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Supplementary Information

Organic Field Effect Transistors Based on Self-Assembling Core-Modified Peptidic Polymers

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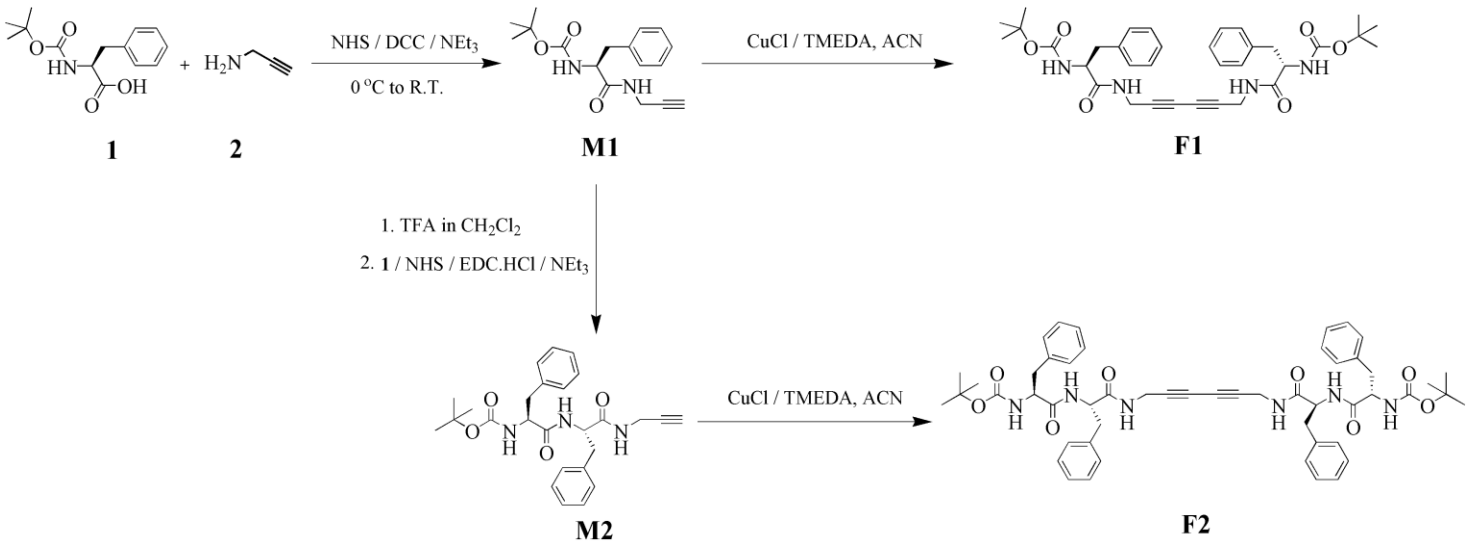
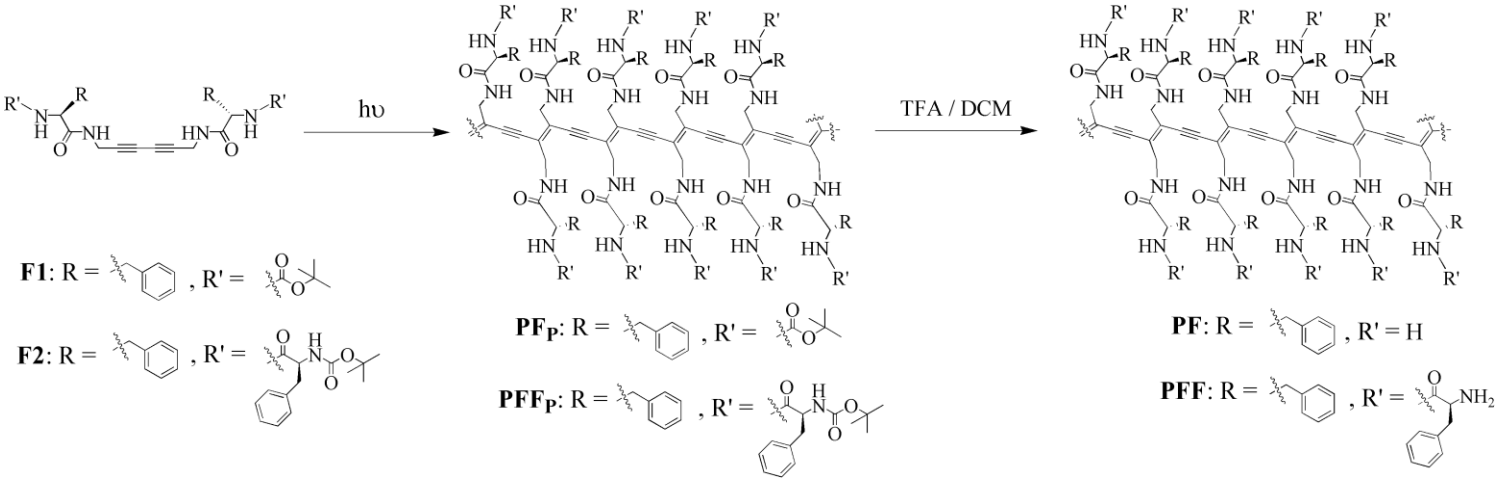


Scheme S1: Synthetic route of diacetylene monomers **F1** and **F2**.



