of PPIX and VP in various solvents and interpret the results with respect to the excited electronic state. The extinction coefficients are established using two different parameters (the absorbance values at the peak maxima and the integrated peak area) and we will compare and contrast the subsequent results.