

Supporting Information for

Iridium-Catalyzed Single-Step *N*-Substituted Lactam Synthesis from Lactones and Amines

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Content

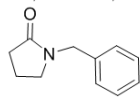
A. NMR and IR Spectra ----- S2

B. ¹H NMR Spectra of Kinetic Study in Figure 1 ----- S19

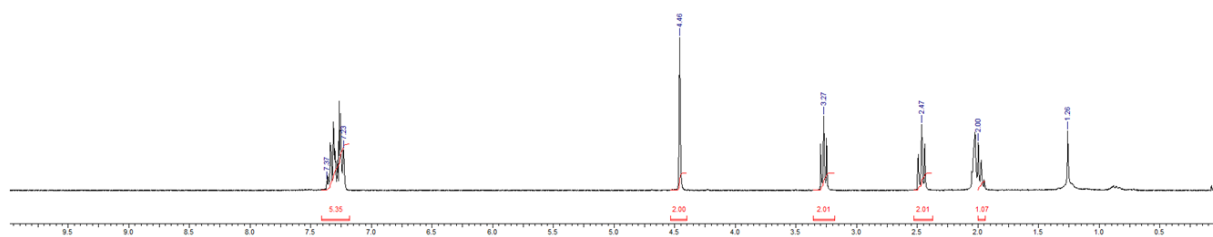
A. NMR and IR spectra

1. ^1H NMR (3aa)

(^1H NMR, 300 MHz, CDCl_3)

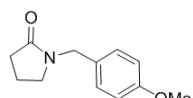


3aa

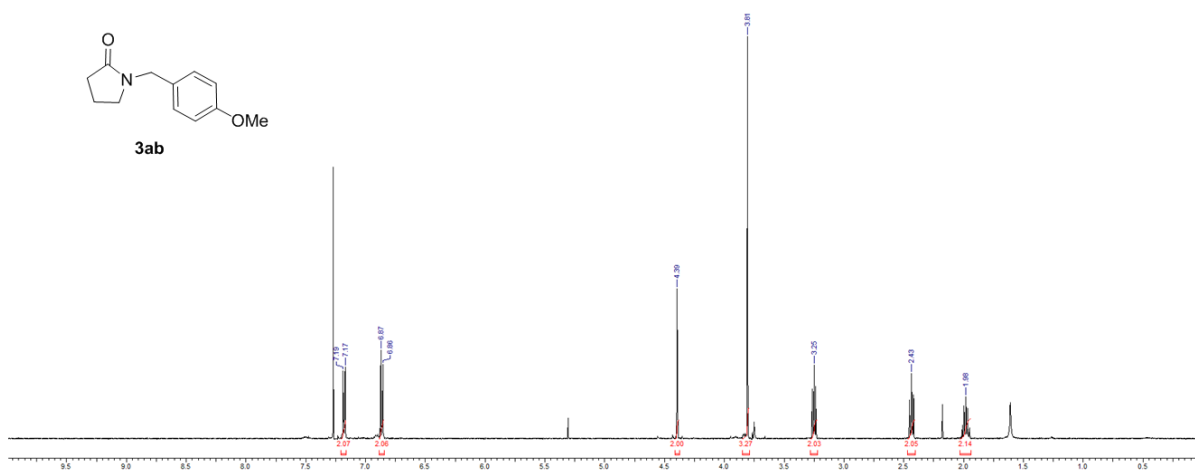


2. ^1H NMR (3ab)

(^1H NMR, 499 MHz, CDCl_3)

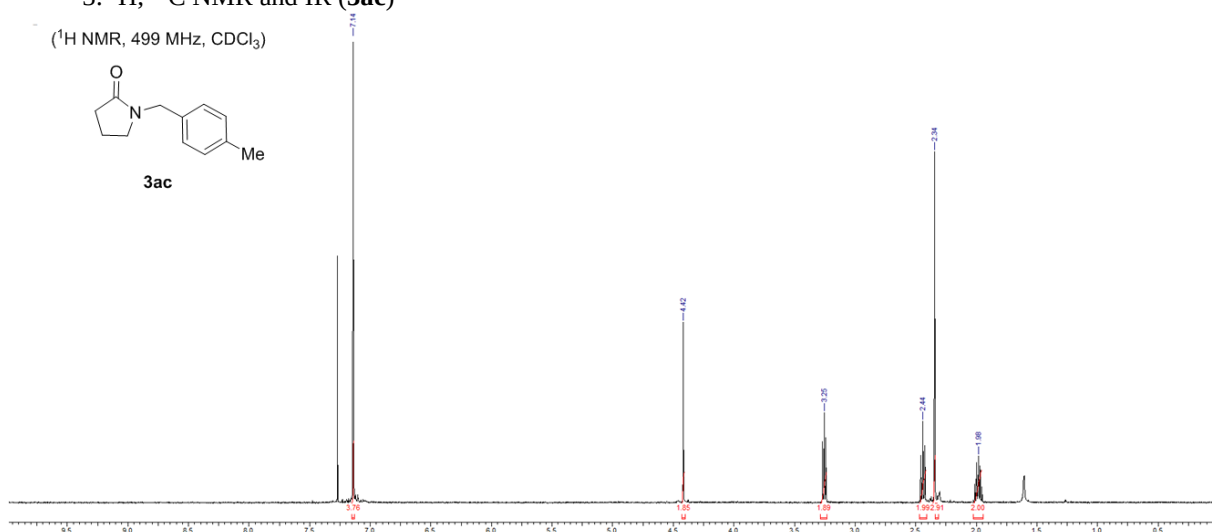
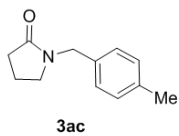


3ab

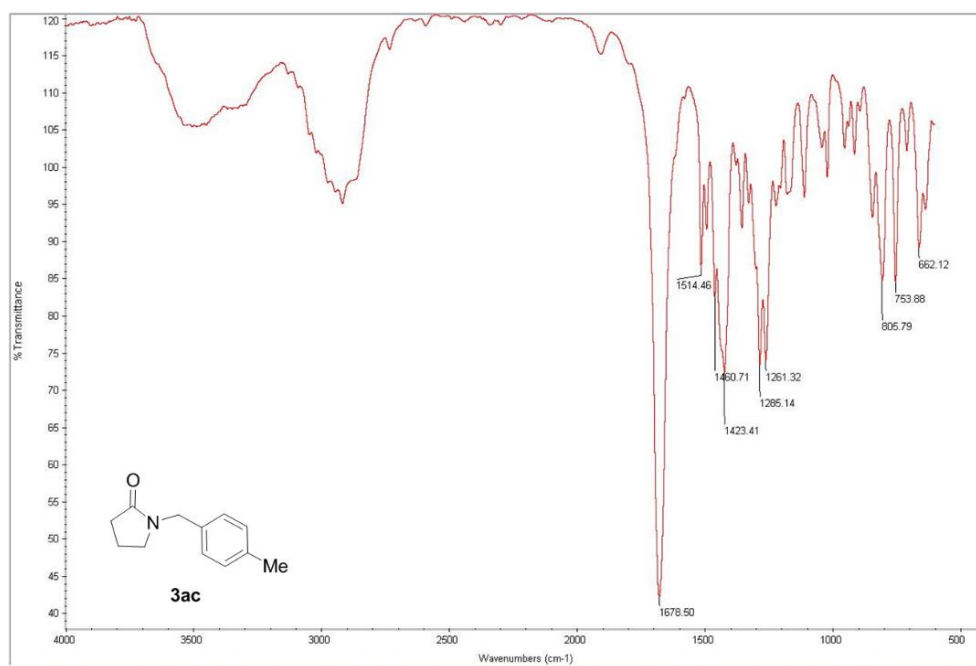
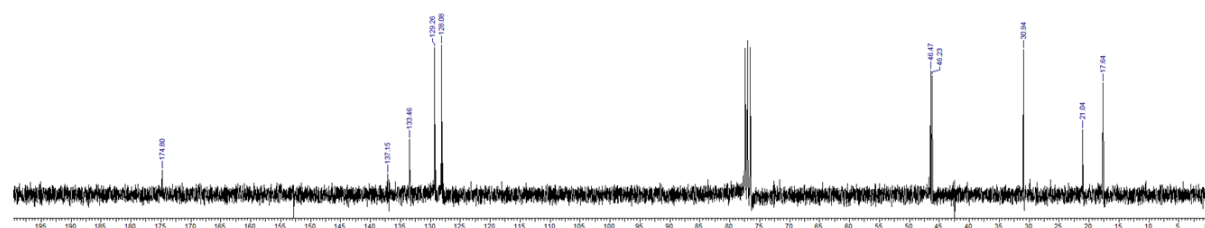
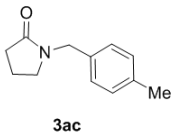


3. ^1H , ^{13}C NMR and IR (3ac)

(^1H NMR, 499 MHz, CDCl_3)

