

A dimeric Cinchona alkaloid ammonium salt, a,a'-bis[O(9)-allylcinchonidinium]-m-xylene dibromide, has been developed as a new efficient phase transfer catalyst; the catalytic enantioselective alkylation of N-(diphenylmethylene)glycine tert-butyl ester proceed in a high enantiomeric excess (90~99% ee).

[PD1-2] [ 04/20/2001 (Fri) 13:30 - 14:30 / Hall 4 ]

### Synthesis and antiviral activity of 2'-UP-azido-2',3'-dideoxy-4'-thionucleosides

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Since the discovery of D-3'-azido-3'-deoxythymidine (AZT) as potent anti-AIDS drug, many D-2',3'-dideoxynucleosides with various substituents such as fluoro or azido group at C2 or C3 position have been synthesized and evaluated for antiviral activities. Among these compounds, D-2'-UP-azido-2',3'-dideoxynucleosides have exhibited very potent anti-HIV activity. Based on the bioisosteric rationale, we have been interested in synthesizing the corresponding D-2'-UP-azido-2',3'-dideoxy-4'-thionucleosides and comparing their antiviral activities. The target nucleosides were synthesized from the condensation of nucleoside bases with D-4-thiosugar acetate. Synthesis of 4-thiosugar acetate was started from L-xylose which was converted to the 4-thioarabitol derivative. The key step, azidation was completed by mesylation of the alcohol followed by treating with sodium azide. Azidation was proceeded with retention of stereochemistry unlike DAST fluorination. Finally synthesis of sugar acetate was accomplished by oxidation to the sulfoxide followed by Pummerer rearrangement. Using this sugar acetate, we have obtained various pyrimidine and purine nucleosides and evaluated them for antiviral activities. Most of the synthesized compounds were found to be slightly active but they were cytotoxic, too. So, antiviral activities were originated from inherent cytotoxicity of the synthesized compounds.

[PD1-3] [ 04/20/2001 (Fri) 13:30 - 14:30 / Hall 4 ]

### Synthesis of Sweet Sesquiterpene, (+)-Hernandulcin

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(+)-Hernandulcin was isolated as a sweet bisabolane sesquiterpene constituent of an aztec herb *Lippia dulcis* Trev. (Verbenaceae). It has shown to be 1,000 times as sweet as sucrose and non-toxic to human. The absolute stereochemistry of (+)-hernandulcin was determined by Mori et al., in 1985 by means of synthesizing all of the four possible stereoisomers. A concise synthesis of (+)-hernandulcin from (-)-isopulegol is reported here. Selective epoxidation followed by opening of the epoxide with prenyl Grignard, which was prepared from prenyl chloride and magnesium in the presence of purified cuprous iodide, afforded the tertiary alcohol with correct stereochemistry. Oxidation of the secondary alcohol and double bond formation provided (+)-hernandulcin.

[PD1-4] [ 04/20/2001 (Fri) 13:30 - 14:30 / Hall 4 ]

### Synthesis and Biological Activity of FTase Inhibitors Containing Isoleucyl Surrogates