

New melatonin biphenyl-linked scaffold targeting colorectal cancer: design, synthesis, biological, and ADME-Tox modelling studies.

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Fig. S1: ^1H NMR (300 MHz, CDCl_3) spectrum of the intermediate (1)

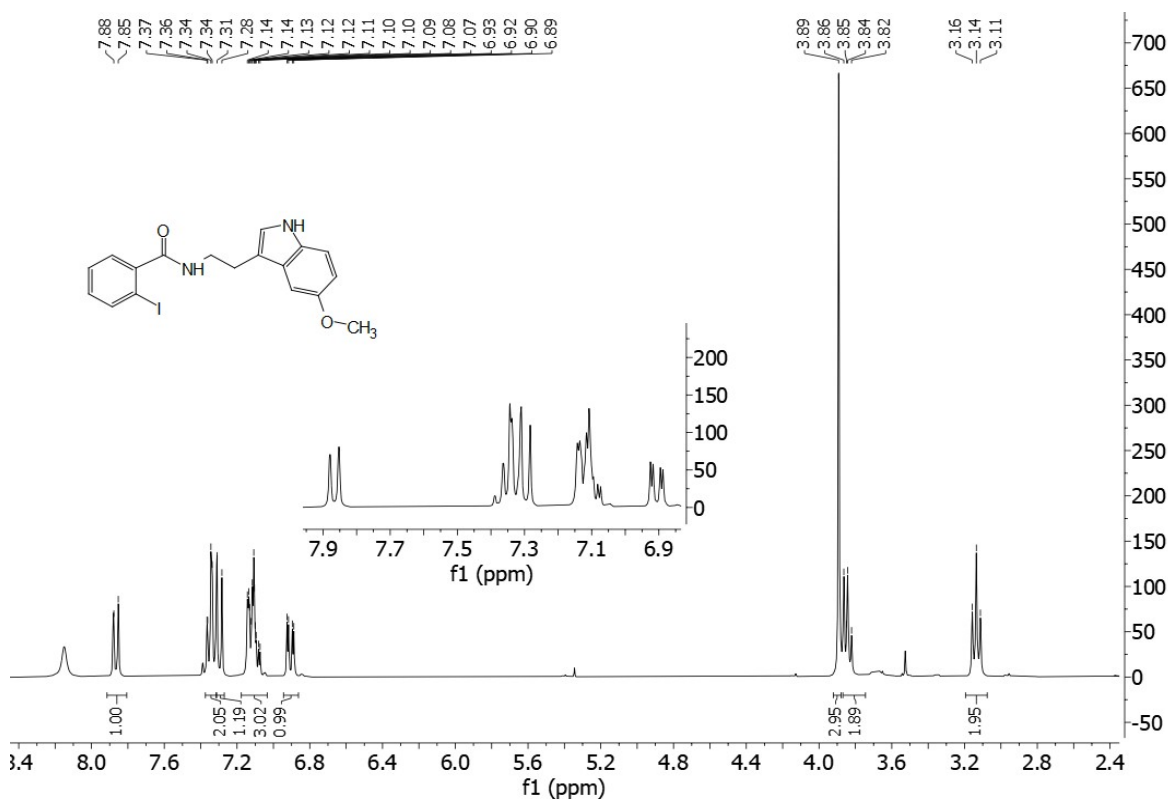


Fig. S2: ^{13}C NMR (75 MHz, CDCl_3) spectrum of the intermediate (1)

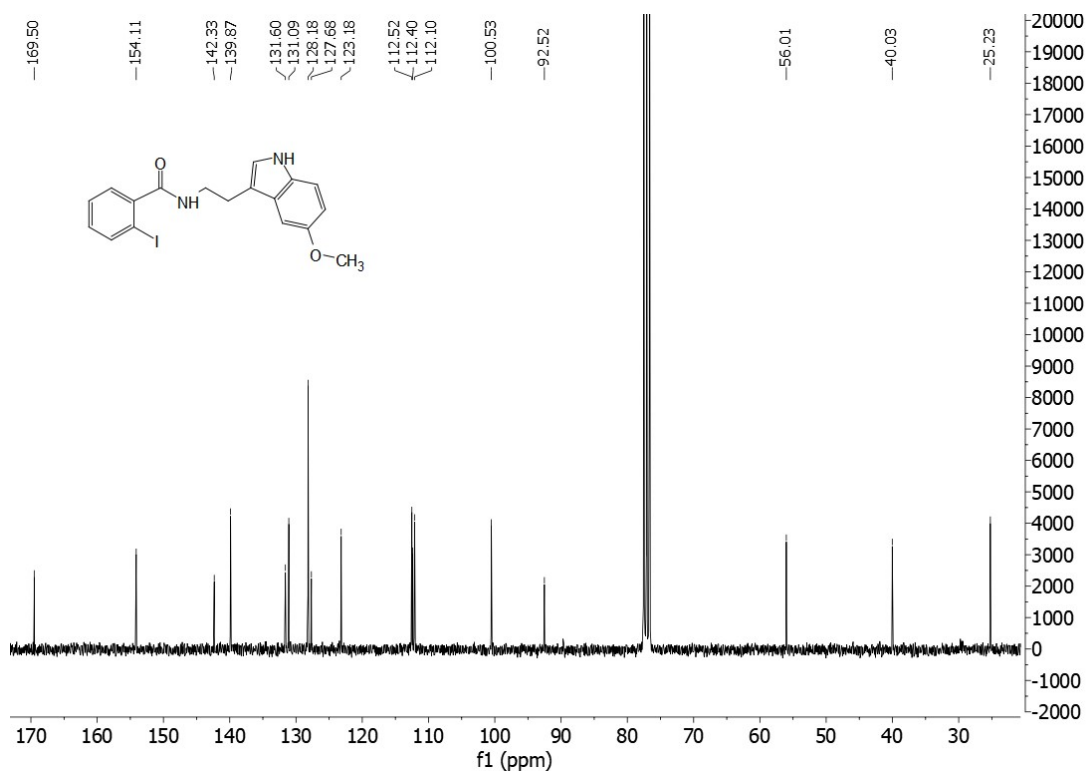


Fig. S3: ESI-HRMS spectrum of (1)

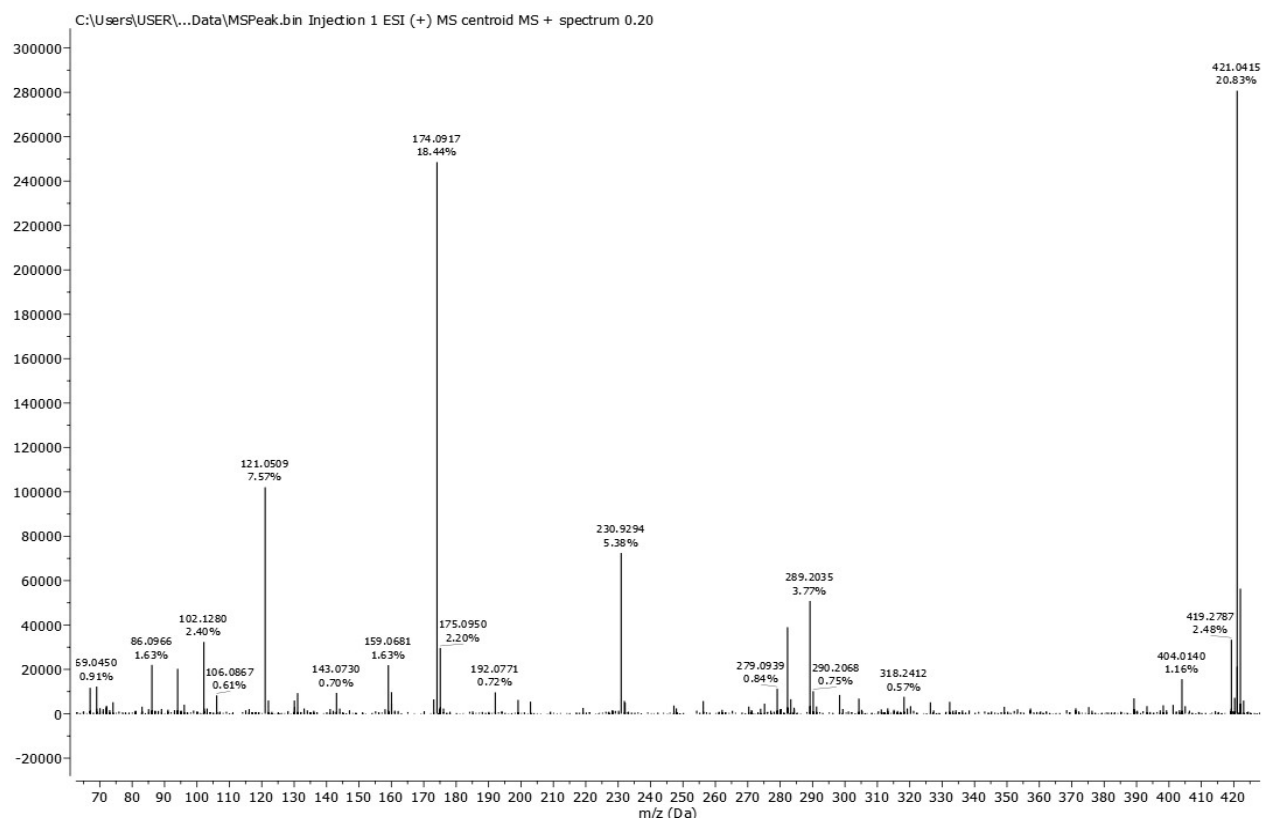


Fig. S4: ^1H NMR (300 MHz, CDCl_3) spectrum of the intermediate (2)

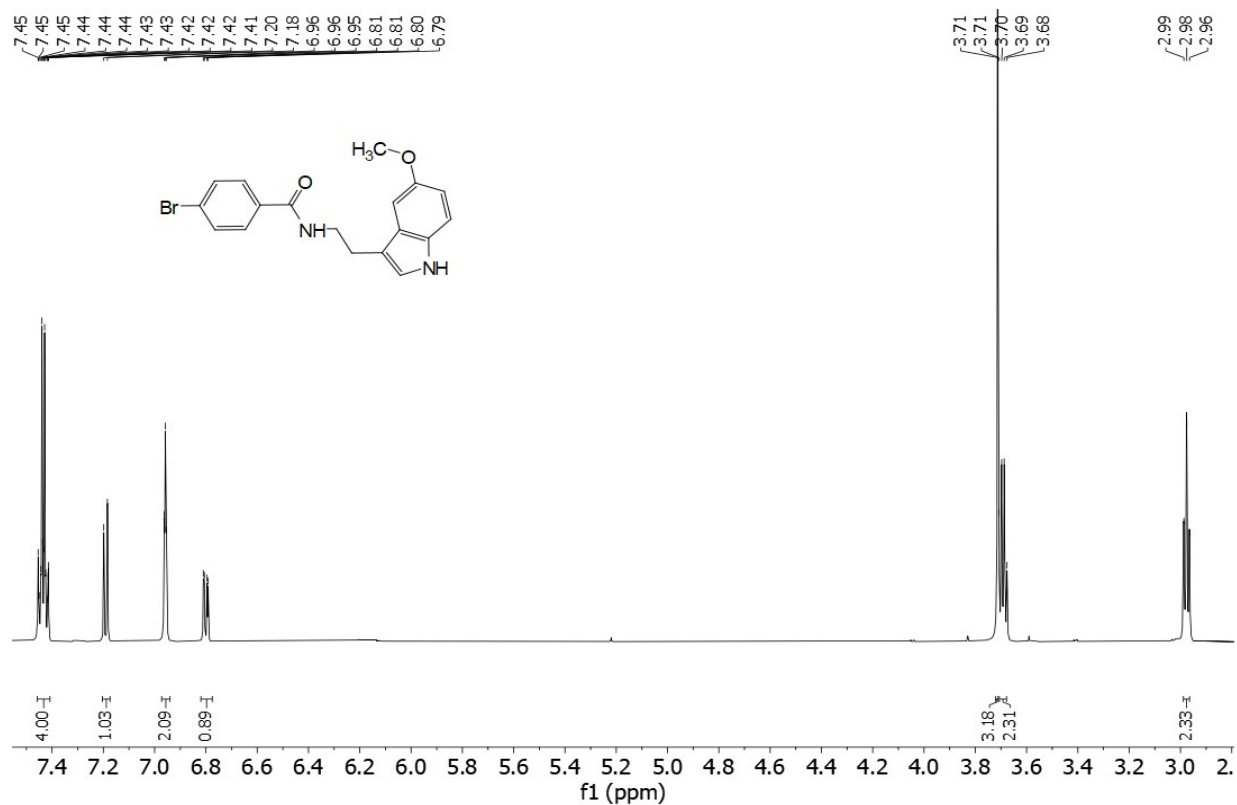
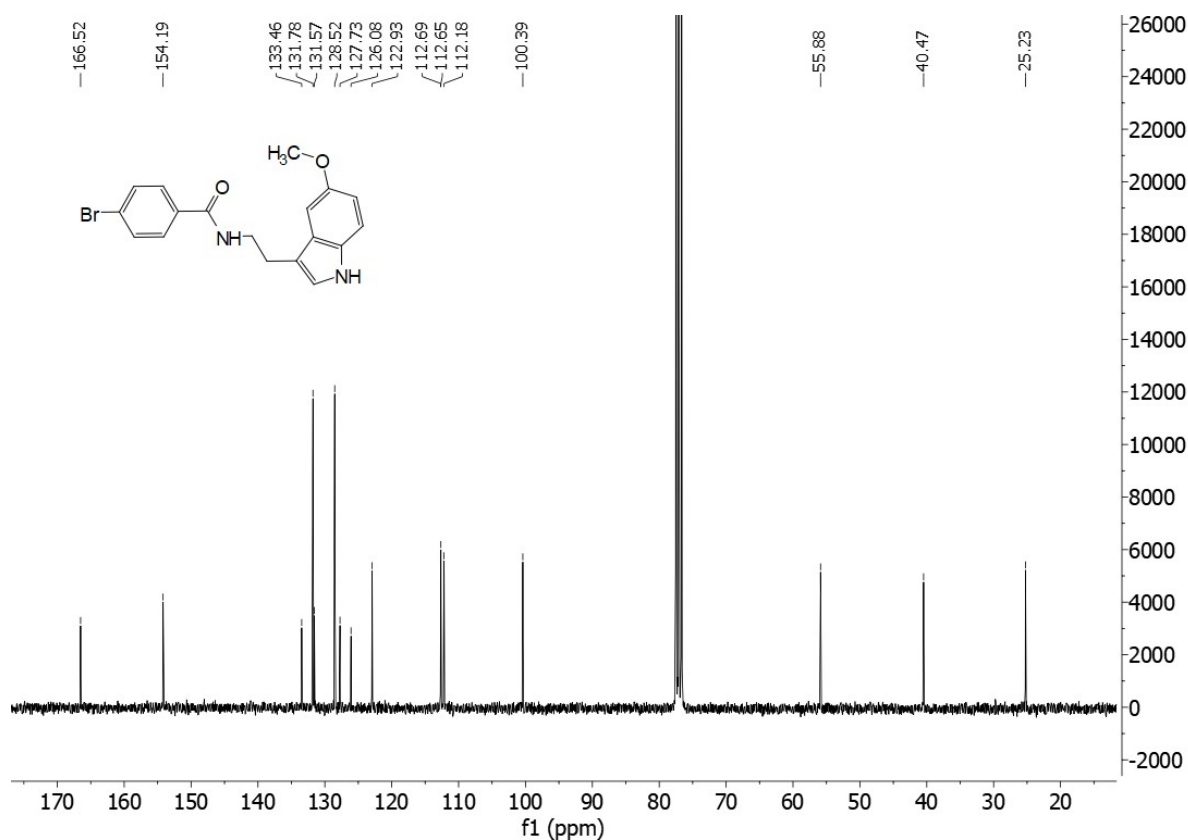


Fig. S5: ^{13}C NMR (75 MHz, CDCl_3) spectrum of the intermediate (2)



2) ^1H and ^{13}C NMR spectra of the target hybrids 3a-l.

Fig. S6: ^1H NMR (300 MHz, CDCl_3) spectrum of the title hybrid (3a)

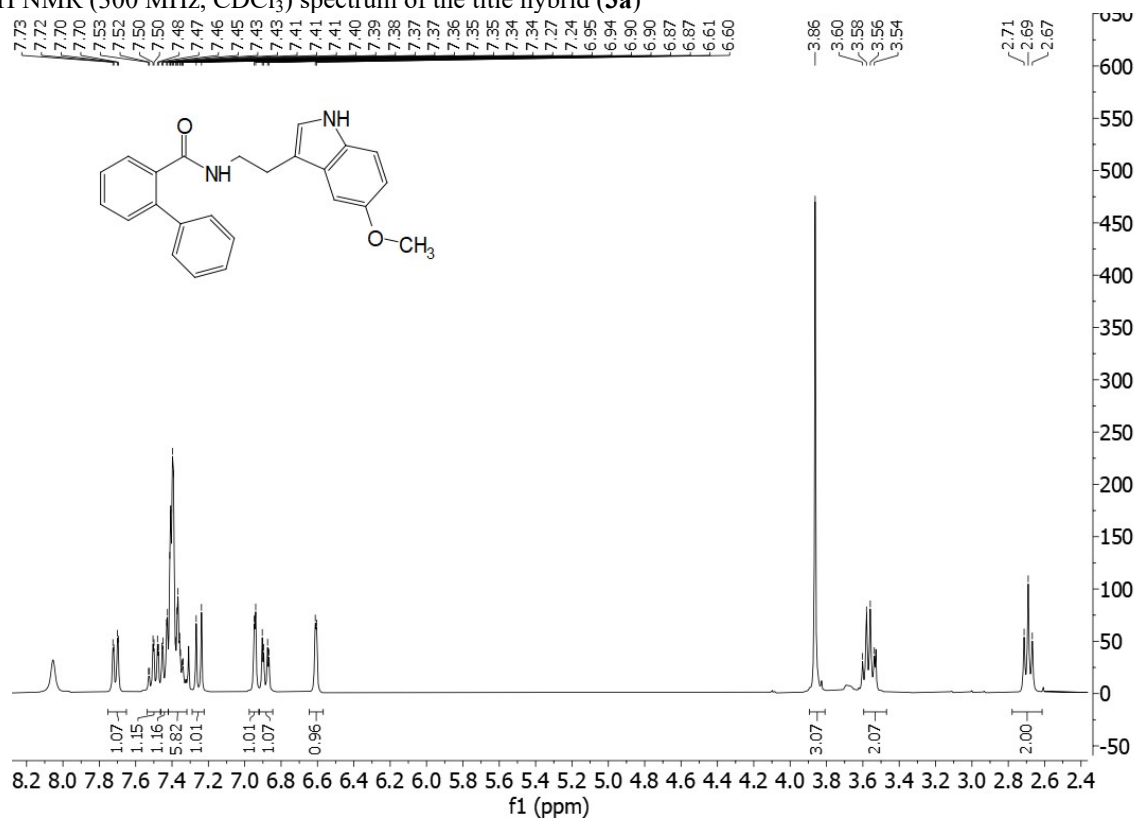


Fig. S7: ^{13}C NMR (75 MHz, CDCl_3) spectrum of the title hybrid (**3a**)

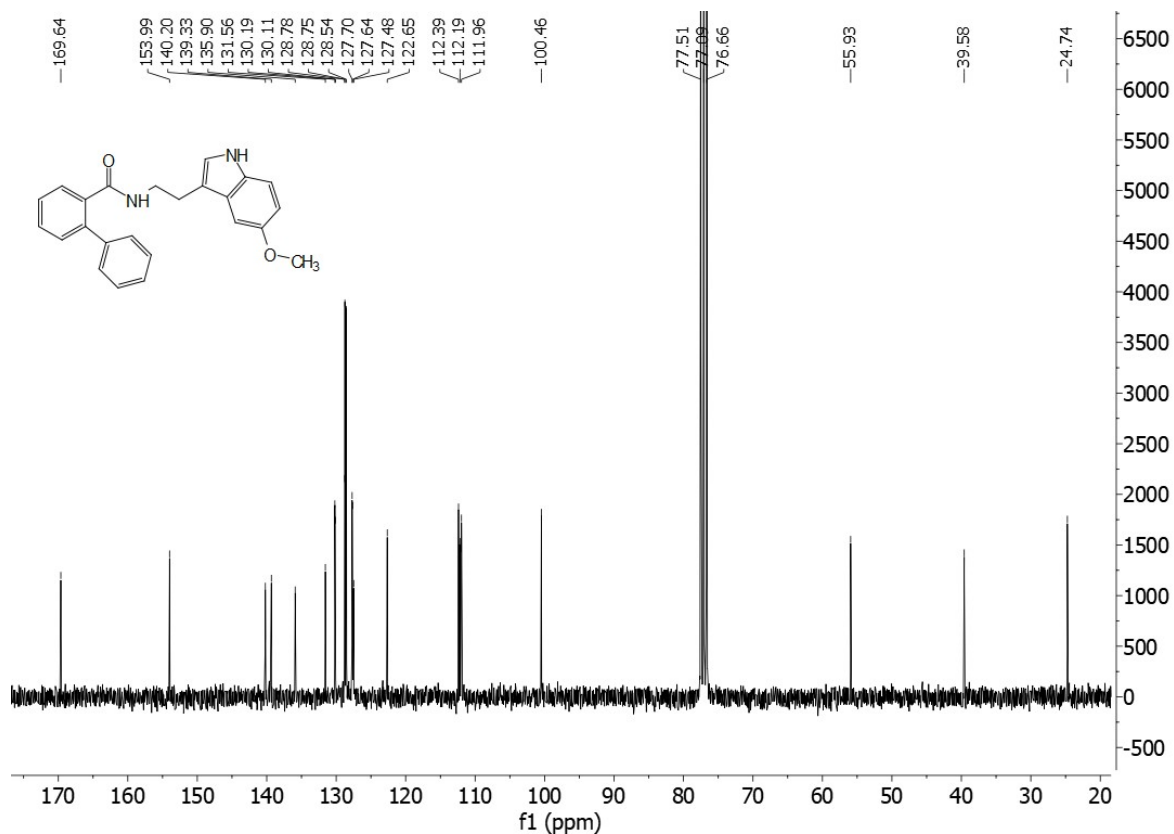


Fig. S8: ^1H NMR (300 MHz, CDCl_3) spectrum of the title hybrid (**3b**)

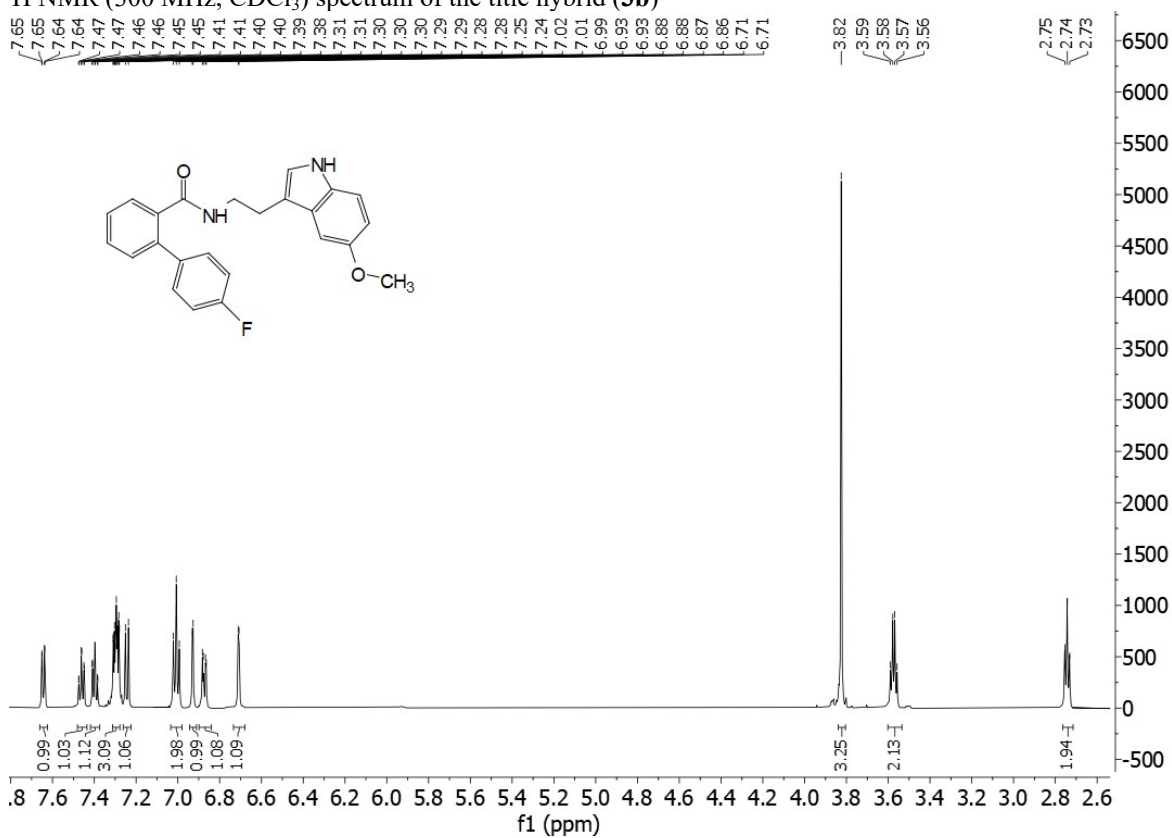


Fig. S9: ^{13}C NMR (75 MHz, CDCl_3) spectrum of the title hybrid (**3b**)