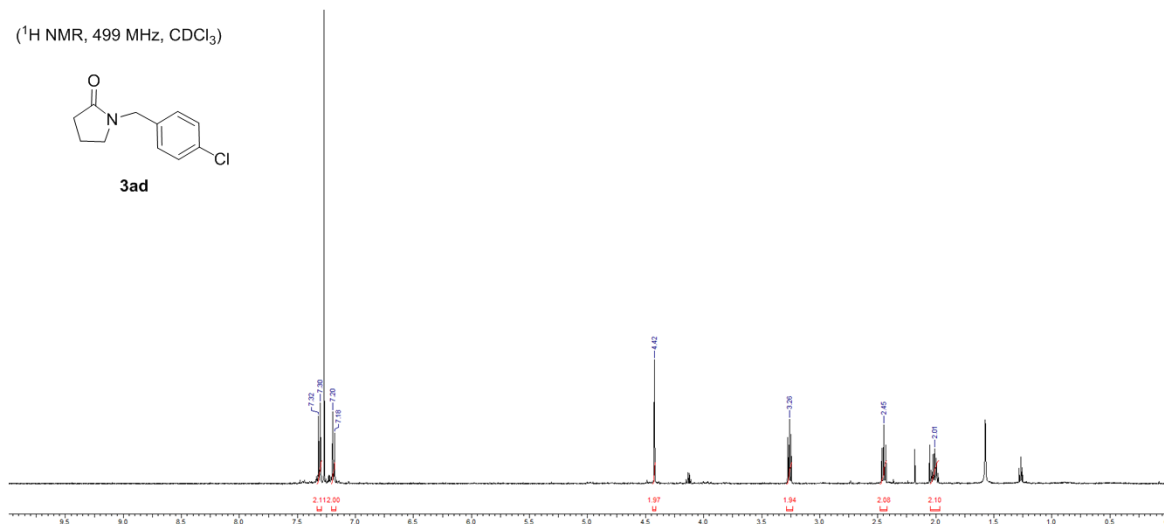
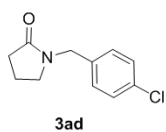


(^{13}C NMR, 75 MHz, CDCl_3)



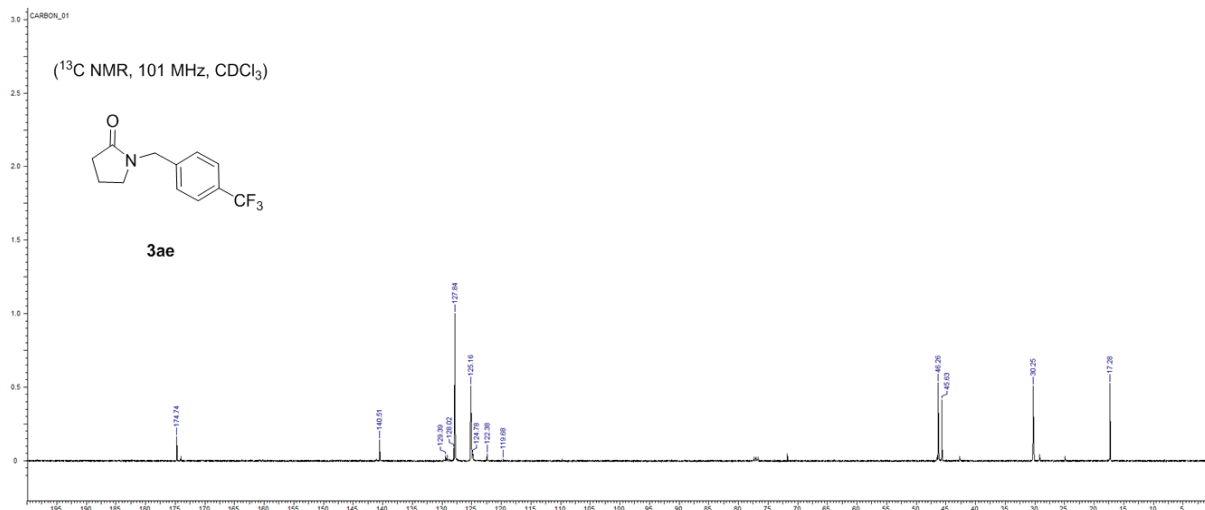
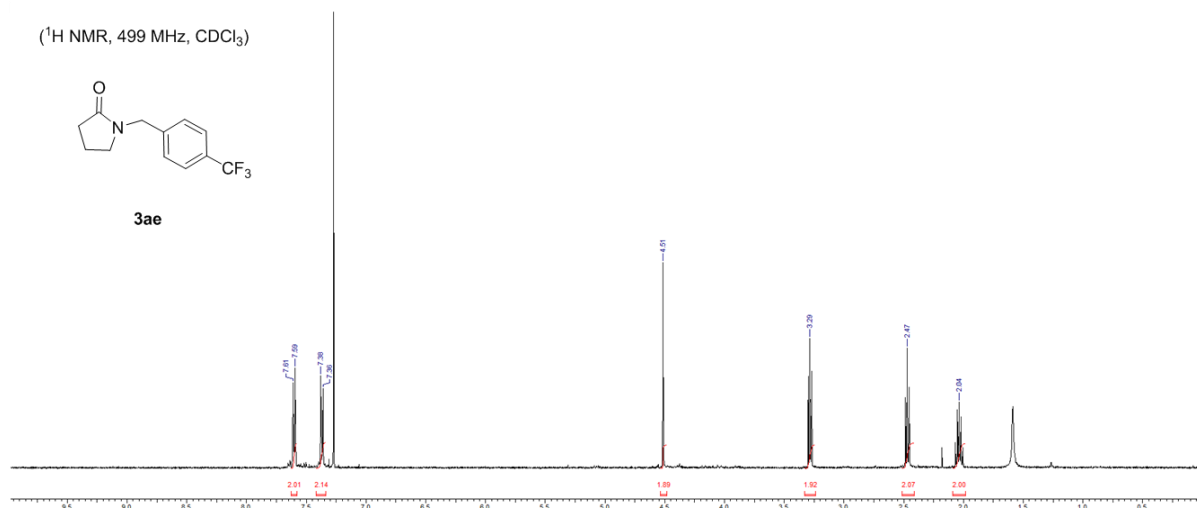
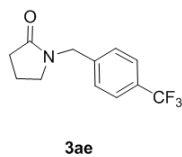
4. ^1H NMR (3ad)

(^1H NMR, 499 MHz, CDCl_3)



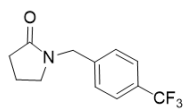
5. ^1H , ^{13}C , ^{19}F NMR and IR (3ae)

(^1H NMR, 499 MHz, CDCl_3)

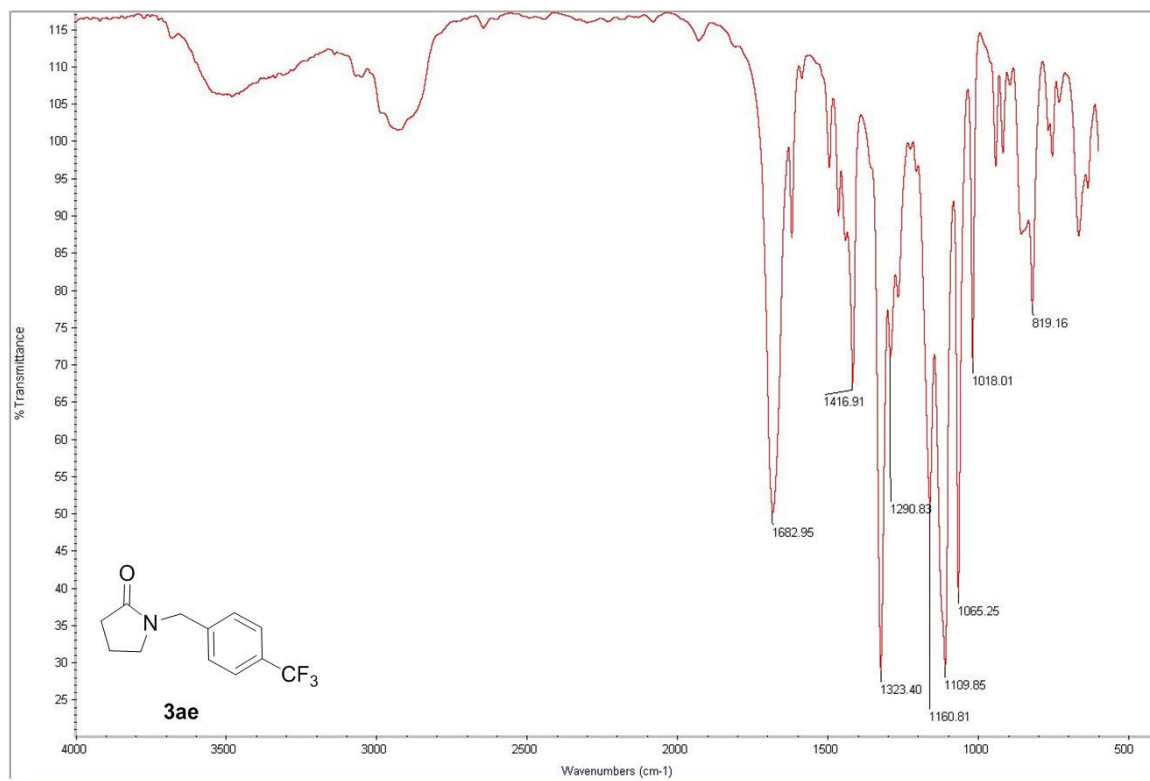
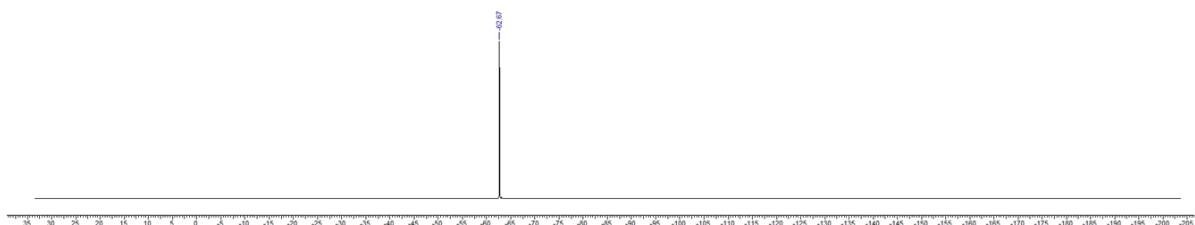


