

Supporting Information

Org. Commun. 15:4 (2022) 333-345

Synthesis of 2-alkyl-2*H*-tetrazole and styrene-containing compounds by the Wittig reaction and investigation

by X-ray crystallography

Doğukan Doyduk and Yılmaz Yıldırım

Department of Chemistry, Faculty of Science, Gazi University, 06560, Ankara, Türkiye

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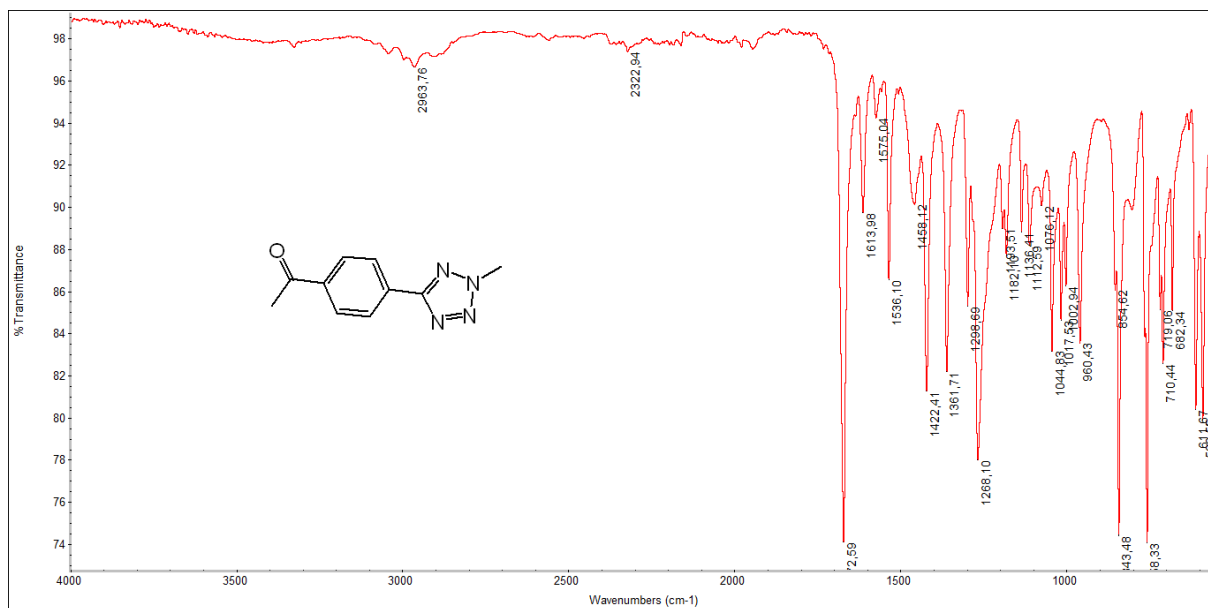


