

## Supporting Information

# ***N*-heterocyclic carbene tethered amido complexes of palladium and platinum**

Warren B. Cross,<sup>\*a</sup> Christopher G. Daly,<sup>a</sup> Rachel L. Ackerman,<sup>a</sup> Ian R. George<sup>b</sup> and Kuldip Singh<sup>a</sup>

<sup>a</sup>Department of Chemistry, University of Leicester, University Road, Leicester, LE1 7RH, UK

<sup>b</sup>School of Chemistry, University of Nottingham, University Park, Nottingham, NG7 2RD, UK

\*Corresponding author email: [wbc2@le.ac.uk](mailto:wbc2@le.ac.uk), Tel: +44(0)116 252 2126, Fax: +44 (0)116 252 3789

### **Contents**

Page S2: <sup>1</sup>H and <sup>13</sup>C NMR spectra for bis(2-(1*H*-imidazol-1-yl)phenyl)amine (**2**)

Page S3: <sup>1</sup>H and <sup>13</sup>C NMR spectra for bis(2-(3-*iso*-propyl-1*H*-imidazolium)phenyl)amine diiodide (**3a**)

Page S4: <sup>1</sup>H and <sup>13</sup>C NMR spectra for bis(2-(3-butyl-1*H*-imidazolium)phenyl)amine diiodide (**3b**)

Page S5: <sup>1</sup>H and <sup>13</sup>C NMR spectra for *N*-(2-(1*H*-imidazol-1-yl)phenyl)-2,6-di*isopropyl*aniline (**5**)

Page S6: <sup>1</sup>H and <sup>13</sup>C NMR spectra for *N*-(2-(3-*iso*-propyl-1*H*-imidazolium)phenyl)-2,6-di*isopropyl*aniline iodide (**6**)

Page S7: <sup>1</sup>H and <sup>13</sup>C NMR spectra for palladium bis(2-(3-*iso*-propylimidazolin-2-yliden-1-yl)phenyl)amide iodide, [CNC-*i*-Pr]Pd (**7a**)

Page S8: <sup>1</sup>H and <sup>13</sup>C NMR spectra for palladium bis(2-(3-*n*-butylimidazolin-2-yliden-1-yl)phenyl)amide iodide, [CNC-*n*-Bu]Pd (**7b**)

Page S9: <sup>1</sup>H and <sup>13</sup>C NMR spectra for platinum bis(2-(3-*iso*-propylimidazolin-2-yliden-1-yl)phenyl)amide iodide, [CNC-*i*-Pr]Pt (**8a**)

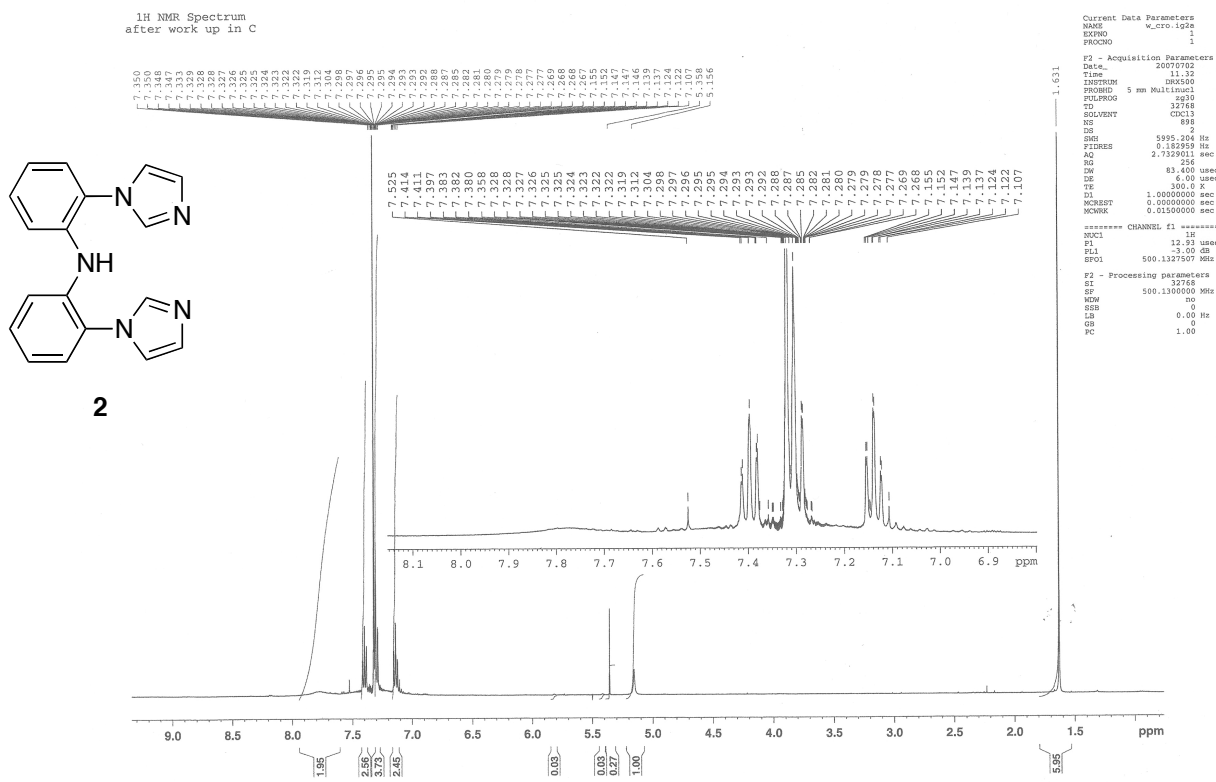
Page S10: <sup>1</sup>H and <sup>13</sup>C NMR spectra for platinum bis(2-(3-*n*-butylimidazolin-2-yliden-1-yl)phenyl)amide iodide, [CNC-*n*-Bu]Pt (**8b**)

Page S11: <sup>1</sup>H and <sup>13</sup>C NMR spectra for pyridyl palladium bis(2-(3-*iso*-propylimidazolin-2-yliden-1-yl)phenyl)amide triflate, {[CNC-*i*-Pr]Pd-(d<sub>5</sub>-py)}OTf (**9a**)

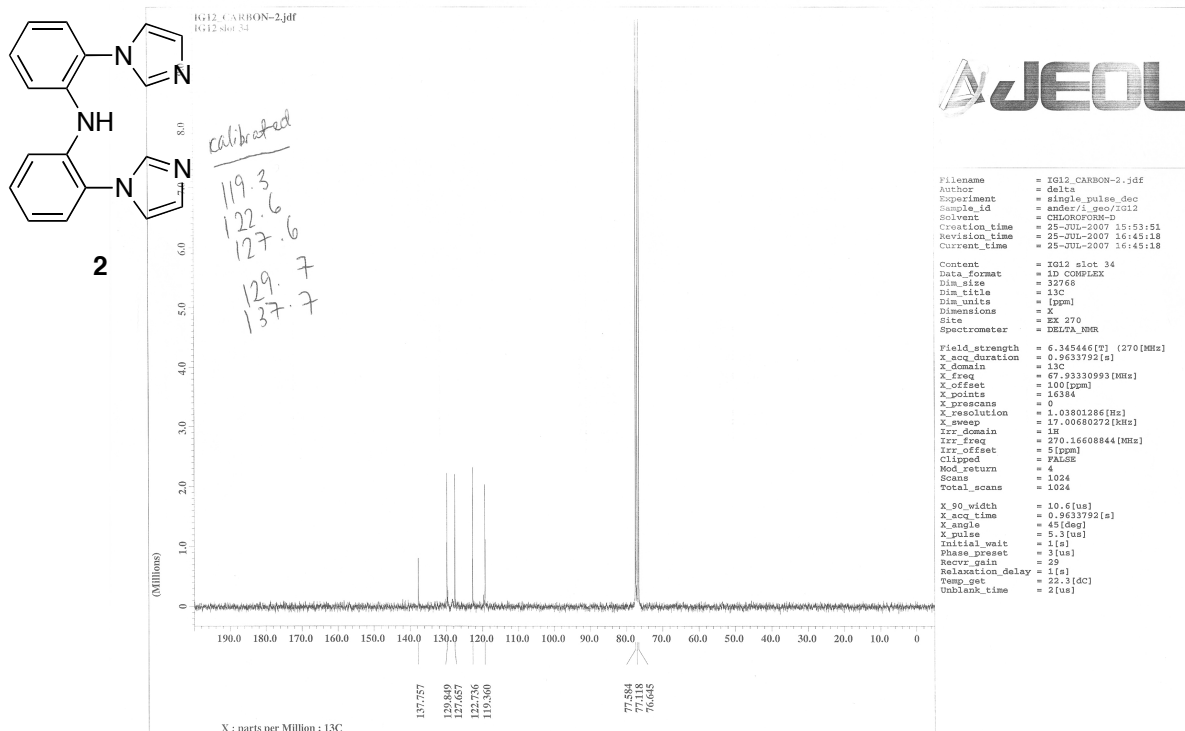
Page S12: <sup>1</sup>H and <sup>13</sup>C NMR spectra for pyridyl palladium *N*-(2-(3-*iso*-propylimidazolin-2-yliden-1-yl)phenyl)-2,6-di*isopropyl*aniline diiodide, [C,NH]PdI<sub>2</sub>py (**10**)

