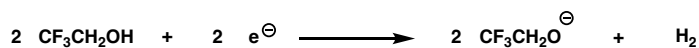
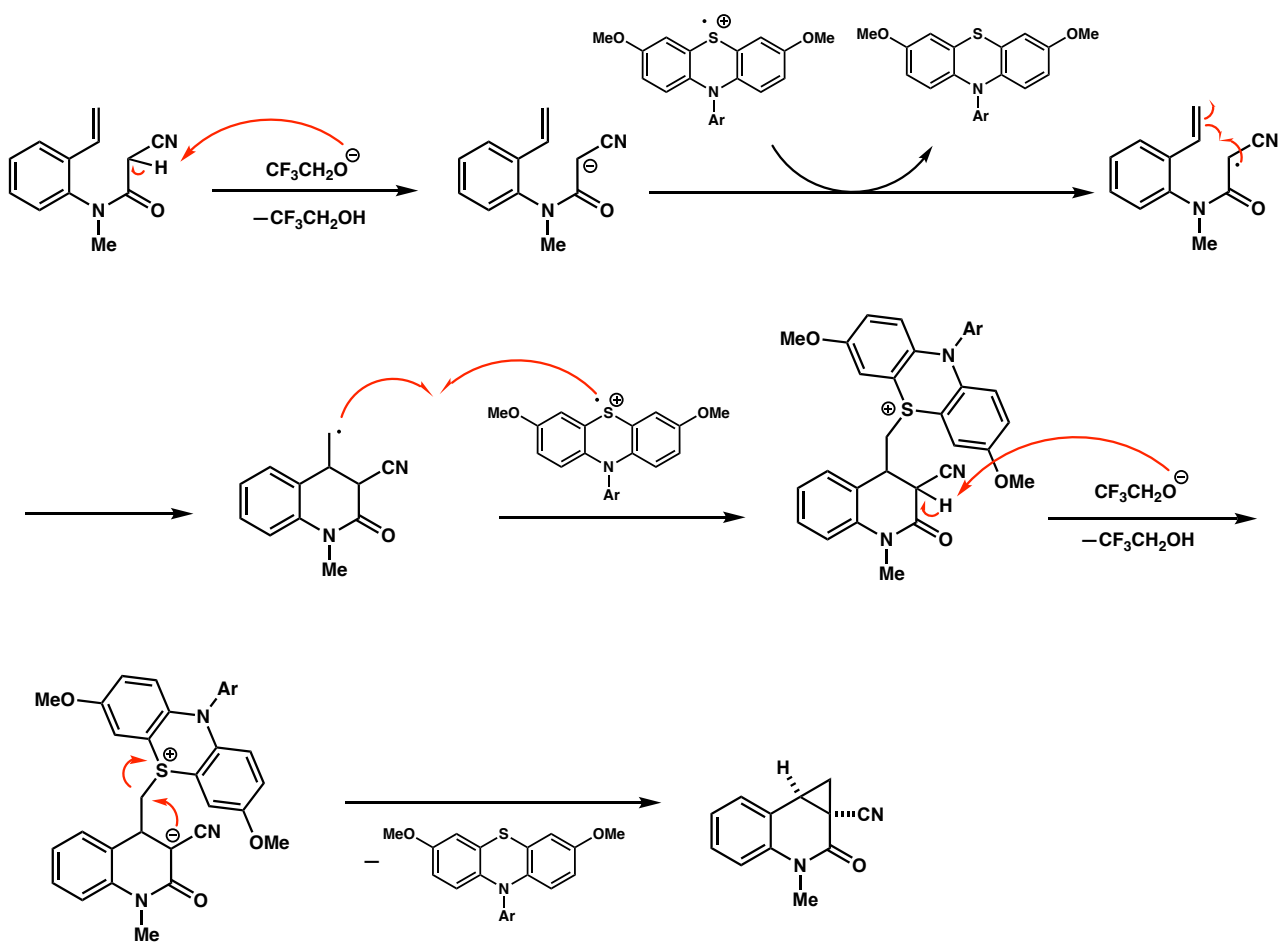


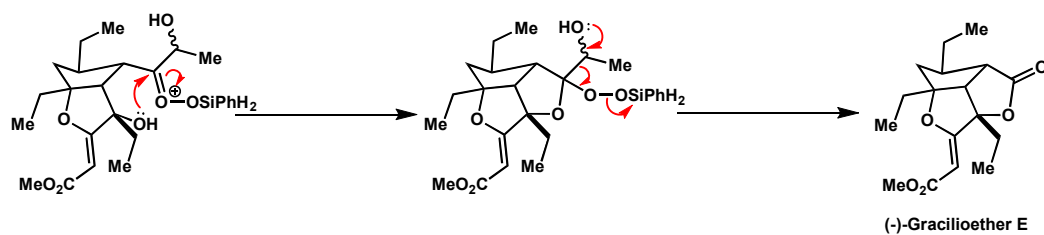
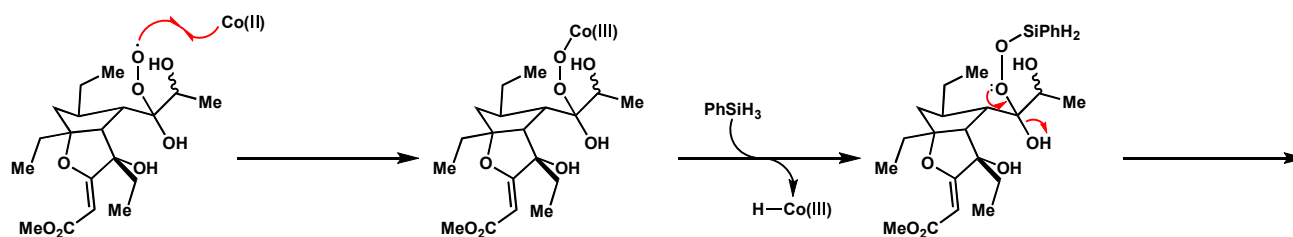
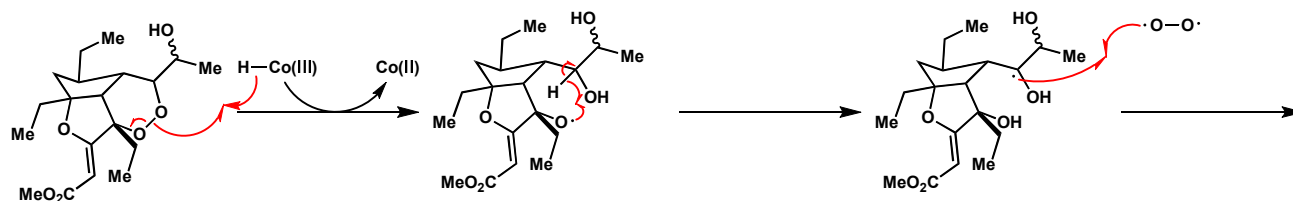
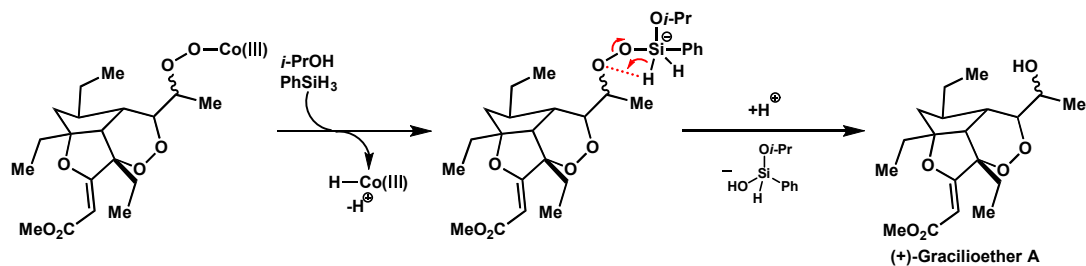
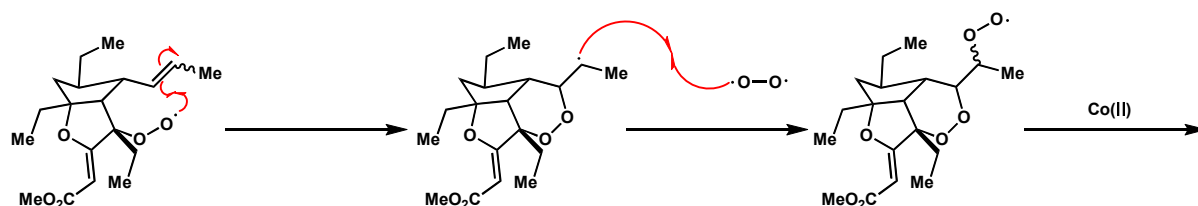
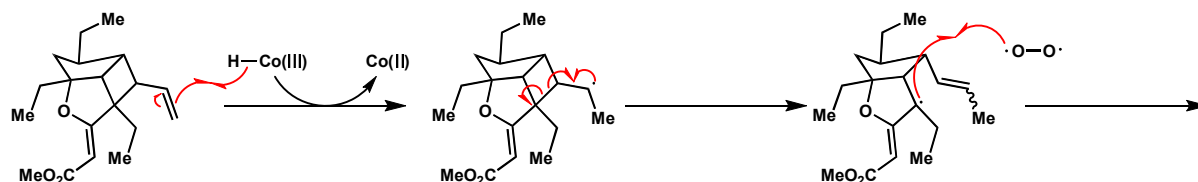
