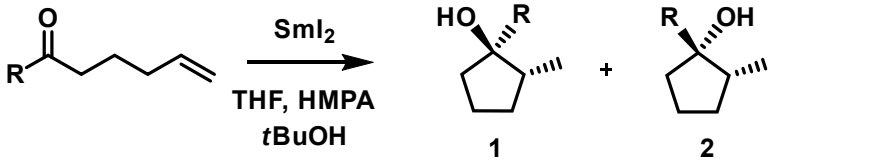
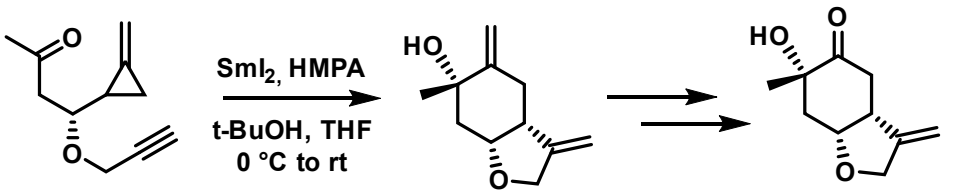
Yohan DUDOGNON Exercice November 10, 2015

Ketyl Radical Anion in Samarium Iodine (SmI_2) Chemistry



R = Me, 86%, 15 min, 1:2 ratio: >150:1
R = *i*-Pr, 85%, 30 min, 1:2 ratio: 23:1
R = *t*-Bu, 78%, 8 h, 1:2 ratio: 3:1
R = Ph, 48%, 2 h, 1:2 ratio: <1:150

Explain the stereochemistry of this reaction and the influence of the R group.



63%, 10:1 *dr*

Paeonilatone B

Explain the mechanism and the stereochemistry of this reaction

Relevant facts about Samarium:

Discovered in 1879 by Boisbaudran

Atomic Number: 62

Most relevant oxidation state: +2

Relevant facts about Samarium Iodide:

First publication by Kagan (1977) followed by a full paper (1980)

Main groups of research in the field: Molander, Procter, Inanaga, Skrypstrup, Imamoto, Concellon, Ressig, Flowers, Zhang.

Various reactions types involving SmI_2: Radical cyclisations, Ketyl-olefin coupling reactions, Pinacolic coupling reactions, Barbier-type reactions, Aldol-type reactions, Reformatsky-type reactions, Nucleophilic acyl subsitution (...)