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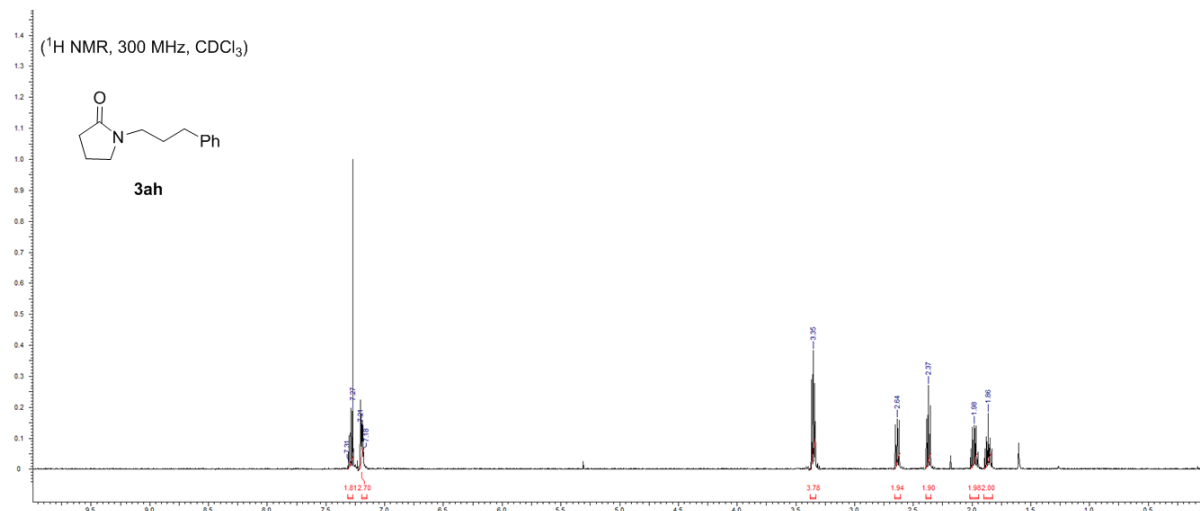
(^{19}F NMR, 376 MHz, CDCl_3)



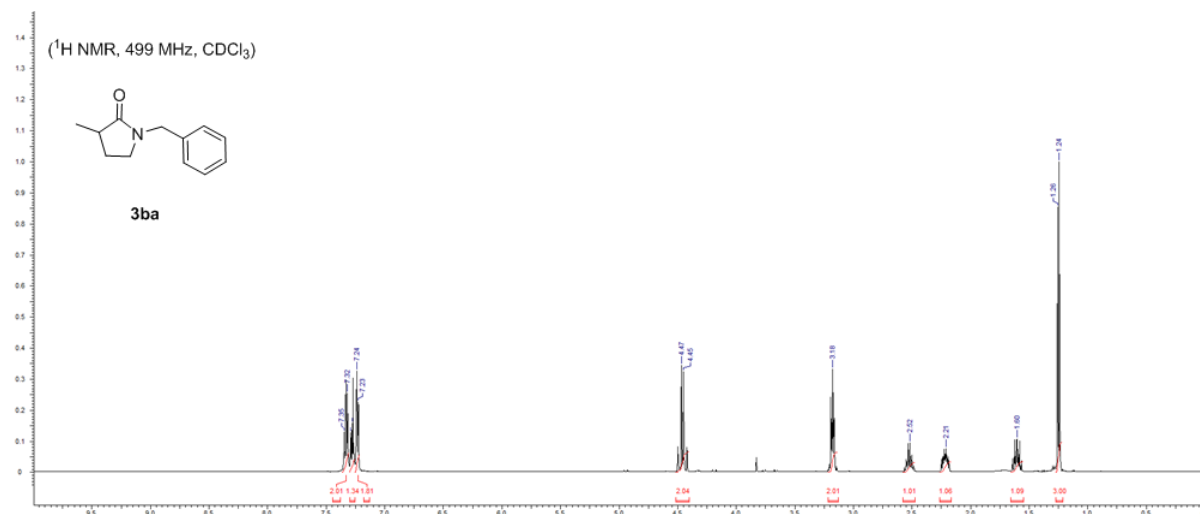
3ae



6. ^1H NMR (3ah)

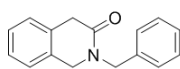


7. ^1H NMR (3ba)

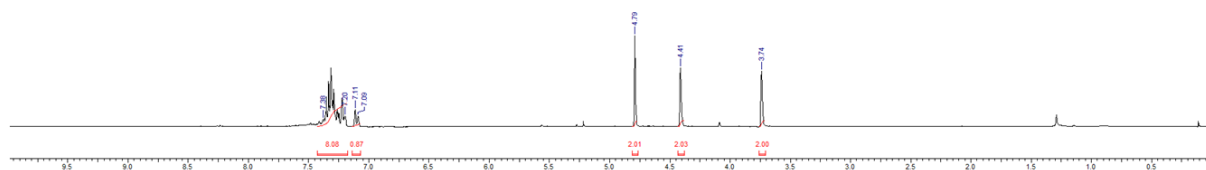


8. ^1H NMR (**3ca**)

(^1H NMR, 300 MHz, CDCl_3)

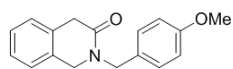


3ca

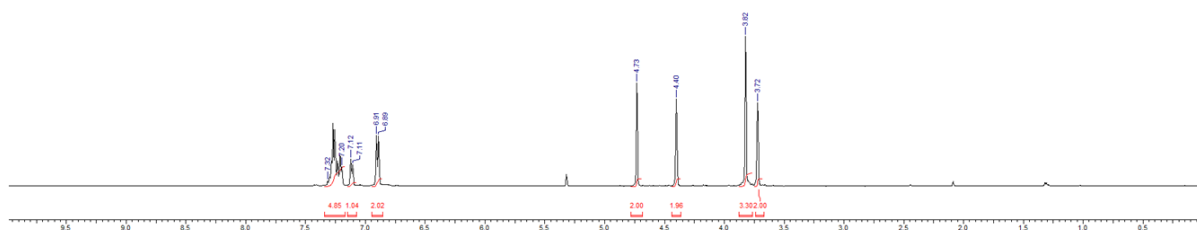


9. ^1H , ^{13}C NMR and IR(**3cb**)

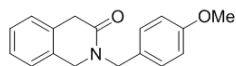
(^1H NMR, 499 MHz, CDCl_3)



