

Anionic and zwitterionic copper(I) complexes incorporating an anionic N-Heterocyclic Carbene decorated with a malonate backbone: synthesis, structure and catalytic applications

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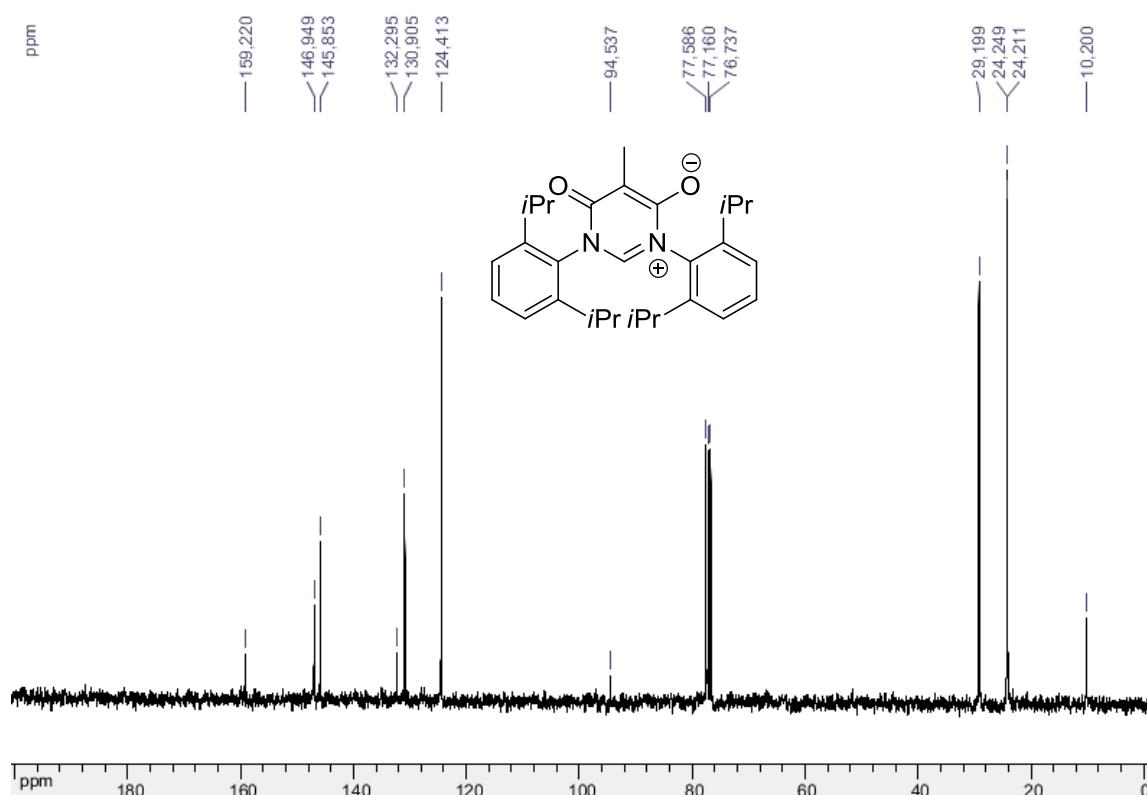
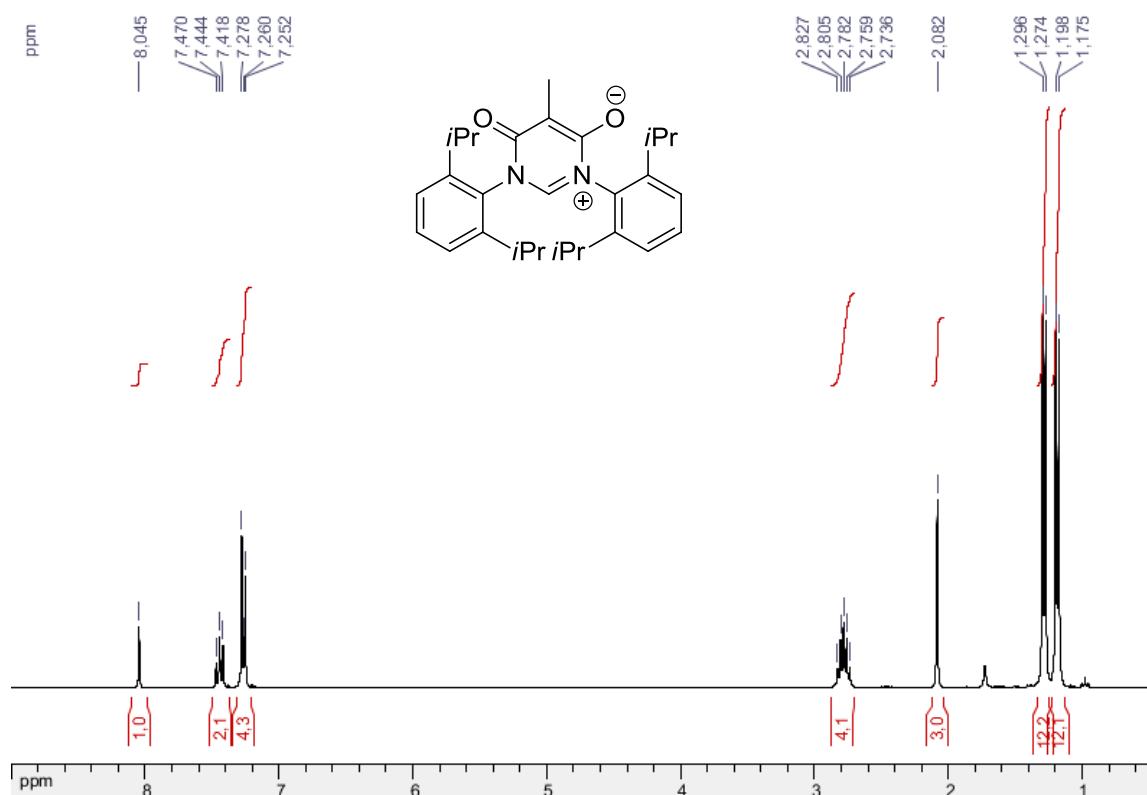
^c Pierre Fabre Research Center, 17 avenue Jean Moulin, 81106 Castres Cedex, France

Supporting Information

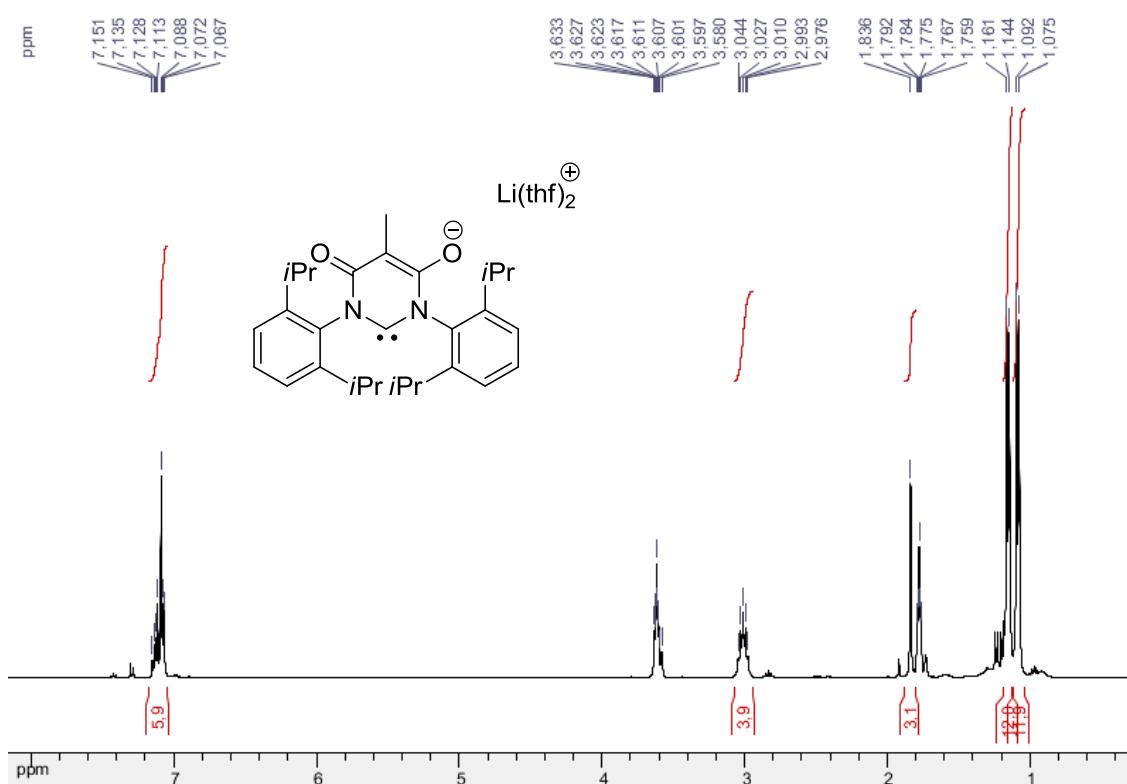
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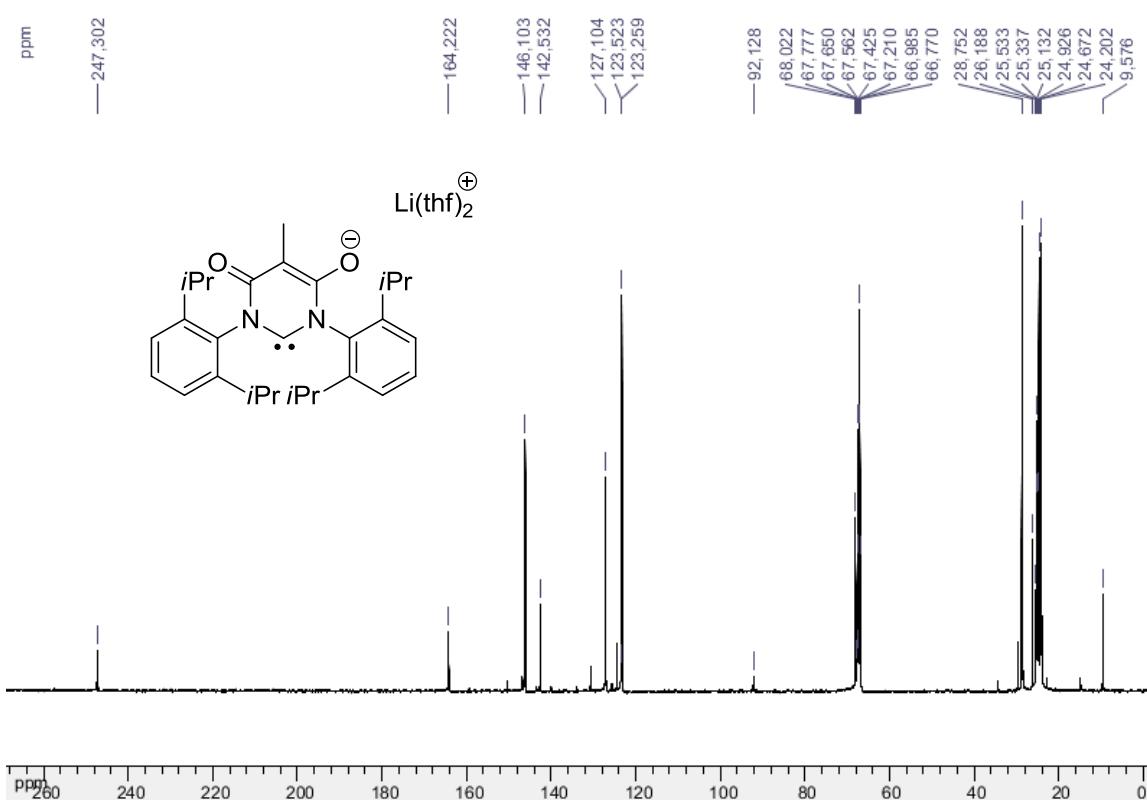
¹H NMR spectrum of (1b)·H (300 MHz, CDCl₃)