Figure S1: FT-IR spectrum of compound **BF31a**

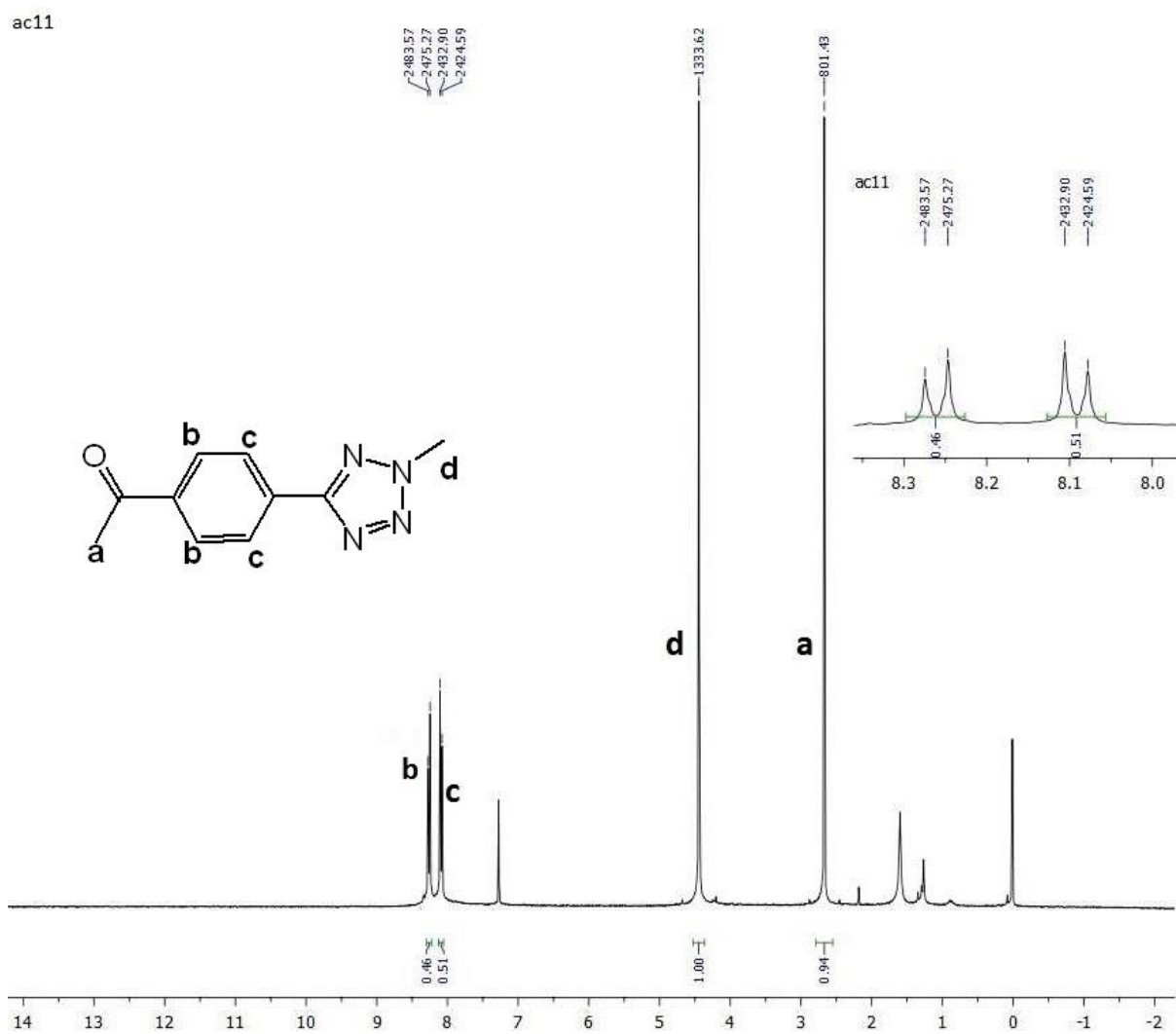


Figure S2: ¹H NMR spectrum of compound **BF31a**

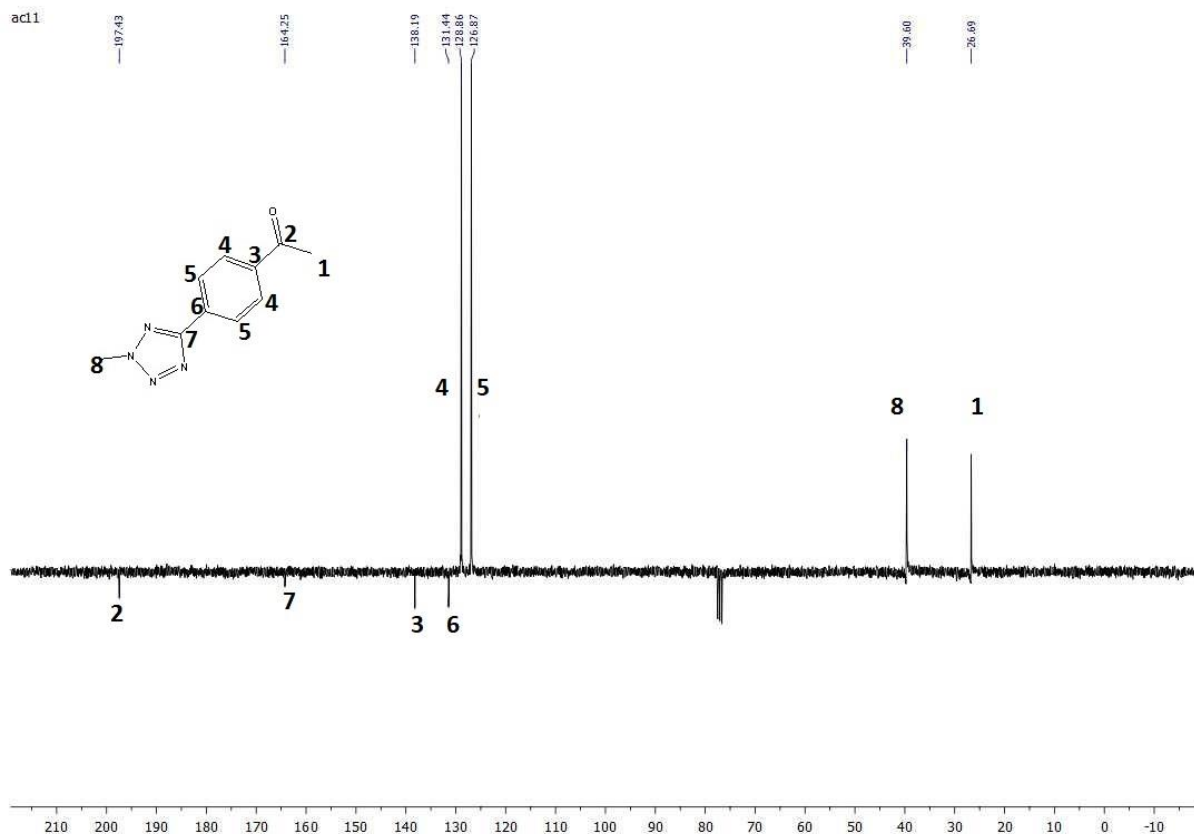


Figure S3: ¹³C-APT NMR spectrum of compound **BF31a**

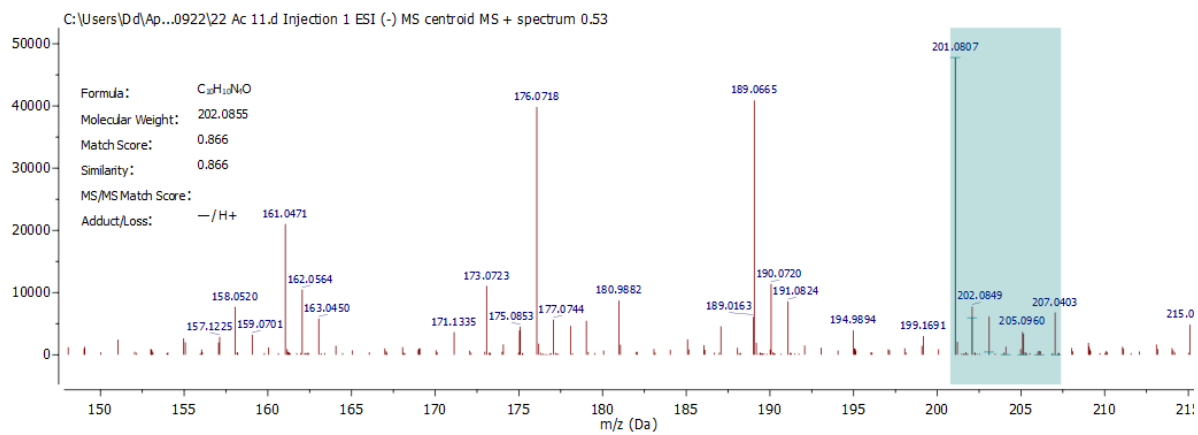


Figure S4: HR-MS spectrum of compound **BF31a**

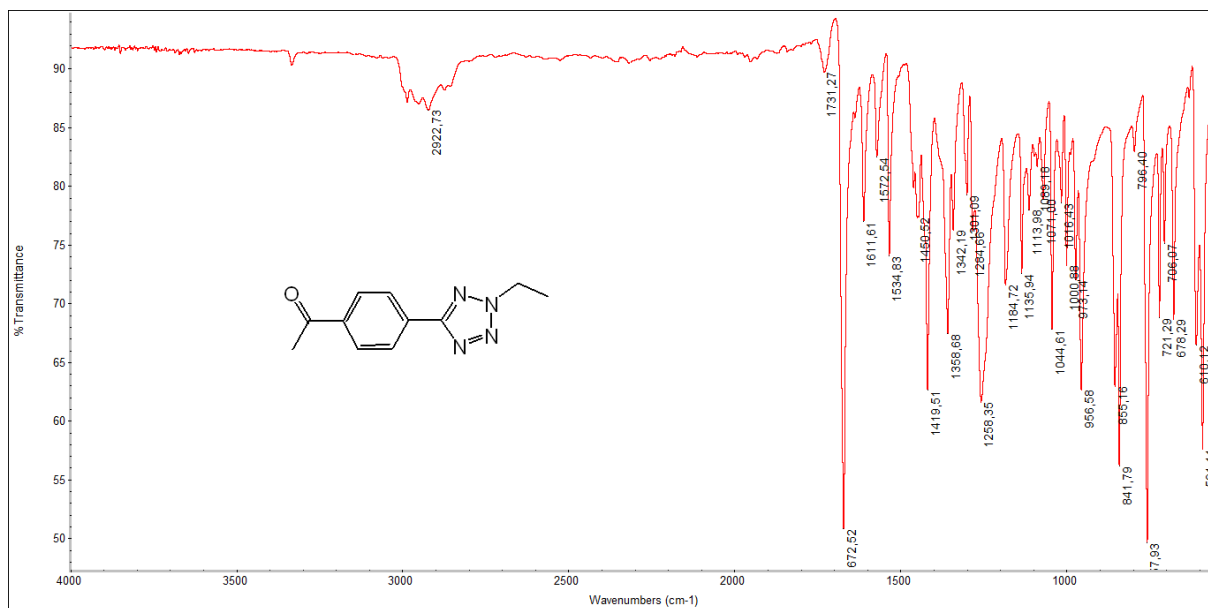


Figure S5: FT-IR spectrum of compound **BF31b**

a21

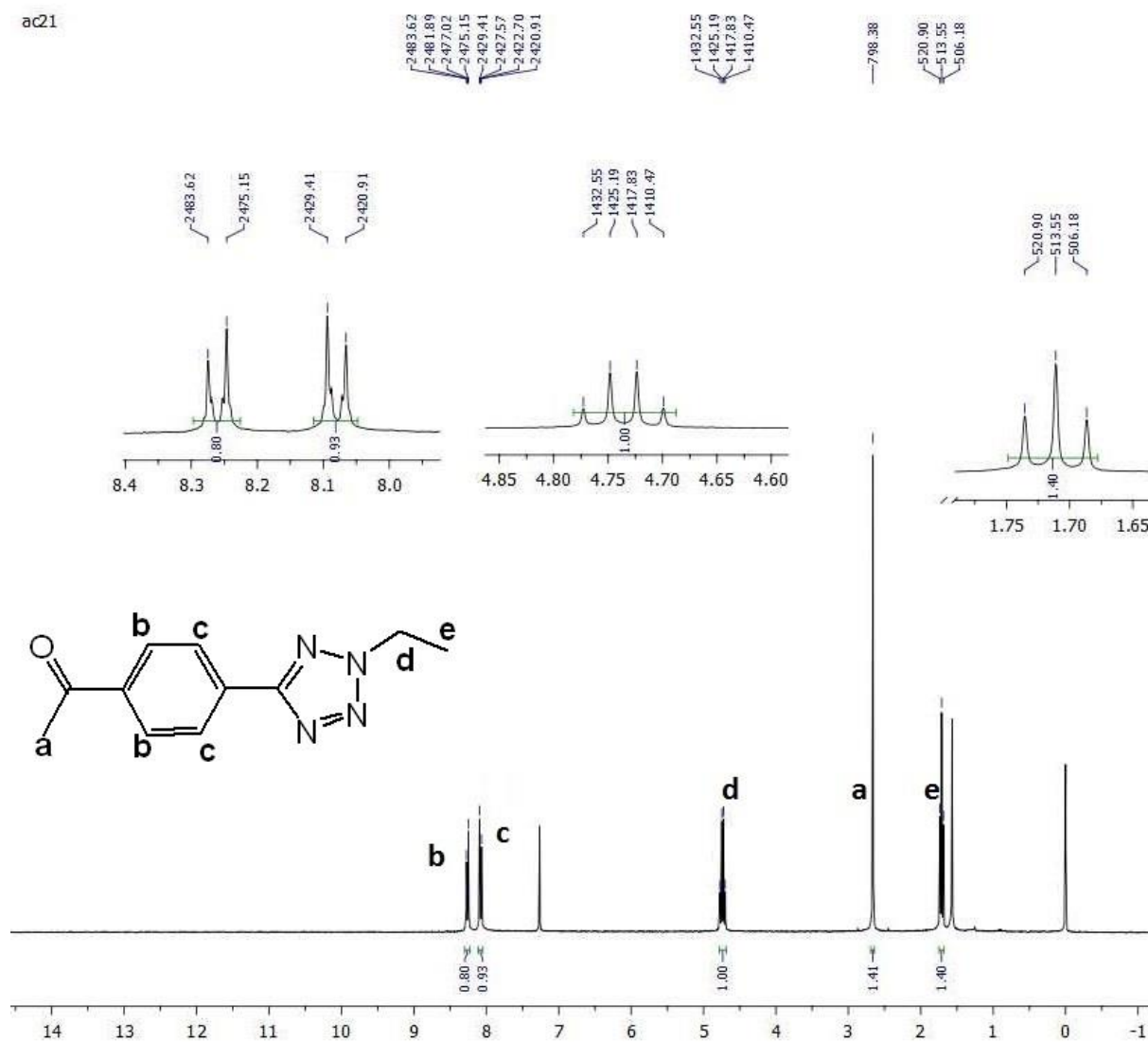


Figure S6: ¹H NMR spectrum of compound BF31b

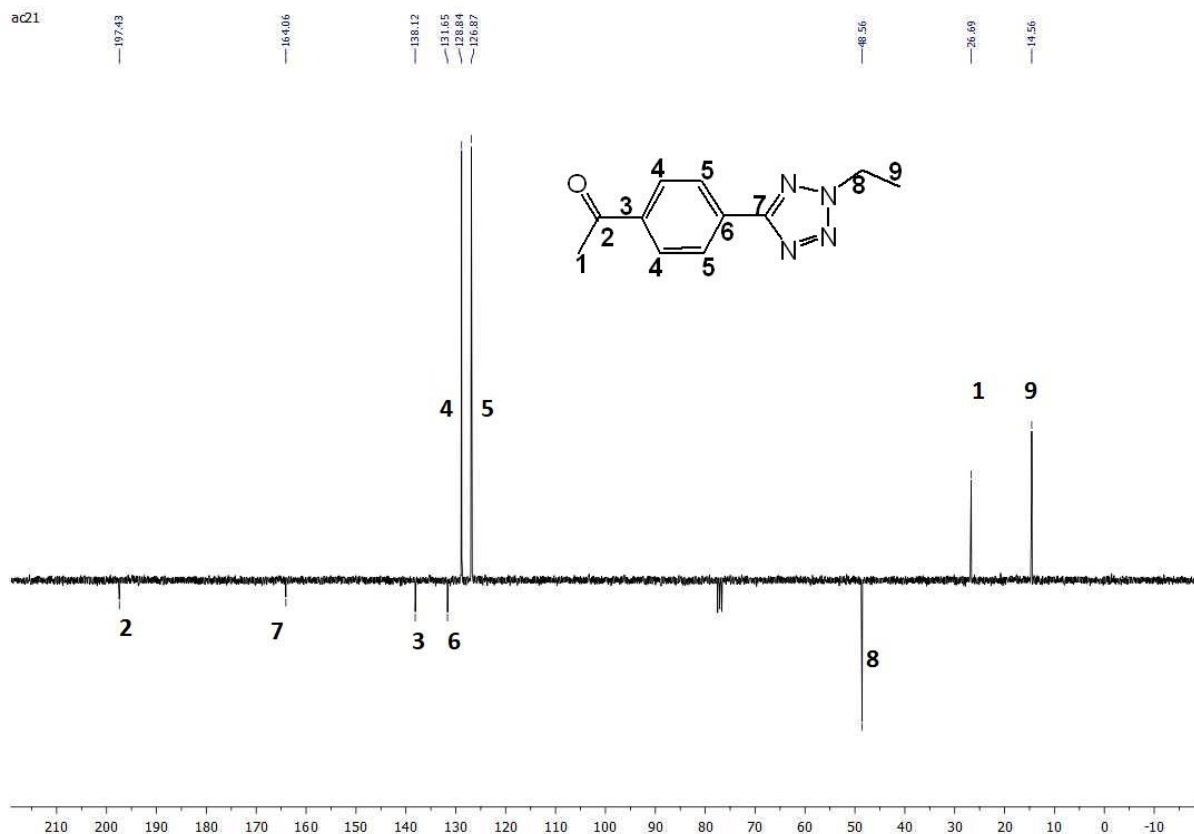


Figure S7: ^{13}C -APT NMR spectrum of compound **BF31b**

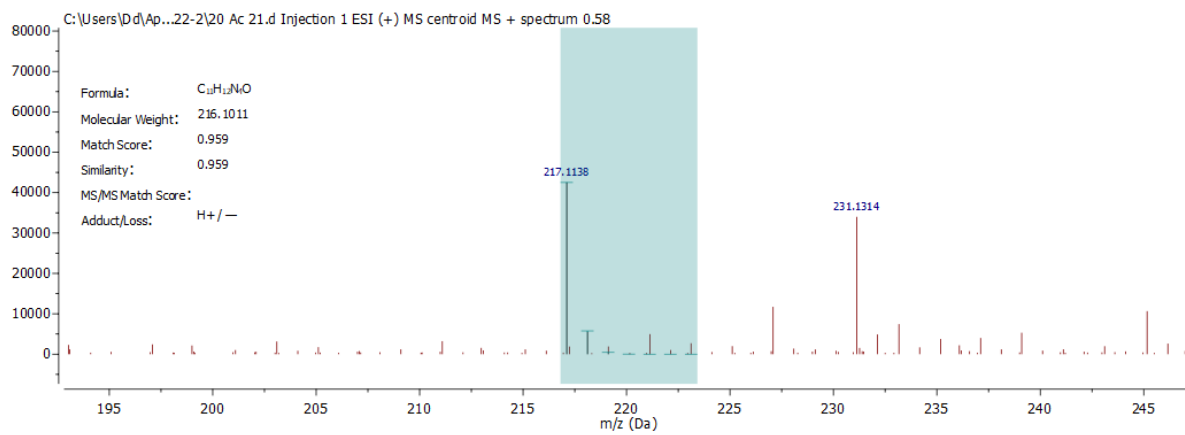


Figure S8: HR-MS spectrum of compound **BF31b**

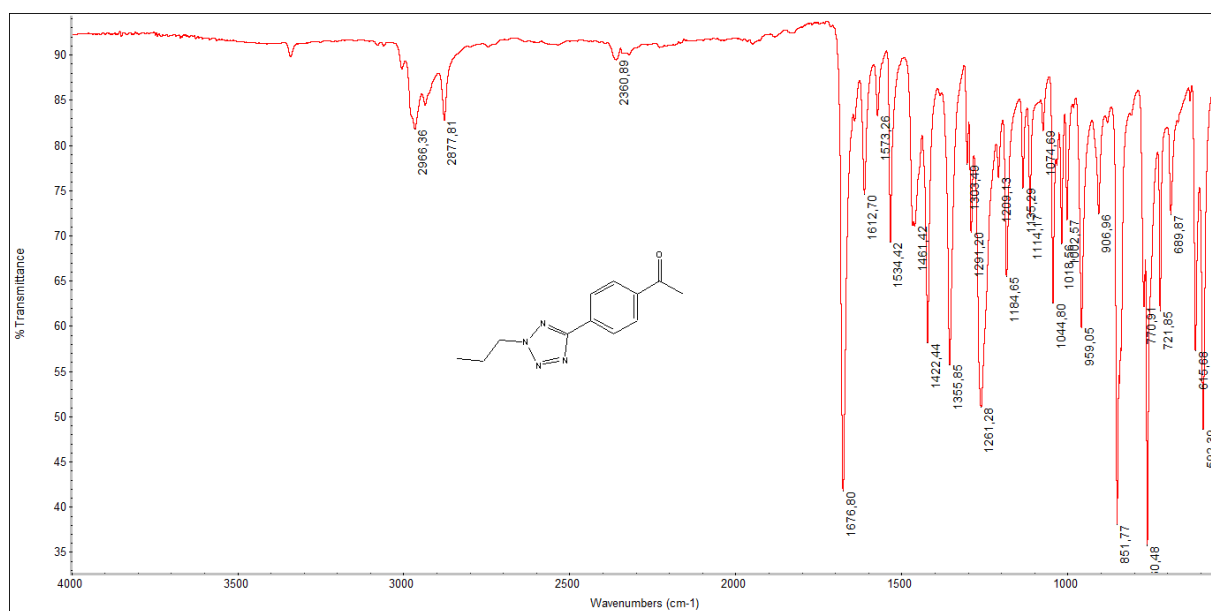


Figure S9: FT-IR spectrum of compound BF31c

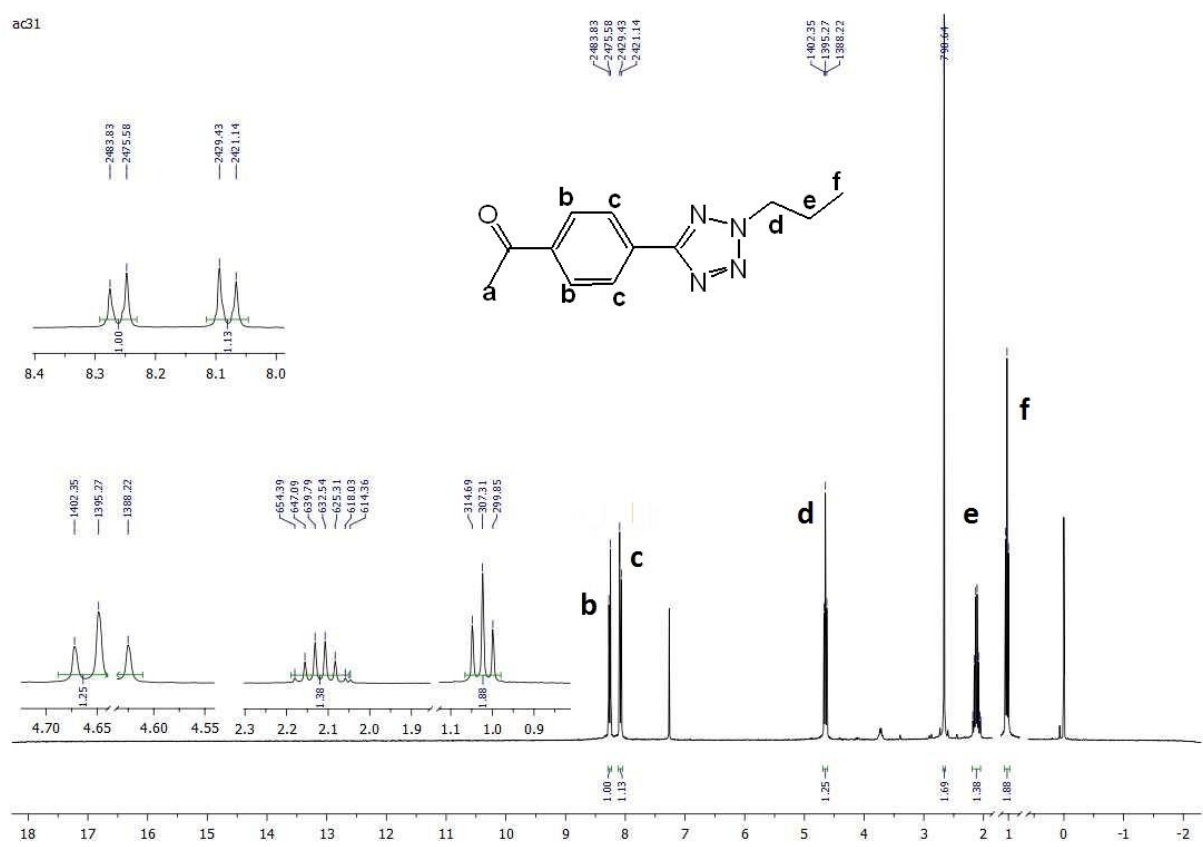


Figure S10: ¹H NMR spectrum of compound BF31c

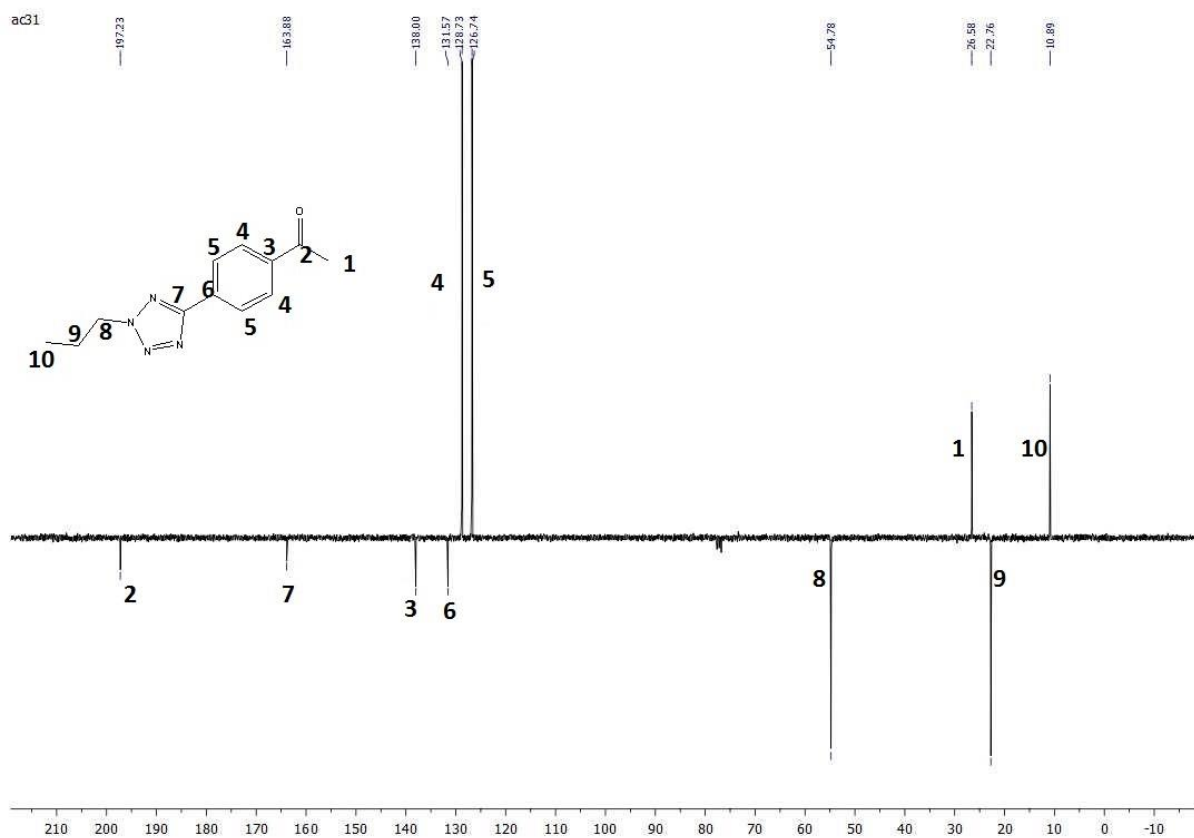


Figure S11: ^{13}C -APT NMR spectrum of compound **BF31c**

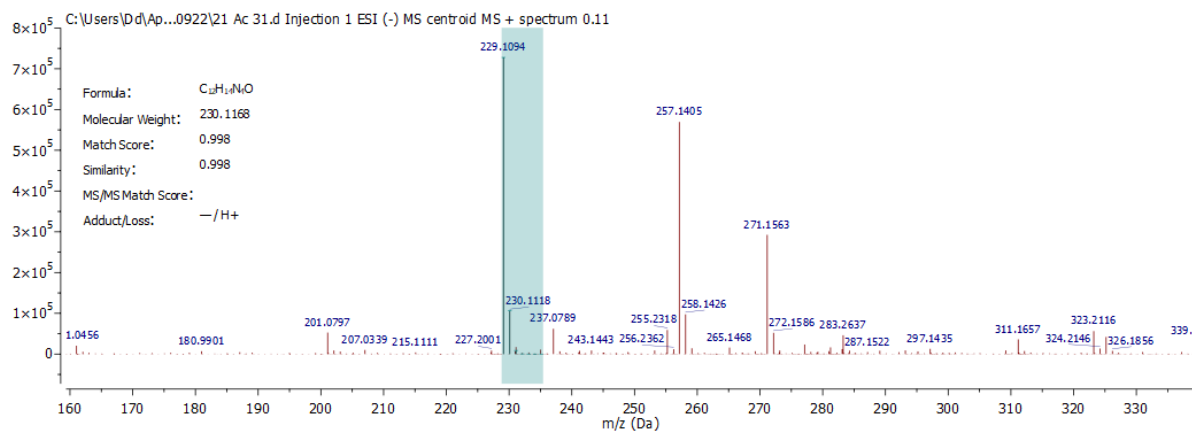


Figure S12: HR-MS spectrum of compound **BF31c**

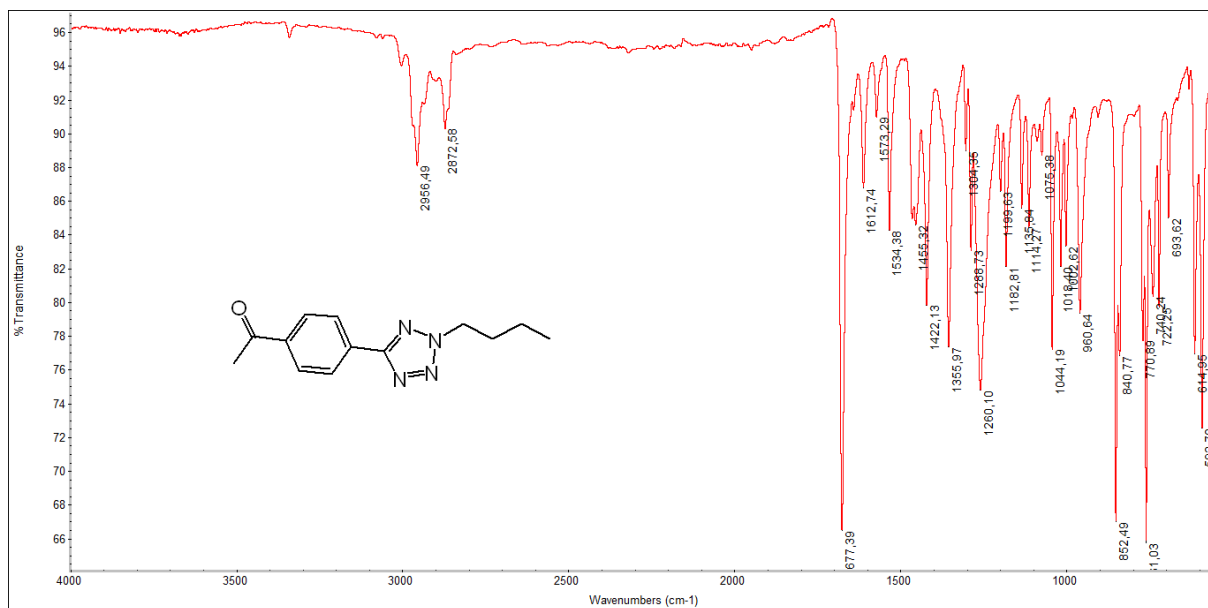


Figure S13: FT-IR spectrum of compound **BF31d**

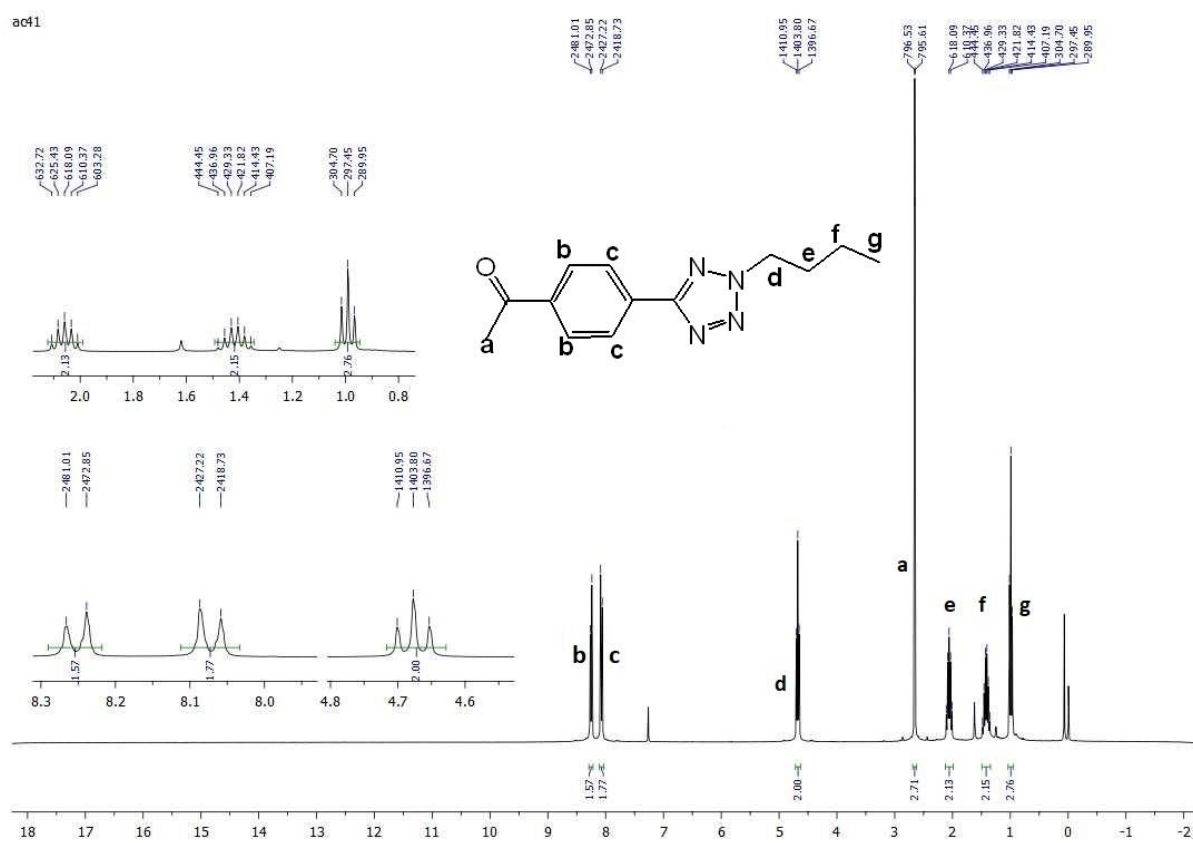


Figure S14: ¹H NMR spectrum of compound **BF31d**

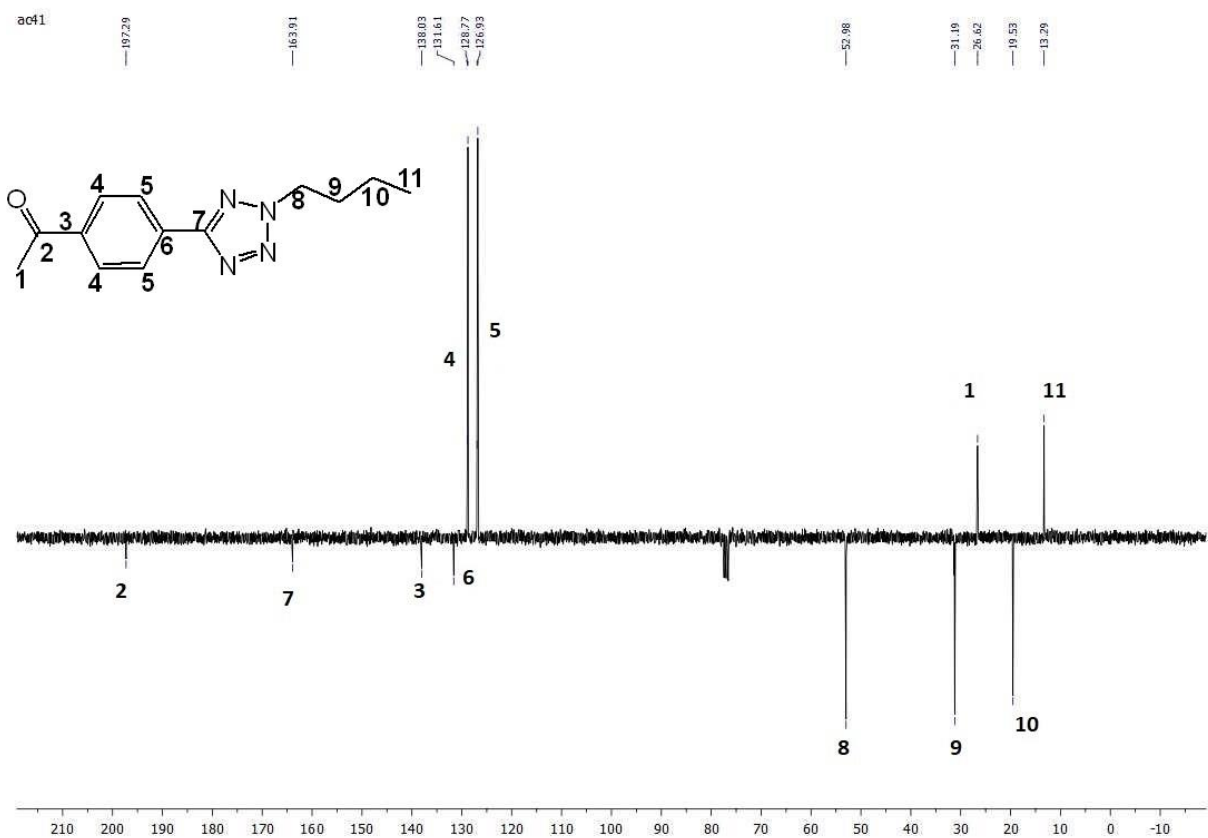


Figure S15: ^{13}C -APT NMR spectrum of compound **BF31d**

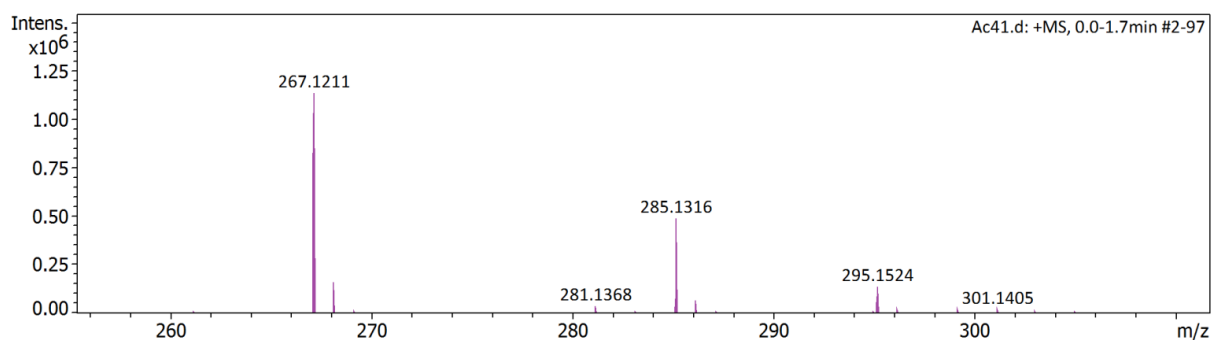


Figure S16: HR-MS spectrum of compound **BF31d**

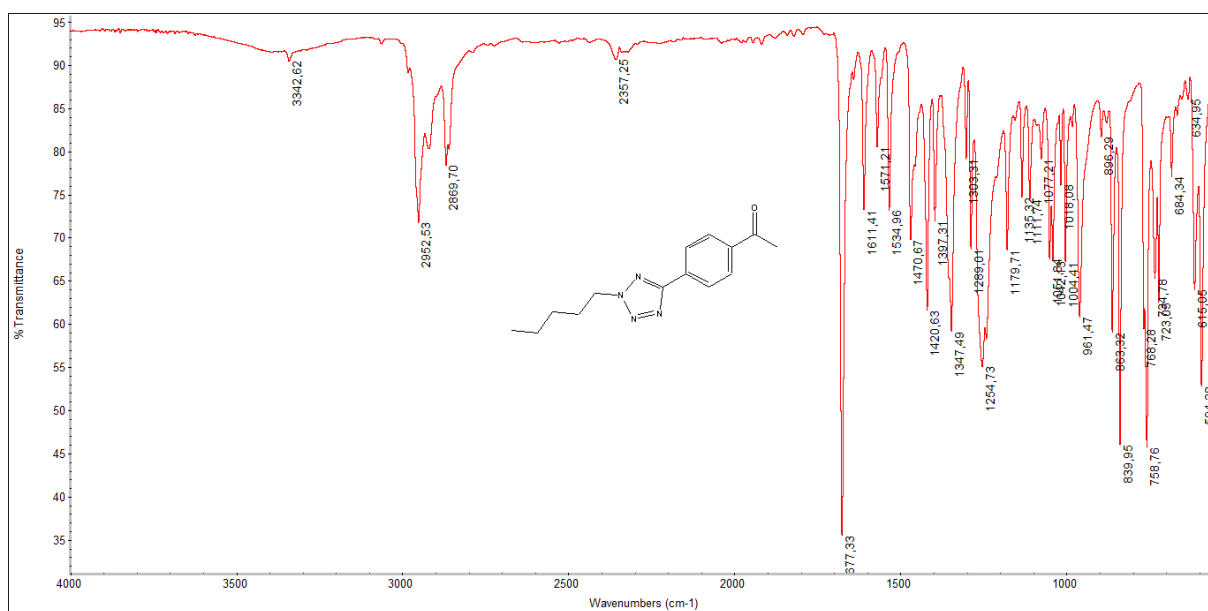


Figure S17: FT-IR spectrum of compound BF31e

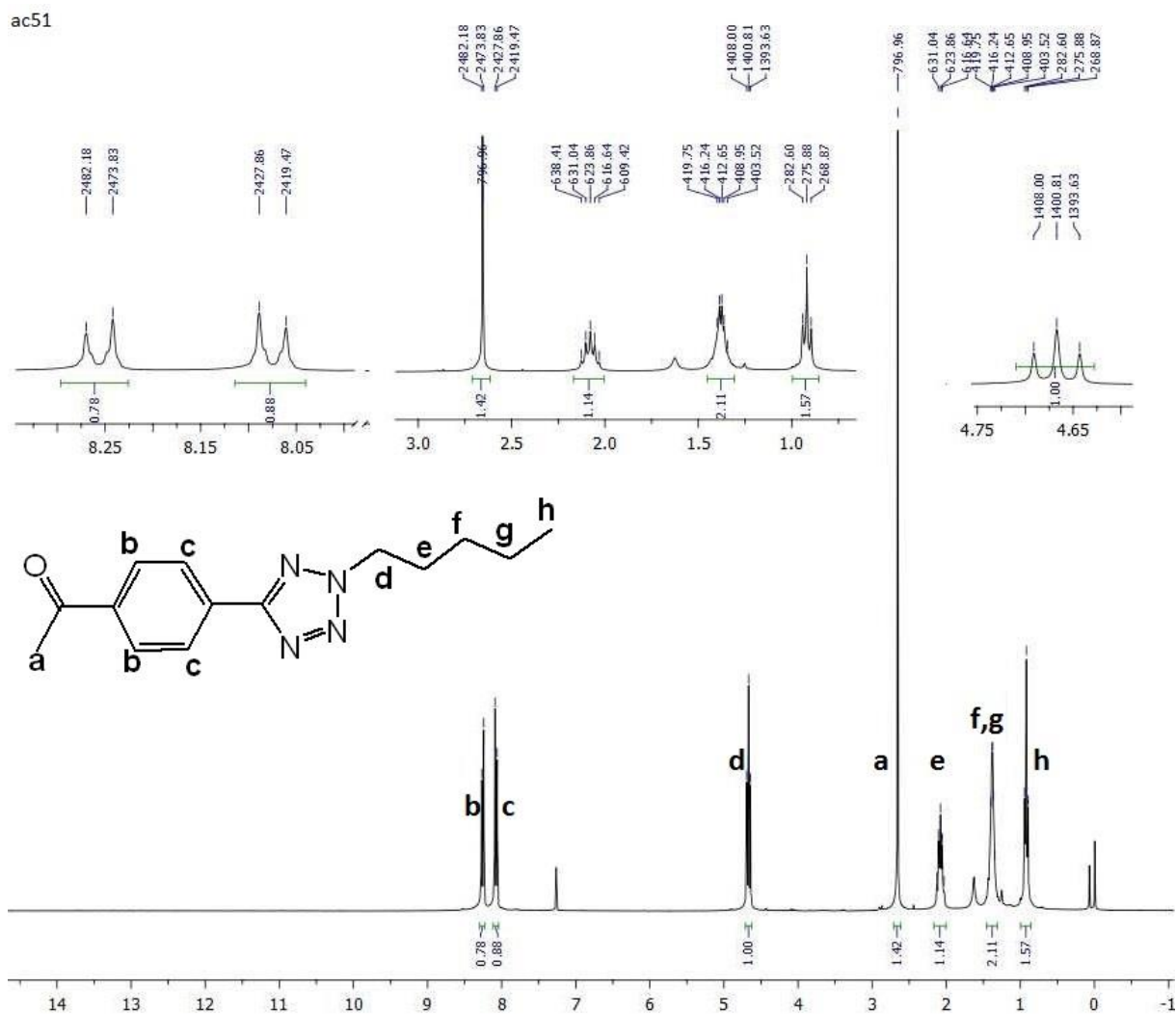


Figure S18: ¹H NMR spectrum of compound BF31e

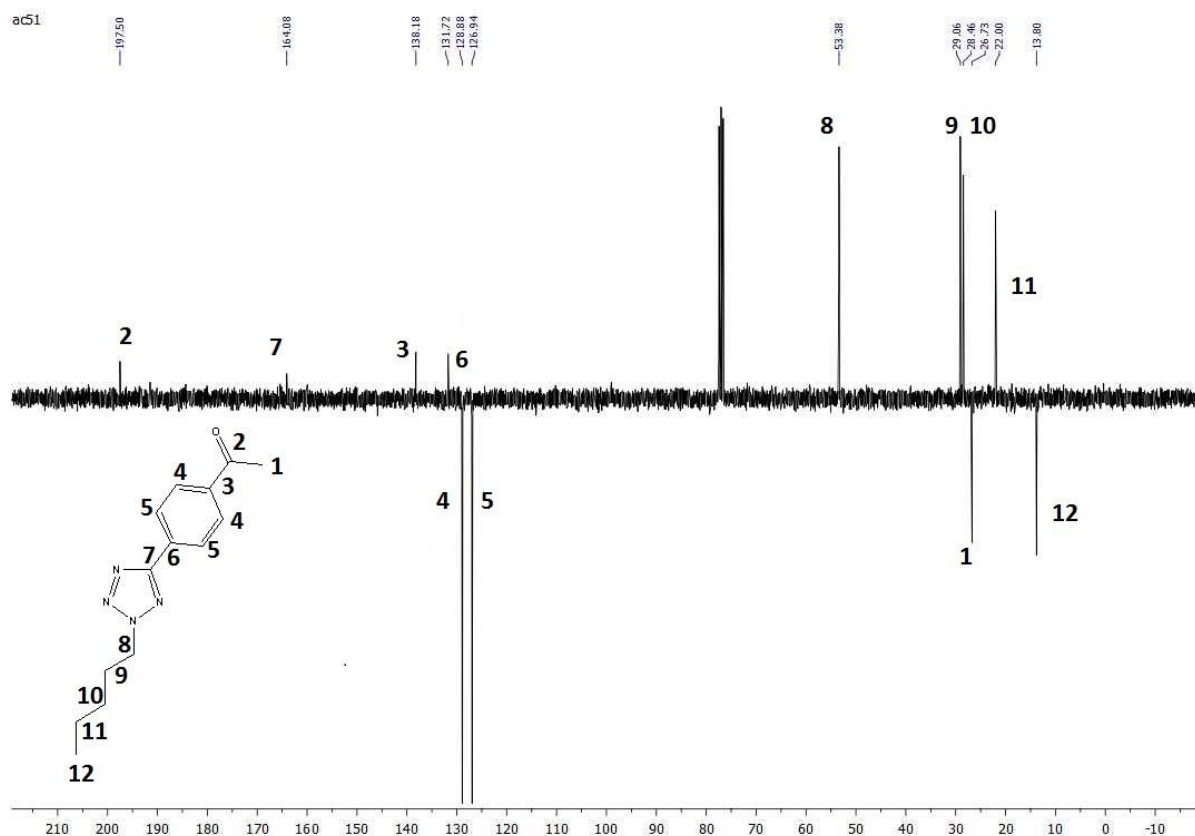


Figure S19: ^{13}C -APT NMR spectrum of compound **BF31e**

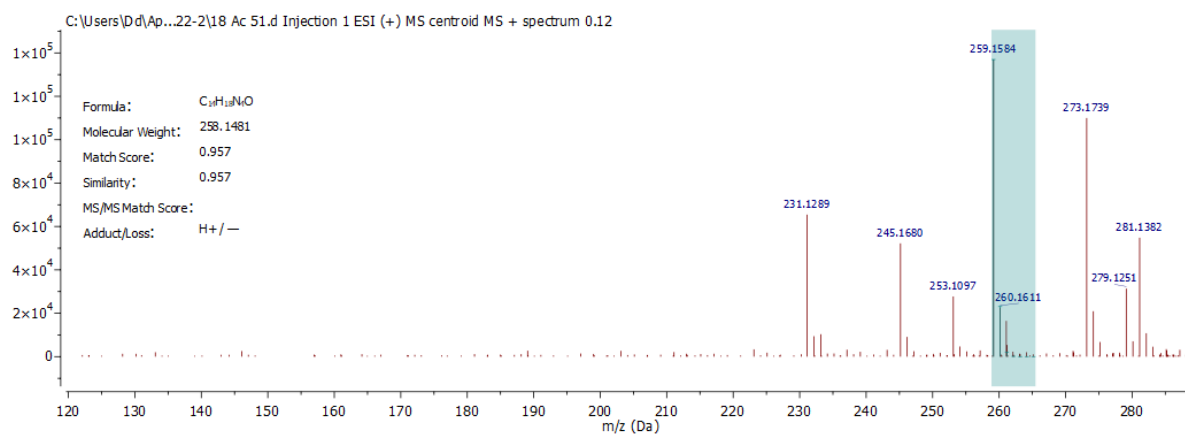


Figure S20: HR-MS spectrum of compound **BF31e**

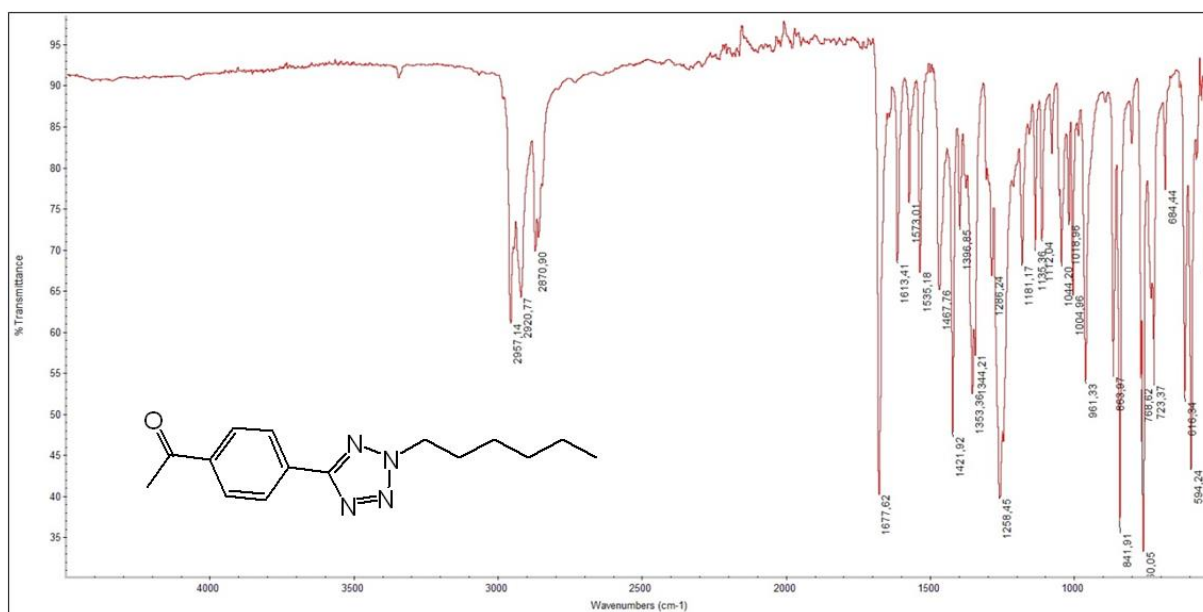


Figure S21: FT-IR spectrum of compound BF31f

ac461.1.fid
ac461

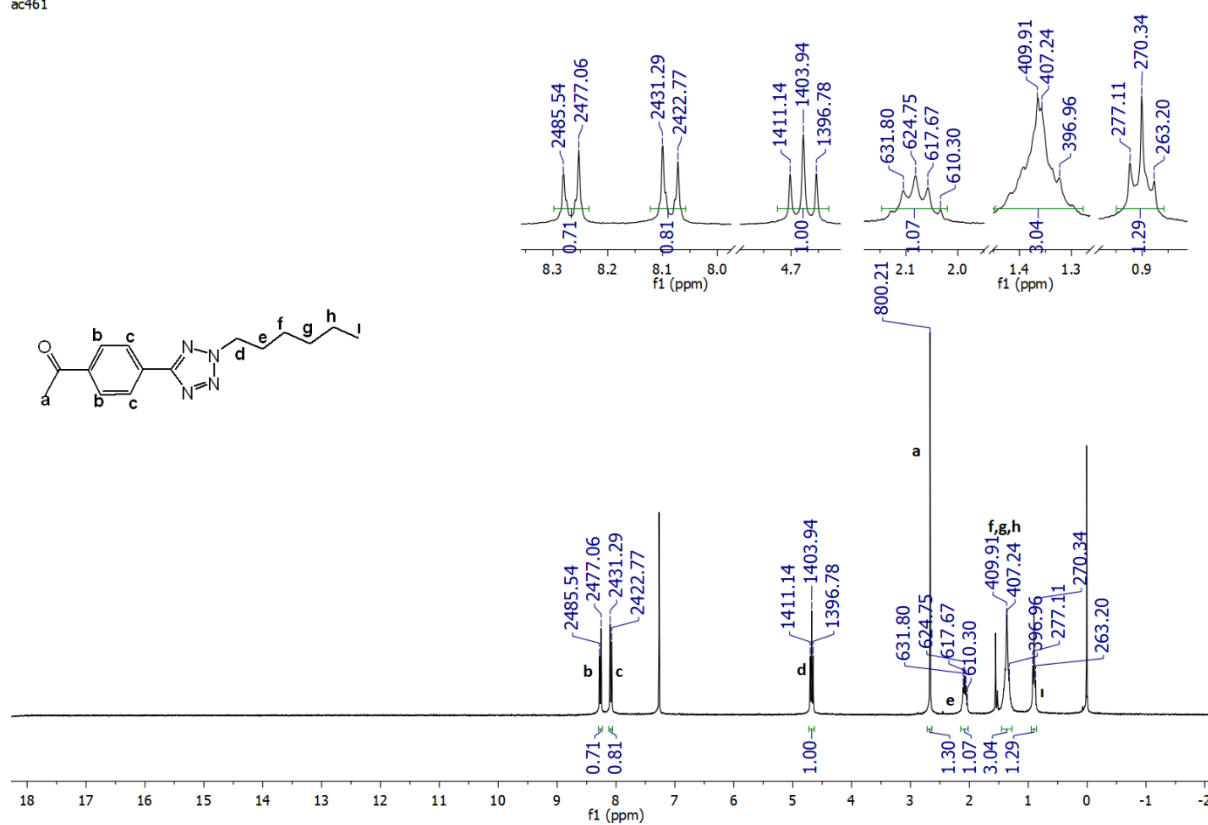
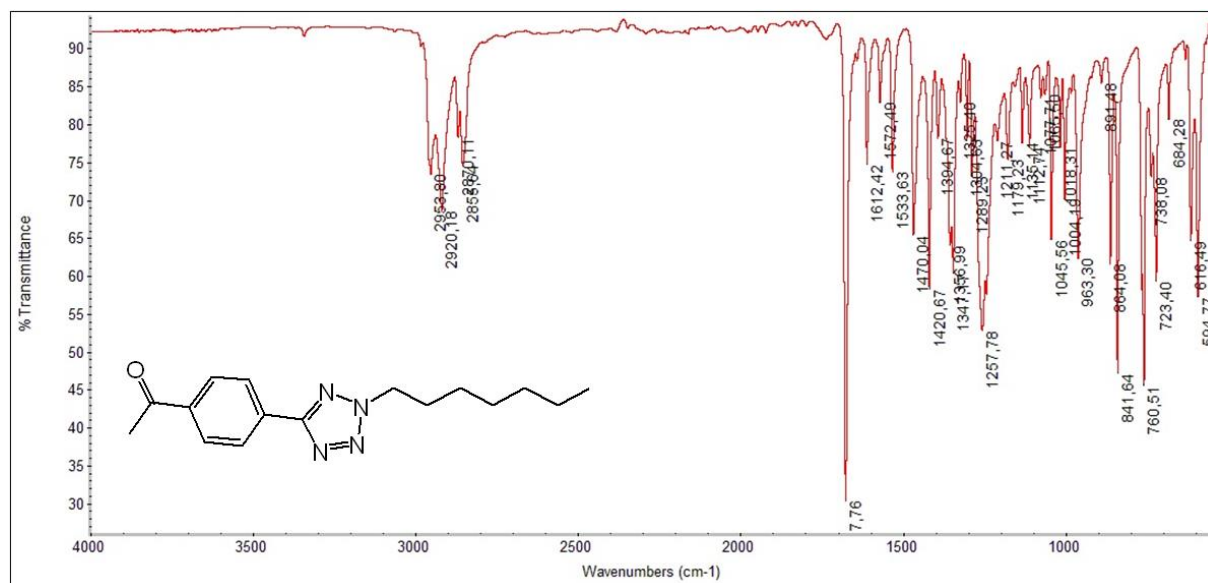
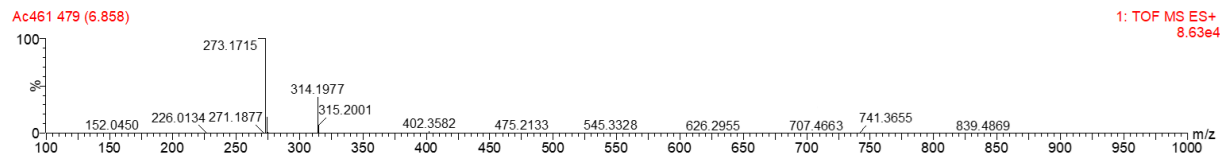
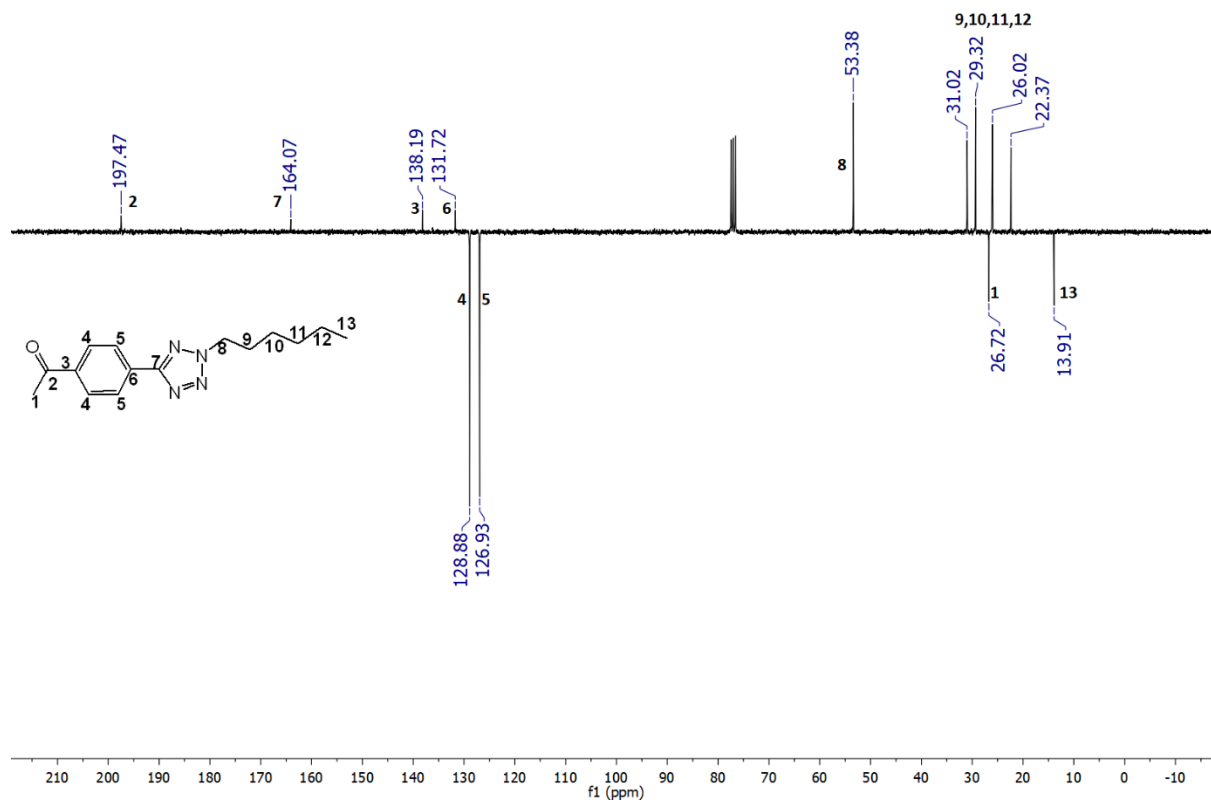


Figure S22: ¹H NMR spectrum of compound BF31f



ac471
ac471

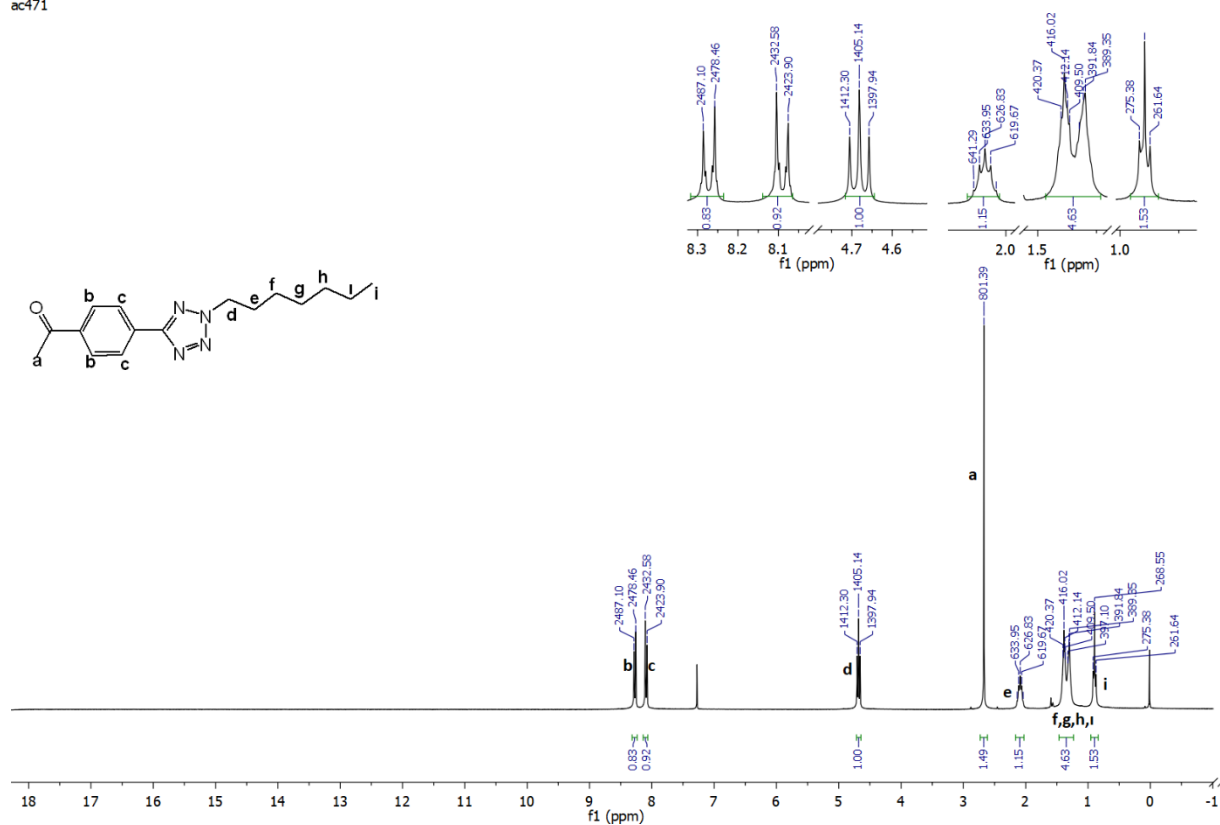


Figure S26: ¹H NMR spectrum of compound BF31g

ac471

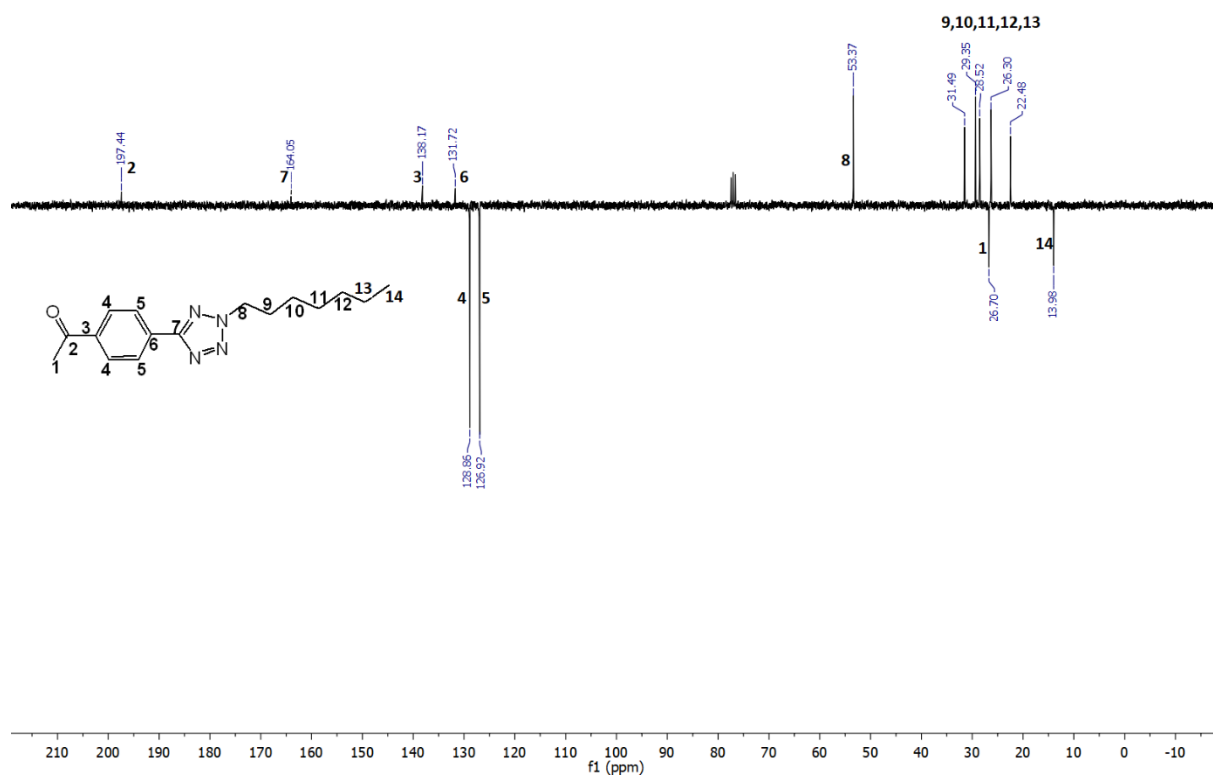


Figure S27: ¹³C-APT NMR spectrum of compound BF31g

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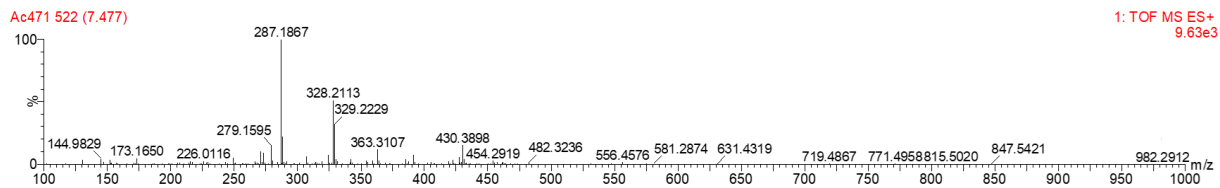


Figure S28: HR-MS spectrum of compound **BF31g**

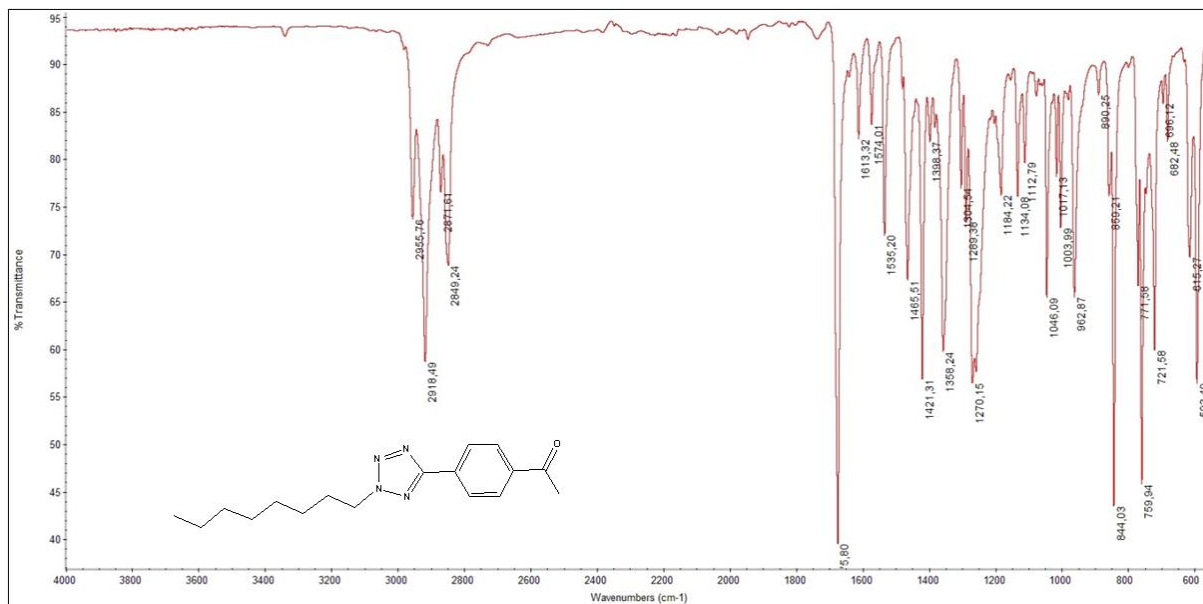


Figure S29: FT-IR spectrum of compound **BF31h**

ac81

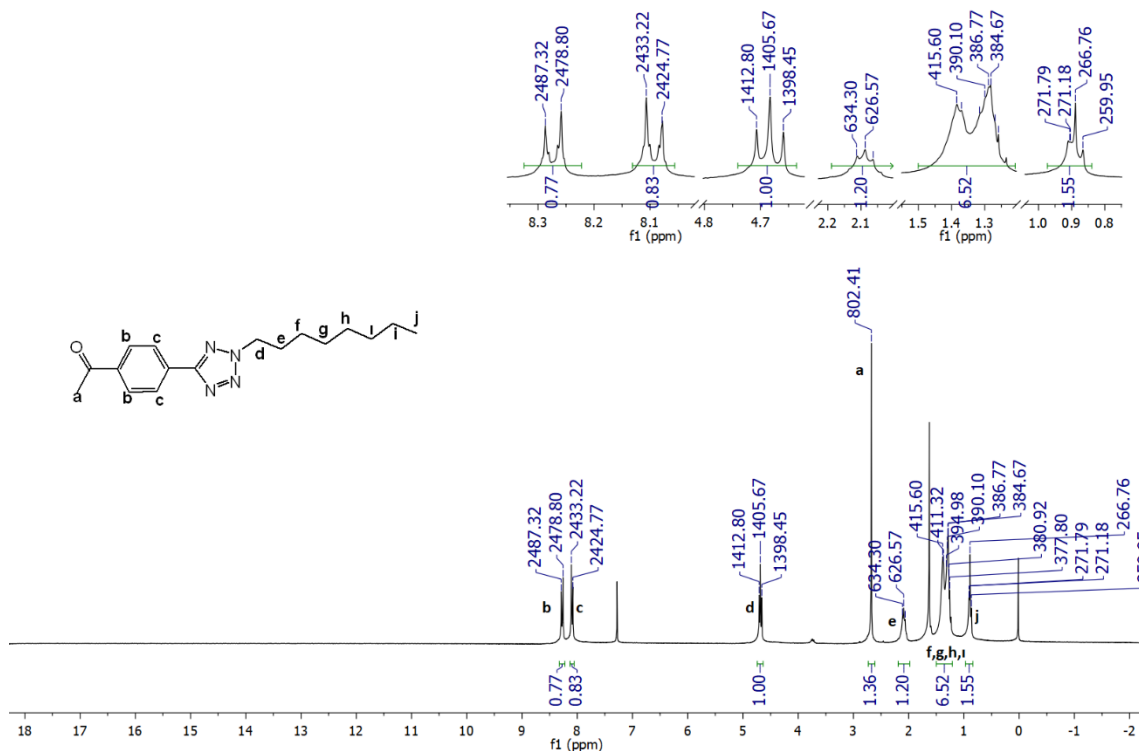


Figure S30: ^1H NMR spectrum of compound **BF31h**

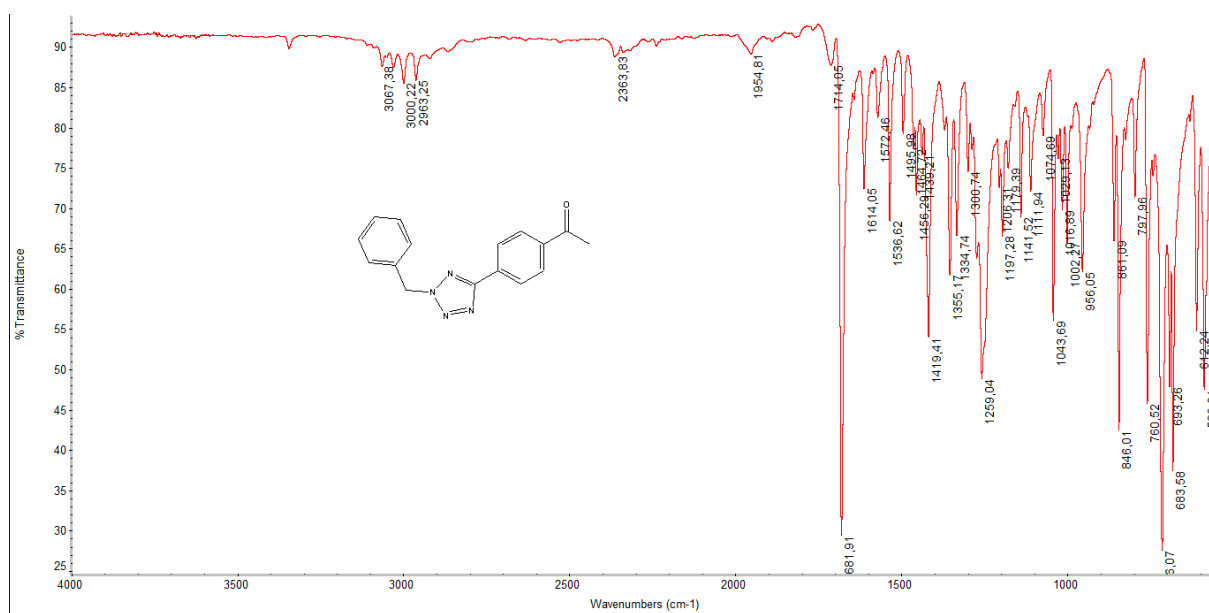
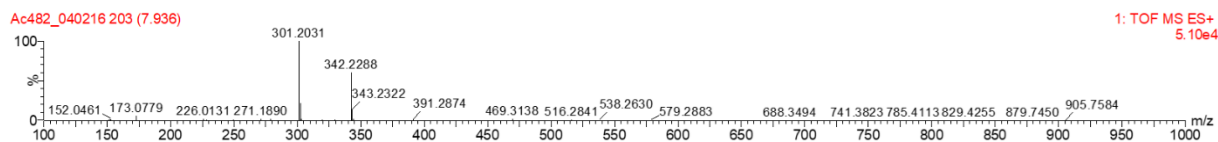
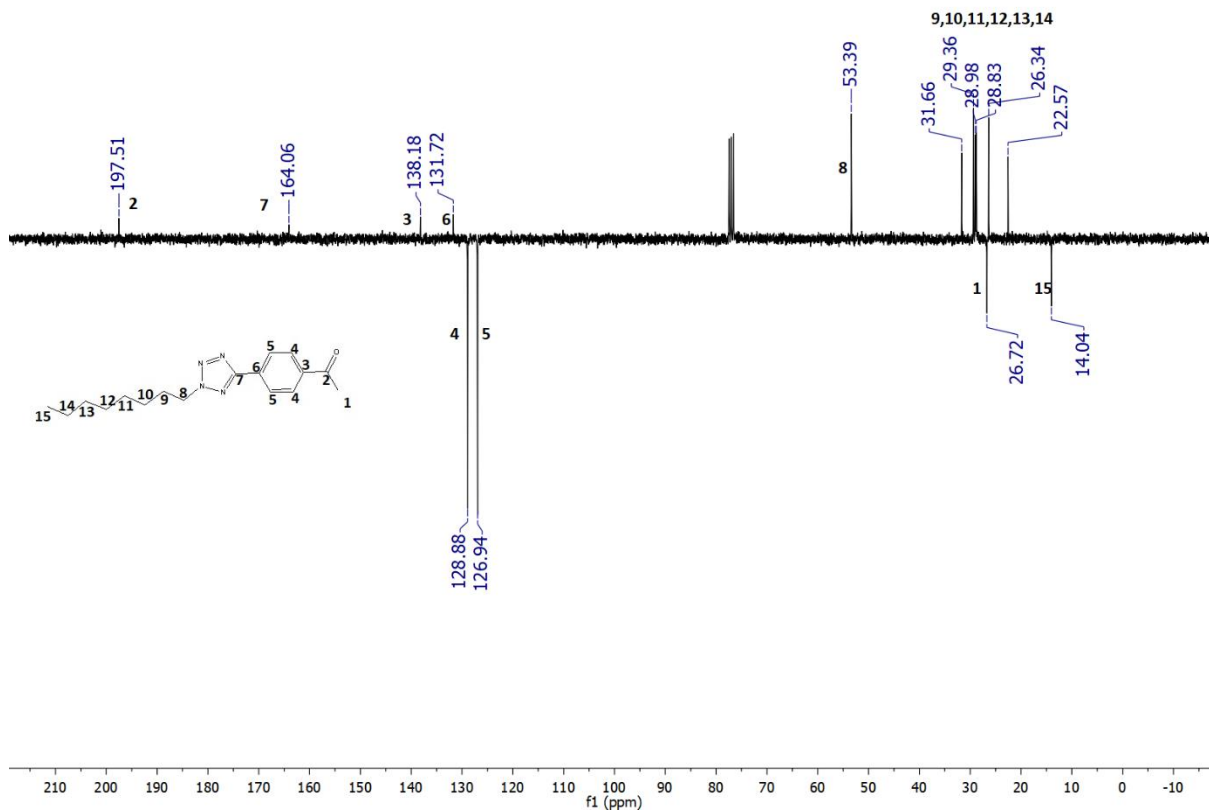


Figure S33: FT-IR spectrum of compound **BF31h**

acbn1

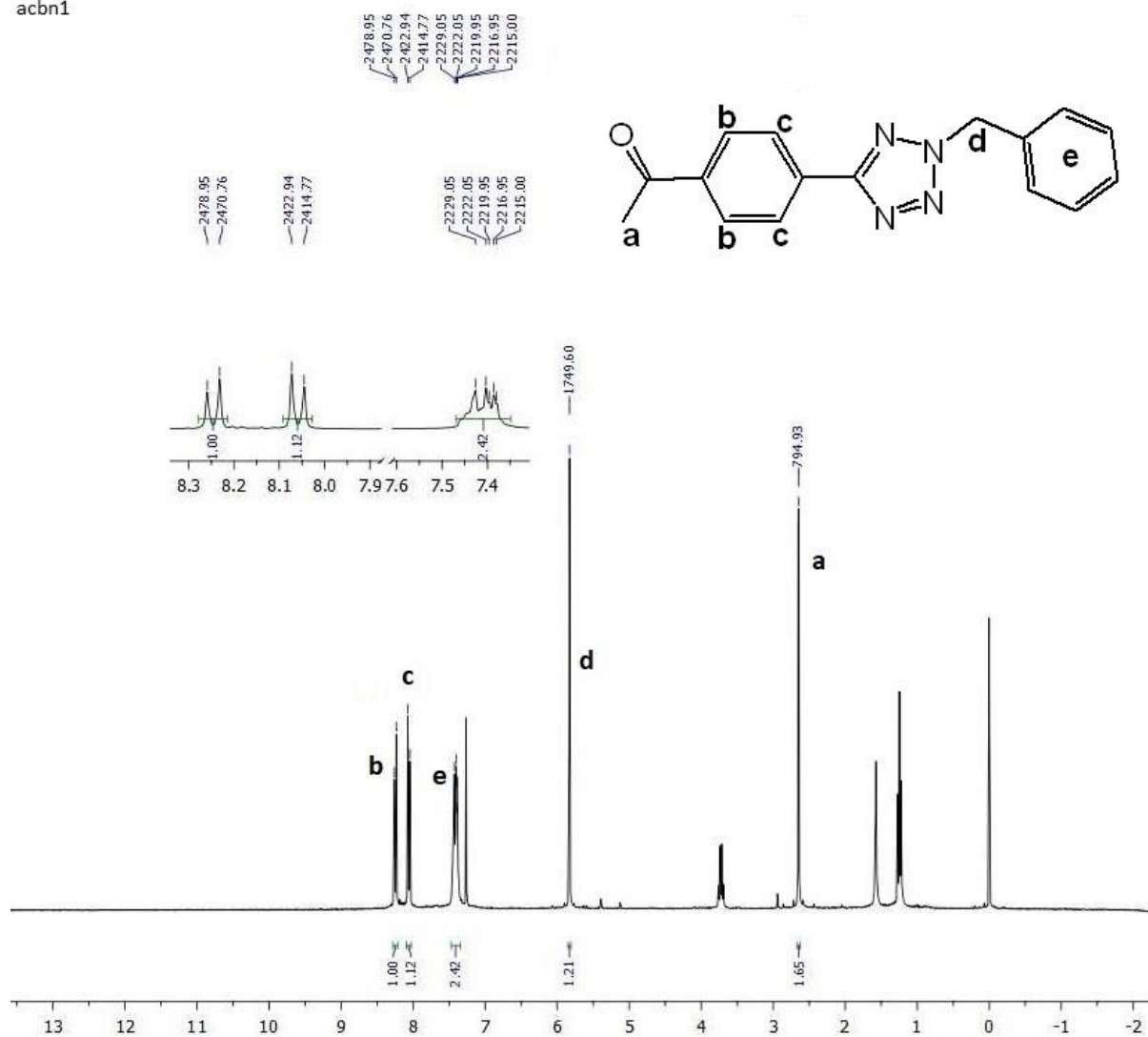


Figure S34: ¹H NMR spectrum of compound BF31i

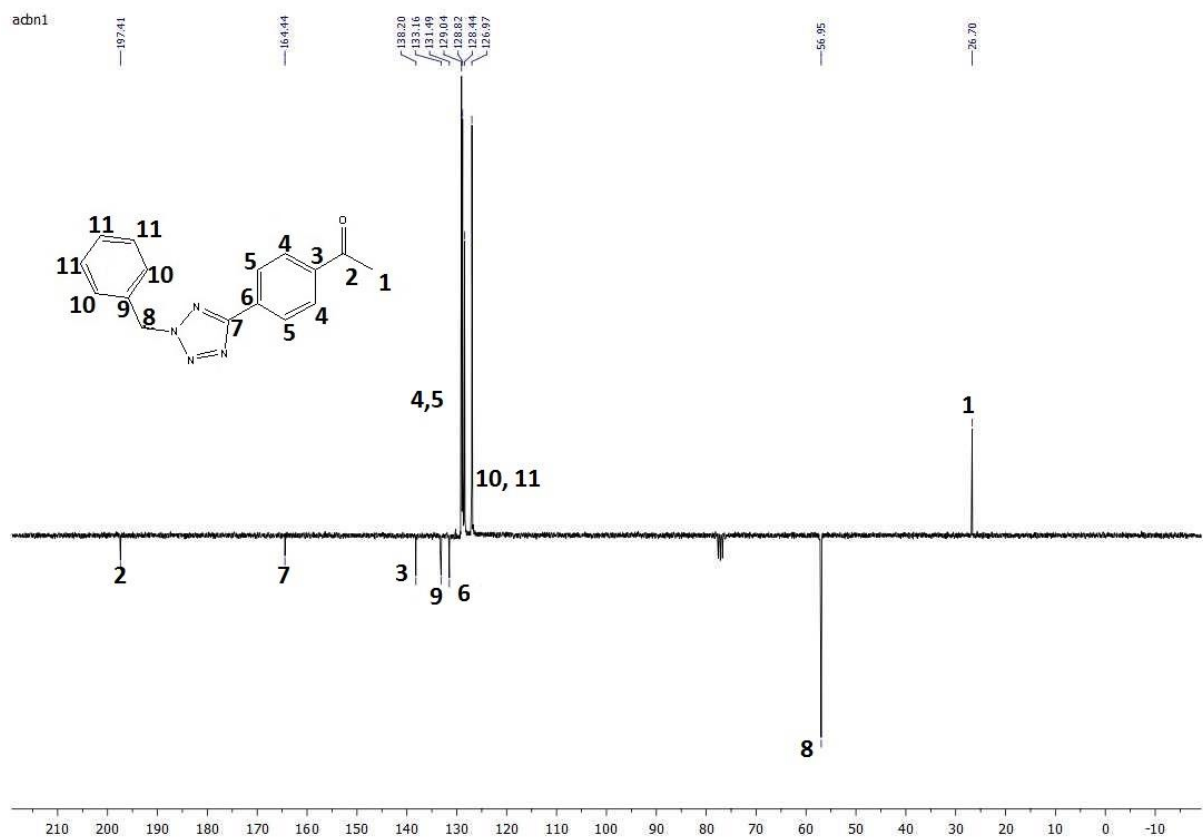


Figure S35: ¹³C-APT NMR spectrum of compound BF31i



Figure S36: FT-IR spectrum of compound BF32a

ac12

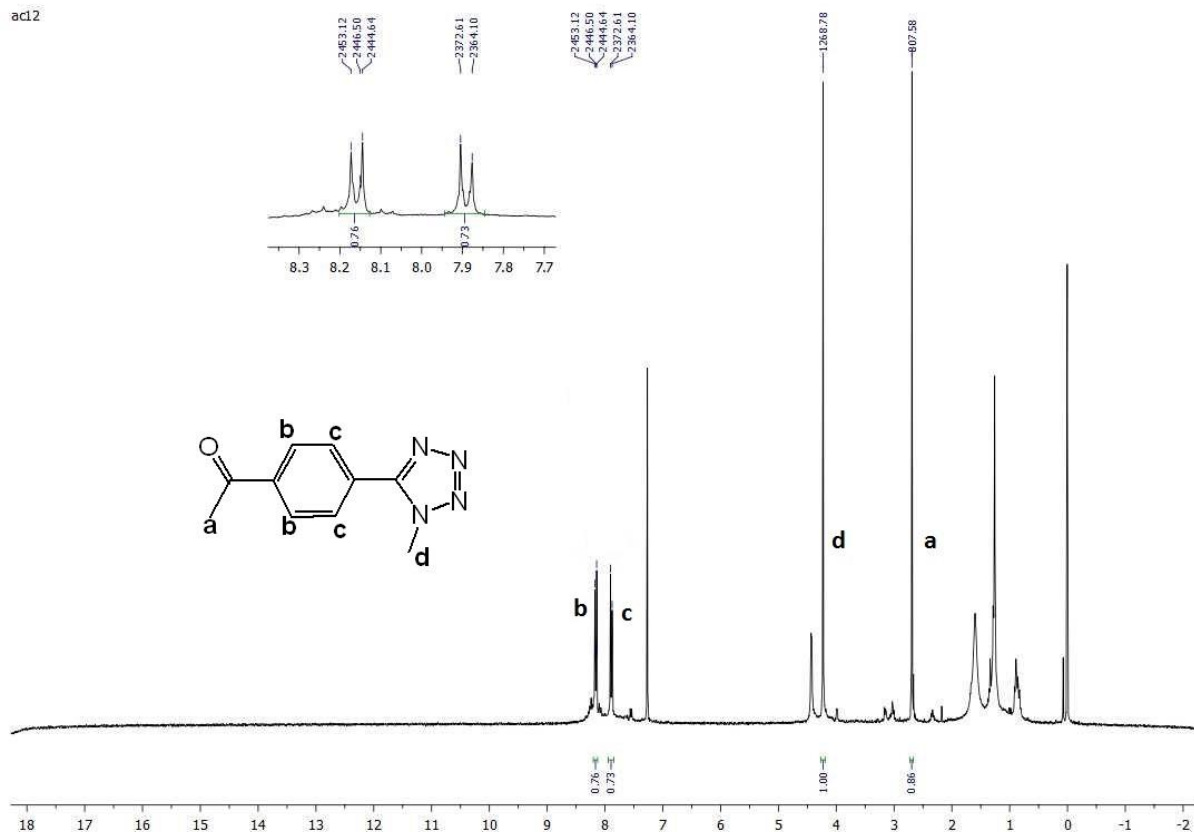


Figure S37: ^1H NMR spectrum of compound BF32a

ac12

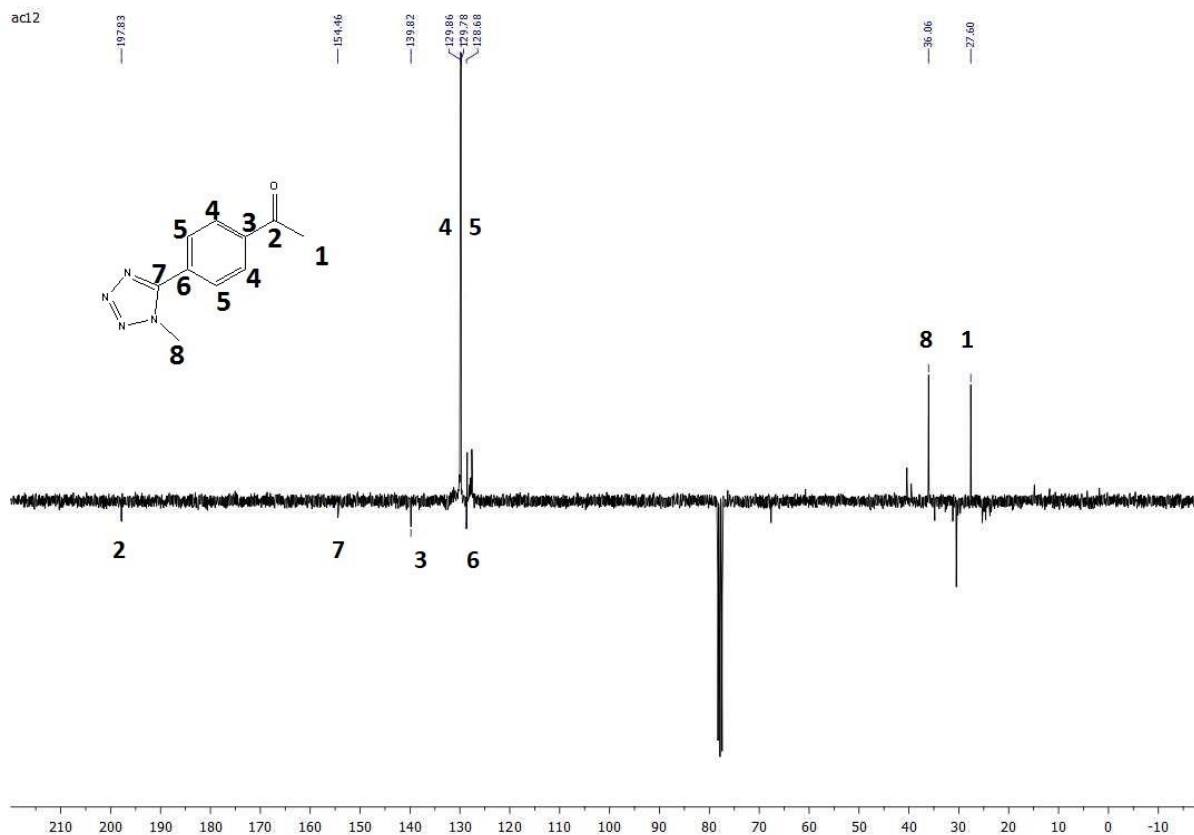


Figure S38: ^{13}C -APT NMR spectrum of compound BF32a

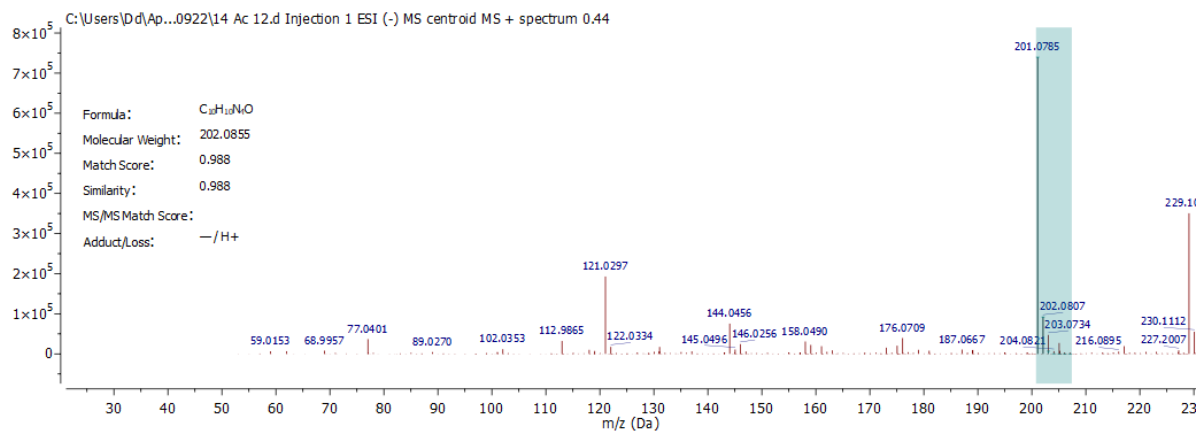


Figure S39: HR-MS spectrum of compound **BF32a**

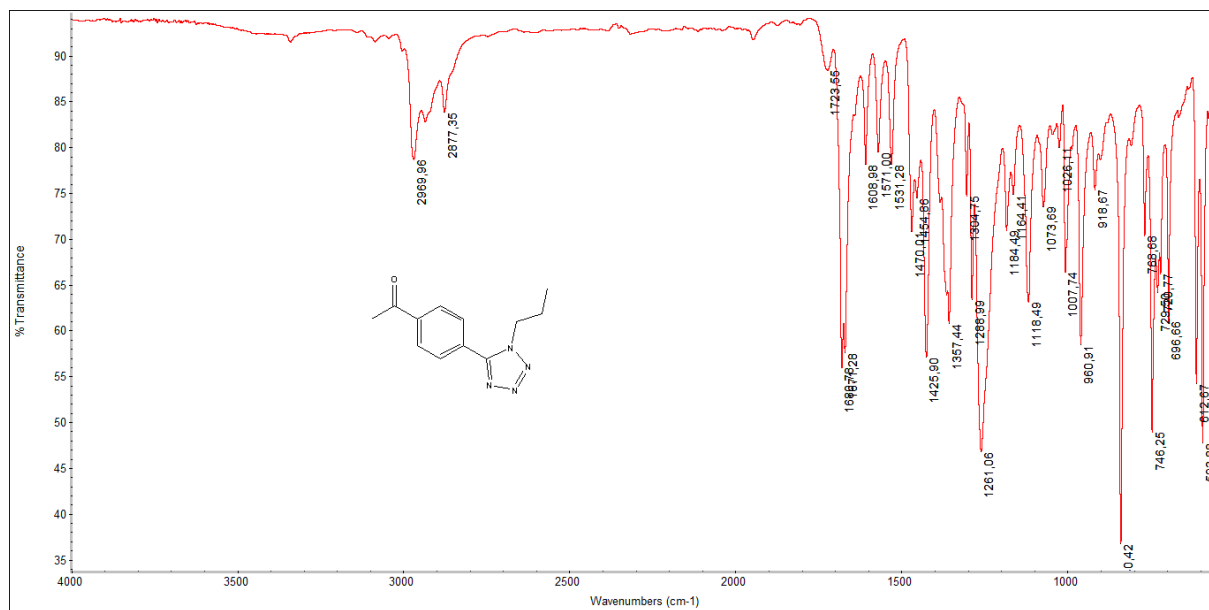


Figure S40: FT-IR spectrum of compound **BF32c**

ac32

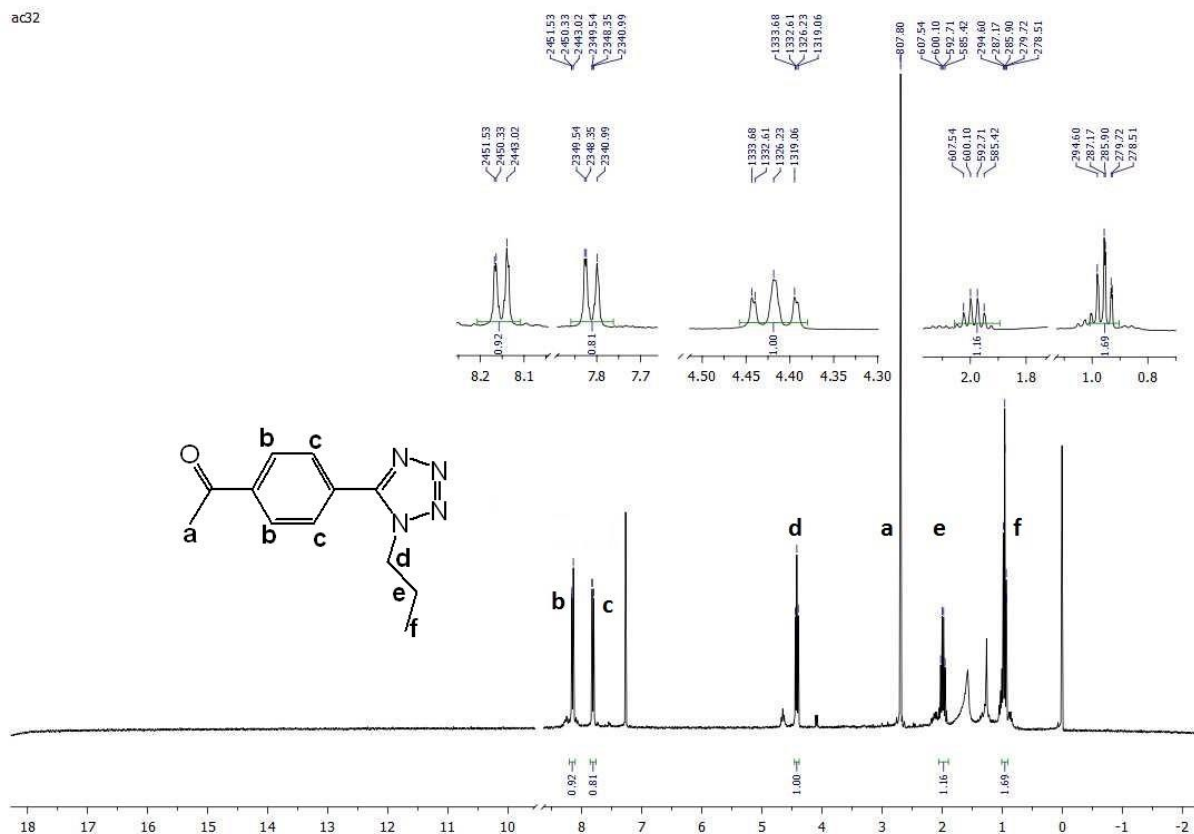


Figure S41: ^1H NMR spectrum of compound BF32c

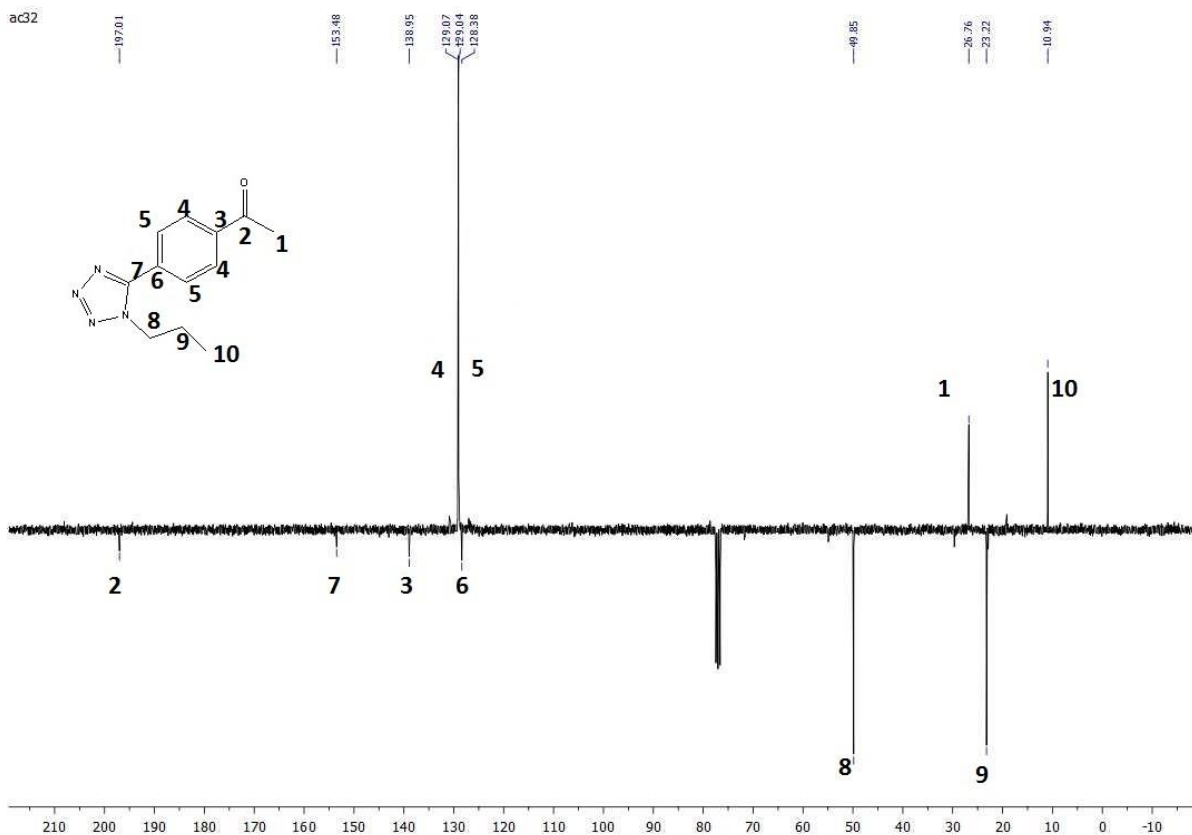


Figure S42: ^{13}C -APT NMR spectrum of compound BF32c

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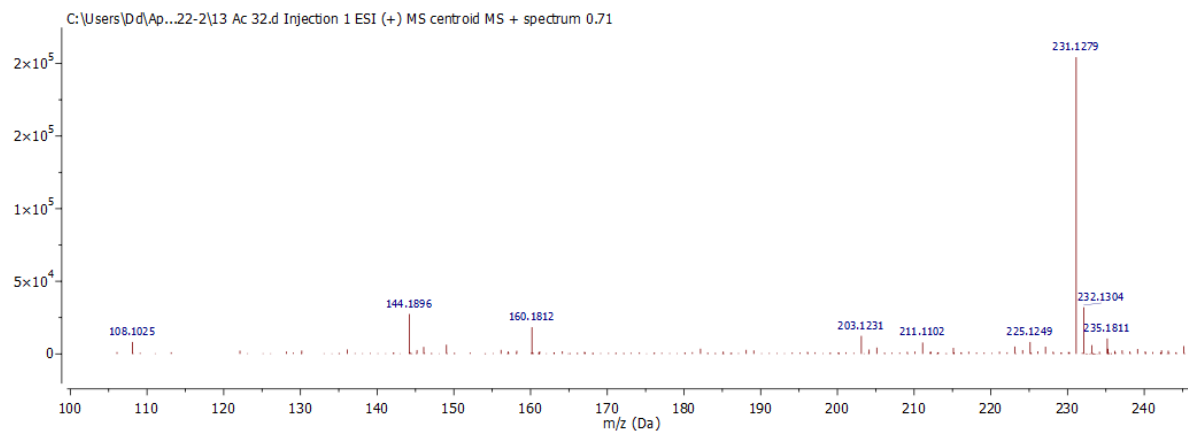


