Synthesis of Anhydroryanodol


1) i-PrMgCl, Cul, I₂, then MnO₂
2) 2-lithiofuran, THF, then NBS, H₂O
3) TBSOTf, lutidine
4) H₂, ClRh(PPh₃)₃, PhH

Step 2: Please provide the name for this transformation. Achmatowicz

Step 4: After which Nobel laureate is the catalyst named? Wilkinson

5) LiHMDS, 1, THF
6) KHMDS, MeI, THF
7) Bu₃SnCC(CH₂)₂OPMB, Pd(PhCN)₂Cl₂, Ph₃As, THF

Ryanodol

Achmatowicz

Wilkinson
8) Ti(O-i-Pr)$_4$, i-PrMgCl, THF, -78 to -20 °C

Step 8: Please propose a metallacycle intermediate.

9) TMS-imidazole, DCE
10) VO(O-i-Pr)$_3$, t-BuOOH
11) DDQ, CH$_2$Cl$_2$, pH 7 buffer
12) o-NO$_2$C$_6$H$_4$SeCN, P$n$Bu$_3$, then H$_2$O$_2$, THF

Hint for Step 9: Only one TMS group is attached.

Step 12: What is the name for this transformation? Grieco elimination
13) TASF, DMF
14) TPAP, NMO
15) NaOH, H$_2$O, DMSO
16) Hoveyda-Grubbs II, PhMe, 85 °C

After step 15 and 16: a mixture of 2 compounds is obtained

17) TMS-imidazole, 80 °C
18) m-CPBA, DCE
19) Cp$_2$TiCl$_2$, Zn, Et$_3$SiH
20) TASF, DMF
21) CF$_3$CO$_2$H, Na$_2$HPO$_4$, DCE
22) Li, NH$_3$, THF, –78 °C

Hint for Step 17: 3 TMS groups are attached.

Hint for Step 20: All TMS groups are removed.