Supporting Information

Synthesis of tetrahydronaphthalene esters by intramolecular cyclization of ethyl *p*-azidophenyl-2-phenylalkanoates and evaluation of the inhibition of human tumor cells proliferation

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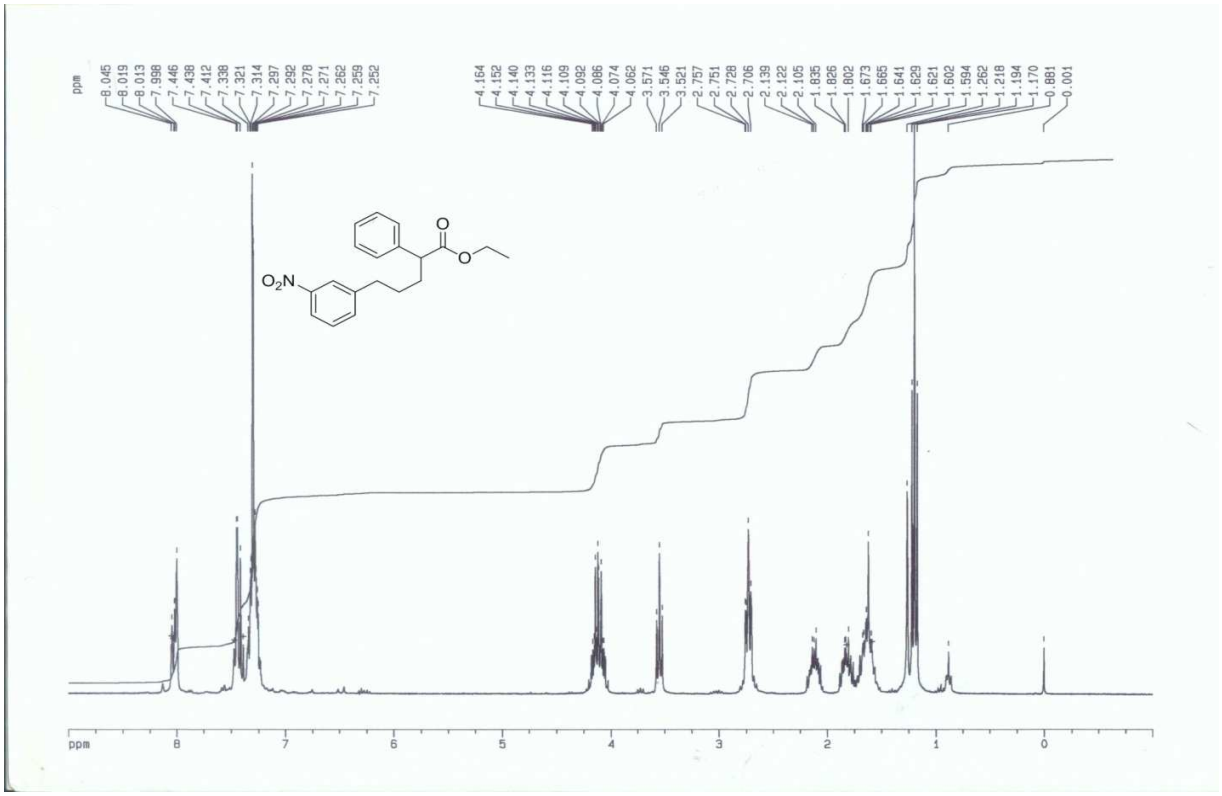

Figure S1. ^{1}H NMR spectrum of ethyl 5-(3-nitrophenyl)-2-phenylpentanoate (**16**).

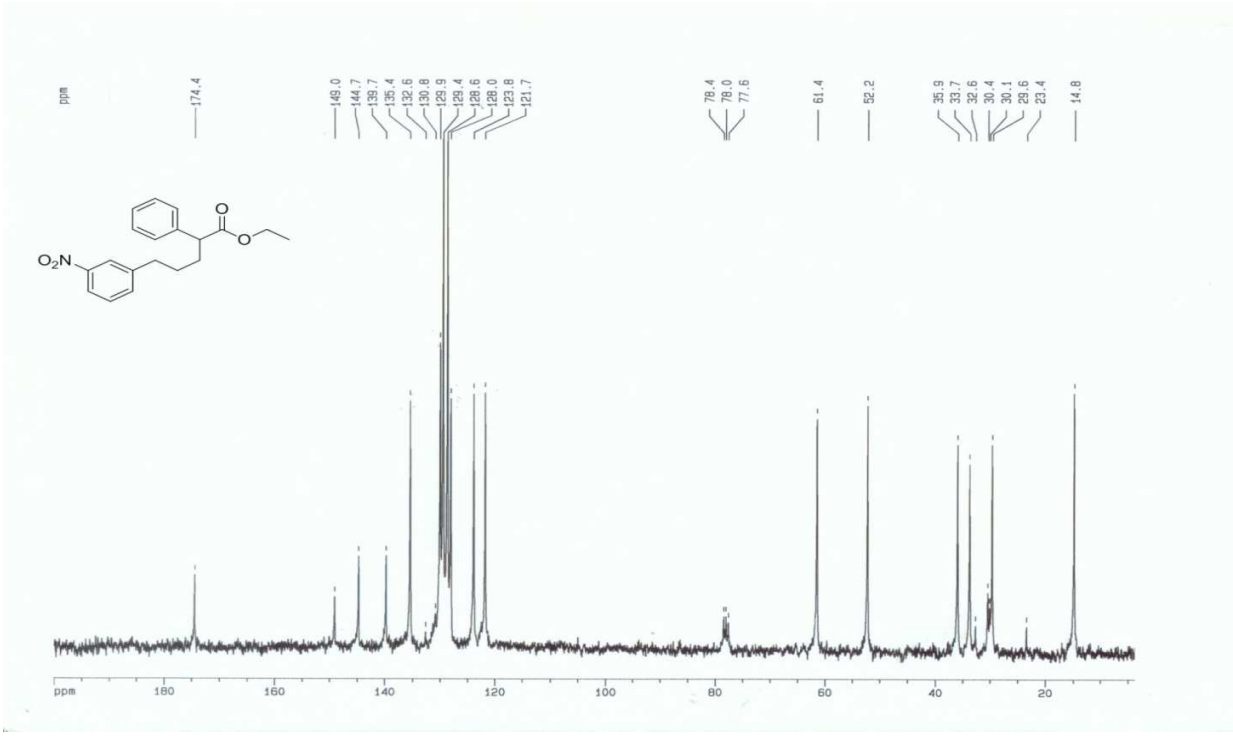

Figure S2.13C NMR spectrum of ethyl 5-(3-nitrophenyl)-2-phenylpentanoate (**16**).

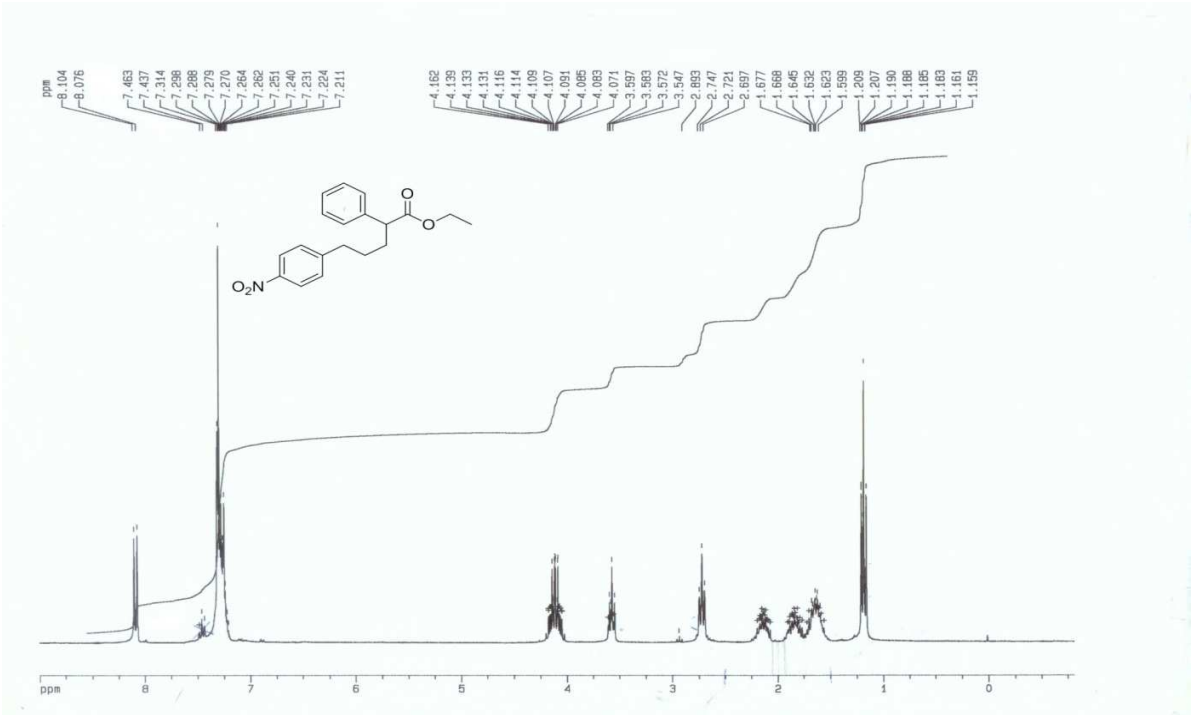

Figure S3. [1]H NMR spectrum ofethyl 5-(4-nitrophenyl)-2-phenylpentanoate(**17**).

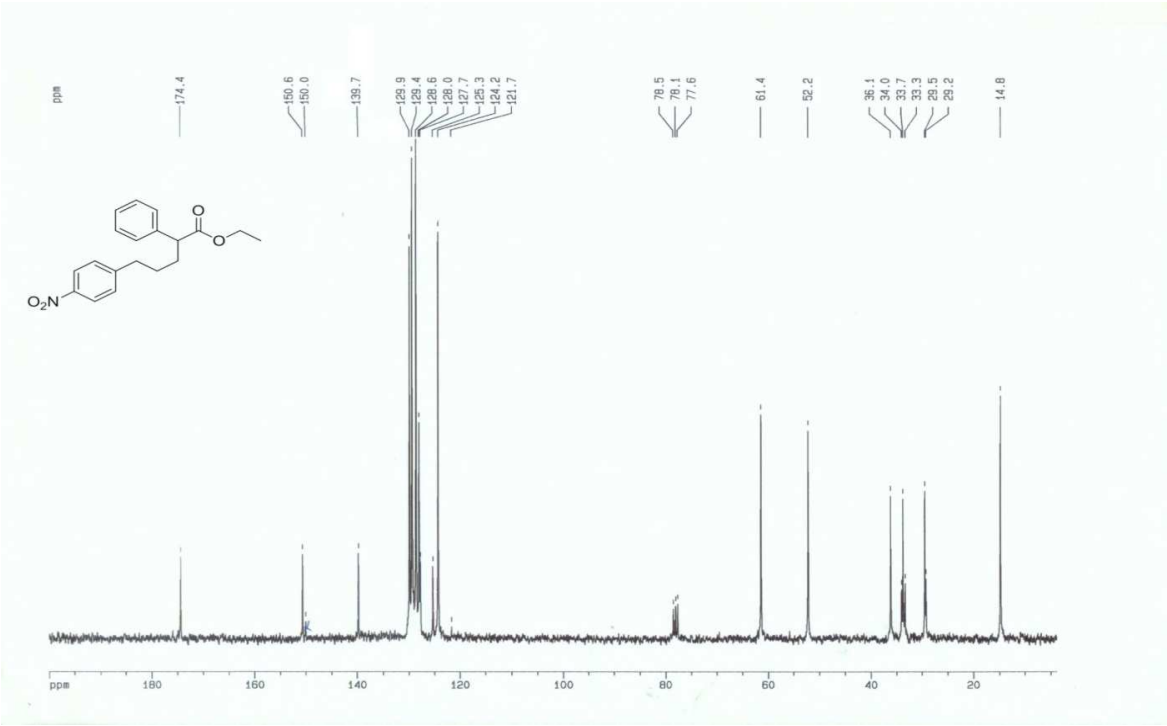

Figure S4. ^{13}C NMR spectrum of ethyl 5-(4-nitrophenyl)-2-phenylpentanoate(**17**).

