

SUPPORTING INFORMATION:

Room temperature reduction of titanium tetrachloride-activated nitriles to primary amines with ammonia-borane

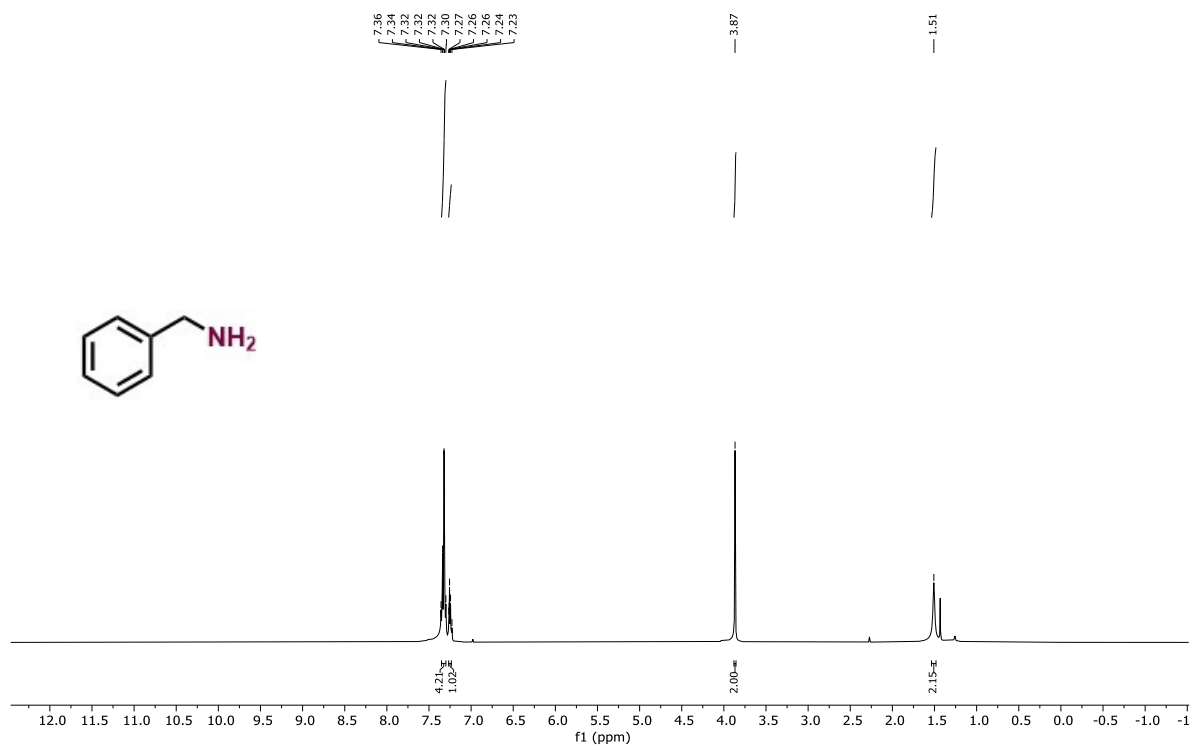
P. Veeraraghavan Ramachandran,* Abdulkhaliq A. Alawaed

† Herbert C. Brown Center for Borane Research, Department of Chemistry, Purdue University,
West Lafayette, Indiana 47907, United States

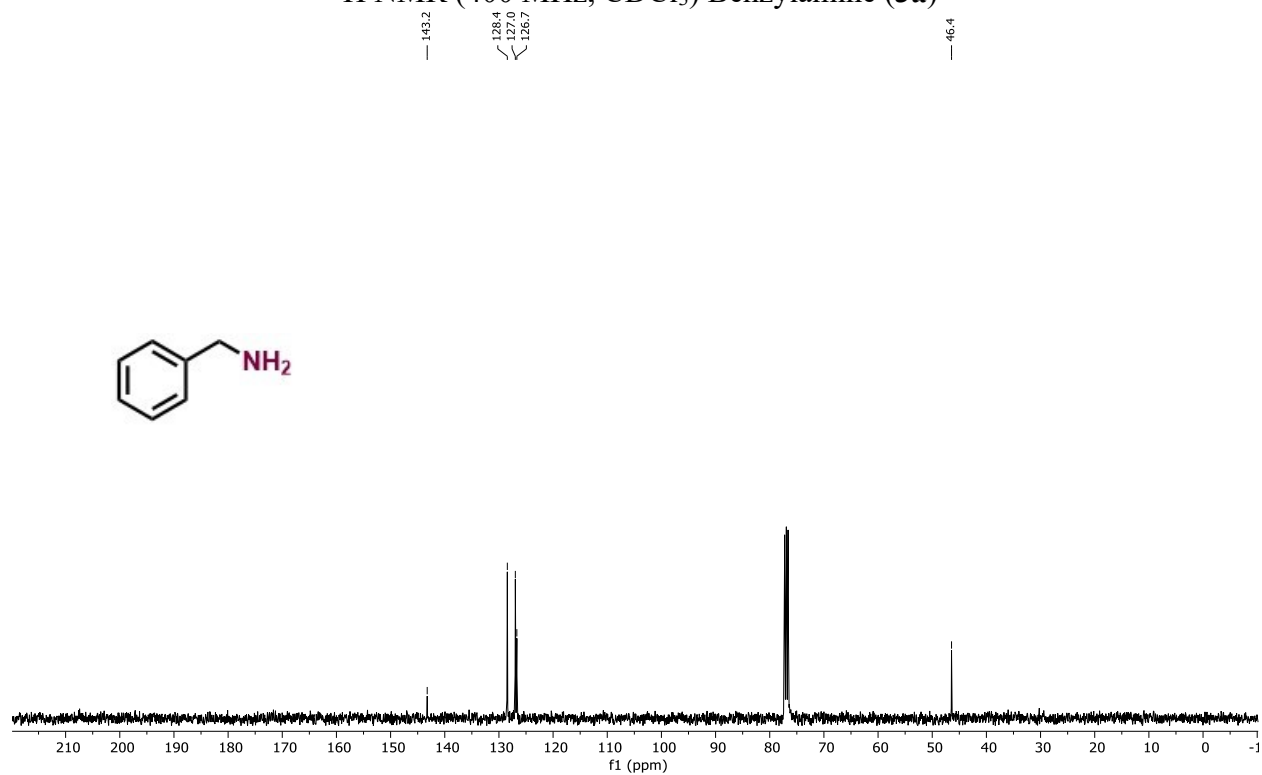
E-mail: chandran@purdue.edu

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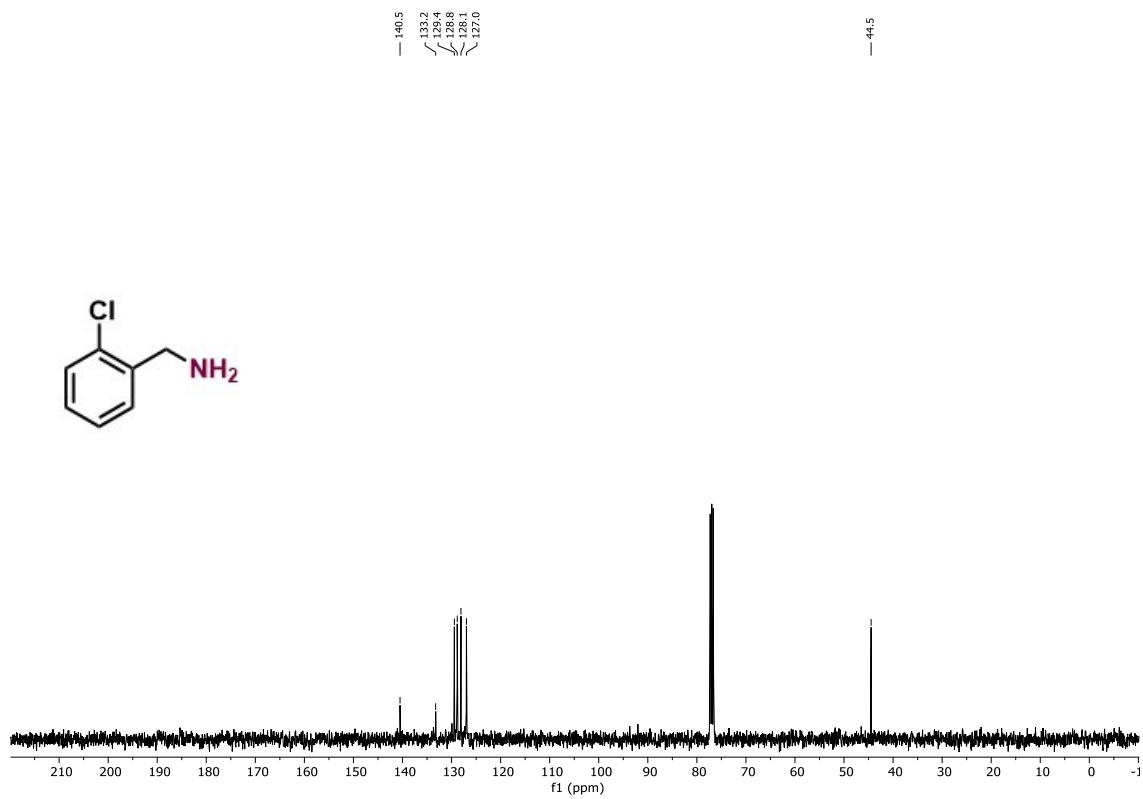
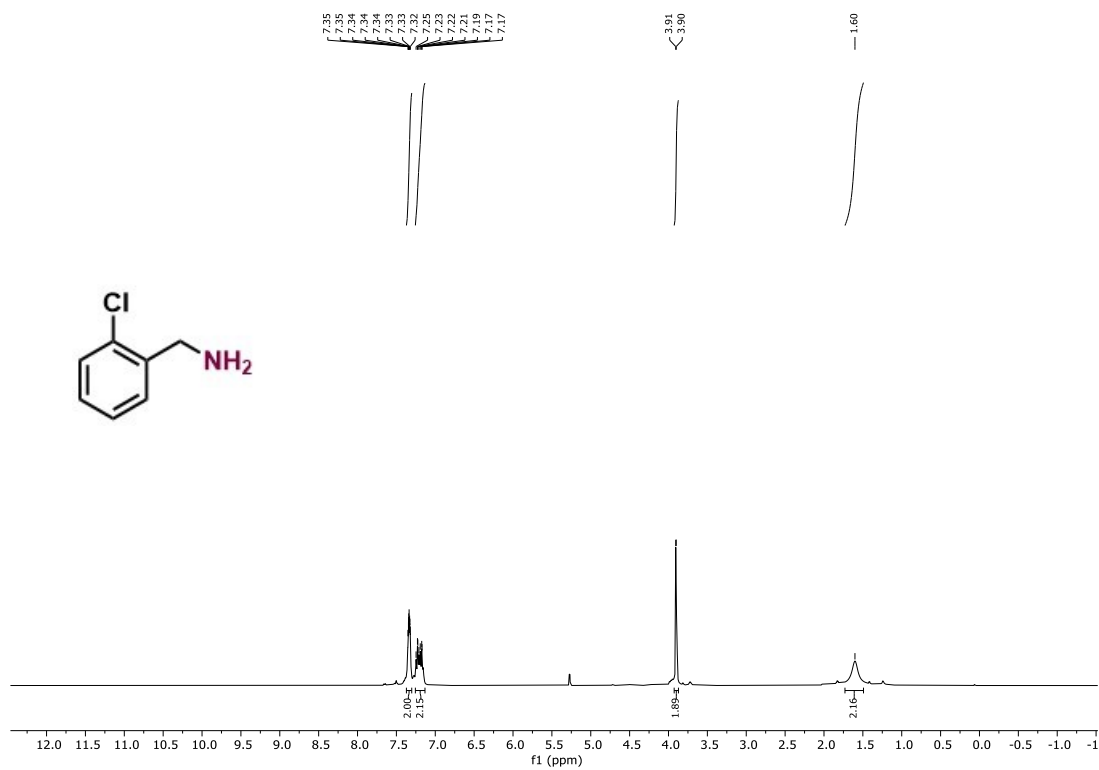
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NMR spectra of product amines	S2-S29

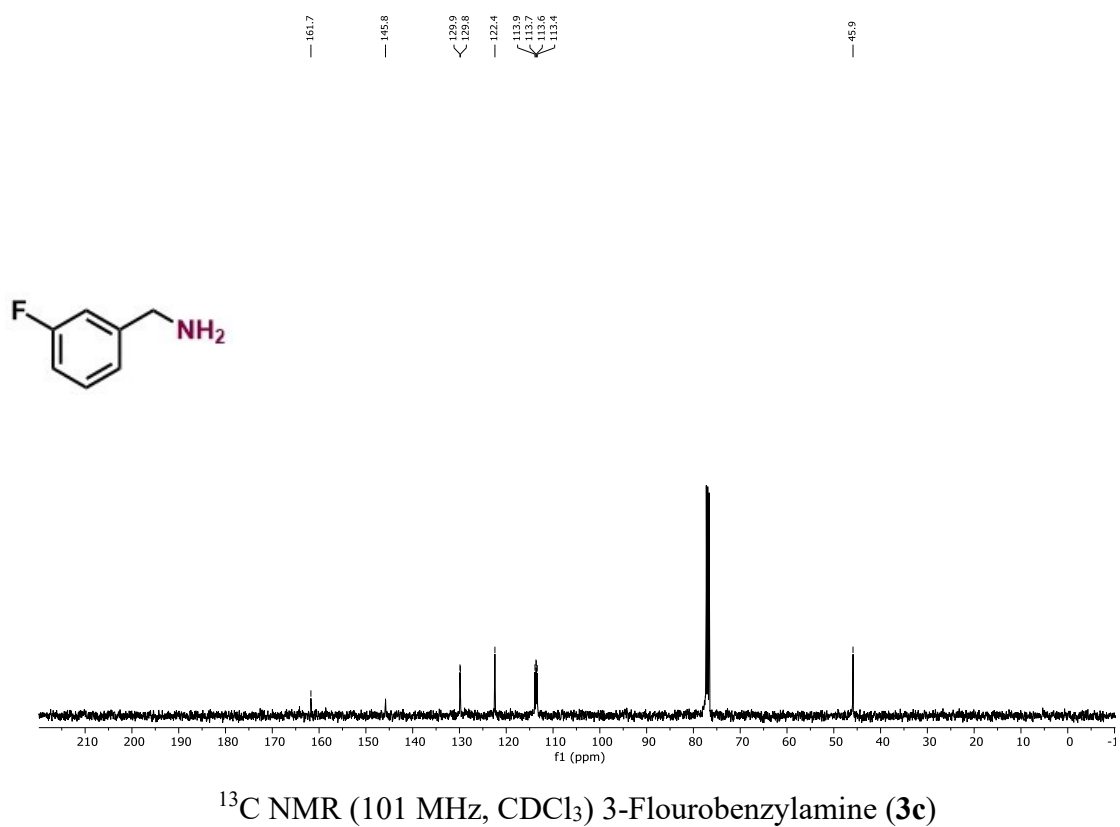
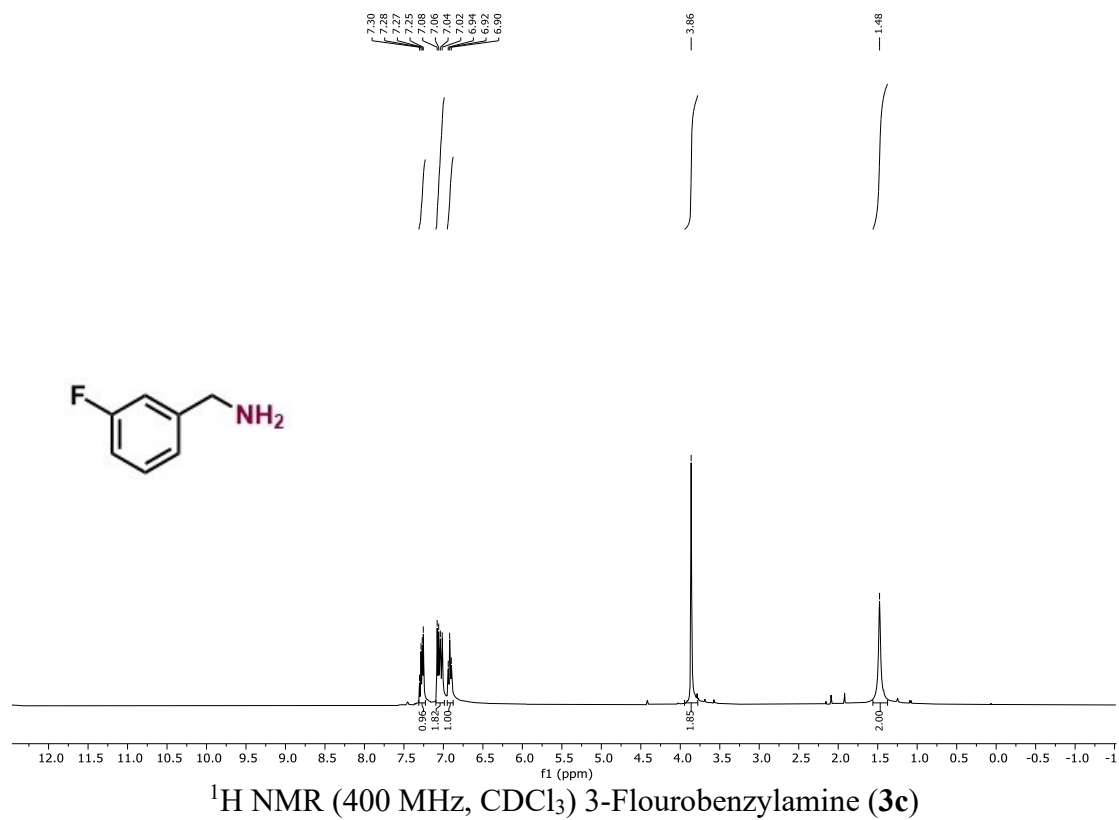


