New Catellani-type strategies for the synthesis of various functionalized Biphenyl derivatives (METACYL-894026)

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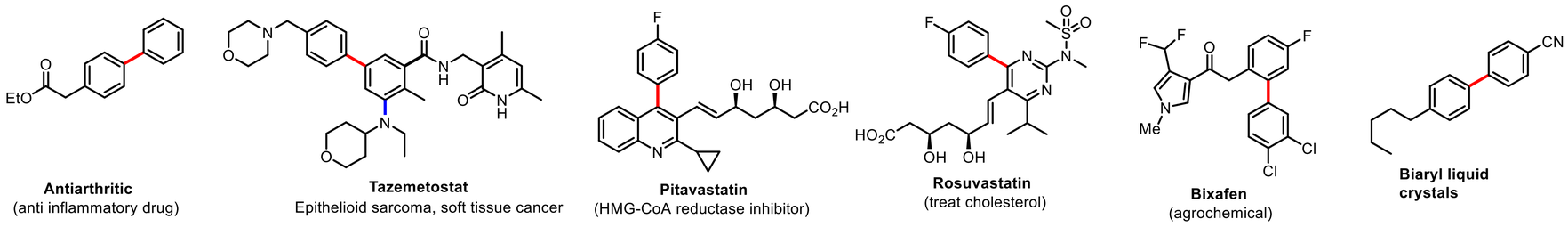
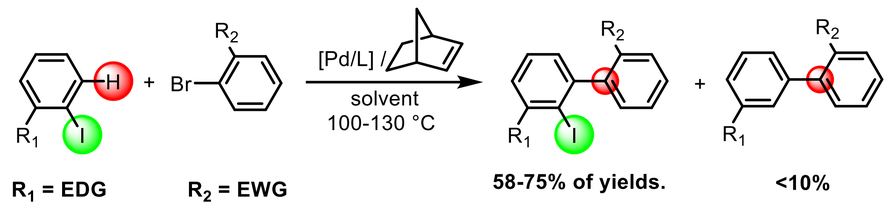
Selected drug molecules & industrial important biphenyl scaffolds



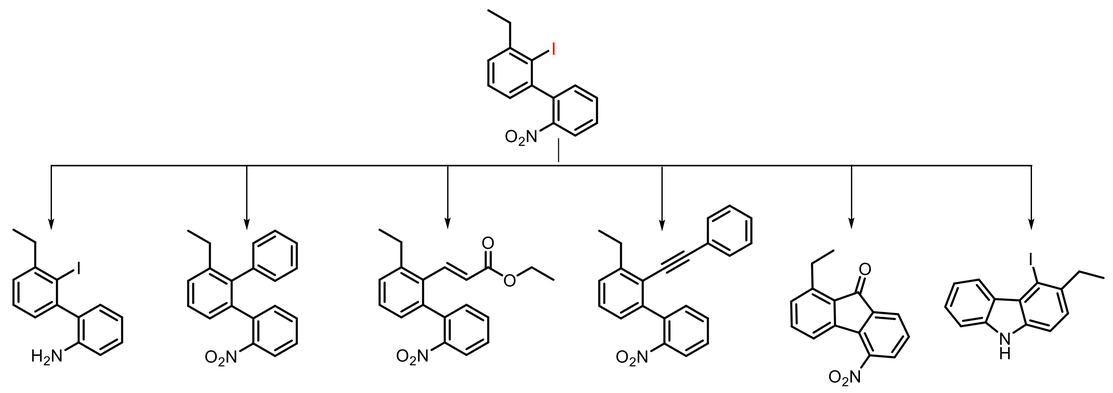
Advantages of our protocol

- ✓ Good functional group tolerance
- ✓ Simple and readily available starting materials to form complex molecular structures
- ✓ Under relatively mild conditions
- ✓ In the one-pot process two new C–C (C–C and a C–I) bonds are selectively formed

New Cattelani-type approach to synthesis of 2-iodobiaryls



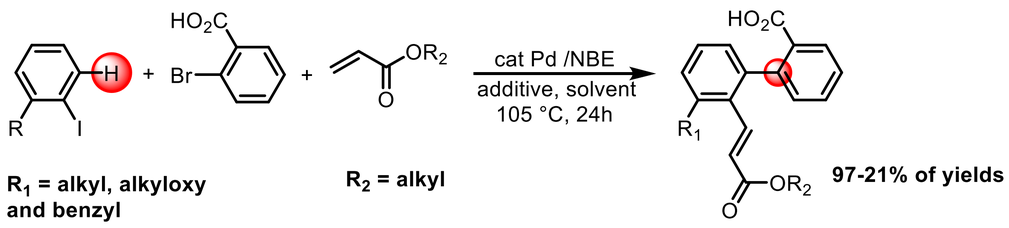
Synthetic applications of 2-iodobiaryls



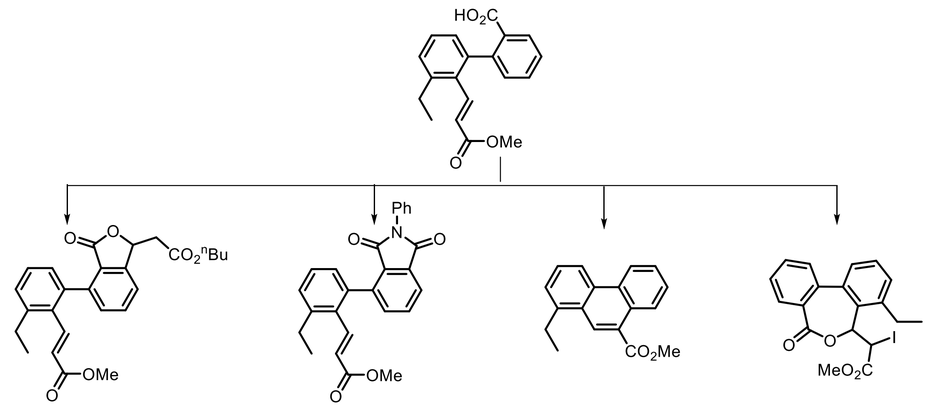
Advantages of our protocol

- ✓ Good functional group tolerance
- ✓ Simple and readily available starting materials to form complex molecular structures
- ✓ Under relatively mild conditions
- ✓ In the one-pot two step process synthesis of seven-membered lactones was achieved

New Catellani-type approach to synthesis of Biphenylcarboxylic acid derivatives



Synthetic applications of Biphenylcarboxylic acid



References

- J.-Q. Yu *et al.*, *Nature* **2012**, *416*, 518−522.
- G. Dong *et al. Chem. Rev.* **2019**, *119*, 7478-7528
- N. Della Ca', M. Fontana, E. Motti, M. Catellani, *Acc. Chem. Res.* **2016**, *49*, 1389
- M. Lautens *et al.*, *Nat. Chem.*, **2015**, ***7***, 863−870
- J.-Q. Yu *et al.*, *Nature* **2015**, 519, 334−338
- J.-Q. Yu *et al.*, *Angew. Chem. Int. Ed.*, **2017**, *56*, 5125 –5129
- G. Dong *et al.*, *J. Am. Chem. Soc*. **2015**, *137*, 5887–5890.