carbocyclic nucleosides using sequential Grubbs' ring closing metathesis and Trost allylic alkylation reaction as key reactions.

[PD1-6] [04/19/2002 (Fri) 10:00 - 13:00 / Hall E]

Cyclopropyl Intermediate for Synthesis of Novel Carbocyclic Nucleosides, Potential Antiviral Agents

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Carbocyclic nucleosides has extensively studied as a promising antiviral agents having chemical and metabolical stability. In our research program for discovery of antiviral drugs, some novel dimethylcyclopropyl nucleosides possessing additional methyl spacer between the base and the ring were synthesized. The important intermediate, dimethylcyclopropyl compound was synthesized from ethyl chrysanthemate via its ozonolysis, isomerization, reduction and protection by protecting group. The ethyl ester was reduced by LiAlH4 to give the cyclopropyl intermediate which was activated by tosylation for using condensation with purine bases.

[PD1-7] [04/19/2002 (Fri) 10:00 - 13:00 / Hall E]

Total Synthesis of Cyclictetrapeptide Analogues of Apicidin

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The antiparasitic agent apicidin, which was recently isolated from cultures of Fusarium Pallidoroseum, belongs to a rare group of cylic tetrapeptiol fungal metabolites. Apicidin inhibits protozoal HADC and is orally active against Plasmodium berghei malaria in mice. The biological activity of apicidin appears to be attributable to inhibition of apicomplexan HADC at low nanomolar concentrations.
In the present, we have worked about the synthesis of new apicidin derivatives and discovered that apicidin and some derivatives have mild antiumor activity. It caused the change of tumor cells to normal ones morphology.
As part of our program toward the development of new antitumor agents, we designed and synthesized several cyclictetrapeptide compounds. In this presentation, we will report the total synthesis of these Apicidin analogues.

[PD1-8] [04/19/2002 (Fri) 10:00 - 13:00 / Hall E]

A Convenient Synthesis of Chelerythrine via Intramolecular Cyclization Reaction

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The benzophenanthridine alkaloids constitute a large group of metabolites which occur in the Fumariaceae, Papaveraceae, and Rutaceae and posses, in many cases, strong pharmacological activities. Thus, nitidine and fagaronine have been shown to have a antitumor activity in animal models, an activity which could be related to inhibition of DNA topoisomerase. The toxicological problems associated with the most active members of this group have led to develop new synthetic methods of these compounds, in order to study the structure-activity relationship.
There are many classical methods by which this heterocyle can be constructed and especially attractive are

those procedures which involve 3-arylisoquinoline intermediates, because these synthons could be also involved in the synthesis of other alkaloid skeletons, such as protoberberines. We recently reported the synthesis of 3-arylisoquinolines which are crucial intermediates for the preparation of benzophenanthridines. This method offers an efficient route for diverse natural alkaloids. The convenient synthesis of chelerythridine will be described.

[PD1-9] [04/19/2002 (Fri) 10:00 - 13:00 / Hall E]

Electronic Factor in Cinchona Alkaloid Ammonium Salts Phase-Transfer Catalysts

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Phase-transfer catalytic reactions (PTC) have been widely applied in organic synthesis. The operational simplicity and mild reaction conditions enable this method become very useful methodology for the practical and industrial process. Recently chiral quaternary ammonium salts has arisen as useful phase-transfer catalysts for asymmetric synthesis. Especially a series of cinchona alkaloid type quaternary ammonium salts were introduced as chiral phase-transfer catalysts because of its cheap and commercial availability. Since the first introduction of N-benzylcinchonidinum halide by the O'Donnell, the more efficient catalysts, N-(9-anthracenylmethyl)cinchonidinum halide were independently developed by Lygo and Corey by the introduction of the bulky group on N(1) position. Also recently dimeric and trimeric catalyst were prepared as an efficient catalyst using benzene as a ligand. As part of our program for the mechanistic study in the alkylation using cinchona alkaloid type phase-transfer catalysts, we investigate the role of the electronic factor in enantioselectivity. Because the ion-pair of the quaternary ammonium cation and anionic substrate is important intermediate in the stage of the chiral induction, the electronic effect of N(1)-substituents might influence the enantioselectivity. In this poster, we report the role of the electronic factor in N(1)-benzylcinchonidinium ammonium salt.

[PD1-10] [04/19/2002 (Fri) 10:00 - 13:00 / Hall E]

Asymmetric synthesis of (2R, 3S, 4E)-2-Amino-5-phenyl-pent-4-ene-1,3-diols

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(2R, 3S, 4E)-2-Amino-5-phenyl-pent-4-ene-1,3-diols had been stereoselectively synthesized. (1R, 5R)-(+)-α-Pinene was treated with KMnO4 to give (1S, 2S, 5S)-(-)-2-hydroxy-3-pinanone, which reacted with ethylglycinate, boron trifluoride etherate and then with ClTi(OEt3), arylpropenal to yield (1S, 2S, 5S)-aldol compounds. These Compounds were hydrolyzed with HCl and reduced with NaBH4 to give (2R, 3S, 4E)-2-amino-5-phenyl-pent-4-ene-1,3-diols.

[PD1-11] [04/19/2002 (Fri) 10:00 - 13:00 / Hall E]

Mechanism Studies on CSI reaction of p-Substituted Phenylallyl Methyl Ethers

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We have recently described synthetic method for N-protected allylic amines from allyl ethers using chlorosulfonyl isocyanate(CSI) via the stable allylic carbocation, and furthermore, we developed novel