

Special Issue

Photosensitizers for Photodynamic Therapy: From Molecular Design to Application

Message from the Guest Editors

Photodynamic therapy (PDT) is a light-activated treatment modality that relies on the generation of reactive oxygen species by photosensitizers (PSs) to induce selective damage to targeted cells and tissues. Advances in molecular design, photophysical tuning, and formulation strategies have enabled the creation of PSs. These innovations span a broad range of chemical classes, including porphyrins, phthalocyanines, BODIPY derivatives, transition metal complexes, and organic dyes. Integration into nanocarriers, conjugation with targeting moieties, and the development of activatable or multifunctional systems have further expanded the scope of PDT in both preclinical and clinical settings. This Special Issue welcomes original research articles and comprehensive reviews addressing the design, synthesis, characterization, and application of PSs for PDT approach. Topics of interest include new PS scaffolds, delivery strategies, multimodal platforms, sustainable synthetic methodologies, and applications in oncology, antimicrobial therapy, imaging, and more. Contributions that highlight the translation of PSs from molecular innovation to real-world therapeutic use are encouraged.

Guest Editors

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