Figure S43: HR-MS spectrum of compound **BF32c**

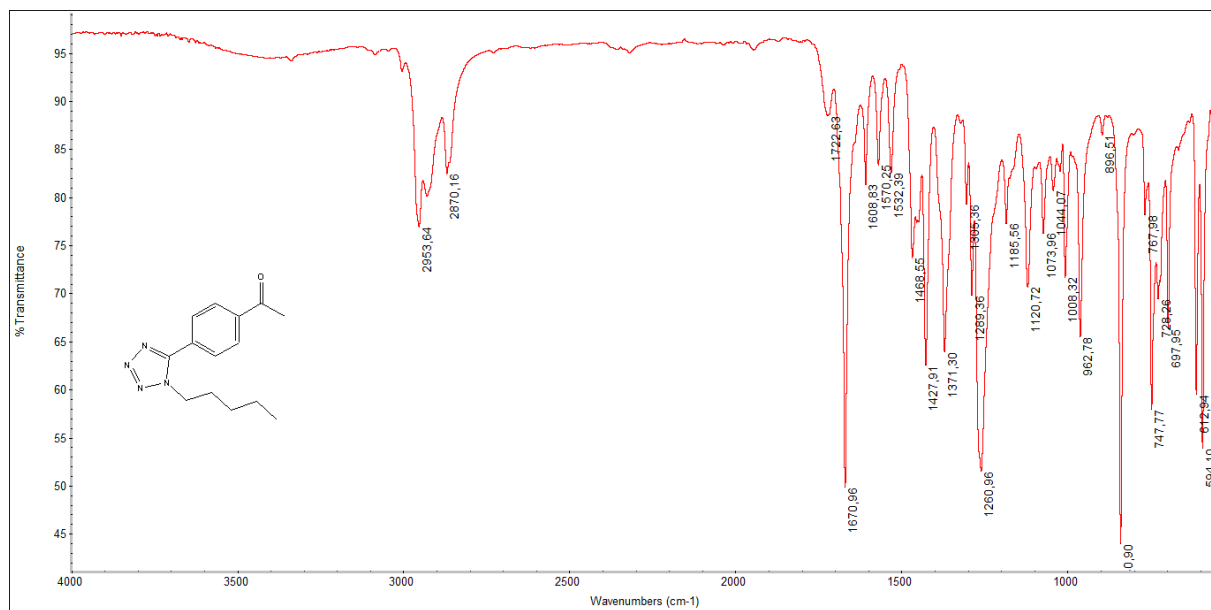


Figure S44: FT-IR spectrum of compound **BF32e**

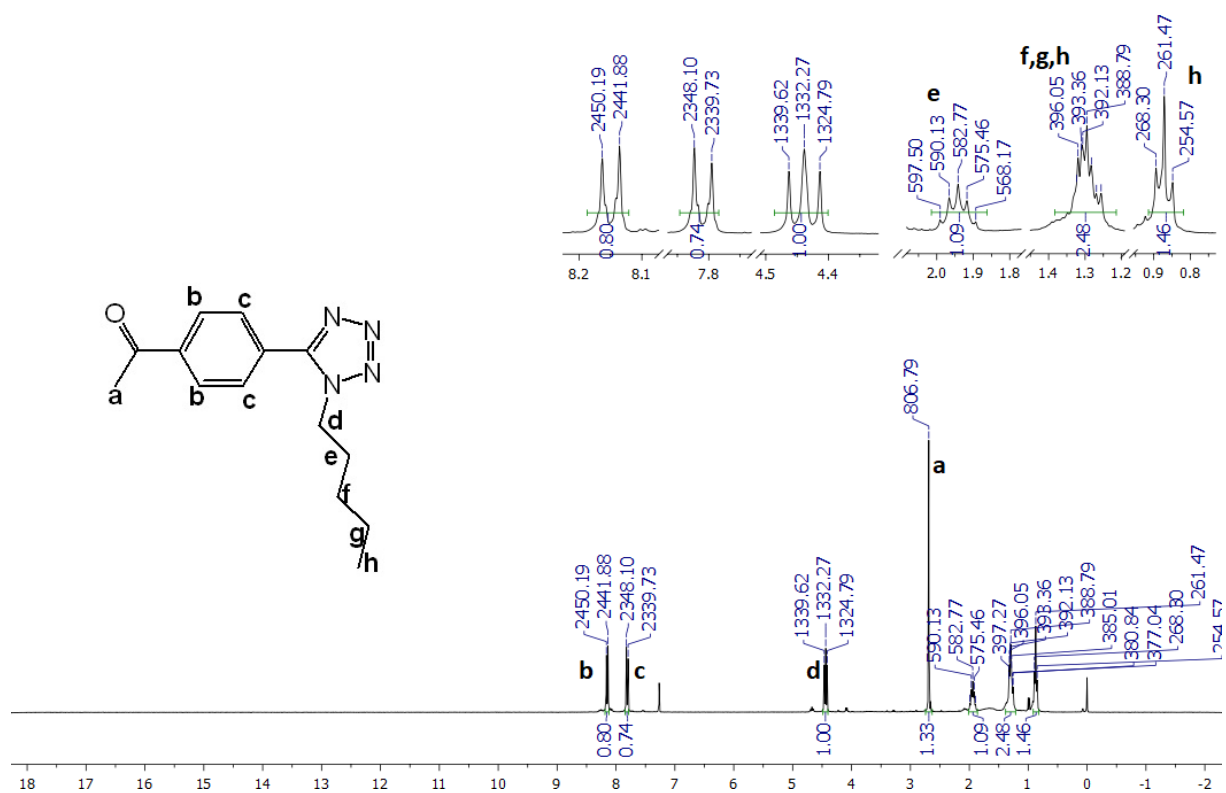


Figure S45: ^1H NMR spectrum of compound BF32e

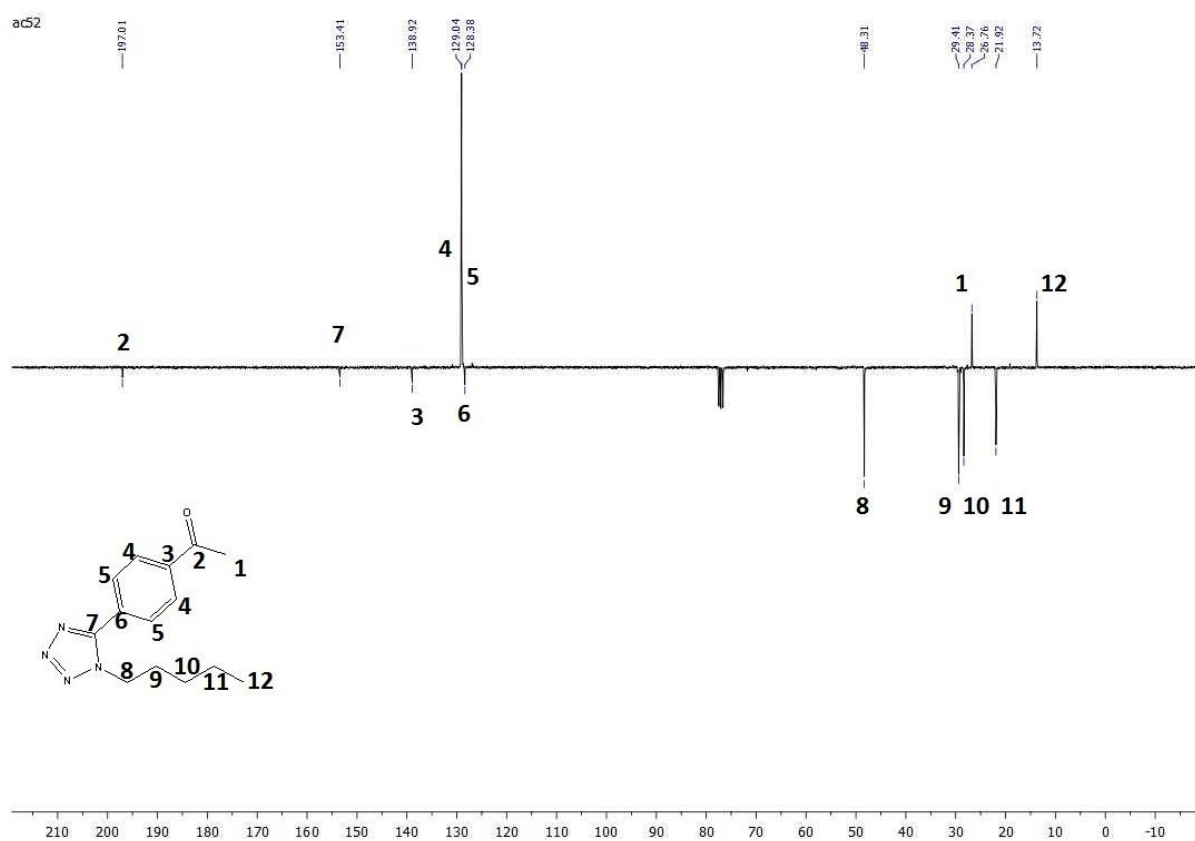


Figure S46: ^{13}C -APT NMR spectrum of compound BF32e

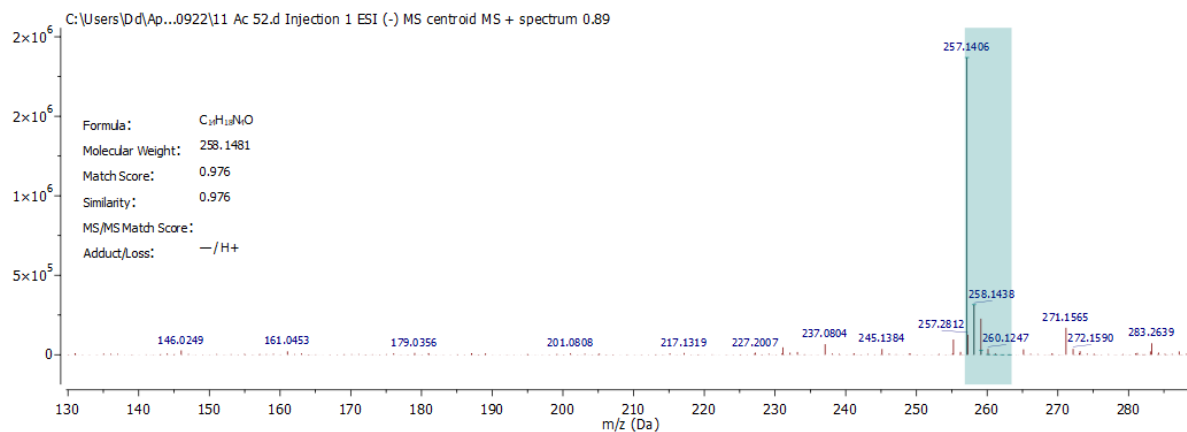


Figure S47: HR-MS spectrum of compound **BF32e**

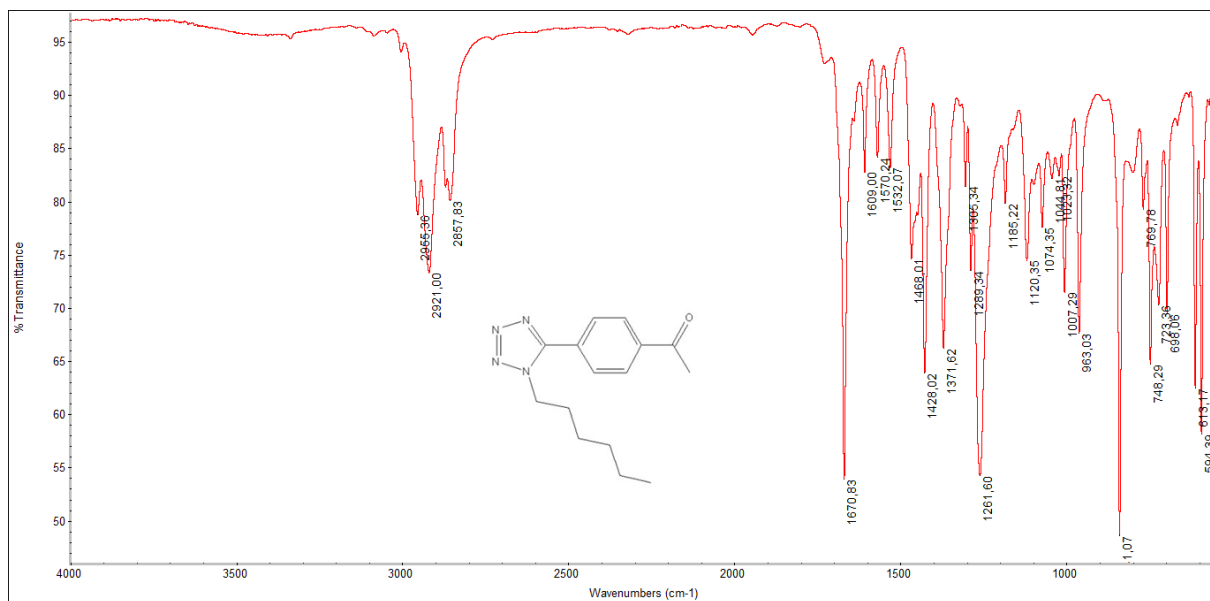
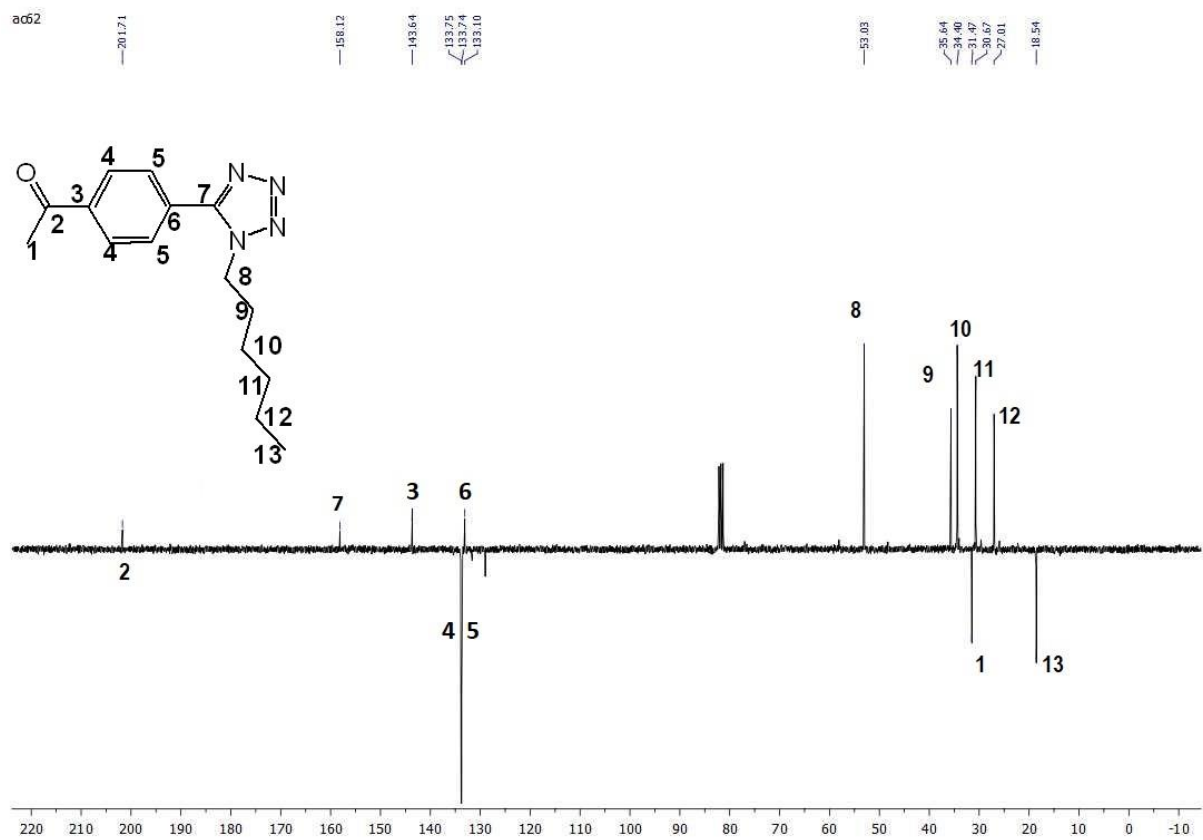
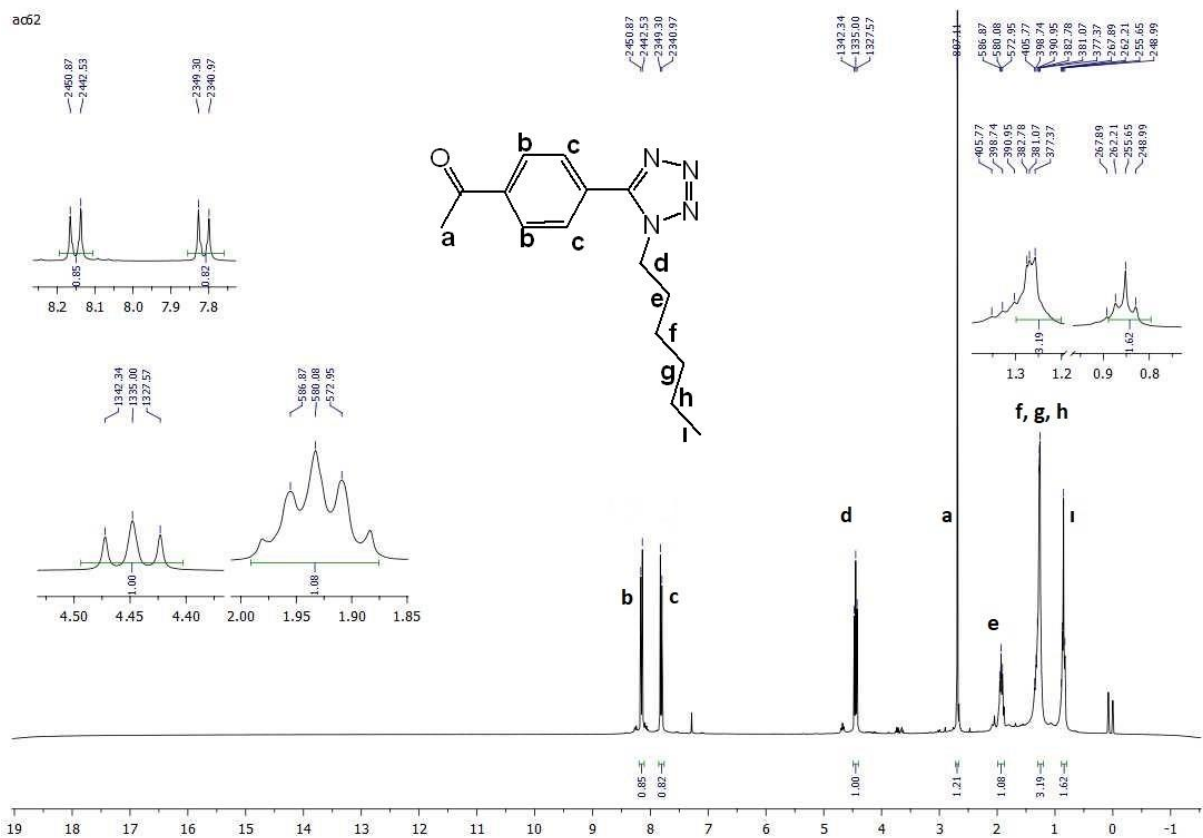


Figure S48: FT-IR spectrum of compound **BF32f**



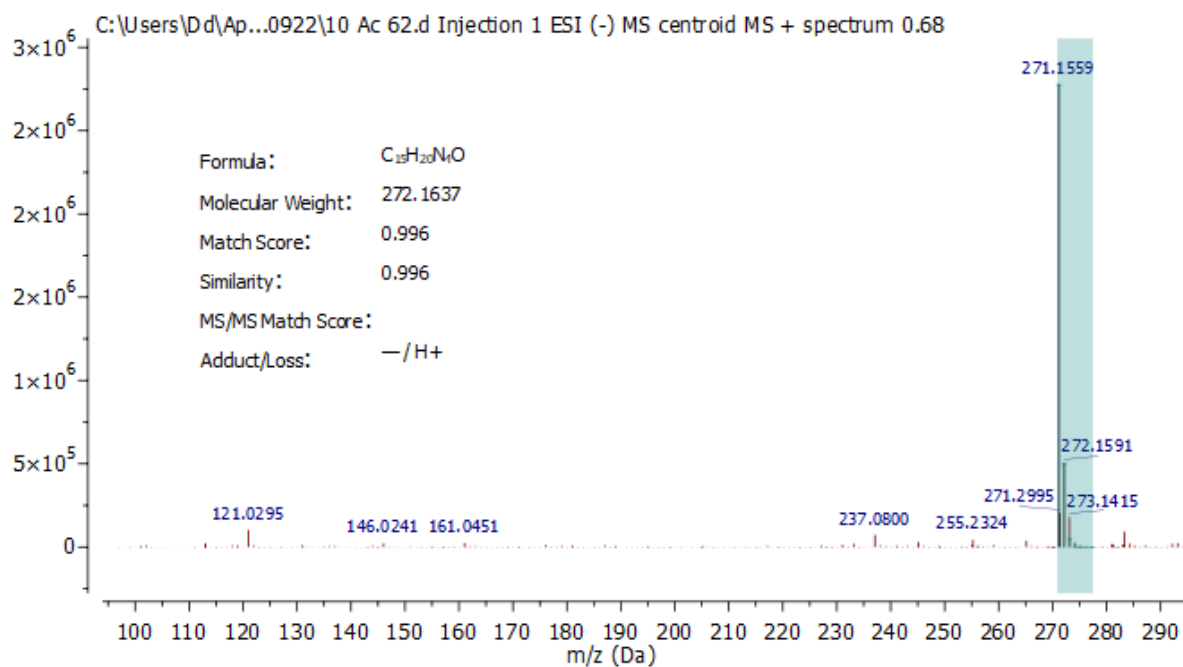


Figure S51: HR-MS spectrum of compound **BF32f**

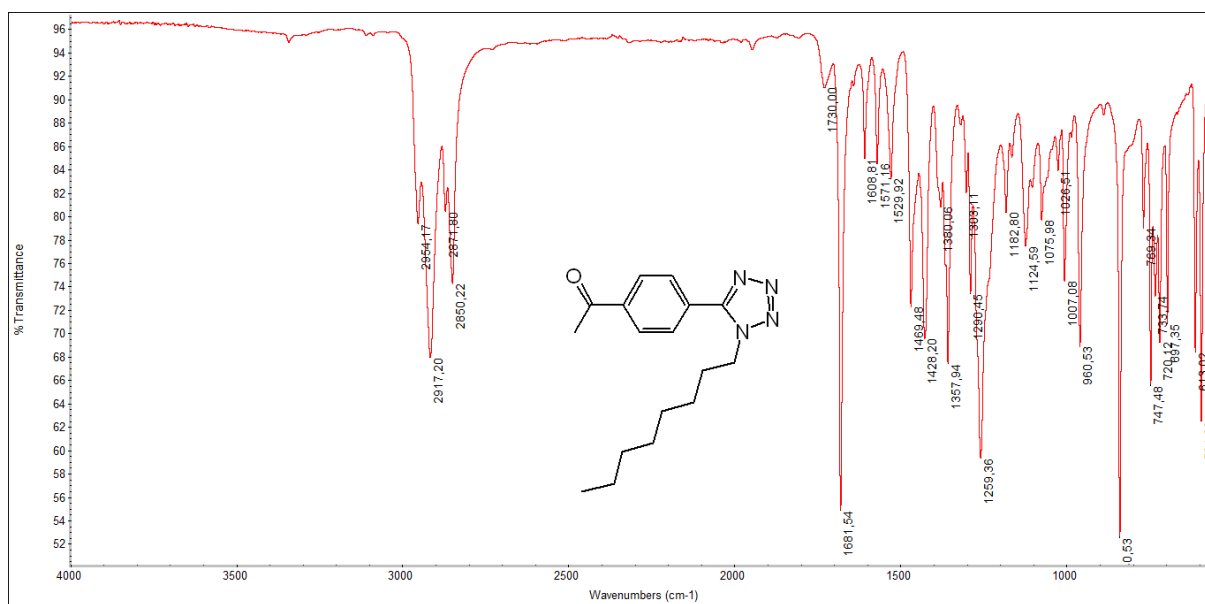
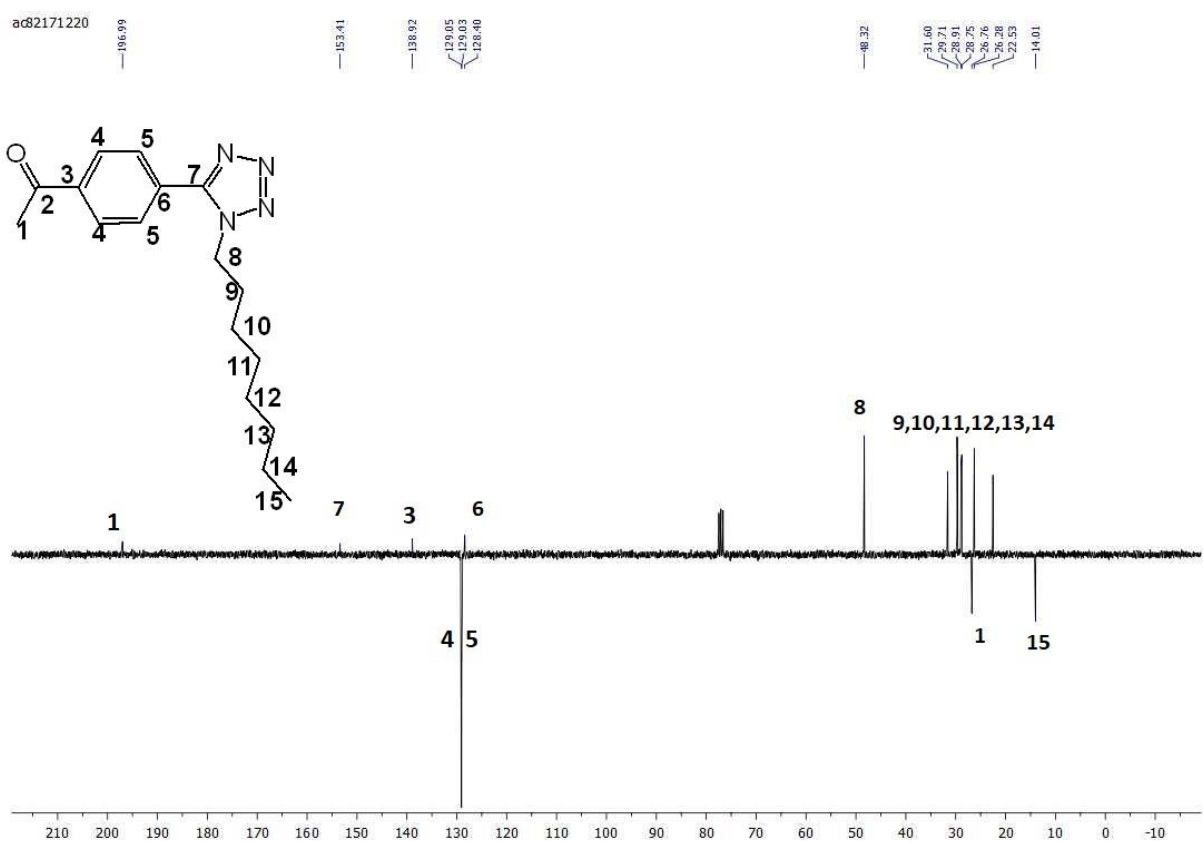
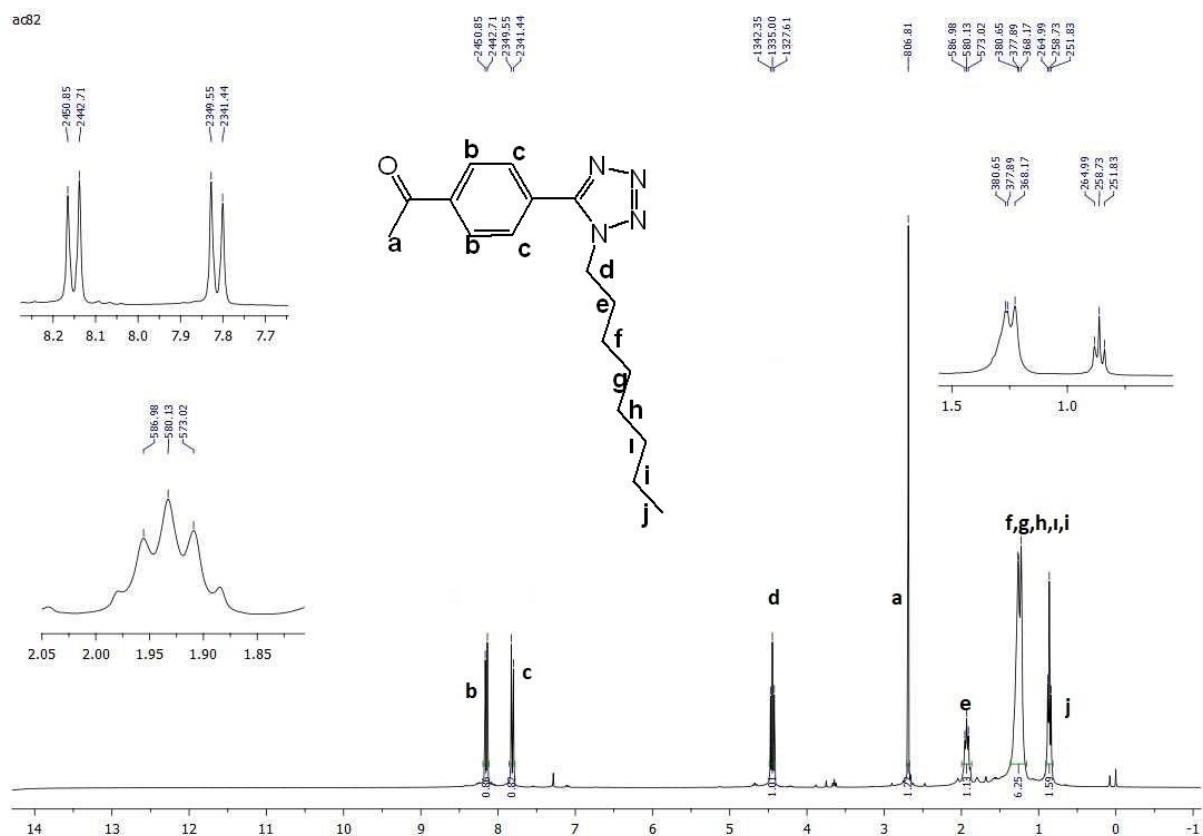


