

Nature-inspired approaches to chemical synthesis

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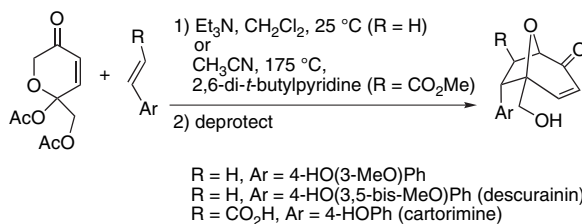
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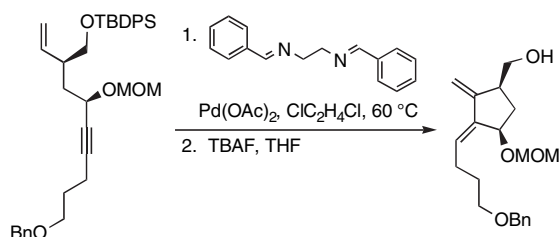
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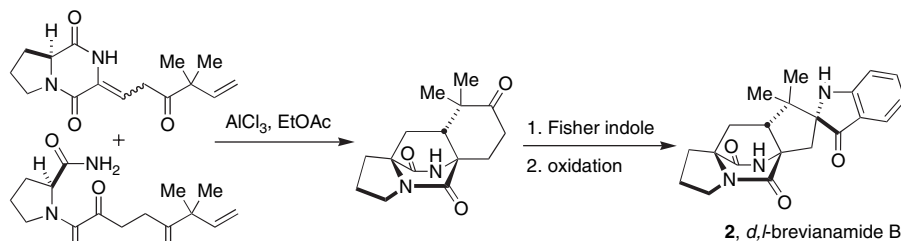
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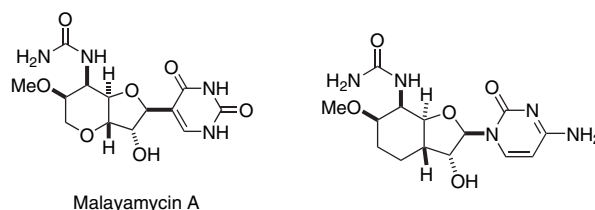
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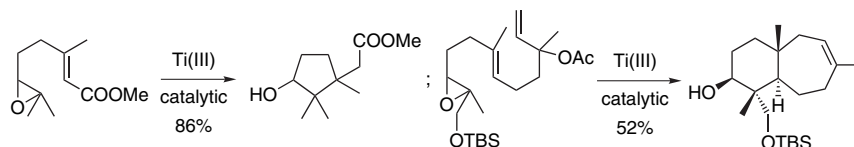
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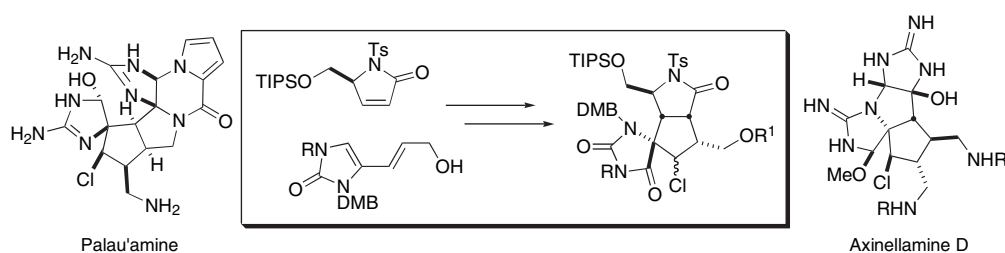
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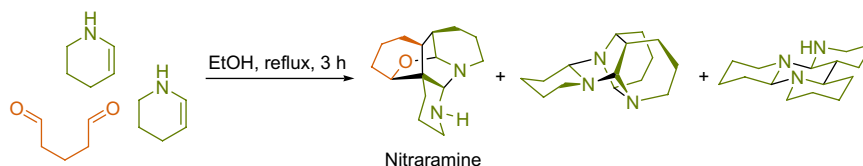
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Biomimetic investigations from reactive lysine-derived C₅ units: one step synthesis of complex polycyclic alkaloids from the *Nitraria* genus