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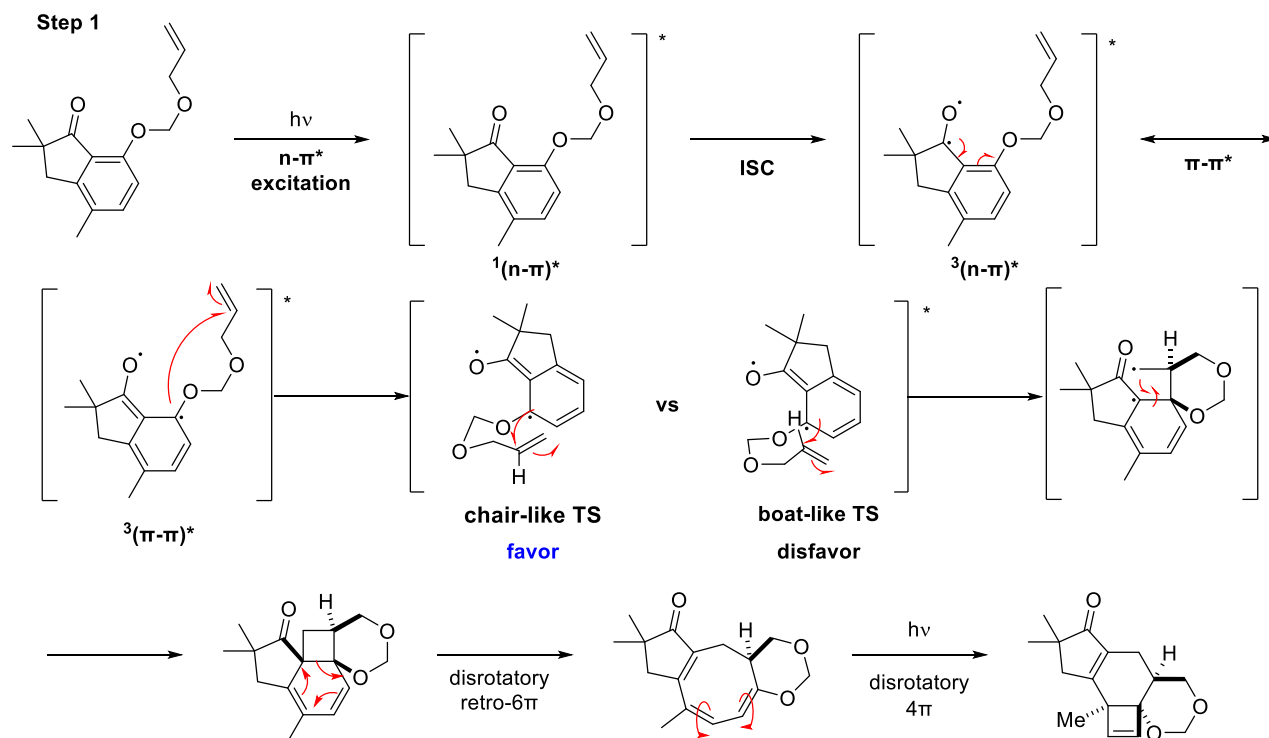


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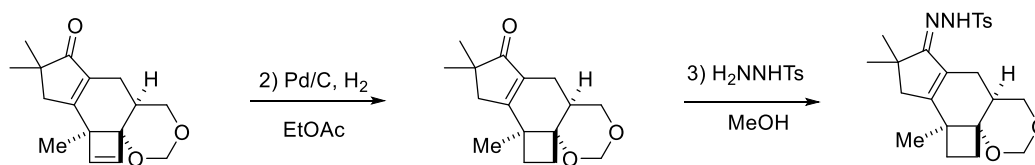




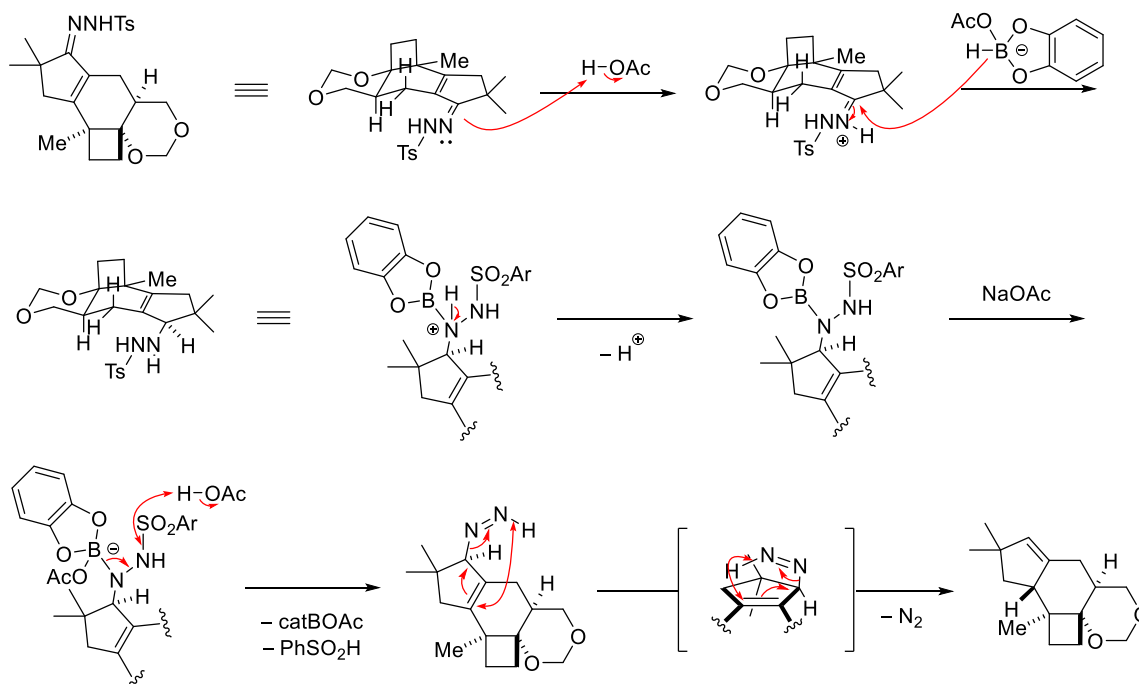
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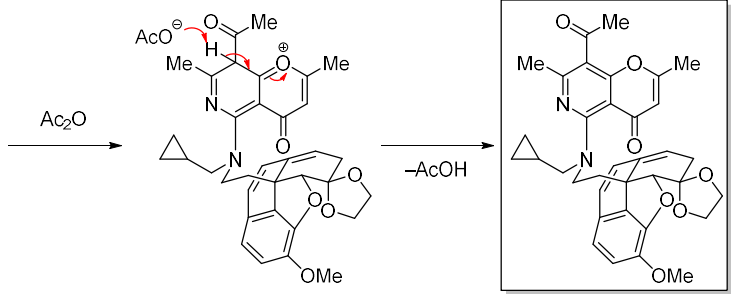
