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Total Synthesis of Cryptotrione

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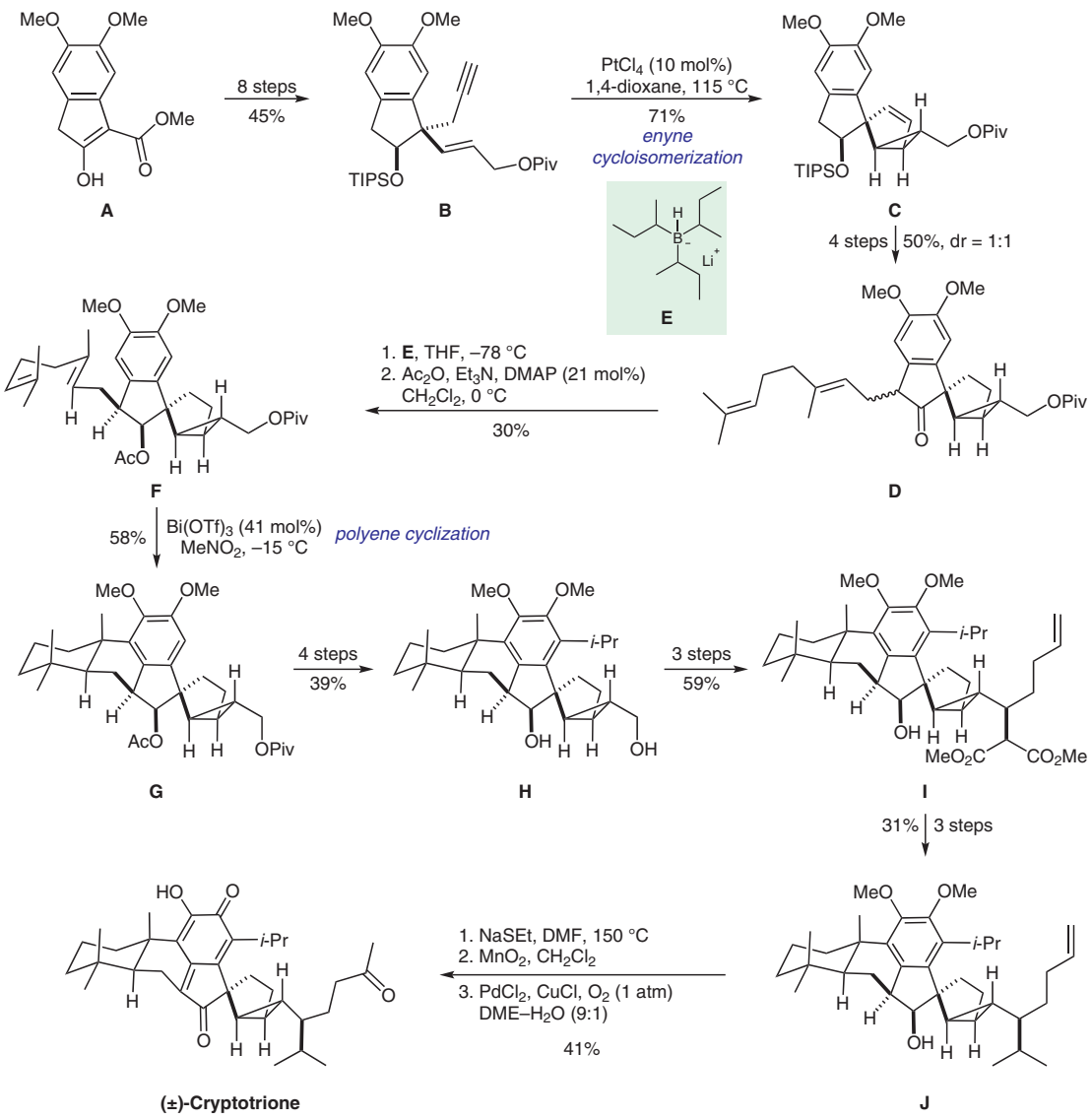
Synthesis of (±)-Cryptotrione



Significance: Cryptotrione was isolated from the bark of *Cryptomeria japonica* in 2010. It has anticancer activity against human oral epidermoid carcinoma KB cells. Additionally, it consists of an unprecedented skeleton featuring an abietane-type diterpene quinone methide spiro-fused to a thujone-type bicyclo[3.1.0]hexane. Wong, Peng, and co-workers present the first total synthesis of (±)-cryptotrione.

Comment: Literature-known ester **A** was converted into enyne **B** in eight steps. Subsequent platinum-catalyzed enyne cycloisomerization gave spiro-fused tetracycle **C**. Following functional group transformations, diene **F** underwent polyene cyclization to afford **G**. Further elaboration of this intermediate yielded (±)-cryptotrione in 13 additional steps.

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Category

Synthesis of Natural Products and Potential Drugs

Key words

(±)-cryptotrione

enyne cycloisomerization

polyene cyclization

terpenes

Synfact of the Month