

Supplementary Material

Attempted Reactions of Methoxyallene with Dimethyl 2-Arylcyclopropane Dicarboxylates (D–A Cyclopropanes); Dual Catalytic Activity of Scandium Triflate $\text{Sc}(\text{OTf})_3$ and Unexpected Formation of the MeOH Adducts

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Collection of the ^1H , ^{13}C , and ^{19}F NMR spectra registered for products **3a-l** and **4**

S2

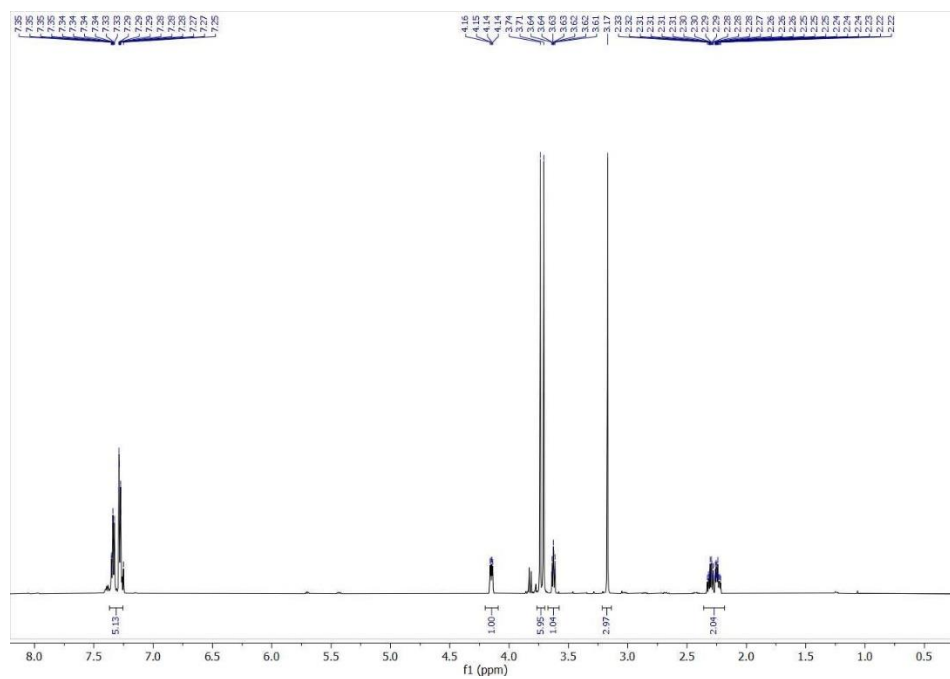


Figure SM1. ^1H NMR spectrum of dimethyl 2-(2-methoxy-2-phenylethyl)malonate (**3a**).

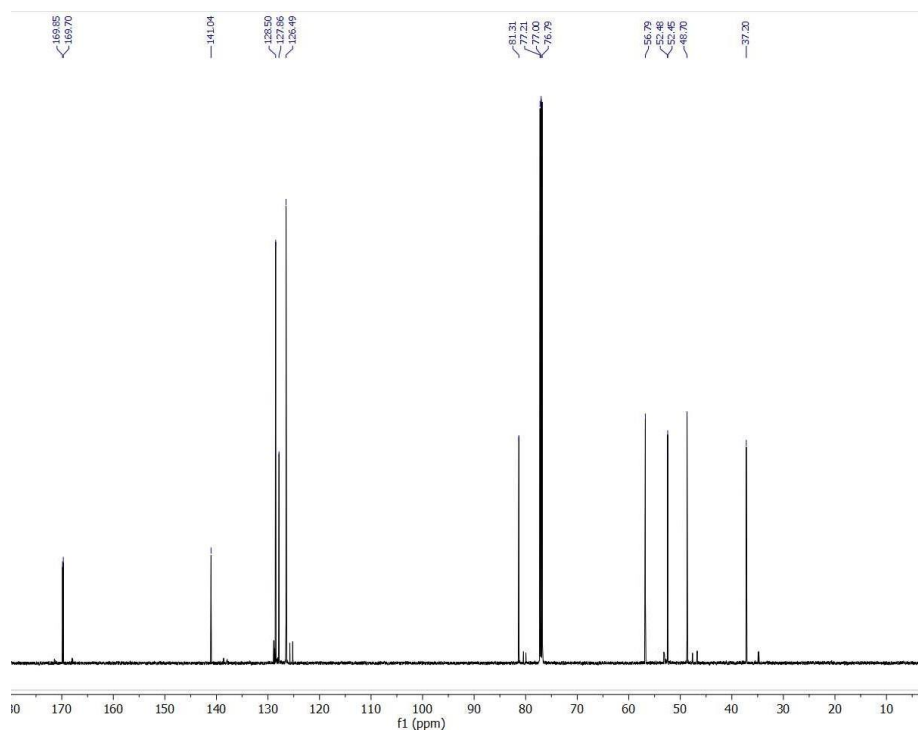


Figure SM2. ^{13}C NMR spectrum of dimethyl 2-(2-methoxy-2-phenylethyl)malonate (**3a**).

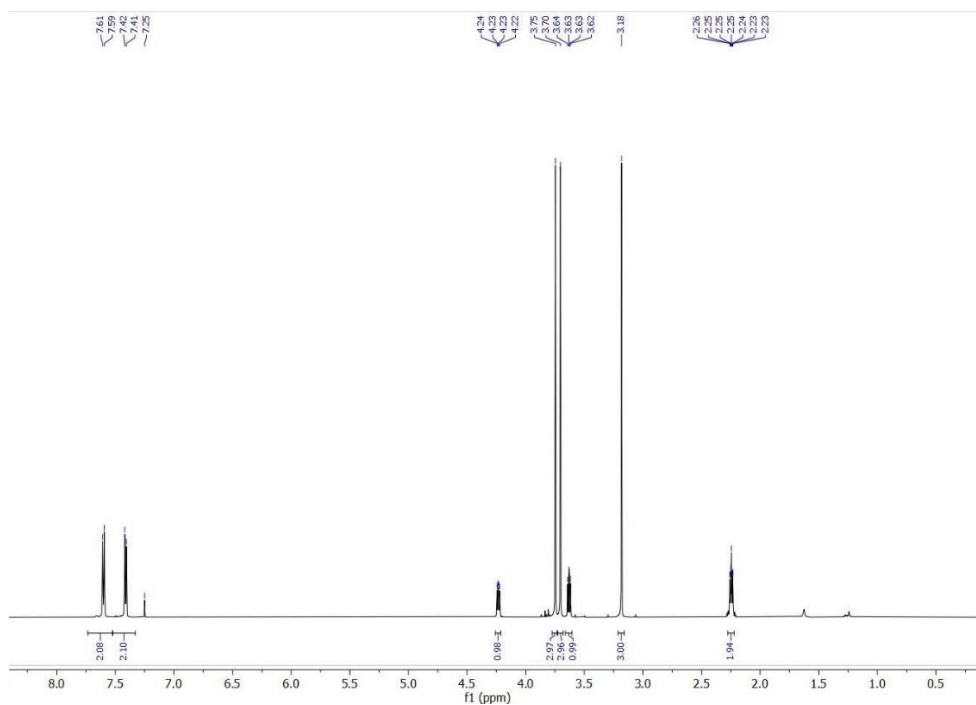


Figure SM5. ¹H spectrum of dimethyl 2-(2-methoxy-2-(4-trifluoromethyl)phenylethyl)malonate (**3c**).