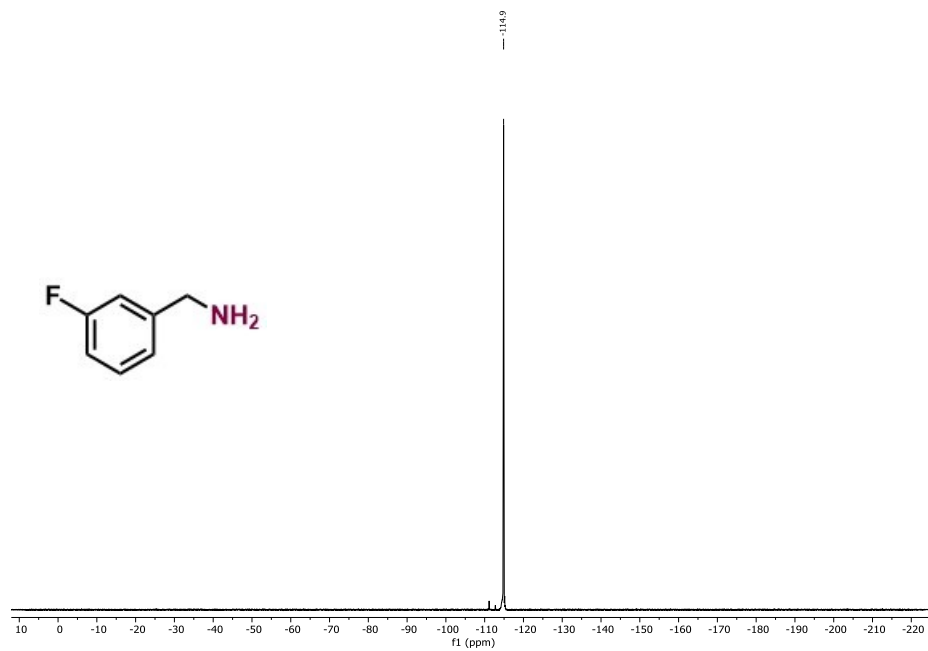
¹H NMR (400 MHz, CDCl₃) Benzylamine (**3a**)



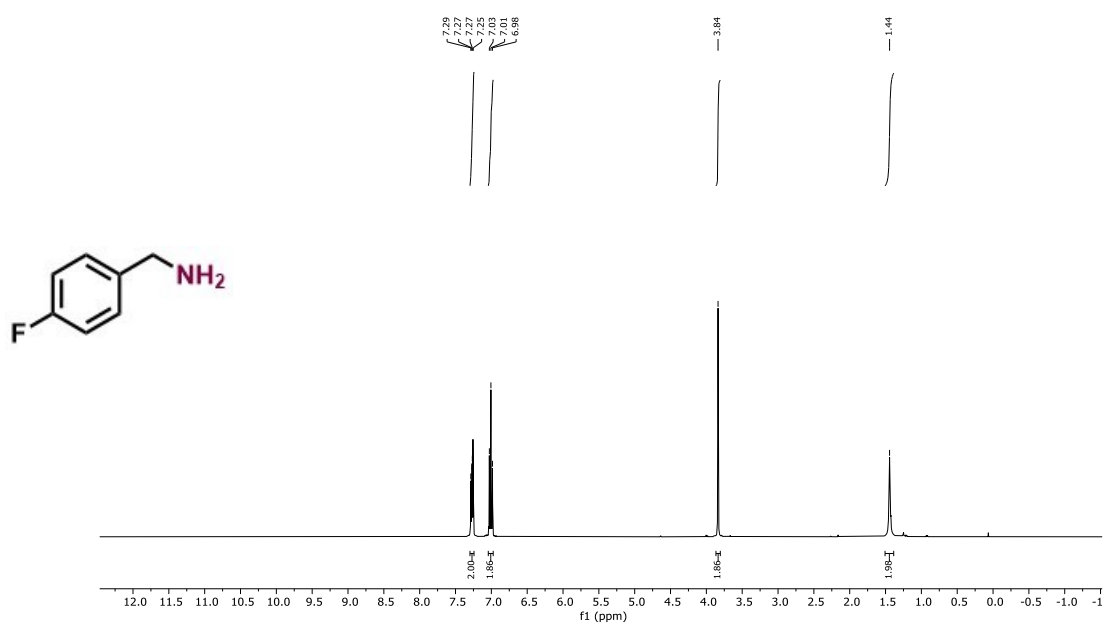
¹³C NMR (101 MHz, CDCl₃) Benzylamine (**3a**)





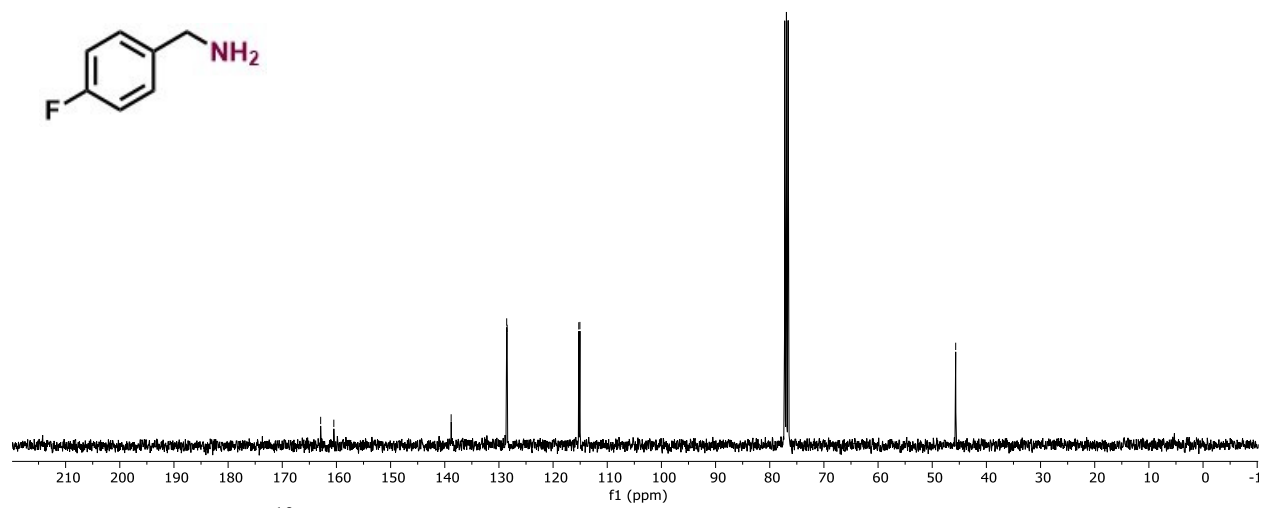
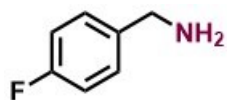


^{19}F NMR (282 MHz, CDCl_3) 3-Fluorobenzylamine (**3c**)

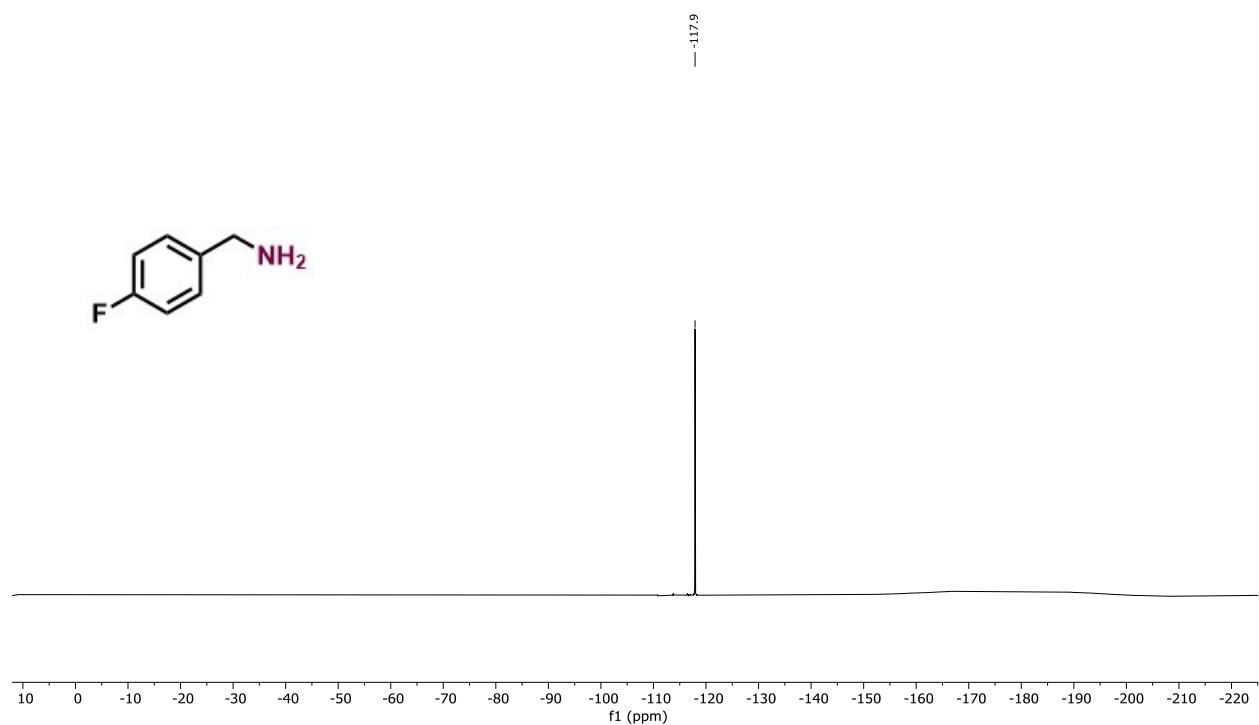


^1H NMR (400 MHz, CDCl_3) 4-Fluorobenzylamine (**3d**)

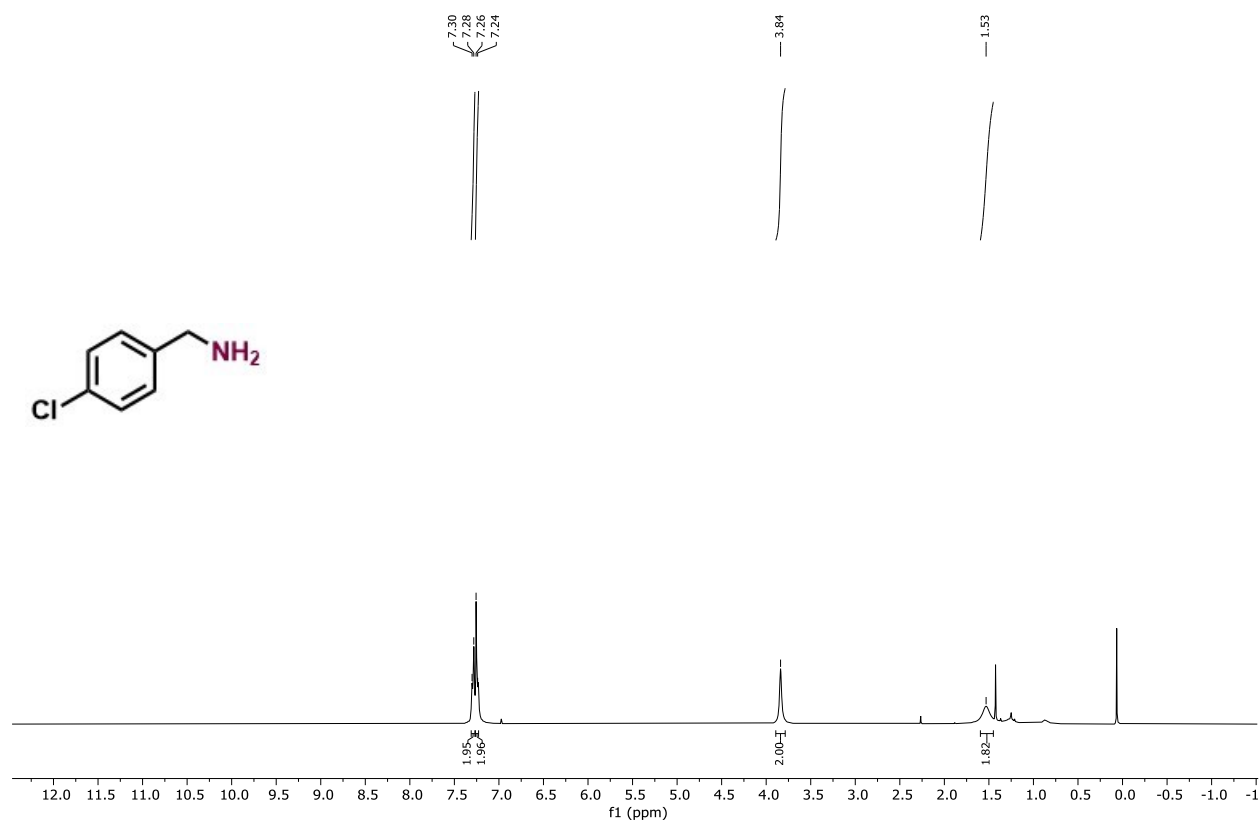
162.9
160.5
138.8
128.6
128.5
115.3
115.0
45.7



