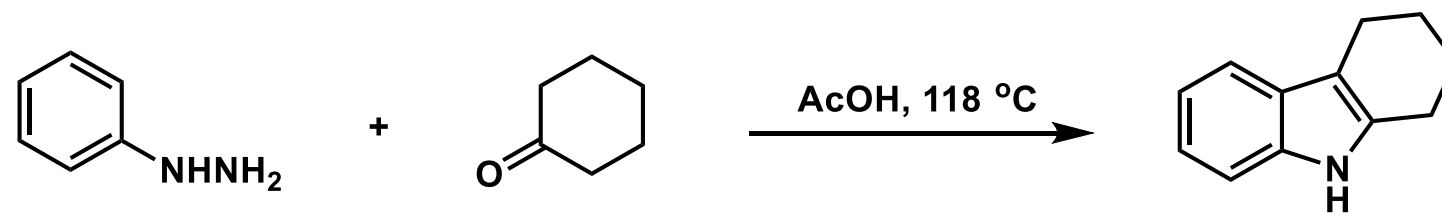
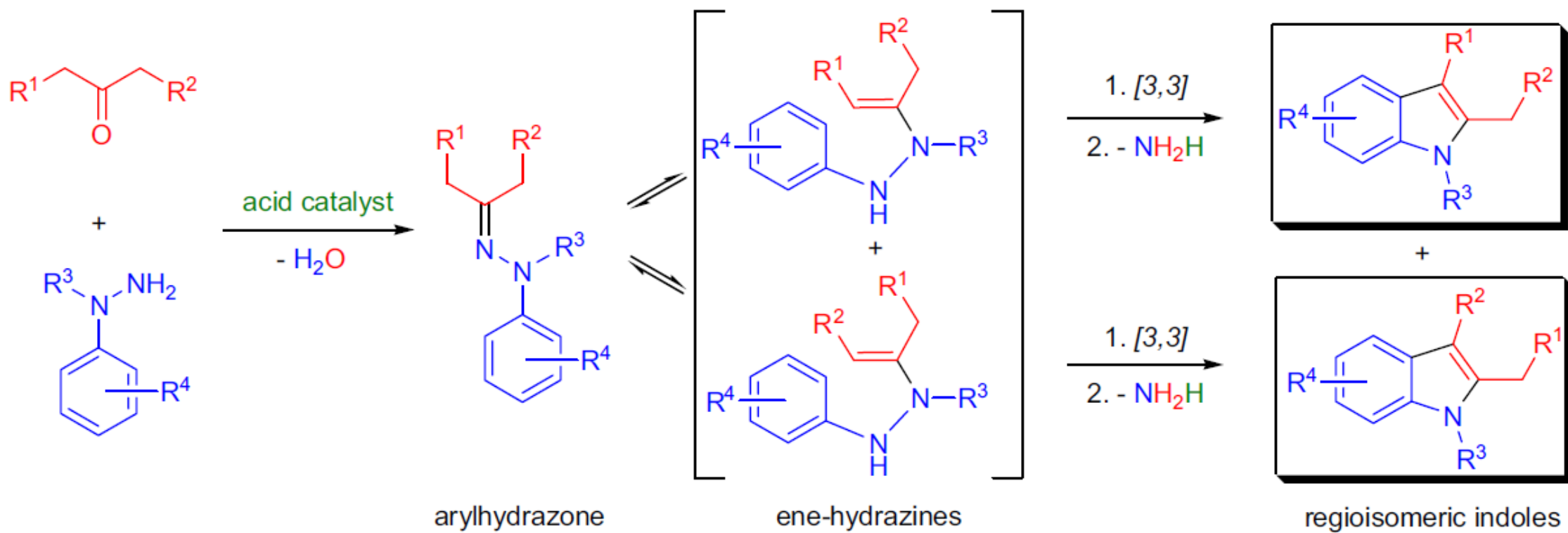


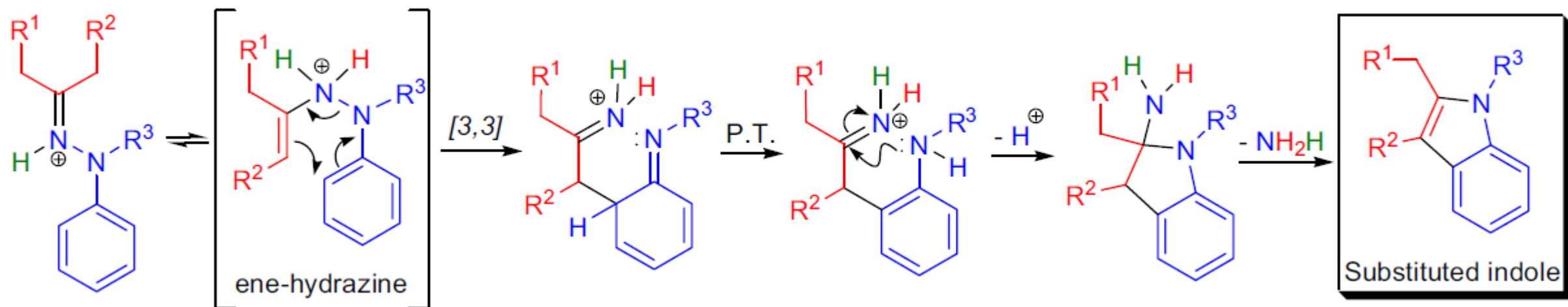
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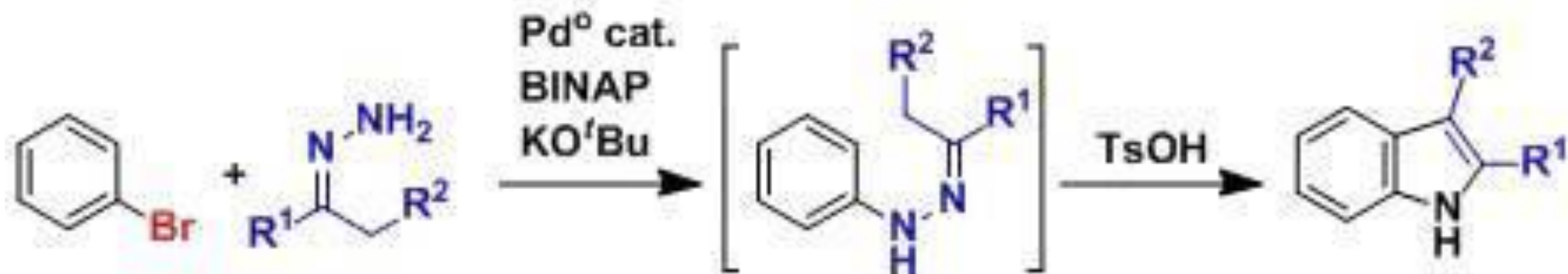
Fischer indole synthesis

The preparation of indoles by heating arylhydrazones of ketones or aldehydes in the presence of a protic acid or a Lewis acid catalyst is known as the *Fischer indole synthesis*.

