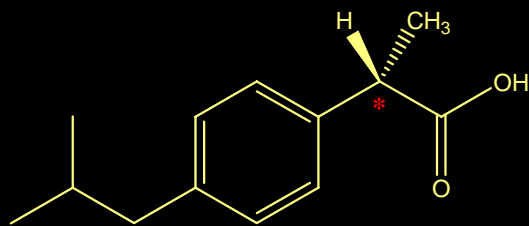
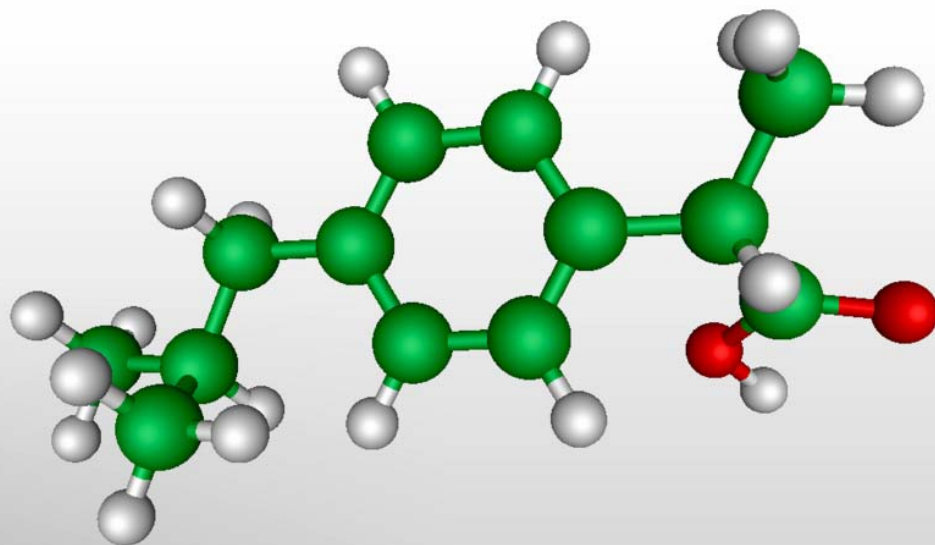


