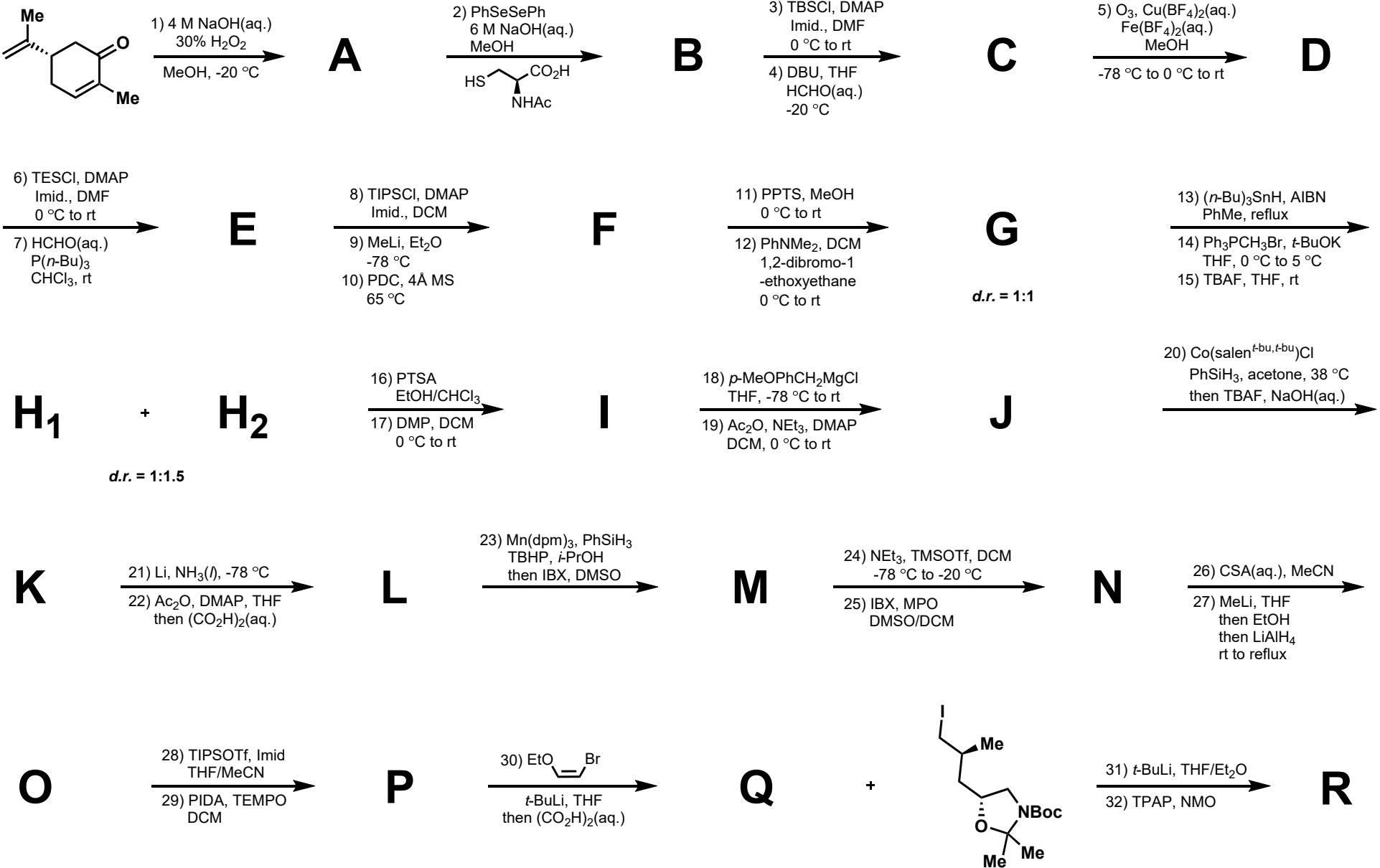


**Asymmetric Total Synthesis of Norzoanthamine**

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33)  $\text{Pd}(\text{PPh}_3)_4$   
 $(n\text{-Bu})_3\text{SnH}$   
THF, rt

S

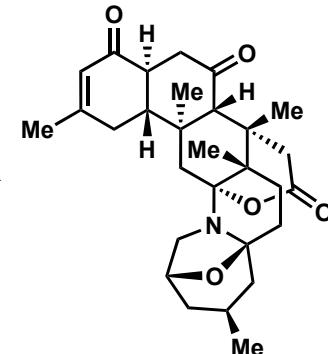
34) TBAF, THF  
55 °C

35) PCC, NaOAc  
4Å MS, DCM

T

36) 2-methyl-2-butene  
 $\text{NaClO}_2$ ,  $\text{NaH}_2\text{PO}_4$   
*t*-BuOH/THF/H<sub>2</sub>O

37) HOAc/H<sub>2</sub>O, 100 °C  
then  $\text{Na}_2\text{SO}_4$



Norzoanthamine