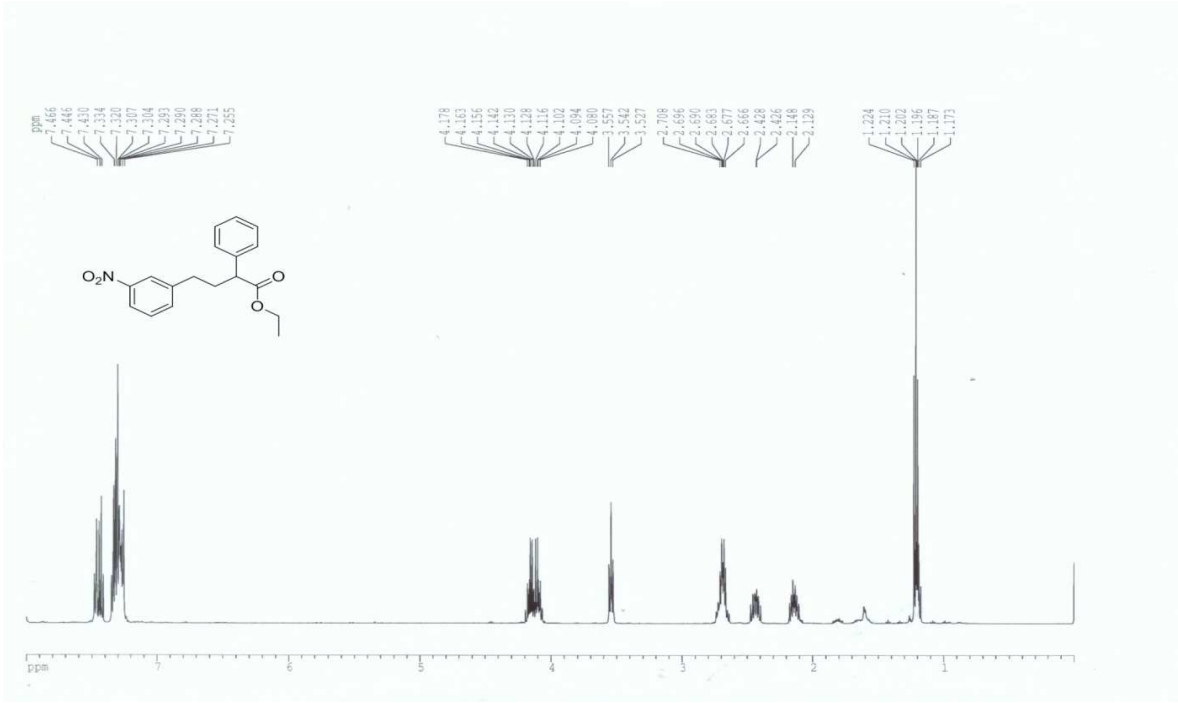

Figure S5. ^{1}H NMR spectrum of ethyl 4-(3-nitrophenyl)-2-phenylbutanoate (**18**).

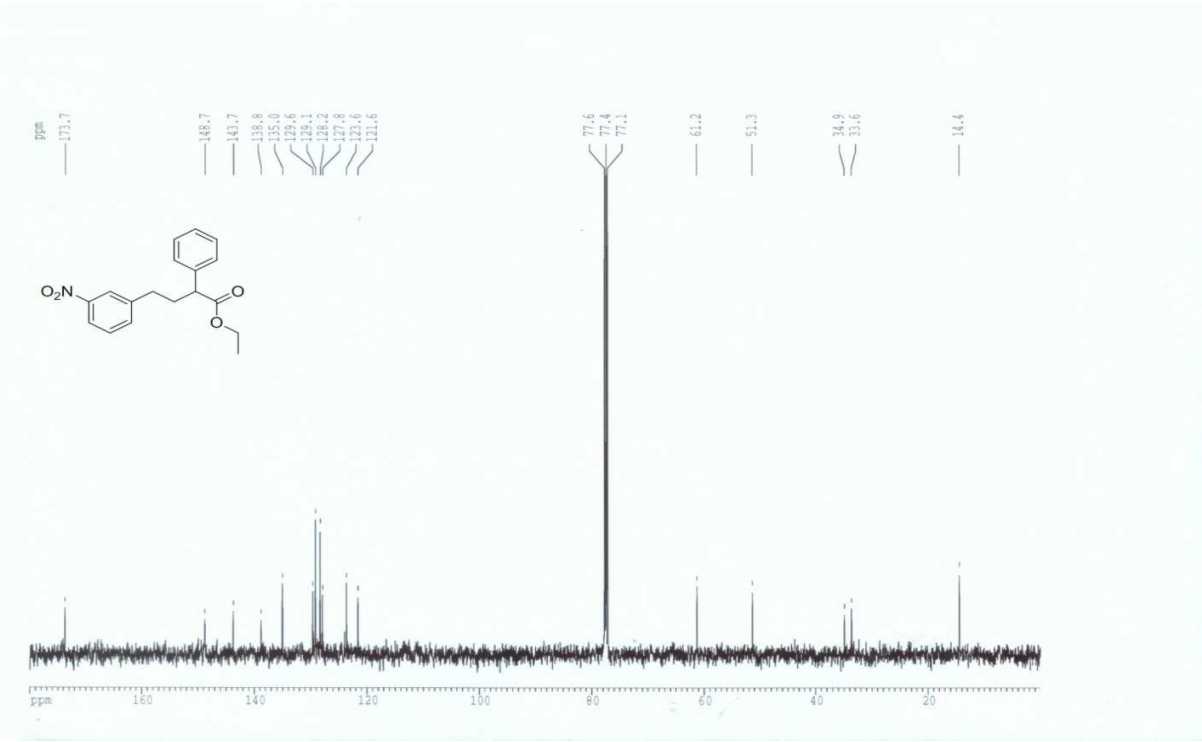

Figure S6. ^{13}C NMR spectrum of ethyl 4-(3-nitrophenyl)-2-phenylbutanoate (**18**).

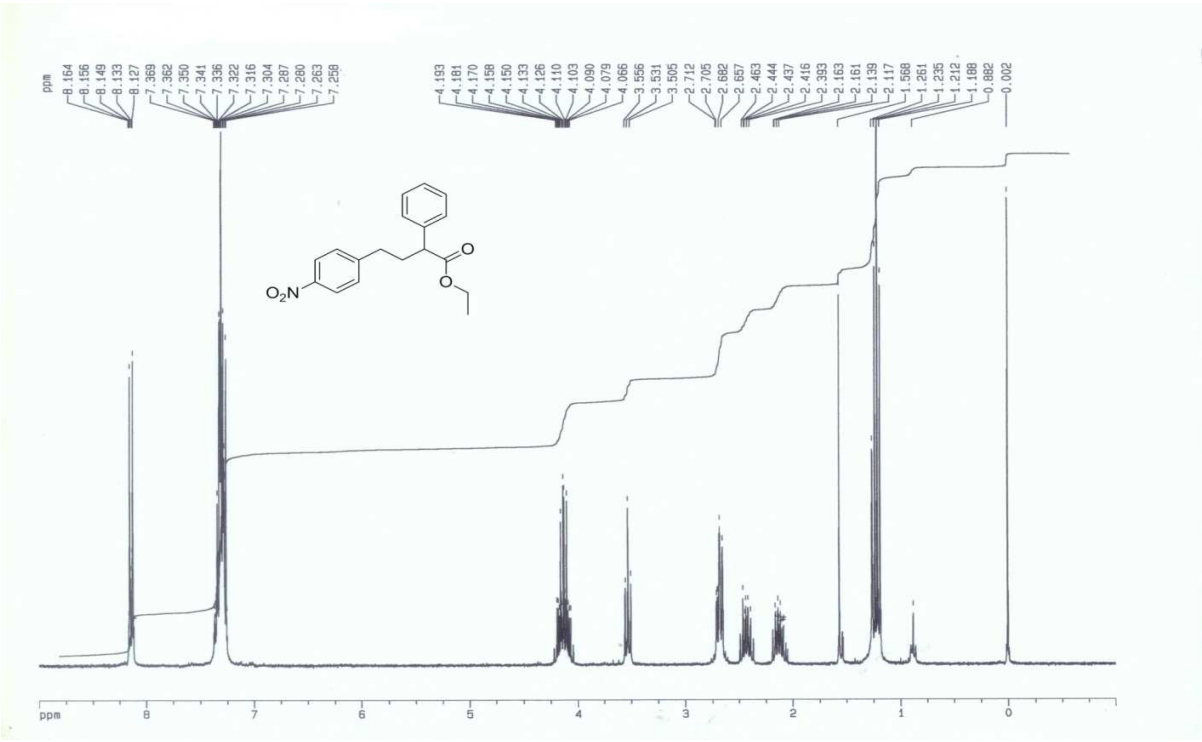

Figure S7. ^{1}H NMR spectrum of ethyl 4-(4-nitrophenyl)-2-phenylbutanoate (**19**).

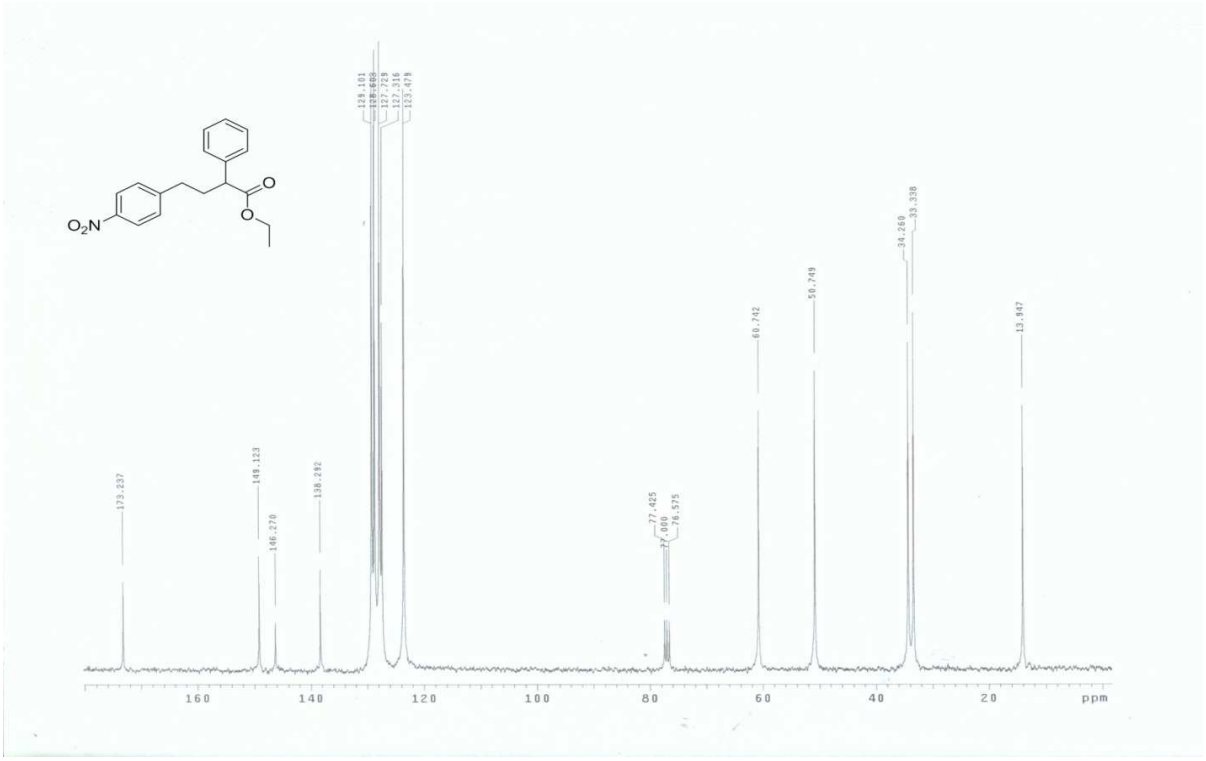

Figure S8. ^{13}C NMR spectrum of ethyl 4-(4-nitrophenyl)-2-phenylbutanoate (**19**).

