TABLE 1. CROSS-COUPLINGS OF ALKYLBORON REAGENTS WITH ALKYL ELECTROPHILES

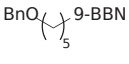
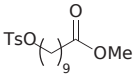
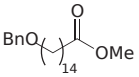
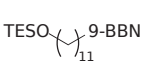
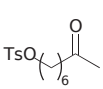
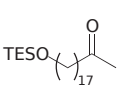
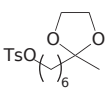
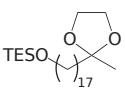
Alkylboron Reagent	Alkyl Electrophile	Conditions	Product(s) and Yield(s) (%)	Refs.
Please refer to the charts preceding the tables for ligand and catalyst structures.				
C_5				
 1.2 eq		$Pd(OAc)_2$ (4 mol %), P(*t*-Bu)$_2$Me (16 mol %), NaOH (1.2 eq), dioxane, 50°, 48 h	 (60)	61
C_6				
n-C_6H_{13}—9-BBN 1.2 eq		$Pd(OAc)_2$ (4 mol %), **L1** (5 mol %), $K_3PO_4 \cdot H_2O$ (1.2 eq), THF, rt, 24 h	*n*-$C_{12}H_{25}$—CN (62)	185
1.2 eq	Br—*n*-$C_{12}H_{25}$	$Pd(OAc)_2$ (4 mol %), **L1** (5 mol %), $K_3PO_4 \cdot H_2O$ (1.2 eq), THF, rt, 24 h	*n*-$C_{18}H_{38}$ (93)	185
n-C_6H_{13}—B(OH)$_2$ 1.5 eq	Br—*n*-$C_{12}H_{25}$	$Pd(OAc)_2$ (5 mol %), P(*t*-Bu)$_2$Me (10 mol %), KO*t*-Bu (3 eq), *t*-amyl alcohol, rt, 24 h	*n*-$C_{18}H_{38}$ (66)	186
C_{11}				
 1.2 eq		$Pd(OAc)_2$ (4 mol %), P(*t*-Bu)$_2$Me (16 mol %), NaOH (1.2 eq), dioxane, 50°, 48 h	 (55)	61
1.2 eq		$Pd(OAc)_2$ (4 mol %), P(*t*-Bu)$_2$Me (16 mol %), NaOH (1.2 eq), dioxane, 50°, 46 h	 (67)	61

TABLE 2. CROSS-COUPLINGS OF ALKYLBORON REAGENTS WITH ALKENYL ELECTROPHILES

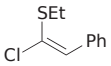
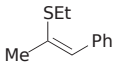
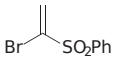
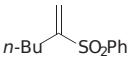
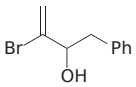
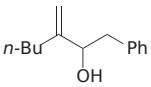
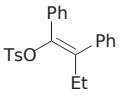
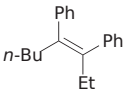
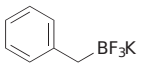
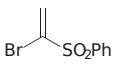
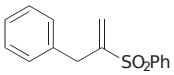
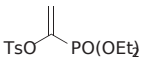
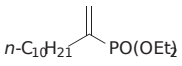
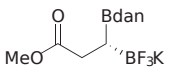
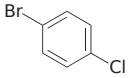
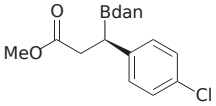
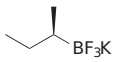
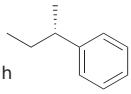
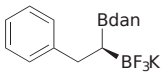
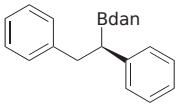
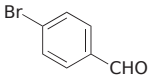
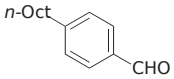
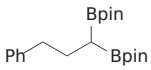
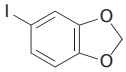
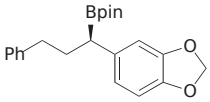
Alkylboron Reagent	Alkenyl Electrophile	Conditions	Product(s) and Yield(s) (%)	Refs.
Please refer to the charts preceding the tables for ligand and catalyst structures.				
C_1				
$Me-B(OH)_2$ 1.3 eq		$Pd(OAc)_2$ (5 mol %), PPh_3 (10 mol %), Cs_2CO_3 (1.5 eq), THF, 40°, 5 h	 (66)	187
C_4				
n-Bu—BF_3K 1.5 eq		$Pd(OAc)_2$ (5 mol %), SPhos (10 mol %), Cs_2CO_3 (2 eq), toluene/water (4:1), 50°, 15 h	 (71)	188
n-Bu—$B(OH)_2$ 1.5 eq		$Pd(OAc)_2$ (5 mol %), LB-Phos•HBF_4 (5 mol %), K_2CO_3 (4.5 eq), toluene, 110°, 5.7 h	 (80)	189
1.1 eq	 (*E*)/(*Z*) = 100:0	$Pd(OAc)_2$ (1 mol %), RuPhos (2 mol %), K_3PO_4•H_2O (1.5 eq), toluene/water (3:1), 70°, 24 h	 (98) (*E*)/(*Z*) = 99:1	122
C_7				
 1.5 eq		$Pd(OAc)_2$ (5 mol %), SPhos (10 mol %), Cs_2CO_3 (2 eq), toluene/water (4:1), 50°, 15 h	 (60)	188
C_{10}				
n-$C_{10}H_{21}$—BF_3K 2 eq		$Pd(OAc)_2$ (7 mol %), SPhos (15 mol %), Cs_2CO_3 (2.5 eq), toluene/water (4:1), 60°, 20 h	 (99)	190

TABLE 3. CROSS-COUPLINGS OF ALKYLBORON REAGENTS WITH ARYL ELECTROPHILES

Alkylboron Reagent	Aryl Electrophile	Conditions	Product(s) and Yield(s) (%)	Refs.
Please refer to the charts preceding the tables for ligand and catalyst structures.				
C_2  0.4 eq		$Pd(OAc)_2$ (2.5 mol %), (*n*-Bu)$_4$AdP (5 mol %), K_3PO_4 (2 eq), toluene/water (10:1), 100°	 (90)	191
C_3  er 99.5:0.5 1.2 eq		$Pd(OAc)_2$ (10 mol %), XPhos (20 mol %), K_2CO_3 (3 eq), toluene/water (10:1), 80°, 6 h	 (85) er 99.5:0.5	68
C_4  er 99.0:1.0 1.5 eq		**Cat1** (10 mol %), K_2CO_3 (3 eq), toluene/water (2:1), 100°, 24 h	 (93) er 98.0:2.0	65
C_8  er 97.0:3.0 1.5 eq		$Pd(OAc)_2$ (10 mol %), XPhos (20 mol %), K_2CO_3 (3 eq), toluene/water (10:1), 80°, 6 h	 (15) er 90.5:9.5	69
n-Oct–B(OH)$_2$ 2 eq		**L2**[PdCl(C$_3$H$_5$)] (0.01 mol %), K_2CO_3 (2 eq), xylene, 130°, 20 h	 (74)	192
C_9  1.1 eq		$Pd(OAc)_2$ (5 mol %), **L3** (10 mol %), KOH (15 eq), dioxane/water (1:1), rt, 12 h	 (88) er 92.0:8.0	67