Figure S52: FT-IR spectrum of compound **BF32h**



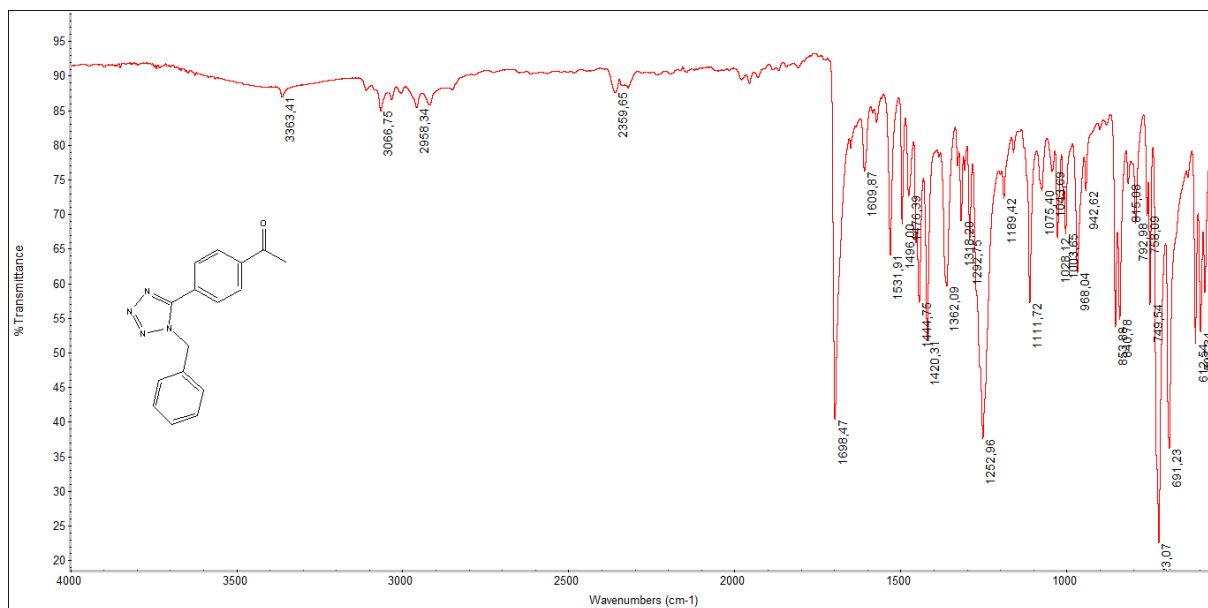


Figure S55: FT-IR spectrum of compound **BF32i**

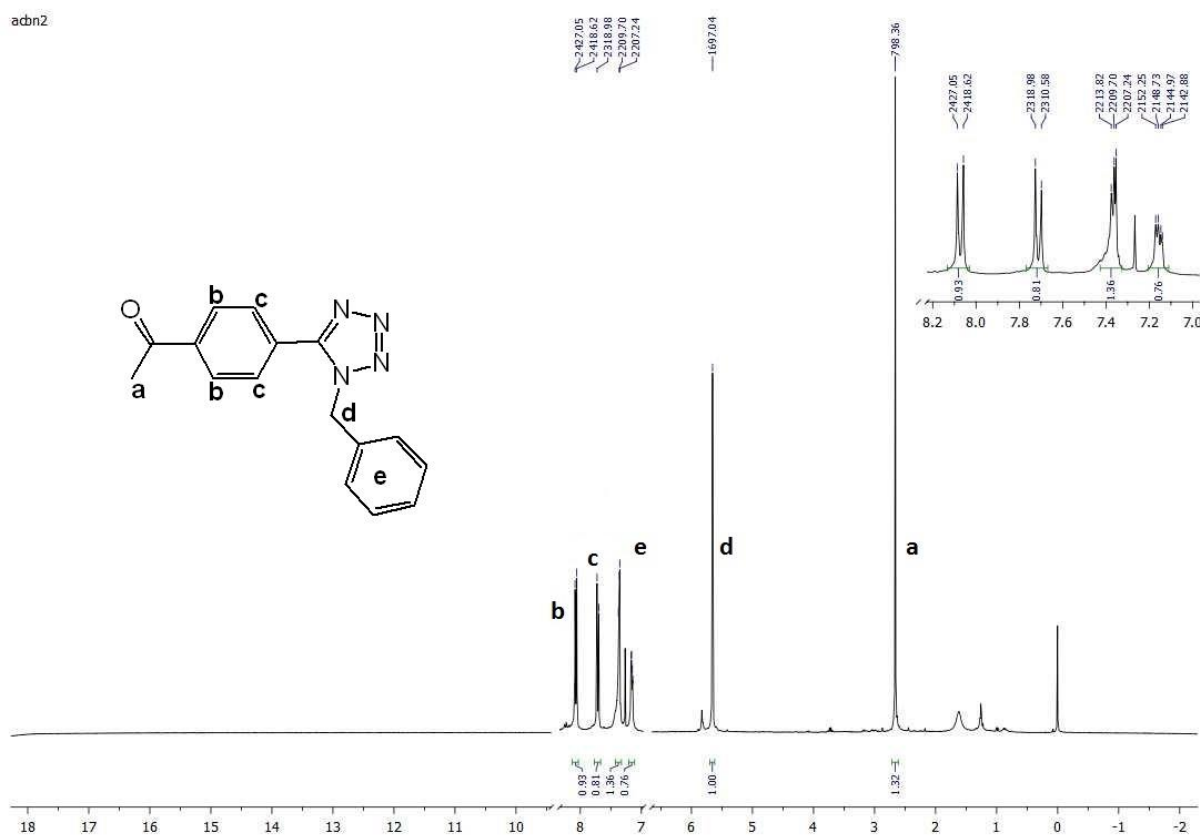


Figure S56: ¹H NMR spectrum of compound **BF32i**

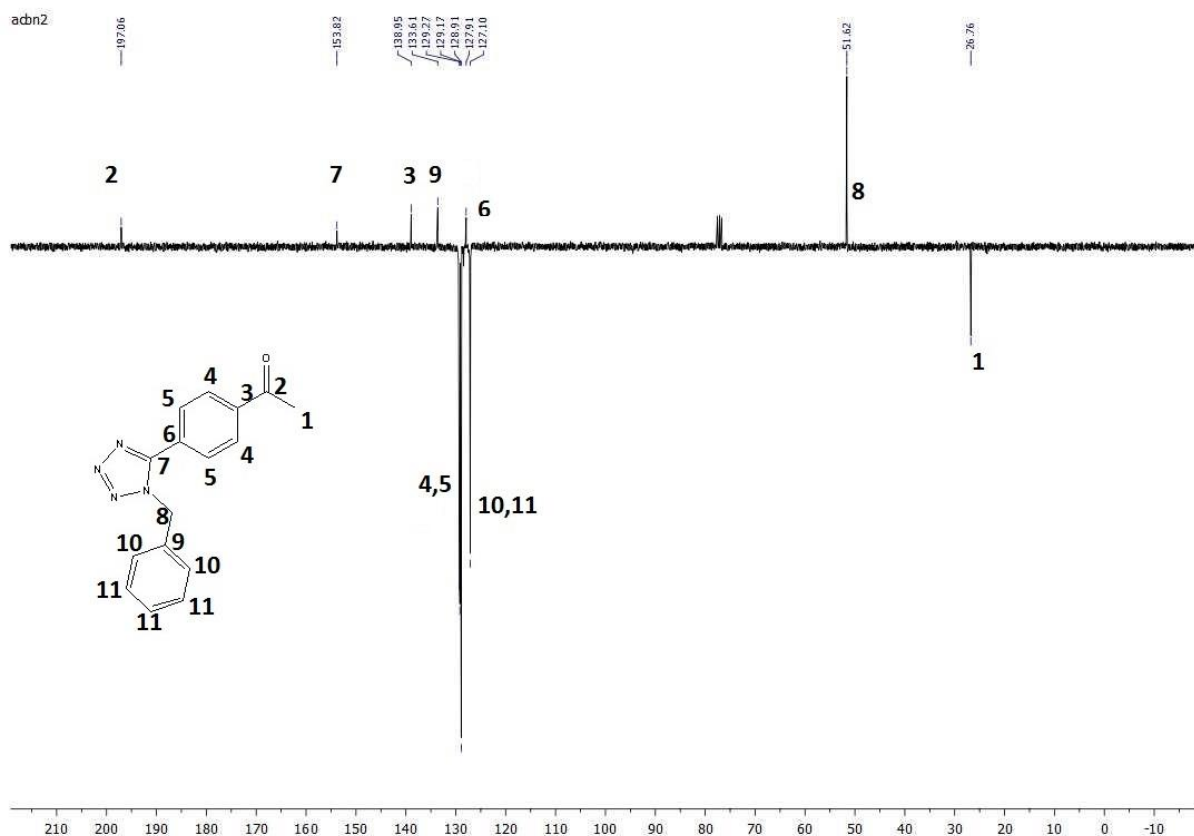


Figure S57: ^{13}C -APT NMR spectrum of compound **BF32i**

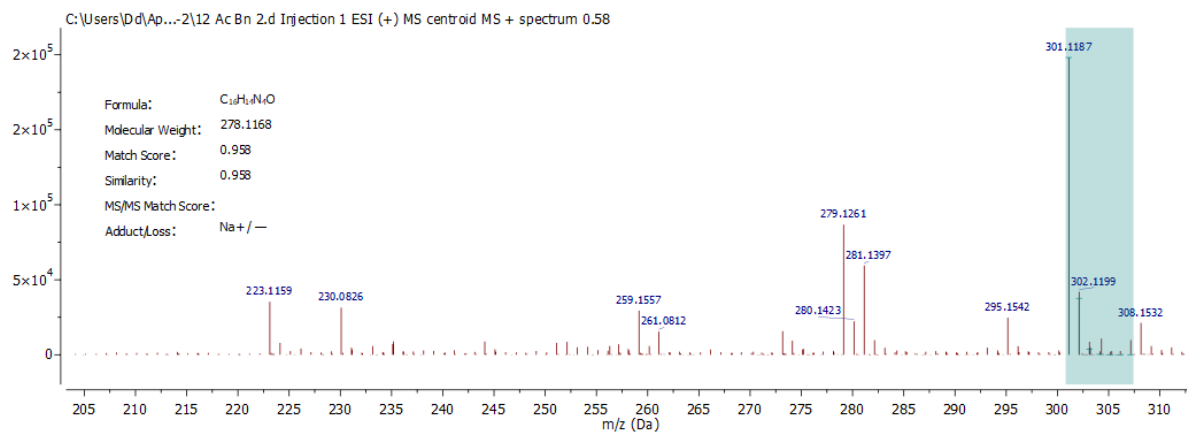


Figure S58: HR-MS spectrum of compound **BF32i**

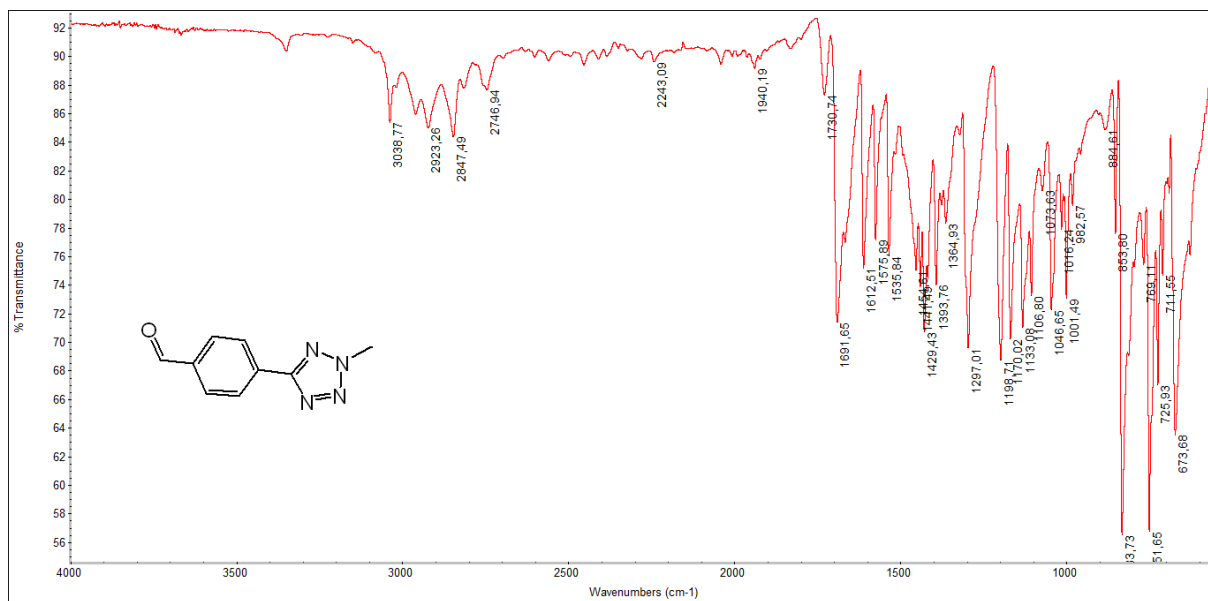


Figure S59: FT-IR spectrum of compound BF81a

car11.1.fid

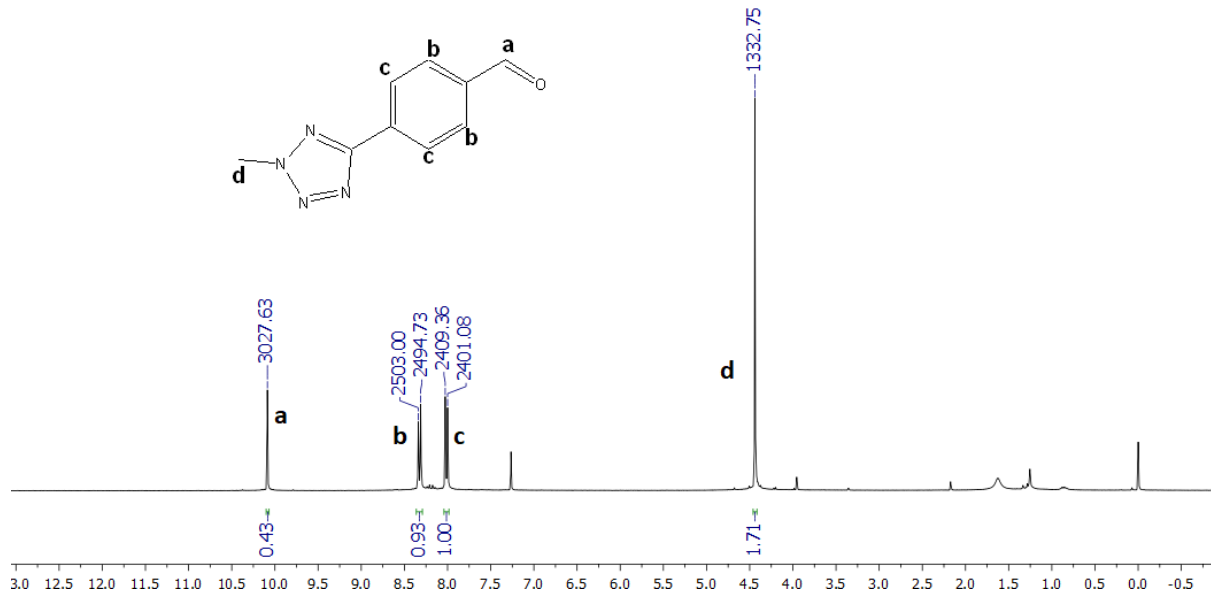


Figure S60: ¹H NMR spectrum of compound BF81a

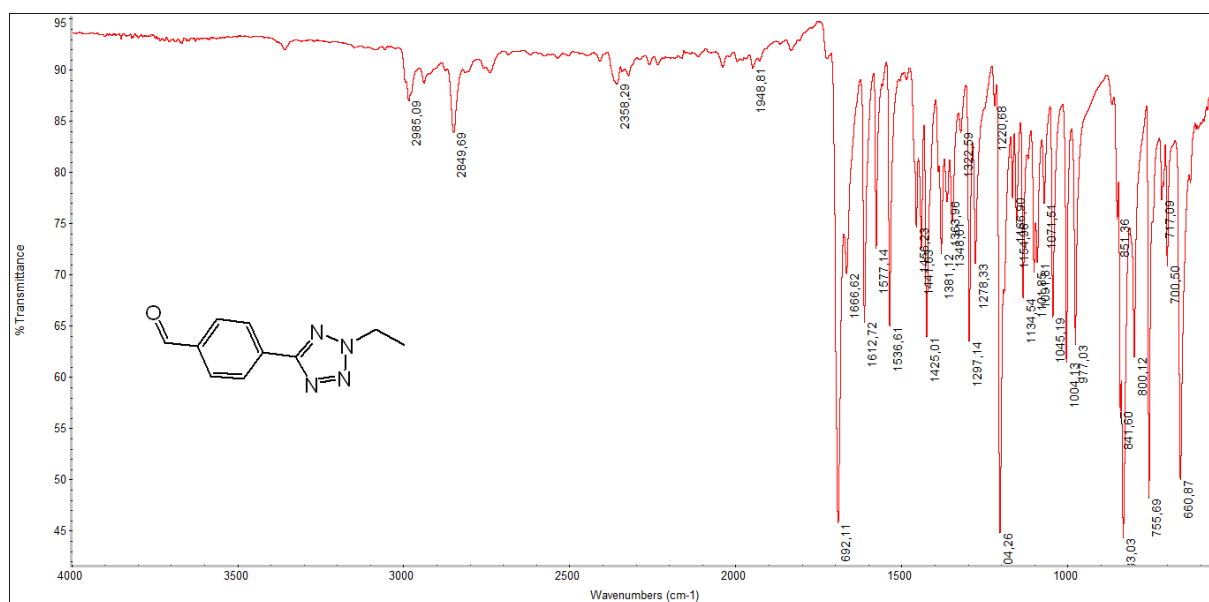


Figure S61: FT-IR spectrum of compound **BF81b**

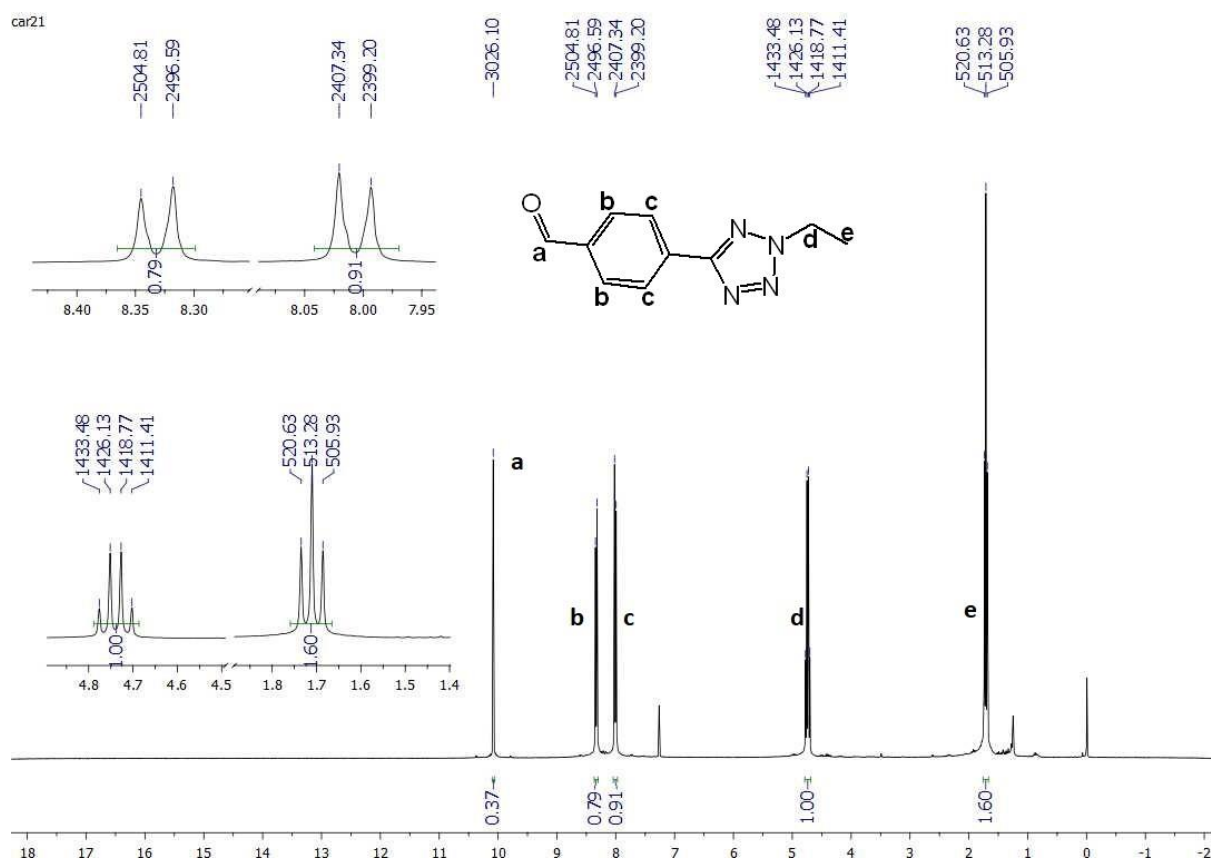


Figure S62: ^1H NMR spectrum of compound **BF81b**

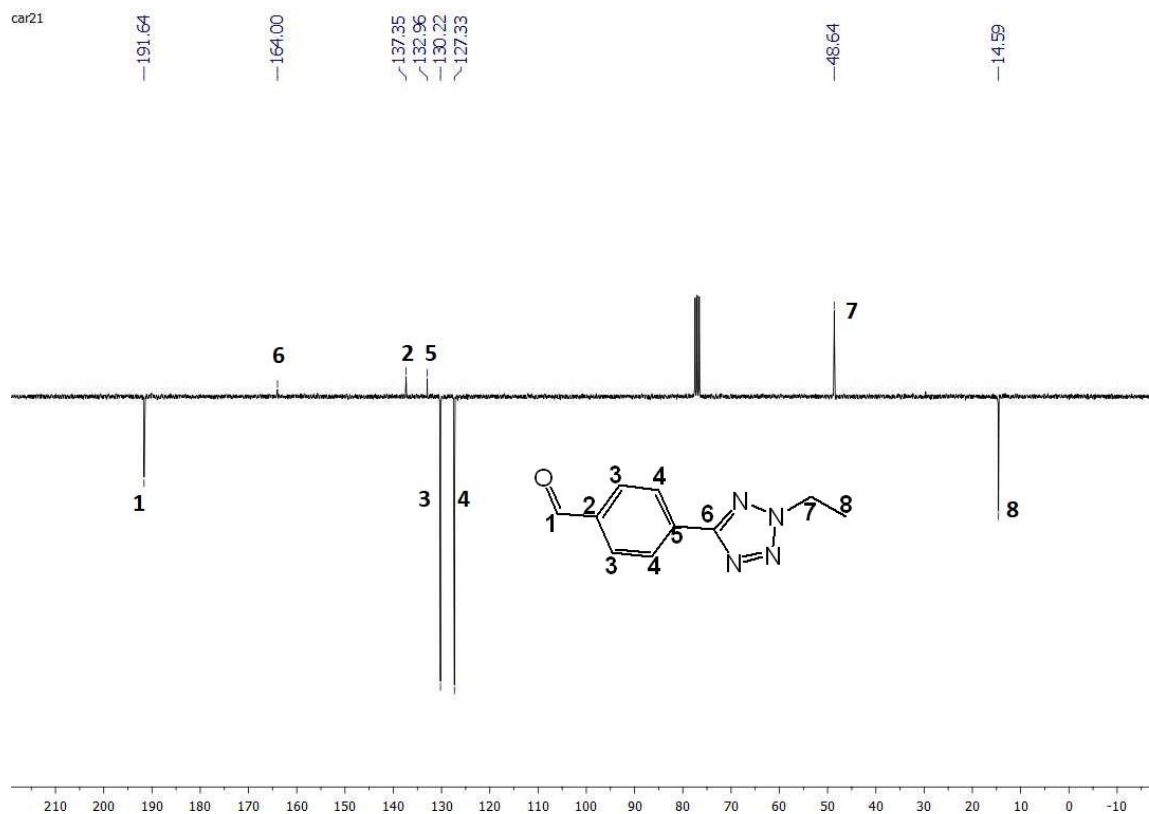


Figure S63: ^{13}C -APT NMR spectrum of compound **BF81b**

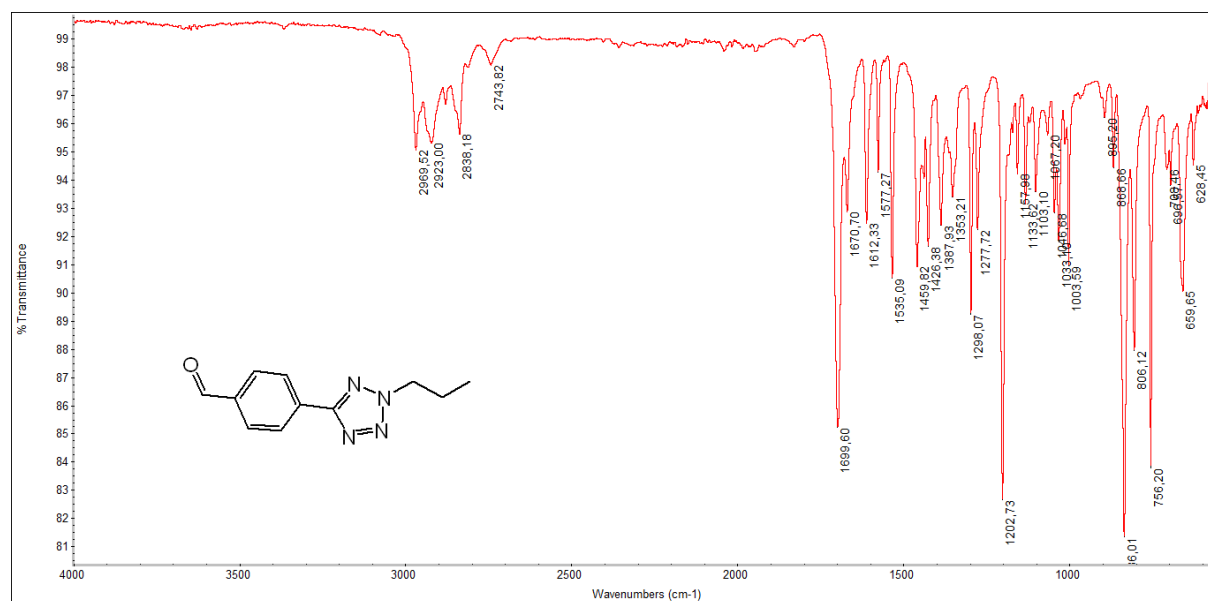


Figure S64: FT-IR spectrum of compound **BF81c**

car31.1.2.1r

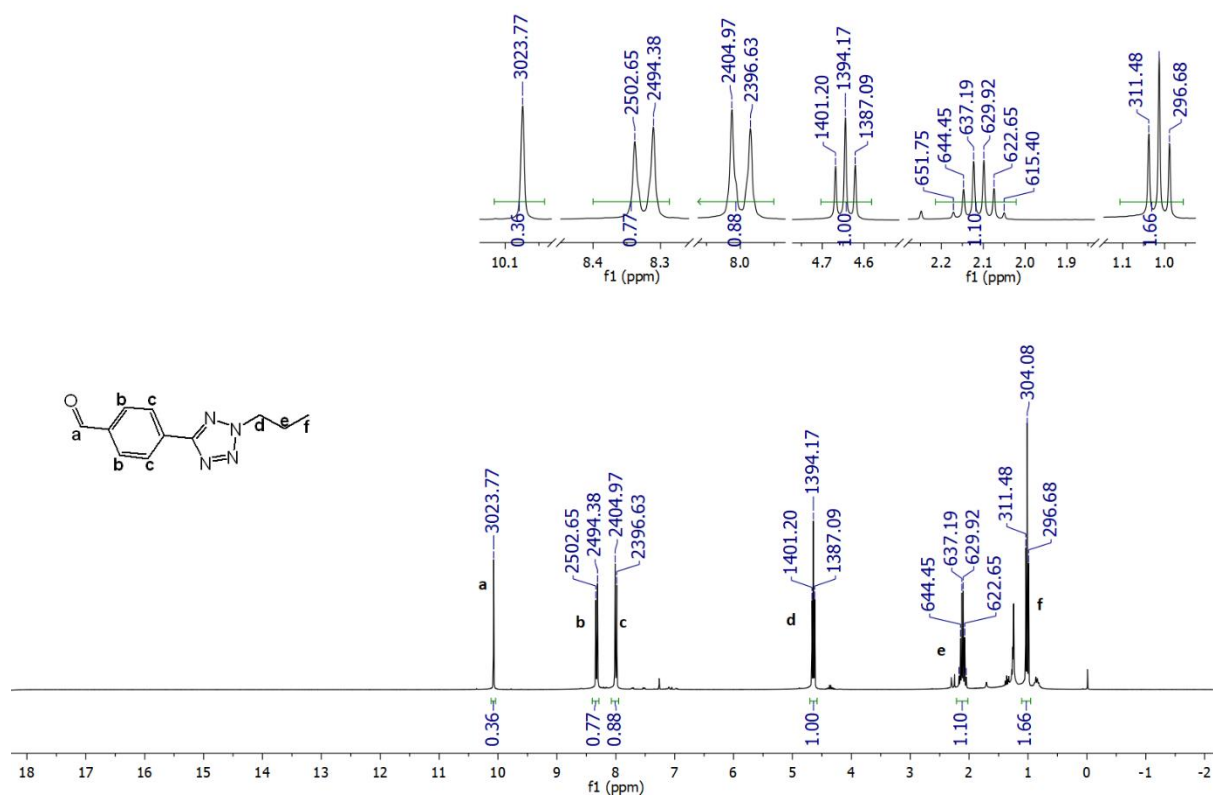


Figure S65: ^1H NMR spectrum of compound BF81c

car31.14.2.1r

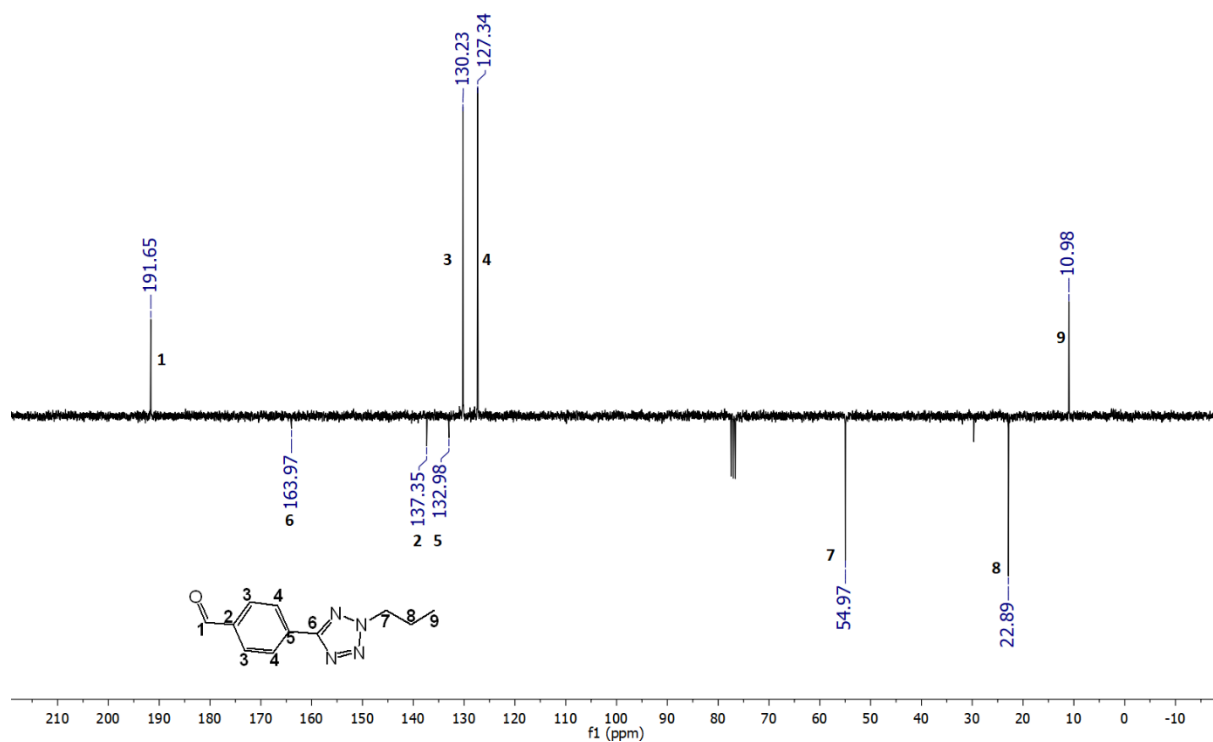


Figure S66: ^{13}C -APT NMR spectrum of compound BF81c

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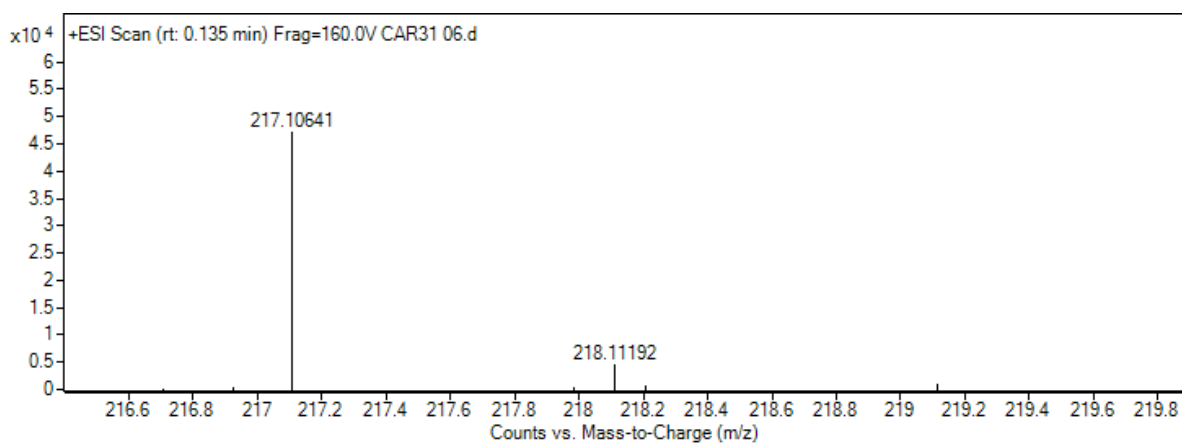


Figure S67: HR-MS spectrum of compound **BF81c**

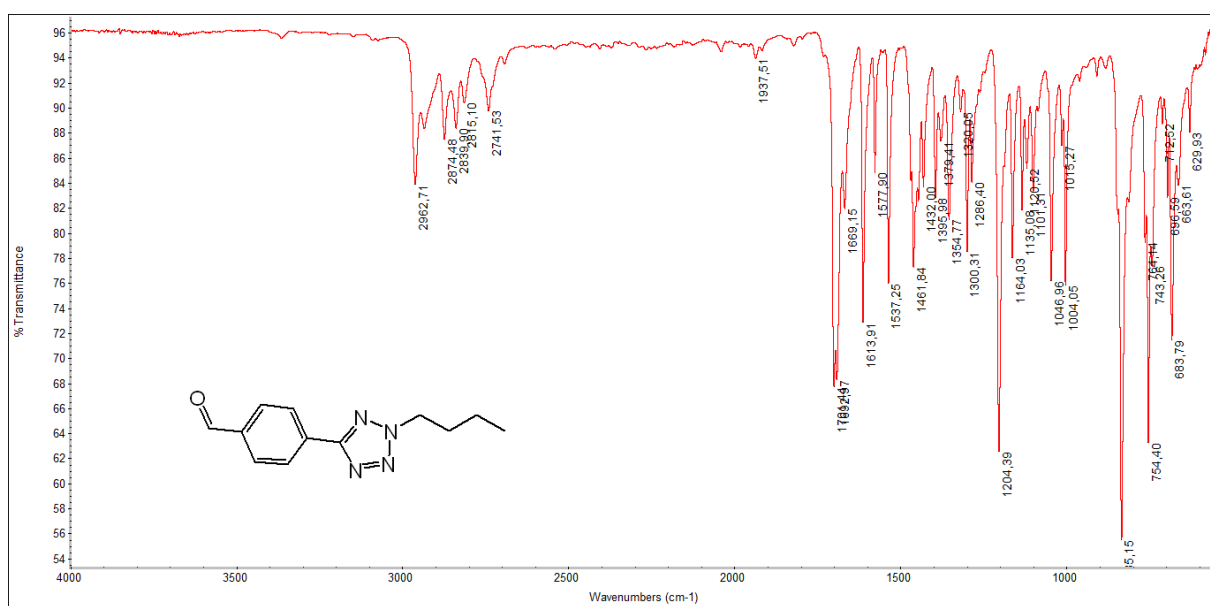


Figure S68: FT-IR spectrum of compound **BF81d**

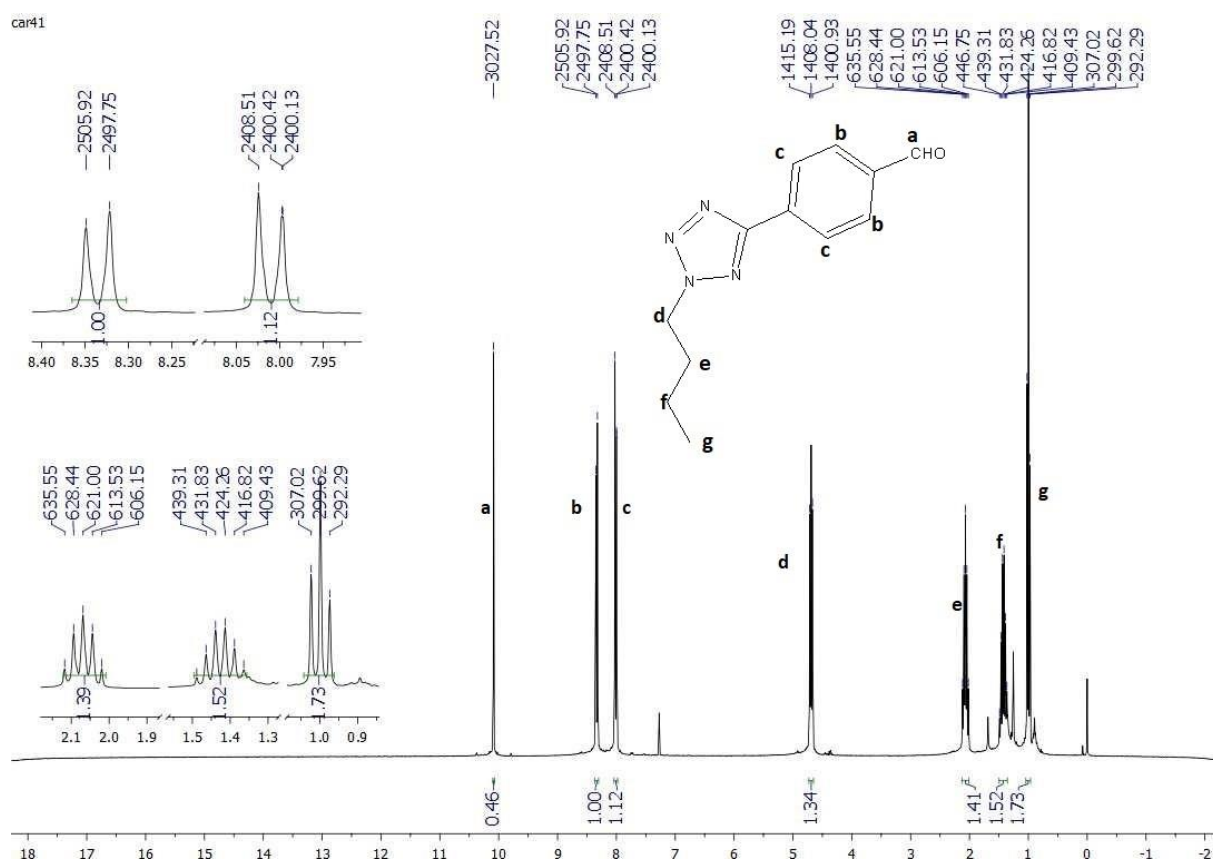


Figure S69: ^1H NMR spectrum of compound BF81d

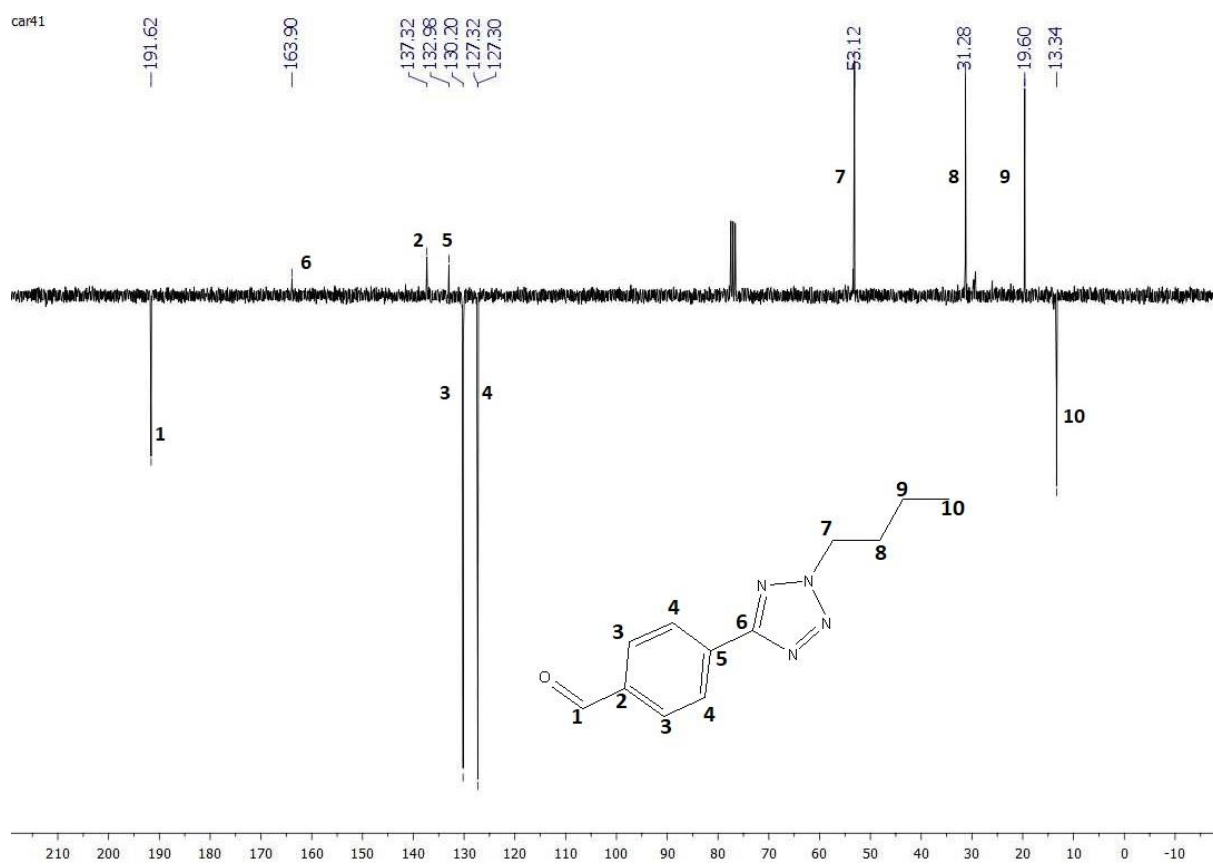


Figure S70: ^{13}C -APT NMR spectrum of compound BF81d

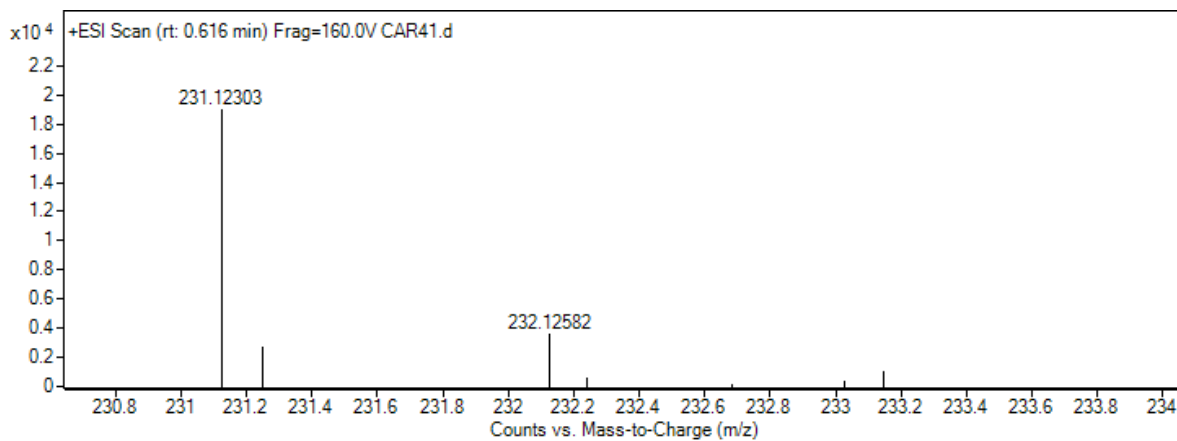


Figure S71: HR-MS spectrum of compound **BF81d**

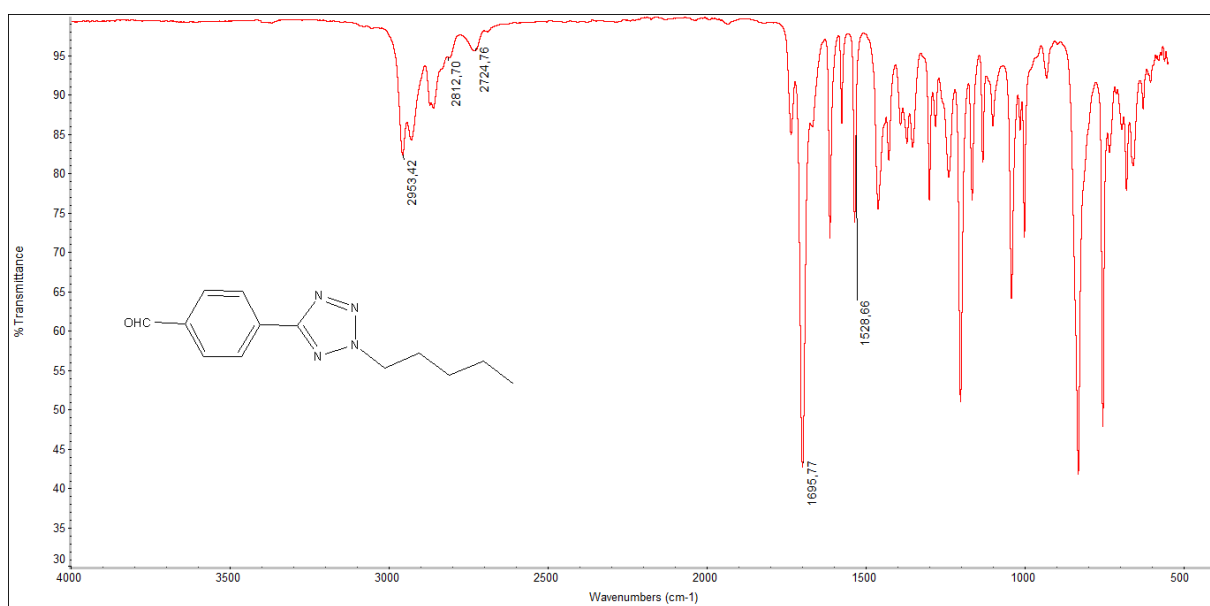


Figure S72: FT-IR spectrum of compound **BF81e**

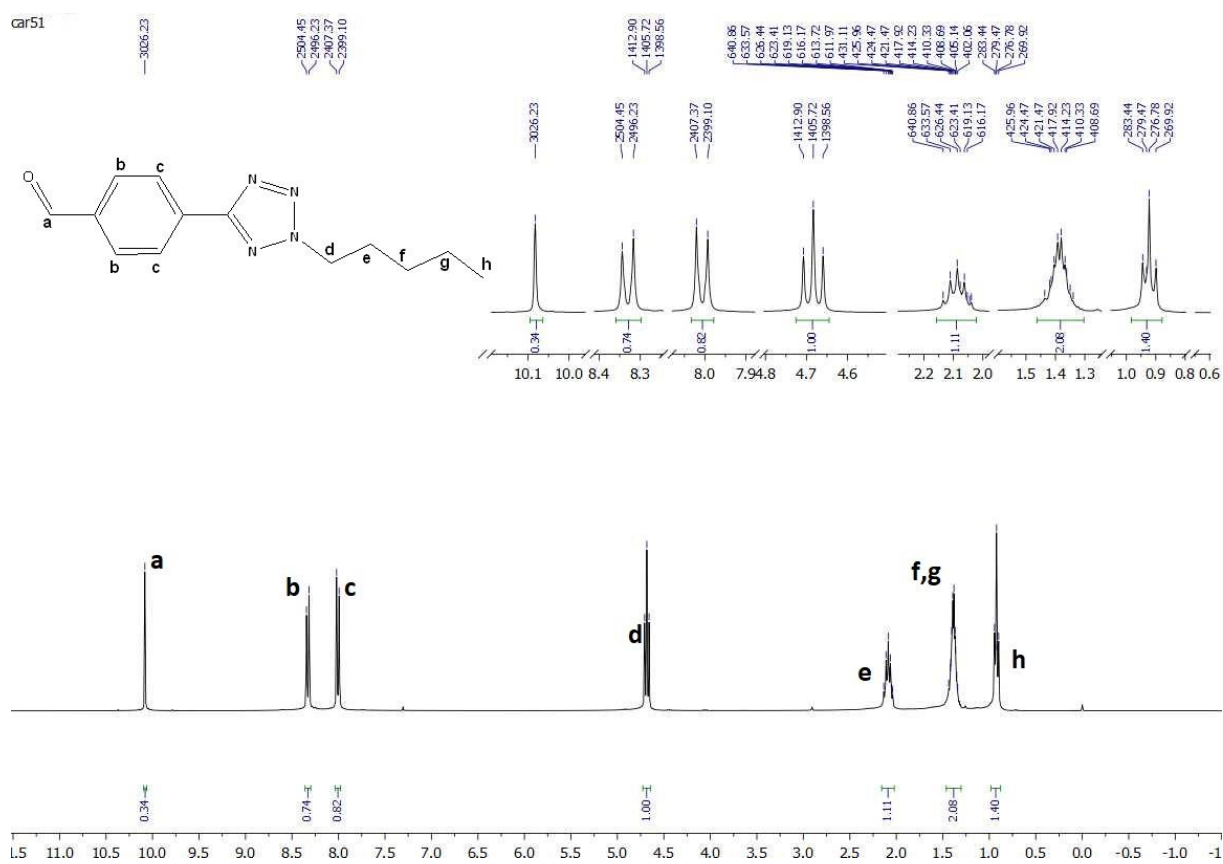


Figure S73: ^1H NMR spectrum of compound BF81e

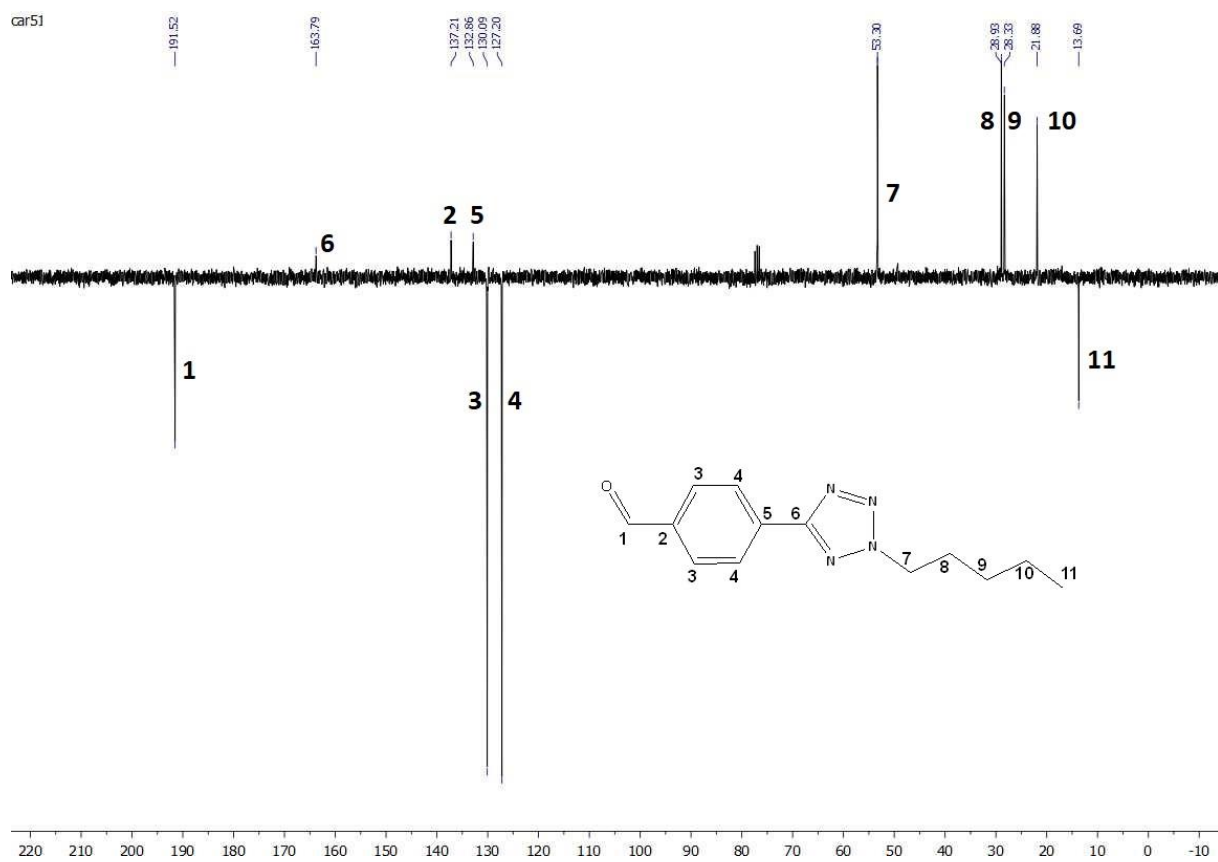


Figure S74: ^{13}C -APT NMR spectrum of compound BF81e

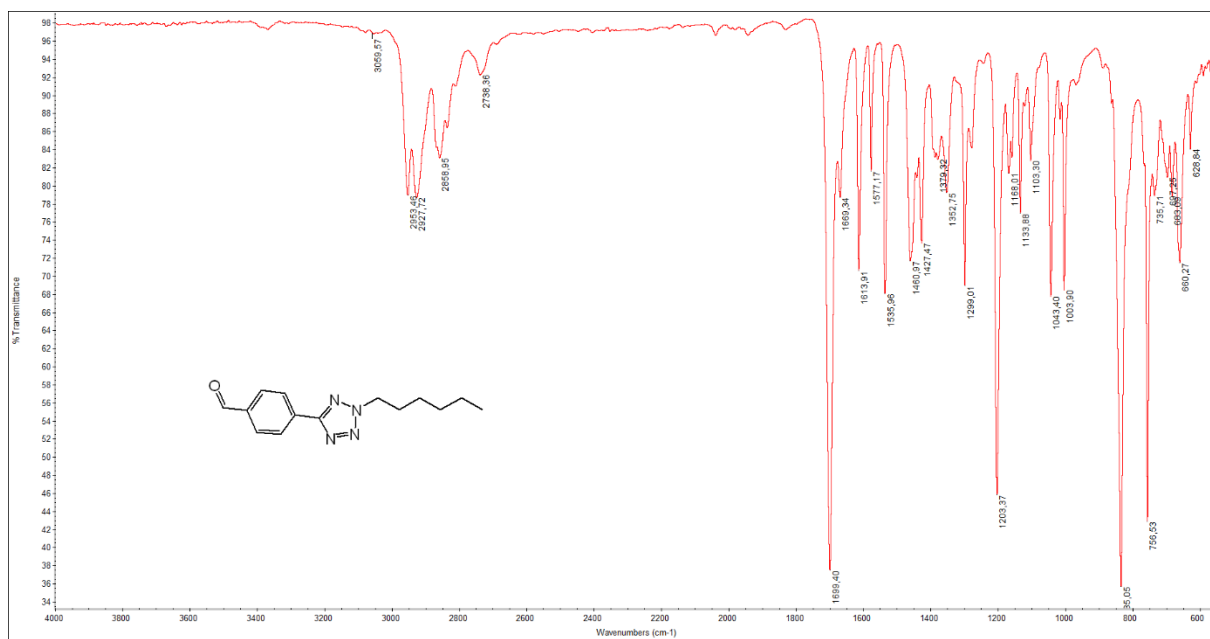


Figure S75: FT-IR spectrum of compound **BF81f**

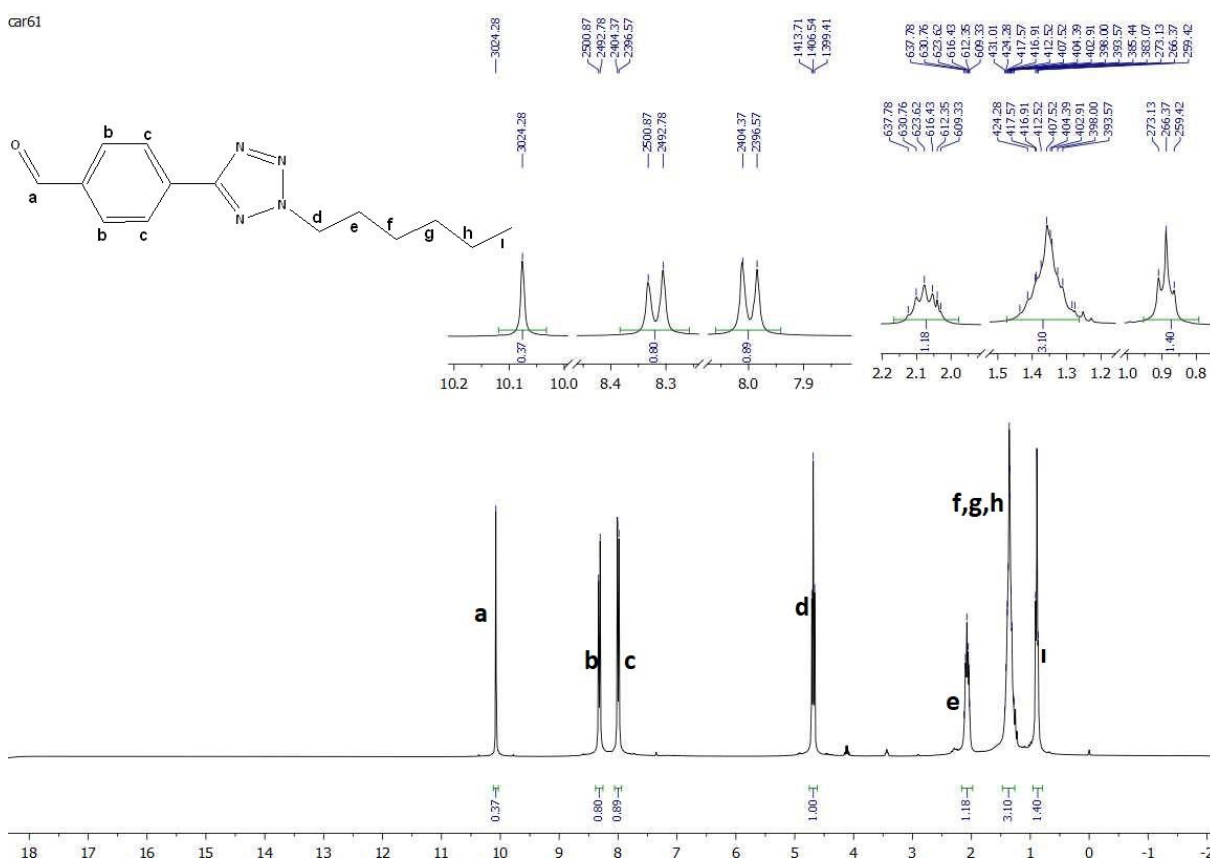


Figure S76: ^1H NMR spectrum of compound **BF81f**

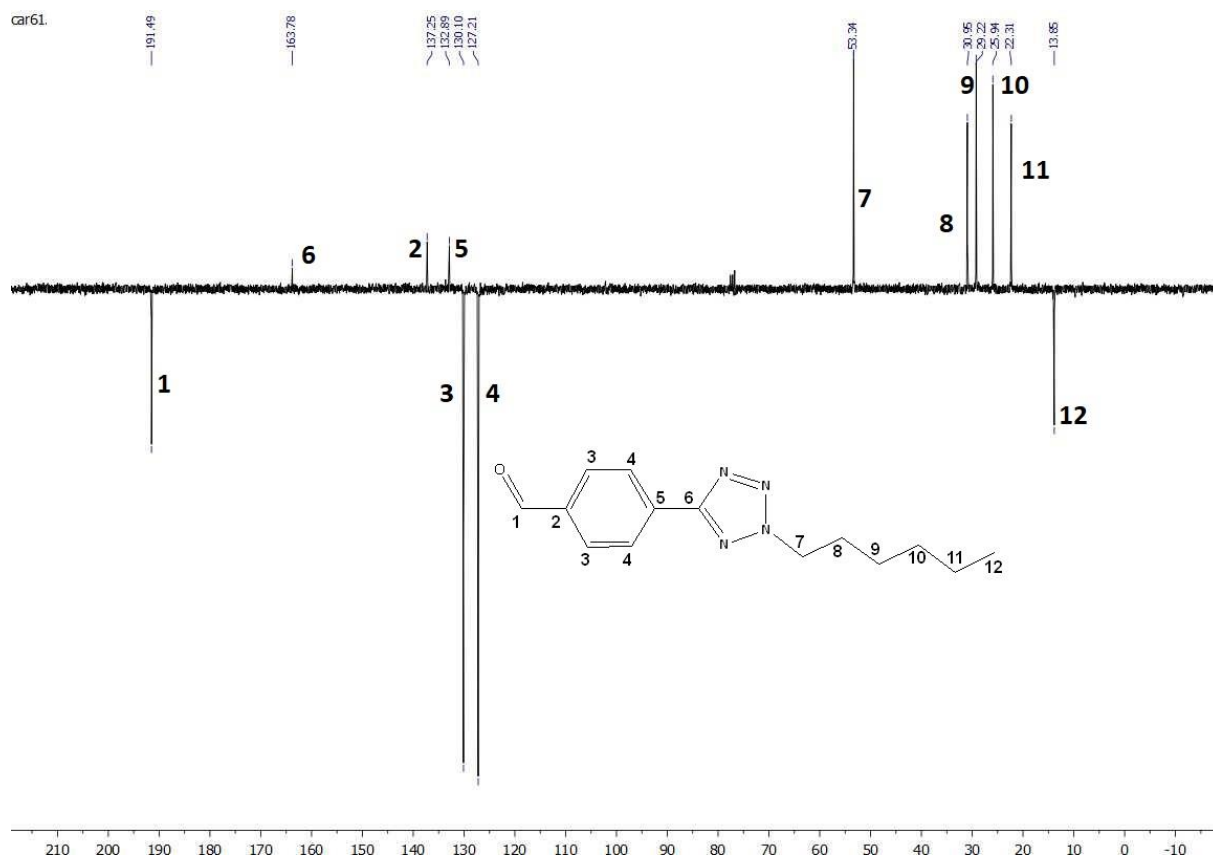


Figure S77: ^{13}C -APT NMR spectrum of compound **BF81f**

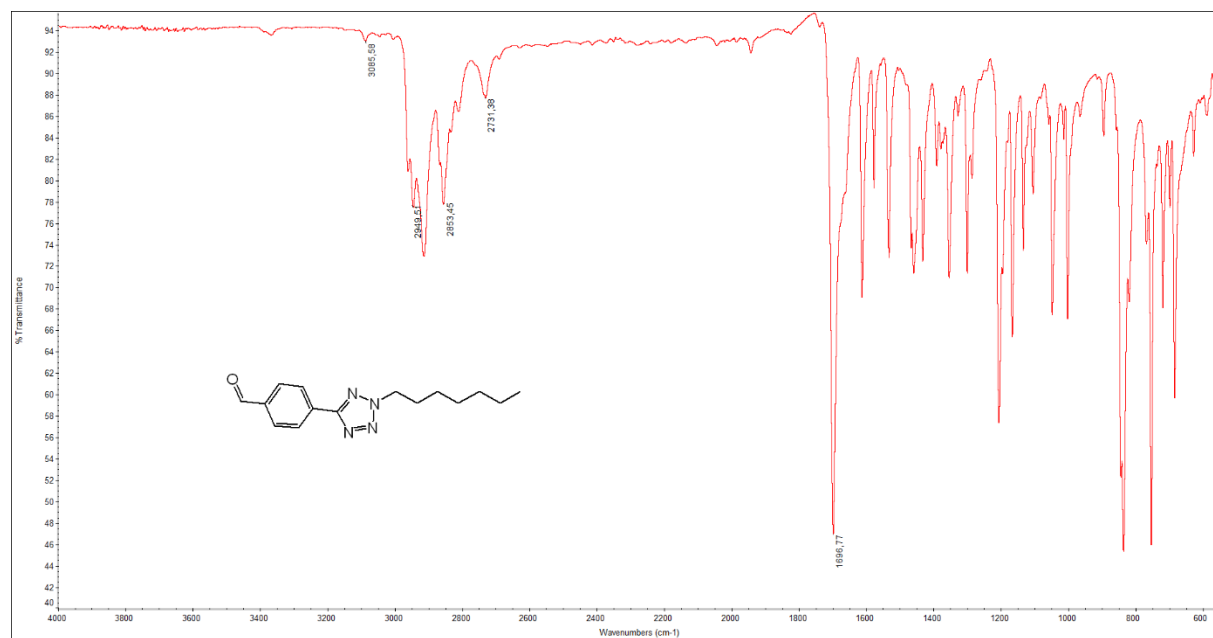


Figure S78: FT-IR spectrum of compound **BF81g**

car71.