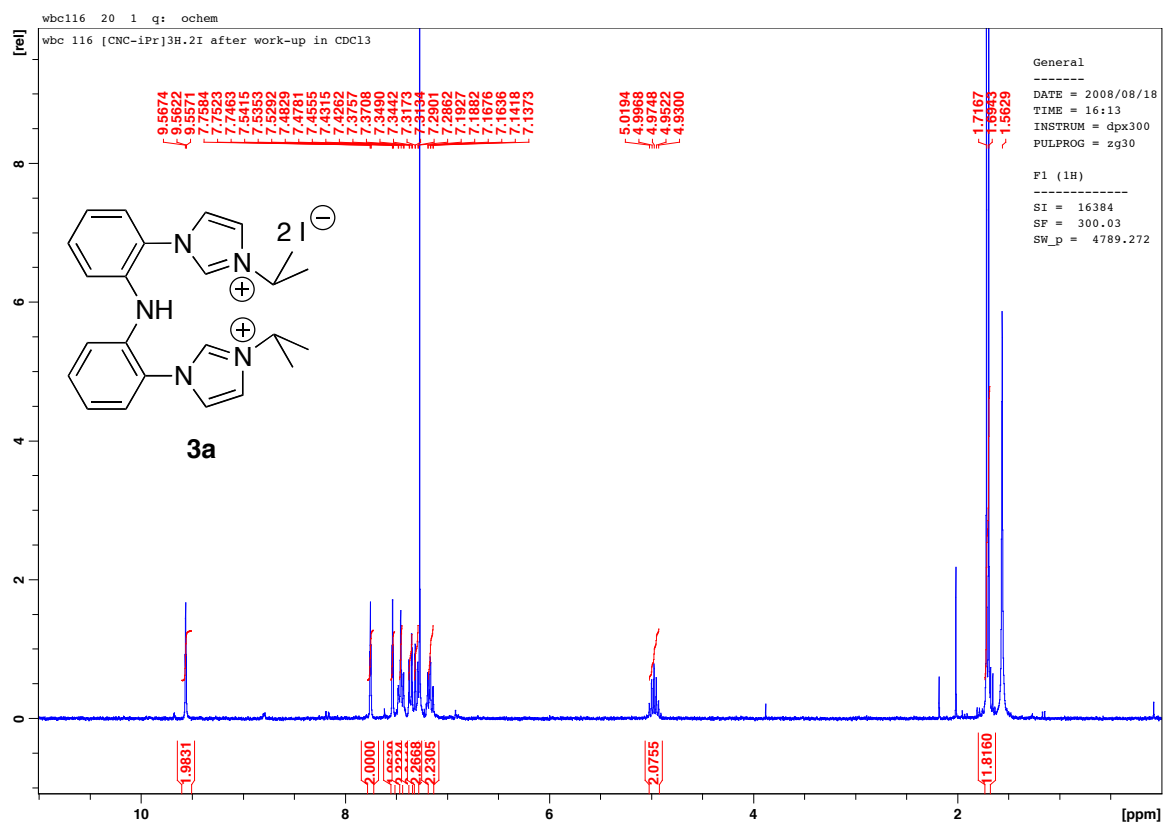
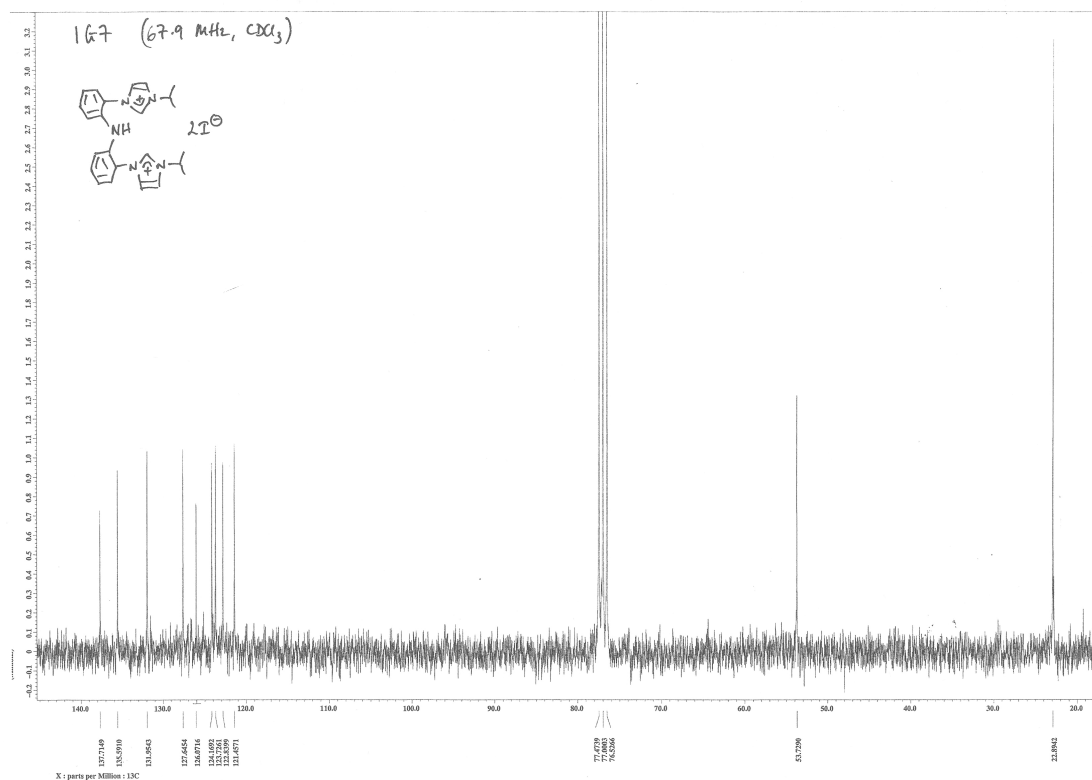
Page S13: <sup>1</sup>H and <sup>13</sup>C NMR spectra for pyridyl platinum *N*-(2-(3-*iso*-propylimidazolin-2-yliden-1-yl)phenyl)-2,6-di*isopropyl*aniline diiodide, [C,NH]PtI<sub>2</sub>py (**11**)

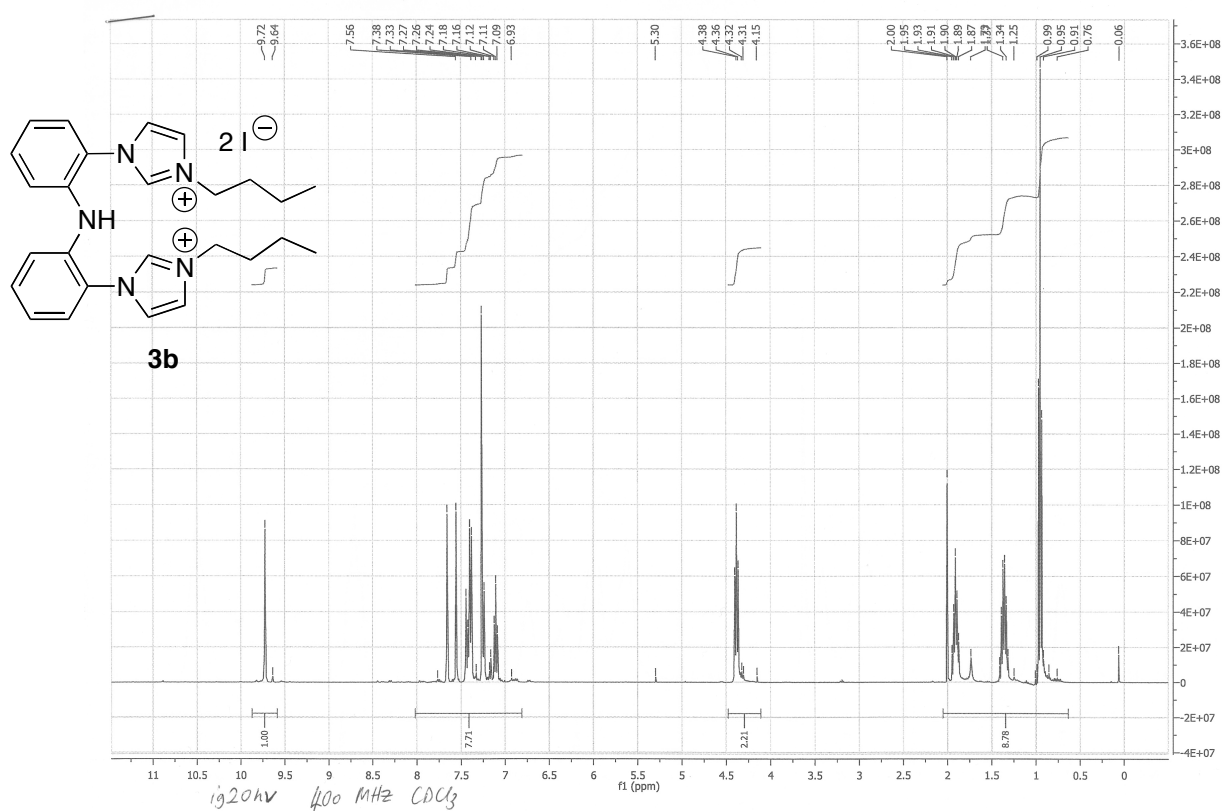
Page S14: <sup>1</sup>H and <sup>13</sup>C NMR spectra for hydroxy palladium *N*-(2-(3-*iso*-propylimidazolin-2-yliden-1-yl)phenyl)-2,6-di*isopropyl*phenylamide dimer, {[C,N]Pd(μ-OH)}<sub>2</sub> (**12**)