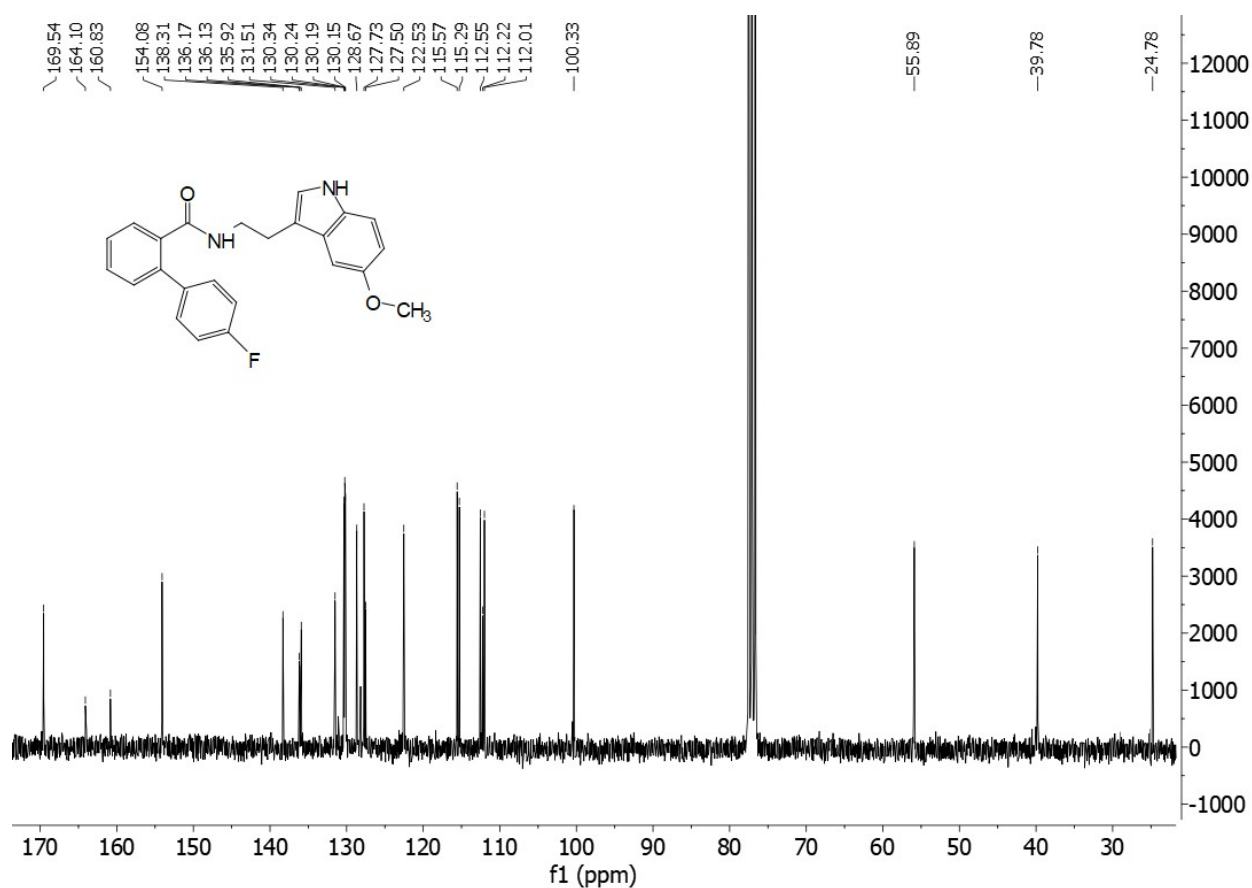


Fig. S10: ^1H NMR (300 MHz, CDCl_3) spectrum of the title hybrid (**3c**)

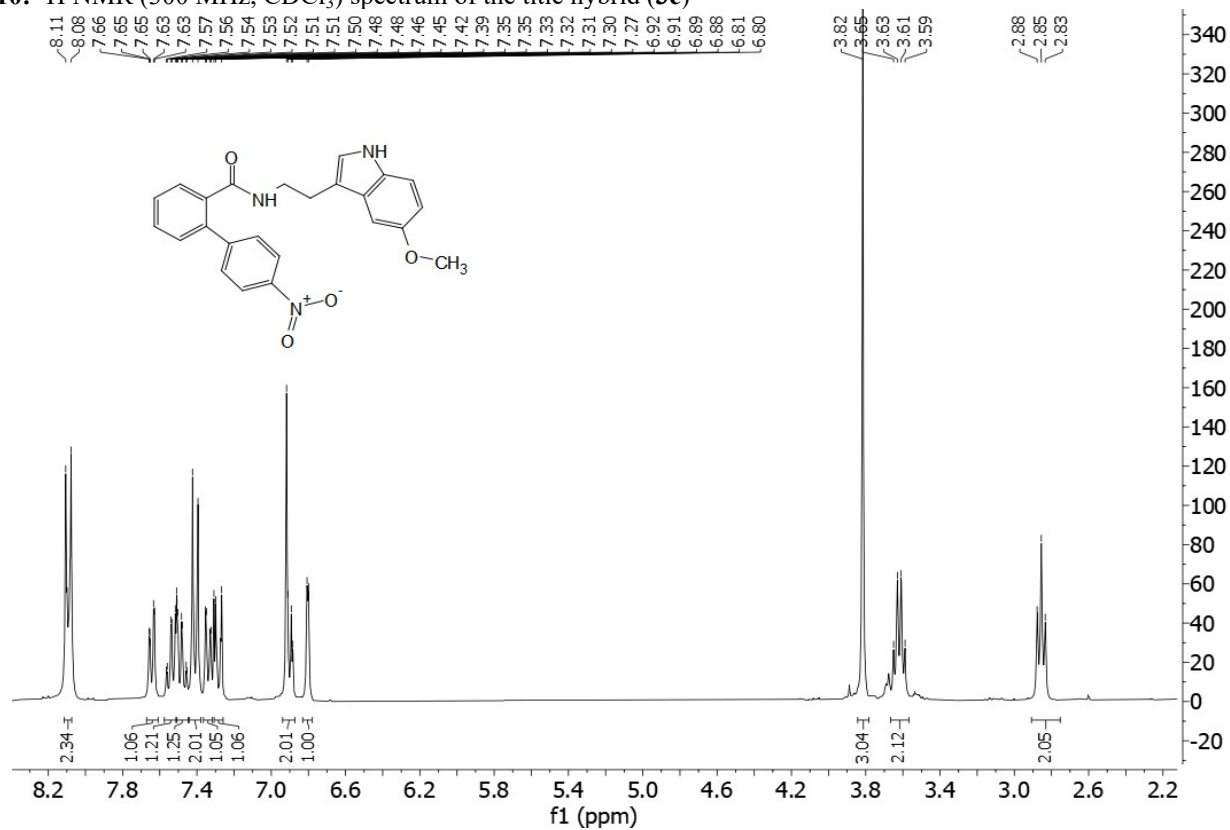


Fig. S11: ^{13}C NMR (75 MHz, CDCl_3) spectrum of the title hybrid (**3c**)

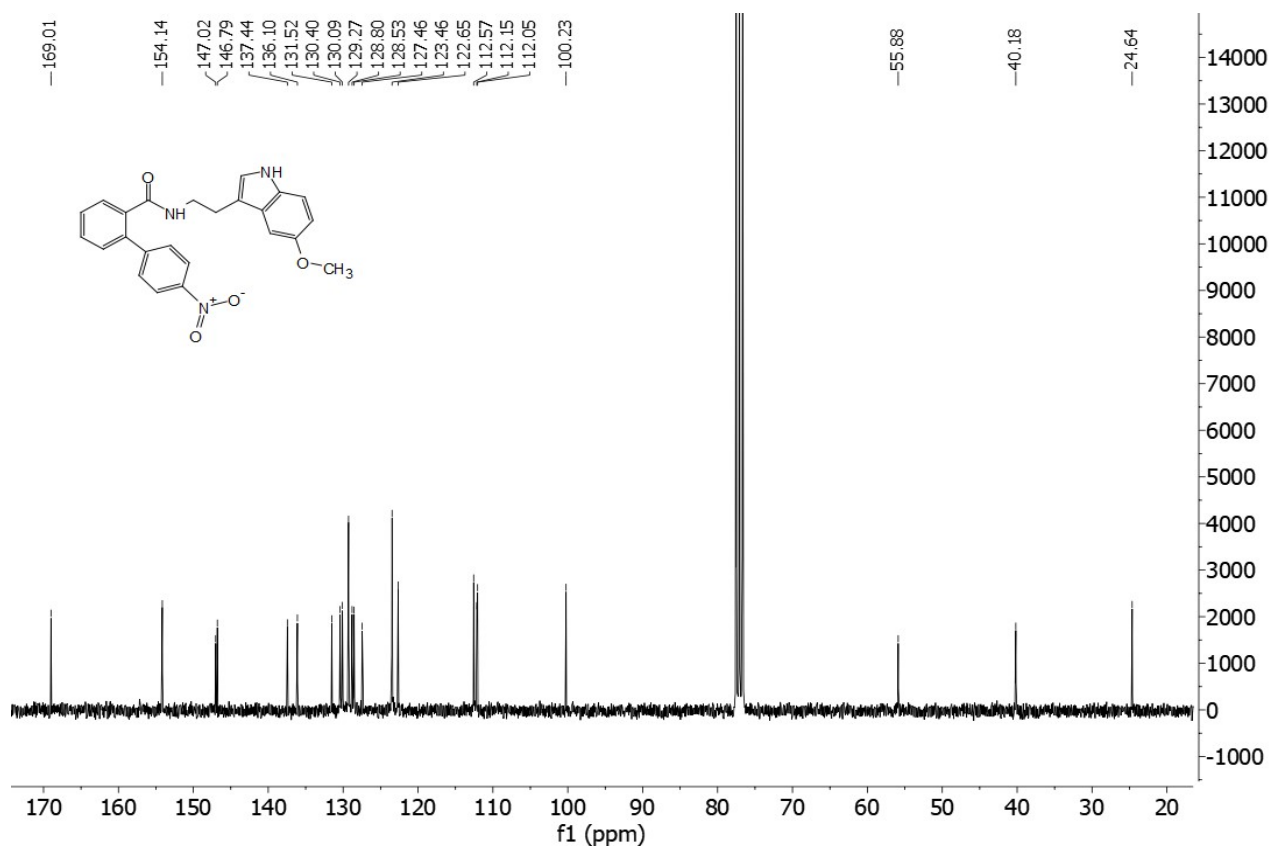


Fig. S12: ^1H NMR (300 MHz, CDCl_3) spectrum of the title hybrid (**3d**)

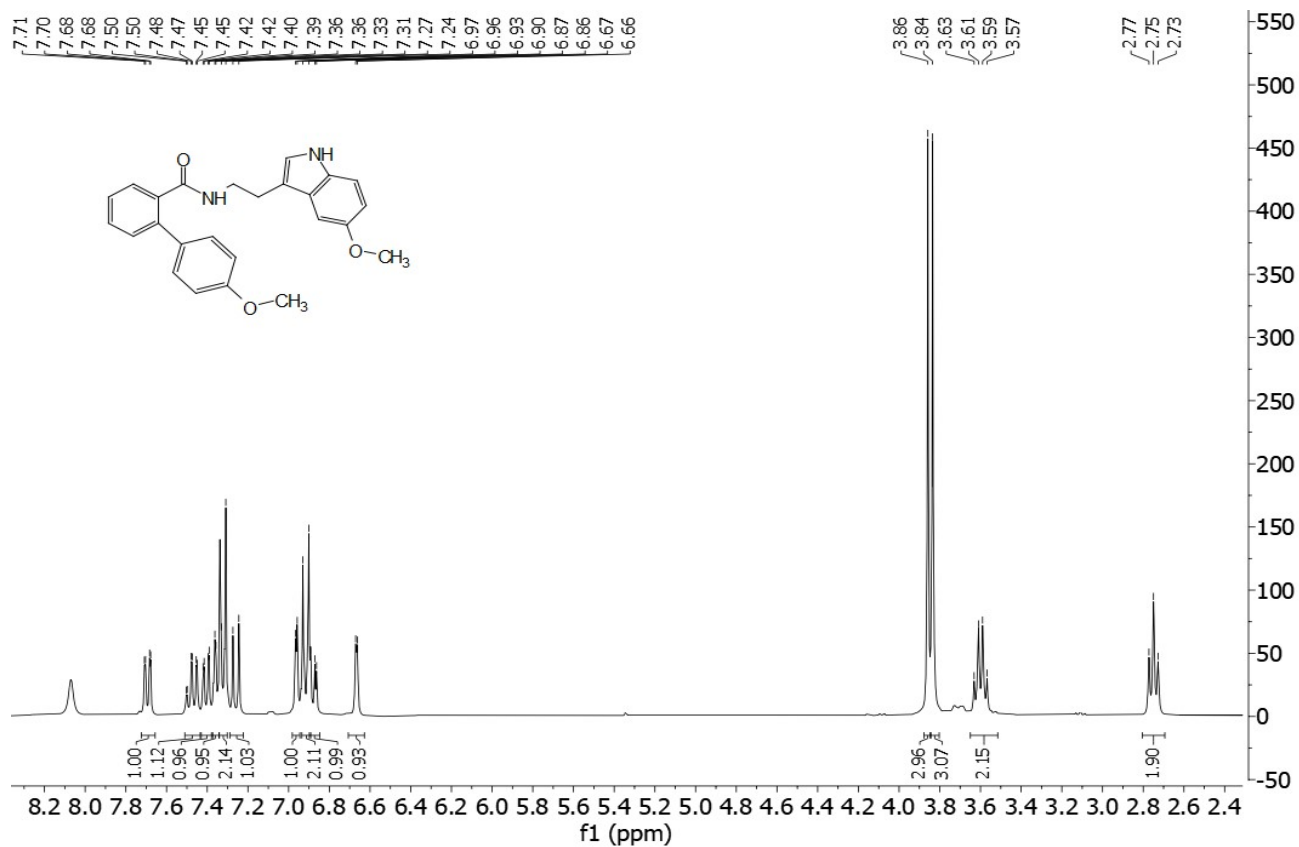


Fig. S13: ^{13}C NMR (75 MHz, CDCl_3) spectrum of the title hybrid (**3d**)

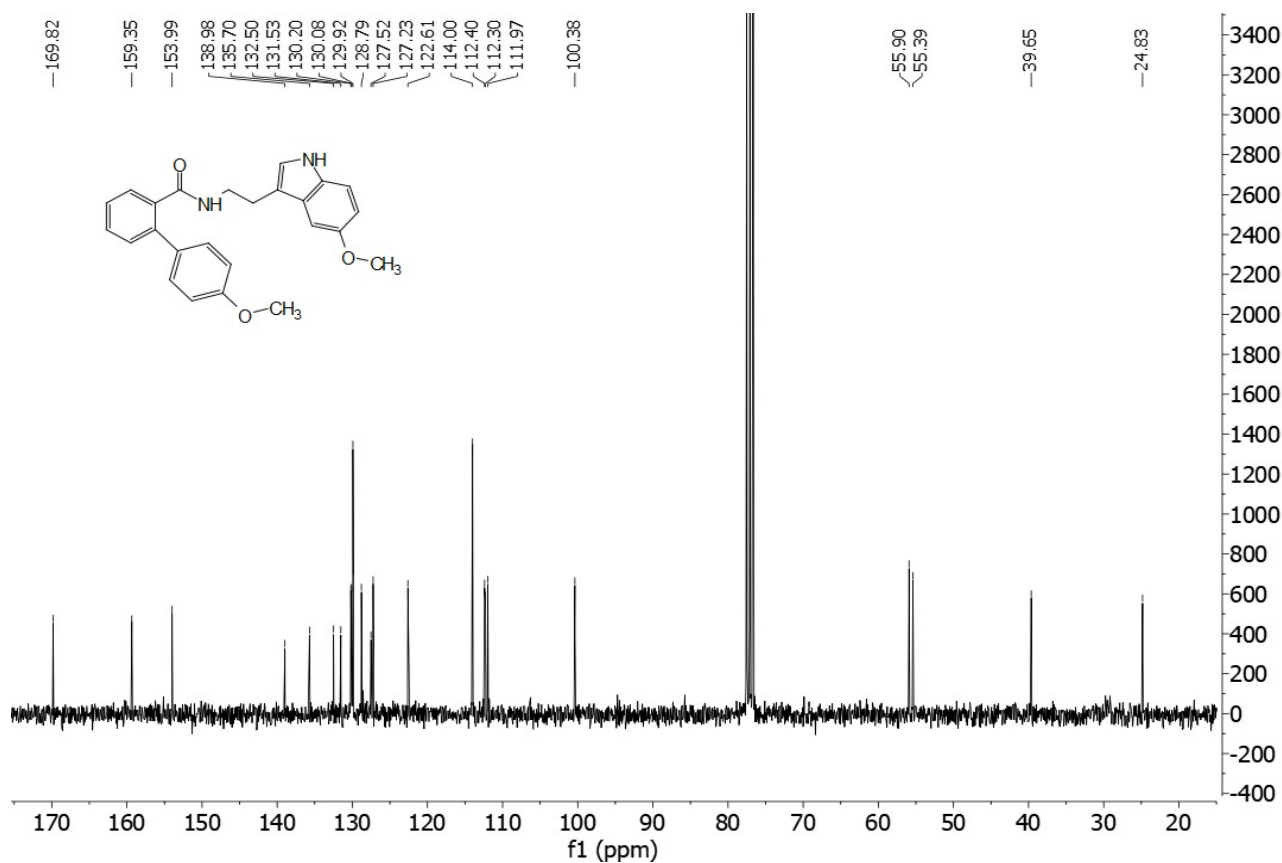


Fig. S14: ^1H NMR (300 MHz, CDCl_3) spectrum of the title hybrid (**3e**) (atropoisomer mixture)

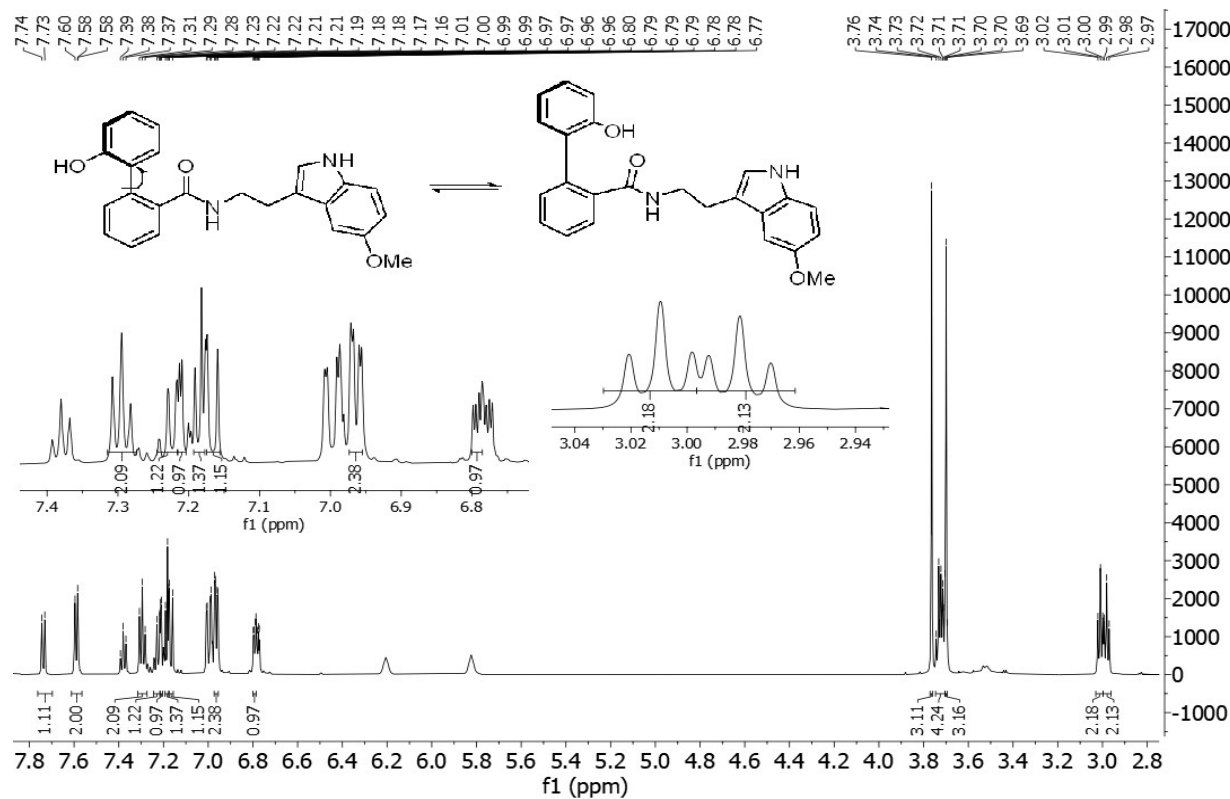


Fig. S15: ^{13}C NMR (75 MHz, CDCl_3) spectrum of the title hybrid (**3e**) (atropoisomer mixture)

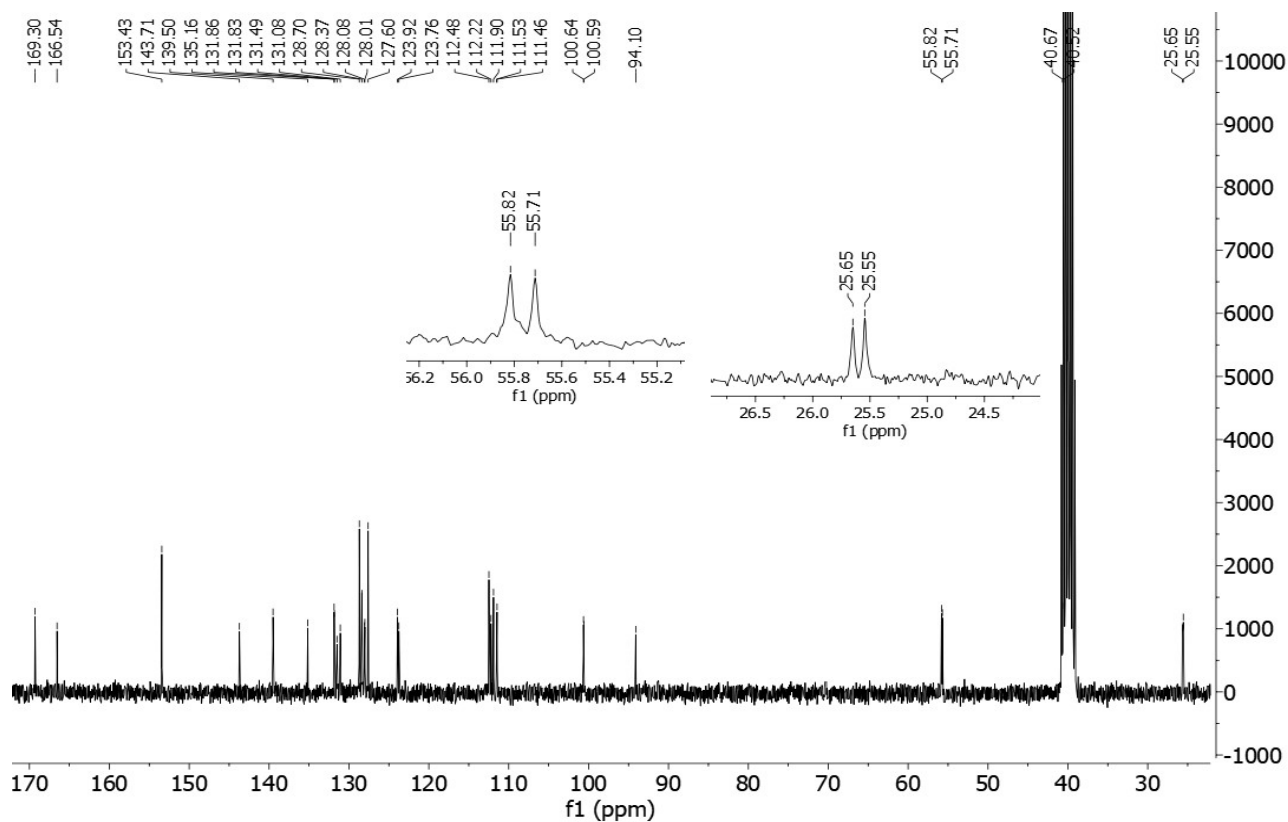


Fig. S16: ^1H NMR (300 MHz, CDCl_3) spectrum of the title hybrid (**3f**)

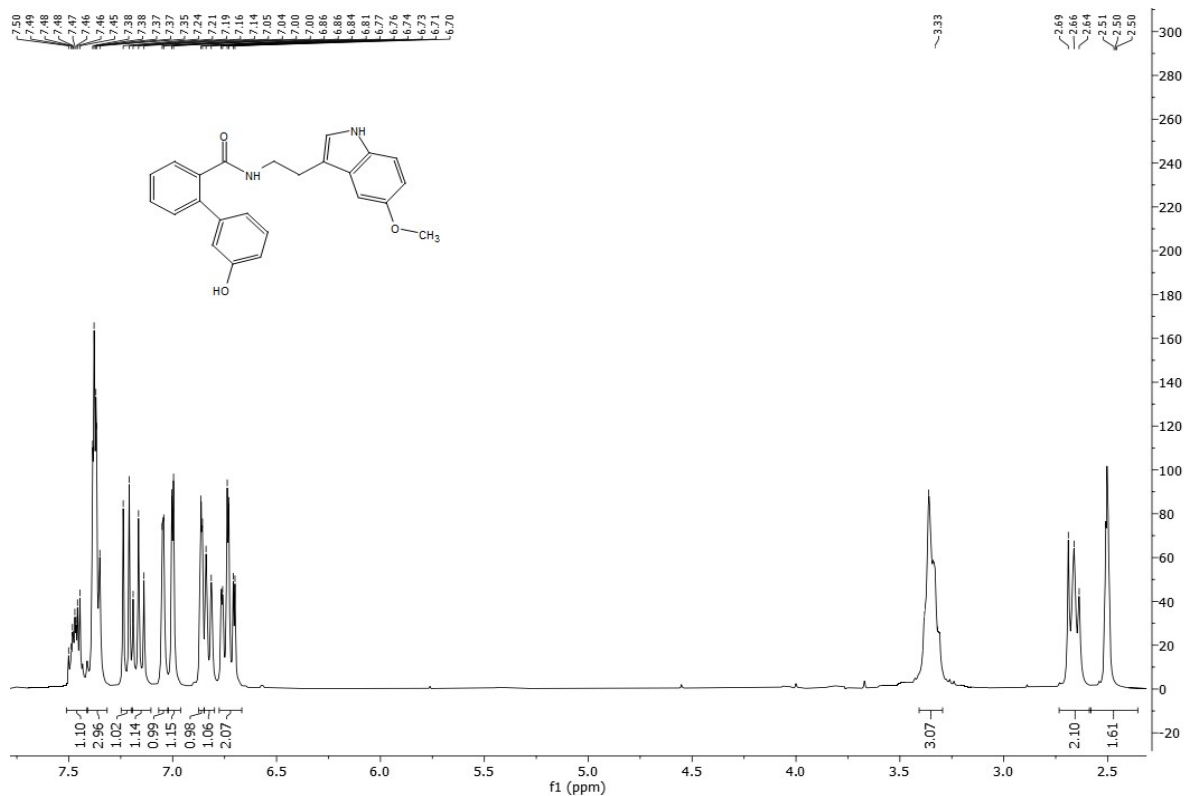


Fig. S17: ^{13}C NMR (75 MHz, CDCl_3) spectrum of the title hybrid (**3f**)