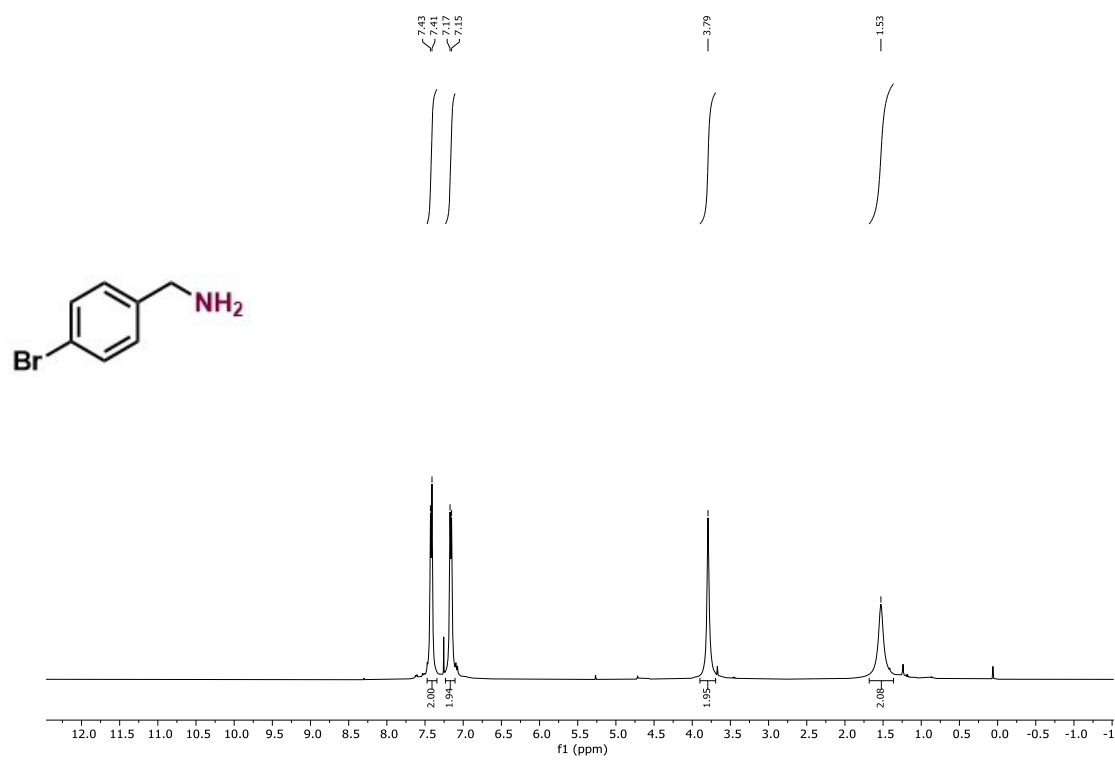
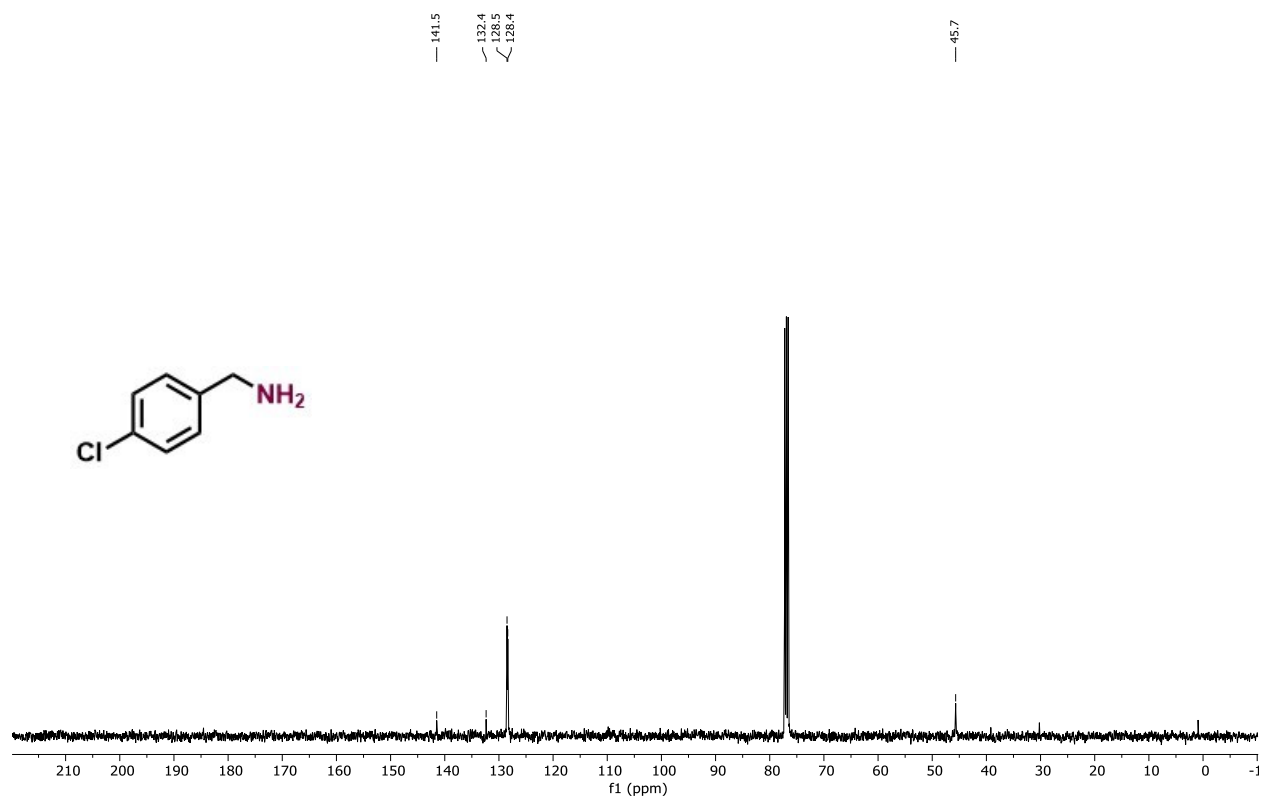
^{13}C NMR (101 MHz, CDCl_3) 4-Fluorobenzylamine (**3d**)

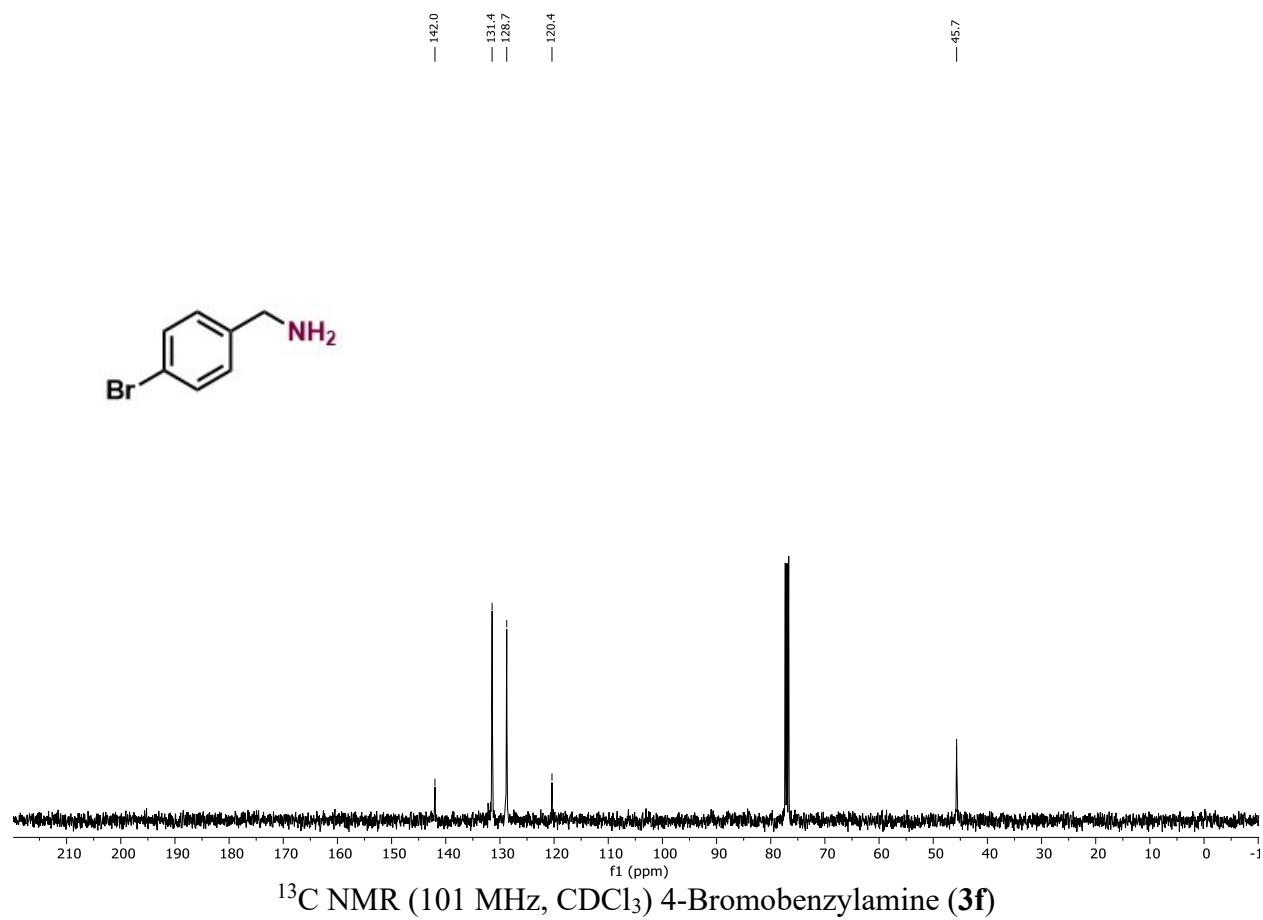


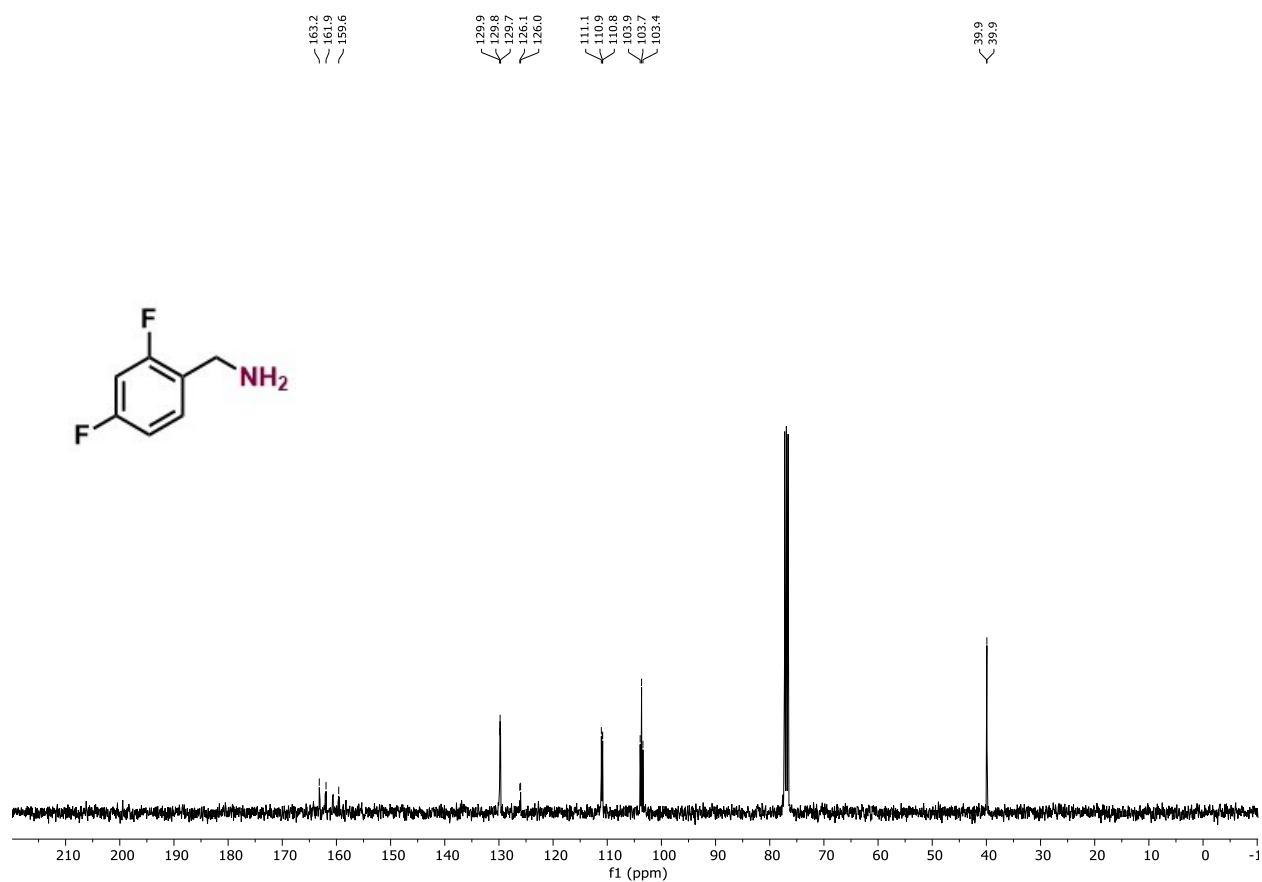
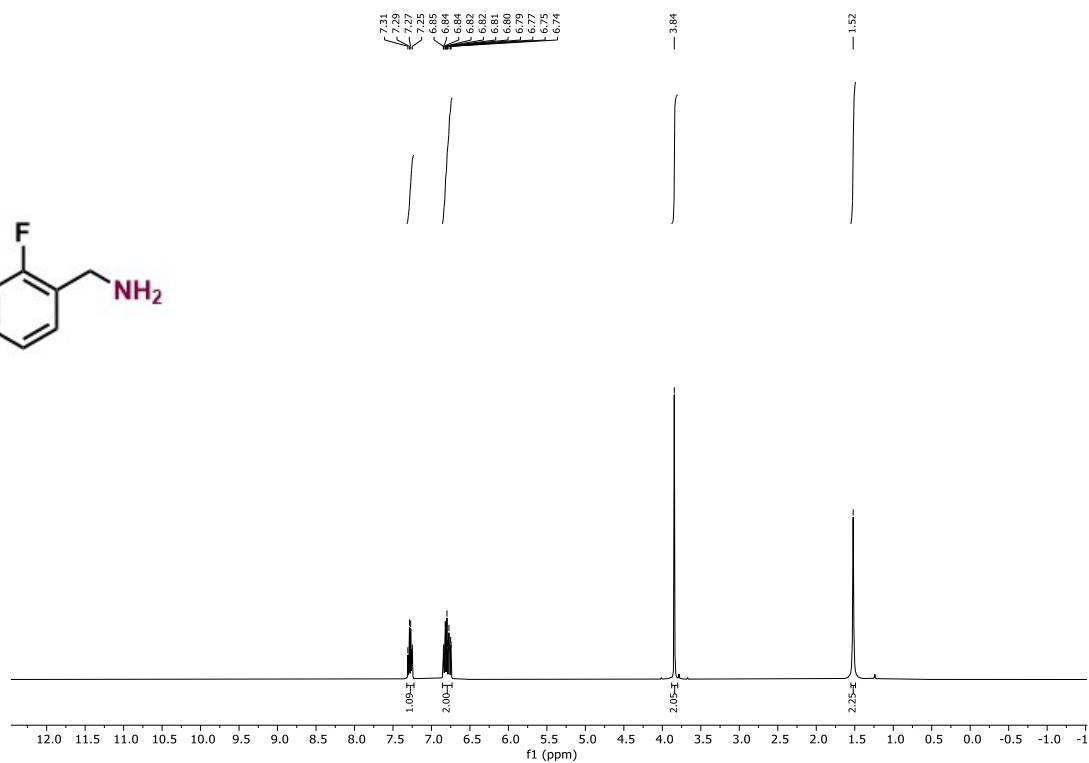
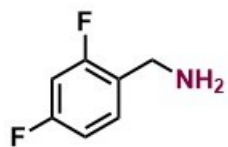
¹⁹F NMR (282 MHz, CDCl₃) 4-Fluorobenzylamine (**3d**)



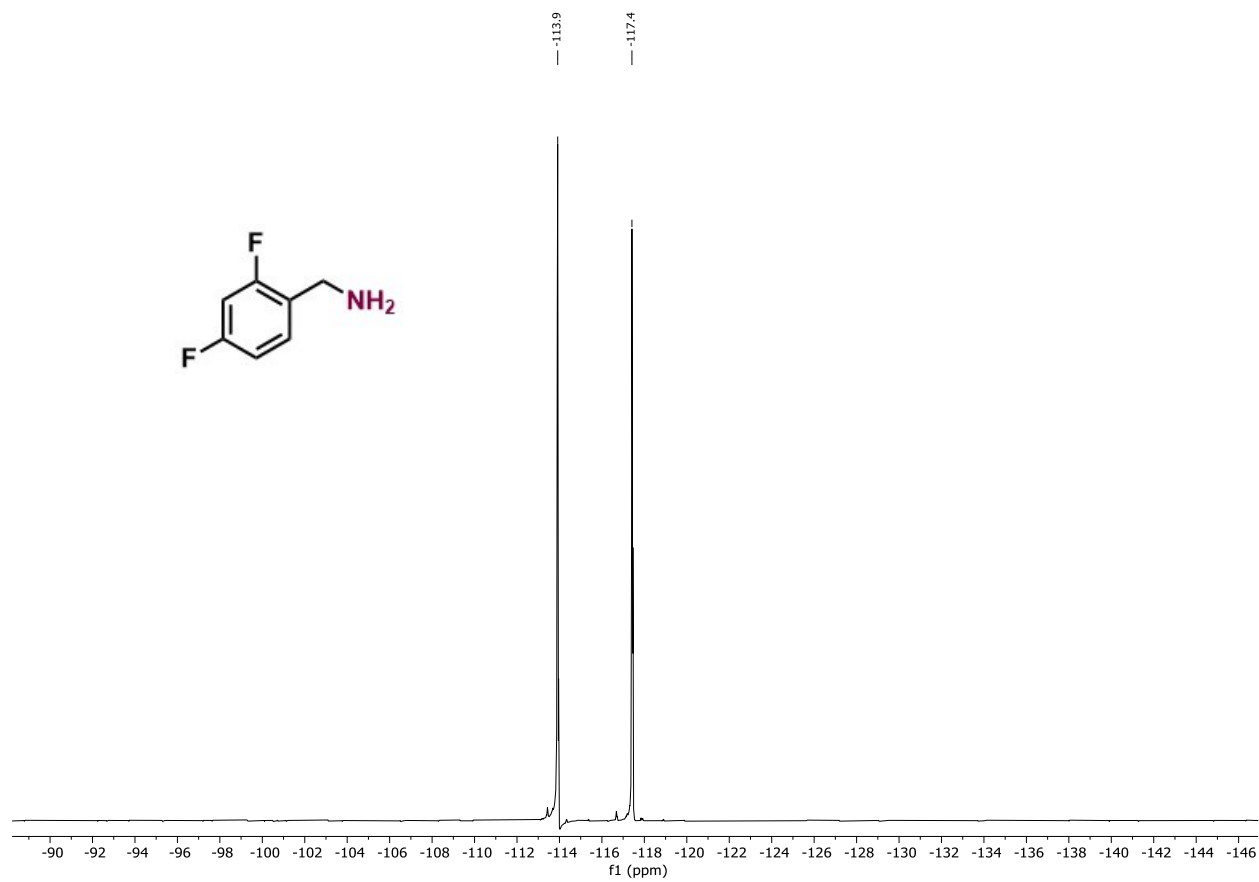
¹H NMR (400 MHz, CDCl₃) 4-Chlorobenzylamine (**3e**)