Scheme S2: Synthesis of Phe-appended polydiacetylenes **PF** and **PFF**.

Table S1: Details of the band structure parameters of polymers.

Polymer	HOMO vs. Vacuum	LUMO vs. Vacuum	Band Gap (From CV) (eV)	Band Gap (From UV) (eV)
PFF	-6.82	-4.50	2.32	2.24
PF	-6.75	-4.31	2.44	2.28

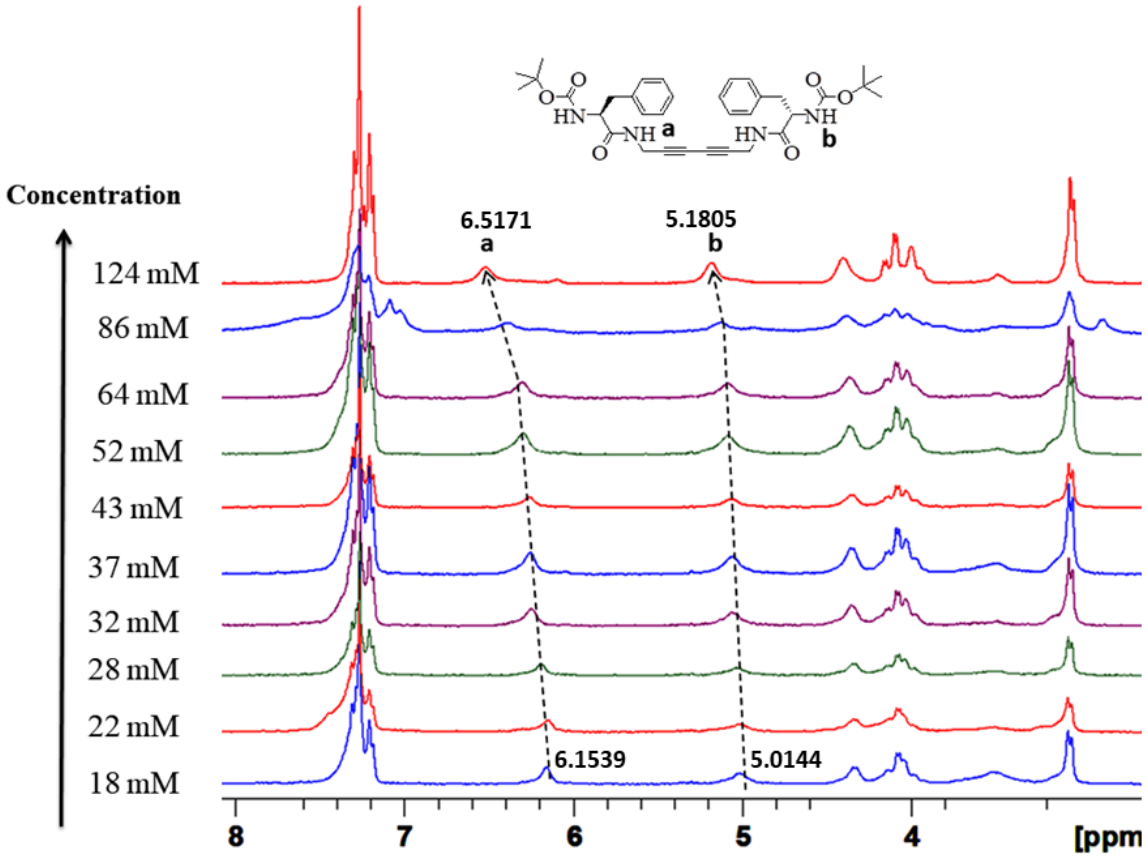


Figure S1: Concentration-dependent ^{1}H NMR (300 MHz, $CDCl_3$) of **F1**. (Concentration-dependent ^{1}H NMR spectra of **F2** was not recorded due to its immediate polymerization)

