Report of Lectureship Tour in KOREA , Mar. 6 – 12

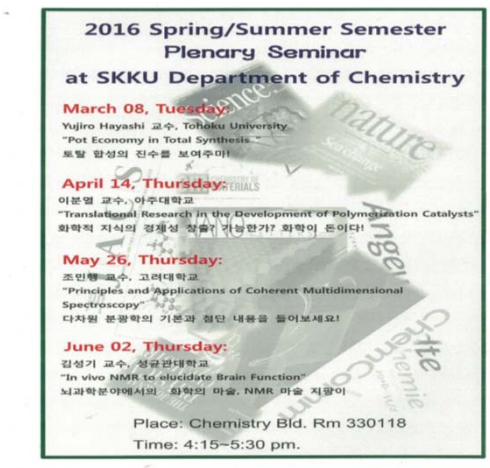
Yujiro Hayashi （ Tohoku University ）

Mar. 6 Visit Seoul.

7 Lecture at Korea University.
Title: Pot Economy in Total Synthesis
Hosted by Prof. Cheol-Hong Cheon

Lecture at Korea University

8 Lecture at Sungkyunkwan University.
Title: Pot Economy in Total Synthesis
Hosted by Prof. Do Hyun Ryu



Lecture at Sungkyunkwan University

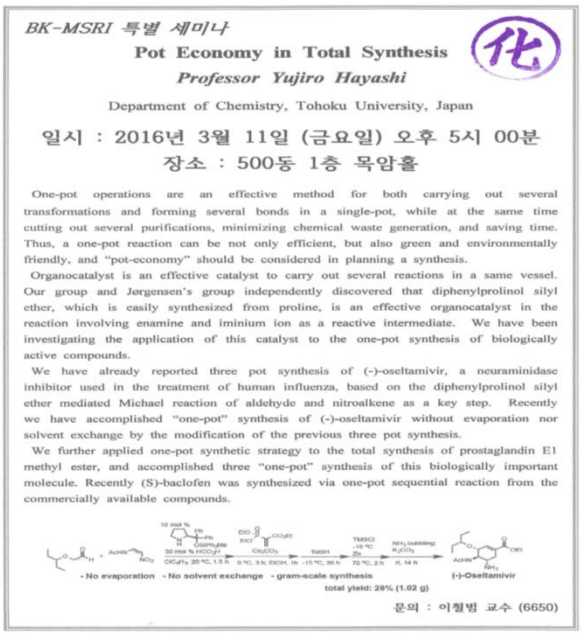
9 Moving from Suwon-si to Pohang.

10 Lecture at Pohang University of Science and Technology
Title: Pot Economy in Total Synthesis
Hosted by Prof. Seung Hwan Cho

Lecture at Pohang University of Science and Technology

11 Lecture at Seoul National University
Title: Pot Economy in Total Synthesis
Hosted by Prof. Chulbum Lee

Lecture at Seoul National University



BK-MSRI 특별 세미나

Pot Economy in Total Synthesis

Professor Yujiro Hayashi

Department of Chemistry, Tohoku University, Japan

일시 : 2016년 3월 11일 (금요일) 오후 5시 00분
장소 : 500동 1층 목암홀

One-pot operations are an effective method for both carrying out several transformations and forming several bonds in a single-pot, while at the same time cutting out several purifications, minimizing chemical waste generation, and saving time. Thus, a one-pot reaction can be not only efficient, but also green and environmentally friendly, and "pot-economy" should be considered in planning a synthesis.

Organocatalyst is an effective catalyst to carry out several reactions in a same vessel. Our group and Jørgensen's group independently discovered that diphenylprolinol silyl ether, which is easily synthesized from proline, is an effective organocatalyst in the reaction involving enamine and iminium ion as a reactive intermediate. We have been investigating the application of this catalyst to the one-pot synthesis of biologically active compounds.

We have already reported three pot synthesis of (-)-oseltamivir, a neuraminidase inhibitor used in the treatment of human influenza, based on the diphenylprolinol silyl ether mediated Michael reaction of aldehyde and nitroalkene as a key step. Recently we have accomplished "one-pot" synthesis of (-)-oseltamivir without evaporation nor solvent exchange by the modification of the previous three pot synthesis.

We further applied one-pot synthetic strategy to the total synthesis of prostaglandin E1 methyl ester, and accomplished three "one-pot" synthesis of this biologically important molecule. Recently (S)-baclofen was synthesized via one-pot sequential reaction from the commercially available compounds.

- No evaporation - No solvent exchange - gram-scale synthesis

(-)-Oseltamivir

total yield: 28% (1.02 g)

문의 : 이철범 교수 (6650)

12 Leave Seoul