Supporting Information

Mitsunobu Reaction with 4-(Diphenylphosphino)benzoic Acid: A separation Friendly Bifunctional Reagent that serves as both a Reductant and Pronucleophile

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**Stereochemical confirmation by optical rotation (For the formation of enantiomers only)**

Crude (R)-2a: \([\alpha]_D^{20} = -9.0 (c 1.0, \text{CHCl}_3)\); litt. \([\alpha]_D^{25} = -9.9 (c 2.0, \text{Ethanol})\), *Synthesis*, 2009, 21, 3654–3660.

Crude (R)-2b: \([\alpha]_D^{25} = -52.7 (c 1.0, \text{CHCl}_3, 93\% \text{ ee})\); litt. \([\alpha]_D^{25} = -20.1 (c 6.7, \text{CHCl}_3)\), *J. Org. Chem.*, 1996, 61, 8229-8243.

Crude (S)-2c: \([\alpha]_D^{20} = -15.6 (c 2.0, \text{CHCl}_3, 99\% \text{ ee})\); litt. \([\alpha]_D^{22} = -51.3 (c 6.7, \text{CHCl}_3)\), *Synthesis*, 2009, 21, 10696-1699.

Crude (S)-2d: Optically rotation could not obtained due to high volatility during the concentration.

**\(^1\text{H},^{13}\text{C} \text{NMR spectra}\)**

All alcohols are known compounds. The \(^1\text{H}\)NMR spectra shown below are in the reaction mixture after the Mitsunobu reaction and hydrolysis.

(S2-S4) **The \(^1\text{H} \text{ and }^{13}\text{C} \text{ spectra}** were shown for the esters after the column purification (S5–