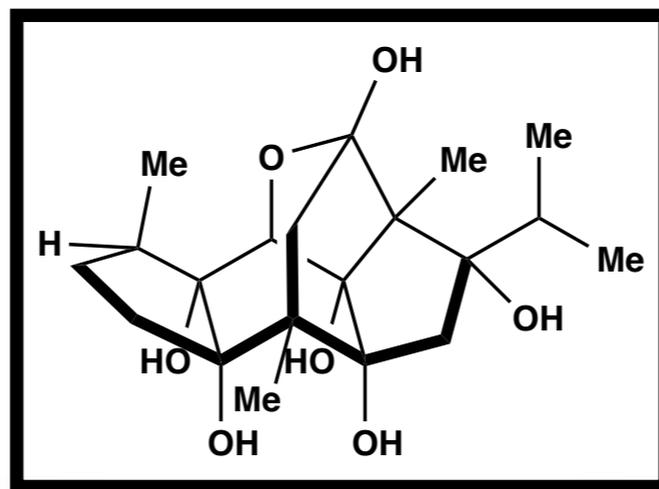
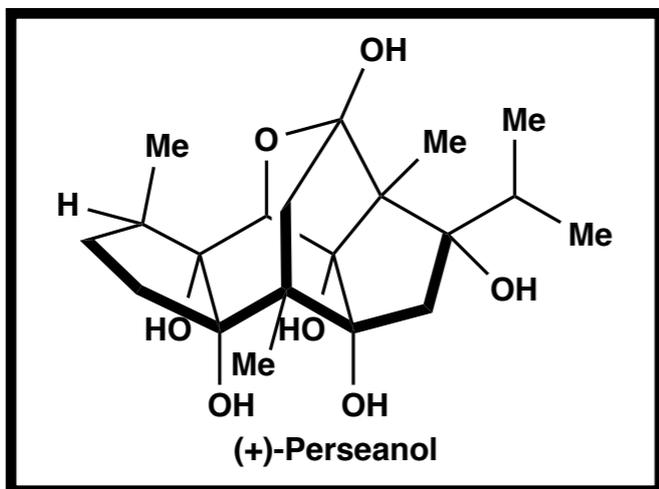


# Total Synthesis of (+)-Perseanol, an Isoryanodane Diterpene



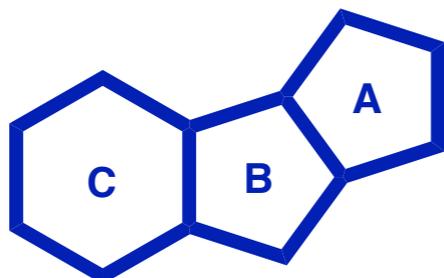
J.M. Masterson  
Sorensen Group Meeting  
October 4, 2019

# (+)-Perseanol

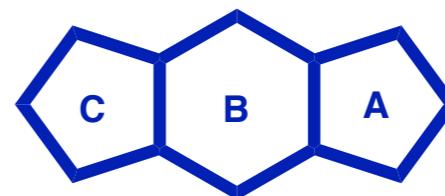


- Isolated in 1997 from *Persea Indica*
- A highly oxidized isorynanodane diterpene
- Antifeedant and insecticidal activity
- First total synthesis by the Reisman Group in 2019

