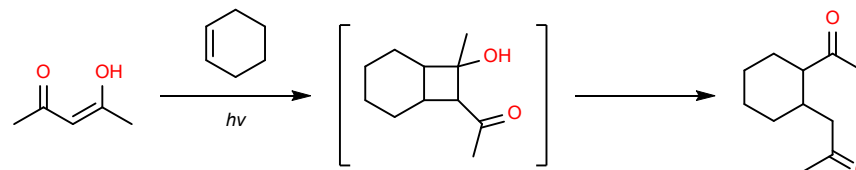


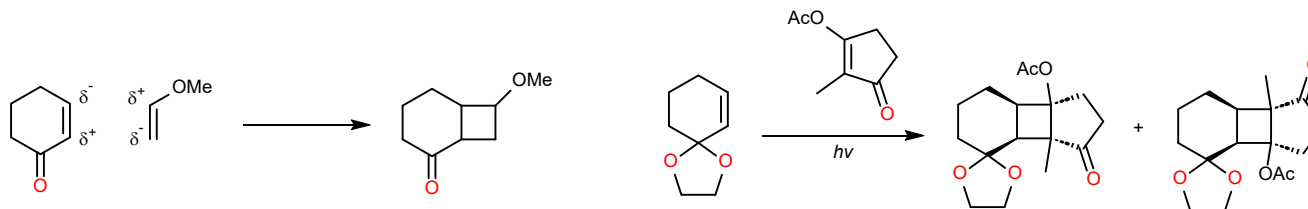
- De Mayo reaction was discovered by Paul de Mayo in 1962 and named after him.
- The reaction consists of a photochemical [2+2] followed by a retro-aldol
- Net result is inserting an olefin into a 1,3-dicarbonyl and making a 1,5-dicarbonyl

Initial discovery



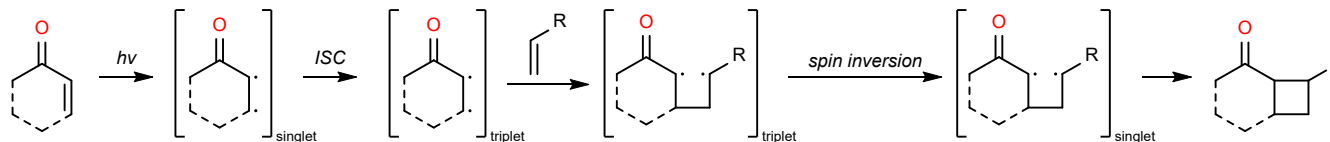
Photochemical syntheses. 37. Enone photoannulation. <https://doi.org/10.1021/ar50038a001>.

Selectivity



Generally, the reaction follows the selectivity of photochemical [2+2] cycloaddition.

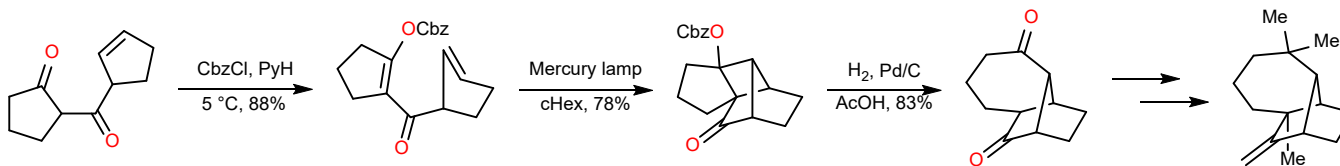
Photochemical syntheses. 37. Enone photoannulation. <https://doi.org/10.1021/ar50038a001>.



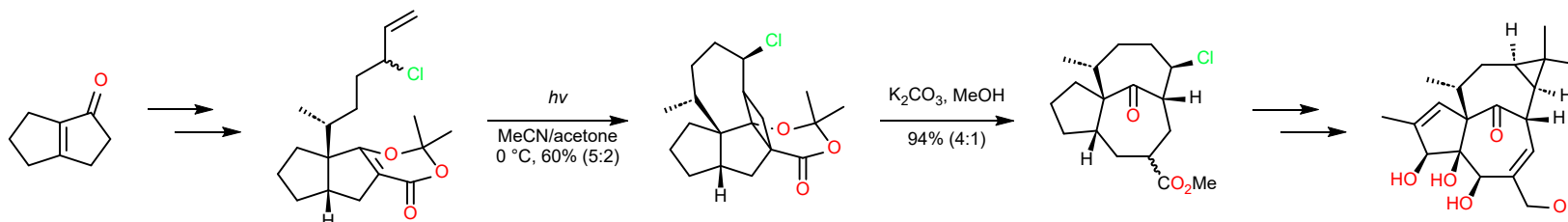
Poor selectivity sometimes observed because of the spin inversion process

Crimmins, M. T.; Reinhold, T. L. Enone Olefin [2 + 2] Photochemical Cycloadditions. In *Organic Reactions*; John Wiley & Sons, Ltd, 2004; pp 297–588. <https://doi.org/10.1002/0471264180.or044.02>.

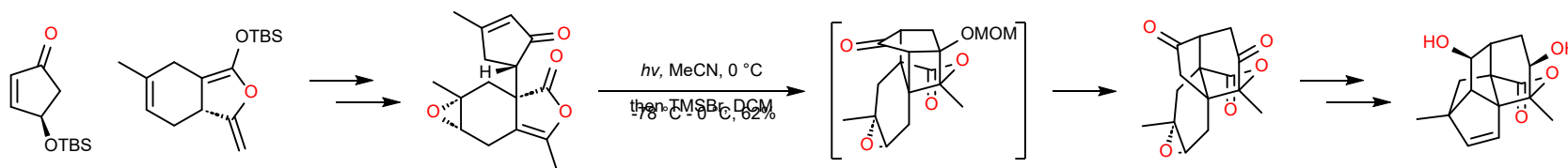
Building up complexity



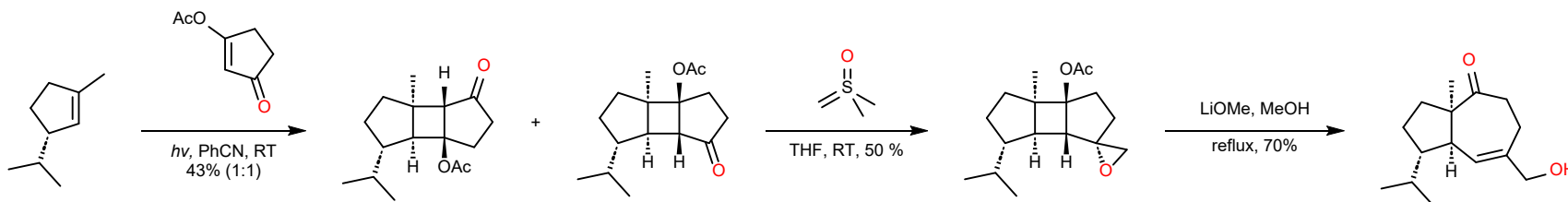
Oppolzer, W.; Godel, T. *J. Am. Chem. Soc.* **1978**, *100* (8), 2583–2584. <https://doi.org/10.1021/ja00476a071>.



Winkler, J. D.; Rouse, M. B.; Greaney, M. F.; Harrison, S. J.; Jeon, Y. T. *J. Am. Chem. Soc.* **2002**, *124* (33), 9726–9728. <https://doi.org/10.1021/ja026600a>.



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Hansson, T.; Wickberg, B. *J. Org. Chem.* **1992**, *57* (20), 5370–5376. <https://doi.org/10.1021/jo00046a018>.