

세미나 초록

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발표 주제	Transfer Hydrogenation: A Powerful Synthetic Tool for Bond Coupling and N-Heterocycle Synthesis
발표 내용	<p>In recent years, the transfer hydrogenation strategy is an attractive method because it can achieve bond formation between hydrogen donors and hydrogen acceptors without any additional oxidant or reductant. During the reaction, water is generated as the only byproduct, thus it is considered an environmentally benign green alternative. N-heterocycles are widely found in many biologically active compounds and natural products. Therefore, many synthetic chemists have been developing methodologies for N-heterocycles. In our laboratory, iron-catalyzed transfer hydrogenation strategy had been applied to synthesize N-heterocycles. In this presentation, we will introduce our recent studies on transfer hydrogenation. First, we developed a base-mediated transfer hydrogenation between azides and alcohols, which enabled C-N bond coupling to efficiently synthesize secondary amines. In addition, we established a transfer hydrogenation of nitro compounds with alcohols using ligand-free iron carbonyl complexes. Both studies were successfully applied to the synthesis of a wide range of N-heterocycles, and through mechanistic investigations combined with DFT calculations, we were able to propose rational reaction pathways. Taken together, these results not only provide efficient alternative synthetic methods for medicinally important N-heterocycles but also serve as a foundation for the further development of diverse transfer hydrogenation methodologies.</p>