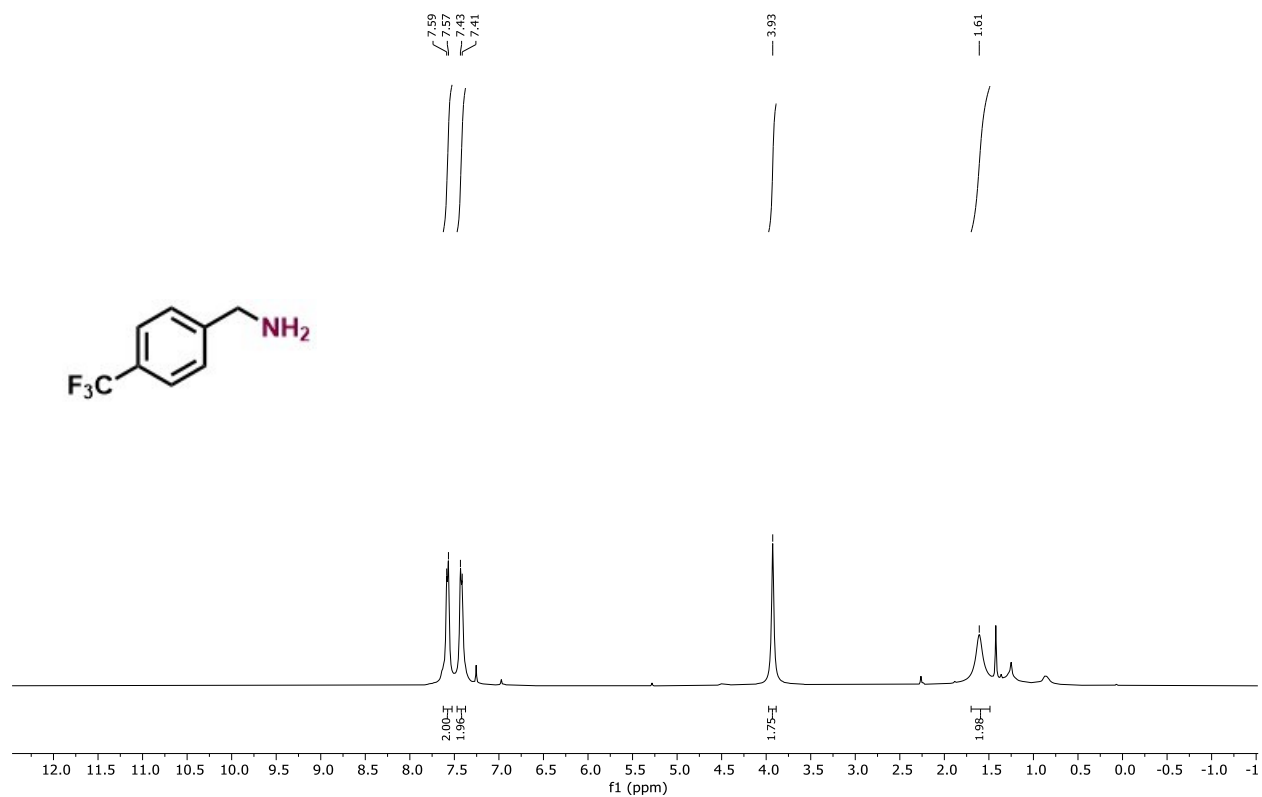




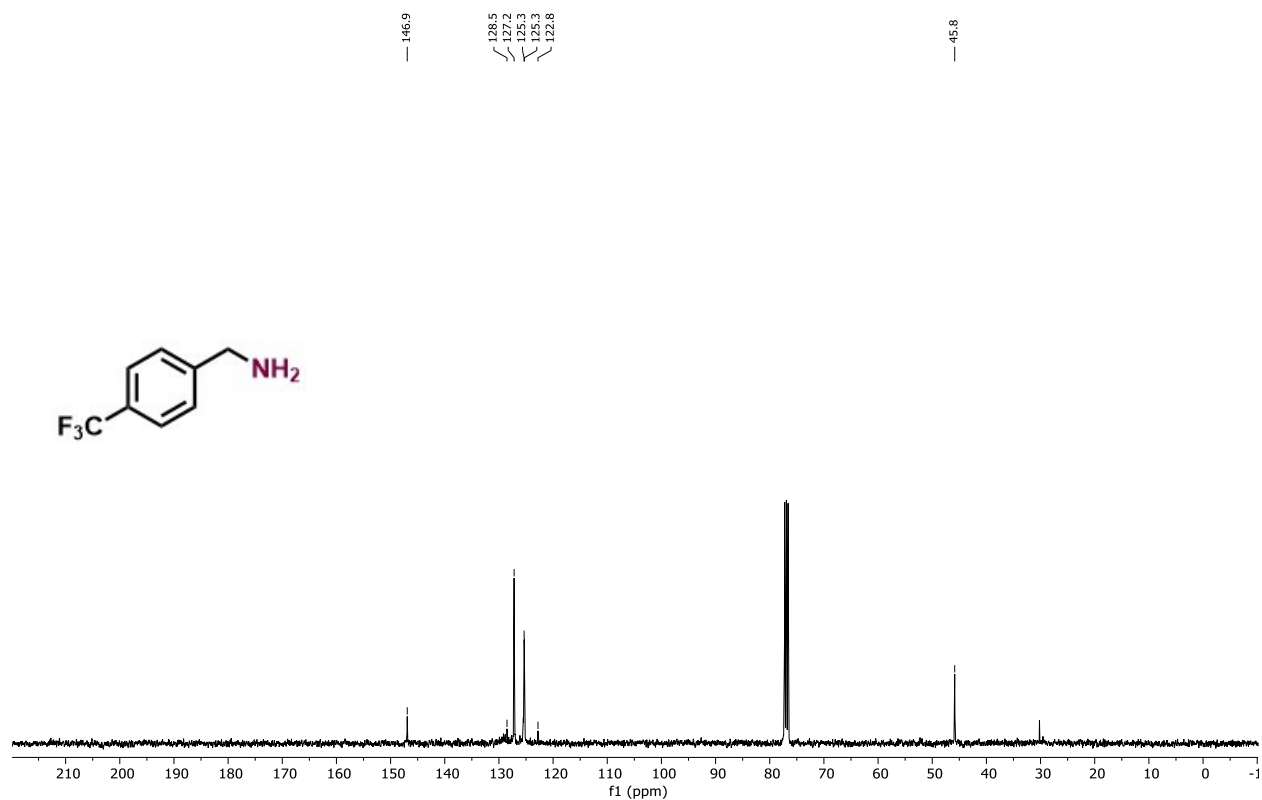
^{13}C NMR (101 MHz, CDCl_3) 2,4-Flourobenzylamine (**3g**)



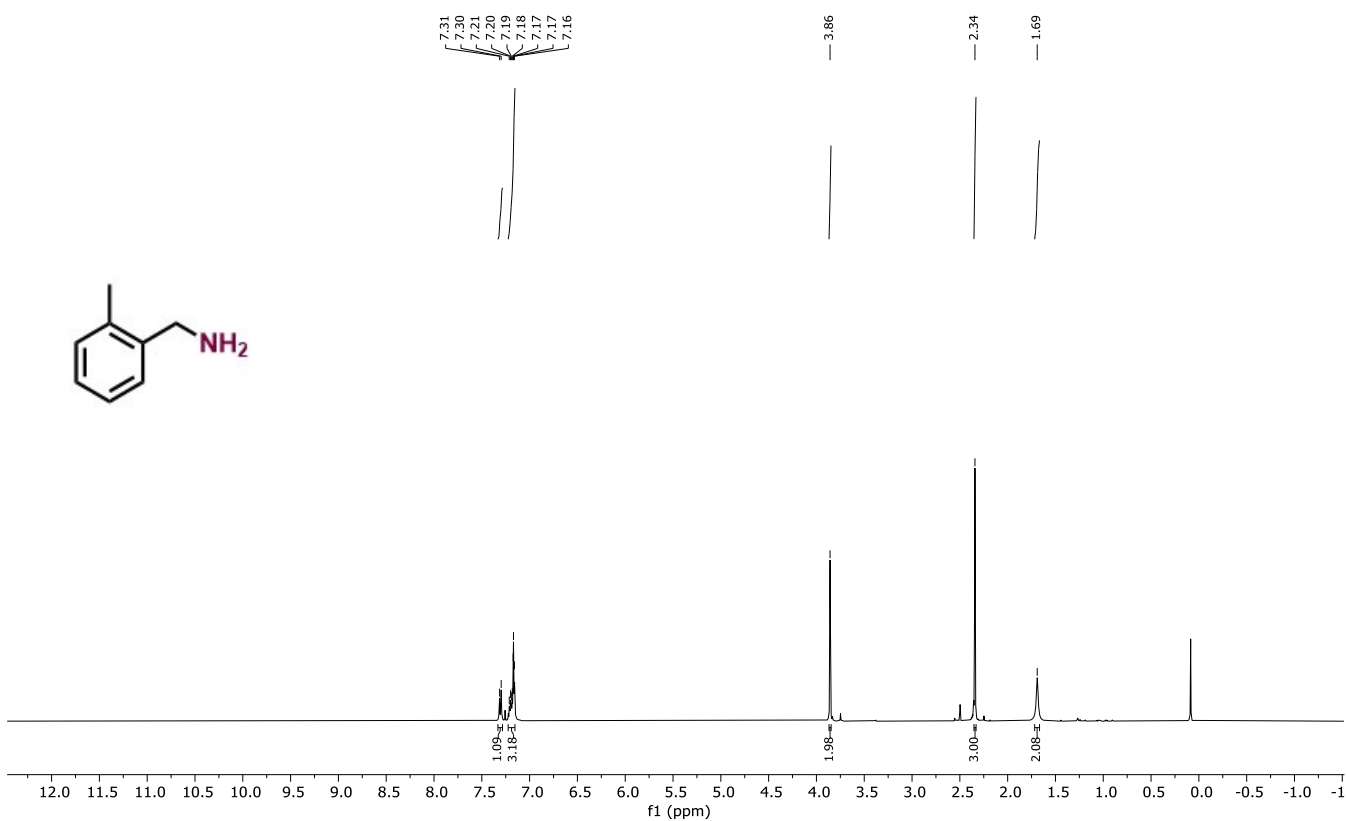
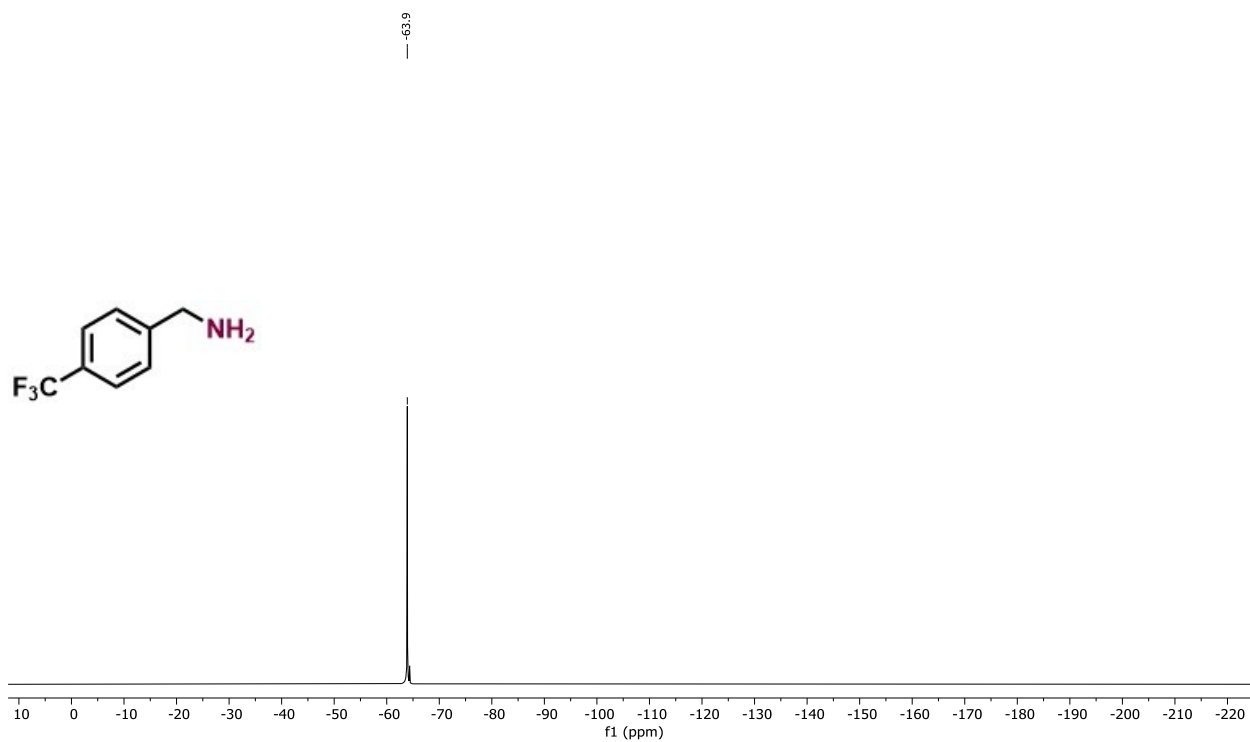
^{19}F NMR (282 MHz, CDCl_3) 2,4-Fluorobenzylamine (**3g**)

