

세미나 초록

성명	정원진 (Won-jin Chung)
소속	GIST (Gwangju Institute of Science and Technology)
발표 주제	Alkene <i>syn</i> -dihalogenation: accessing the uncharted half of the stereochemical space
발표 내용	<p>Conventional electrophilic dihalogenation of alkenes generally proceeds via an <i>anti</i>-addition pathway through the intermediacy of a cationic three-membered cyclic halonium species. This well-established transformation is one of the most widely utilized organic reactions because of its highly predictable stereospecificity. However, it is extremely challenging to alter the diastereochemical course, and consequently, the complementary <i>syn</i>-dihalogenation process has been considerably underdeveloped, requiring new mechanistic approaches. Only recently, a few notable achievements were made by inverting one of the stereocenters after <i>anti</i>-addition using a carefully designed reagent system. Our group investigated report a conceptually distinctive strategy for the simultaneous double electrophilic activation of the two alkene carbons from the same side. Then, the resulting vicinal leaving groups can be displaced iteratively by nucleophilic halides to complete the <i>syn</i>-dihalogenation. For this purpose, thianthrenium dication was employed, and all possible combinations of chlorine and bromine were added onto internal alkenes successfully with excellent <i>syn</i>-stereospecificity. Of particular note is the regiodivergent <i>syn</i>-bromochlorination, in which both constitutional isomers can be accessed simply by reversing the addition sequence. Furthermore, the unprecedented <i>syn</i>-dibromination is also noteworthy.</p>