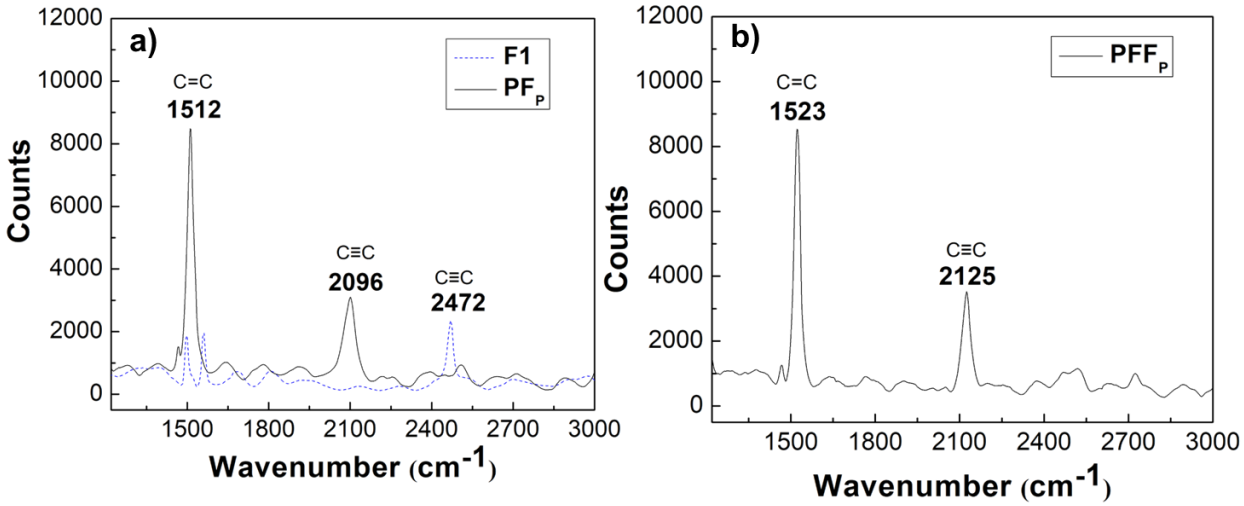


Figure S2: Normalized Raman spectra of diacetylenes and corresponding polydiacetylenes. Blue dotted line is diacetylene before UV exposure and black solid line is after the formation of polymers. (Raman spectrum of **F2** was not recorded due to its immediate polymerization)

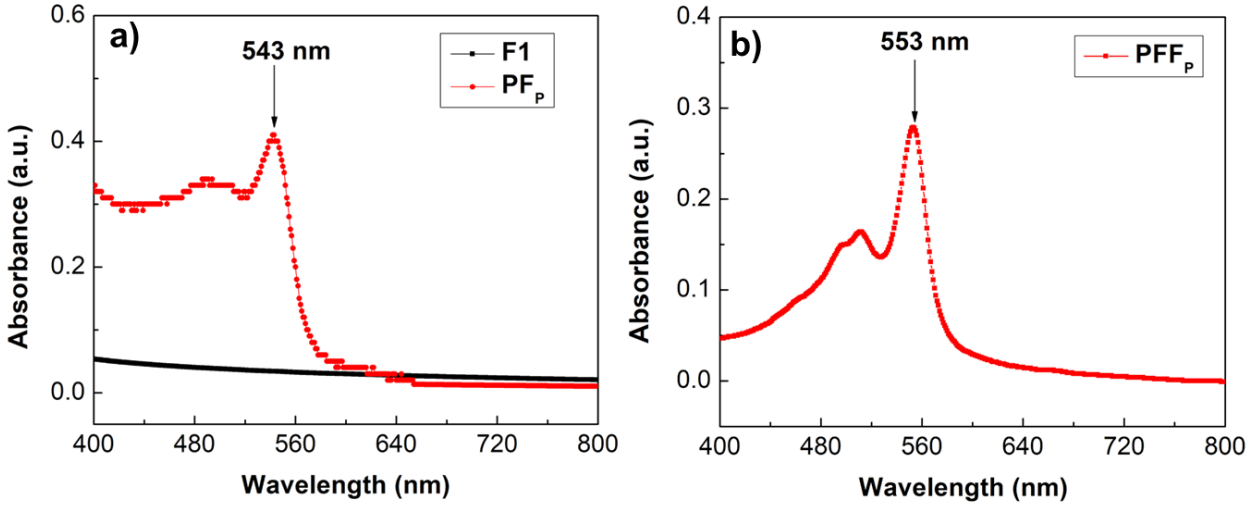


Figure S3: UV-Vis absorption spectra of diacetylene monomers and corresponding polymers. (UV-Vis absorption spectrum of **F2** was not recorded due to its immediate polymerization)

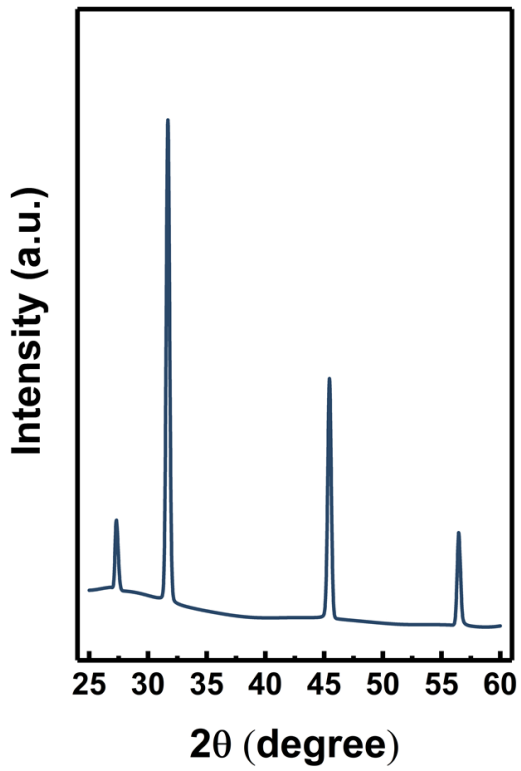


Figure S4: Powder X-ray diffraction pattern of polymer **PFF**. (PXRD data of **PF** was not recorded due to its sticky nature)

