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### $S_N2$ vs E2 on Quaternary Centers: An Easy Approach to Chiral $\beta^{2,2}$ -Amino Acids from Cyclic Sulfamidates

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## **S<sub>N</sub>2 vs E2 on Quaternary Centers: An Easy Approach to Chiral $\beta^{2,2}$ -Amino Acids from Cyclic Sulfamidates**

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### **INTRODUCTION**

The combination of the catalytic asymmetric dihydroxylation (AD)<sup>1</sup> and the synthesis of five-membered cyclic sulfamidates from 1,2-diols and Burgess-type reagents (BR),<sup>2</sup> has contributed to the expansion of the chemistry of such intermediates in organic synthesis.<sup>3</sup>

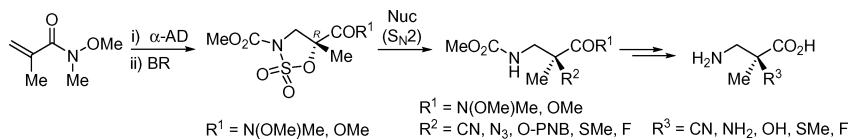
### **RESULTS**

In this sense, we focused our attention on two five-membered cyclic  $\alpha$ -methylisoserine-derived sulfamidates, believing that these two compounds would be excellent chiral building blocks for the synthesis of  $\alpha$ -methyl- $\beta$ -amino acids by a S<sub>N</sub>2 reaction, as a key step.

Although the synthesis and reactivity of several sulfamidates has been well documented, little is known about five-membered cyclic sulfamidates that are *gem*-disubstituted at the 5 position and, to the best of our knowledge, it is the first time that such compounds have been opened by nucleophiles *via* S<sub>N</sub>2 reaction on the quaternary carbon. Following this strategy, we have recently reported an easy synthetic approach to a varied collection of enantiopure  $\beta^{2,2}$ -amino acids.<sup>4</sup> Competitive E2 reaction appeared when basic nucleophiles were used to give  $\alpha$ -methylene- $\beta$ -alanines, but it was suppressed simply changing the amide group by the ester group in the cyclic sulfamidate.

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**SCHEME 1** Synthesis of  $\alpha$ -methyl- $\beta$ -amino acids from cyclic sulfamidates.

## REFERENCES

- [1] I. Ojima, *Catalytic Asymmetric Synthesis* (Wiley-VCH: New York, 2000), 2nd ed., pp. 357–398.
- [2] K. C. Nicolaou, X. Huang, S. A. Snyder, P. B. Rao, M. Bella, and M. V. Reddy, *Angew. Chem., Int. Ed. Engl.*, **41**, 834 (2002).
- [3] R. E. Meléndez and W. D. Lubell, *Tetrahedron*, **59**, 2581 (2003).
- [4] A. Avenoza, J. H. Busto, F. Corzana, G. Jiménez-Osés, and J. M. Peregrina, *Chem. Commun.*, 980 (2004).