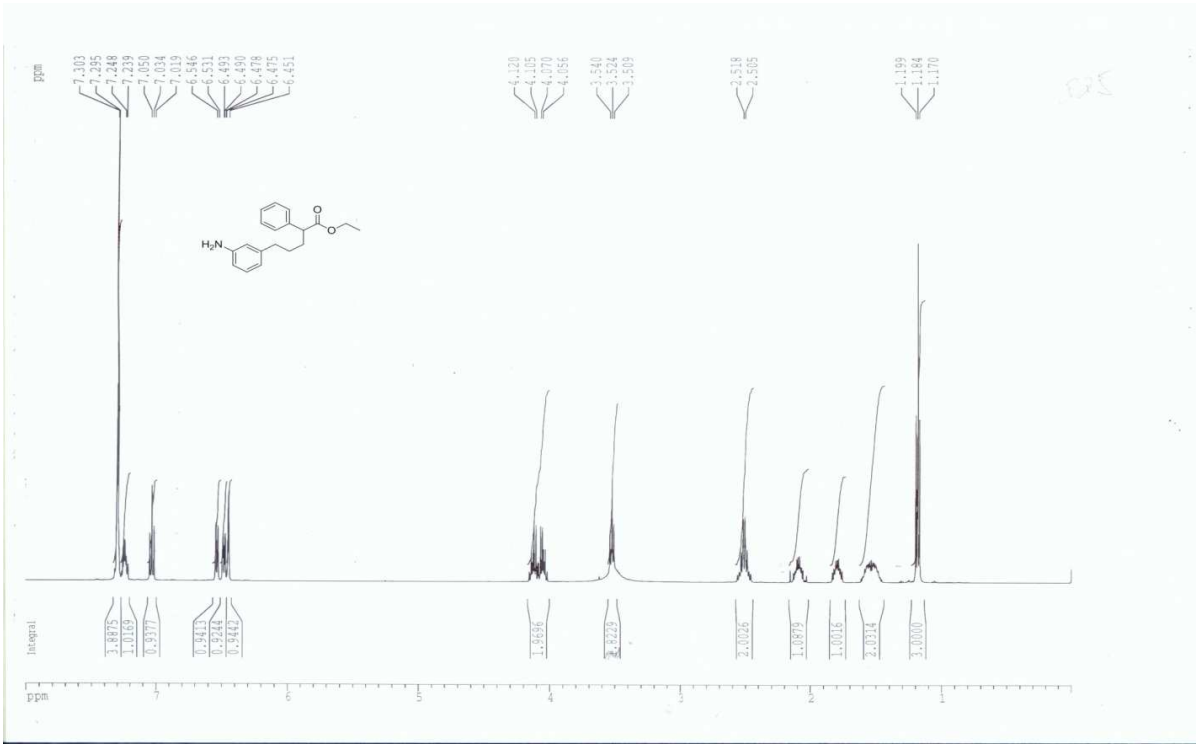

Figure S9. ^{1}H NMR spectrum of ethyl 5-(3-aminophenyl)-2-phenylpentanoate (**20**).

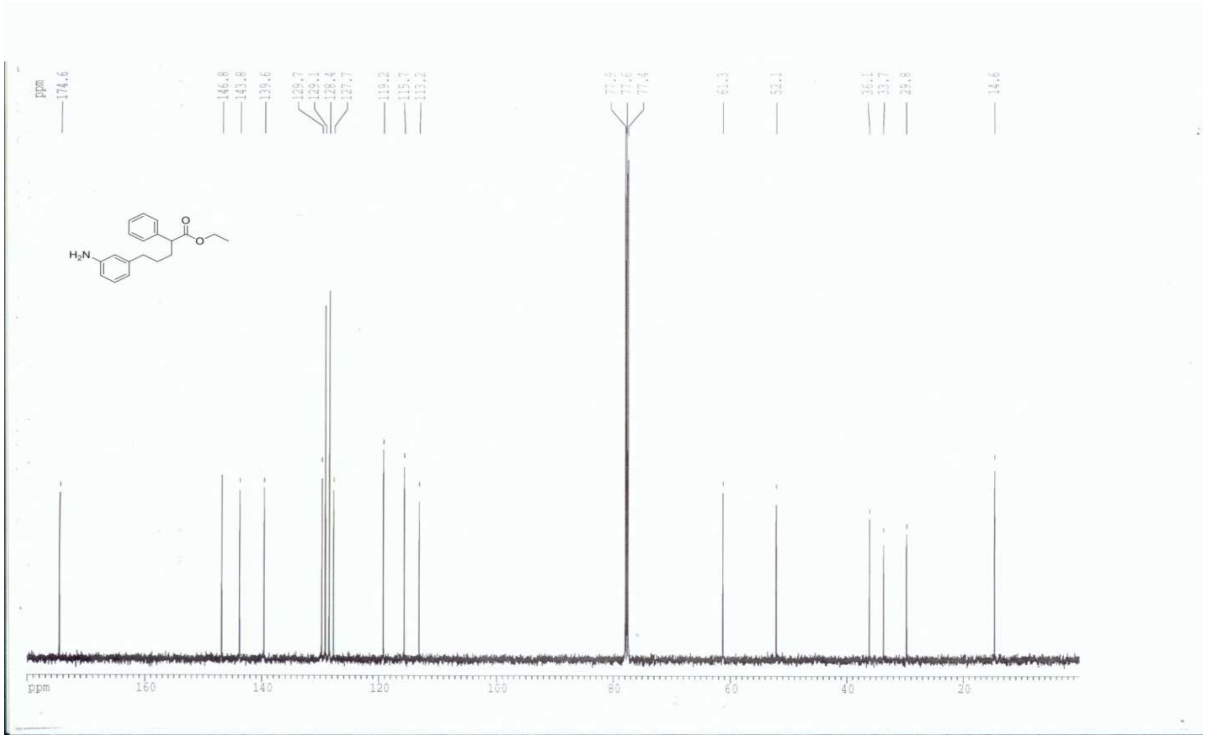

Figure S10. ^{13}C NMR spectrum of ethyl 5-(3-aminophenyl)-2-phenylpentanoate (**20**).

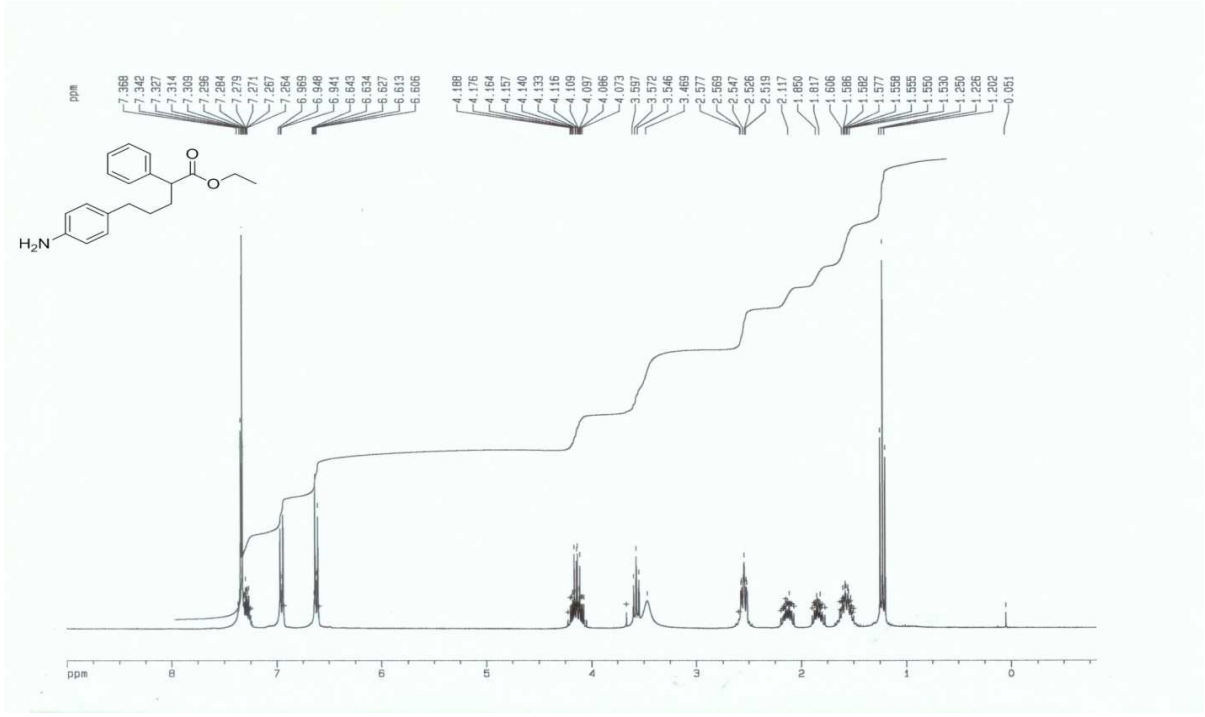

Figure S11. ^{1}H NMR spectrum of ethyl 5-(4-aminophenyl)-2-phenylpentanoate (**21**).

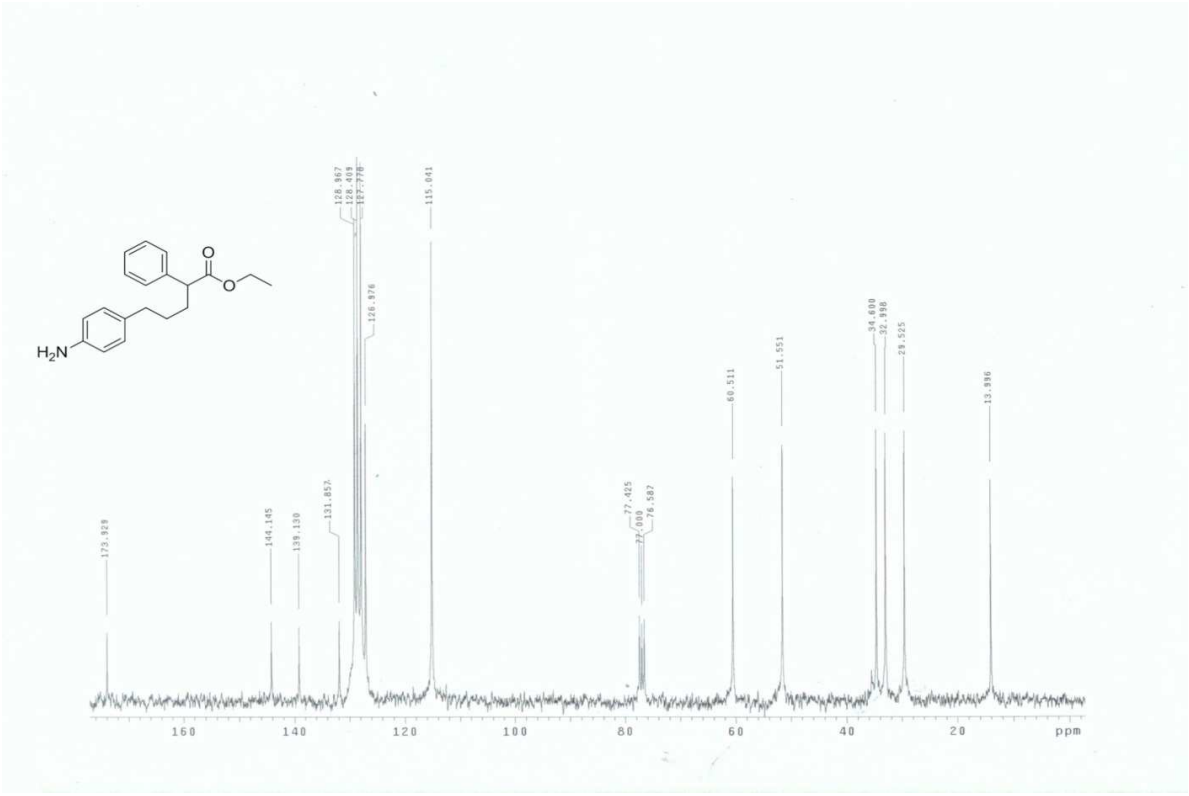

Figure S12. ^{13}C NMR spectrum of ethyl 5-(4-aminophenyl)-2-phenylpentanoate (**21**).

