

## Supplementary Information

### Dual Stimuli Responsive Natural Polymer Based Superabsorbent Hydrogel Engineered Through a Novel Cross-linker

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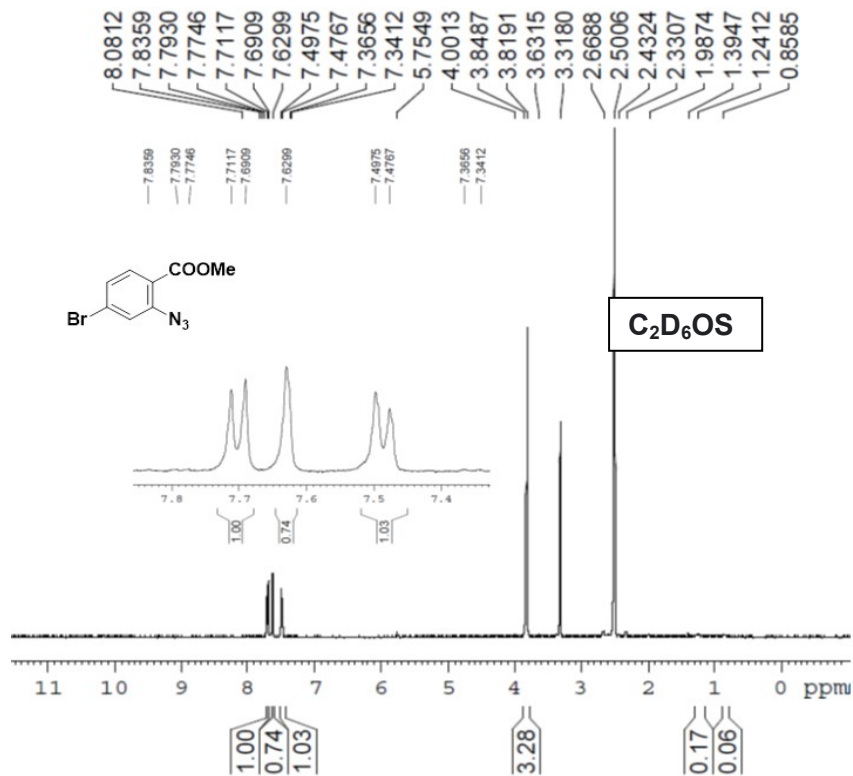


Figure S1 (a):  $^1\text{H}$  NMR spectrum of methyl 2-azido-4-bromobenzoate (2)