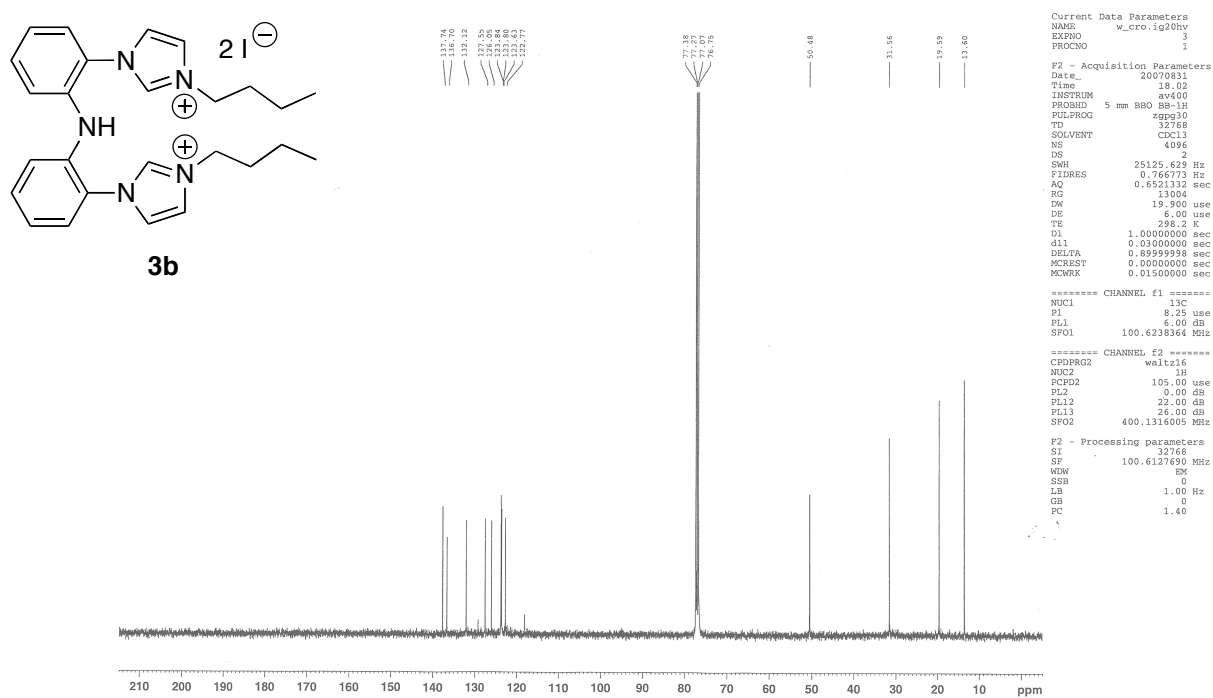
**2 <sup>13</sup>C NMR (67.9 MHz, CDCl<sub>3</sub>)**

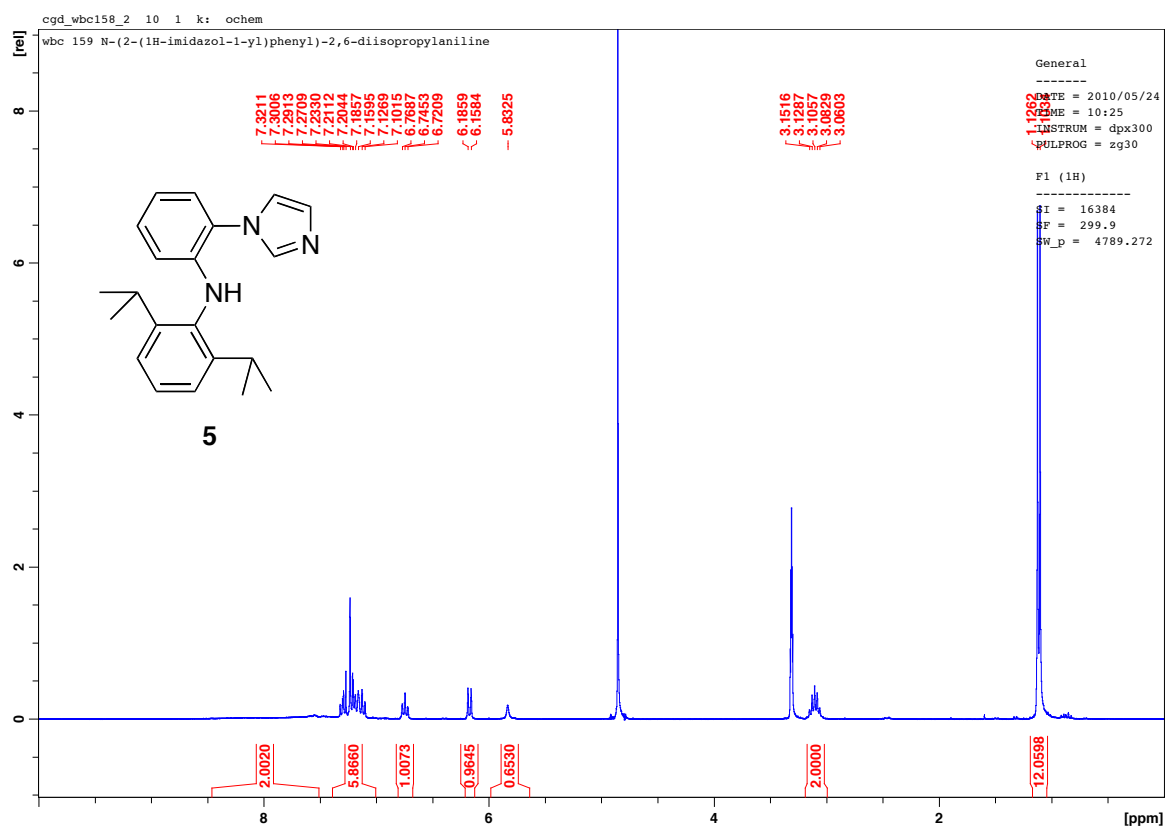
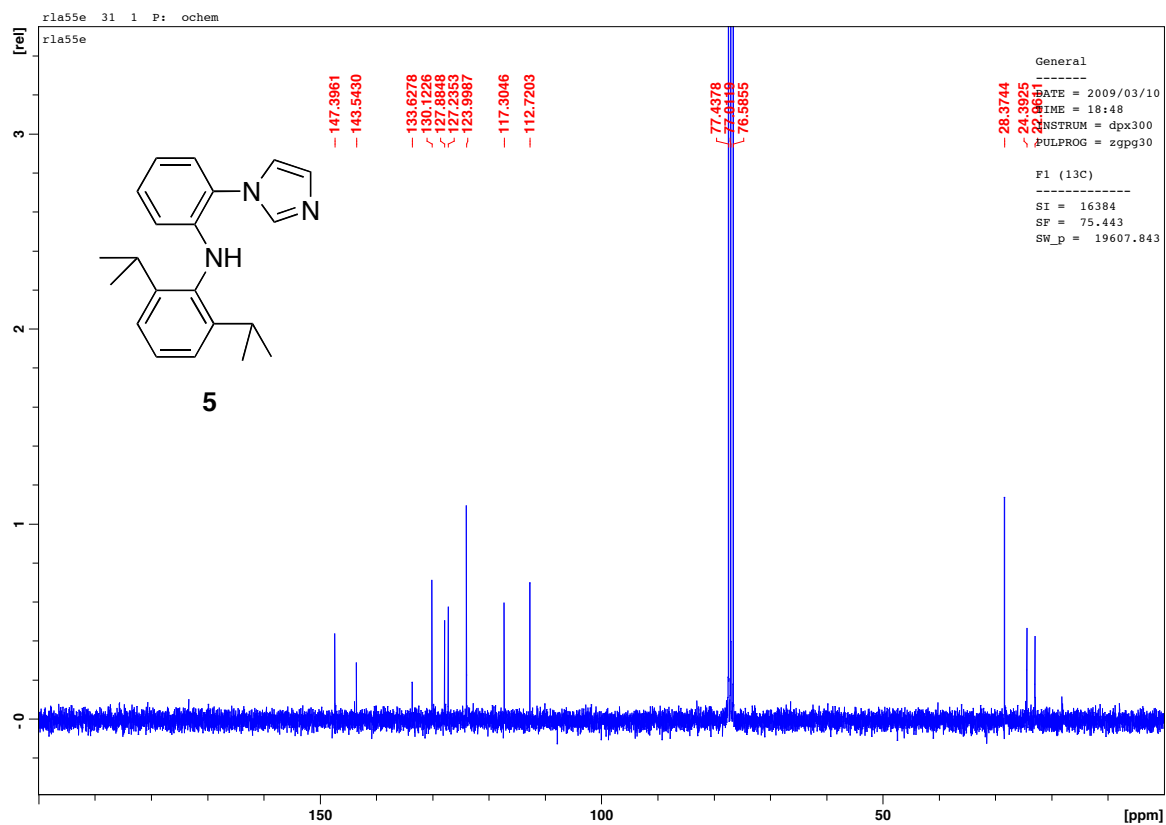