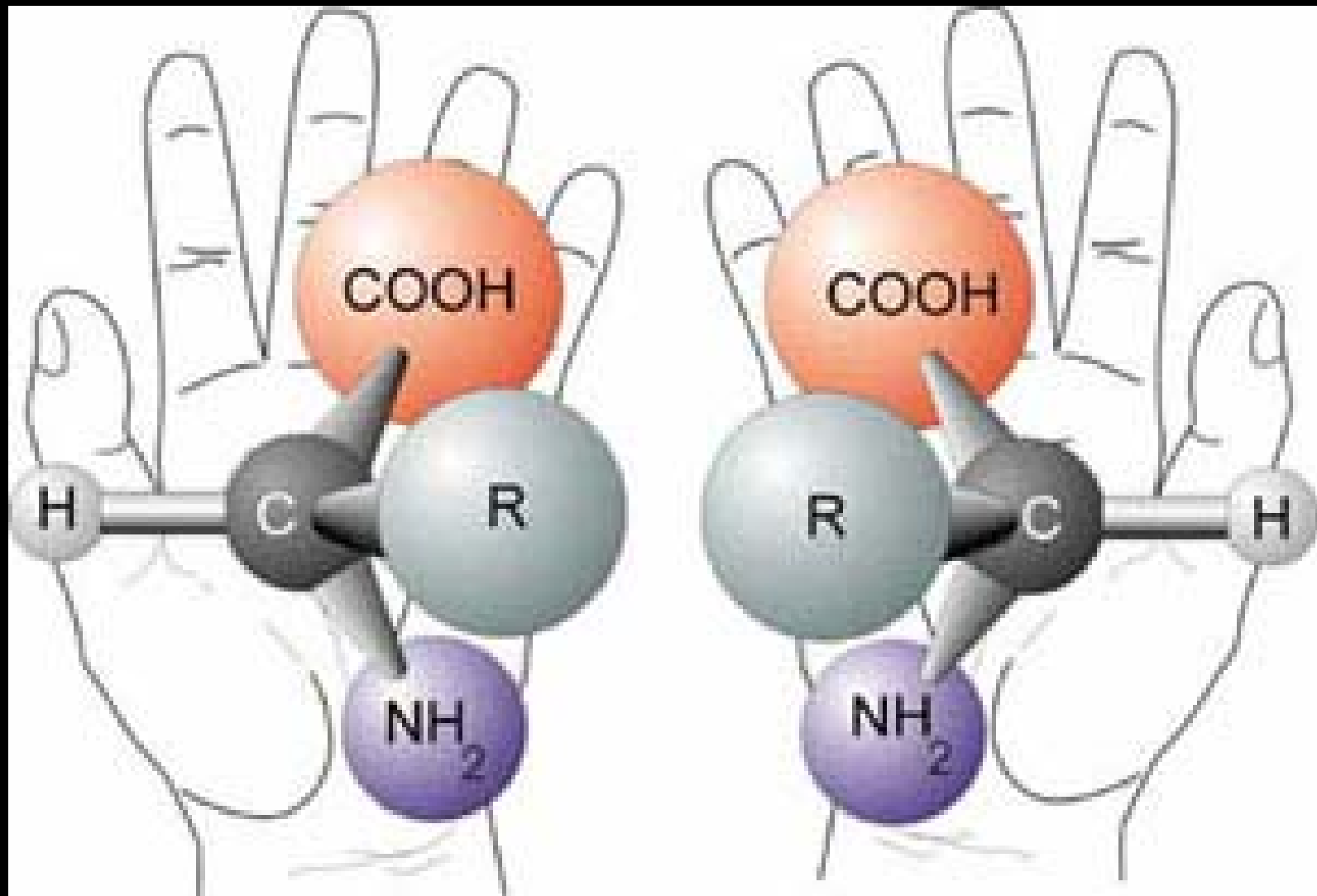
R-Ibuprofen



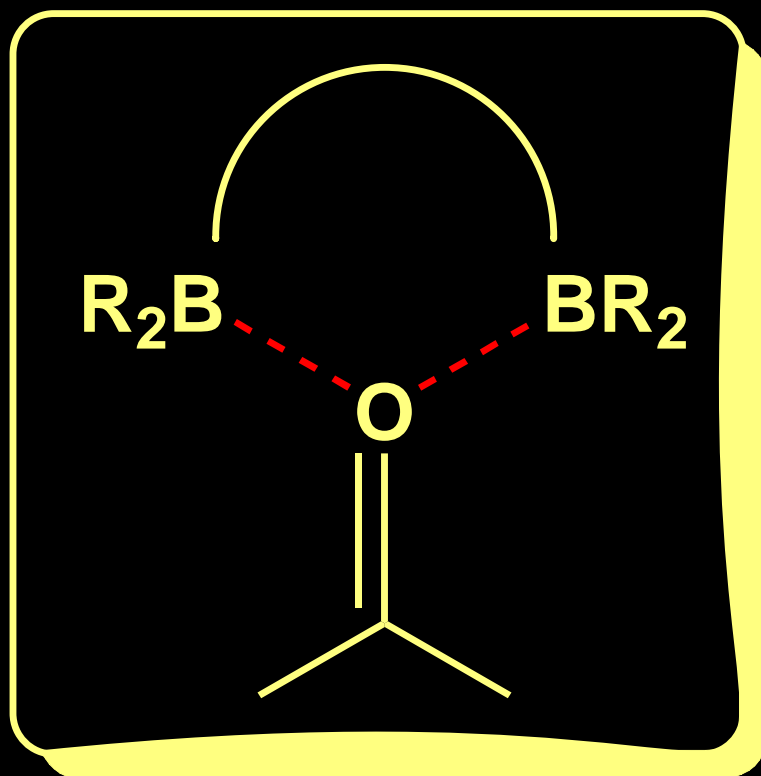
S-Ibuprofen

*Active Form





Asymmetric *bis*-Boron Compounds as Enantioselective Catalysts



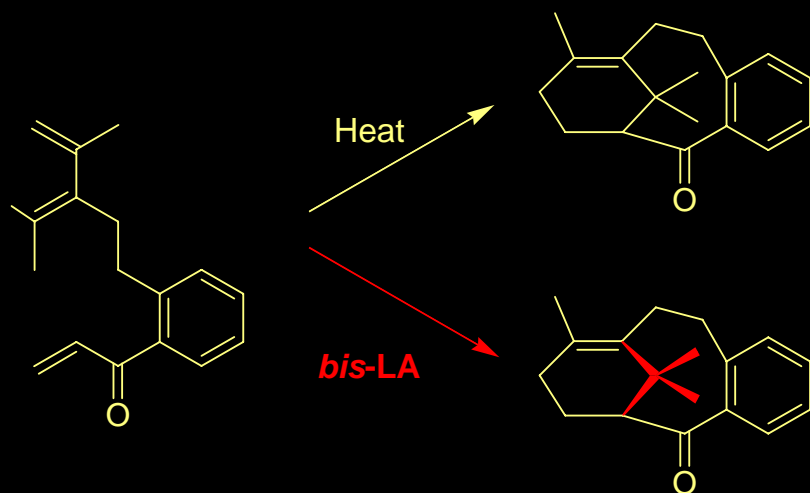
Presenter: Carrie Zhao

Faculty Mentor: Dr. Kenneth Shea

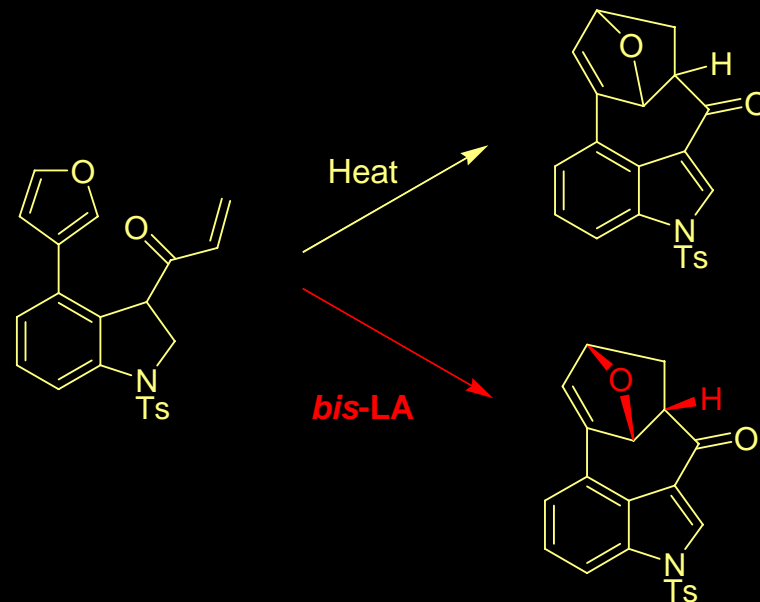
05.12.07

Background

Taxane Core: Gilman and Shea, *JACS*, 1985



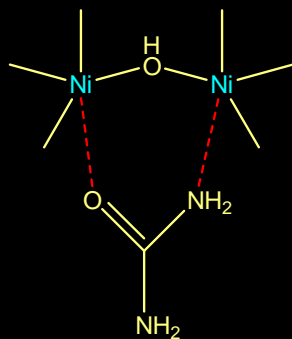
Welwistatin Core: Lauchli and Shea, *Org. Lett.*, 2006



