

Novel Piperazine-Triazole Hybrids as PTP1B and Alpha-Amylase Inhibitors: Synthesis, Biological Evaluation and Computational Validation Through Network Pharmacology, Molecular Docking, MD Simulations, DFT and MMPBSA Analysis

1. ^1H NMR and ^{13}C NMR of piperazine conjugates **13a-13j**

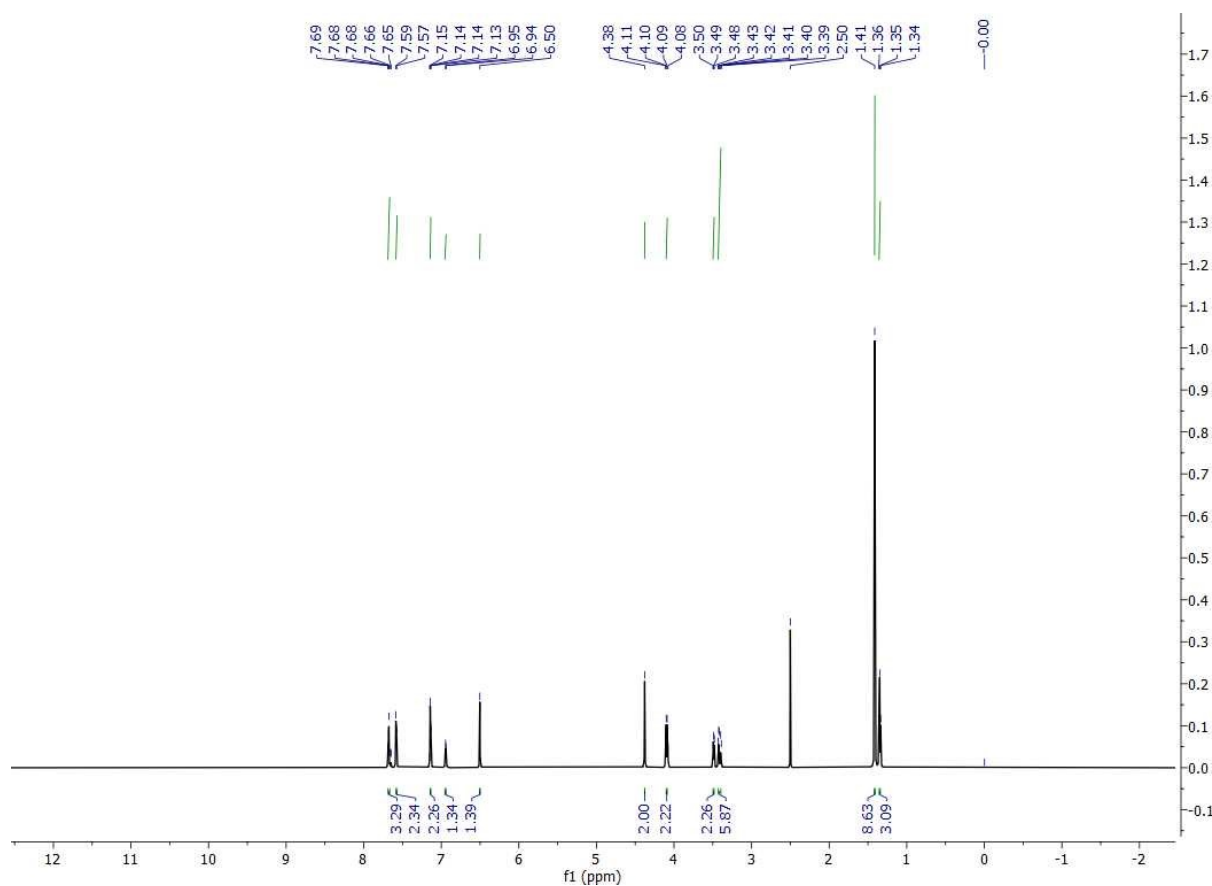


Figure S1: ^1H NMR spectra of **13a**

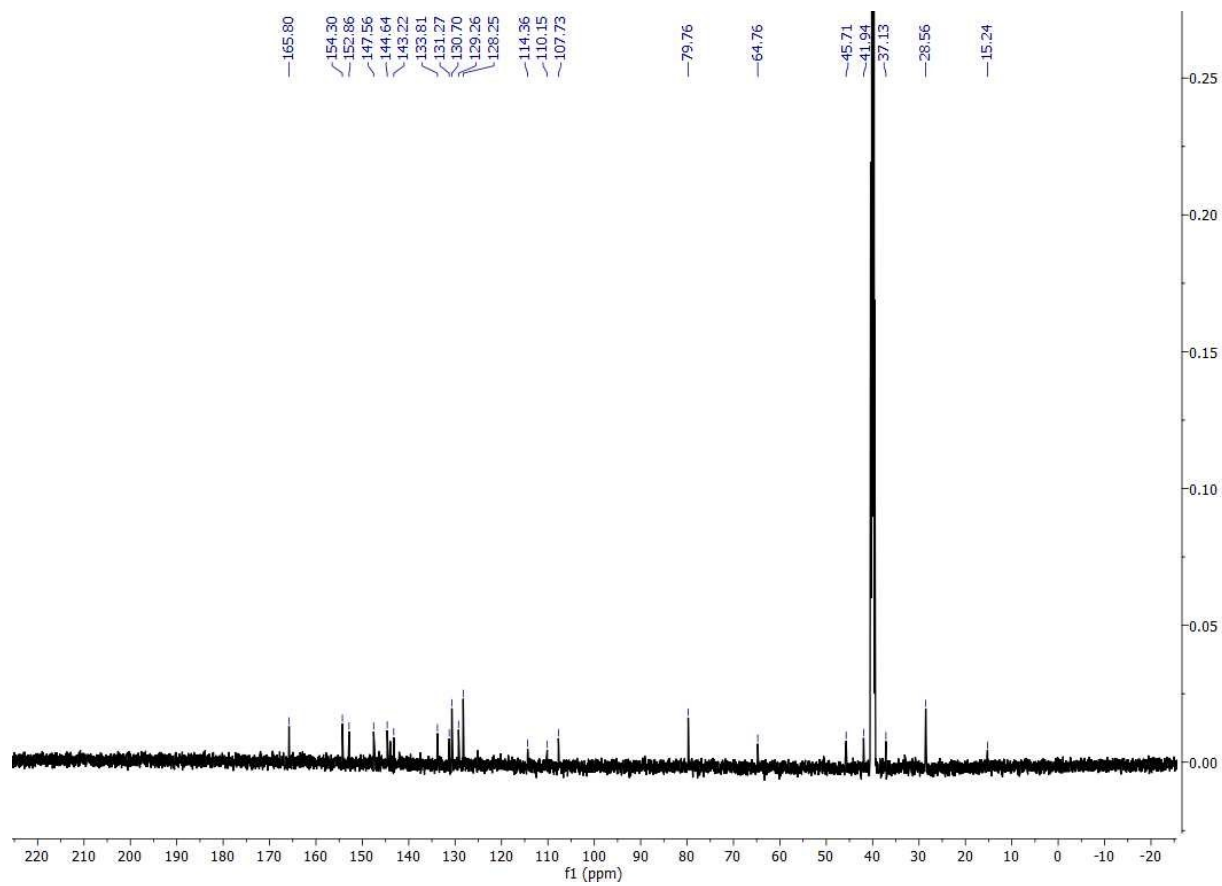


Figure S2: ^{13}C NMR spectra of 13a

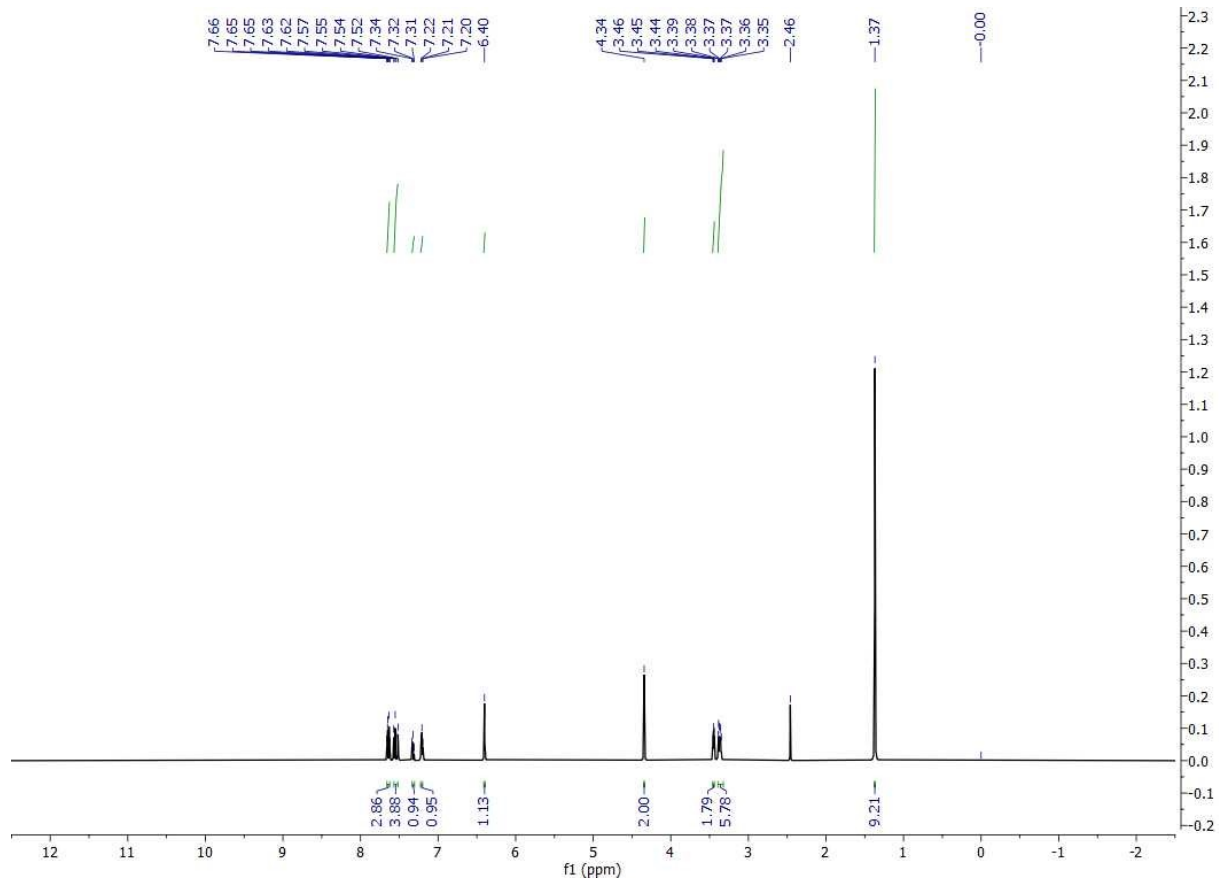


Figure S3: ^1H NMR spectra of 13b