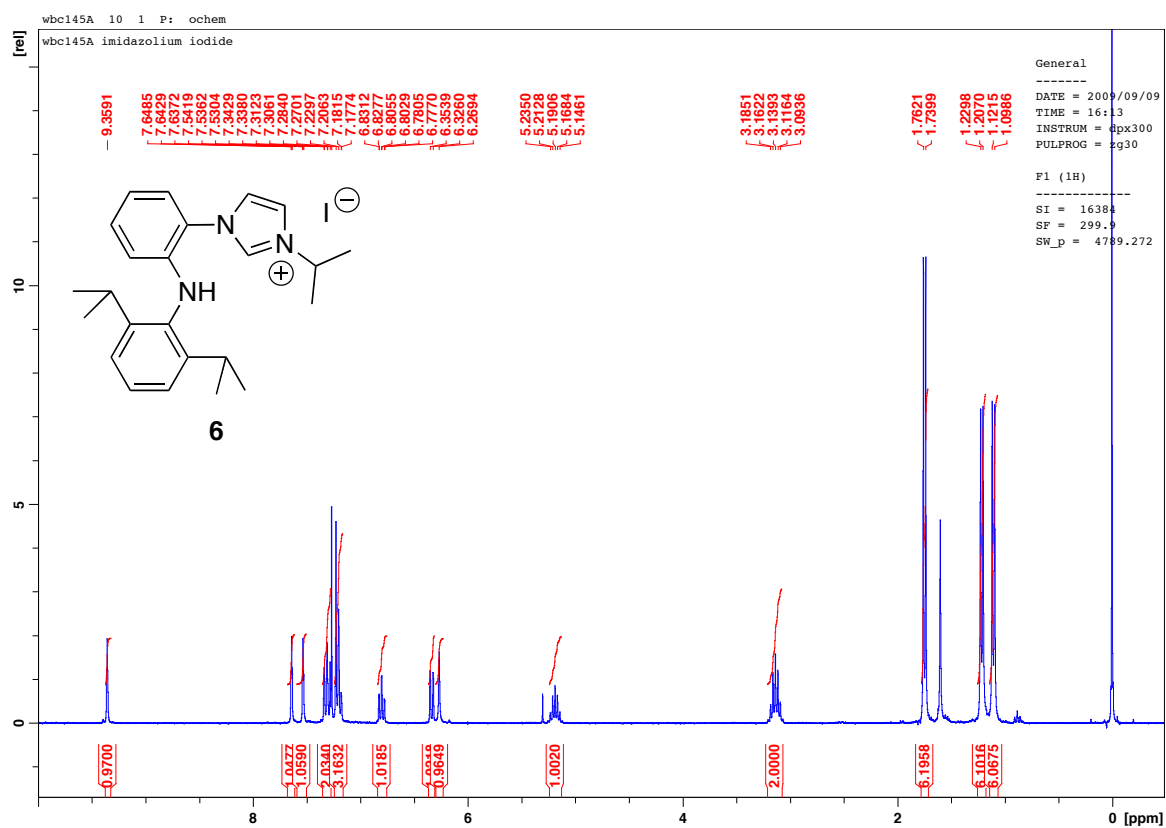
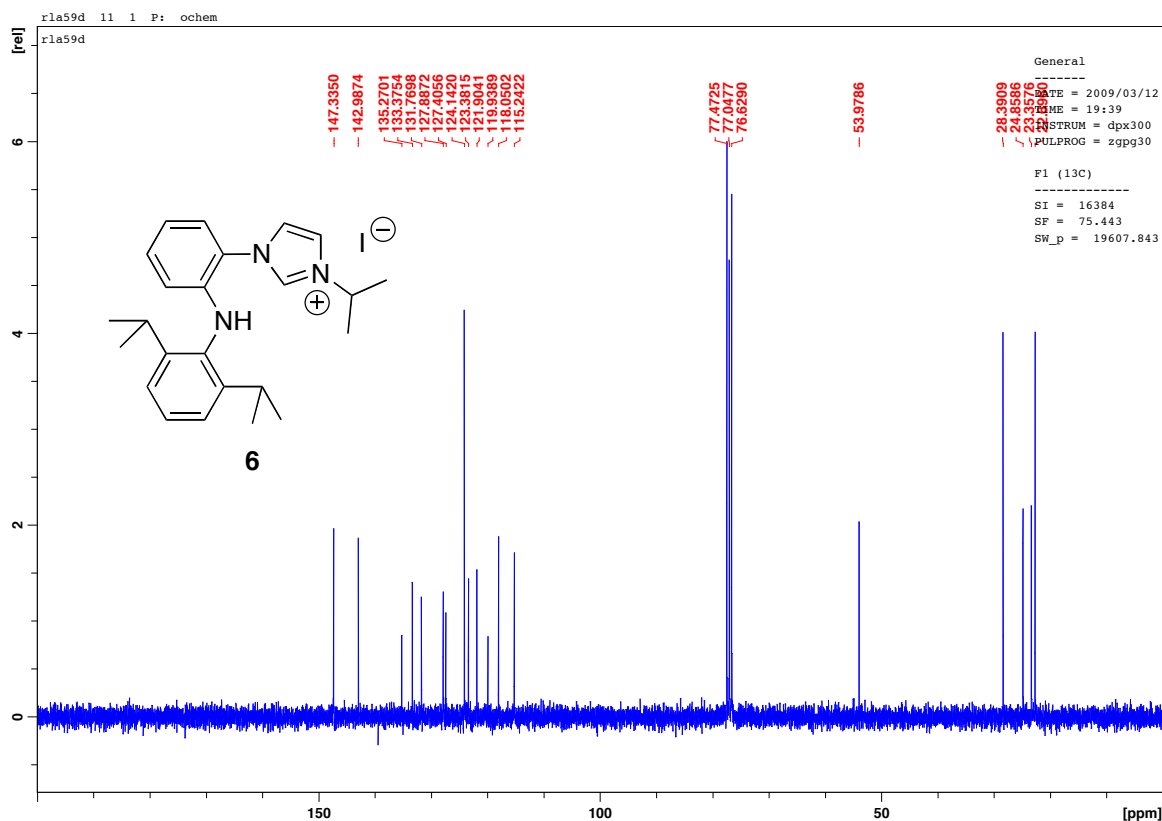
**3a** <sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>) This journal is © The Royal Society of Chemistry 2010**3a** <sup>13</sup>C NMR (67.9 MHz, CDCl<sub>3</sub>)

**3b** <sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>) This journal is © The Royal Society of Chemistry 2010**3b** <sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>)

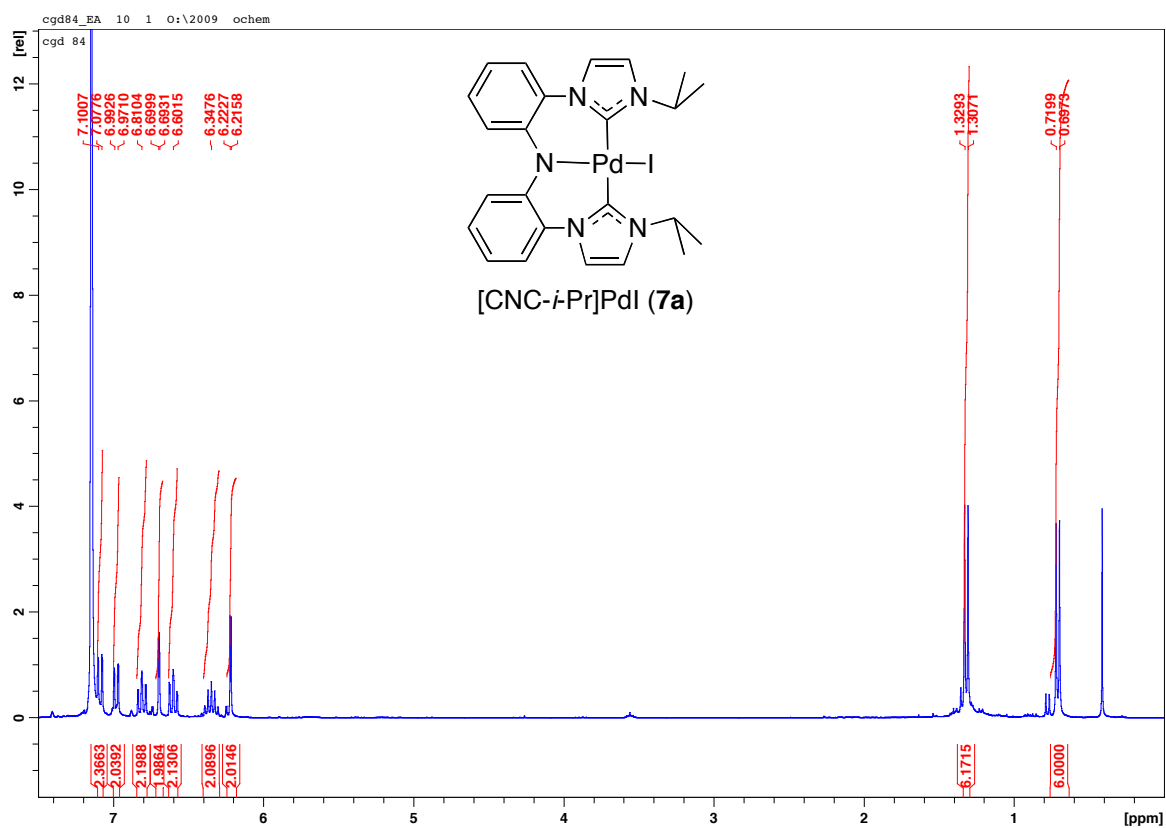
UserID w\_cro SampleID ig20hv SupervisorID cross Lab Phone No. 13031 Slot Number 34