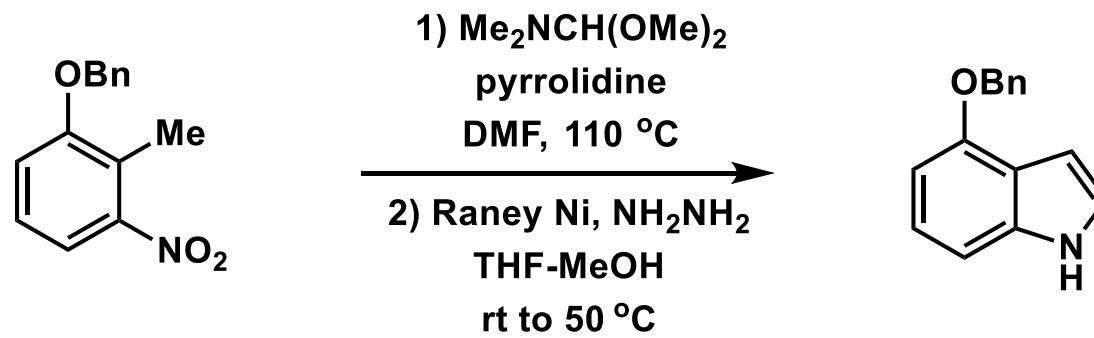




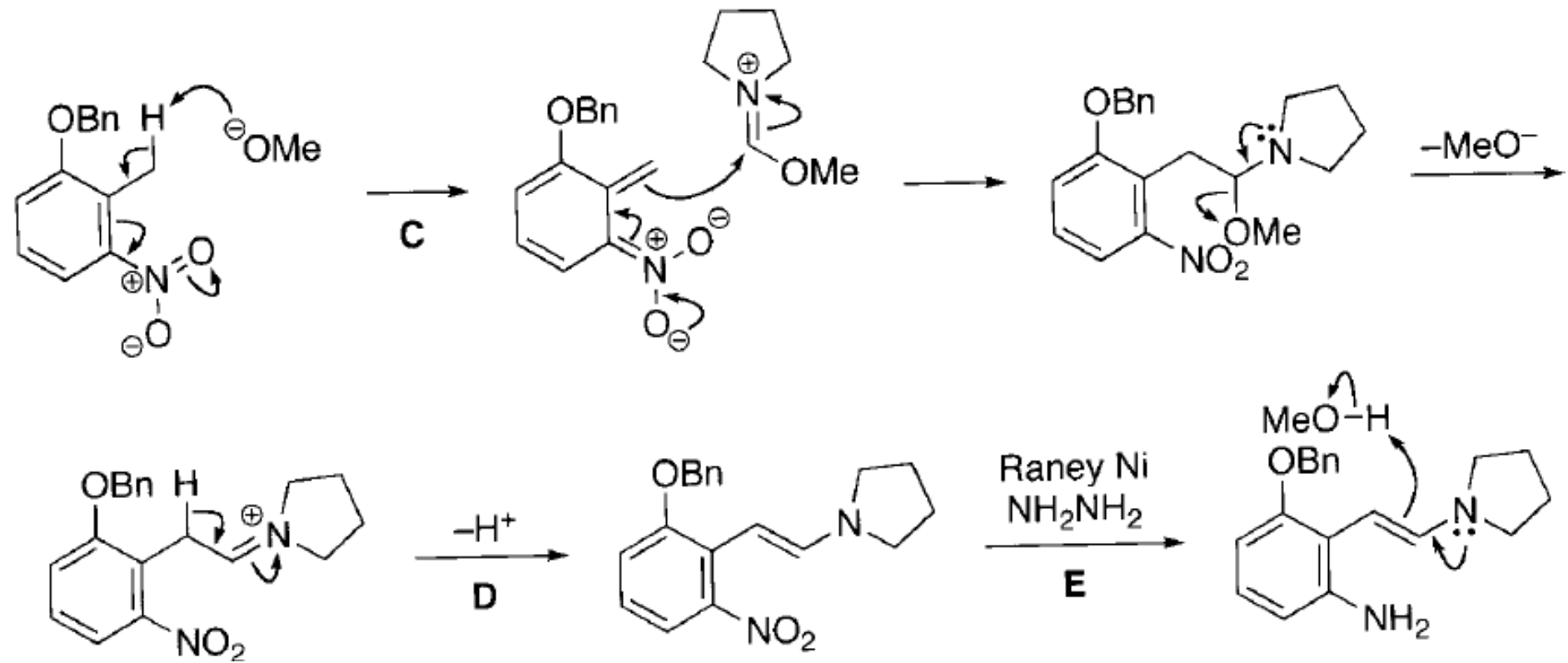
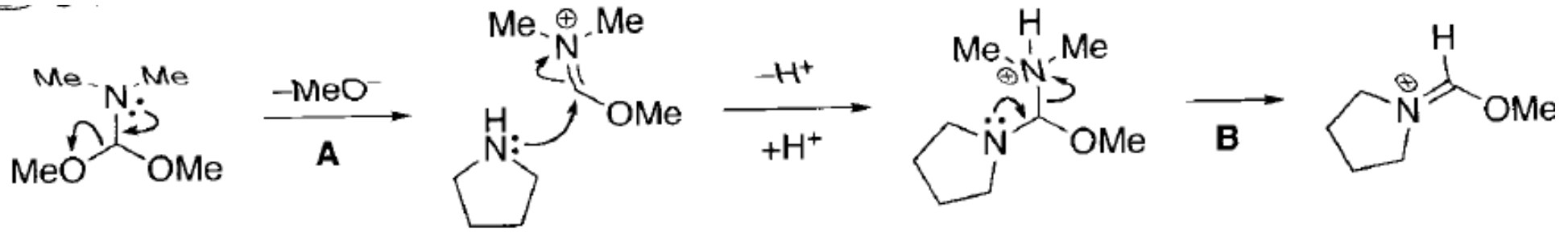
Buchwald改良:

