REGIOSELECTIVE AND ENANTIOSELECTIVE SYNTHESSES
OF FUNCTIONALIZED 5- AND 6-MEMBERED HETEROCYCLES
VIA REACTIONS OF SULFONYL CARBANIONS

Alfred Hassner, R. Kumareswaran, T. Balasubramanian
Department of Chemistry, Bar-Ilan University, Ramat-Gan 52900, Israel

Lithio derivatives of α-sulfonyl carbanions and allyl sulfonyl carbanions can undergo regioselective as well as diastereoselective Michael additions to unsaturated acceptors. These reactions lead by a Michael Initiated Ring Closure (MIRC) to stereoselectively functionalized cyclopentanes [1] and via chiral oxazolines to functionalized cyclohexanes [2].

By employing C=N systems containing a chiral auxiliary as Michael acceptors, we were able to achieve diastereoselective additions of sulfones, which lead by means of metathesis reactions to optically active 5- as well as 6-membered N-heterocycles. In this manner, several enantiopure alkaloids were synthesized, among others solenopsin and iminoribitol.