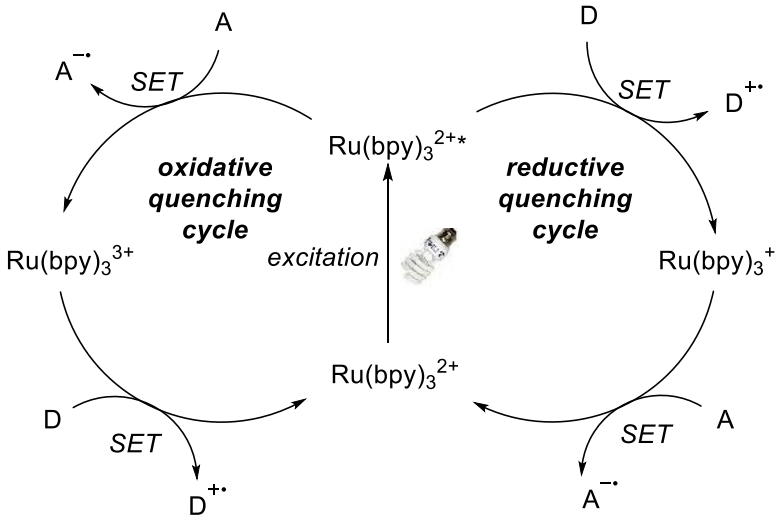
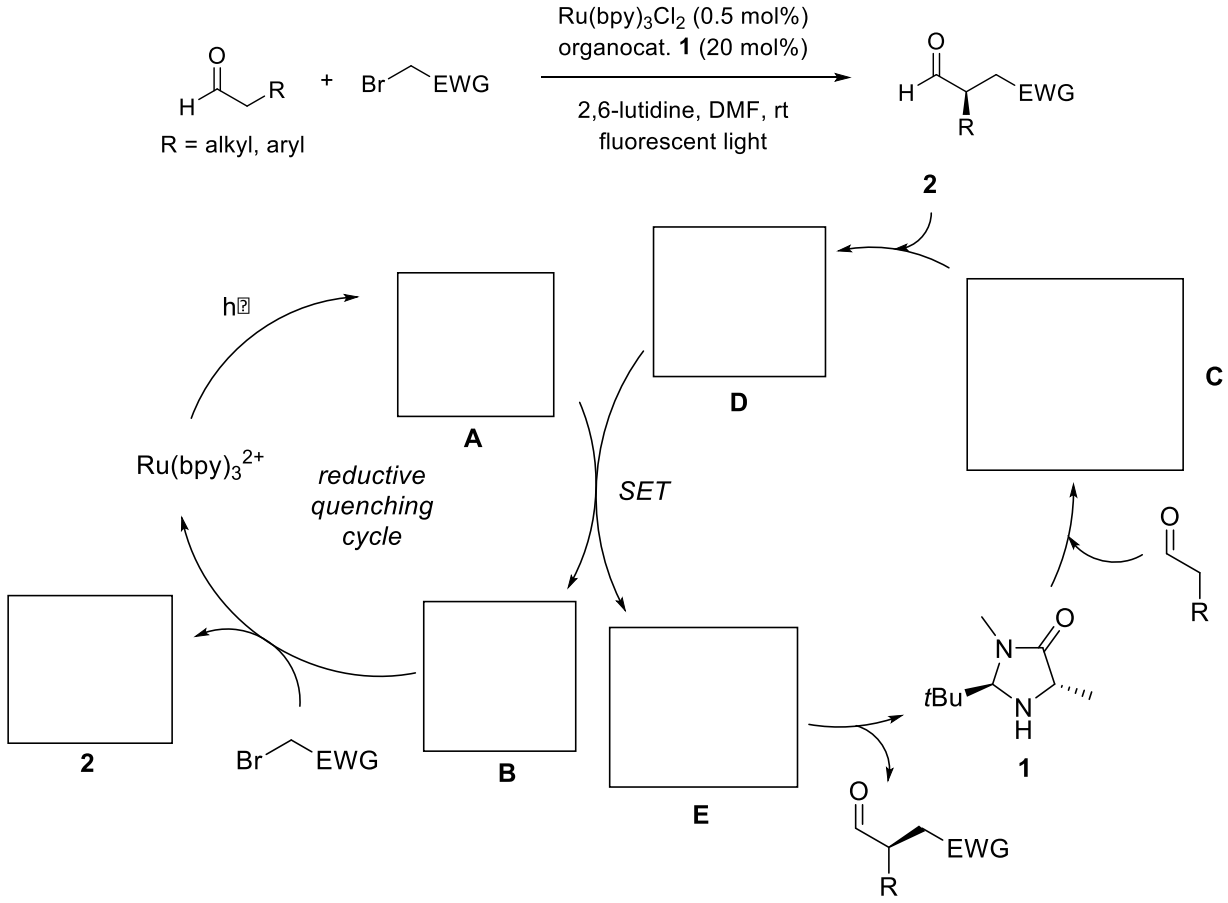
Photoredox Catalysis