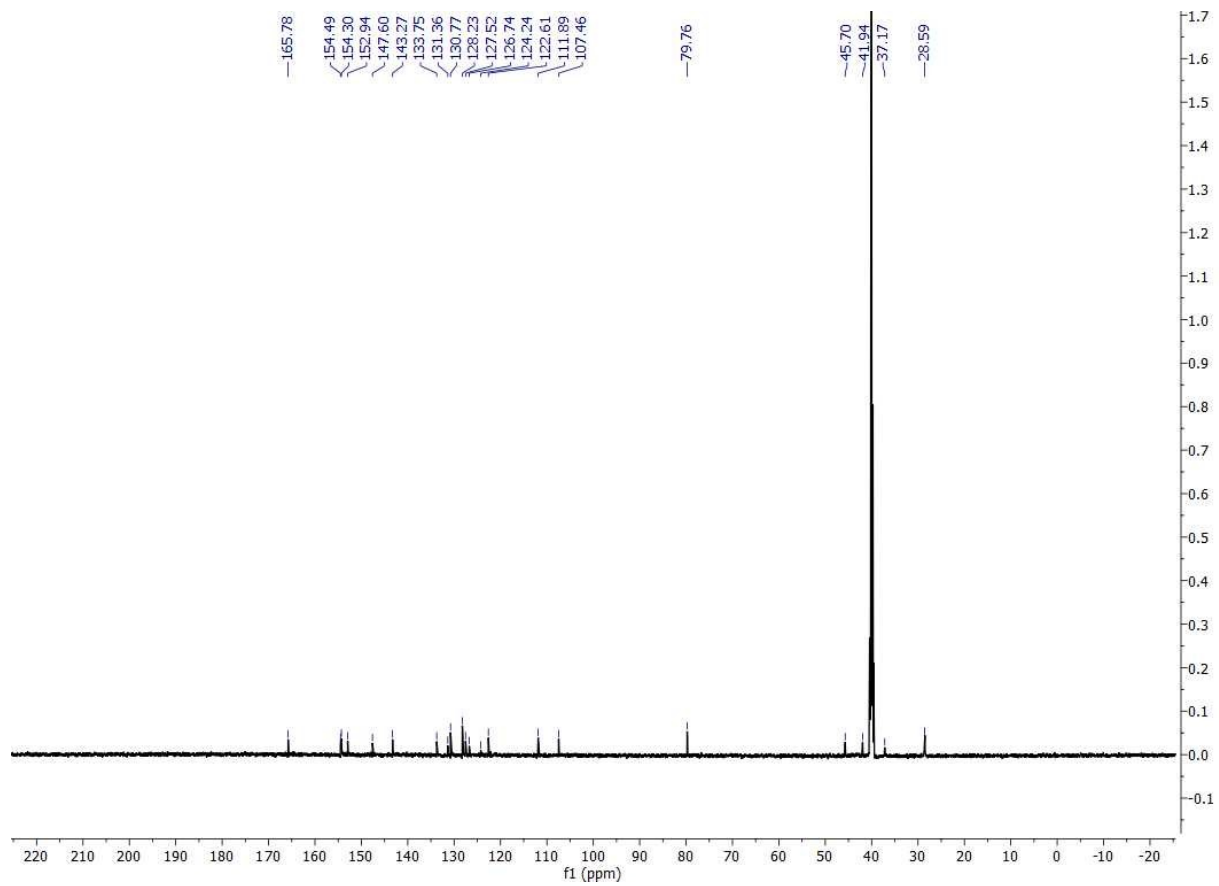


Figure S4: ^{13}C NMR spectra of **13b**

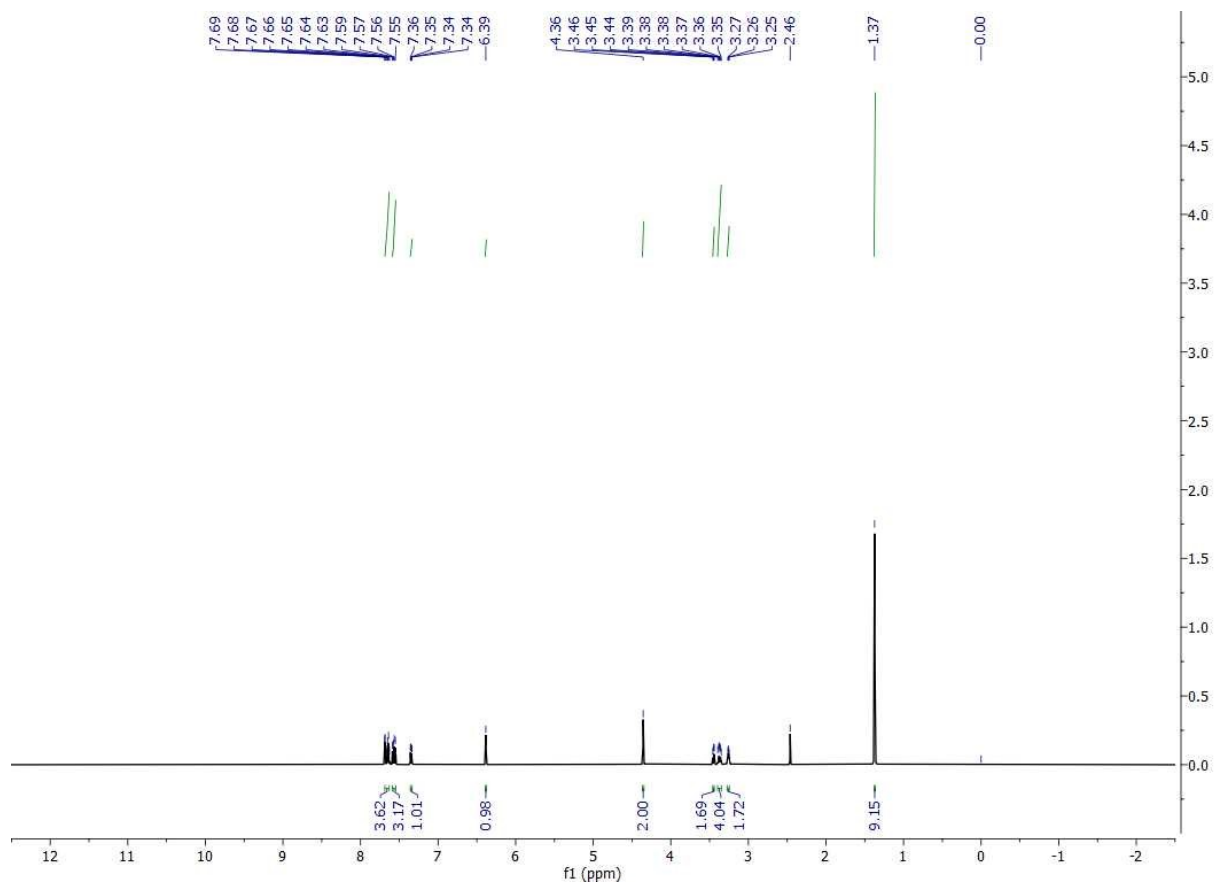


Figure S5: ^1H NMR spectra of **13c**

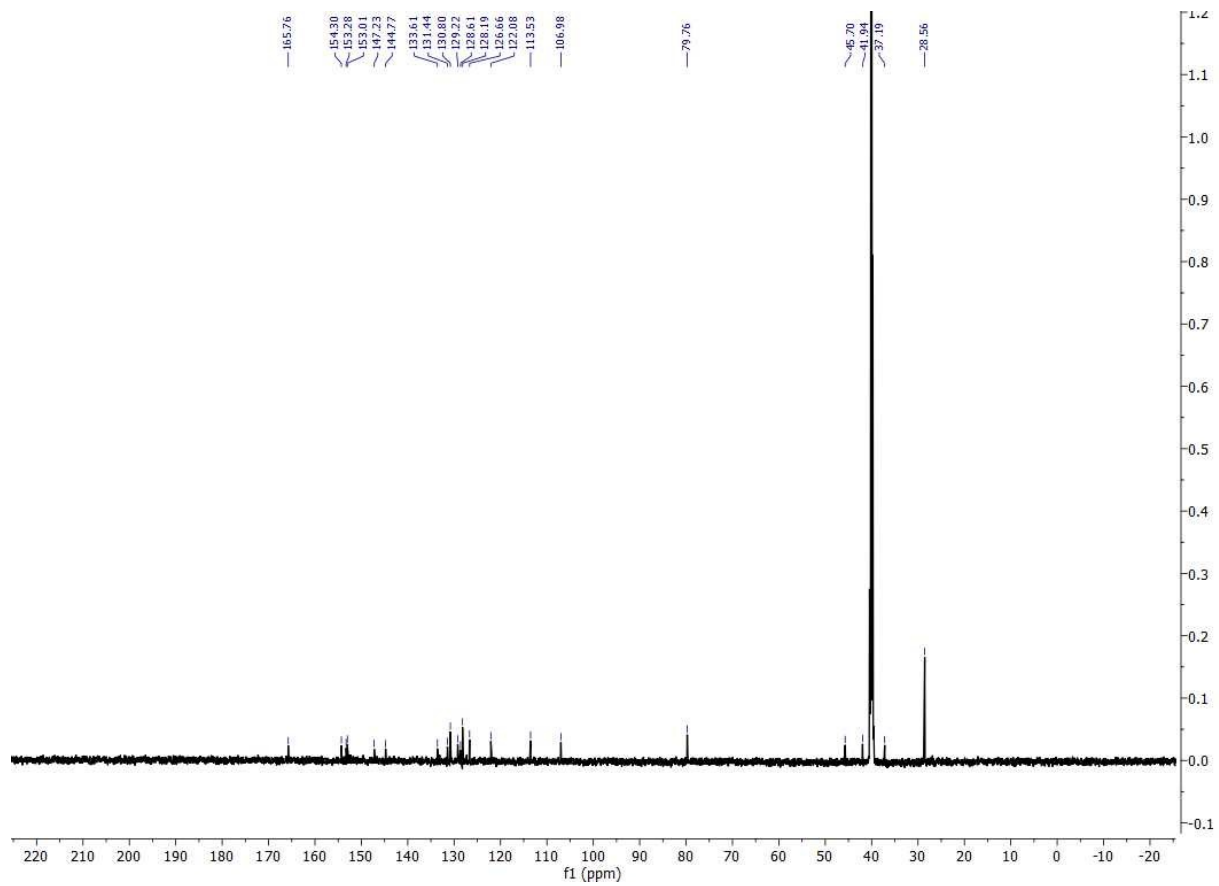


Figure S6: ^{13}C NMR spectra of 13c

