Studies on the Synthesis and Antibacterial Activities of 4-Pyrrolidinylthio Carbapenems: 2-Alkyl Substituents Containing Heteroaromatics Linked Via a C-N Bond

Cho hanWon°[2], Oh ChangHyun[1], Choi JungHoon[2], Cho JungHyuck[1]

[1] Medicinal Chemistry Research Center, Korea Institute of Science and Technology, [2] Chemistry Department, Hanyang University

The synthesis and biological activity of series of 2-alkyl-4-pyrrolidinylthio-β-methylcarbapenems containing a variety of heteroaromatic substituents is described. These compounds were synthesized via several step from *trans*-4-hydroxy-*L*-proline and β-methylcarbapenem by the general route. Antibacterial activities of the prepared compounds were tested.

[PD1-4] [04/19/2002 (Fri) 10:00 - 13:00 / Hall E]

Preparation and Application of New Friedlaender Synthon for the Synthesis of 2-Substituted Pyrido[3,2-c]acridines

Kim Seung ill°, Son JaeKeun, Jahng Yurngdong

College of Pharmacy, Yeungnam University, Kyongsan 712-749

The increasing interests on pyrido[3,2-*c*]acridine and its related derivatives stem from their properties not only of showing a broad spectrum of biological properties such as antileukemic, antithrombic, and anticancer activities, but also of acting as ligands for small molecules and transition metals. The synthetic methods, however, are limited only to the Skraup reaction of 4-aminoacridine and the Friedel-Craft reaction of 7-acyl-8-arylaminoquinolines.
In connection with our interests in the design and synthesis of new polydentates and in the development of new synthetic method for the preparation of cytotoxic heterocycles, we herein described preparation of a new Friedlaender synthon, 4-aminoacridine-3-carbaldehyde and its application toward pyrido[3,2-*c*]acridines.

[PD1-5] [04/19/2002 (Fri) 10:00 - 13:00 / Hall E]

Stereoselective synthesis of novel 4'-hydroxy-carbocyclic nucleosides

Hong JoonHee°, Shim MyungJung, Kim KwanWoo, Ko OkHyun

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

The resistance of glycosidic bond to enzymatic hydrolysis catalyzed by nucleoside phosphorylase is one of the critical points in nucleoside antiviral chemotherapy. In order to avoid such enzymatic degradation as well as to improve the antiviral activity, a great number of structural modifications have been carried out on both the sugar and the heterocycle moiety of nucleosides. One strategy has been to replace the oxygen of the furanose ring by a methylene group, which gives rise to carbocyclic nucleosides.
Recently, much attention has been paid to 4'-substituted nucleosides such as 4'-cyano-thymidine 4'-azido-thymidine, and 4'-methoxy-nucleoside as potent antiviral agents. However, only a few examples of 4'-substituted nucleosides of defined absolute stereochemistry are reported in literature. The scarcity of examples of 4'-substituted nucleosides may be due to the synthetic difficulties for elaborating a necessary tertiary carbon center. Therefore it was great important to develop efficient methodology for the synthesis of furanosyl or cyclopentane ring containing stereochemically defined tertiary carbons.
Based on promising biological activities of carbocyclic and 4'-substituted nucleosides, we designed novel 4'-hydroxy carbocyclic nucleosides from very cheap and commercially available D-lactose, which can combine the chemical and biological properties of 4'-substituted furanose nucleosides and enzyme resistant carbocyclic nucleosides.
Here, we would like to present the synthetic route of 4'-hydroxy substituted various types of novel