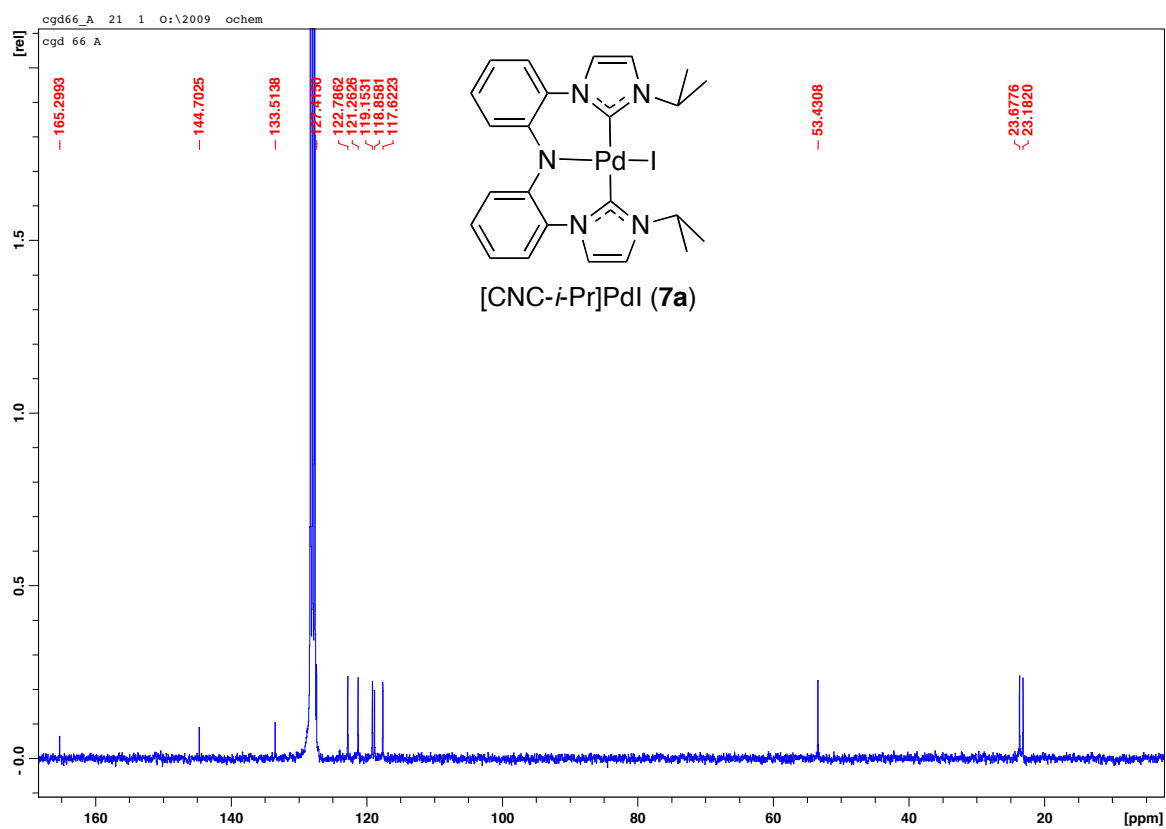
5  $^1\text{H}$  NMR (300 MHz,  $d_4$ -MeOH)5  $^{13}\text{C}$  NMR (75 MHz,  $\text{CDCl}_3$ )

6  $^1\text{H}$  NMR (300 MHz,  $\text{CDCl}_3$ ) This journal is © The Royal Society of Chemistry 20106  $^{13}\text{C}$  NMR (75 MHz,  $\text{CDCl}_3$ )

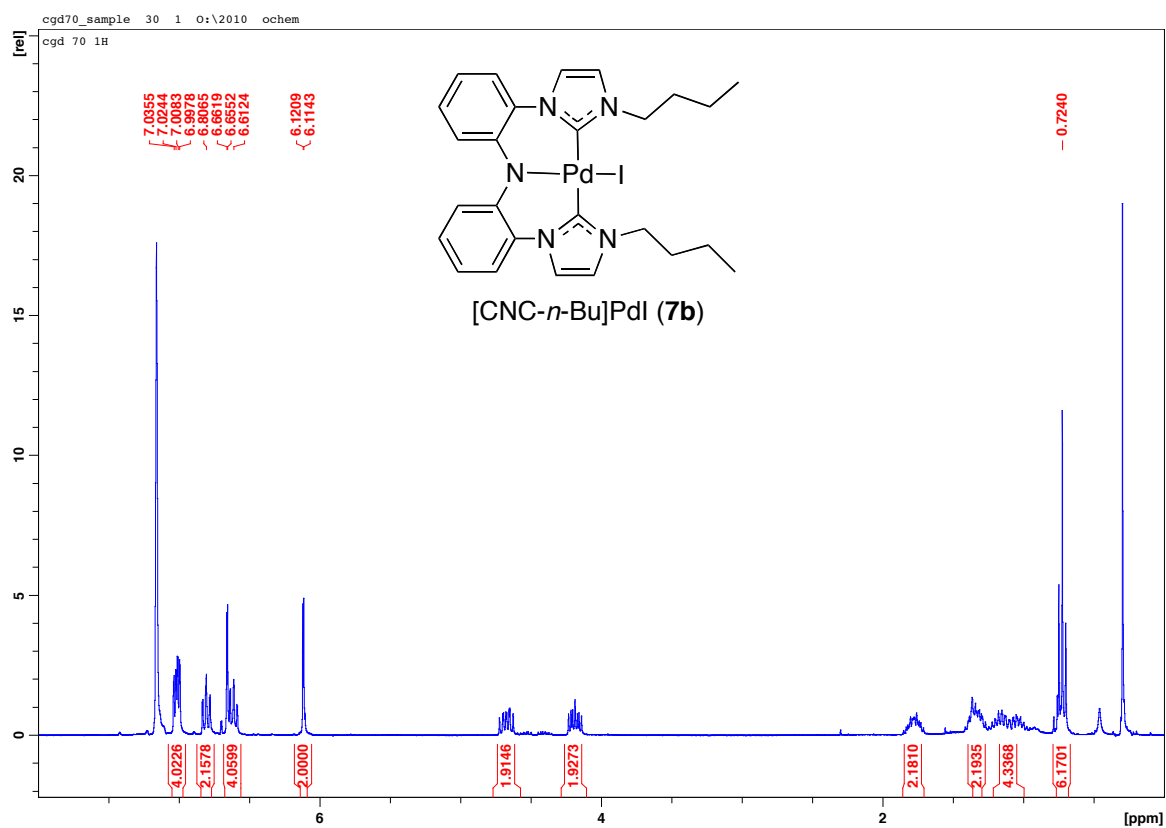
**7a** <sup>1</sup>H NMR (300 MHz, C<sub>6</sub>D<sub>6</sub>)



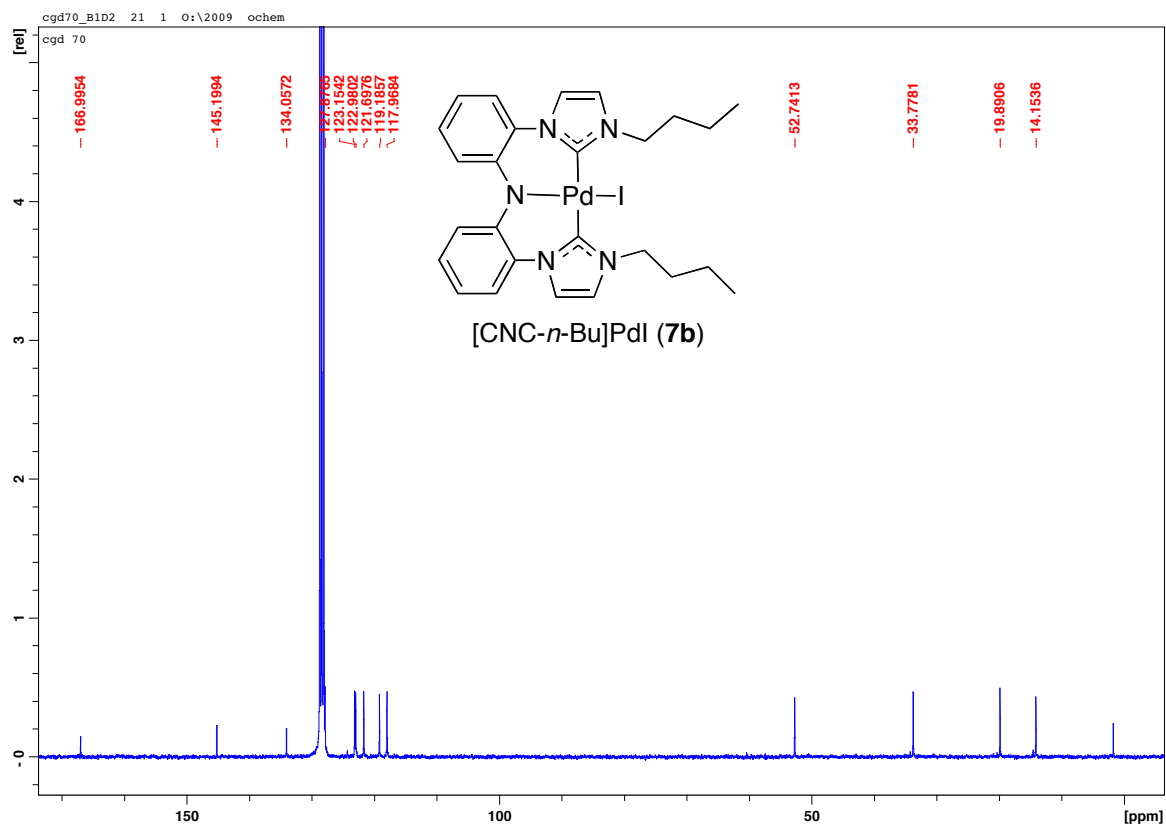
**7a** <sup>13</sup>C NMR (75 MHz, C<sub>6</sub>D<sub>6</sub>)



