TOTAL SYNTHESIS OF CHAXALACTINS

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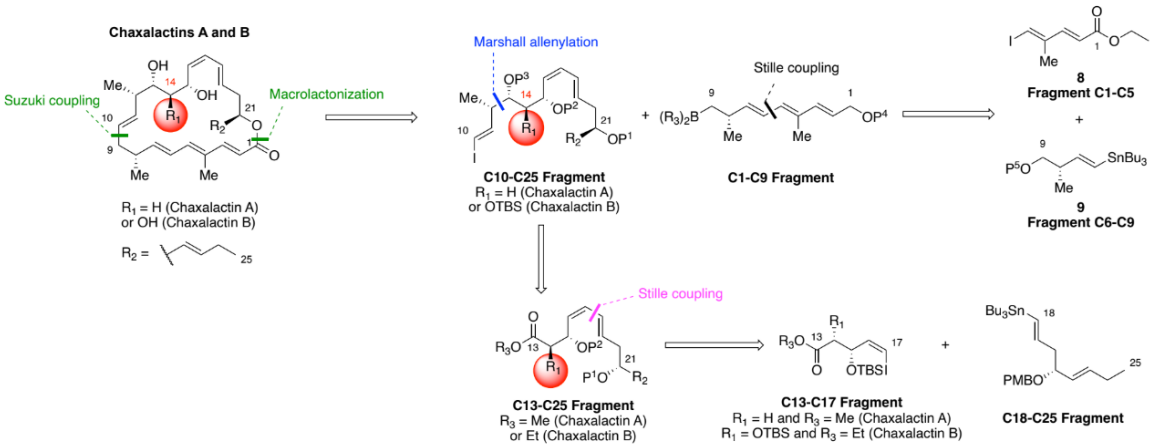
Chaxalactins A, B and C are 22-membered macrolactones isolated in 2011 from a strain called *Strep-tomyces sp. C34*, collected in hyper-arid Atacama Desert (Chili).[1] The complex structure of these molecules coupled with their interesting antibiotic and potential antitumoral activities make this family of molecules synthetically challenging important targets. Despite of their interest, no total synthesis of these compounds has been reported so far. The aim of our project is to synthesise for the first time chaxalactins A, B and C and their analogues. For now, we have been focusing our research on the synthesis of chaxalactins A and B, which differ by the position C14.

Chaxalactins could be obtained by a Suzuki coupling between the C1-C9 and C10-25 fragments, followed by a macrolactonization reaction. The C10-C25 fragment could be prepared from the C13-C25 fragment using a Marshall allenylation key step to introduce and control the C12 and C13 stereocenters. The C13-C25 fragment could in turn be obtained by a Stille coupling between the C13-C17 and C18-25 fragments.



Retrosynthetic analysis of Chaxalactins A and B

In this communication, the synthesis of the chaxalactin B and the progress towards the synthesis of the chaxalactin A will be presented.

References:

1 Rateb, M. E.; Houssen, W. E.; Harrison, W. T. A.; Deng, H.; Okoro, C. K.; Asenjo, J. A.; Andrews, B. A.; Bull, A. T.; Goodfellow, M.; Ebel, R.; Jaspars, M. *J. Nat. Prod.* **2011**, *74*, 1965.