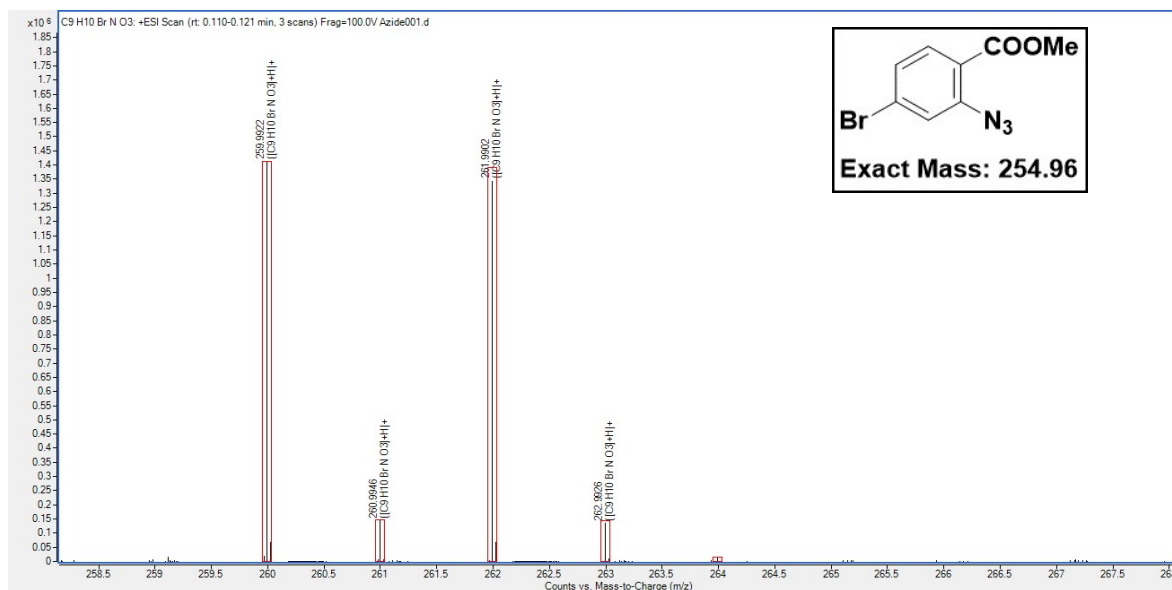
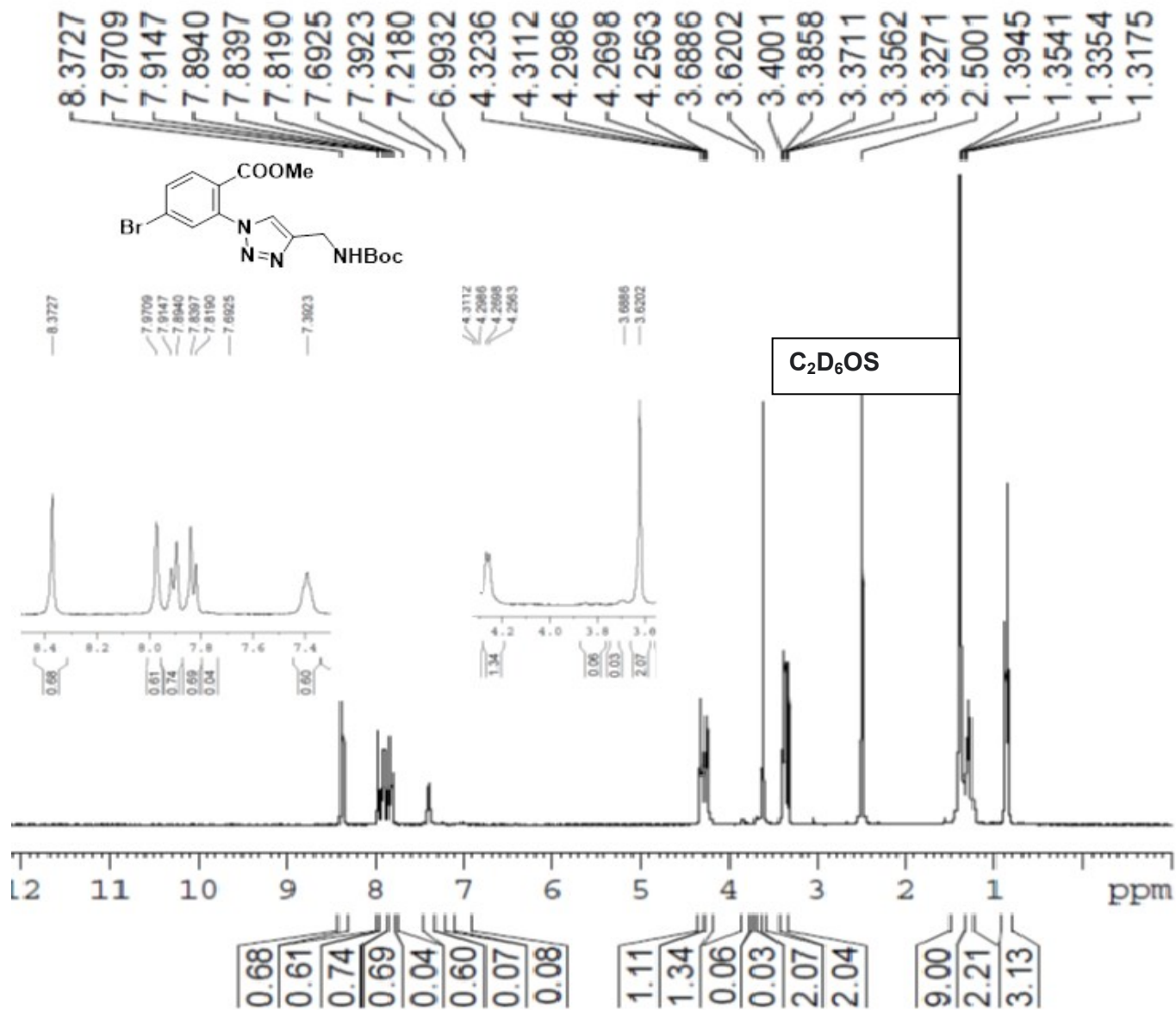
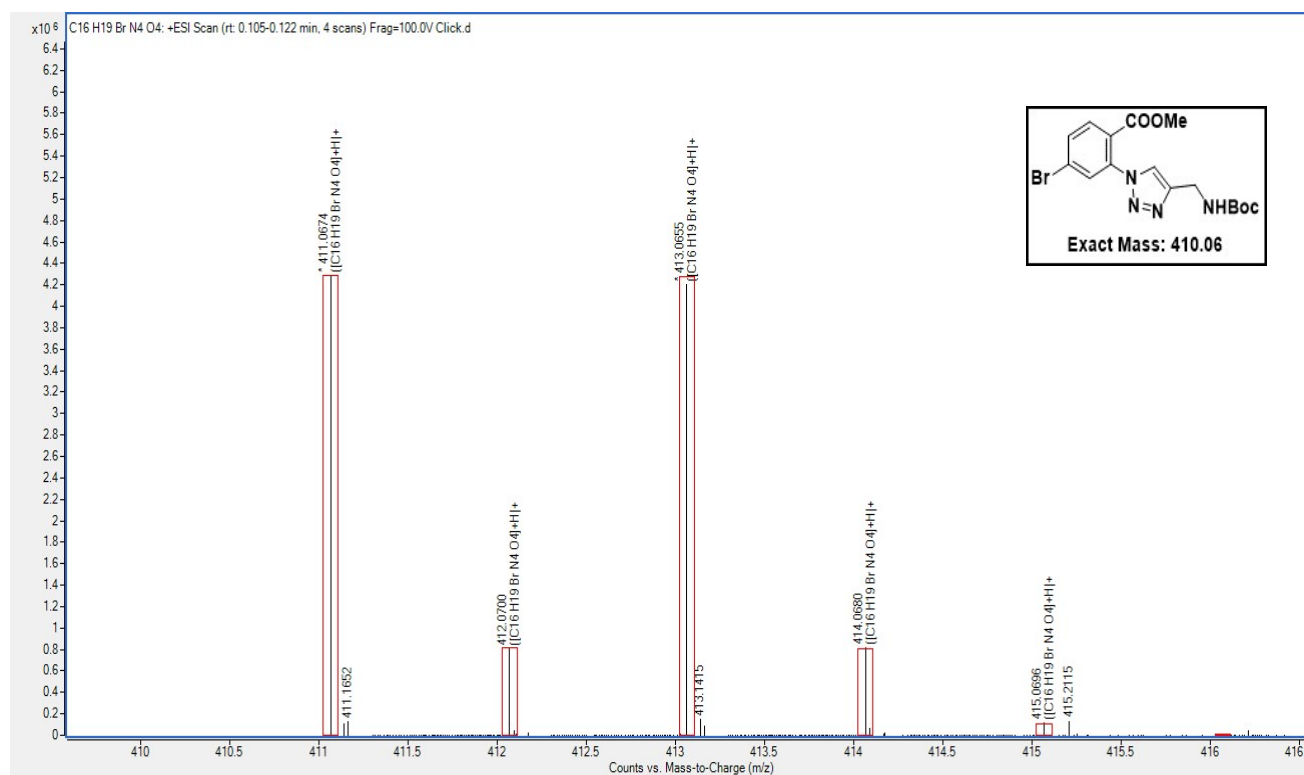


Figure S1 (b): HRMS spectrum of methyl 2-azido-4-bromobenzoate (2)