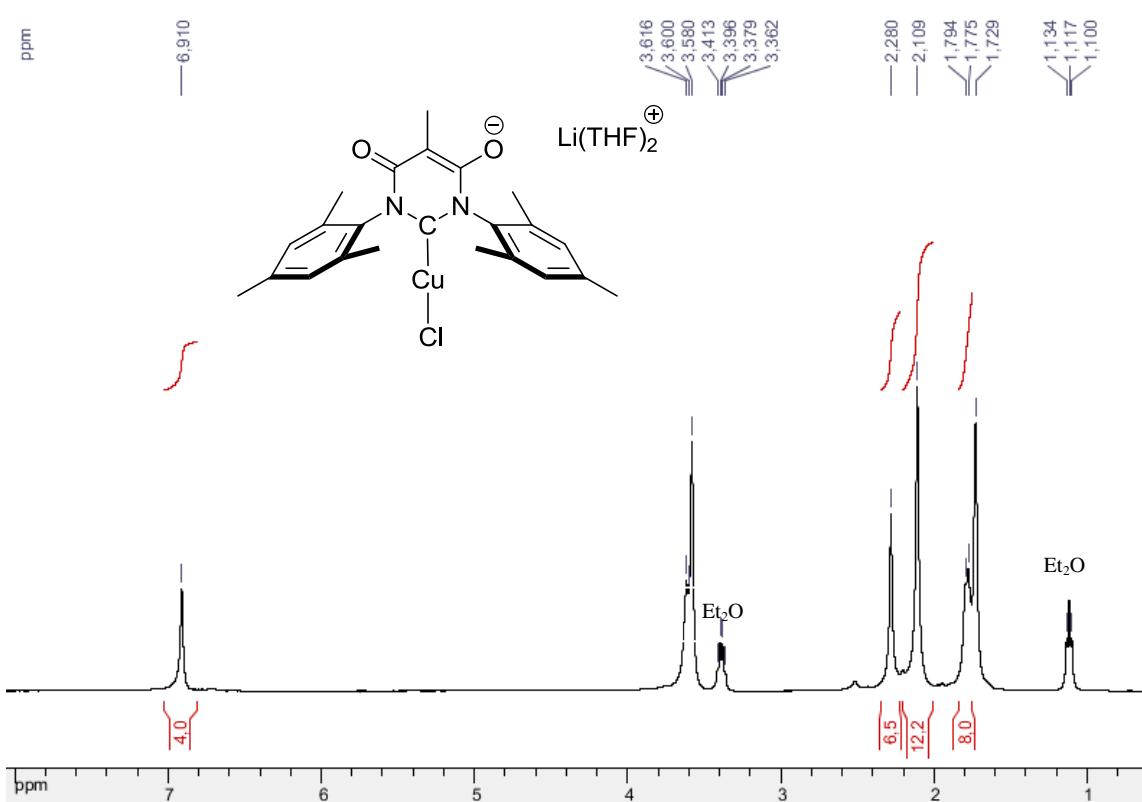
^1H NMR spectrum of (1b) $\cdot\text{Li}$ (400 MHz, THF-d 8)



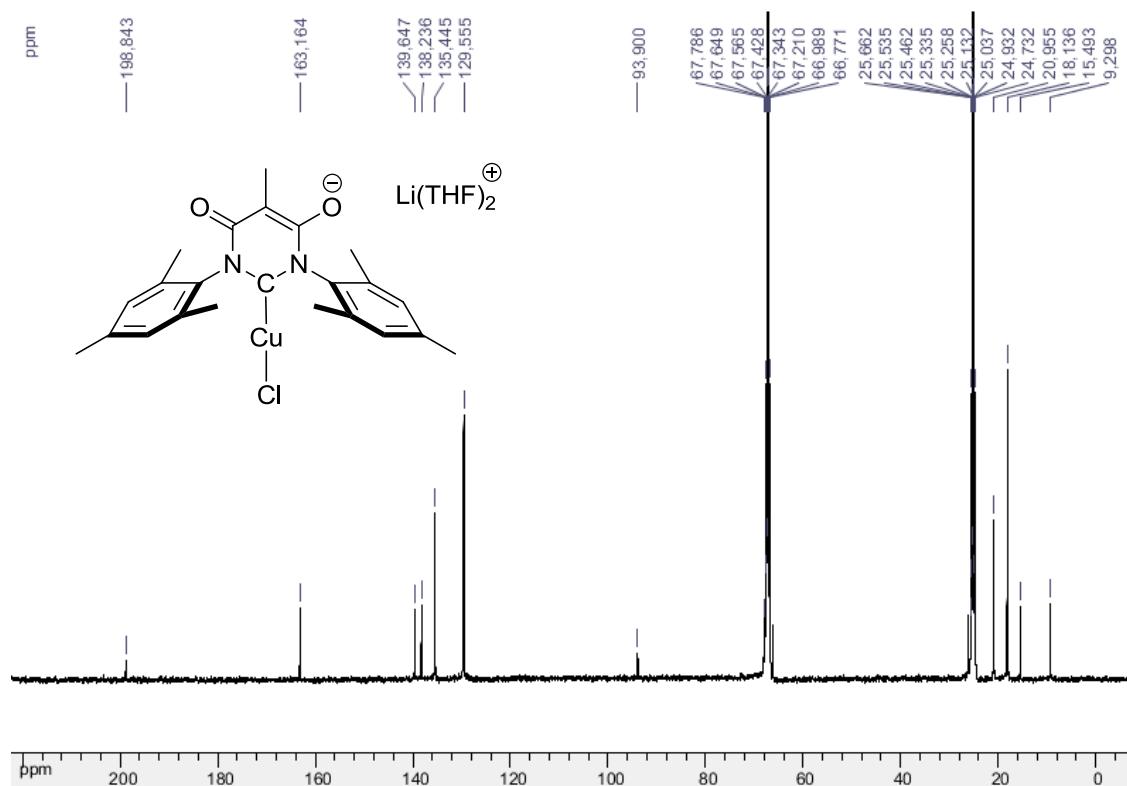
$^{13}\text{C}\{^1\text{H}\}$ NMR spectrum of (1b) $\cdot\text{Li}$ (100.5 MHz, THF-d8)



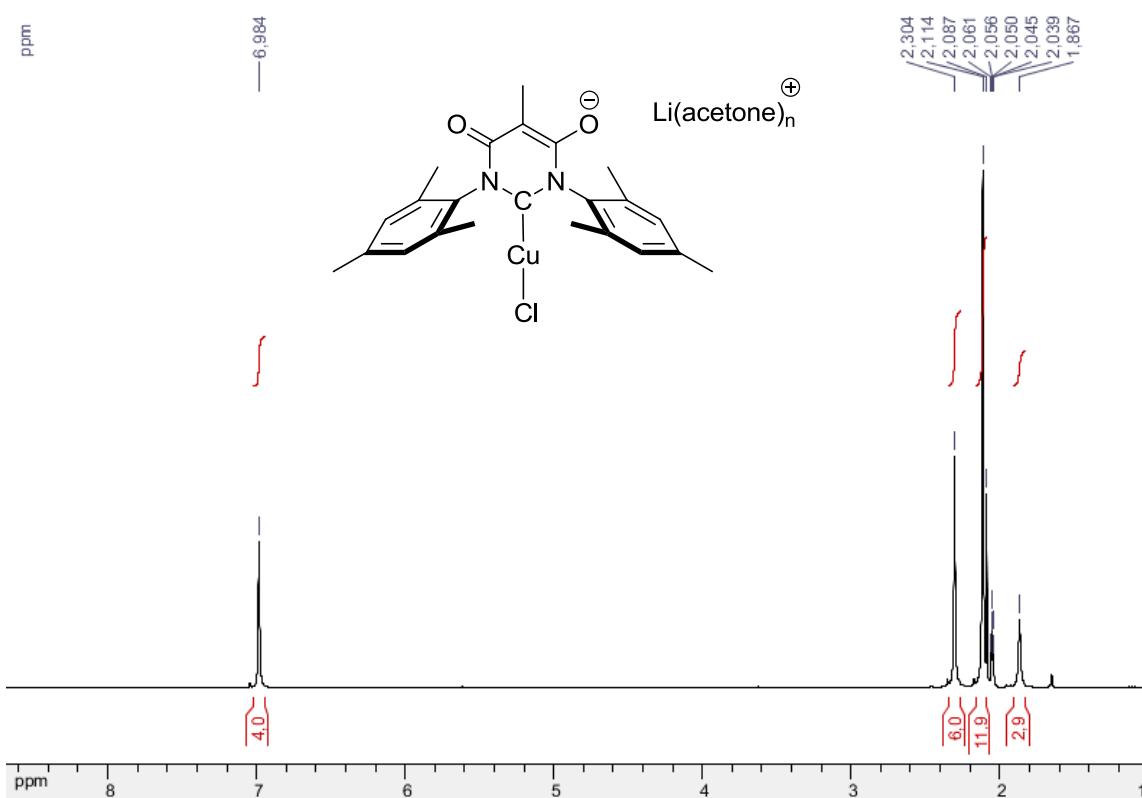
¹H NMR spectrum of [2a]·Li (400 MHz, THF-d⁸)



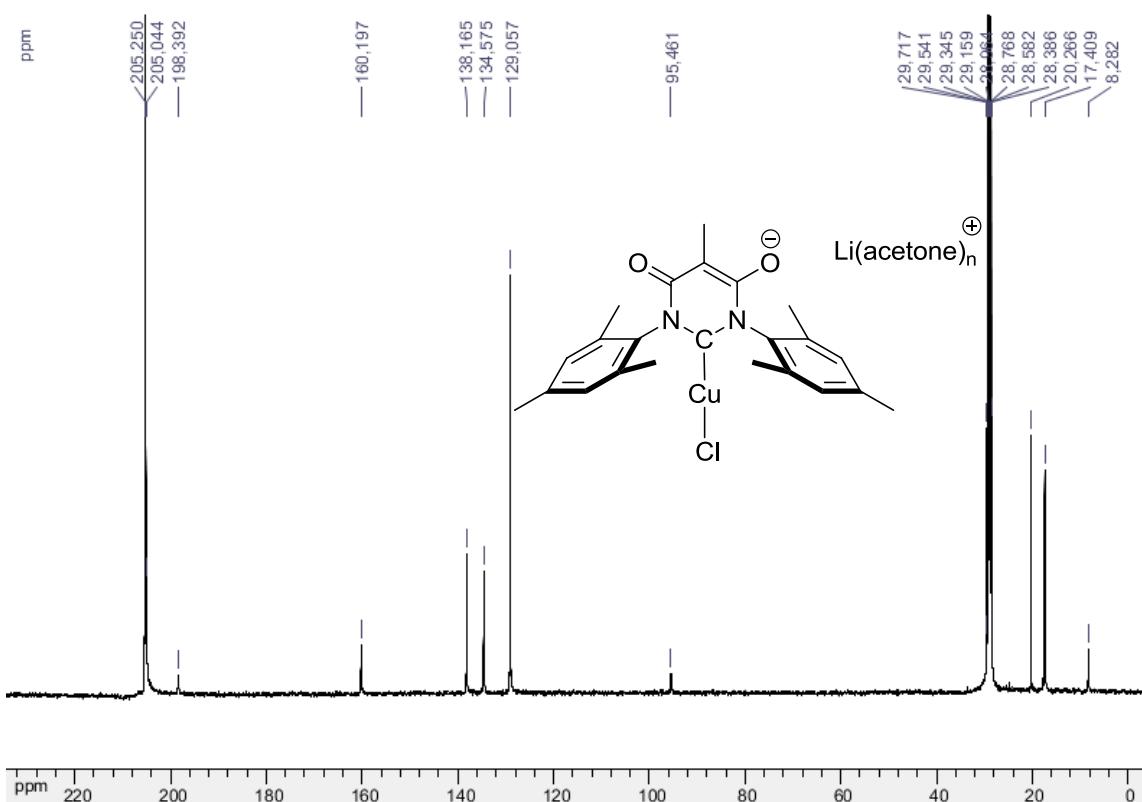
¹³C {¹H} NMR spectrum of [2a]·Li (100.5 MHz, THF-d8)