**7b** <sup>1</sup>H NMR (300 MHz, C<sub>6</sub>D<sub>6</sub>)



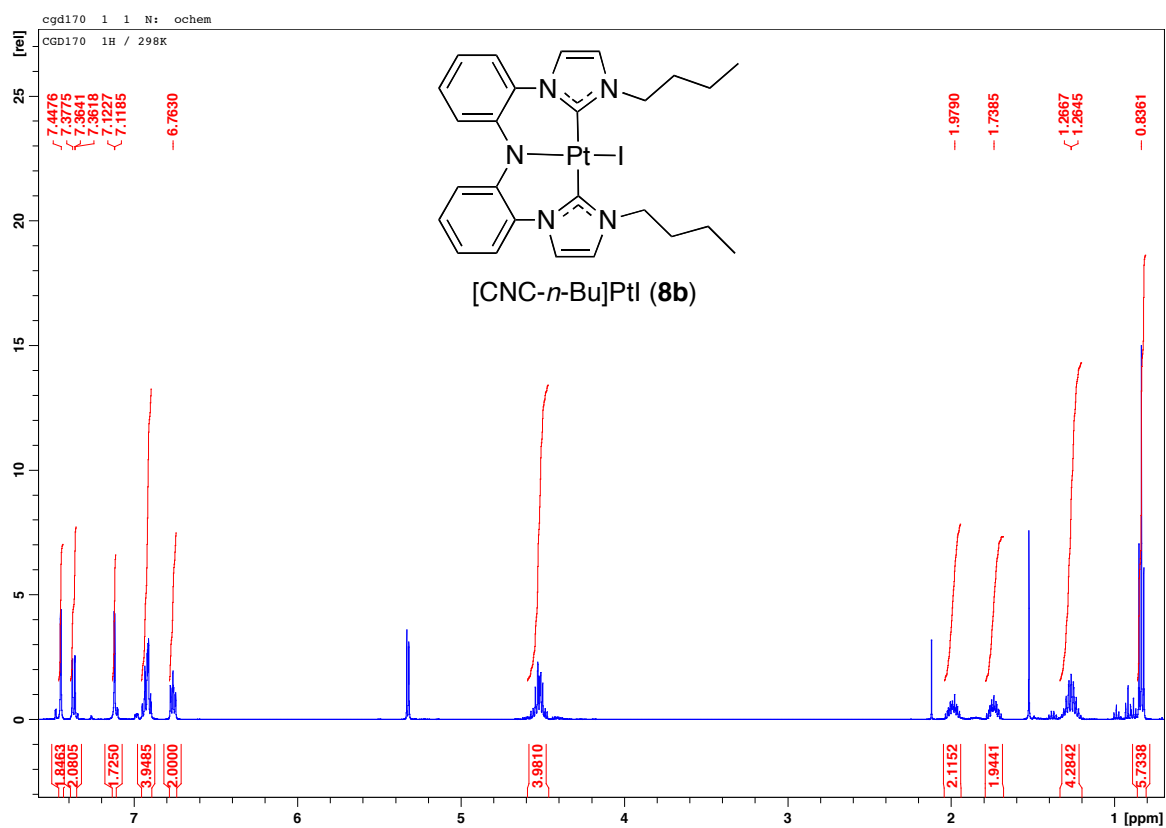
**7b** <sup>13</sup>C NMR (75 MHz, C<sub>6</sub>D<sub>6</sub>)



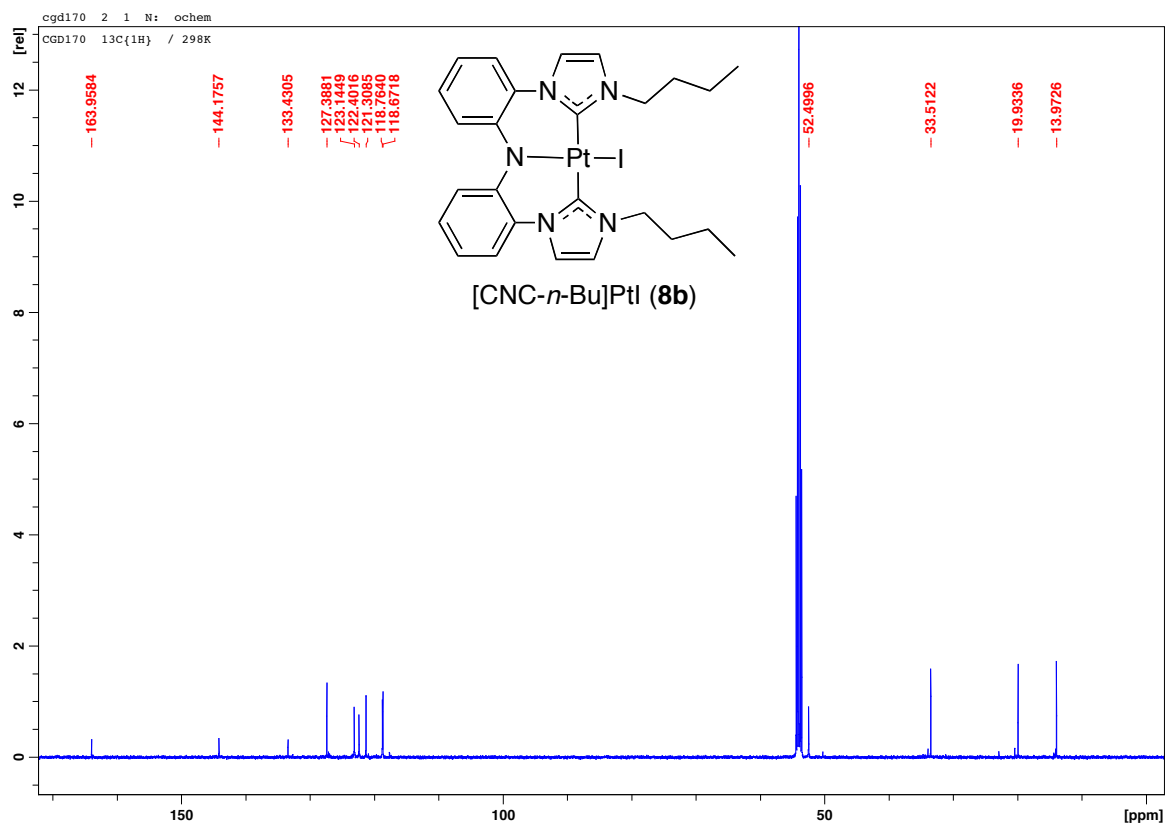




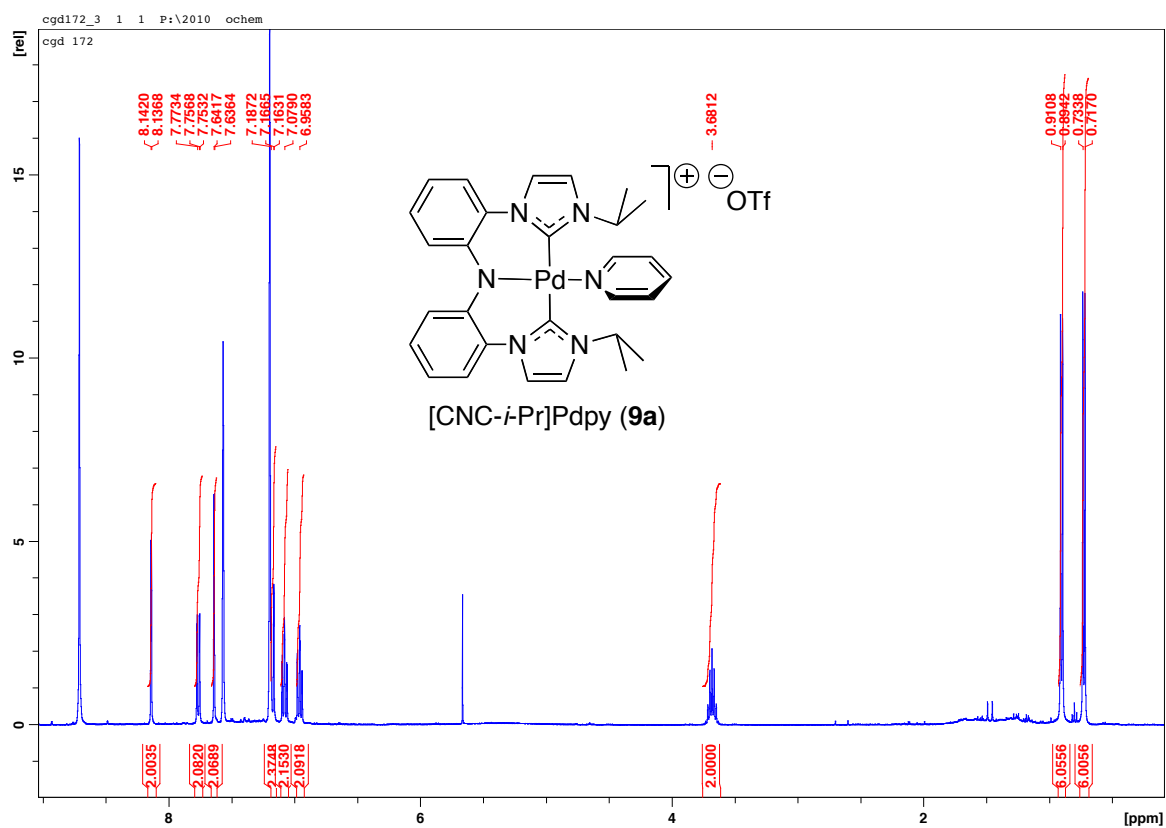
**8b** <sup>1</sup>H NMR (500 MHz, CD<sub>2</sub>Cl<sub>2</sub>)



