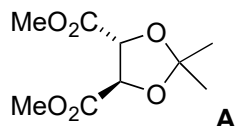
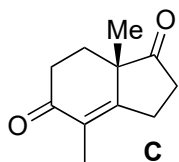


## Total Synthesis of (-)-Chromodorolide B

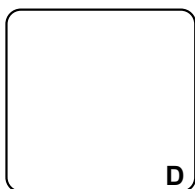
Tao, D. J.; Slutskyy, Y.; Muuronen, M.; Le, A.; Kohler, P.; Overman, L. E.  
*J. Am. Chem. Soc.* **2018**, *140*, 3091–3102



1-3



4-12



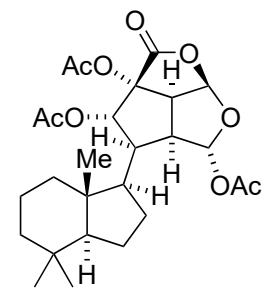
- 1) LDA, BOMCl
- 2) DIBAL-H
- 3) DMP

- 4) ethylene glycol, TsOH,  $\Delta$
- 5)  $\text{LiAlH}_4$
- 6) DMAP,  $\text{MeOC(O)Cl}$
- 7)  $\text{Pd}(\text{acac})_2$ , *n*- $\text{Bu}_3\text{P}$ ,  $\text{NH}_4\text{HCO}_2$
- 8)  $\text{Et}_2\text{Zn}$ ,  $\text{ClCH}_2\text{I}$  then HCl
- 9)  $\text{PtO}_2$ ,  $\text{H}_2$ , AcOH
- 10) PCC
- 11)  $\text{H}_2\text{NNH}_2$ ,  $\text{Et}_3\text{N}$ , EtOH,  $\Delta$
- 12)  $\text{I}_2$ , TMG, THF,  $\Delta$

Please provide the name and complete mechanism of the reaction in **Step 7**.

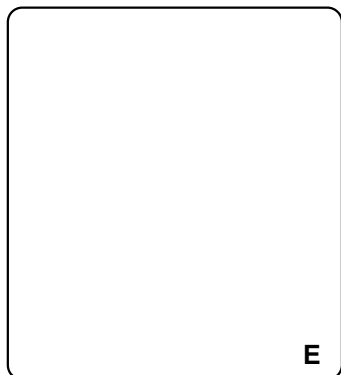
Please provide the name of the reaction in **Step 8**.

Please provide the name and complete mechanism of the reaction in **Step 11 and 12**.

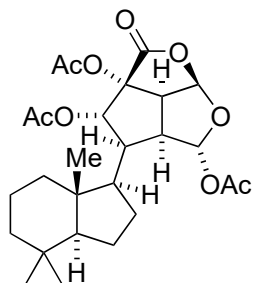


**(-)-Chromodorolide B**

13–16

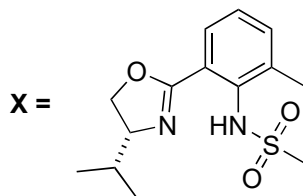


17–24



**(-)-Chromodorolide B**

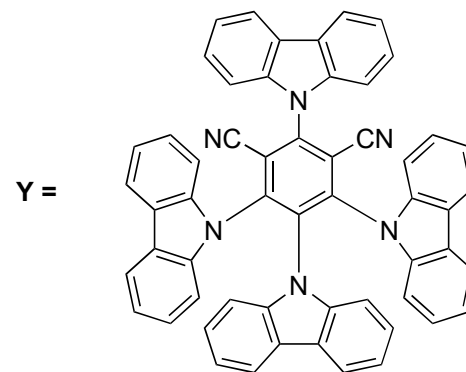
- 13) **B**, NiCl<sub>2</sub>, CrCl<sub>2</sub>, Et<sub>3</sub>N, **X**
- 14) KOH, MeOH/H<sub>2</sub>O, Δ
- 15) *N*-hydroxyphthalimid, DCC, DMAP
- 16) SOCl<sub>2</sub>, pyridine



- 17) **Y** cat.; 2 x 34 W blue LEDs, **Z**, **T**, then *n*-Bu<sub>3</sub>N
- 18) DIBAL-H then Ac<sub>2</sub>O, DMAP, pyridine
- 19) Pd(OH)<sub>2</sub>, H<sub>2</sub>
- 20) PtO<sub>2</sub>, H<sub>2</sub>
- 21) DMP
- 22) NaClO<sub>2</sub>, 2-methyl-2-butene H<sub>2</sub>O/*t*-BuOH/THF, NaH<sub>2</sub>PO<sub>4</sub>
- 23) 1:1 4 M HCl/THF
- 24) DMAP, Ac<sub>2</sub>O, pyridine

Please provide the name of the reaction in **Step 13**.

**Hint:** A rearrangement takes place in **Step 16**.



Please provide a proposal for the mechanism in **Step 17**.

**Hint:** Part of it consists of a named reaction. Provide that name!

