How would you prepare A from farnesol?
How would you prepare B from malonic acid?

In step 4:
Two separable diastereomers are formed as 1:1 mixture. Please explain their formation mechanistically.
Both diastereomers can undergo a decomposition reaction, leading to the same sideproduct. Which one? Mechanism?
In the presence of TMSOTf, the wrong diastereomer undergoes lactone-opening and a cyclisation reaction forming another 6-membered carbocycle. Which one?

Chatancin is highly unstable even under mildly acidic conditions. What is the decomposition-product and how does it form?