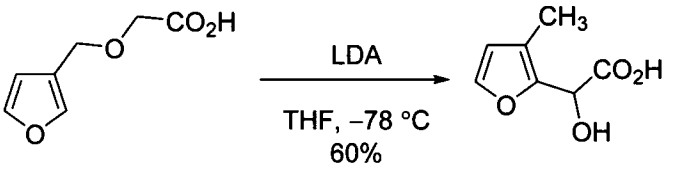
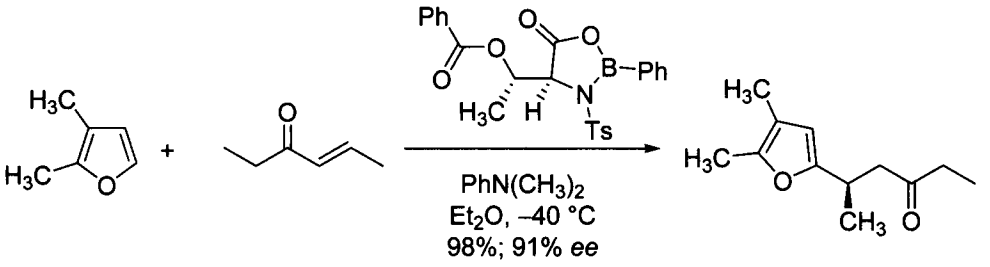
*Wittig Rearrangement*

The Wittig rearrangement has been employed as a mild method for the synthesis of 2,3-substituted furans. Treatment of 3-furylmethyl ether with LDA in THF gave the corresponding 2,3-furan in 60% yield as a racemic mixture.[8]




*Michael Addition*

Substituted furans have also been prepared by Michael addition of furans to α,β-unsaturated enones. Harada and co-workers used this approach to produce optically active furans in high yield and with high enantioselectivity from 2,3-dimethylfuran and hex-4-en-3-one using a chiral oxazaborolindinone.[9]




*Intramolecular Cyclization*

Mukai and co-workers used a reduction/cyclization cascade to prepare (–)-nakadomarin, a manzamine-related alkaloid with cytotoxic activity, inhibitor activity against cyclin-dependent kinase 4 (CDK-4), and anti-fungal and antibacterial activity.[10] Treatment of the tetracyclic precursor with DIBAL-H followed by reaction with HCl led to the desired pentacyclic system in 41% yield.