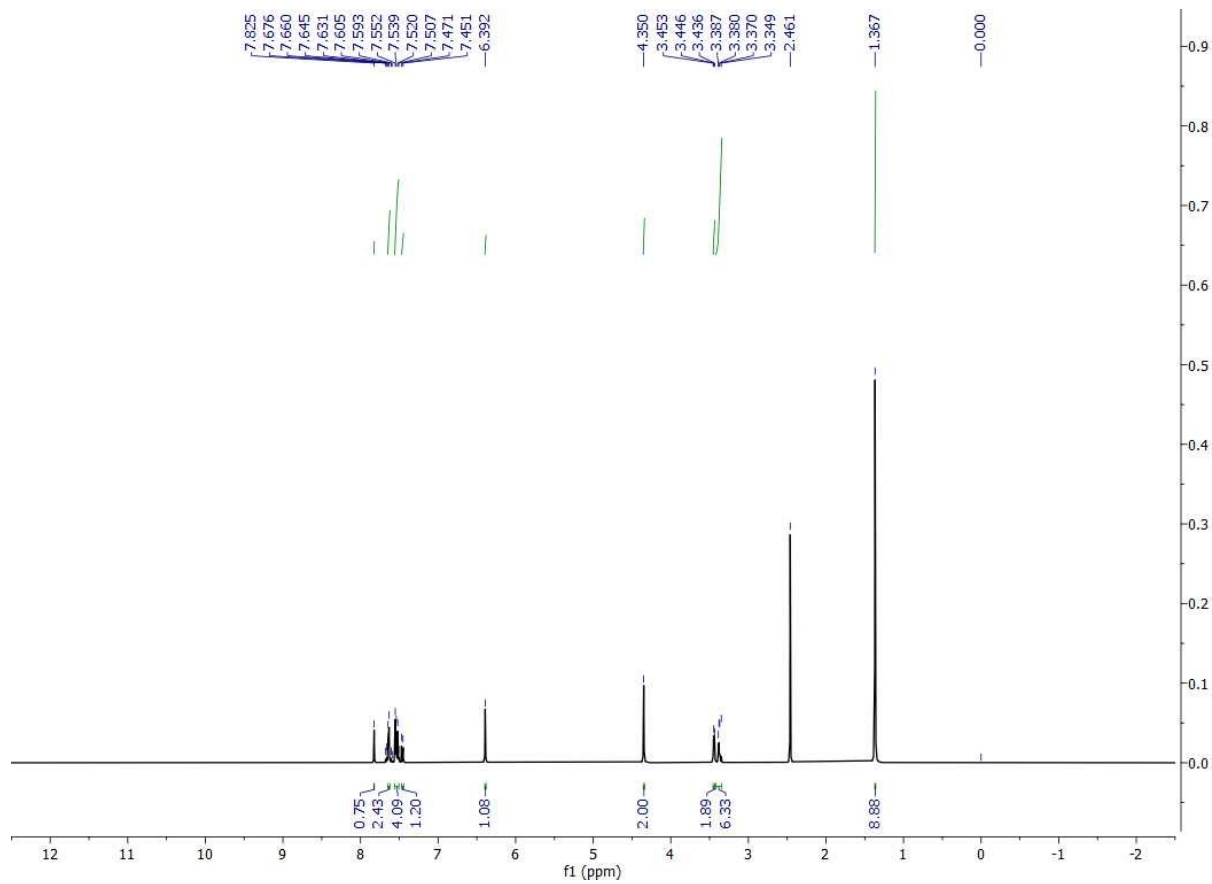


Figure S7: ¹H NMR spectra of 13d

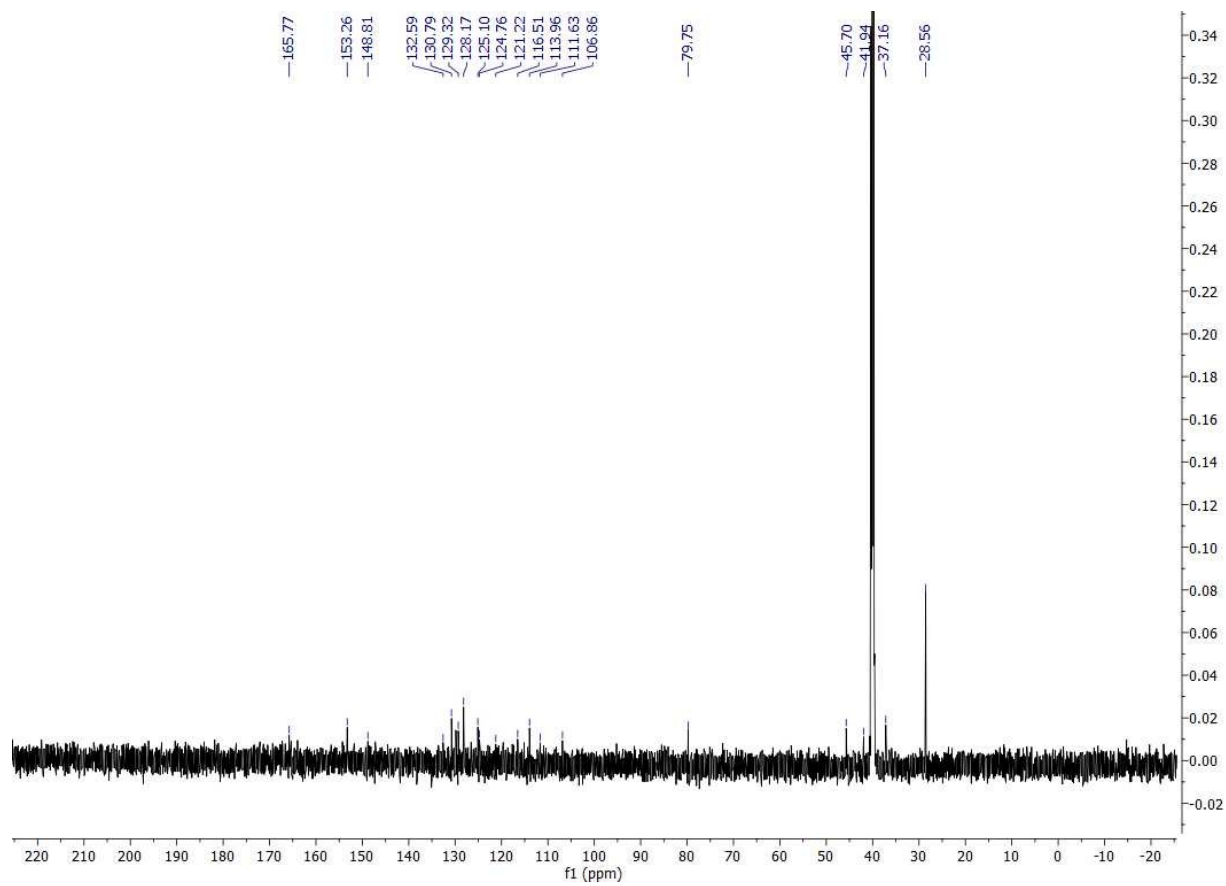


Figure S8: ^{13}C NMR spectra of **13d**

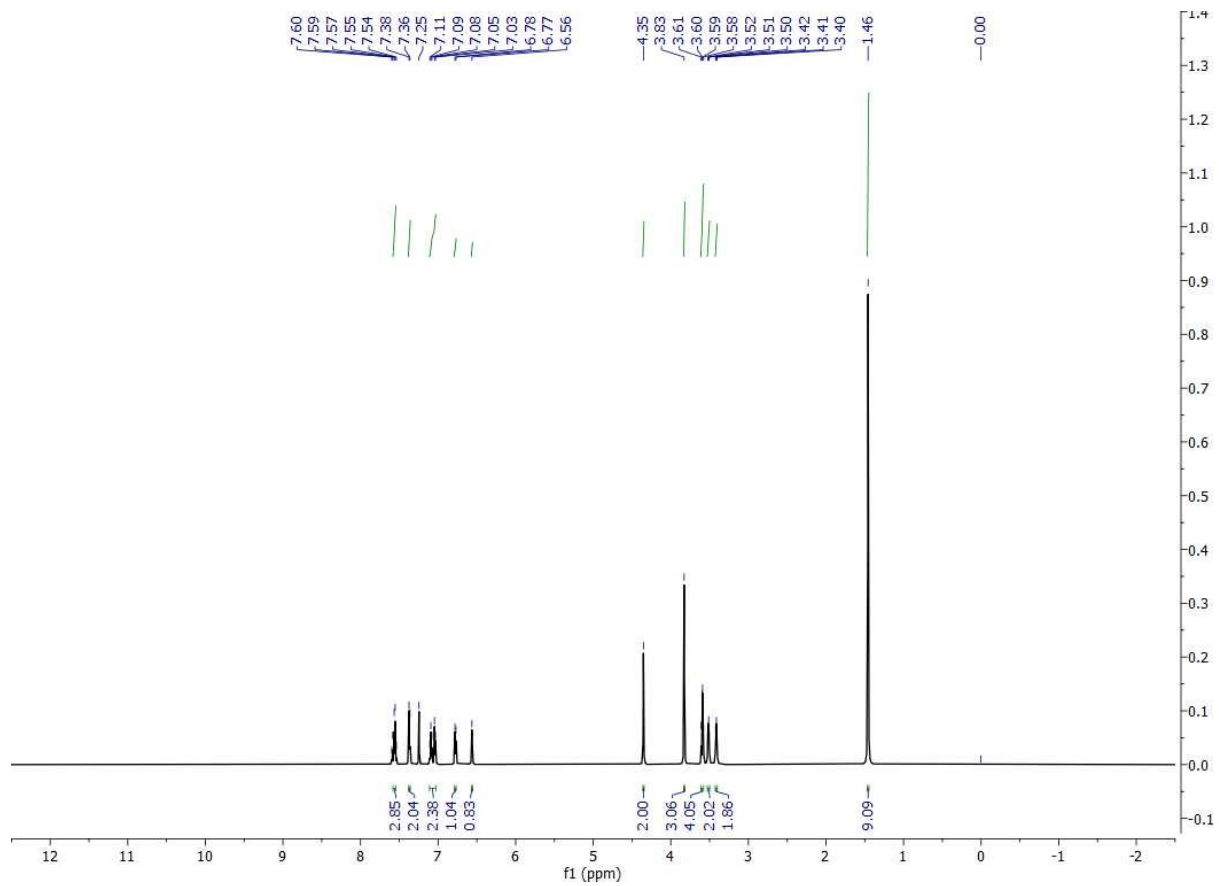


Figure S9: ¹H NMR spectra of 13e