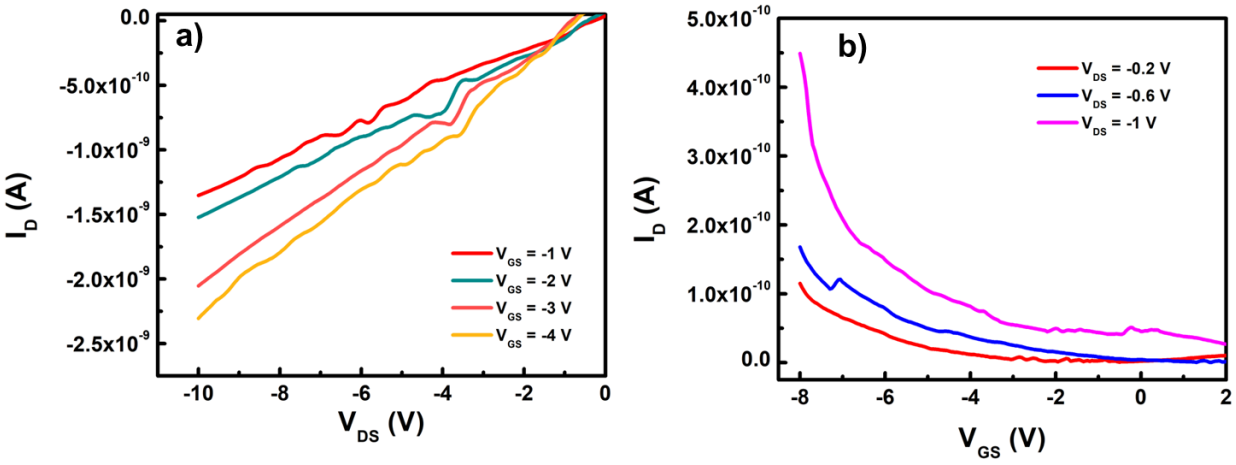


Figure S5: FET measurements on polymer **PF** (a) Output characteristics, (b) Transfer characteristics.

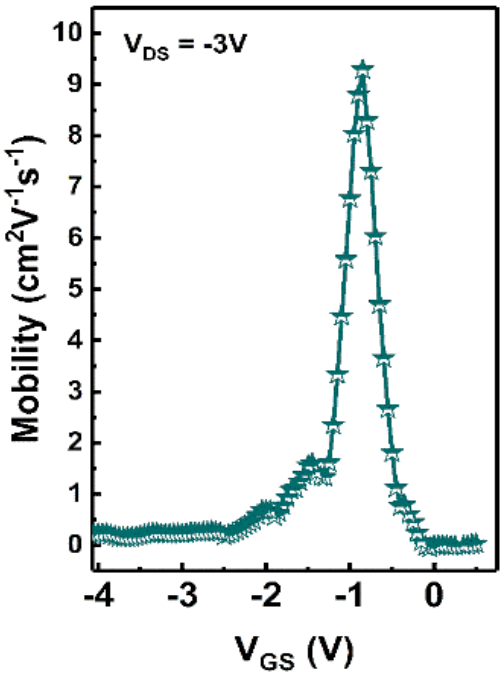


Figure S6: Variation of mobility with V_{GS} at room temperature under ambient conditions in the case of **PFF**.

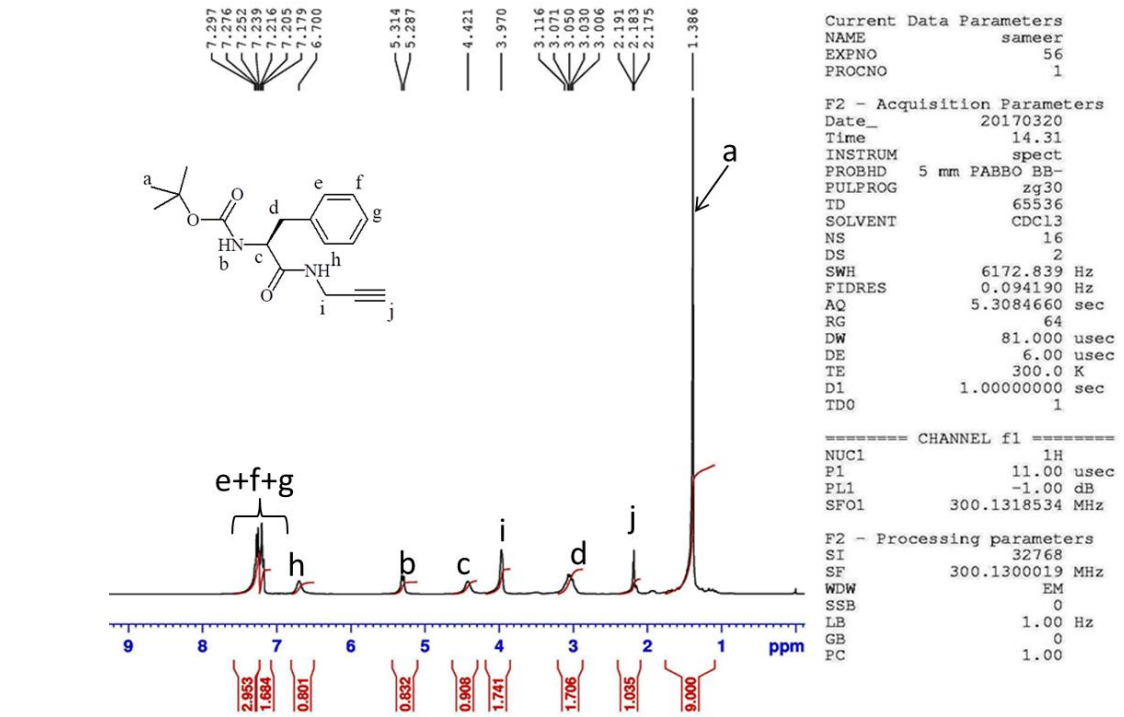


Figure S7: ^{1}H NMR (300 MHz, $CDCl_3$) spectrum of **M1**.