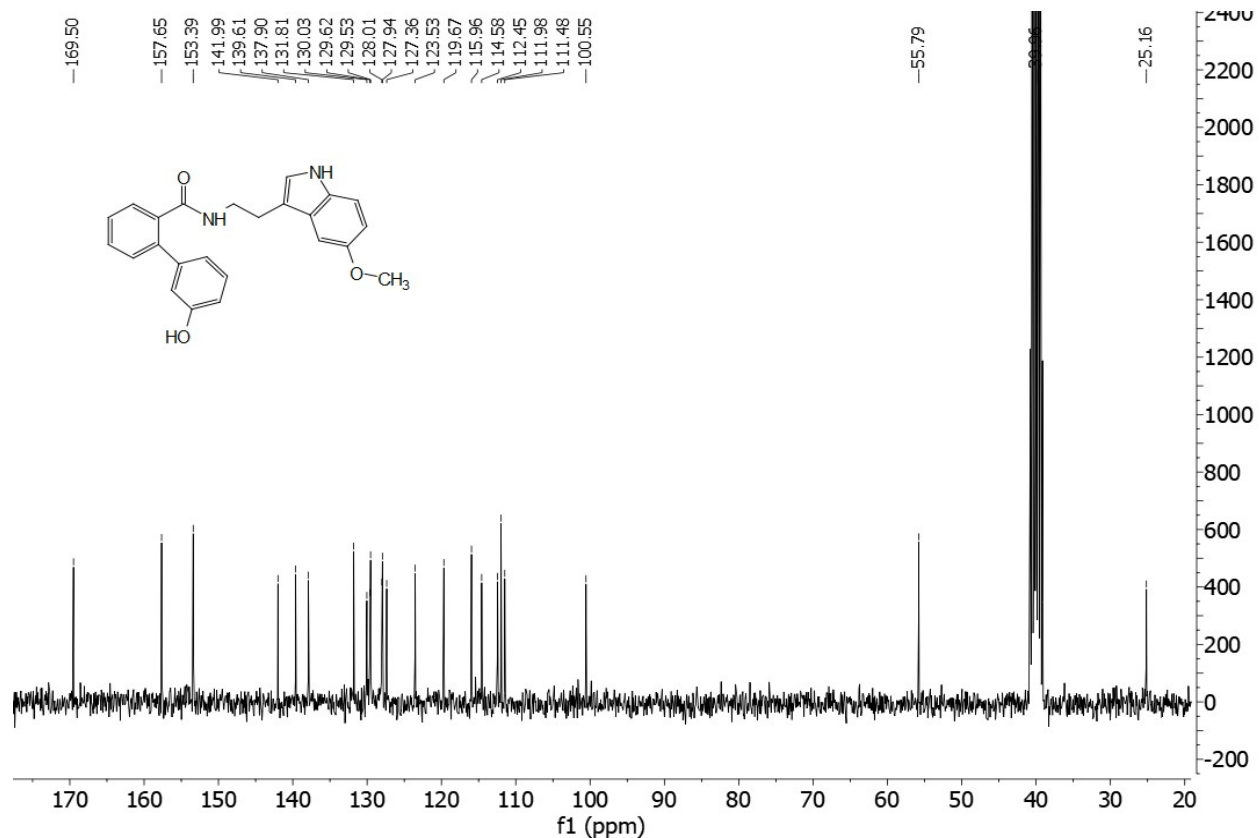


Fig. S18: ^1H NMR (300 MHz, CDCl_3) spectrum of the title hybrid (**3g**)

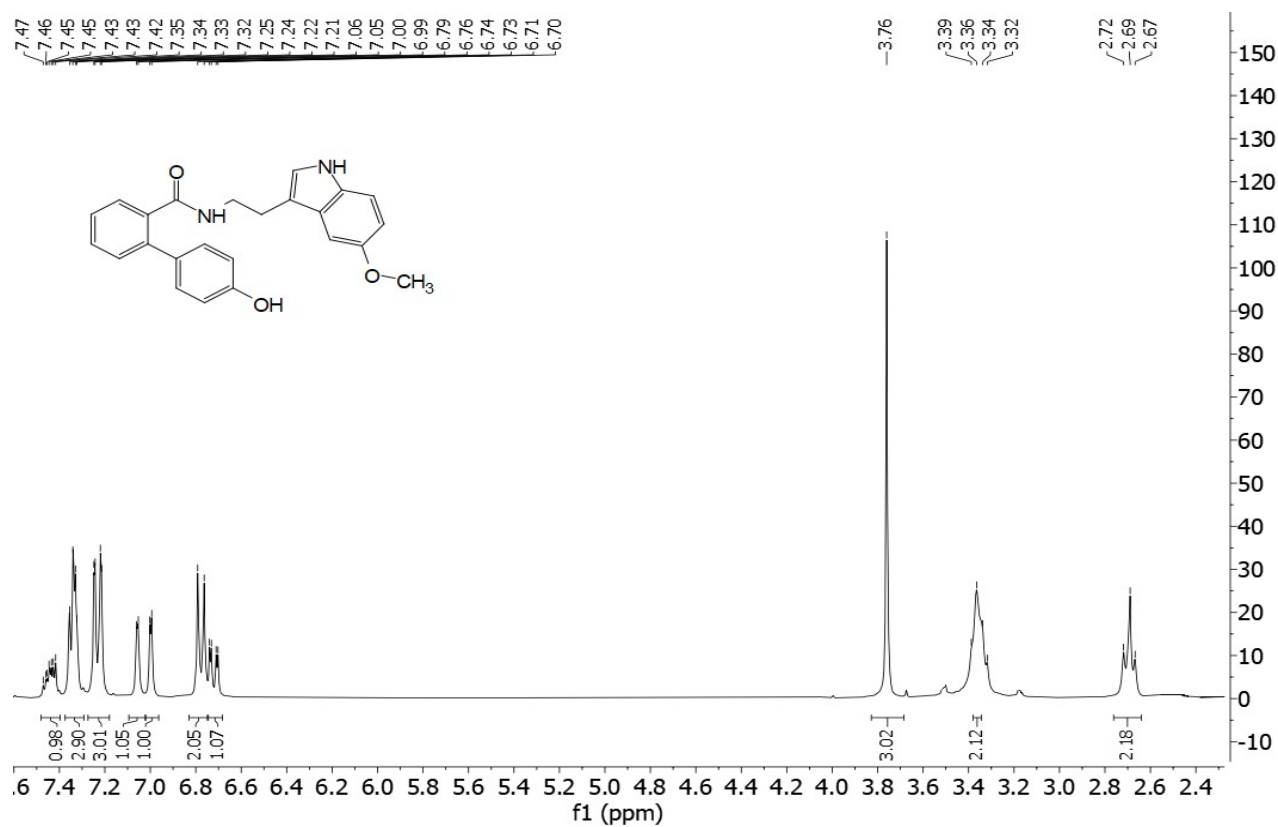


Fig. S19: ^{13}C NMR (75 MHz, CDCl_3) spectrum of the title hybrid (**3g**)

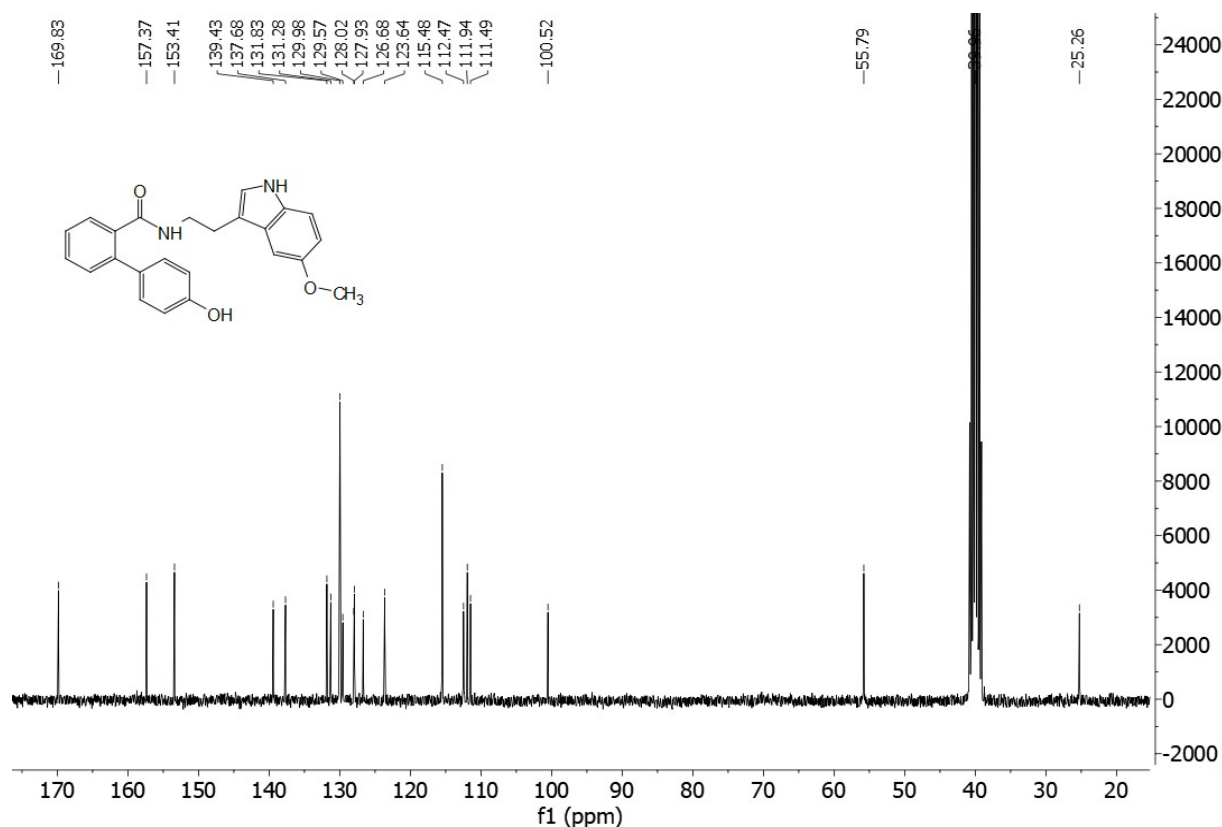


Fig. S20: ^1H NMR (300 MHz, CDCl_3) spectrum of the title hybrid (**3h**)

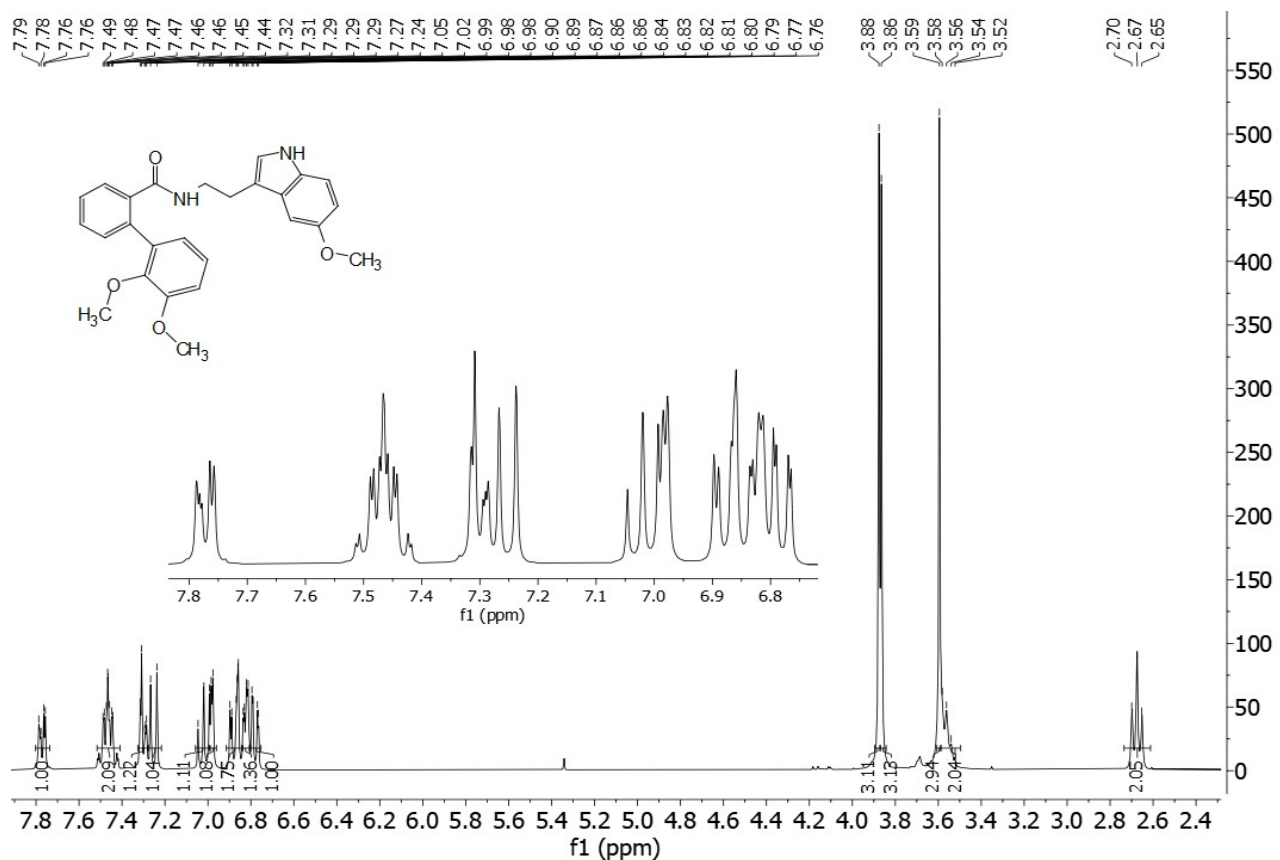


Fig. S21: ^{13}C NMR (75 MHz, CDCl_3) spectrum of the title hybrid (**3h**)

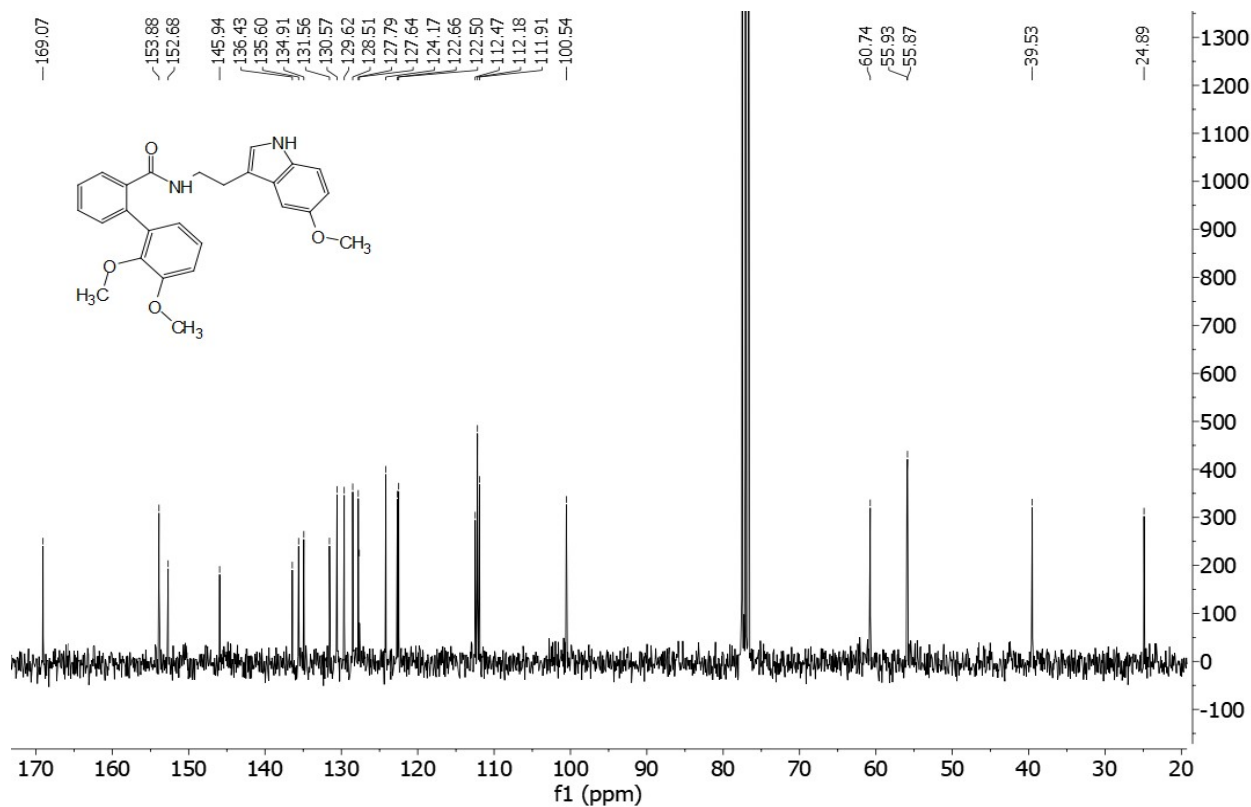


Fig. S22: ^1H NMR (300 MHz, CDCl_3) spectrum of the title hybrid (**3i**)

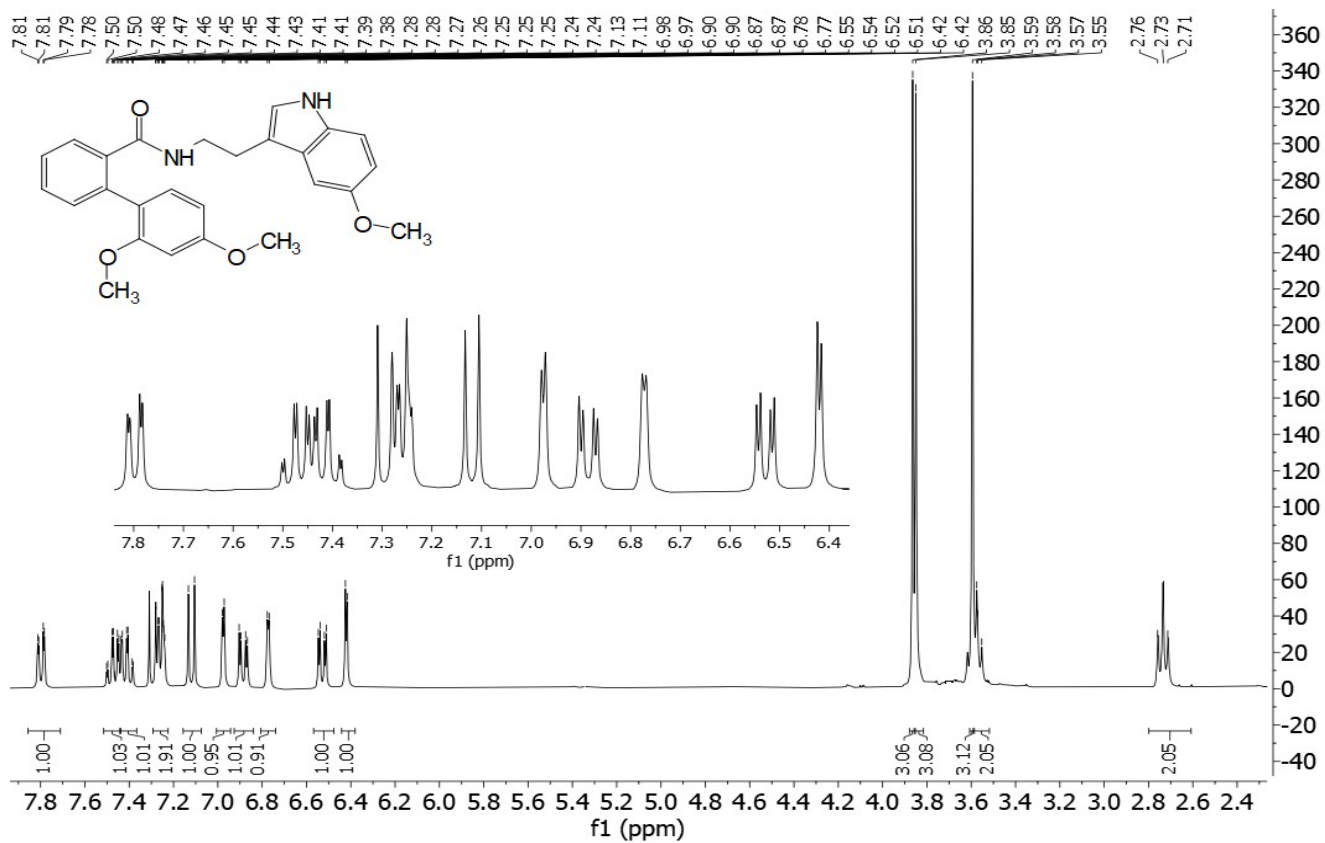


Fig. S23: ^{13}C NMR (75 MHz, CDCl_3) spectrum of the title hybrid (**3i**)

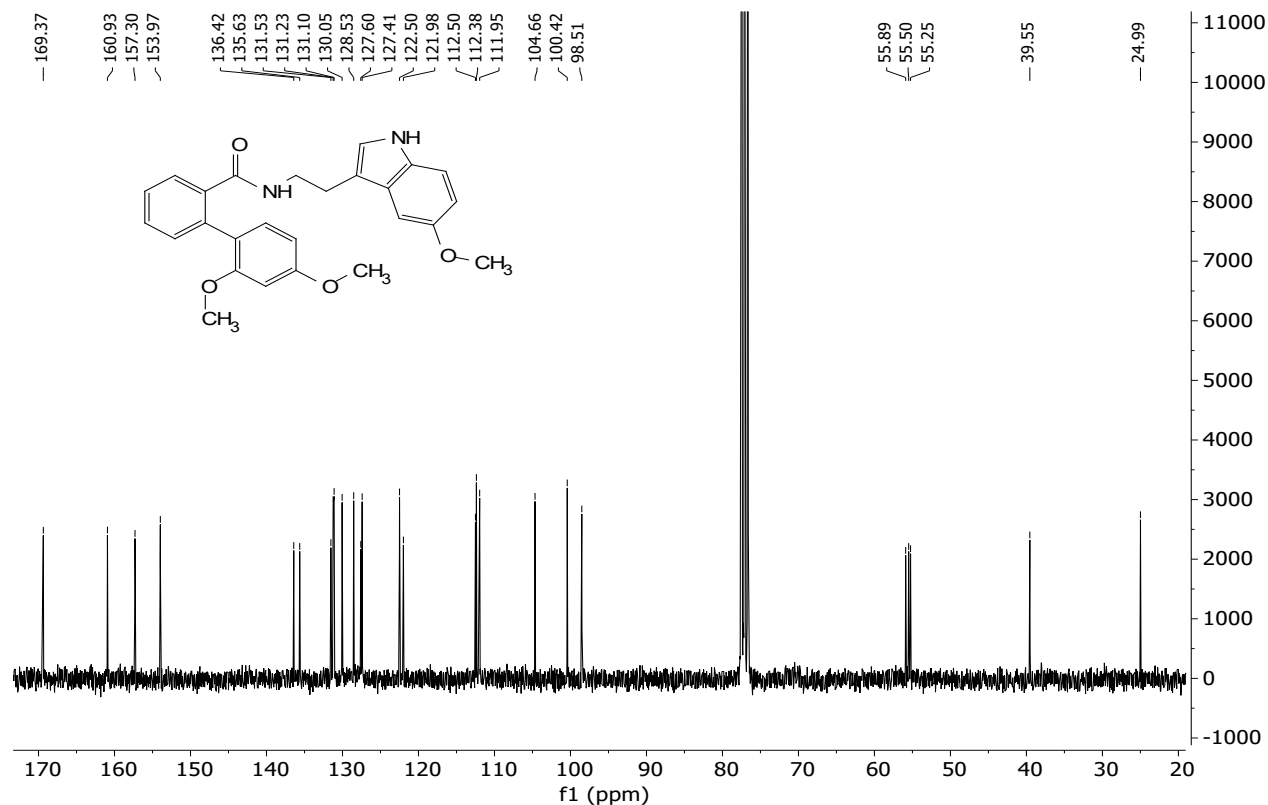


Fig. S24: ^1H NMR (300 MHz, CDCl_3) spectrum of the title hybrid (**3j**)

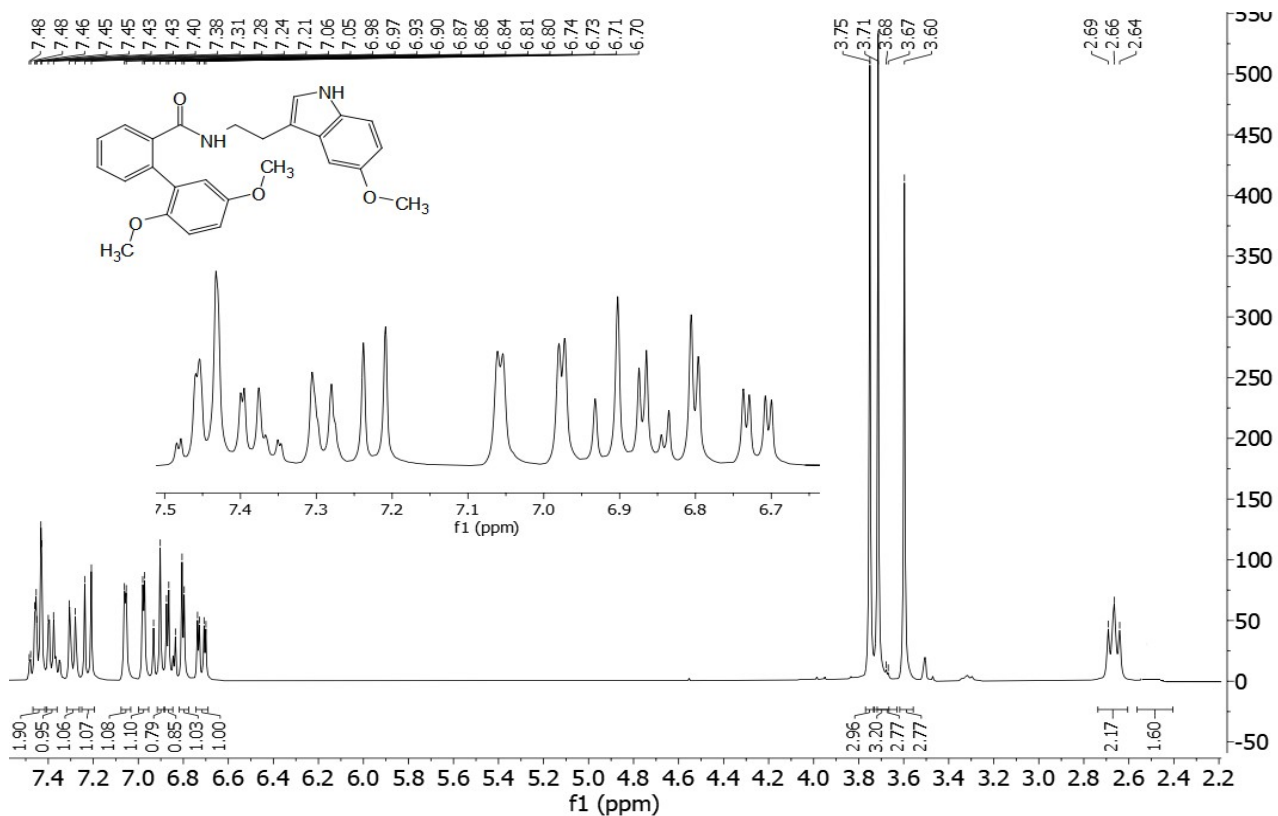


Fig. S25: ^{13}C NMR (75 MHz, CDCl_3) spectrum of the title hybrid (**3j**)

