

Massachusetts Institute of Technology
Organic Chemistry 5.512

April 29, 2005
Prof. Rick L. Danheiser

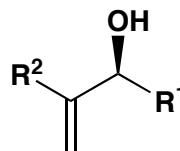
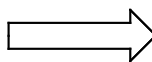
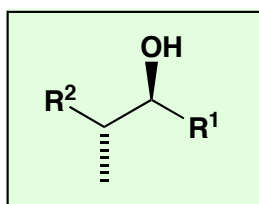
Unit 8
Stereocontrolled Reduction of Alkenes

- ★ Substrate Control: Directed Hydrogenation
- ★ Reagent Control Strategies

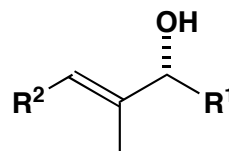
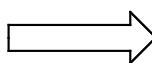
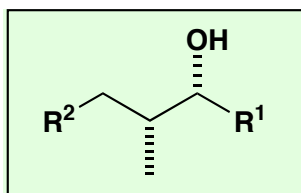
Substrate Control Strategies

Retrons

ANTI

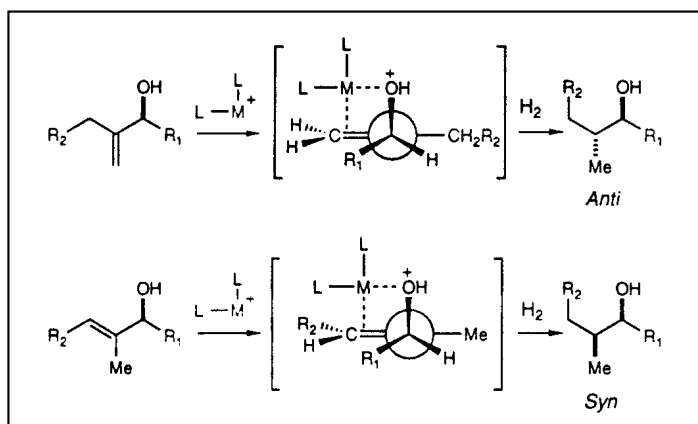


SYN



Reviewed in:

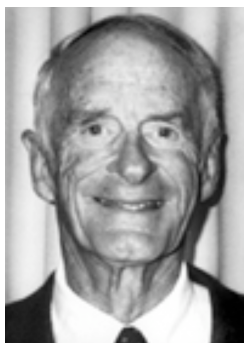
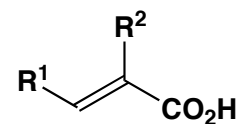
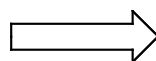
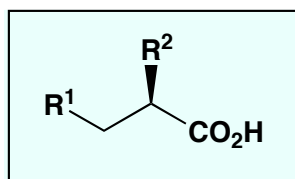
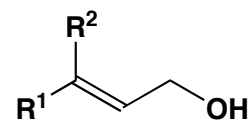
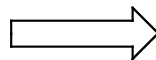
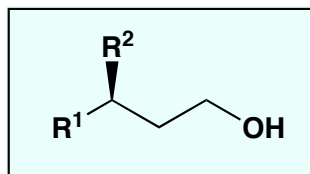
"Substrate-Directable Chemical
Reactions" Hoveyda, A.; Evans, D. A.;
Fu, G. C. *Chem. Rev.* **1993**, 93, 1307



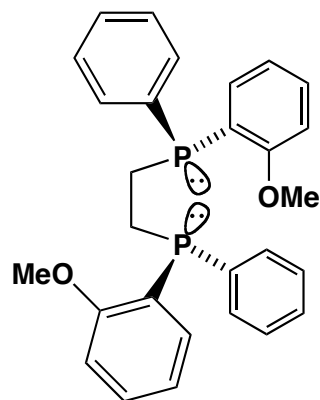
Reagent Control Strategies

(2) Catalytic Asymmetric Hydrogenation

Representative
Retrons



William S. Knowles



(R,R)-DIPAMP

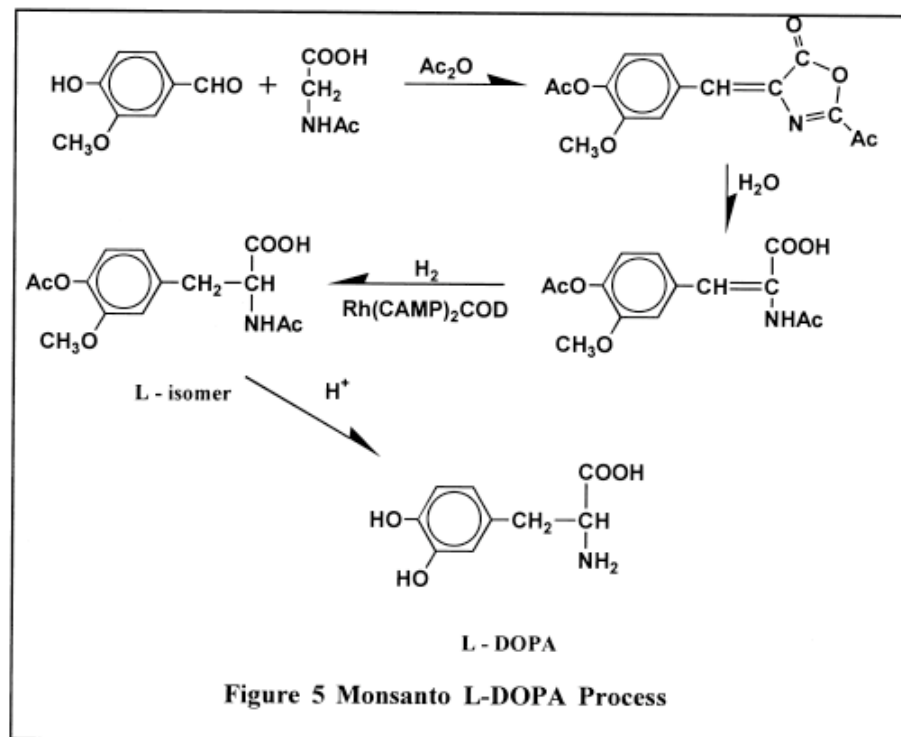


Figure 5 Monsanto L-DOPA Process

From the Nobel Lecture

W. S. Knowles

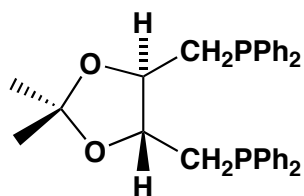
December 8, 2001

Review on "Asymmetric Hydrogenation"

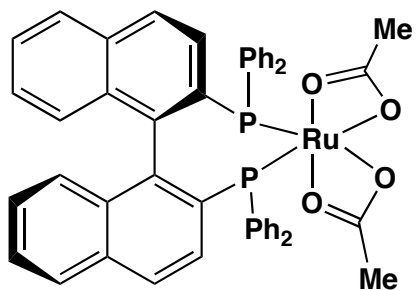
Ohkuma, T.; Kitamura, M.; Noyori, R. In *Catalytic Asymmetric Synthesis*; Ojima, I., Ed.; Wiley-VCH, 2000, pp 1-110



Henri Kagan



(R,R)-DIOP



Ru[(S)-BINAP]



Ryoji Noyori

