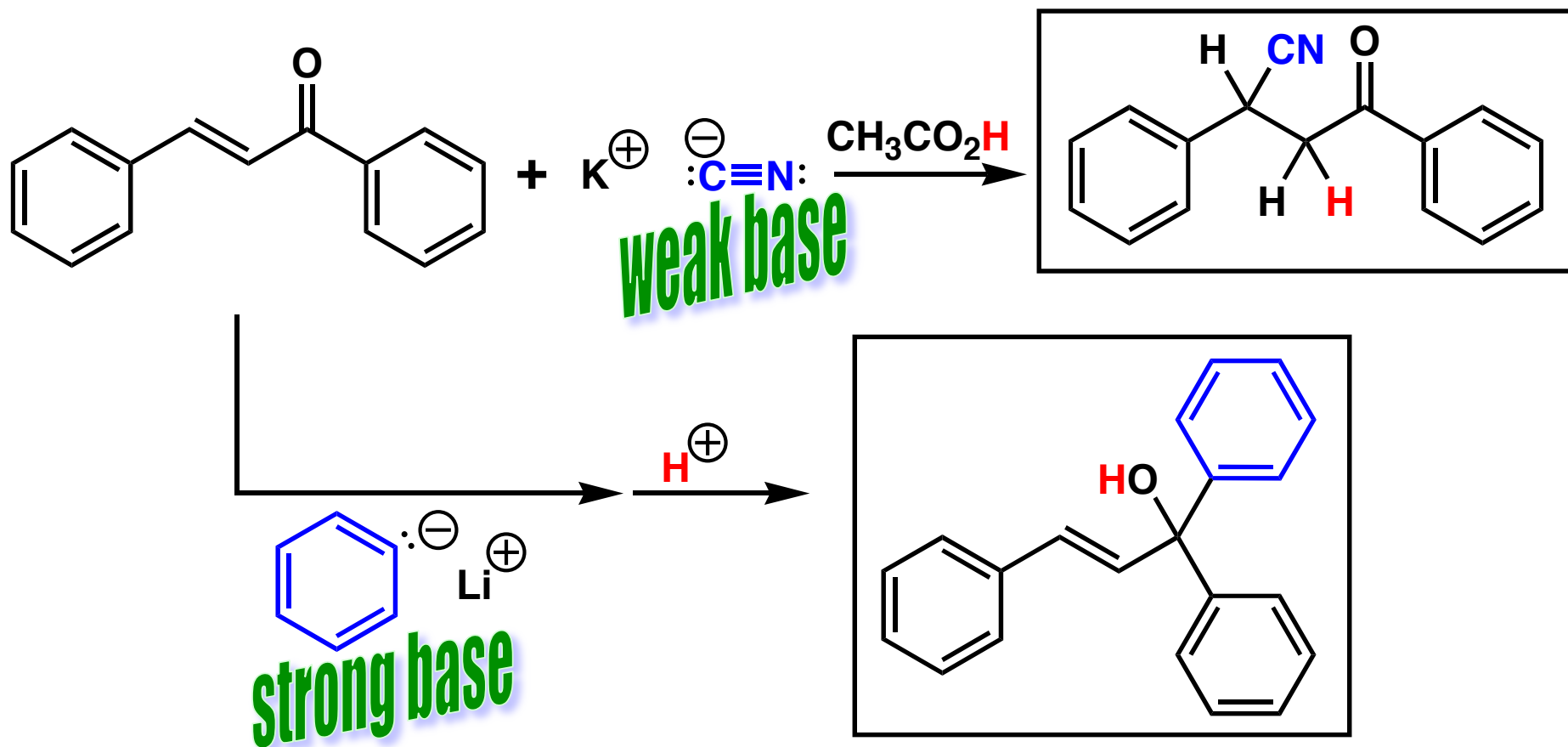


Direct vs. Conjugate Addition



C=O addition - loss of carbonyl oxygen	
Conjugate addition	How conjugation changes the reactivity of carbonyl groups
Electrophilic addition to alkenes	Enolisation
Diels-Alder reactions	Direct conjugate addition with enols
Nucleophilic substitution	Conjugate addition of enolates

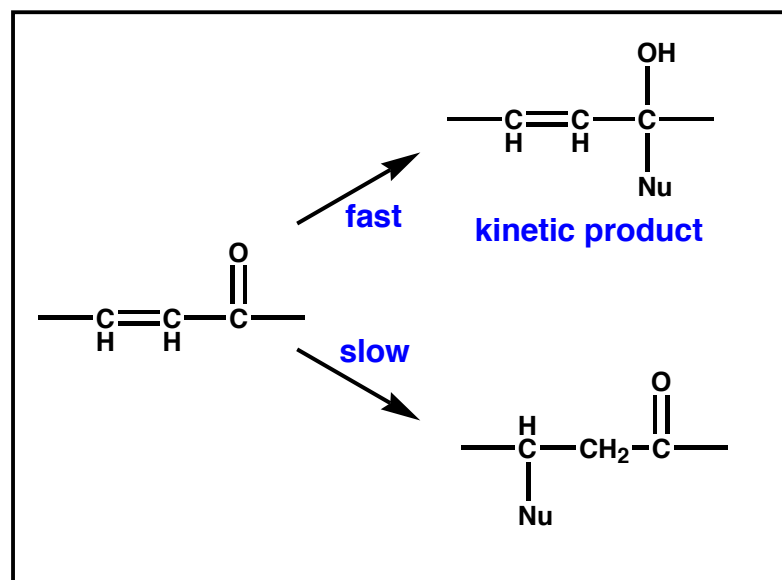
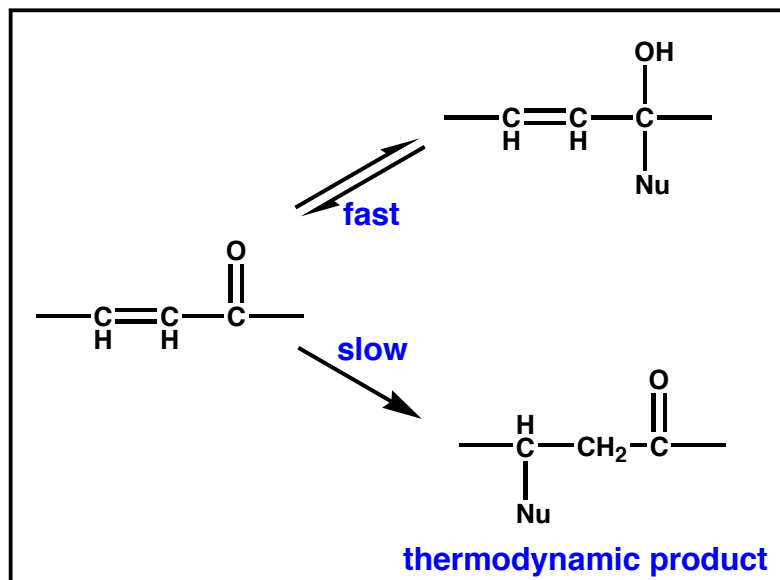
<http://www.chemtube3d.com/>

- Nucleophiles that are **weak** bases tend to give **conjugate addition** products.
- Nucleophiles that are **strong** bases tend to give **direct addition** products.



Understanding Direct vs. Conjugate Addition (Kinetic vs. Thermodynamic Control)

- Conjugate addition is irreversible
- Direct addition may be reversible
- Direct addition is faster than conjugate



Whether or not direct addition is reversible depends on the ability of the -Nu to act as a good leaving group.
(More about this in the next lesson)