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-Molecular Engineering of P(V)porphyrin-

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-Molecular Engineering of P(V)porphyrin-

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Molecular Engineering, tailor-made systematization of functional molecule is an important research subject for functional molecular materials. In principle, some of the multi-porphyrin systems are considered to be converted into the elements of molecular photo-electronic devices. Especially, their systematization with appropriate electron mediators into large polymeric systems is one of the feasible approaches to the molecular systems based on the electron transfer. Phosphorus (V)porphyrin has an unique structure, 3 centers 4 electrons, covalent bond in axial direction, and many interesting derivatives were synthesized.

They are; a donor-sensitizer-acceptor triad molecule (A) for an efficient photo-induced electron transfer, a cyclodextrin substituted P(V)porphyrin (B) for efficient photo-chemical transducing catalysis, 1-D and 2-D porphyrin arrays connected with conjugating molecular wire (C,D) for molecular electronics, an 1-D porphyrin arrays connected with insulating molecular wire (E) for molecular photonics, and an oligonucleotide shackled with porphyrin (F) for artificial photo active restrictive enzyme. They all showed their specific attractive functions as the authors had expected.

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