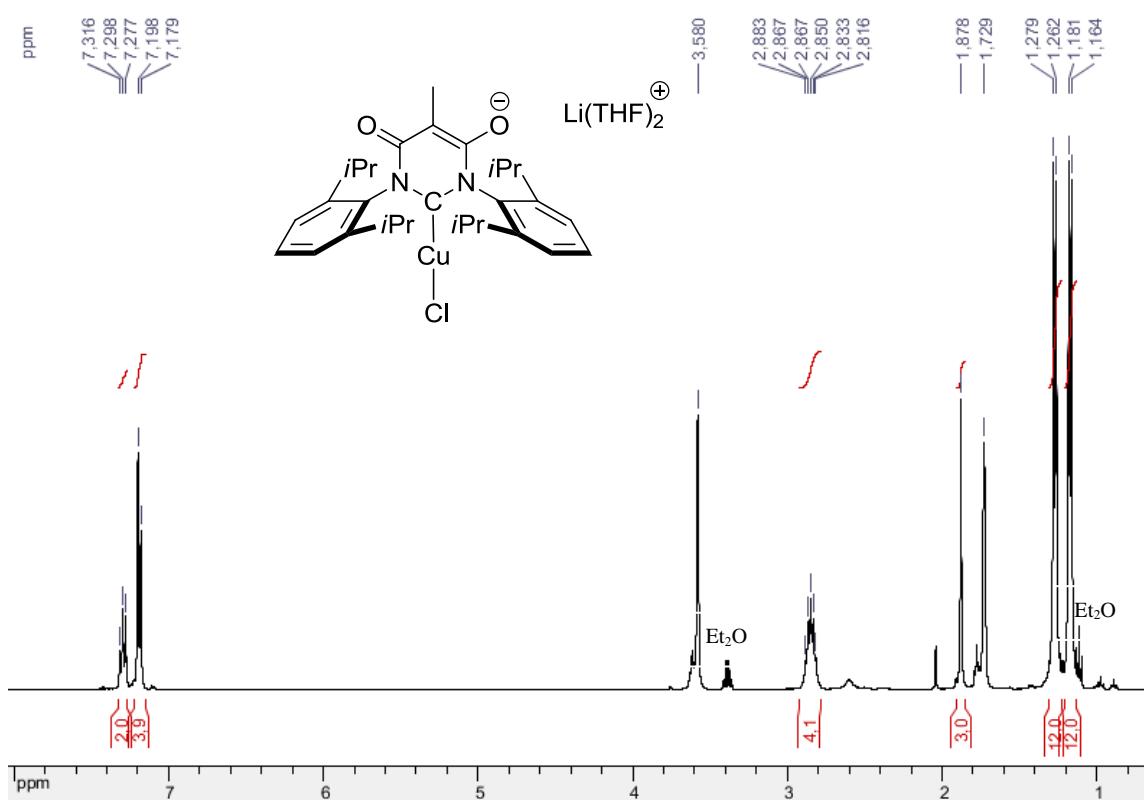
¹H NMR spectrum of [2a]·Li (400 MHz, acetone-d₆)



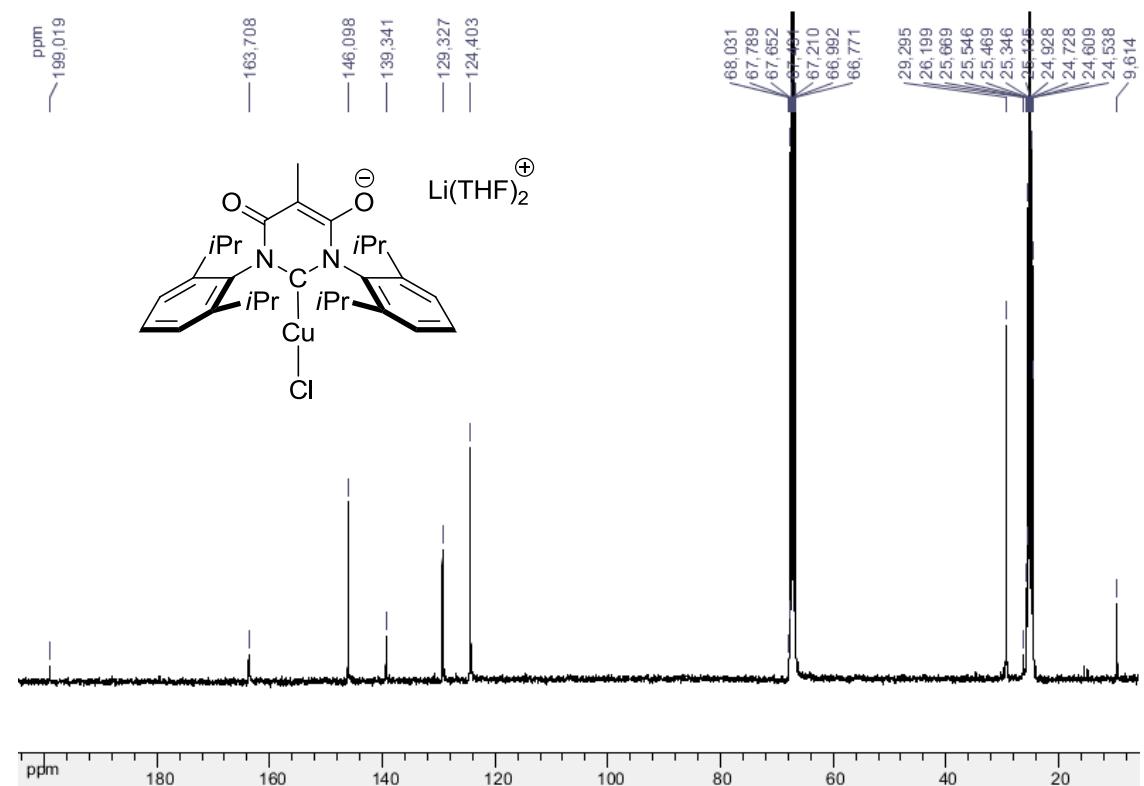
¹³C {¹H} NMR spectrum of [2a]·Li (100.5 MHz, acetone-d₆)



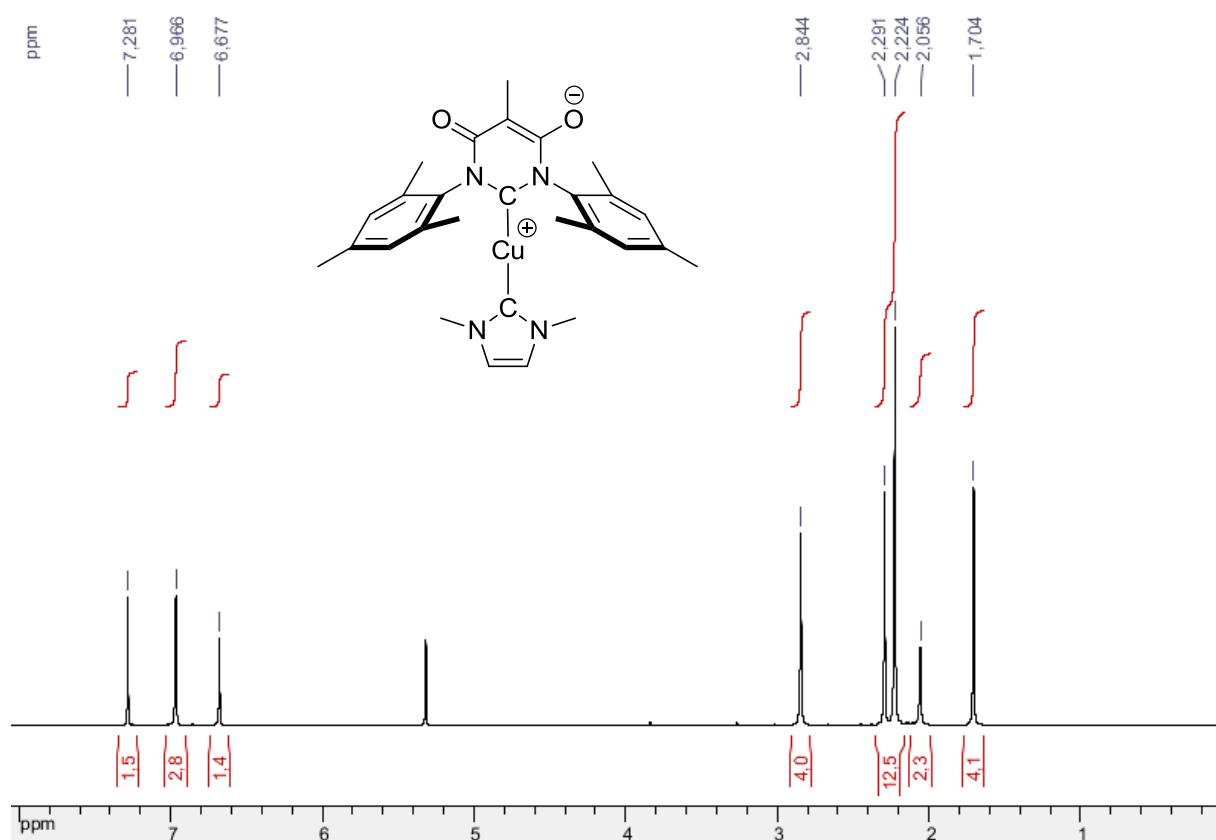
¹H NMR spectrum of [2b]·Li (400 MHz, THF-d⁸)