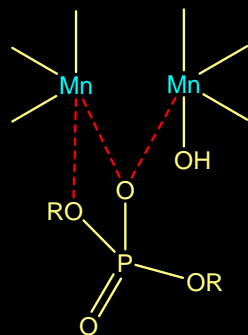
Bidentate *bis*-Acid Catalysts

Natural

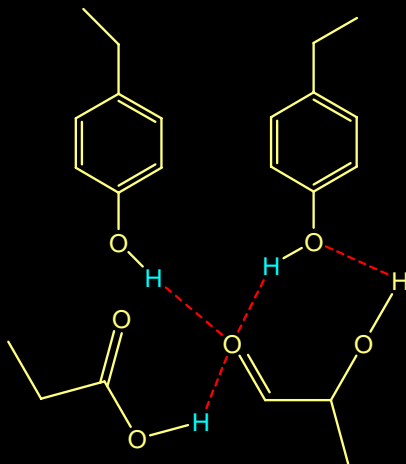
Urease



3'-5' Exonuclease

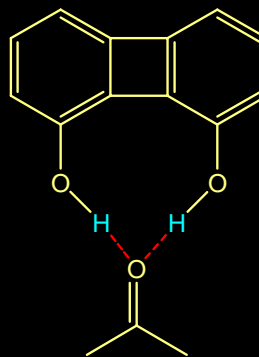


Type II Aldolase

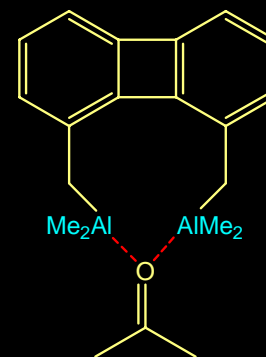


Synthetic