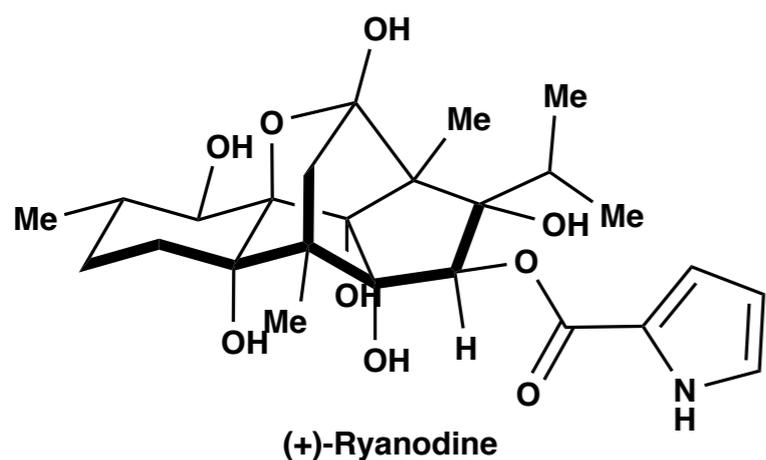
# Ryanodanes and Isoryanodanes



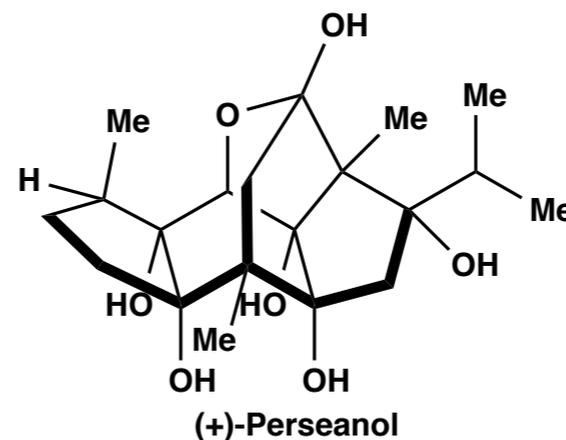
Ryanodanes



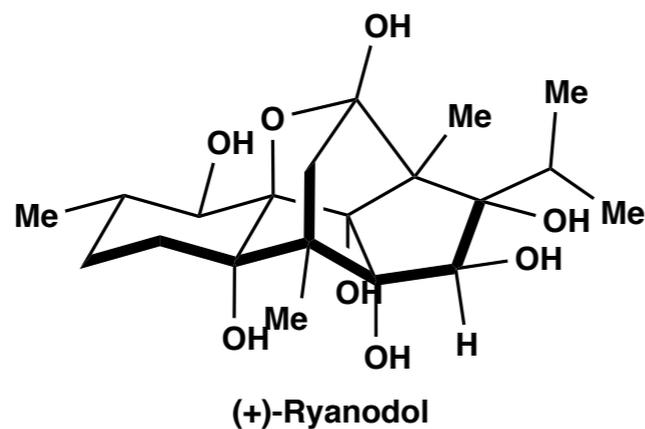
Isoryanodanes



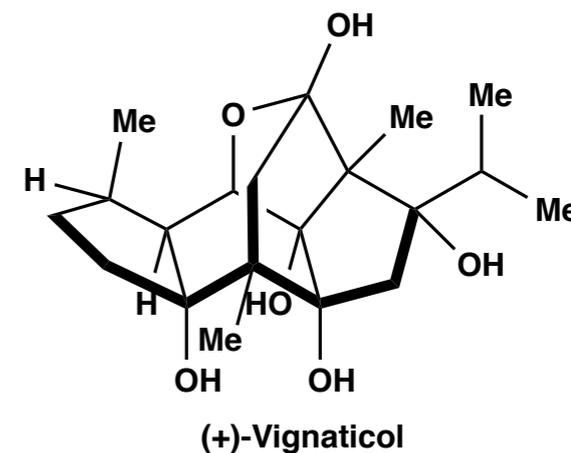
(+)-Ryanodine



