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Enantioselective total synthesis of biologically active natural products

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Natural products have been the most significant source of drugs and drug leads in history. Asymmetric synthesis of natural product is a key process in modern chemistry and is particularly important in the field of pharmaceuticals, as the different enantiomers or diastereomers of a molecule often have different biological activity. The ultimate goal of organic synthesis is to assemble a given organic compound from readily available starting materials and reagents in a highly efficient way. Among an array of naturally occurring and biologically important compounds, the functionalized amino acids, 2-alkyl substituted tetrahydroquinolines, endocannabinoid lipids, 2,5-disubstituted-3-oxygenated THF motifs and cyclodepsipeptides occupy prominent positions. We have recently synthesized medicinally important (+)-serinolamide A, marine natural product (+)-petromyroxol, anti-malarial agent (+)-angustureine and novel macrocycle, haliclamide.

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