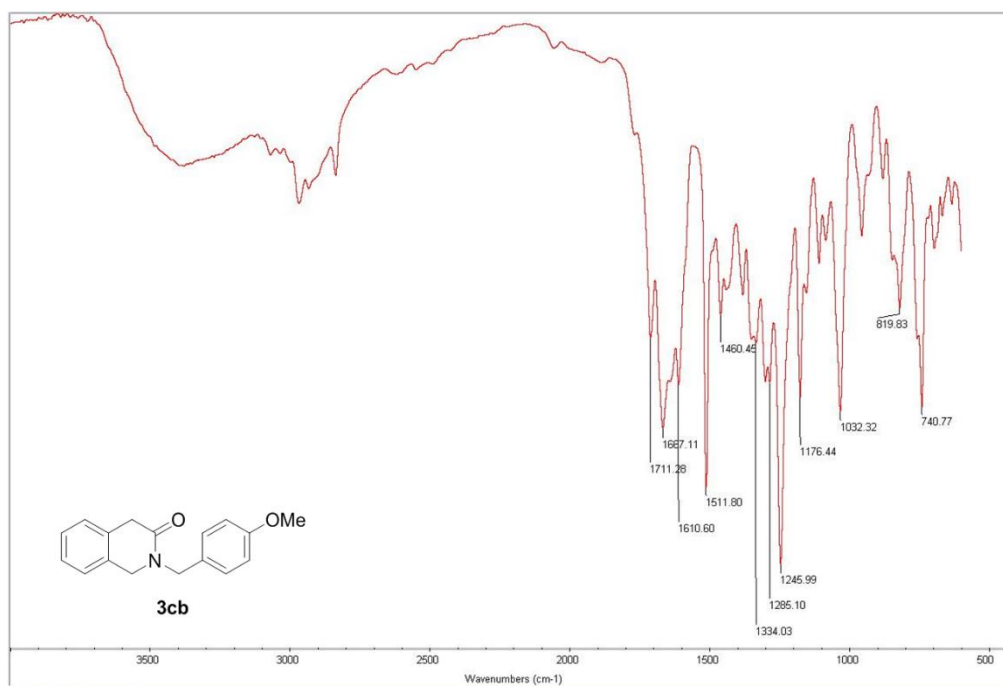
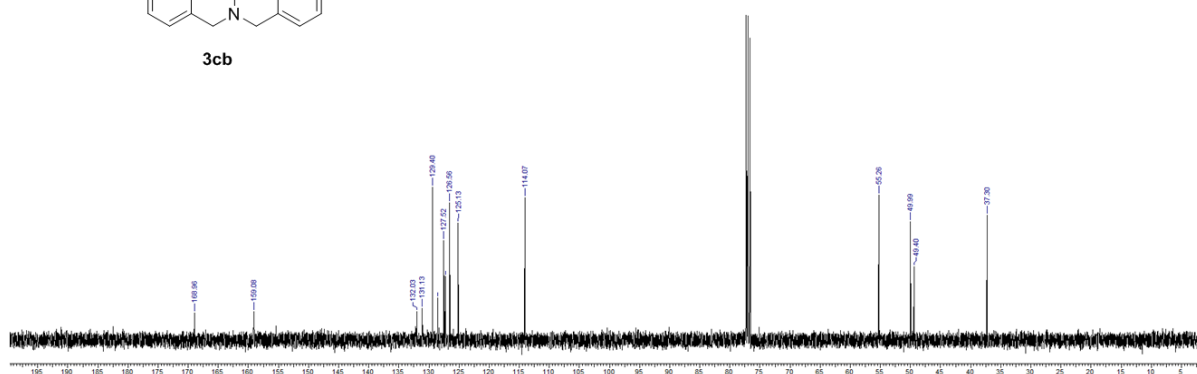
3cb



(^{13}C NMR, 101 MHz, CDCl_3)

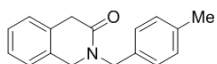


3cb

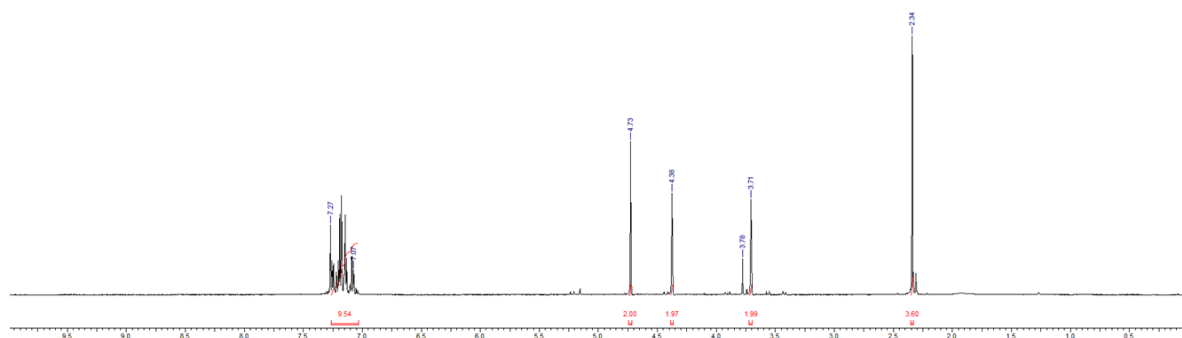


10. ^1H , ^{13}C NMR and IR (**3cc**)

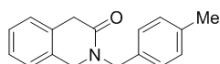
(^1H NMR, 499 MHz, CDCl_3)



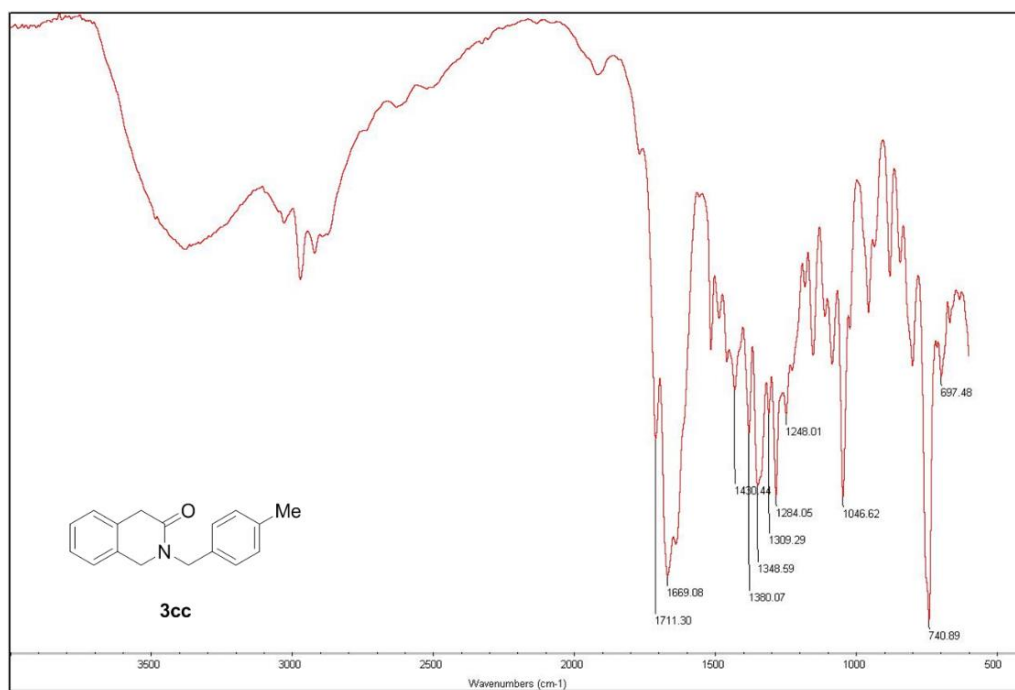
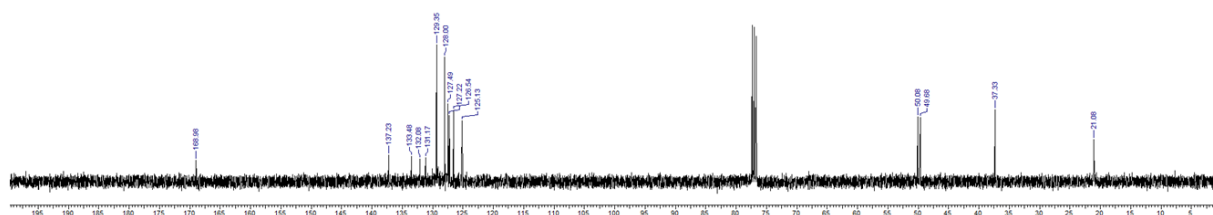
3cc



(^{13}C NMR, 101 MHz, CDCl_3)

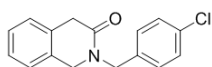


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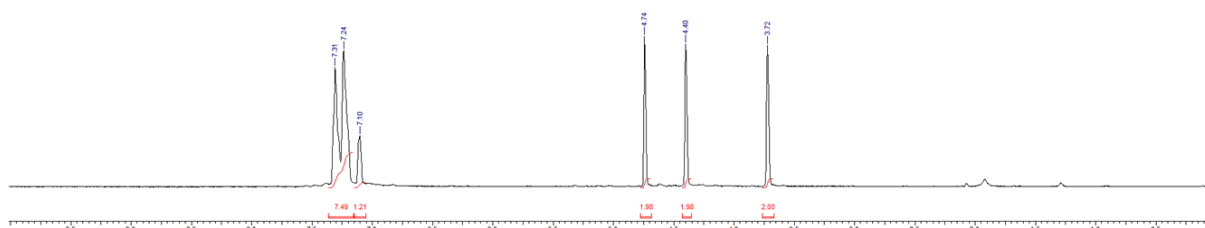


11. ^1H , ^{13}C NMR and IR (**3cd**)

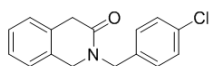
(^1H NMR, 499 MHz, CDCl_3)