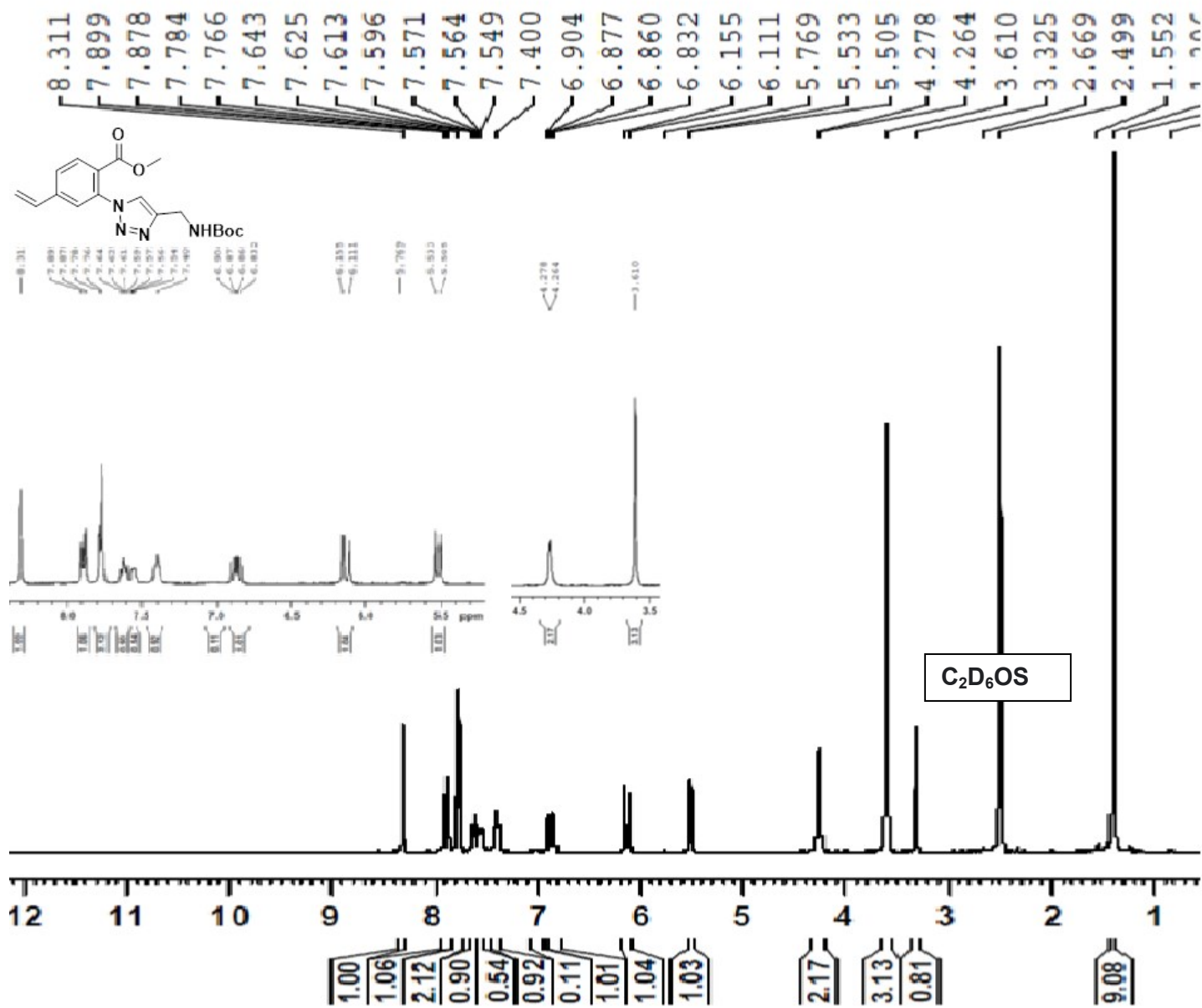


**Figure S2 (a):**  $^1\text{H}$  NMR spectrum of *tert*-butyl(1-(2-(methoxycarbonyl)-5-bromophenyl)-1H-1,2,3-triazol-4-yl)methylcarbamate (**3**)

Best	ID Source	Formula	Species	m/z	Score	Diff (ppm)	Score (MFG)
⊙	MFG	C16 H19 Br N4 O4	(M+H) <sup>+</sup> (M+Na) <sup>+</sup>	411.0674 433.0482	99.57	-0.27	99.57

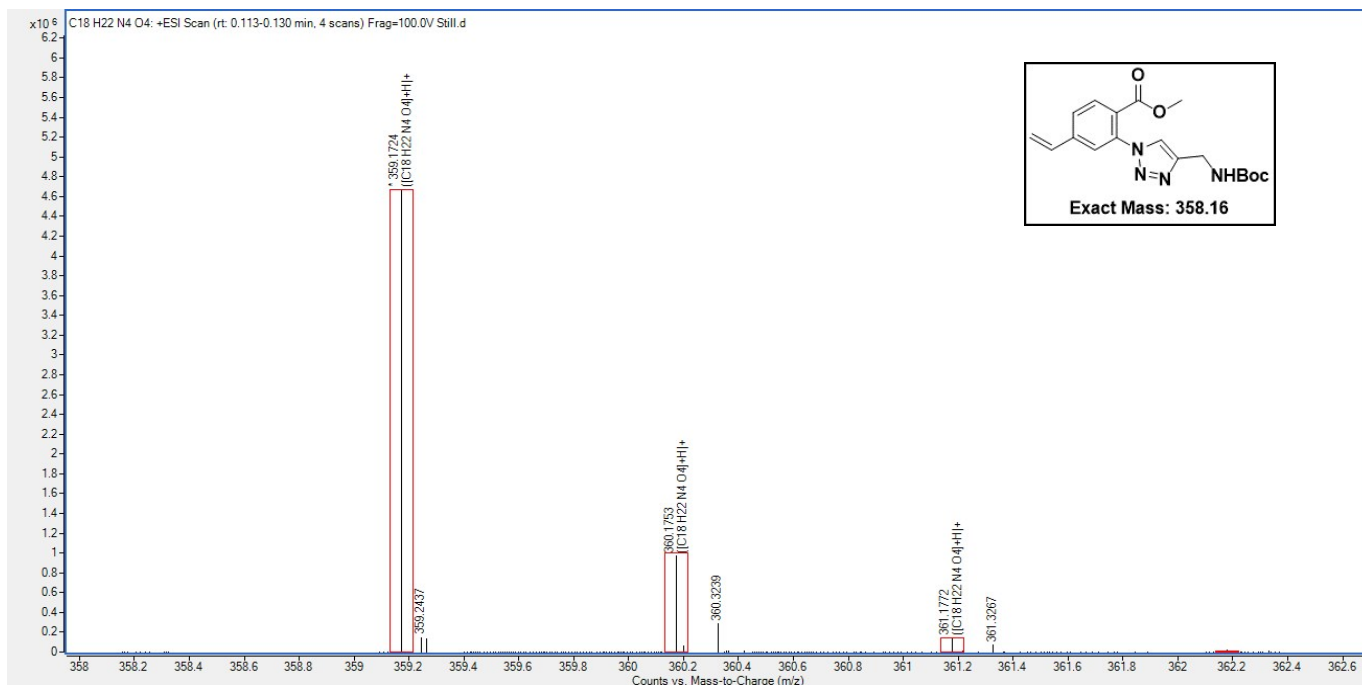


**Figure S2 (b):** HRMS spectrum of *tert*-butyl(1-(2-(methoxycarbonyl)-5-bromophenyl)-1H-1,2,3-triazol-4-yl)methylcarbamate (**3**)