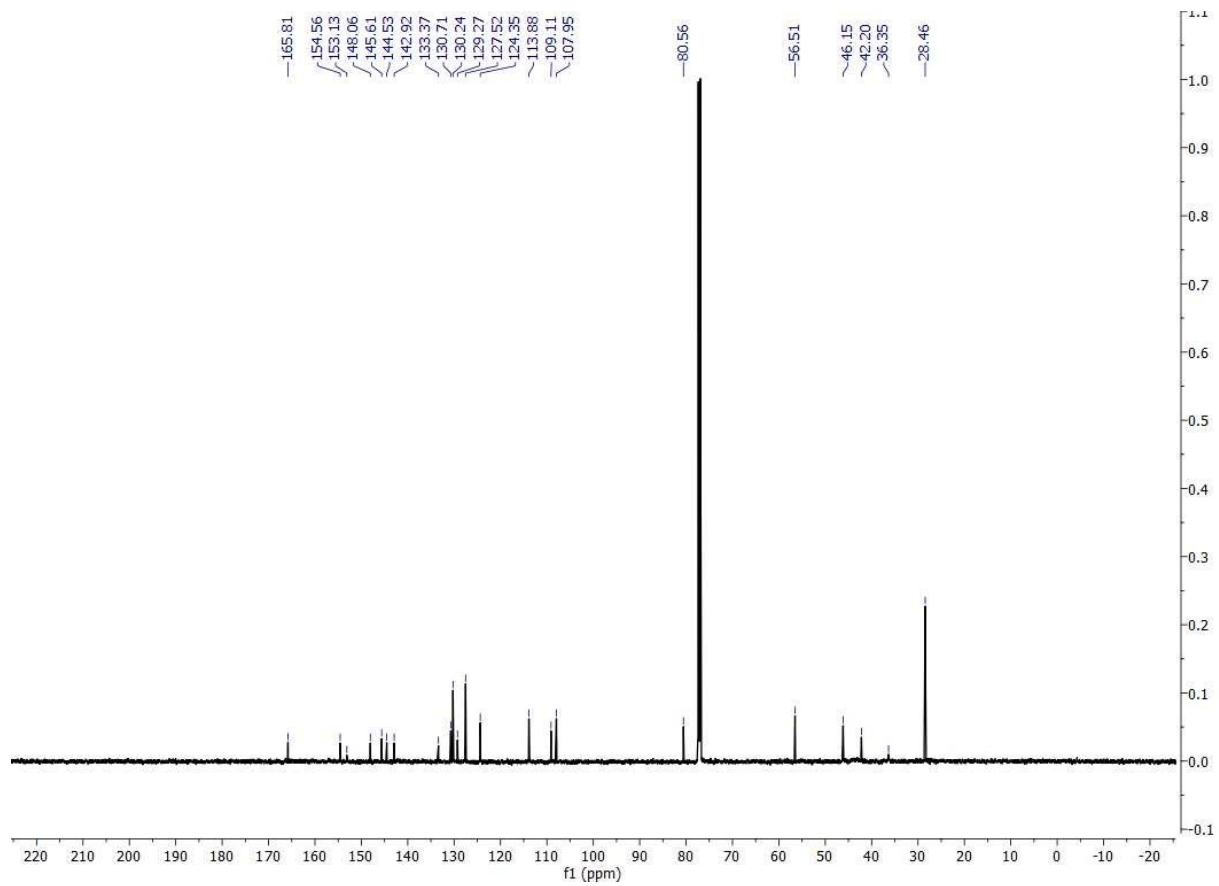


Figure S10: ^{13}C NMR spectra of **13e**

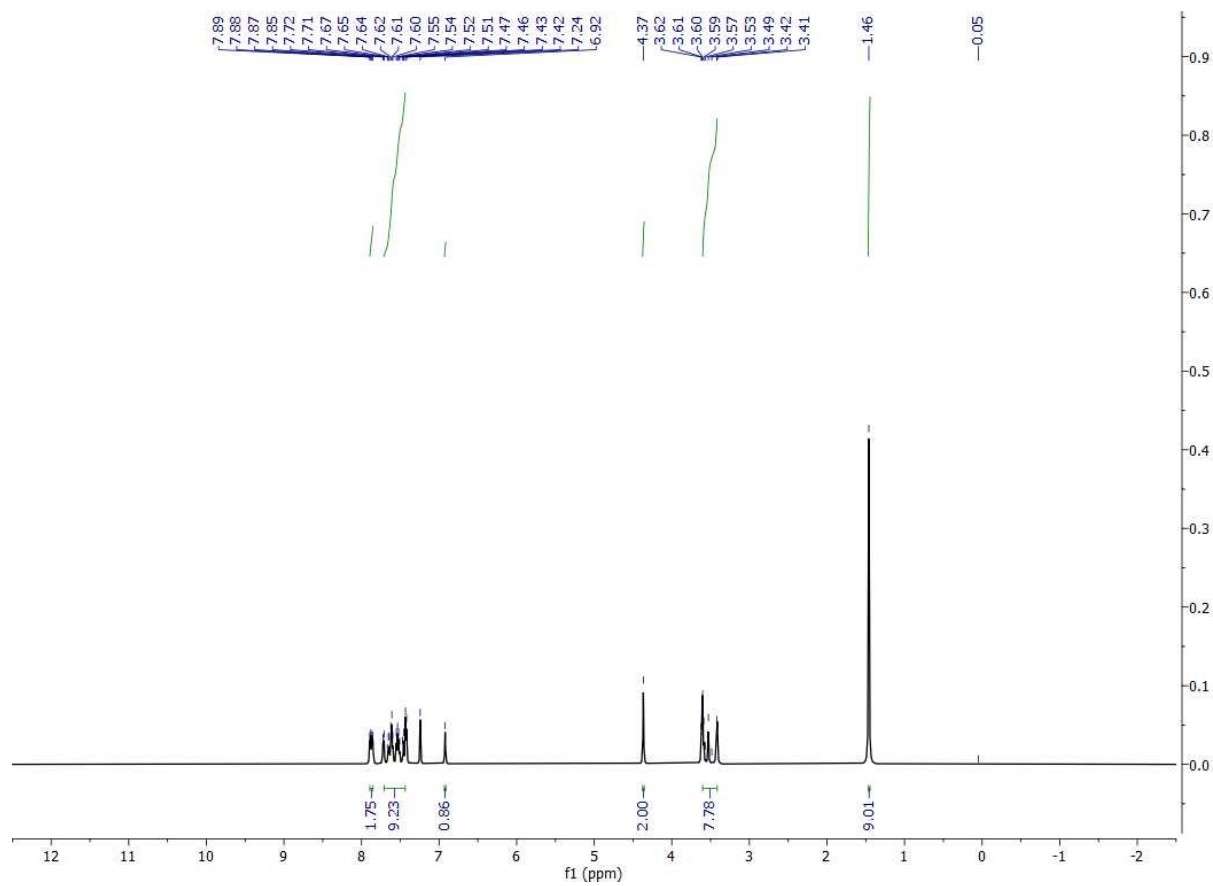


Figure S11: ^1H NMR spectra of **13f**

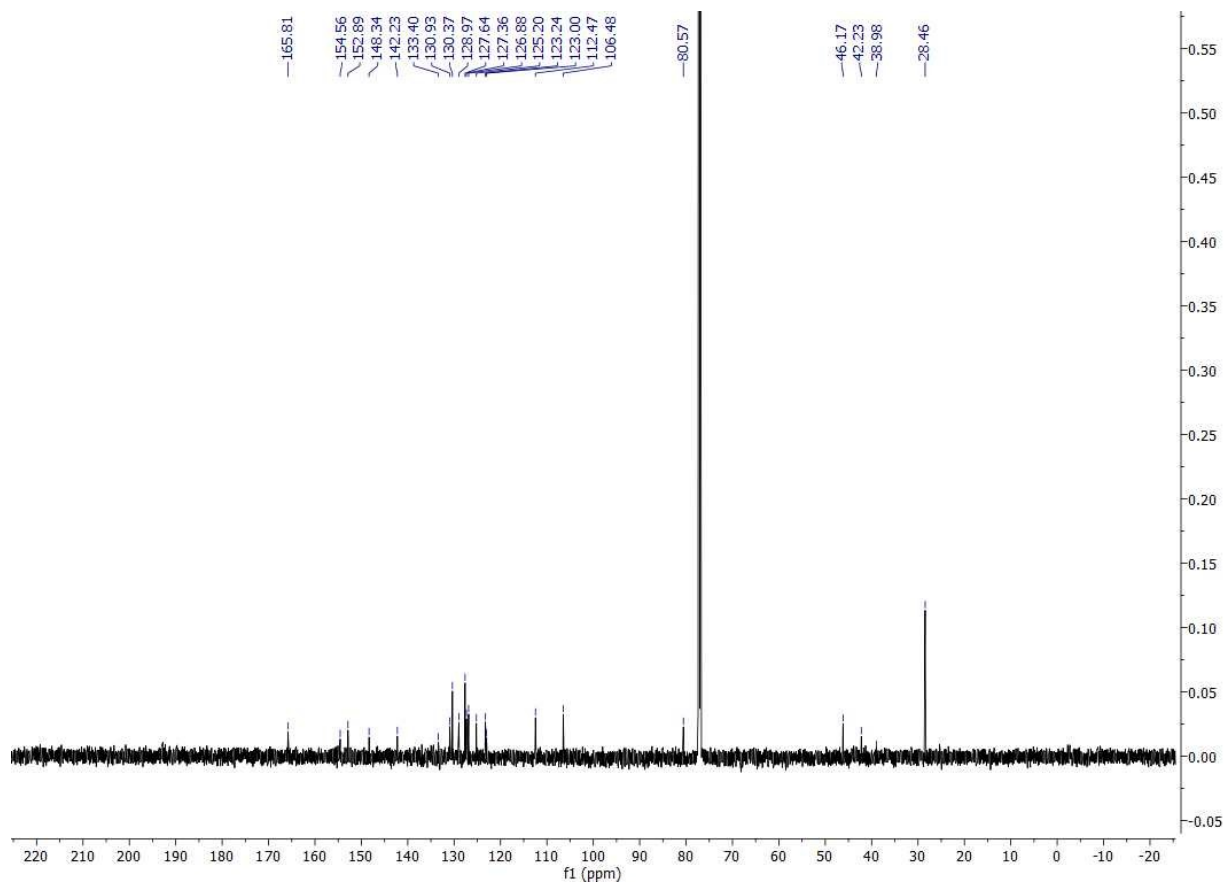


Figure S12: ^{13}C NMR spectra of **13f**

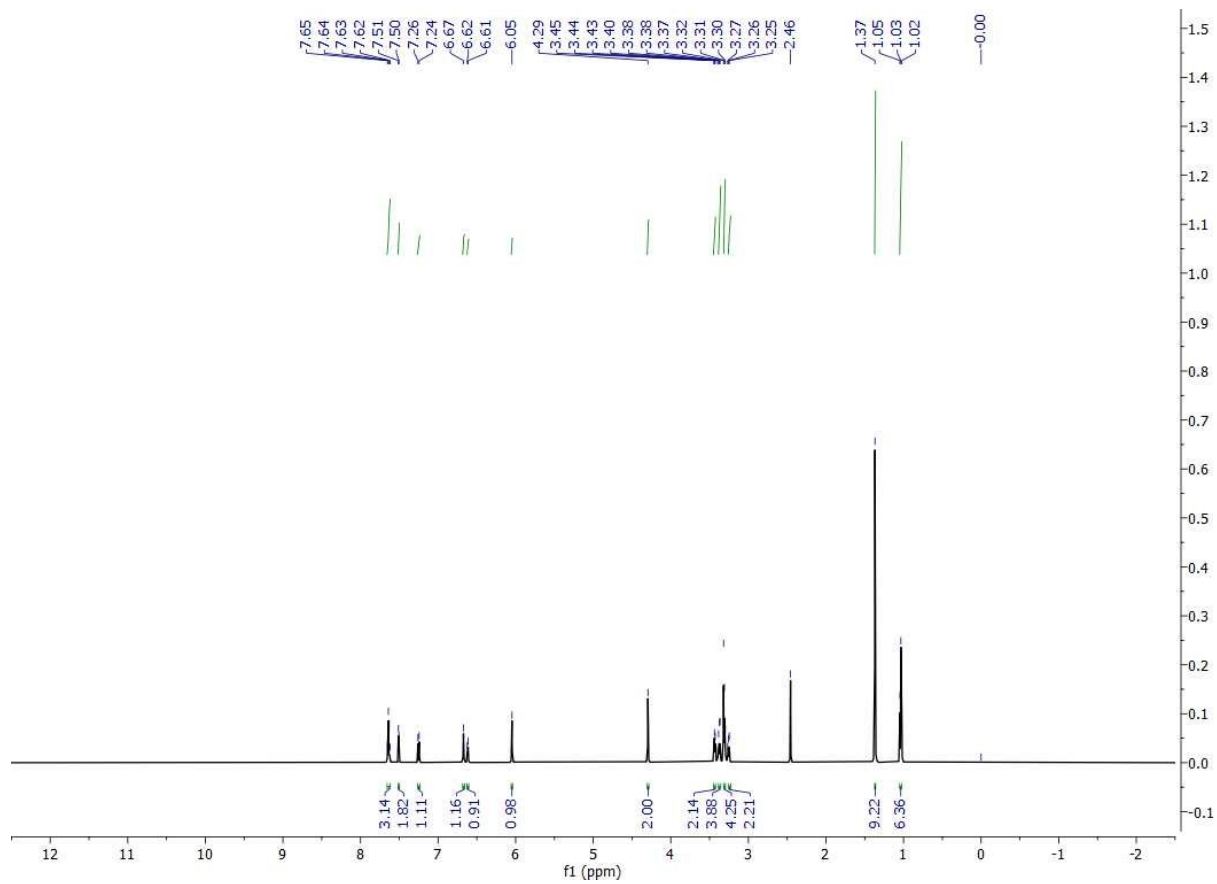


