Supporting Information

Bis-diimidazolylidine complexes of nickel:
Investigations into nickel catalyzed coupling reactions

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Contents: \textsuperscript{1}H and \textsuperscript{13}C NMR spectra for compounds 3a, 3b, 4a, 4b, 5a and 5b.
**Figure S1.** $^1$H NMR spectrum of 3a in DMSO-$d_6$. Additional resonances are observed for DMSO ($\delta$ 2.50); H$_2$O ($\delta$ 3.33) and tetrahydrofuran ($\delta$ 1.76 and 3.60).

**Figure S2.** $^{13}$C NMR spectrum of 3a in DMSO-$d_6$. 

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Figure S3. $^1$H NMR spectrum of 3b in DMSO-$d_6$. Additional resonances are observed for DMSO ($\delta$ 2.50); H$_2$O ($\delta$ 3.33); tetrahydrofuran ($\delta$ 1.76 and 3.60) and dichloromethane ($\delta$ 5.75).

Figure S4. $^{13}$C NMR spectrum of 3b in DMSO-$d_6$. Additional resonances are observed for DMSO ($\delta$ 39.51) and dichloromethane ($\delta$ 55.08).
Figure S5. $^1$H NMR spectrum of 4a in DMSO-$d_6$. Additional resonances are observed for DMSO ($\delta$ 2.50); H$_2$O ($\delta$ 3.33) and dichloromethane ($\delta$ 5.75).

Figure S6. $^{13}$C NMR spectrum of 4a in DMSO-$d_6$. 
Figure S7. $^1$H NMR spectrum of 4b in DMSO-$d_6$. Additional resonances are observed for DMSO ($\delta$ 2.50); H$_2$O ($\delta$ 3.33) and dichloromethane ($\delta$ 5.75).

Figure S8. $^{13}$C NMR spectrum of 4b in DMSO-$d_6$. Additional resonances are observed for DMSO ($\delta$ 39.51) and dichloromethane ($\delta$ 54.92).
Figure S9. $^1$H NMR spectrum of 5a in DMSO-$d_6$. Additional resonances are observed for DMSO ($\delta$ 2.50); H$_2$O ($\delta$ 3.33); dimethylformamide ($\delta$ 2.73, 2.88 and 7.95); acetone ($\delta$ 2.09) and dichloromethane ($\delta$ 5.75)

Figure S10. $^{13}$C NMR spectrum of 5a in DMSO-$d_6$. Additional resonances are observed for DMSO ($\delta$ 39.51) and DMF ($\delta$ 35.90 and 30.83).
Figure S11. $^1$H NMR spectrum of 5b in DMSO-$d_6$. Additional resonances are observed for DMSO ($\delta$ 2.50); H$_2$O ($\delta$ 3.38); dimethylformamide ($\delta$ 2.73, 2.88 and 7.95 ppm) and dichloromethane ($\delta$ 5.75).

Figure S12. $^1$H NMR spectrum of 5b in DMSO-$d_6$. Additional resonances are observed for DMSO ($\delta$ 39.51) and dichloromethane ($\delta$ 54.88).