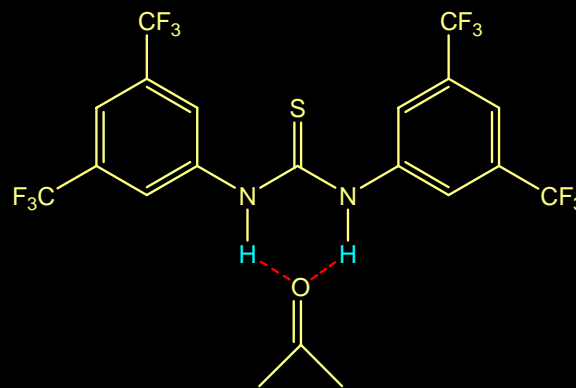
J. Hine



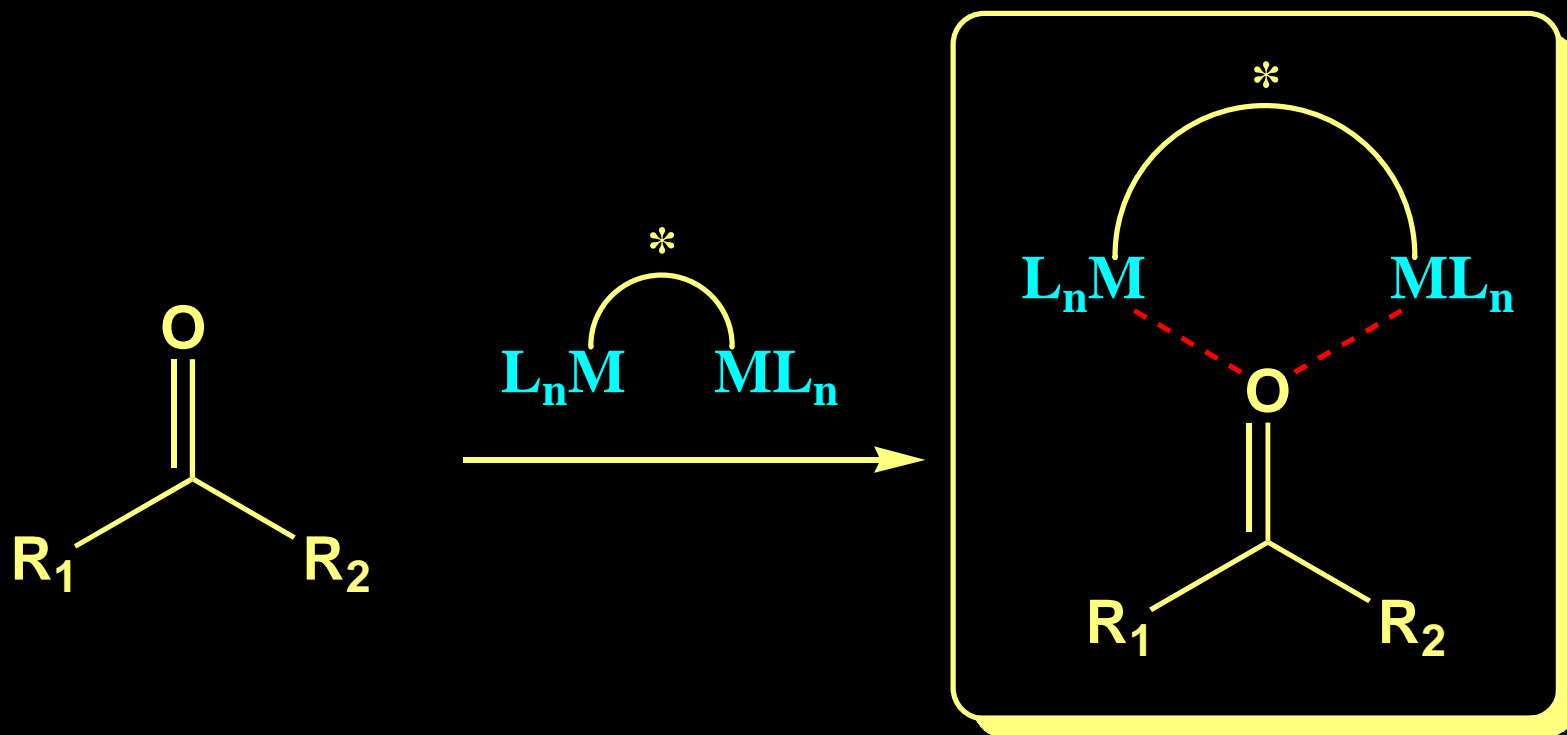
K. Maruoka



A. Wittkopp



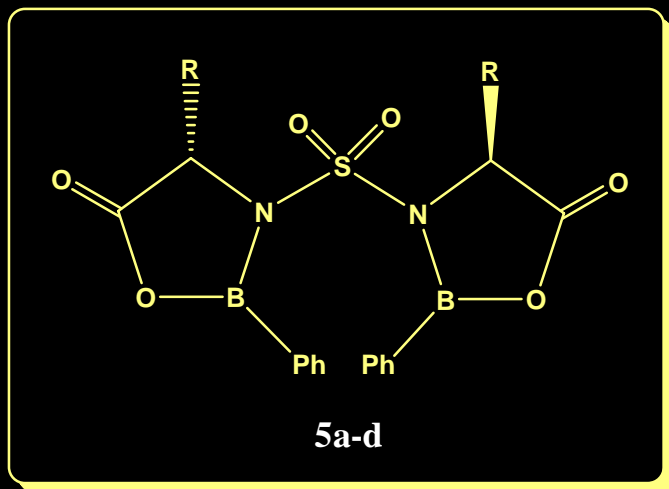
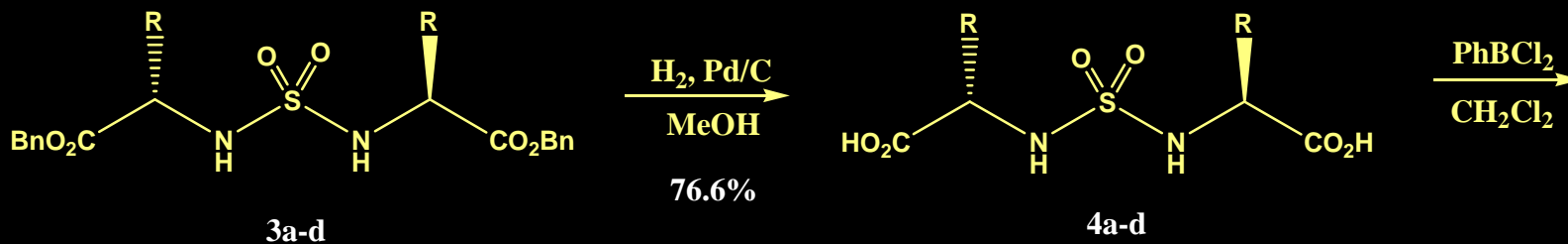
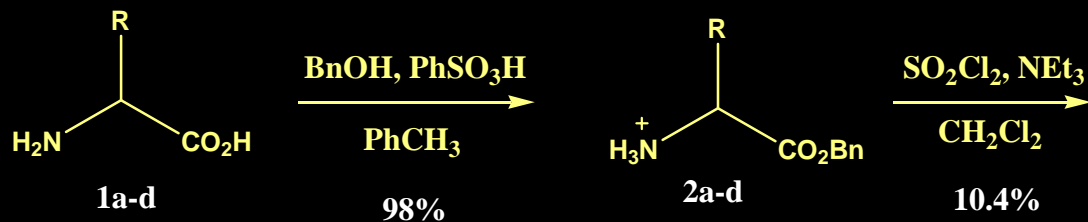
Proposed *bis*-Lewis Acid Catalyst



