

Synthesis of Novel Cationic Diels-Alder Dienophile Stabilized by Adjacent Cobalt Complexed Alkynes

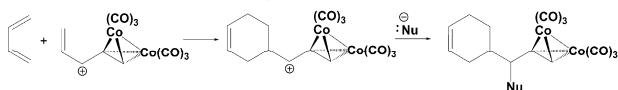


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Project Goal



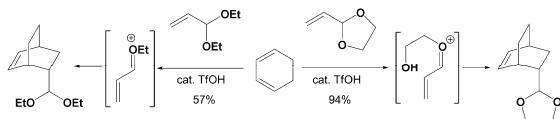
Take advantage of known cationic stabilizing ability of cobalt-complexed alkynes to develop novel class of cationic Diels-Alder dienophiles

Background

Cationic Diels-Alder reactions in the literature

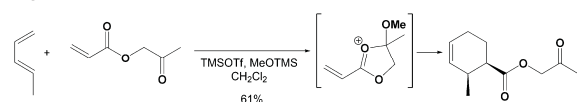
Vinyl Oxocarbenium Ion

Gassman - *J. Am. Chem. Soc.* **1987**, 109, 2182.



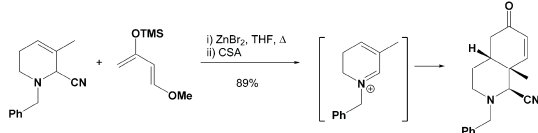
Dioxolenium Ion

Saigo - *Chem. Lett.* **1992**, 1353.

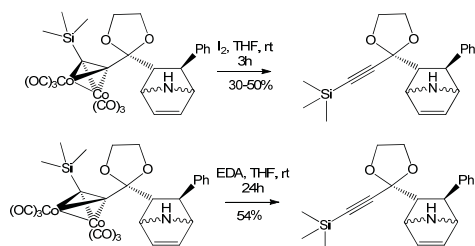


Dihydropyridinium Ion

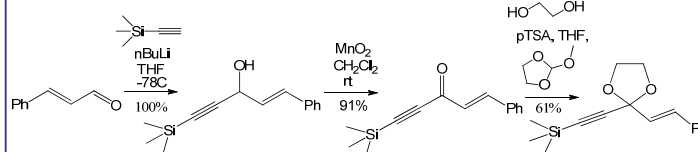
Baldwin - *Tetrahedron Lett.* **1998**, 39, 5417.



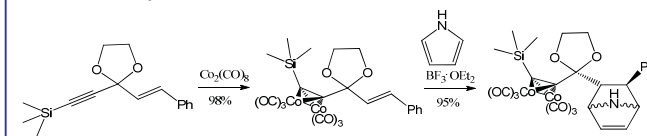
Decomplexation Strategies



Synthesis and Reactivity of a Gassman-Type Dienophile

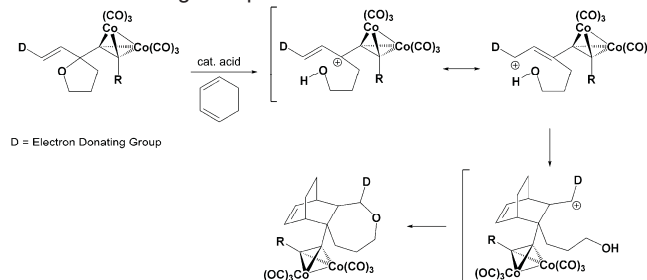


Cobalt Complexation & Diels-Alder Reaction

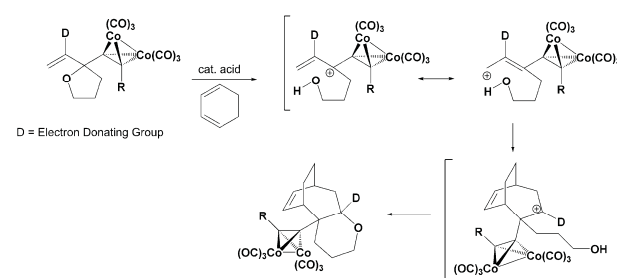


Applications with Modified Dienophiles

Two Stabilizing Groups

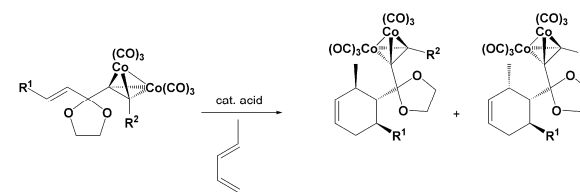


[4+3] Cycloaddition

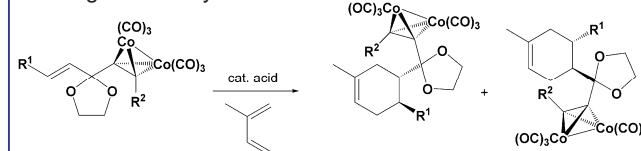


Future Studies

Stereoselectivity

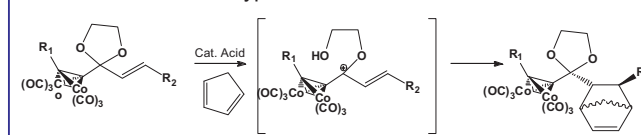


Regioselectivity

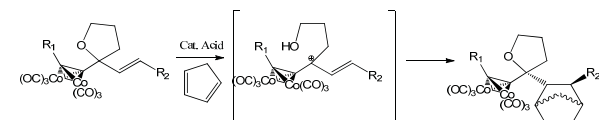


Gassman-Type vs. Non-Gassman-Type

General Gassman-Type



General Non-Gassman-Type



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