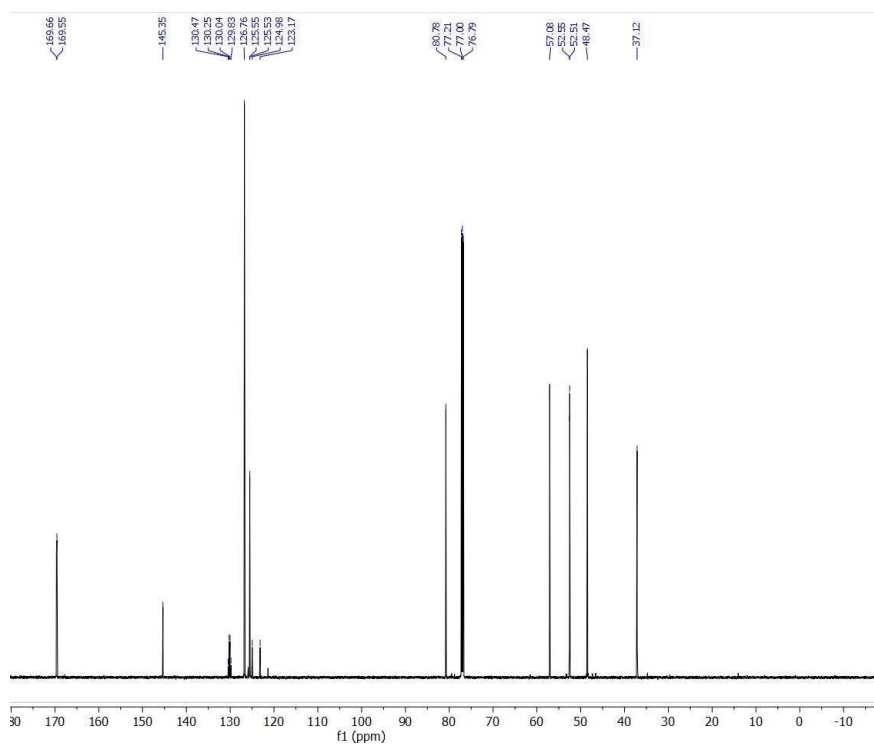


Figure SM6. ¹³C NMR spectrum of dimethyl 2-(2-methoxy-2-(4-trifluoromethyl)phenylethyl)malonate (**3c**).

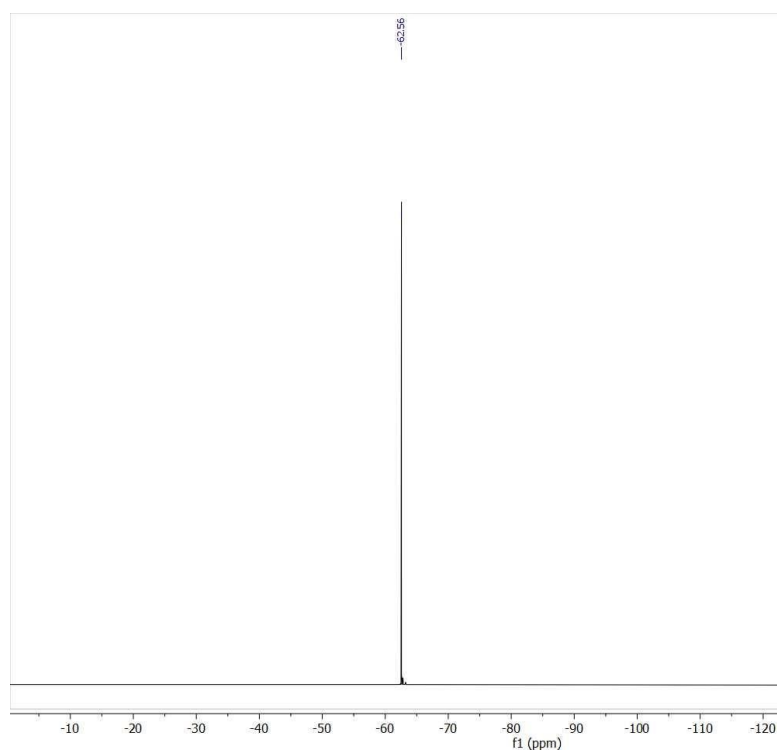


Figure SM7. ¹⁹F NMR spectrum of dimethyl 2-(2-methoxy-2-(4-trifluoromethyl)phenylethyl)malonate (**3c**).

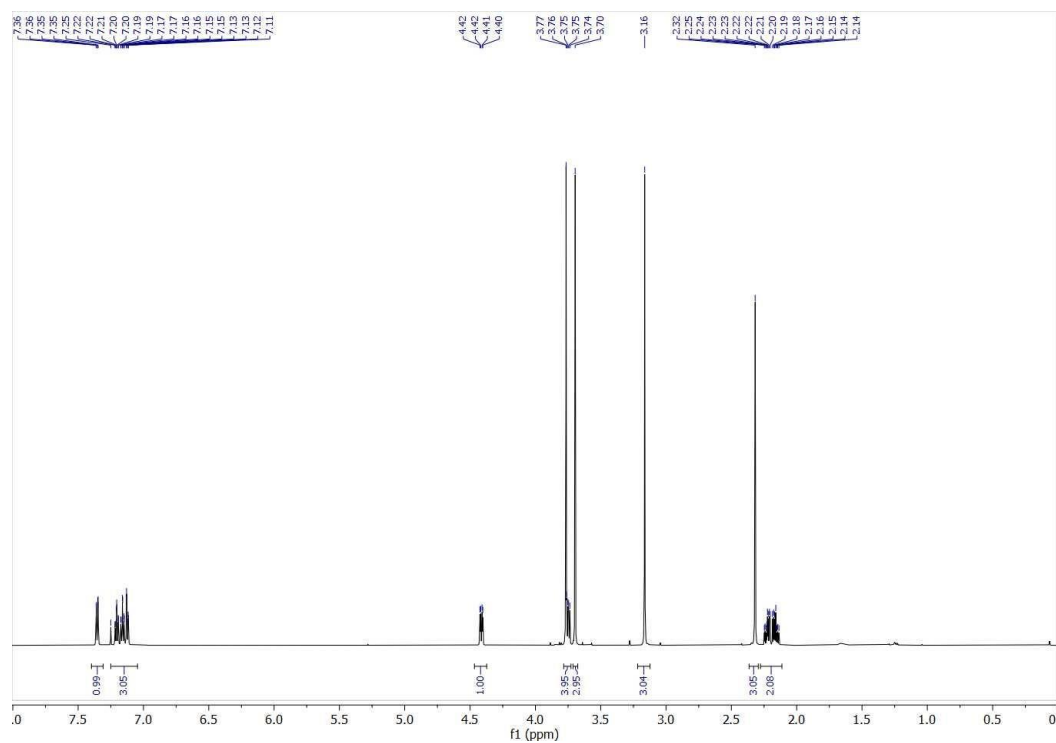


Figure SM8. ¹H NMR spectrum of dimethyl 2-(2-methoxy-2-(*o*-tolyl))ethyl)malonate (**3d**).

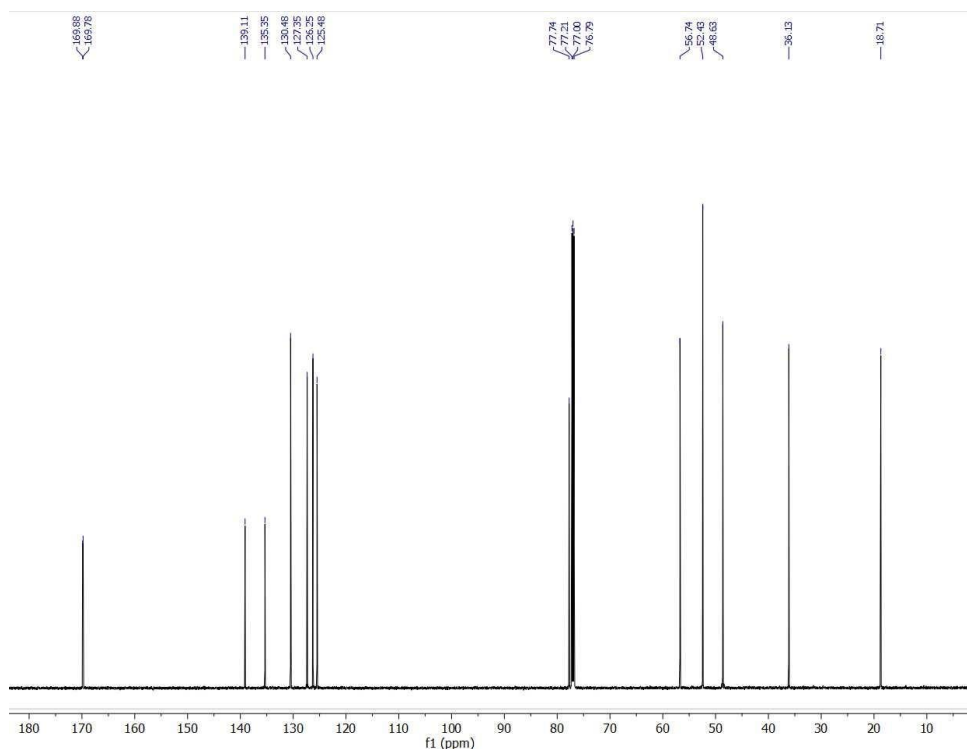


Figure SM9. ¹³C NMR spectrum of dimethyl 2-(2-methoxy-2-(*o*-tolyl))ethylmalonate (**3d**).

