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The Chinese University of Hong Kong
Department of Chemistry
Research Seminar Series

Speaker: Professor Sanghee Kim
College of Pharmacy
Seoul National University

Title: Asymmetric Total Synthesis of Alkaloids with Chirality Economy

Date: 7 January, 2020 (Tuesday)

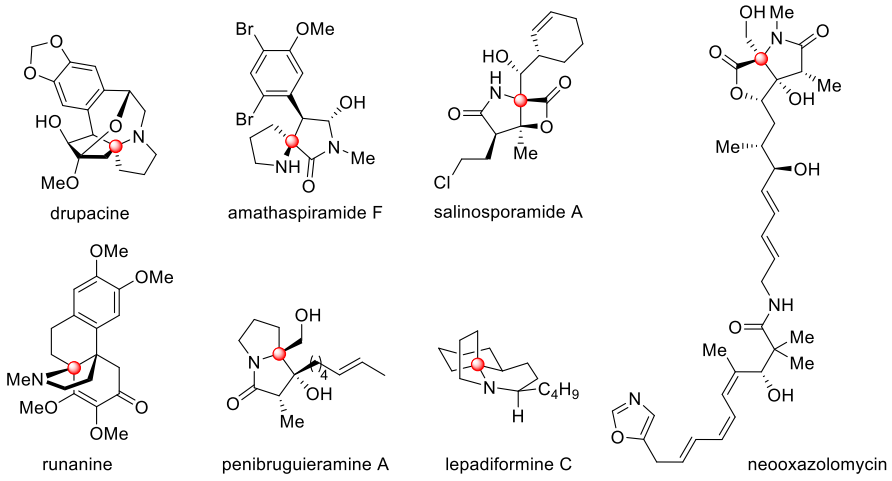
Time: 2:30 p.m.

Venue: Room 104, Y.C. Liang Hall

< Abstract >

In recent years, we have been involved in the asymmetric total synthesis of biological interesting heterocyclic alkaloid natural products and their analogues without the aid of external chiral influences. Representative alkaloids of such interest include penibruguieramine, drupacine, lepadiformines, salinosporamides, cephalezomine, amathaspiramide, runanine, and neooxazolomycins. The common structural feature of these compounds is an asymmetric quaternary center bearing a nitrogen substituent (α-tertiary amines).

Amino acids was the staring material and the only source of chirality. Despite the possibility that the Cα-chiral center of amino acid might be destroyed by trigonalization during C-C bond formation, we have achieved an asymmetric synthesis without the aid of an external chiral influence. Towards this, we have utilized two strategies; Memory of Chirality and Carbon–to-Nitrogen-to-Carbon Chirality Transfer. These strategies was applied in a straightforward manner to the total synthesis of alkaloid natural products using an appropriate amino acid. In this presentation, I would like to share our old and new progress on this subject. A mechanistic rationale would be discussed for the excellent stereochemical outcome of reactions.



1. Kim, J. H.; Lee. S.; Kim, S. *Angew. Chem. Int. Ed.* **2019**, *58*, 11018.
2. Jeon, H.; Cho, H.; Kim, S. *Org. Lett.* **2019**, *21*, 1121.
3. Tan, S.; Li, F.; Park, S.; Kim, S. *Org. Lett.* **2019**, *21*, 292.
4. Cho, H.; Jeon, H.; Shin, J. E.; Lee, S.; Park, S. Kim, S. *Chem. Eur. J.* **2019**, *25*, 2447.

ALL ARE WELCOME

Contact Person:
Prof. H.Wong / Prof. X.S.Peng