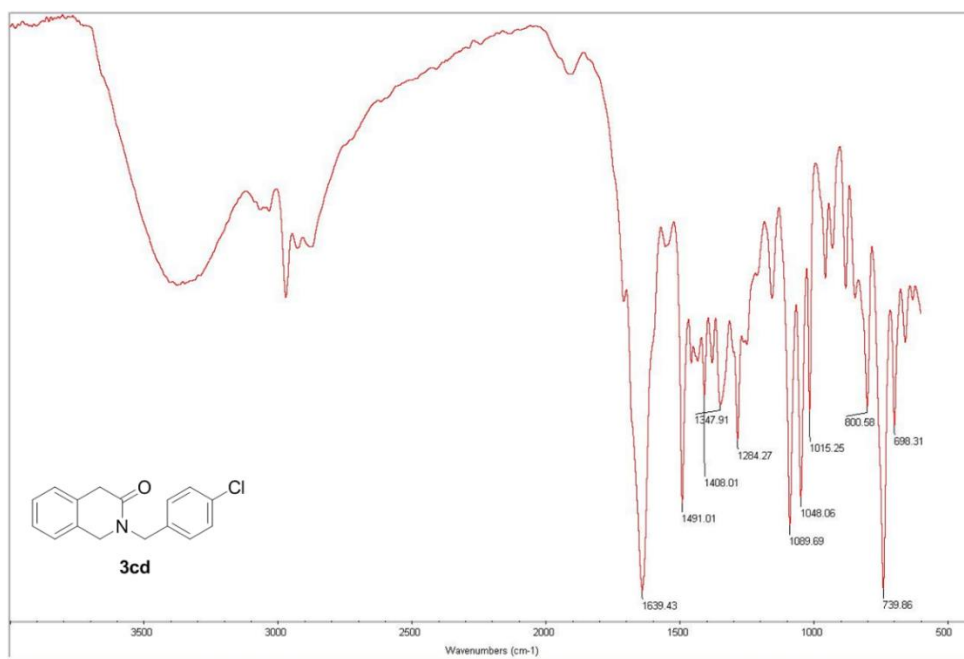
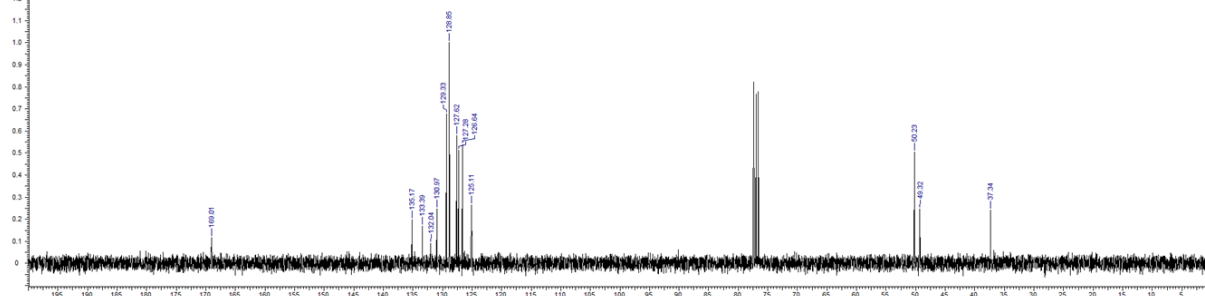
3cd



(^{13}C NMR, 75 MHz, CDCl_3)

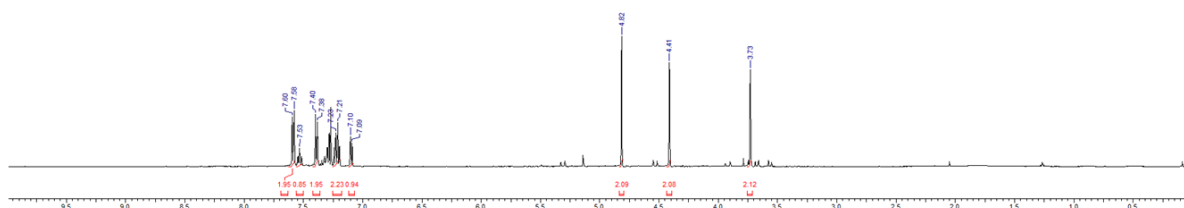
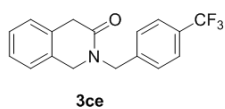


3cd

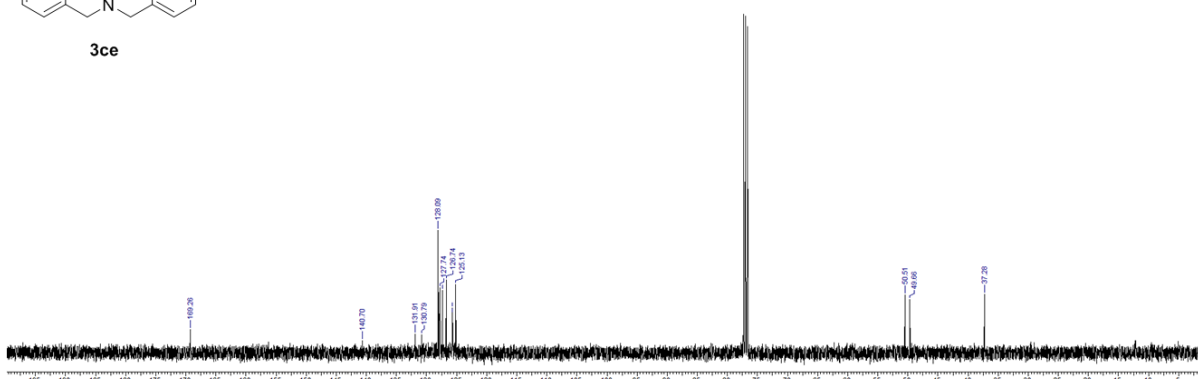
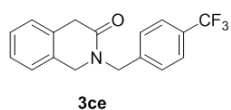


12. ^1H , ^{13}C , ^{19}F NMR and IR(3ce)

(^1H NMR, 499 MHz, CDCl_3)

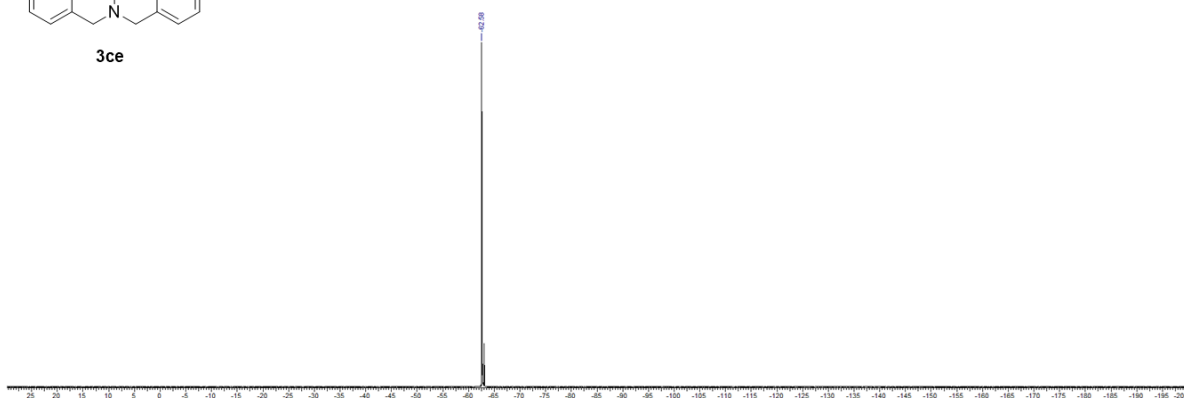
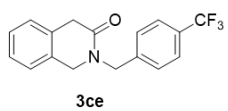


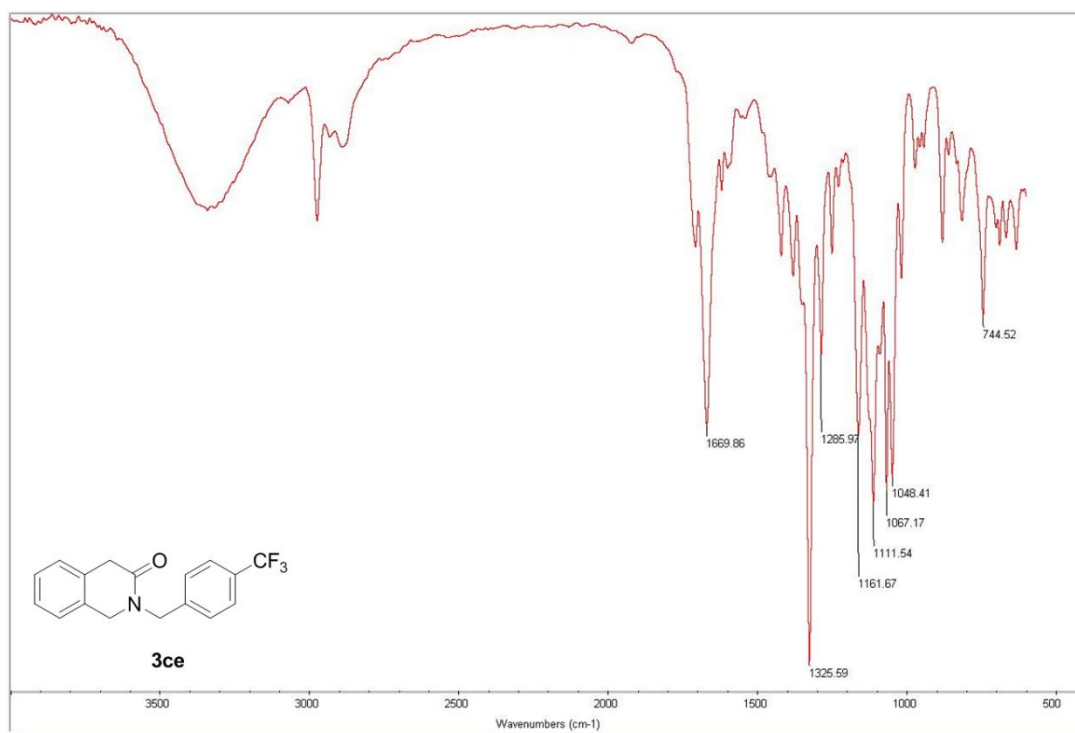
(^{13}C NMR, 101 MHz, CDCl_3)



