Synthesis of a γ-Secretase Inhibitor

Significance: γ-Secretase inhibitors are of interest for the treatment of Alzheimer’s disease. The key step in the synthesis of the target γ-secretase inhibitor is the stereoselective opening of the epoxide E using a (trialkylthio)boron reagent F derived from reaction of BH$_3$ with $p$-chlorobenzenethiol.

Comment: The cis stereochemistry in H derives from prior coordination of the (trialkylthio)boron reagent to the epoxide oxygen in E followed by epoxide ring opening and intramolecular transfer of an arylthio group to the resultant carbocation G.