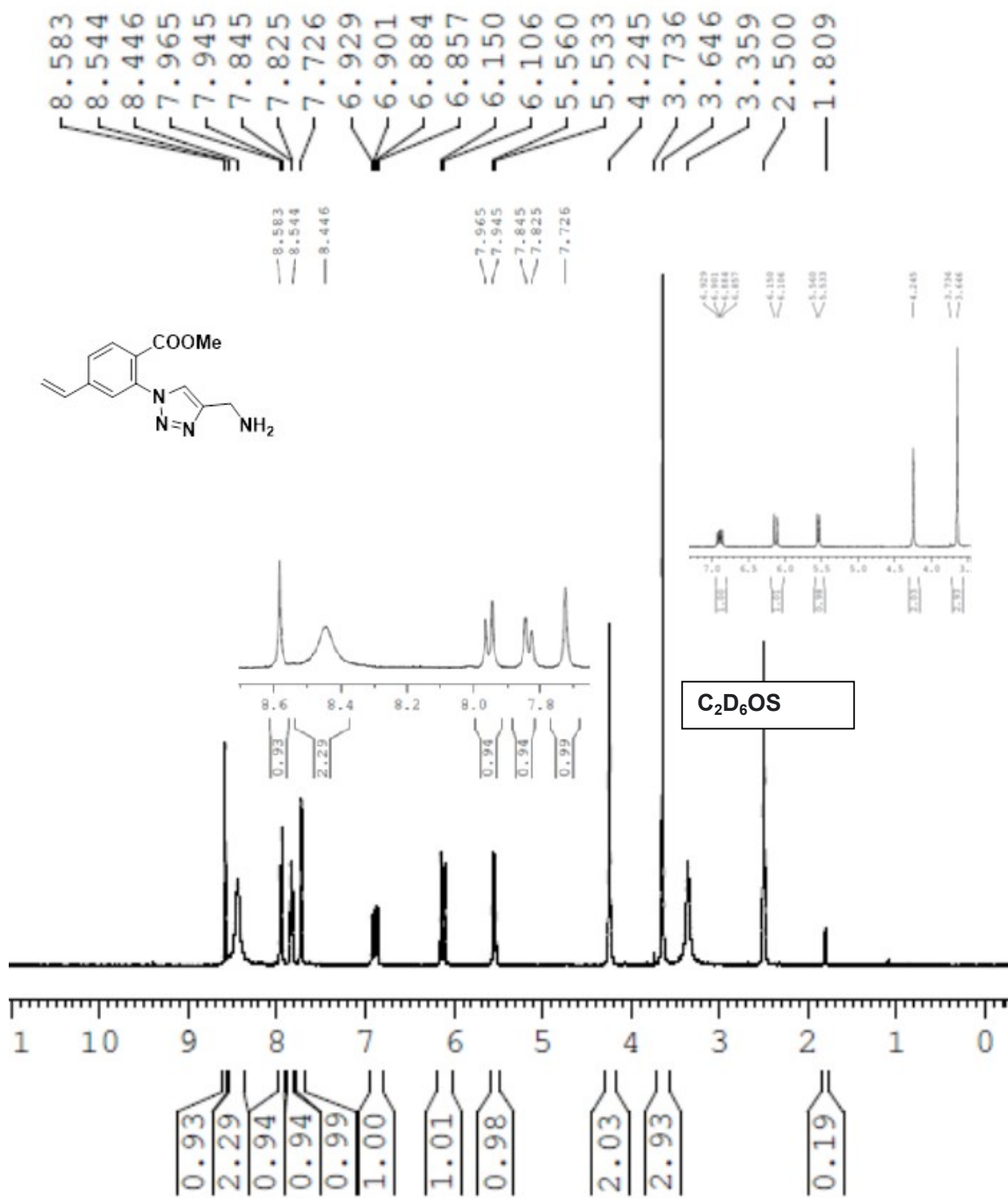


**Figure S3 (a):**  $^1\text{H}$  NMR spectrum of *tert*-butyl (1-(2-(methoxycarbonyl)-5-vinylphenyl)-1H-1,2,3-triazol-4-yl)methylcarbamate (**4**)

Best	ID Source	Formula	Species	m/z	Score	Diff (ppm)	Score (MFG)
⊙	MFG	C <sub>18</sub> H <sub>22</sub> N <sub>4</sub> O <sub>4</sub>	(M+H) <sup>+</sup> (M+Na) <sup>+</sup>	359.1724 381.1531	99.07	-0.6	99.07