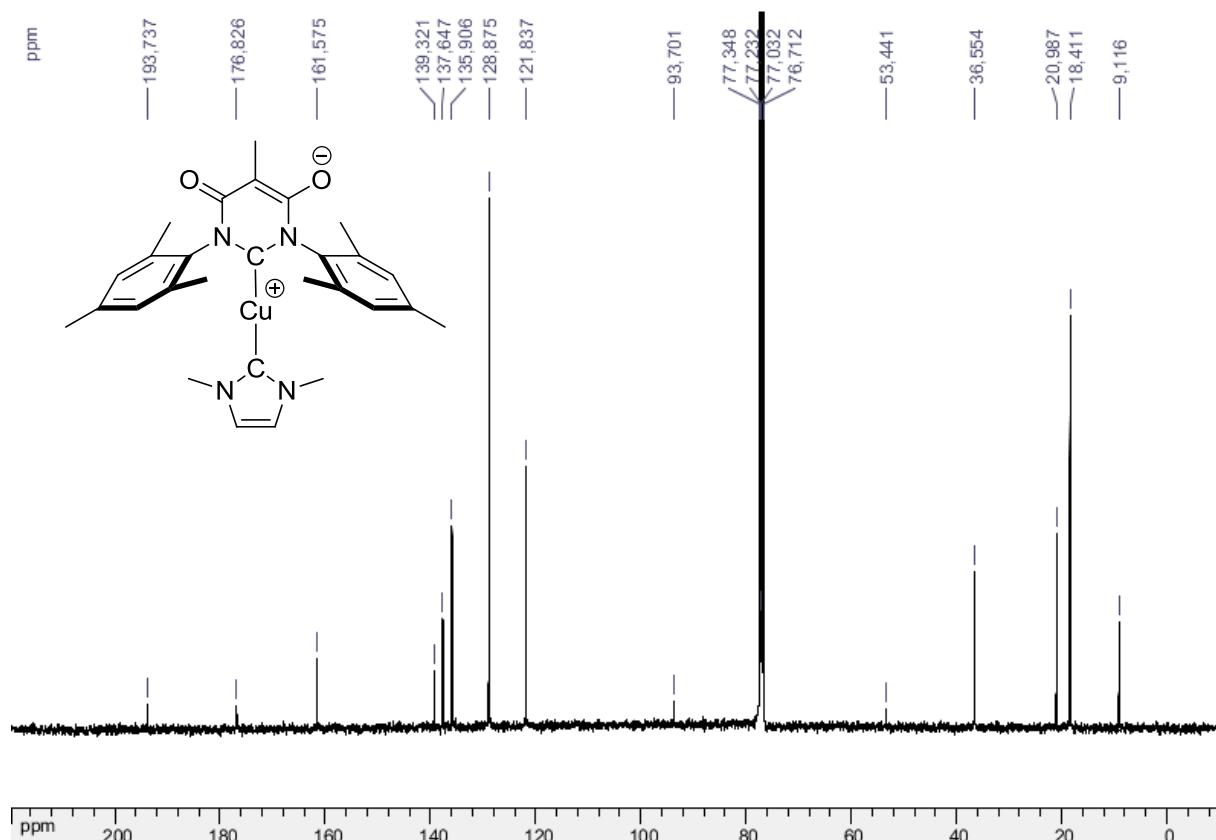
¹³C {¹H} NMR spectrum of [2b]·Li (100.5 MHz, THF-d8)



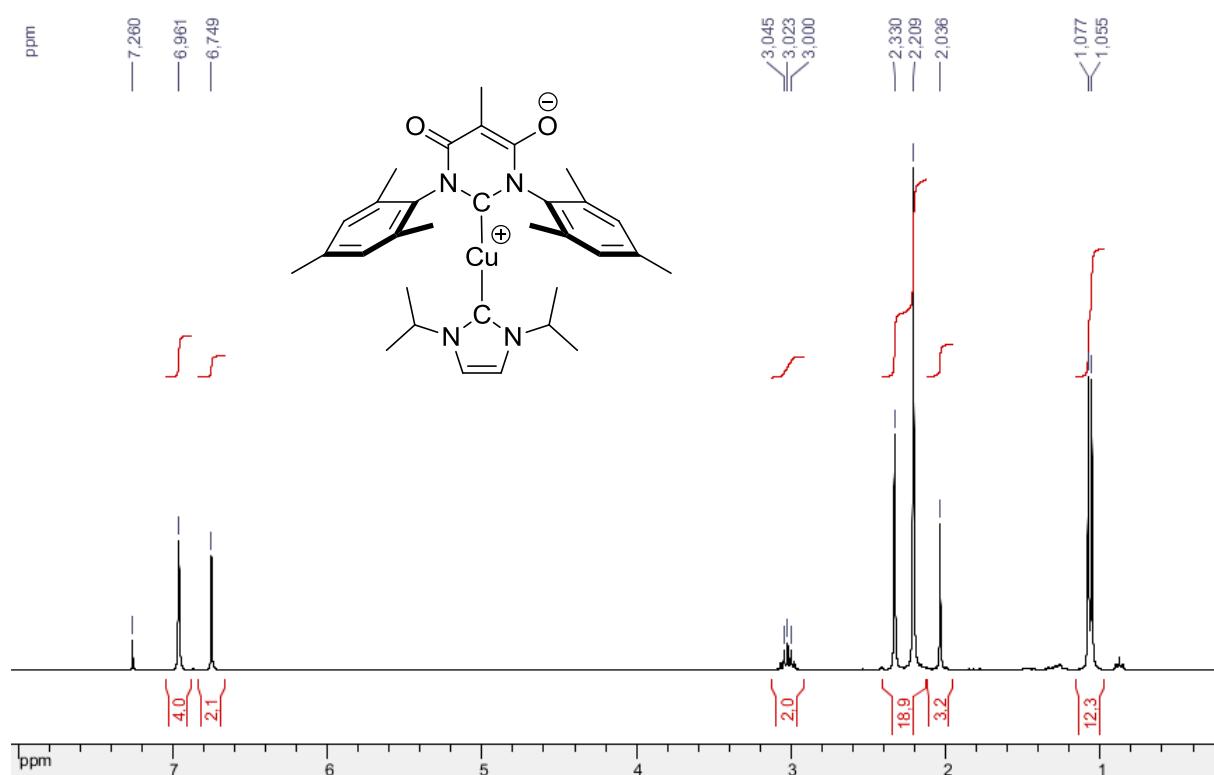
¹H NMR spectrum of 3aa (400 MHz, CDCl₃)



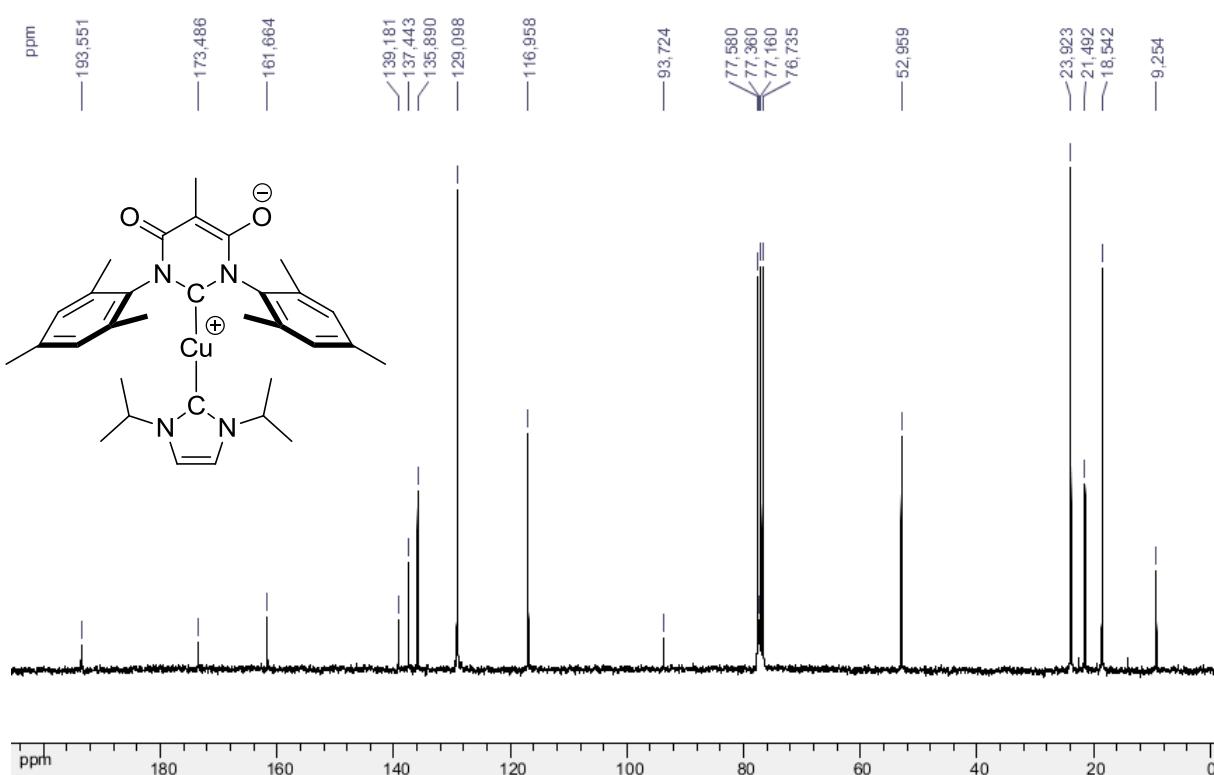
¹³C {¹H} NMR spectrum of 3aa (100.5 MHz, CDCl₃)



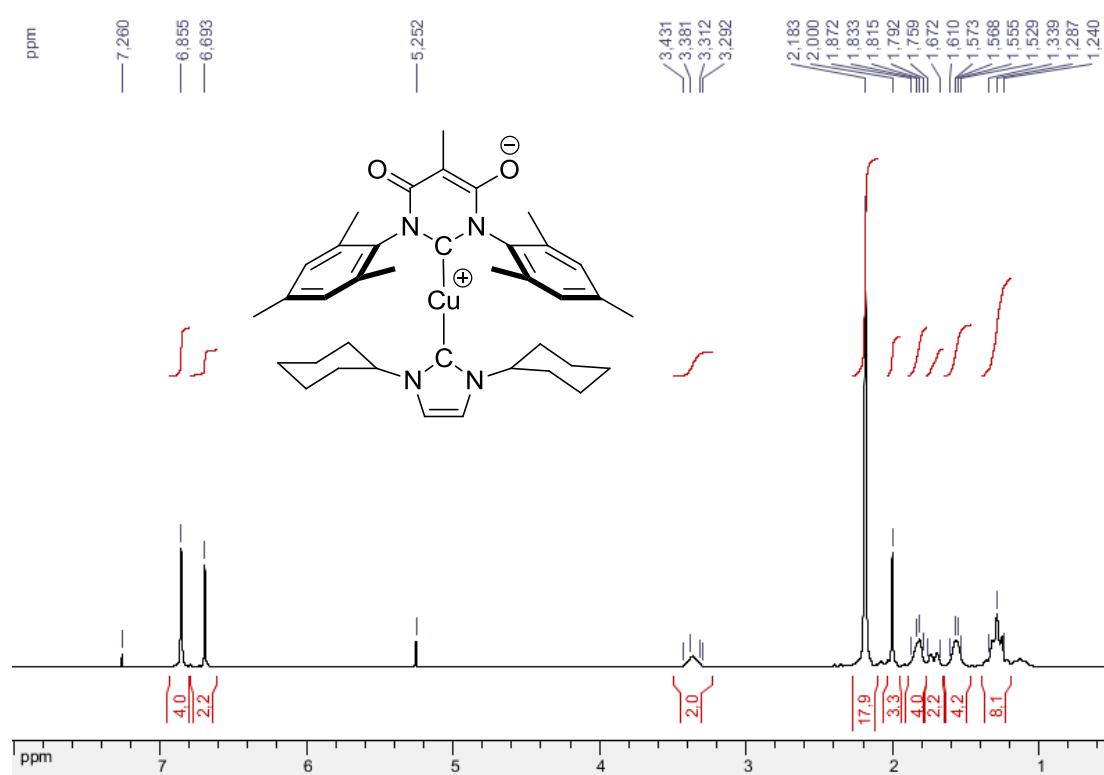
^1H NMR spectrum of 3ab (300 MHz, CDCl_3)