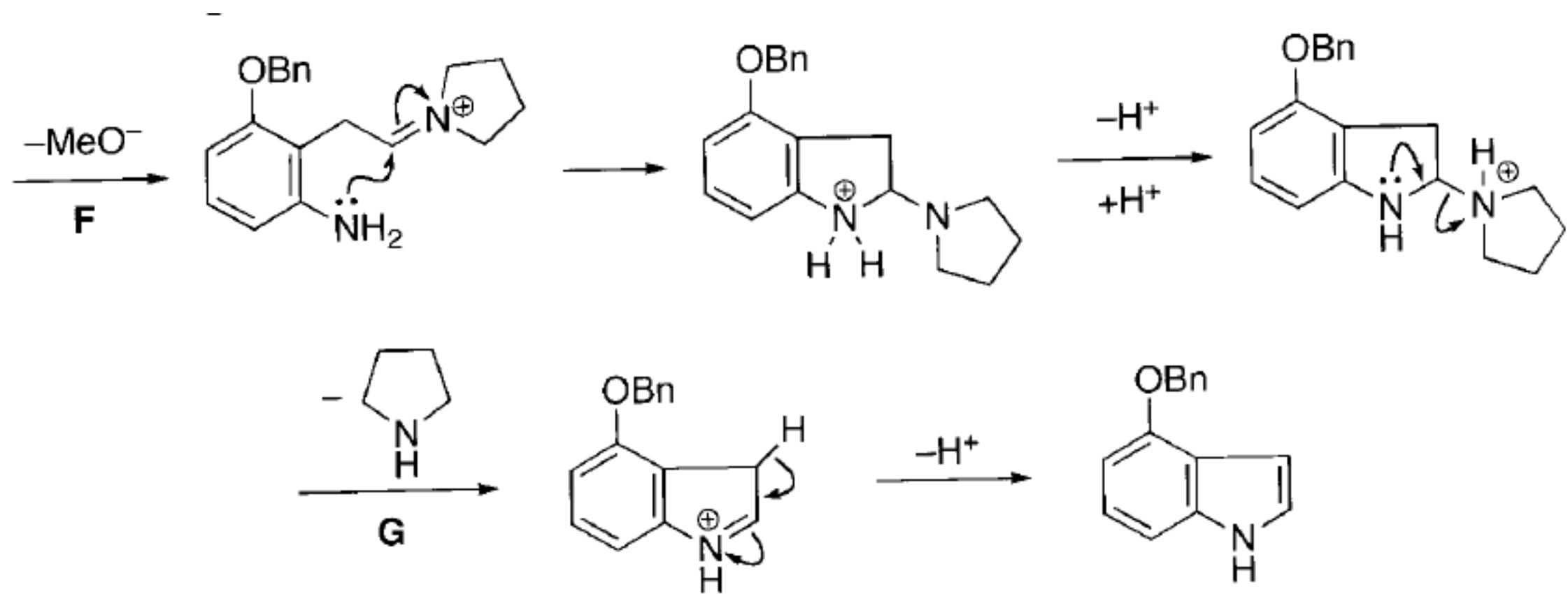


2.



