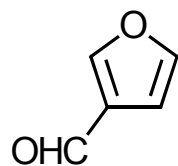


Synthesis Challenge # 48

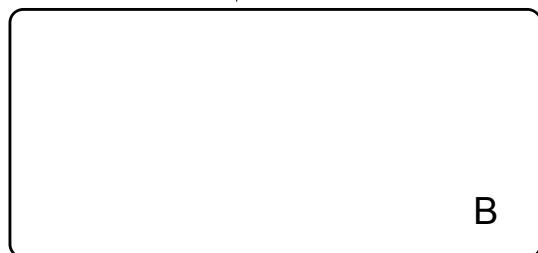
AG Wegner

19.05.2016



A

1-3



B

4-6



C

7-8

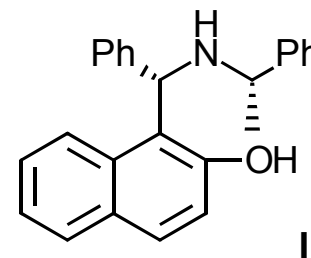


D

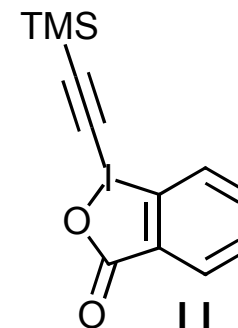
1) ligand I (15 mol%), 2-butyne, Cy_2BH , Me_2Zn , toluene,
2) 2-methyl-2-(vinyl-oxo)-propane, $\text{Pd}(\text{OAc})_2$ (0.1 equiv), benzoquinone, AcOH, CH_3CN ,
3) ZrCp_2Cl_2 (1.5 equiv), $\text{LiAlH}(\text{OtBu})_3$, THF, I_2 (2.0 equiv)

4) $\text{NiBr}_2 \cdot \text{glyme}$ (10 mol%), potassium vinyltrifluoroborate, bathophenanthroline, NaHMDS, *t*-BuOH/CPME (1:1),
5) Jones oxidation
6) LiHMDS, ClCO_2Me , then II, TBAF

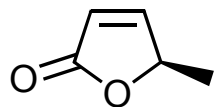
7) LiCl, H_2O (5.0 equiv), DMF, 130 °C
8) $[\text{Rh}(\text{CO})_2\text{Cl}]_2$ (7%), CO (balloon pressure), toluene



I



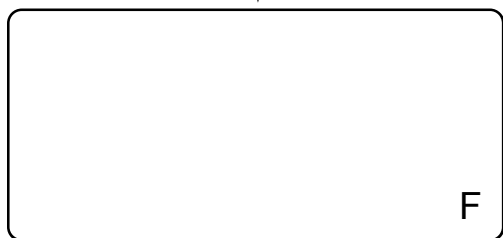
II



9-12

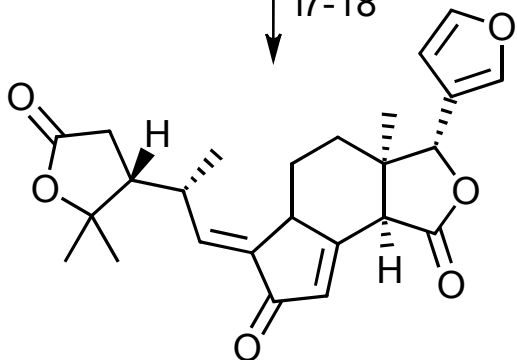


13-16



D + F

17-18



9) PhSCu, then but-3-en-2-ylmagnesium chloride (
10) O₃, CH₂Cl₂-MeOH (1:1), -78°C, then NaBH₄
11) imidazole, TBDPSCI, CH₂Cl₂,
12) Me₃Al, dimethylamine hydrochloride

13) DMP, NaHCO₃, CH₂Cl₂, RT
14) MeMgCl, -20°C then 1 M HCl
15) TBAF, 50C
16) DMP, NaHCO₃, CH₂Cl₂, RT

17) LDA, THF, -78°C
18) Burgess reagent

E was obtained as a mixture of diastereomers. Suggest methods for separation.