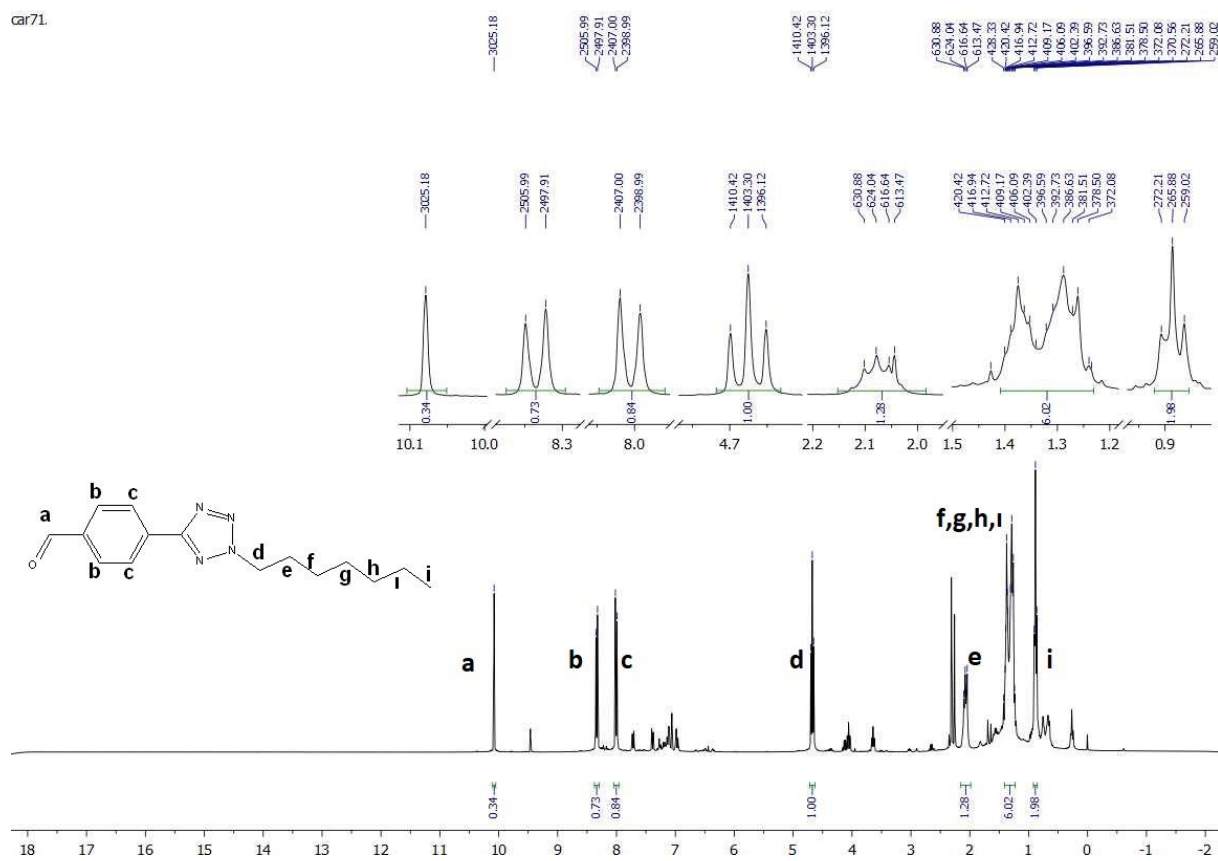


Figure S79: ^1H NMR spectrum of compound **BF81g**

car71.14.fid

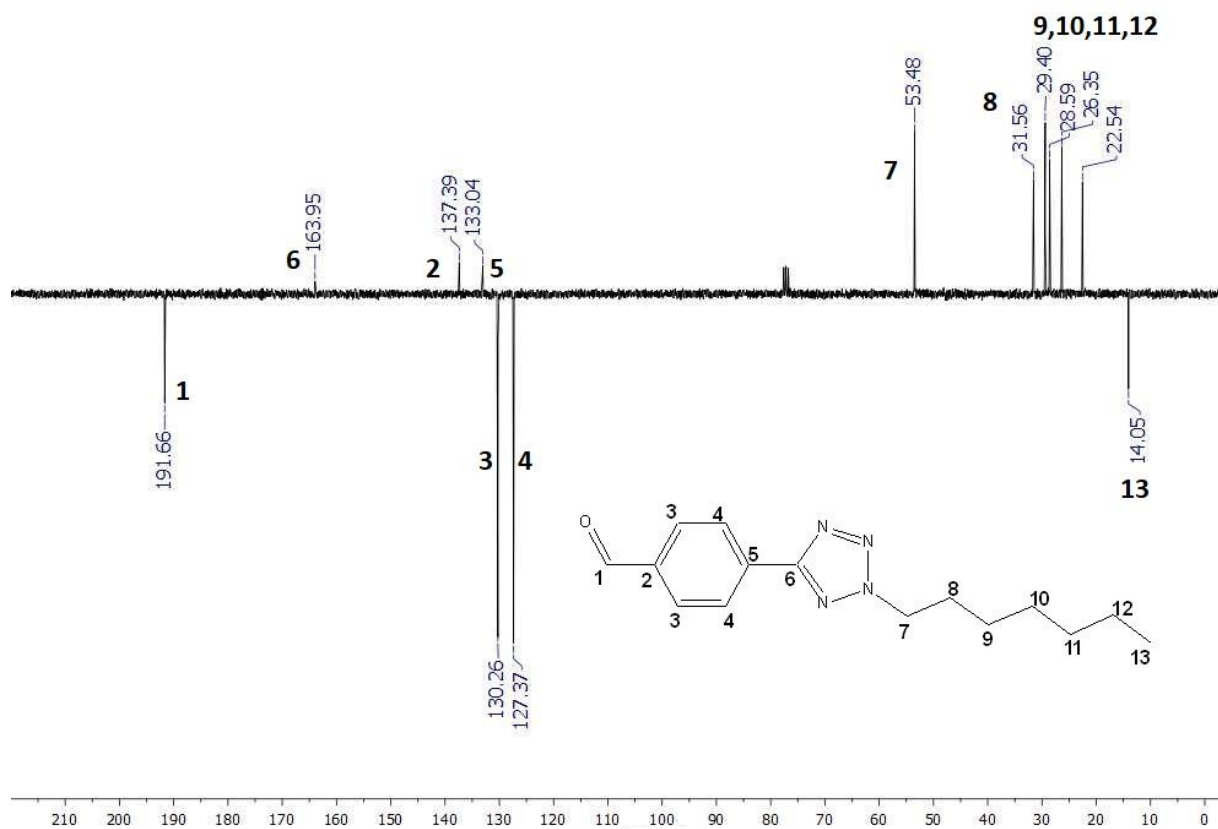


Figure S80: ^{13}C -APT NMR spectrum of compound **BF81g**

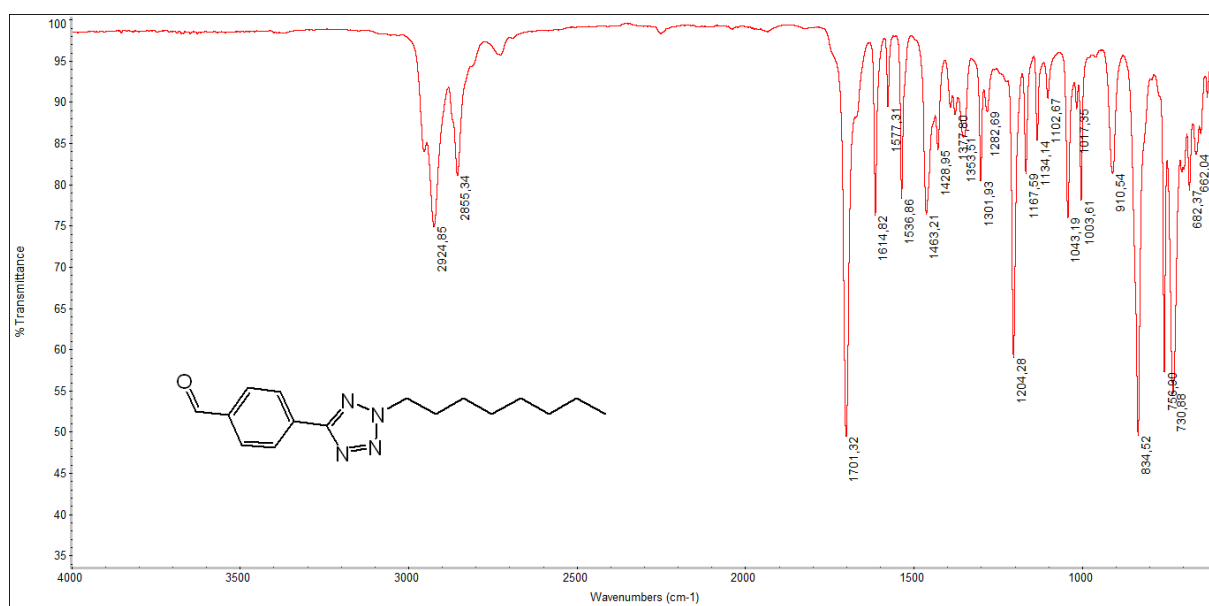


Figure S81: FT-IR spectrum of compound **BF81h**

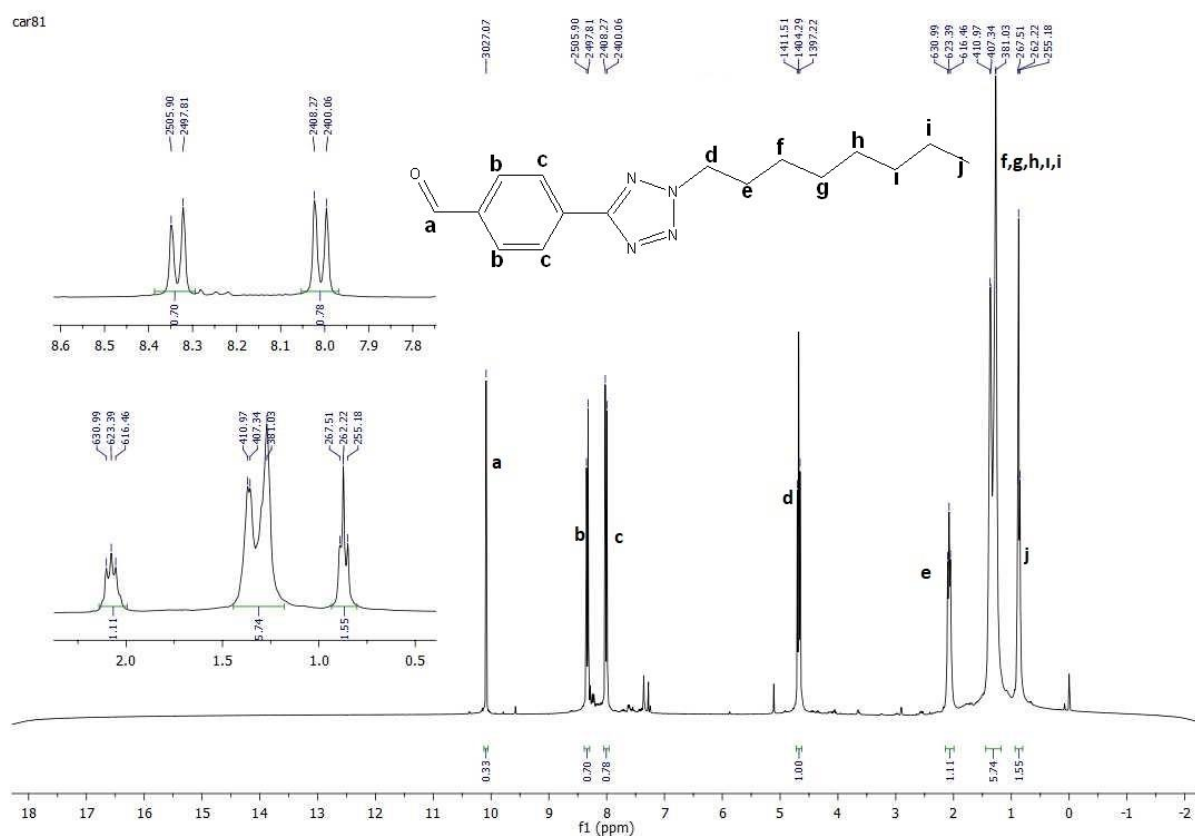


Figure S82: ^1H NMR spectrum of compound **BF81h**

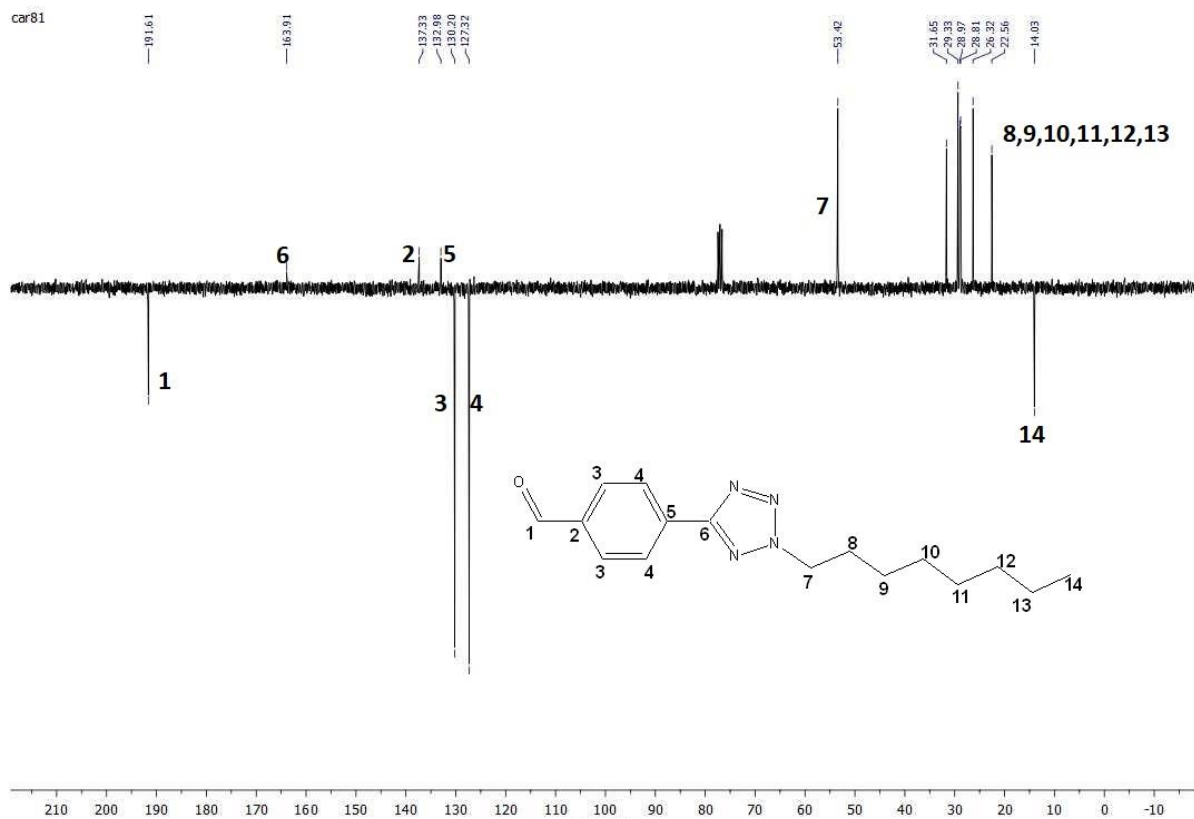


Figure S83: ^{13}C -APT NMR spectrum of compound **BF81h**

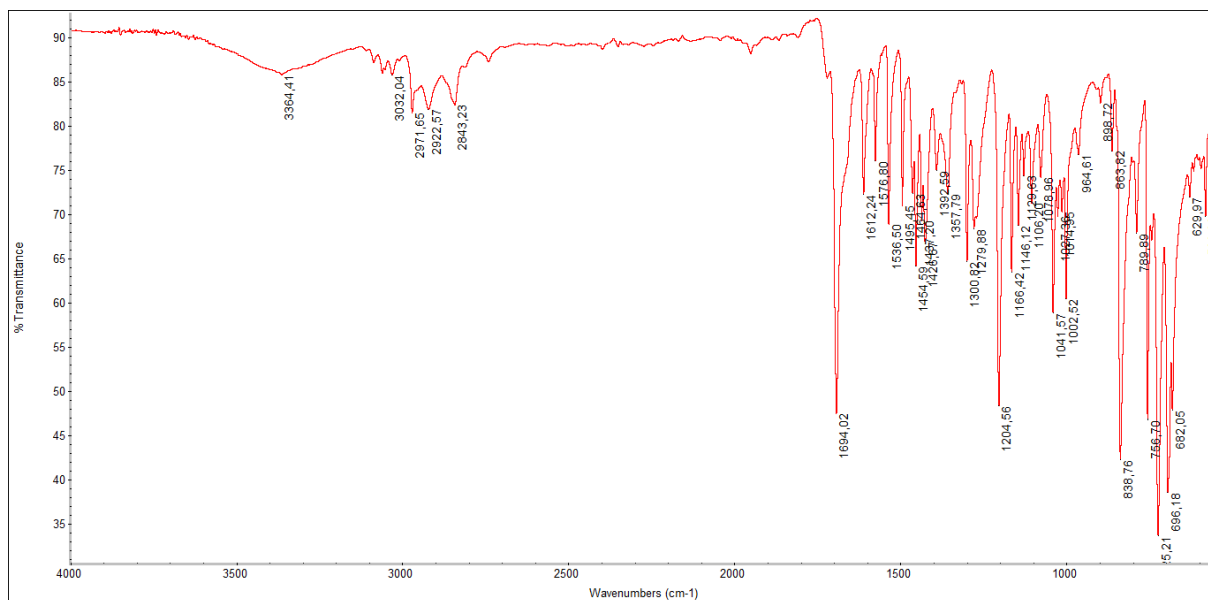


Figure S84: FT-IR spectrum of compound **BF81i**

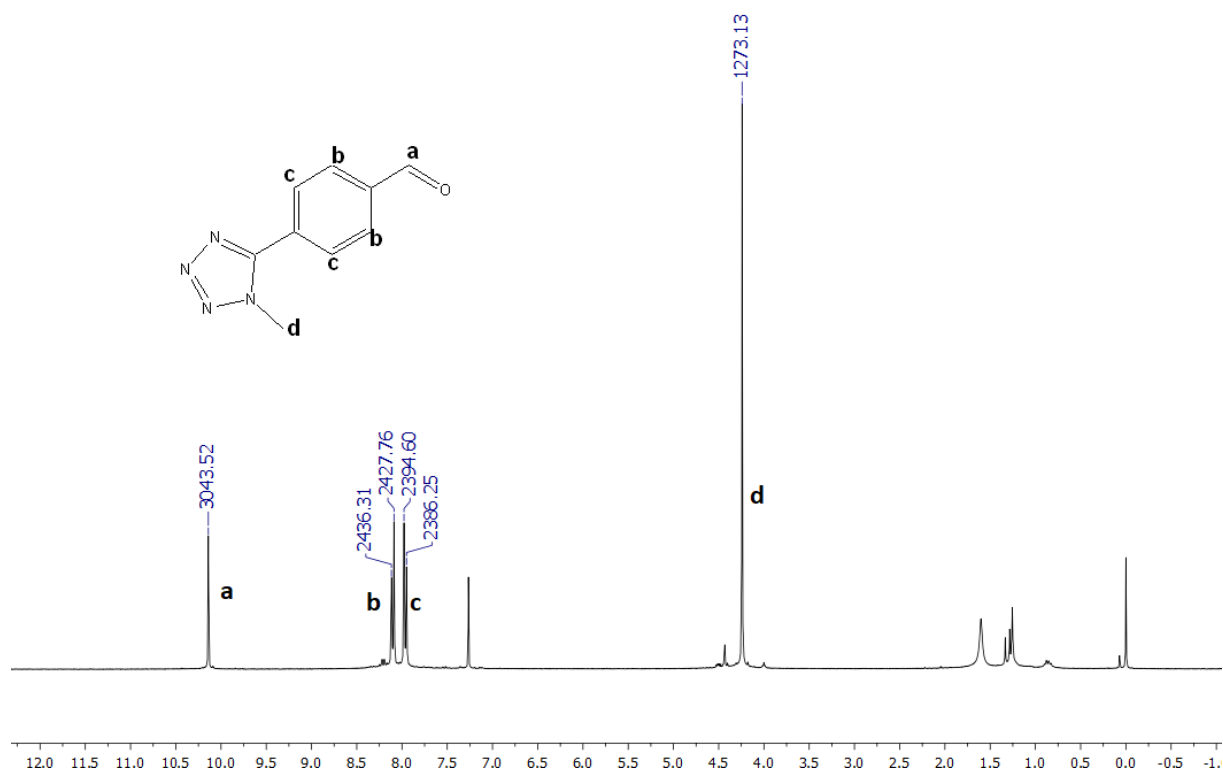


Figure S85: ^1H NMR spectrum of compound BF82a

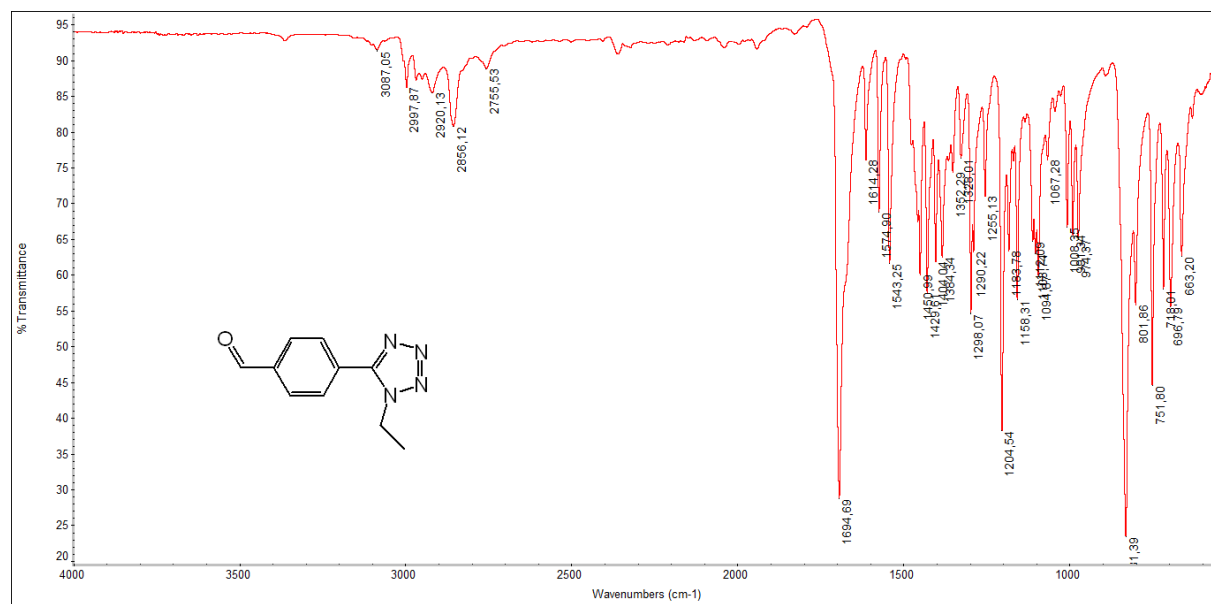
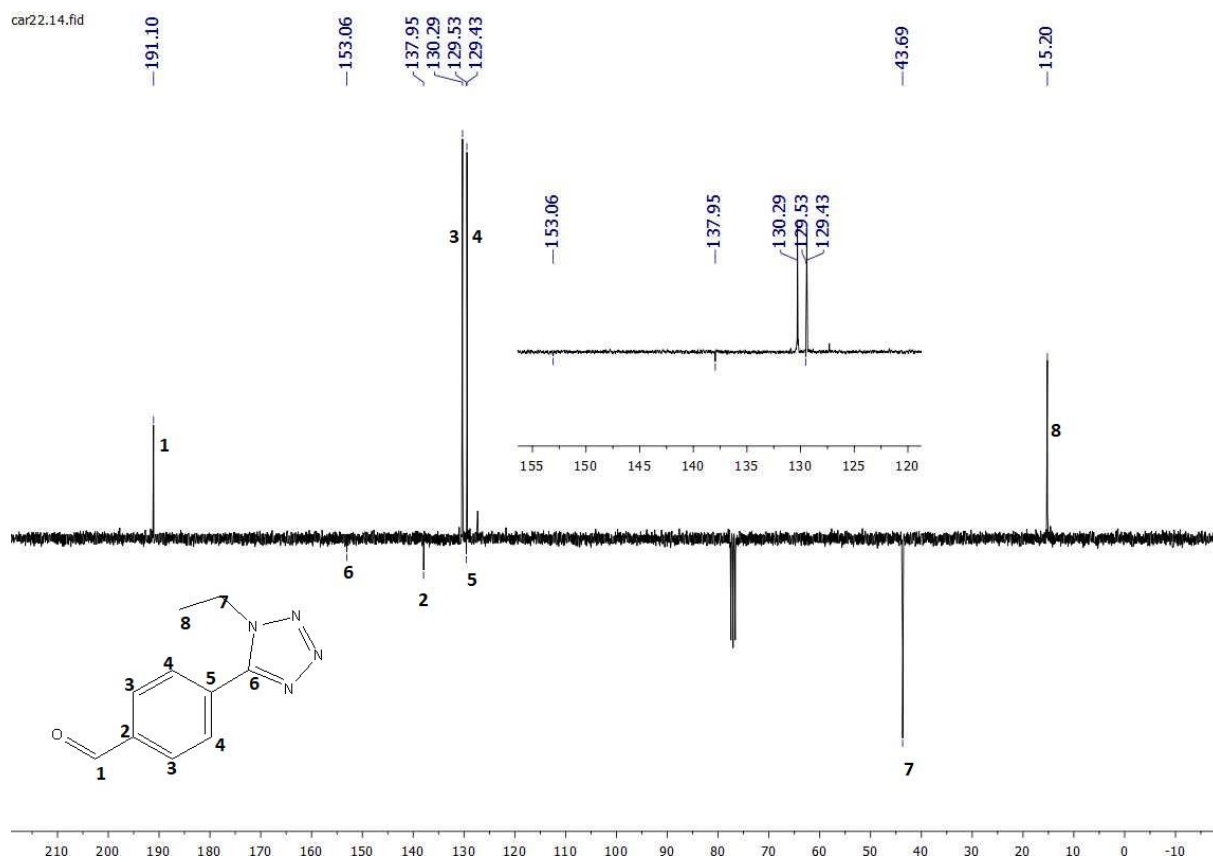
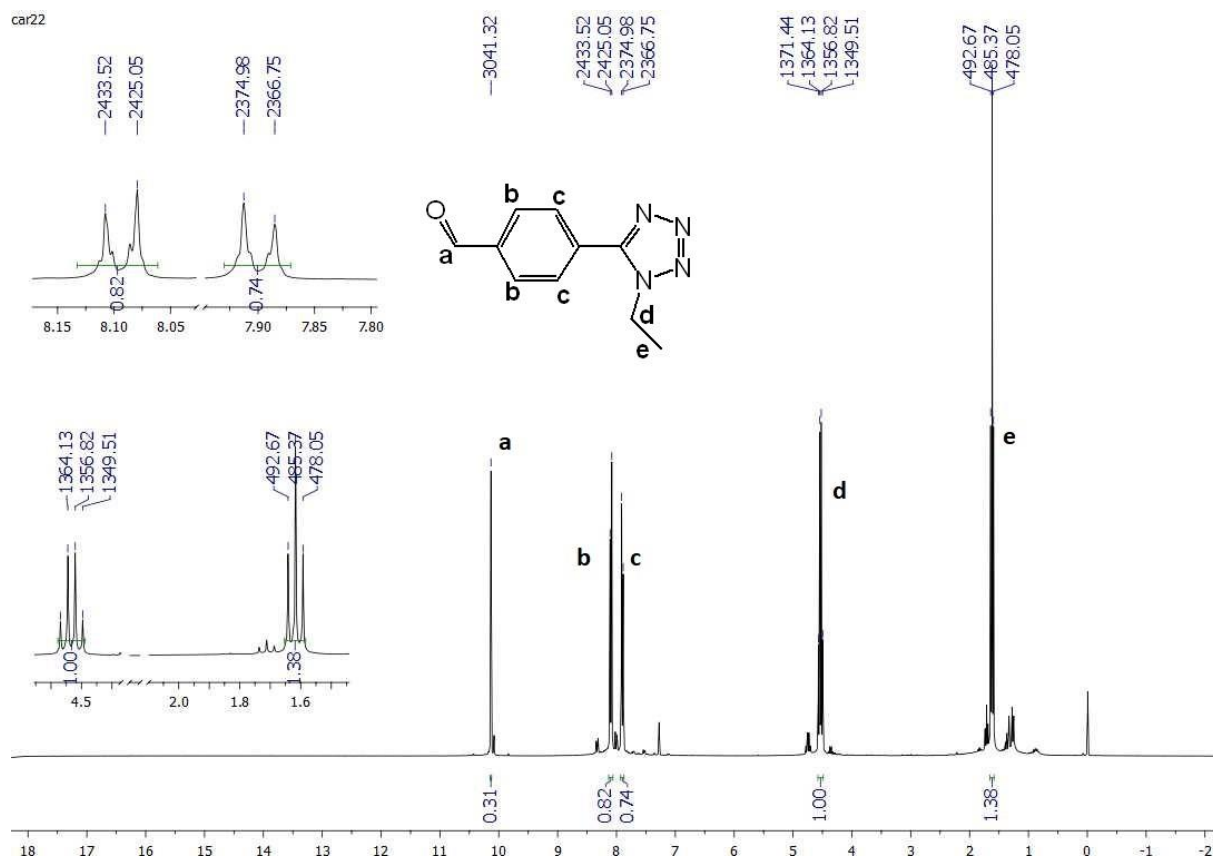


