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As Nature itself has developed porphyrin chromophores for solar light to energy conversion, it seems reasonable to pursue artificial systems based on the same types of molecules. In recent years, there have been substantial efforts to employ porphyrioid materials in different types of organic solar cells and photodetectors, with reasonable success. On the other hand, porphyrins and their analogues are also well-established photosensitizers for photodynamic therapy. In the present contribution, different efforts from our group in these directions will be presented. A number of advanced push-pull type (low optical gap) porphyrioid materials have been synthesized and analyzed in bulk heterojunction organic photovoltaics and (near-infrared) organic photodetectors. The same materials and smaller BODIPY derivatives are also explored for theranostic applications