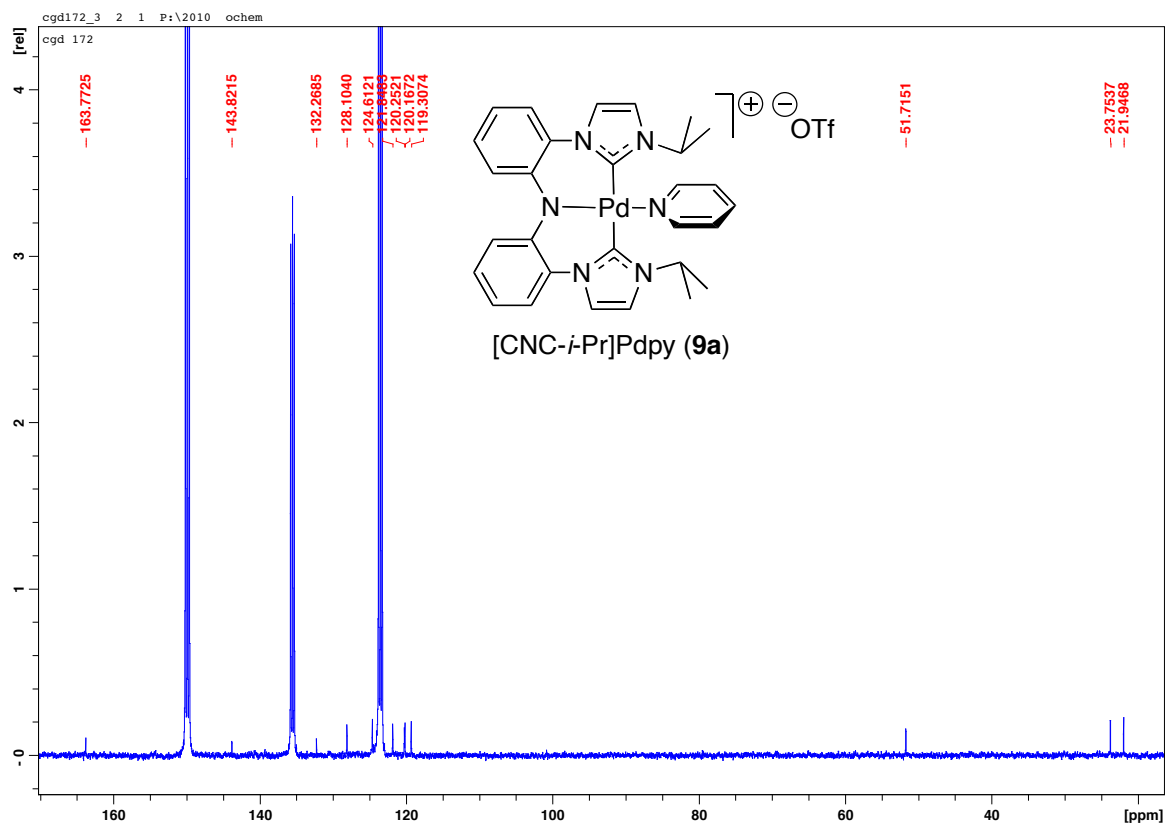
**8b** <sup>13</sup>C NMR (125 MHz, CD<sub>2</sub>Cl<sub>2</sub>)

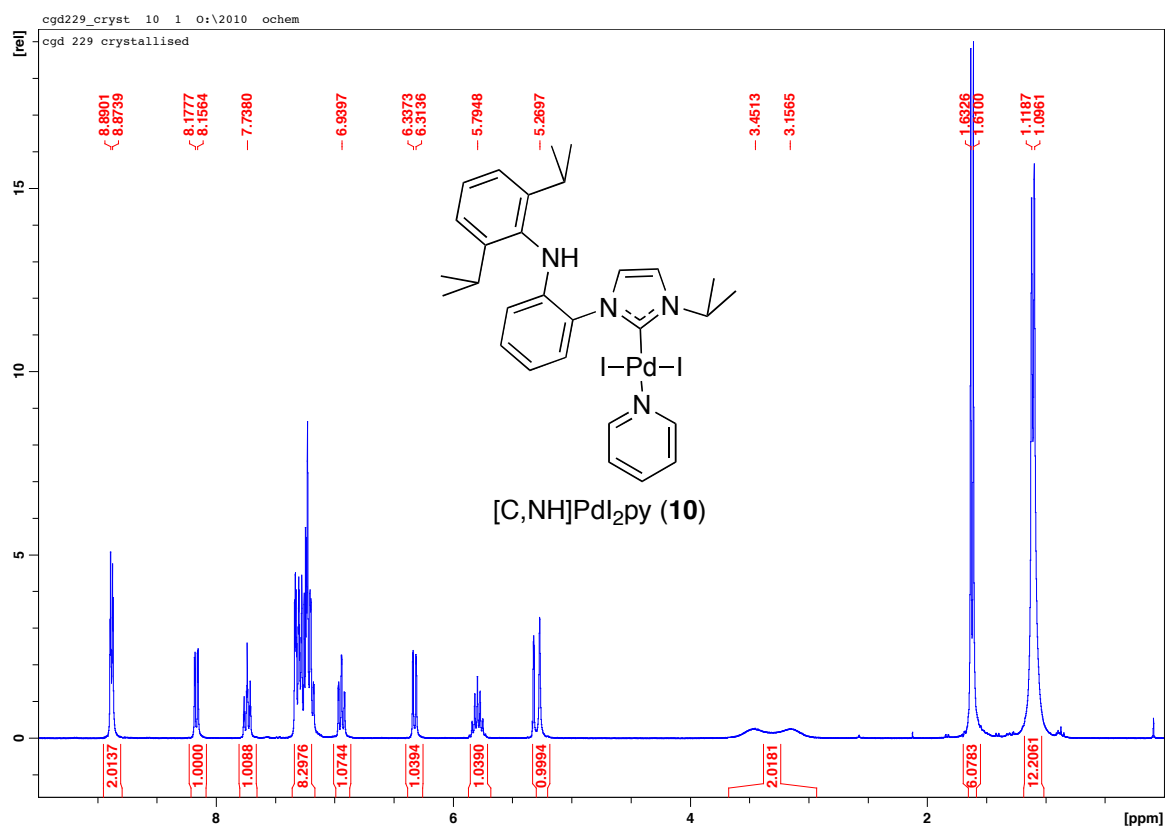
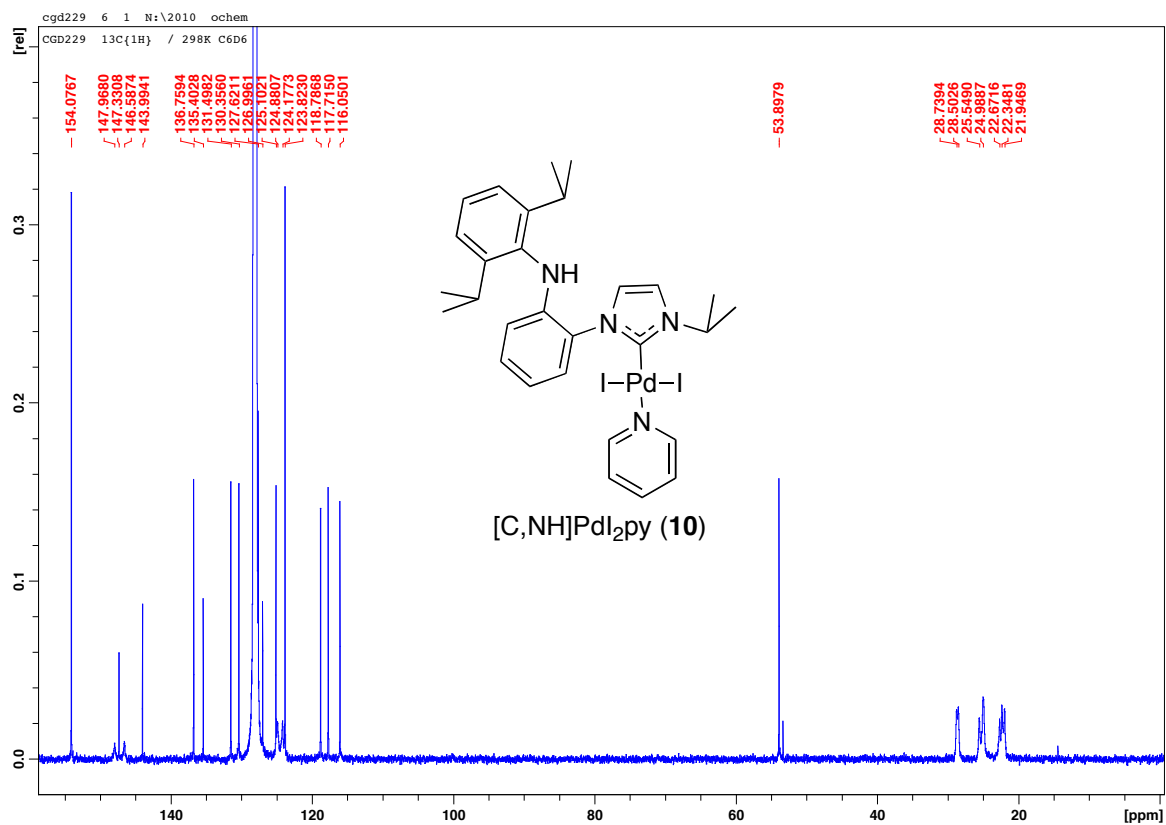