Figure S86: FT-IR spectrum of compound BF82b



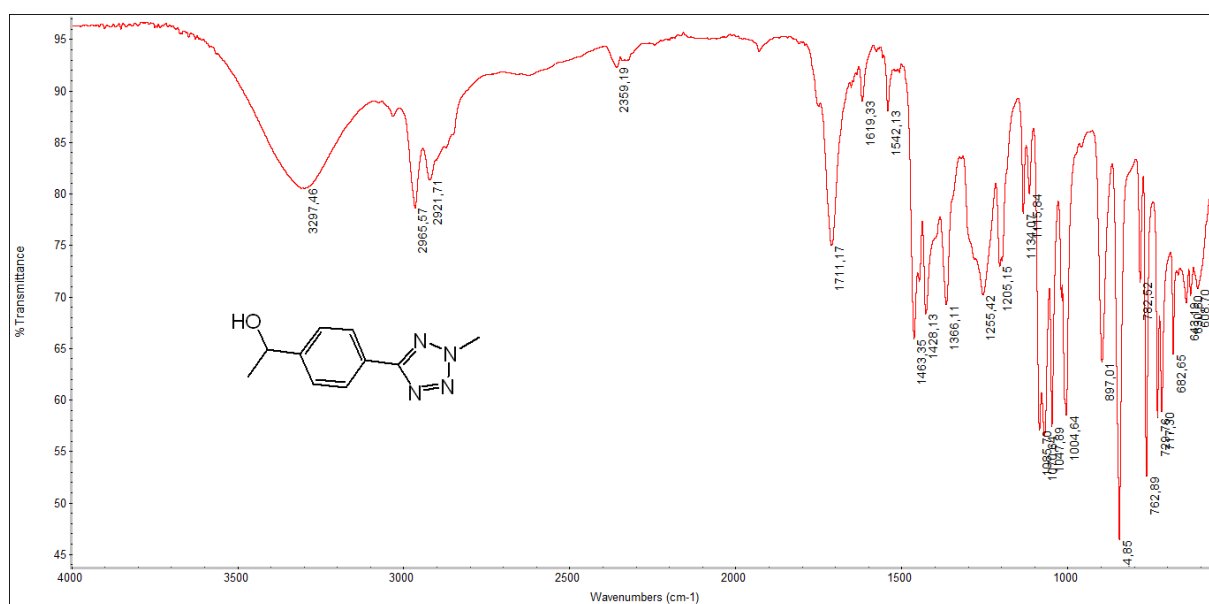


Figure S89: FT-IR spectrum of compound BF4a

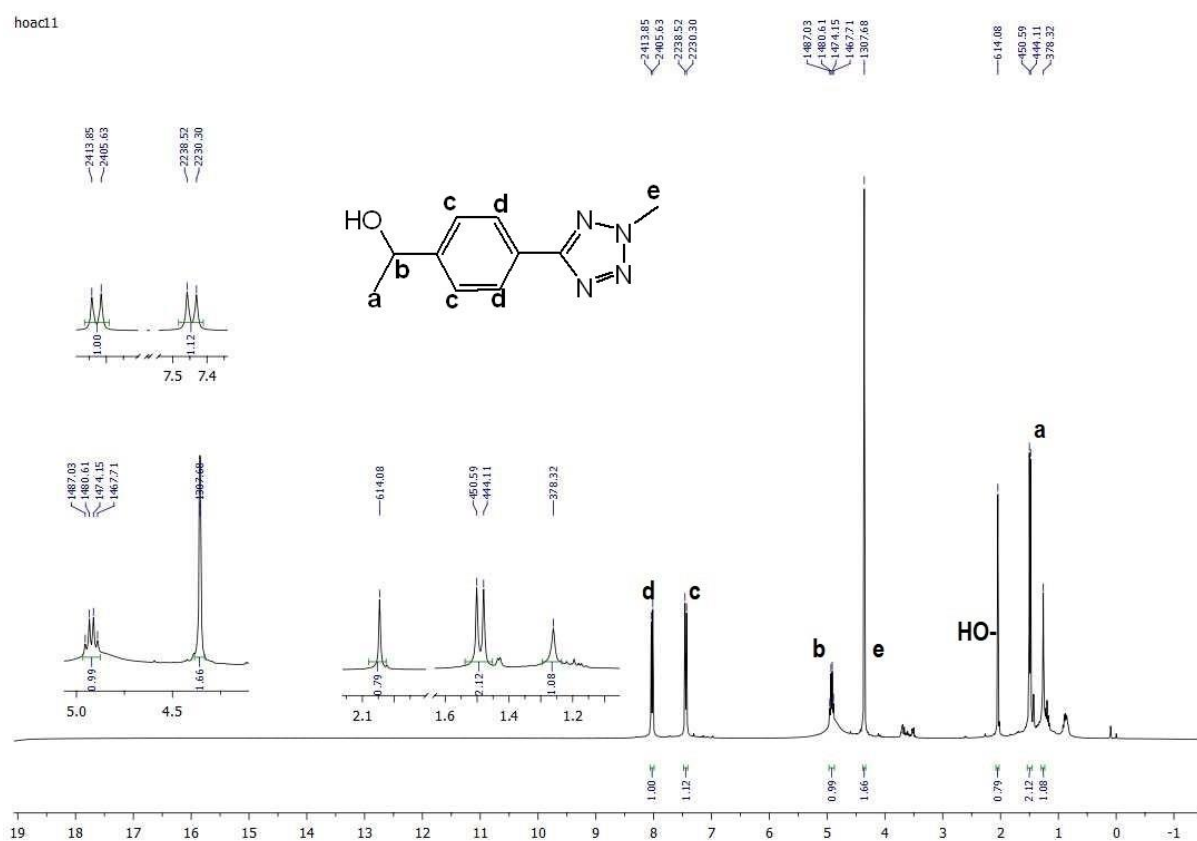


Figure S90: ¹H NMR spectrum of compound BF4a

hoac11

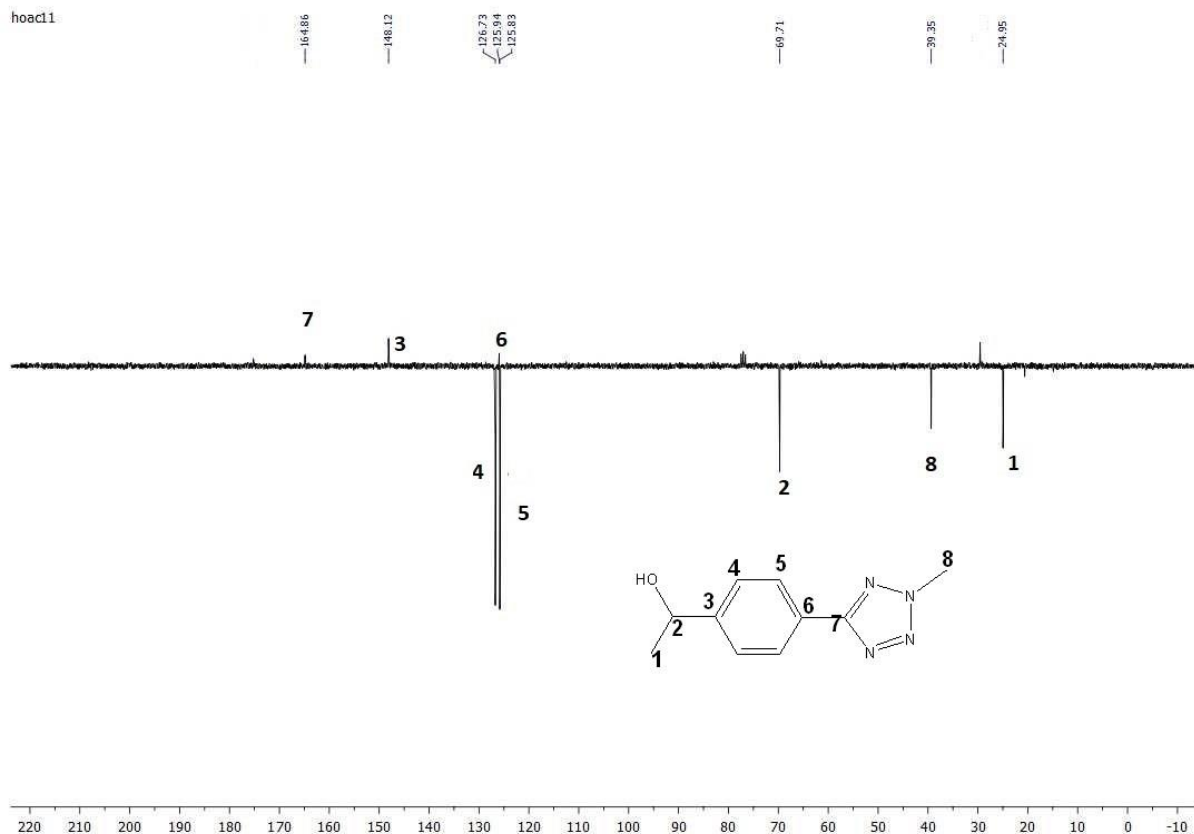


Figure S91: ^{13}C -APT NMR spectrum of compound **BF4a**

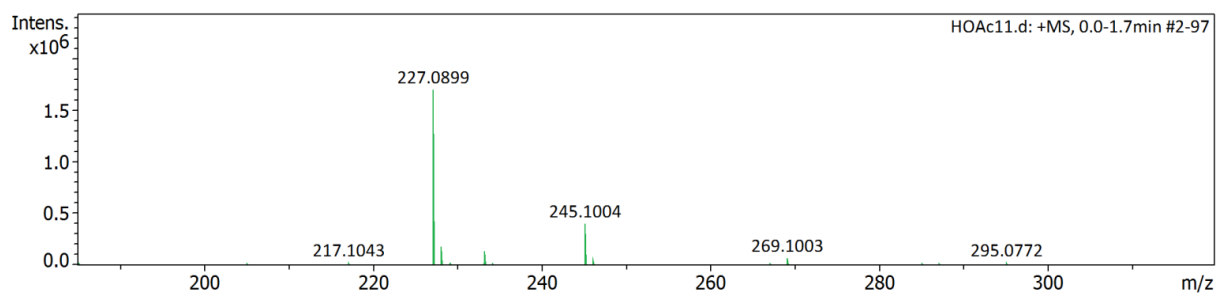


Figure S92: HR-MS spectrum of compound **BF4a**

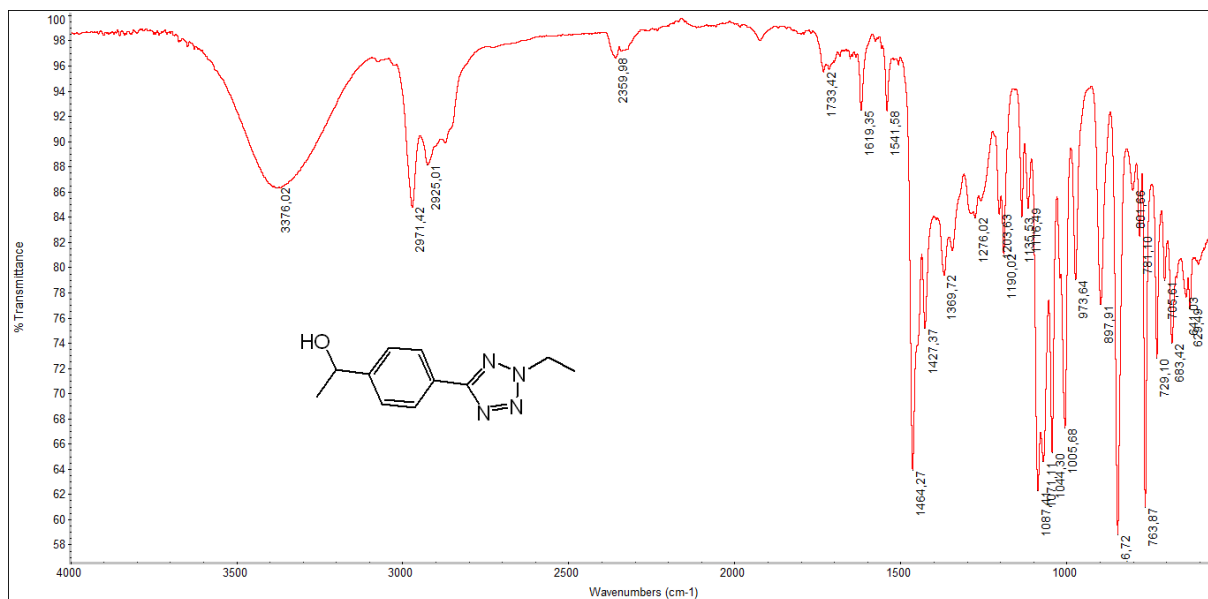


Figure S93: FT-IR spectrum of compound BF4b

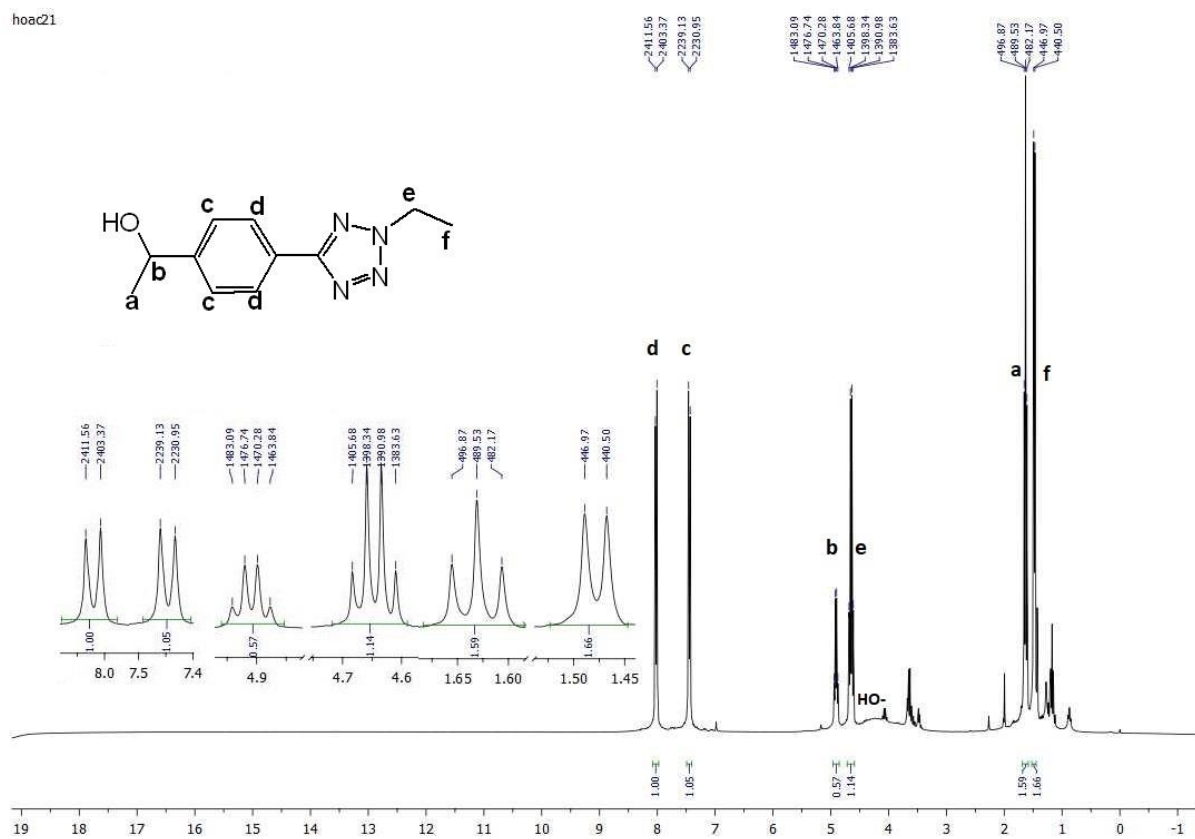


Figure S94: ¹H NMR spectrum of compound BF4b

hoac21

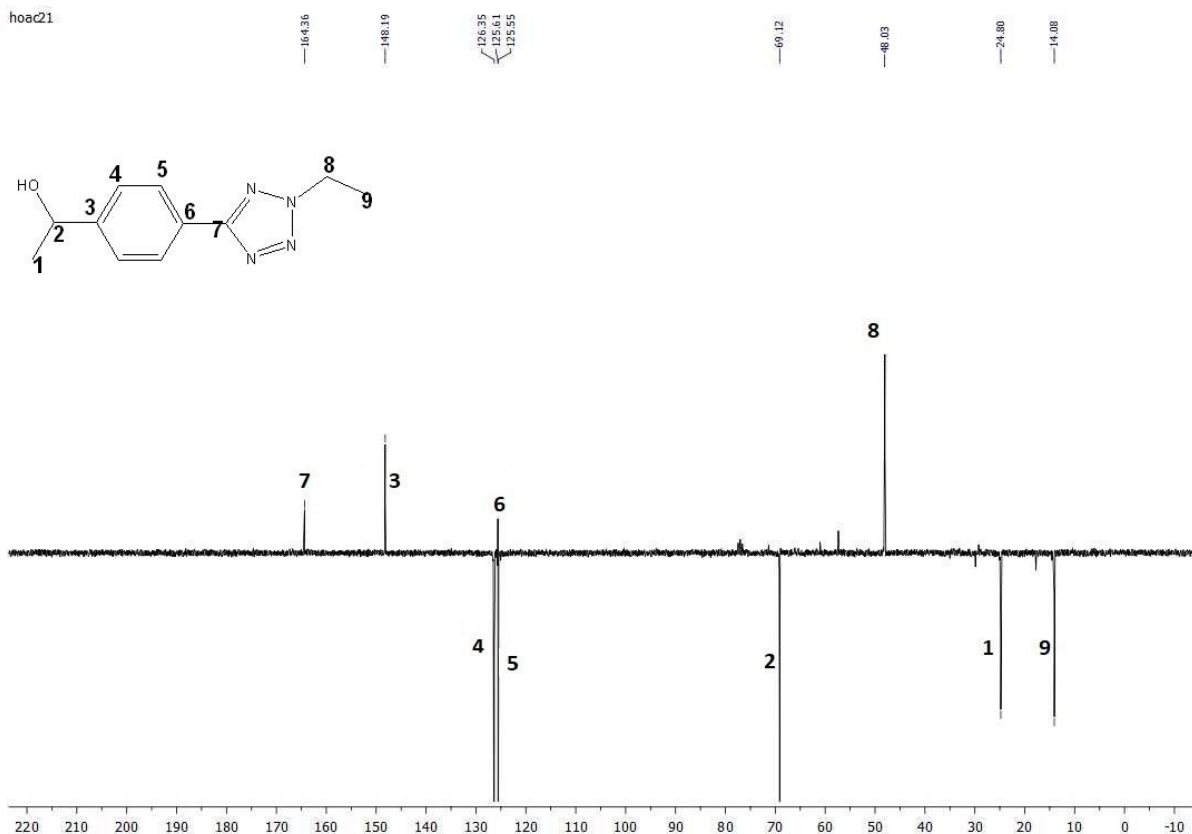


Figure S95: ¹³C-APT NMR spectrum of compound **BF4b**

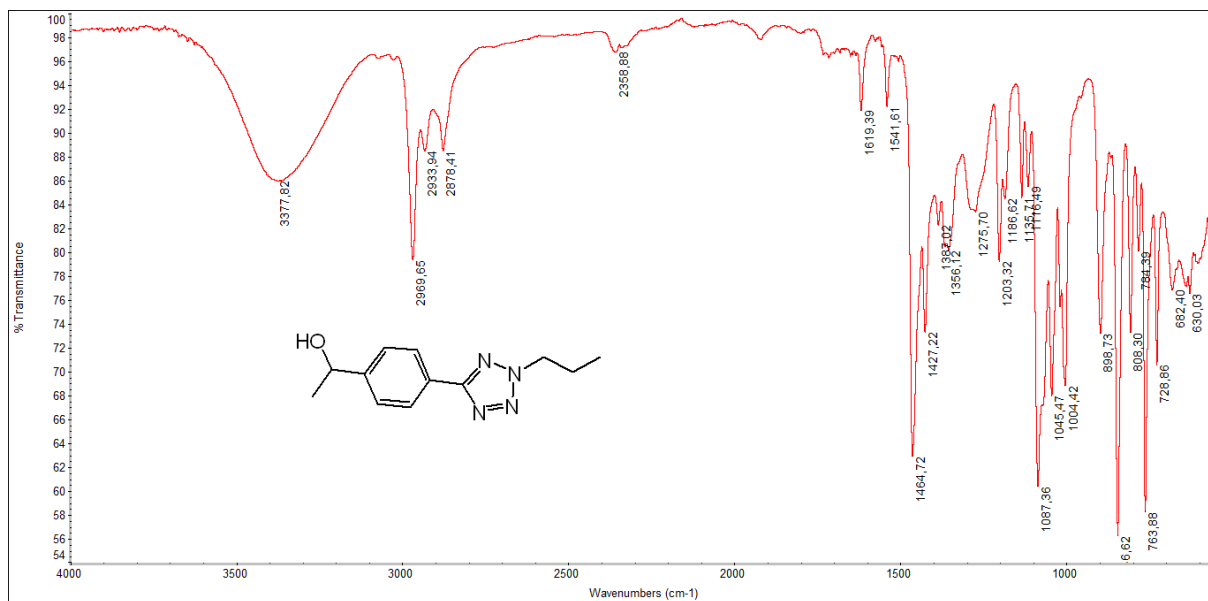


Figure S96: FT-IR spectrum of compound BF4c

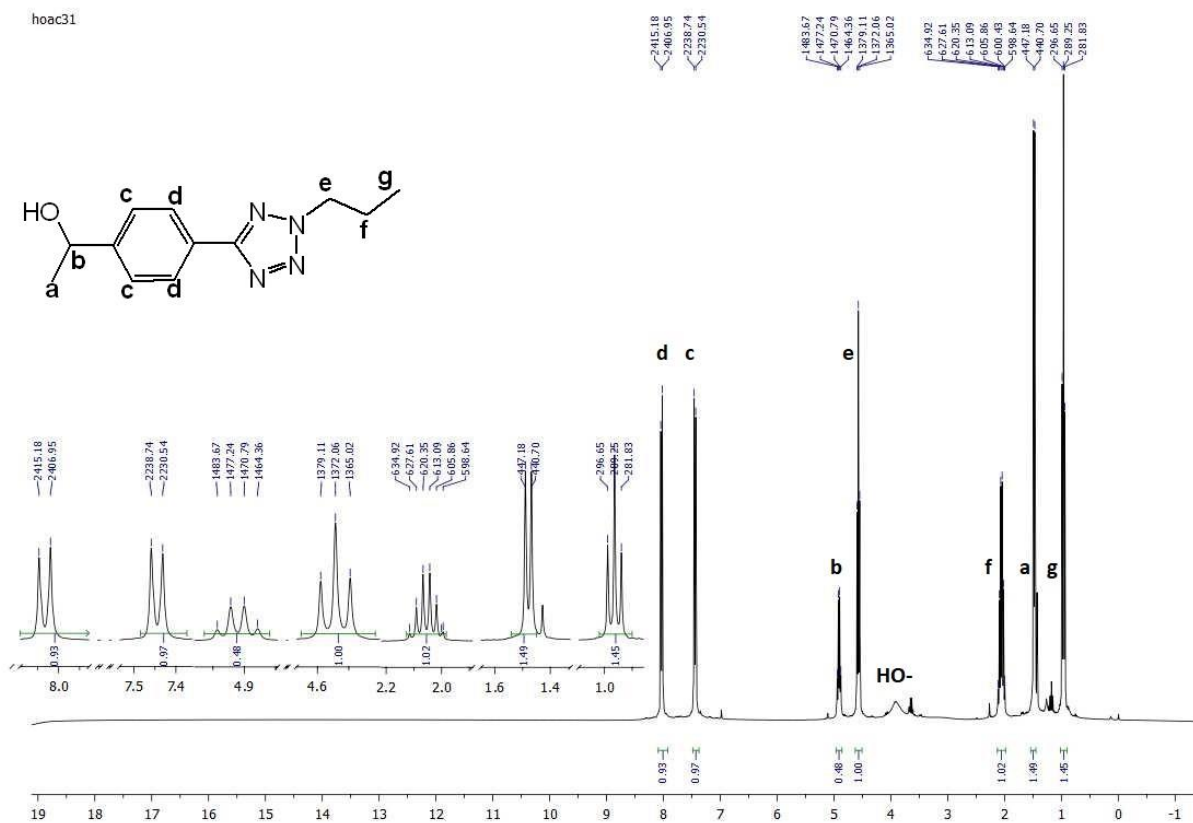


Figure S97: ¹H NMR spectrum of compound BF4c

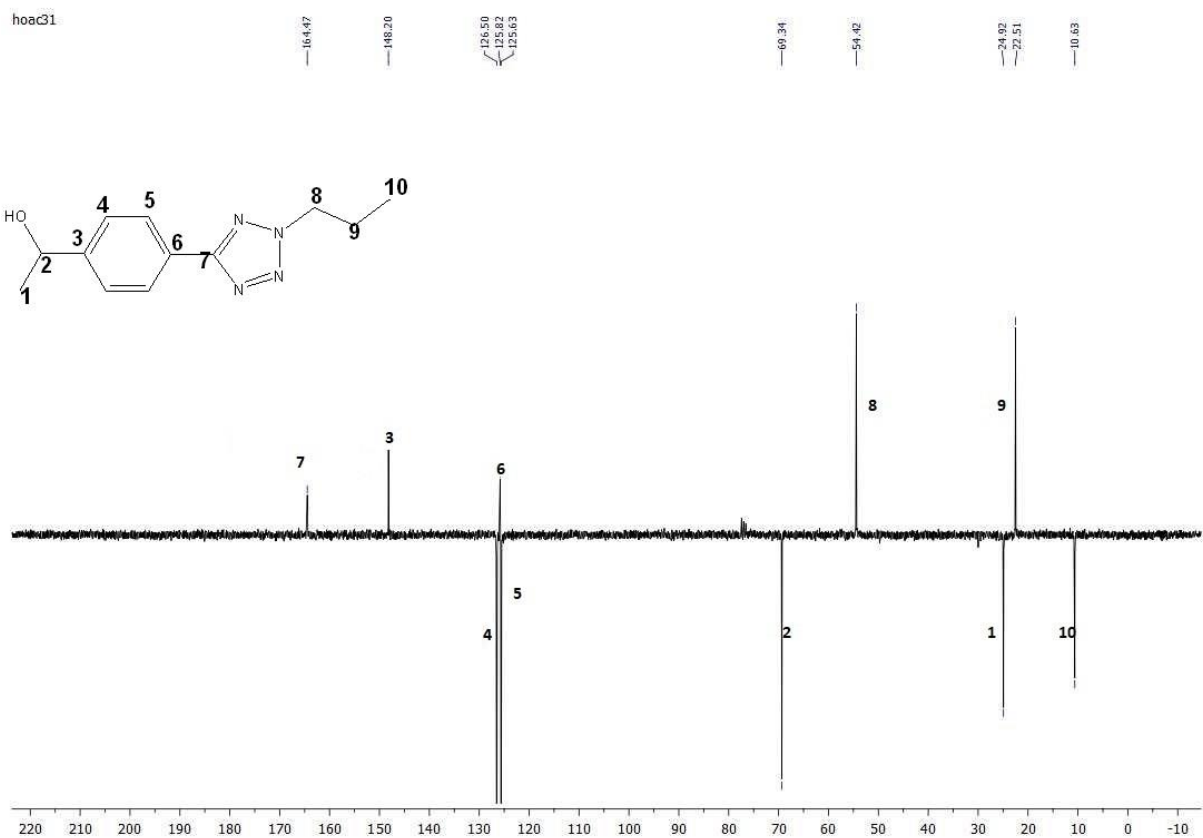


Figure S98: ^{13}C -APT NMR spectrum of compound BF4c

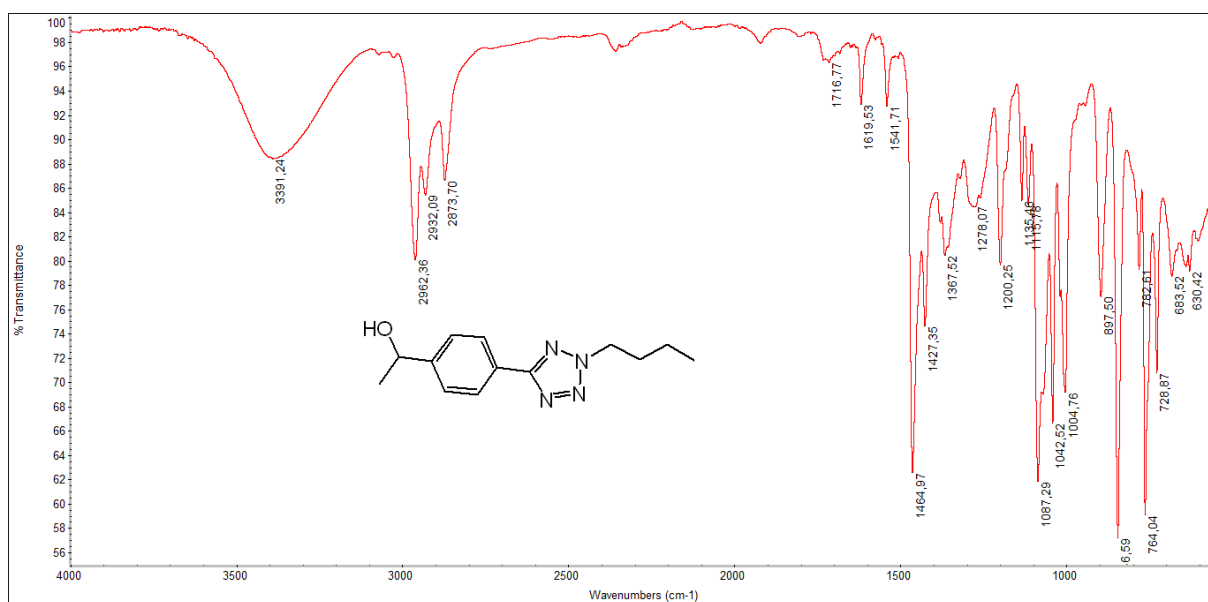


Figure S99: FT-IR spectrum of compound BF4d

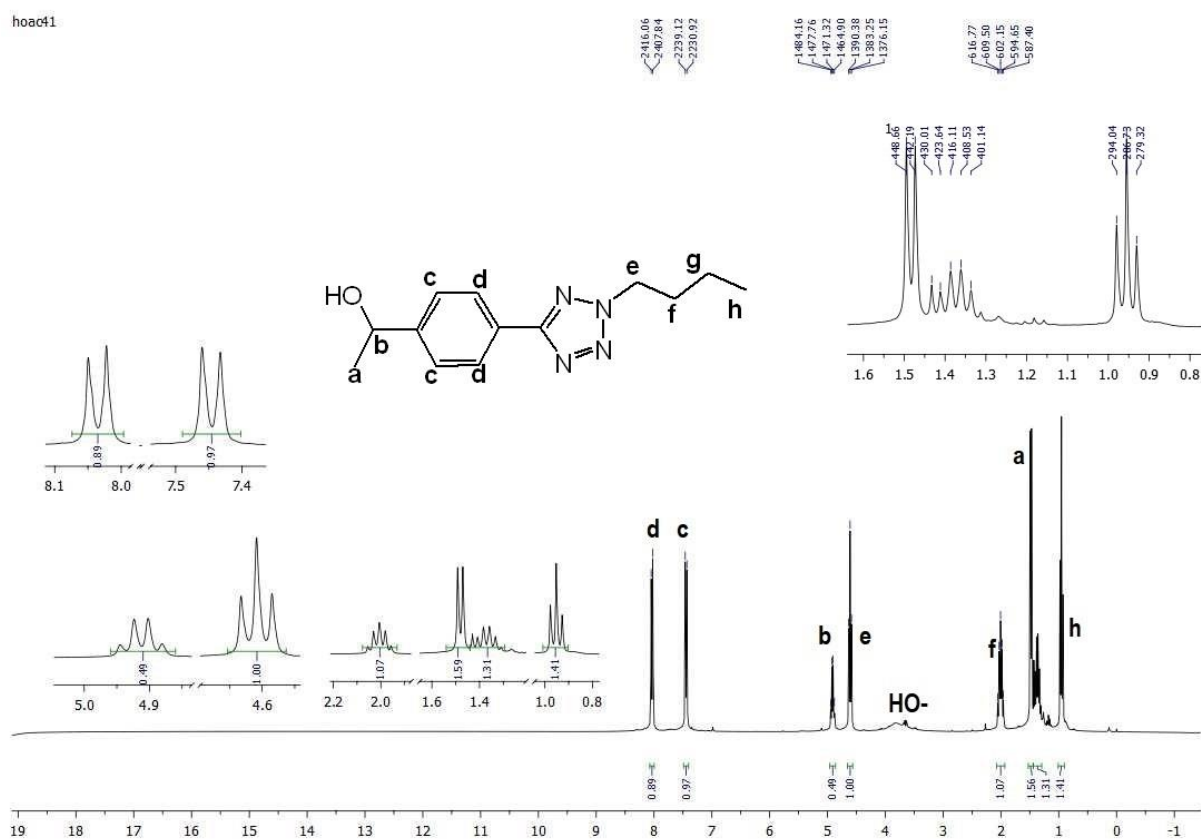
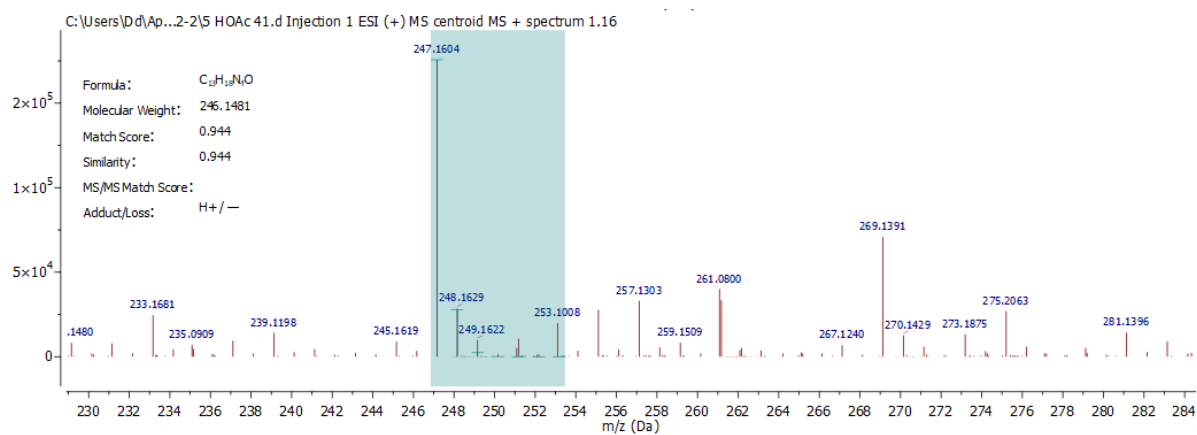
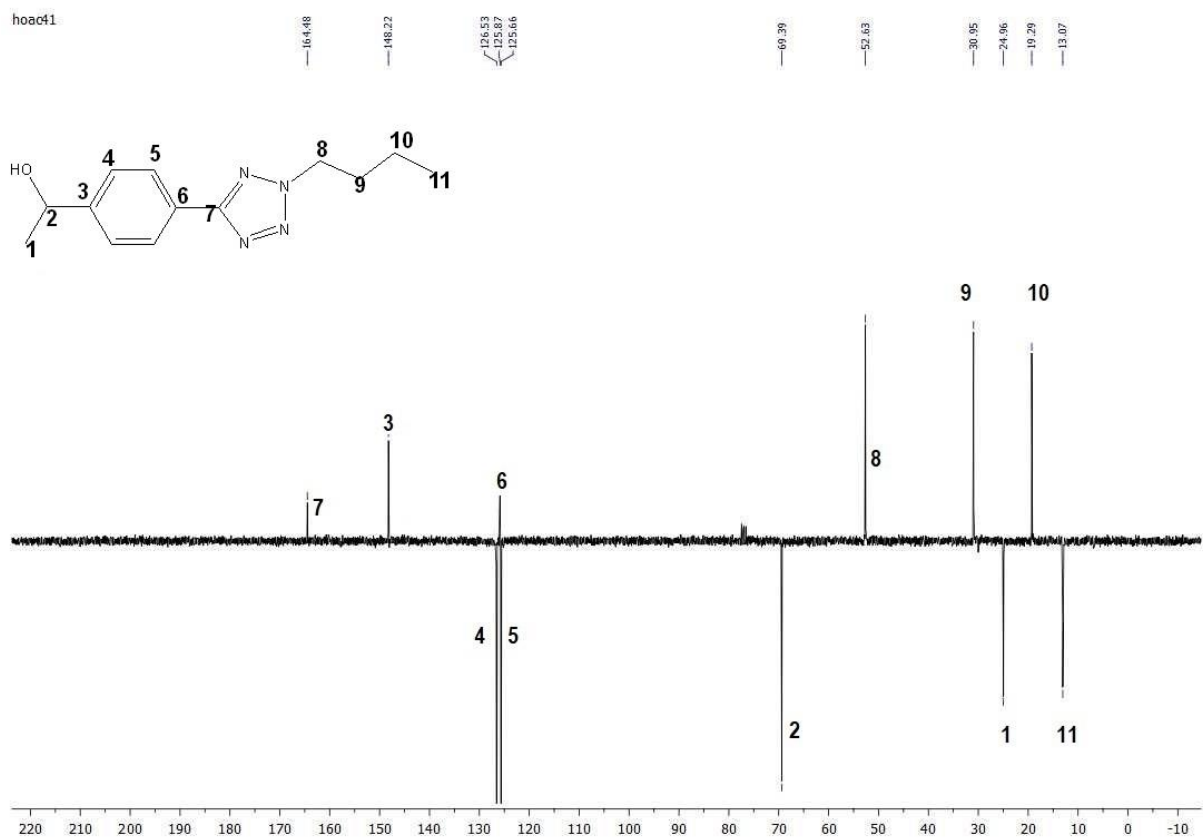


Figure S100: ^1H NMR spectrum of compound BF4d



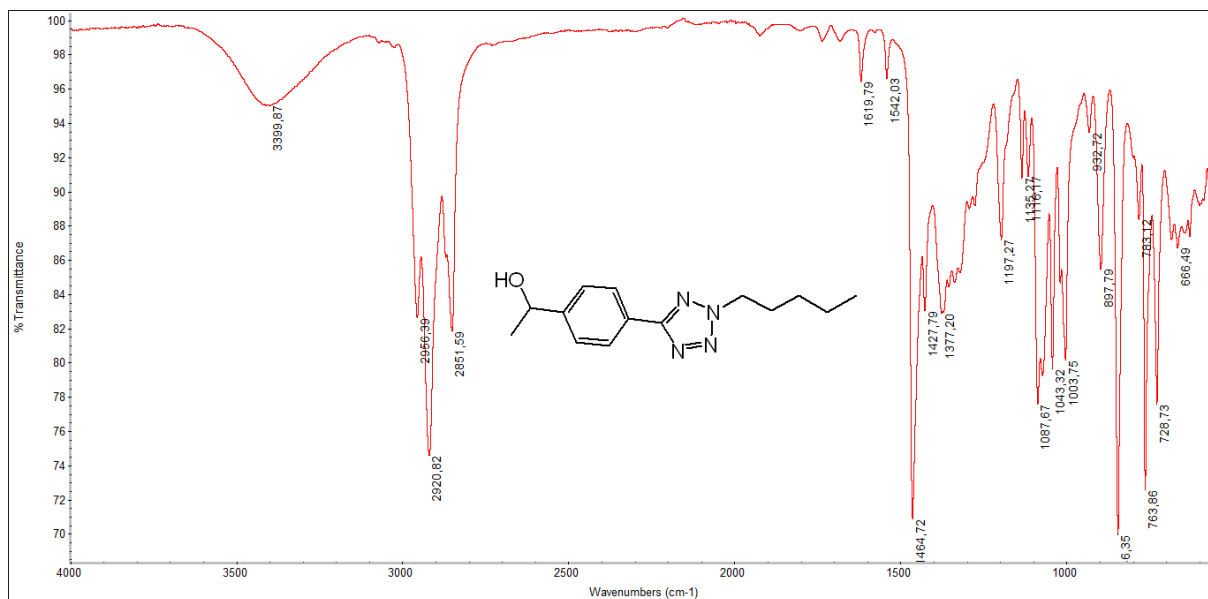


Figure S103: FT-IR spectrum of compound BF4e

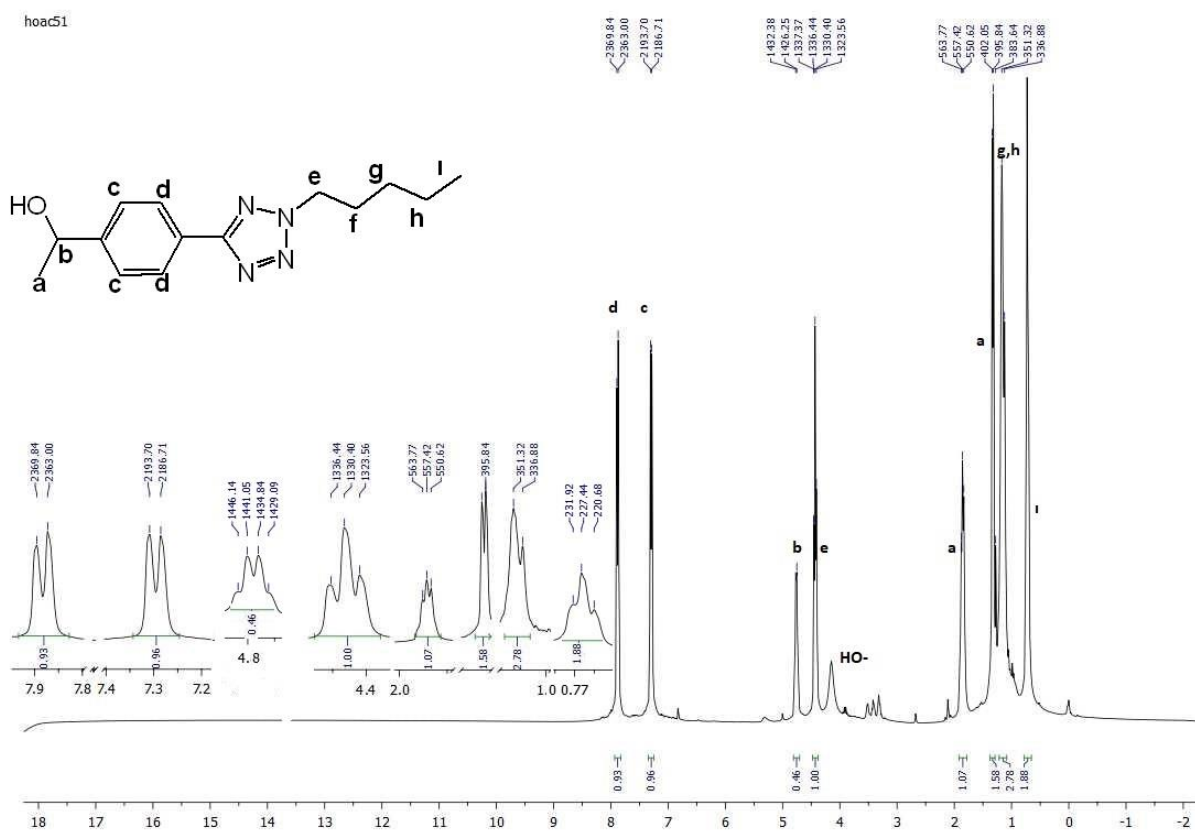


Figure S104: ¹H NMR spectrum of compound BF4e

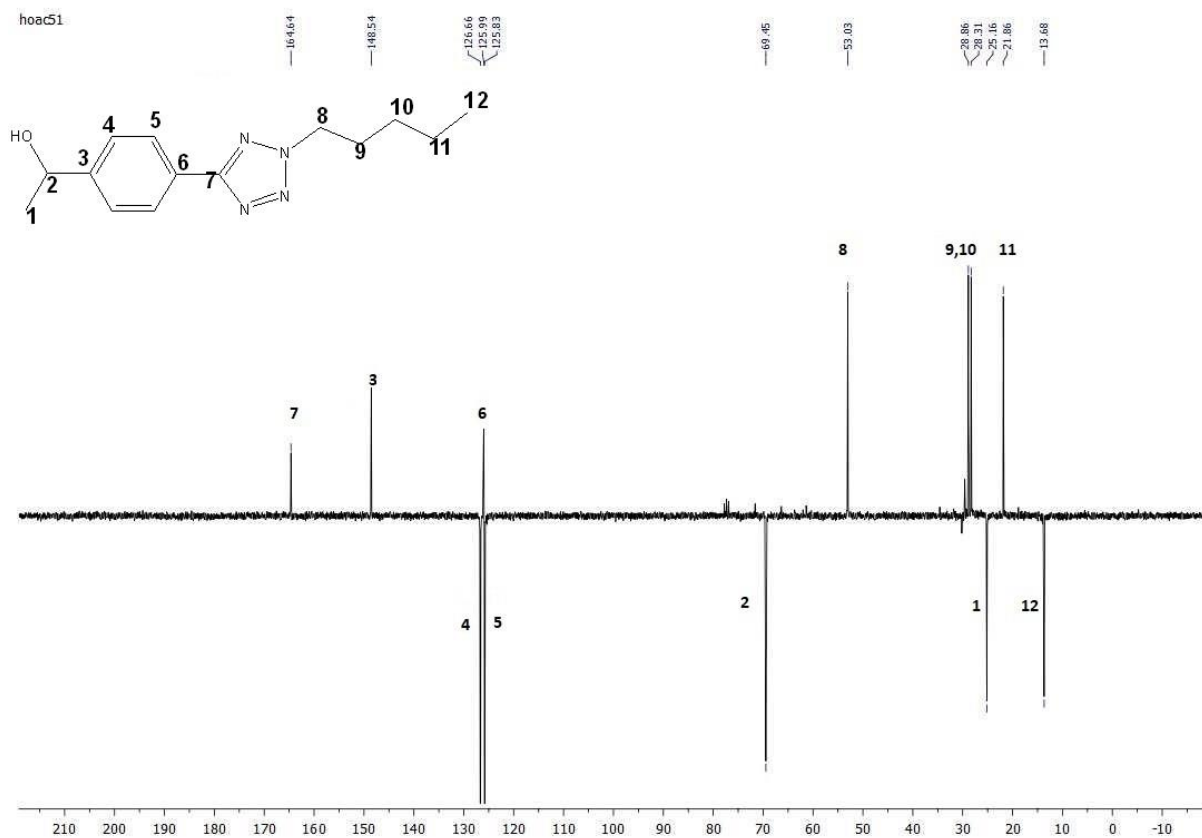


Figure S105 ^{13}C -APT NMR spectrum of compound **BF4e**

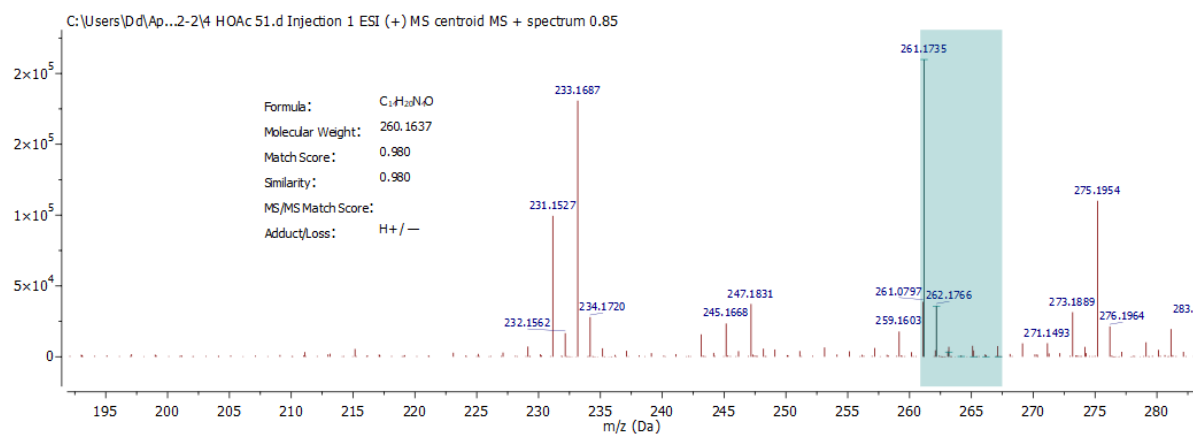


Figure S106: HR-MS spectrum of compound **BF4e**

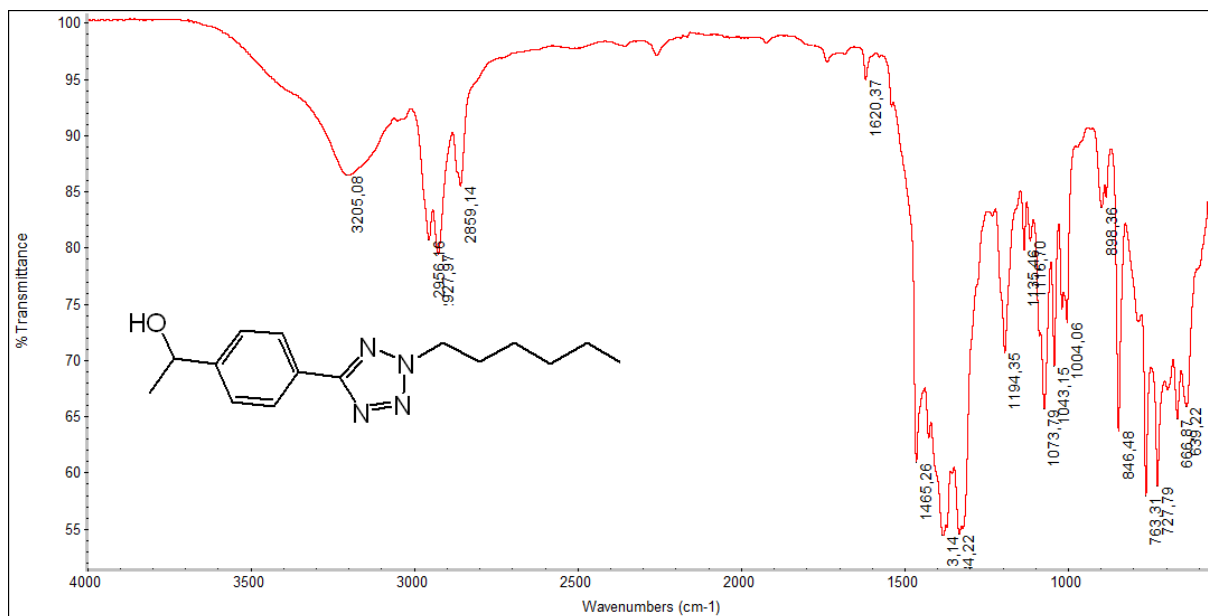


Figure S107: FT-IR spectrum of compound **BF4f**

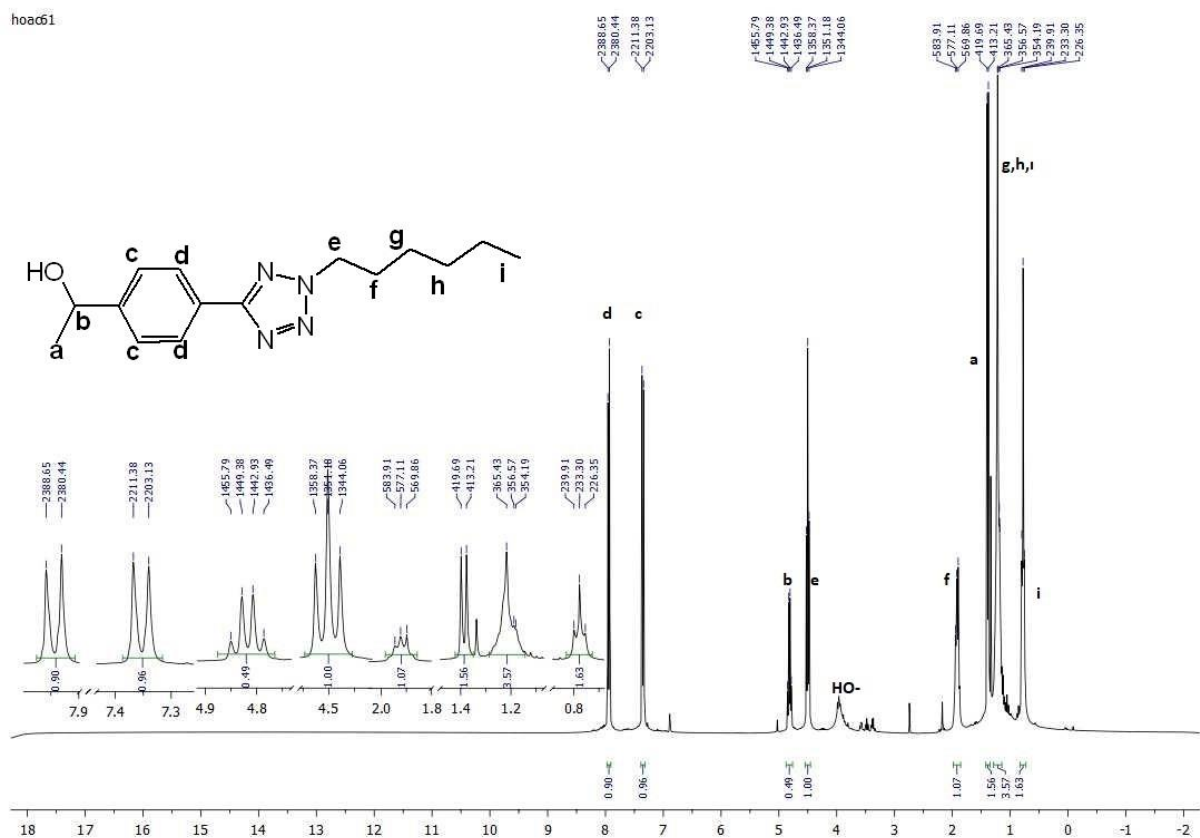


Figure S108: ^1H NMR spectrum of compound **BF4f**

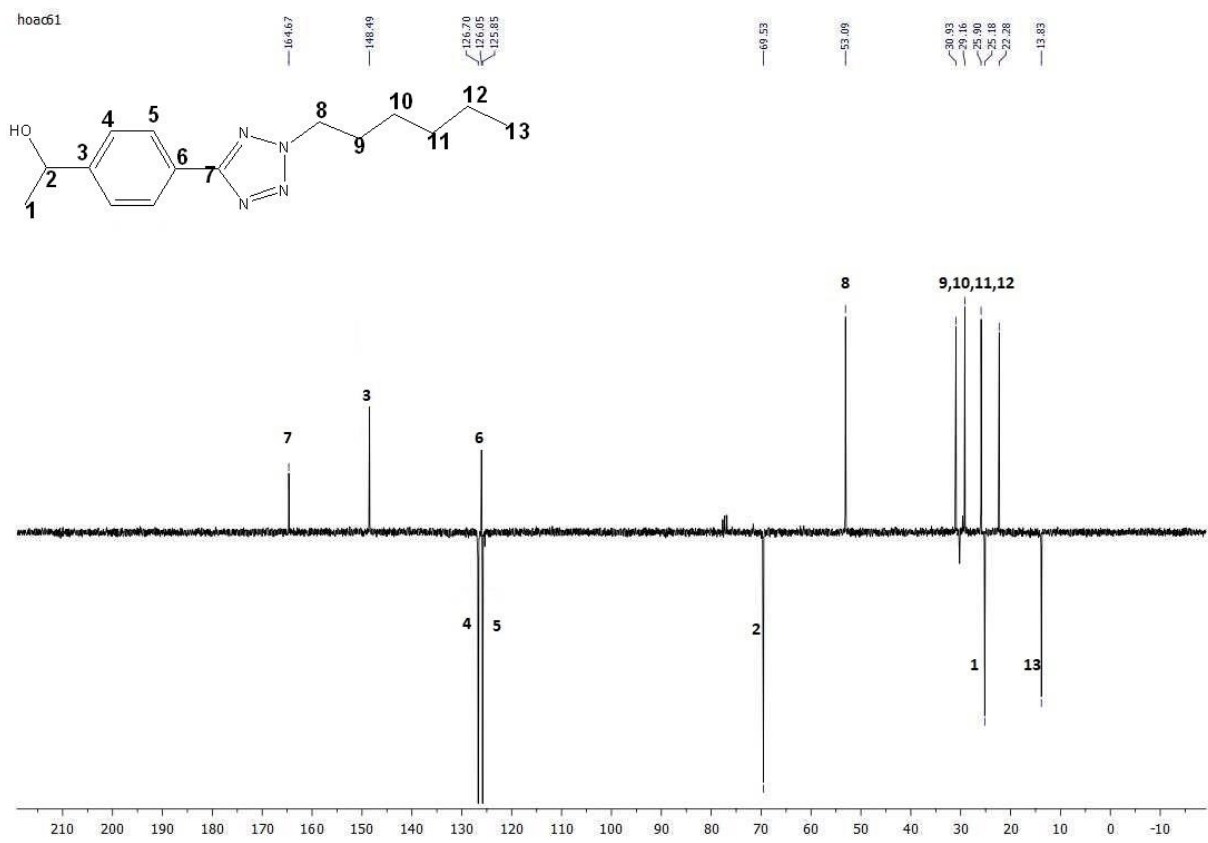


Figure S109: ^{13}C -APT NMR spectrum of compound **BF4f**

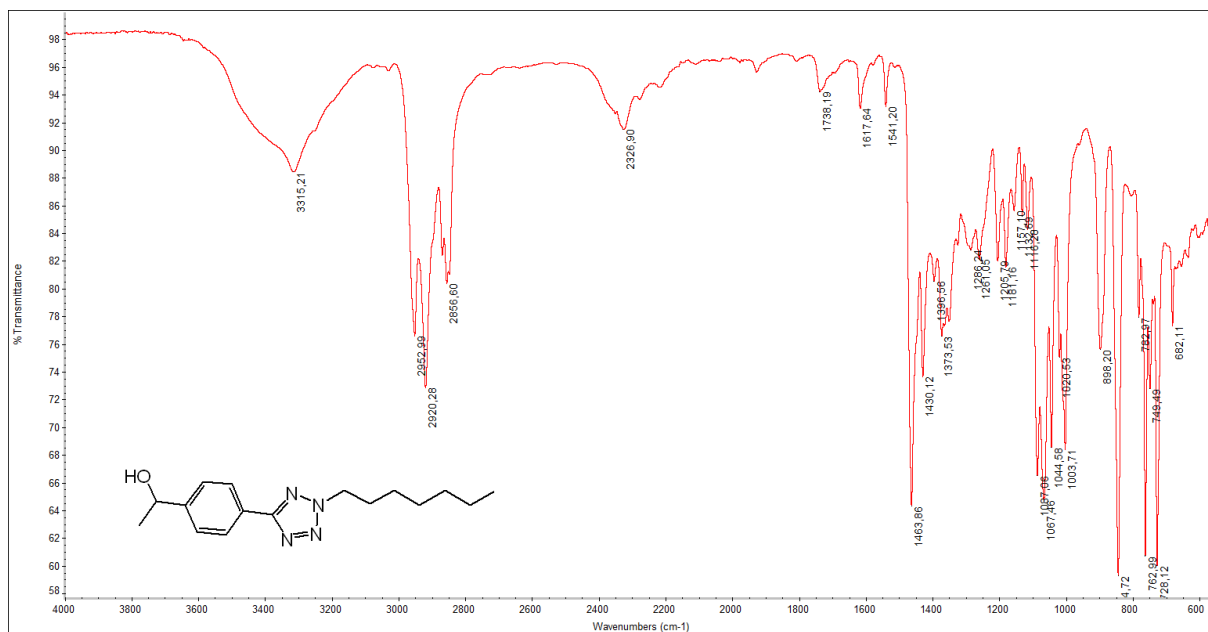


Figure S110: FT-IR spectrum of compound BF4g

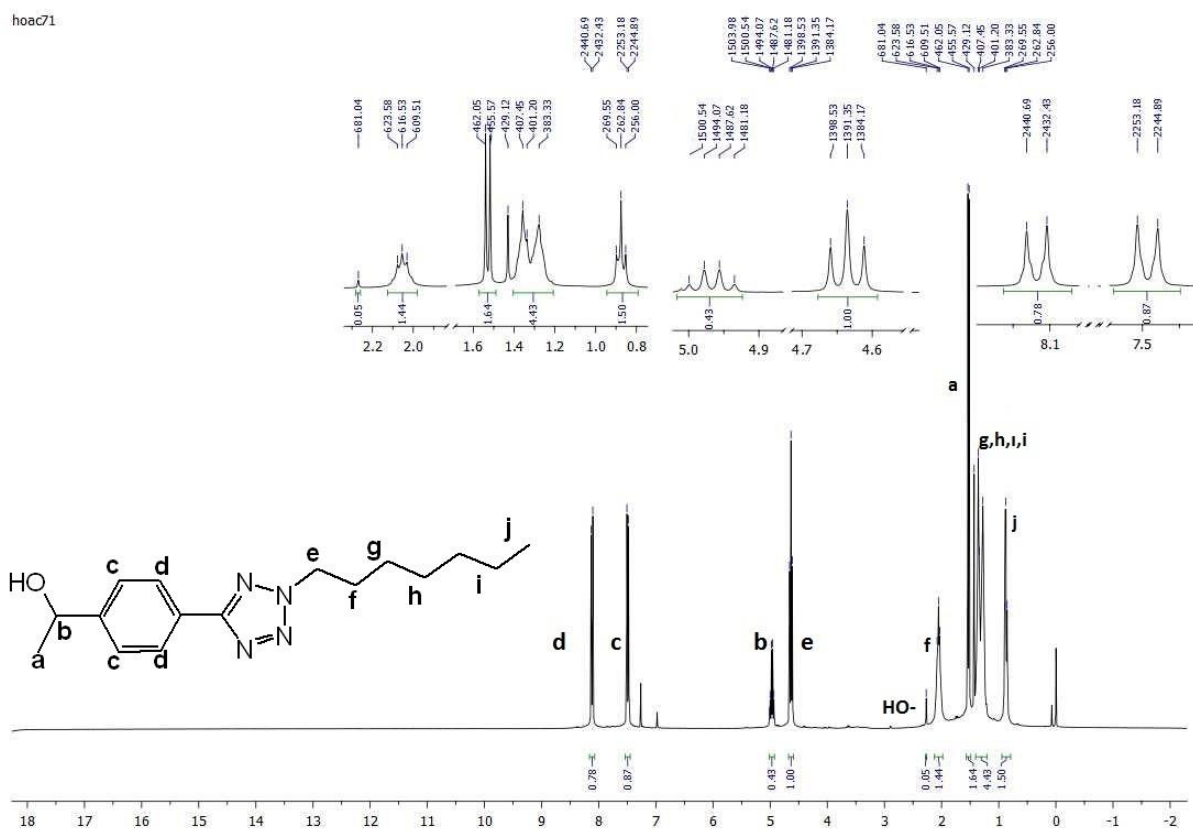


Figure S111: ¹H NMR spectrum of compound BF4g

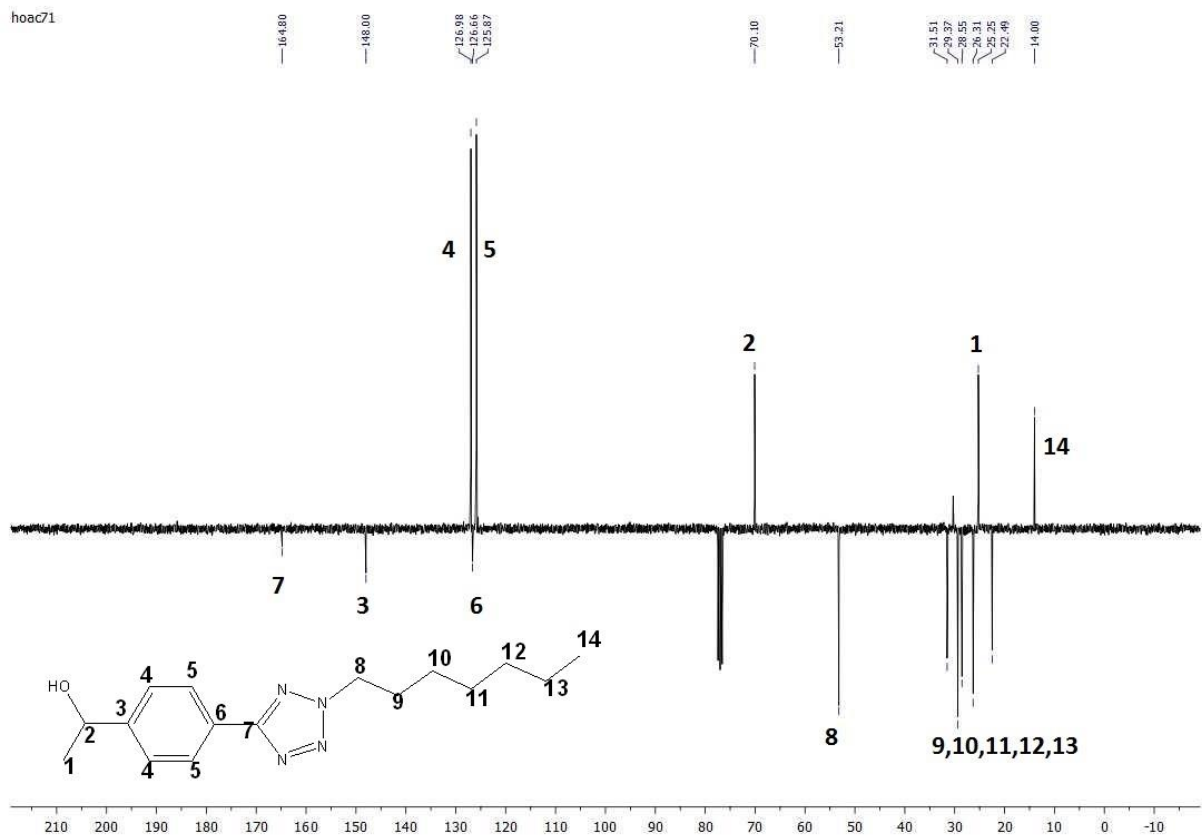


Figure S112: ^{13}C -APT NMR spectrum of compound **BF4g**

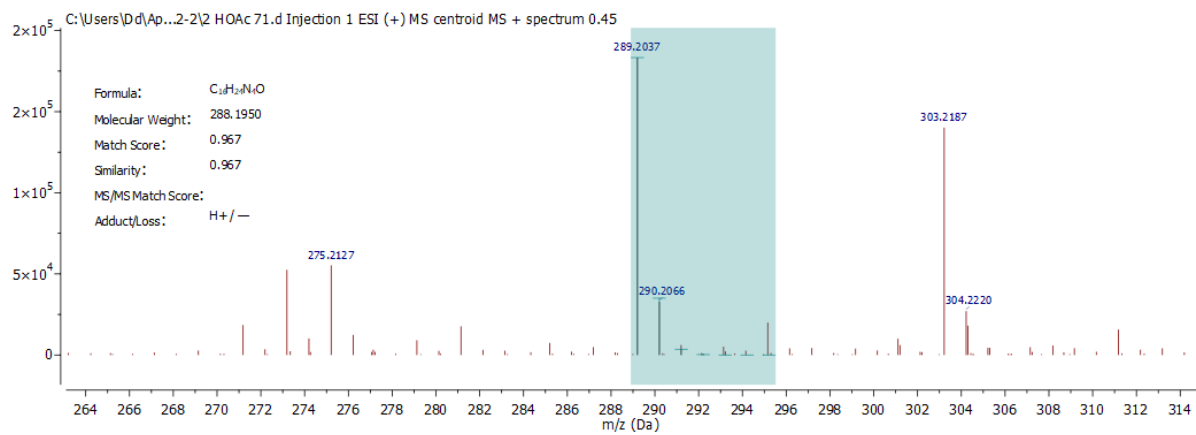


Figure S113: HR-MS spectrum of compound **BF4g**

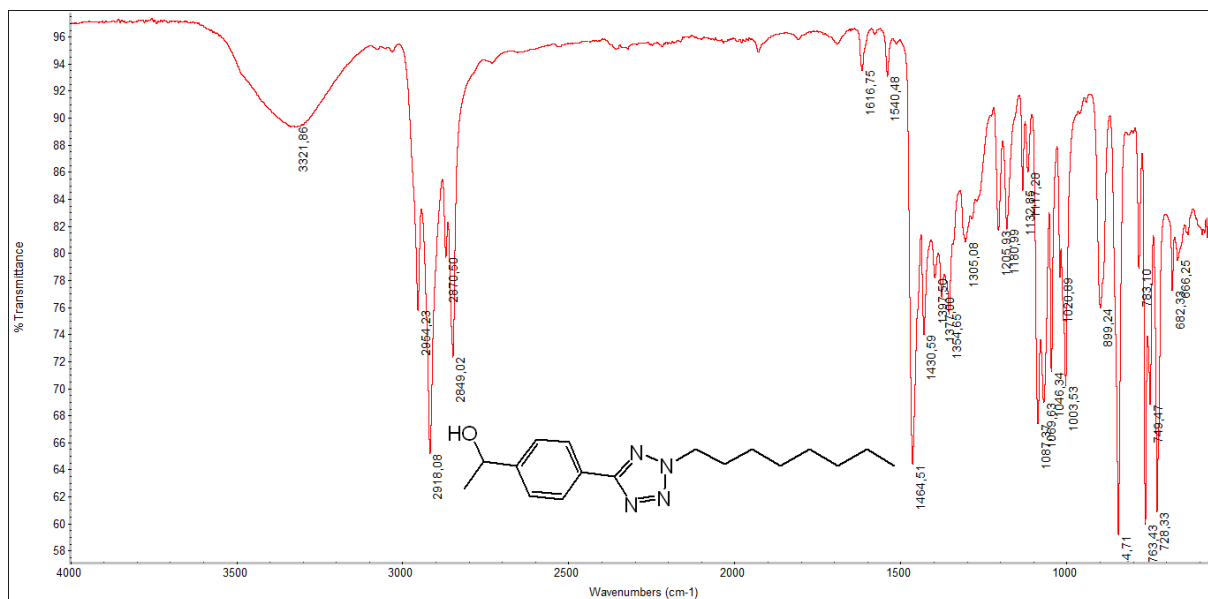


Figure S114: FT-IR spectrum of compound BF4h

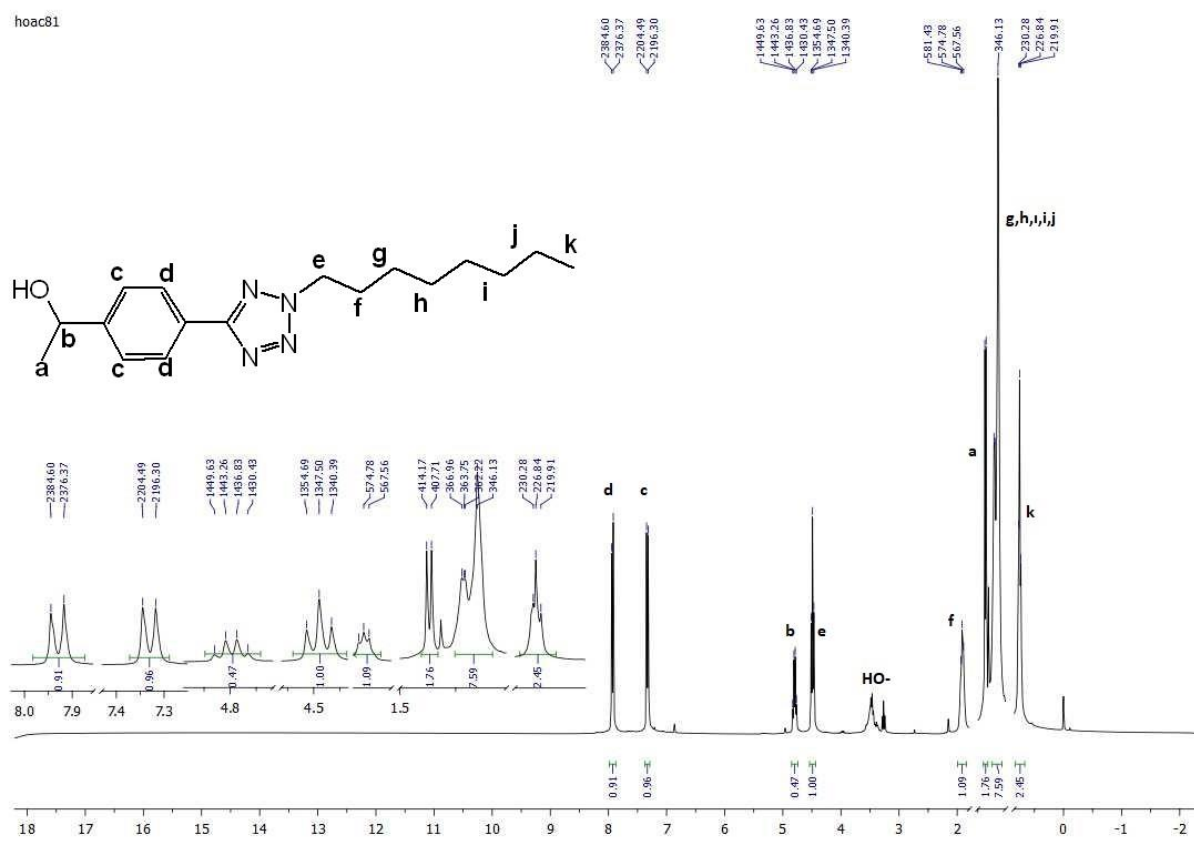


Figure S115: ¹H NMR spectrum of compound BF4h

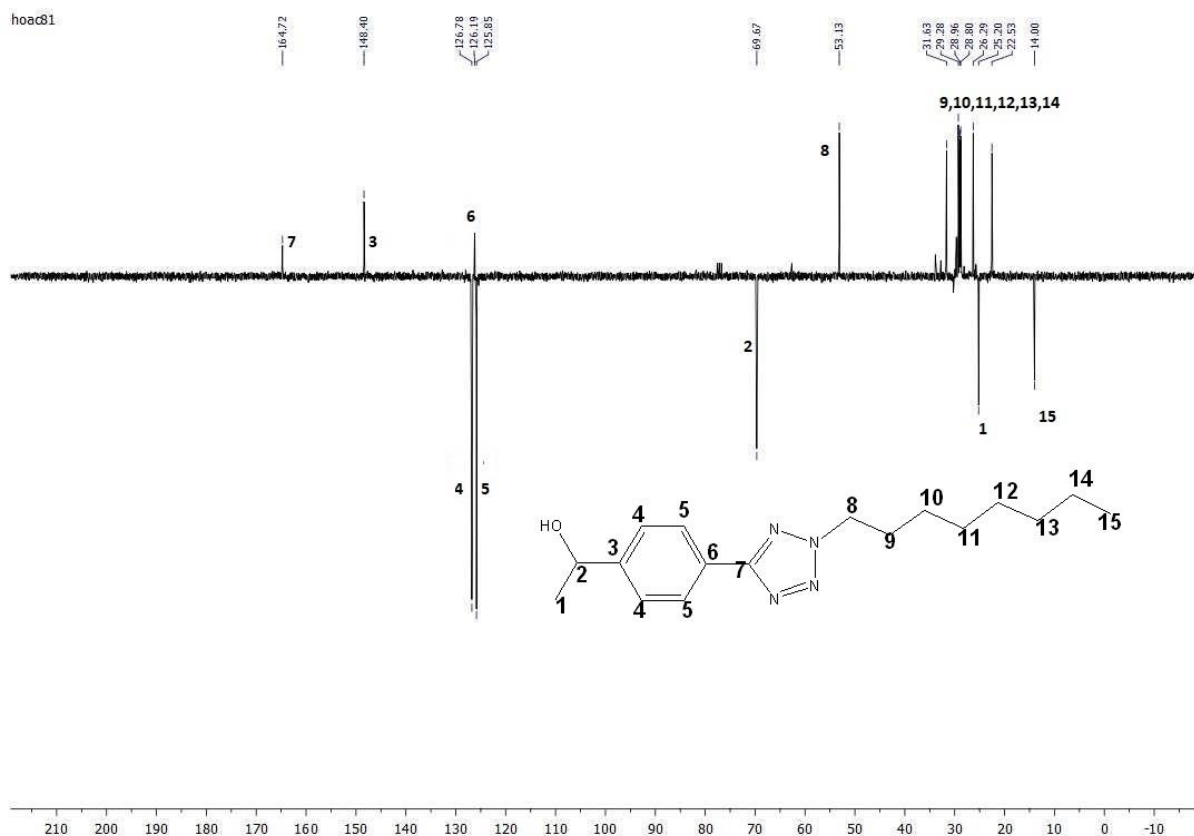


Figure S116: ^{13}C -APT NMR spectrum of compound **BF4h**

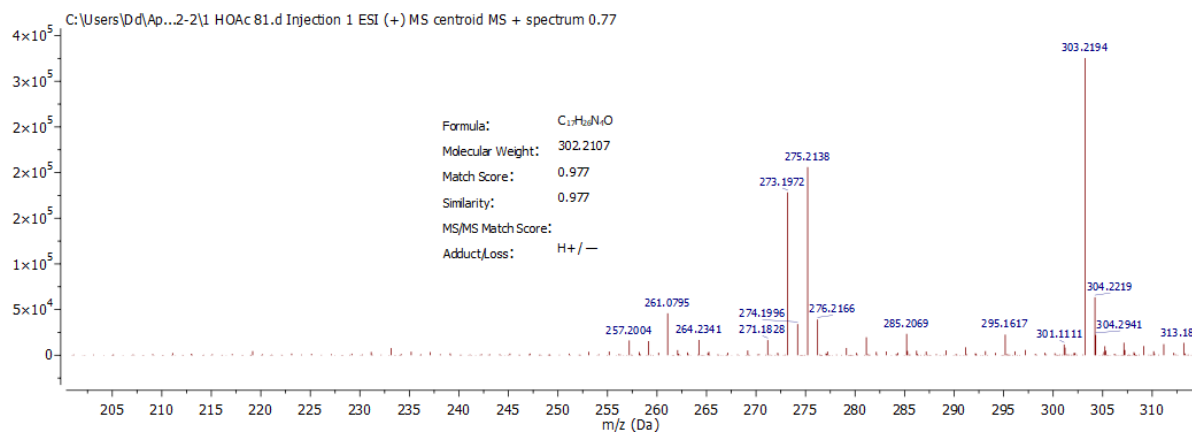


Figure S117: HR-MS spectrum of compound **BF4h**

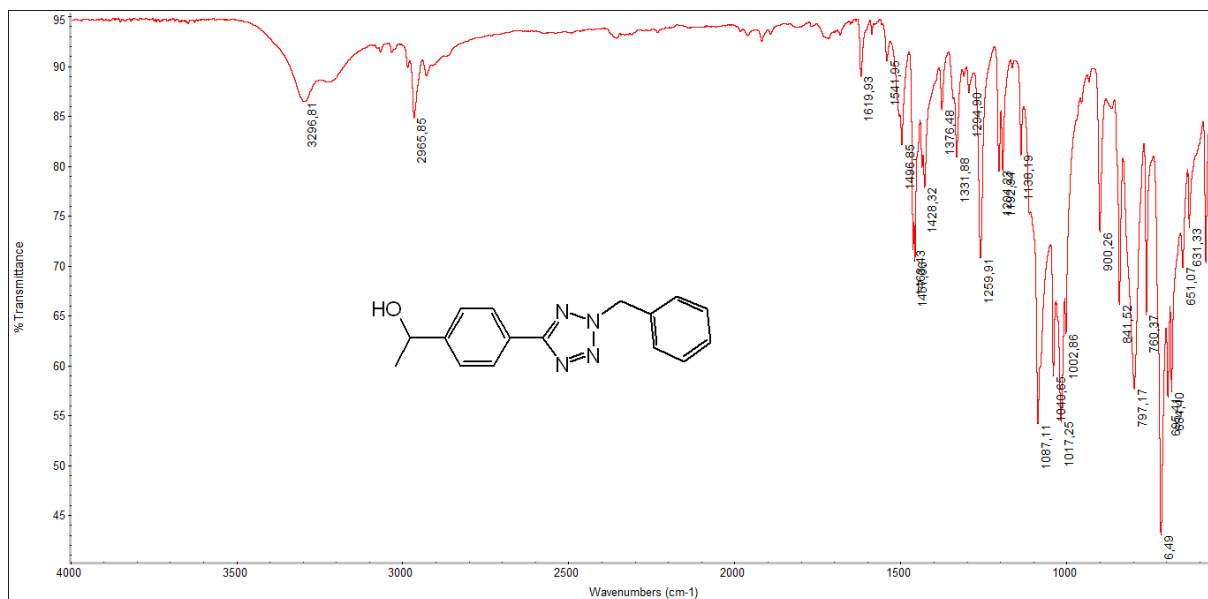


Figure S118: FT-IR spectrum of compound BF4i

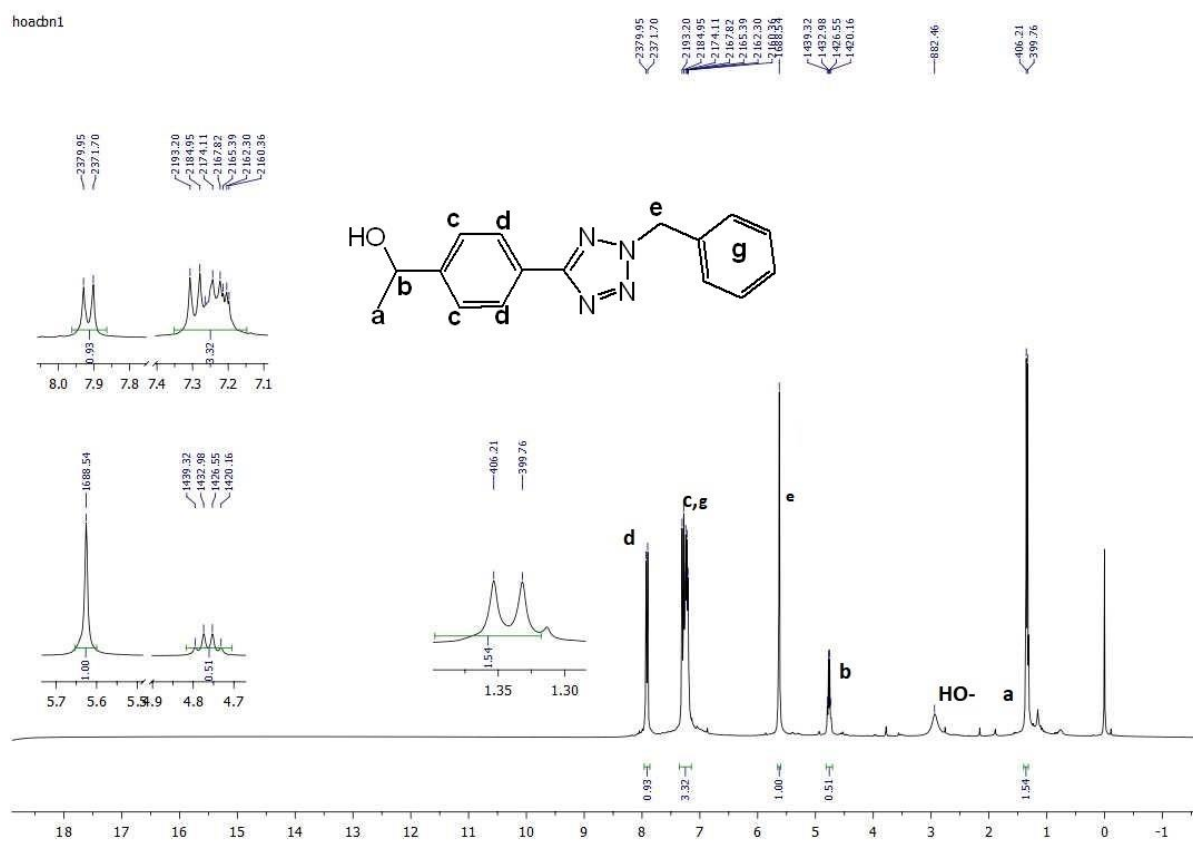
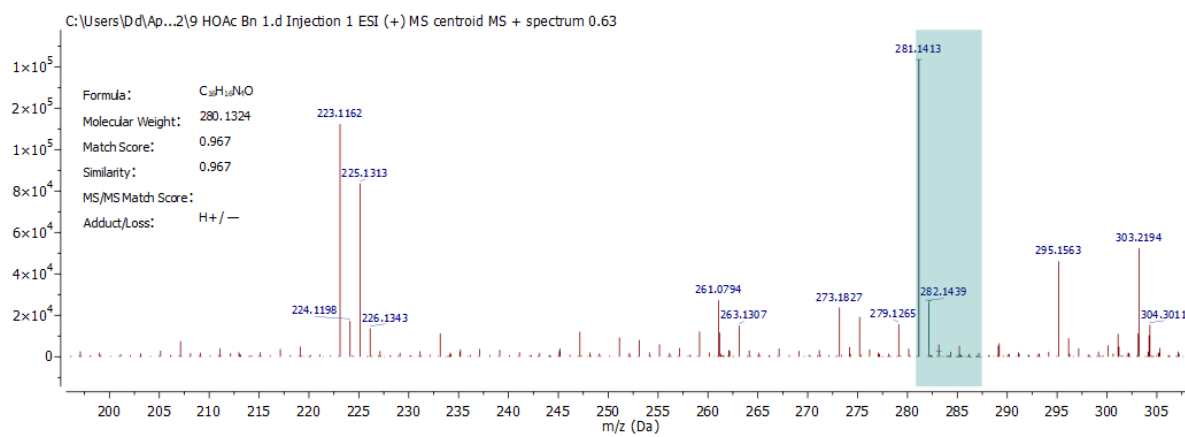
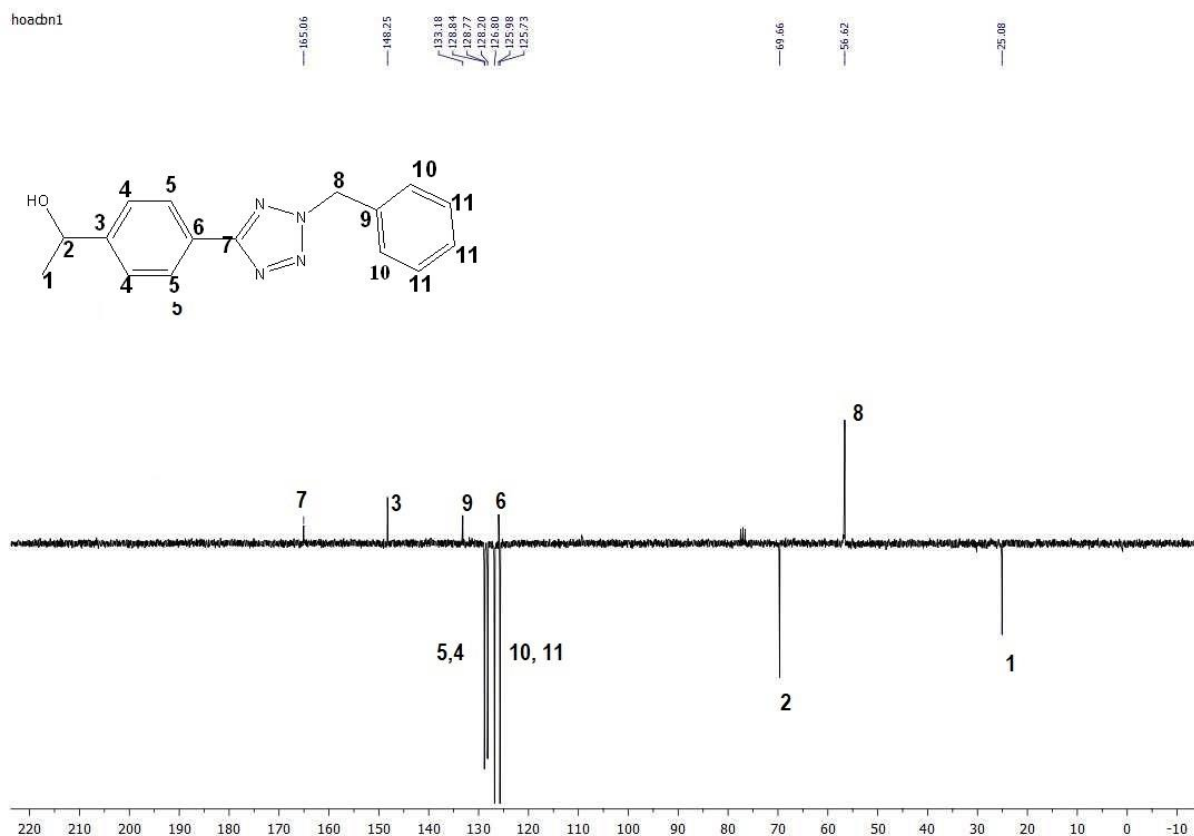


