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ALDRICH Chemistry

Aldrich Chemistry Lecture

Title of Lecture : Assembly Line Synthesis

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Date: April 28th, 2015

Time: Lectureship Opening at 11:30 - Lecture 12:00 - 13:00

Place: Universidad Complutense de Madrid;
Aula Magna. Chem. Dept. Building A

Presented By: Prof. Varinder Aggarwal

Overview

In the biosynthesis of polyketides, Nature takes a simple building block and through a series of iterative enzymatic reactions [polyketide synthases (PKS)] manufactures a vast array of secondary metabolites, many of which display high chemical complexity and biological activity. We propose to try to emulate Nature's remarkable structural and functional diversity in assembly of polyketides through a related strategy. In particular we have taken simple boronic esters and carried out iterative homologations using primary1 and secondary2 lithiated carbamates, enabling us to grow carbon chains with control over both relative and absolute stereochemistry. Applications of this strategy to natural and non-natural products will be demonstrated.
The secondary and tertiary boronic esters formed at the end of the homologation sequence can be converted into a range of functional groups.3 I will show a new method for the stereospecific coupling of these hindered chiral boronic esters with aryl halides.

Finally, I will also describe our recent applications of organocatalysis to a short synthesis of the prostaglandin PGF2α4

The presentation will be given in English

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