technique to compare directly the stability of carbocations in the solution phase using CSI reaction.
Our previous report showed that the CSI reaction of cinnamyl methyl ether produced the terminal allylic amine as major product (1 : 2.7), and 1-phenylallyl methyl ether yielded a similar result. But, treatment of 4-phenylbut-2-enyl methyl ether with CSI furnished methyl N-(1-benzylallyl)carbamate and methyl N-(4-phenylbut-2-enyl)carbamate as a 1 : 1.1 mixture of regioisomers, however, the 1-benzylallyl methyl ether gave an inversed product ratio (4.6 : 1) in favor of the internal allylic amine.
In this presentation, we will report the results of CSI reaction with p-substituted cinnamyl methyl ethers and p-substituted phenylallyl methyl ethers. Also, we will discuss the effect of p-substituent on CSI reaction, and the mechanism of these reactions.

[PD1-12] [04/19/2002 (Fri) 10:00 - 13:00 / Hall E]

Comparative Molecular Field Analysis of Combrestatins active against A-549 Tumor Cell

Min SunYoung°, Kim Sanghee, Lee SangKook, Chung ByungHo, Cho WonJea

College of Pharmacy, Chonnam National University, College of Pharmacy, Seoul National University, College of Pharmacy, Ewha Womans University

Combrestatins, isolated from Combretum caffrum, exhibit the potent cytotoxicities against various human tumor cell lines including multi-drug resistant cancer cells. These compounds also bind to tubulin on the colchicine binding sites. Not only for overcoming the low water solubility of Combrestatin-4 but also for developing more potent molecules, synthesis of new compounds were performed by many research groups. For the study of quantitative structure-activity relationship of these compounds, comparative molecular field analysis (CoMFA) was carried out using Sybyl 6.6 software with newly synthesized compounds and published data. A molecular modeling study was undertaken to develop a predictive model for combretastatins that inhibit the A-549 tumor cell line. We examined a series of molecular alignments for the training set and ultimately found that overlapping the respective trimethoxyphenyl rings (A ring) of the analogues yielded the best correlated model. The CoMFA gave a reasonable cross-validated R2 value. The precise investigation of electrostatic and hydrophobic favoring areas will be presented.

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

Synthesis and Cytotoxic Activities of Benzoquinoxalinediones

NamKoong Kwon°, Lee HeeSoon, Cho SungMoon, Choi ByungGil, †Yang SungIl

College of Pharmacy, Chungbuk National University, †College of Medicine, Kunkuk University

Topoisomerases are enzymes that can change the topological state of DNA through the breaking and rejoining of DNA strands. These have been shown to be important, often essential, cellular proteins involved in nearly all aspects of DNA metabolism and structure. Topoisomerase inhibitors have also gained wide clinical significance due to their efficacy as antitumor agents.
The amino substituted azaanthraquinones have attracted much interest due to their possible role as topoisomerase inhibitors. In this study, we describe synthesis and cytotoxic activities of a series of benzoquinoxalinedione derivatives. These were designed based on the SAR of azaanthraquinones and structual analysis of products which are fitted with doxorubicin.

[PD1-14] [04/19/2002 (Fri) 10:00 - 13:00 / Hall E]

Novel Diastereoselective Synthetic Method for 1, 2-Aminoalcohols

Kim JiDuck°, Jung YoungHoon

College of Pharmacy, Sungkyunkwan University, Suwon 440-746, Korea

The vicinal amino alcohol moiety is a common structural component in a vast group of naturally occurring and synthetic molecules. The presence of this moiety and the relative stereochemistry are generally important for the biological activity of molecules containing a vicinal amino alcohol. As such, a variety of stereoselective synthetic methods have been developed. Just as there are an equally large number of synthetic routes to these molecules. Conceptually one can be divide these synthesis into four different classes: (1) functional group manipulation of a molecule containing both heteroatoms, (2) addition of one heteroatom to a molecule which already contains one heteroatom, (3) addition of both heteroatoms to a molecule which has neither, (4) coupling of two molecules, each of which has one heteroatom.
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 technique to compare directly the stability of carbocations in the solution phase using CSI reaction.
In this presentation, we will report diastereoselective synthetic method for 1, 2-aminoalcohols by the our CSI reaction system and discuss mechanism of these reactions.

[PD1-15] [04/19/2002 (Fri) 10:00 - 13:00 / Hall E]

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

Im ChaeUK, Choi SuHang°, Jun SangChul, Yim ChulBu

Chungang University, Faculty of Pharmacy

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

[PD1-16] [04/19/2002 (Fri) 10:00 - 13:00 / Hall E]

A synthesis of novel acyclic nucleosides

Lee JaeYoung°, Kim Jihee, Ko OkHyun, Hong JoonHee*

College of Pharmacy, Chosun University, Kwangju 501-759, Korea

The discovery of acyclovir as an antiherpes agent ignited the search for new antiviral nucleosides with disconnected chain resulting from omitting any bond from the pentose or cyclopenane rings. During the last twenty years, many new synthetic schemes for various acyclic nucleoside analogues have been discovered and many of these molecules have shown promising antiviral activities. Among them, desciclovir, ganciclovir, penciclovir, famciclovir have shown potent antiviral activity against HBV and herpes virus. It could be assumed that the potent antiviral activity be originated from flexible acyclic sugar mimicking chain moiety. In view of these promising results of acyclic nucleosides and as part of our continuing drug discovery efforts, we planned to synthesize novel diseconucleosides (two bond disconnection). Here, we would like to report the synthetic route of novel 1',x and 4',x-diseco-nucleosides from D-lactose.

[PD1-17] [04/19/2002 (Fri) 10:00 - 13:00 / Hall E]

Synthesis and Anti-Inflammatory Activity of Heteroaryl Substituted Flavones

Lee HunHeng° Tran ThanhDao Sin KwangSeog Kim SangHee Park Haell

College of Pharmacy, Kangwon National University, College of Pharmacy, Seoul National University