Total Synthesis of (+)-Ryanodol

**Significance:** (+)-Ryanodol is a highly oxidized complex diterpenoid and the hydrolysis product of ryanodine. It modulates intracellular Ca\(^{2+}\) 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 \(\mathbf{G}\) was assembled in seven steps from (S)-pulegone and transformed into enone \(\mathbf{H}\) by a highly diastereoselective Pauson–Khand reaction. Treatment of tetracycle \(\mathbf{H}\) with \(\text{SeO}_2\) under strictly anhydrous conditions led to the simultaneous installation of three oxygen functionalities. (+)-Anhydroryanodol was finally converted into (+)-ryanodol by epoxidation and reductive cyclization.