New Phthalocyanines as Efficient Photosensitizers for Photodynamic Therapy

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Photodynamic therapy (PDT) has been an experimental clinical modality for the treatment of a range of cancer and wet age-related macular degeneration for the past two decades.[1] It involves three individually non-toxic components, namely photosensitizers, light, and oxygen, that are combined to cause cellular and tissue damage. The efficacy of PDT depends on several interdependent factors, among which photosensitizers certainly play a decisive role. Although Photofrin® remains as the most widely used photosensitizer, it suffers from a high degree of chemical heterogeneity, poor absorption of tissue-penetrating red light, and long-lasting cutaneous photosensitivity.[2] Significant efforts have therefore been put in the development of new photosensitizers which have better photophysical properties, greater tumor specificity, and less skin photosensitivity.[3] Owing to their many desirable characteristics, phthalocyanines have emerged to be a promising class of second-generation photosensitizers.[3,4] In this presentation, we will report several new series of phthalocyanine-based photosensitizers, including their preparation, spectroscopic characterization, photophysical properties, and *in vitro* photodynamic activities toward a range of cancer cell lines.

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