

## Regioselective Amination of Porphyrins *via* Ring-Opening of Electrogenerated Pyridinium Precursors

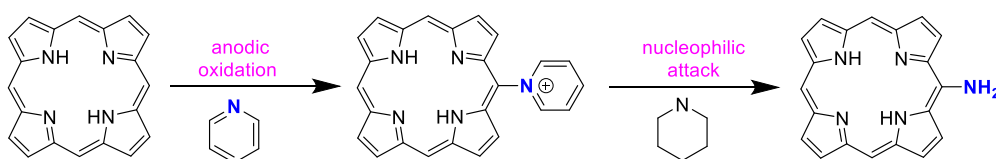
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For many decades, porphyrins have attracted considerable attention due to their implication in natural processes (photosynthesis, O<sub>2</sub> transport in blood...) and their recent applications in various research fields such as photovoltaic solar cells, non-linear optical materials, photodynamic therapy and molecular electronics. To finely tune and improve the performance of porphyrin-based materials, peripheral functionalization of the porphyrin ring with judicious (hetero) atoms or molecular fragment(s) is essential. In particular, the introduction of a nitrogen atom directly bonded to the *meso* or  $\beta$  position of the porphyrin induces intense alterations of the electronic, optical, and electrochemical properties.

Numerous methods exist to introduce an amine function on porphyrin (reduction of a nitro function [1], Buchwald-Hartwig coupling with palladium [2] or attack of an azide anion on a brominated porphyrin [3]). However, they remain not always selective and require pre-functionalization of the porphyrin core. This poster will present our recent electrochemical/chemical two-step one-pot amination of porphyrins based on 1) the regioselective anodic nucleophilic substitution of the porphyrin with pyridinium, 2) the chemical ring-opening of the pyridinium-porphyrin *via* nucleophilic attack of piperidine (Scheme 1) [4].



**Figure:** Electrochemical /Chemical two-step one-pot amination of porphyrins [4].

### REFERENCES (CALIBRI 10 PTS)

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