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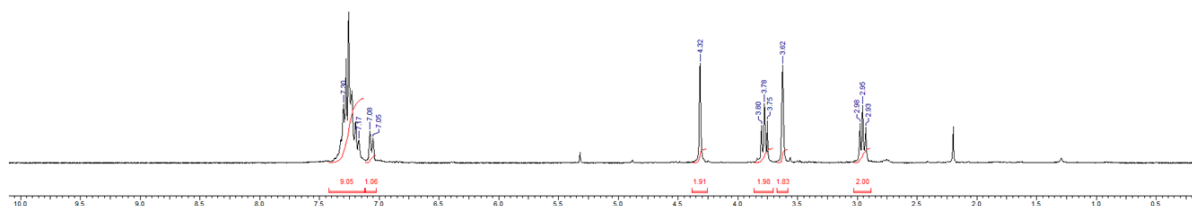
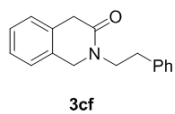
(^{19}F NMR, 376 MHz, CDCl_3)



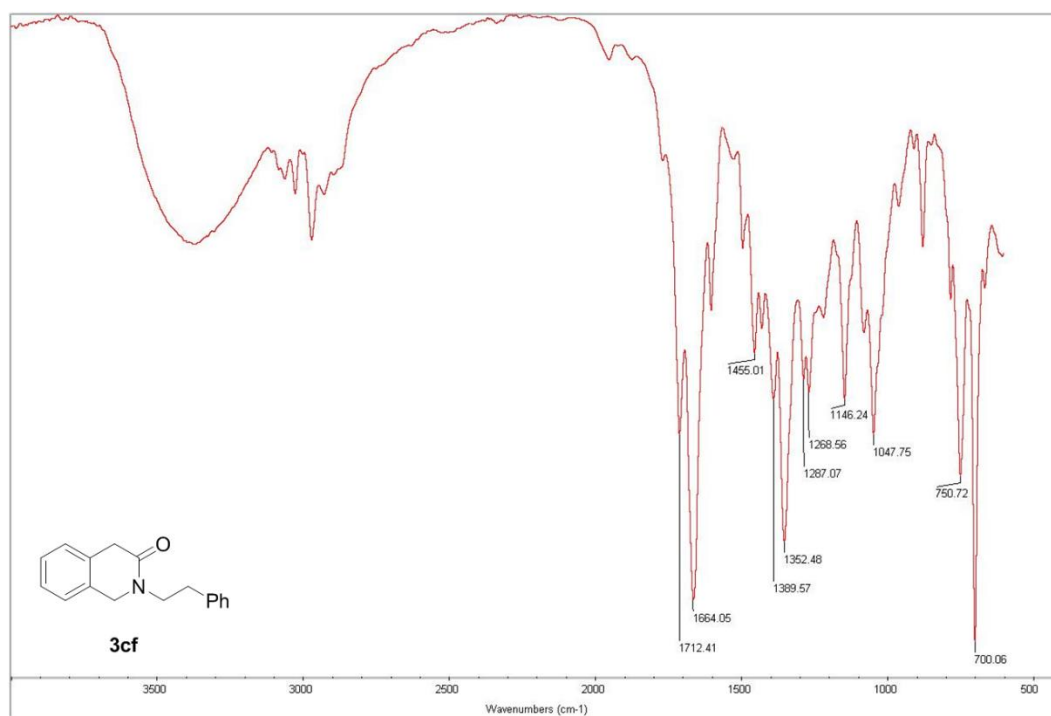
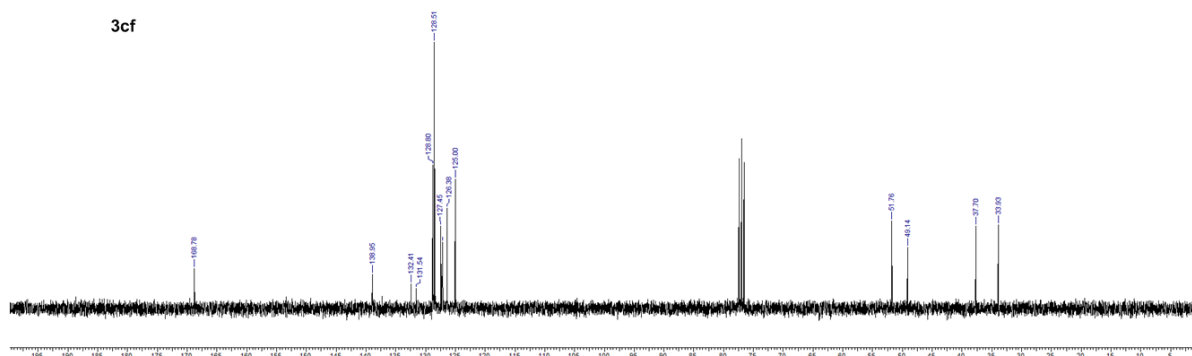
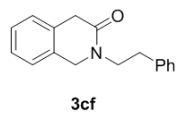


13. ^1H , ^{13}C NMR and IR (3cf)

(^1H NMR, 300 MHz, CDCl_3)

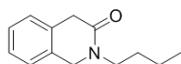


(^{13}C NMR, 75 MHz, CDCl_3)

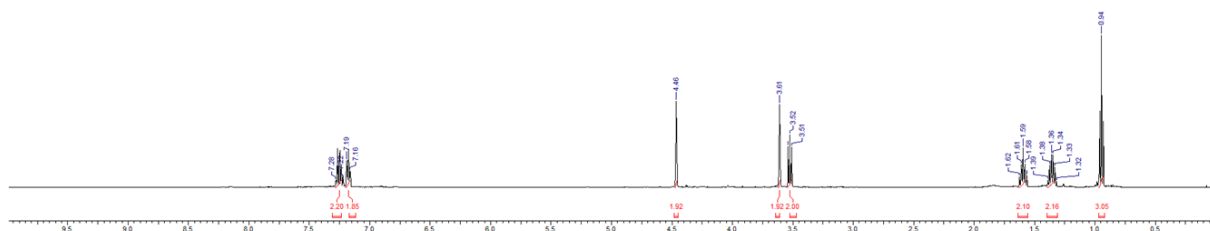


14. ^1H , ^{13}C NMR and IR(**3cg**)

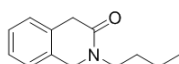
(^1H NMR, 499 MHz, CDCl_3)



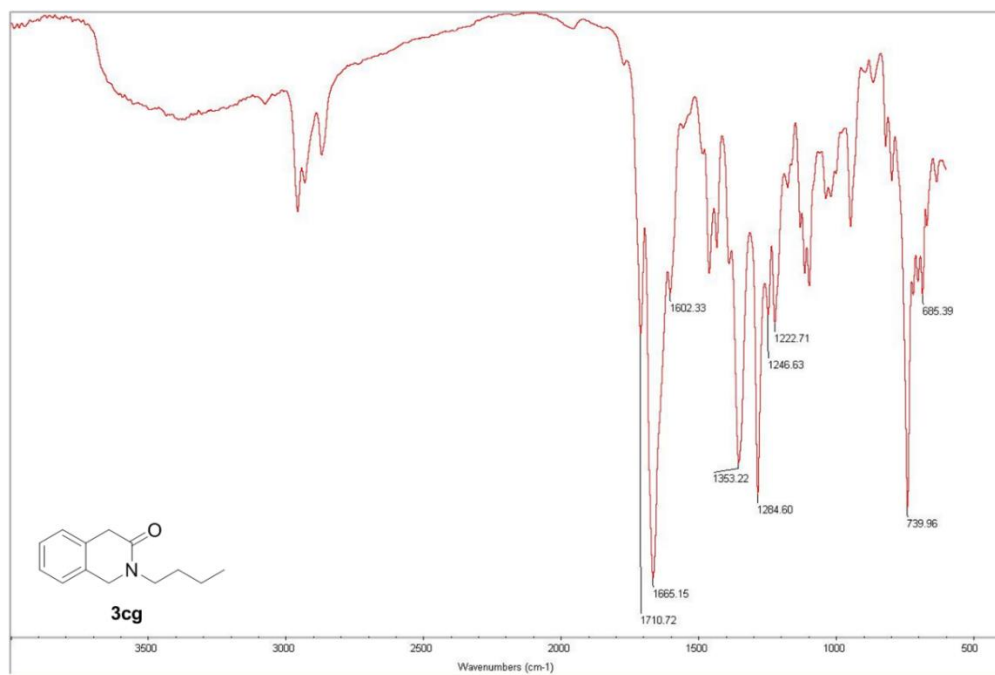
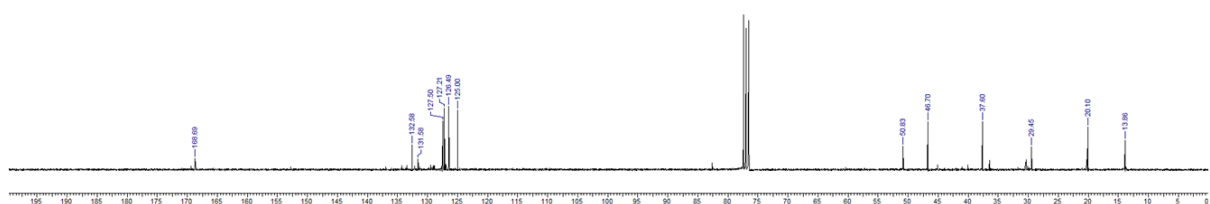
3cg



