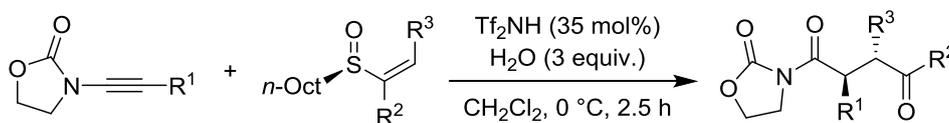
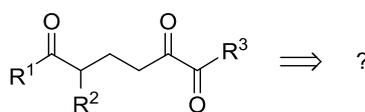


4. The Maulide group has recently disclosed a particularly elegant method for the asymmetric synthesis of 1,4-dicarbonyls. In their chemistry, shown below, an ynamide reacts with a vinyl sulfoxide to give a δ -ketoamide. Provide a mechanism for this transformation, accounting for the observed stereochemistry.



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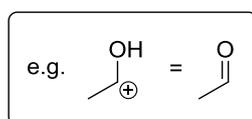
5. Suggest a method for the synthesis of a 1,2,6-tricarbonyl of the type shown below. Devise a route in which R^1 , R^2 , and R^3 can easily be varied (e.g. for library synthesis).



1,2,6-tricarbonyl target

Challenging synthons:

6. Suggest reagents that can be used as equivalents for the synthons shown, taking into account the needed 'polarity.' An example is given of the kind of reaction in which each reagent might be used.



Synthons:



a

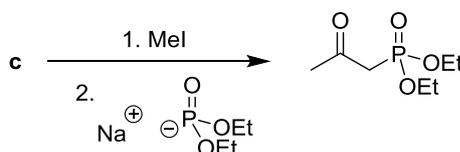
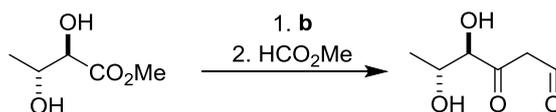
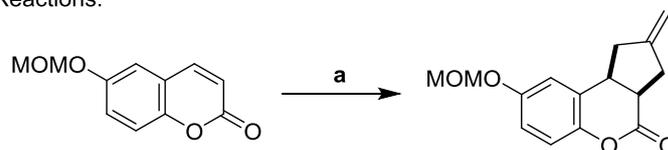


b



c

Reactions:



7. Seebach's "conjunctive" reagent (NPP) acts as a 'double-acceptor' acetone equivalent. Suggest a method for the synthesis of this reagent. Under what conditions would the nitro group be converted to a ketone?