Figure S119: ¹H NMR spectrum of compound BF4i



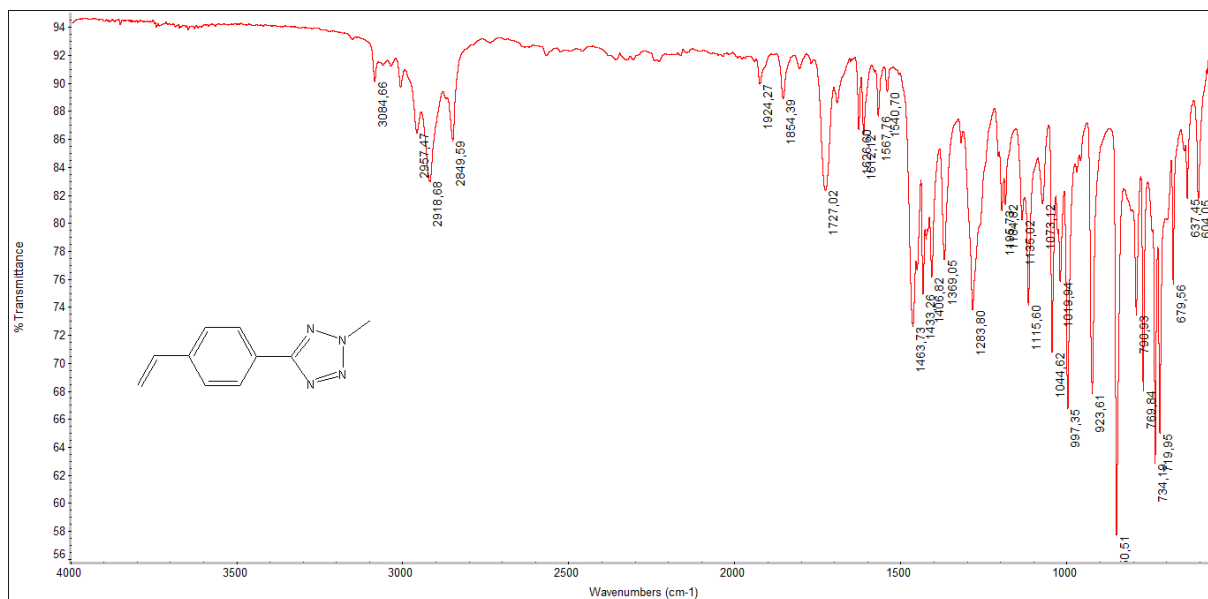


Figure S122: FT-IR spectrum of compound BF5a

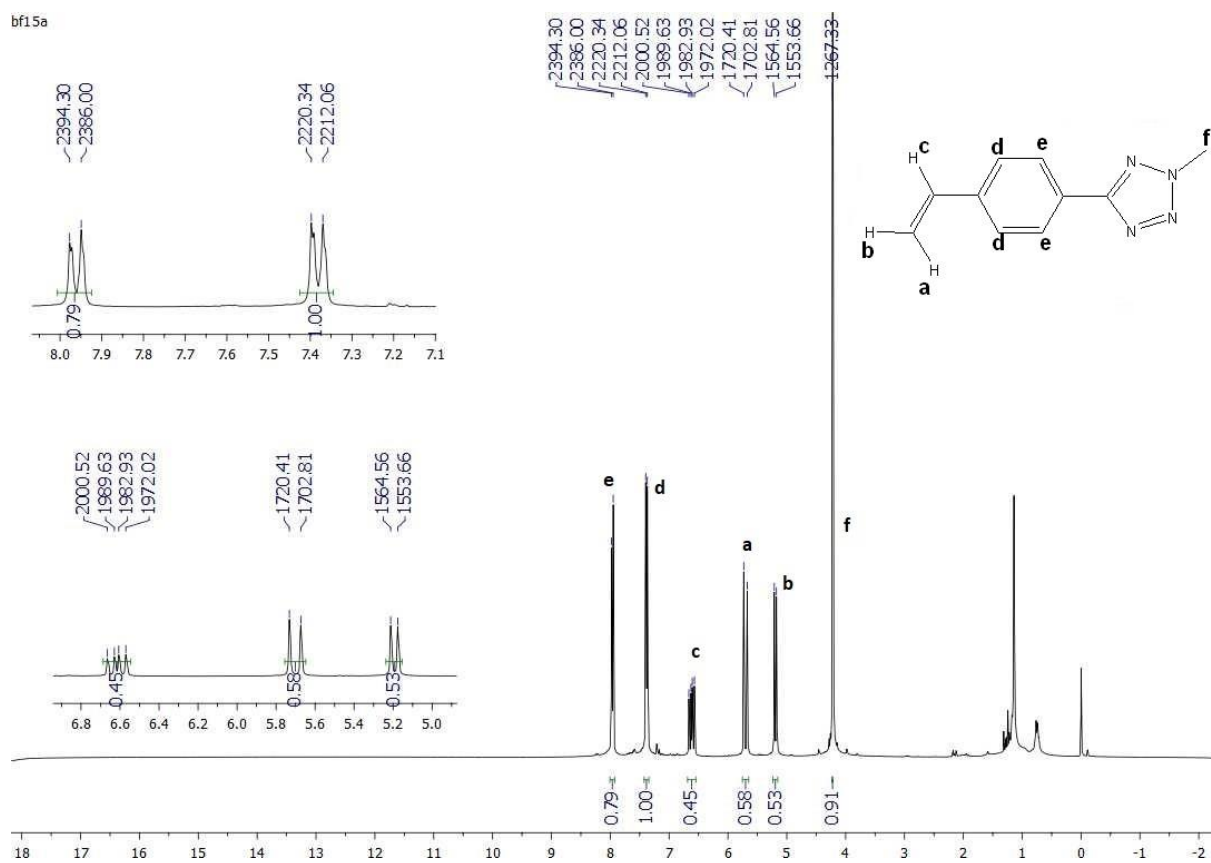


Figure S123: ¹H NMR spectrum of compound BF5a

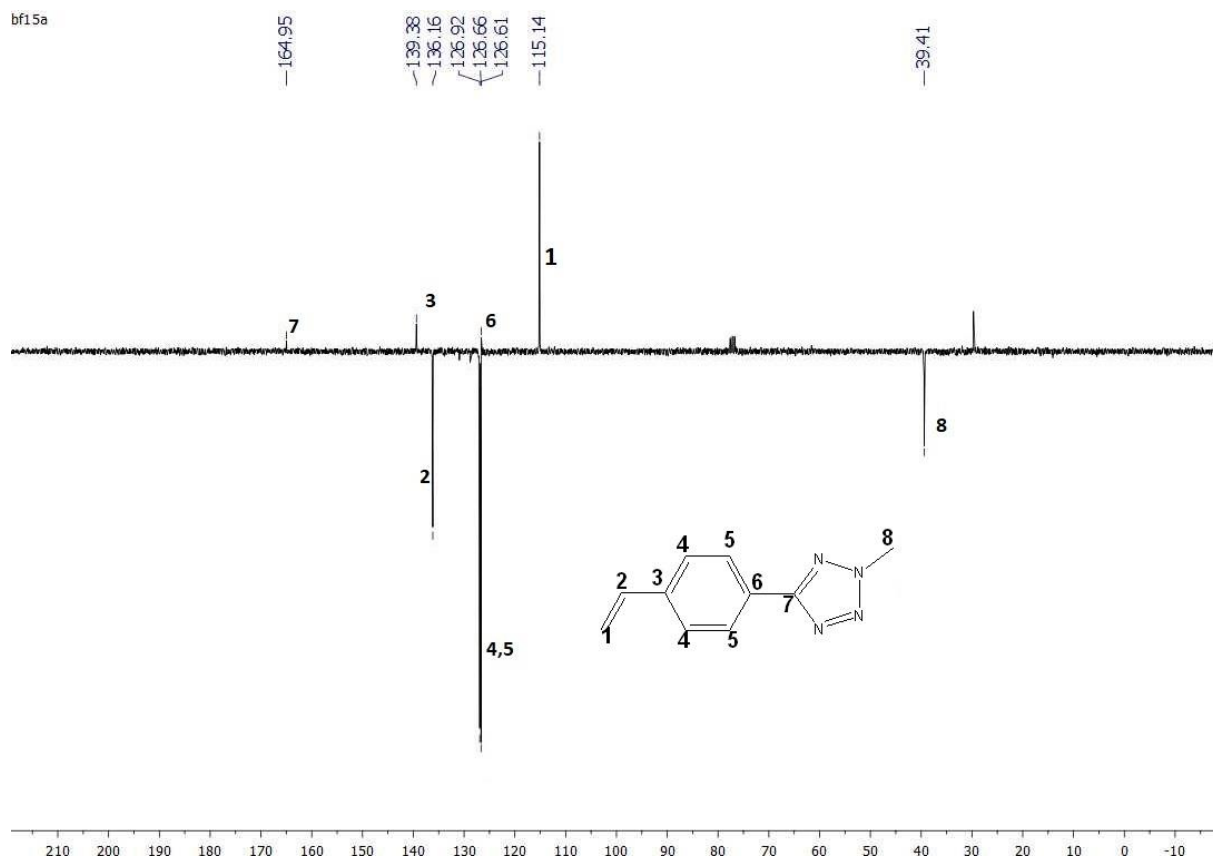


Figure 124 ^{13}C -APT NMR spectrum of compound BF5a

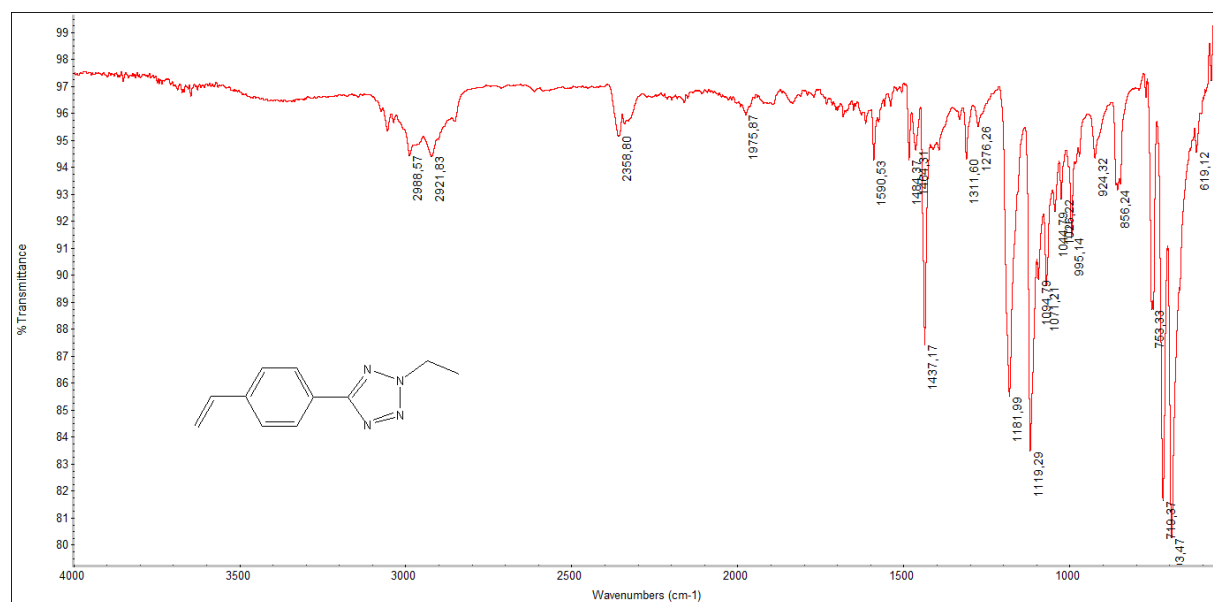


Figure S125: FT-IR spectrum of compound BF5b

bf15b.1.2.1r

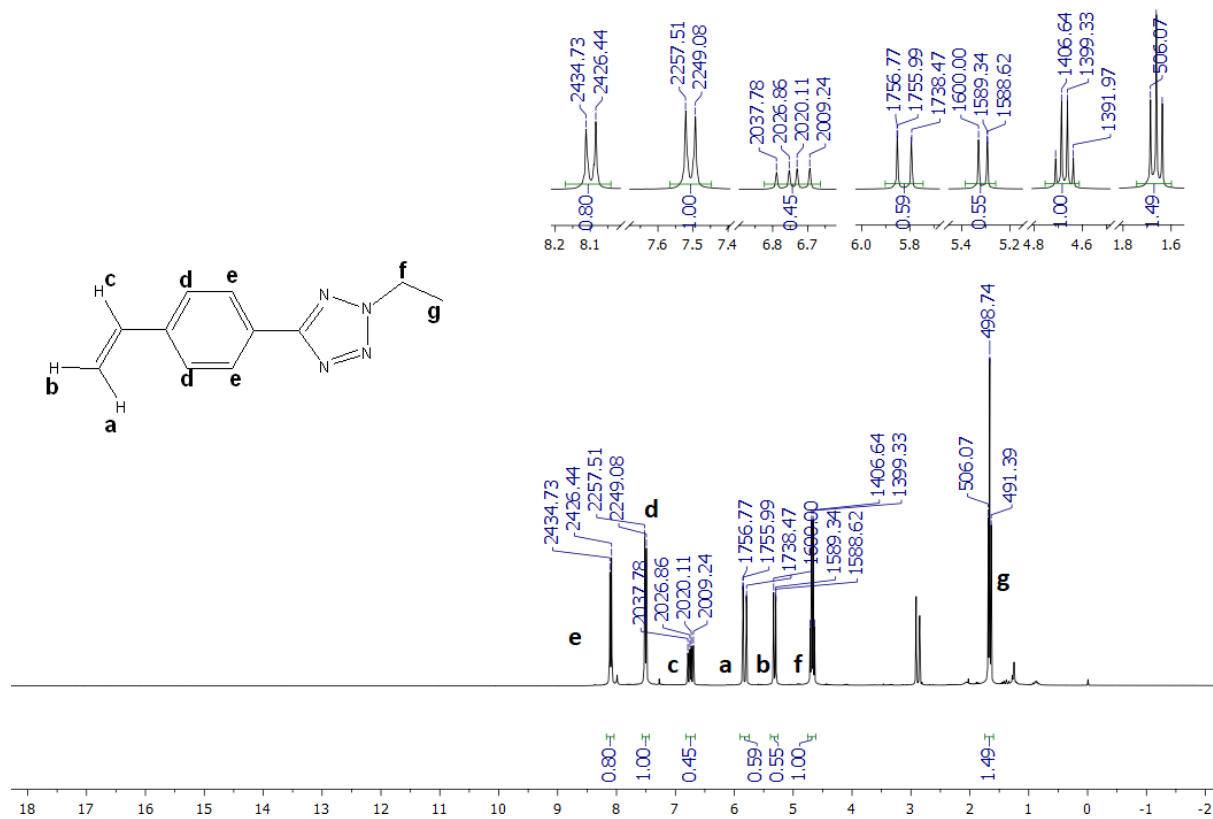


Figure S126: ^1H NMR spectrum of compound BF5b

bf15b.14.2.1r

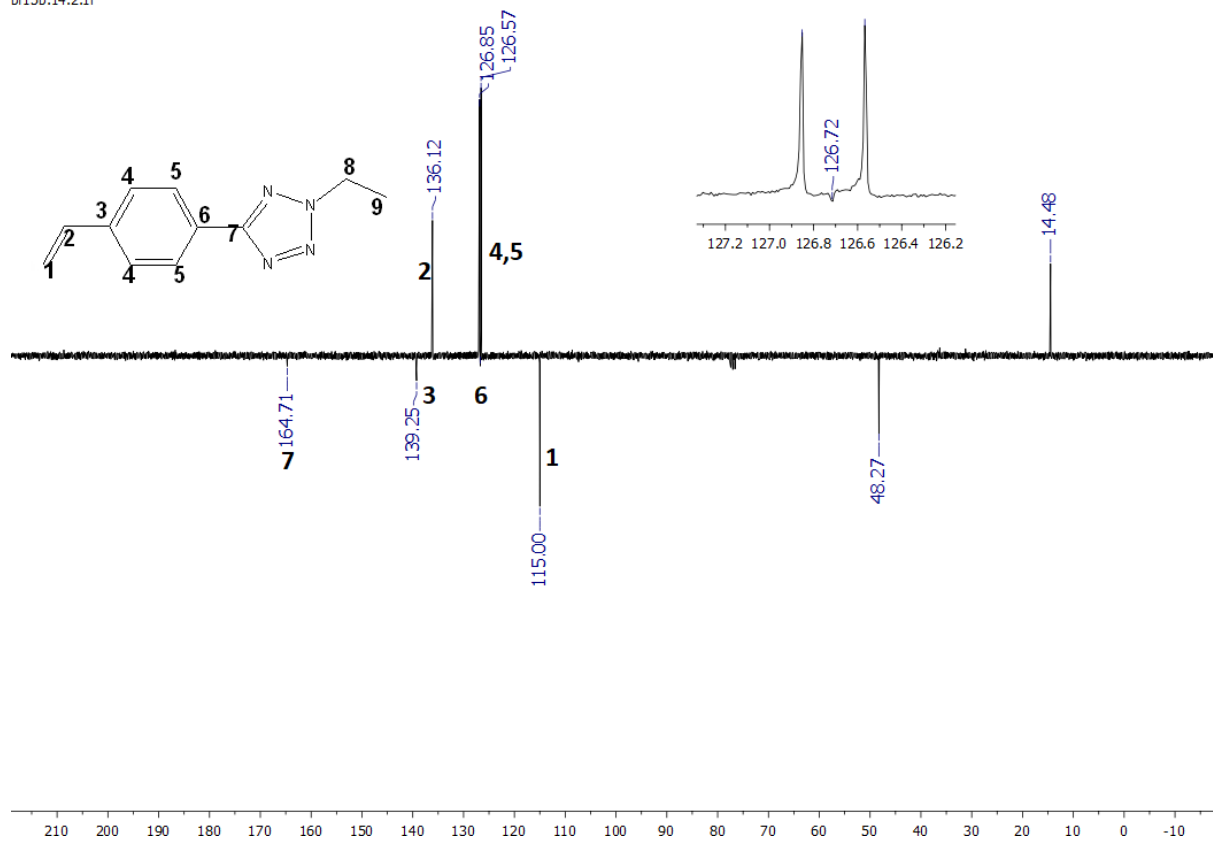


Figure S127: ^{13}C -APT NMR spectrum of compound BF5b

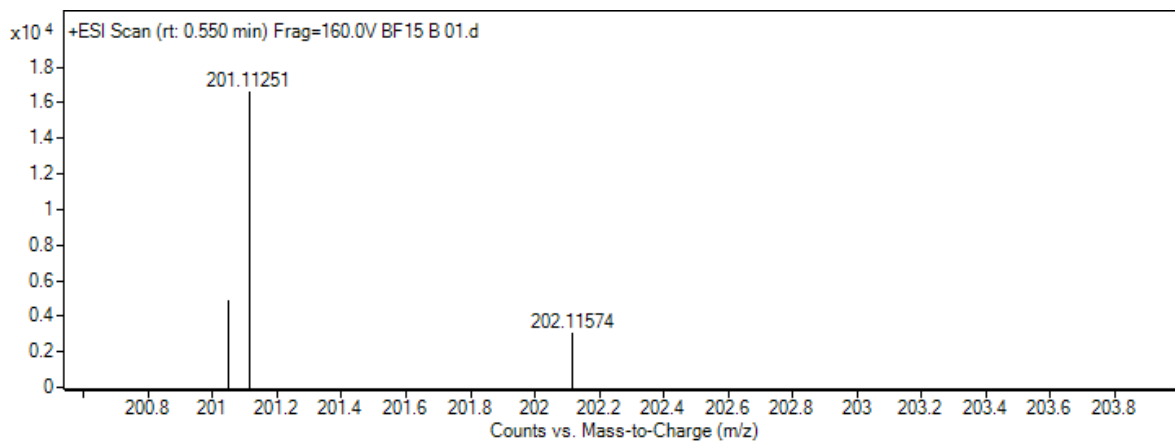


Figure S128: HR-MS spectrum of compound **BF5b**

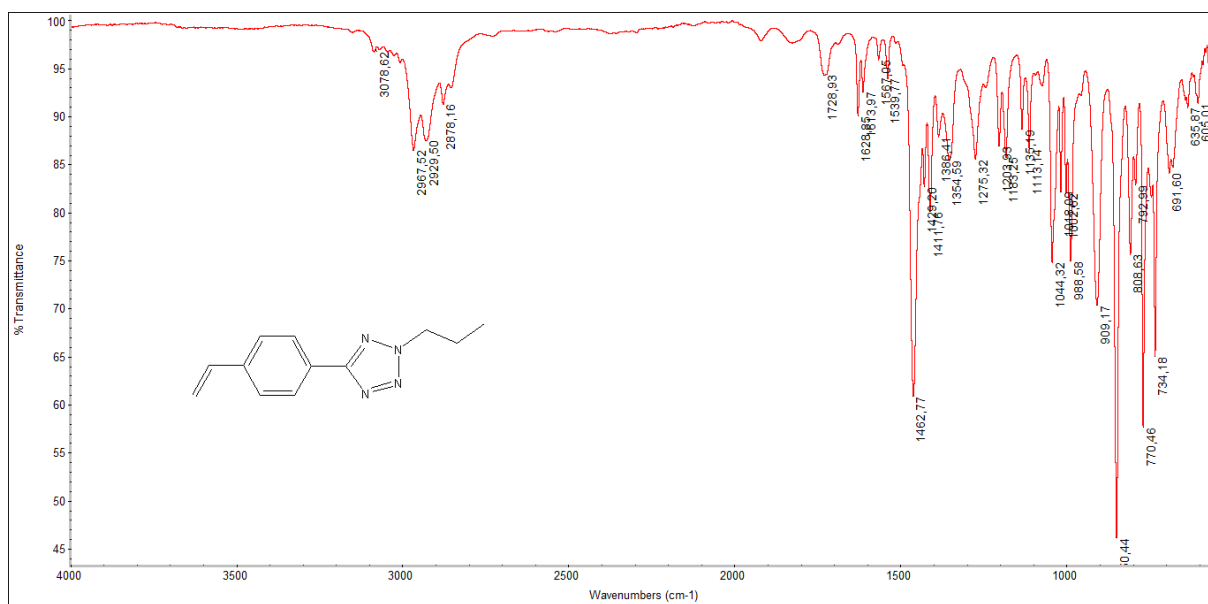


Figure S129: FT-IR spectrum of compound **BF5c**

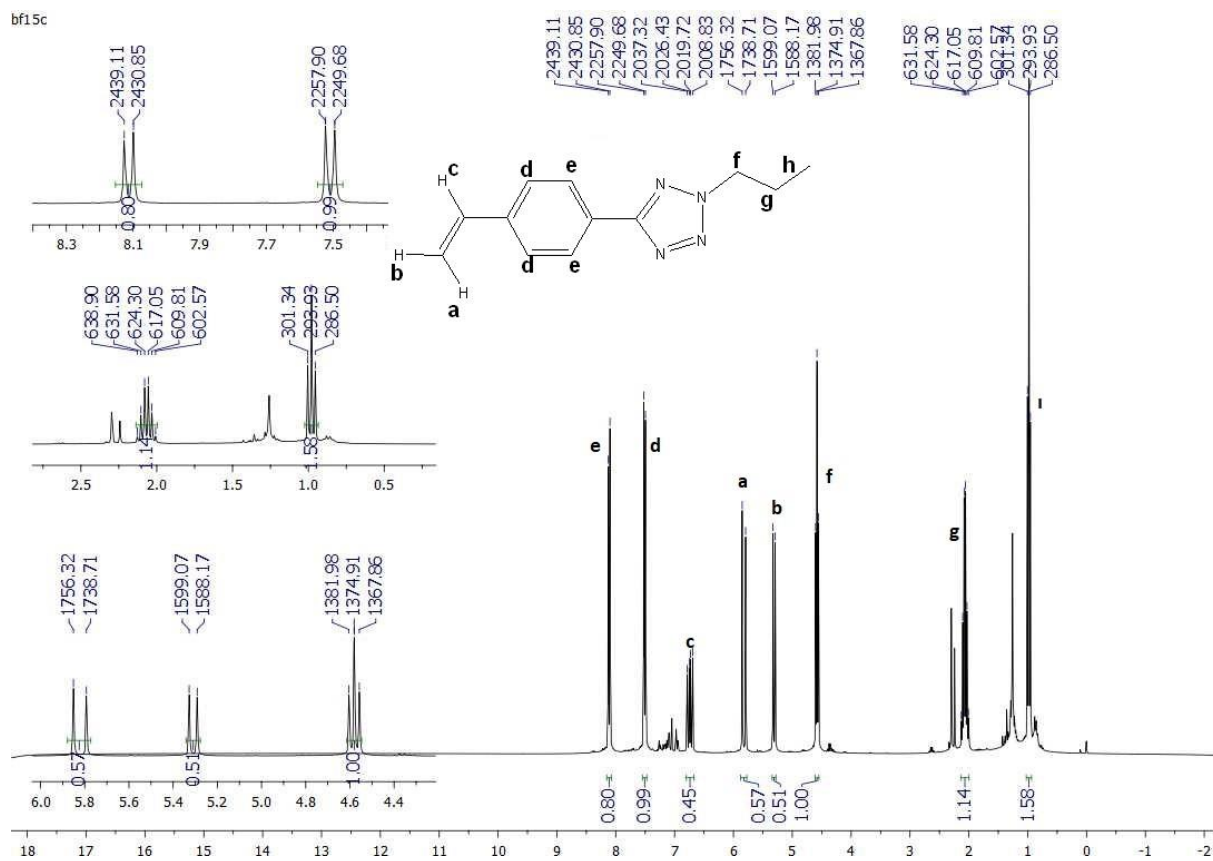


Figure S130: ¹H NMR spectrum of compound **BF5c**

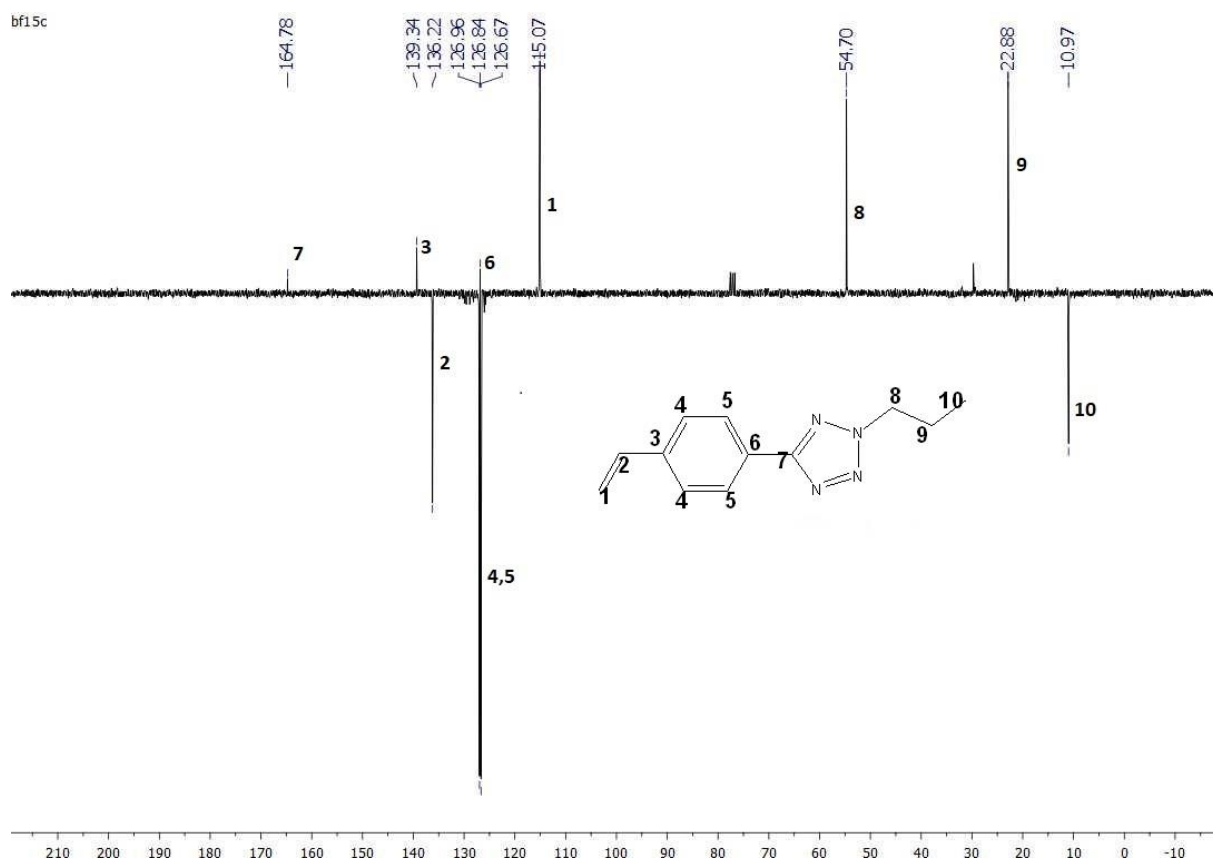


Figure S131: ¹³C-APT NMR spectrum of compound **BF5c**

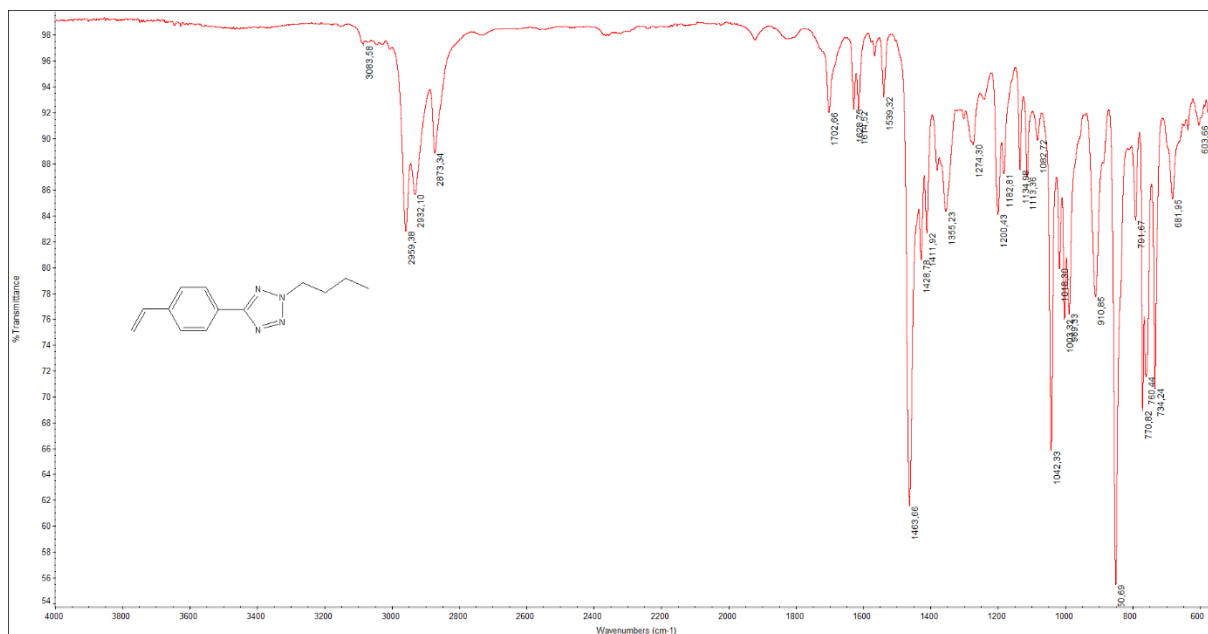


Figure S132: FT-IR spectrum of compound BF5d

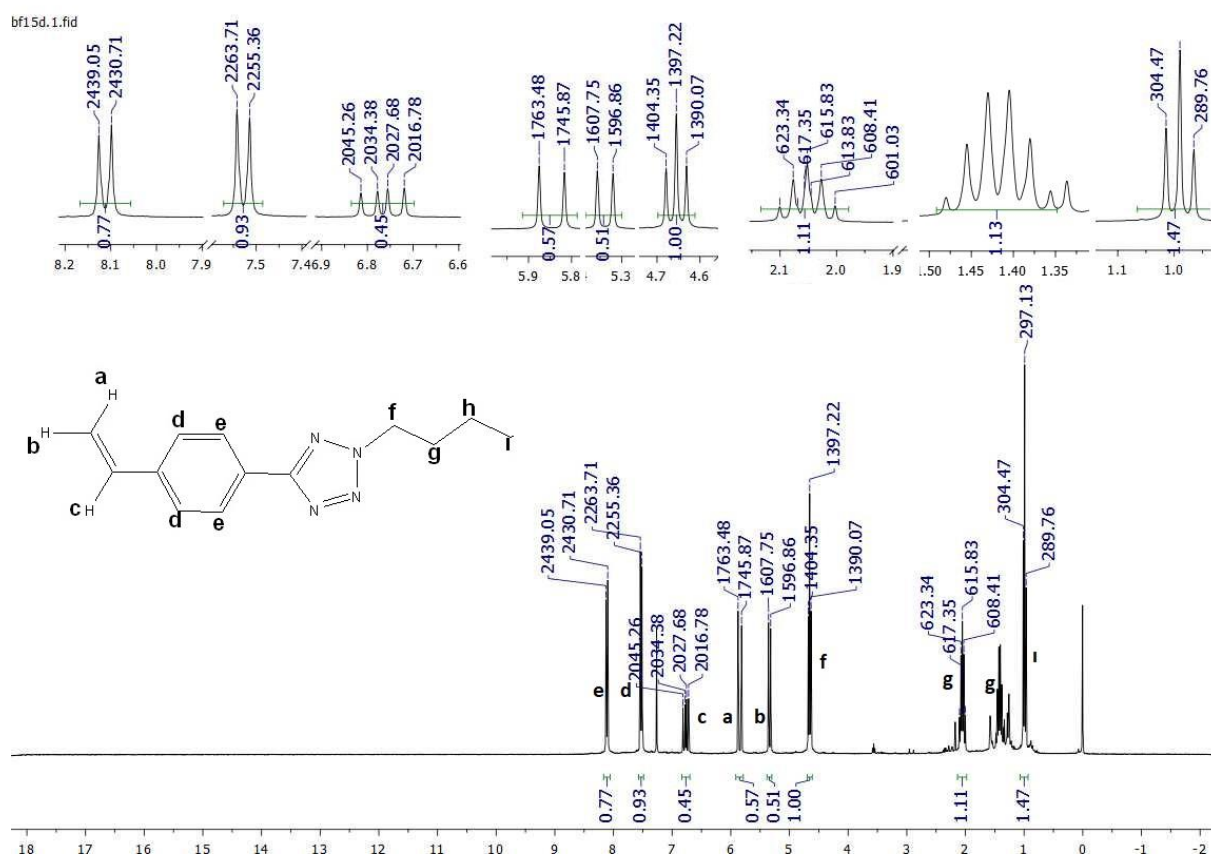


Figure S133: ¹H NMR spectrum of compound BF5d

bf15d.

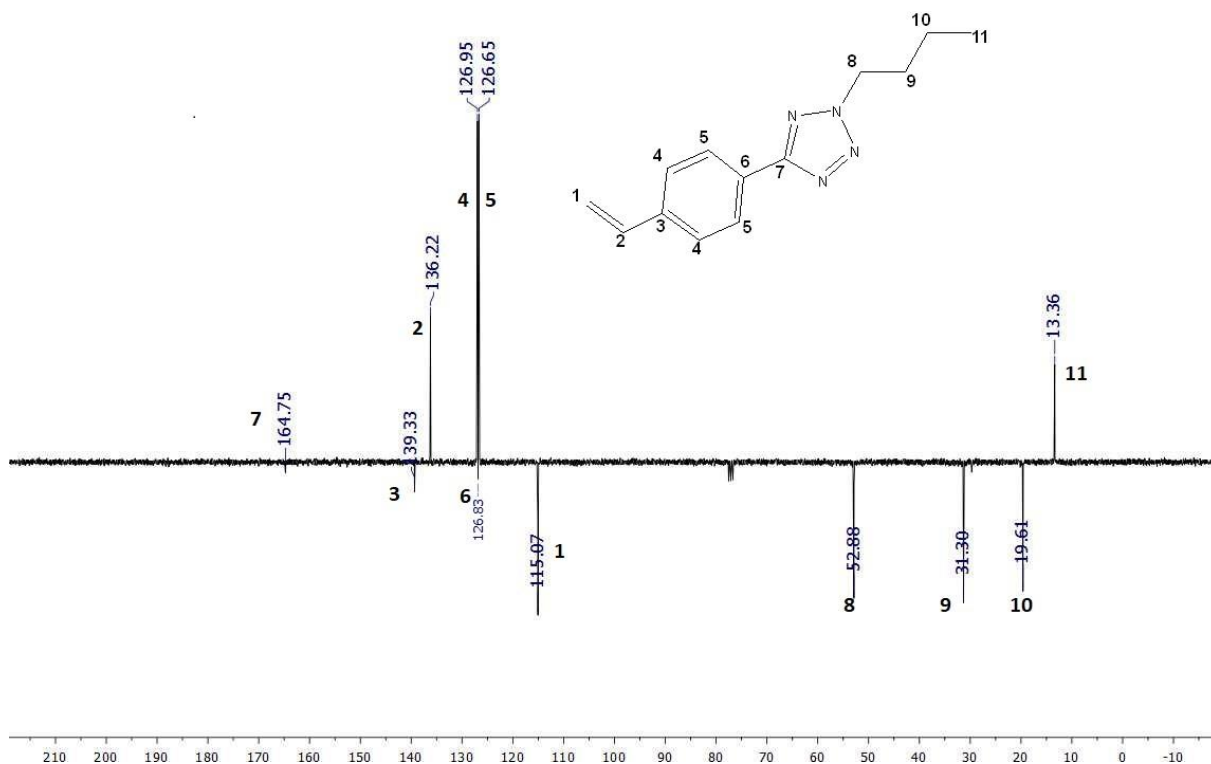


Figure S134: ¹³C-APT NMR spectrum of compound BF5d

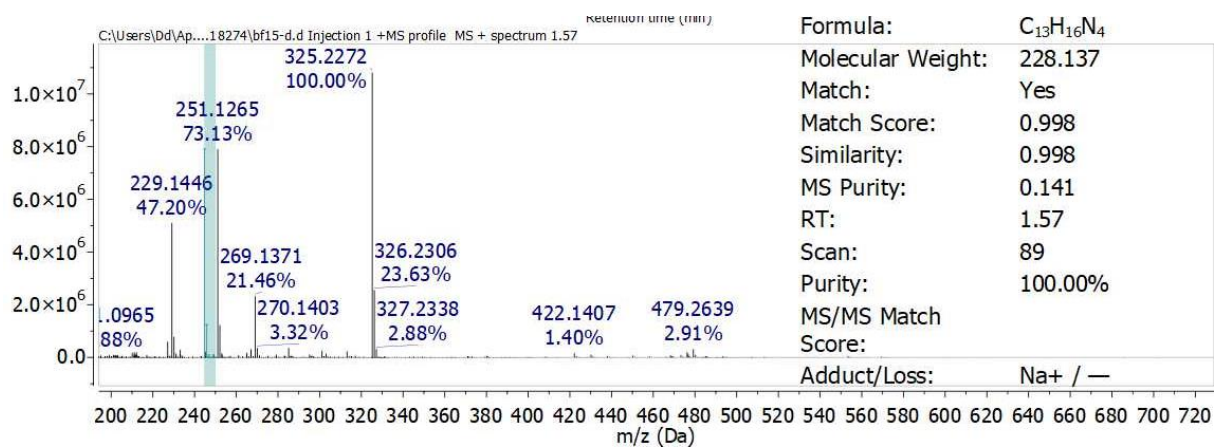


Figure S135: HR-MS spectrum of compound BF5d

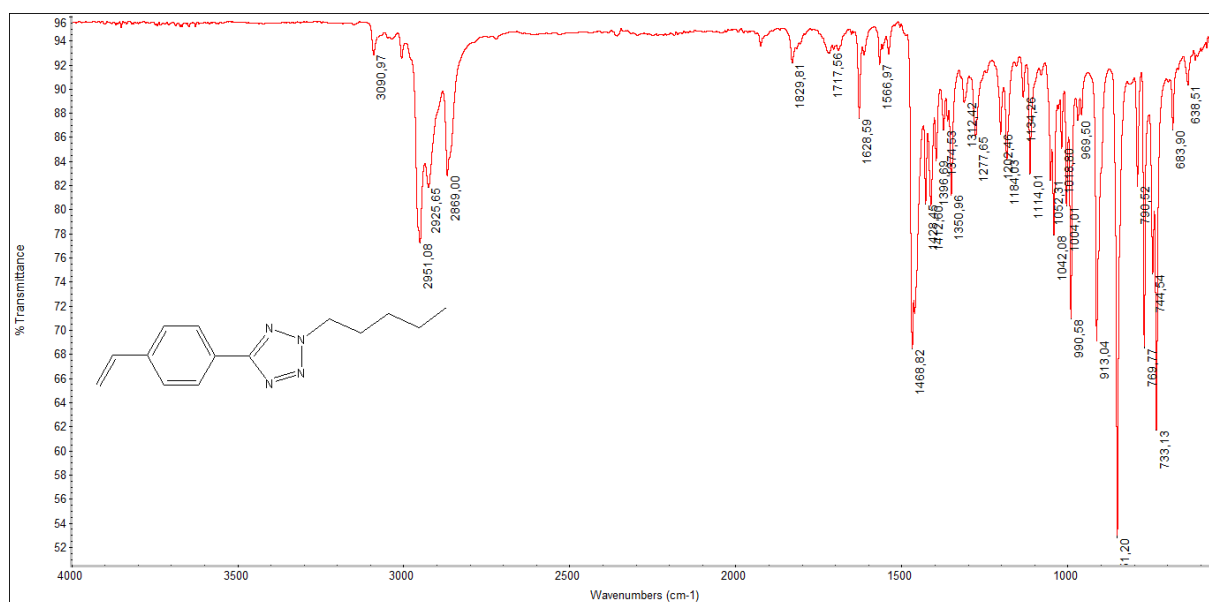


Figure S136: FT-IR spectrum of compound BF5e

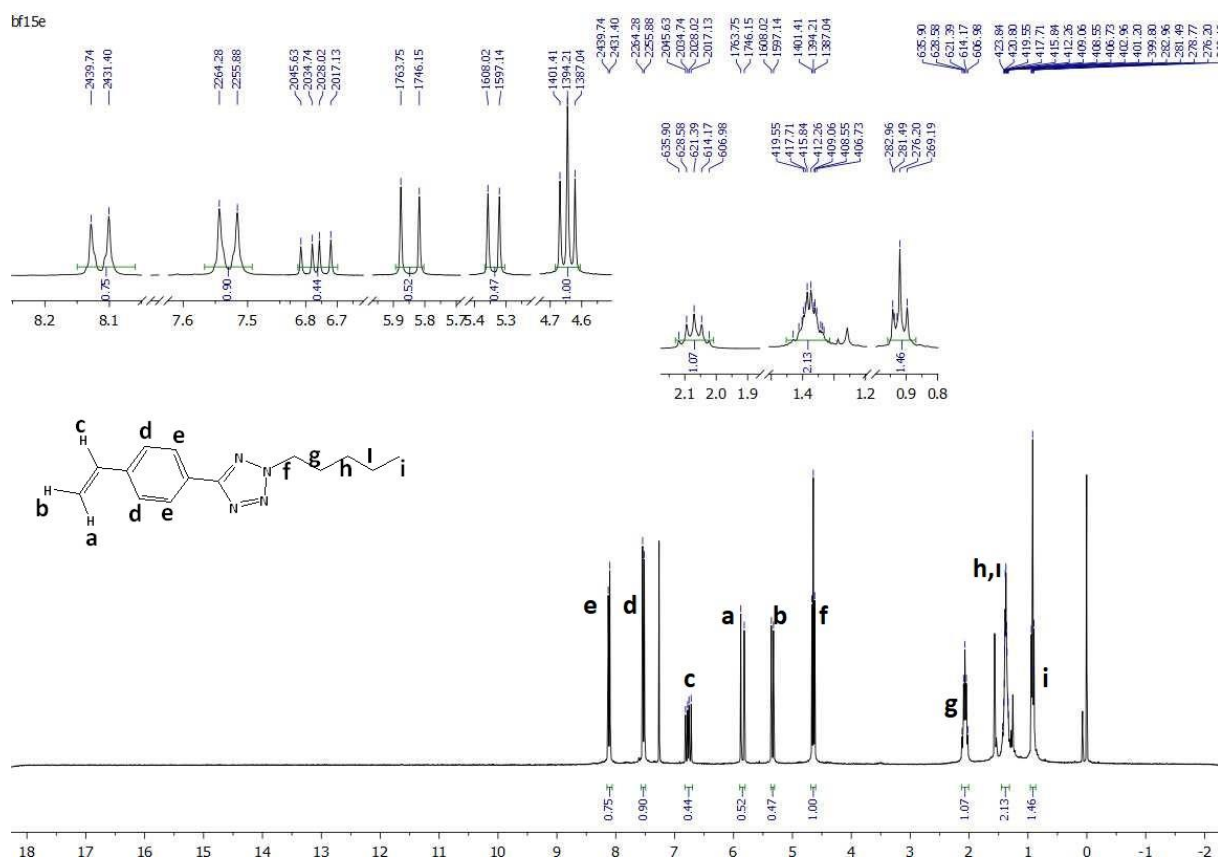
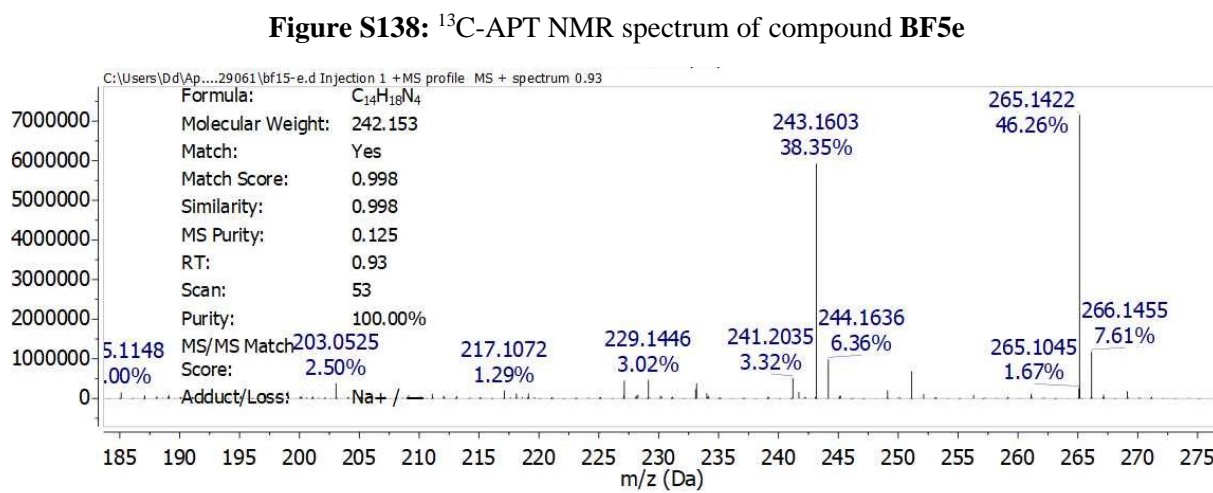
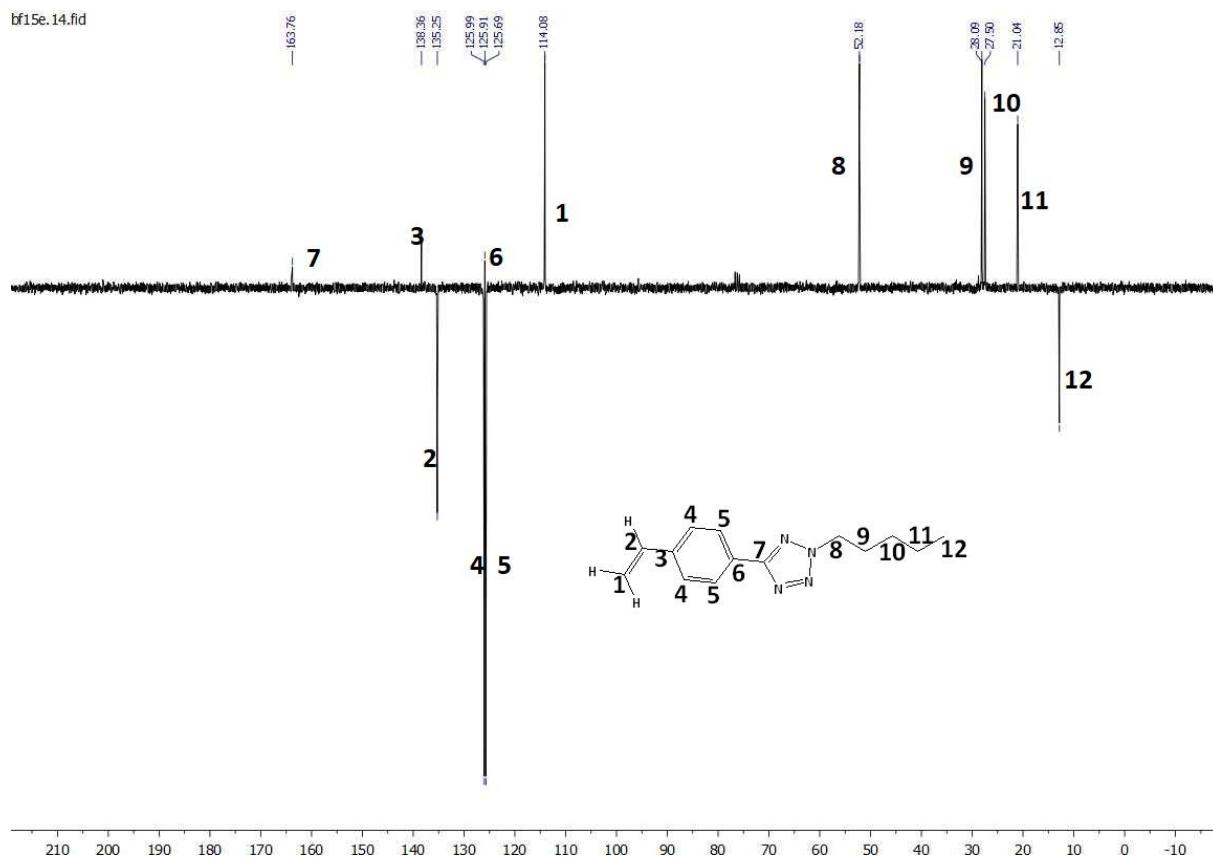