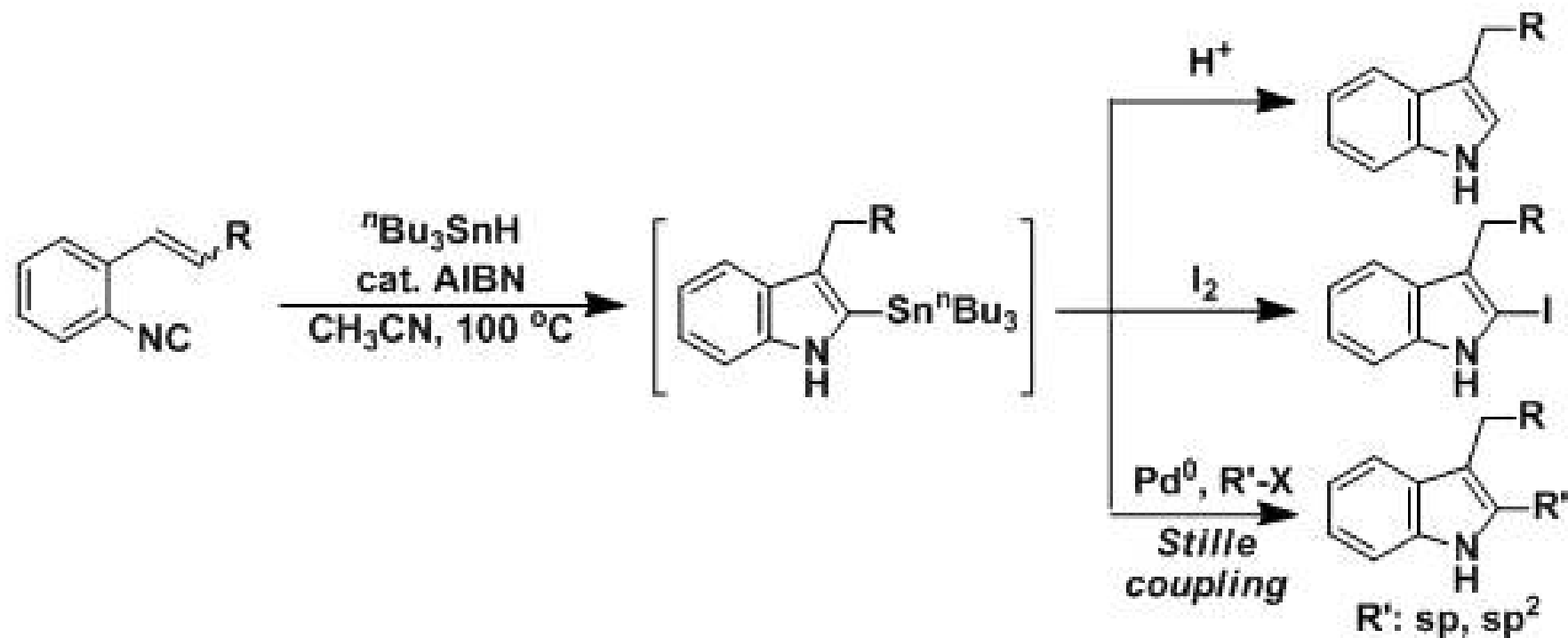
Leimgruber-Batcho Indole Synthesis



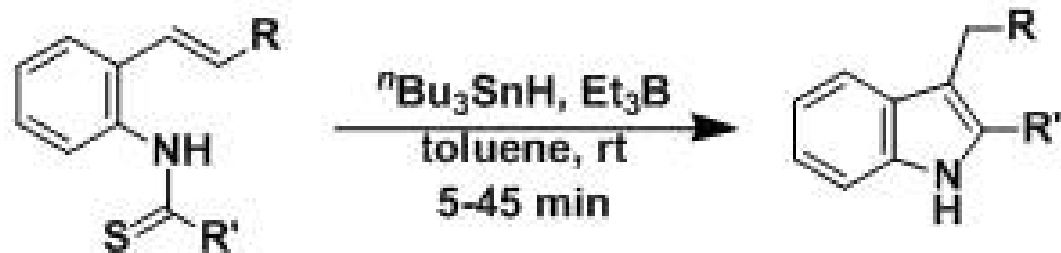


Fukuyama Indole Synthesis

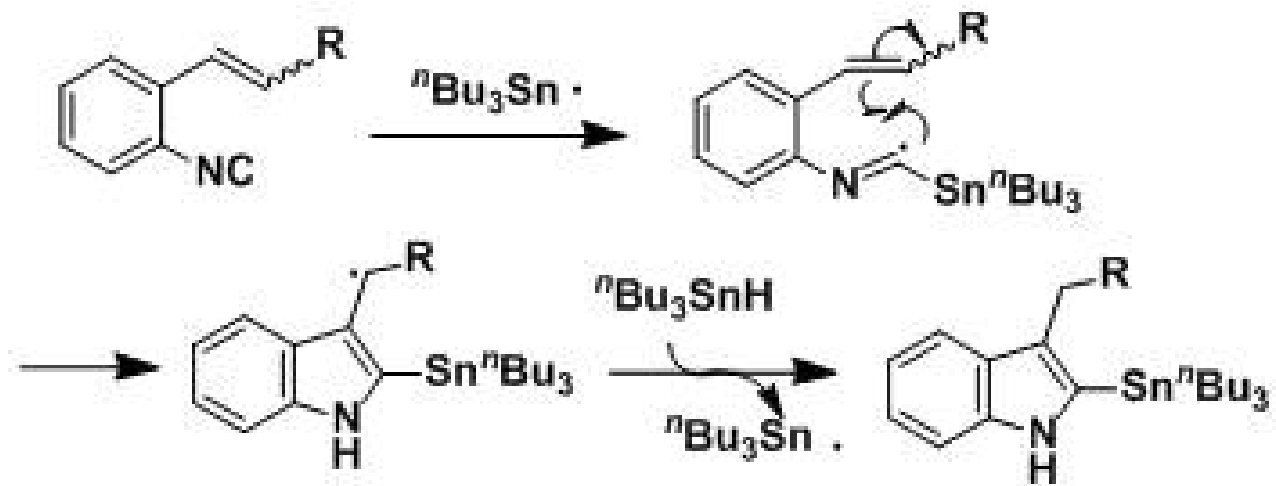
第一代：异腓法



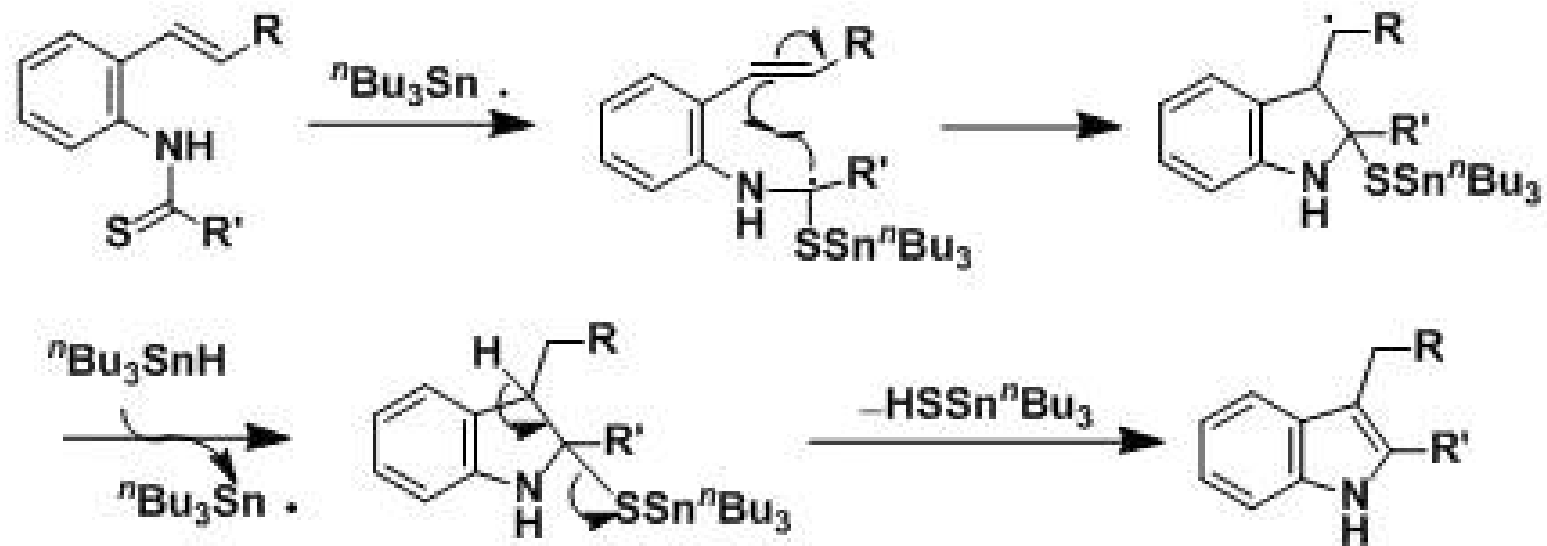
第二代：异硫氰酸酯法

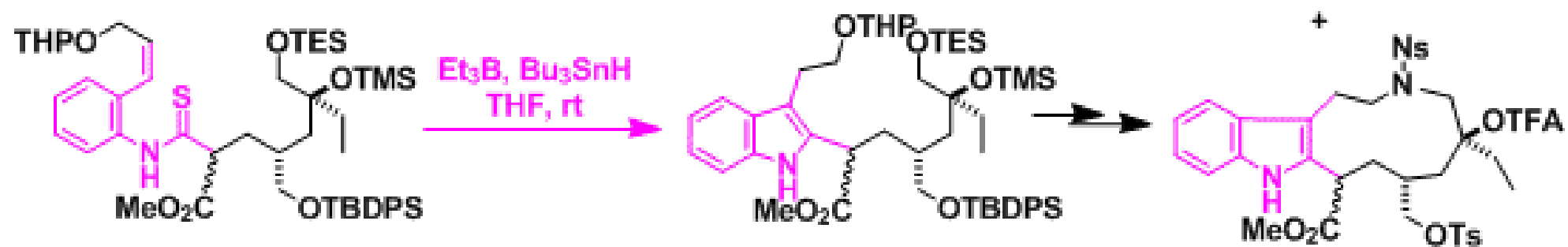
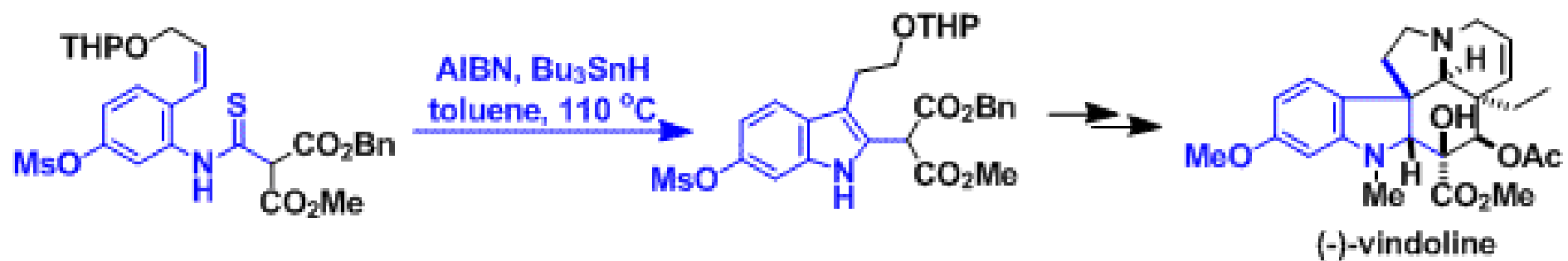