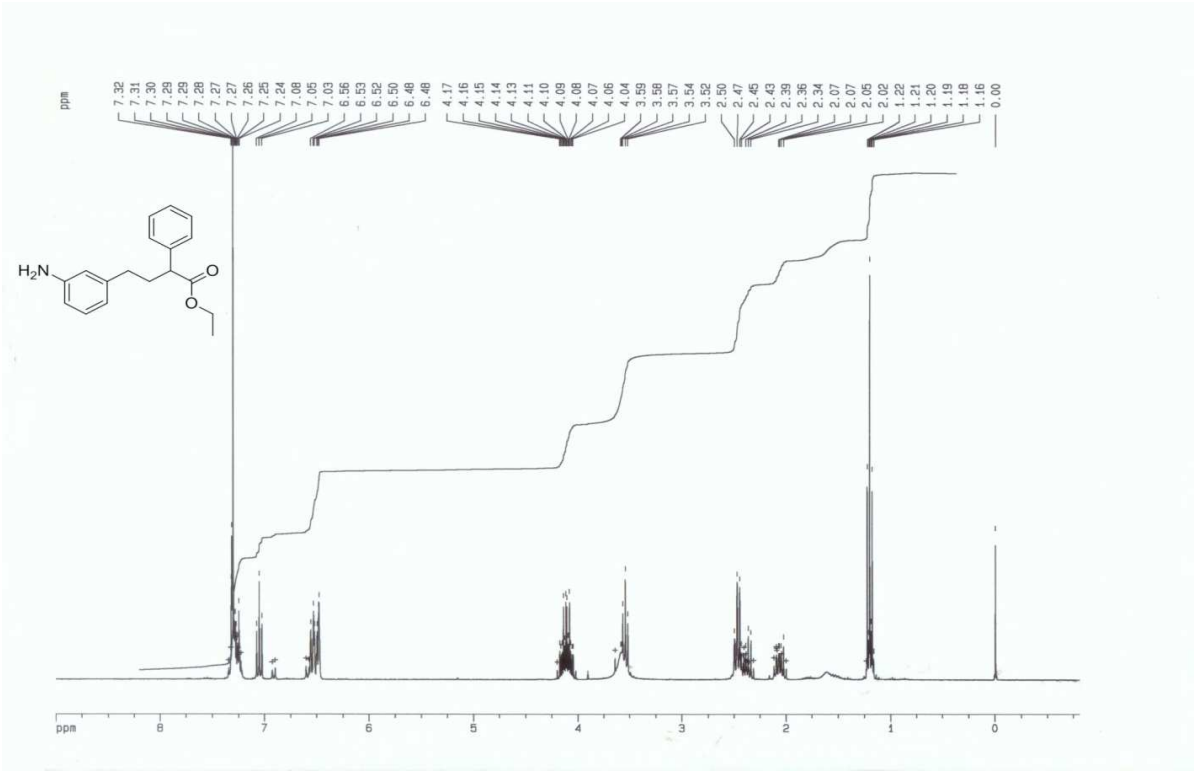

Figure S13. ^{1}H NMR spectrum of ethyl 4-(3-aminophenyl)-2-phenylbutanoate (**22**).

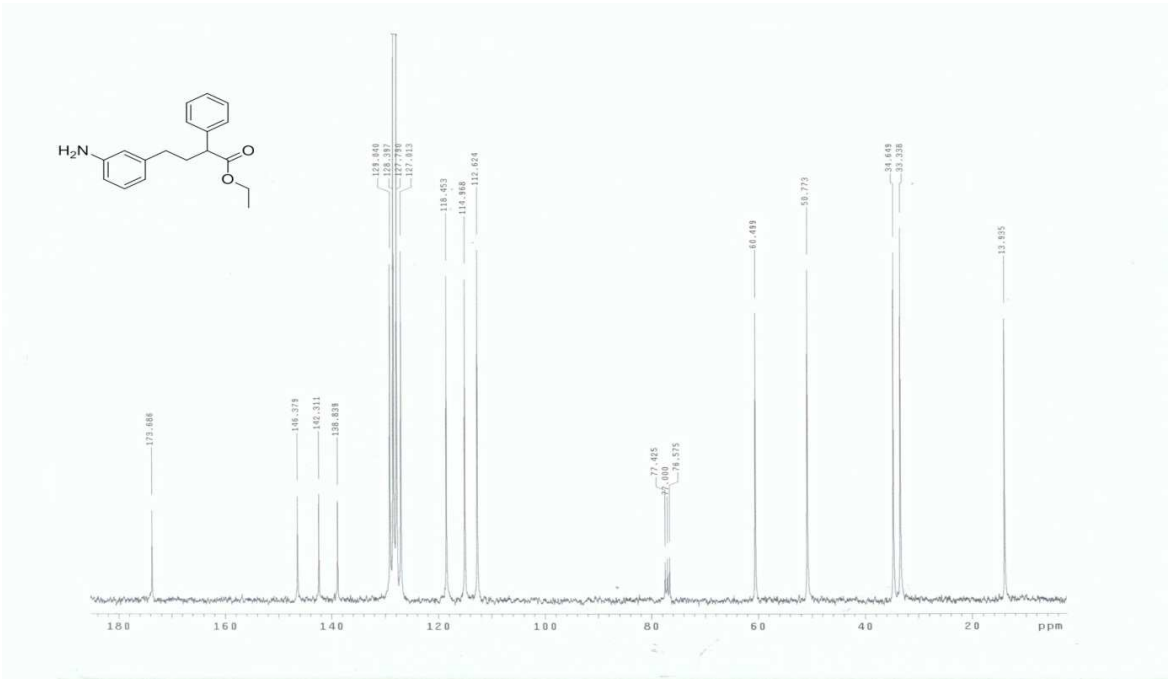

Figure S14. ^{13}C NMR spectrum of ethyl 4-(3-aminophenyl)-2-phenylbutanoate (**22**).

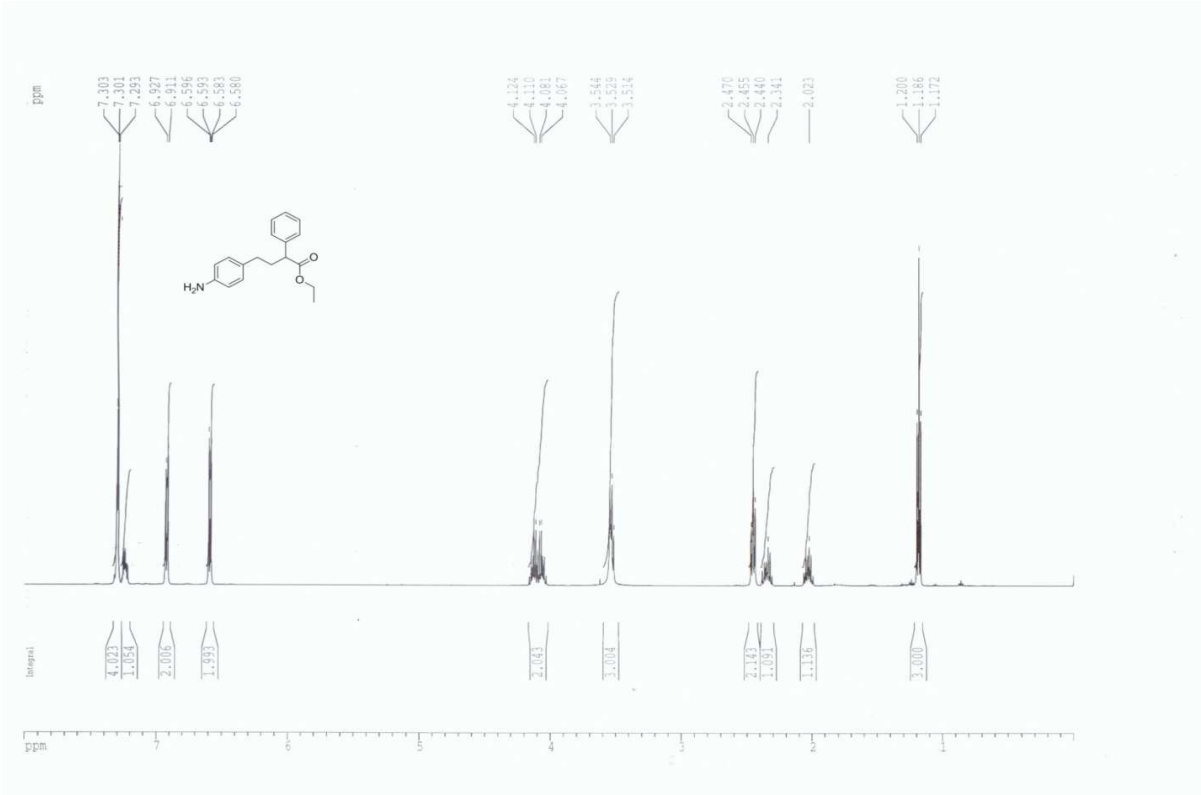

Figure S15. ^{1}H NMR spectrum of ethyl 4-(4-aminophenyl)-2-phenylbutanoate (**23**).

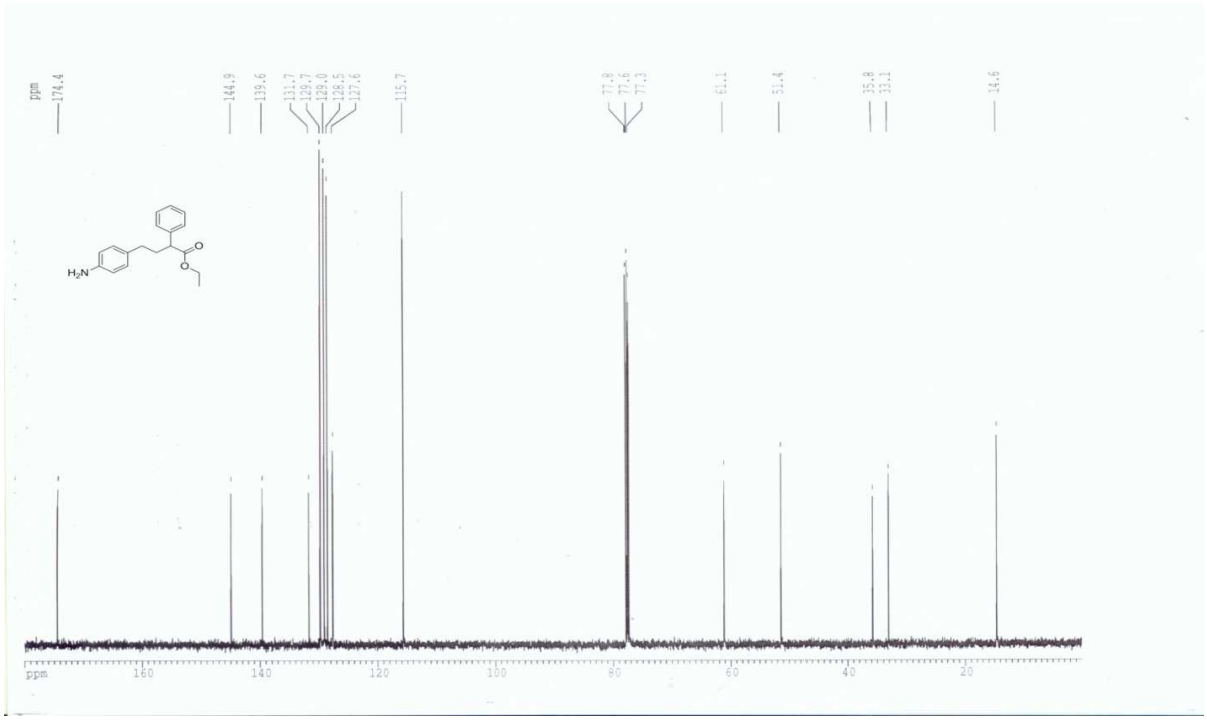

Figure S16. ^{13}C NMR spectrum of ethyl 4-(4-aminophenyl)-2-phenylbutanoate (**23**).