(^{13}C NMR, 75 MHz, CDCl_3)

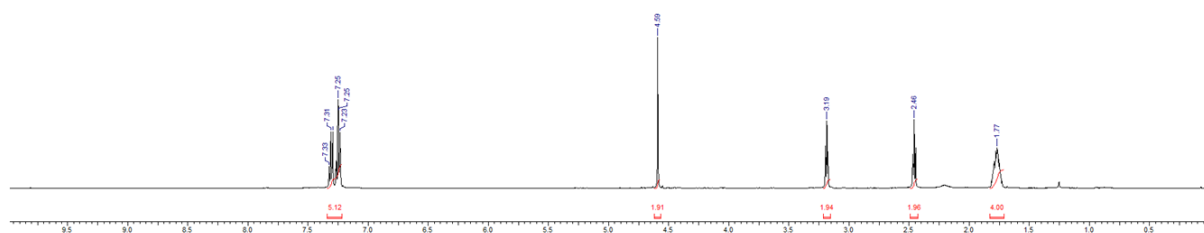
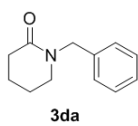


3cg



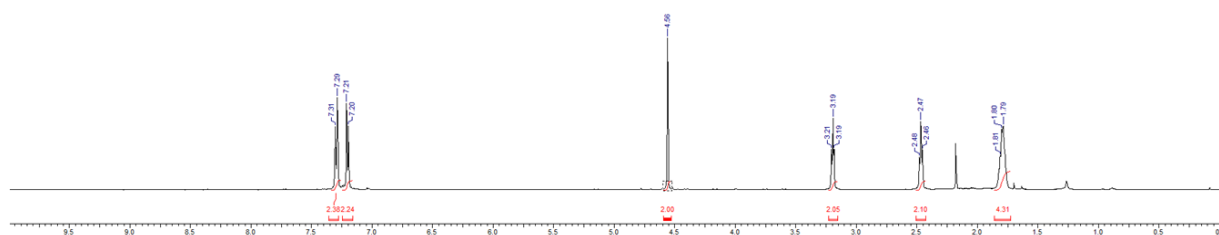
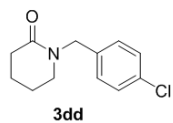
15. ^1H NMR (**3da**)

(^1H NMR, 499 MHz, CDCl_3)

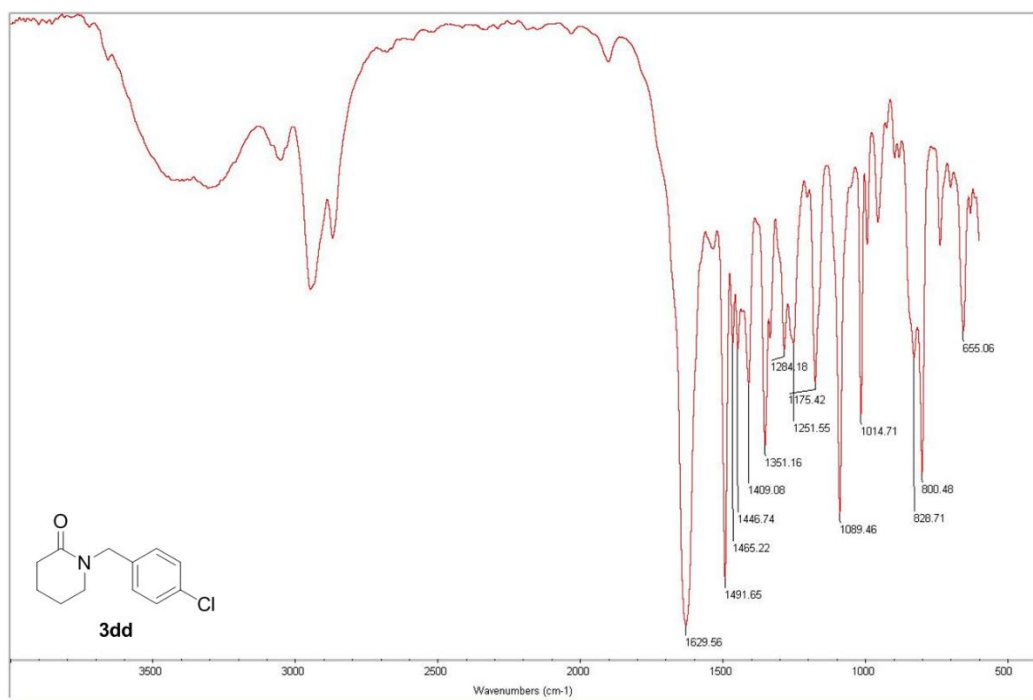
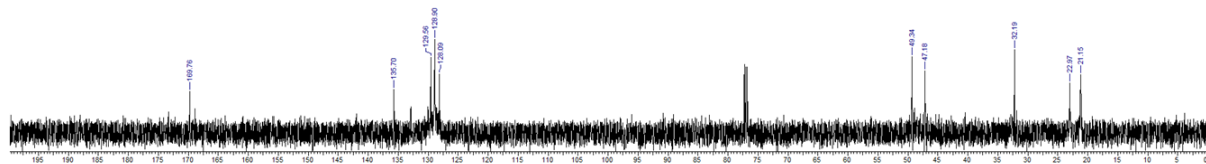
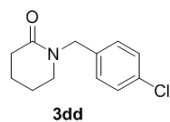


16. ^1H , ^{13}C NMR and IR (**3dd**)

