Supporting Information

N-Vinyl Pyridinium and Ammonium Tetrafluoroborate Salts: New Electrophilic Coupling Partners for Pd(0)-Catalyzed Suzuki Cross-Coupling Reactions

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**Reaction 1**

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Pre-stirring: 0  
Initial power: 0

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**Temperature (°C)**

![Temperature Graph]

**Pressure (bar)**

![Pressure Graph]

**Power (W)**

![Power Graph]
Experimental Details

1. General

All boronic acids, palladium catalysts, and the phosphines (triphenylphosphine, tribenzylphosphine, and tri-\(p\)-tolylphosphine) were purchased from the Aldrich Chemical Company and were used as received. Tricyclohexylphosphine was obtained from Fluka Chemika and also used as received. Tetrahydrofuran was distilled from sodium benzophenone ketyl under an atmosphere of nitrogen prior to use. \(N,N\)-diisopropylethylamine (DIEA) was distilled from calcium hydride prior to use. Microwave reactions were carried out using a Biotage Initiator microwave reactor at the reaction times and temperatures indicated. \(^1\)H NMR spectra were collected in CDCl\(_3\) at 400 MHz unless otherwise indicated. All compounds produced in Tables 2 and 3 are known in the literature, as is the 1,6-dioxo-2,4-diene 7. The compounds were characterized by comparison to their published spectra. Melting points are uncorrected.

2. Suzuki Coupling - Representative Procedure

(a) Synthesis of (\(E\))-4-(4-vinylphenyl)but-3-en-2-one (Table 2, Entry 5)

Into a 5 mL Biotage microwave vial was added 24 mg (0.10 mmol) (\(E\))-1-(3-oxobut-1-enyl)pyridinium tetrafluoroborate I, 4.6 mg (5 mol%) Pd\(_2\)(dba)\(_3\) and 5.6 mg (20 mol%) tricyclohexylphosphine. To the vial was added 4.0 mL tetrahydrofuran and 0.038 mL (0.22 mmol) DIEA. At this point the vial was sealed and placed in the microwave reactor. The contents of the vial were heated to 150 °C for a total time of 12.5 min (set time = 10 min; ramp and cool time = 2.5 min; power setting = high). After cooling, the vial was opened and the contents were transferred to a round-bottom flask, washed with diethyl ether (2 x 5 mL), and the solution concentrated under reduced pressure. The residue was purified via flash column chromatography using 10 % ethyl acetate in hexanes to give 15 mg (88 %) of the title compound as an off-white solid. Mp = 68-70 °C. IR (Thin film) (cm\(^{-1}\)): 1659, 1634, 1408, 1265, 978, 993, 926, 871, 823. \(^1\)H NMR: \(\delta\) 7.52-7.42 (m, 5 H); \(\delta\) 6.76-6.69 (m, 2 H); \(\delta\) 5.84 (d, \(J = 17.5 \text{ Hz}\))
Hz, 1 H); δ 5.35 (d, J = 10.4 Hz, 1 H); δ 2.38 (s, 3 H). $^{13}$C NMR: δ 198.4, 143.0, 139.7, 136.0, 133.8, 128.5, 126.8, 126.7, 115.5, 27.5. HRMS: Calc for C$_{12}$H$_{13}$O (M+1): 173.0966. Found: 173.0983.