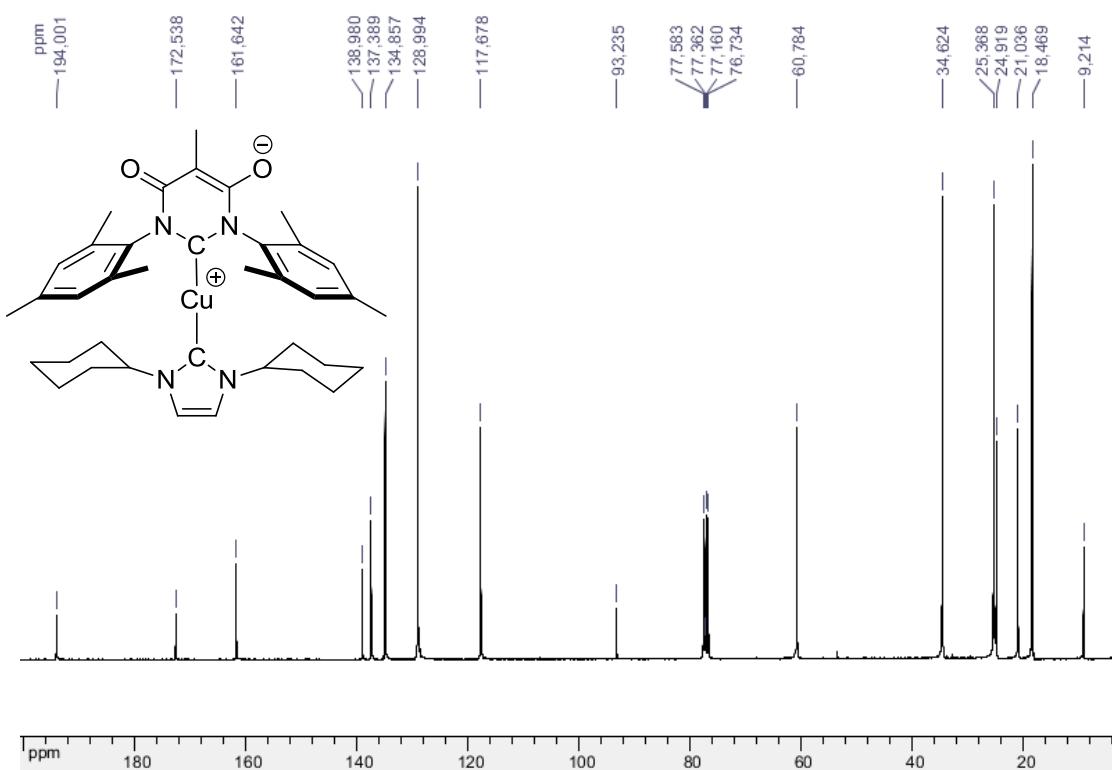
$^{13}\text{C}\{^1\text{H}\}$ NMR spectrum of 3ab (75.5 MHz, CDCl_3)



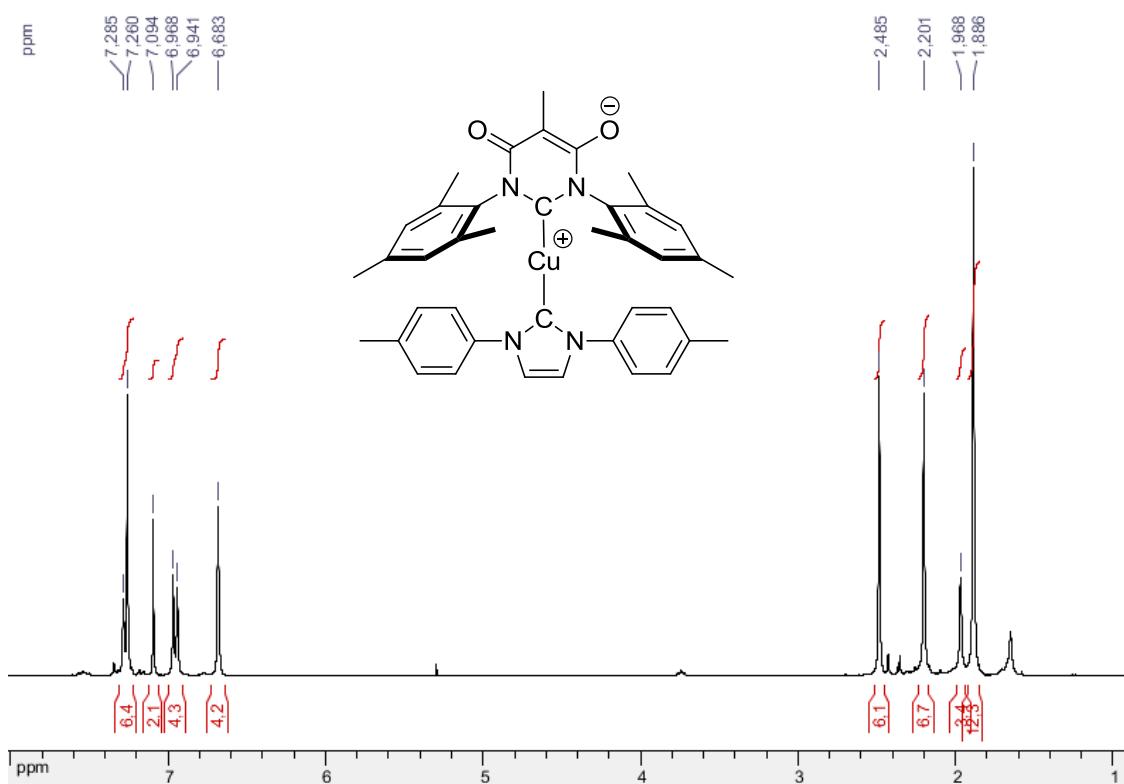
¹H NMR spectrum of 3ac (300 MHz, CDCl₃)



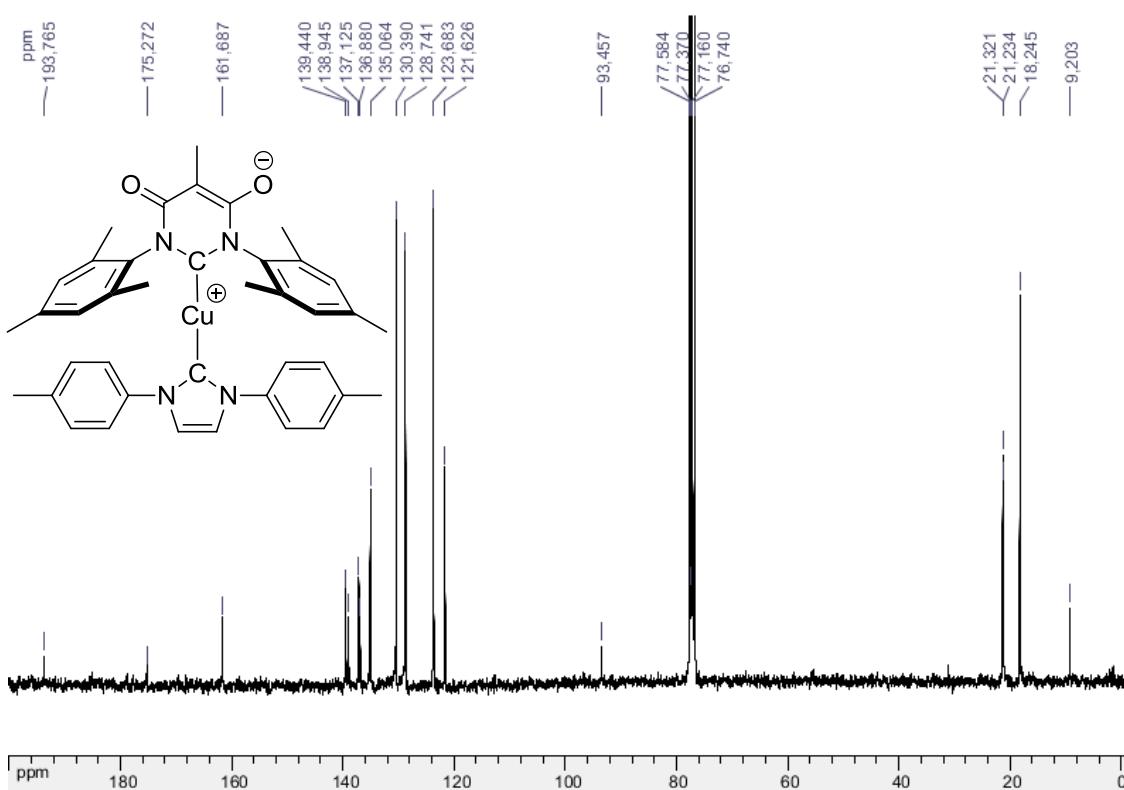
¹³C {¹H} NMR spectrum of 3ac (75.5 MHz, CDCl₃)



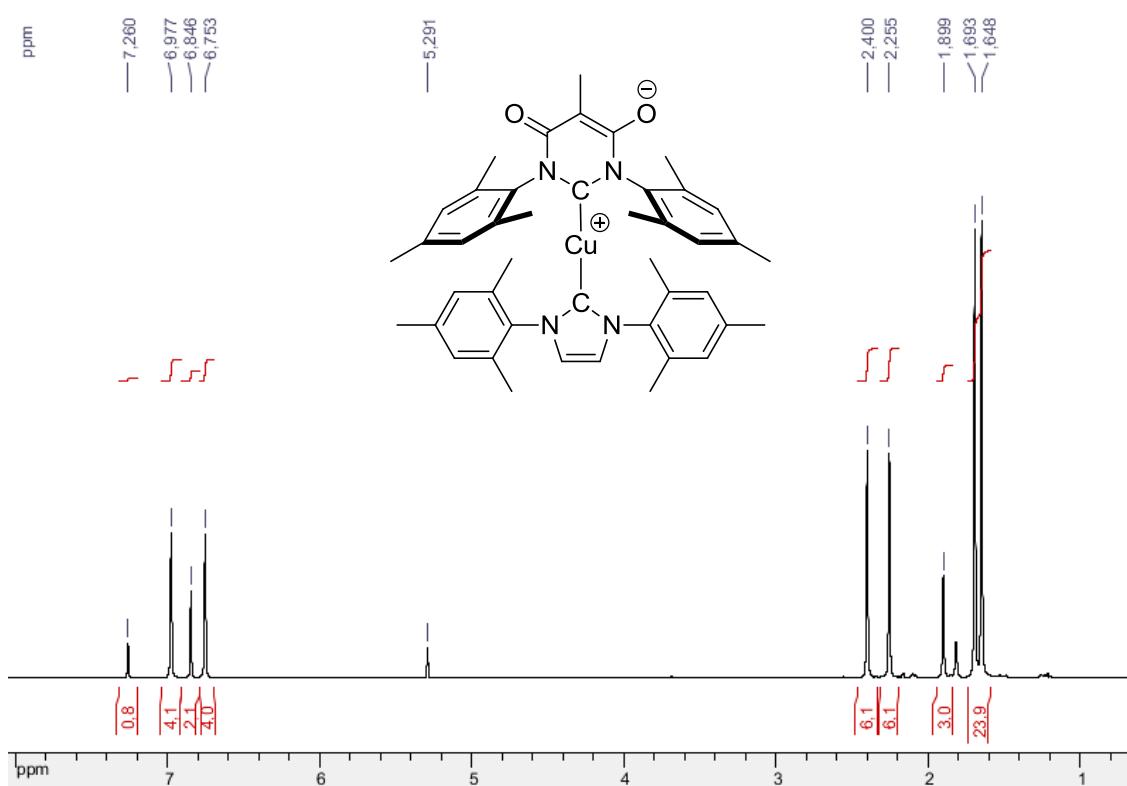
¹H NMR spectrum of 3ad (300 MHz, CDCl₃)