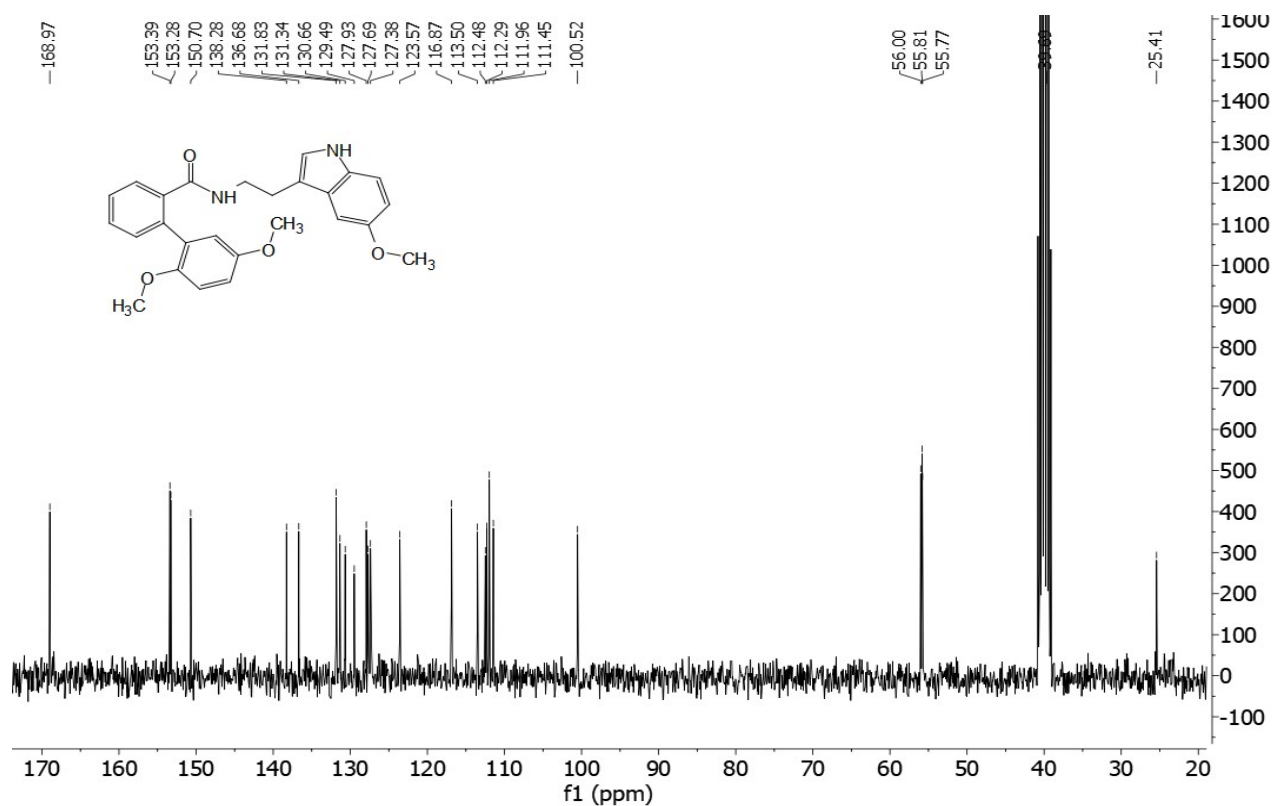


Fig. S26: ^1H NMR (300 MHz, CDCl_3) spectrum of the title hybrid (**3k**)

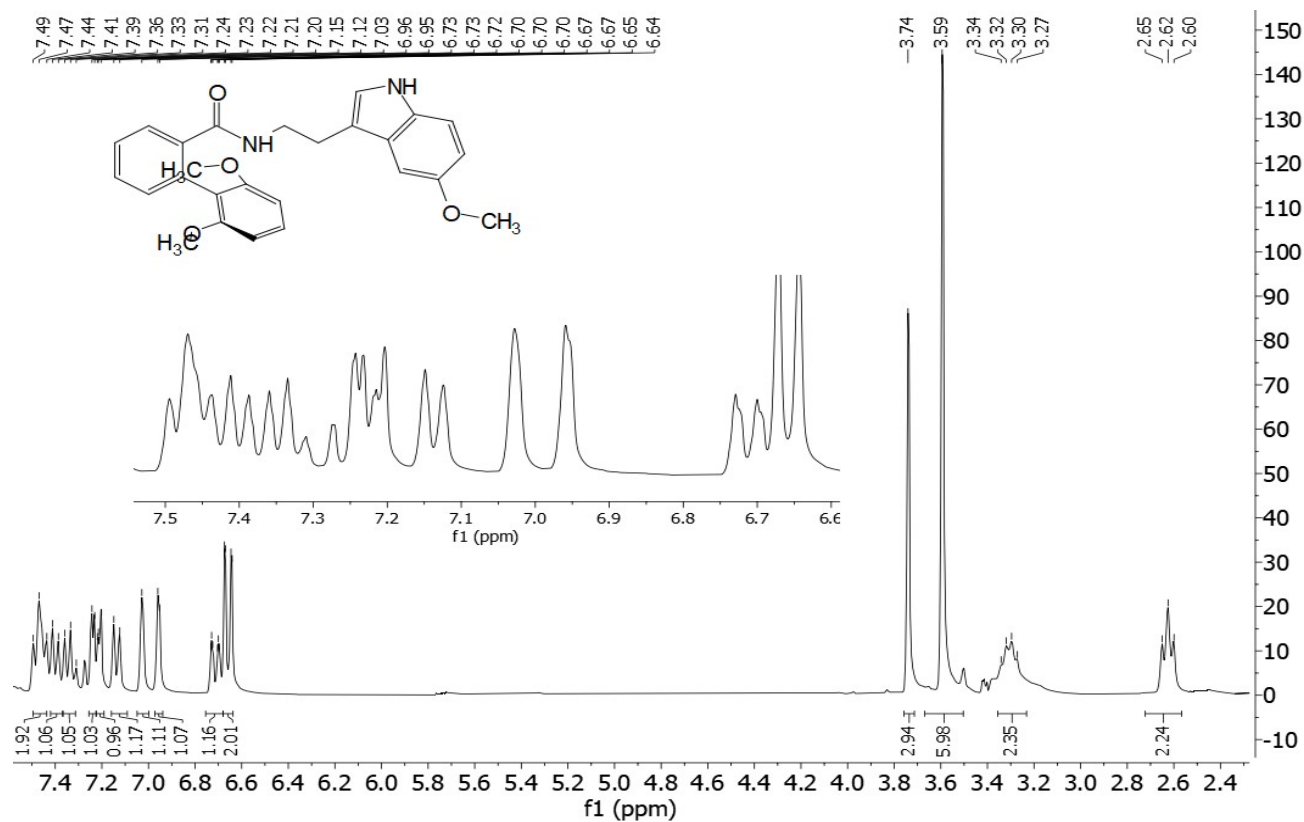


Fig. S27: ^{13}C NMR (75 MHz, CDCl_3) spectrum of the title hybrid (**3k**)

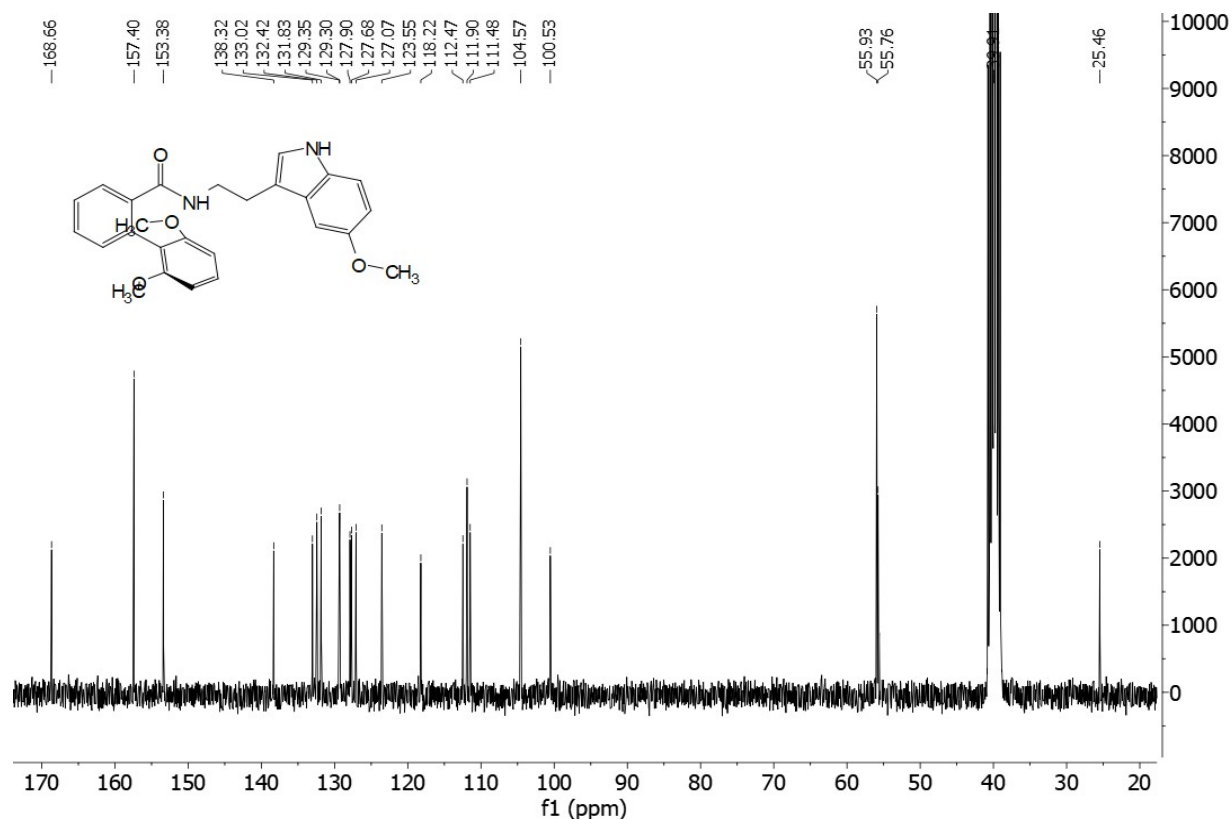


Fig. S28: ^1H NMR (300 MHz, CDCl_3) spectrum of the title hybrid (**3l**)

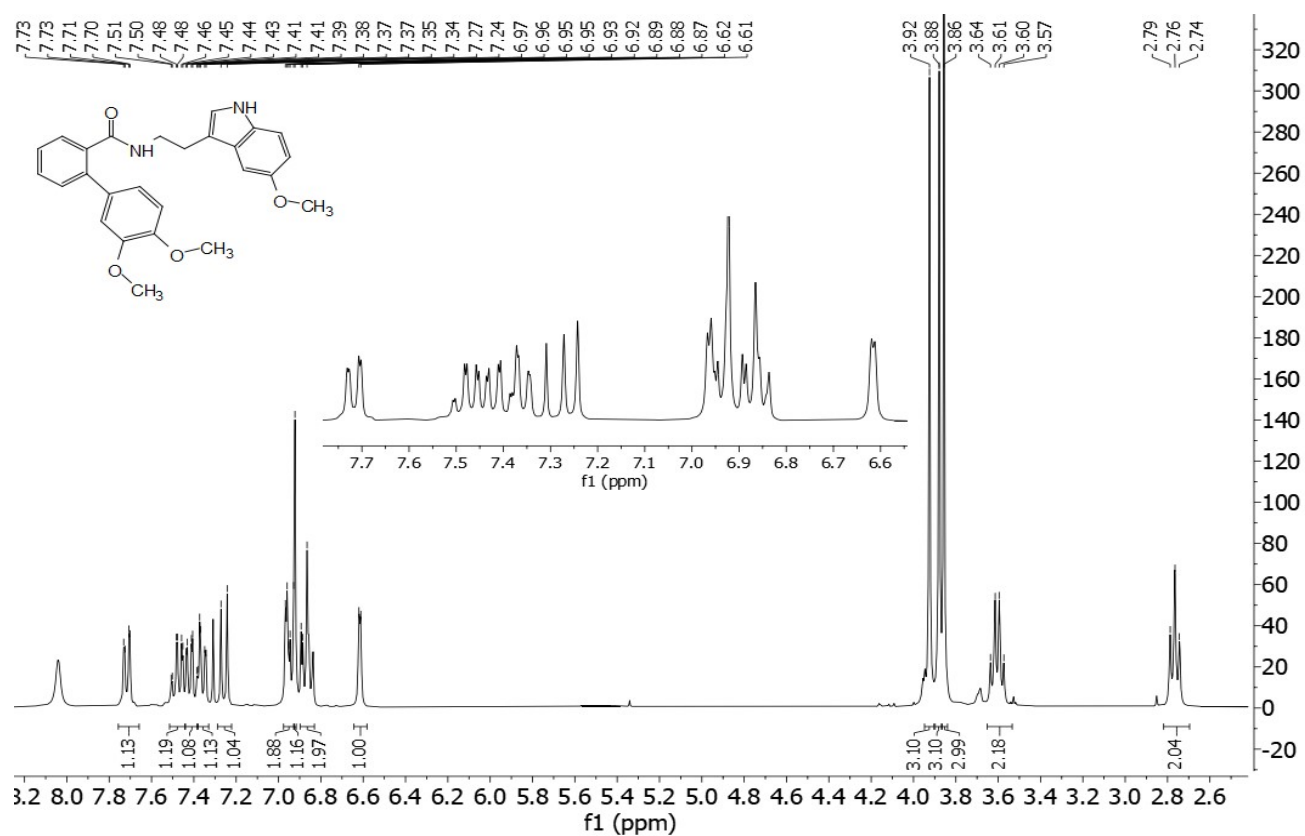
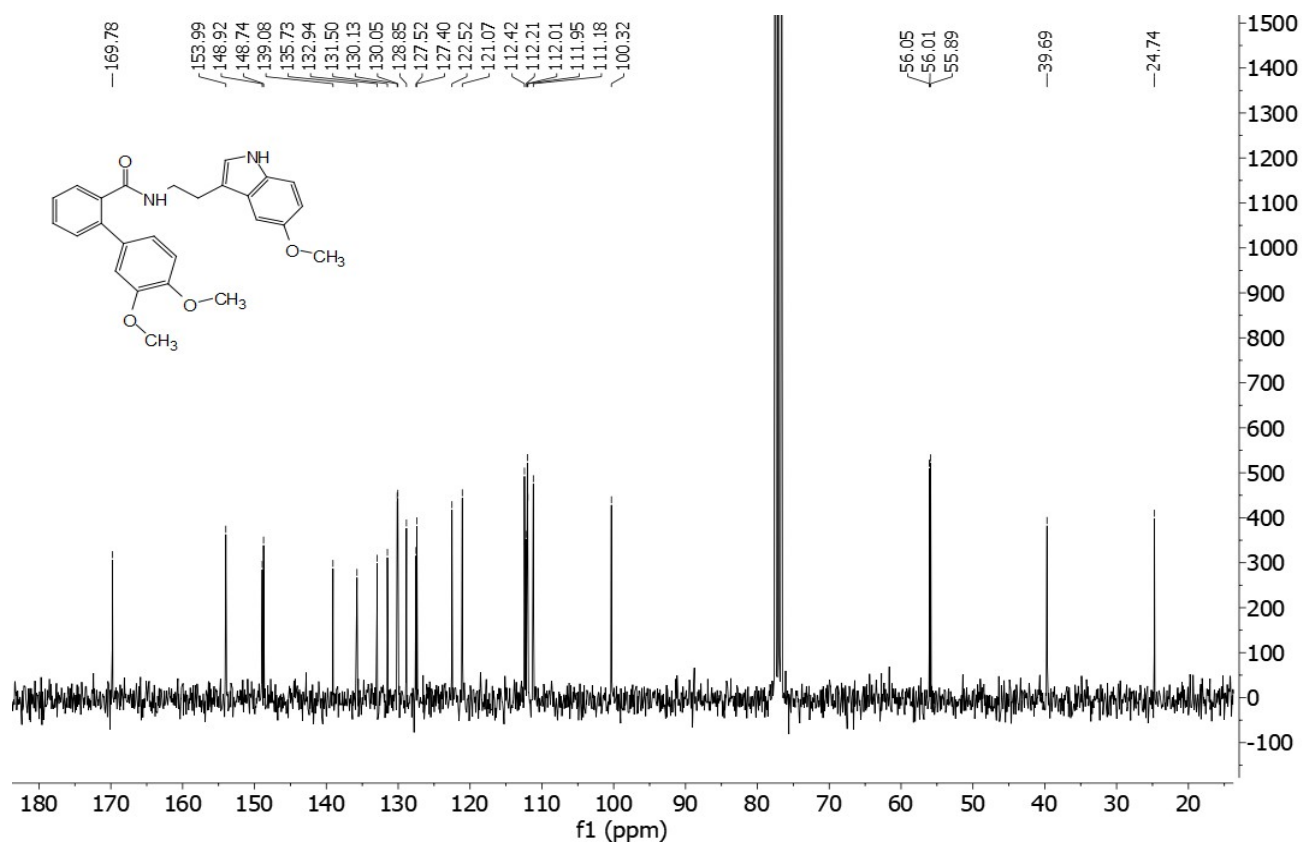


Fig. S29: ^{13}C NMR (75 MHz, CDCl_3) spectrum of the title hybrid (**3l**)



3) ^1H and ^{13}C NMR spectra of the target hybrids 4a-j.

Fig. S30: ^1H NMR (300 MHz, CDCl_3) spectrum of the title hybrid (**4a**)

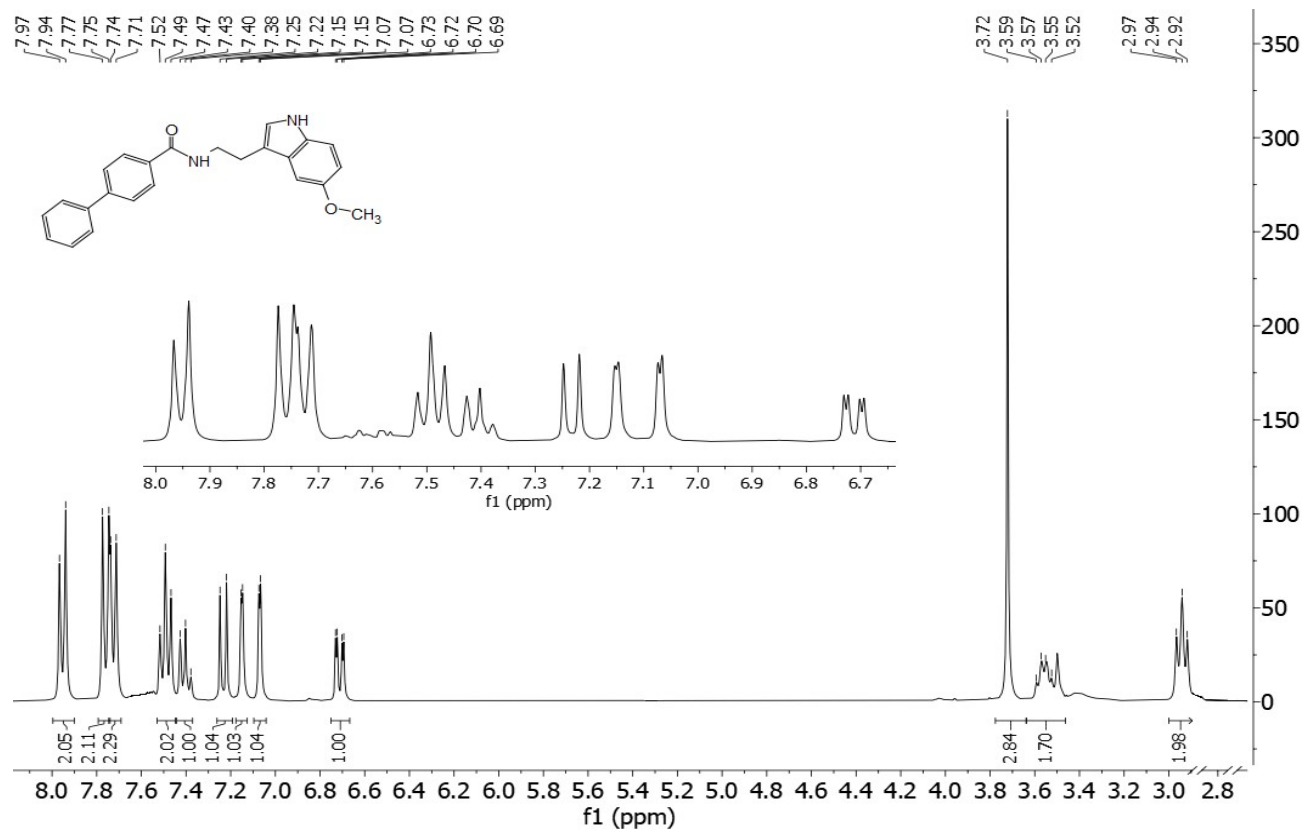


Fig. S31: ^{13}C NMR (75 MHz, CDCl_3) spectrum of the title hybrid (**4a**)

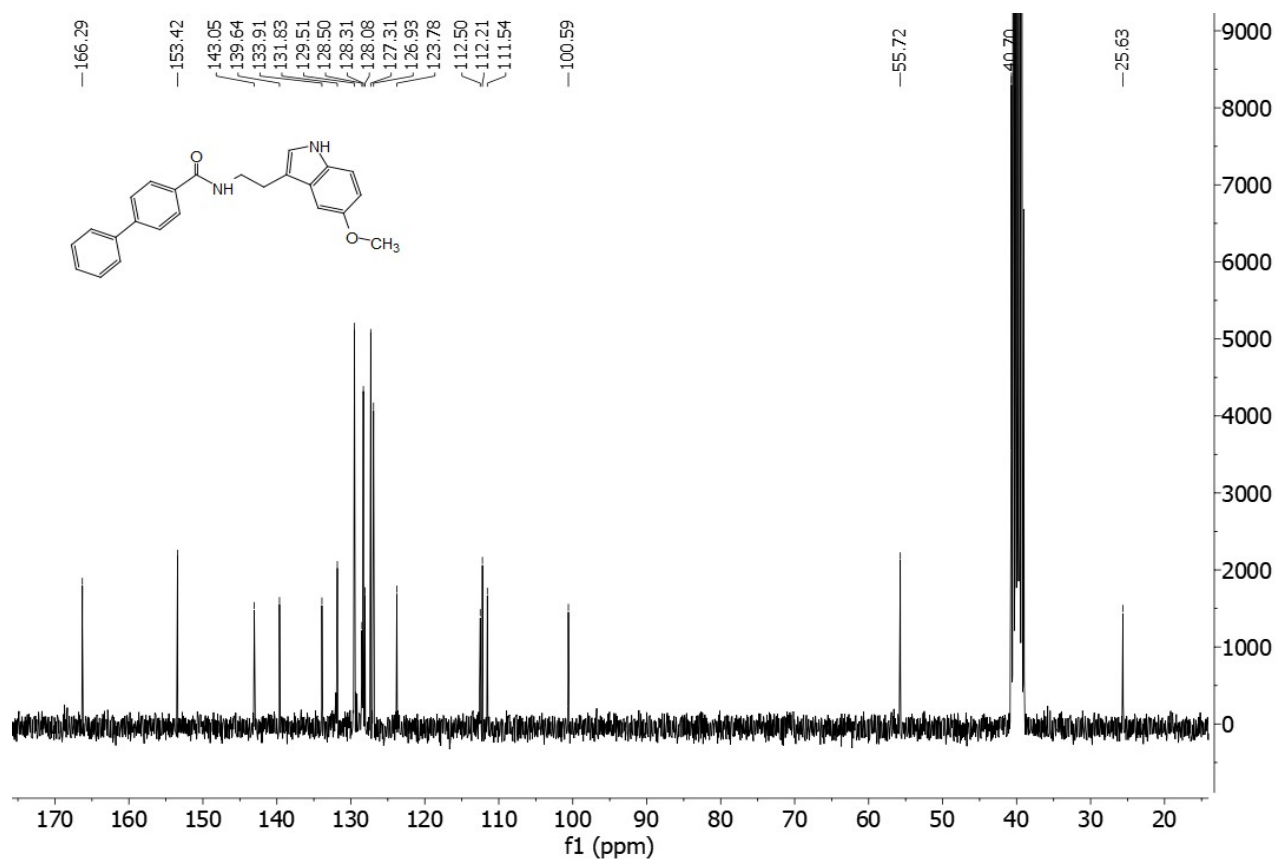


Fig. S32: ^1H NMR (300 MHz, CDCl_3) spectrum of the title hybrid (**4b**)

