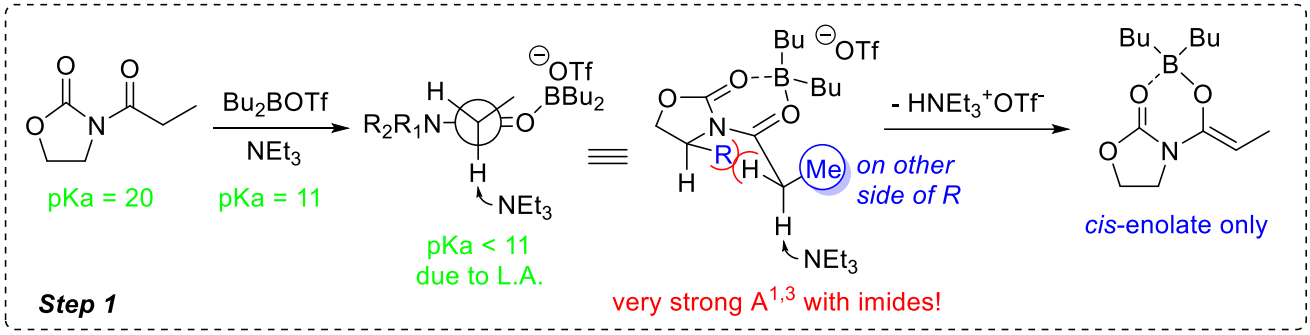
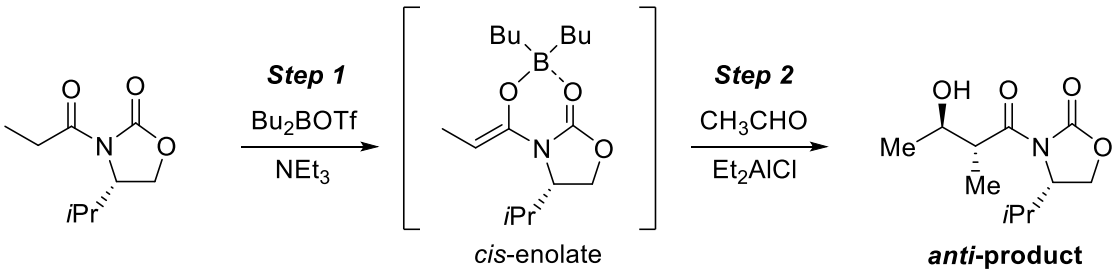
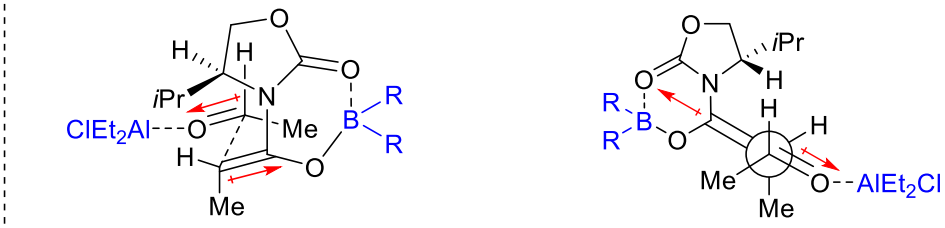
SR2025 POW1 – Solutions

Deprotonation of imides with Bu_2BOTf + NEt_3 → soft enolization.



Anti-aldol due to presence of an external Lewis acid. Without it, we get *syn*-aldol (Evans).





Et_2AlCl is a strong Lewis acid, and thus complexes the aldehyde.

This results in a *trans*-aldol product, because:

- open transition state (no chair), *unlike for Evans syn-aldol*
- boron chelates the carbonyl of the oxazolidinone auxiliary, *unlike for Evans syn-aldol* → this carbonyl cannot rotate
- minimized dipoles: aldehyde carbonyl group antiperiplanar to the enolate
- minimized sterics: aldehyde comes in opposite to the bulky *i*Pr of the auxiliary
- Me group of aldehyde in an equatorial position, away from the auxiliary