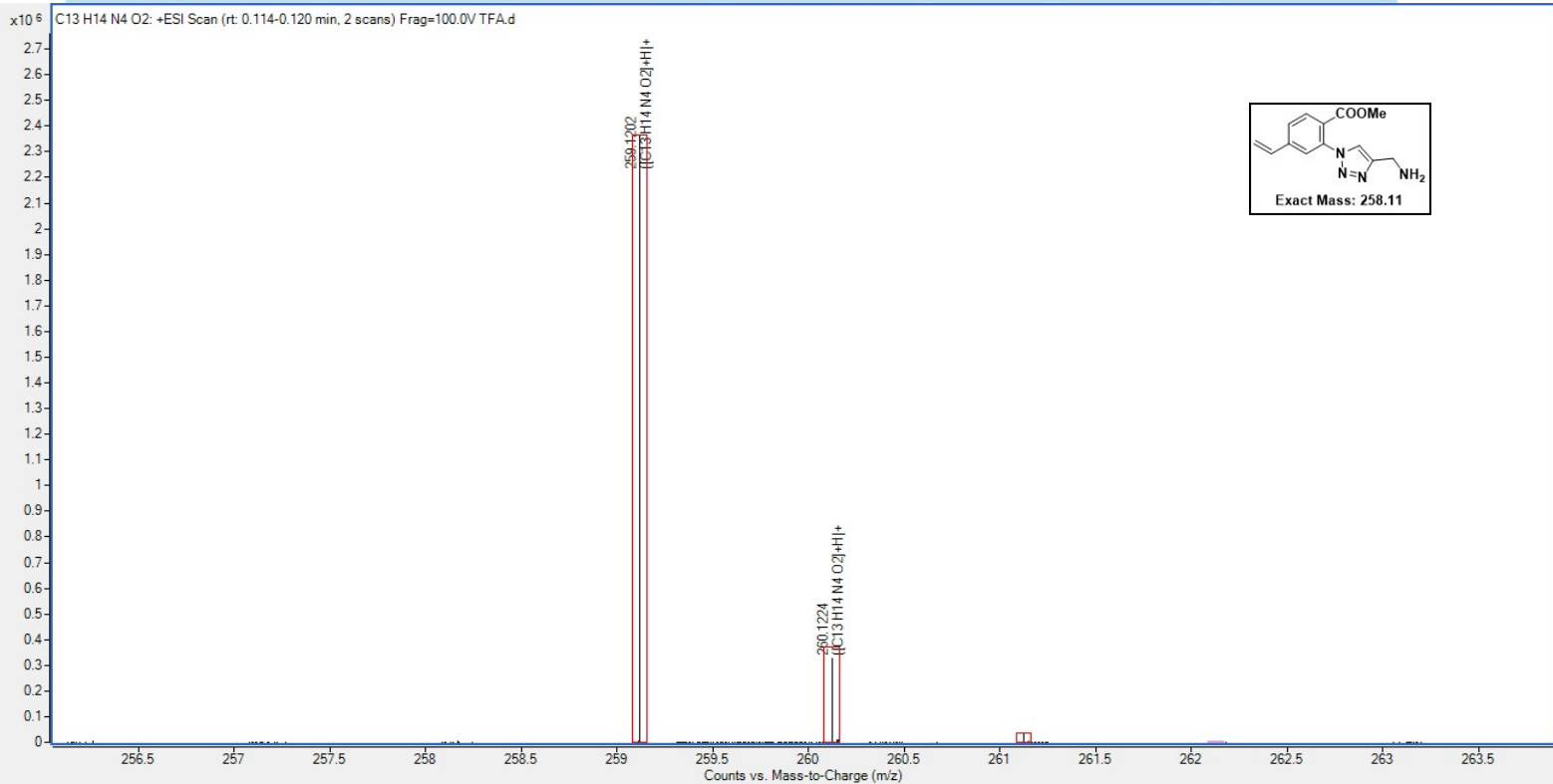


**Figure S3 (b):** HRMS spectrum of *tert*-butyl (1-(2-(methoxycarbonyl)-5-vinylphenyl)-1H-1,2,3-triazol-4-yl)methylcarbamate (**4**)



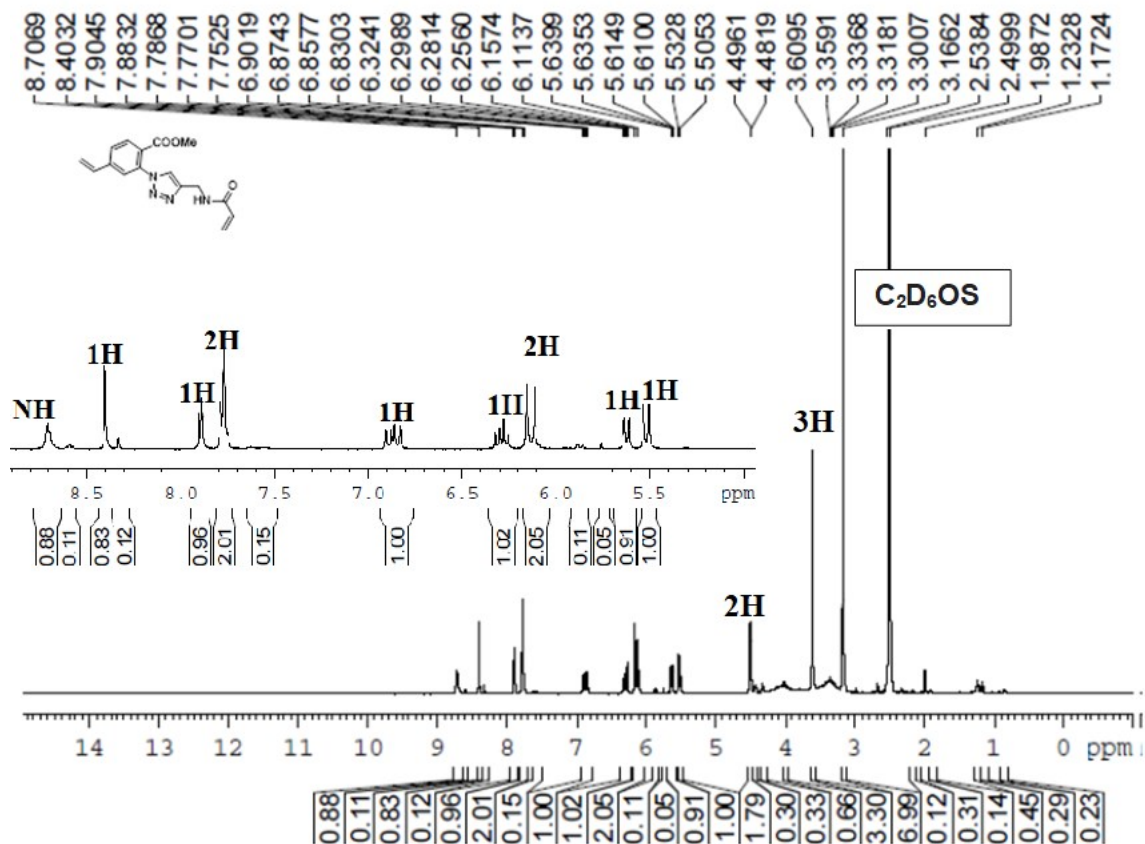
**Figure S4 (a):**  $^1\text{H}$  NMR spectrum of ethyl 2-(4-(aminomethyl)-1H-1,2,3-triazol-1-yl)-4-vinylbenzoate (5)

Best	ID Source	Formula	Species	m/z	Score	Diff (ppm)	Score (MFG)
⊙	MFG	C13 H14 N4 O2	(M+H) <sup>+</sup> (M+Na) <sup>+</sup>	259.1202 281.1013	98.93	1.54	98.93

