

Skeletal Diversity from *cis*-2-Alkenylcycloalkan-1-ol

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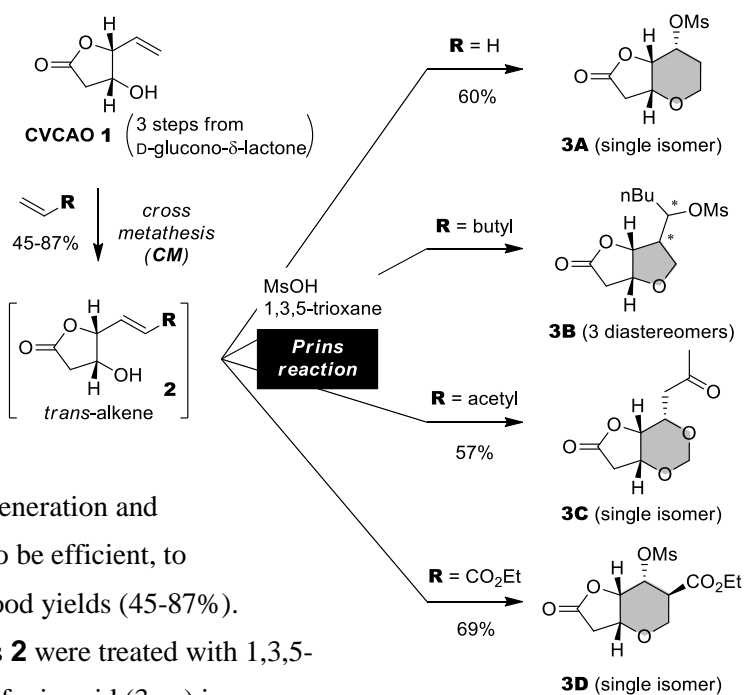
Keywords: Prins Reaction; Bicyclic Skeleton; Skeletal Diversity; Stereoselective Reaction

Synthetic method that leads one skeleton to diverse skeletons is of use in the development of biologically functional compounds. We have previously found that bicyclic skeleton bearing various substituents can be generated rapidly from *cis*-2-vinylcycloalkan-1-ol (CVCAO, **1**) by Prins or Prins-Ritter reaction.^[1] Herein, we report an organic synthesis that allows efficient construction of skeletally diverse compound collections from derivatives of CVCAO under common reaction conditions (1,3,5-trioxane, MsOH).

First, homoallylic alcohols **2** (**R** = ester, ketone, alkyl groups) were synthesized as substrates for diversity generation, by cross metathesis (CM) reaction of CVCAO **1**, which can be readily prepared from D-glucono- δ -lactone. For the CM reaction,

Hoveyda-Grubbs catalyst 2nd generation and Zhan-1B catalyst were found to be efficient, to give rise to **2** in moderate to good yields (45-87%).

When the homoallylic alcohols **2** were treated with 1,3,5-trioxane (2 eq) and methanesulfonic acid (3 eq) in dichloromethane at rt, compounds **3A**, **3C** and **3D** were obtained in moderate yields. The stereoselectivities will be reported.



[1] M. Chiba, Y. Ishikawa, R. Sakai, M. Oikawa, *ACS Comb. Sci.* **2016**, *18*, 399–404.