Figure S13: ^1H NMR spectra of **13g**

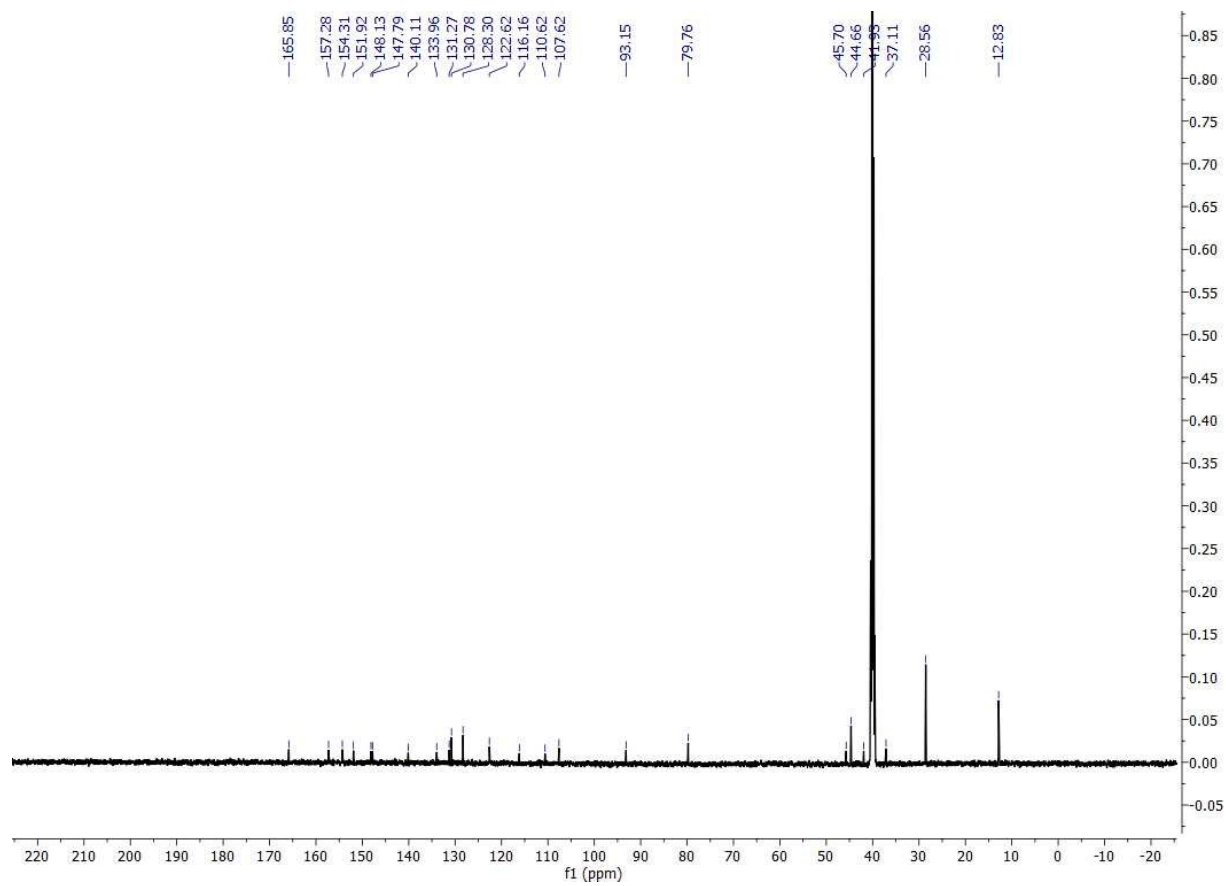


Figure S14: ^{13}C NMR spectra of **13g**

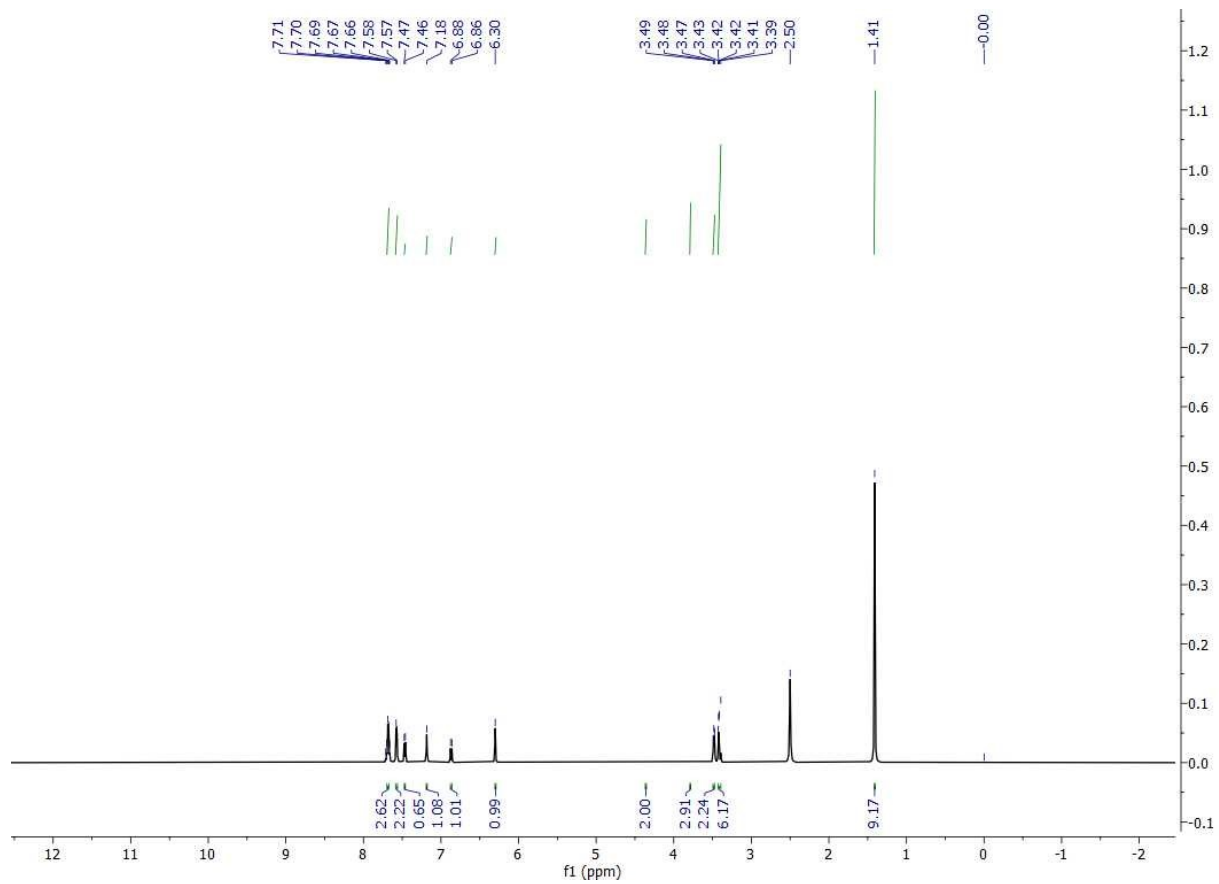


Figure S15: ^1H NMR spectra of **13h**

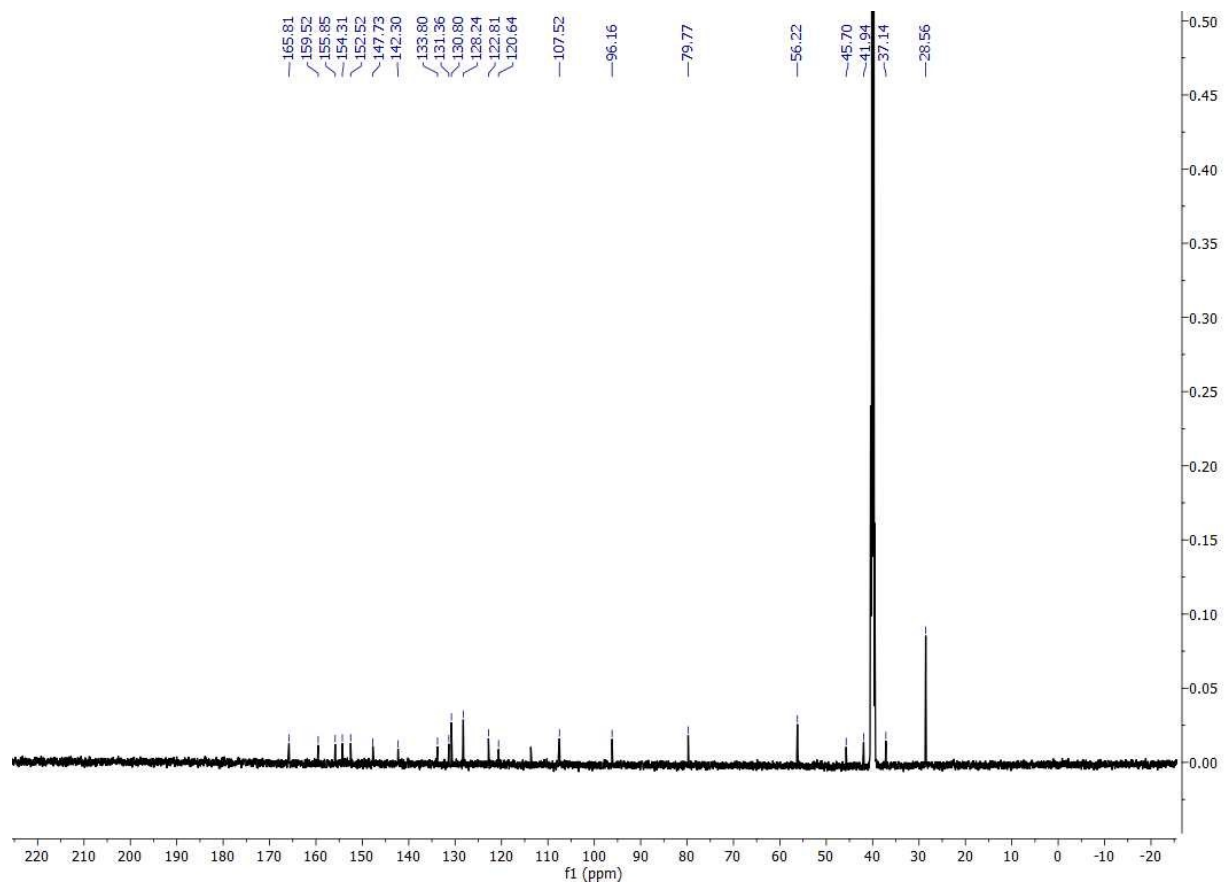