- Enhanced substrate activation
- Organized transition state w/ simple substrates
- Potential for asymmetric reaction of challenging substrates

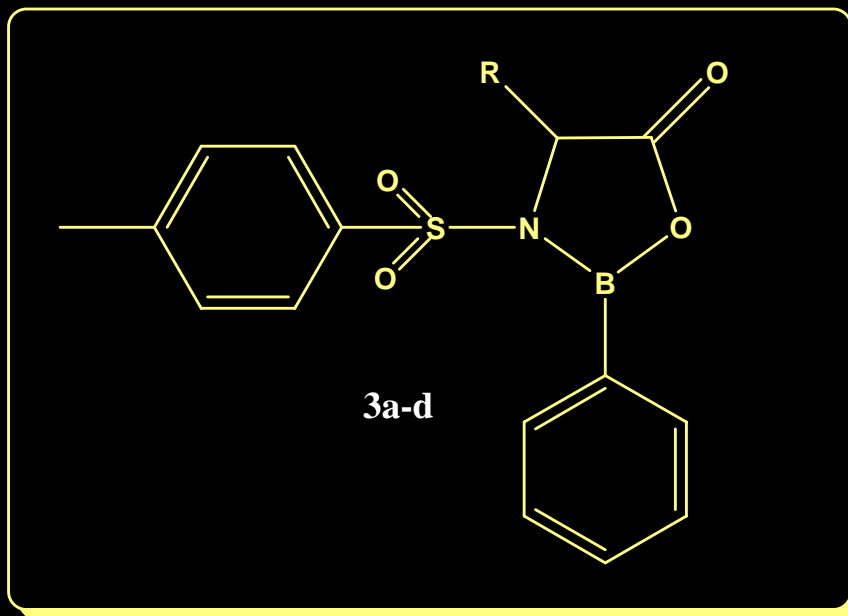
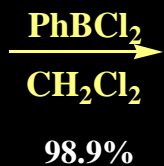
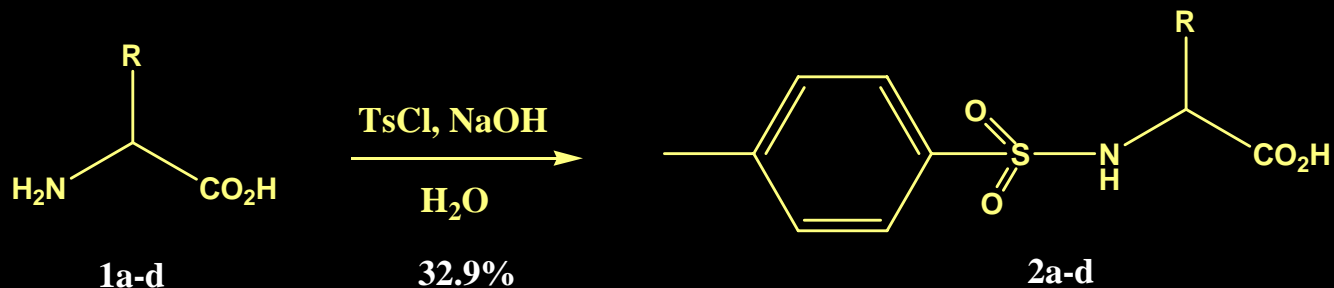
Proposed *bis*-Lewis Acid Design

