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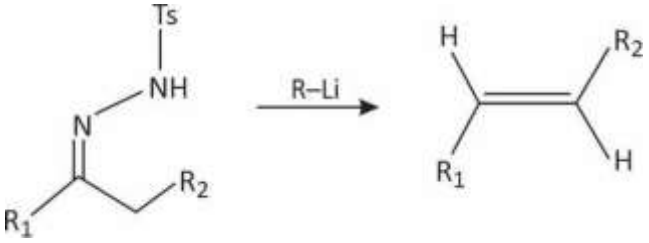
Study Notes On Shapiro Reaction

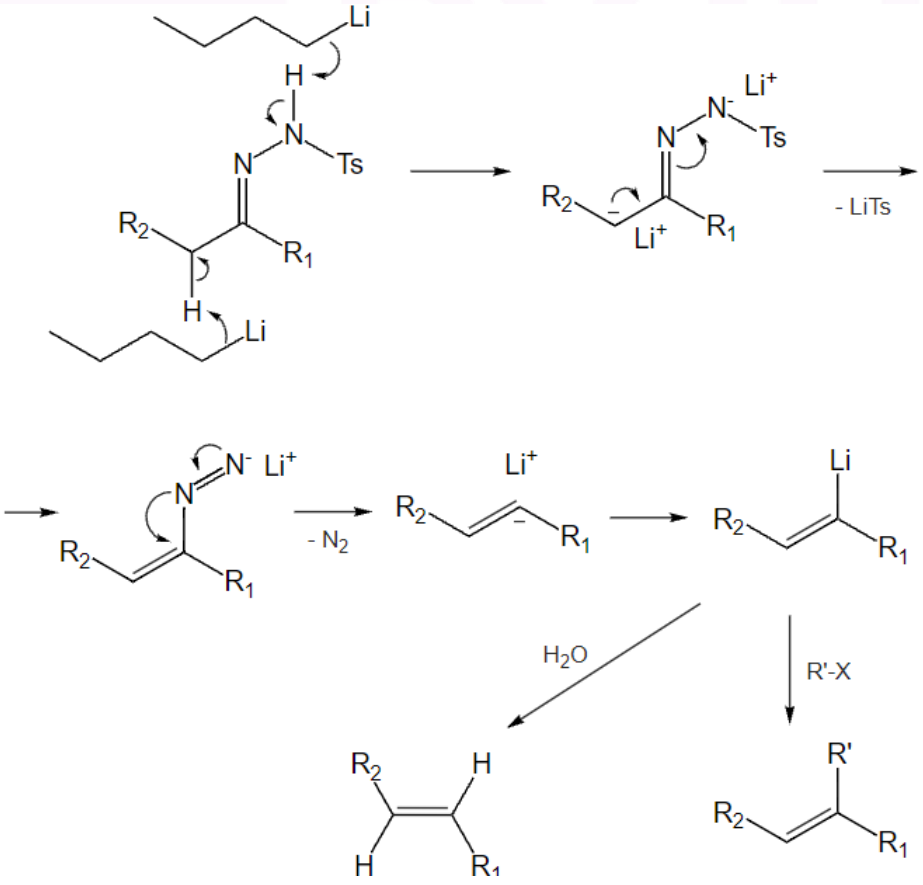
SHAPIRO REACTION

The Shapiro reaction is also known as the Tosyl hydrazone decomposition reaction.
The conversion of Tosyl hydrazone of aldehyde or ketone to alkene with a strong base, like – LDA and BuLi.
In other words, it can be stated as – reaction in which a ketone or aldehyde is converted to an alkene through an intermediate 'hydrazone' in presence of two equivalents of organolithium reagent.
Note: This reaction generates least substituted alkenes.

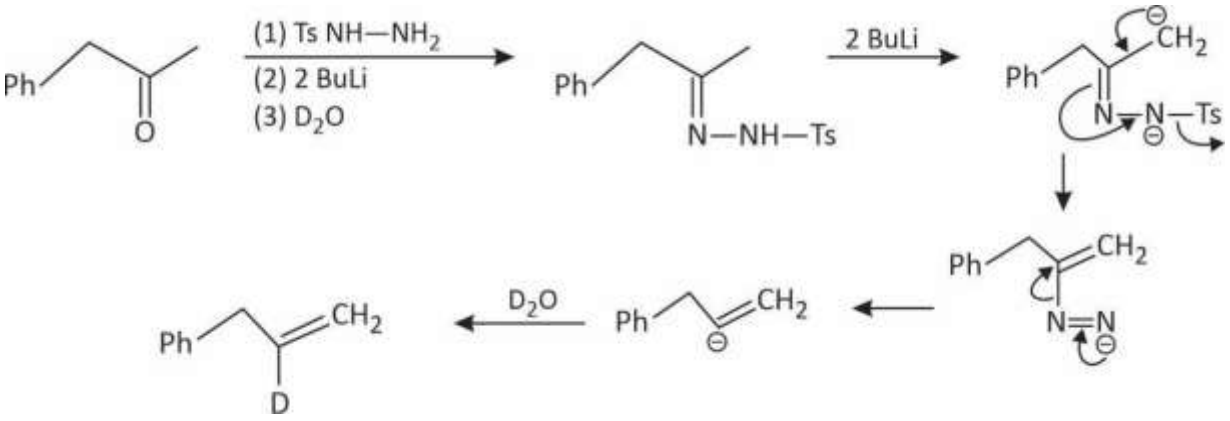
General reaction-



Reaction mechanism-



Example-


Ph
O
(1) Ts NH—NH2
(2) 2 BuLi
(3) D2O
Ph
N—NH—Ts
2 BuLi
Ph
CH2
N—N—Ts
Ph
CH2
N=N
Ph
CH2
D2O
Ph
CH2

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