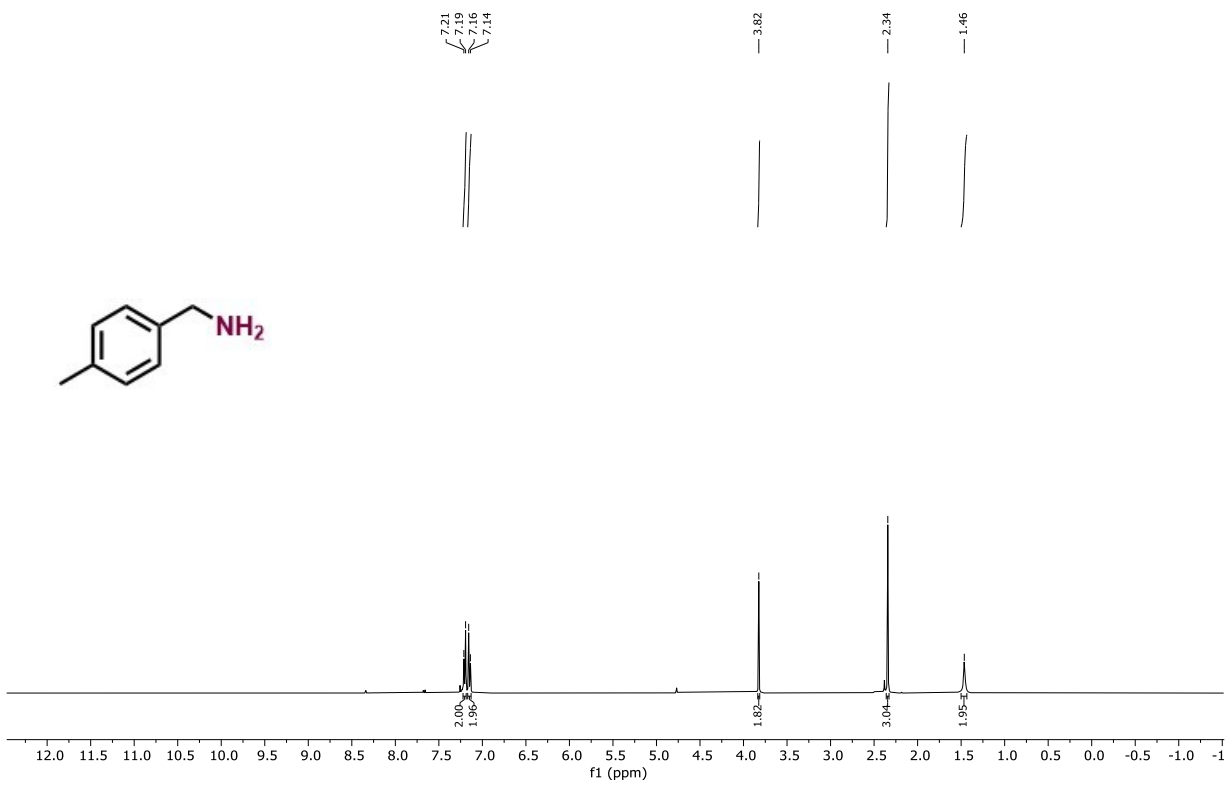
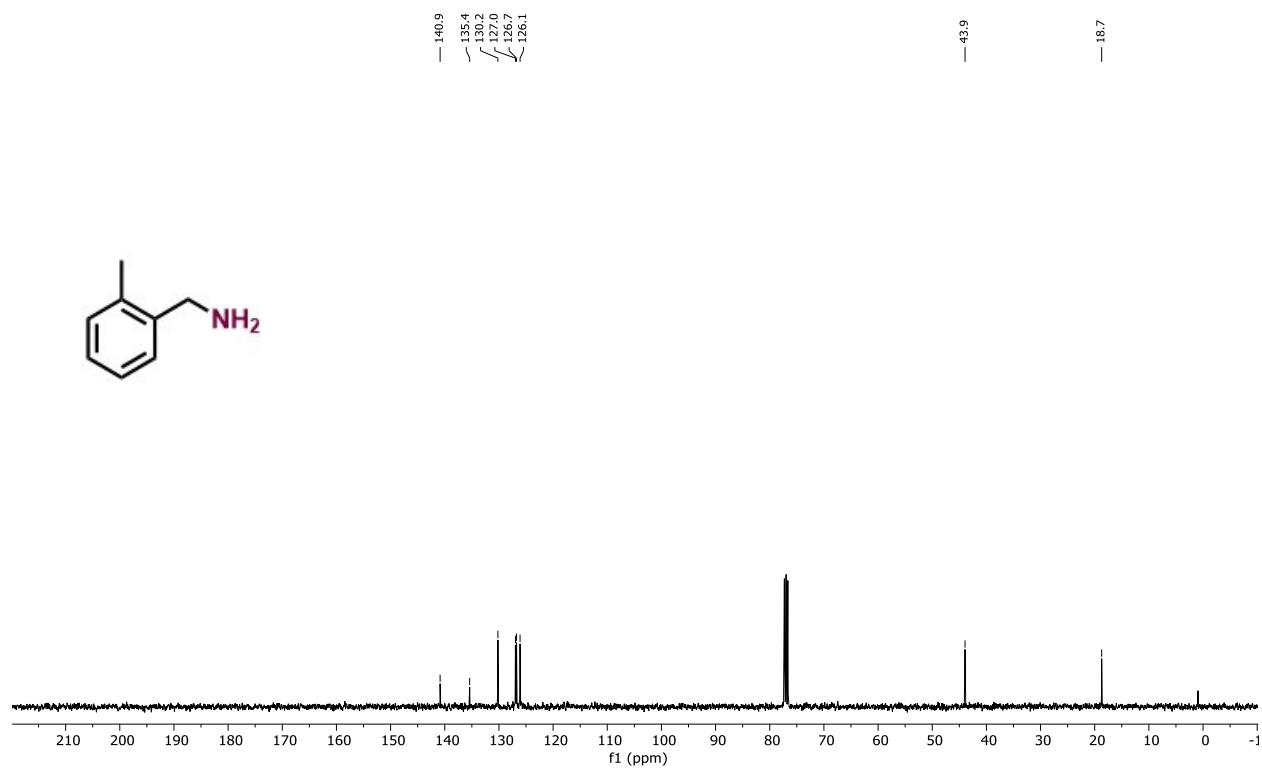


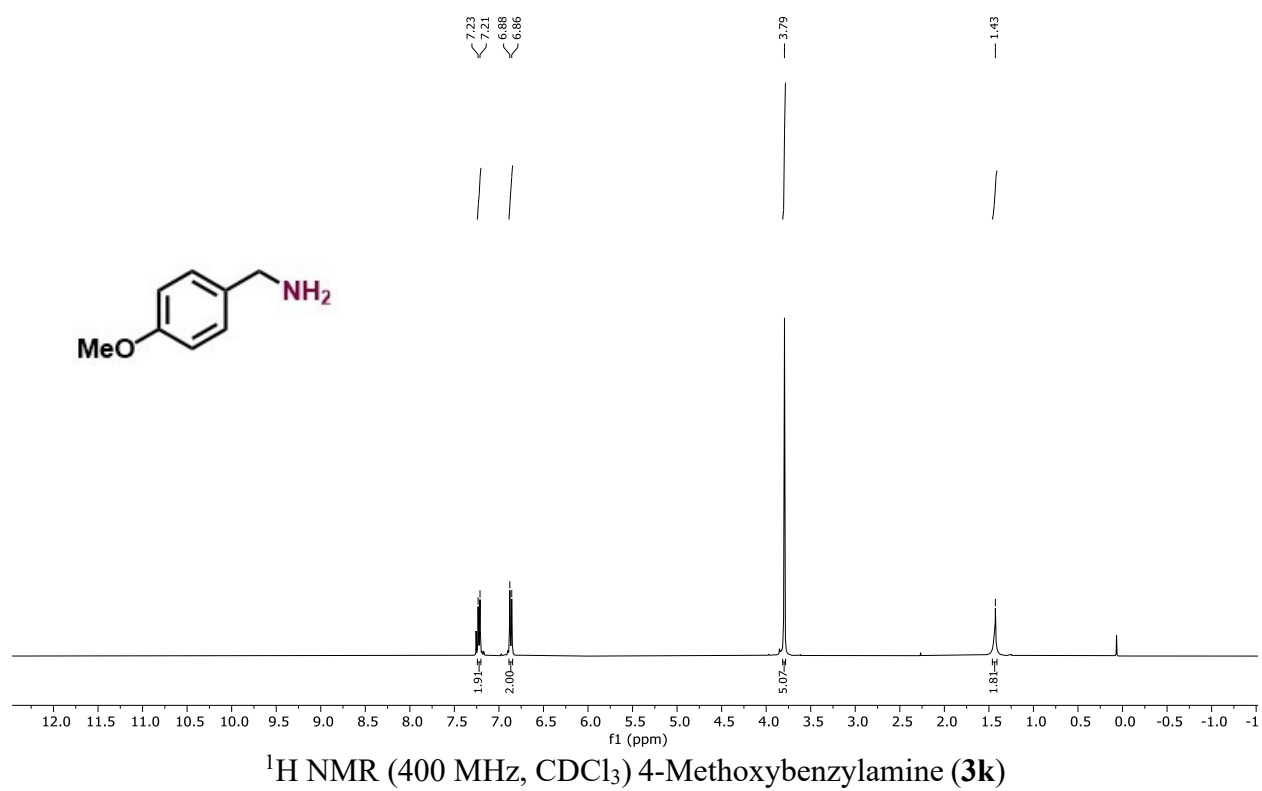
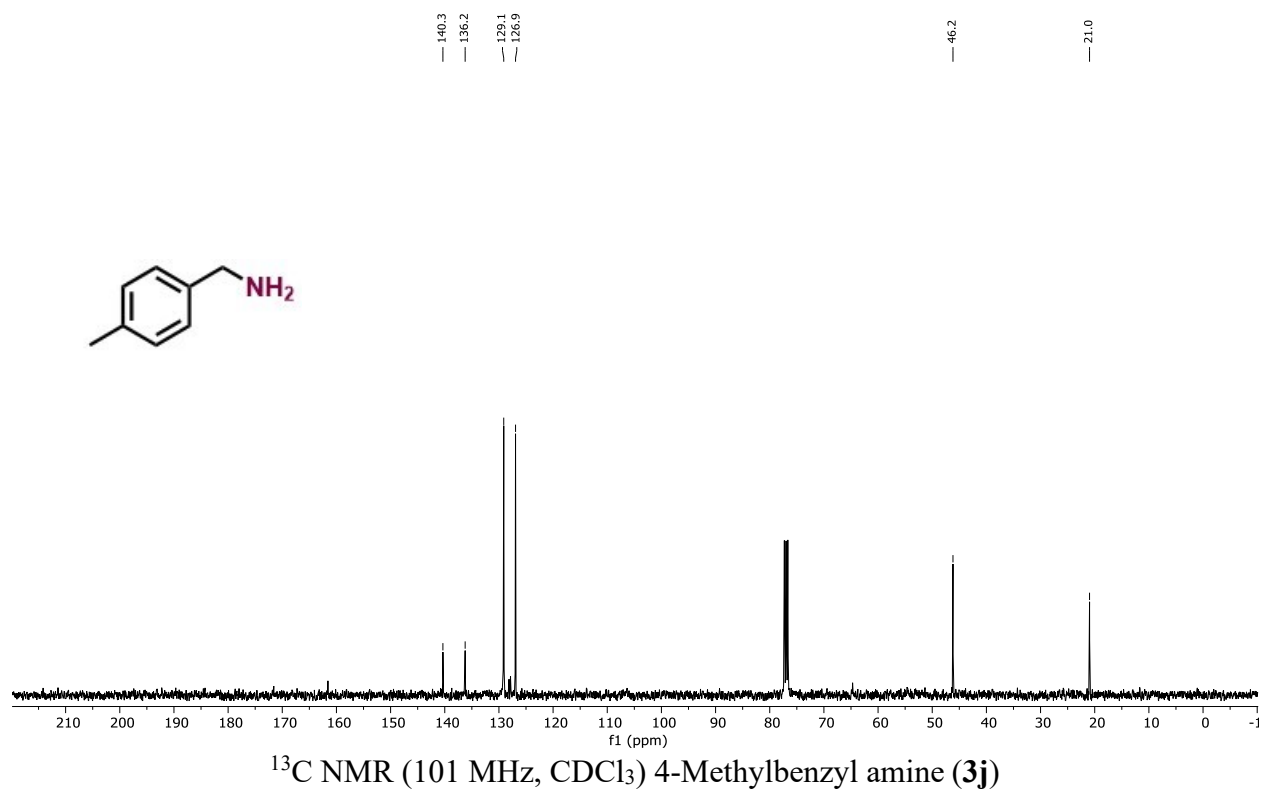
¹H NMR (400 MHz, CDCl₃) (4-(Trifluoromethyl)phenyl)methanamine (**3h**)

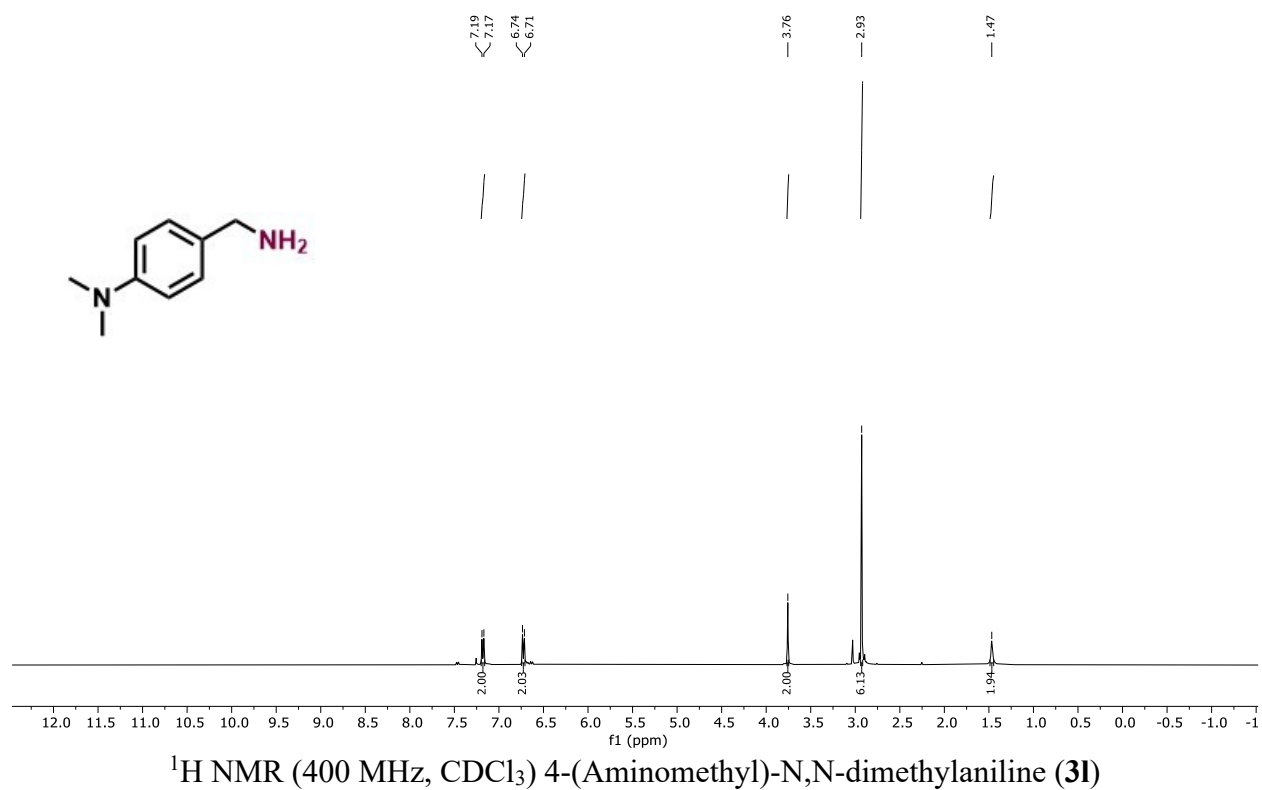
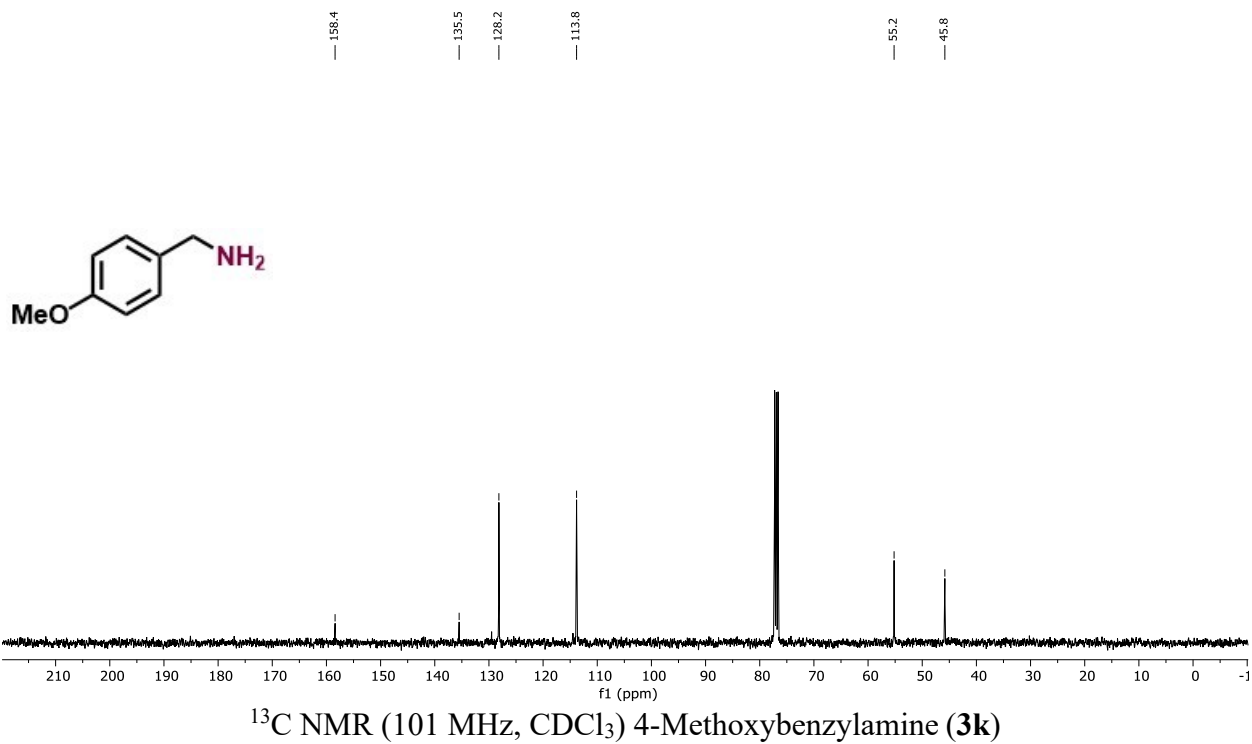


