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APPLICATION OF IRELAND-CLAISEN REARRANGEMENT IN THE TOTAL SYNTHESES OF 4-ETHYLIDENE PROLINE CONTAINING NATURAL PRODUCTS

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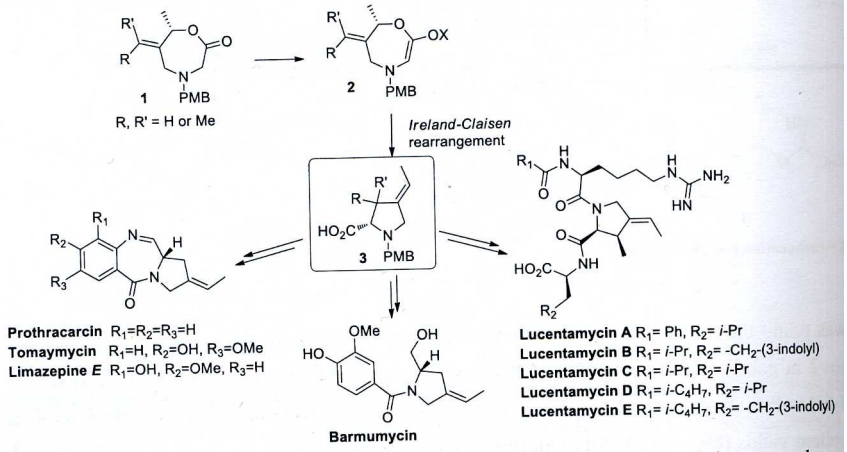
A number of natural products contain a proline fragment with an *E*-ethylidene substituent at 4 position. Although several total syntheses of these natural products have been reported, effi cient control of the olefin geometry has not been achieved.



The key building block for the total syntheses of ethylidene proline containing natural pro ucts is proline derivative **3**, possessing all elements of stereochemistry – one or two chi centers and an *E*- olefin. Herein we disclose an efficient, stereoselective synthesis of ethy dene proline derivatives **3** via a boron enolate Ireland-Claisen rearrangement of 7-member lactone **1**, The synthesis of 7-membered lactones **1** and the optimization studies of the k transformation – the Ireland-Claisen rearrangement will be presented.

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References:

Smits, G., Zemribo, R. *Org. Lett.* **2013**, 15, 4406.