第一代：异腈法

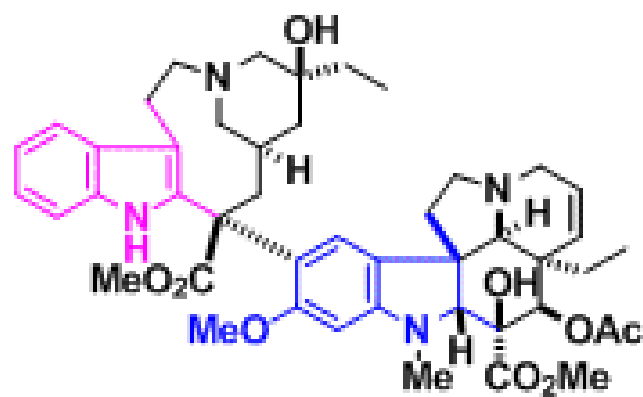


第二代：异硫氰酸酯法

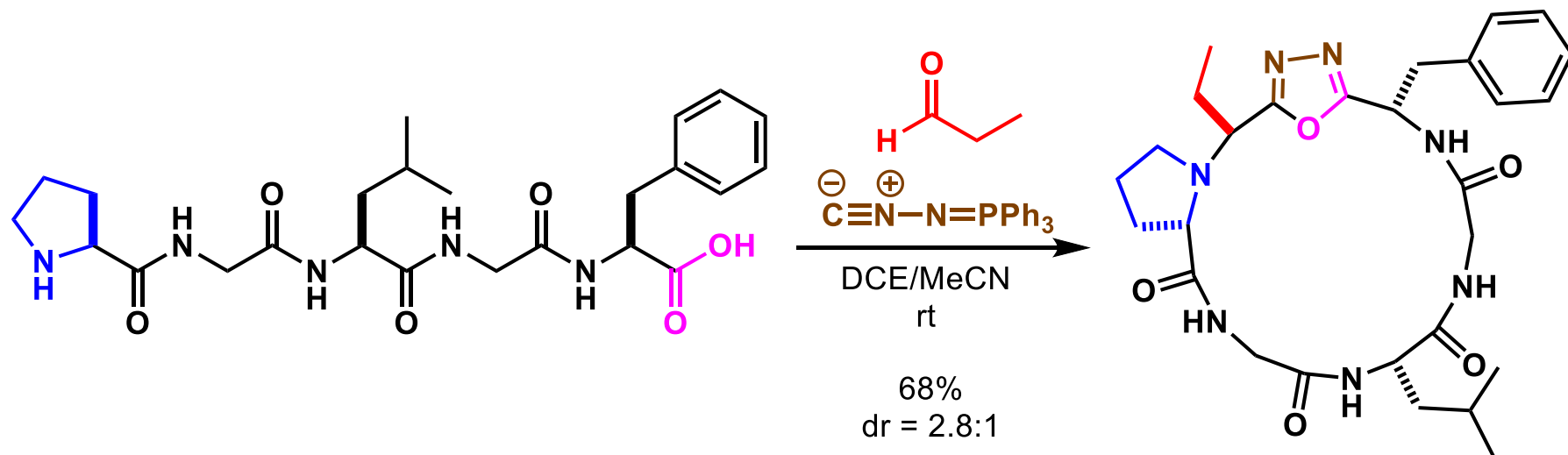




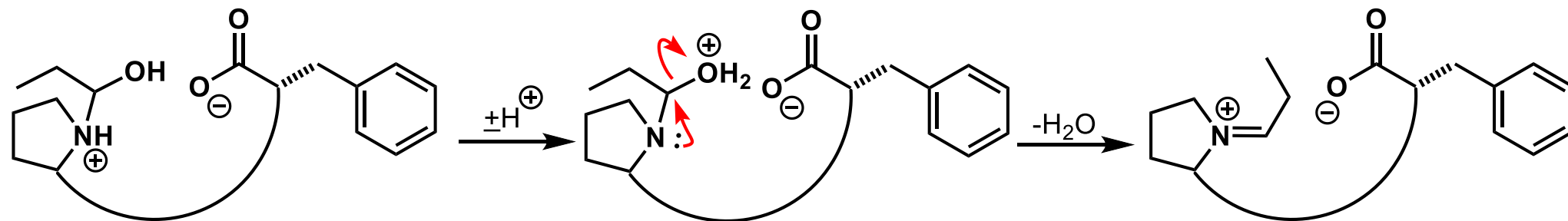
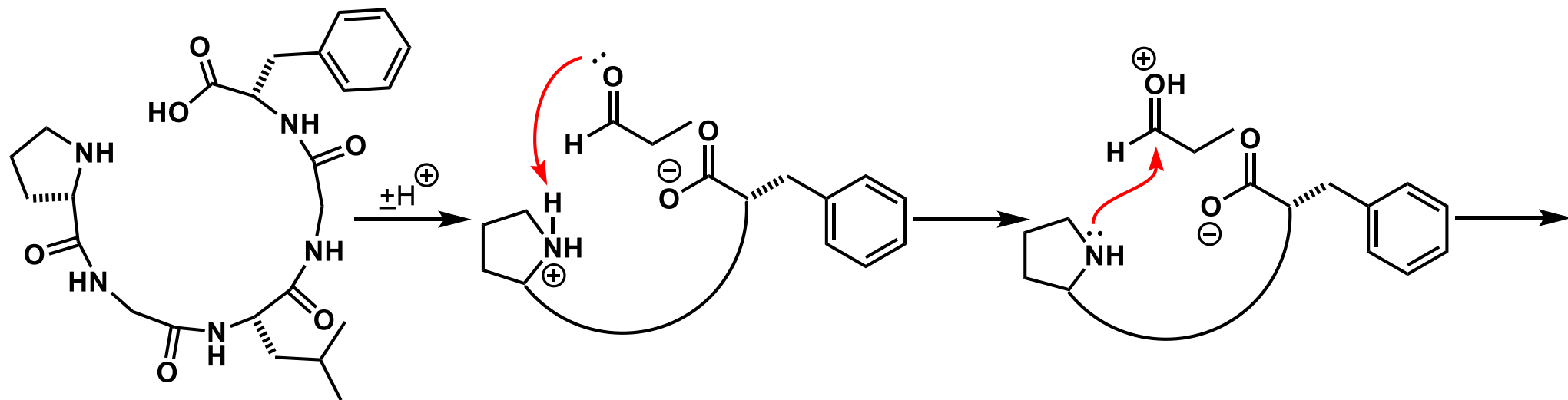
(+)-vinblastine

