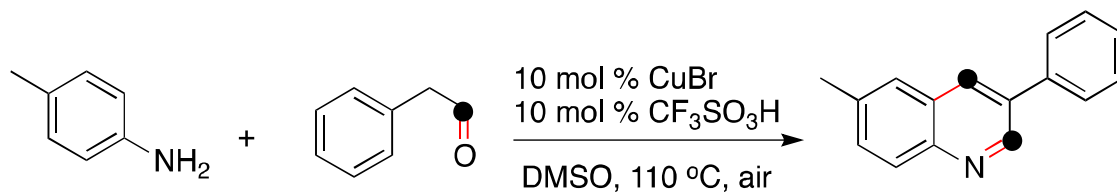
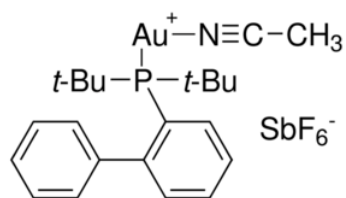
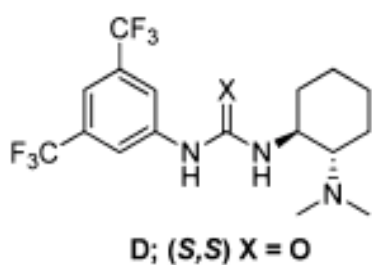
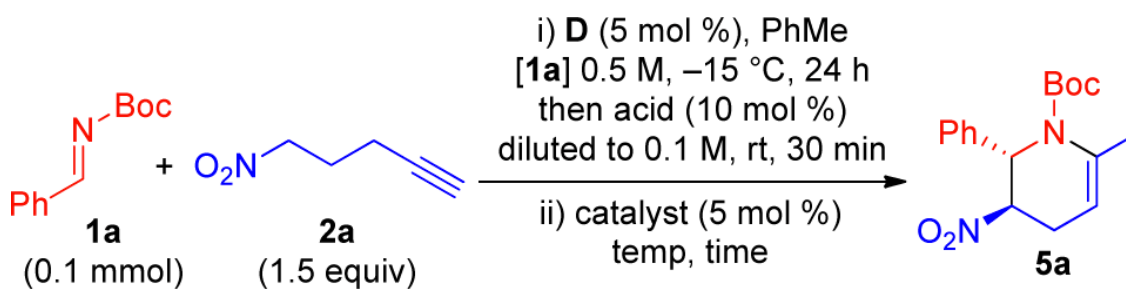


1. Please suggest a plausible mechanism for the following reactions



NOTE: The black spot on aldehyde carbon and other carbons in product are labeled for convenience.

2. Propose a suitable mechanism for the following transformation.



Catalyst