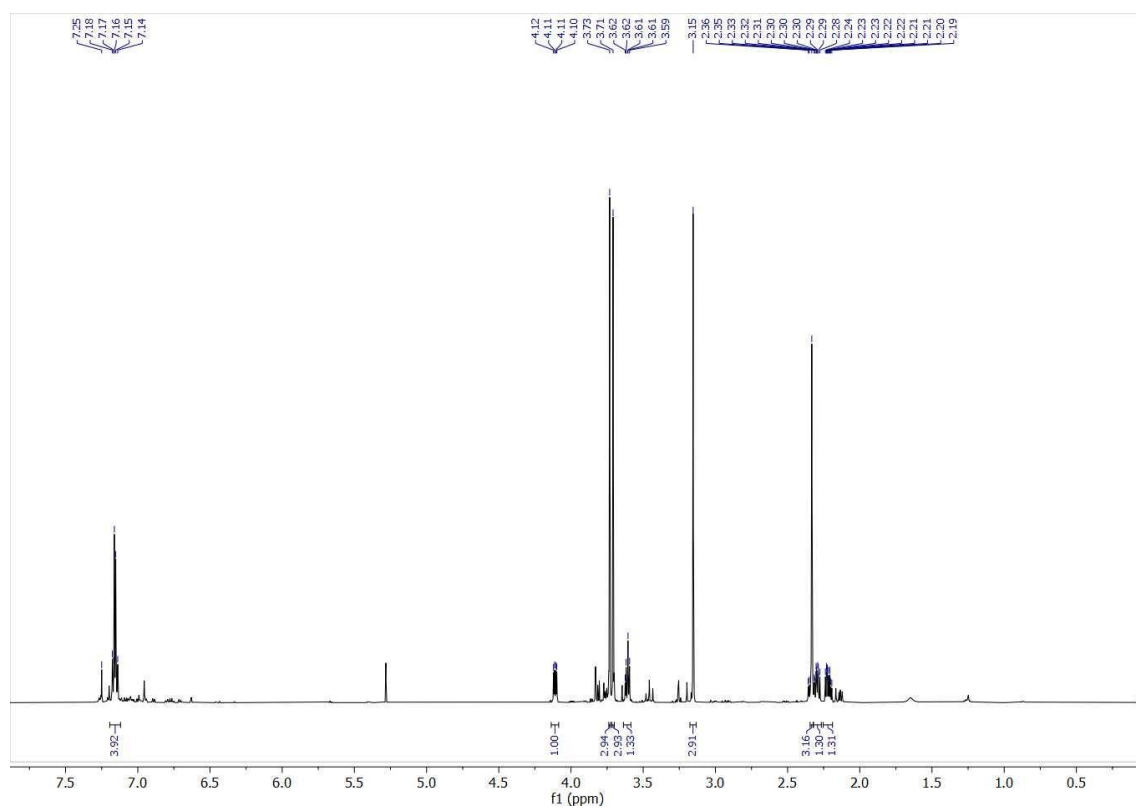


Figure SM10. ¹H NMR spectrum of dimethyl 2-(2-methoxy-2-(*p*-tolyl))ethylmalonate (**3e**).

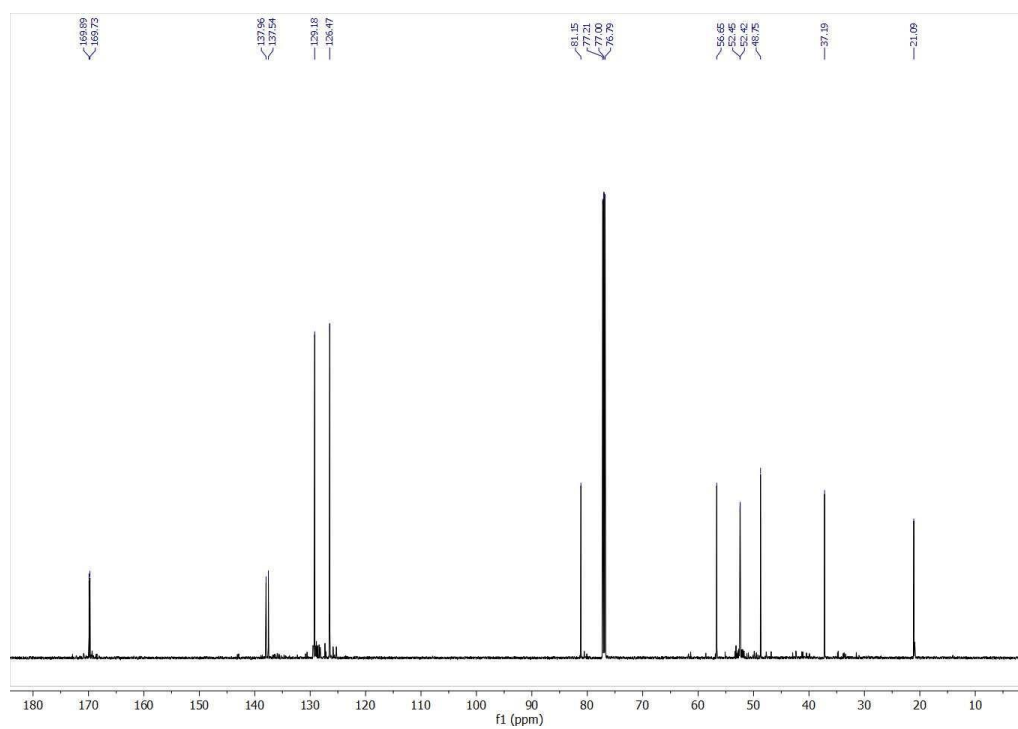


Figure SM11. ¹³C NMR spectrum of dimethyl 2-(2-methoxy-2-(*p*-tolyl))ethyl)malonate (**3e**).

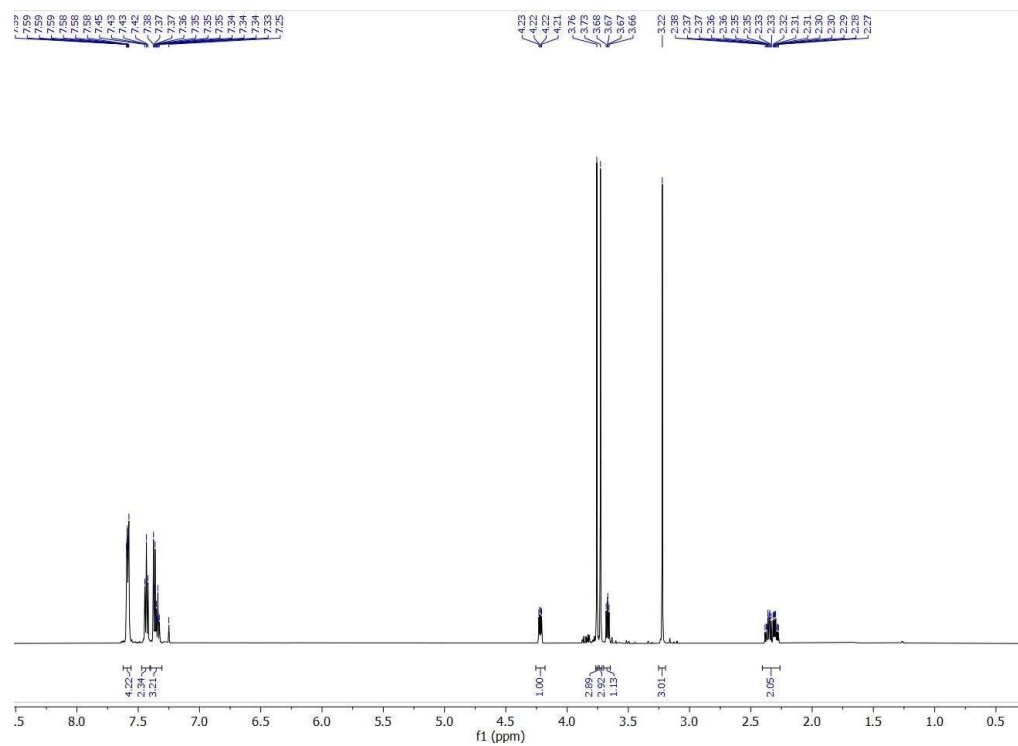


Figure SM12. ¹H NMR spectrum of dimethyl 2-(2-([1,1'-biphenyl]-4-yl)-2-methoxyethyl)malonate (**3f**).

