Asymmetric Total Synthesis of (−)-Vinigrol


1) LiHMDS, 2-chloroacetyl chloride
2) DIBAL
3) A, Mg, Cul
4) n-BuLi, HCHO (gas)

5) VO(acac)$_2$, TBHP
6) (Boc)$_2$O, DMAP
   *then* 2,2,2-trifluoroethanol, AgSbF$_6$
7) hydroquinidine (0.2 equiv.), 170 °C

What is the name of the starting material?
Chloro-dihydrocarvone

Step 3: How would you synthesize the building block A?

Step 5: Name? Please propose the mechanism.
Achmatowicz reaction; see below

Step 7: Please provide a mechanism of the reaction.
see below
Step 8: What is the structure of the Wilkinson’s catalyst?

![Wilkinson's catalyst structure]

Step 9: Please provide the mechanism of the reaction.

See below

Step 11: What is the structure of the Mander’s reagent?

![Mander's reagent structure]