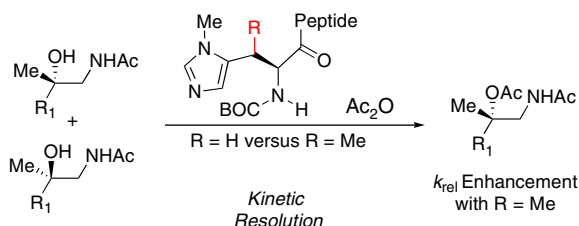
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**Dihedral angle restriction within a peptide-based tertiary alcohol kinetic resolution catalyst**

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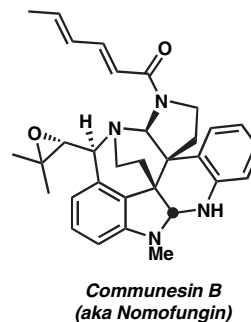
Mary C. Angione and Scott J. Miller*

**The structural and synthetic implications of the biosynthesis of the calycanthaceous alkaloids, the communesins, and nomofungin**

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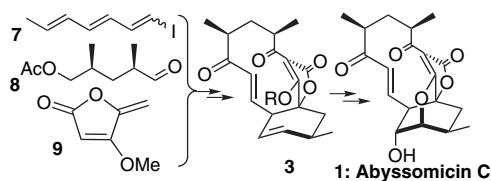
Jeremy A. May and Brian Stoltz*

A comparison is made between the calycanthaceous alkaloids, nomofungin, and the communesins using structural and biosynthetic information from studies of the former to shed light on the structural ambiguity of the two latter species.

**Formal synthesis of Abyssomicin C**

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Elias A. Couladouros,* Emmanuel A. Bouzas and Alexandros D. Magos



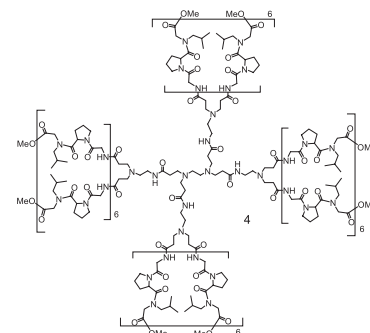
Preparation of key intermediate **3**, by assembling fragments **7–9**, is described. In the last step, isomerization of the *Z* to the desired *E* isomer and concomitant intramolecular Diels-Alder cyclization furnished **3** as a single isomer in high yield.

The design, synthesis, and characterization of a PAMAM-based triple helical collagen mimetic dendrimer

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Garth A. Kinberger,* Joseph P. Taulane and Murray Goodman

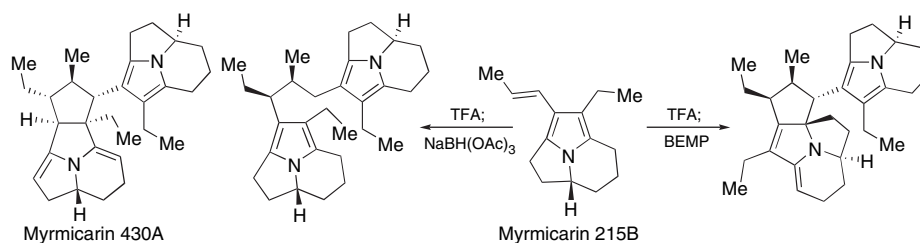
The synthesis and characterization of a collagen mimetic dendrimer composed of the Gly-Pro-Nleu sequence is described. The dendrimer is built on a 'first generation' poly(amidoamine) core and is synthesized in 38% yield. This dendrimer exhibits a melting temperature of 25 °C, which is in between previously studied analogous molecules of identical sequence and length.