Figure S16: ^{13}C NMR spectra of 13h

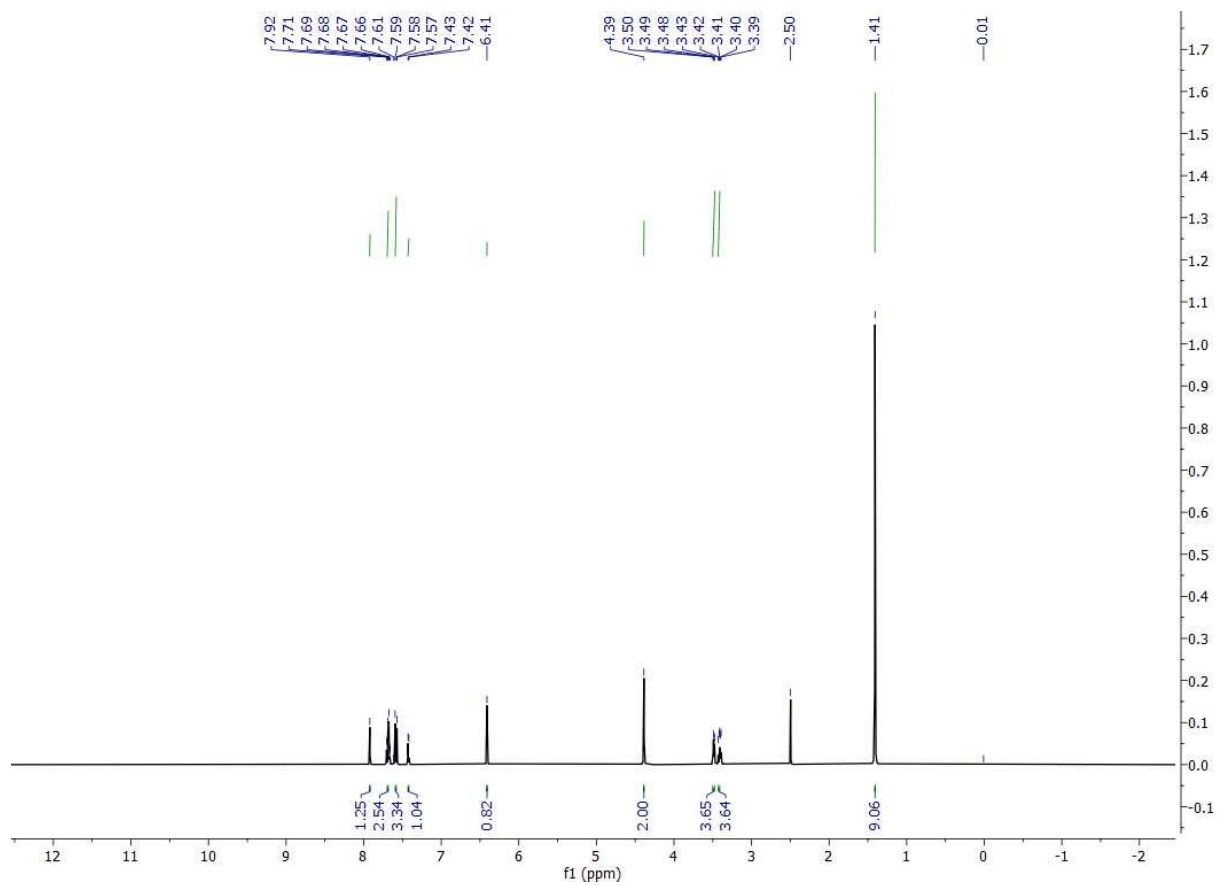


Figure S17: ^1H NMR spectra of **13i**

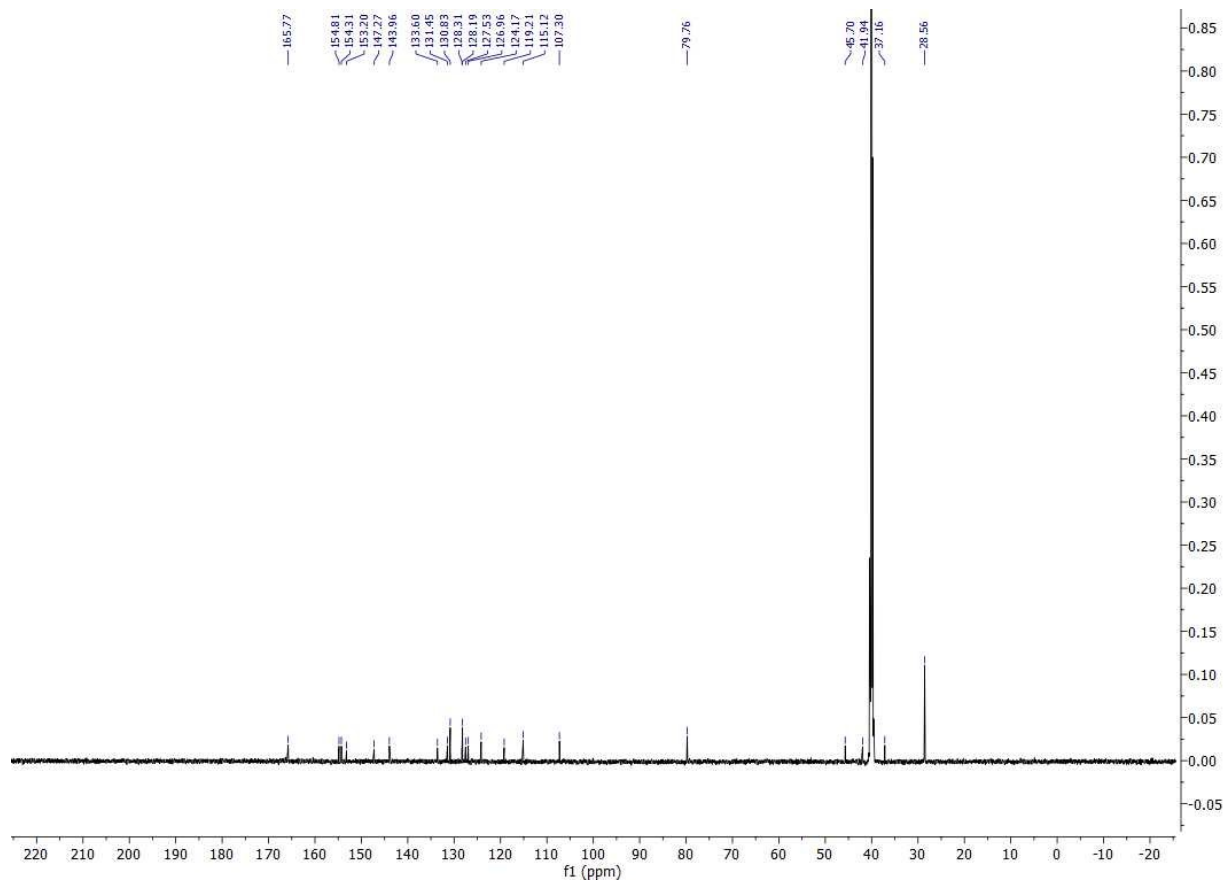


Figure S18: ^{13}C NMR spectra of **13i**

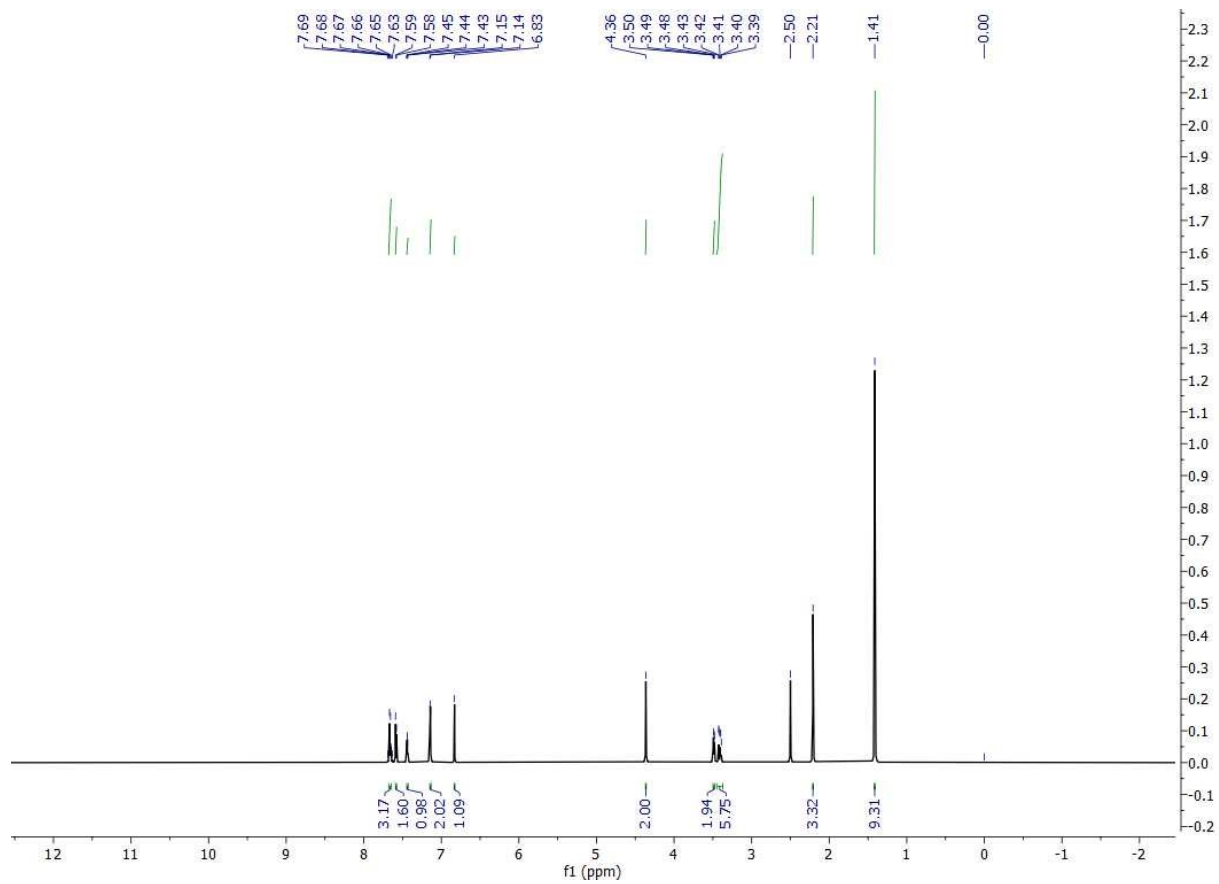