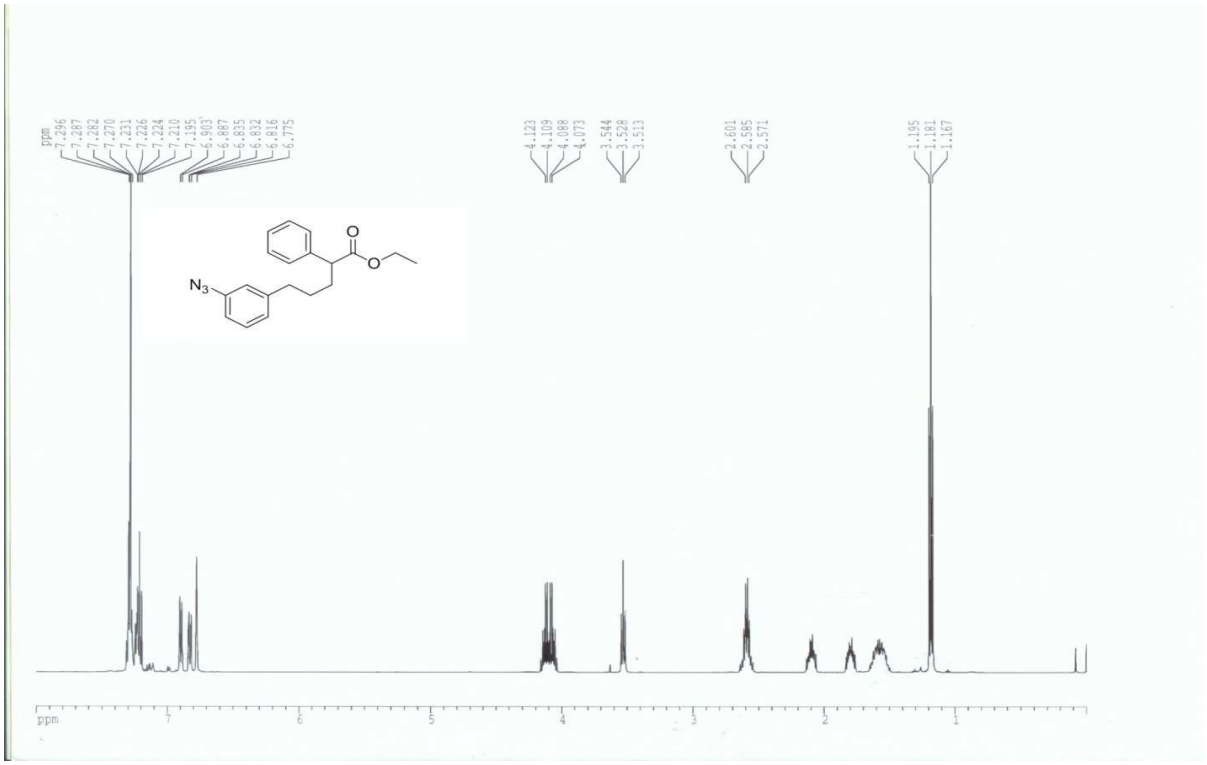

Figure S17. ^{1}H NMR spectrum of ethyl 5-(3-azidophenyl)-2-phenylpentanoate (**24**).

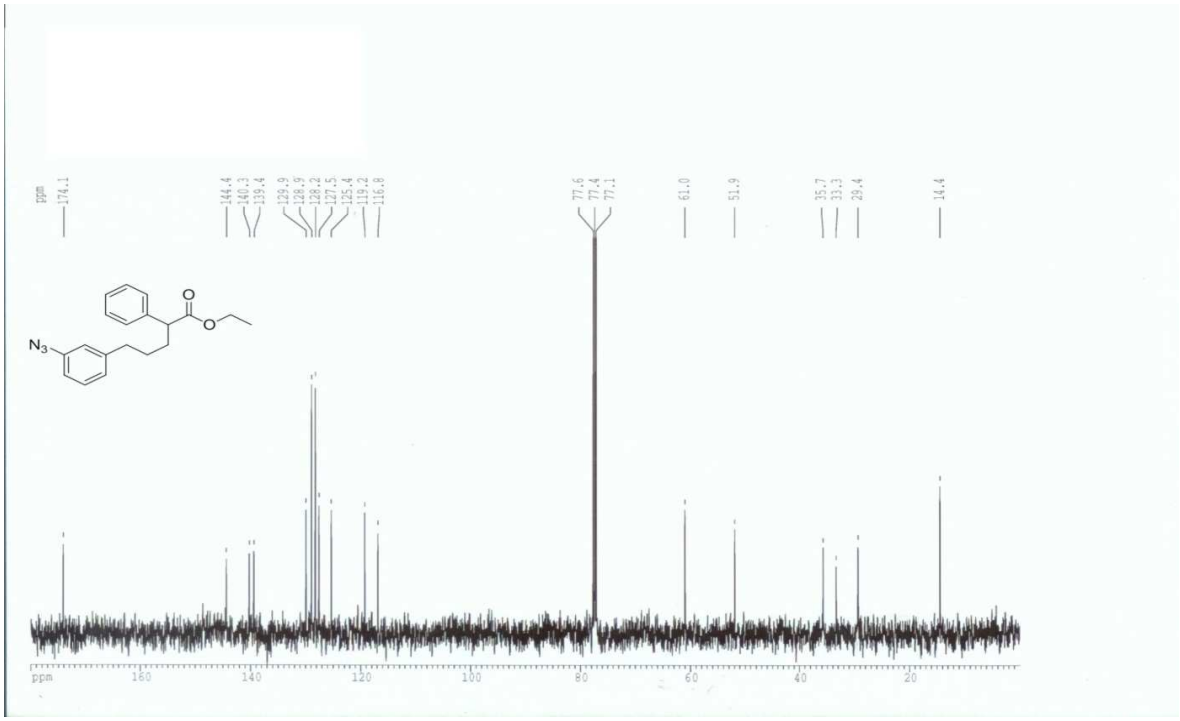

Figure S18. ^{13}C NMR spectrum of ethyl 5-(3-azidophenyl)-2-phenylpentanoate (**24**).

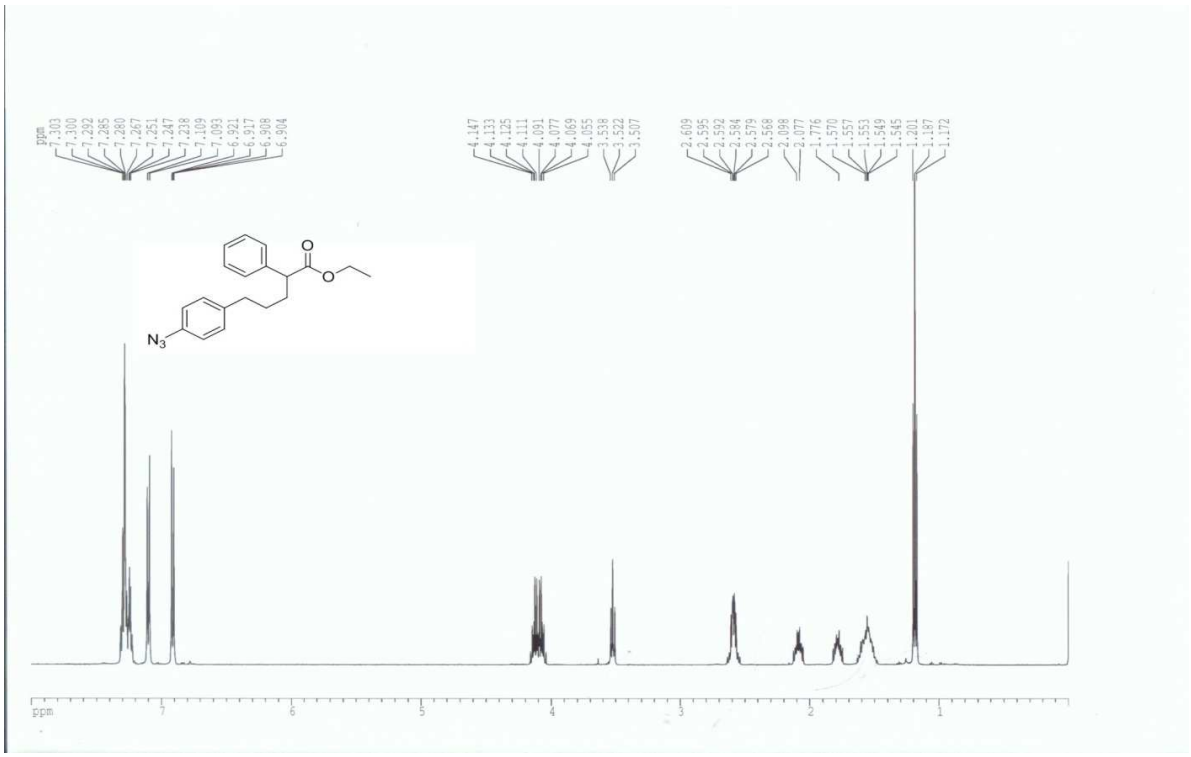

Figure S19. ^{1}H NMR spectrum of ethyl 5-(4-azidophenyl)-2-phenylpentanoate (**25**).

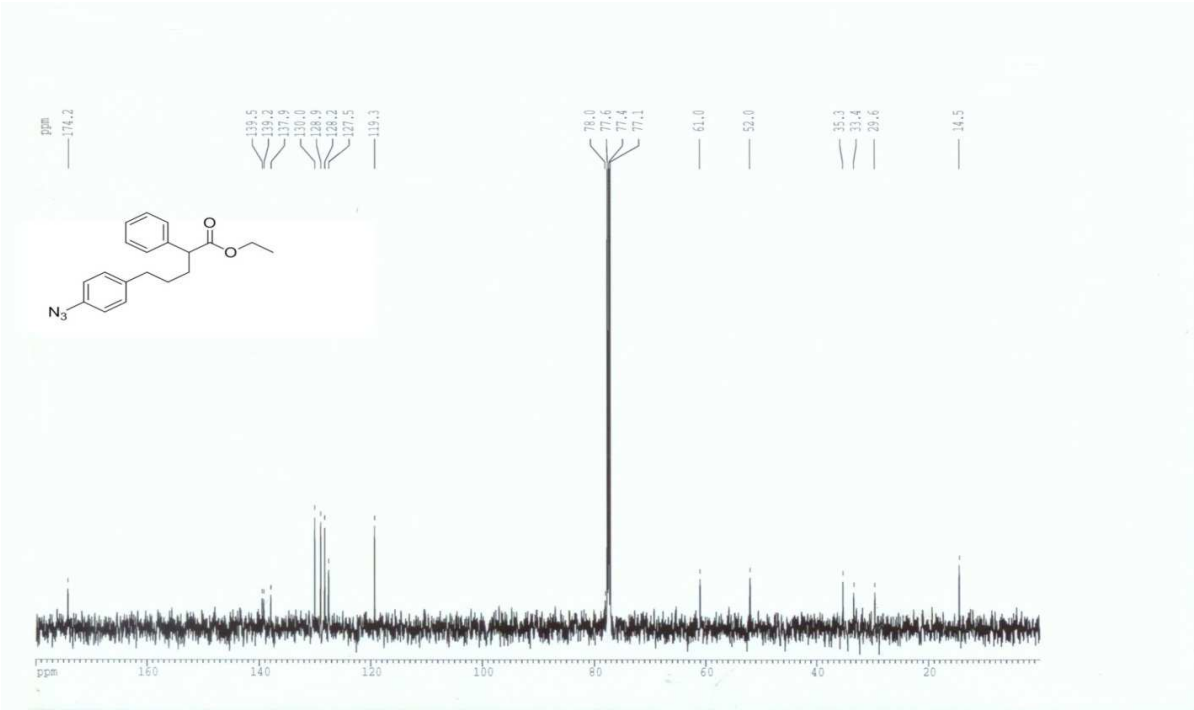

Figure S20. ^{13}C NMR spectrum of ethyl 5-(4-azidophenyl)-2-phenylpentanoate (**25**).