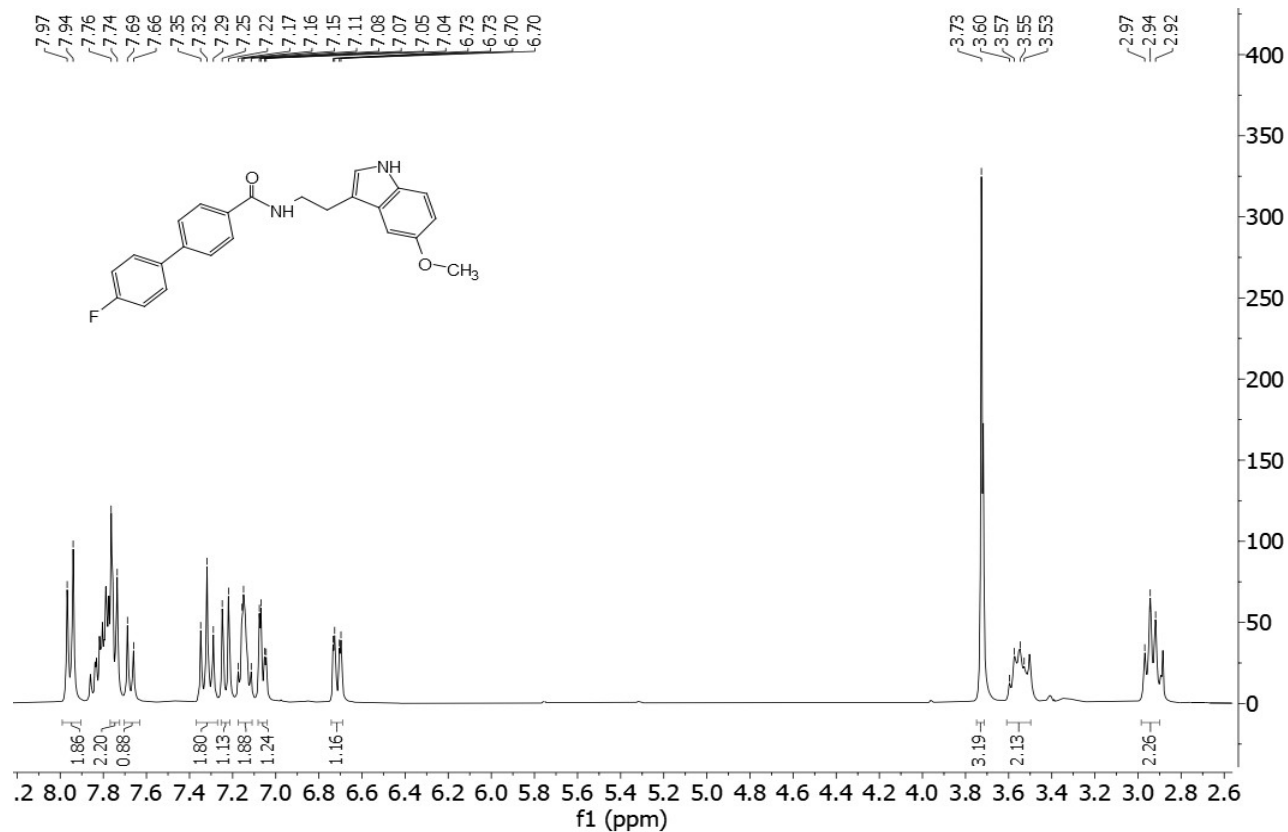


Fig. S33: ^{13}C NMR (75 MHz, CDCl_3) spectrum of the title hybrid (**4b**)

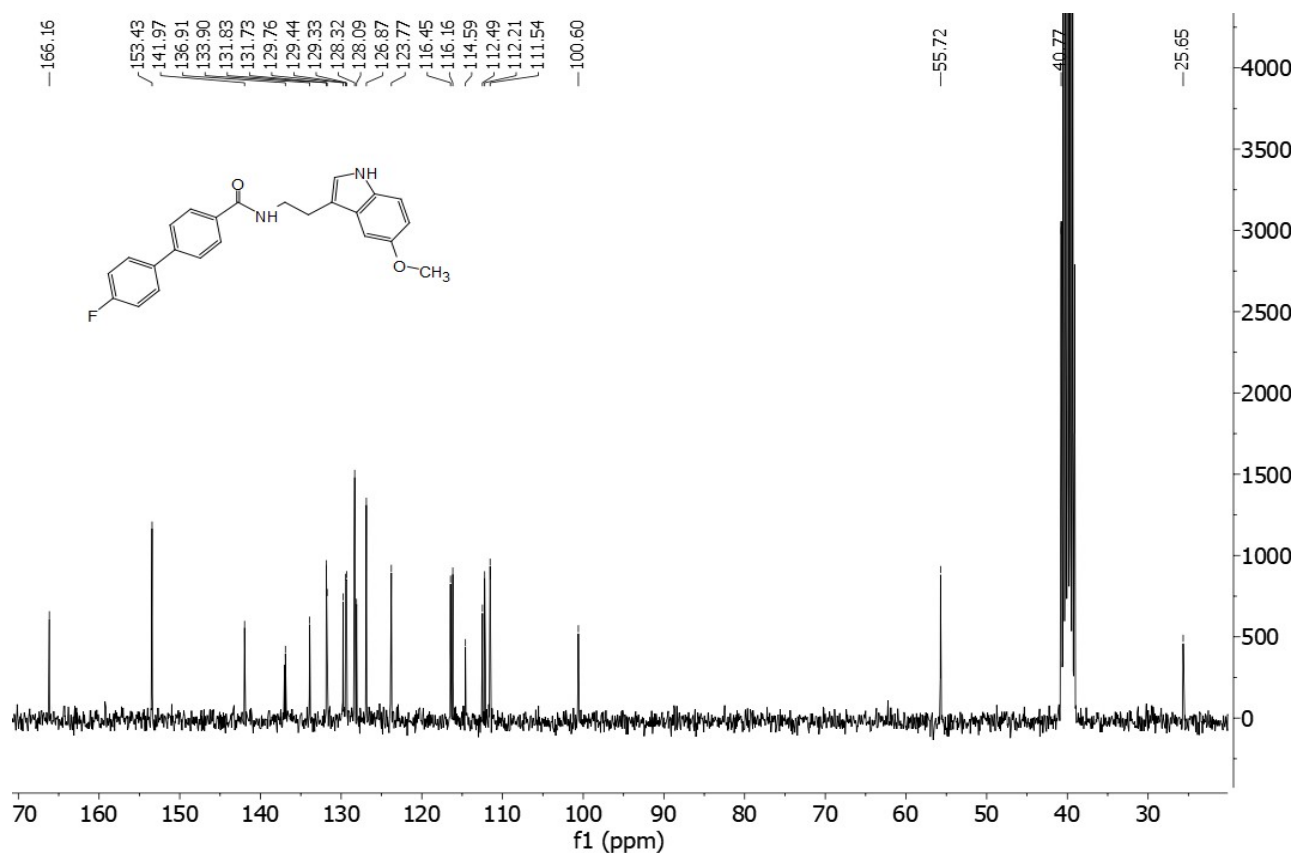


Fig. S34: ^1H NMR (300 MHz, CDCl_3) spectrum of the title hybrid (**4c**)

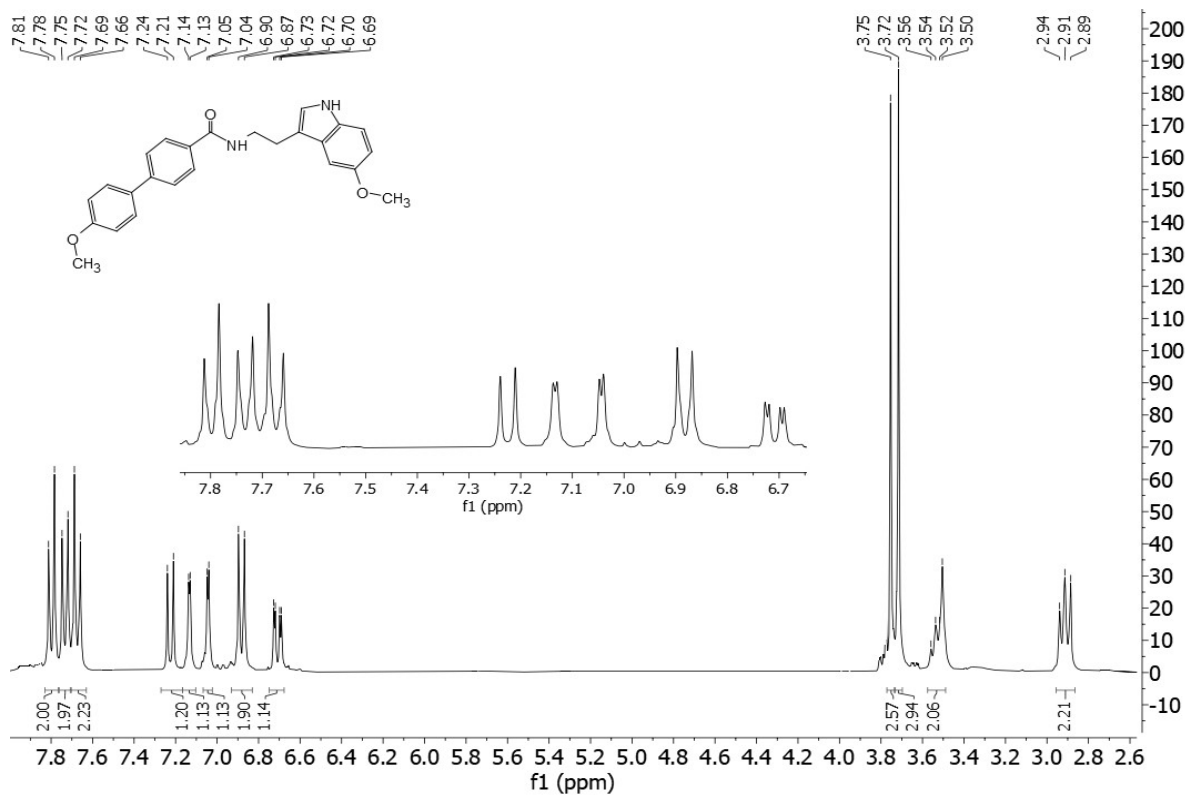


Fig. S35: ^{13}C NMR (75 MHz, CDCl_3) spectrum of the title hybrid (**4c**)

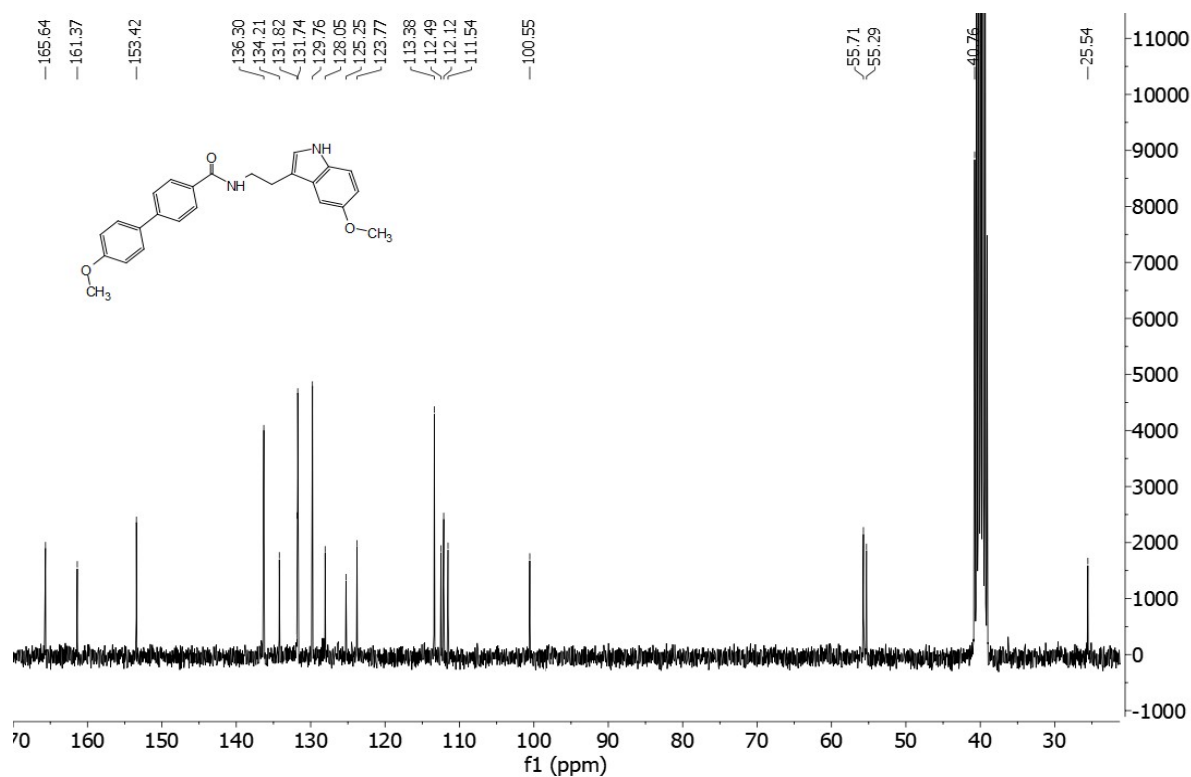


Fig. S36: ^1H NMR (300 MHz, CDCl_3) spectrum of the title hybrid (**4d**)

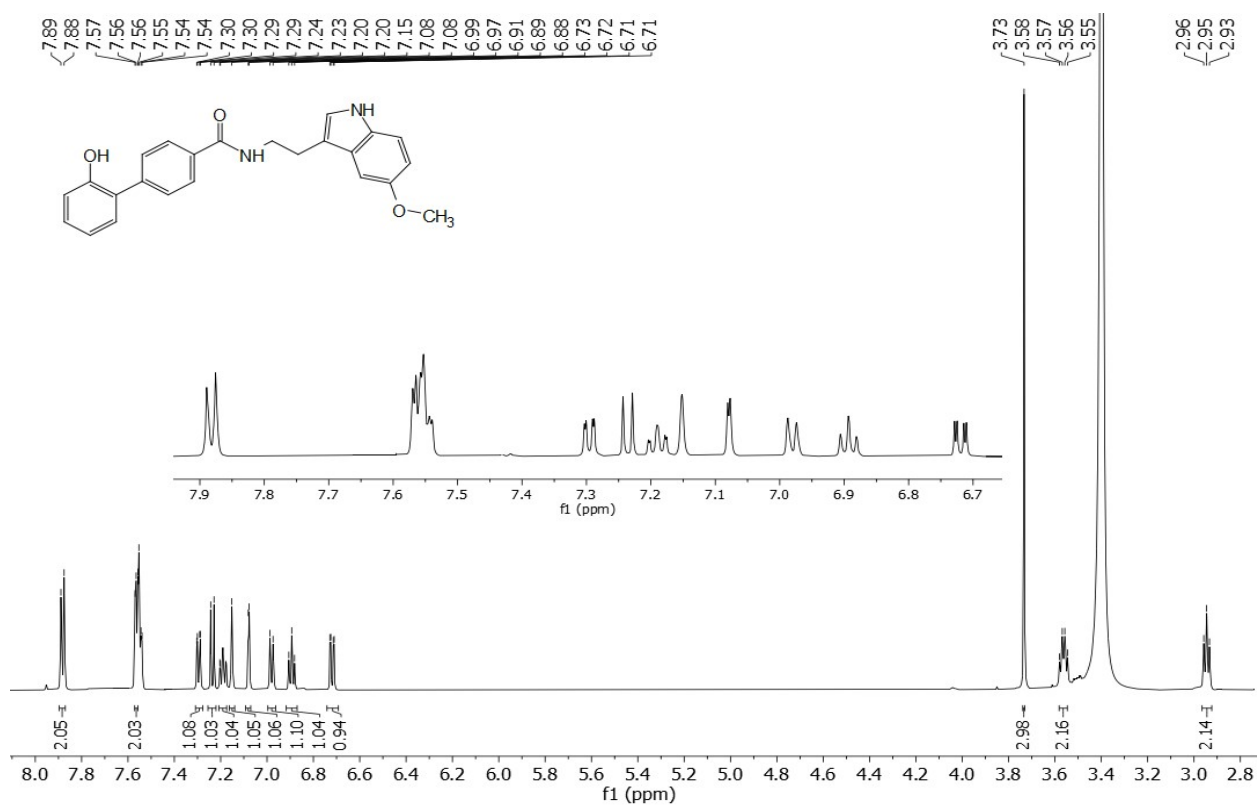


Fig. S37: ^{13}C NMR (75 MHz, CDCl_3) spectrum of the title hybrid (**4d**)

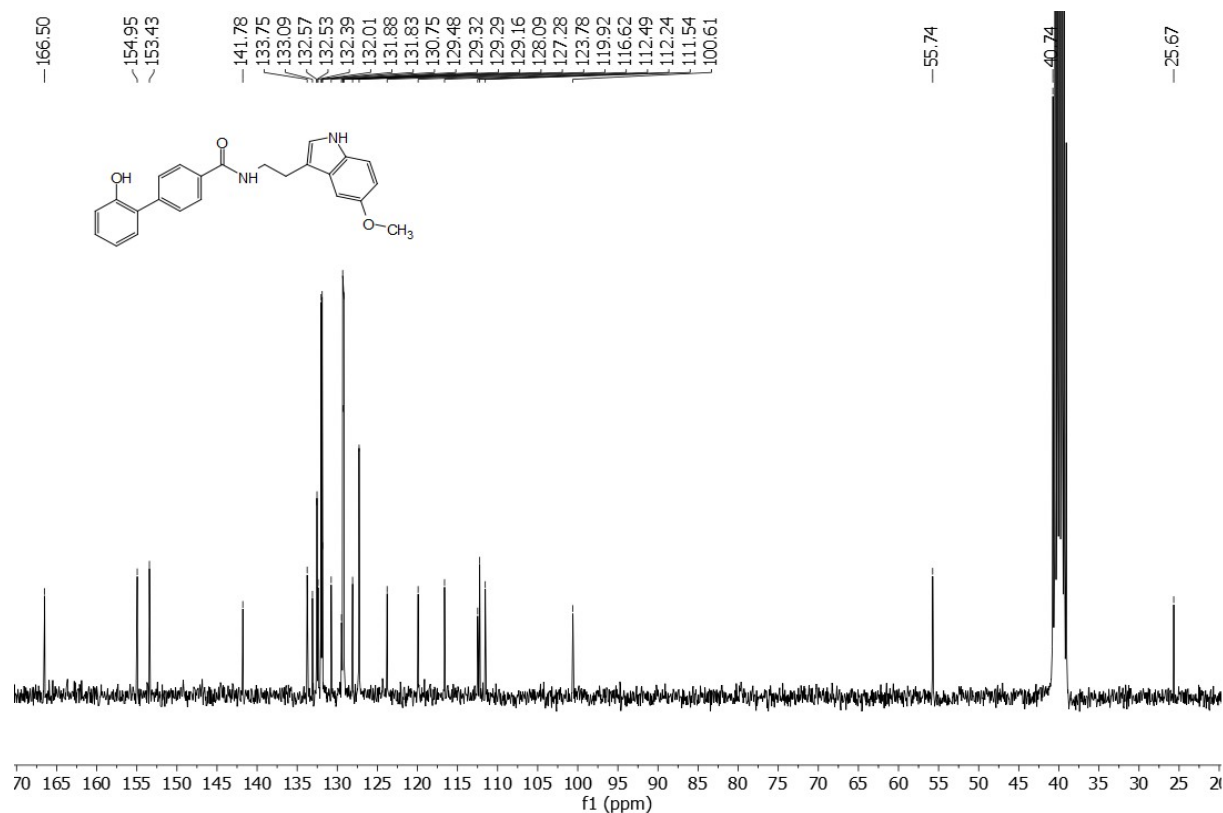


Fig. S38: ^1H NMR (300 MHz, CDCl_3) spectrum of the title hybrid (**4e**)

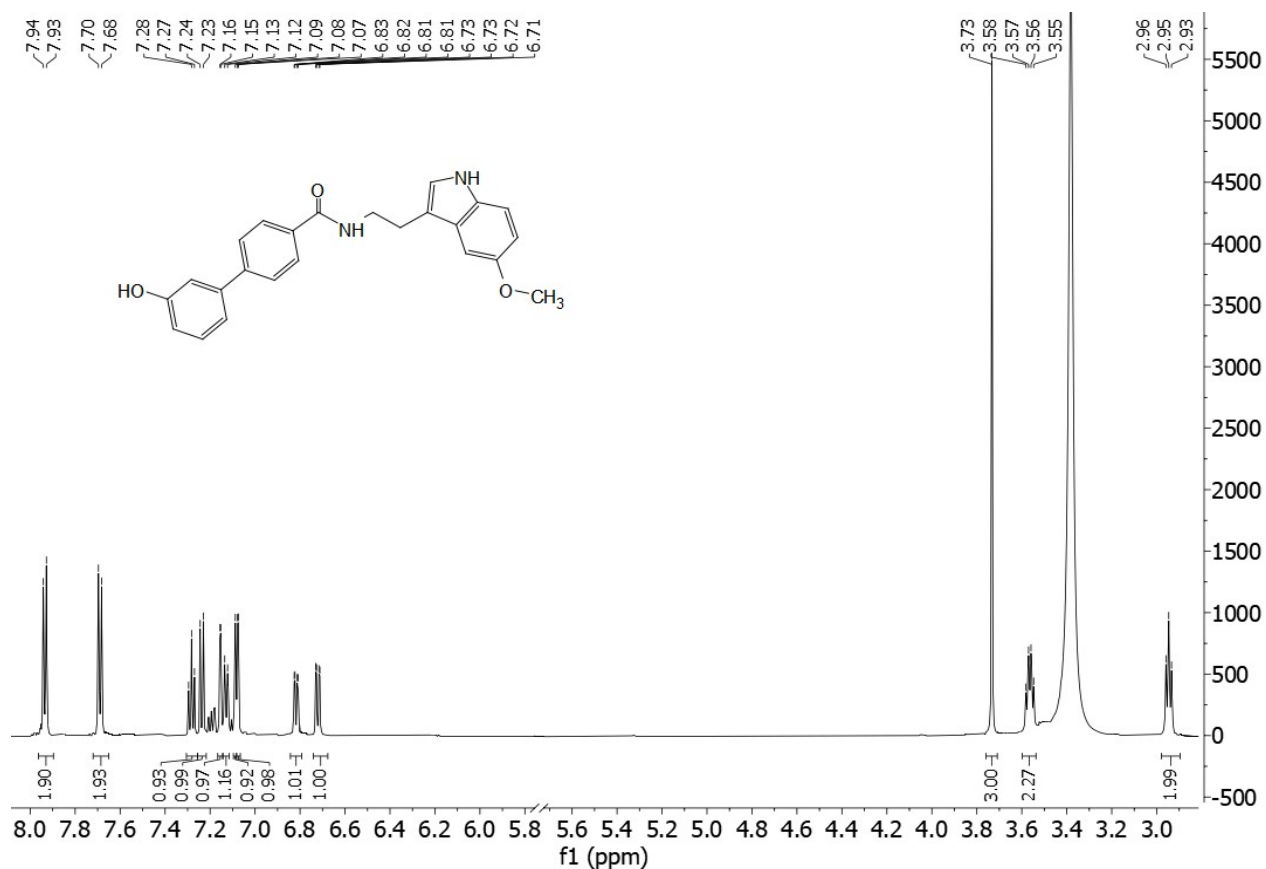


Fig. S39: ^{13}C NMR (75 MHz, CDCl_3) spectrum of the title hybrid (**4e**)

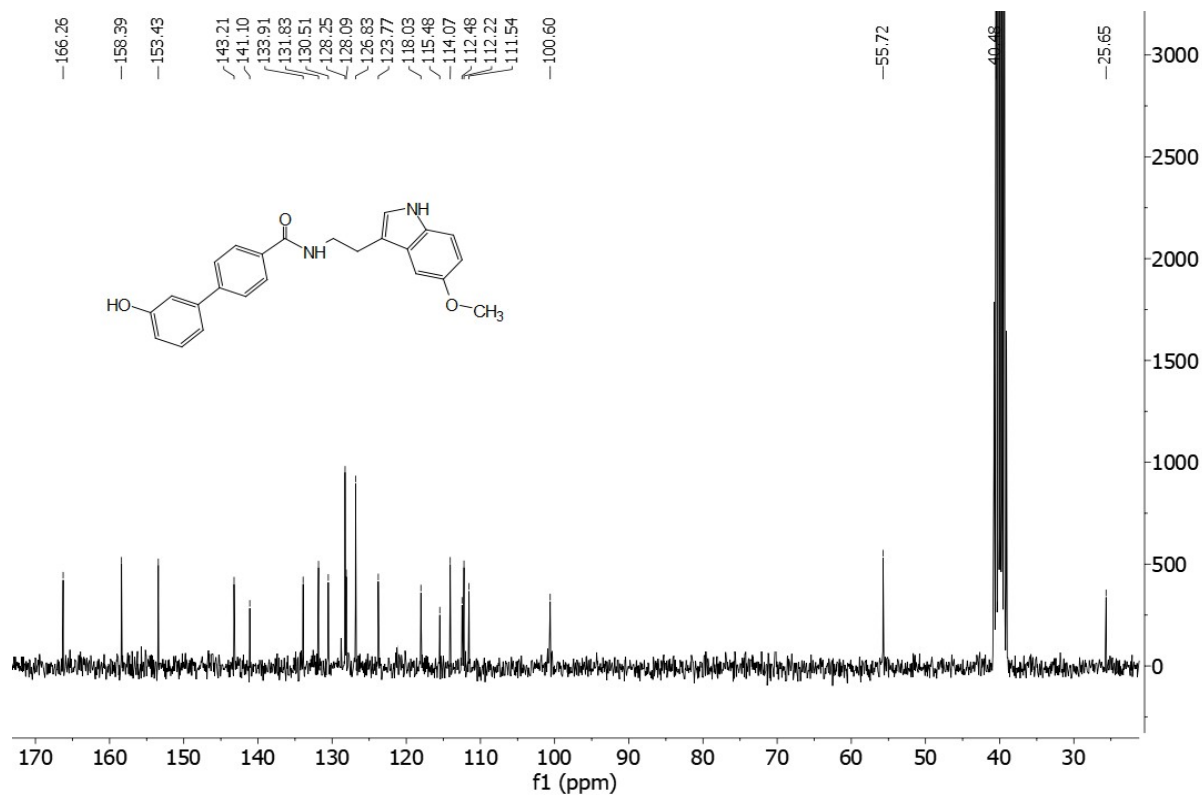


Fig. S40: ^1H NMR (300 MHz, CDCl_3) spectrum of the title hybrid (**4f**)