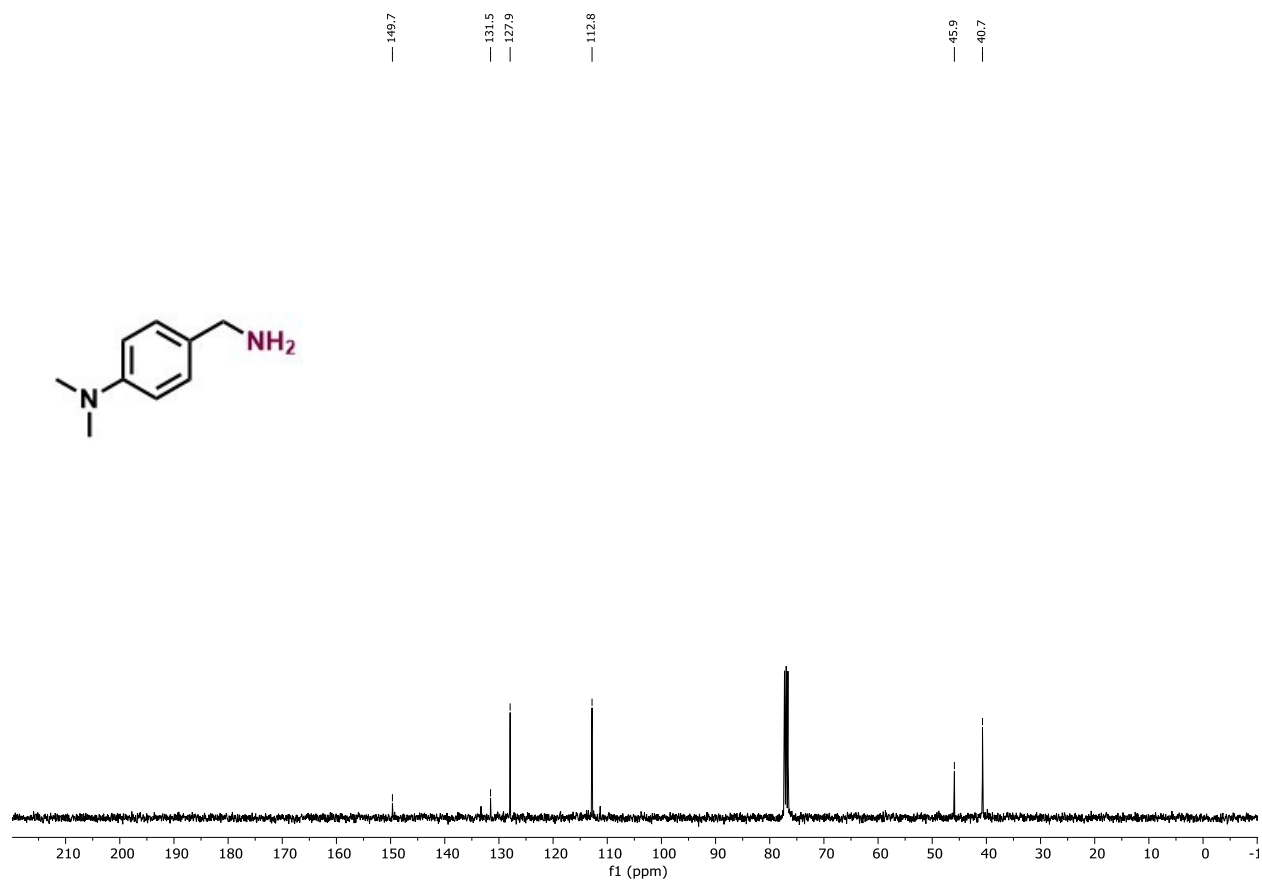
¹³C NMR (101 MHz, CDCl₃) (4-(Trifluoromethyl)phenyl)methanamine (**3h**)



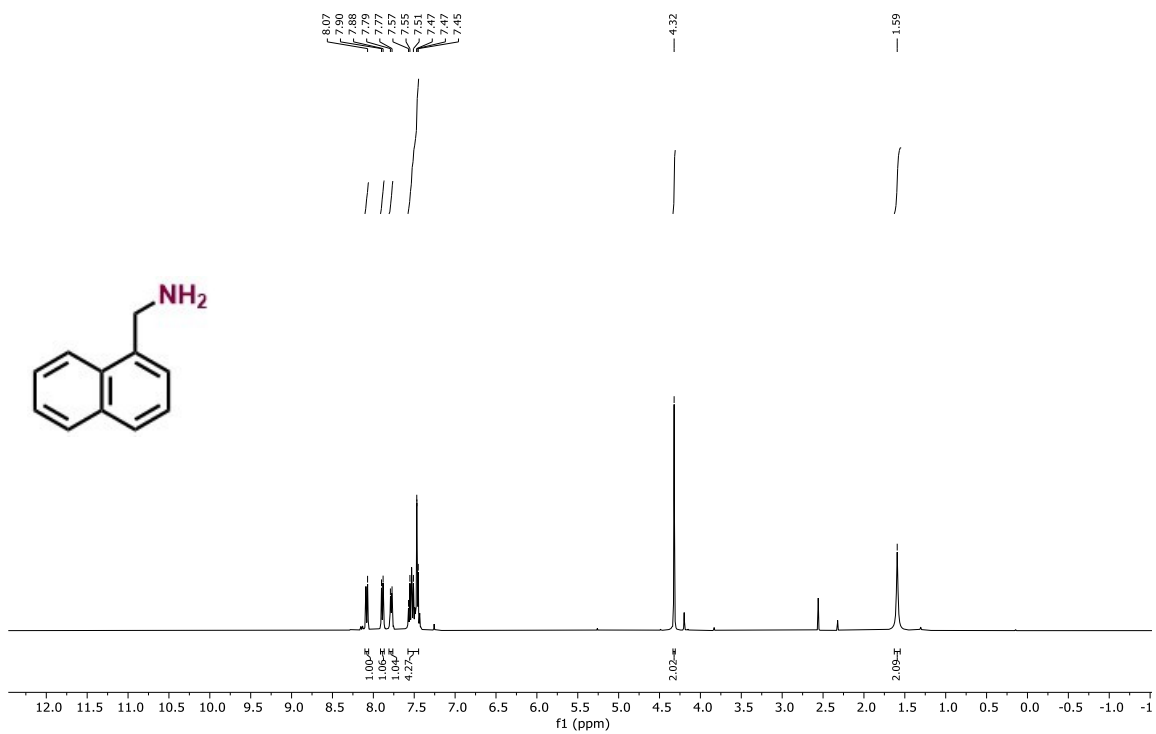




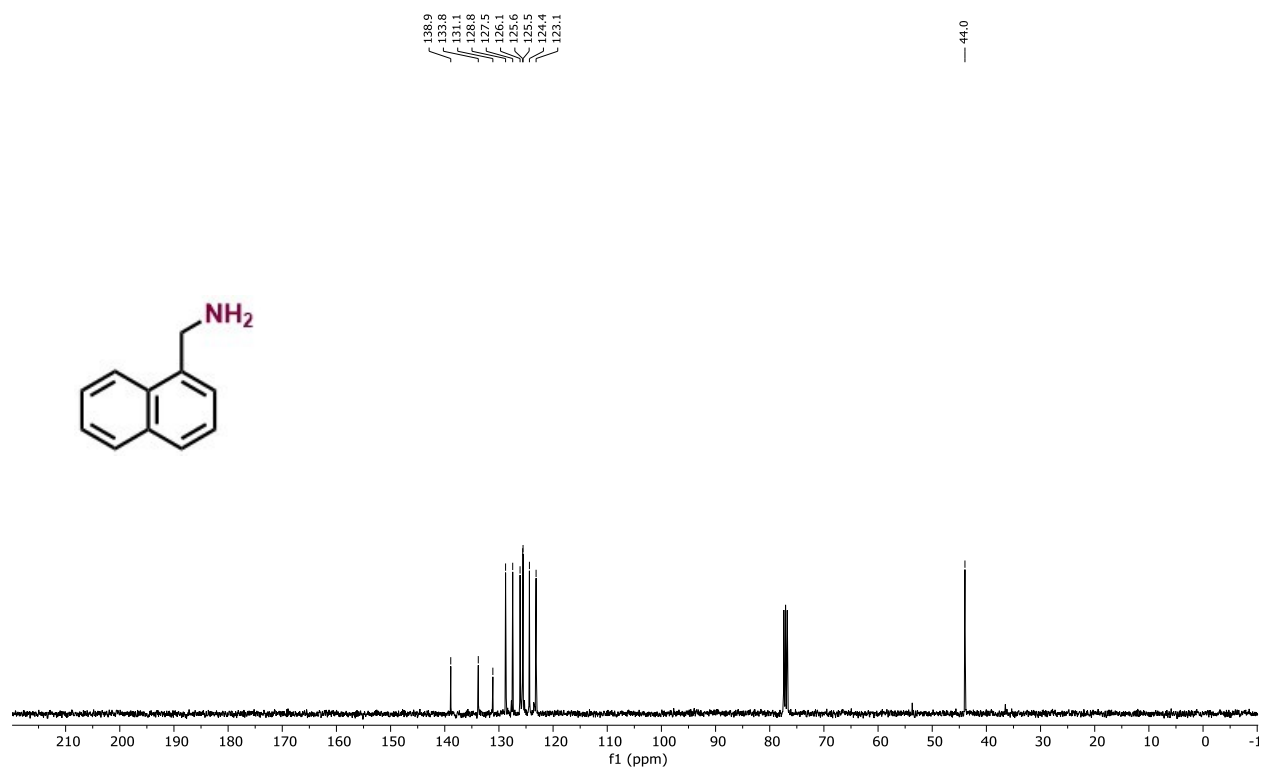




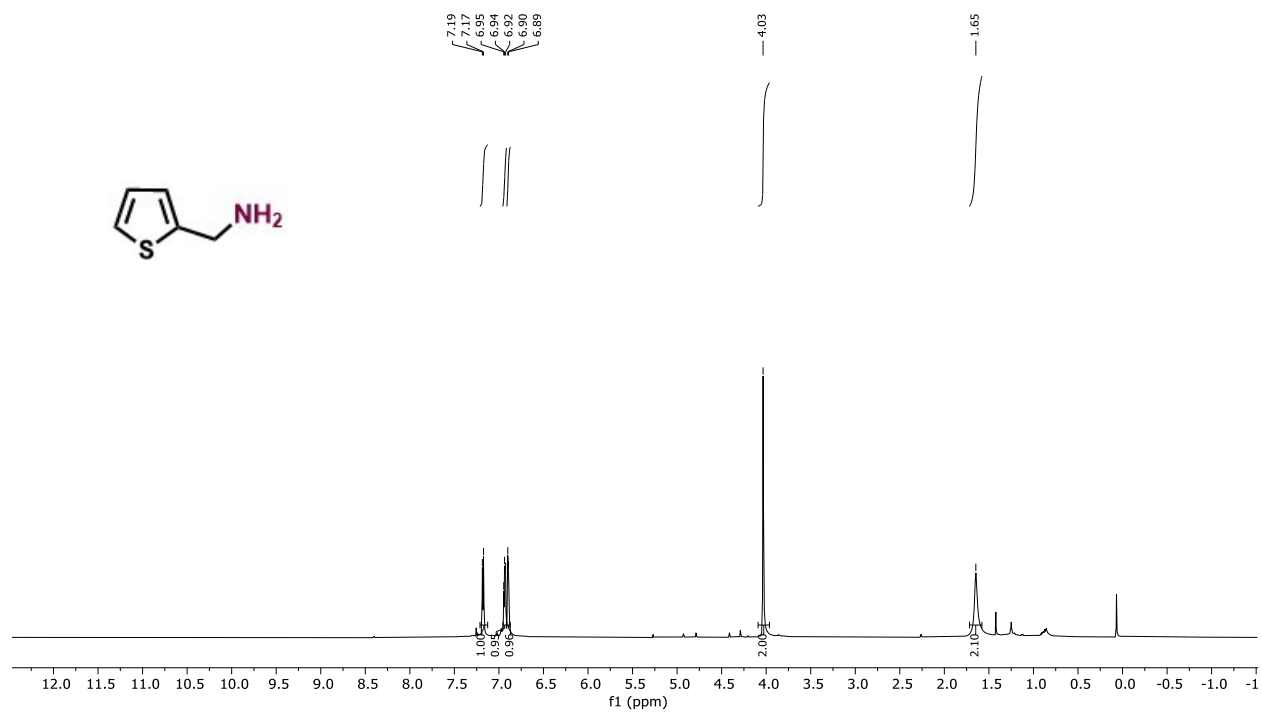
¹³C NMR (101 MHz, CDCl₃) 4-(Aminomethyl)-N,N-dimethylaniline (**3I**)



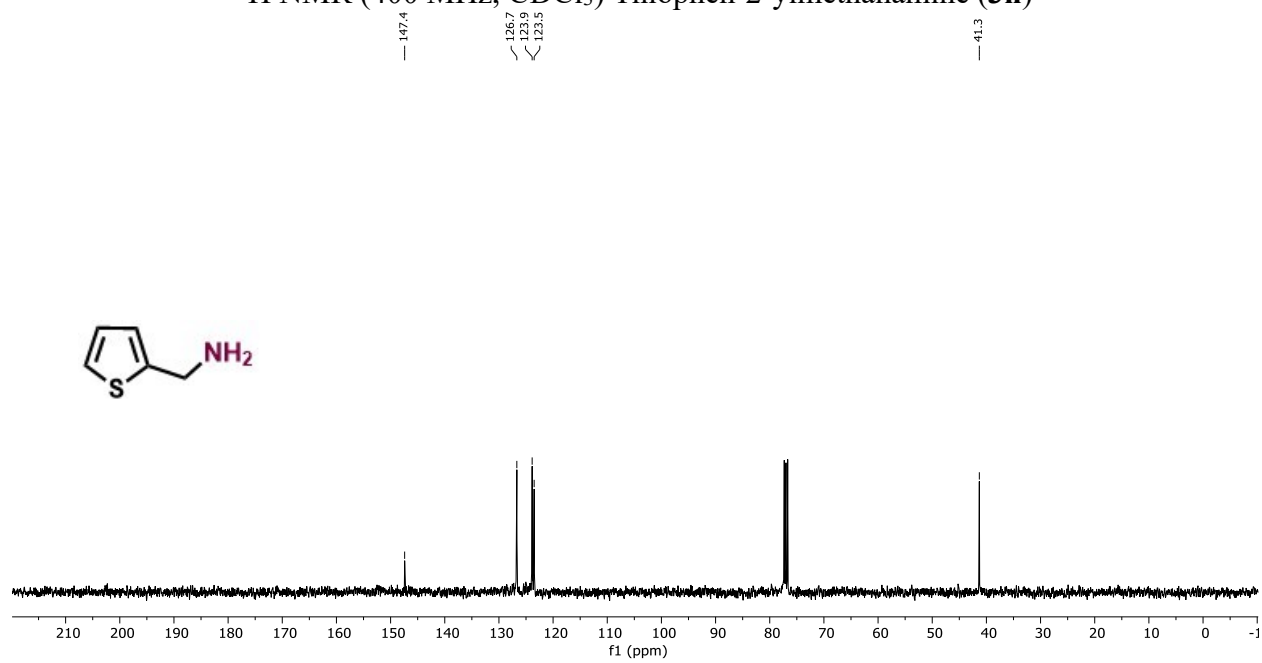
^1H NMR (400 MHz, CDCl_3) Naphthalen-1-ylmethanamine (**3m**)