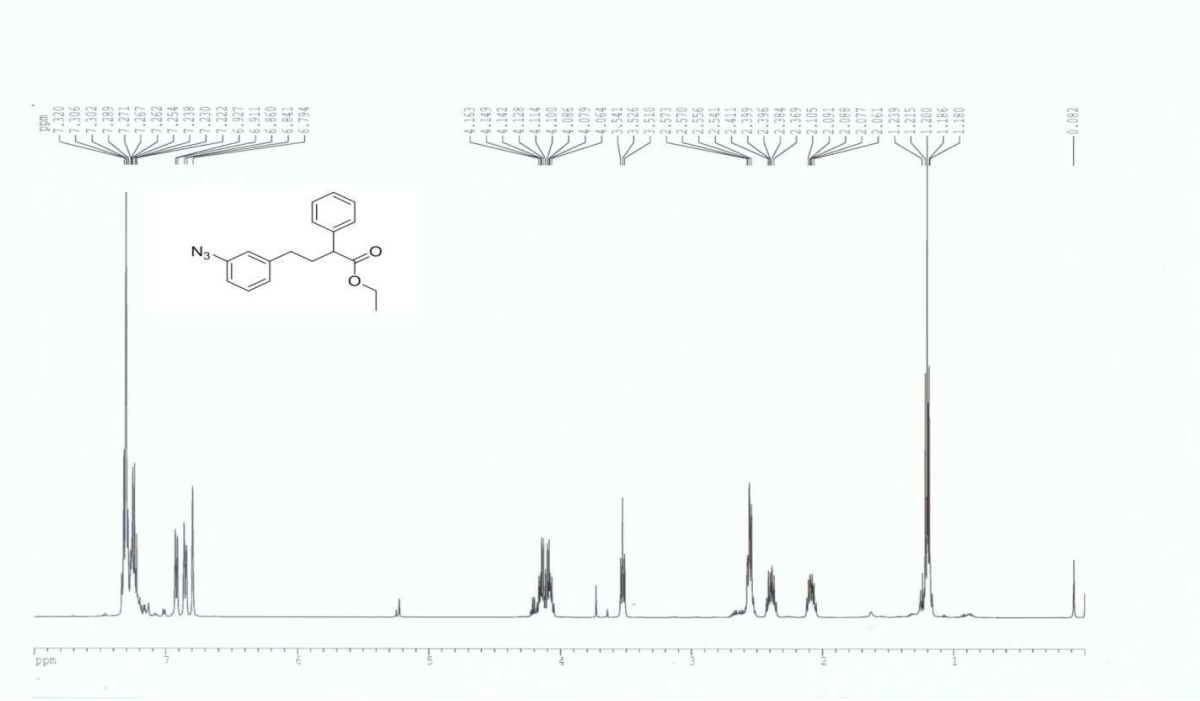

Figure S21. ^{1}H NMR spectrum of ethyl 4-(3-azidophenyl)-2-phenylbutanoate (**26**).

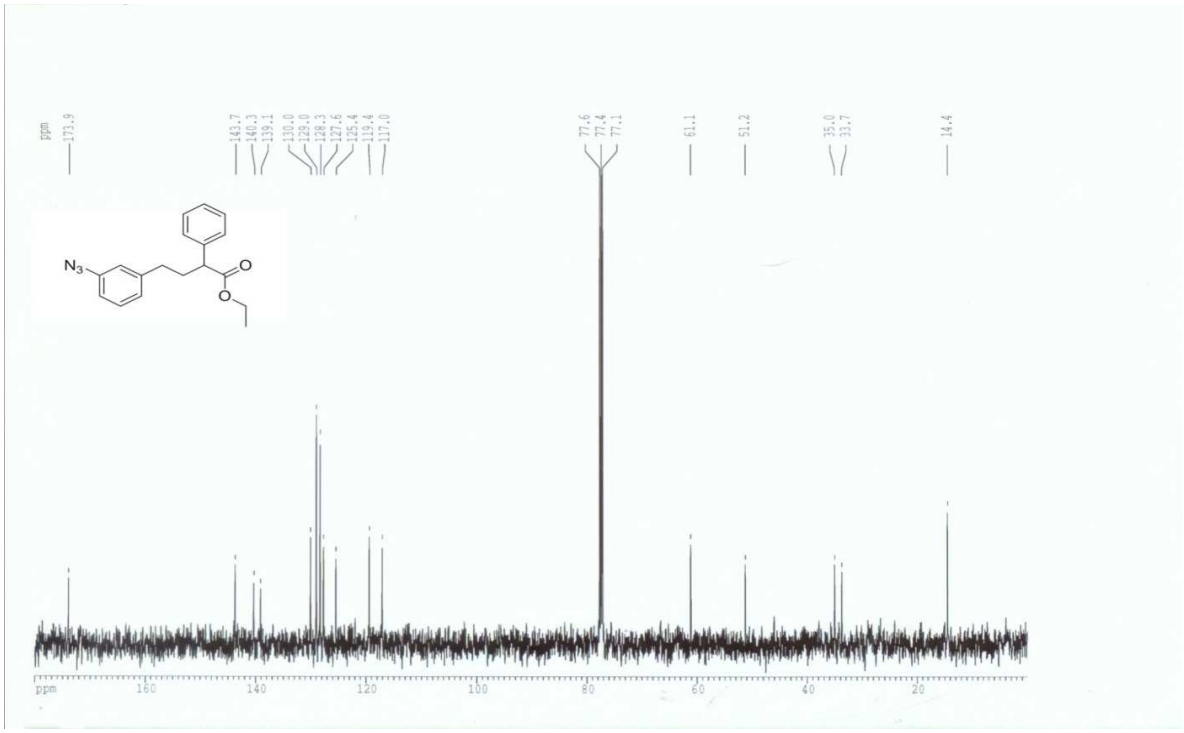

Figure S22. ^{13}C NMR spectrum of ethyl 4-(3-azidophenyl)-2-phenylbutanoate (**26**).

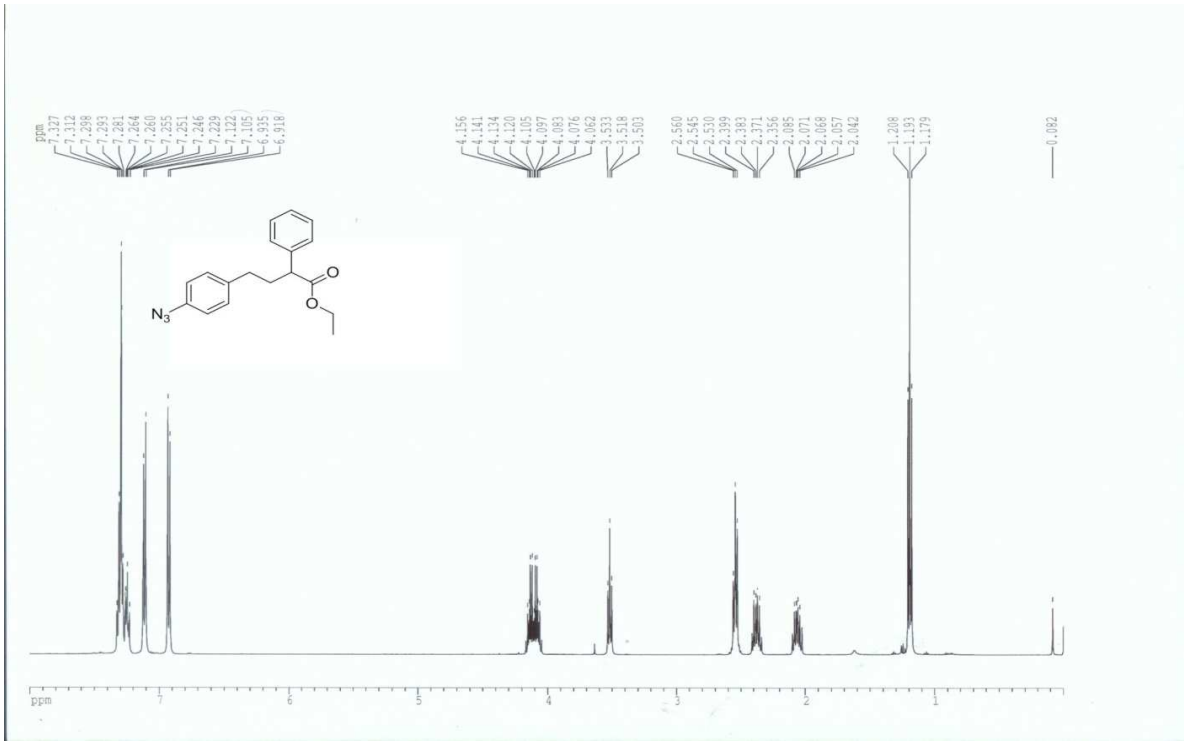

Figure S23. ^{1}H NMR spectrum of ethyl 4-(4-azidophenyl)-2-phenylbutanoate (**27**).

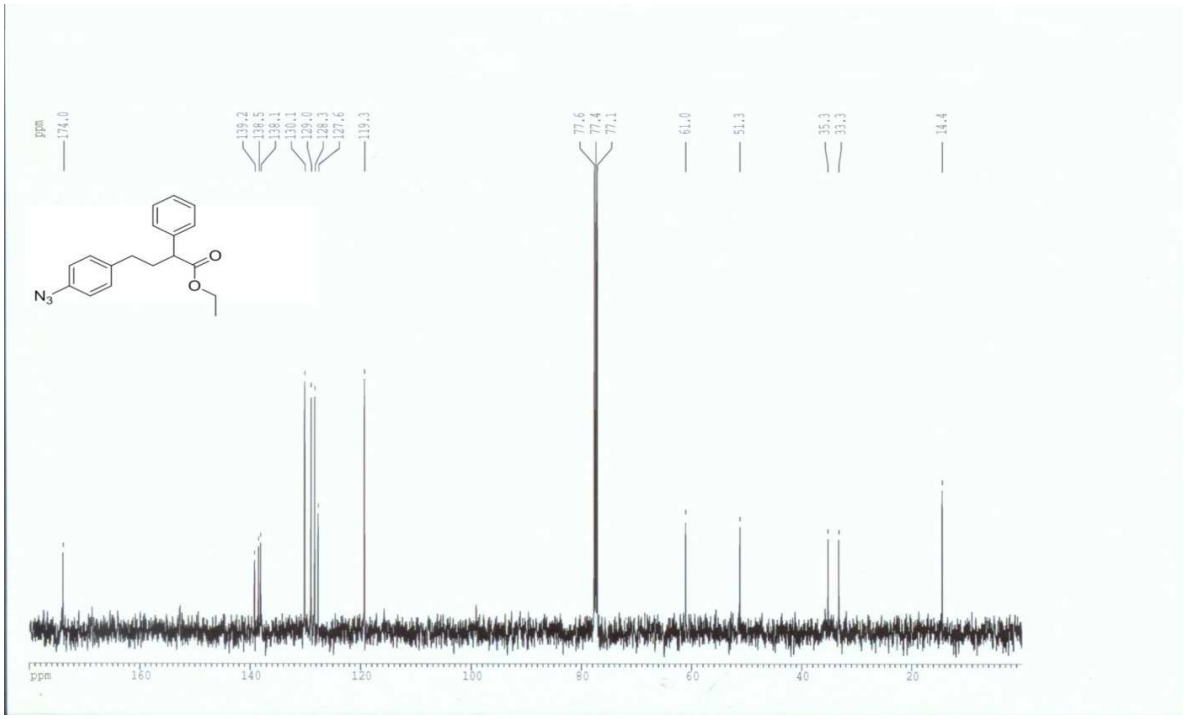

Figure S24. ^{13}C NMR spectrum of ethyl 4-(4-azidophenyl)-2-phenylbutanoate (**27**).

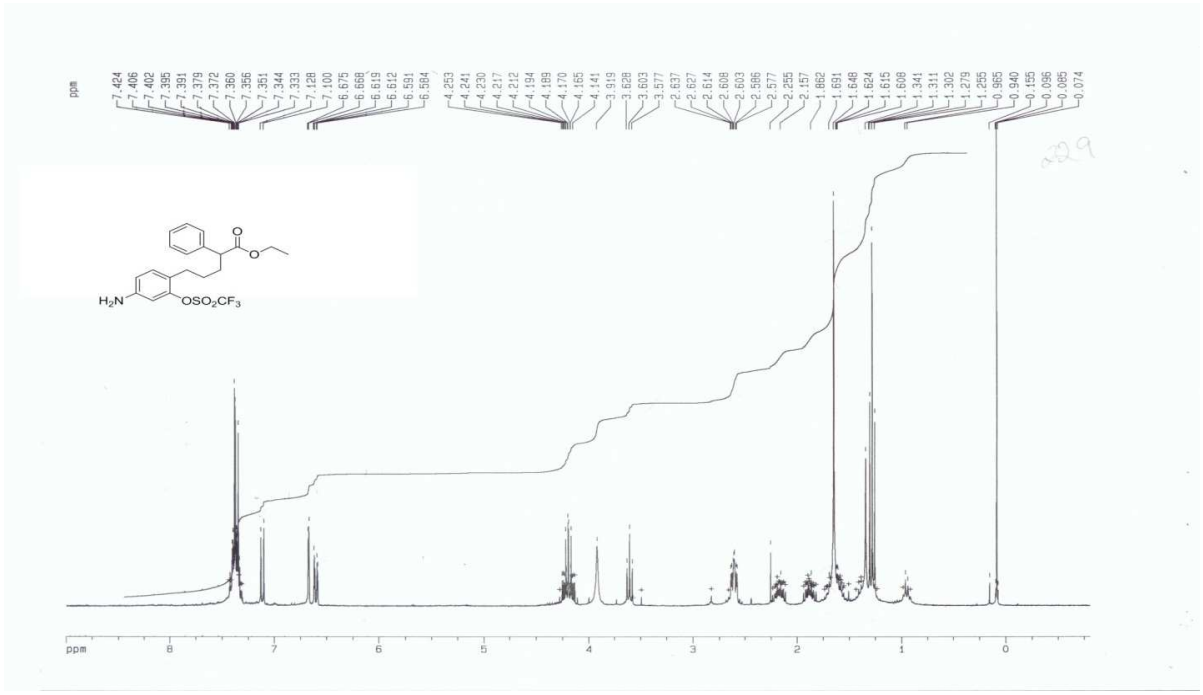

Figure S25. ^{1}H NMR spectrum of ethyl 5-[5-amino-2-(trifluoromethylsulfonyloxy)phenyl]-2-phenylpentanoate (**28**).