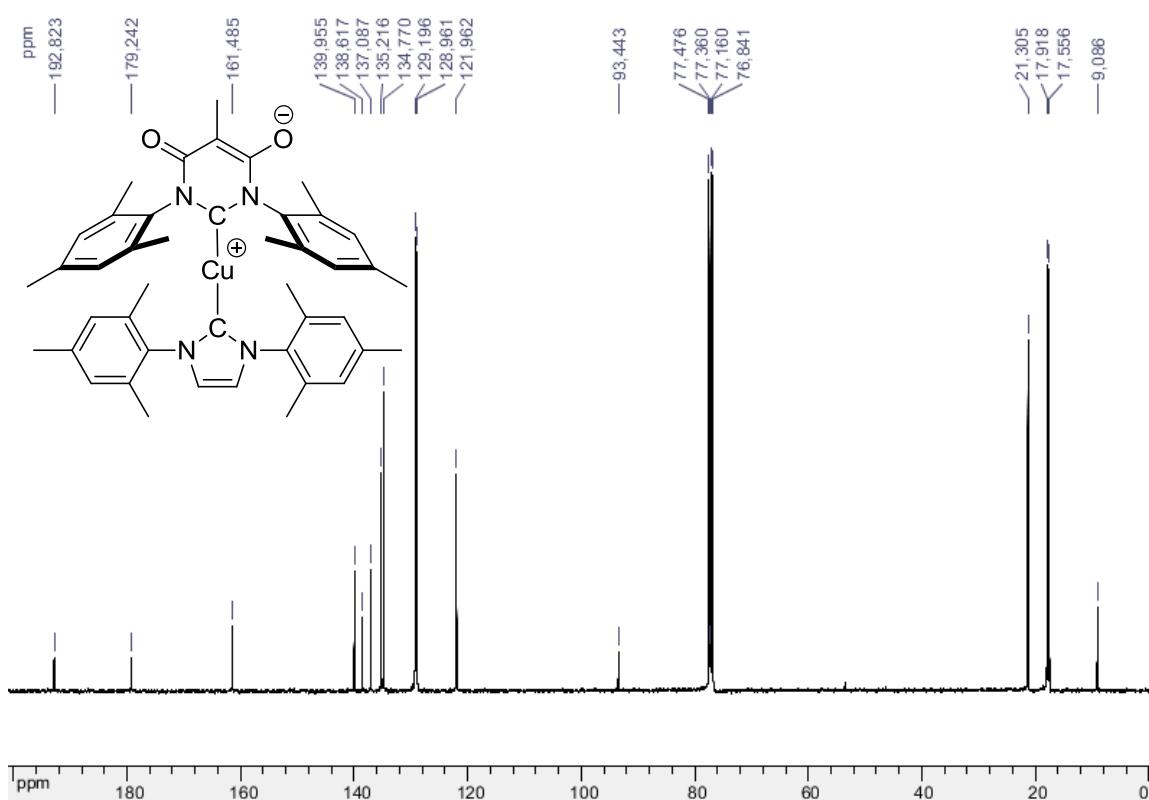
¹³C {¹H} NMR spectrum of 3ad (75.5 MHz, CDCl₃)



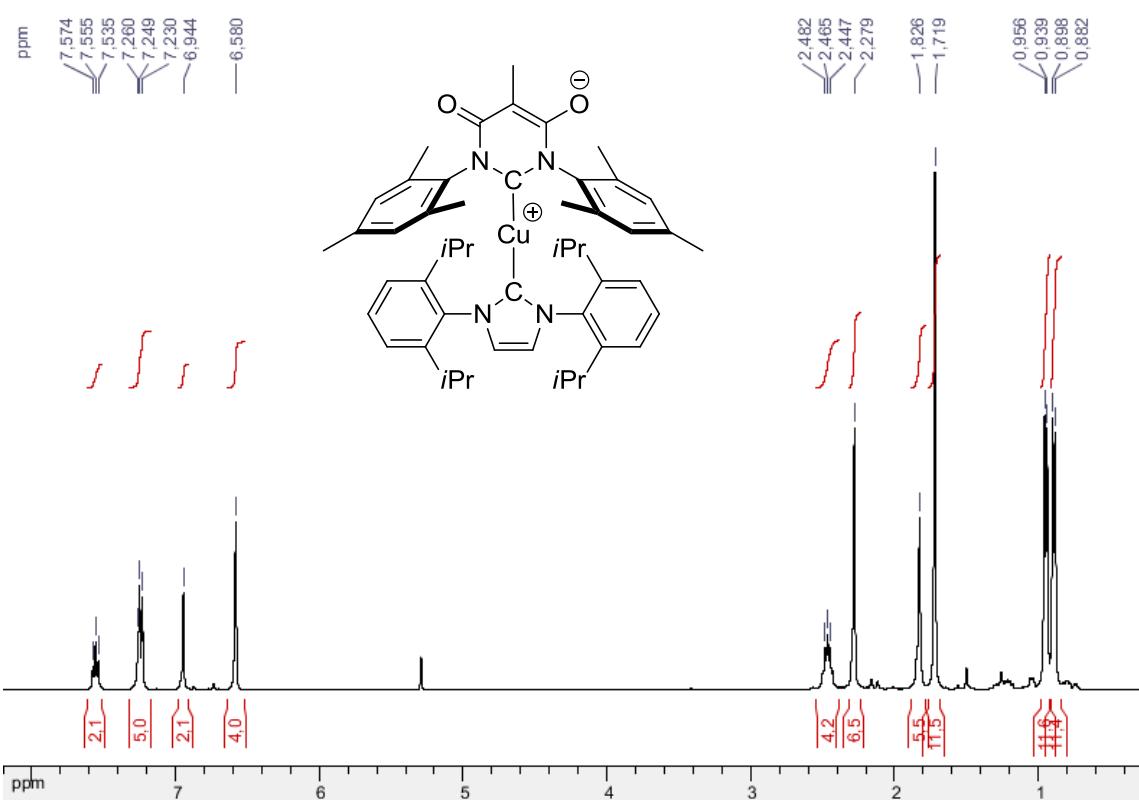
¹H NMR spectrum of 3ae (400 MHz, CDCl₃)



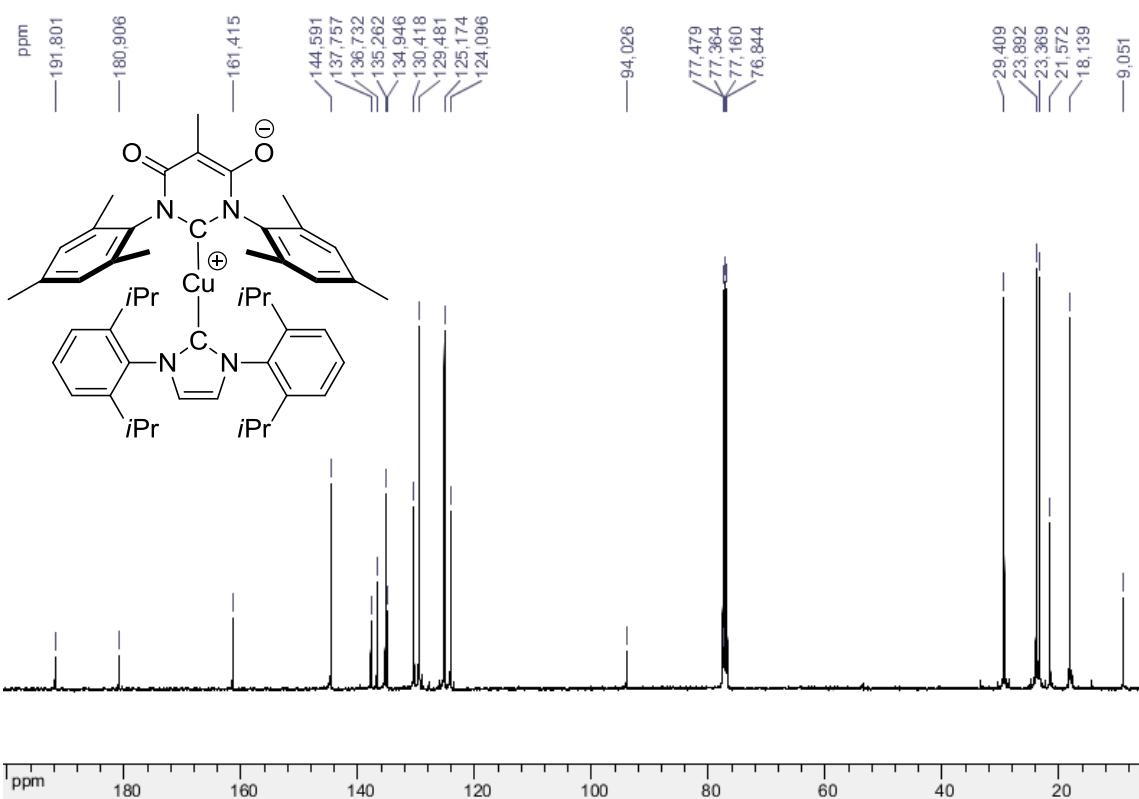
¹³C {¹H} NMR spectrum of 3ae (100.5 MHz, CDCl₃)



