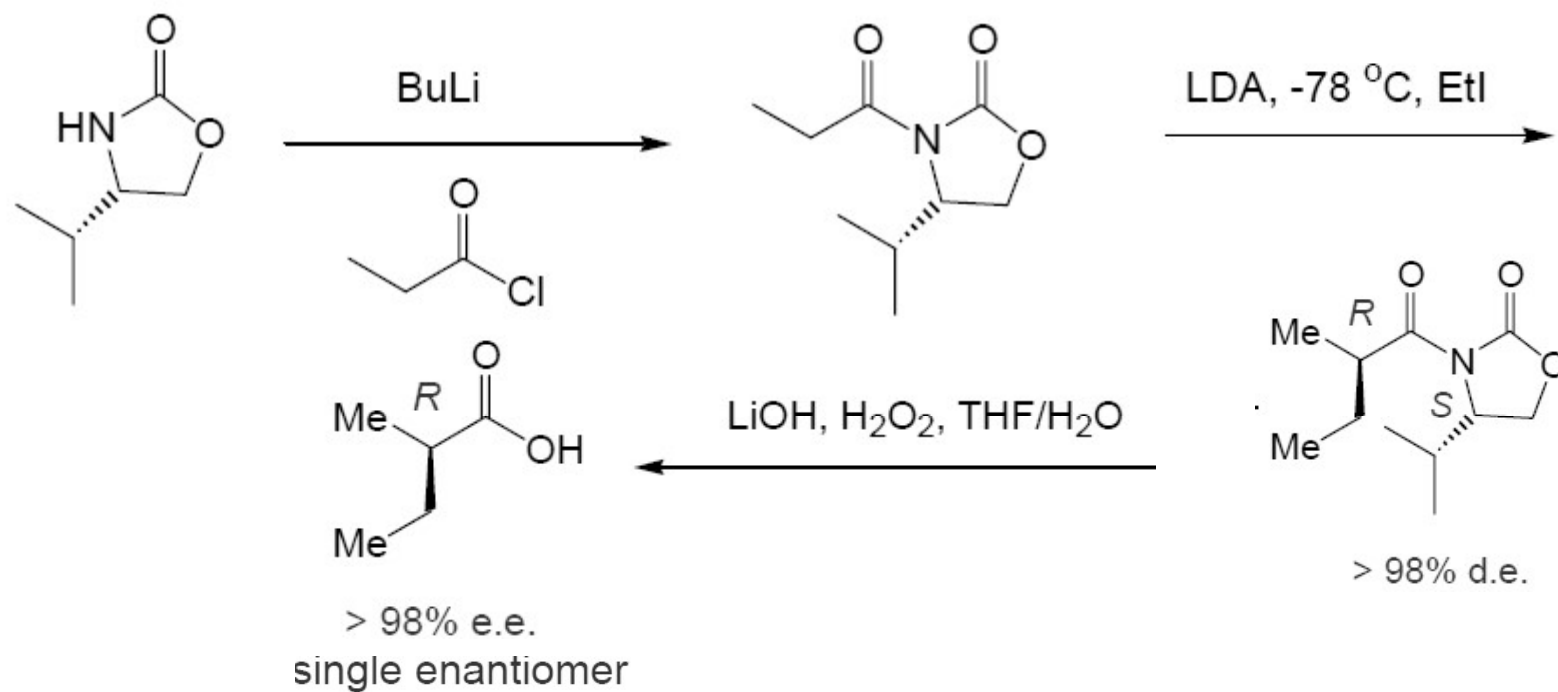




Evans's oxazolidinone for the asymmetric α -alkylation of enolates

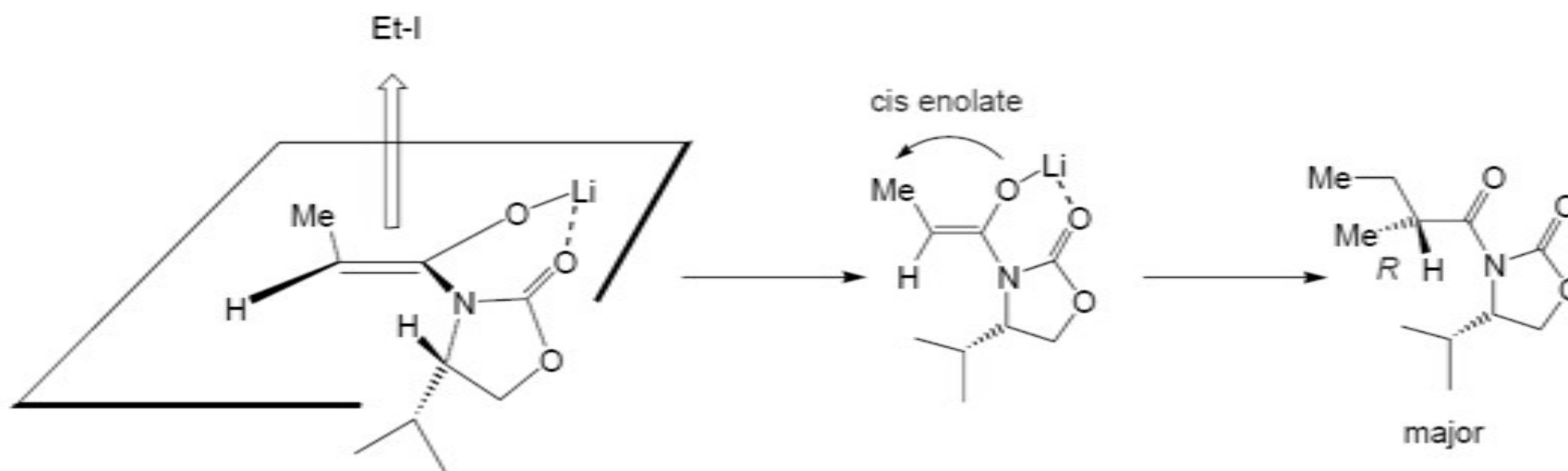
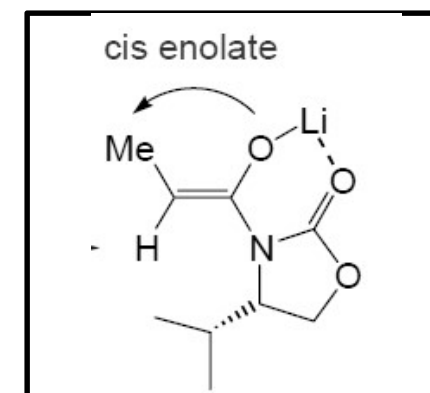


Ratio measured by i) HPLC, ii) GC or iii) ^1H NMR
Diastereomers can be separated by conventional methods