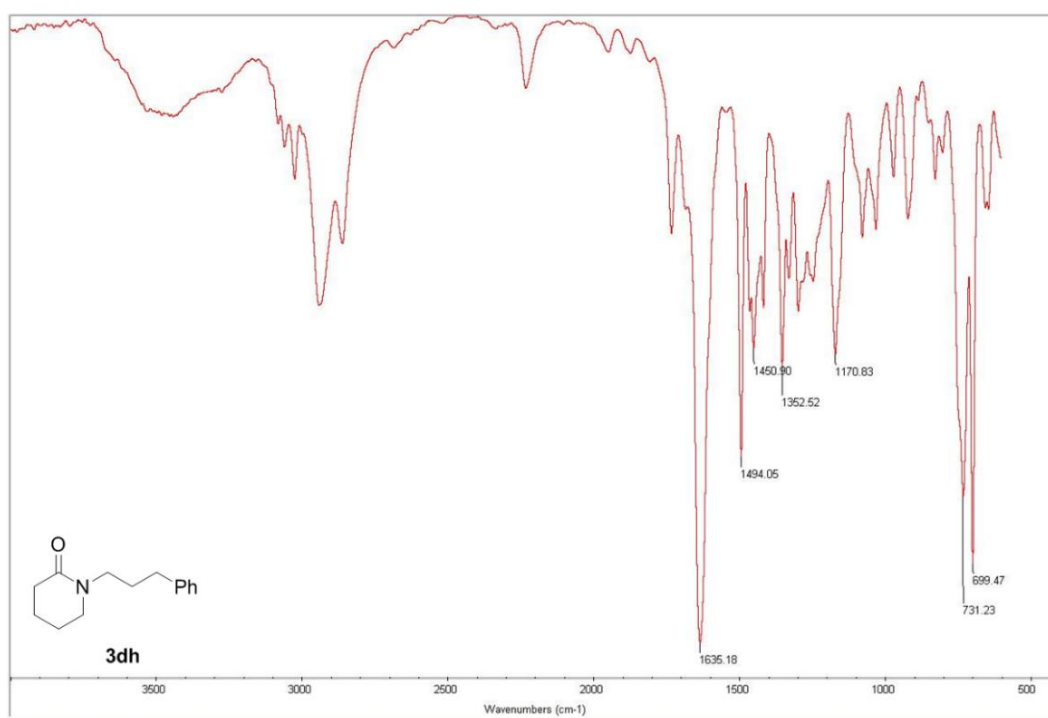
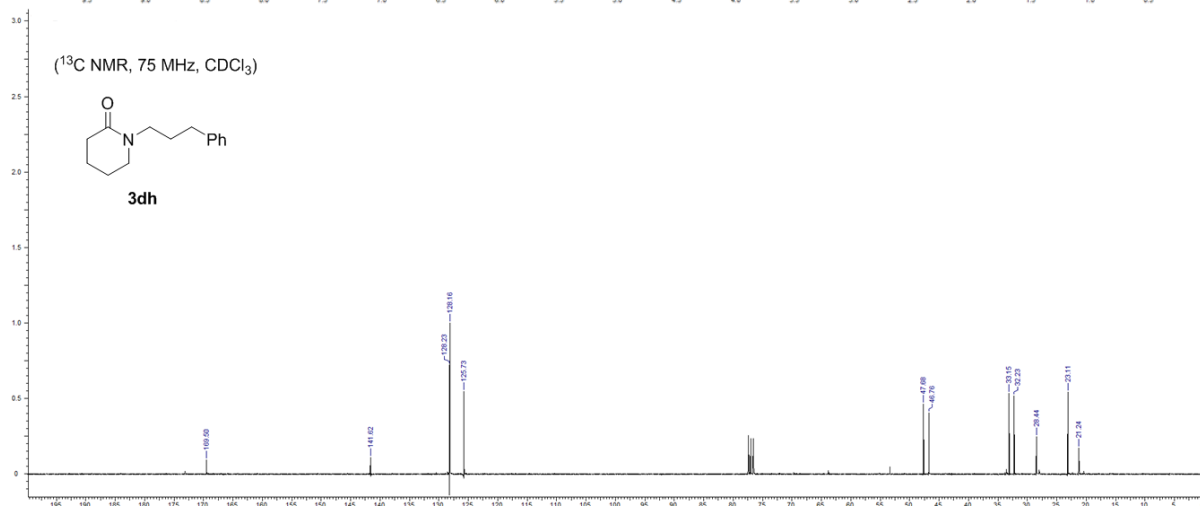
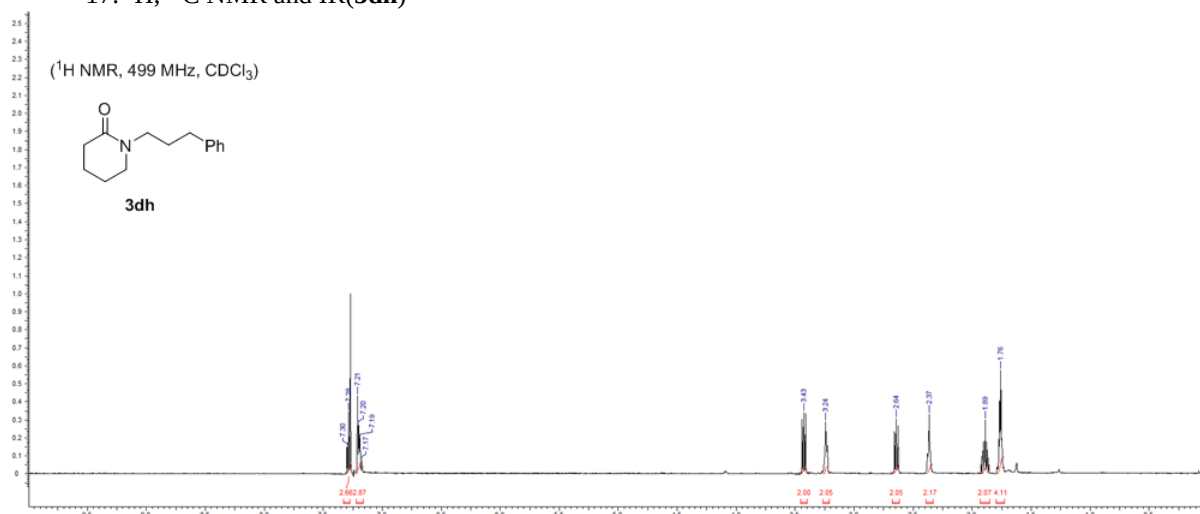
(^1H NMR, 499 MHz, CDCl_3)



(^{13}C NMR, 126 MHz, CDCl_3)

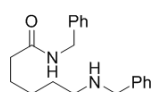


17. ^1H , ^{13}C NMR and IR(**3dh**)

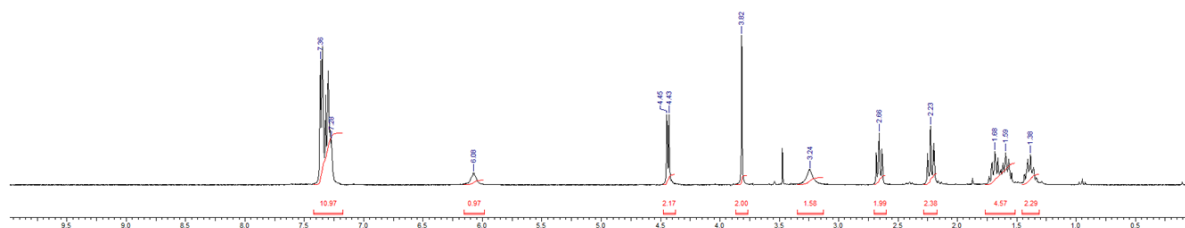


18. ^1H , ^{13}C NMR and IR(**6ea**)

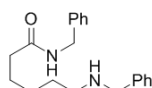
(^1H NMR, 300 MHz, CDCl_3)



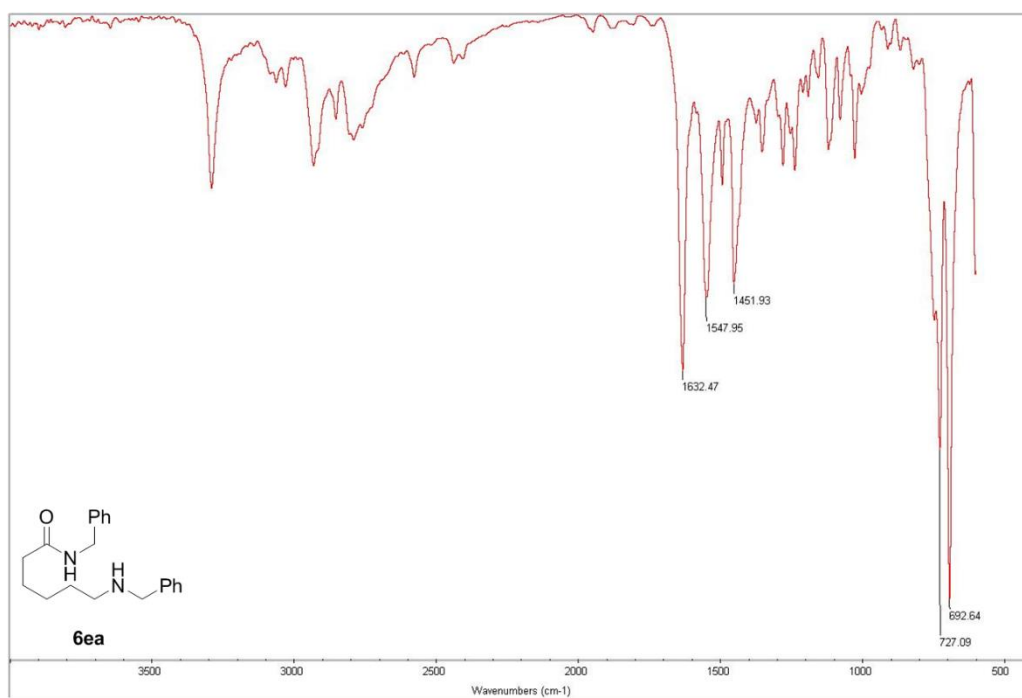
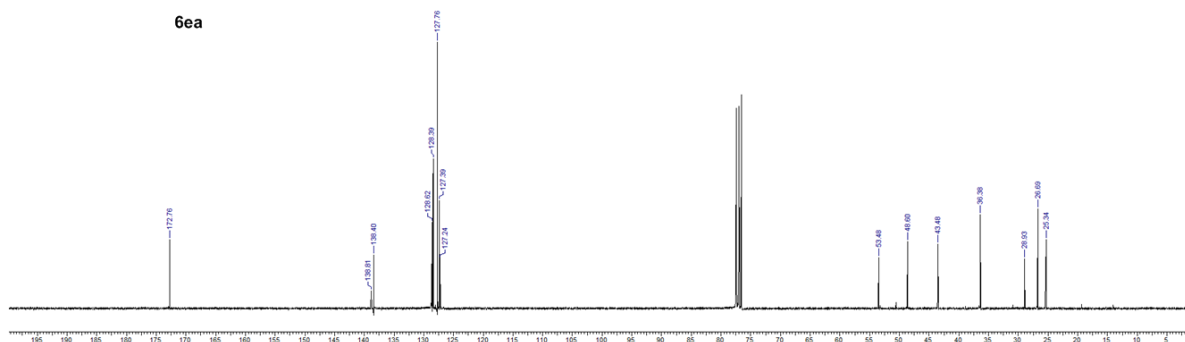
6ea



(^{13}C NMR, 75 MHz, CDCl_3)



6ea



B. ^1H NMR spectra of Kinetic Study in Figure 1.