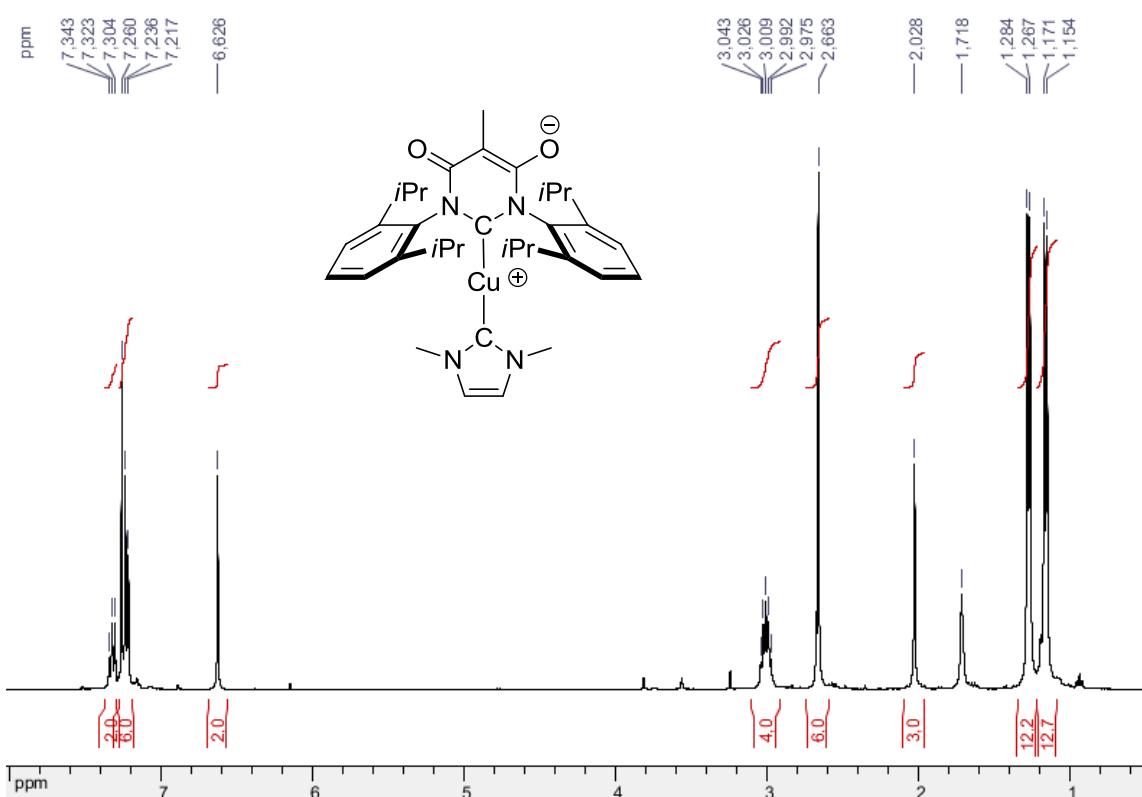
¹H NMR spectrum of 3af (400 MHz, CDCl₃)



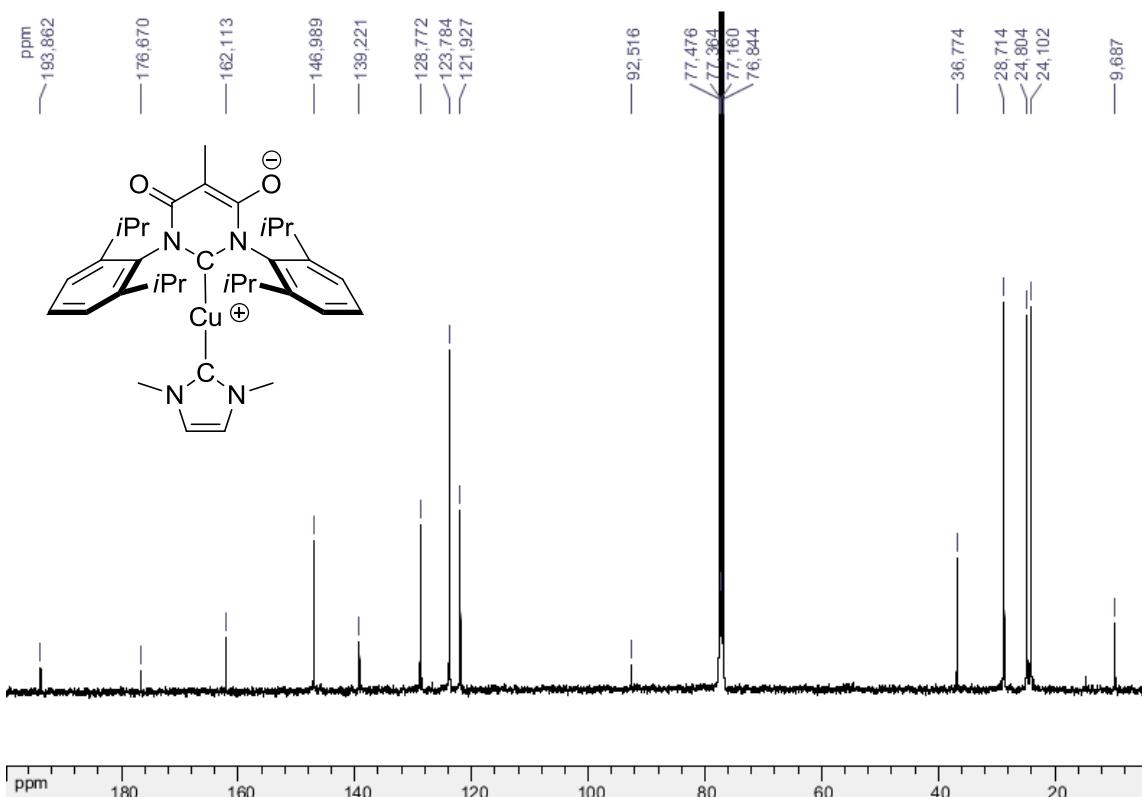
¹³C {¹H} NMR spectrum of 3af (100.5 MHz, CDCl₃)



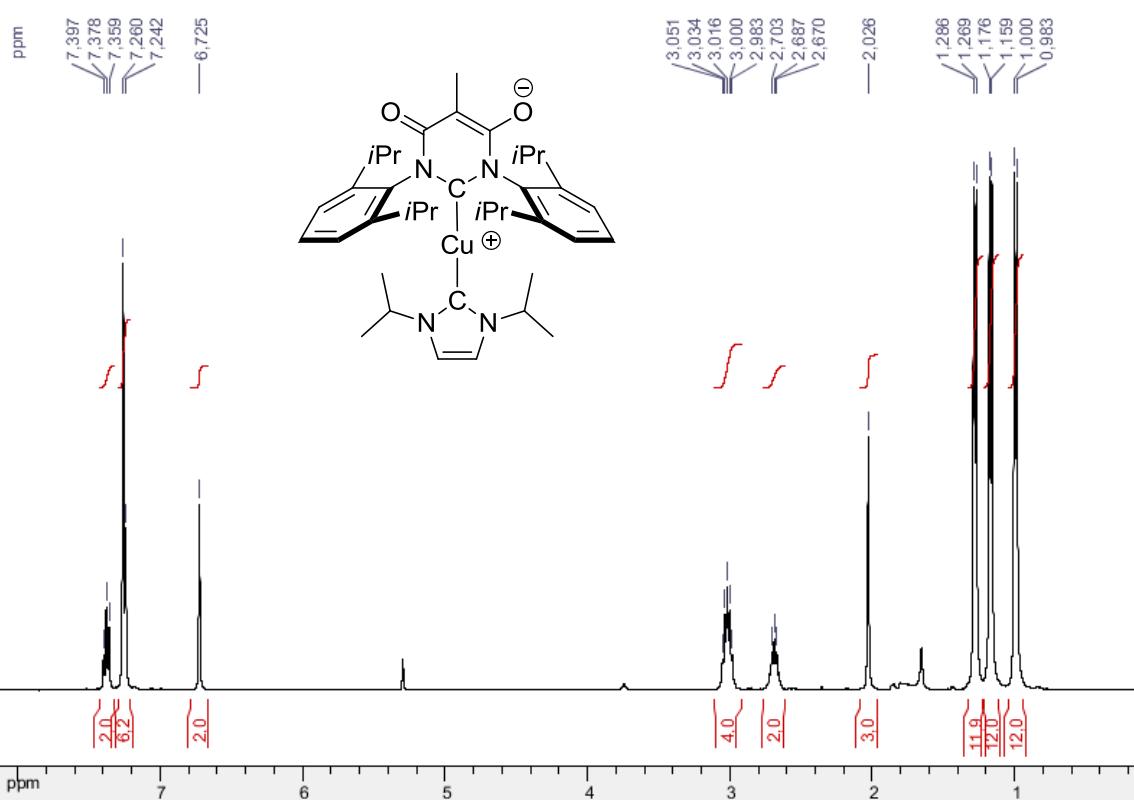
^1H NMR spectrum of 3ba (400 MHz, CDCl_3)



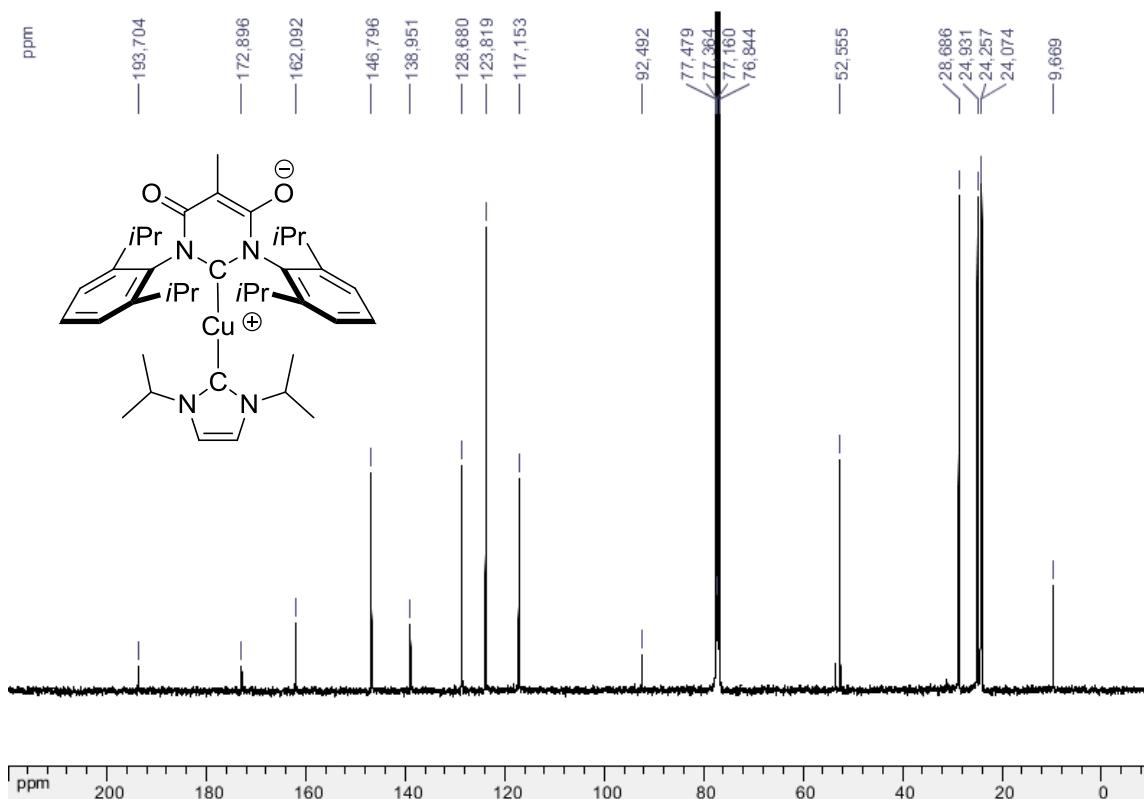
$^{13}\text{C}\{^1\text{H}\}$ NMR spectrum of 3ba (100.5 MHz, CDCl_3)