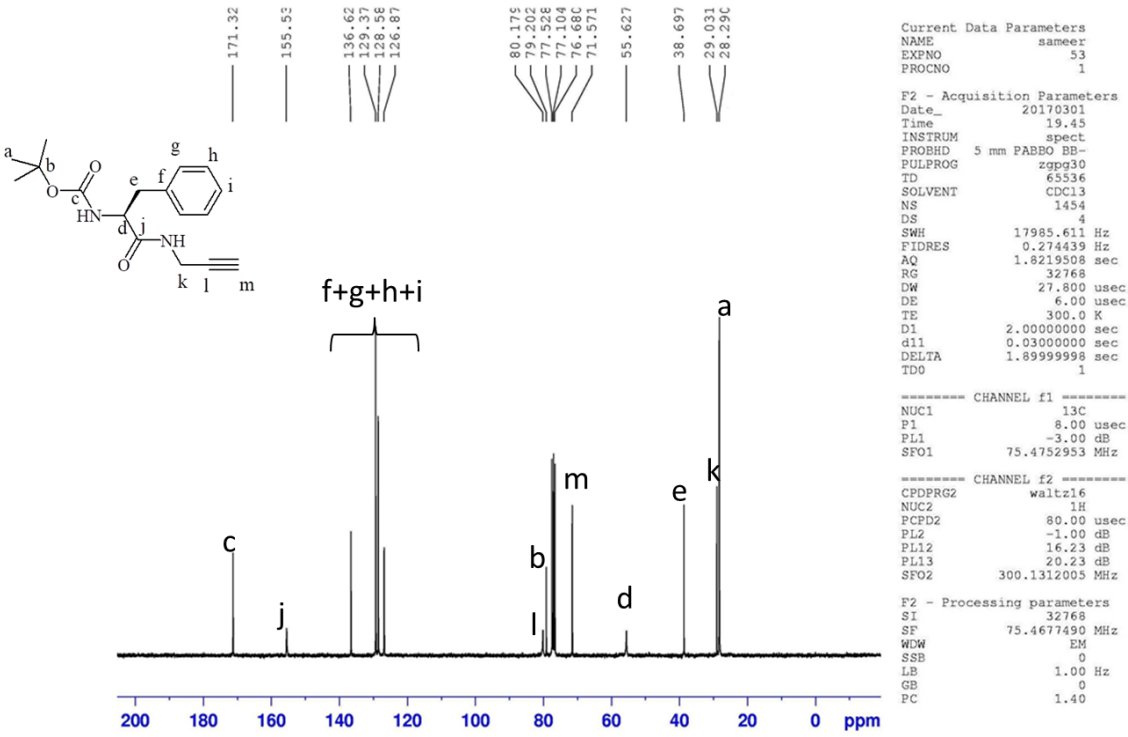


Figure S8: ^{13}C NMR (75 MHz, $CDCl_3$) spectrum of **M1**.

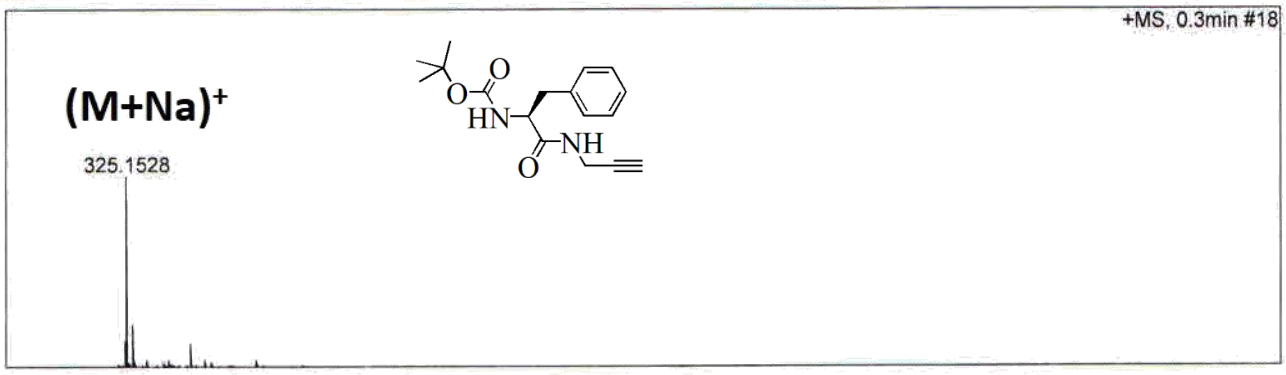


Figure S9: ESI-Mass Spectrum of **M1**.