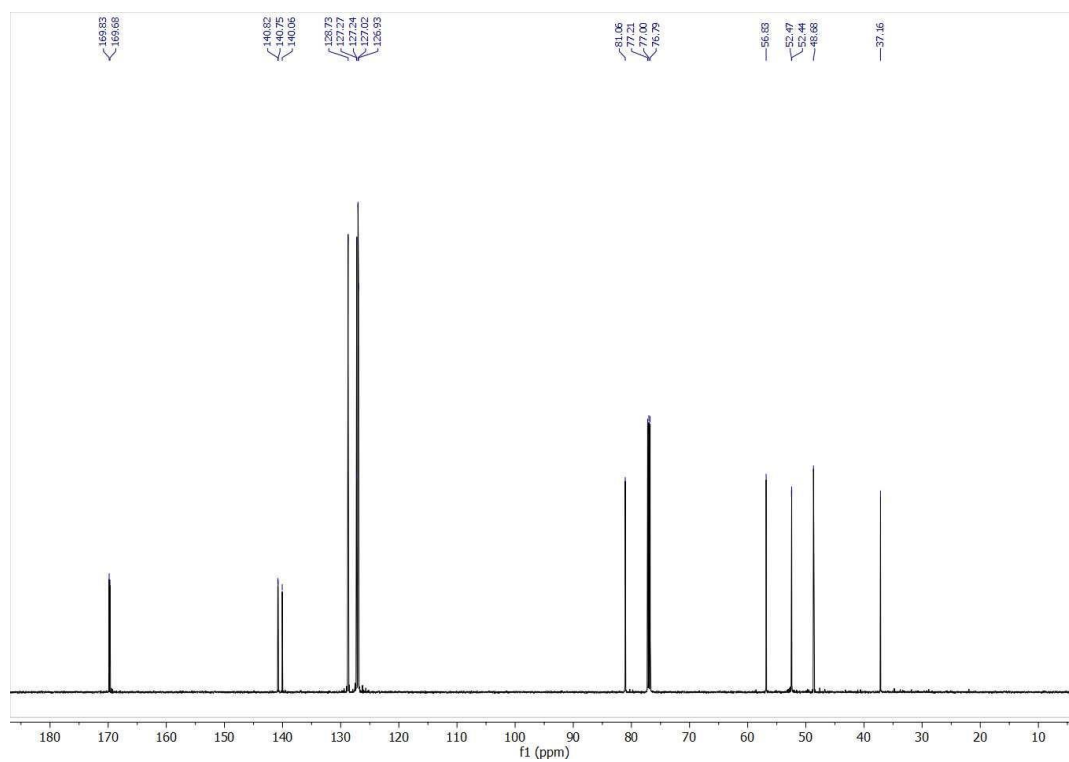


Figure SM13. ¹³C NMR spectrum of dimethyl 2-(2-([1,1'-biphenyl]-4-yl)-2-methoxyethyl)malonate (**3f**).

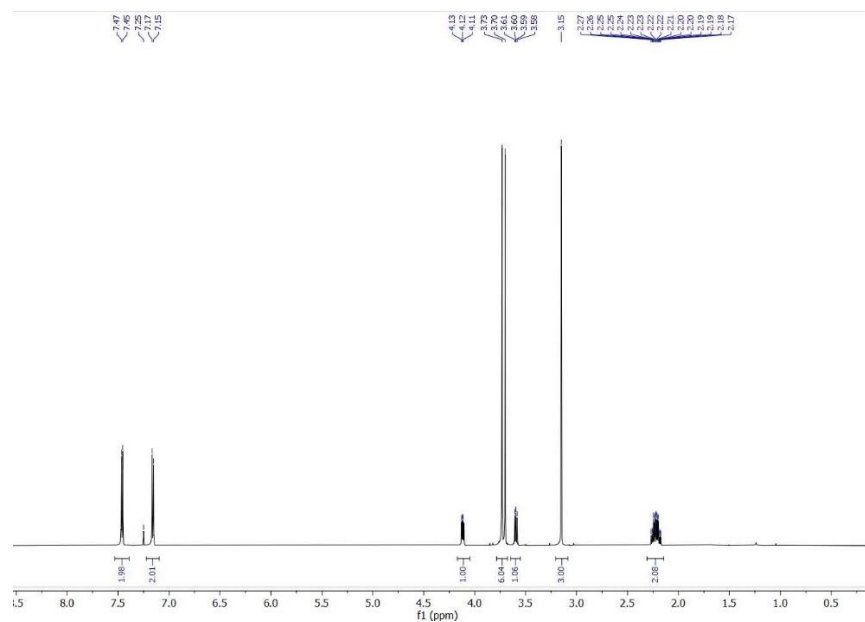


Figure SM14. ¹H NMR spectrum of dimethyl 2-(2-(4-bromophenyl)-2-methoxyethyl)malonate (**3g**).

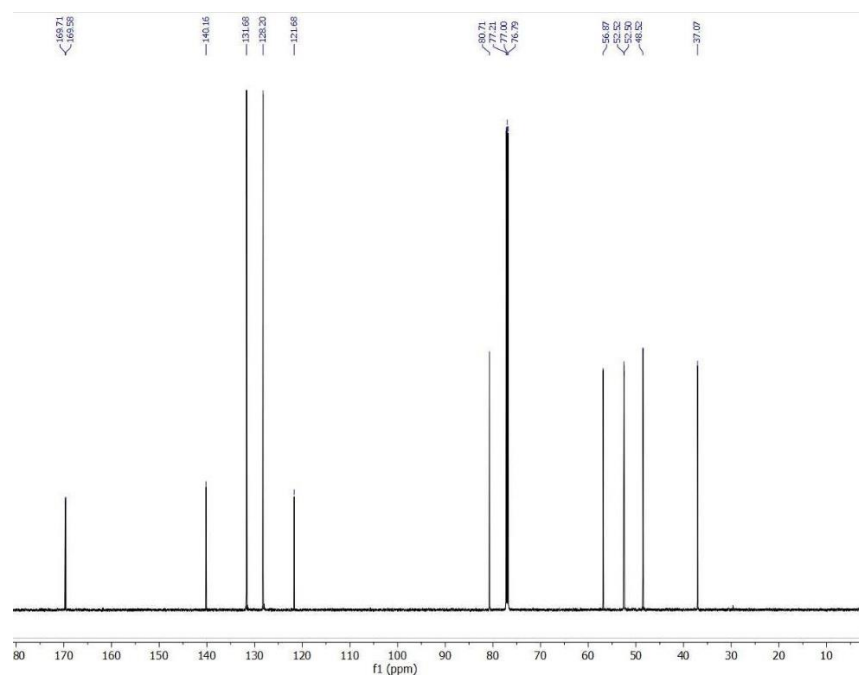


Figure SM15. ^{13}C NMR spectrum of dimethyl 2-(2-(4-bromophenyl)-2-methoxyethyl)malonate (**3g**).

