

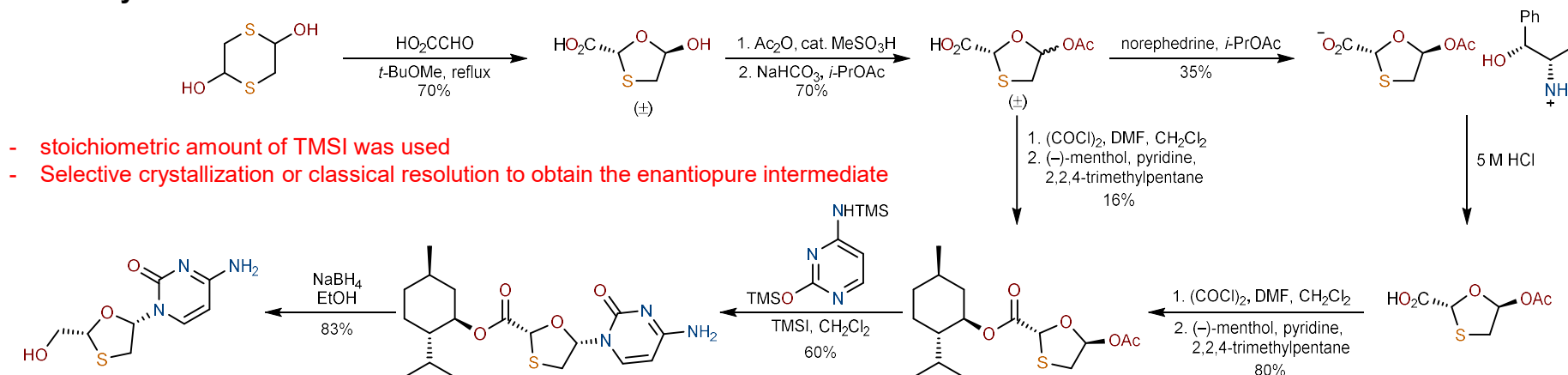
- A first-generation FDA-certified nucleoside reverse transcriptase inhibitor (NRTI) drug class used to treat HIV-1 infection and hepatitis B virus in the 1990s
- A racemic mixture of lamivudine, (±)-BCH-189, was used to treat HIV-1.
- The (–)-enantiomer (3TC) has been discovered substantially less cytotoxic
- Used as an active pharmaceutical ingredient in: Epivir®, Combivir®, Trizivir®, Epzicom®, Triumeq®, Temixys®



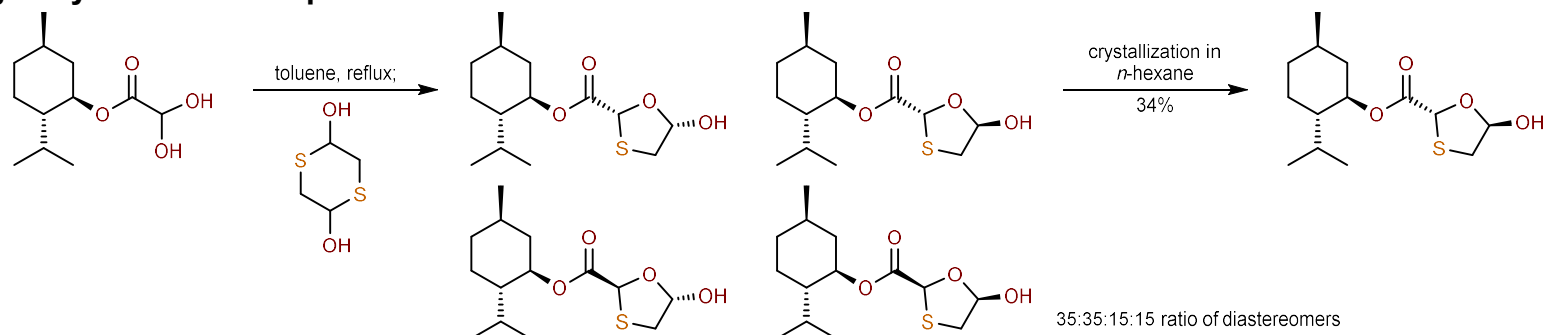
LUPIN

Whitehead, A. *Tetrahedron Lett.* **2005**, *46*, 8535. <https://doi.org/10.1016/j.tetlet.2005.10.002>
Hughes, D. *Org. Process Res. Dev.* **2020**, *24*, 387. <https://dx.doi.org/10.1021/acs.oprd.9b00414>