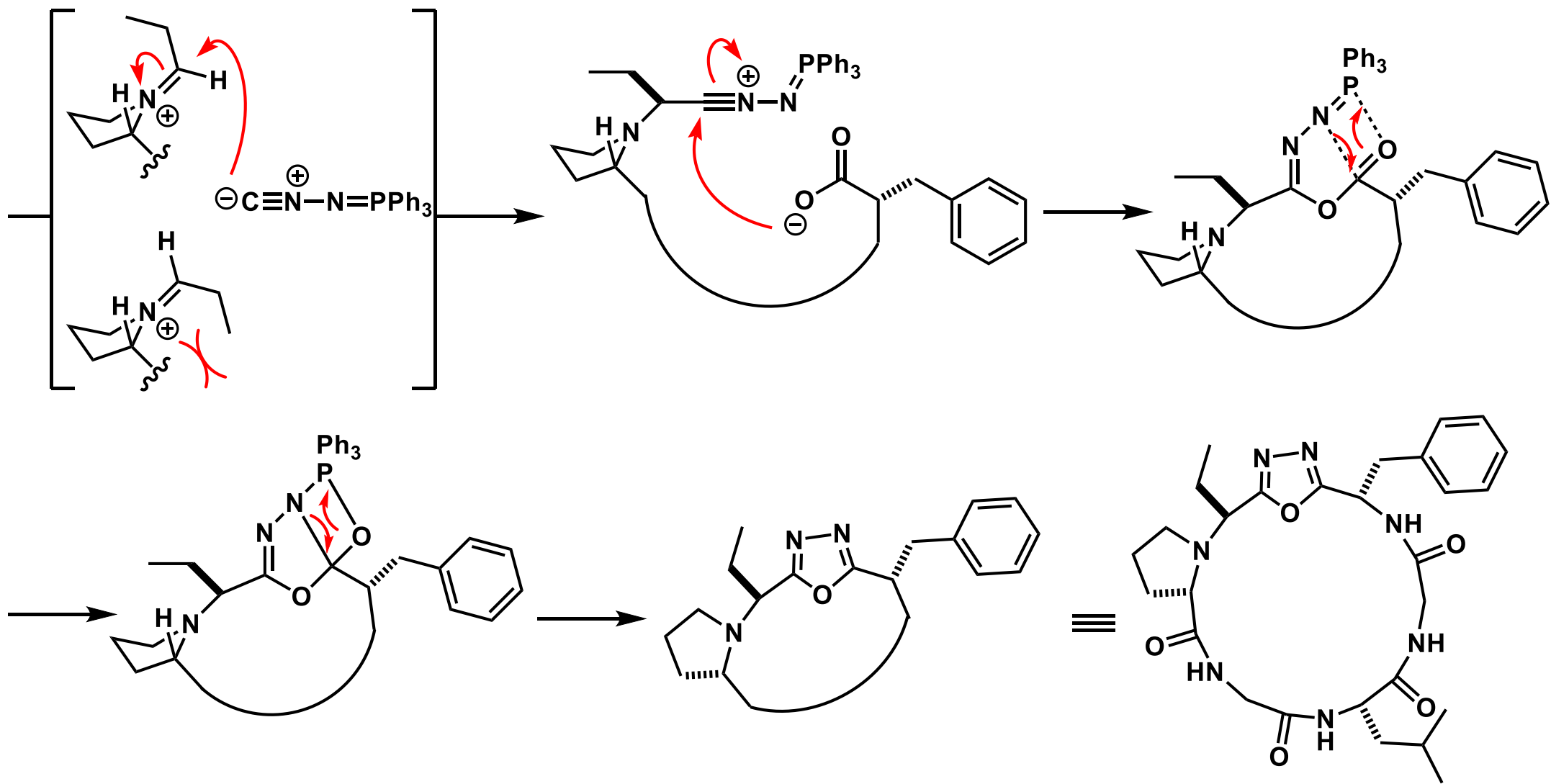


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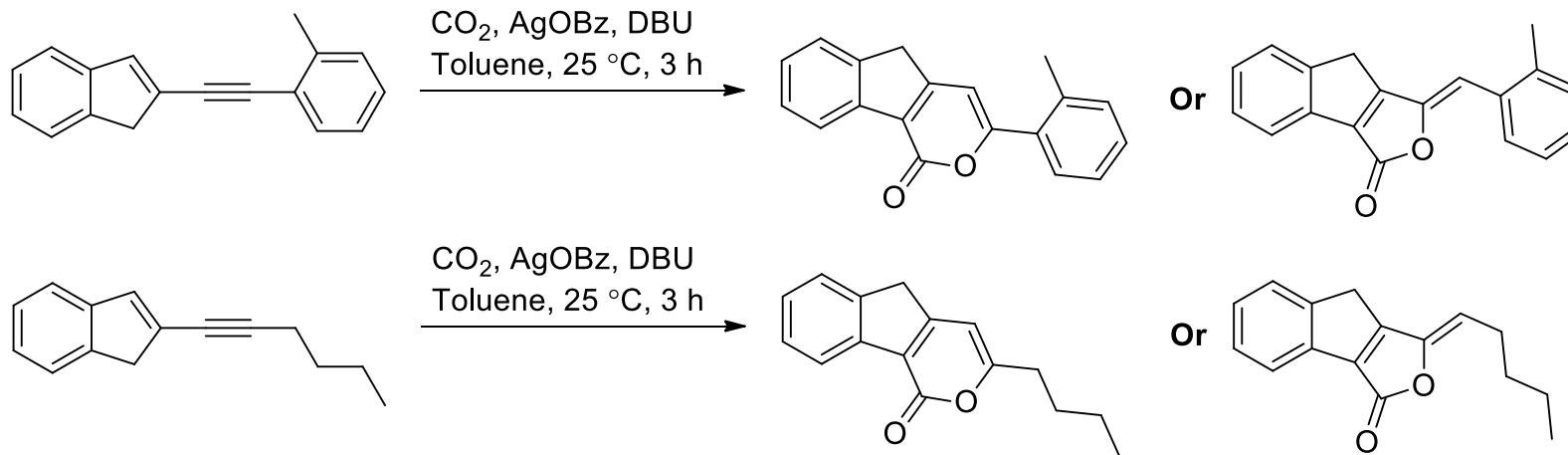


DOI: 10.1038/nchem.2636.