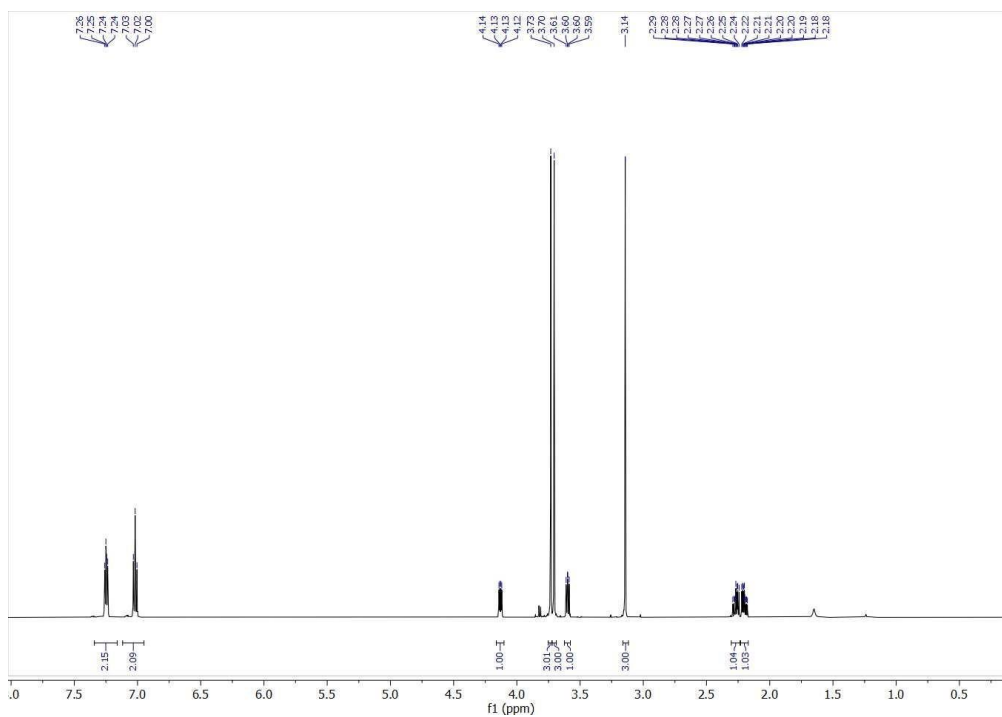


Figure SM16. ^1H NMR spectrum of dimethyl 2-(2-(4-fluorophenyl)-2-methoxyethyl)malonate (**3h**).

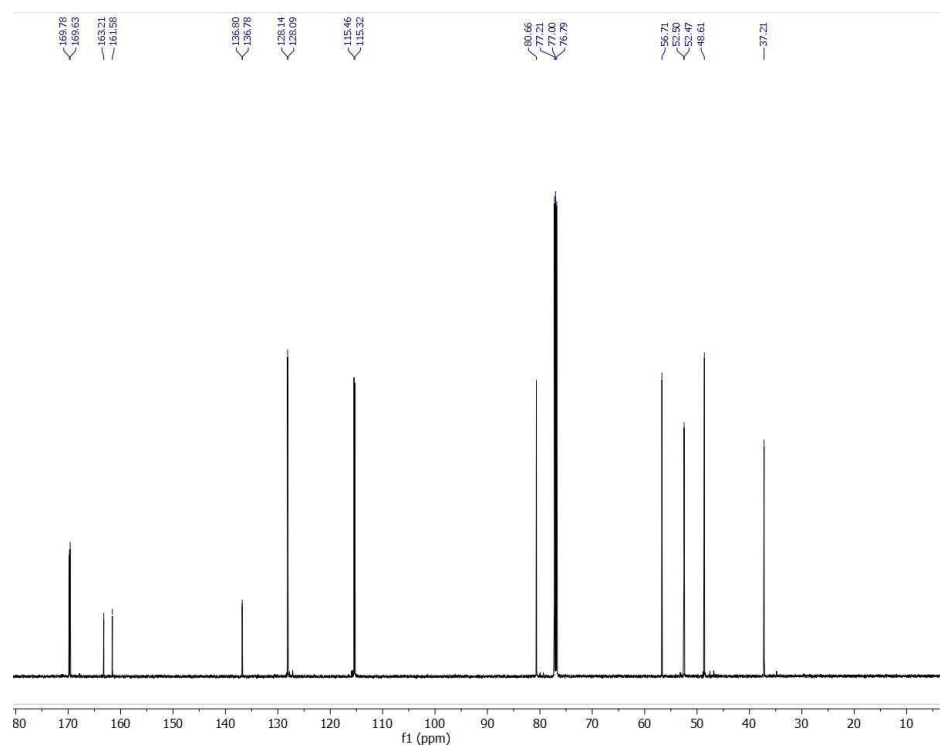


Figure SM17. ¹³C NMR spectrum of dimethyl 2-(2-(4-fluorophenyl)-2-methoxyethyl)malonate (**3h**).

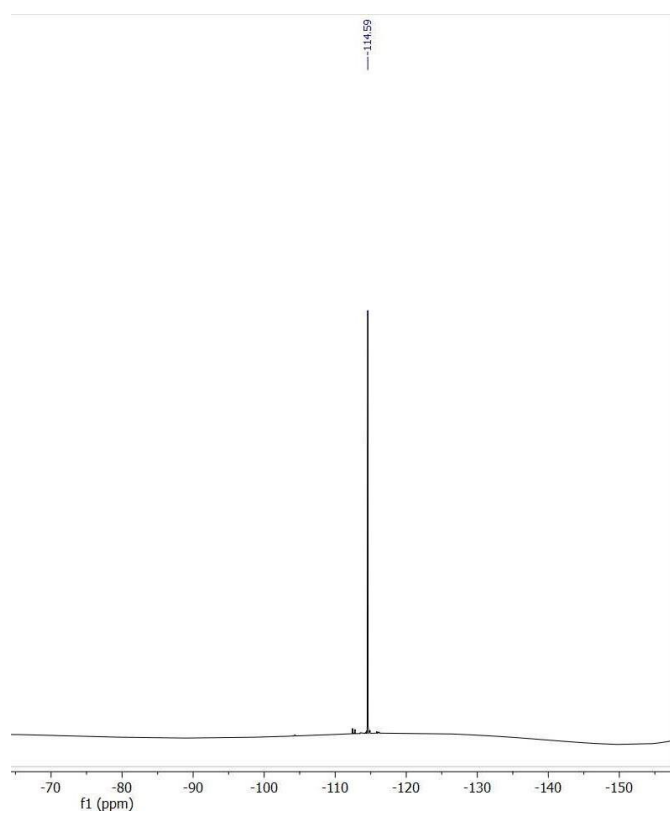


Figure SM18. ¹⁹F NMR spectrum dimethyl 2-(2-(4-fluorophenyl)-2-methoxyethyl)malonate (**3h**).

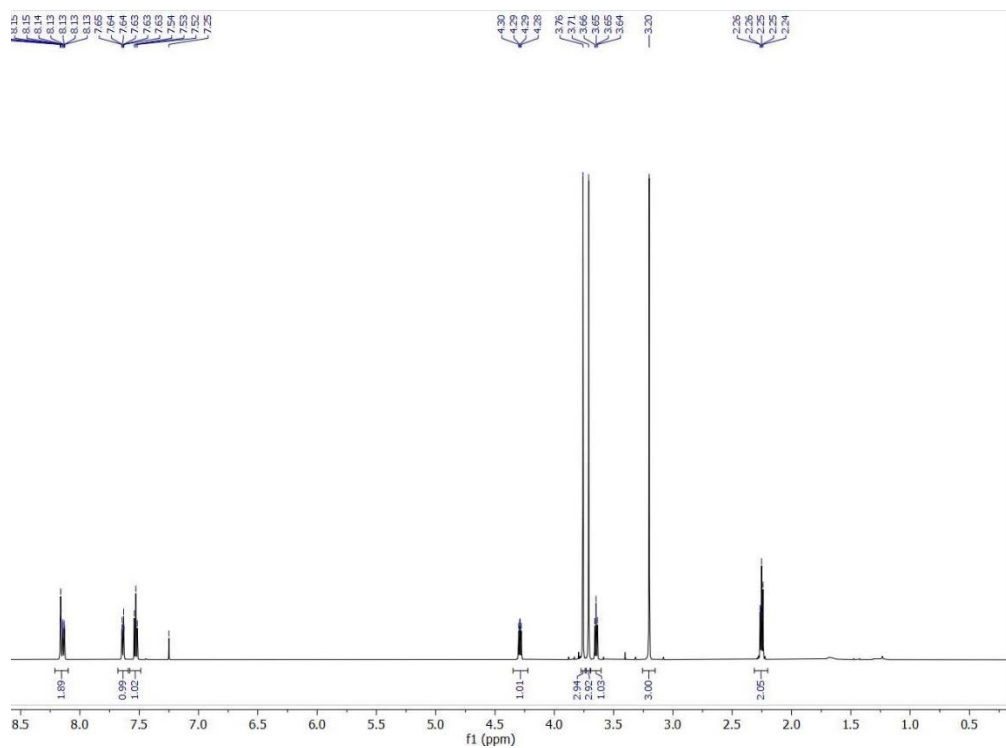


Figure SM19. ¹H NMR spectrum of dimethyl 2-(2-methoxy-3-nitrophenyl)ethylmalonate (**3i**).

