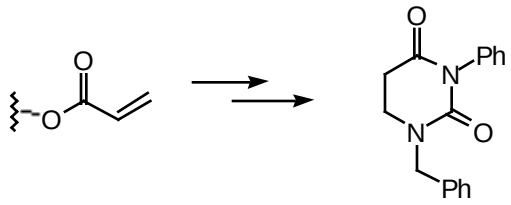
Organic Cume February 1997

The first three questions deal with Dr. Bruce Hamper's colloquium presentation.

1. (5 pts) What is Wang's resin?

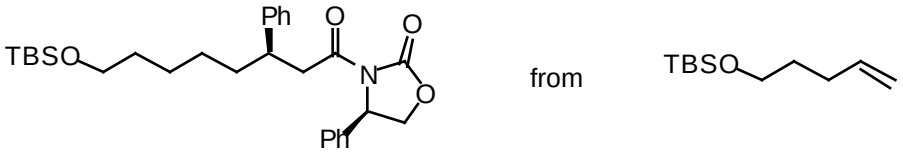
2. (15 pts) Dr. Hamper's presentation included a solid phase route to proline analogues. The reaction of a benzaldehyde, an amino acid and N-phenylmaleimide gave the products. Using benzaldehyde, alanine and N-phenylmaleimide, show the product which would form and draw a mechanism for its formation.

3. (10 pts) Show a method for converting an acrylate ester (perhaps one on a solid phase) into a 5,6-dihydropyridimindine-2,4-dione. The specific transformation to be executed is shown below.



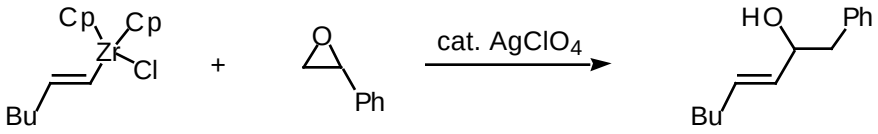
The remaining questions cover the colloquium presented by Professor Peter Wipf.

4. (10 pts) Show how you would make the following compound using an organozirconium intermediate.

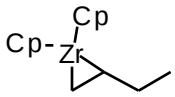


5. (10 pts) Rationalize the stereochemistry of the coupling reaction you used in the preceding question.

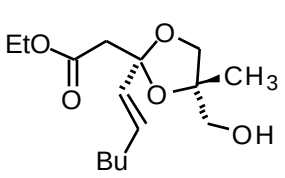
6. (15 pts) Draw a mechanism for the following reaction and draw a catalytic cycle which shows how the process can be catalytic in silver ion.



7. (15 pts) Treatment of zirconocene dichloride with two equivalents of n-BuLi followed by warming gives a compound which can de drawn as the structure shown below. Give a mechanism for the process.



8. (20 pts) Show how you would synthesize the acetal shown from succinic anhydride and whatever else you need.



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