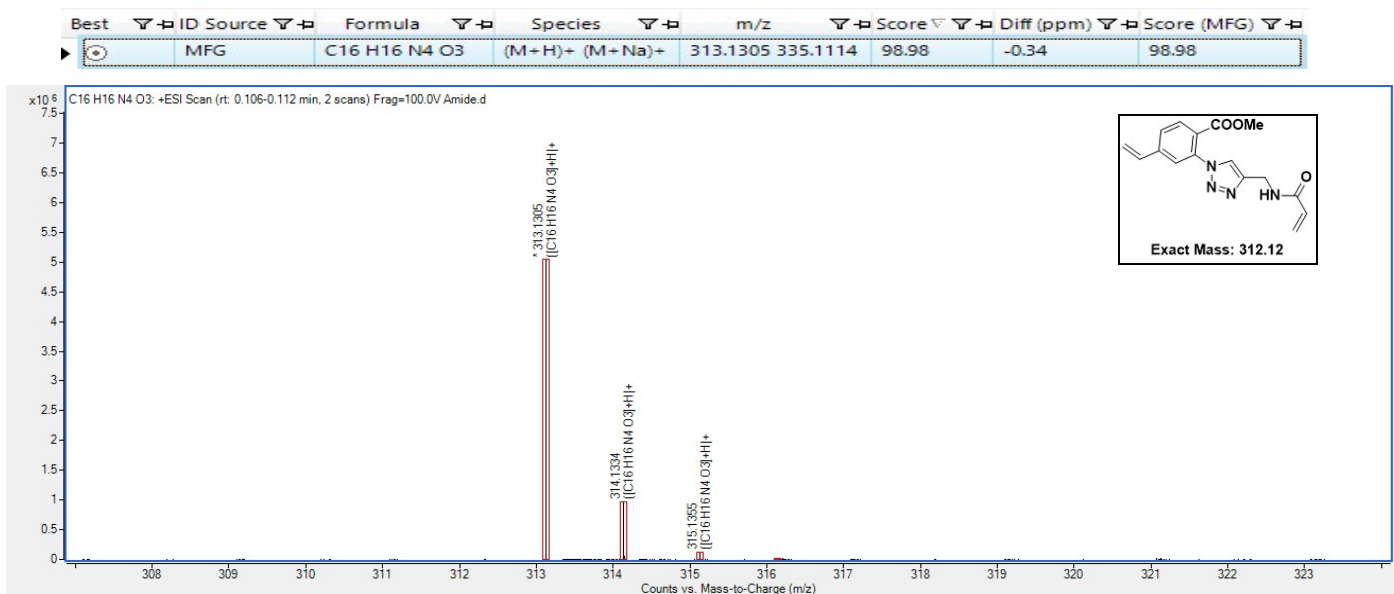


**Figure S 4(b):** HRMS Methyl 2-(4-(aminomethyl)-1H-1,2,3-triazol-1-yl)-4-vinylbenzoate (5)

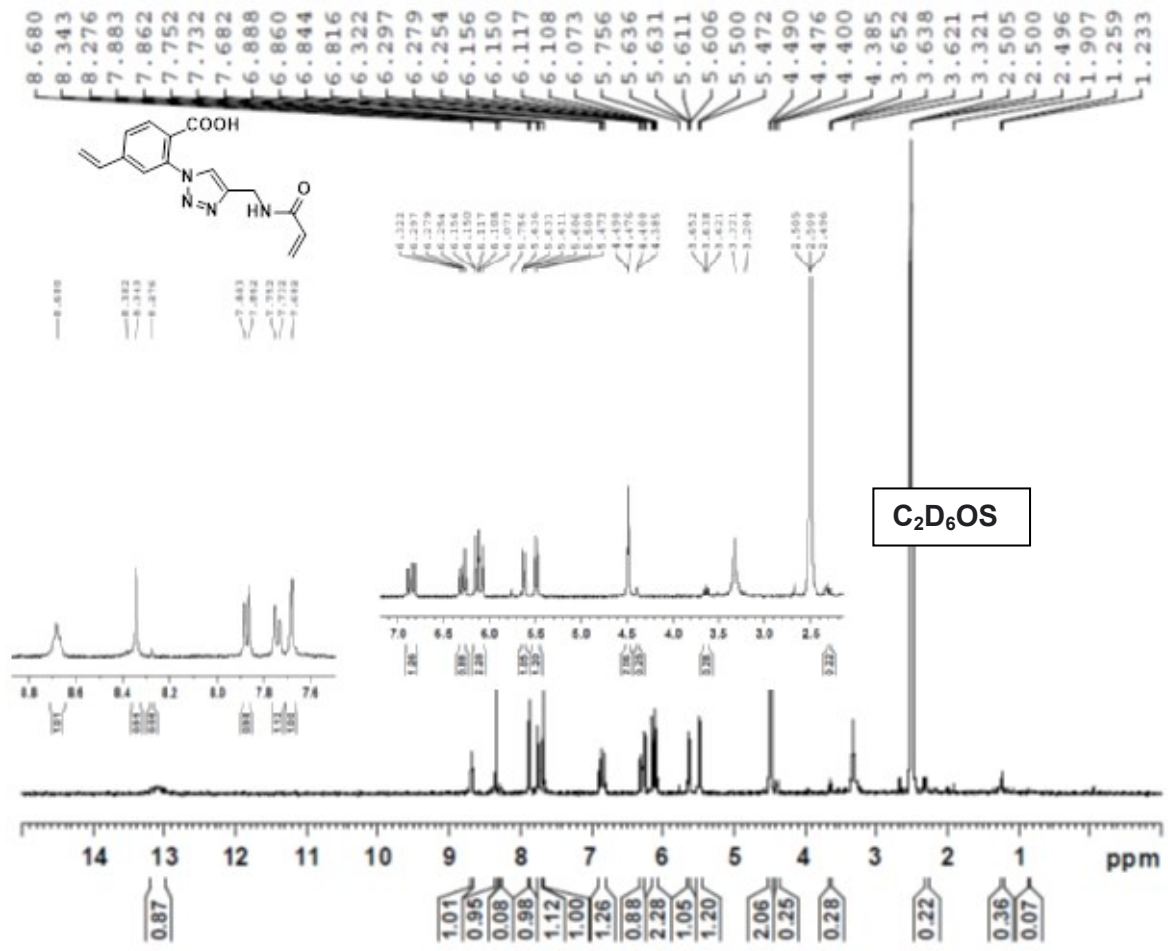




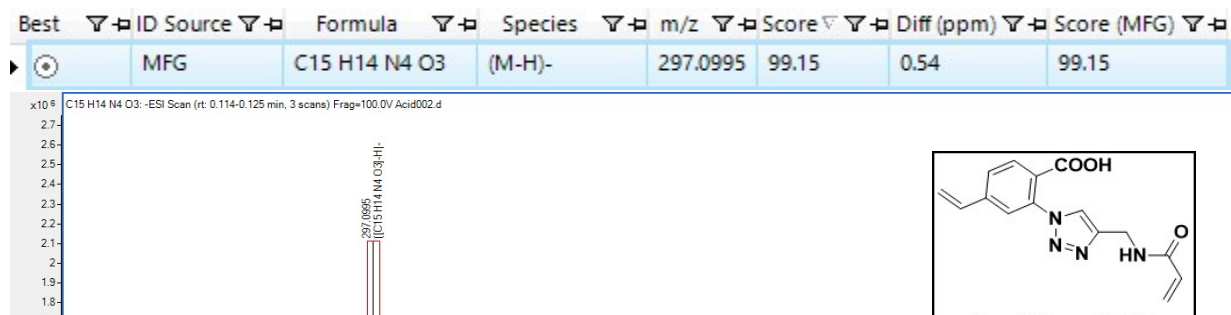
**Figure S5 (a):** <sup>1</sup>H NMR spectrum of methyl 2-(4-((acrylamido)methyl)-1H-1,2,3-triazol-1-yl)-4-vinylbenzoate (6)



**Figure S5 (b):** HRMS spectrum of methyl 2-(4-((acrylamido)methyl)-1H-1,2,3-triazol-1-yl)-4-vinylbenzoate (6)



**Figure S6 (a):**  $^1\text{H}$  NMR spectrum of 2-(4-((Acrylamido)methyl)-1H-1,2,3-triazol-1-yl)-4-vinylbenzoic acid (**7**)