	R
a	H
b	Me
c	Pr: CH(CH ₃) ₂
d	CH ₂ Ph

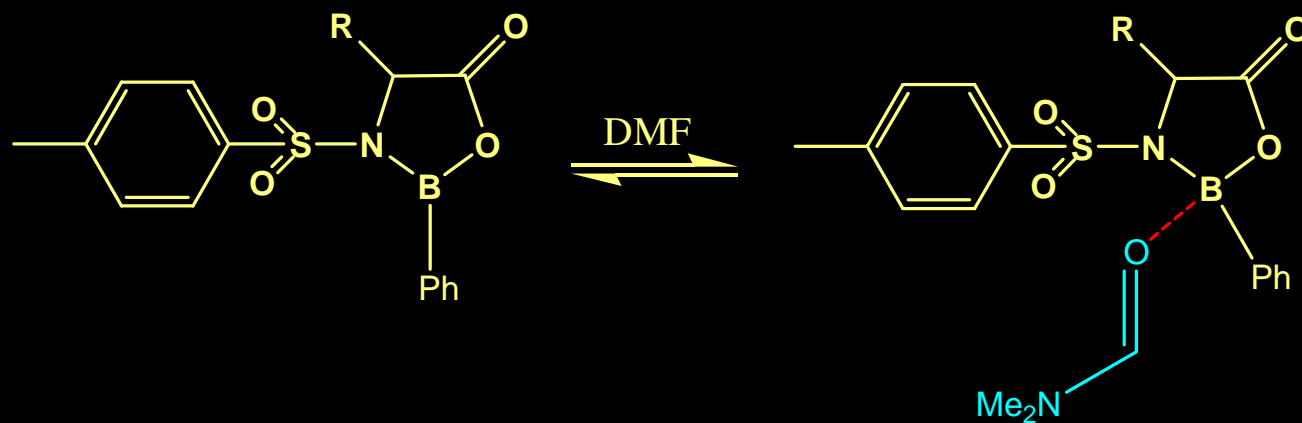
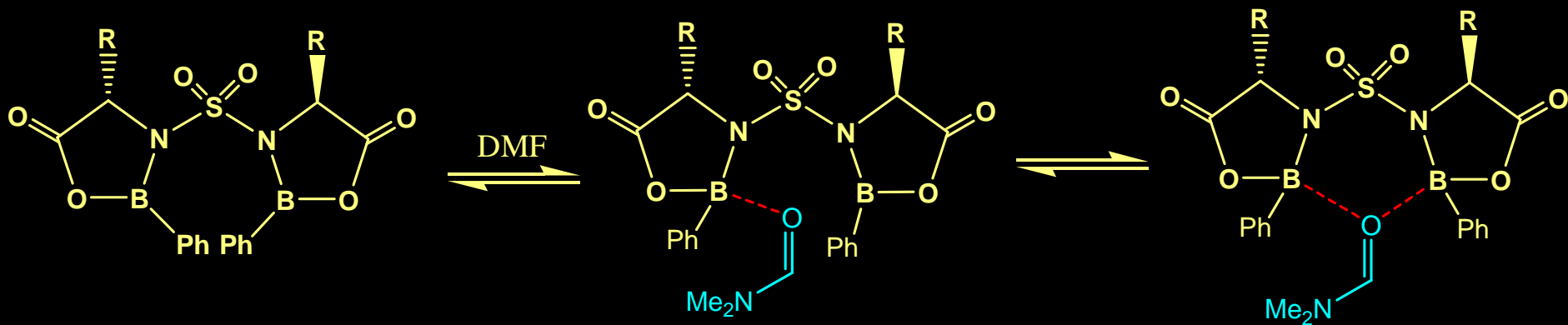


