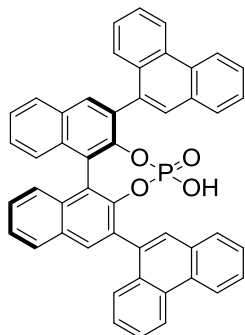
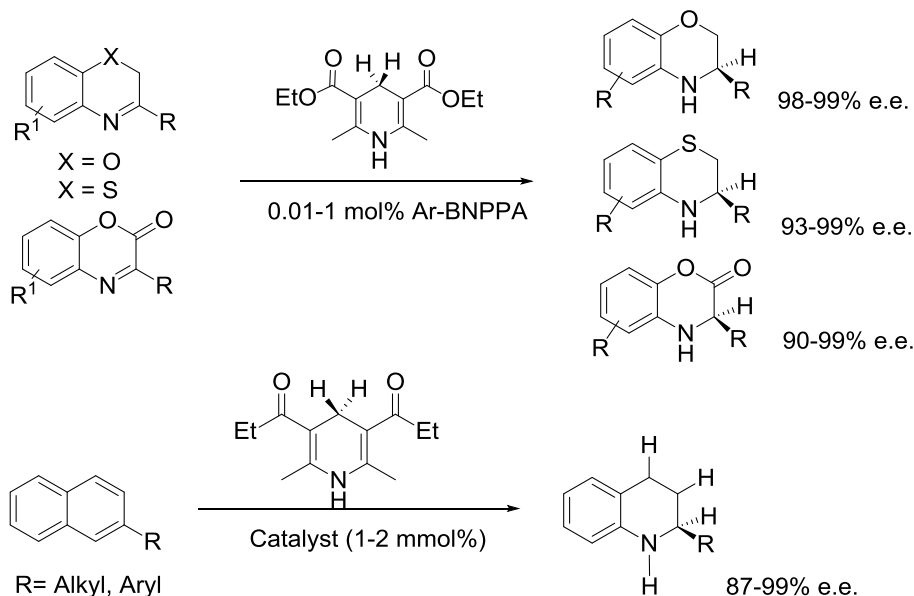


Catalog # 15-0552 (11bR)-2,6-Di-9-phenanthrenyl-4-hydroxy-4-oxide-dinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphin, 98%



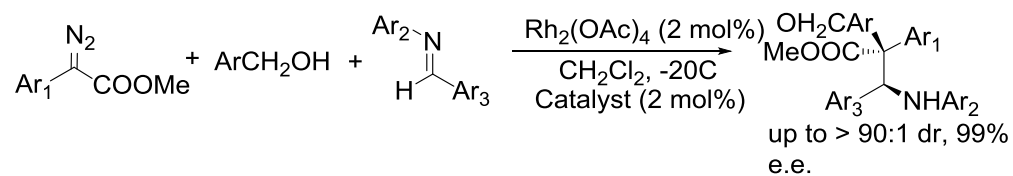
Technical Notes:

- Hydrogenation:** A highly efficient transfer hydrogenation of benzoxazines, benzothiazines, and benzoxazinones with as low as 0.01 mol% BINOL phosphate catalyst furnishes the dihydro-2H-benzoxazines, -benzothiazines, and -benzoxazinones.
- A Brønsted acid catalyzed cascade transfer hydrogenation provides direct access to 2-aryl- and 2-alkyl-substituted tetrahydroquinolines with excellent enantioselectivities under mild conditions and using very low amounts of catalyst.
- Three-Component Reaction:** An asymmetric three-component reaction of diazo compounds and alcohols with imines catalyzed cooperatively by a rhodium complex and a chiral Brønsted acid provides a general and efficient entry to β -amino- α -hydroxyl acid derivatives.
- Diels-Alder Reaction:** A mild, enantioselective Diels-Alder reaction, catalyzed by a chiral magnesium phosphate species, has been developed for the synthesis of various chiral spirooxindoles.

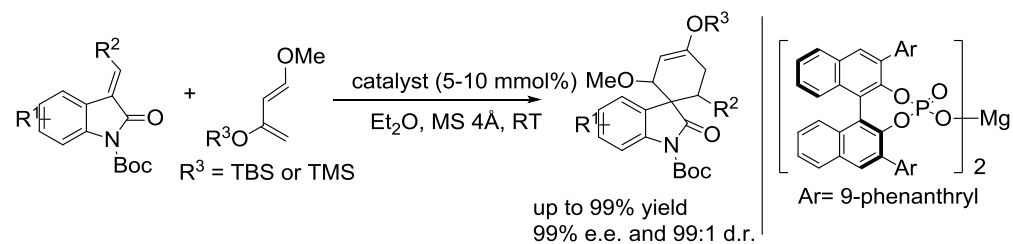


Tech Note (1)
Ref. (1)

Tech Note (2)
Ref. (2)



Tech Note (3)
Ref. (3)



Tech Note (4)
Ref. (4)

References:

1. *Angew. Chem. Int. Ed.*, **2006**, 45, 6751-6755.
2. *Angew. Chem. Int. Ed.*, **2006**, 45, 3683-3686.
3. *J. Am. Chem. Soc.*, **2008**, 130, 7782-7783.
4. *Angew. Chem. Int. Ed.*, **2013**, 52, 4628-4632.