Organocatalyst Usable for the Oxidative Dimerization of Grignard Reagents

Advantages
- Four-electron Oxidant Transitions from Stoichiometric to Catalytic
- Effective for the Dimerization of Grignard Reagents Using Air as a Co-oxidant

Applications

1,2-Bis[2,3,5,6-tetrafluoro-4-(trifluoromethyl)phenyl]-3,3,4,4,5,5-hexafluoro-1-cyclopentene

Y. 91% Y. 90% Y. 89% Y. 91%

Organic Synthetic Chemistry Laboratory
(The Korenaga Group)

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Research Description

The Korenaga research group focuses on the strategy and development of homogeneous catalysis. Their group has developed fluorinated arylphosphine ligands to reduce catalytic loading in transition-metal catalysis. In addition, they have developed organocatalysts for traditionally transition-metal catalyzed reactions. The Korenaga group takes advantage of computational quantum chemistry to develop and refine novel catalysts, and collaborates with their quantum calculations with other laboratories.

Experimental Procedure

**B5426** (60.8 mg, 0.1 mmol), THF (1.0 mL) and PhMgBr in THF (1.0 mol/L, 1.0 mmol) is added to a flame-dried Schlenk flask under argon atmosphere. The reaction mixture is stirred at 50 °C for 6 h under the dry air. After addition of saturated NH₄Cl solution, the reaction mixture is extracted with EtOAc. The organic layer is dried over Na₂SO₄ and is concentrated under reduced pressure. The resulting mixture is purified by silica gel column chromatography to give biphenyl in 93% yield as a white solid.

**For further information please refer to our website at www.TCIchemicals.com.**

organocatalyst