Proposed *mono*-Lewis Acid Design

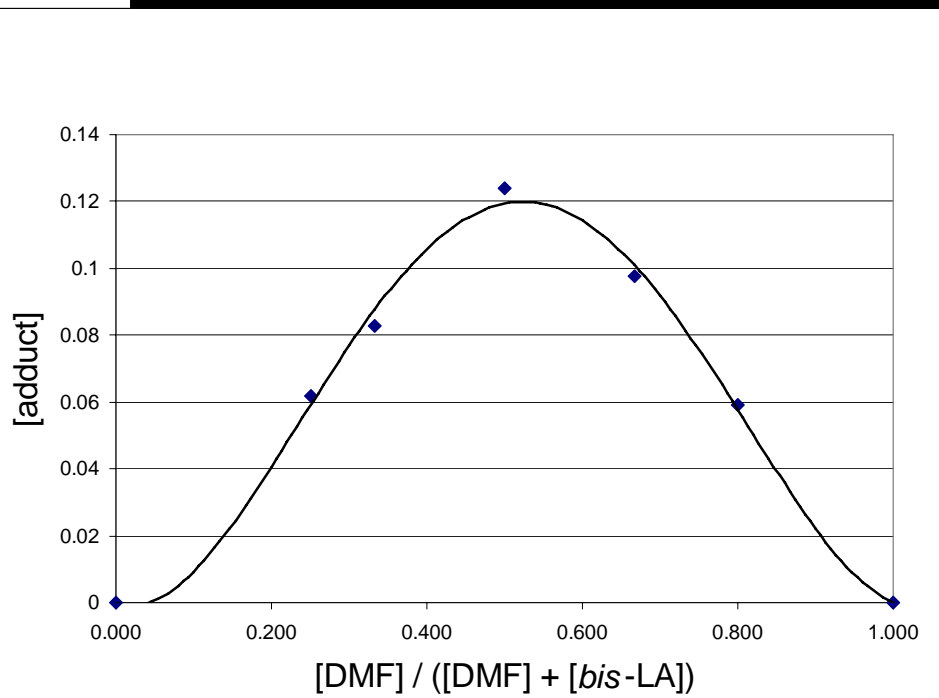
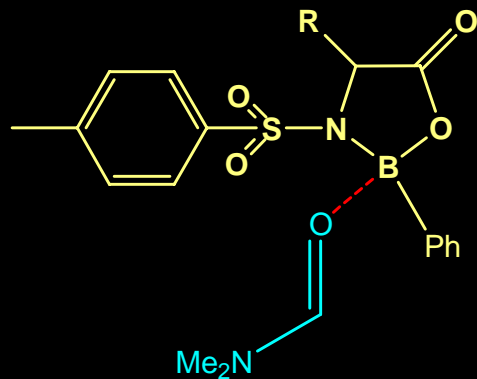
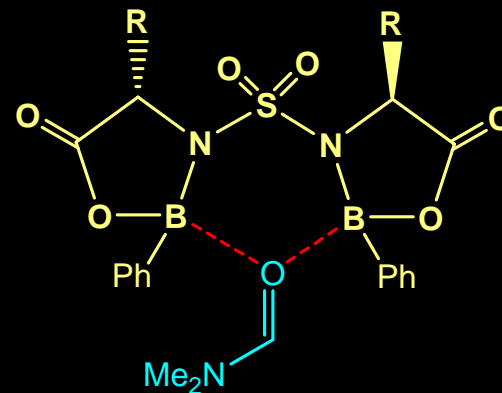
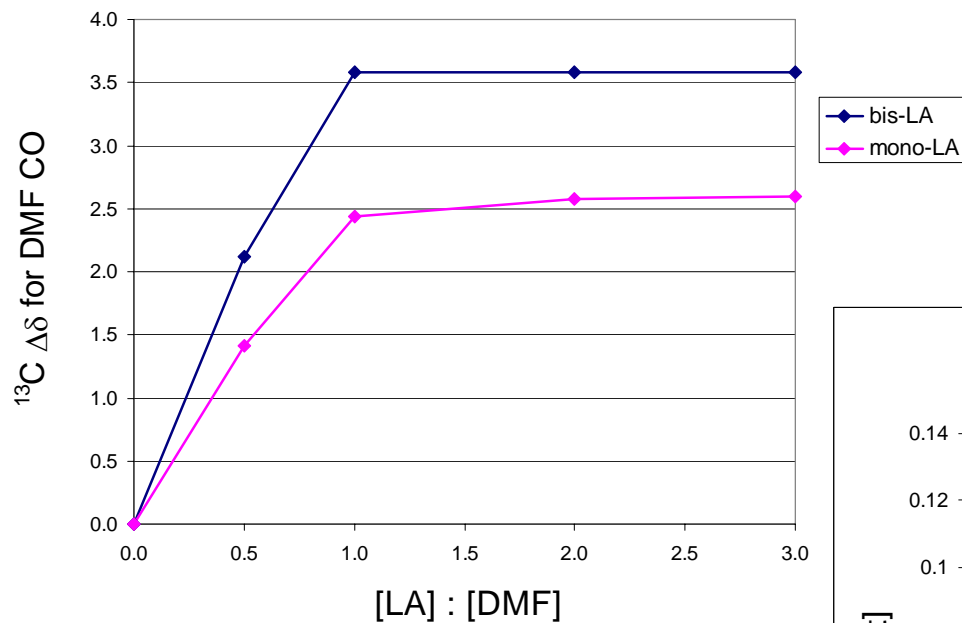
	R
a	H
b	Me
c	Pr: CH(CH ₃) ₂
d	CH ₂ Ph



