Asymmetric Diels-Alder (DA) reaction of 1,2-dihydropyridines 1 with dienophiles using an organocatalyst is an important reaction for the construction of chiral isoquinuclidines (2-azabicyclo[2,2,2]octanes) 2, can be used as the synthetic intermediates for the synthesis of biological active molecules such as oseltamivir phosphate.

In this presentation, we introduce that simple primary β-aminoalcohol 5 acts as an efficient chiral organocatalyst for the enantioselective DA reactions of N-Cbz-1,2-dihydropyridine 3 with acrolein 4. In addition, we also describe the utilization of both the new chiral building blocks 8 and 9 that were obtained from the intermediate 7 for the preparation of new antiviral candidate molecules.