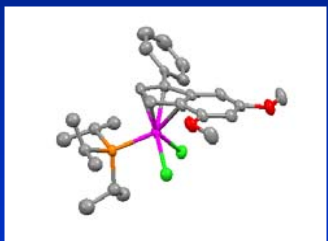
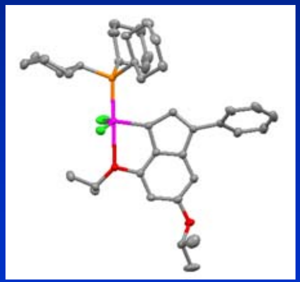
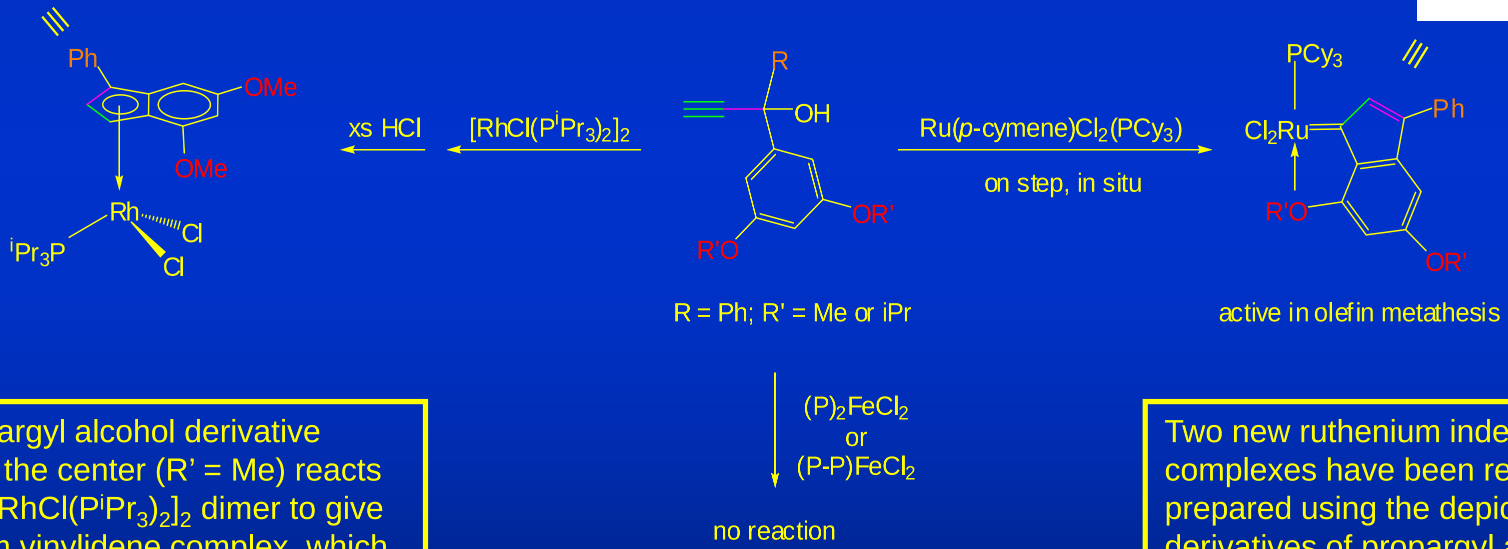
Toward the Development of Iron-Based Olefin Metathesis Catalysts

Yann Schrodi, Department of Chemistry and Biochemistry
California State University, Northridge, CA 91330



- Long-term goal: develop iron-based olefin metathesis catalysts
- Short-term goal: develop new method for the formation of metal alkylidene (especially iron alkylidene) complexes





The propargyl alcohol derivative shown in the center (R' = Me) reacts with the $[RhCl(P^iPr_3)_2]_2$ dimer to give a rhodium vinylidene complex, which is converted into the depicted rhodium indenyl compound upon protonation. It is believed that a rhodium indenylidene species was formed as an intermediate to the rhodium indenyl complex.

Current efforts focus on attempting to use these propargyl alcohol derivatives to prepare iron indenylidene species. Other methods to prepare iron alkyli-denes are also being investigated.

Two new ruthenium indenylidene complexes have been readily prepared using the depicted derivatives of propargyl alcohol. Both complexes are active in olefin metathesis. The presence of the alkoxy groups on the organic precursors seems to favor the formation of metal indenylidene versus metal allenylidene complexes.