(+)-Perseanol



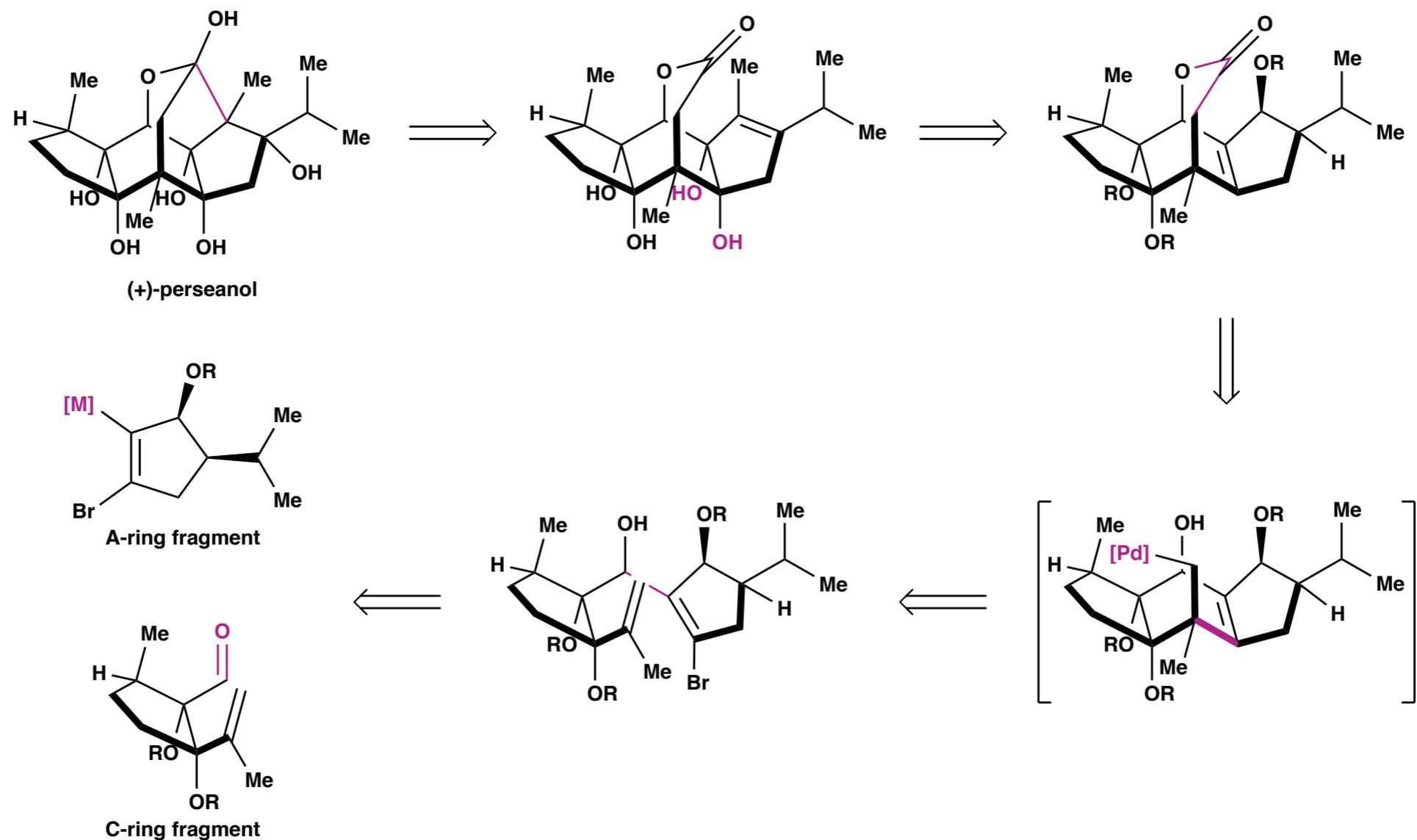
(+)-Ryanodol



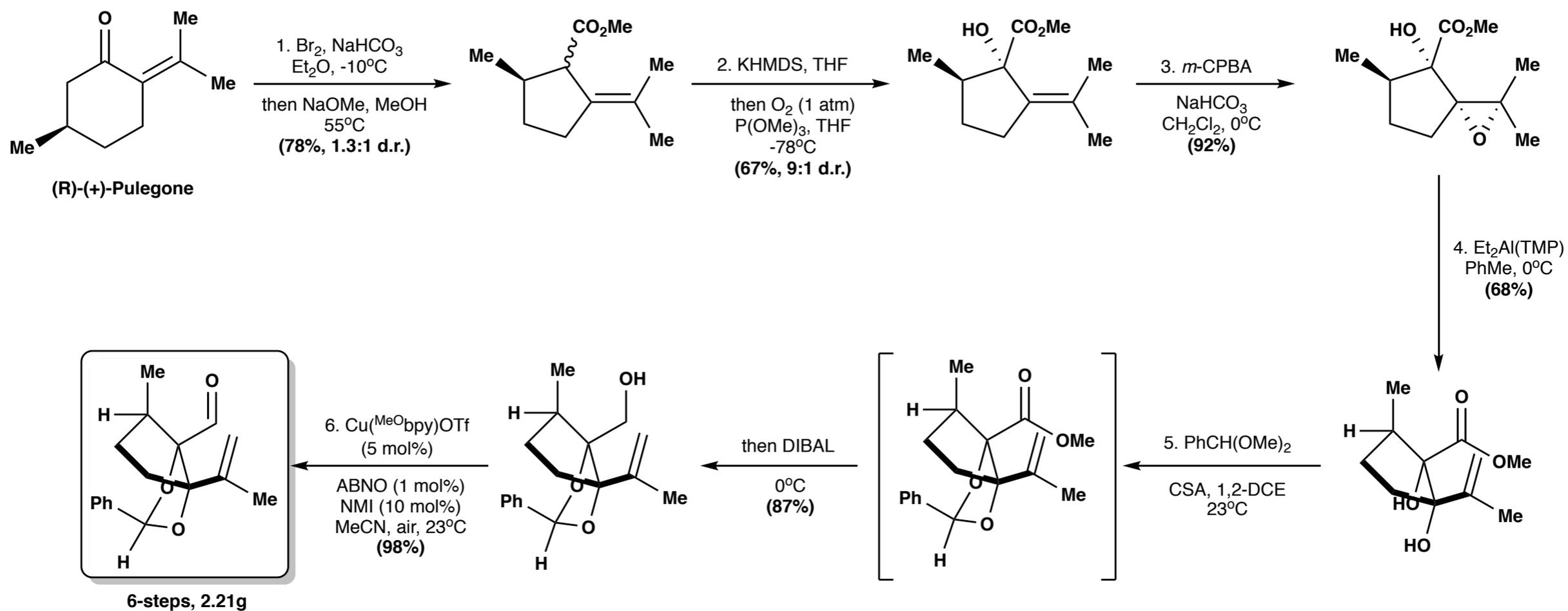
(+)-Vignaticol



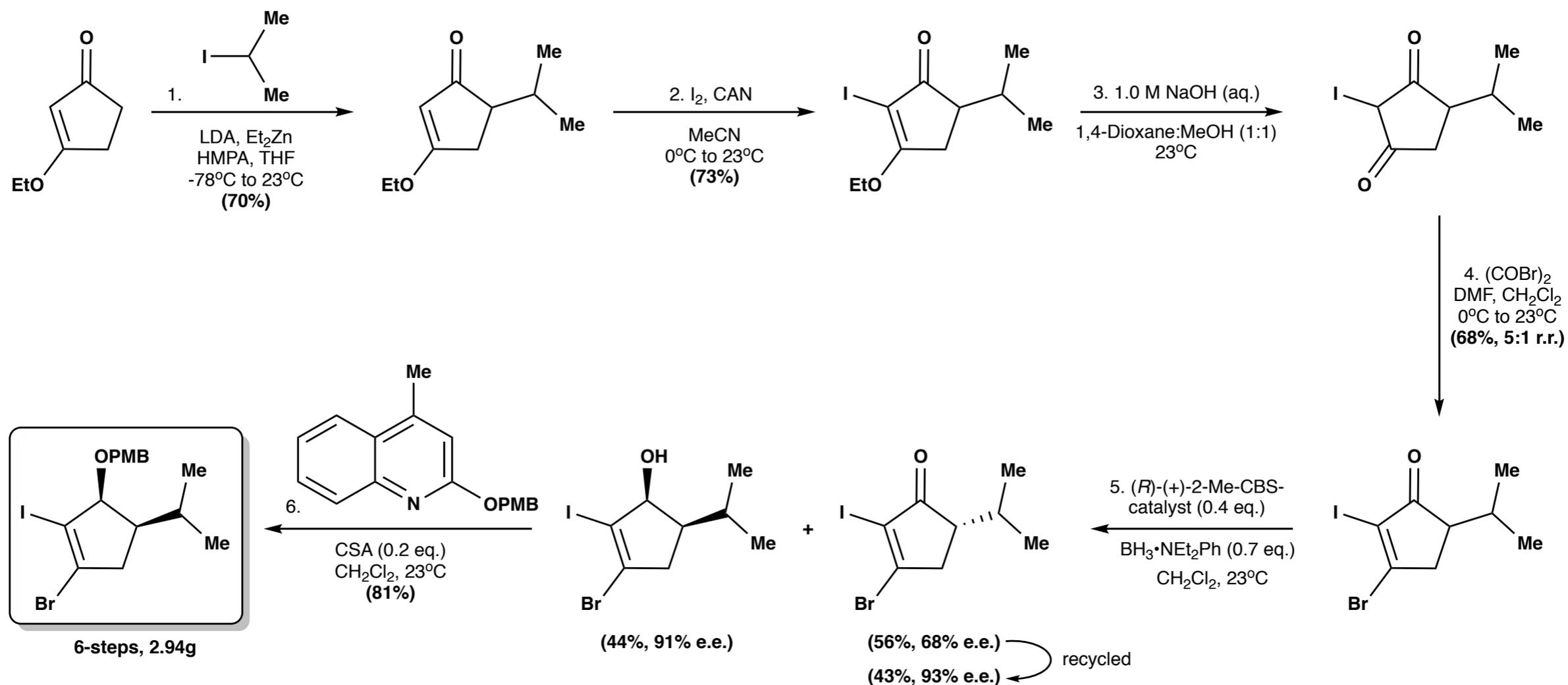
# Retrosynthetic Strategy



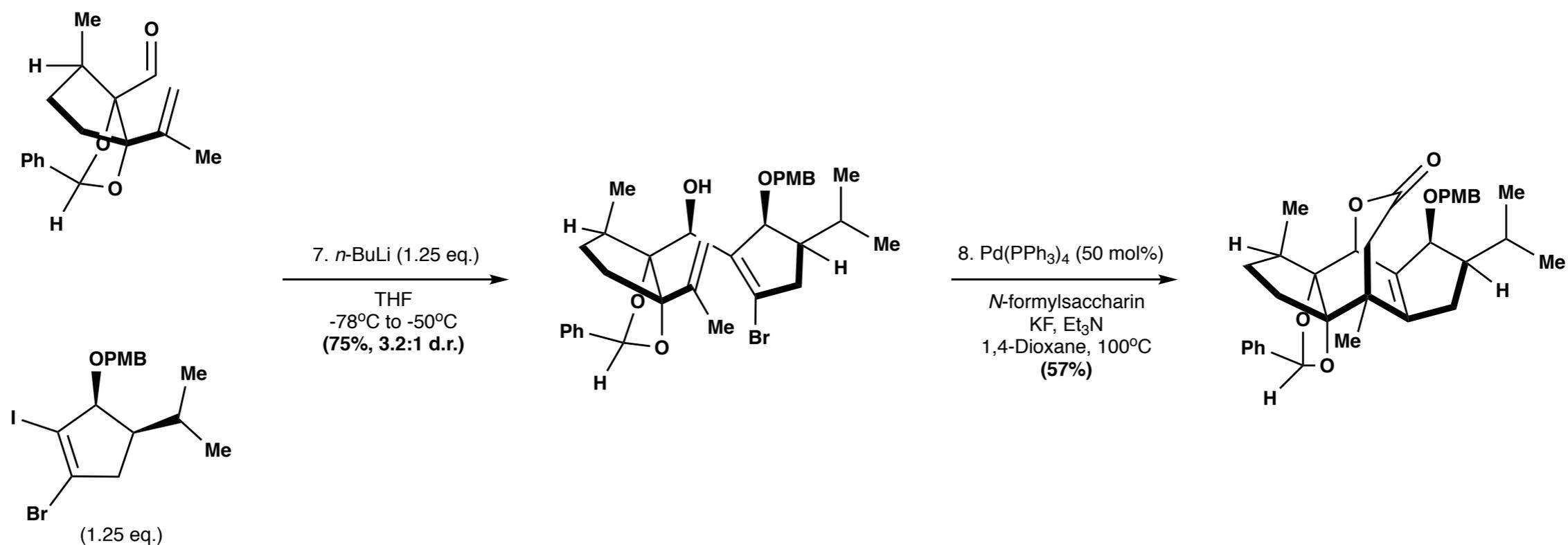