**Figure S6 (b):** HRMS spectrum of 2-(4-((Acrylamido)methyl)-1H-1,2,3-triazol-1-yl)-4-vinylbenzoic acid (7)

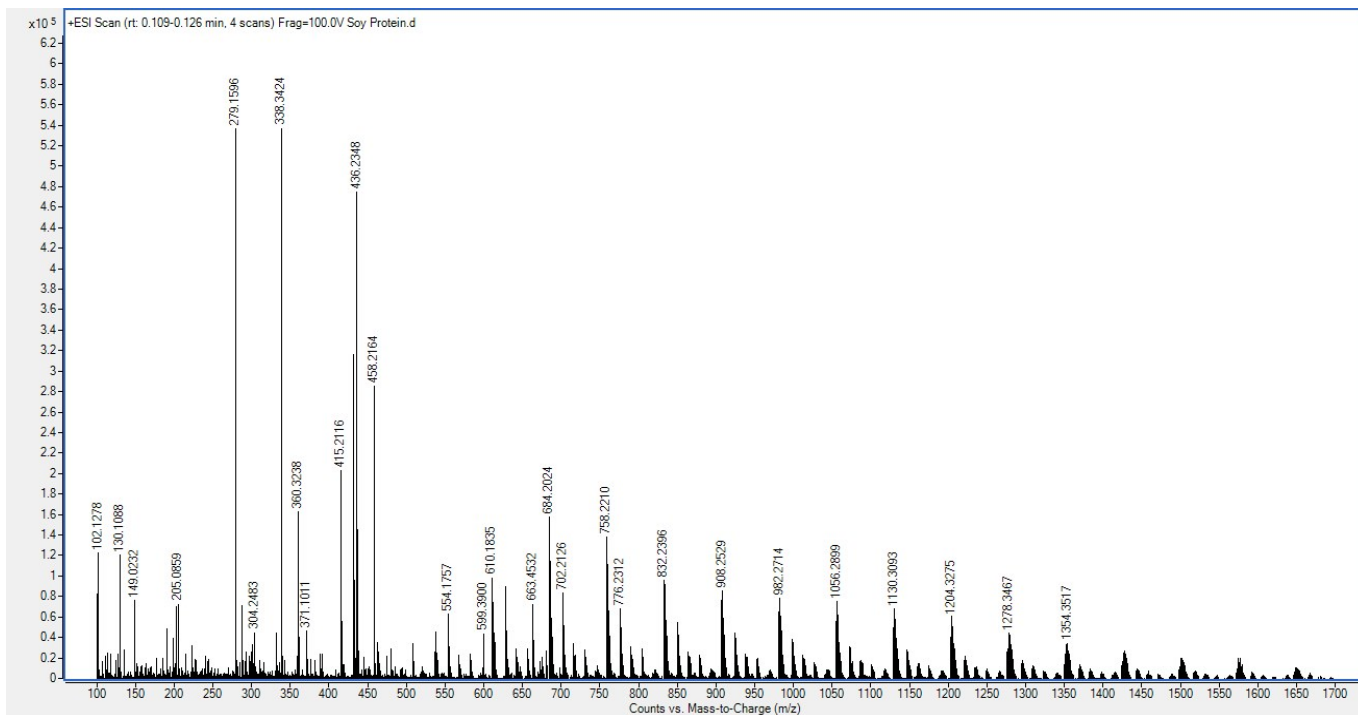
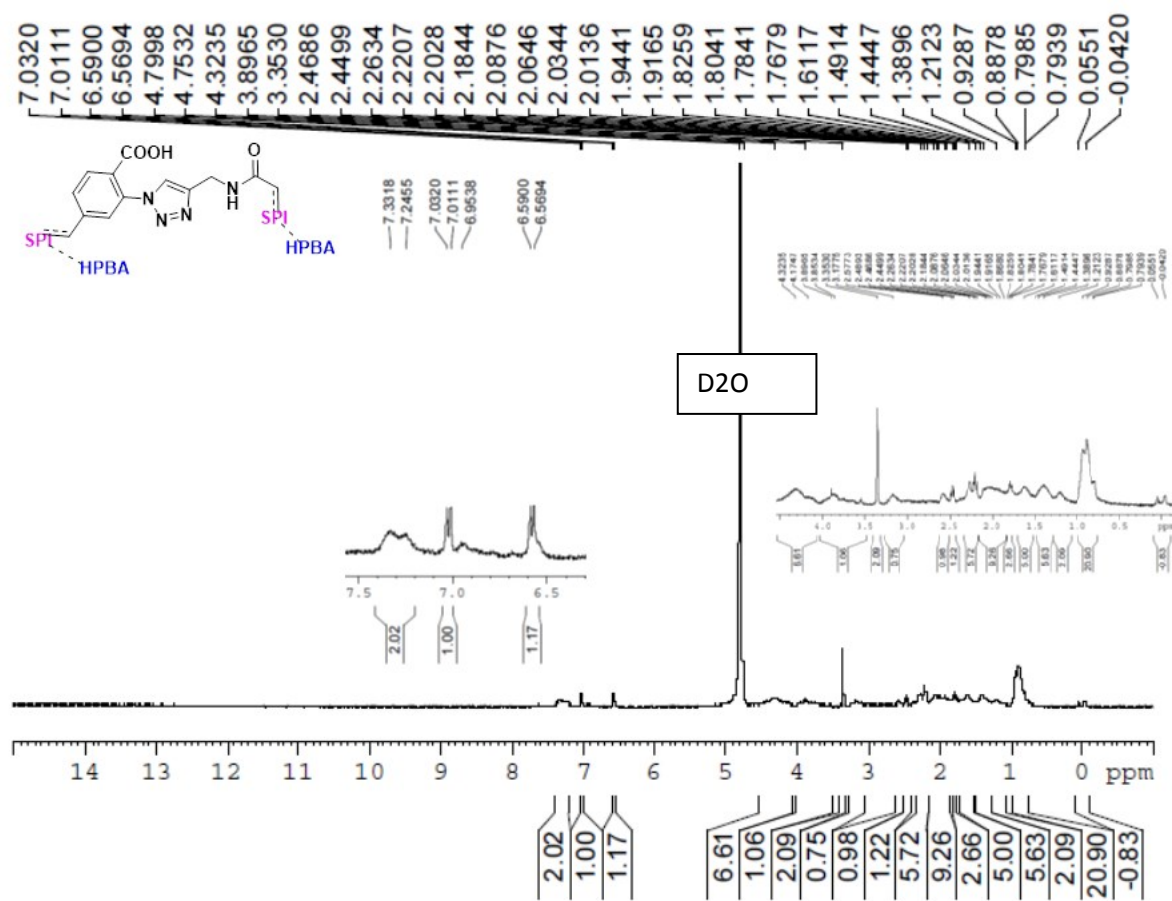