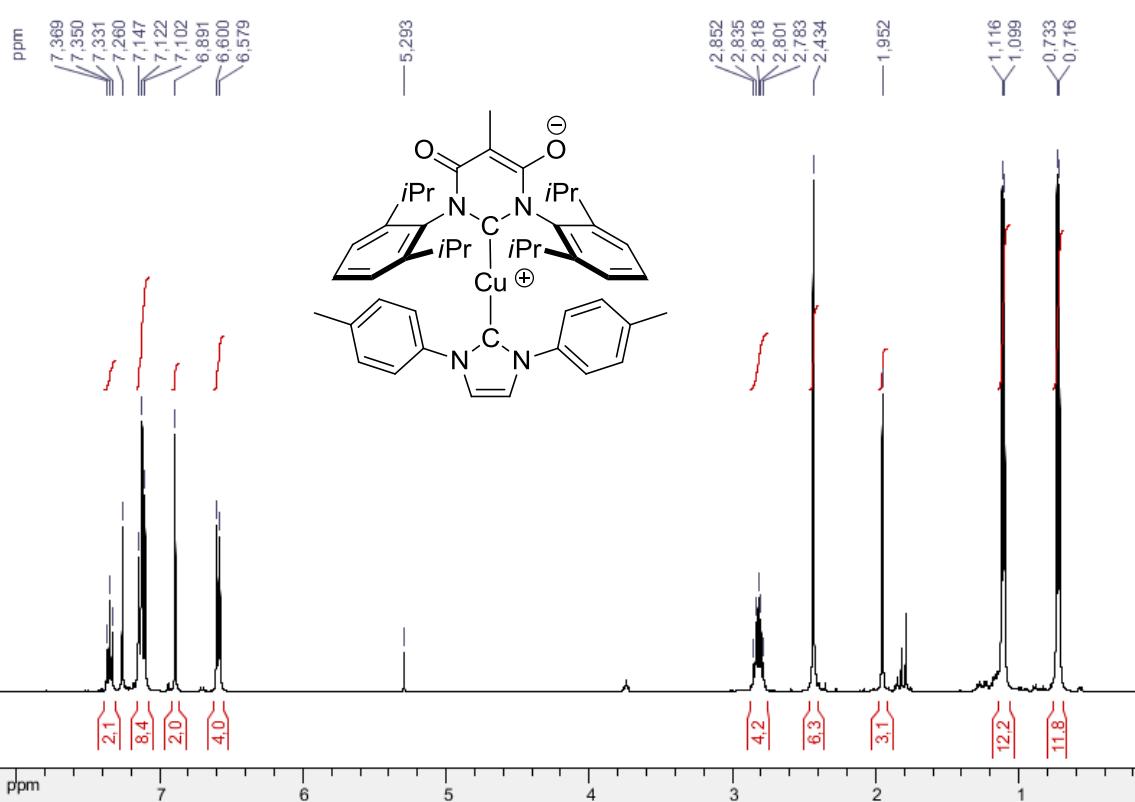
¹H NMR spectrum of 3bb (400 MHz, CDCl₃)



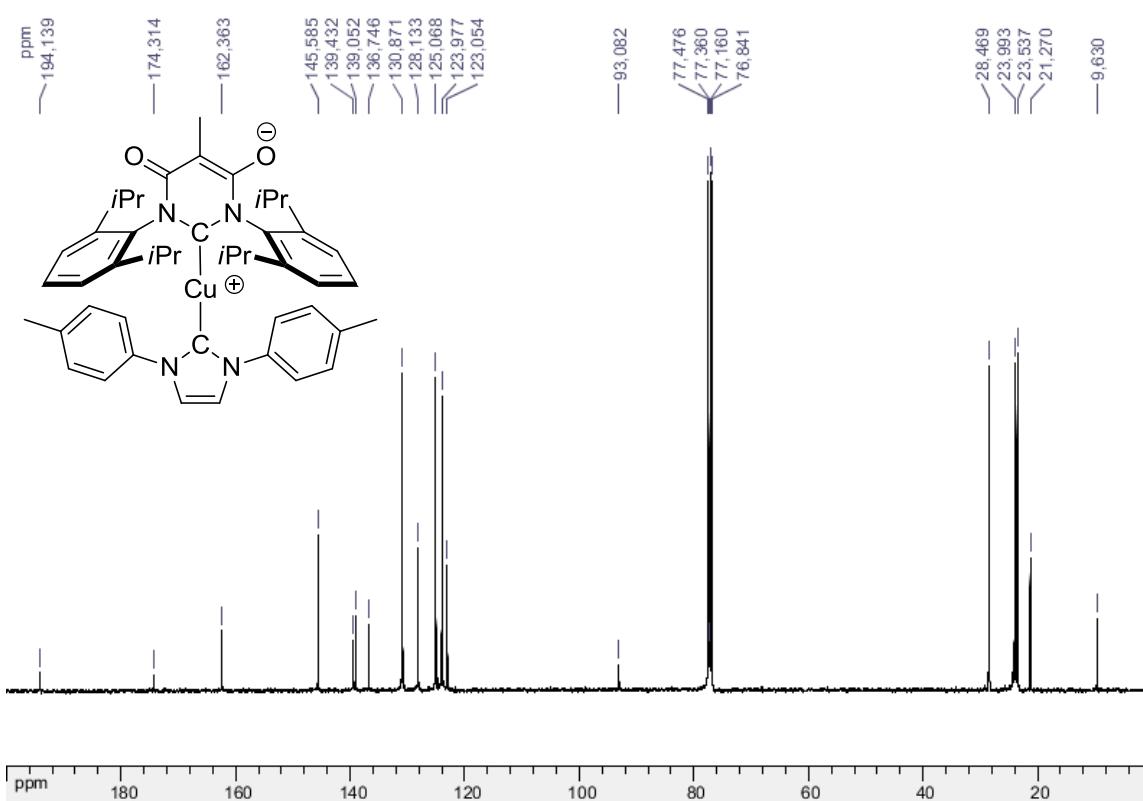
¹³C {¹H} NMR spectrum of 3bb (100.5 MHz, CDCl₃)



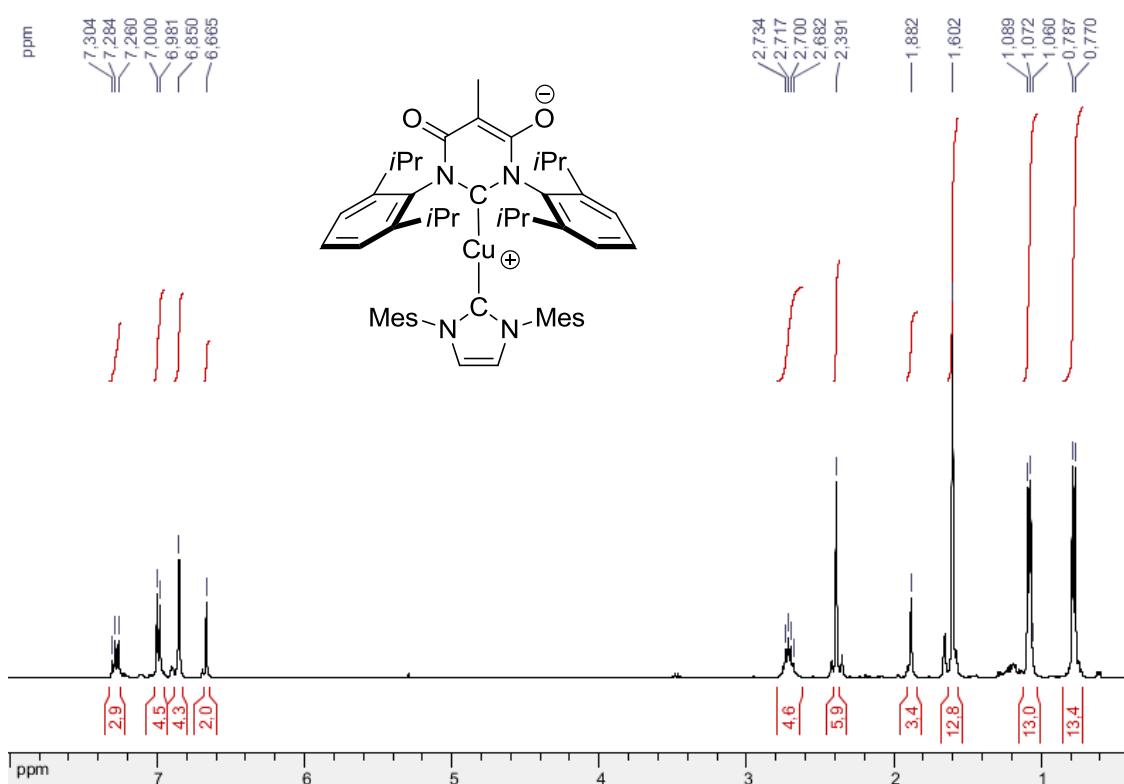
¹H NMR spectrum of 3bd (400 MHz, CDCl₃)



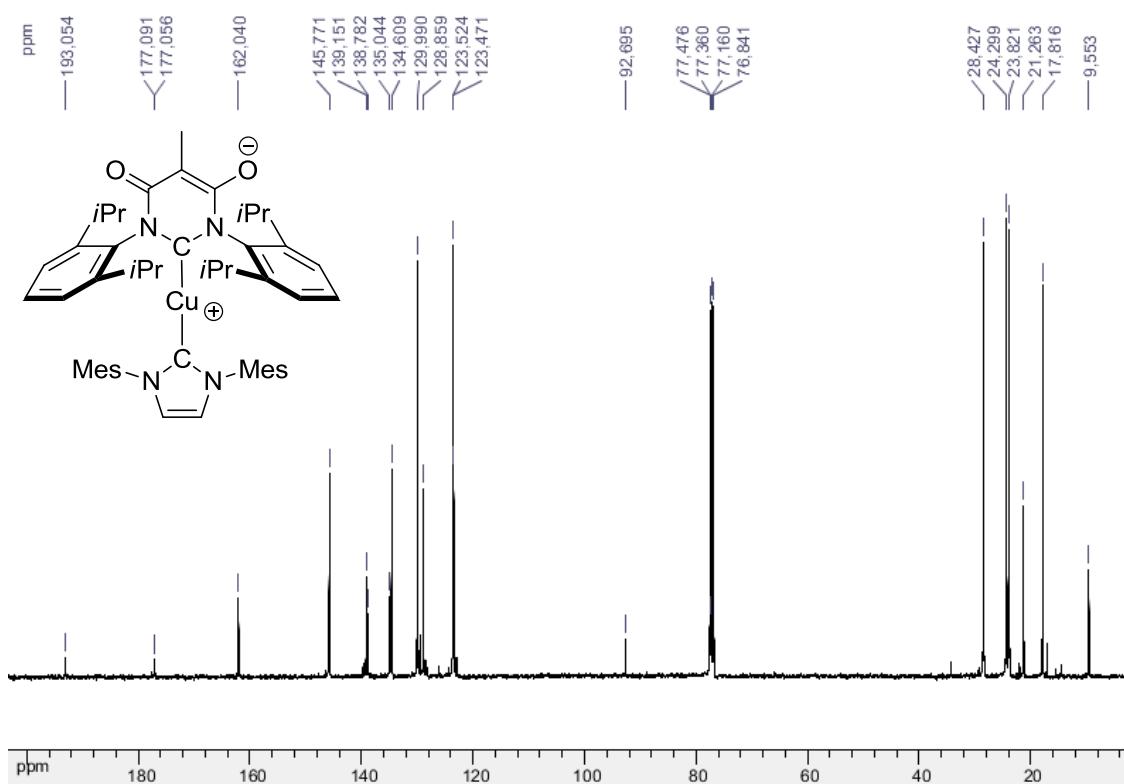
¹³C {¹H} NMR spectrum of 3bd (100.5 MHz, CDCl₃)



¹H NMR spectrum of 3be (400 MHz, CDCl₃)



¹³C {¹H} NMR spectrum of 3be (100.5 MHz, CDCl₃)



A perspective view of the cell packing along the *a* axis for complex [2b].Li(thf)₃ showing the occurrence of channels (red circles) along that direction