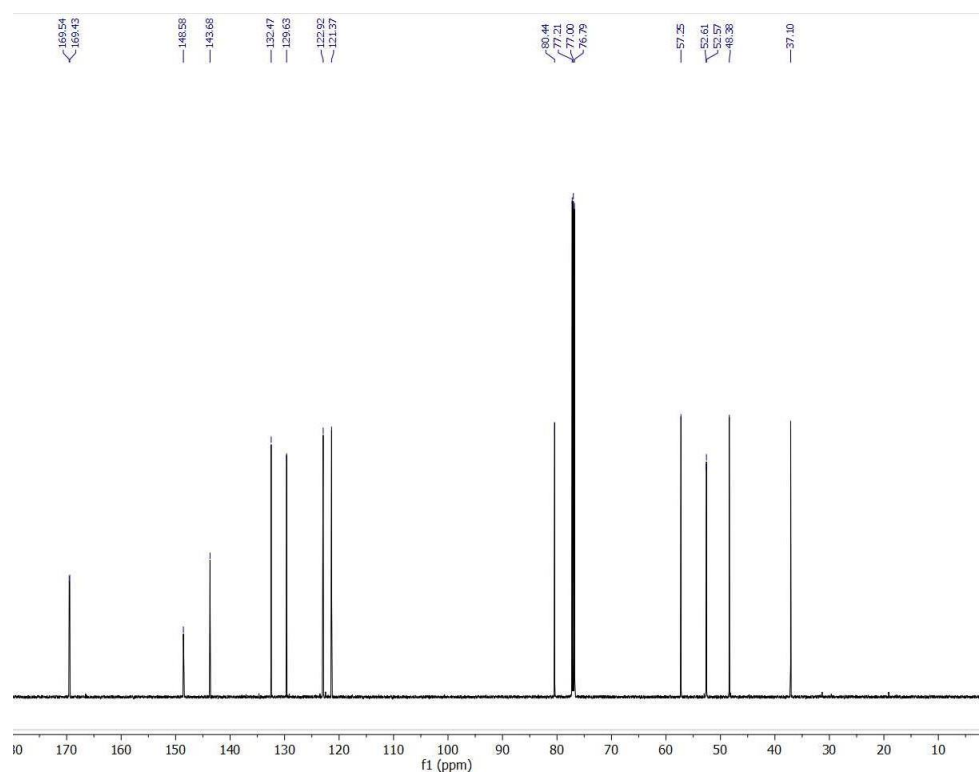


Figure SM20. ¹³C NMR spectrum of dimethyl 2-(2-methoxy-3-nitrophenyl)ethylmalonate (**3i**).

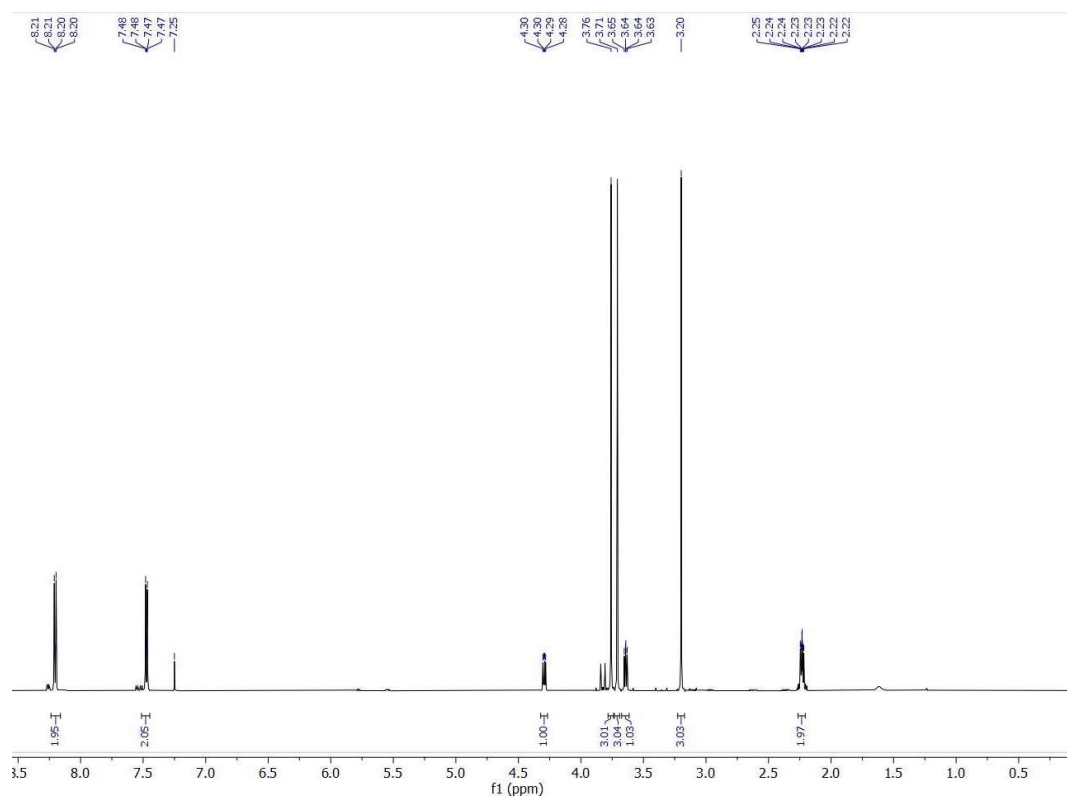


Figure SM21. ¹H NMR spectrum of dimethyl 2-(2-methoxy-4-nitrophenyl)ethylmalonate (**3j**).

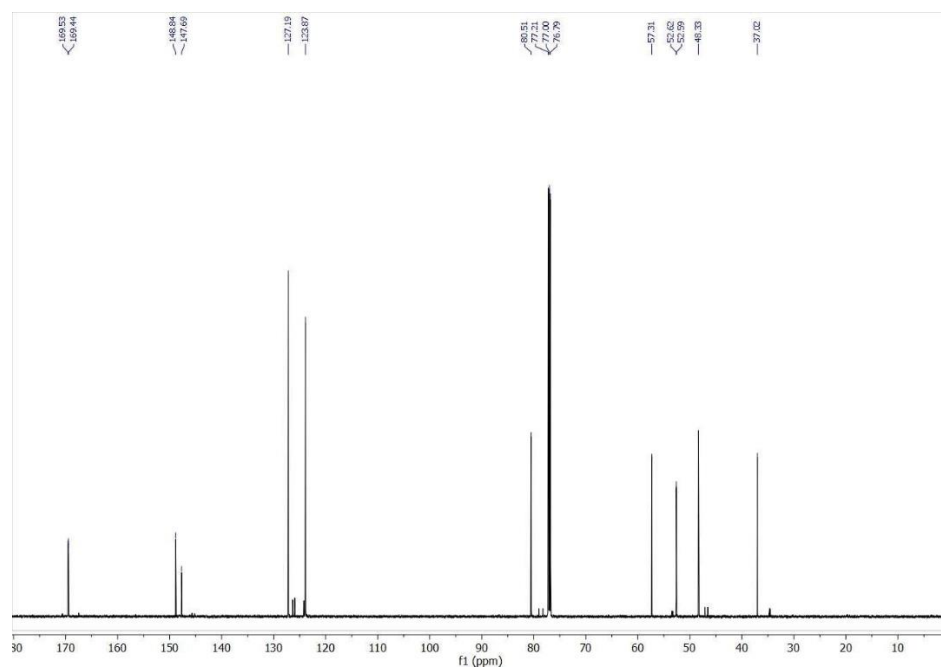


Figure SM22. ¹³C NMR spectrum of dimethyl 2-(2-methoxy-4-nitrophenyl)ethylmalonate (**3j**).

