CINCHONA AND BODIPY: AN APPEALING CATALYTIC STRATEGY FOR CHIMIOSELECTIVE PHOTOOXYGENATION

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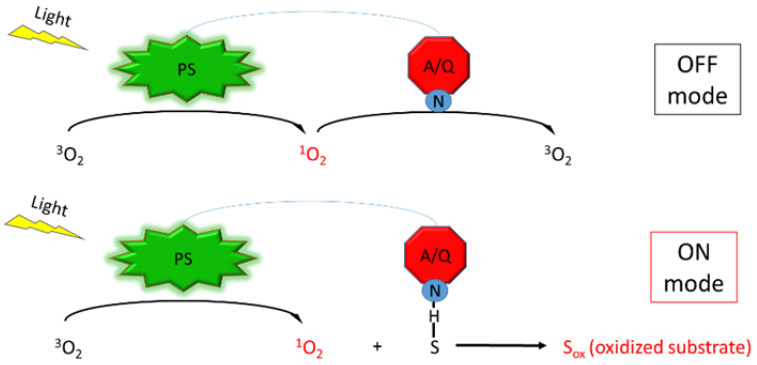
Selective oxidation of complex molecules is a challenge that many researchers are focused on, especially through late-stage functionalization which is an attractive strategy to give new bioactive compounds.[1] Catalytic photooxygenation is an efficient way to insert oxygen atoms in molecular architectures. In these reactions, ground state triplet oxygen ($^3O_2$) is excited thanks to a photosensitizer (PS) and light to give electrophilic singlet oxygen ($^1O_2$).[2] However, the reactivity of singlet oxygen is hard to control. Within this context, the design of new photosensitizers is highly desired to enable a selective and controlled singlet oxygen production. Several methods have been described in the literature to control $^1O_2$-production *via* the activation/quenching of the PS such as contact quenching, Photon-induced Electron Transfer (PET) quenching, Föster Resonance Energy Transfer (FRET) quenching.[3]



Scheme 1: Our strategy

Our project focused on a novel strategy for the controlled $^1O_2$-production based on the regulation of the singlet oxygen concentration. To this aim, the photosensitizer contains a nitrogen with a dual role: $^1O_2$-quencher (Q) in absence of substrate (S) and a Brønsted base role to activate (A) the substrate.

The synthesis of the photosensitizers and their applications in competitive singlet oxygen reactions will be presented in this communication.

[1] T. A. Bender, P. R. Payne, M. R. Gagné, *Nat. Chem.*, 2018, **10**, 85-90.

[2] *Singlet Oxygen: Applications in Biosciences and Nanosciences* (Eds.: S. Nonell, C. Flors), RSC, 2016.

[3] S. Callaghan, M. O. Senge, *Photochem. Photobiol. Sci.*, 2018, **17**, 1490-1514.