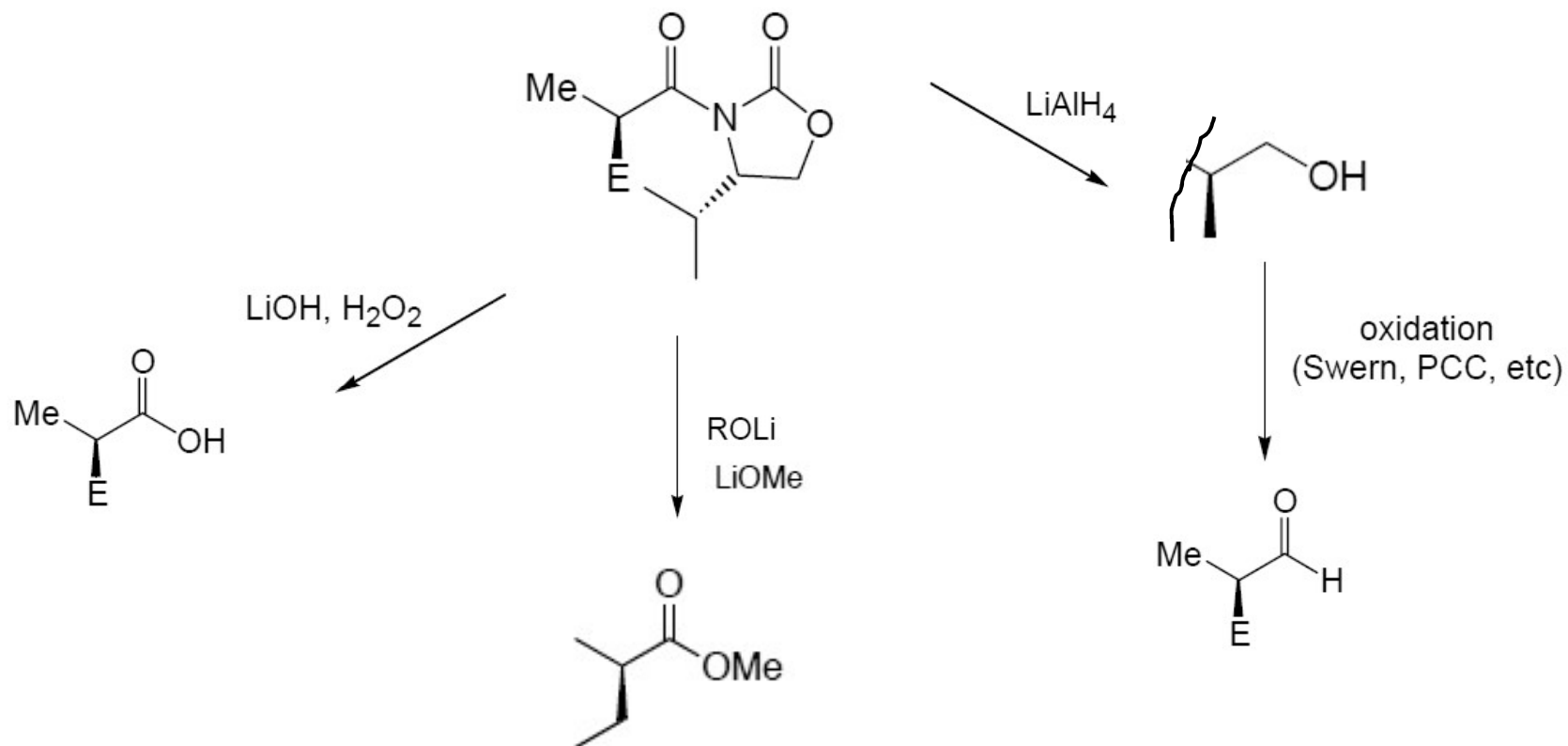
diastereoselectivity

Only one enolate geometry formed (*cis*) due to 1) chelation of Li to the carbonyl of the auxiliary and 2) minimisation of steric interaction as H prefers to eclipse ⁱPr group instead of Me eclipsing ⁱPr group. Also the large ⁱPr group shields one face of the enolate.



