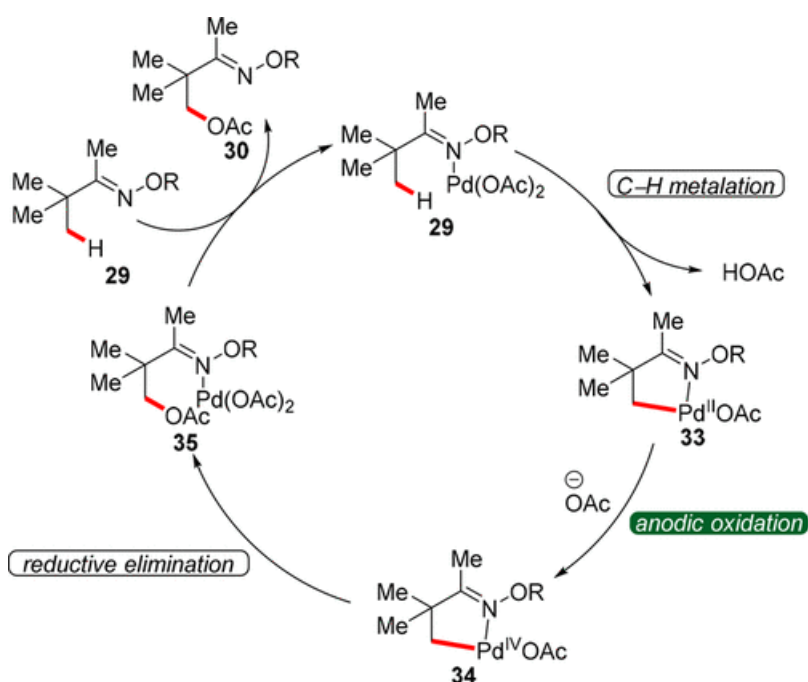
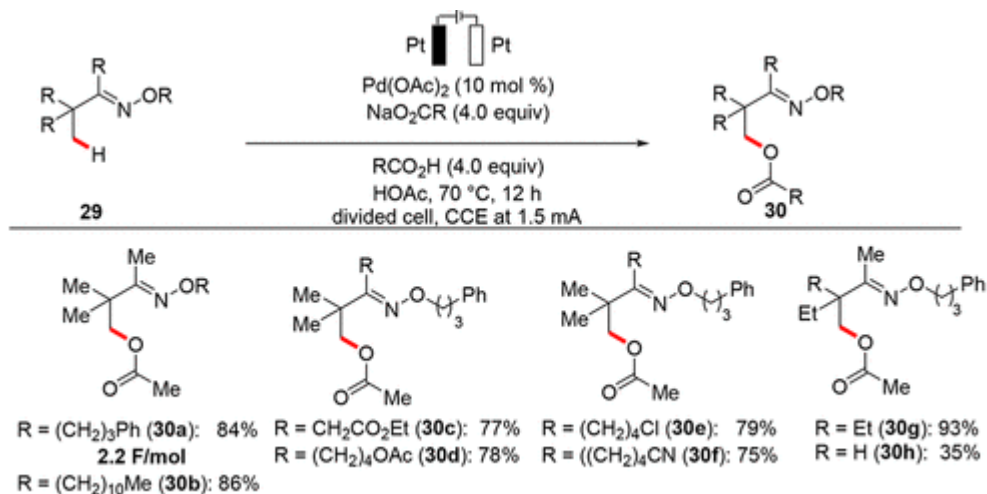