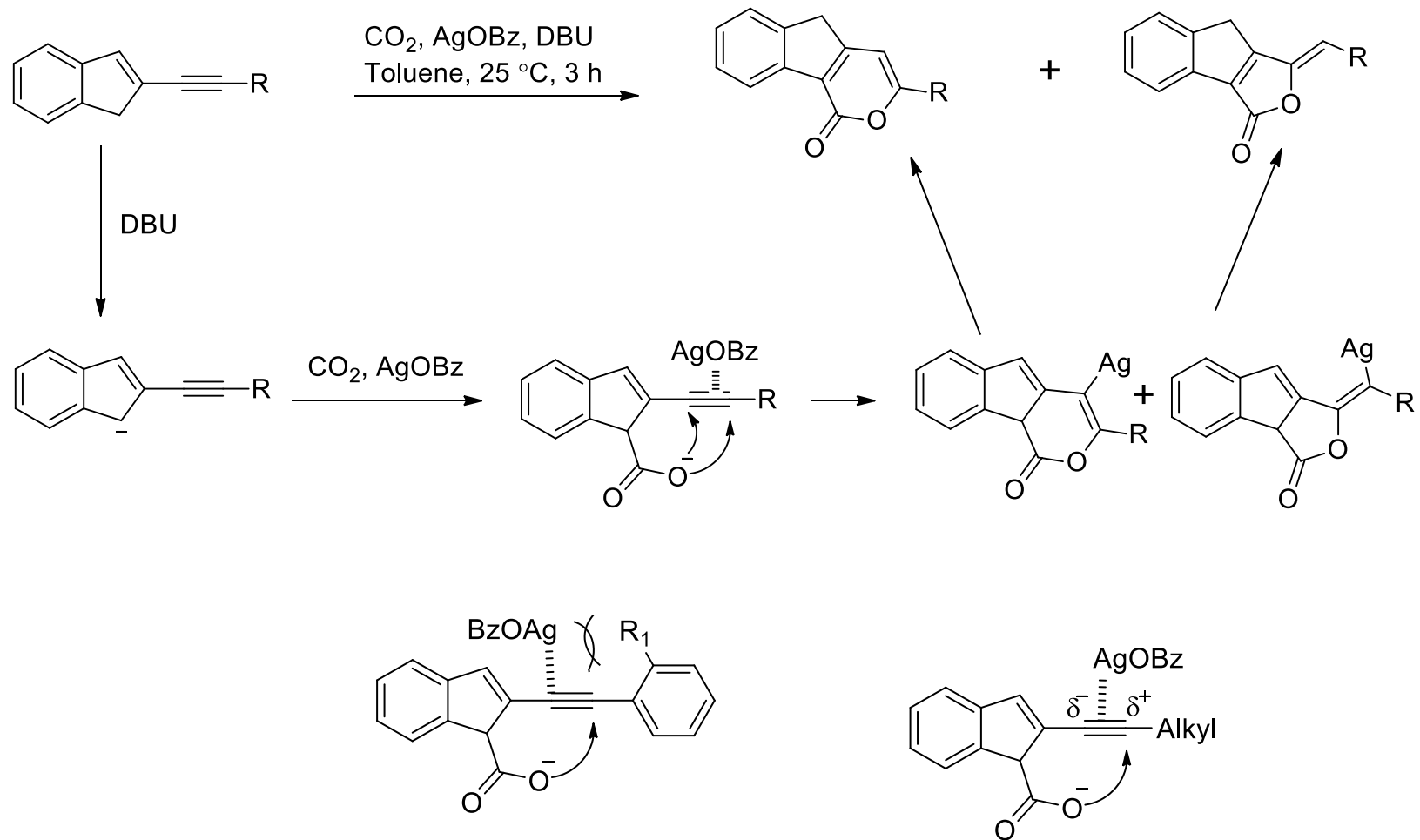


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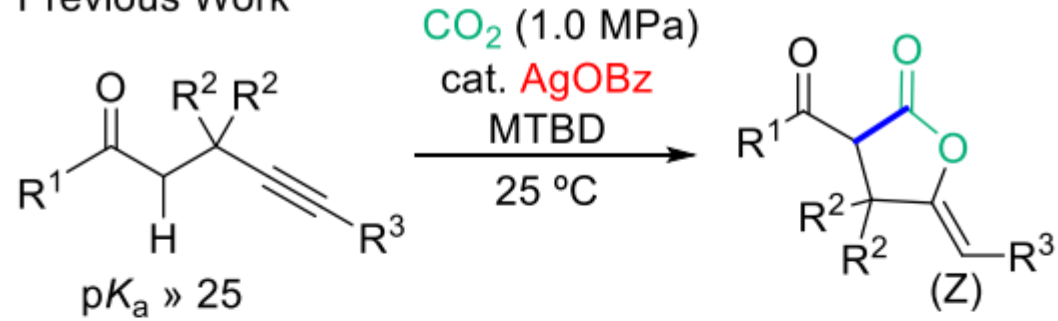


Org. Lett. **2020**, *22*, 8648–8651.

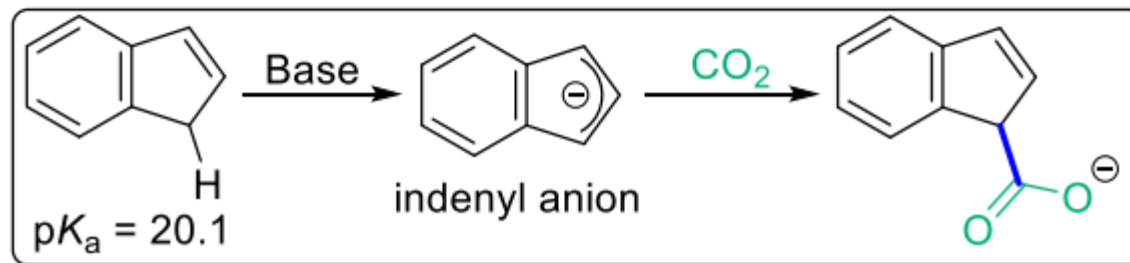
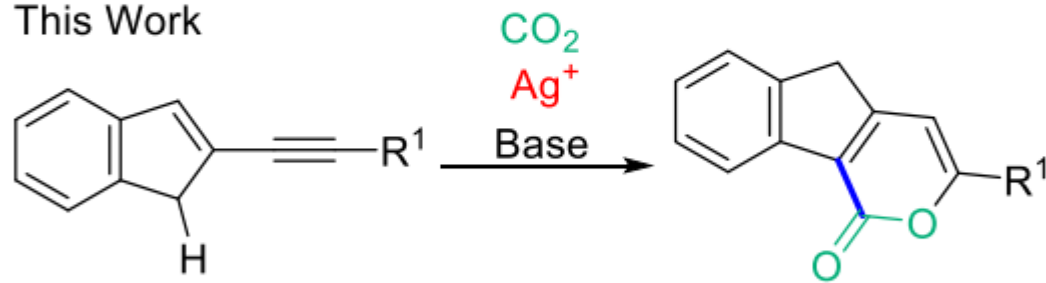
$\text{PK}_a = 20.1$ in DMSO