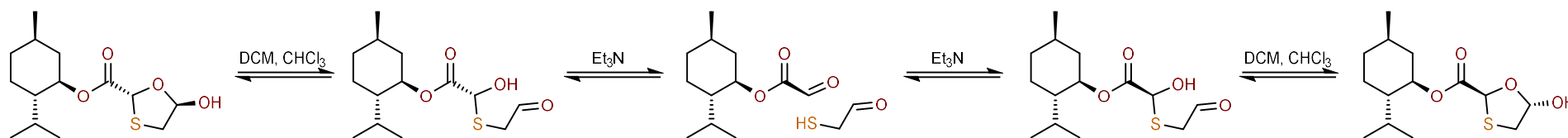
Discovery route



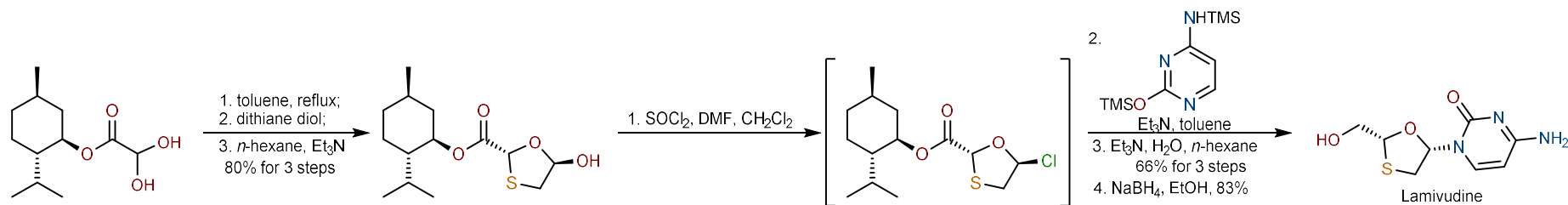
Increasing the yield of enantiopure intermediate



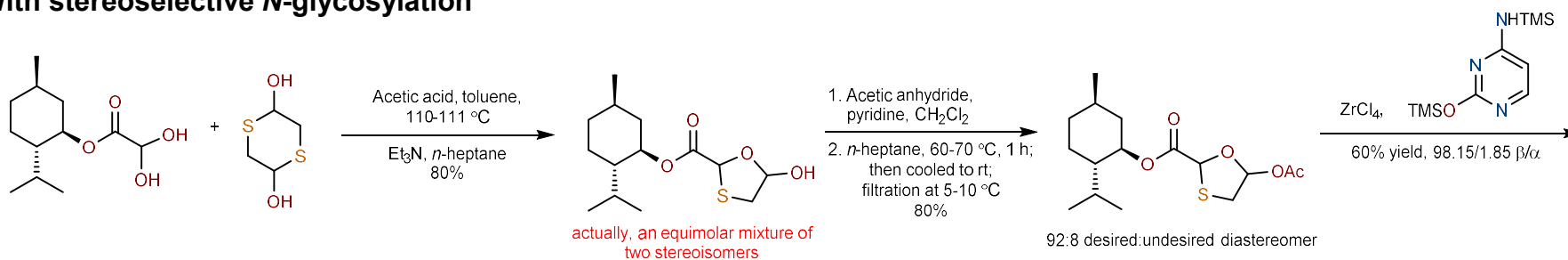
Interconversion between diastereomers



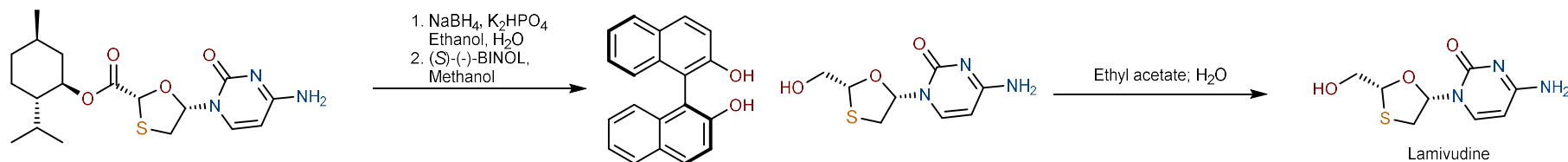
Process route with DKR strategy



With stereoselective *N*-glycosylation



Alonso, D. *Org Lett.* **2015**, *17*, 2626. <https://doi.org/10.1021/acs.orglett.5b00982>



Mechanism of $ZrCl_4$ -mediated *N*-glycosylation