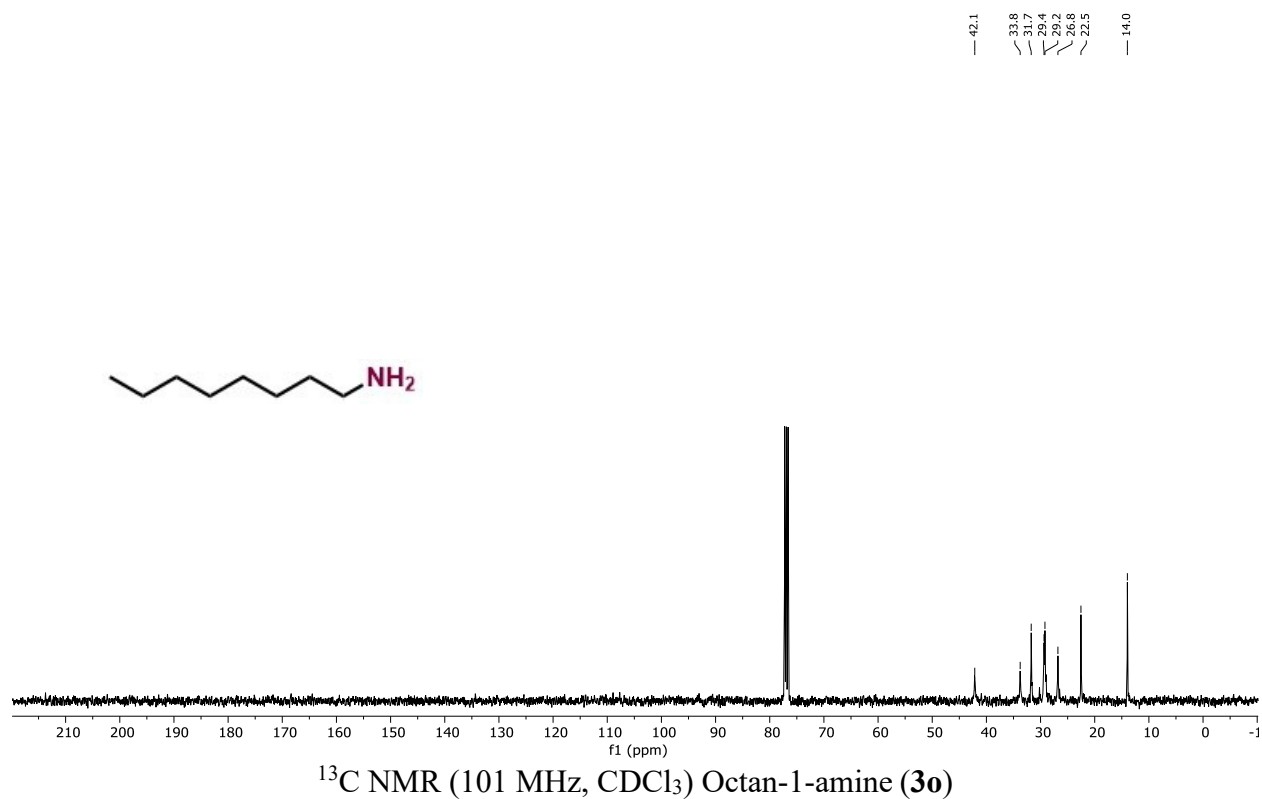
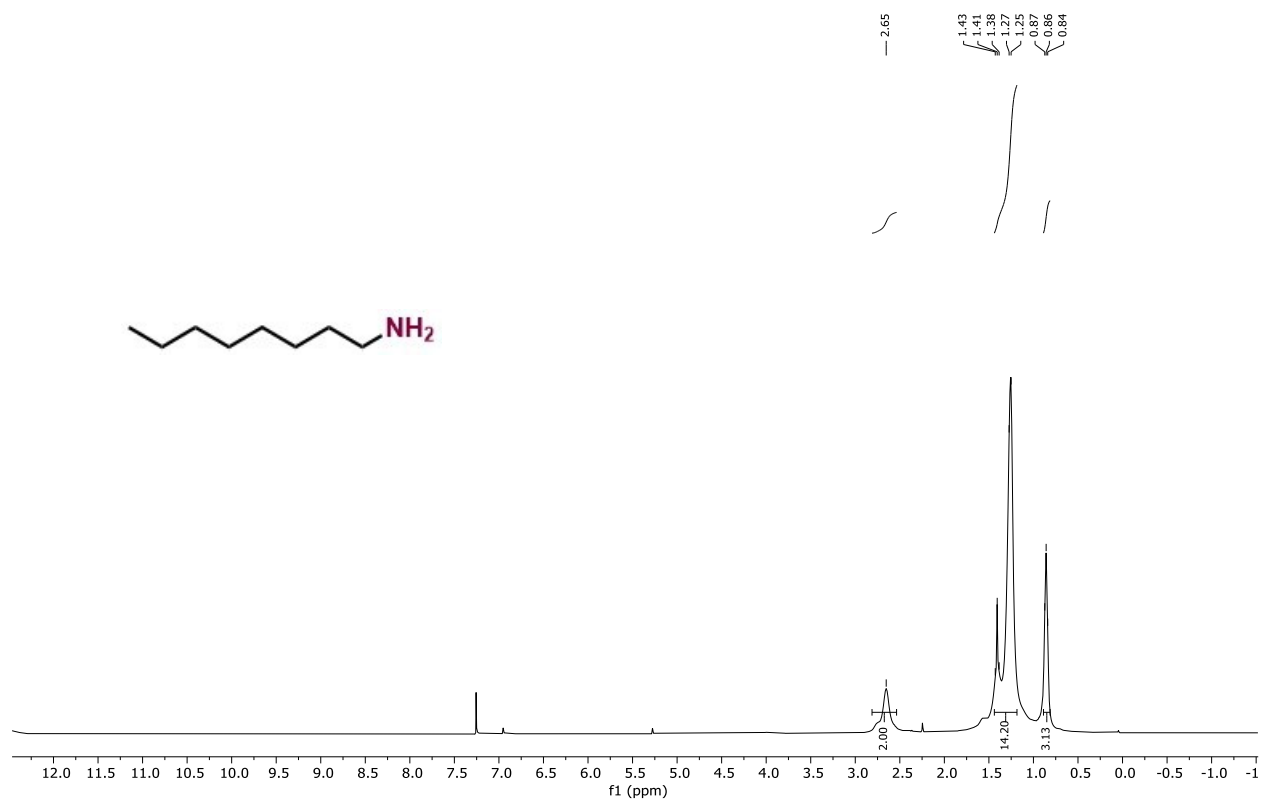
^{13}C NMR (101 MHz, CDCl_3) Naphthalen-1-ylmethanamine (**3m**)

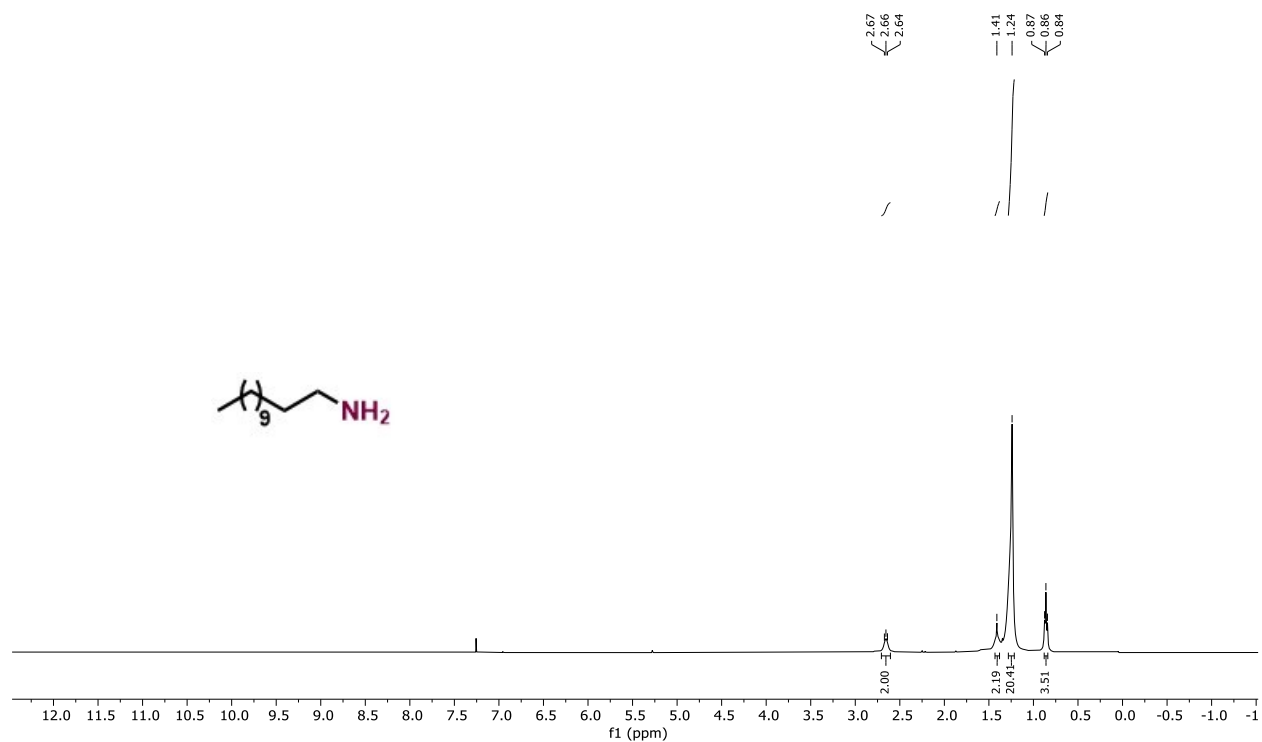


^1H NMR (400 MHz, CDCl_3) Thiophen-2-ylmethanamine (**3n**)

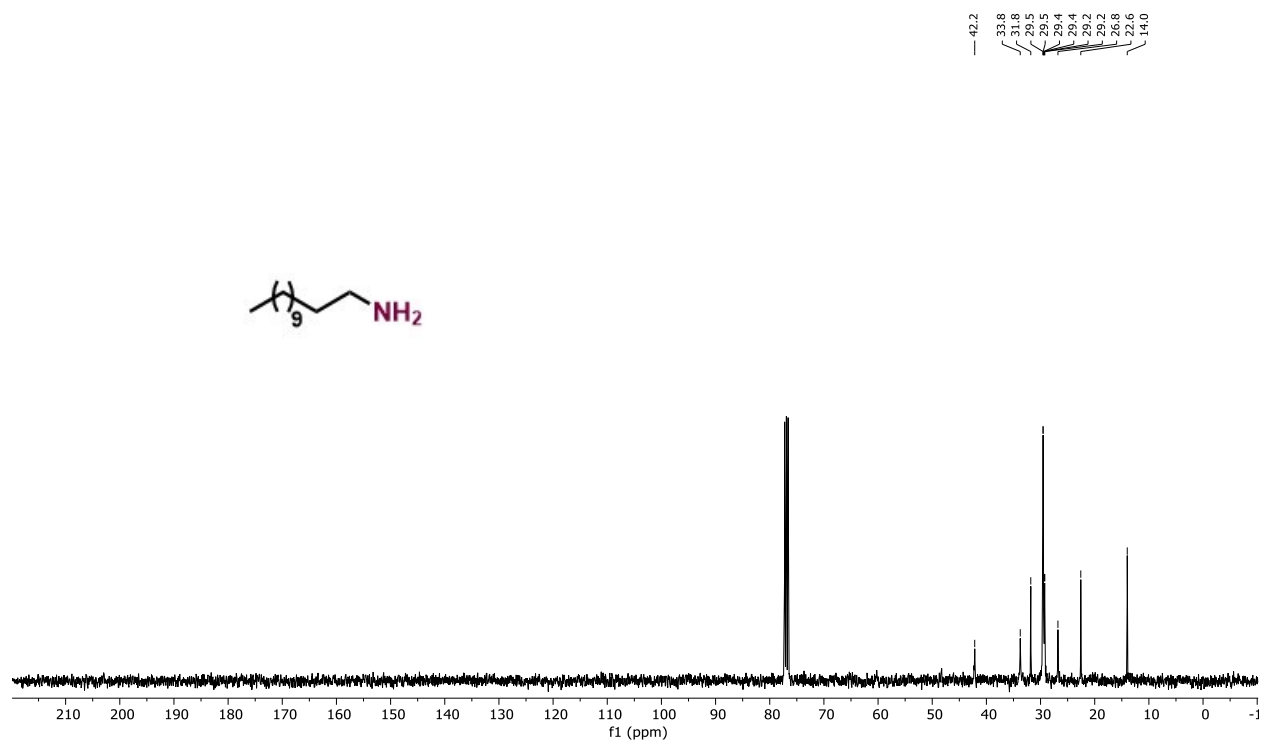


^{13}C NMR (101 MHz, CDCl_3) Thiophen-2-ylmethanamine (**3n**)

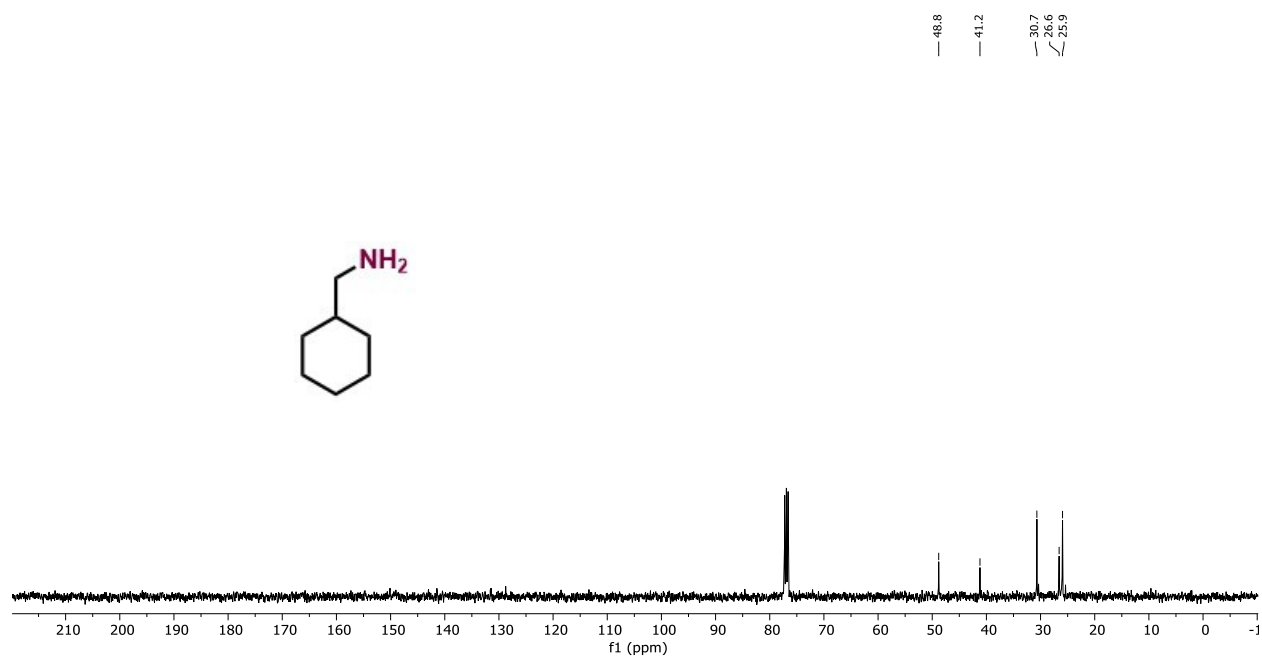
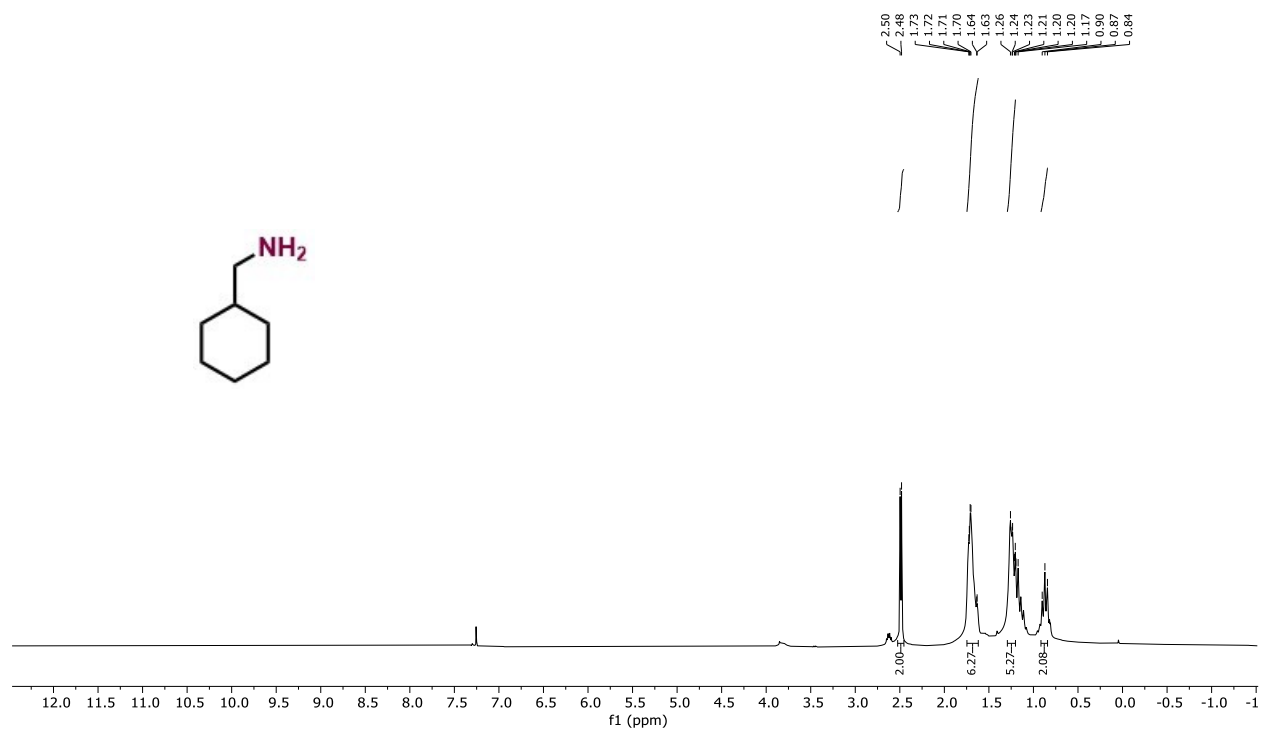