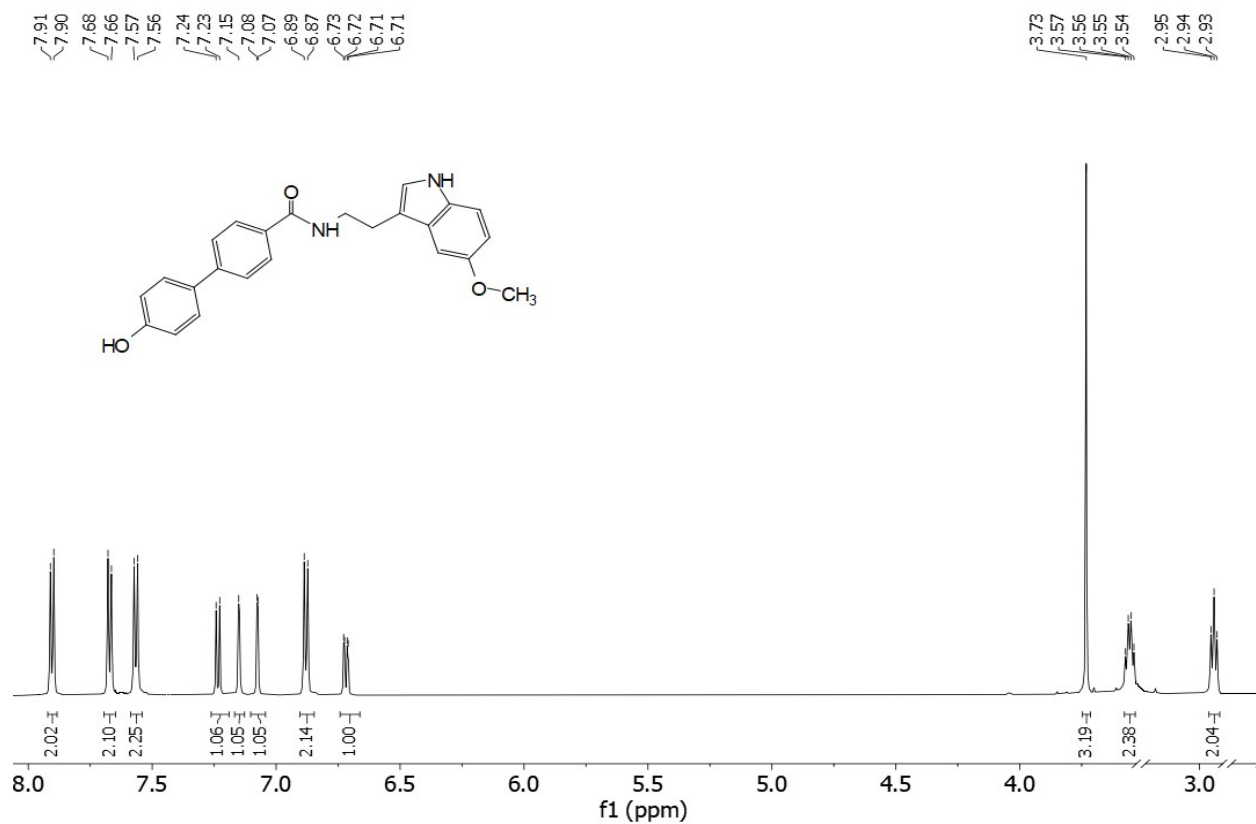


Fig. S41: ^{13}C NMR (75 MHz, CDCl_3) spectrum of the title hybrid (**4f**)

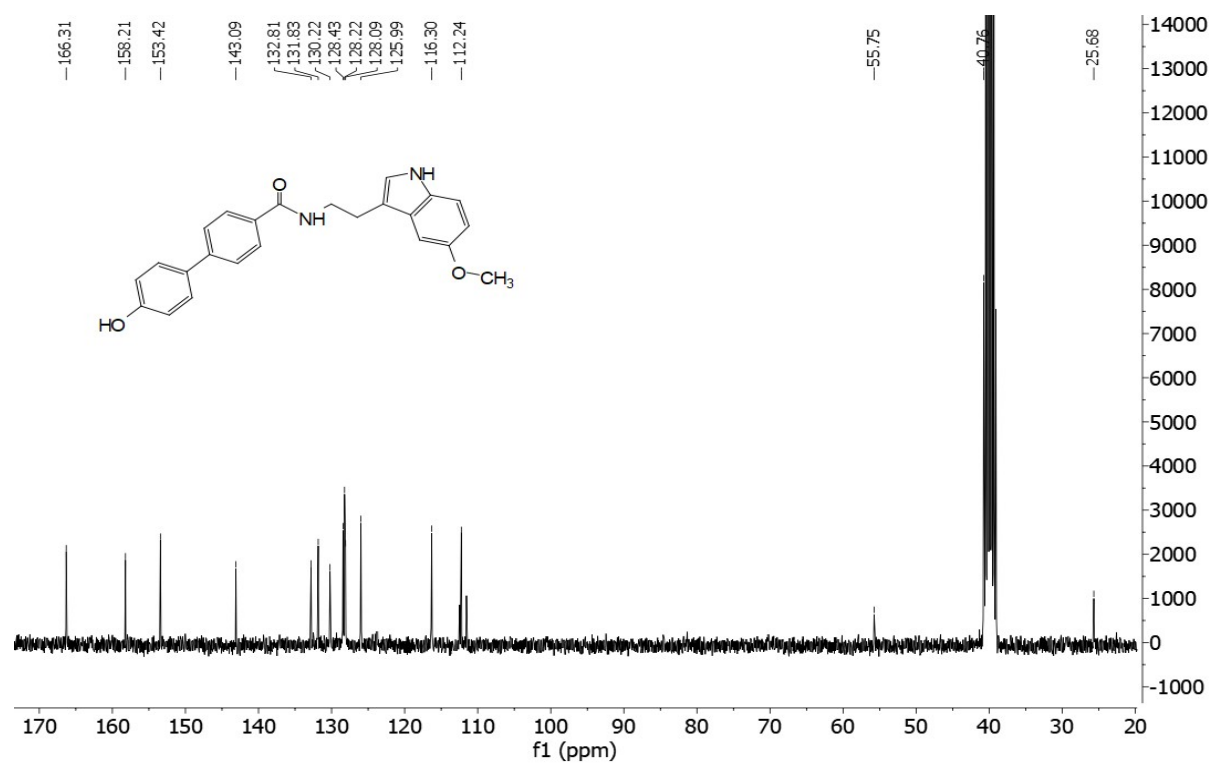


Fig. S42: ^1H NMR (300 MHz, CDCl_3) spectrum of the title hybrid (**4g**)

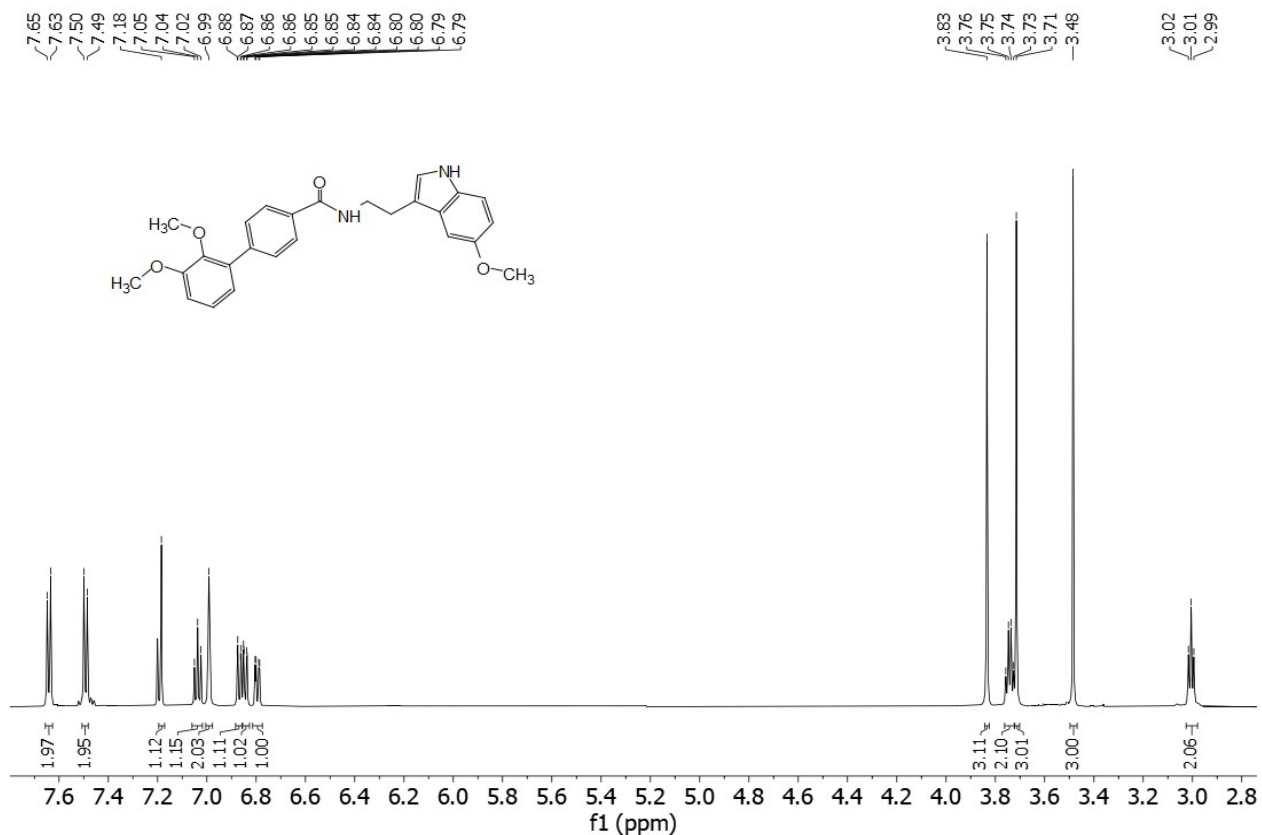


Fig. S43: ^{13}C NMR (75 MHz, CDCl_3) spectrum of the title hybrid (**4g**)

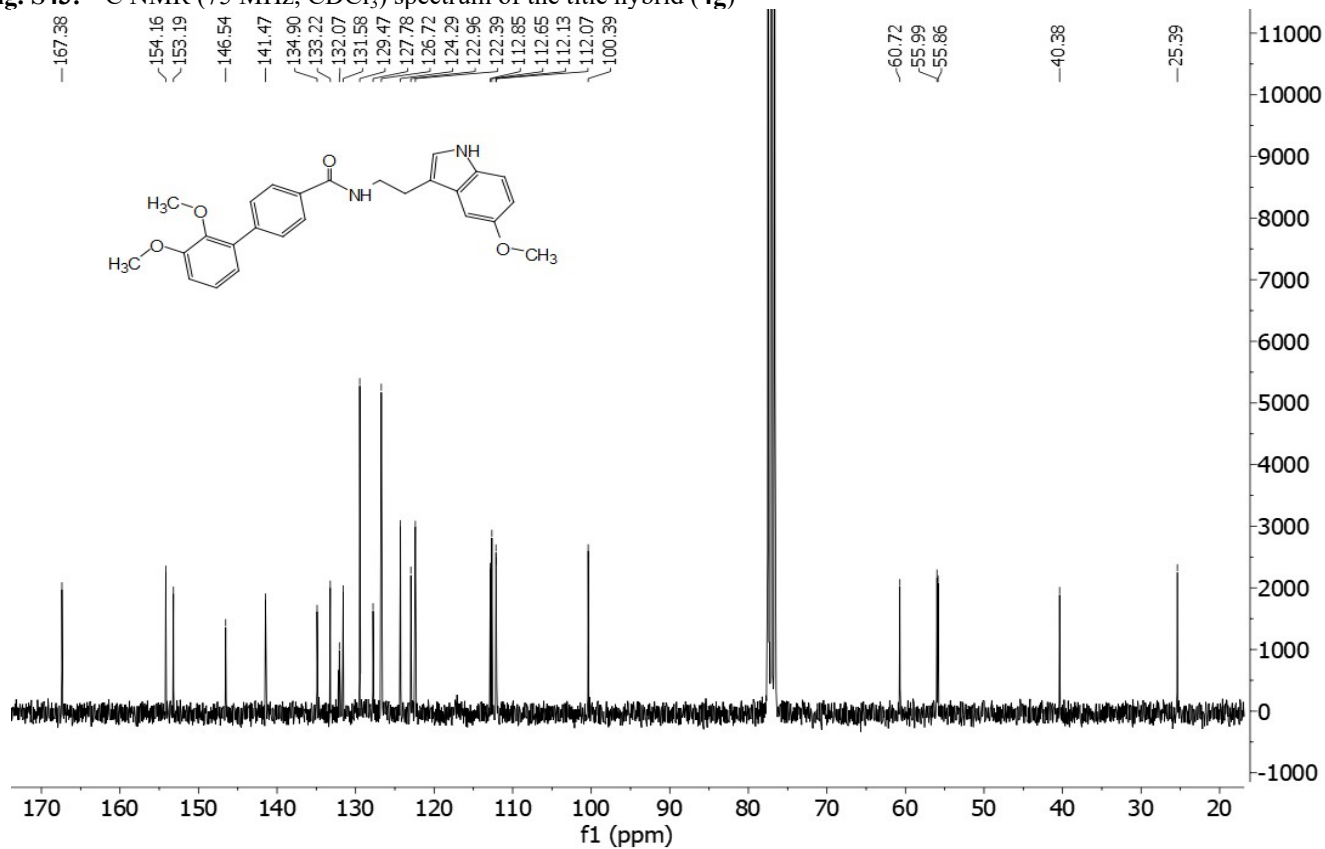


Fig. S44: ^1H NMR (300 MHz, CDCl_3) spectrum of the title hybrid (**4h**)

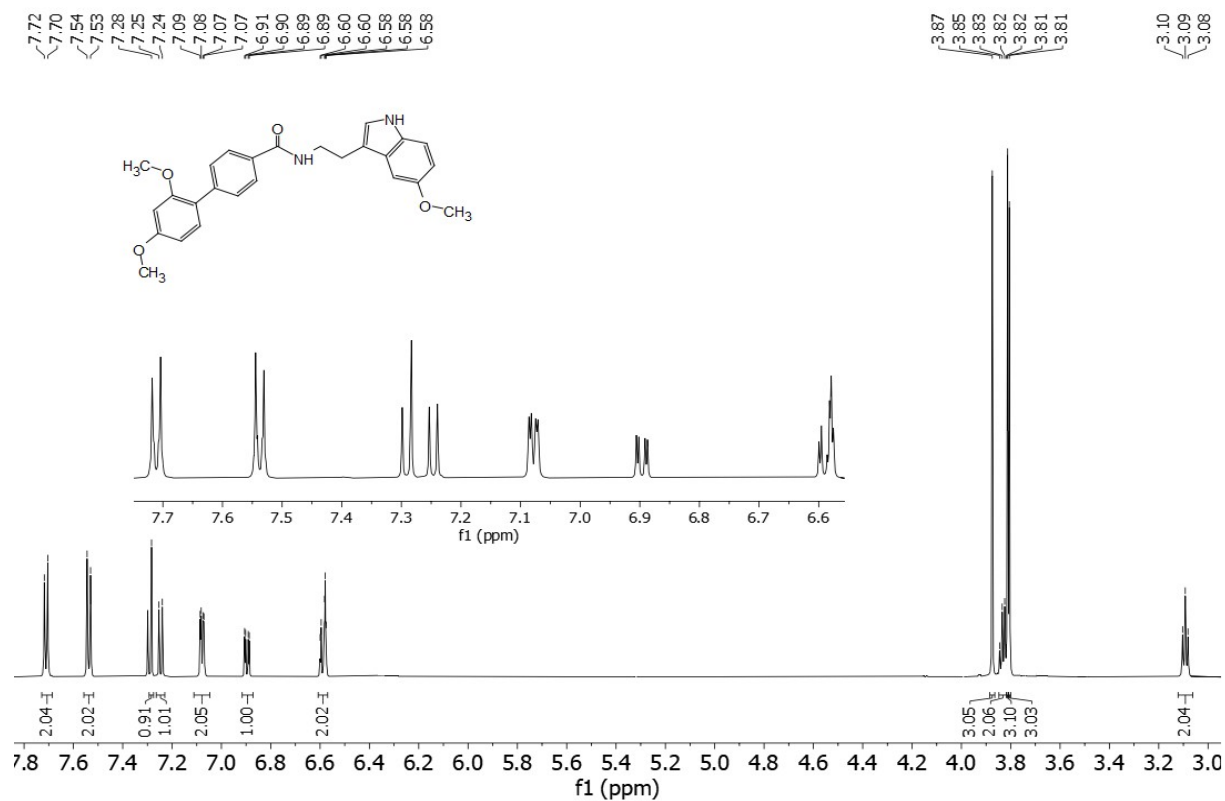


Fig. S45: ^{13}C NMR (75 MHz, CDCl_3) spectrum of the title hybrid (**4h**)

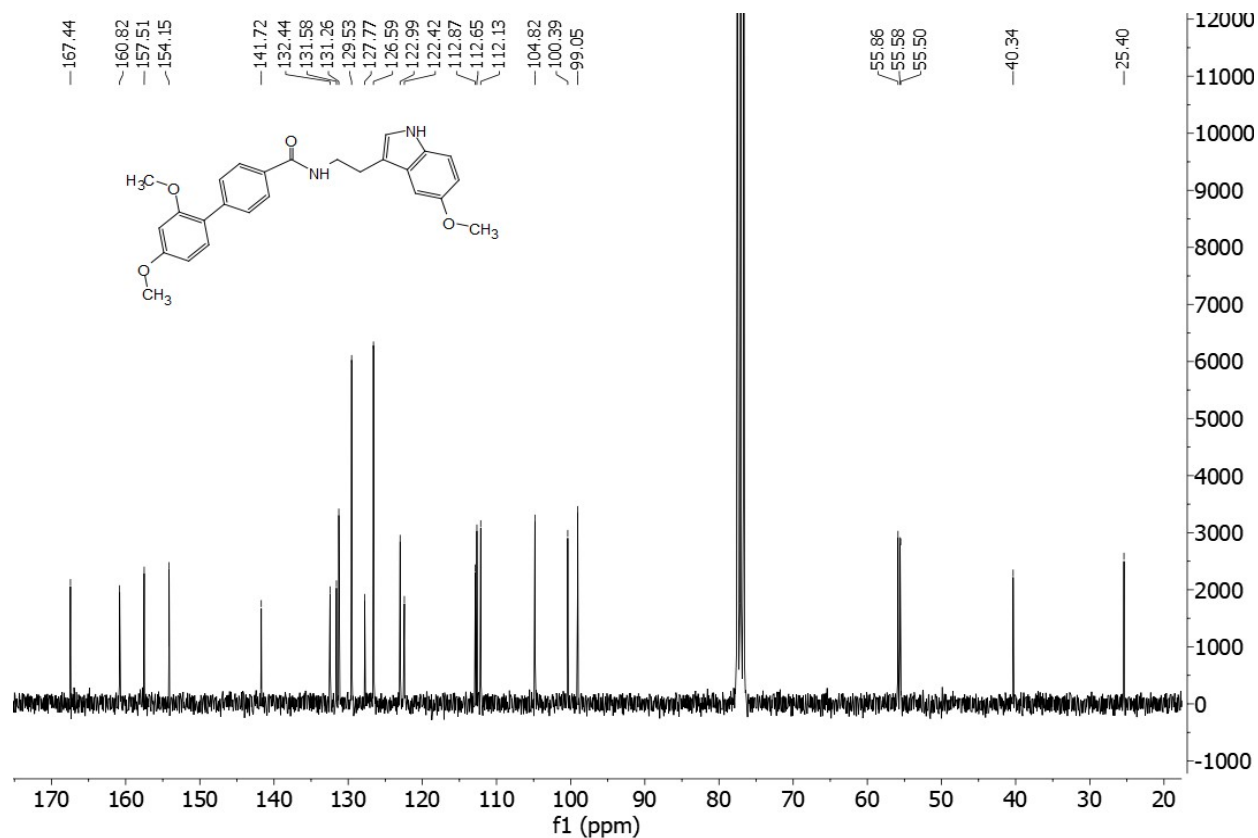


Fig. S46: ^1H NMR (300 MHz, CDCl_3) spectrum of the title hybrid (**4i**)

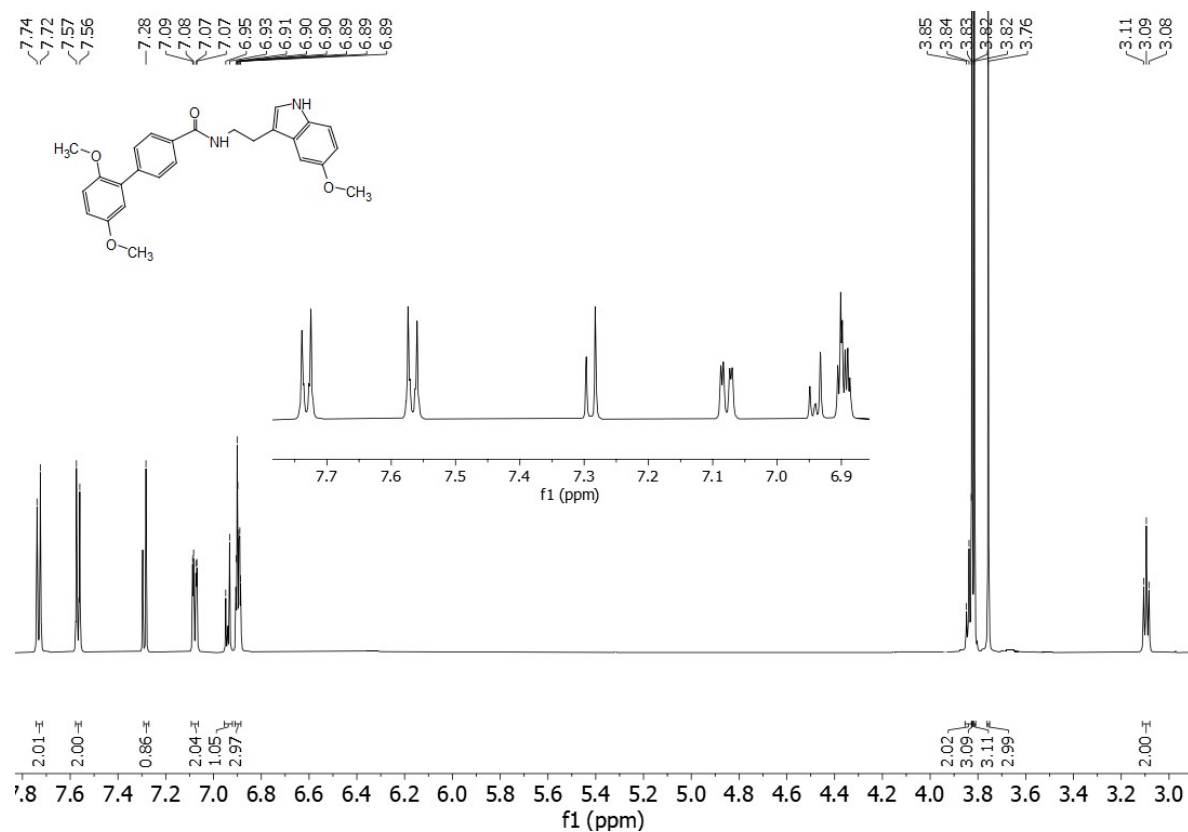


Fig. S47: ^{13}C NMR (75 MHz, CDCl_3) spectrum of the title hybrid (**4i**)

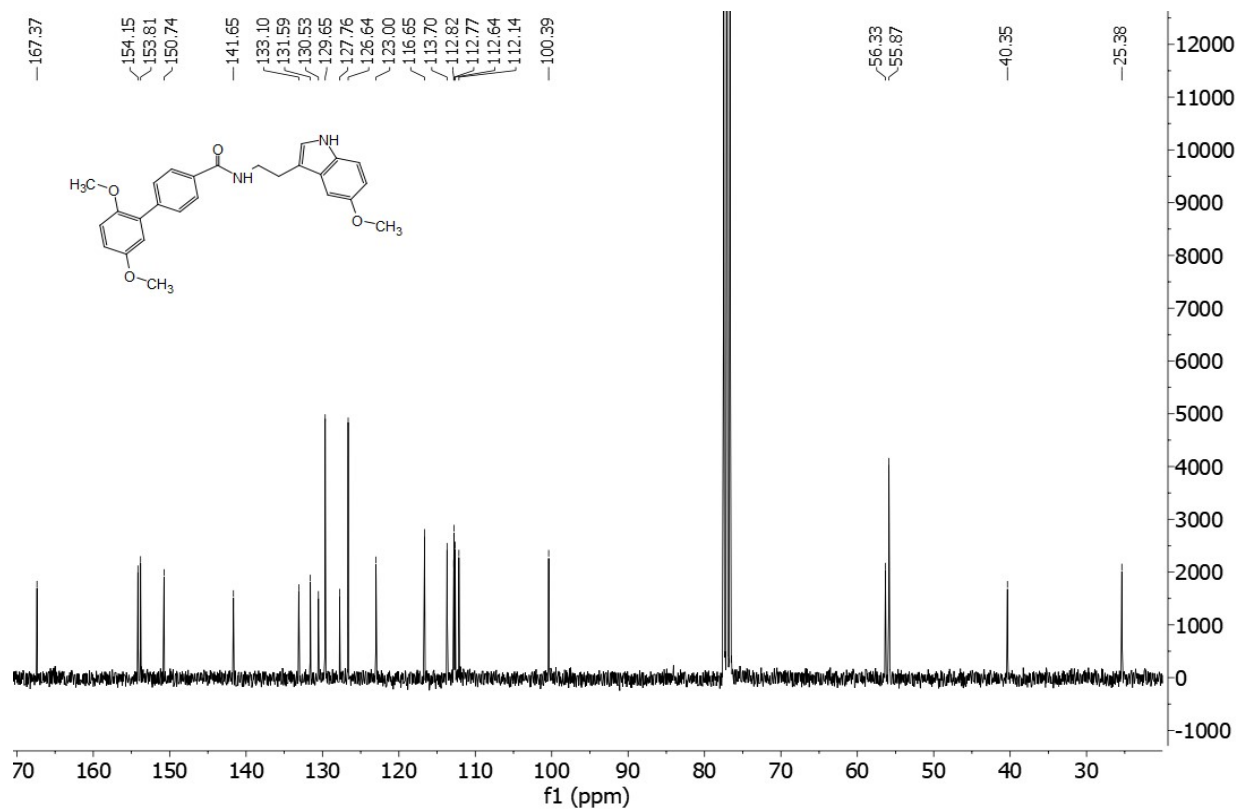


Fig. S48: ^1H NMR (300 MHz, CDCl_3) spectrum of the title hybrid (**4j**)