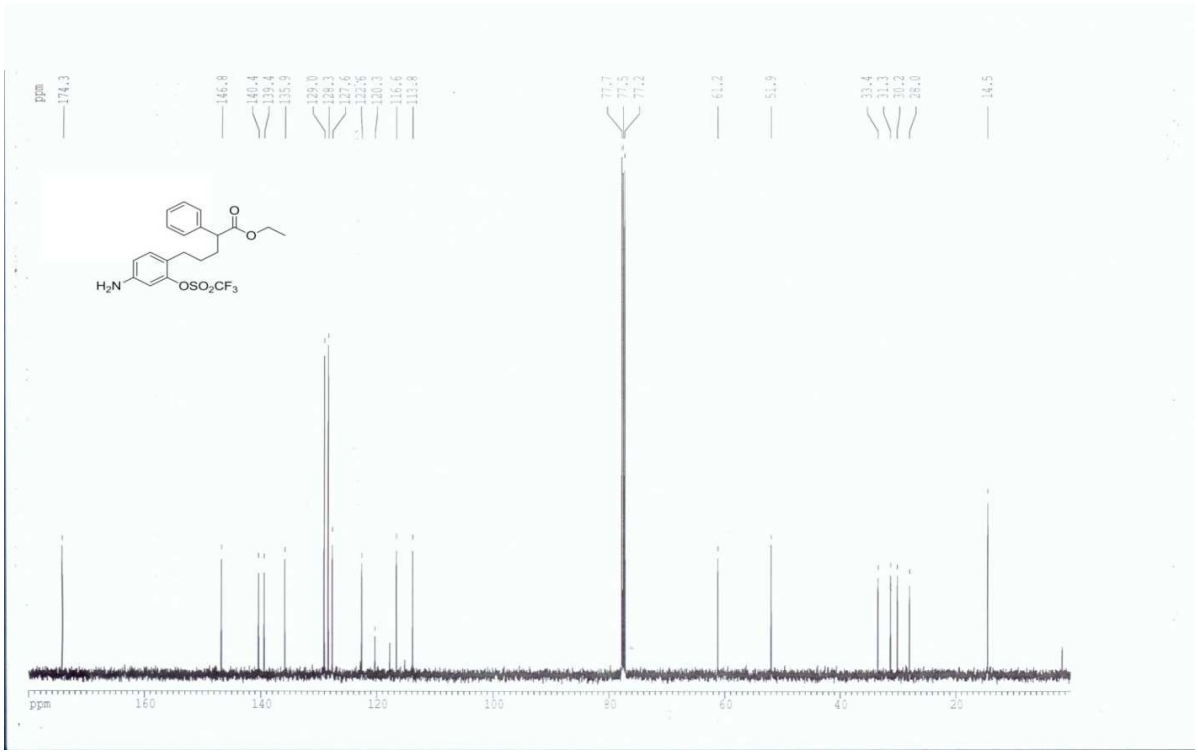

Figure S26. ^{13}C NMR spectrumof ethyl 5-[5-amino-2-(trifluoromethylsulfonyloxy)phenyl]-2-phenylpentanoate (**28**)**.**

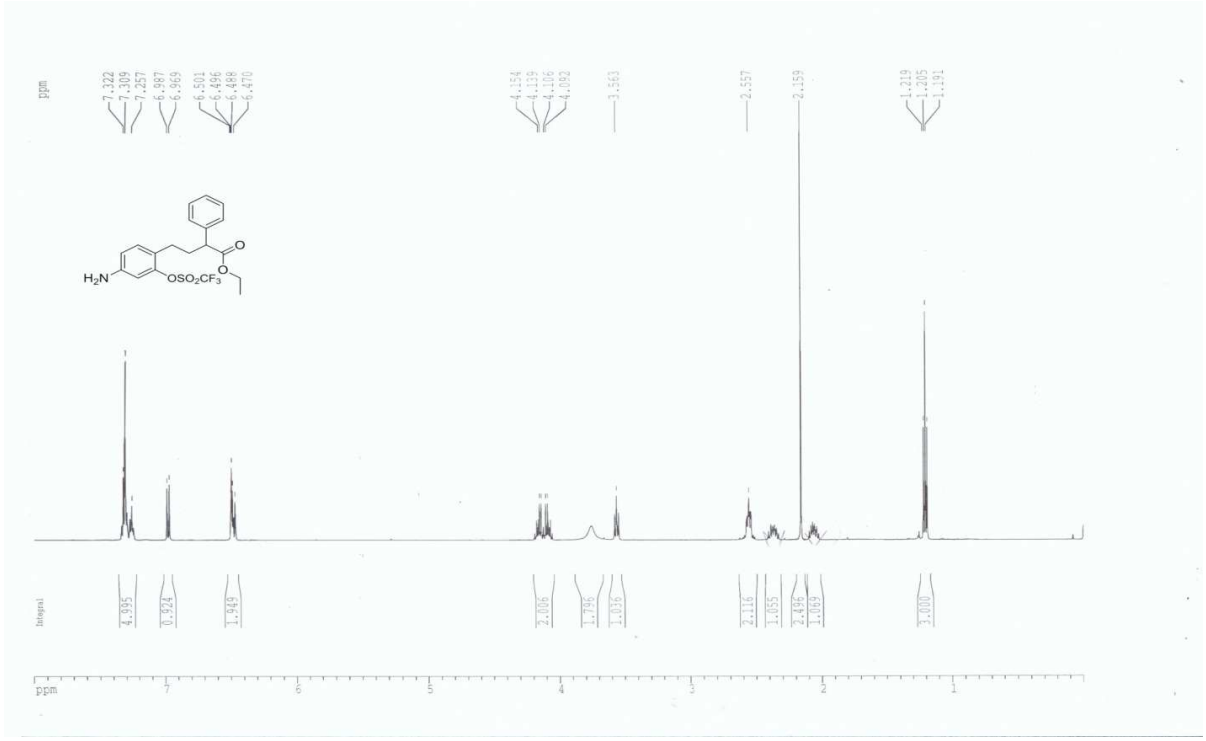

Figure S27. ^{1}H NMR spectrum of ethyl 4-[5-amino-2-(trifluoromethylsulfonyloxy)phenyl]-2-phenylbutanoate (**29**).

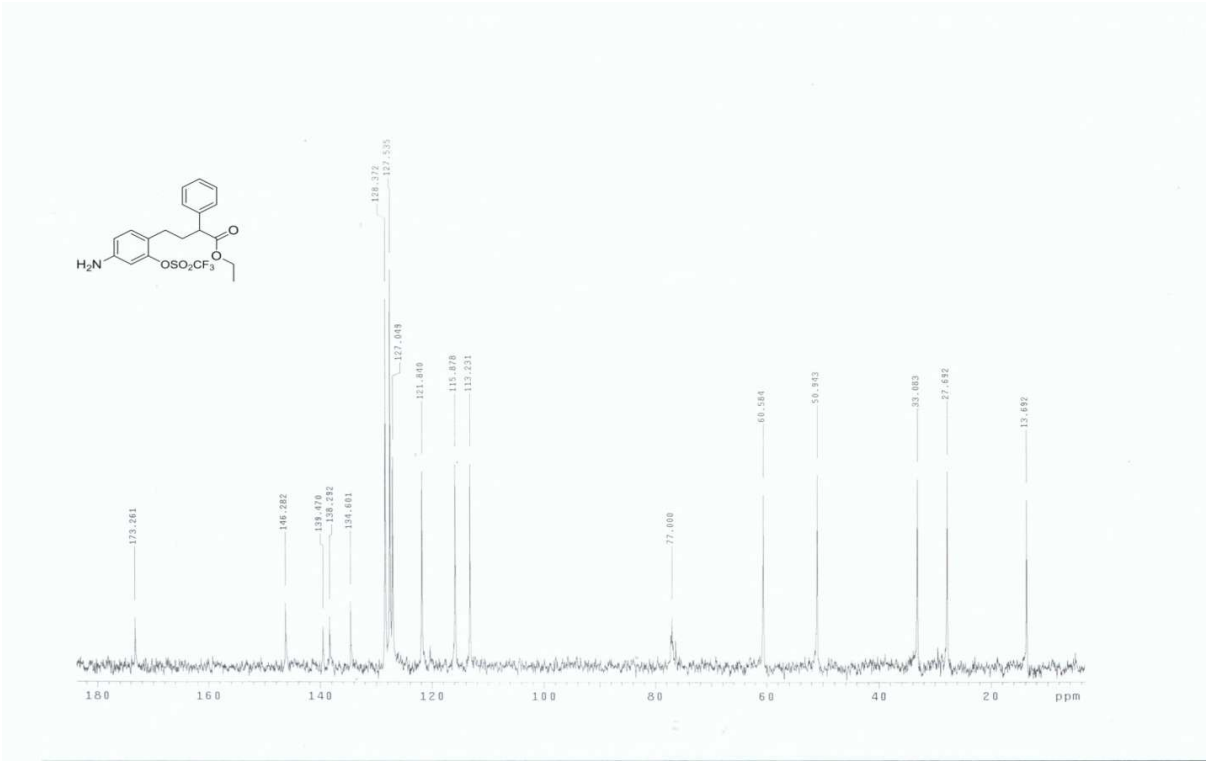

Figure S28. ^{13}C NMR spectrum of ethyl 4-[5-amino-2-(trifluoromethylsulfonyloxy)phenyl]-2-phenylbutanoate (**29**).

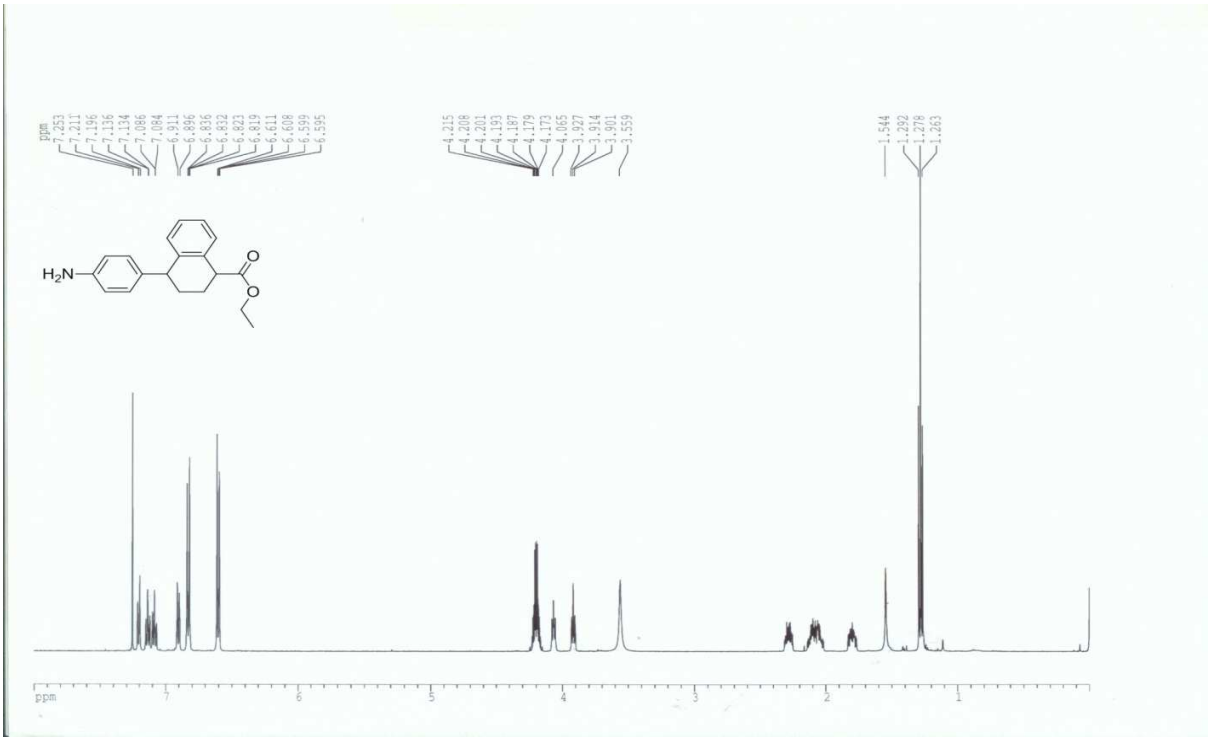

Figure S29. ^{1}H NMR spectrum of ethyl 4-(4-aminophenyl)-1,2,3,4-tetrahydronaphthalene-1-carboxylate (**30**).

