

1) 1,

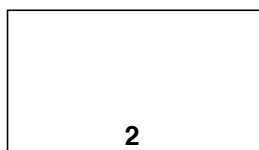
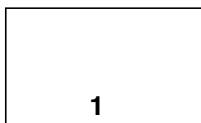
then

99% yield

Name?

1') 2, CsF, MeCN, 80 °C, 2h  
then aq. NH<sub>4</sub>OH, 60 °C, 8 h

45% yield



2)

77% yield

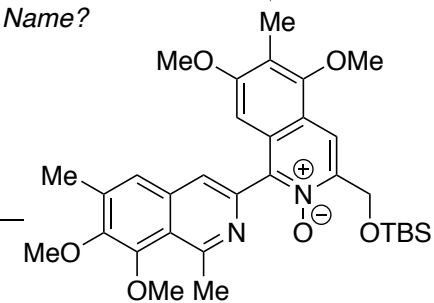
2') Tf<sub>2</sub>O, pyridine,  
CH<sub>2</sub>Cl<sub>2</sub>, 0 °C, 30 min

94% yield

3) Pd(OAc)<sub>2</sub> (20 mol%)  
P(*t*-Bu)<sub>2</sub>Me<sup>+</sup>HBF<sub>4</sub><sup>-</sup> (50 mol%)  
CsOPiv (40 mol%)  
Cs<sub>2</sub>CO<sub>3</sub> (3.5 eq.)  
toluene, 130 °C, 4.5 h

93% yield

Name?



5)

62% yield

Name?

4)

not isolated

6)

then

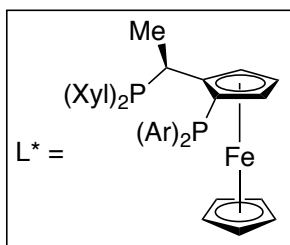
61% yield

Name?

7)

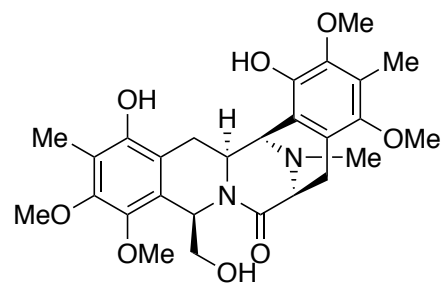
then

65% yield



**8)** H<sub>2</sub> (60 bar), [Ir(cod)Cl]<sub>2</sub>, L\*  
 TBAI, 60 °C, 18 h → 80 °C, 24 h

83% yield  
 >20:1 d.r.  
 >99% (after recryst.)



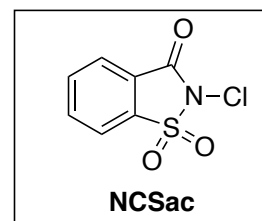
**11)** Pd G3 Dimer (50 mol%),  
 AdBippyPhos (200 mol%),  
 CsOH·H<sub>2</sub>O, dioxane,  
 90 °C, 3 h

46% yield

9)

10)

66% yield, 2 steps



**12)** Li(EtO)<sub>2</sub>AlH<sub>2</sub>, THF, 0 °C, 45 min    50% yield  
 then AcOH, KCN  
**13)** DDQ, acetone, H<sub>2</sub>O, 23 °C, 1 h

33% yield

32% yield

Jorunnamycin A

**14)** Ac<sub>2</sub>O, DMAP, MeCN  
 then aq. AgNO<sub>3</sub>, 45 °C, 30 min

68% yield

(-)-Jorumycin