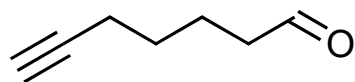


Synthesis Challenge # 53

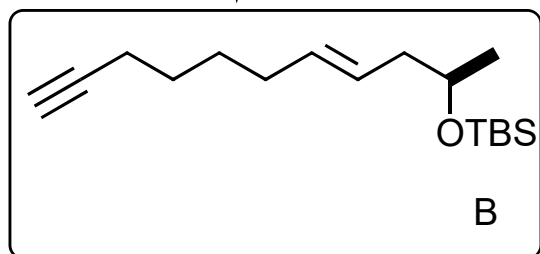
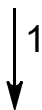
Total Synthesis of (-)-Neocosmosin A via Intramolecular Diels–Alder Reaction of 2-Pyrone

J.-H. Lee, C.-G. Cho, *Org. Lett.* **2016**, DOI: 10.1021/acs.orglett.6b02575

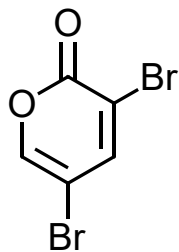
06.10.2016



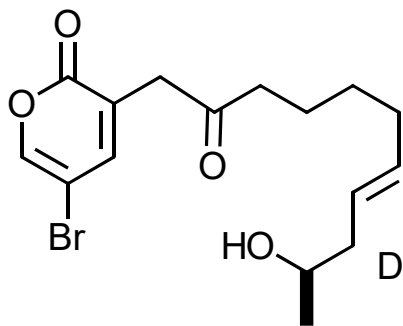
A



B



C



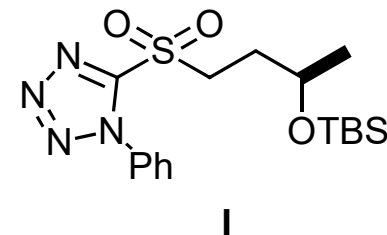
D

1) **I**, NaHMDS, THF, -78°C

2) **B**, PdCl<sub>2</sub>(PPh<sub>3</sub>)<sub>2</sub>, CuI, Et<sub>3</sub>N, dioxane  
3) HgO, H<sub>2</sub>SO<sub>4</sub>, acetone, 60°C

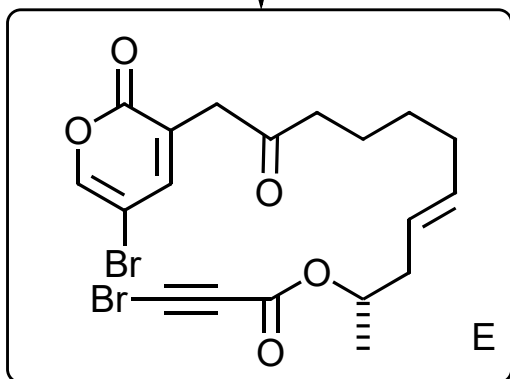
Please, provide a synthesis of **A** , **C** and **I**.

Synthesis of **C**:  
*Tetrahedron Lett.* **2001**, 42,1065–1067

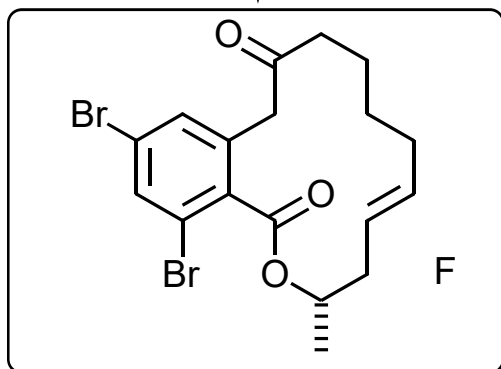


**I**

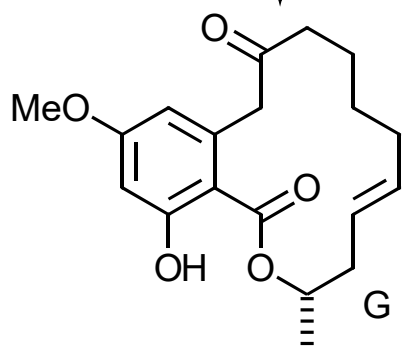
4-5



6



7-9



- 4) II, PPh<sub>3</sub>, DIAD, THF
- 5) AgNO<sub>3</sub>, NBS, acetone

- 6) BHT (0.5 equiv.) mesitylene, reflux

- 7) B<sub>2</sub>pin<sub>2</sub>, KOAc, Pd(dppf)<sub>2</sub>Cl<sub>2</sub>·CH<sub>2</sub>Cl<sub>2</sub>, dioxane, 90°C
- 8) 1M NaOH, H<sub>2</sub>O<sub>2</sub>, THF, rt
- 9) MeI, K<sub>2</sub>CO<sub>3</sub>, DMF