Work in Progress

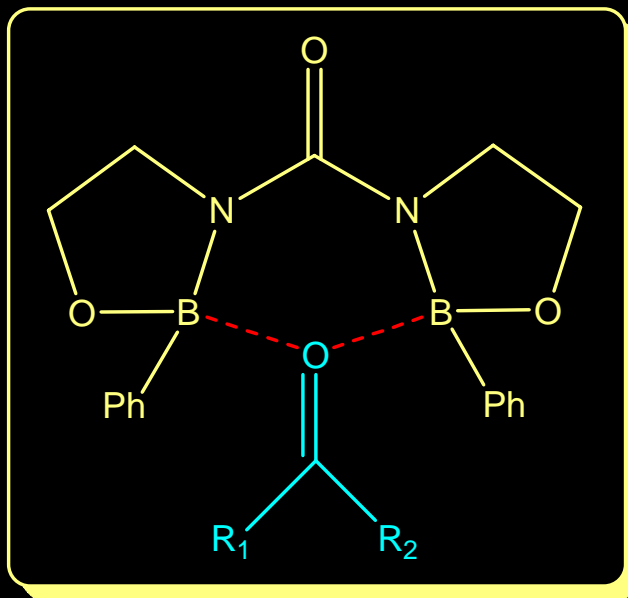
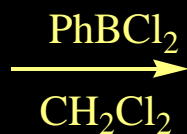
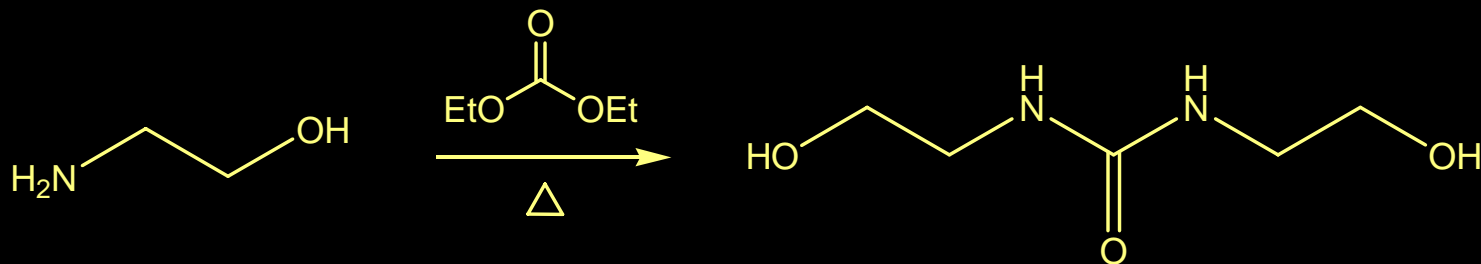


Work in Progress



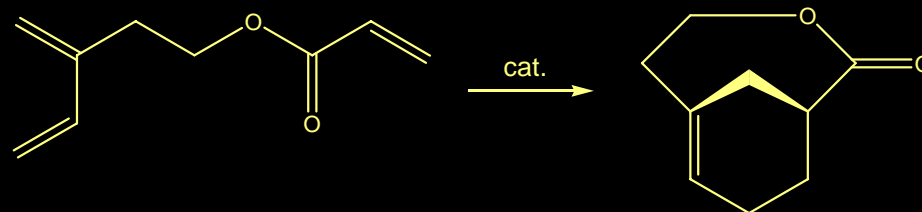
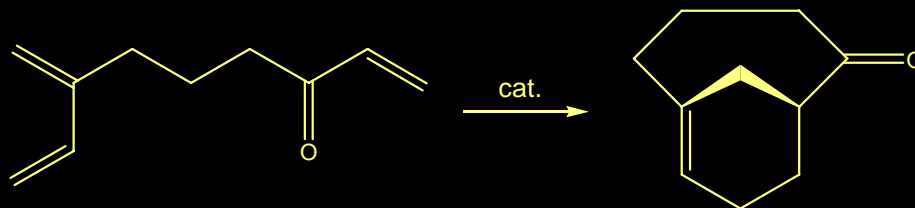
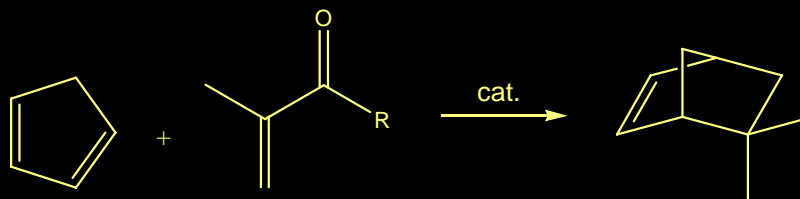
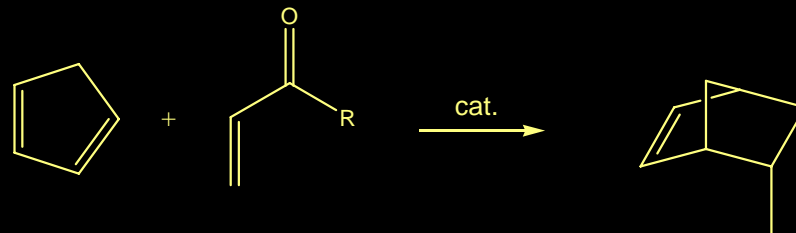
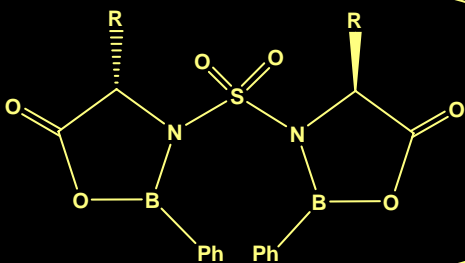
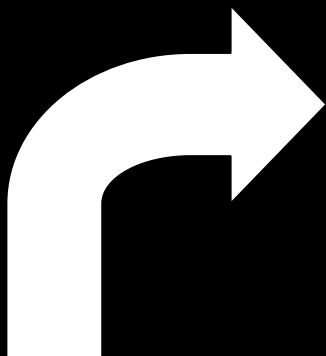
Work in Progress

Crystal Structure



Future Direction

Catalytic Work



Acknowledgments