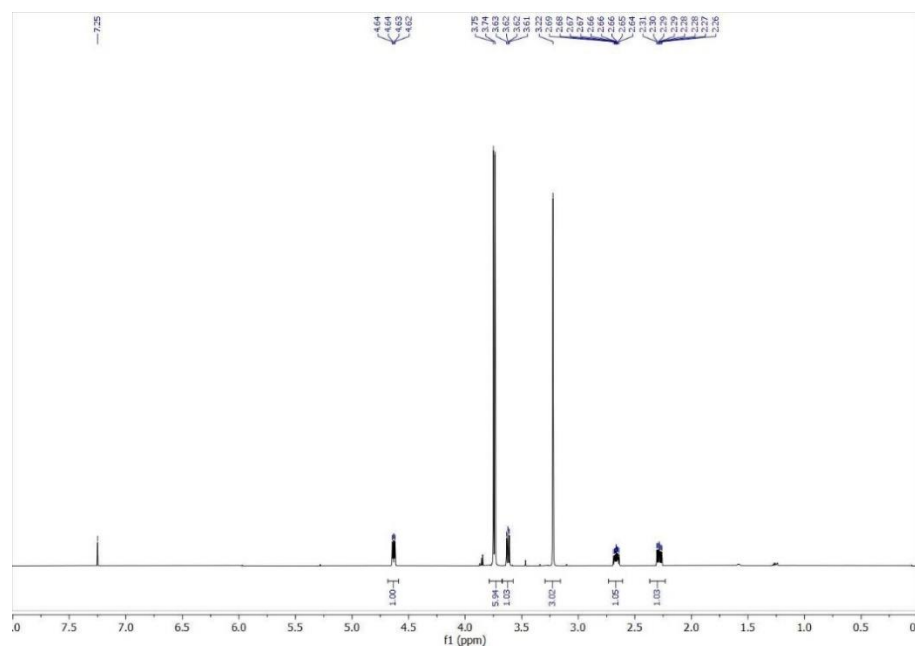


Figure SM23. ^1H NMR spectrum of dimethyl 2-(2-methoxy-2-(perfluorophenyl)ethyl)malonate (**3k**).

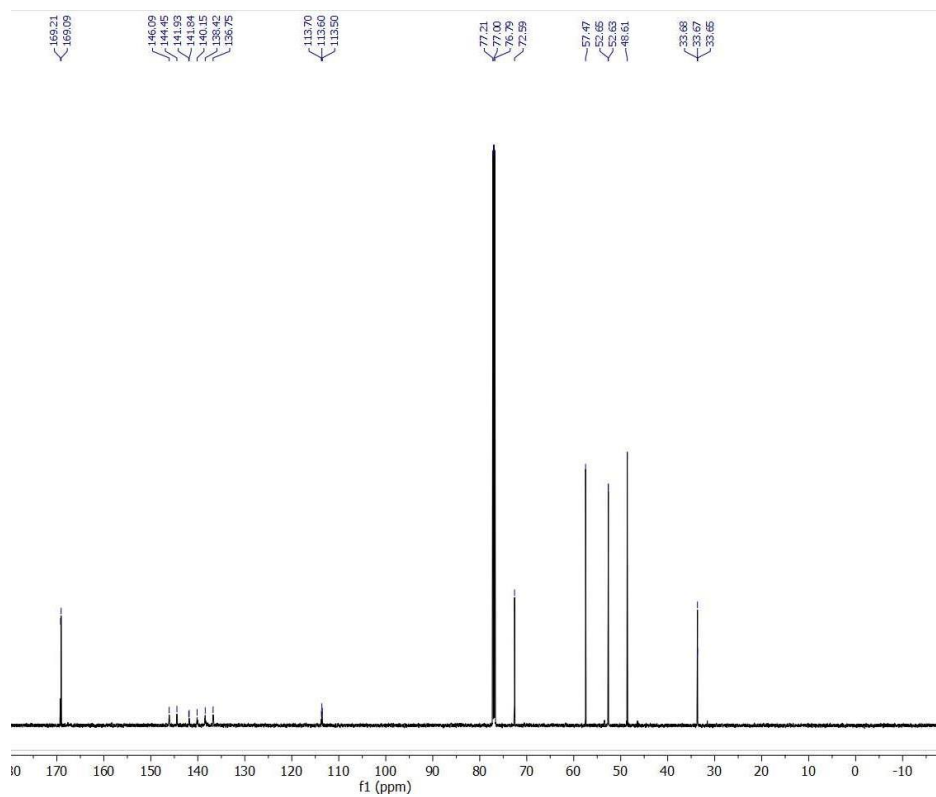


Figure SM24. ^{13}C NMR spectrum of dimethyl 2-(2-methoxy-2-(perfluorophenyl)ethyl)malonate (**3k**).

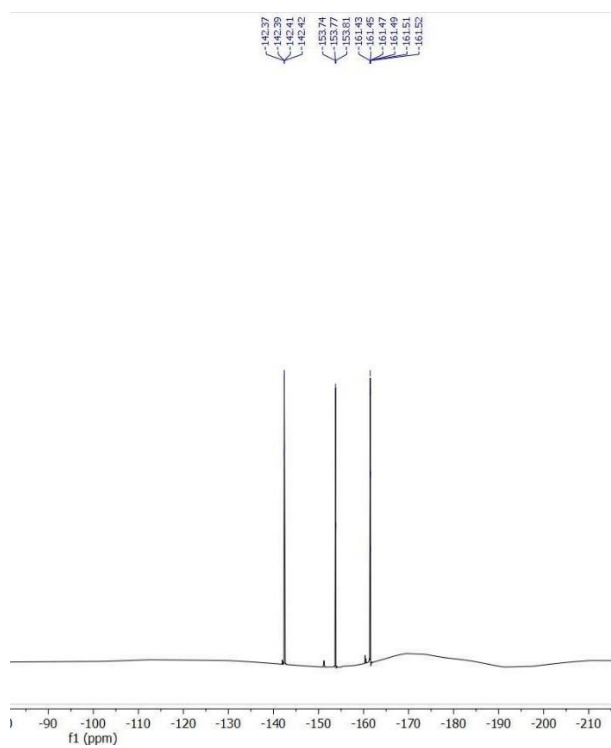


Figure SM25. ¹⁹F NMR spectrum of dimethyl 2-(2-methoxy-2-(perfluorophenyl)ethyl)malonate (**3k**).

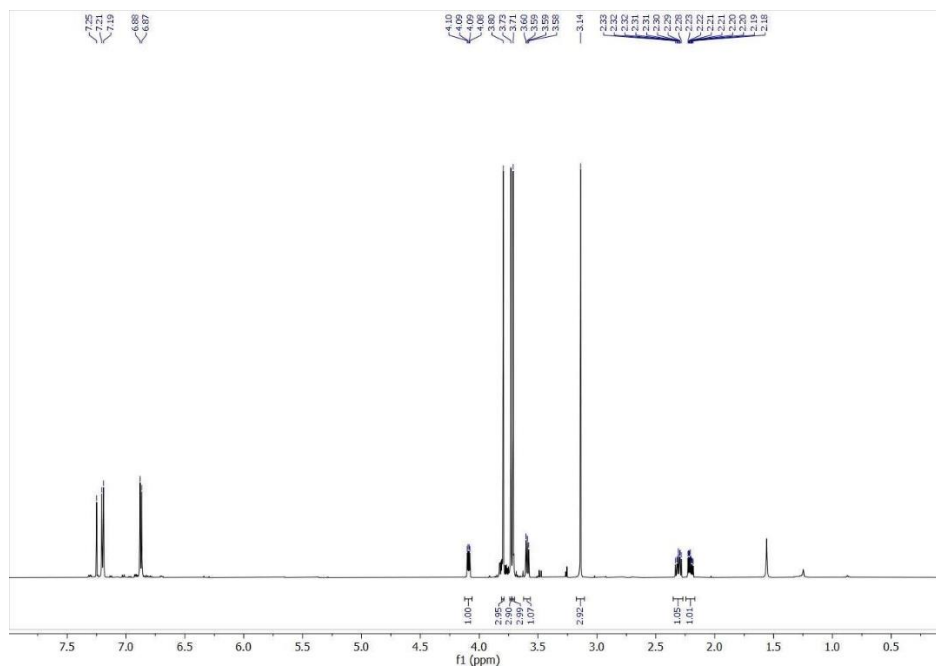


Figure SM26. ¹H NMR spectrum of dimethyl 2-(2-methoxy-2-(4-methoxyphenyl)ethyl)malonate (**3l**).

