BICYCLIC β-LACTAM INTERMEDIATES FOR THE DIVERGENT SYNTHESIS OF MARINE POLYCYCLIC GUANIDINIUM ALKALOIDS

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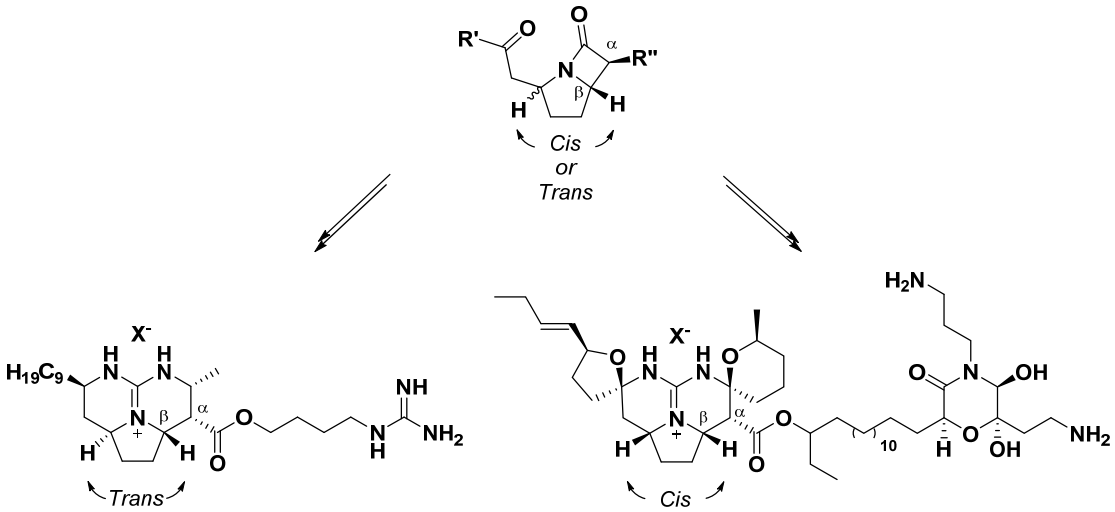

Polycyclic Guanidium Alkaloids (PGAs) represent a vast family of bioactive natural products [1]. They commonly exist as tri- or penta-cyclic compounds with either a *cis*- or a *trans*- pyrrolidine subunit and display a wide range of biological activities. Despite many synthetic studies and total syntheses of members of this family reported to date, there is still a need for efficient, stereoselective and modular synthesis to enable targeted biological studies. In this presentation, the development of a divergent synthetic strategy towards PGAs will be discussed utilizing bicyclic β-lactam intermediates as masked β-amino esters. The synthetic design provides straightforward, stereo-controlled installation of three key stereocenters found in the final targets. This strategy has been successfully applied to the total synthesis of batzelladine D [2] while current efforts towards monanchocidin A [3] will also be discussed.

[1] Sfecci, E.; Lacour, T.; Amade, P.; Mehiri, M. *Mar. Drugs* **2016**, *14*, 77.

[2] Patil, A. D.; Kumar, N. V.; Kokke, W. C.; Bean, M. F.; Freyer, A. J.; Brosse, C. D.; Mai, S.; Truneh, A.; Carte, B. *J. Org. Chem.* **1995**, *60*, 1182–1188.

[3] Guzii, A. G.; Makarieva, T. N.; Denisenko, V. A.; Dmitrenok, P. S.; Kuzmich, A. S.; Dyshlovoy, S. A.; Krasokhin, V. B.; Stonik, V. A. *Org. Lett.* **2010**, *12*, 4292–4295.