Total Syntheses of Rhodomolleins XX and XXII

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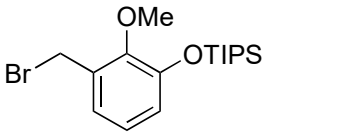


1 – 5

A

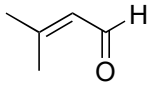
6 – 10

B

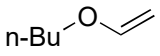
1) Mg, 1,2-dibromoethane
then **X**
2) $Hg(OAc)_2$, NaOAc, **Y**, 94 °C
3) ethyl diazoacetate, $SnCl_2$
4) TsN_3, NEt_3
5) **Z**, 115 °C

6) TMSOTf, $(CH_2OTMS)_2$
then pyridine
7) NBS, THF / H_2O
8) *t*-BuOK, *then* Pd/C, H_2
9) LDA (excess), $MePO(OMe)_2$, $(CH_2O)_n$
10) TBAF
then PIDA, MeOH

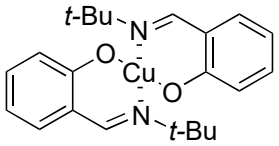
X



Y

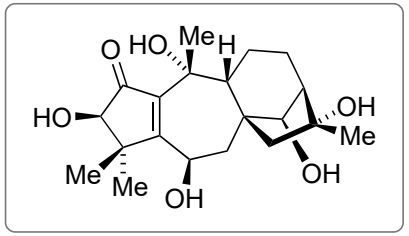


Z



2) Please name the reaction.

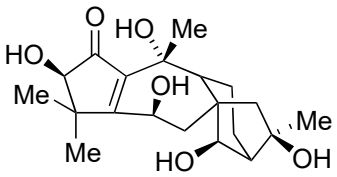
3) Please name the reaction.



11 – 15

C

16 – 19



Rhodomollein XX

11) SmI_2
12) DMDO
13) Cp_2TiCl_2, Mn, 2,4,6-collidine
14) Cp_2TiMe_2
then *p*-TsOH
15) PhSeCl, pyridine

16) $Co(acac)_2$, $PhSiH_3$, O_2
17) TBSOTf, NEt_3
18) MeMgBr
19) $MeReO_3$, H_2O_2, pyridine
then PPTS

13) Please come up with a mechanism. Name of the reaction?

14) Please name the reaction. Name also alternatives for this transformation.

16) Please name the reaction.