Figure S19: ^1H NMR spectra of **13j**

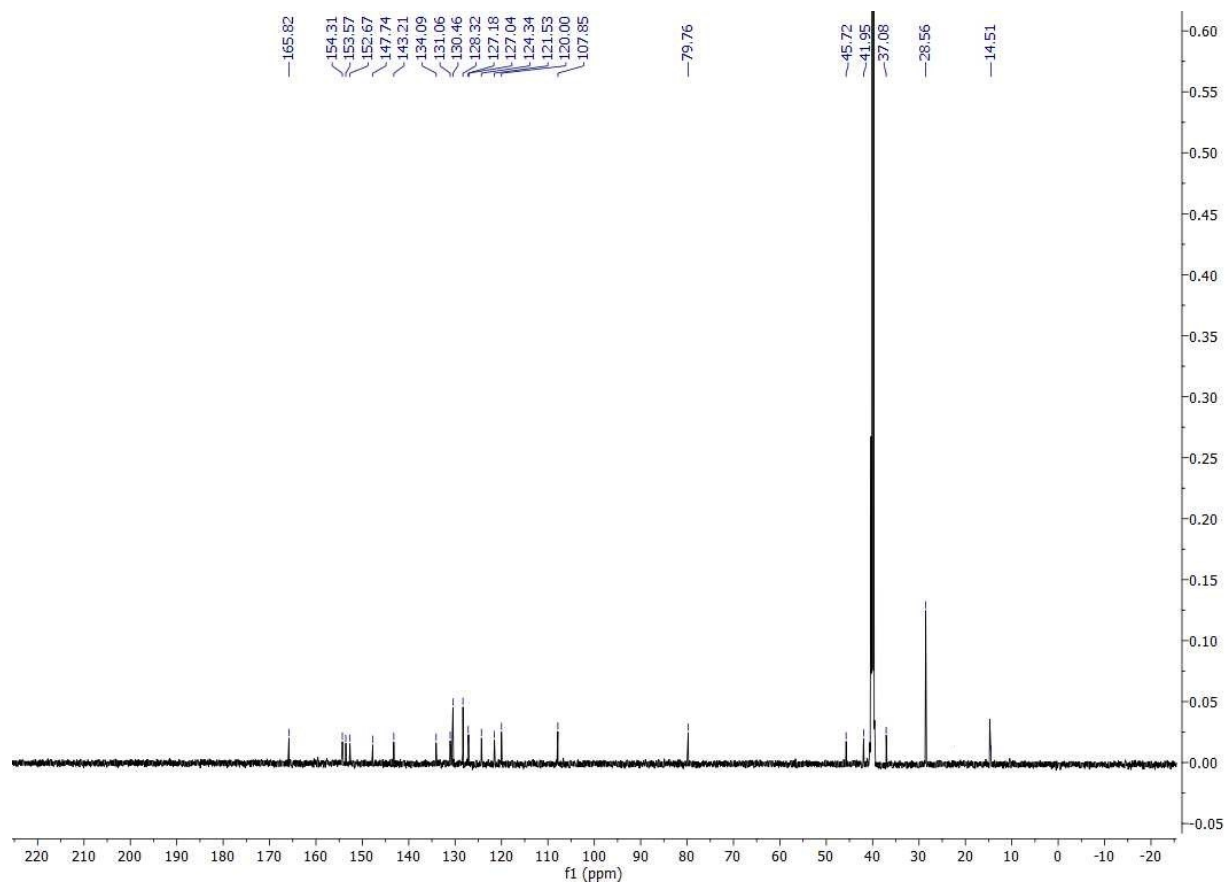


Figure S20: ^{13}C NMR spectra of **13j**

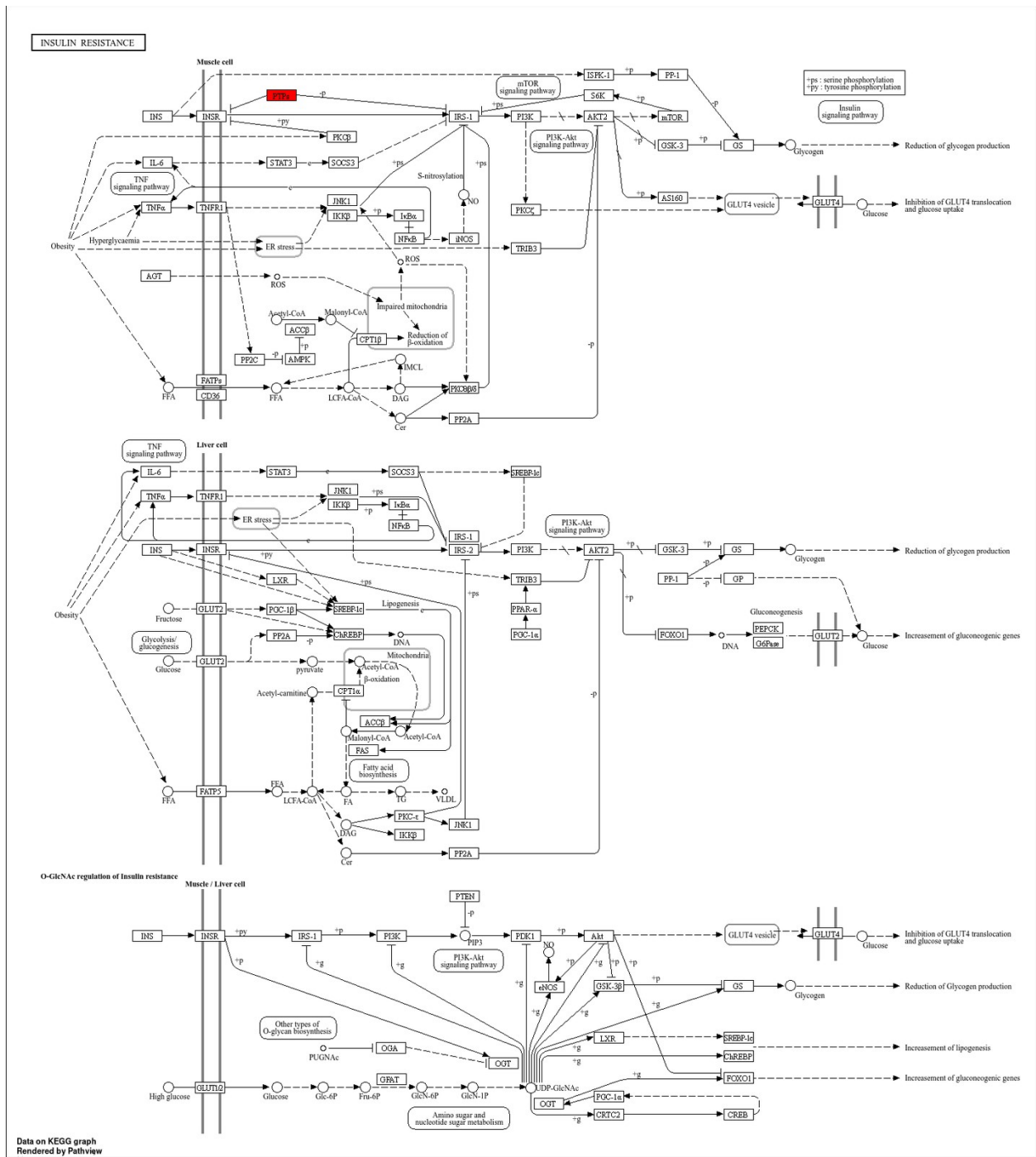


Figure S21: Determination of Insulin resistance pathway via KEGG pathway analysis.