Group A – electrocatalysis

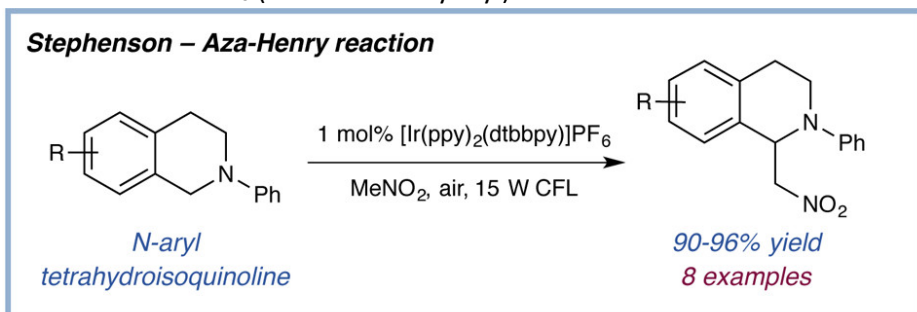
- 1) Explain the mechanism.
- 2) Explain, why we need electrochemistry for this reaction.
- 3) Why cannot we use the usual approach for palladium catalyzed coupling reactions?



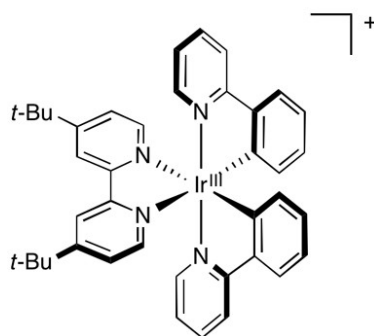
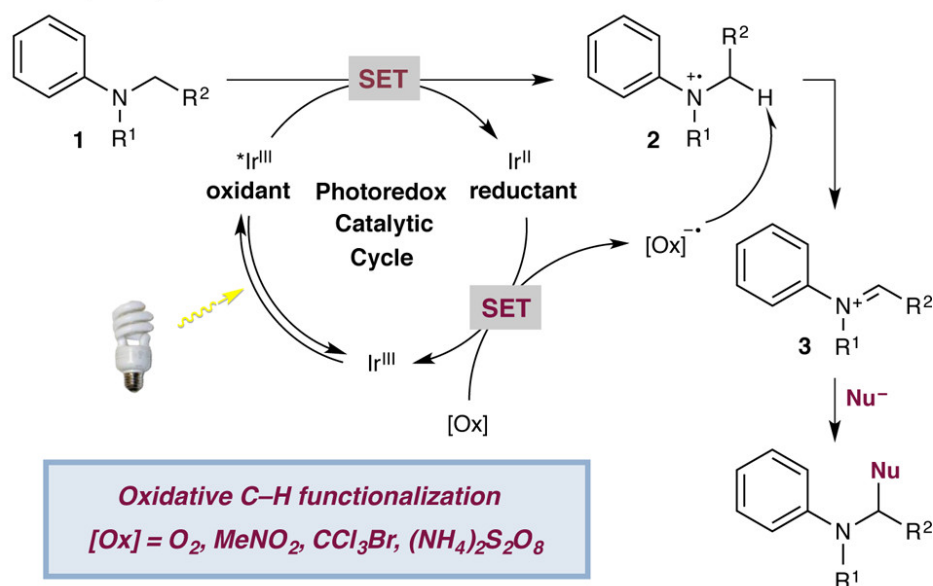
(Yang, Q.-L.; Li, Y.-Q.; Ma, C.; Fang, P.; Zhang, X.-J.; Mei, T.-S. Palladium-Catalyzed C(sp³)-H Oxygenation via Electrochemical Oxidation. *J. Am. Chem. Soc.* 2017, 139, 3293– 3298, DOI: 10.1021/jacs.7b01232)

Group B – photocatalysis

- 1) Explain the mechanism.
- 2) Explain, why we need photocatalysis for this reaction.
- 3) What would be the product, if the reaction is performed with diethylmalonate or with TMSCF_3 (TMS = trimethylsilyl)?



Catalytic Cycle



$[\text{Ir}(\text{ppy})_2(\text{dtbbpy})]^+$

(J. Org. Chem. 2016, 81, 16, 6898–6926. <https://doi.org/10.1021/acs.joc.6b01449>)