

The Journey From Sulfur Ylides to Boron Chemistry Evolution of Research in the Aggarwal Group.

In this lecture I will present an overview of the research we have done over the last 30 years. In the 1980's there was great interest in asymmetric alkene oxidation to make epoxides. We were also drawn to this field but chose to develop asymmetric sulfonylure reactions to make epoxides instead. This led to a broad platform of research that lead to asymmetric aziridination and cyclopropanation too. A side project on phosphorus ylides that developed from this work led to a new understanding of the origin of control in the Wittig reaction. The sulfur ylide story continued in reactions with boranes (successful) but problems were encountered when studying boronic esters. This opened up the broad program in homologation of boronic esters. I will show how natural product synthesis has been used as vehicles to showcase the methodology we have developed.