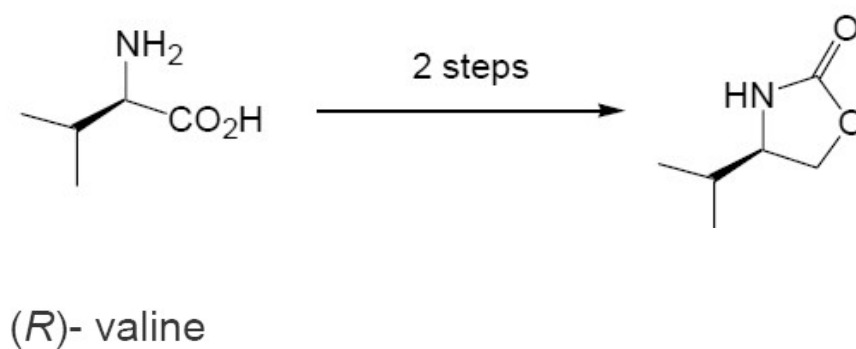
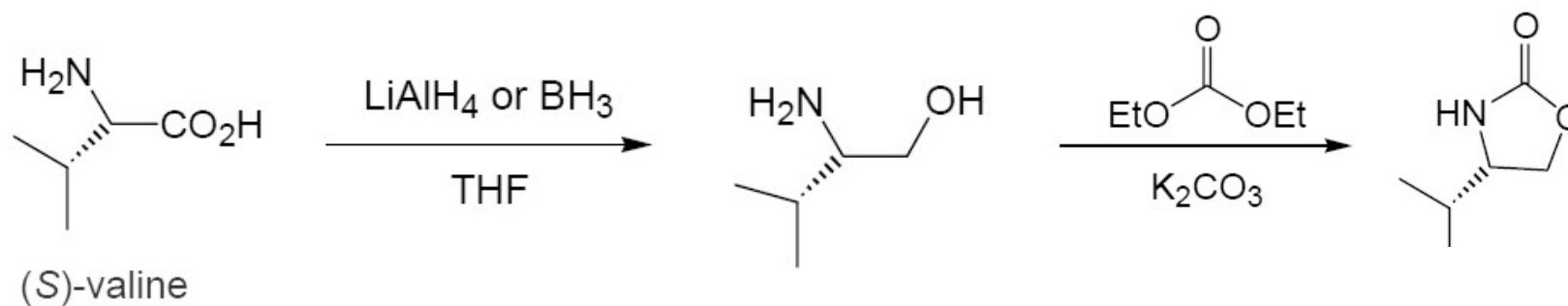


Other methods of cleaving the auxiliary



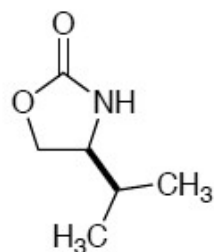


Preparation of the chiral auxiliary

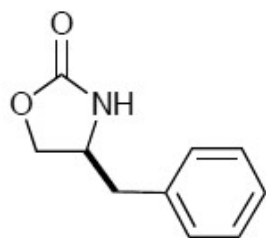




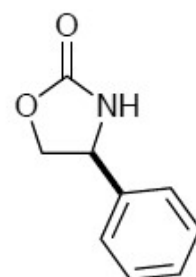
Evans Oxazolidinone Auxiliaries



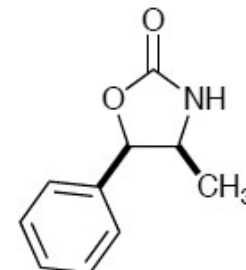
(*S*)-(-)-4-Isopropyl-2-oxazolidinone



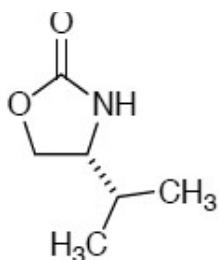
(*S*)-(-)-4-Benzyl-2-oxazolidinone



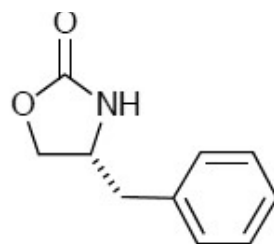
(*S*)-(+)-4-Phenyl-2-oxazolidinone



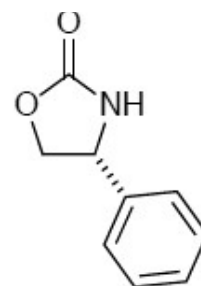
(4*S*,5*R*)-(-)-4-Methyl-5-phenyl-2-oxazolidinone