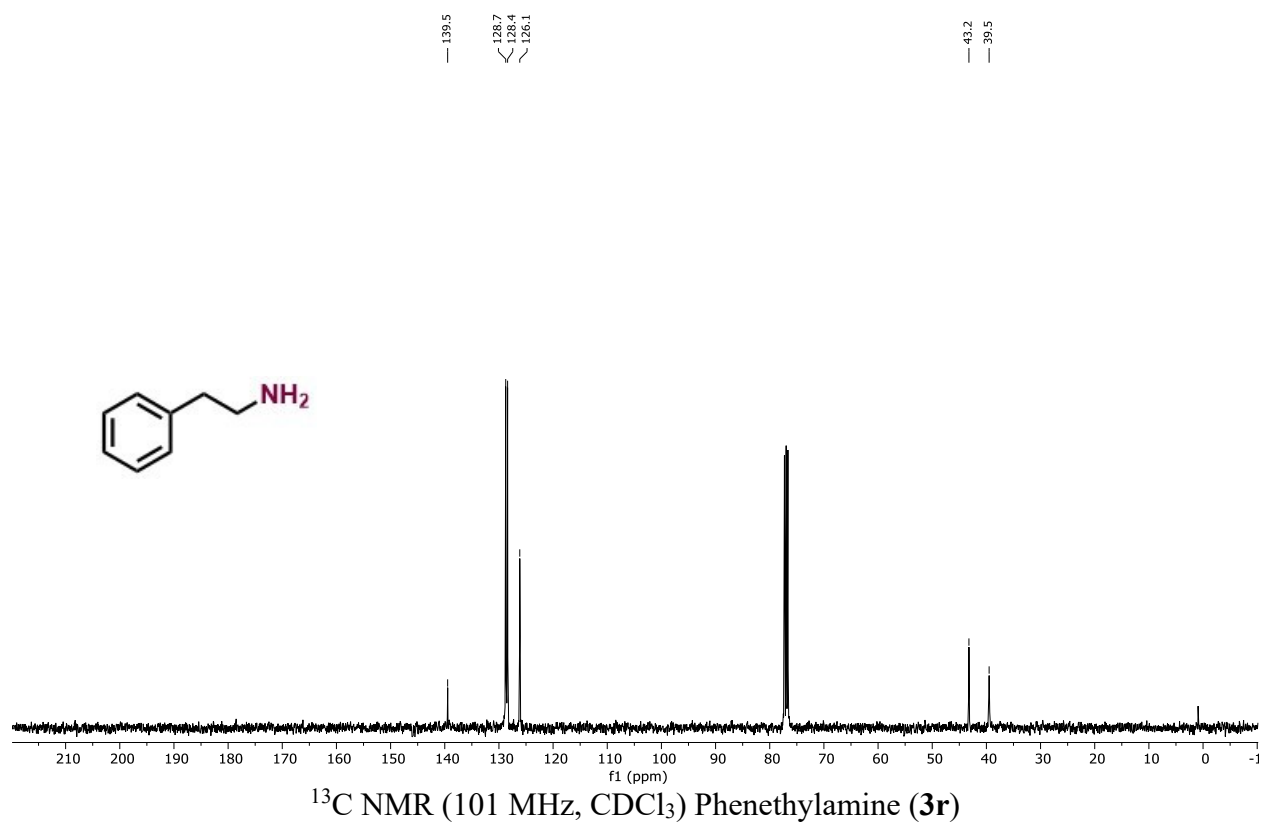
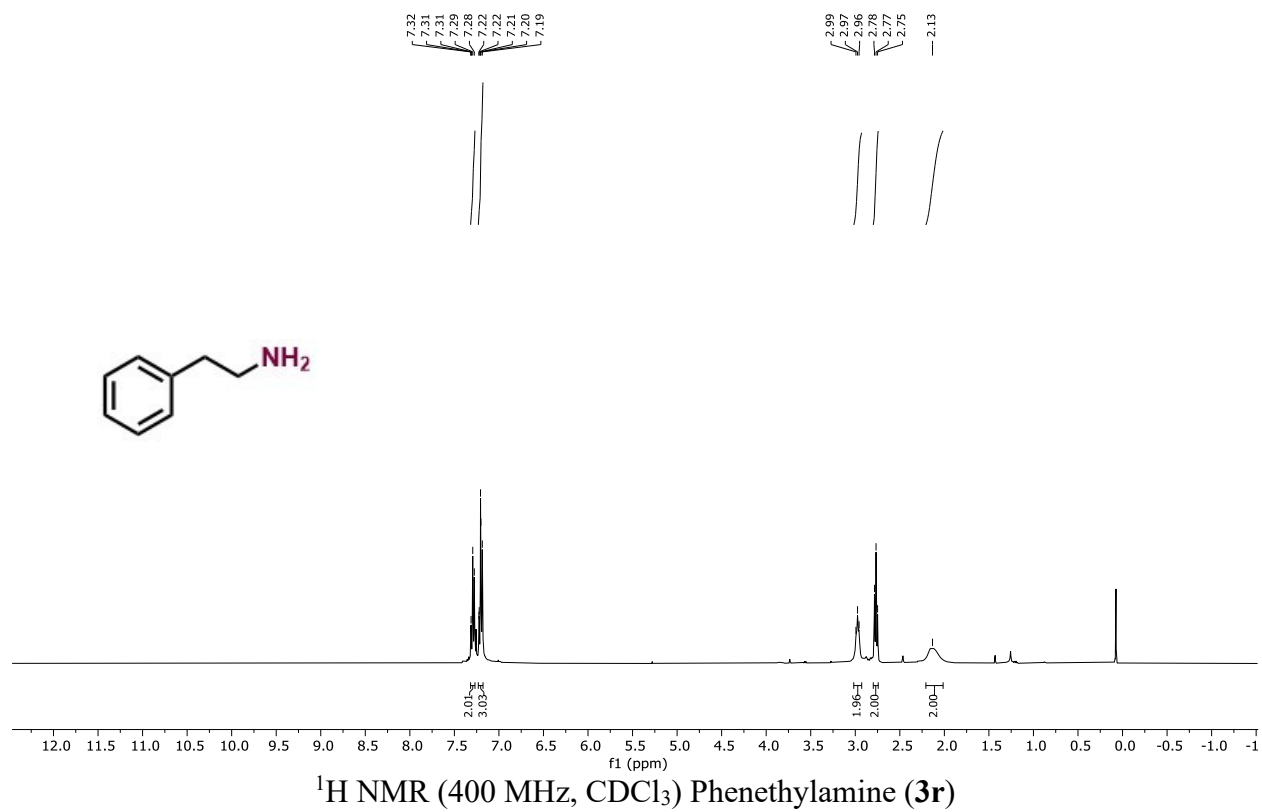


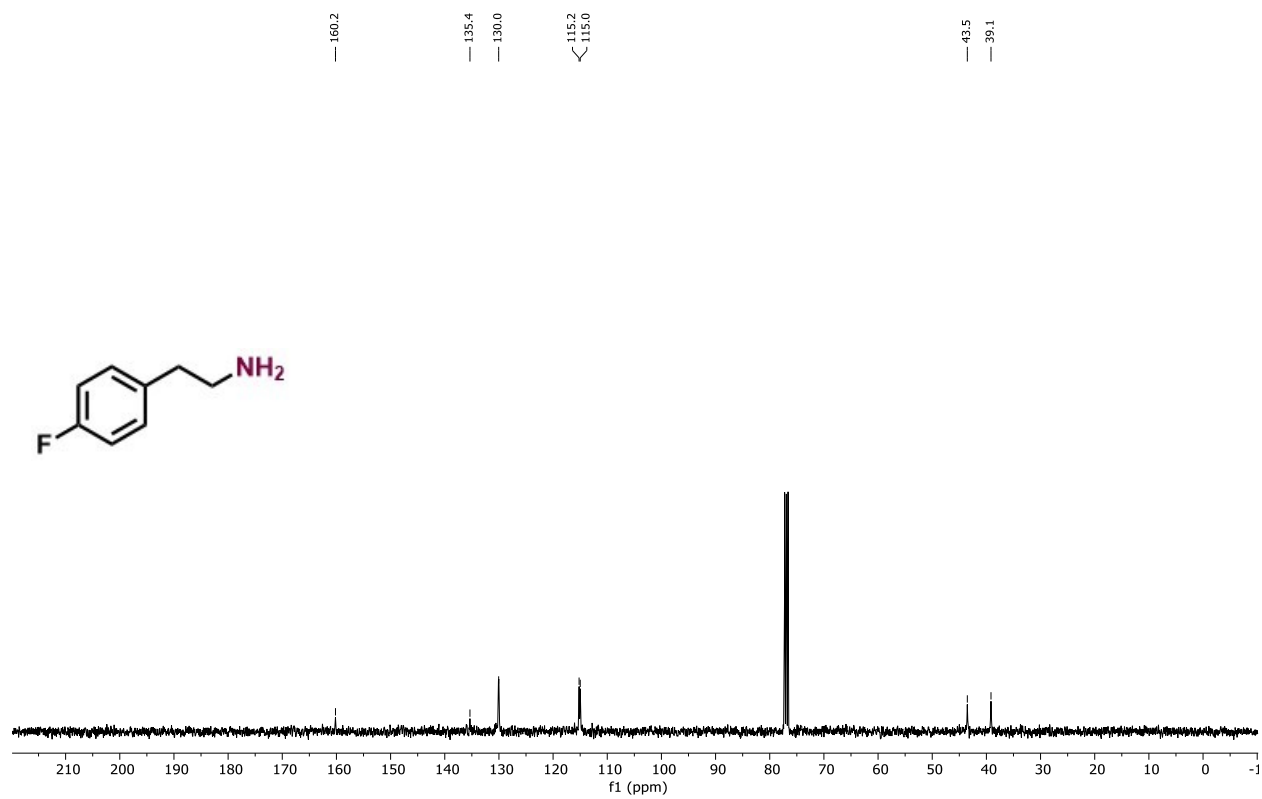
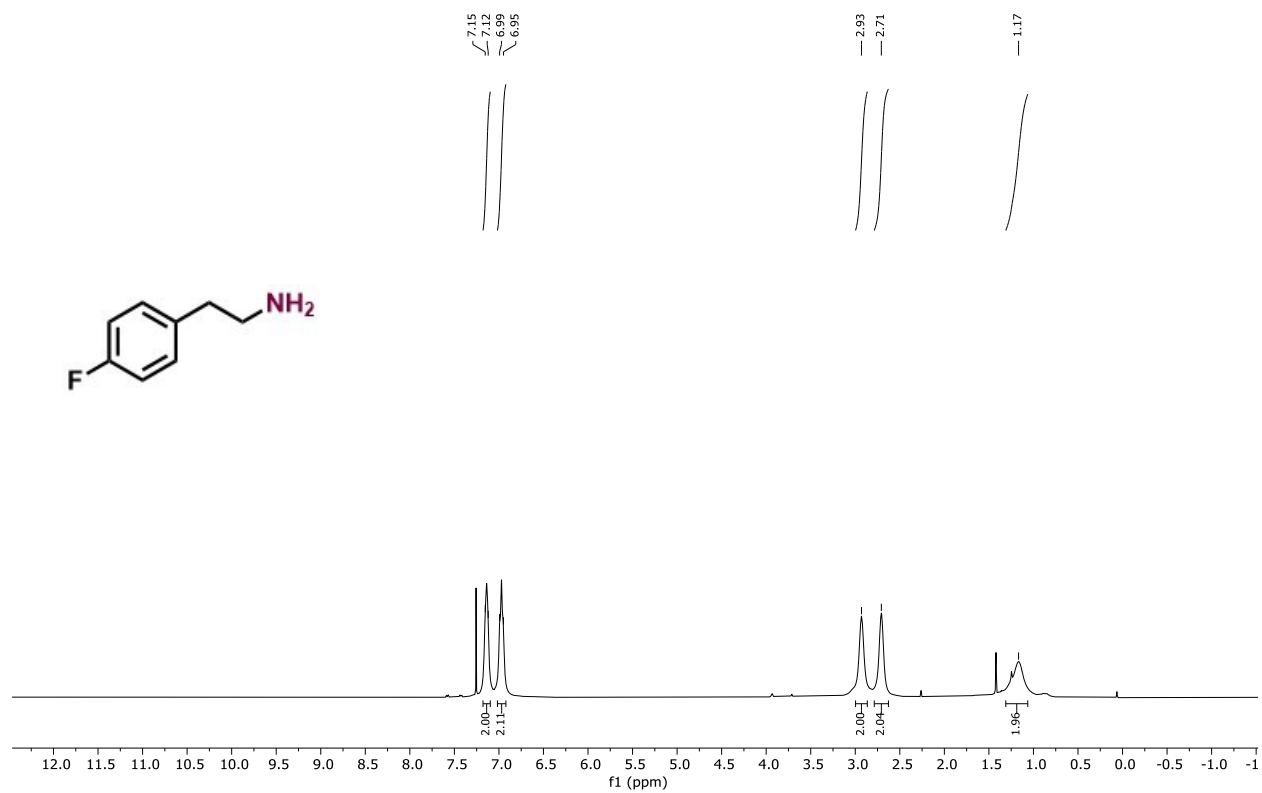
^1H NMR (400 MHz, CDCl_3) Dodecan-1-amine (**3p**)



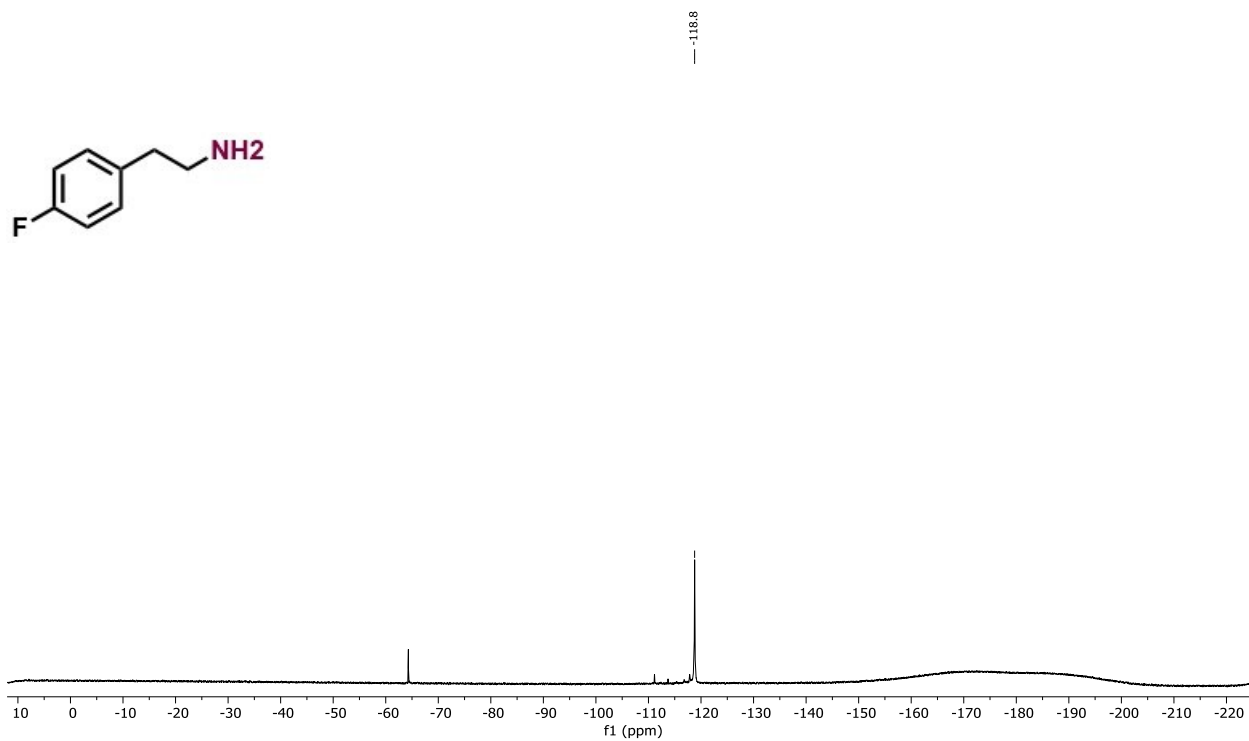
^{13}C NMR (101 MHz, CDCl_3) Dodecan-1-amine (**3p**)







^{13}C NMR (101 MHz, CDCl_3) 2-(4-Fluorophenyl)ethan-1-amine (**3s**)



^{19}F NMR (282 MHz, CDCl_3) 2-(4-Fluorophenyl)ethan-1-amine (**3s**)