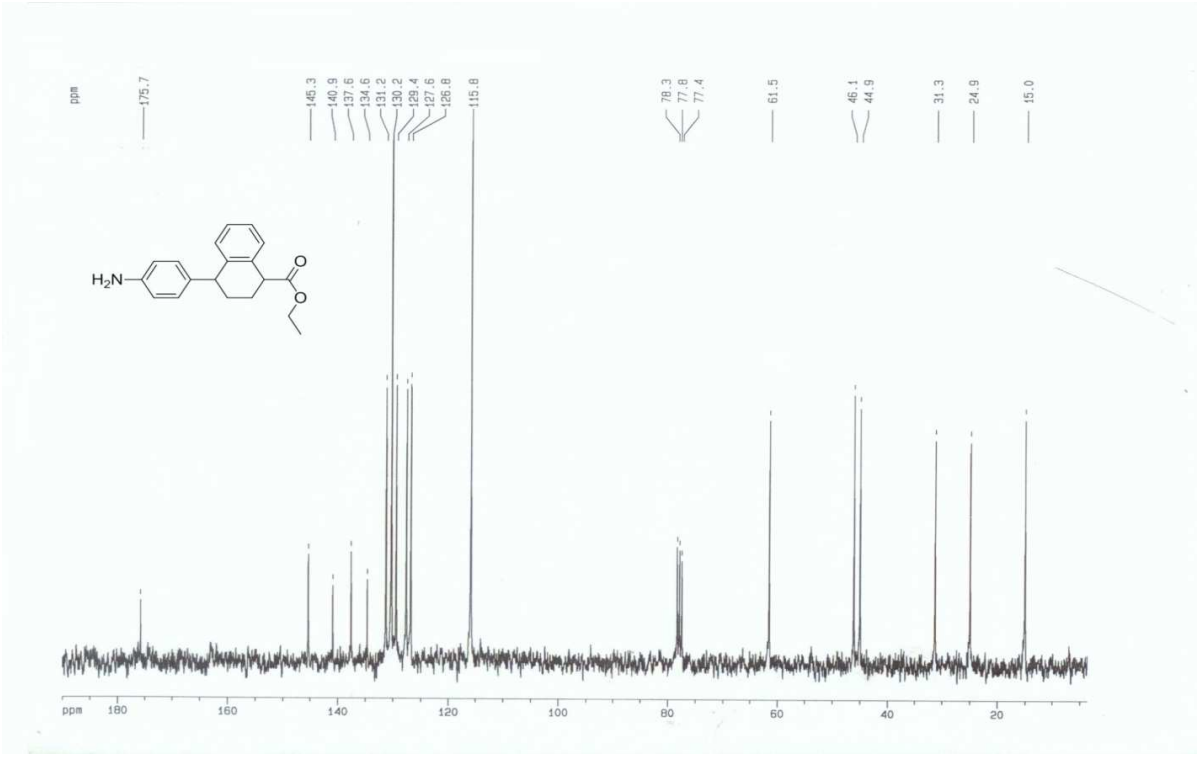

Figure S30. ^{13}C NMR spectrum of ethyl 4-(4-aminophenyl)-1,2,3,4-tetrahydronaphthalene-1-carboxylate (**30**).

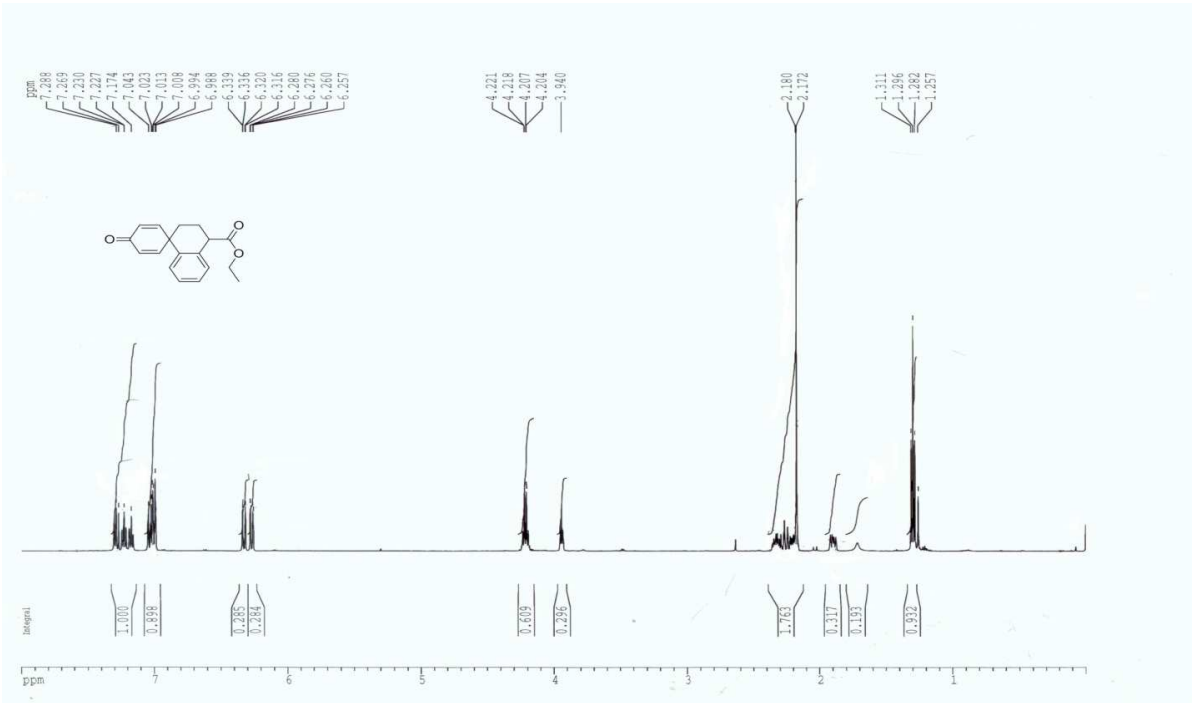

Figure S31. ^{1}H NMR spectrum of ethyl 4-oxo-3',4'-dihydro-2'*H*-spiro(cyclohexa[2,5]diene-1,1'-naphthalene)-4'-carboxylate (**31**).

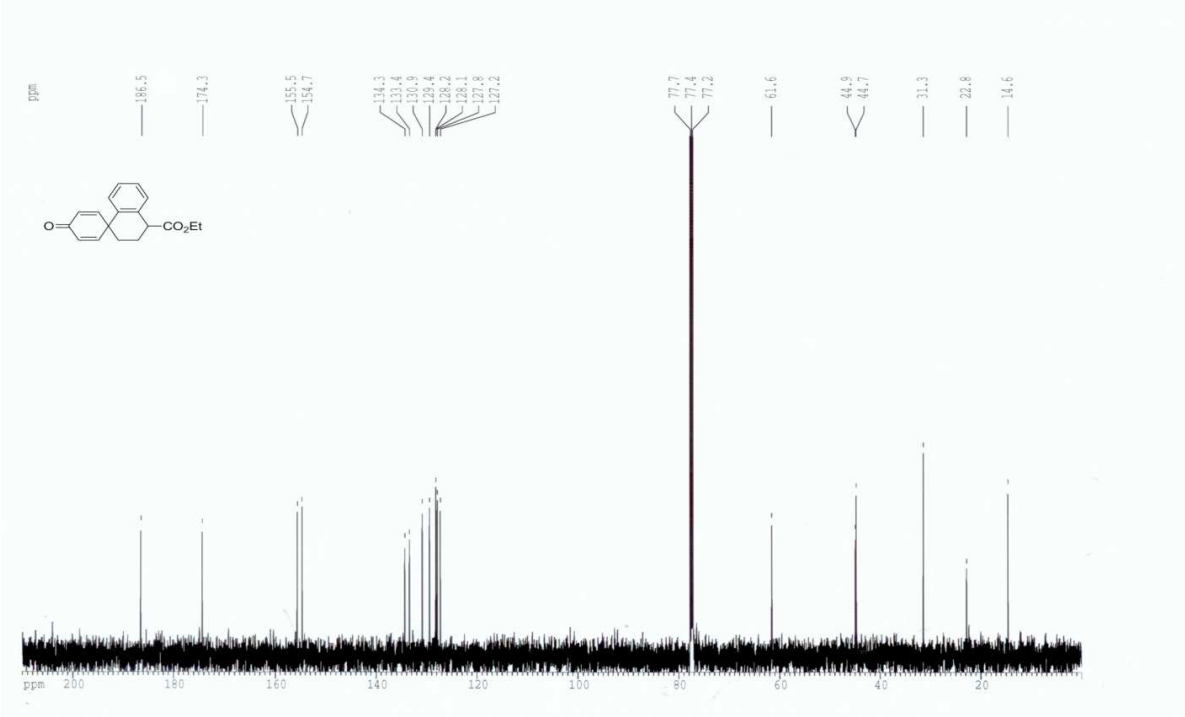

Figure S32. ^{13}C NMR spectrum of ethyl 4-oxo-3',4'-dihydro-2'*H*-spiro(cyclohexa[2,5]diene-1,1'-naphthalene)-4'-carboxylate (**31**).

Table S1. Crystal data and Structure Refinement for Compounds **30** and **31.**

	Compound 30	**Compound 31**
Empirical formula	C19 H21 N O2	C18 H18 O3
Formula weight	295.37	282.32
T/K	293(2)	293(2)
Wavelength/Å	1.54439	1.54439
Crystal size/mm	0.14 x 0.09 x 0.08	0.13 x 0.09 x 0.06
Color of crystal	colourless	colourless
Crystal system	Monoclinic	Monoclinic
Space group	$P2_1$	$P2_1/n$
a/Å	11.077(2)	12.472(3)
b/Å	5.958(3)	9.898(2)
c/Å	12.778(2)	12.538(4)
β/deg	103.792(10)	104.47(2)

V/Å^3	818.9(5)	1498.7(7)
Z	2	4
ρ_{calcd}/g·cm^{-3}	1.198	1.251
μ/mm^{-1}	0.611	0.678
F(000)	316	600
θ limits/deg	3.56 - 66.77.	4.48 to 67.27
Limiting indices	$-1 \le h \le 13$ $-1 \le k \le 7$ $-15 \le l \le 15$	$-14 \le h \le 14$ $-11 \le k \le 0$ $-14 \le l \le 14$
Reflections collected/unique	2218 / 1909 [R(int) = 0.0382]	5301 / 2659 [R(int) = 0.1232]
Completeness to θ	100% (θ = 66.77)	99.9% (θ = 67.27)
Refinement method	Full-matrix least-squares on F^2	Full-matrix least-squares on F^2
Data / restraints / parameters	1909 / 3 / 265	2659 / 1 / 234
GOF on F^2	1.082	1.015
Final R indices [$I>2\sigma(I)$]	R_1 = 0.0602	R_1 = 0.0717
R indices (all data)	R_1 = 0.0648	R_1 = 0.1409
Absolute structure parameter	0.6(11)	-
Extinction coefficient	0.025(3)	-
Largest diff. peak and hole/e.Å^{-3}	0.321 and -0.226	0.400 and -0.329