

POD 4

CH 11

Q11.20

When this chiral secondary alcohol reacts with SOCl_2 alone, retention of configuration via the $\text{S}_{\text{N}}\text{i}$ mechanism is observed from the initially formed intermediate.

When SOCl_2 and pyridine are used, the initially formed intermediate reacts with pyridine to give an excellent leaving group and inversion of configuration is observed.

When the SOCl_2 reaction is carried out in 1,4-dioxane, retention of configuration is also observed, but not via the $\text{S}_{\text{N}}\text{i}$ mechanism. Propose an alternative to the $\text{S}_{\text{N}}\text{i}$ mechanism under these conditions that could also lead to retention of configuration as the only outcome.