Three water-soluble bacteriochlorins were synthesized and investigated using spectroscopic (UV-vis, MCD, and NMR) and theoretical (TDDFT) techniques. All compounds experimentally exhibited strong absorptions in the NIR region (~750 nm) as well as a “reversed” MCD sign sequence in the Vis-NIR region. This finding correlates well with the TDDFT-predicted $\Delta \text{HOMO} < \Delta \text{LUMO}$ relationship for all compounds which possess similar electronic structures to naturally occurring bacteriochlorins, such as tolyporphrin A.

Heterogenization of manganese porphyrin via hydrogen bond in zeolite imidazolate framework-8 matrix, a host–guest interaction, as catalytic system for olefin epoxidation

A heterogenized meso-tetakis(2,3 dihydroxyphenyl)porphyrinatomanagenese(III) acetate at zeolite imidazolate framework-8 (T(2,3-OHP)PorMn@ZIF-8) is investigated in the catalytic olefin epoxidation reactions at room temperature. Heterogenization is done through a weak hydrogen bond proposed between T (2, 3-OHP)PorMn bearing O–H groups and C–H of the 2-methylimidazolate linkers in ZIF-8 structure. The cooperating interplay of such non-classical hydrogen bonding has let our catalytic system possess the advantage of heterogeneous catalyst adjoined to the analog homogeneous ones. This is supported by good reusability and also the enhanced catalytic efficiency of the catalyst presented. Operating under mild conditions could be considered as another attractive feature of the present catalytic system.
Picket fence porphyrin challenges. Unexpected atropisomerism
Haimang Wang, Jianfeng Li* and W. Robert Scheidt*

The synthesis and X-ray characterization of two new bisimidazole complexes of iron(II) picket fence porphyrin reveals an unexpected atropisomerism that has been induced by coordination of hindered imidazoles.

Fluorinated derivatives of meso-(aminophenyl)-porphyrins: Synthesis and some transformation
Valentina A. Ol'shevskaya*, Viktoriya M. Alpatova, Nadejda V. Konovalova, Elena G. Kononova, Evgeny G. Rys and Natalya A. Bragina

A series of novel porphyrin derivatives bearing pentafluorophenyl- and tetrafluorophenyl groups have been prepared in a good yield starting from meso-aminoporphyrrins and 2,3,4,5,6-pentafluorobenzaldehyde. The substitution reactions in fluorinated porphyrins with carborane S-nucleophiles resulted in fluorinated carboranyl porphyrins. All the new compounds have been characterized by IR and UV-vis spectroscopies, $^1$H, $^{11}$B and $^{19}$F-NMR and MALDI-MS.

Synthesis of amphiphilic meso-tetrasubstituted porphyrin-L-amino acid and -heterocyclic conjugates based on m-THPP
Ayman M. K. Sweed, Mathias O. Senge*, Sanaa M. Sh. Atta, Dalia S. Farrag, Abdel-Rahman H, Abdel-Rahman and Yasser M. Shaker*

We synthesized two series of unsymmetrically meso-substituted amphiphilic porphyrins linked with L-amino acids and bioactive heterocycles based on m-THPP (Temoporfin analog). The L-amino acids were conjugated with porphyrin in the presence of uronium salt coupling reagent. While the heterocyclic bioactive elements were conjugated with the porphyrin in the presence of carbodiimide coupling reagent. The porphyrin derivatives were characterized by UV-vis, HRMS, $^1$H NMR, and $^{13}$C NMR spectroscopy.

Novel carboxylic acid terminated silicon(IV) and zinc(II) phthalocyanine photosensitizers: Synthesis, photophysical and photochemical studies
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In this work, we have demonstrated the synthesis of new axially silicon and peripherally zinc phthalocyanines substituted with carboxylic acid derivatives. Photochemical and photophysical properties of phthalocyanine complexes (3, 5 and 7) bearing carboxylic acid groups were investigated in DMSO and DMF. Pcs produce singlet oxygen with a good quantum yield via a Type II mechanism with a moderate stability in the presence of $O_2$. 

Development of viscometric methods for studying the interaction of various porphyrins with DNA. Part IV: Meso-tetra-(4N-allylpyridyl) porphyrin and its Cu-, Co- and Zn-containing derivatives
Vigen G. Barkhudaryan* and Gayane V. Ananyan

The influence of porphyrin molecules’ configuration on their ability to affect DNA structure was investigated for cationic meso-tetra-(4N-allylpyridyl) porphyrin and its Cu-, Co- and Zn-containing derivatives.

Synthesis of PSMA-targeted 131- and 152-substituted chlorin e6 derivatives and their biological properties
Nikita V. Suvorov*, Alexey E. Machulkin, Anna V. Ivanova, Alexander M. Popkov, Elizaveta A. Bondareva, Ekaterina A. Plotnikova, Raisa I. Yakubovskaya, Alexander G. Majouga, Andrey F. Mironov and Mikhail A. Grin

The present paper is concerned with synthesis of PSMA-targeted 131- and 152-substituted chlorin e6 conjugates and their biological properties. We have demonstrated that the introduction of PSMA ligands into various positions of the macrocycle significantly influences the effectiveness of the photosensitizer. In the course of in vitro tests, we found that the 131-substituted derivative had higher efficiency.