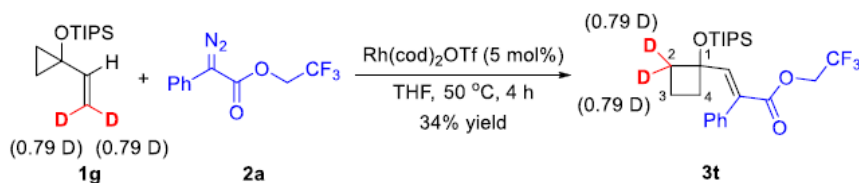
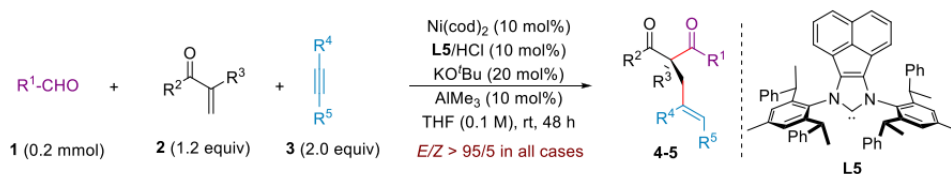


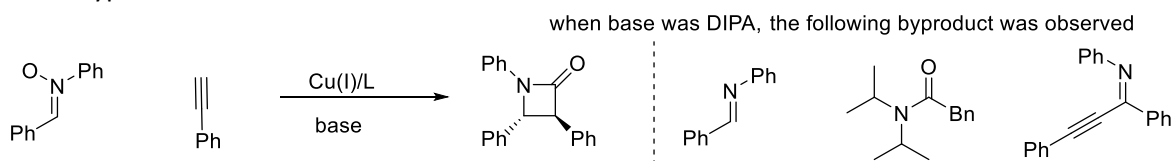
1. Please provide a plausible mechanism for the following reaction. (*J. Am. Chem. Soc.* 2020, 142, 21032)



2. Please provide a plausible mechanism for the following reaction.



3. Please provide a plausible mechanism for the Kinugasa reaction and explain the formation of these byproducts.



4. Please provide the structures of A-F. Please also explain the excellent diastereoselectivity for the formation of B; when buta-1,3-dien was used, dr < 2/1. (*J. Am. Chem. Soc.* 2022, 144, 2, 1016)