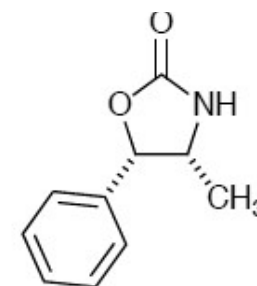
(*R*)-(+)-4-Isopropyl-2-oxazolidinone



(*R*)-(+)-4-Benzyl-2-oxazolidinone



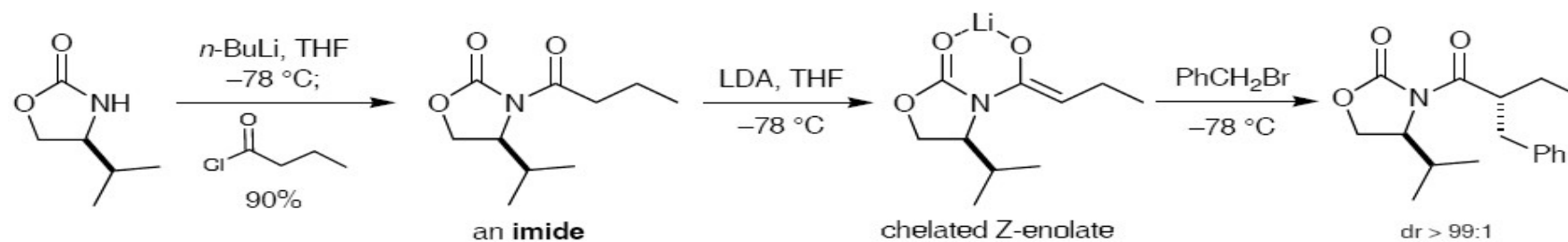
(*R*)-(-)-4-Phenyl-2-oxazolidinone



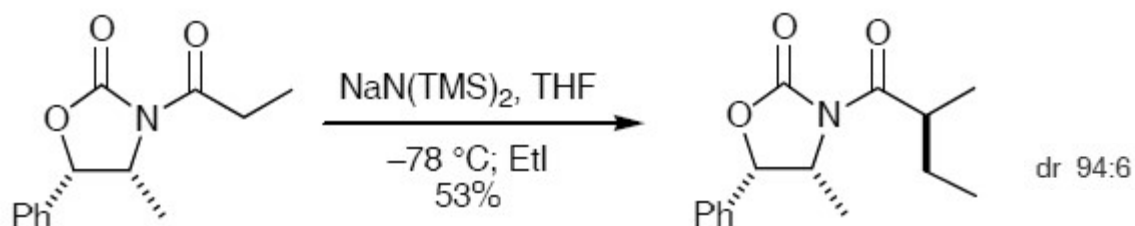
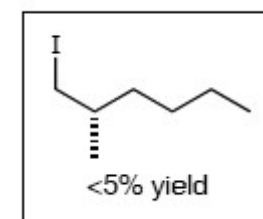
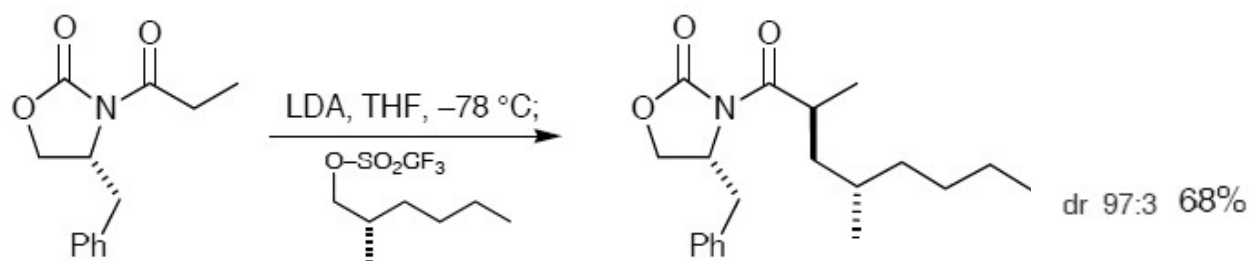
(4*R*,5*S*)-(+)-4-Methyl-5-phenyl-2-oxazolidinone