# C-Ring Fragment



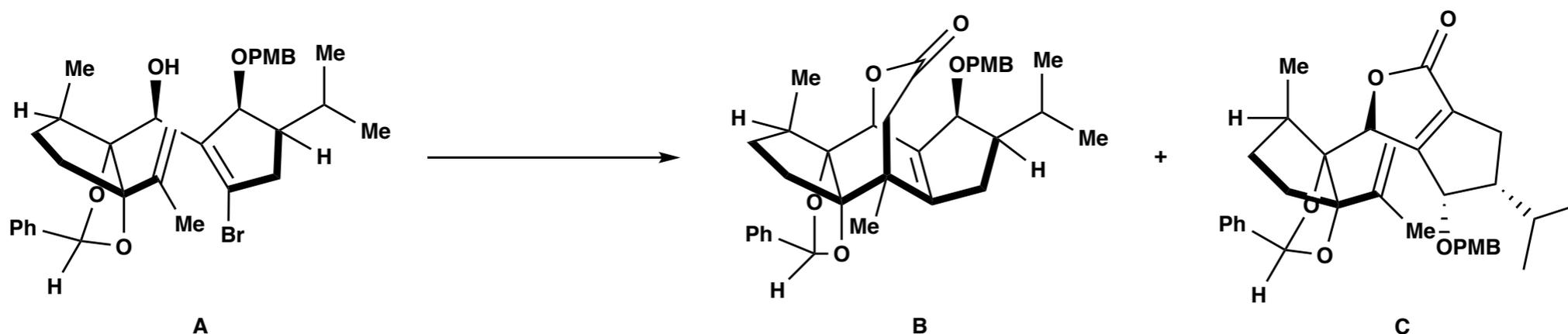
# A-Ring Fragment



# Assembly of Tetracyclic Core



# Carbopalladation-Carbonylation Cascade

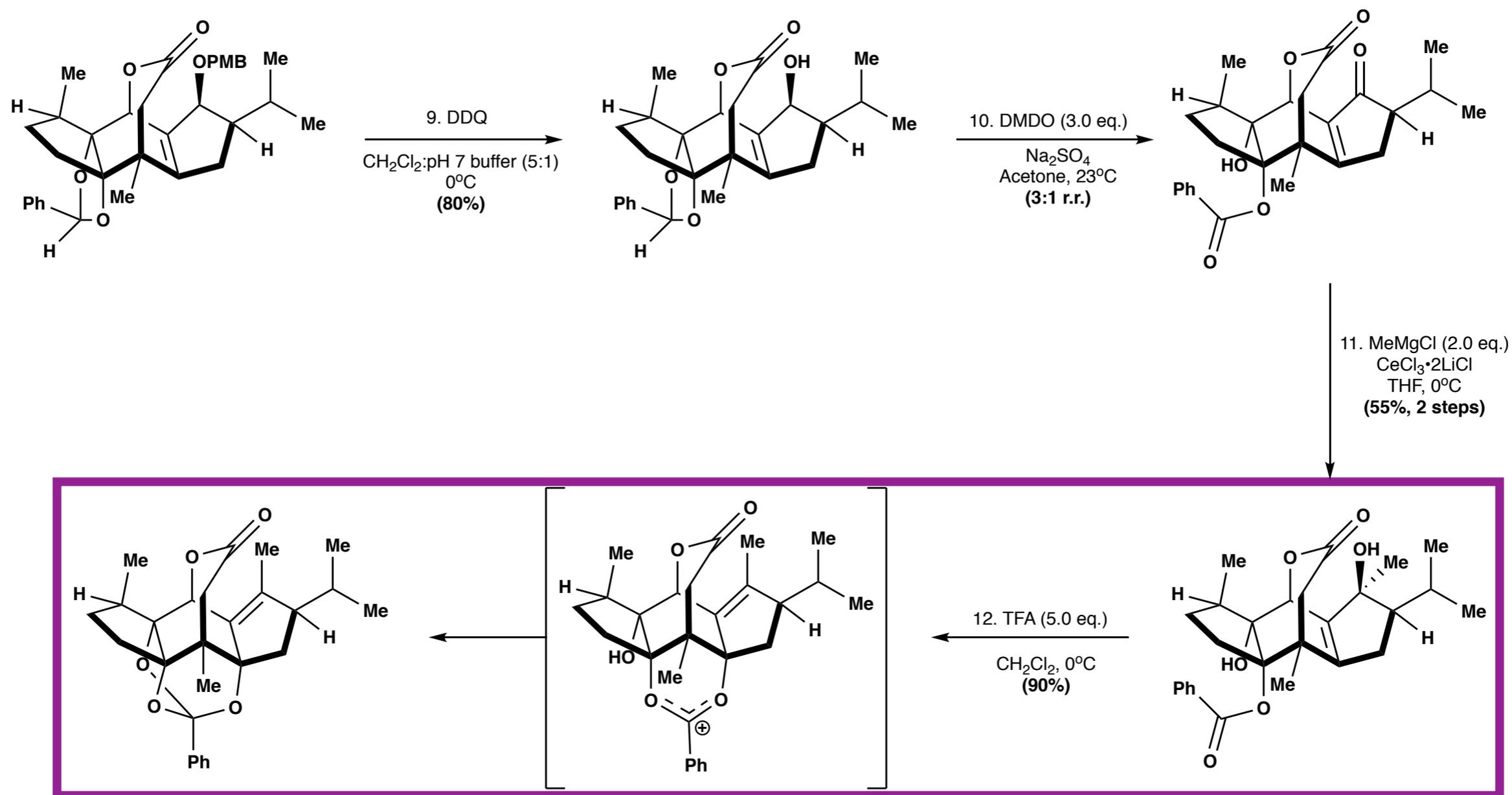


Entry	[Pd]	mol%	CO source	Additive	A (% yield)	B (% yield)	C (% yield)
1	Pd(P( <i>o</i> -Tol) <sub>3</sub> ) <sub>2</sub>	50	CO (1 atm)	—	92	1	5
2*	Pd(P( <i>o</i> -Tol) <sub>3</sub> ) <sub>2</sub>	50	CO (1 atm)	—	67	11	15
3**	Pd(P( <i>o</i> -Tol) <sub>3</sub> ) <sub>2</sub>	120	CO (1 atm)	—	0	52	0
4	Pd(PPh <sub>3</sub> ) <sub>4</sub>	50	Mo(CO) <sub>6</sub>	DBU	85	0	8
5	Pd(PPh <sub>3</sub> ) <sub>4</sub>	50	<i>t</i> BuNC	—	90	0	0
6	Pd(PPh <sub>3</sub> ) <sub>4</sub>	50	Phenyl formate	—	14	7	4
7	Pd(PPh <sub>3</sub> ) <sub>4</sub>	50	<i>N</i> -formylsaccharin	—	22	31	10
8	Pd(PPh <sub>3</sub> ) <sub>4</sub>	50	<i>N</i> -formylsaccharin	KF	1	57	14

\*CO source added after 20 mins

\*\*CO source added after 90 mins

# Elaboration of A-Ring Substitution



# Completion of Synthesis