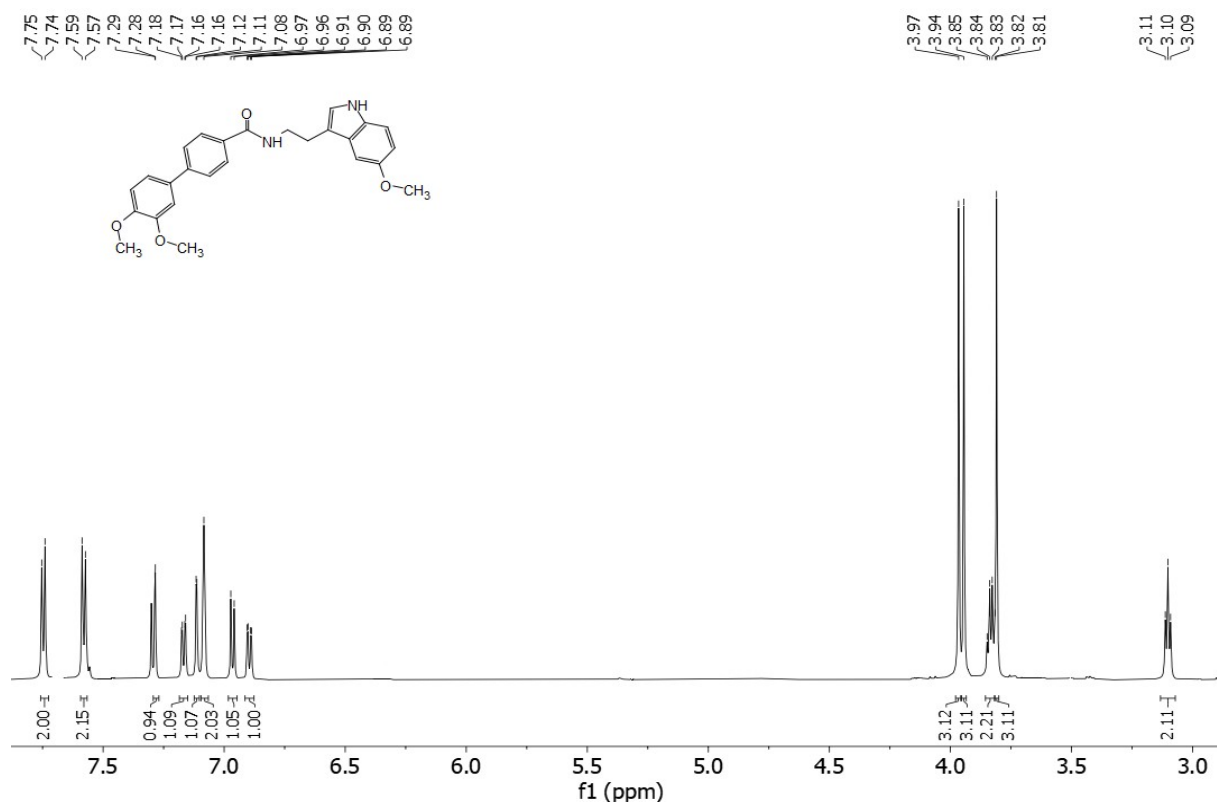
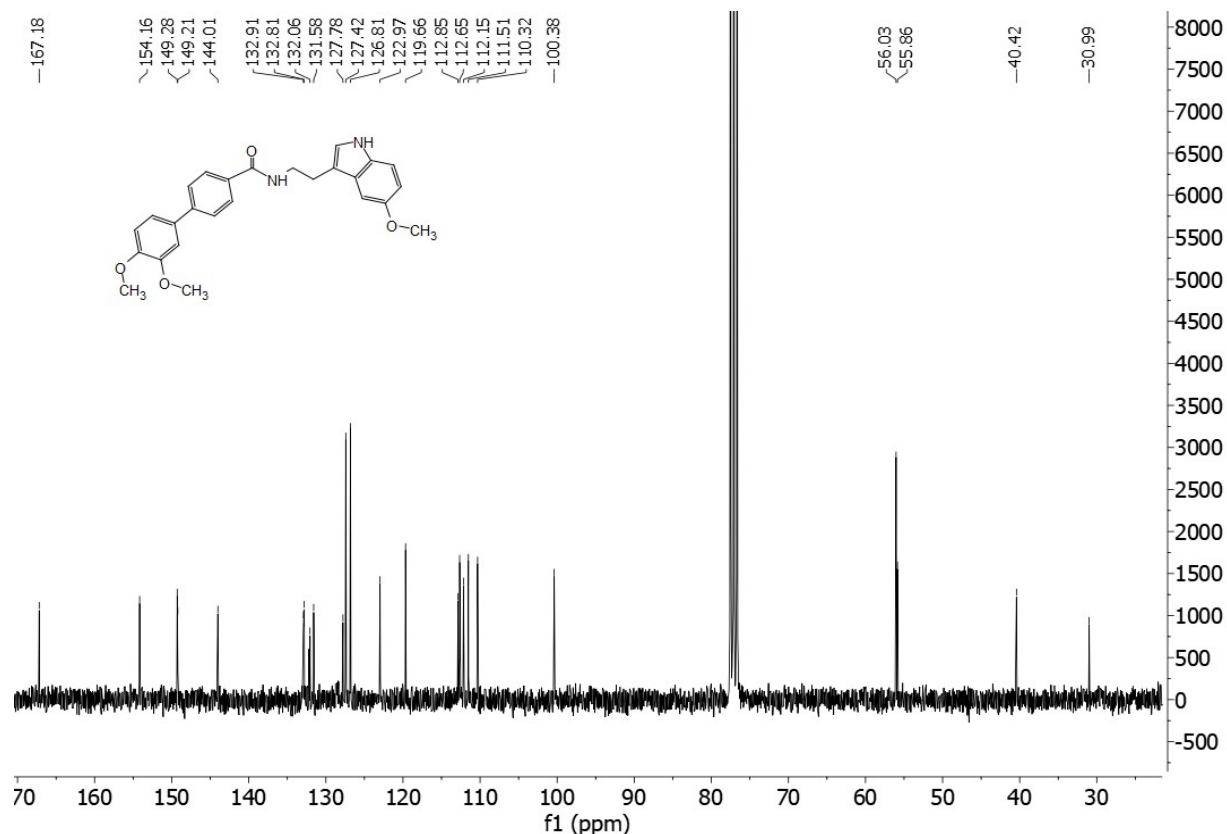


Fig. S49: ^{13}C NMR (75 MHz, CDCl_3) spectrum of the title hybrid (**4j**)



4) ESI-HRMS spectra of the target hybrids 3a-l.

Fig. S50: ESI-HRMS spectrum of the title hybrid (**3a**)

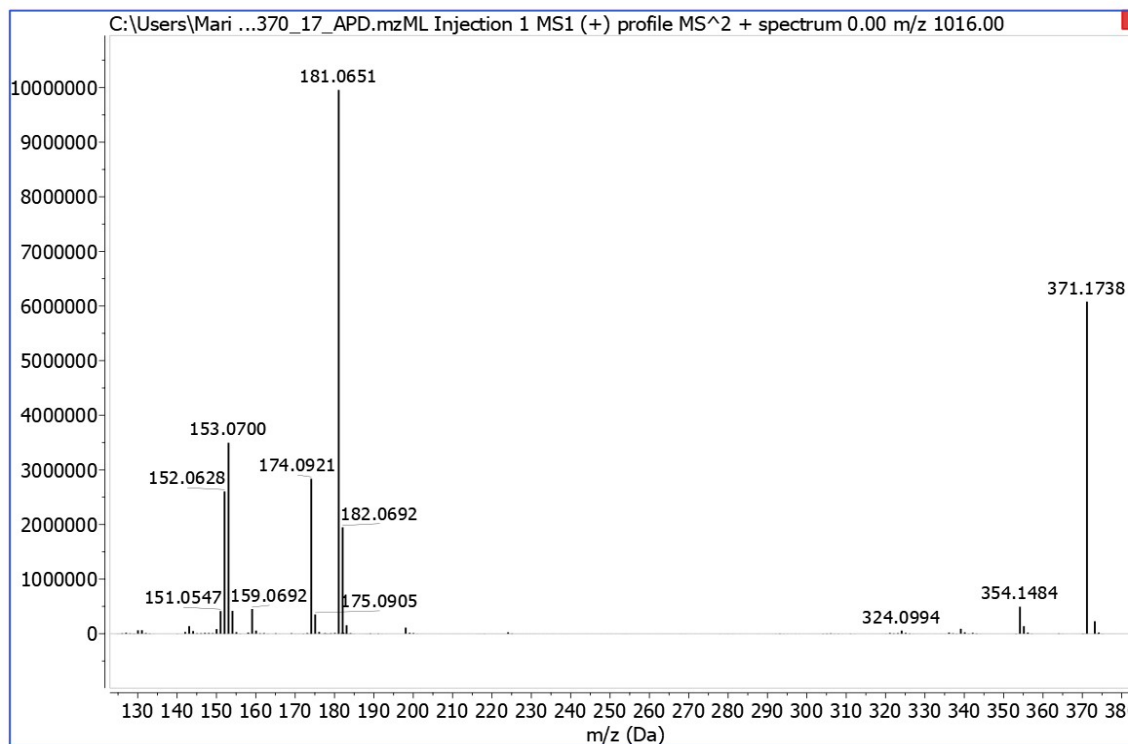


Fig. S51: ESI-HRMS spectrum of the title hybrid (**3b**)

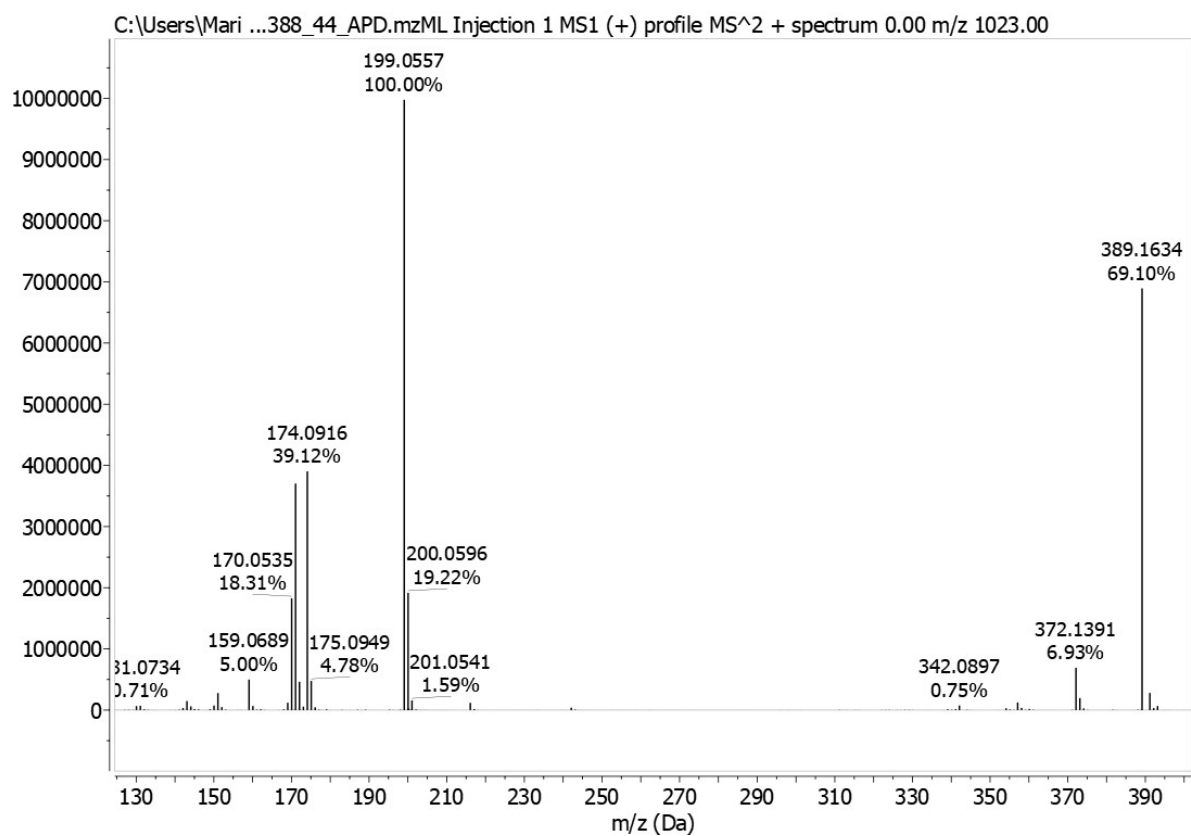


Fig. S52: ESI-HRMS spectrum of the title hybrid (**3c**)

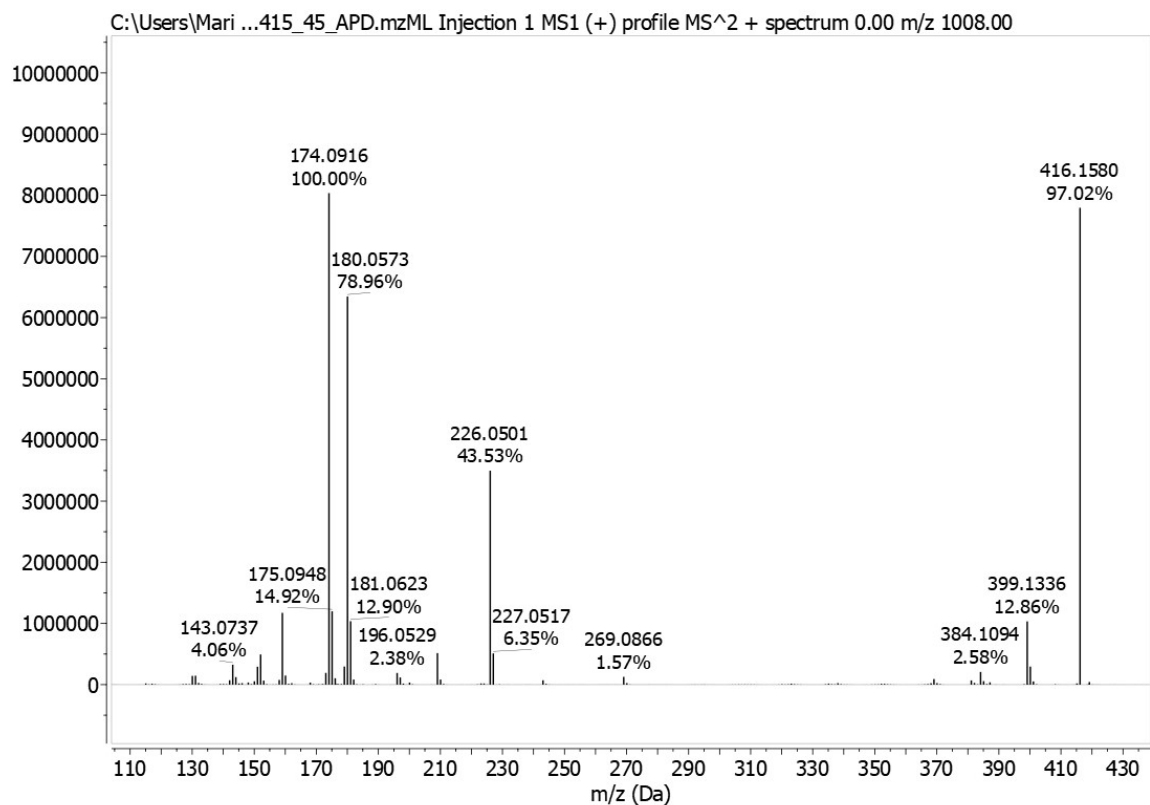


Fig. S53: ESI-HRMS spectrum of the title hybrid (**3d**)

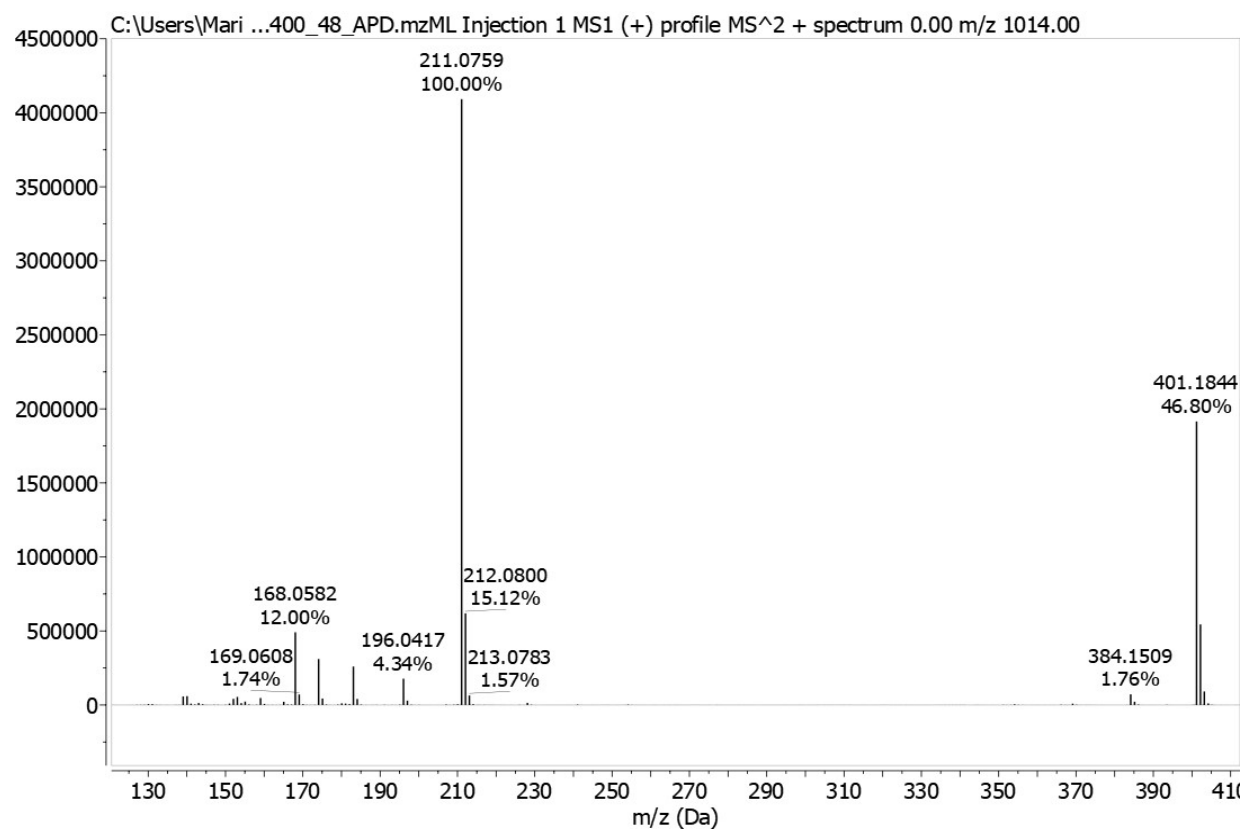


Fig. S54: ESI-HRMS spectrum of the title hybrid (**3e**)

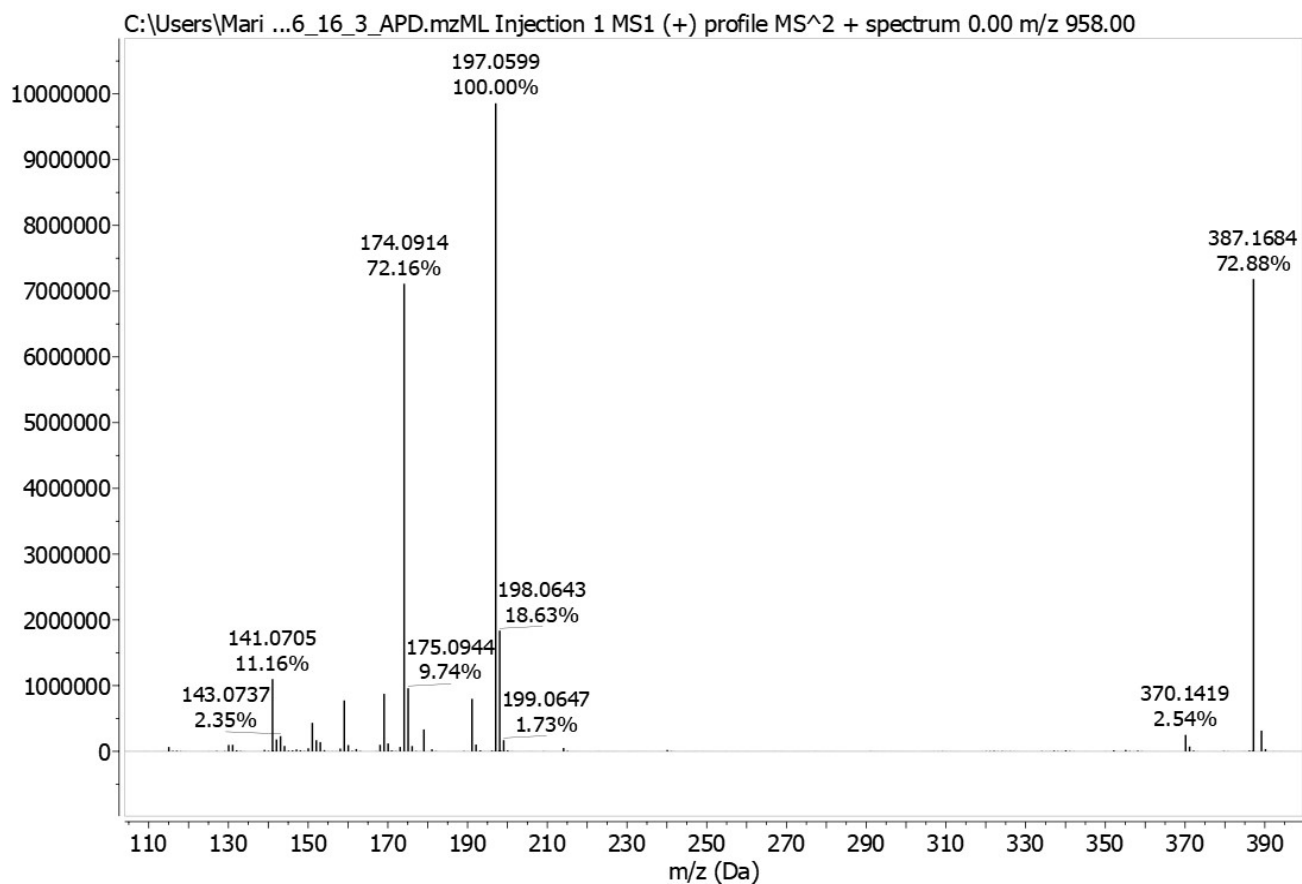


Fig. S55: ESI-HRMS spectrum of the title hybrid (**3f**)

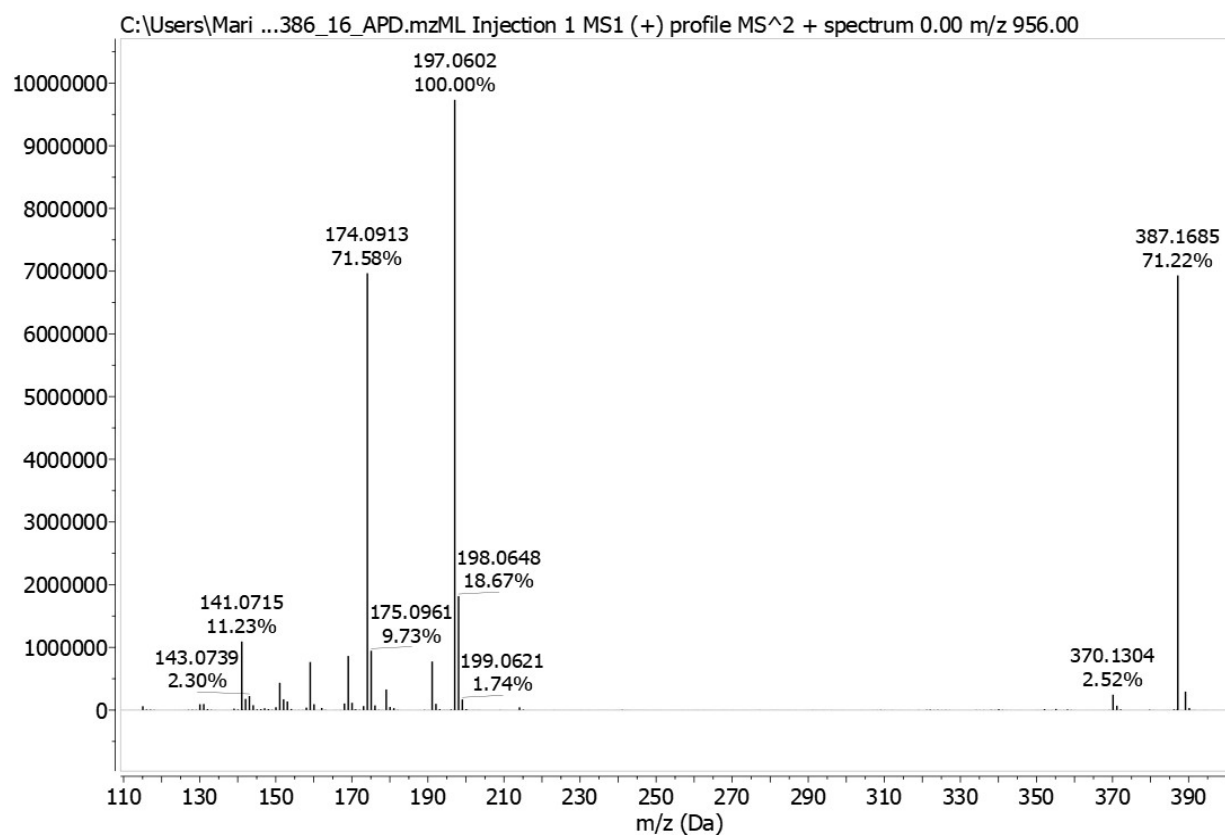


Fig. S56: ESI-HRMS spectrum of the title hybrid (**3g**)

