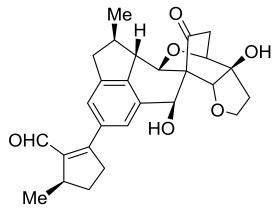
# **Enantioselective Total Synthesis of (–)-Incarviatone A**

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(-)-Incarviatone A

First isolated by Zhang group in 2012, and showed notable potential as a novel monoamine oxidase (MAO) inhibitor.

Has eight contiguous stereogenic centers and a unprecedented polycyclic framework.





### Retrosynthetic analysis

2

a) 
$$Pd(OAc)_2$$
,  $Iigand$ ,  $n-PrB(OH)_2$   $Ag_2CO_3$ ,  $Ag_2CO_3$ ,

**RBpin** 

R

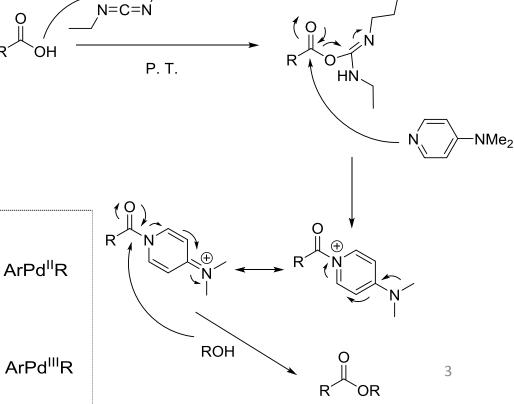
 $ArPd^{II}Y$ 

Y = anion

BocN-

tBu C

## **Steglich Esterification**

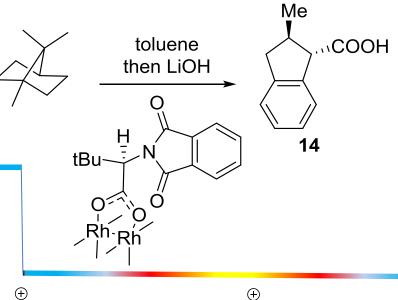


-NMe<sub>2</sub>

NMe<sub>2</sub>

#### Regitz-Diazotransfer

p-ABSA: 
$$\begin{array}{c} O \\ HN \\ \end{array}$$
 $\begin{array}{c} O \\ S \\ \end{array}$ 
 $\begin{array}{c} O \\ S \\$ 



$$\frac{\text{Me}}{\text{Pd(dppf)Cl}_2, l_2} \xrightarrow{\text{Pd(dppf)Cl}_2, l_2} \frac{\text{Me}}{\text{DMF, PhI(OAc)}_2} \xrightarrow{\text{Pd(OAc)}_2, CO} \frac{\text{Pd(OAc)}_2, CO}{\text{Et}_3 \text{N, MeOH}} \xrightarrow{\text{CO}_2 \text{Me}} \frac{\text{Me}}{\text{CO}_2 \text{Me}}$$

$$[(COD)IrOMe]_2 \xrightarrow{+B_2pin_2} (COD)Ir^{Bpin} (COD)Ir^{Bpi$$

#### **Swern Oxidation**

#### Phenolic aldol condensation

#### Vilsmeier-Haack reaction

#### Conclusion:

- 14 steps for the longest linear route and 18 steps in total
- Established a scalable and sequential C-H functionalization process for indane
- Identify a striking biomimetic cascade reaction