Dimerization of (+)-myrmicaridin 215B. A potential biomimetic approach to complex myrmicaridin alkaloids

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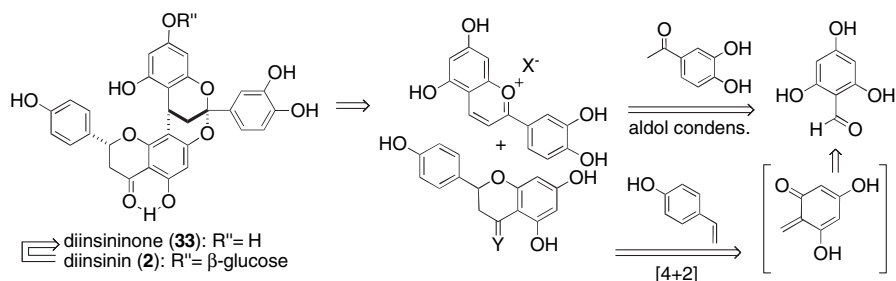
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(±)-Diinsininone: made nature's way

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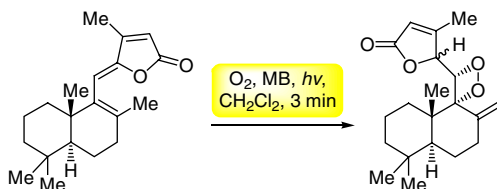
Carolyn Selenski and Thomas R. R. Pettus*



The power of singlet oxygen chemistry in biomimetic syntheses

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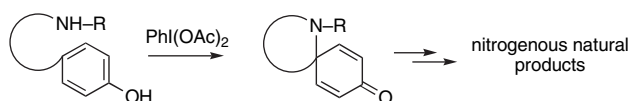
Ioannis Margaros, Tamsyn Montagnon, Maria Tofi, Elias Pavlakos and Georgios Vassilikogiannakis*



Singlet oxygen is a reagent that is synonymous with biomimetic synthetic strategies. In an attempt to validate this statement, we offer a brief survey of our work, both past and current, employing singlet oxygen in the field of biomimetically inspired natural product synthesis. The natural products discussed herein are the litseaverticillols, prunolides, and premlalane A.

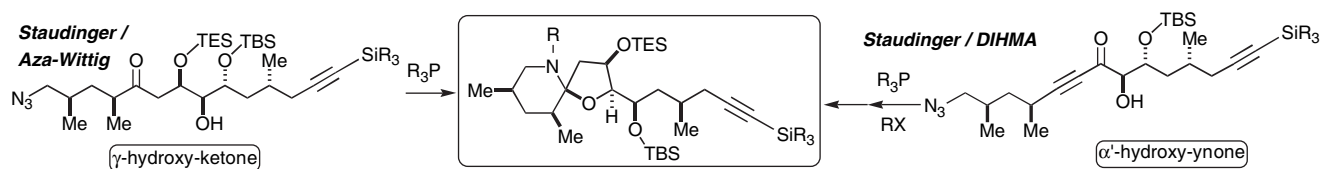
Synthetic ventures inspired by biosynthetic hypotheses: the evolution of a method for the oxidative amidation of phenols pp 5318–5337

Marco A. Ciufolini,^{*} Sylvain Canesi, Malika Ousmer and Norbert A. Braun



Facile biomimetic syntheses of the azaspiracid spiroaminal pp 5338–5346

Son Nguyen, Jianyan Xu and Craig J. Forsyth^{*}



Cellular routines in the synthesis of cyclic peptide probes pp 5347–5354

James J. La Clair^{*}



By the appropriate placement within a synthetic scheme, cells can be used not only as an endpoint in probe development but also as practical vehicle to identify and process materials. Examples developed in this study illustrate the synthesis of probes whose intracellular trafficking are regulated by metabolic processing. The development of fluorescent cyclic peptide and depsipeptide probes can now be directed by cells.

*Corresponding author

COVER

The cover picture highlights the stereocontrolled polycyclization of squalene oxide to dammaradienol. This reaction, which represents a central step in the biosynthesis of steroids, has inspired the development of biomimetic polyolefinic cyclizations as viable strategies toward the synthesis of polycyclic natural products. Ideas about the structural origin and biogenesis of natural products are at the heart of biomimetic or nature-inspired syntheses and constitute the theme of this *Tetrahedron* Symposium-in-Print.

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