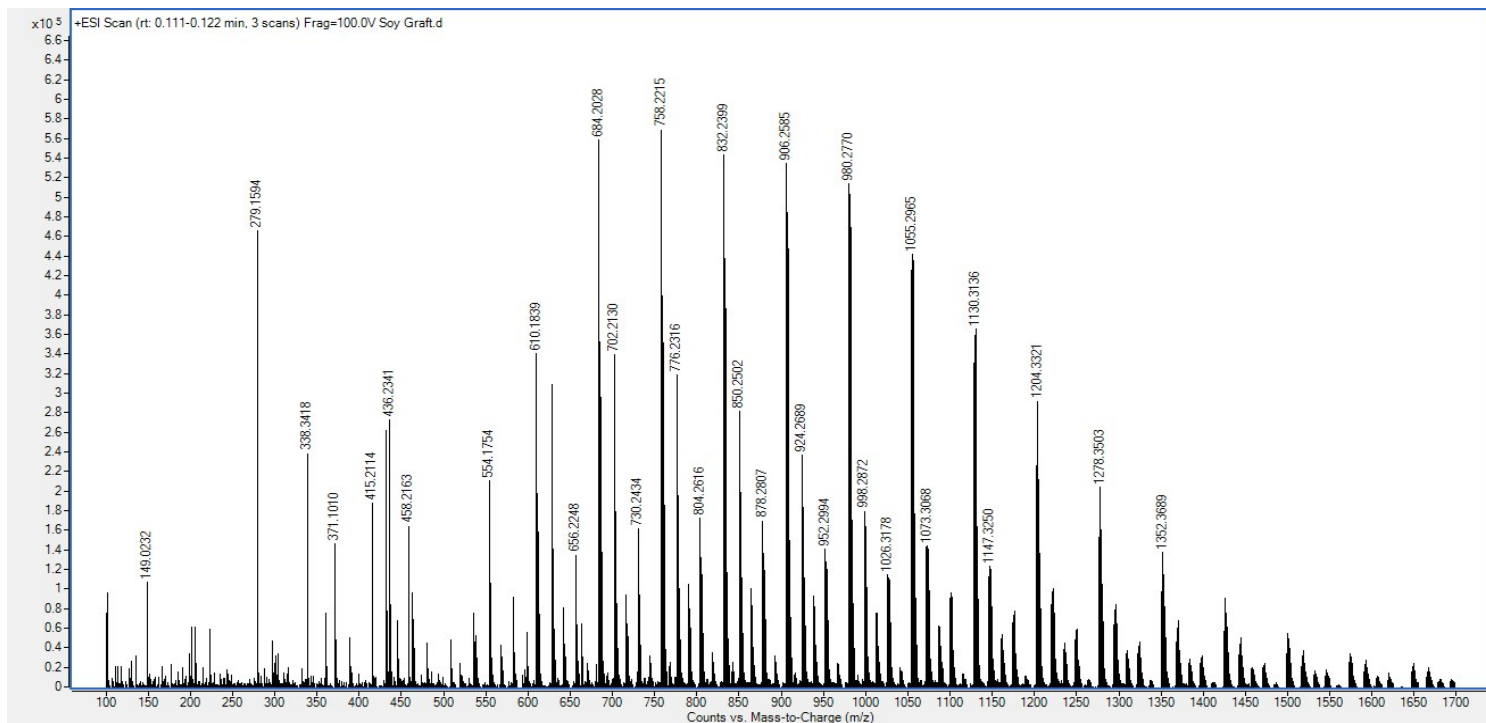


Figure S7(a): HRMS spectrum of Neat SPI



**Figure S8(a):**  $^1\text{H}$  NMR spectrum of Grafted SPI with novel monomer



**Figure S8(b):** HRMS spectrum of grafted SPI with novel monomer.