Evans Oxazolidinone Auxiliaries

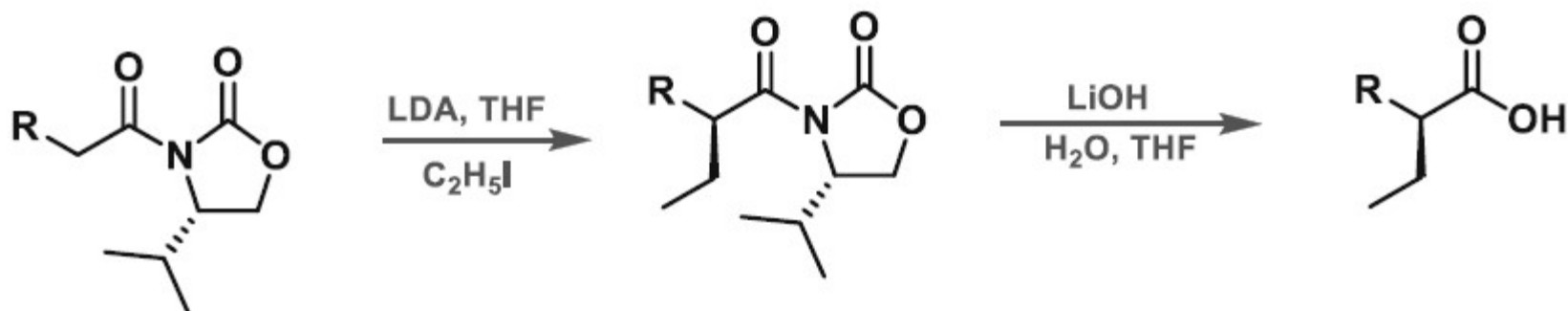
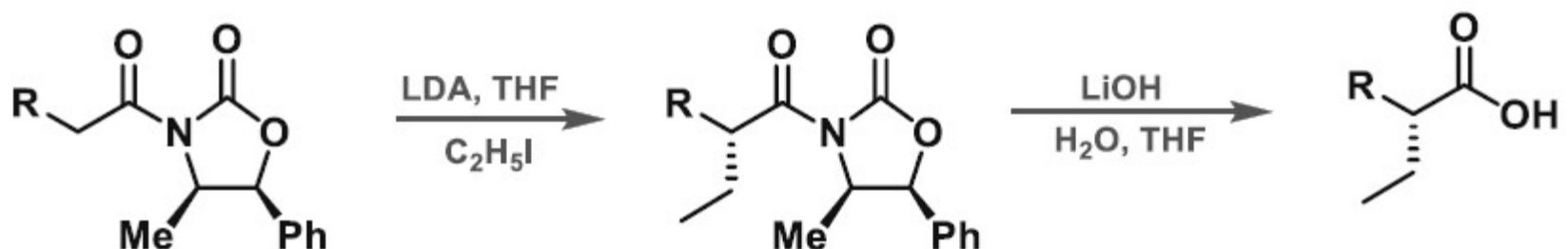


- With reactive alkylating agents (e.g. benzylic halides, allylic halides and iodomethane) the lithium enolate can be used.
- Less reactive alkylating agents require the use of sodium enolates and/or triflate as a leaving group



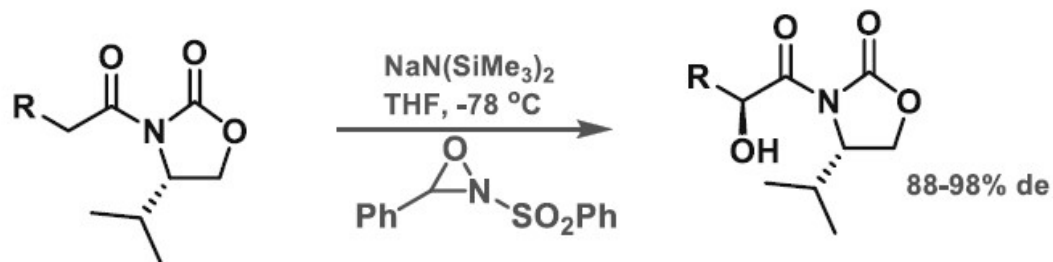


Evans's oxazolidinone for the asymmetric α -alkylation of enolates





Evans's oxazolidinone for Some other reactions



Mechanism !!!!