Figure S137: ^1H NMR spectrum of compound BF5e



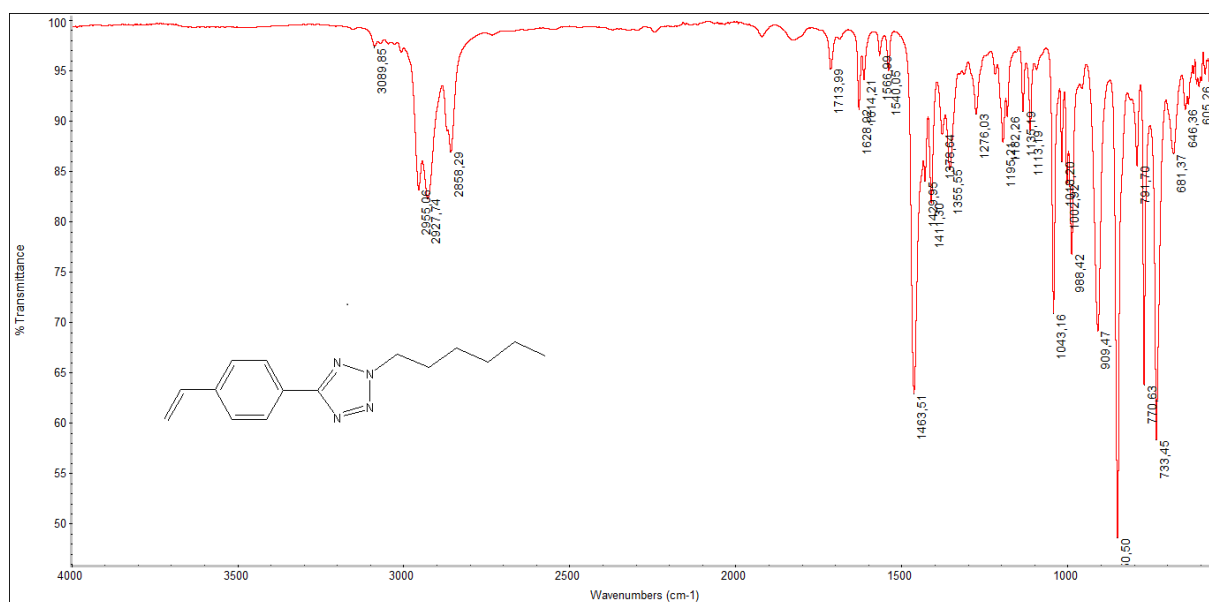


Figure S140: FT-IR spectrum of compound **BF5f**

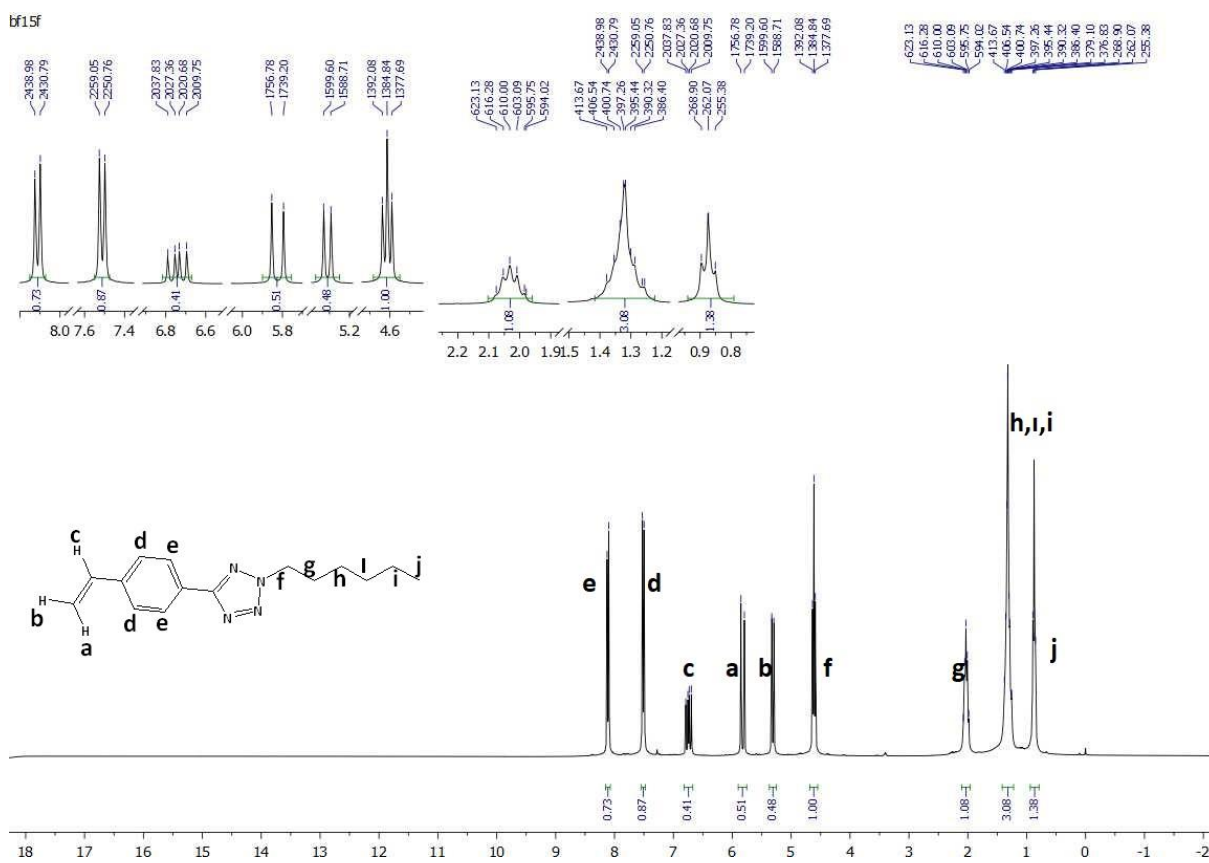


Figure S141: ^1H NMR spectrum of compound **BF5f**

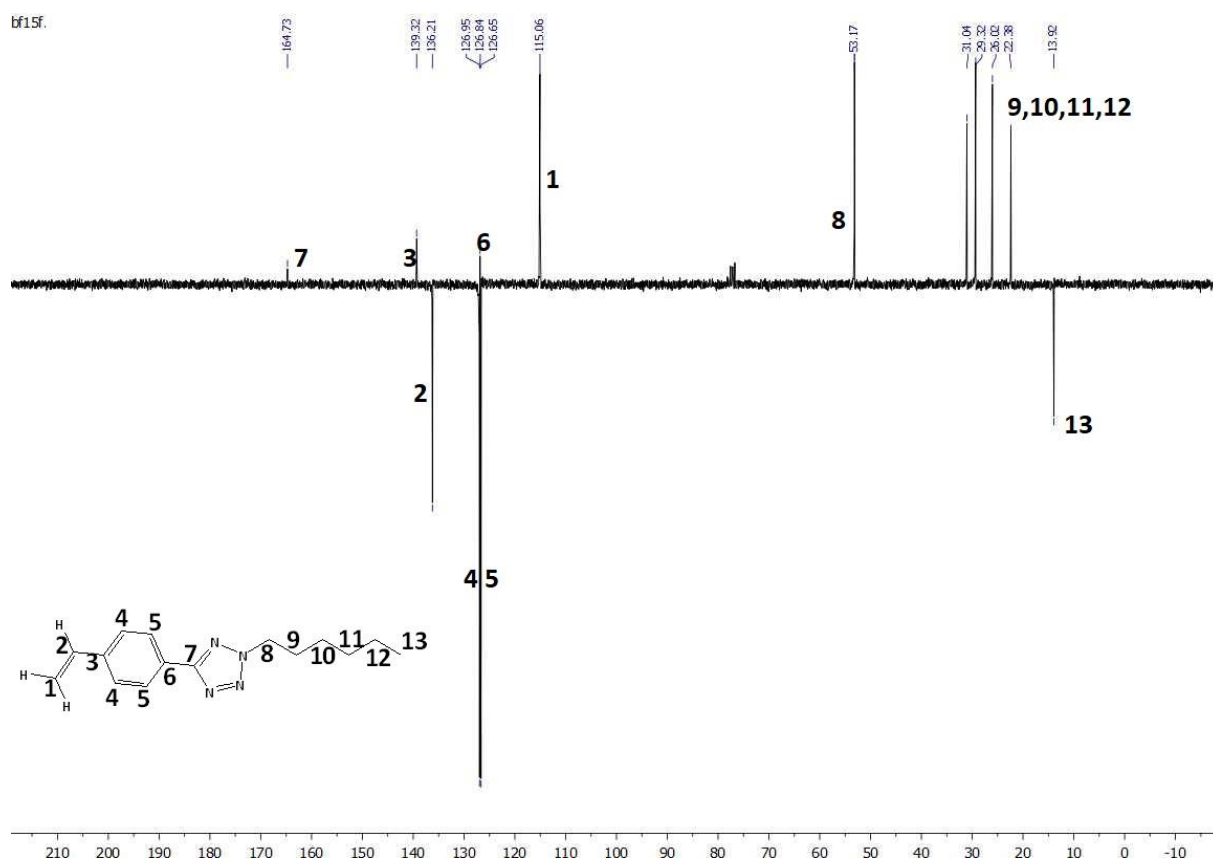


Figure S142: ^{13}C -APT NMR spectrum of compound BF5f

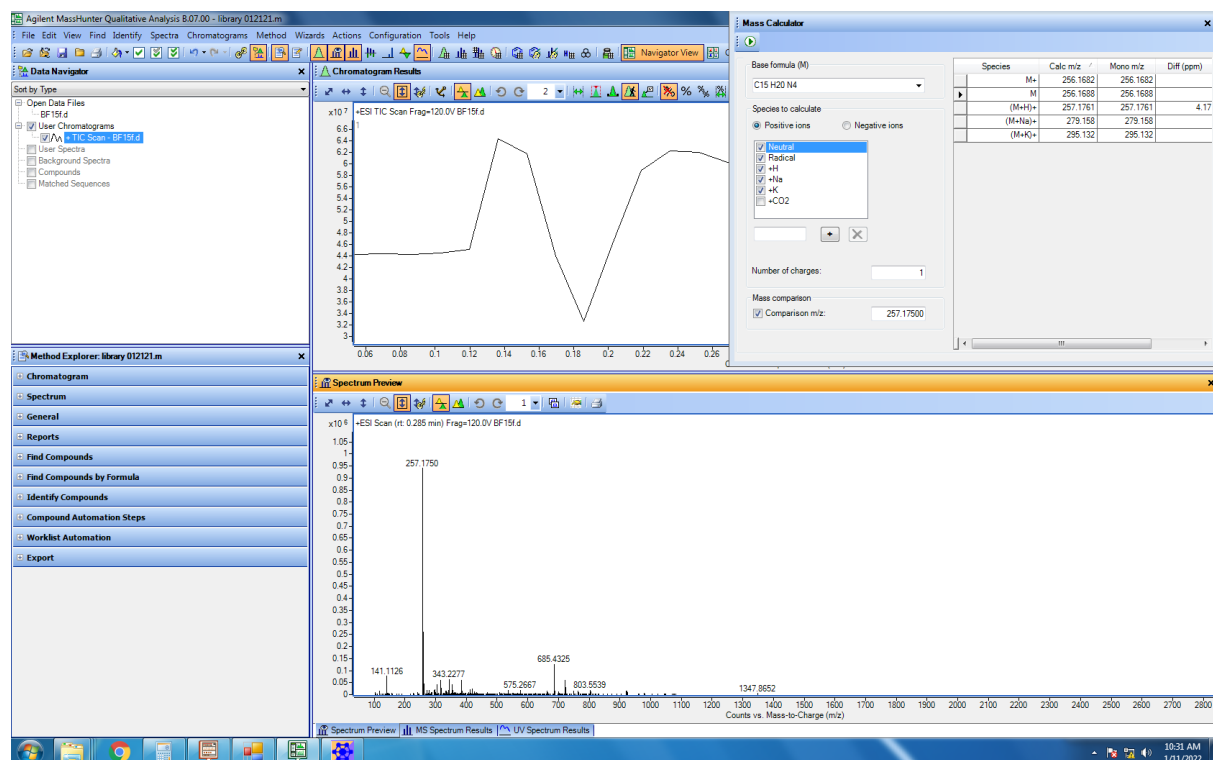


Figure S143: HR-MS spectrum of compound BF5f

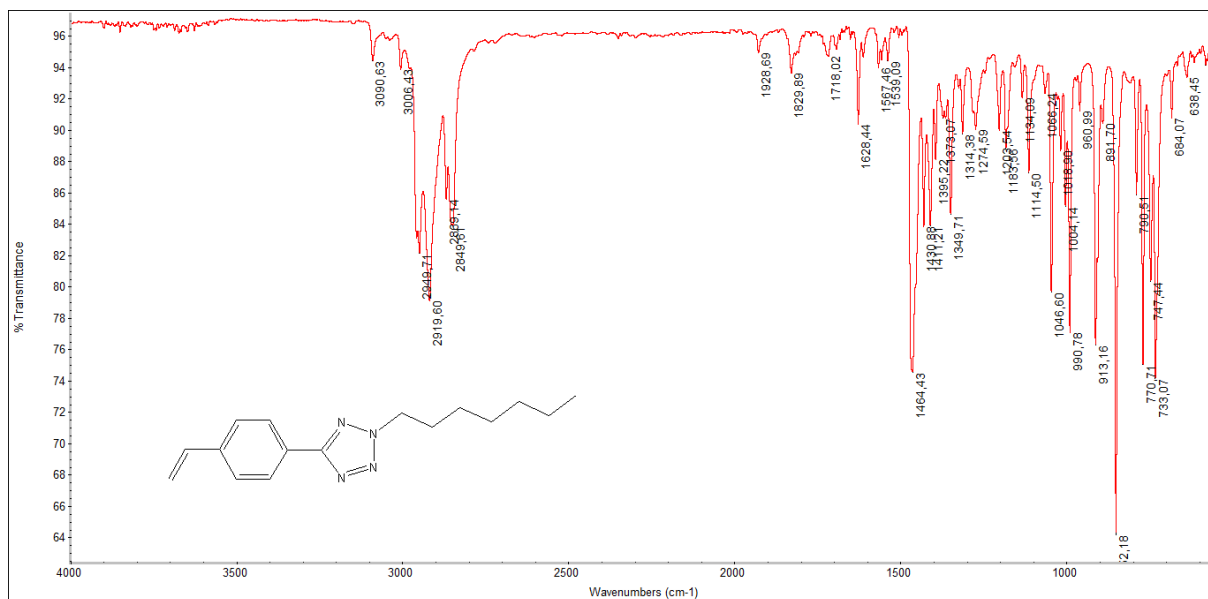


Figure S144: FT-IR spectrum of compound **BF5g**

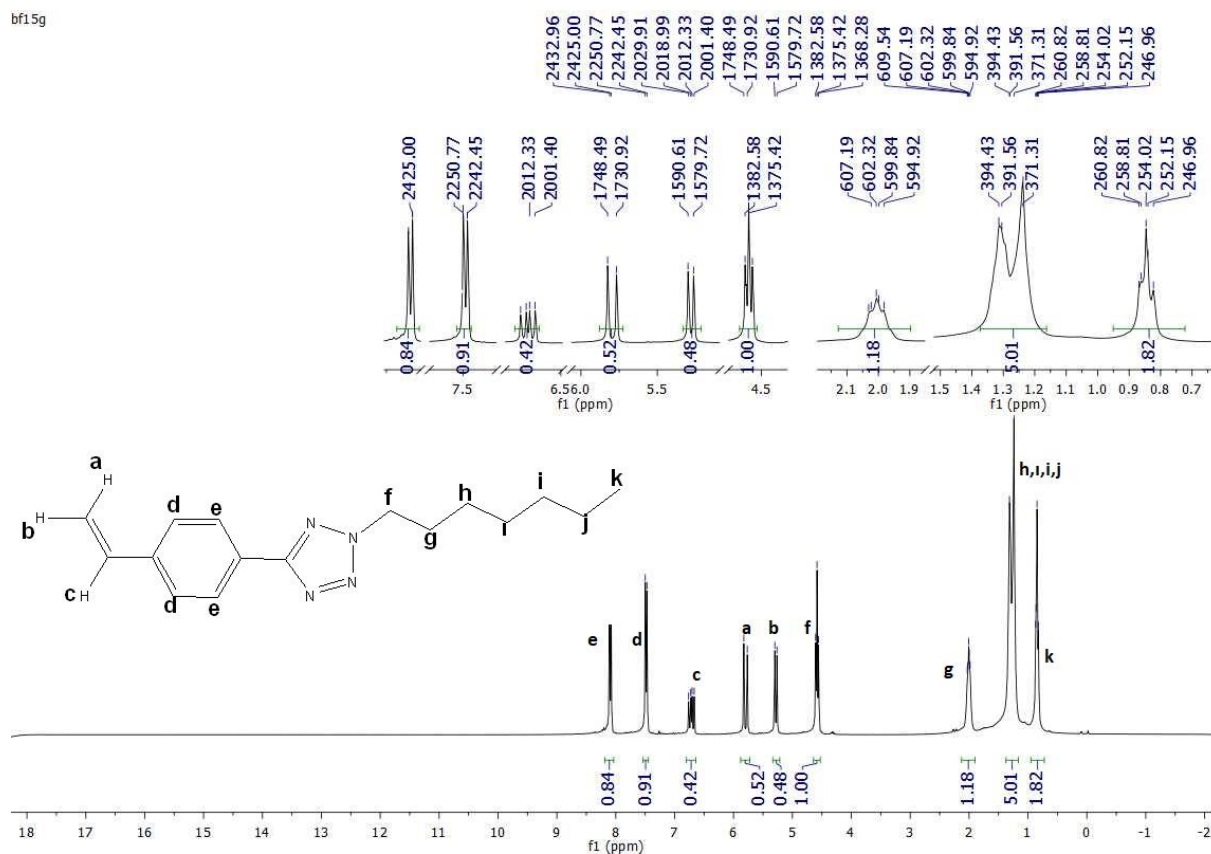


Figure S145: ^1H NMR spectrum of compound **BF5g**

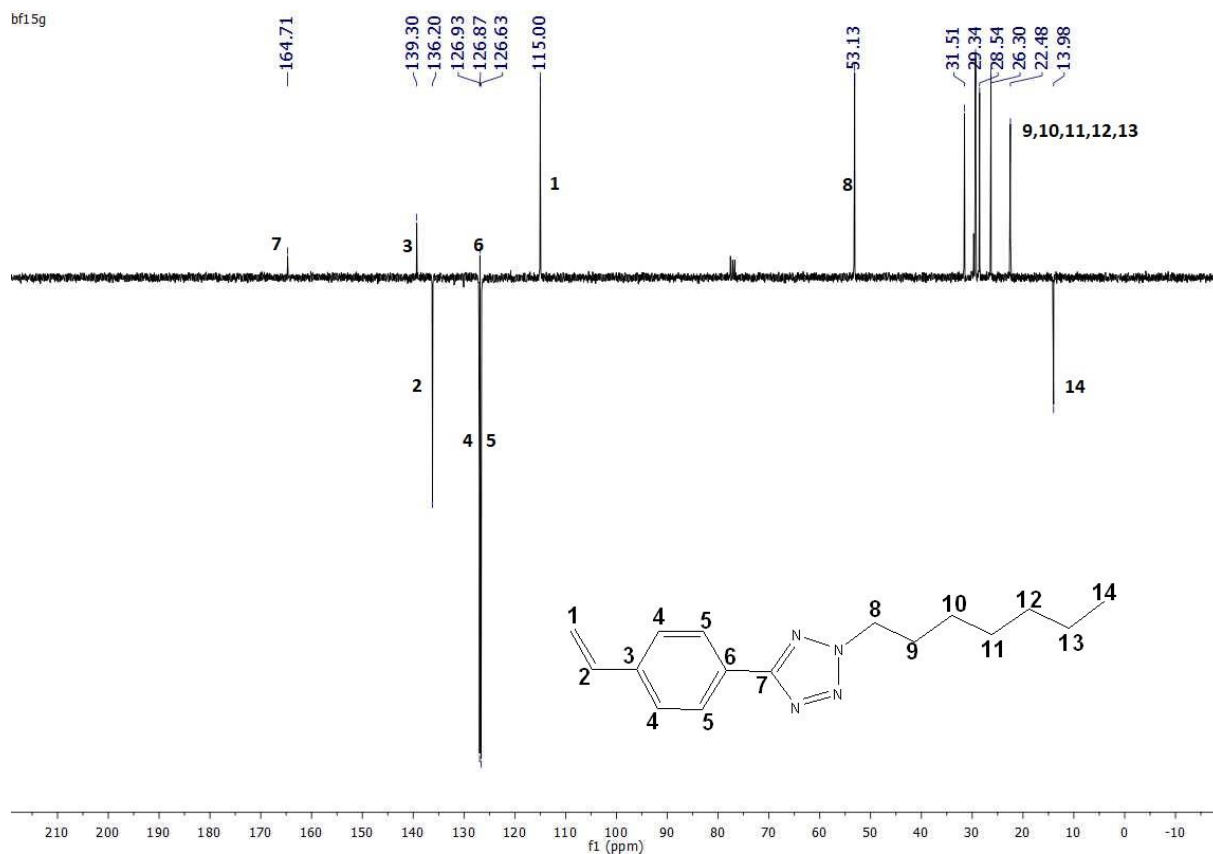


Figure S146: ^{13}C -APT NMR spectrum of compound BF5g

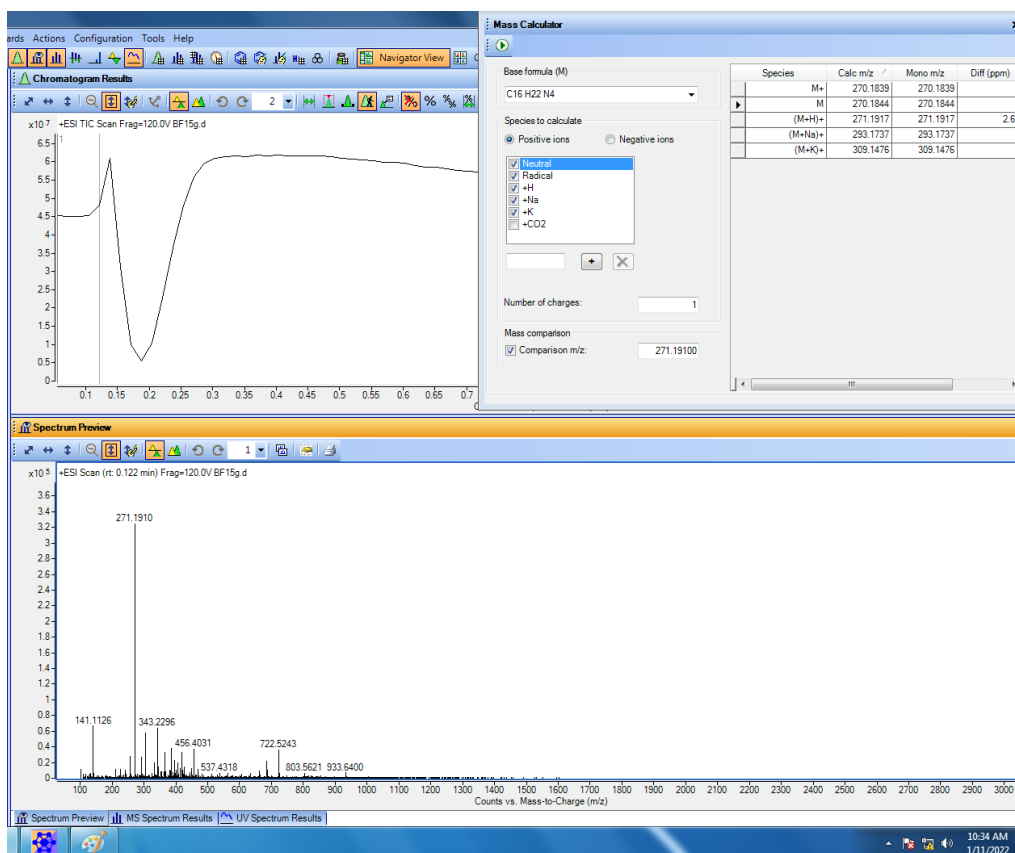


Figure S147: HR-MS spectrum of compound BF5g

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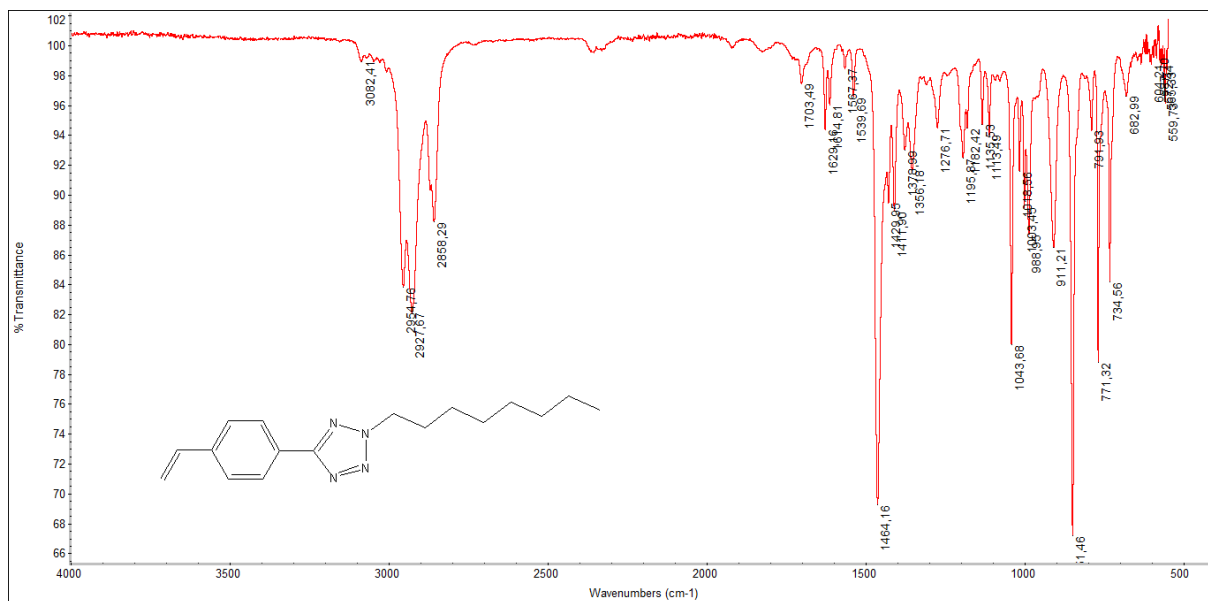


Figure S148: FT-IR spectrum of compound BF5h

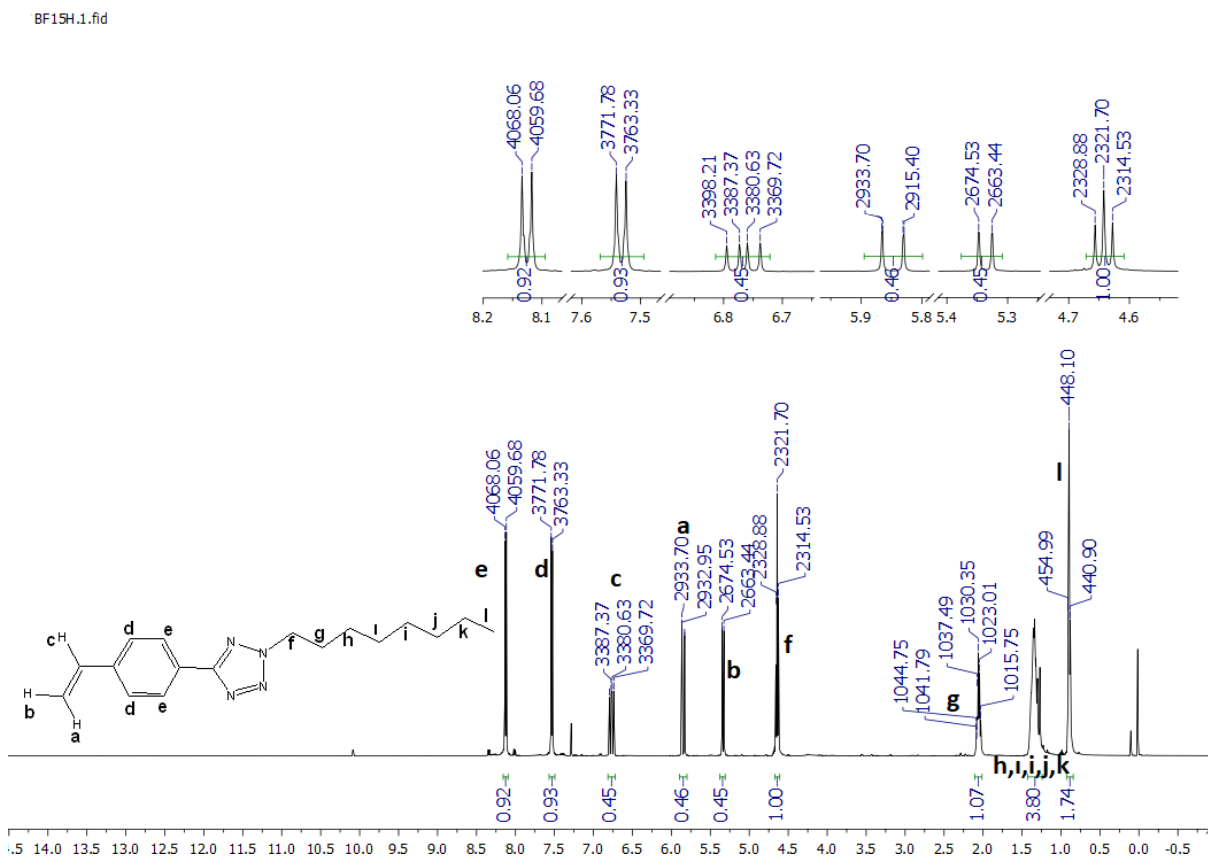


Figure S149: ¹H NMR spectrum of compound BF5h

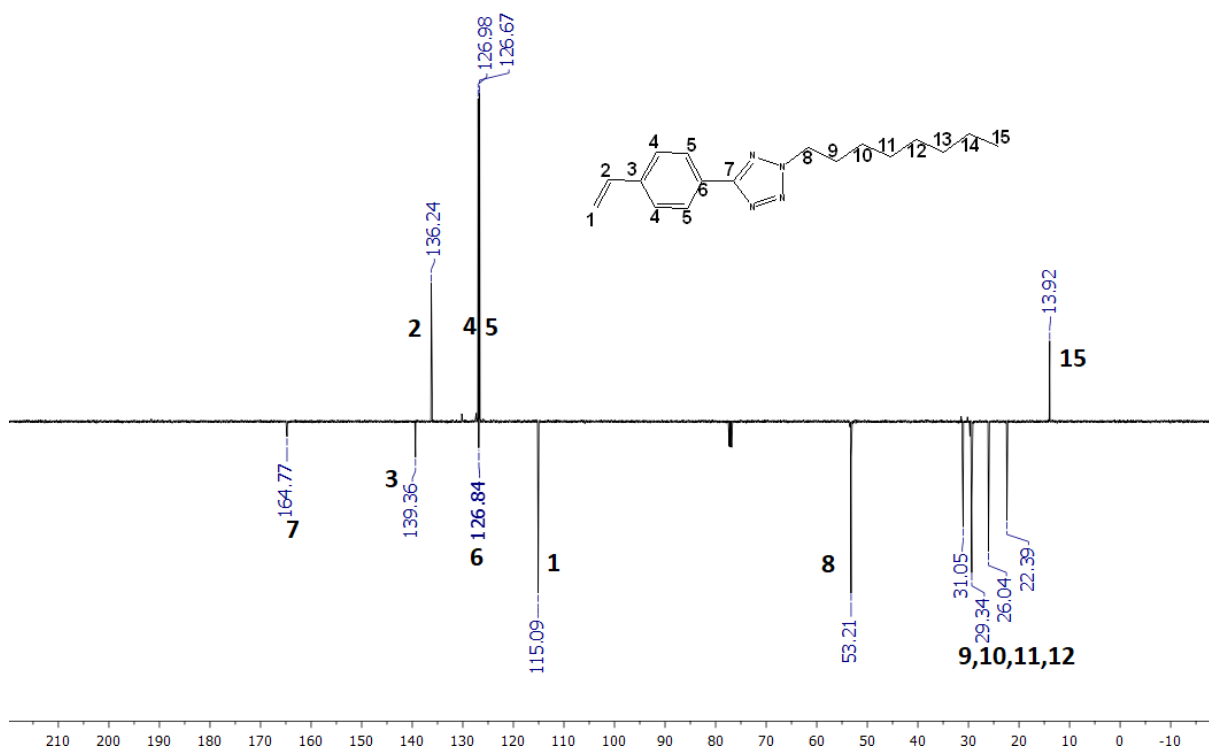


Figure S150: ¹³C-APT NMR spectrum of compound BF5h

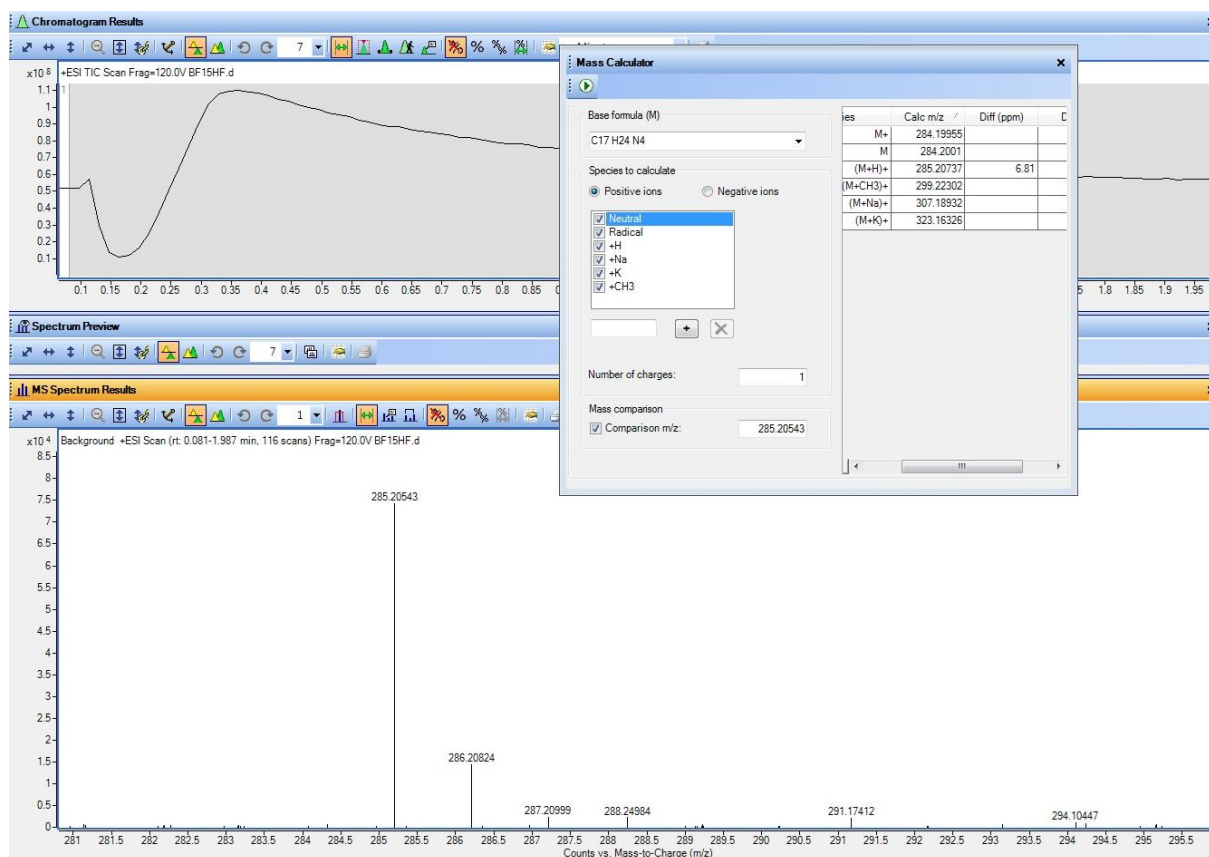


Figure S151: HR-MS spectrum of compound BF5h

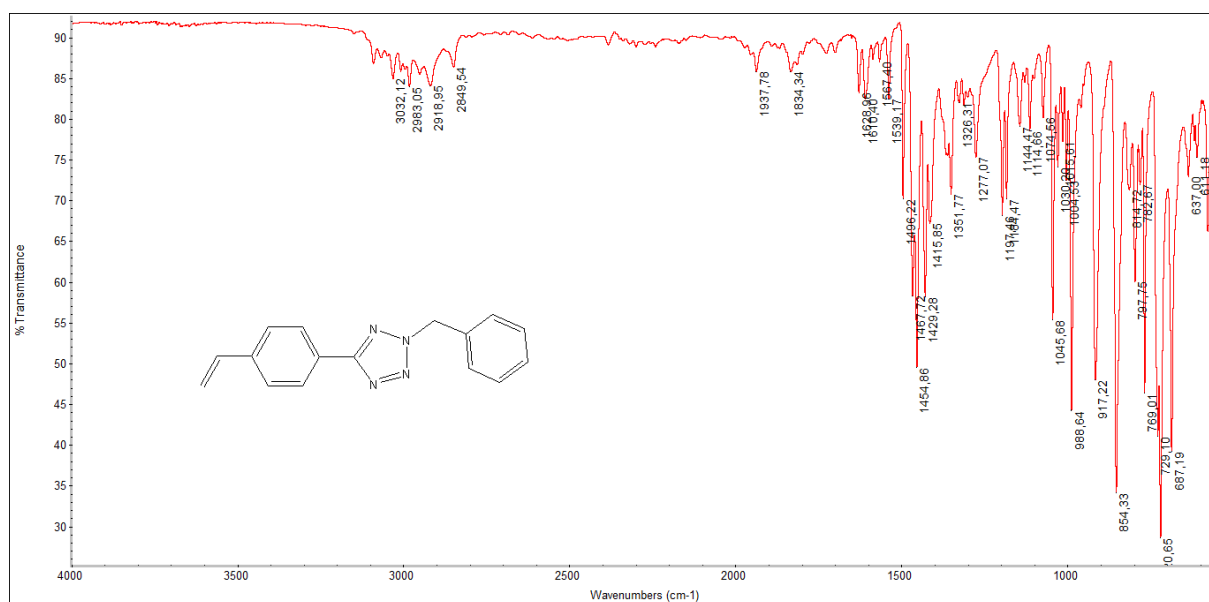


Figure S152: FT-IR spectrum of compound **BF5i**

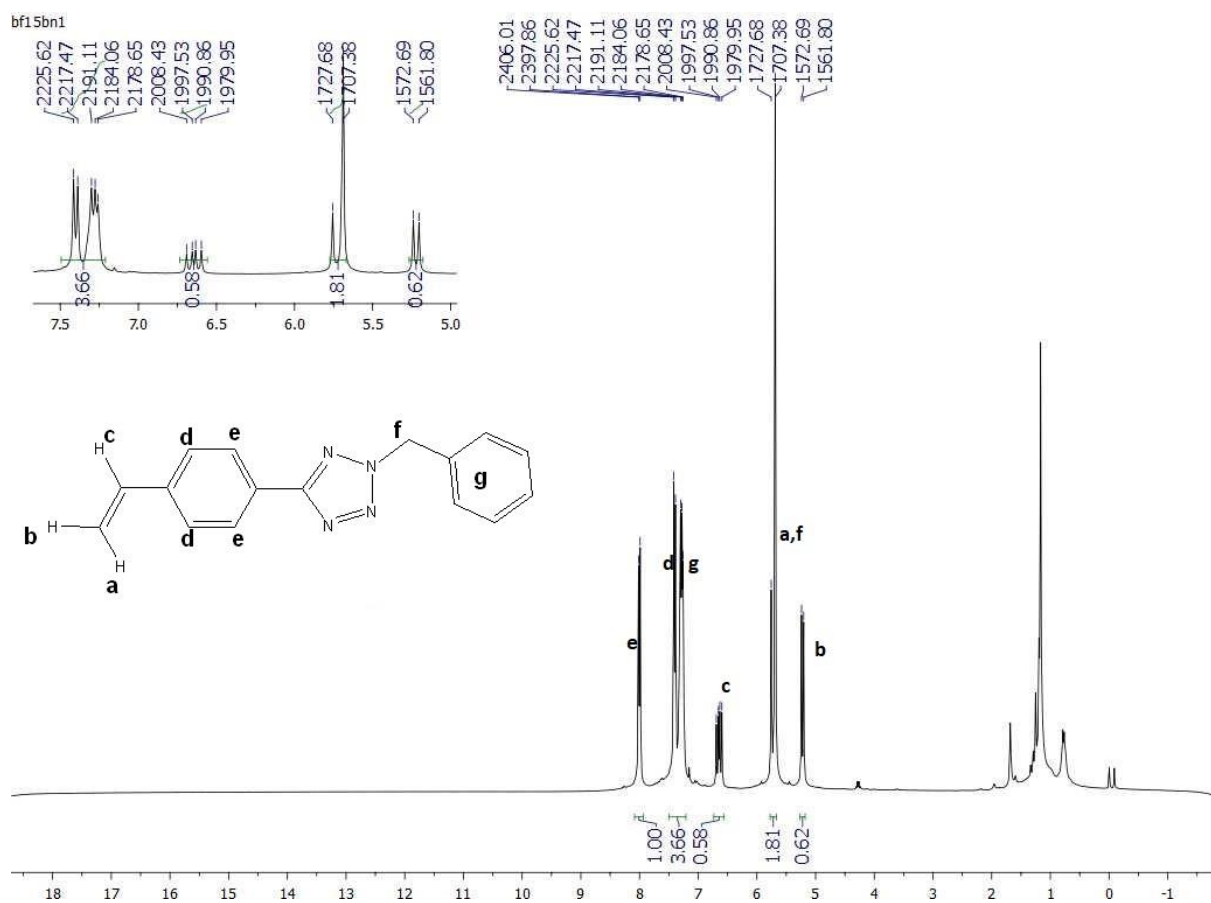


Figure S153: ¹H NMR spectrum of compound **BF5i**

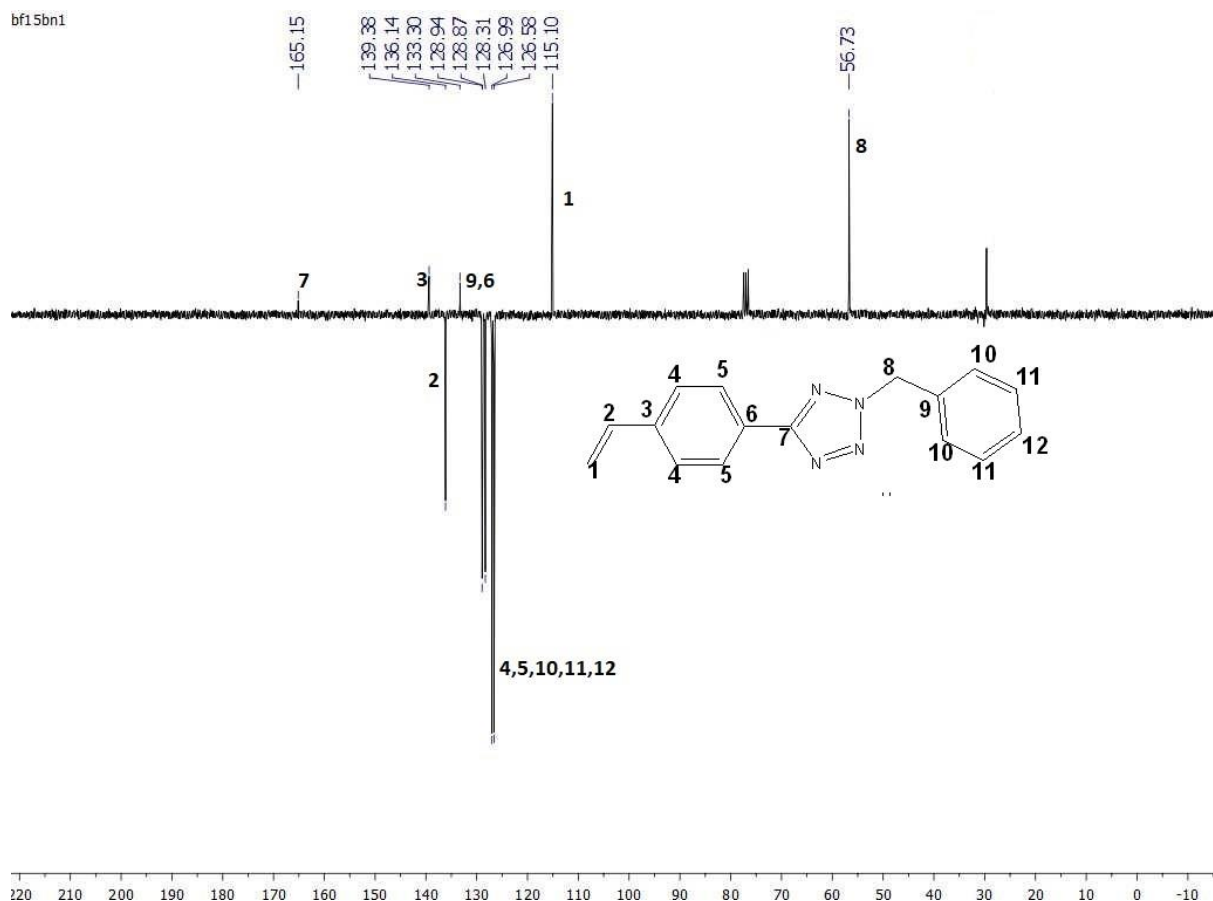


Figure S154: ^{13}C -APT NMR spectrum of compound **BF5i**

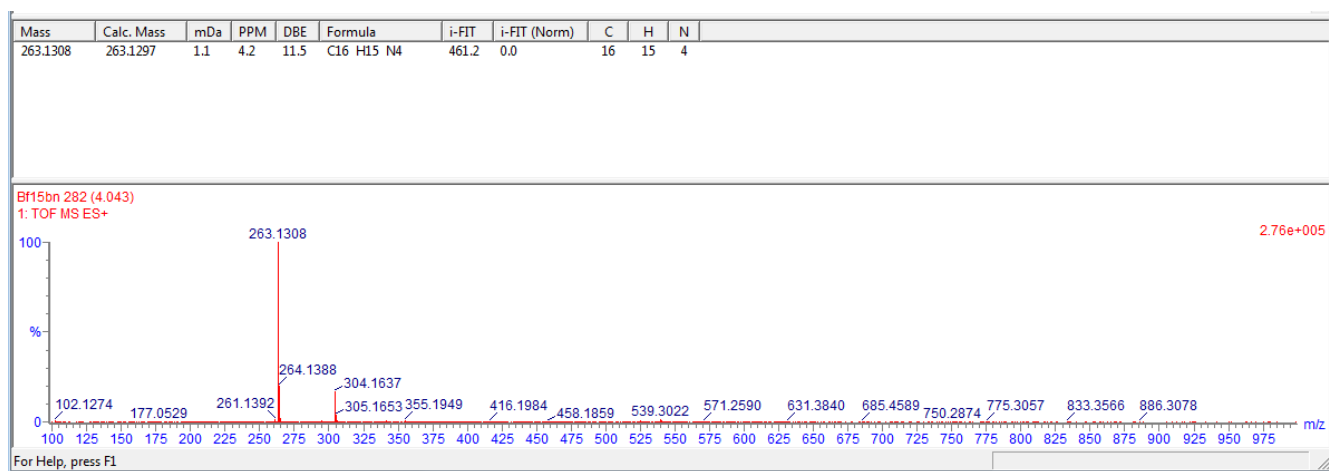


Figure S155: HR-MS spectrum of compound **BF5i**