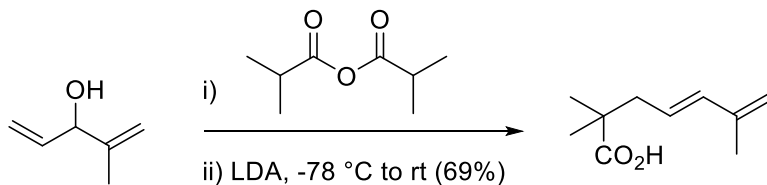


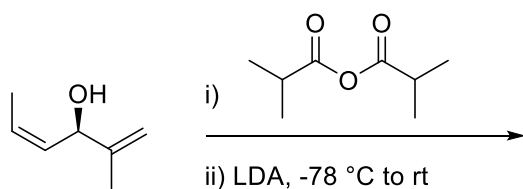
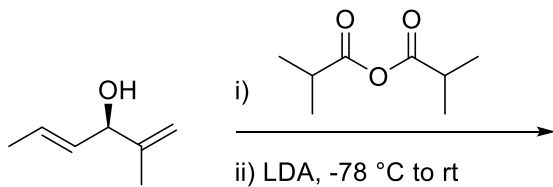
Problem Set #008 (Sandford)

(1) (+)-Asteriscanolide Synthesis – Wender JACS 1988 5904

- a) Provide a mechanism (including suitable transition state) for the following named reaction. Explain the regioselectivity of the reaction based upon the possible transition states:

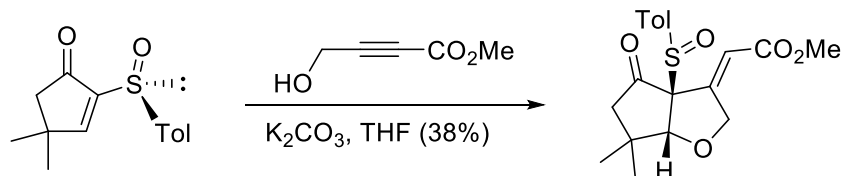


- b) Based on your answer above, predict the products (including stereochemistry) of the following:

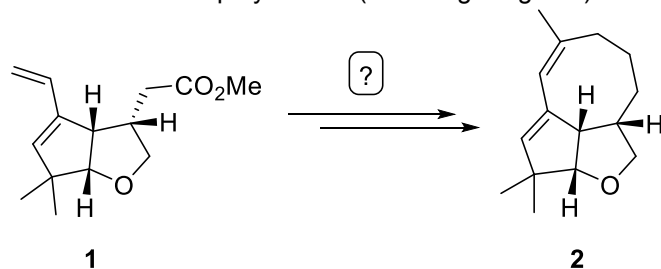


(2) (+)-Asteriscanolide Synthesis – Paquette JACS 2000 2742

Provide a mechanism for the following reaction, and provide a model to explain the stereochemical control (hint: the chelating ability of the K^+ cation is critical in the model).

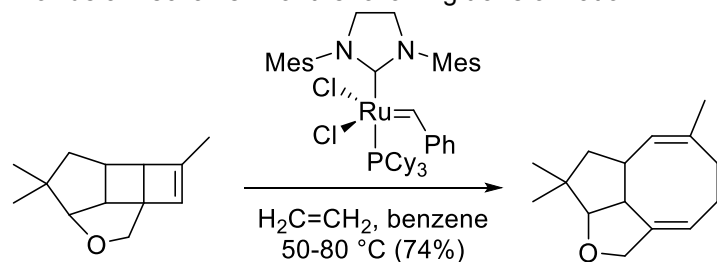
**(3) (+)-Asteriscanolide Synthesis – Paquette JACS 2000 2742**

Devise a multi-step synthesis (including reagents) of compound **2** from compound **1**.



(4) (+)-Asteriscanolide Synthesis – Snapper JACS 2000 8071

Provide a mechanism for the following transformation:

**(5) (±)-Cycloclavine Synthesis – Wipf JACS 2011 7704**

Provide a mechanism for the following two step transformation:

