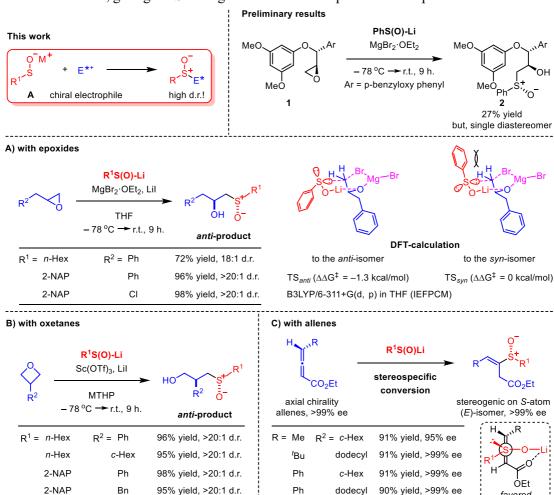
## Stereoselective Addition of Sulfenate Species to Electrophiles as a Versatile Synthetic Method of Chiral Sulfoxides

(<sup>1</sup>Department of Chemistry, Tokyo Institute of Technology, <sup>2</sup>Institute of Innovative Research, Tokyo Institute of Technology) OJian Zhang, Keisuke Suzuki, Ken Ohmori **Keywords**: sulfenate species, stereoselective, chiral sulfoxides.

During a course of our synthetic study on bioactive natural flavonoids, we found that epoxide 1 allows the nucleophilic attack of the sulfenate species A to give  $\beta$ -hydroxy sulfoxide 2 with anti-stereochemistry, albeit in a poor yield. Stimulated by these results, we assumed that this method would serve as a useful way to access various chiral sulfoxides, and thus, we decided to pursuit this reaction.

First of all, we examined the diastereoselective ring-opening of epoxide by sulfenate anion A, and found that MgBr<sub>2</sub>·OEt<sub>2</sub> accelerates the reaction significantly, giving corresponding  $\beta$ hydroxy sulfoxides in high yield with anti-selectivity. Secondly, we attempted the reaction of oxetane derivatives with A and discovered that an addition of catalytic Sc(OTf)<sub>3</sub> allows the diastereoselective synthesis of  $\gamma$ -hydroxy sulfoxides in excellent yield with high *anti*-selectivity. Finally, we successfully demonstrated the axial-to-central chirality transfer with allenes and sulfenate anion A, giving the S-chirogenic sulfoxide compounds in complete selective manner.



dodecyl

favored