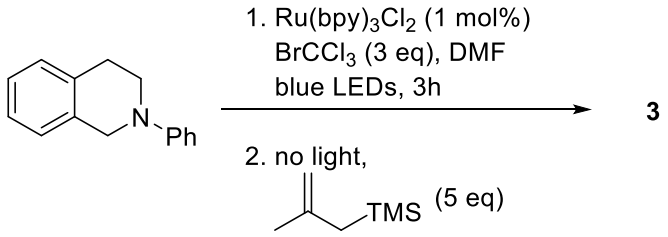
Principles of Photoredox Catalysis



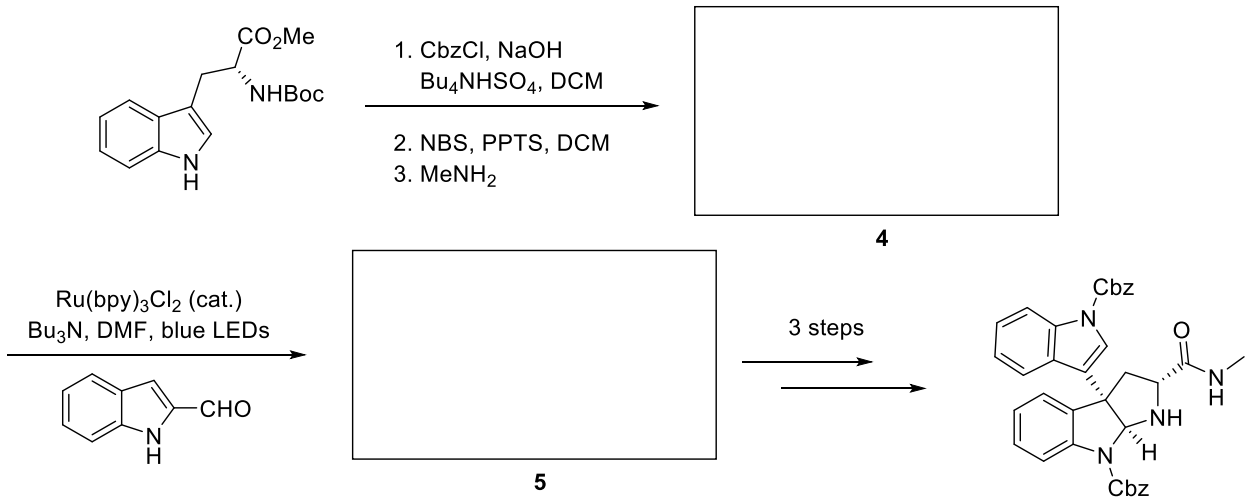
Q 1 Complete the catalytic cycle (what is the name of catalyst **1**?)



Q 2 Provide product **3** and mechanism
(Hint: reductive quenching cycle; $BrCCl_3$ acts as an oxidant *via* reduction of the Br–C bond)

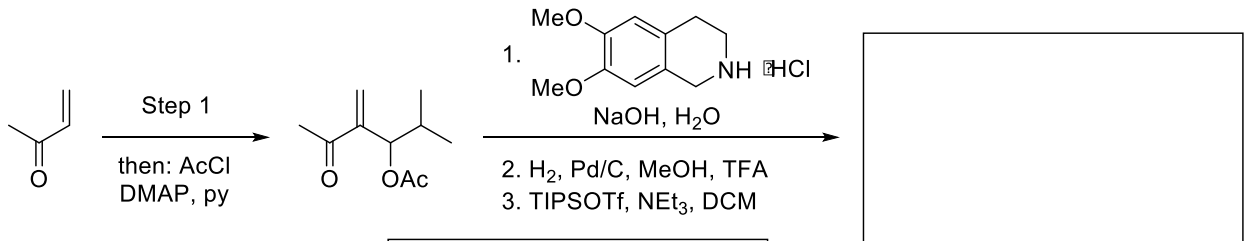


Q 3 Synthesis of (+)-Gliocladin C
Provide products **4** and **5**



Q 4 Synthesis of (+)-Tetrabenazine

a) Give reagents and conditions for Step 1 (what is the name of this reaction?)
b) Provide products **6** and **7**
c) Provide a mechanism for the formation of **7** (Hint: reductive quenching cycle, first step: formation of R_3N radical cation)



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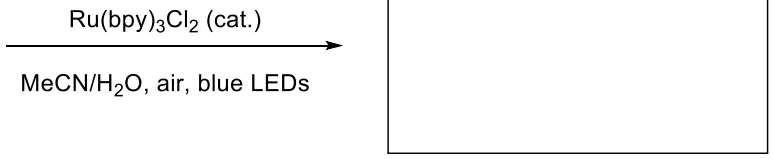

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