Step 2, 3

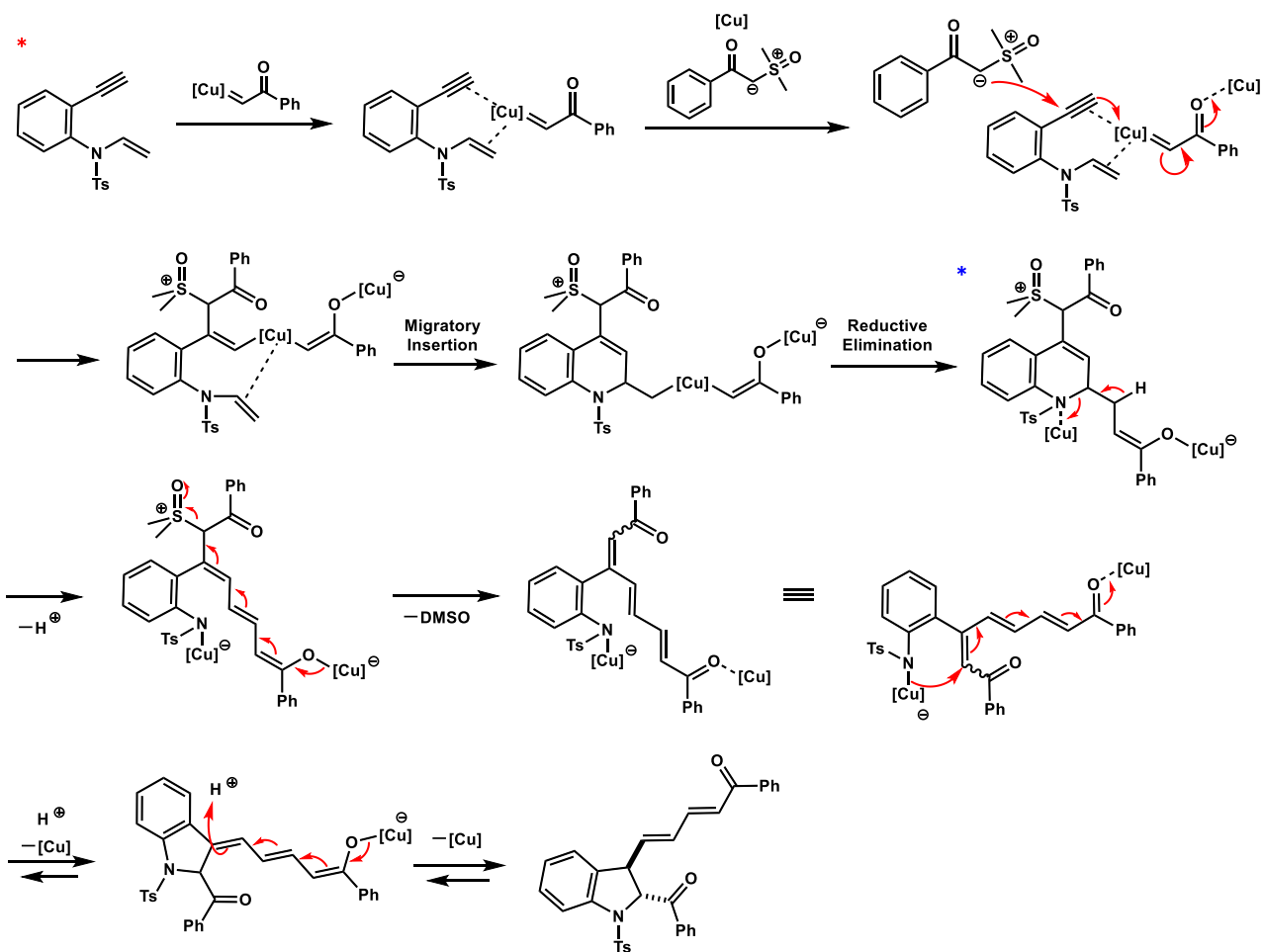
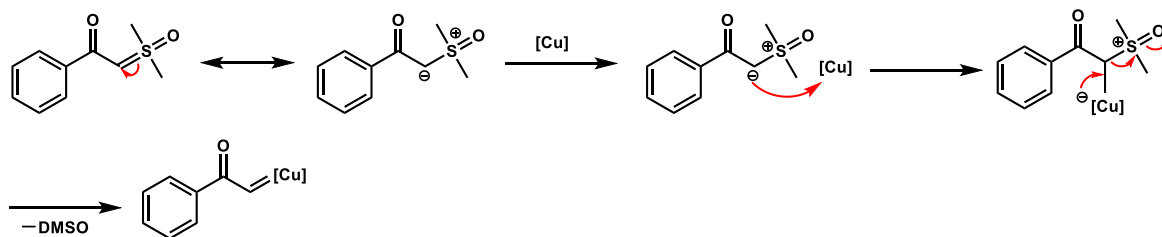


Step 4









The reaction scheme illustrates the synthesis of a functionalized indole derivative. The starting material is a substituted indole with a trimethylsilyl group at the 3-position and a 2-(trimethylsilyl)ethyl group at the 1-position. This reacts with a copper catalyst ($[Cu]$) and a sulfonamide reagent (2-(trimethylsilyl)ethyl sulfonamide) to form a complex intermediate. The intermediate is a substituted indole with a trimethylsilyl group at the 3-position and a 2-(trimethylsilyl)ethyl group at the 1-position. The reaction proceeds via a series of steps, including the formation of a copper complex and the subsequent cyclization of the sulfonamide group to form a five-membered ring. The final product is a functionalized indole derivative with a trimethylsilyl group at the 3-position and a 2-(trimethylsilyl)ethyl group at the 1-position.