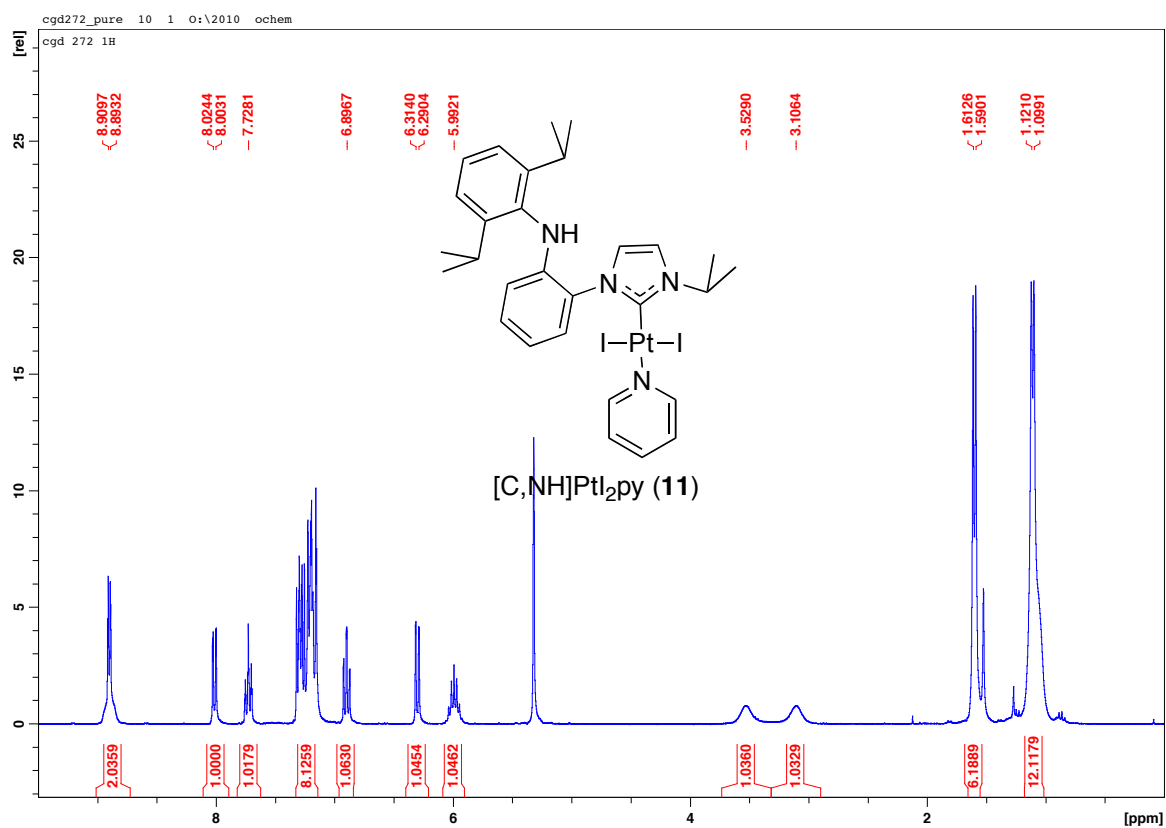
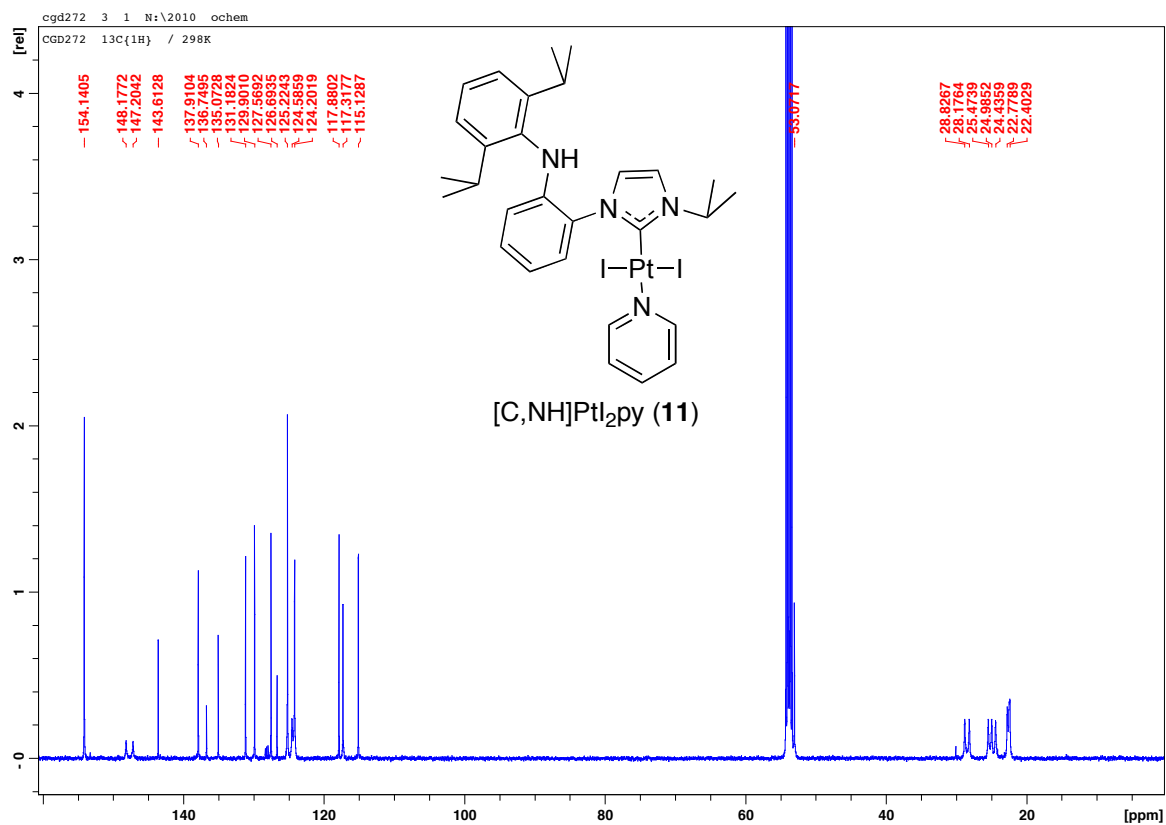
**9a** <sup>1</sup>H NMR (400 MHz, d<sub>5</sub>-pyridine)

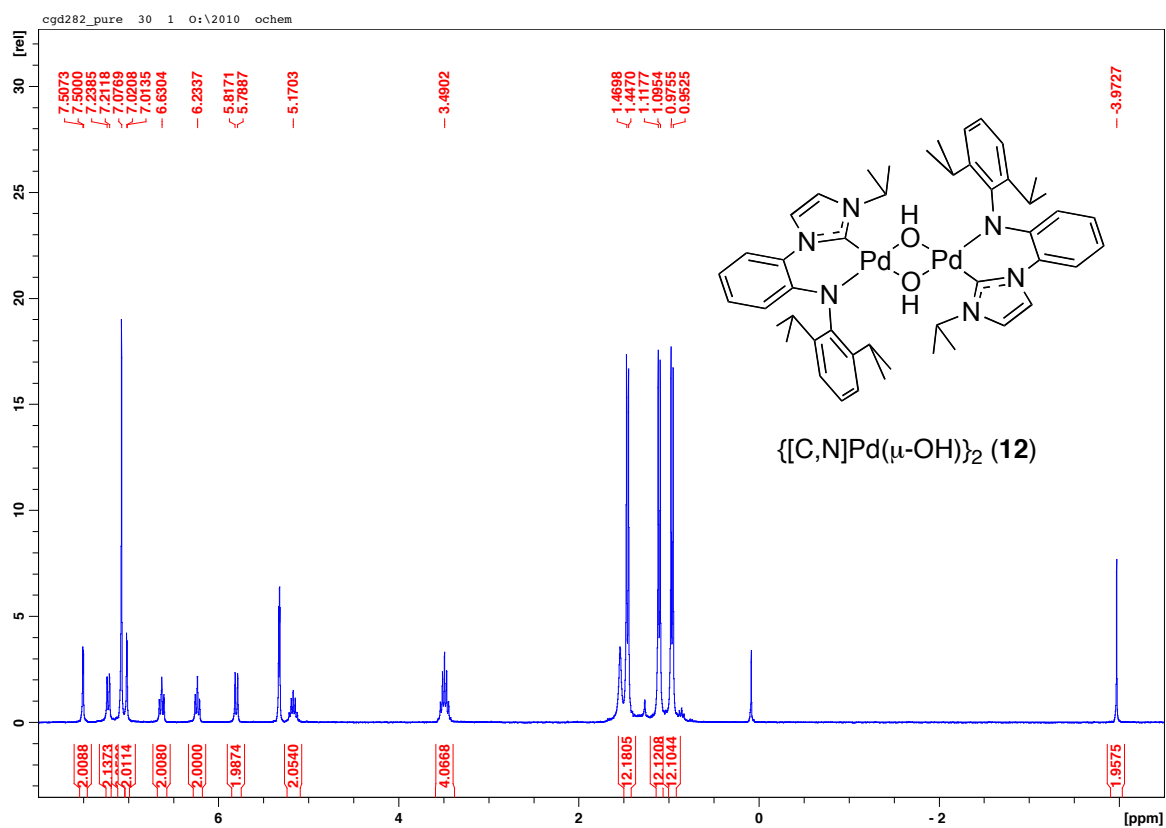


**9a** <sup>13</sup>C NMR (125 MHz, d<sub>5</sub>-pyridine)



**10**  $^1\text{H}$  NMR (300 MHz,  $\text{CD}_2\text{Cl}_2$ )**10**  $^{13}\text{C}$  NMR (125.8 MHz,  $\text{C}_6\text{D}_6$ )

**11**  $^1\text{H}$  NMR (300 MHz,  $\text{CD}_2\text{Cl}_2$ )**11**  $^{13}\text{C}$  NMR (125.8 MHz,  $\text{CD}_2\text{Cl}_2$ )

12  $^{13}\text{C}$  NMR (75 MHz,  $\text{C}_6\text{D}_6$ )