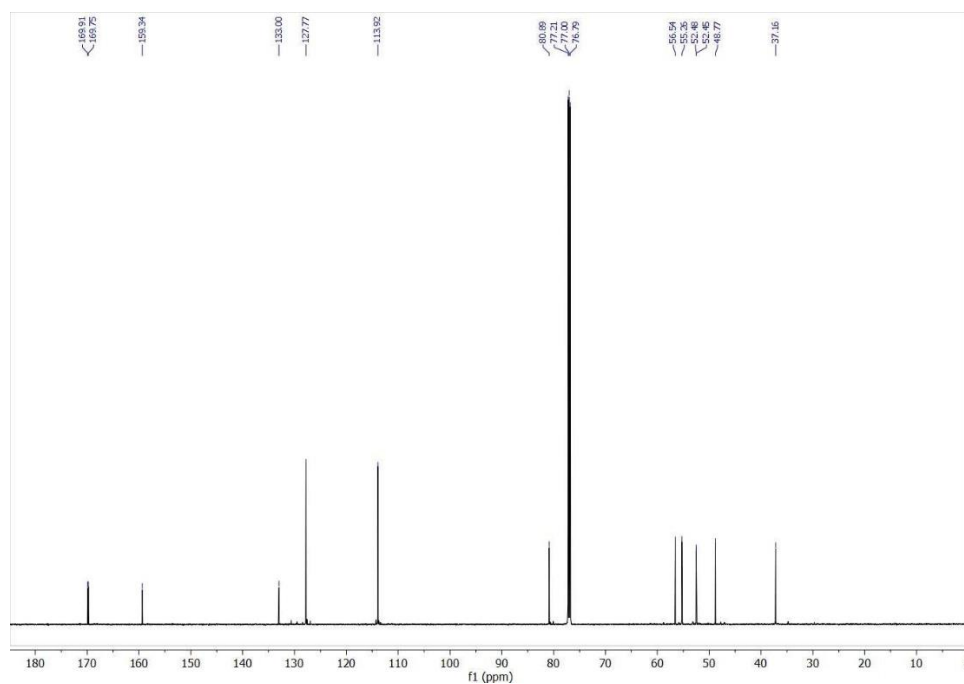


Figure SM27. ^{13}C NMR spectrum of dimethyl 2-(2-methoxy-2-(4-methoxyphenyl)ethyl)malonate (**31**).

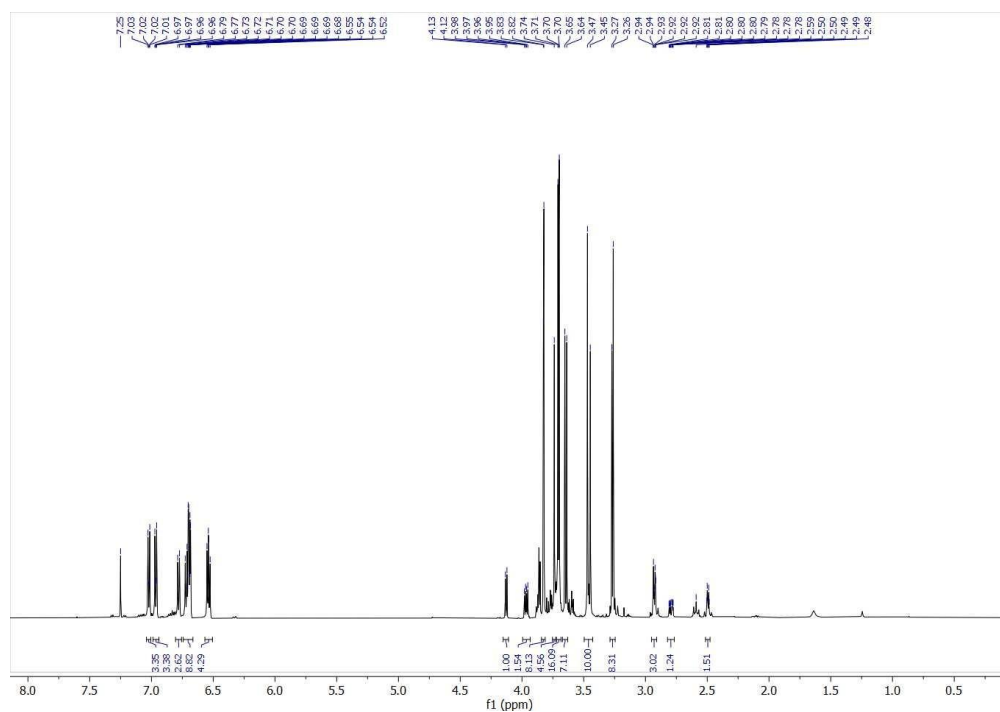


Figure SM28. ^1H NMR spectrum of mixture of *cis*- and *trans*-dimethyl 6-methoxy-(3-methoxy-2-(methoxycarbonyl)-3-oxopropyl-4-(4-methoxyphenyl)3,4-dihydronaphthalene-2,2-(1*H*)-dicarboxylate) (*cis*- and *trans*-**4**).

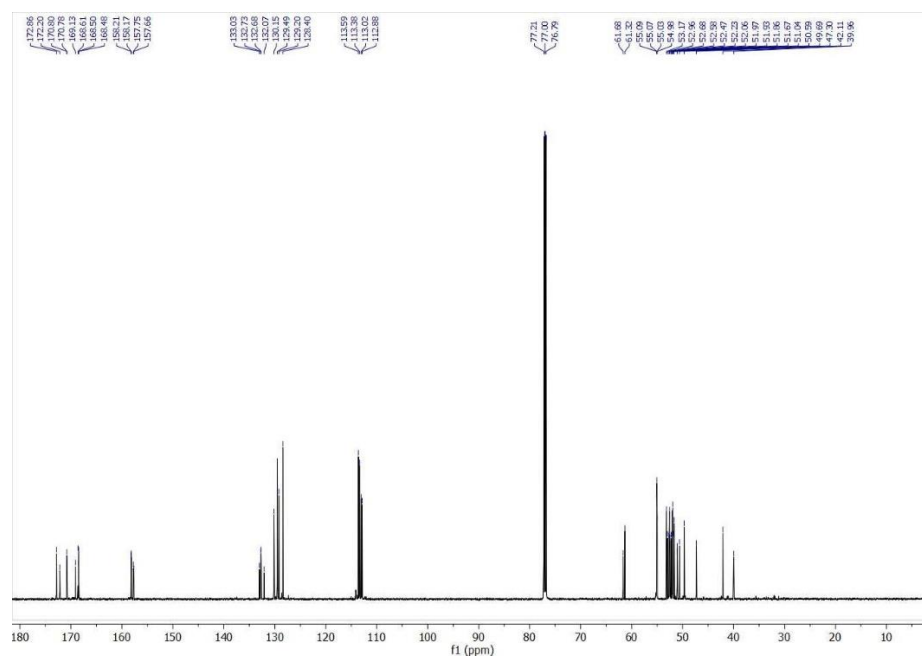


Figure SM29. ^{13}C NMR spectrum of mixture of *cis*- and *trans*-dimethyl 6-methoxy-(3-methoxy-2-(methoxycarbonyl)-3-oxopropyl-4-(4-methoxyphenyl)3,4-dihydronaphthalene-2,2-(1*H*)-dicarboxylate) (*cis*- and *trans*-4).