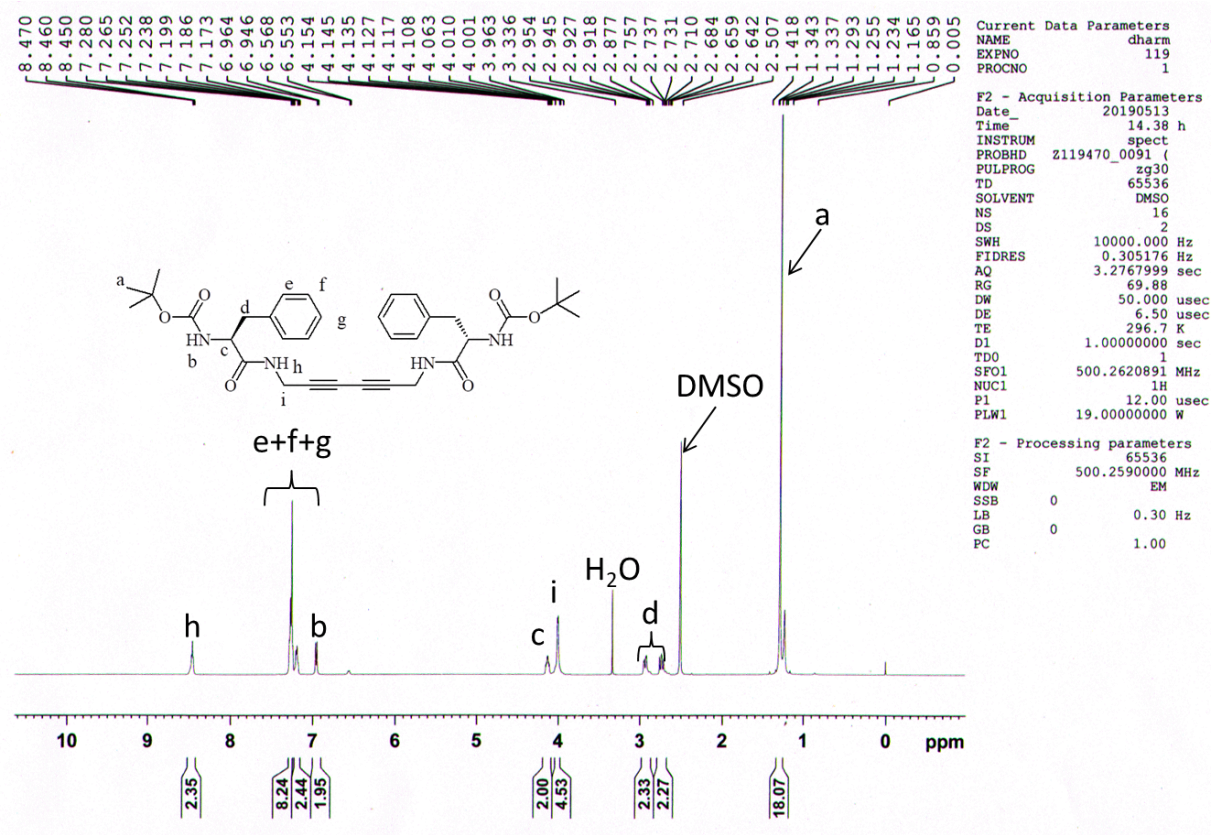


Figure S10: ^{1}H NMR (500 MHz, DMSO-d^{6}) spectrum of **F1**.

