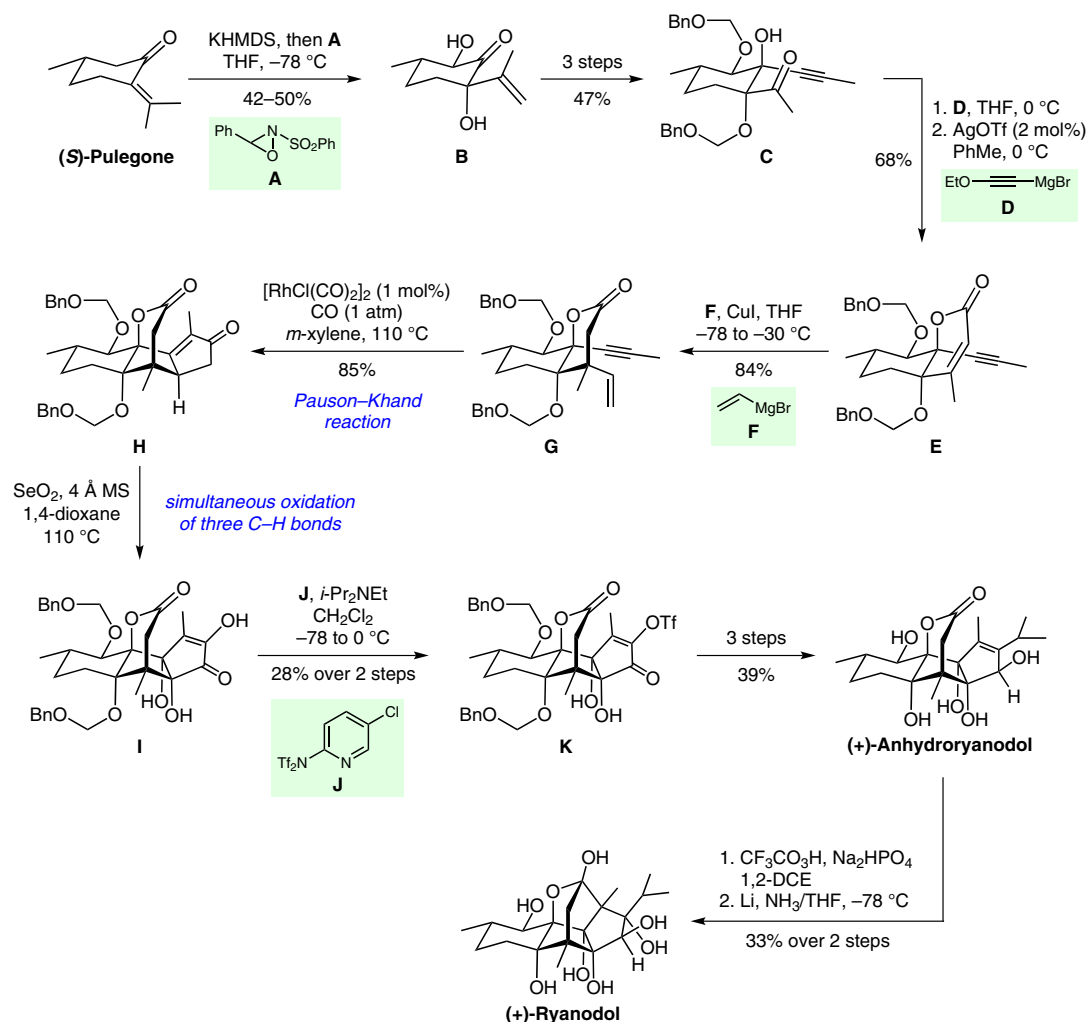


Total Synthesis of (+)-Ryanodol



Significance: (+)-Ryanodol is a highly oxidized complex diterpenoid and the hydrolysis product of ryanodine. It modulates intracellular Ca²⁺ channels, albeit with lower affinity than the parent natural product. Reisman and co-workers completed the synthesis of (+)-ryanodol in only 15 steps from (S)-pulegone.

Comment: Key intermediate **G** was assembled in seven steps from (S)-pulegone and transformed into enone **H** by a highly diastereoselective Pauson–Khand reaction. Treatment of tetracycle **H** with SeO₂ under strictly anhydrous conditions led to the simultaneous installation of three oxygen functionalities. (+)-Anhydroryanodol was finally converted into (+)-ryanodol by epoxidation and reductive cyclization.