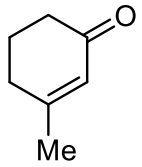
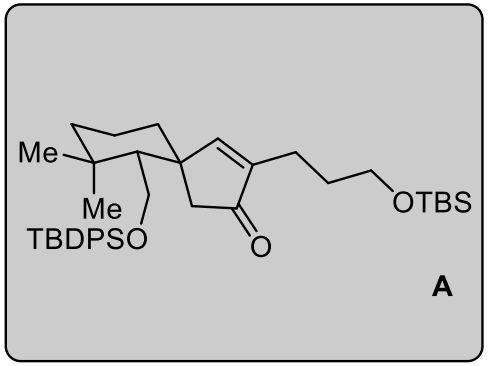
Total Synthesis of the Isodon Diterpene Sculponeatin N

B.J. Moritz, D.J. Mack, L. Tong, R.J. Thomson.

Angew. Chem. Int. Ed. **2014**, *53*, 2988–2991.

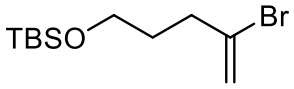


1-6

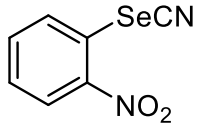


7-12

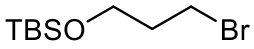
1) MeMgBr, CuI, LiCl *then* CH_2O
2) TBDPSCl, Imidazole
3) $TMSCH_2CO_2Et$, LDA
4) Me(OMe)NH·HCl, *i*PrMgCl
5) **1,** *t*BuLi
6) $AlCl_3$



1



3



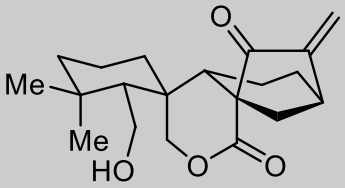
2

7) **2**, *t*BuLi, (2-thiophene)-Cu(CN)Li, $BF_3{\cdot}Et_2O$
8) HF, MeCN
9) **3** (2.5 eq.), Bu_3P (3 eq.), *then* H_2O_2
10) $TMSOTf$, NEt_3
11) MeLi, allyl iodide
12) Grubbs II

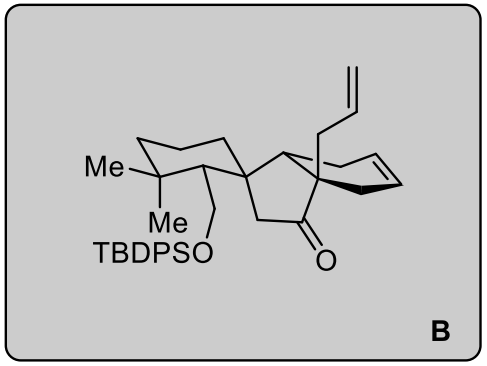
3) Name reaction?
Peterson olefination

6) Name reaction?
Nazarov cyclization

9) Name reaction?
Grieco elimination

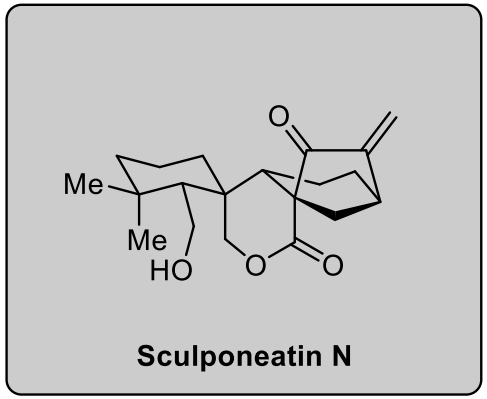


Sculponeatin N



B

13-22

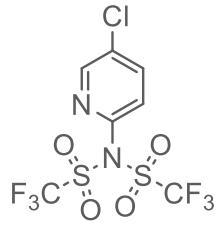


Sculponeatin N

13) $PdCl_2$, CuCl, O_2
14) KHMDS, Comins reagent
15) TBAF, THF, rt
16) Bu_3SnH, AIBN
17) SeO_2, *t*BuOOH
18) TMSOTf, NEt_3
19) O_3, pyridine, *then* Me_2S
20) $LiBH_4$, 50 °C
21) TBAF
22) MnO_2

13) Name reaction?
Wacker oxidation

14) Structure of Comins reagent?



15) Hint: no deprotection

17) Name reaction?
Riley-Oxidation