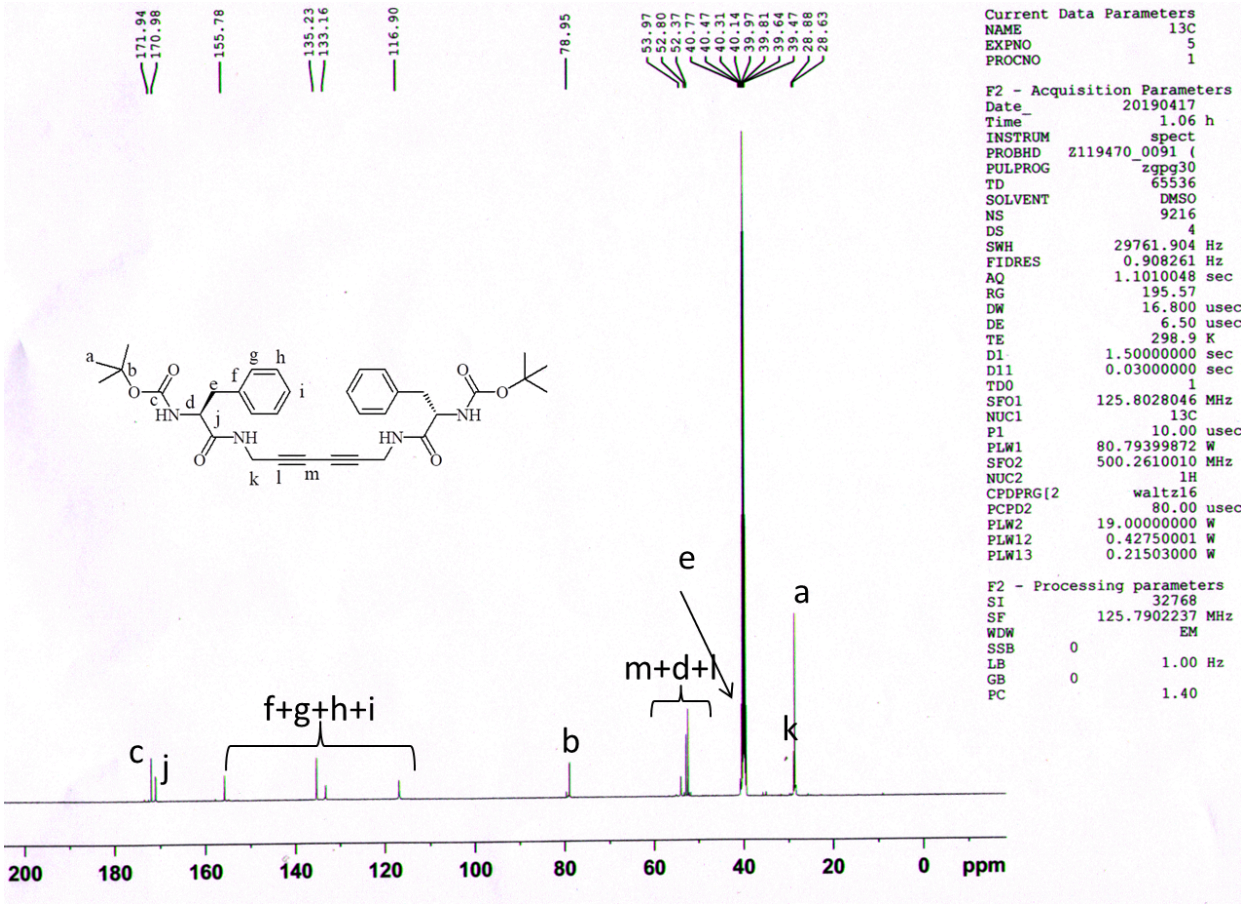


Figure S11: ^{13}C NMR (125 MHz, DMSO-d^6) spectrum of **F1**.

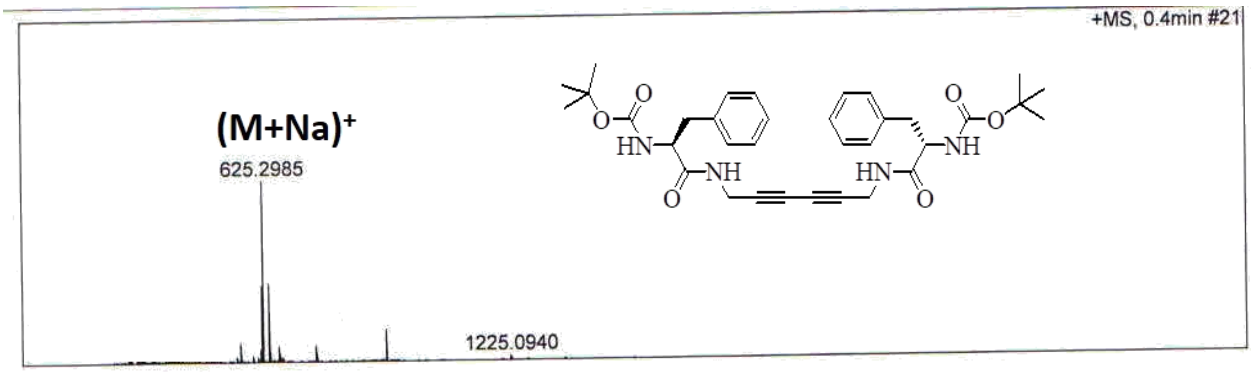


Figure S12: ESI-Mass Spectrum of **F1**.

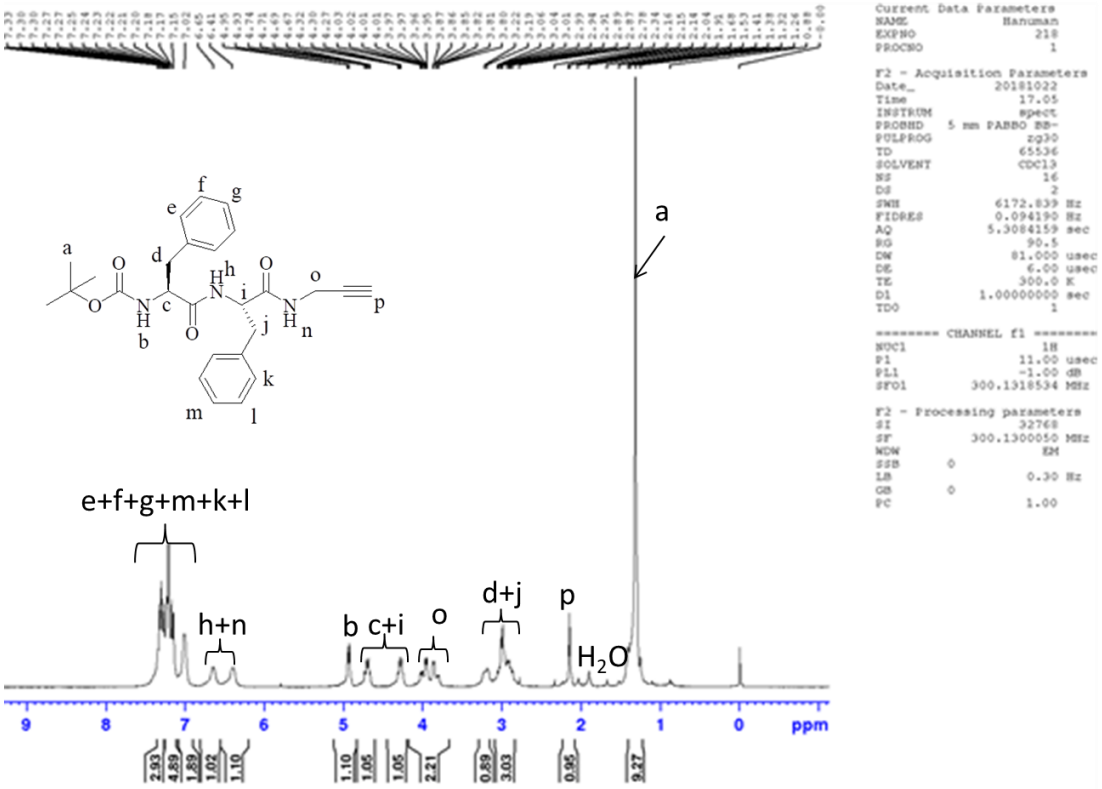


Figure S13: ^{1}H NMR (300 MHz, $CDCl_3$) spectrum of **M2**.

