Irreversible inhibitor may provide better therapeutic potential to control this viral disease. Since aziridine motif possesses alkylating property, integration of this motif into the backbone of trovidine analogs was attempted. Thus N-(pyridin-2-yl)- carbamoyl-2-phenylaziridines were synthesized and tested against HIV 1
and HIV 2 viruses.

[PD1-35] [10/19/2001 (Fri) 14:00 - 17:00 / Hall D]

Enantiomeric synthesis 3'-hydroxy apionucleosides and 4'-hydroxy carbocyclic nucleosides

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In the search for effective, selective and nontoxic antiviral agents, a variety of strategies have been exploited to design nucleoside analogs, which block viral replication without affecting host cellular process.
Among them 4'-substituted nucleosides have drawn great attention and significant progress have been made in the past several years in the battle against HIV, hepatitis B and other viruses.
As part of our drug discovery program, we have determined to synthesize nucleosides with hydroxy group at 3' or 4'-position. Herein, We would like to introduce very efficient synthetic methods of 2'-deoxy-3'-hydroxy-L-furanosy nucleosides as well as 4'-hydroxy carbocyclic skeleton using metathesis strategy from a-D-lactose.

[PD1-36] [10/19/2001 (Fri) 14:00 - 17:00 / Hall D]

Synthesis and Biological Activities of Synthetic Flavonoid Libraries

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The flavonoids are a very large and important group of polyphenolic natural product, which exhibit a wide range of biological properties including antimicrobial, antiinflammatory, immunomodulatory, antioxidative, antitumor and so forth. We synthesized series of flavonoid analogues, which can not be isolated from natural resources, to evaluate the biological activities for several therapeutic targets such as inflammation, cancer and others.
Mono and polyhydroxylated 2'-hydroxyacetophenones were reacted with various aromatic aldehydes in methanolic KOH to produce chalcone analogues as key intermediates and further ring formation reaction in iodine-DMSO conditions yielded a large number of synthetic flavonoids as crystalline products. Herein we demonstrate the synthesis and biological activities of synthesized flavonoid libraries for inflammation and some other biological targets.

[PD1-37] [10/19/2001 (Fri) 14:00 - 17:00 / Hall D]

A Modified Niementowsky Reaction for the Synthesis of 4-Hydroxyquinoline, Qinazoline, and Their Derivatives

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The Friedlaender reaction was first introduced in 1882 for the preparation of quinoline from *o*-aminobenzaldehyde and acetaldehyde and has long been employed for the construction of quinoline nucleus in a variety of polyaza cavity-type molecules, as well as biologically important molecules. Even such a variety of applicability, the scope of the Friedlaender reaction is somewhat limited for the preparation of some substituted quinolines such as hydroxyquinolines and quinoline carboxylic acids. The Niementowski reaction, a reaction of anthranilic acid with a ketone to form a 4-hydroxyquinoline ring, thus introduced to overcome such a limitation. Additionally, the Niementowski reaction can also apply for the the construction of quinazoline nucleus by using lactam instead of ketone. Although many variations of reagent and reaction condition have been introduced to extend the applicability of the Niementowski reaction, the scope of the Niementowski reaction still remained limited presumably due to the severe reaction condition.
As a part of our interests to develop an efficient procedure for the synthesis of heterocycles, we reinvestigate the Niementowski reaction. We herein describe a modified procedure that may have general pplicability for the synthesis of 4-hydroxyquinoline as well as quinazoline derivatives.

[PD1-38] [10/19/2001 (Fri) 14:00 - 17:00 / Hall D]

Deoxypodophyllotoxin Derivatives With Potent Antitumor Activity

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Etoposide, developed from podophyllotoxin (PT), is an antitumor drug available in the clinic. Deoxypodophyllotoxin (DPT), demethylated form of PT, shows very strong cytotoxic activity in vitro but it exhibits a weak activity in vivo. The weak water solubility and the higher possibility by first pass metabolism might be the problems to be overcome.
Three group of thirty five DPT derivatives were synthesized with an anticipation that the esters with bulky group could be durable against esterases in the body resulting in the reduction of first pass metabolism: thirteen alkyl esters, six carboxyalkyl ester, and sixteen alkenoyl esters, The cytotoxic activities against two cancer cell lines, SK-MEL-2 and A-549, and in vivo antitumor activity on LLC in BDF1 mice as solid tumor model were evaluated.
As a results, the alkyl esters showed potentiated cytotoxic activity with some increase in antitumor activity. The striking increase in antitumor activity was observed by alkenoyl esters with easier solublization in injection medium (DMSO/cremophore/water, 5:25:70): DFE12, 4'-O-(all-cis-11,14-eicosadienoyl)-DPT, was selected for more studies due to better antitumor activity than positive control, etoposide, without toxicity.

[PD1-39] [10/19/2001 (Fri) 14:00 - 17:00 / Hall D]

Asymmetric Synthesis of Amino-Substituted Apio Dideoxynucleosides as Potential Anti-HBV Agent

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Apio dideoxynucleosides in which 4'-hydroxymethyl group moves to C3' position exhibit interesting biological activity like anti-HIV activity. Recently, we have reported the synthesis of racemic amino or azido substituted apio dideoxynucleosides as potential antiviral agents, among which adenine derivative, (±)-LJ-45 was found to be active against hepatitis B virus (HBV). Since biological activity of racemic mixture generally resides in one enantiomer, it was of interest to synthesize each enantiomeric pure form of (±)-LJ-45 and to find out which enantiomer is responsible for anti-HBV activity of (±)-LJ-45. For the synthesis of enantiomeric pure stereoisomer, we utilized Seebach's chemistry to fix the