

College of Pharmacy, Sungkyunkwan University

Sphingofungins, compounds consisting of polar polyhydroxyl amino head groups, and long lipid chains, are membrane constituent involved in a number of cellular events including protein binding and transmembrane signaling.

We now report concise synthesis of sphingofungin F. The key steps of our syntheses are diastereoselective alkylation of oxazoline, diastereoselective addition of *g*-alkoxy allylic stannane, and palladium-catalyzed coupling of vinyl iodide with alkylzinc.

[PD1-54] [ 10/19/2001 (Fri) 14:00 – 17:00 / Hall D ]

### Total Synthesis of Myriocin

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Myriocin was first isolated from the fermentation broth of the thermophilic fungi, *Myriococcus albomyces* and *Mycelia sterila* as an antifungal principle in 1972. It have a quaternary center, three consecutive chiral centers and trans-olefinic group in polar hydroxyl amino head group.

Herein, we report an enantioselective strategy for the total synthesis of myriocin that features the use of the stereoselective intramolecular cyclization of homoallyl benzamide via *p*-allylpalladium complex catalyzed by Pd(0).

Our convergent, stereocontrolled synthesis of myriocin was executed via palladium-catalyzed coupling between polar head group and long lipid chain. The polar hydroxyl amino head group was synthesized by using diastereoselective hydroxymethylation of oxazoline and asymmetric allylation.

[PD1-55] [ 10/19/2001 (Fri) 14:00 – 17:00 / Hall D ]

### A Simple Synthesis of Rutaecarpine

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Rutaecarpine is one of the indoloquinazoline alkaloids of the Rutaceous plants such as *Evodia rutaecarpa* which has long been utilized for the treatment of inflammation-related disorders in the traditional oriental medicinal practice. Recent research revealed that such an antiinflammatory activity stemmed from the attribution of rutaecarpine by a quite potent and selective inhibitory activity onto COX-2. Addition to antiinflammatory activity, the vasorelaxing, antiplatelet, and antianoxic activities were reported for rutaecarpine. The derivative, dehydroevodiamine was found to show a potent and promising activity on Alzheimer disease. Such interesting biological activities prompted us to design a simple synthetic route for the synthesis of rutaecarpine. We herein describe a simple 6 step synthesis of rutaecarpine from readily available anthranilic acid *via* 9,10,11,12-tetrahydro-4*H*-pyrido[2,1-*b*]-quinazoline-4,9-dione as a key intermediate.

[PD1-56] [ 10/19/2001 (Fri) 14:00 – 17:00 / Hall D ]

### Total Synthesis of (+)-Lauthisan

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In connection with the synthesis of marine products and their analogues as potential antibiotics, we report here the total synthesis of (+)-lauthisan using diastereoselective alkylation and ring closing metathesis as key steps. The starting D-glyceraldehyde acetonide was converted into (5R)-ethyl-(3S)-hexyl-(6R)-hydroxymethyl-[1,4]dioxan-2-one in 7 steps *via* bidentate chelation controlled asymmetric alkylation. Then, the dioxanone was transformed in 5 steps *via* radical allylation and Wittig olefination to the requisite diene for ring closing metathesis. The diene was exposed to Grubb's catalyst to produce 8-membered oxocane possessing the all-carbon framework of the target natural product. Chemical modification of the oxocane ring under conventional conditions completed the total synthesis of (+)-lauthisan.

[PD1-57] [ 10/19/2001 (Fri) 14:00 - 17:00 / Hall D ]

### **Curing Characteristics and Fracture Mechanism of Liquid Crystal Epoxy(LCE) for Medical Polymers**

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As medical science technology developing, medical polymer part has been importantly known to many investigators. Because medical polymers present good mechanical, electrical, thermal, chemical, and optical properties, they were utilized as artificial organs for the human being. The study of medical polymers, such as curing characteristics and physical properties, is principles to use as medical polymer. In our study, we investigated curing characteristics of liquid crystal epoxy (LCE) thermosets and fracture mechanism. Curing characteristics of LCE polymers was analyzed by FT-IR spectroscopy and fracture behaviours of them were simulated using cellular automata (CAs). From this work, we could understand the curing mechanism and fracture mechanism of LCE polymers. These results are very useful to apply LCE polymer and simulate the fracture behaviour of LCE for the understanding, test, and applications.

Poster Presentations – Field D2. Pharmacognosy

[PD2-1] [ 10/19/2001 (Fri) 14:00 - 17:00 / Hall D ]

### **Four $\alpha$ -Amyrin Triterpenoids, and their Cytotoxicity and Topoisomerase I Inhibition from the Spikes of *Prunella vulgaris***

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