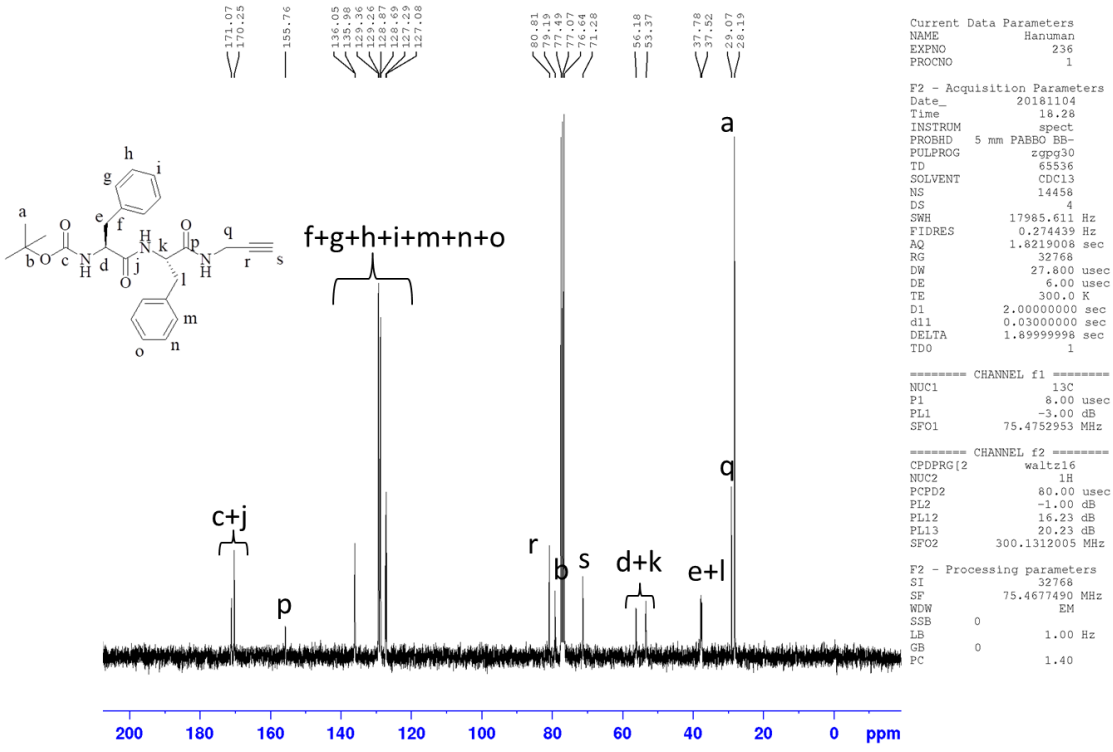


Figure S14: ^{13}C NMR (75 MHz, $CDCl_3$) spectrum of **M2.**

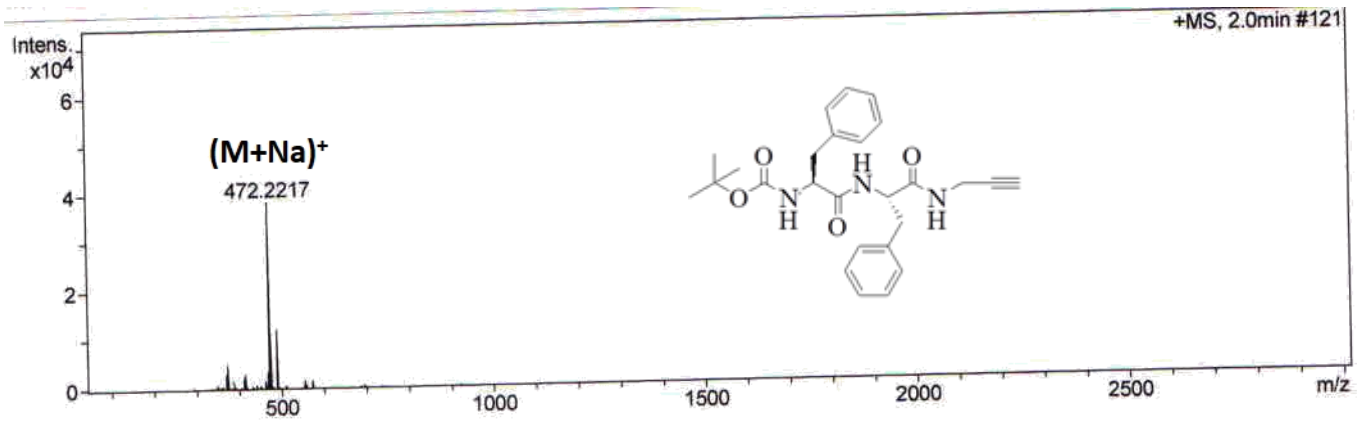


Figure S15: ESI-Mass Spectrum of **M2**.