A Unifying Bioinspired Synthesis of (–)-Asperaculin A and (–)-Penifulvin D

George, I. R.; López-Tena, M.; Sundin, A. P.; Strand, D., *Org. Lett.* **2021**, *23* (9), 3536–3540.

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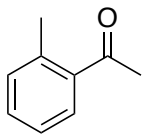
13/07/2021



1. NaH, **1**, DMF
2. (+)-DIPCl, THF
3. EOMCl, $^{i}Pr_2NEt$, CH_2Cl_2

33% over 3 steps
er = 97.5:2.5
Explain the enantiomeric ratio

A

hv (300 nm)

pentane
B/**C** = 50:50

Transition state of the
[3+2] photocycloaddition to explain formation of **B** and **C**

B (angular photoadduct)

C (undesired linear photoadduct)

Li, MeNH2

18% over two steps
D/**E**

D

E (**D** isomerisation)

1. HCl, MeOH
2.PDC, CH_2Cl_2

95% over 2 steps

F

TMSCN, ZnI_2

CH_2Cl_2, 59%
dr >99:1

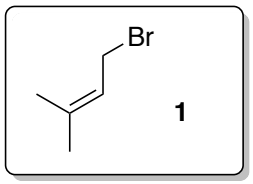
G

Explain the diastereomeric ratio

$[Rh(COD)Cl]_2$,
acetaldehyde oxime

toluene, 79%
dr >99:1

H



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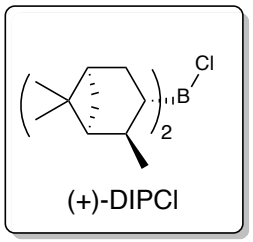
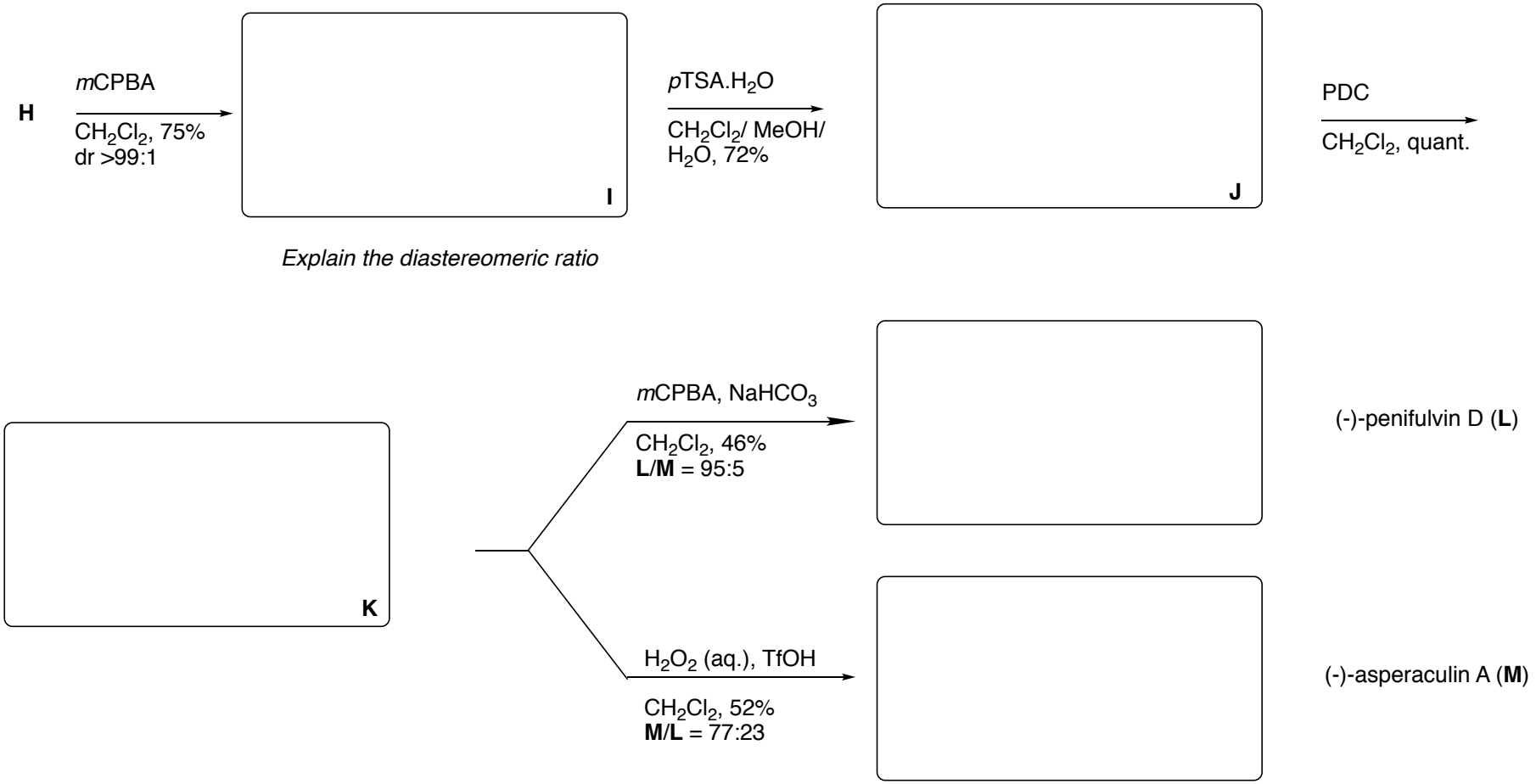


(+)-DIPCl



Explain the diastereomeric ratio