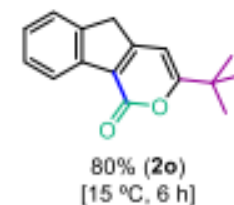
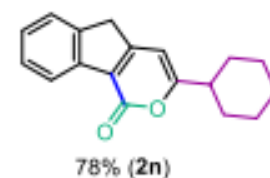
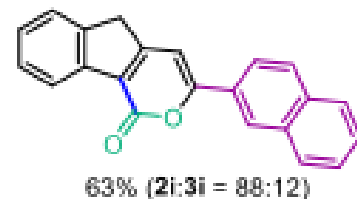
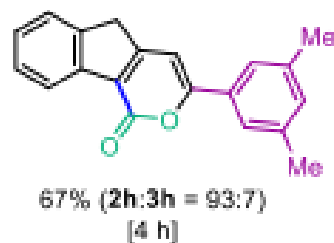
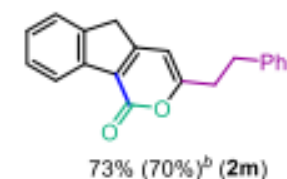
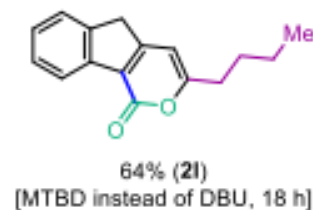
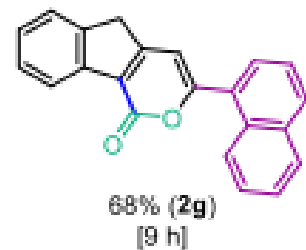
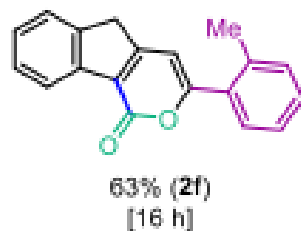
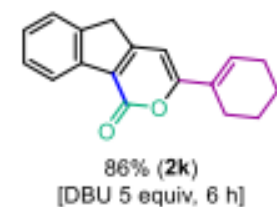
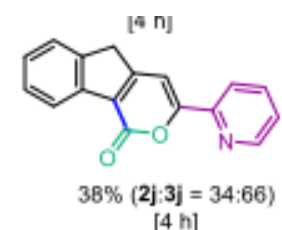
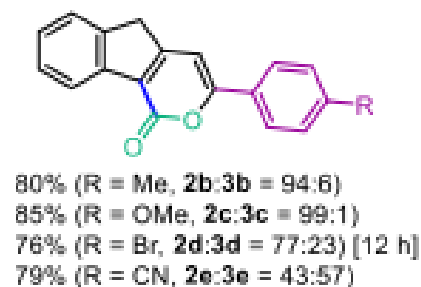
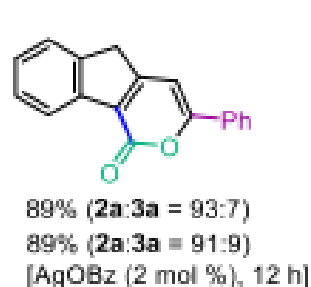
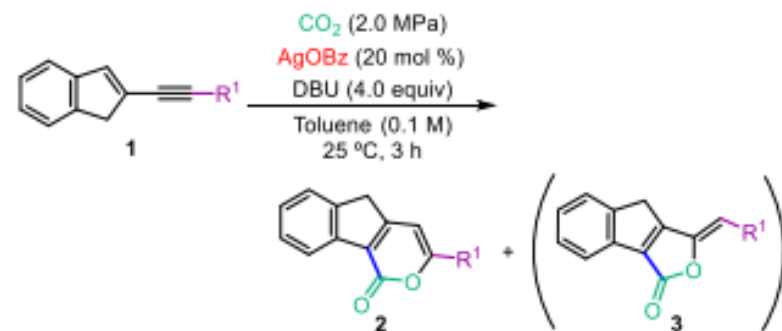
Previous Work



This Work

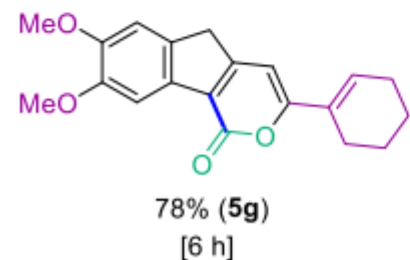
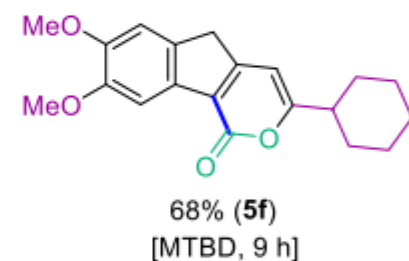
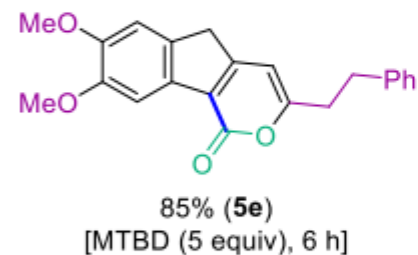
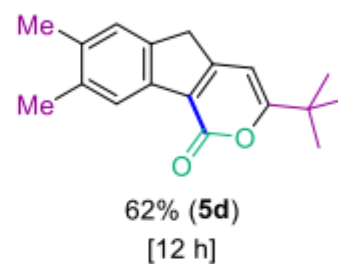
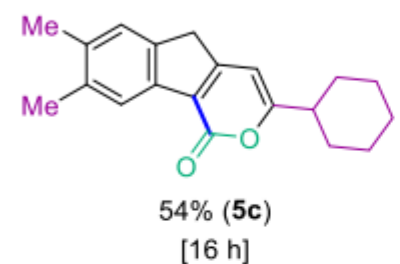
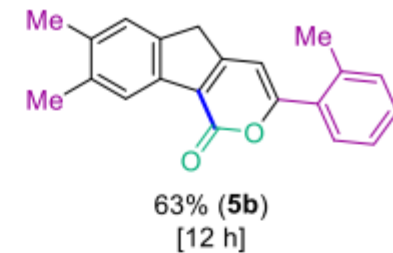
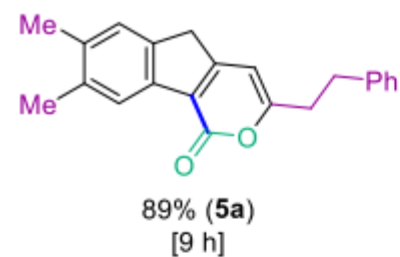
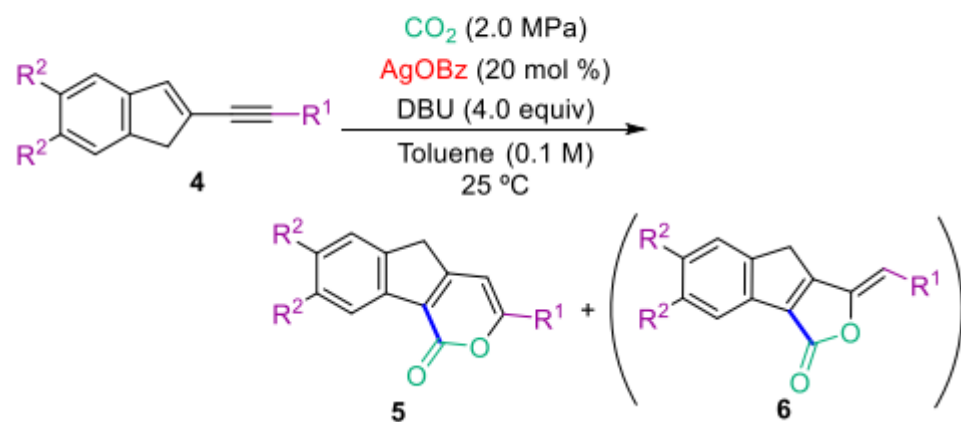


Scheme 2. Substrate Scope of Silver-Catalyzed CO₂ Fixation^a



^aConditions: starting material **1** (0.1 mmol) and AgOBz (20 mol %) in toluene (1.0 mL) at 25 °C under CO₂ at a pressure of 2 MPa (details in the [Supporting Information](#)). Isolated yields are shown. MTBD = 7-methyl-1,5,7-triazabicyclo[4.4.0]dec-5-ene. ^b**1m** (1 mmol) was used.

Scheme 3. Substrate Scope of Silver-Catalyzed CO₂ Fixation^a



^aConditions: starting material **4** (0.1 mmol) and AgOBz (20 mol %) in toluene (1.0 mL) at 25 °C under CO₂ at a pressure of 2 MPa (details in [Supporting Information](#)). Isolated yields are shown.