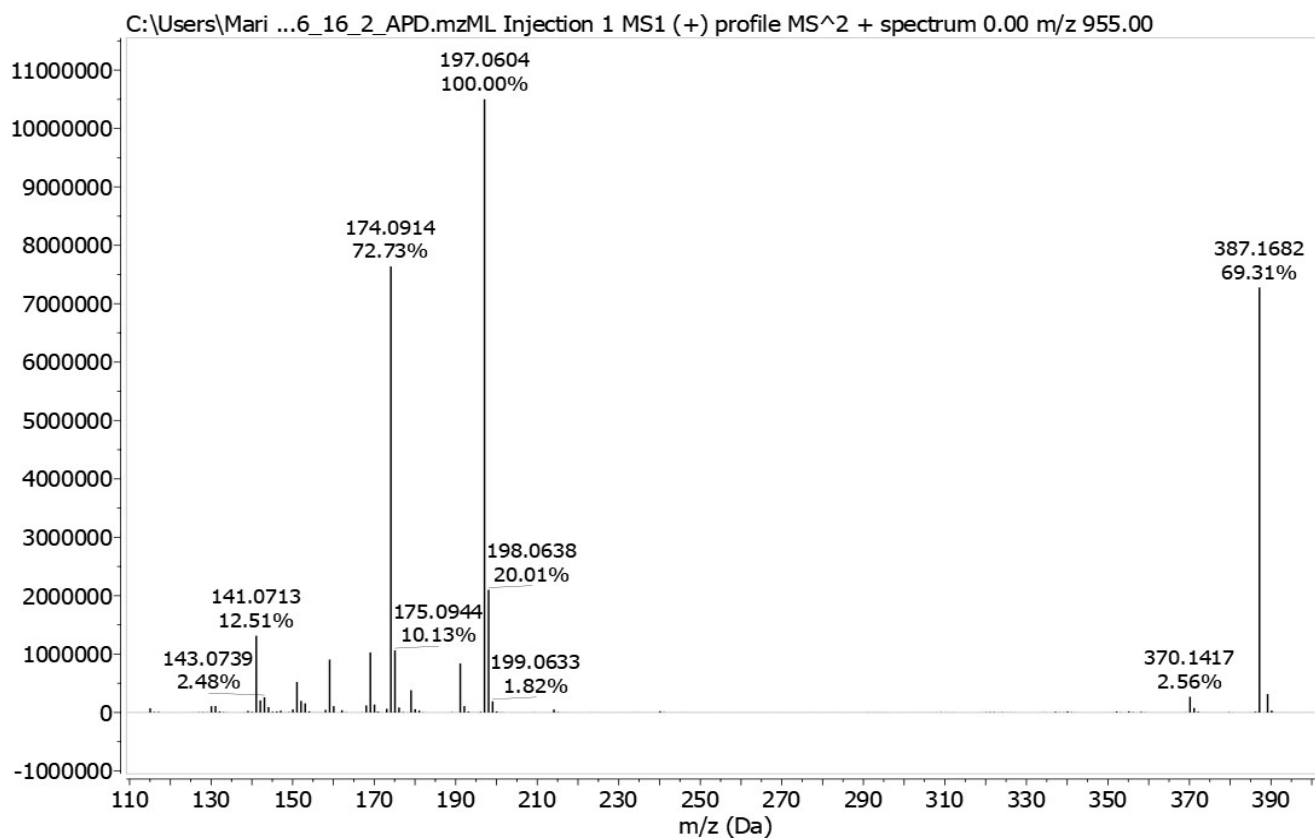


Fig. S57: ESI-HRMS spectrum of the title hybrid (**3h**)

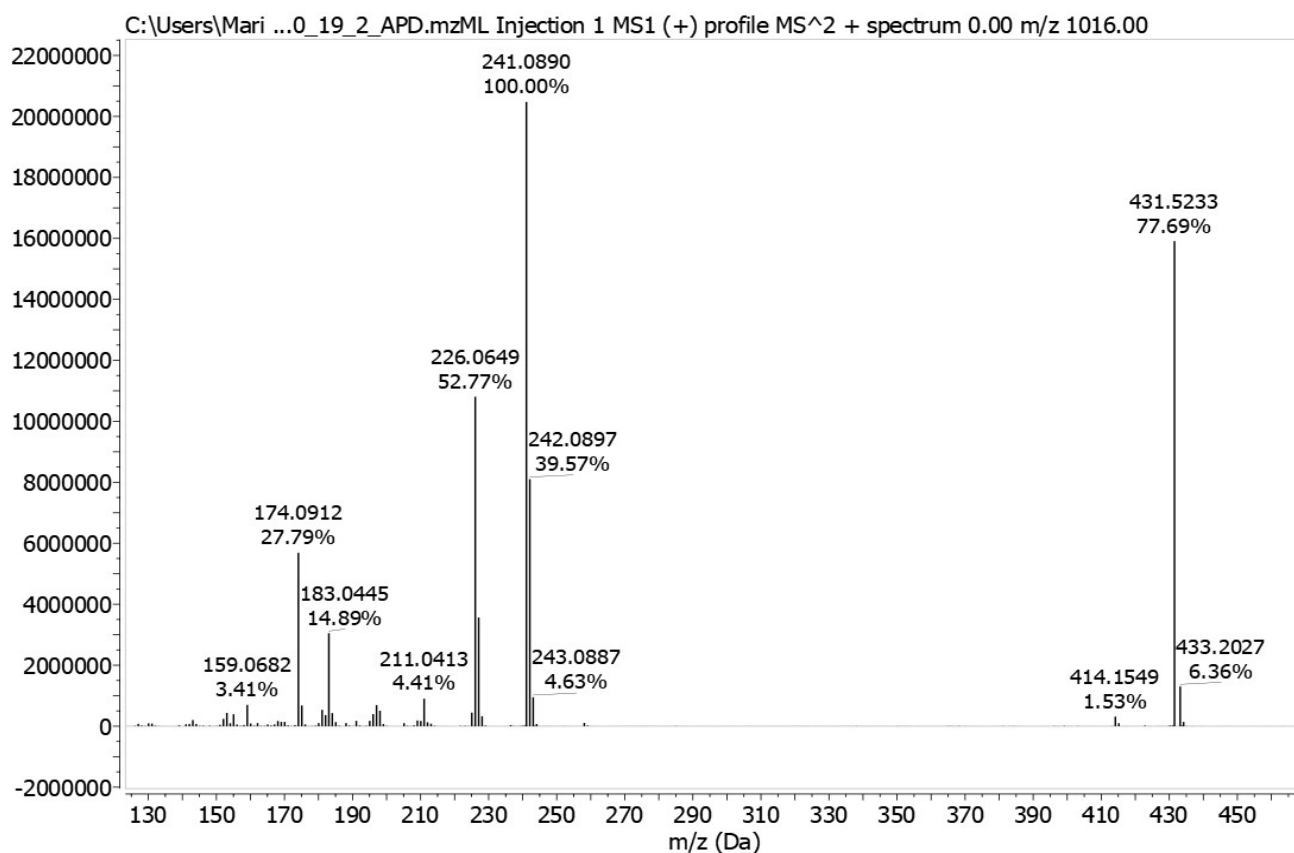


Fig. S58: ESI-HRMS spectrum of the title hybrid (**3i**)

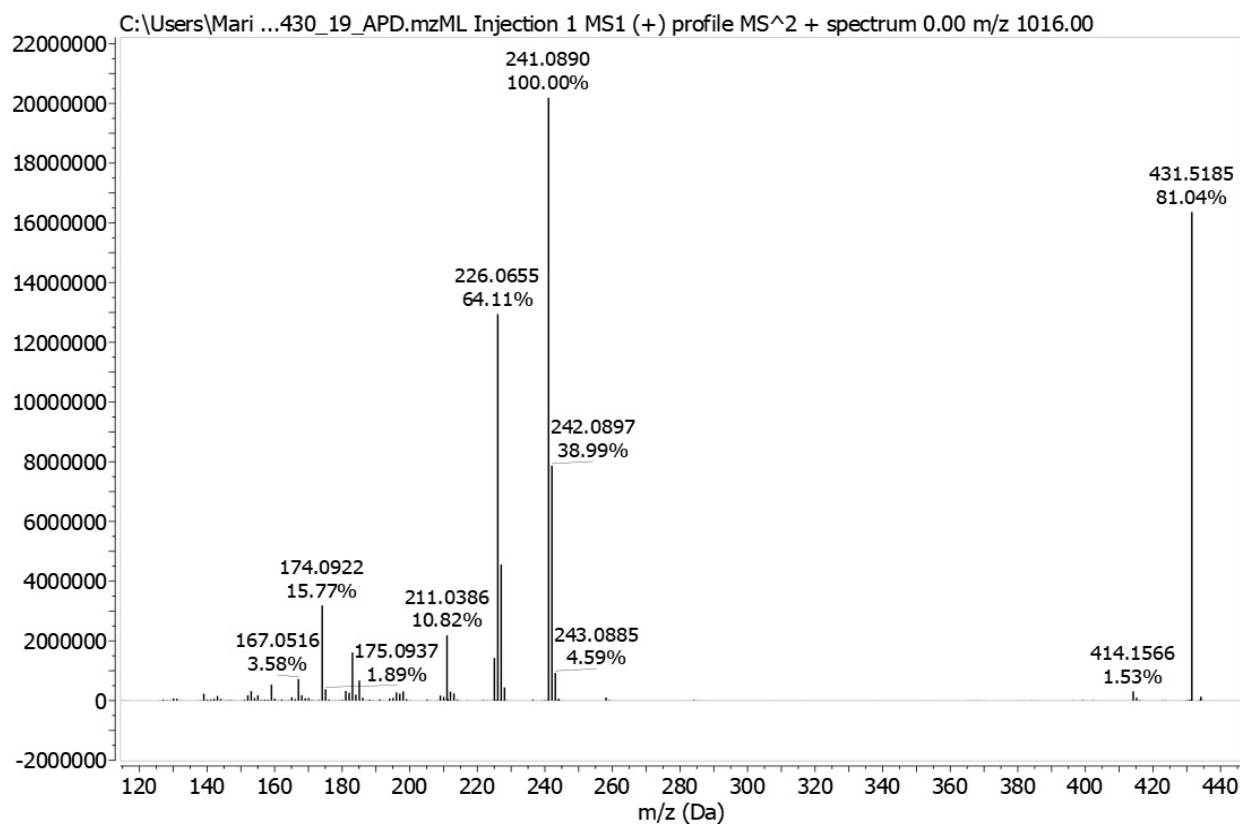


Fig. S59: ESI-HRMS spectrum of the title hybrid (**3j**)

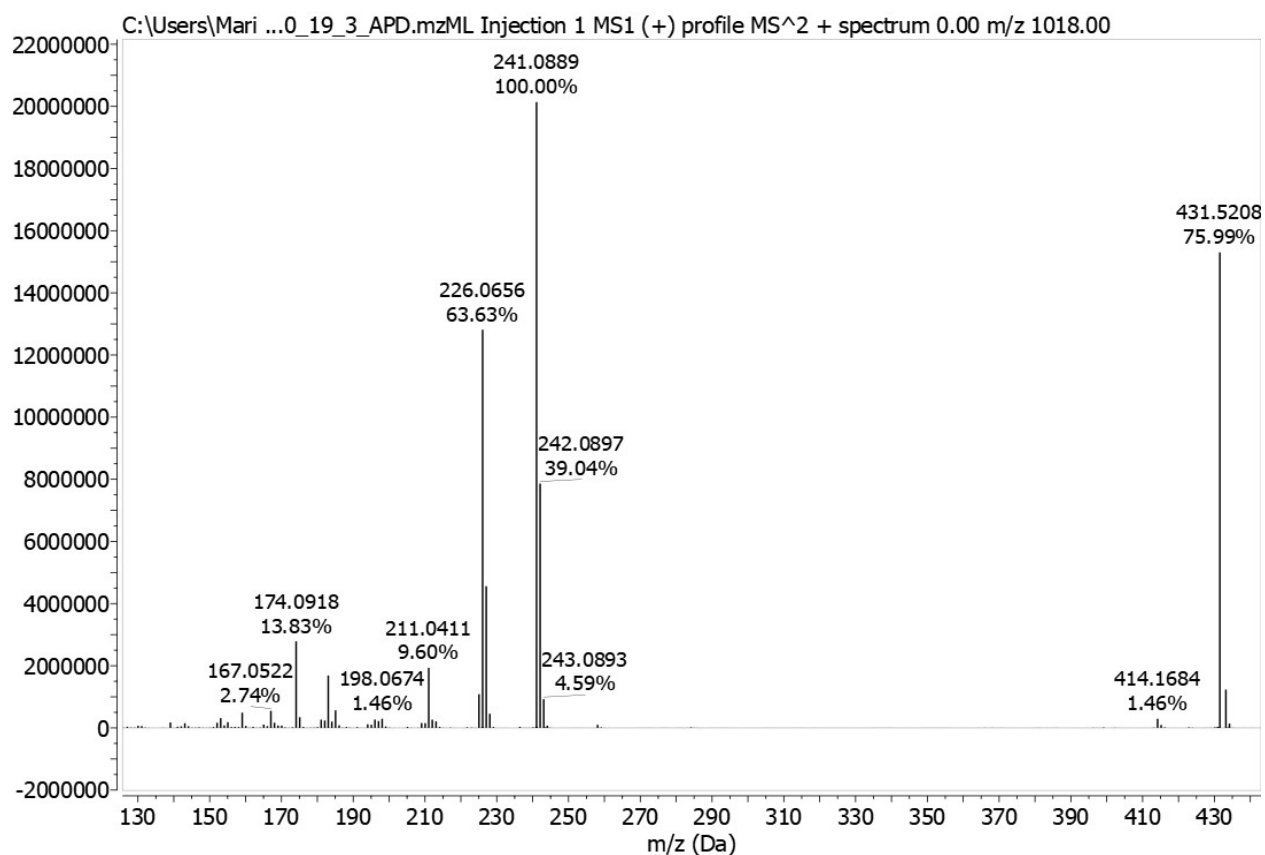


Fig. S60: ESI-HRMS spectrum of the title hybrid (**3k**)

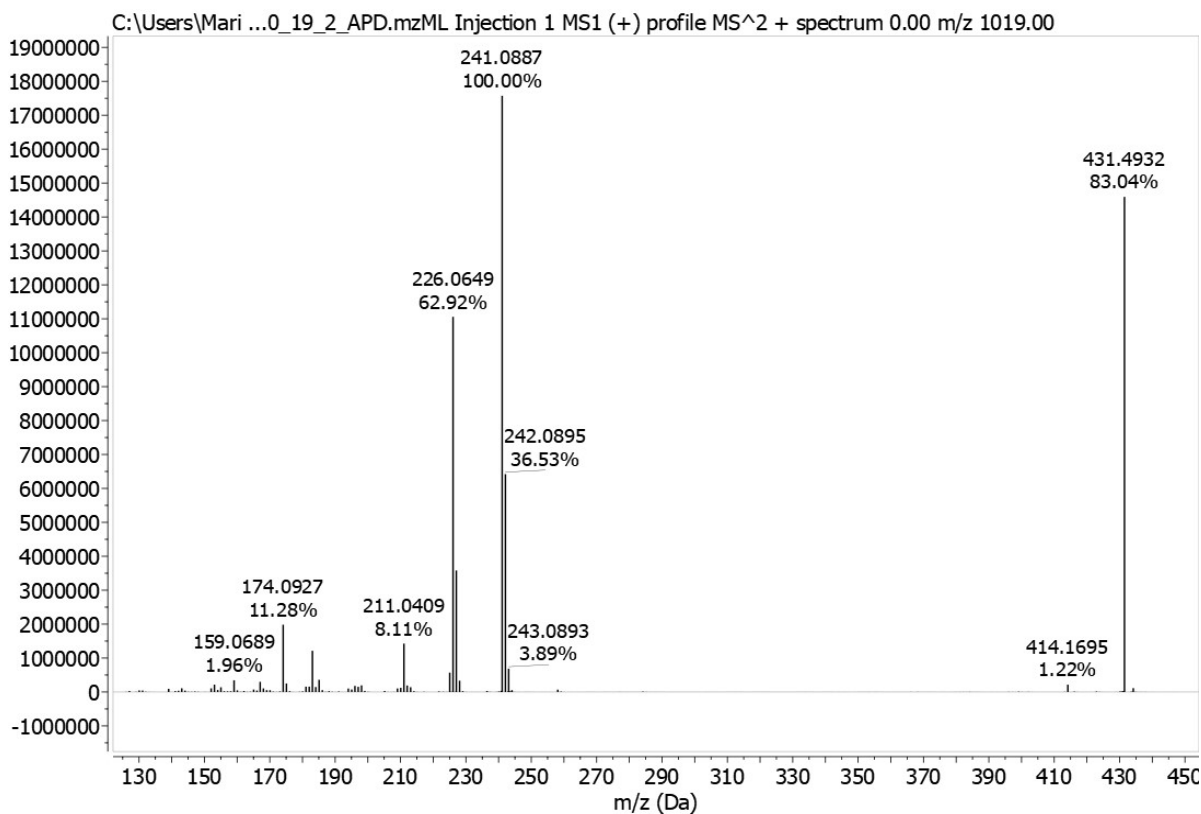
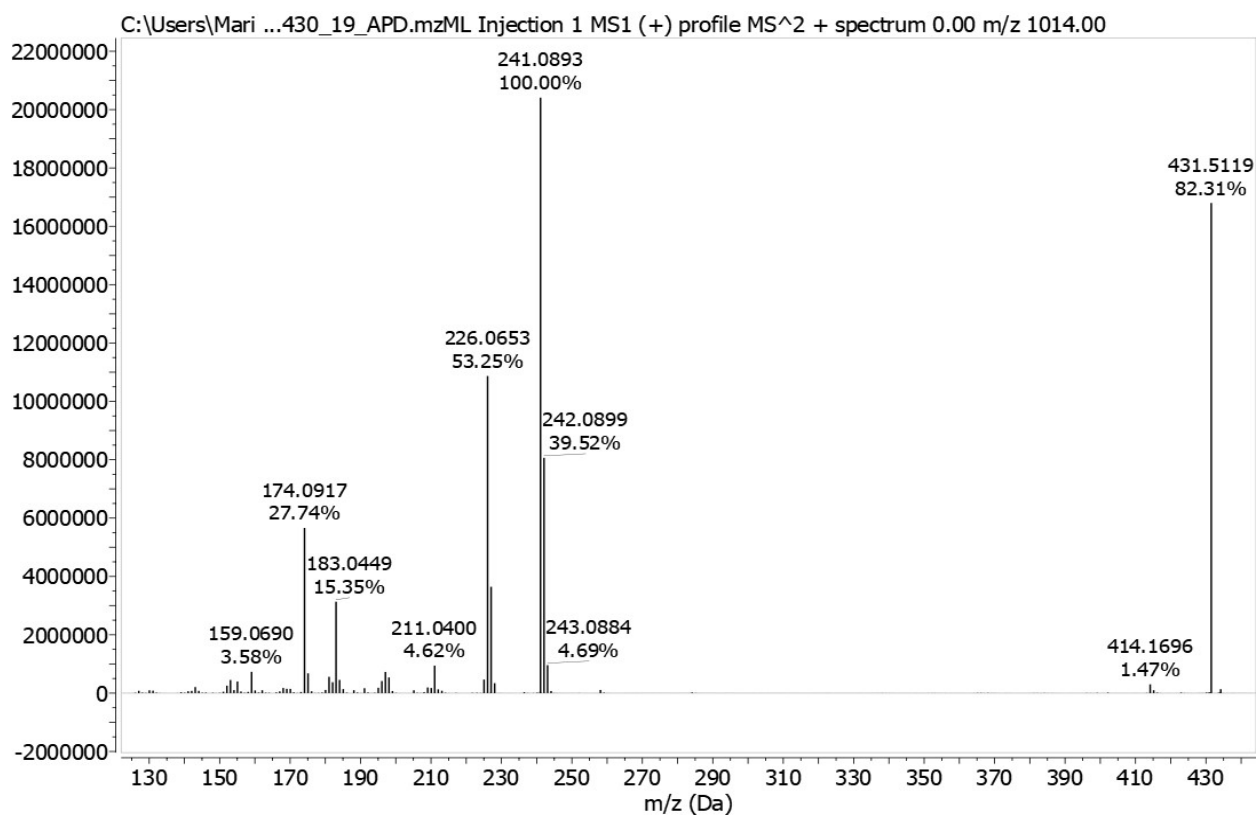


Fig. S61: ESI-HRMS spectrum of the title hybrid (**3l**)



5) ESI-HRMS spectra of the target hybrids 4a-j.

Fig. S62: ESI-HRMS spectrum of the title hybrid (**4a**)

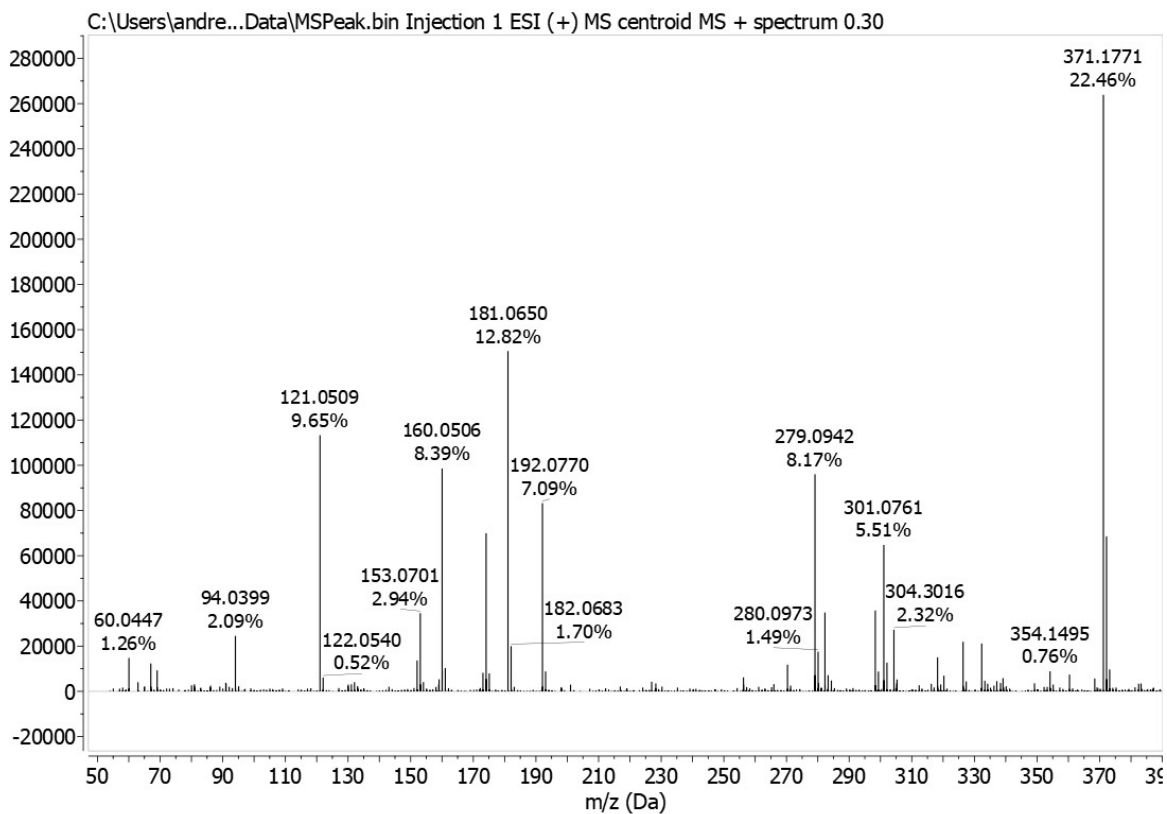


Fig. S63: ESI-HRMS spectrum of the title hybrid (**4b**)

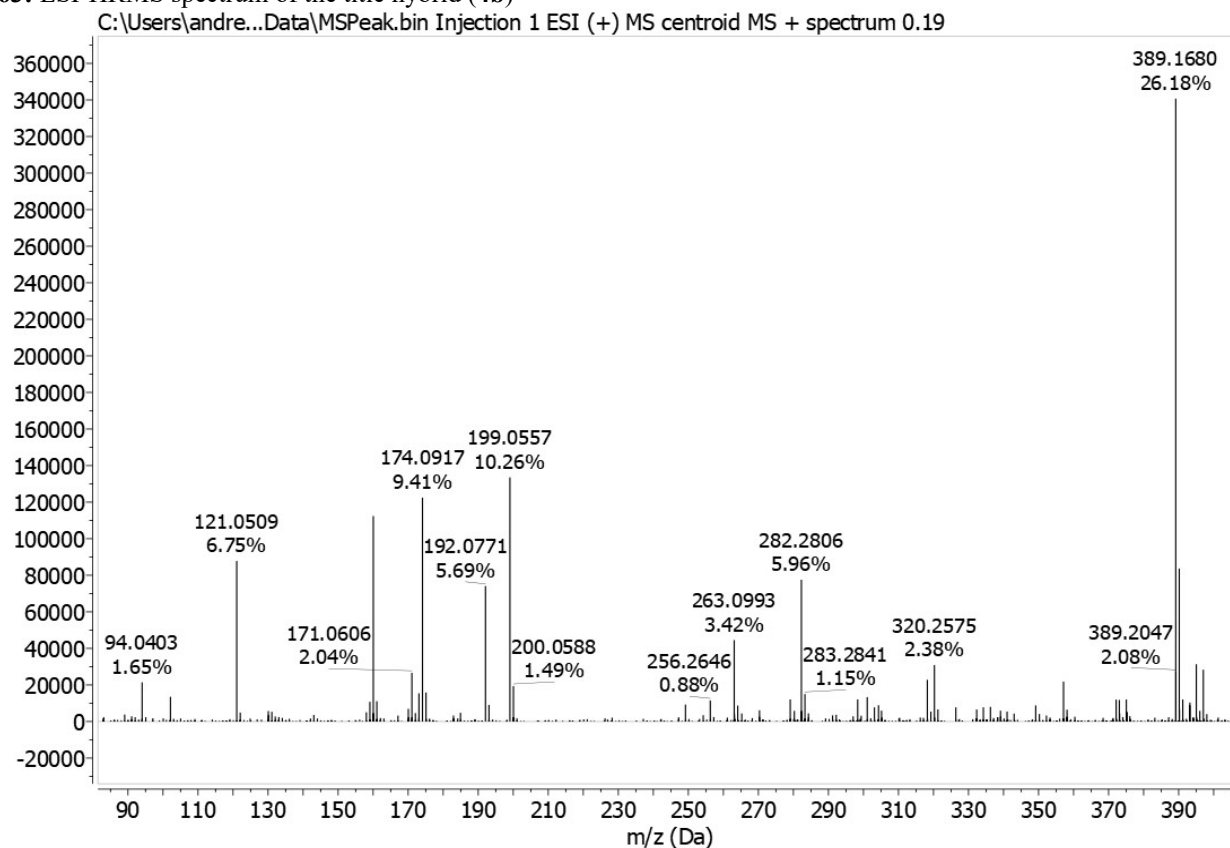


Fig. S64: ESI-HRMS spectrum of the title hybrid (**4d**)

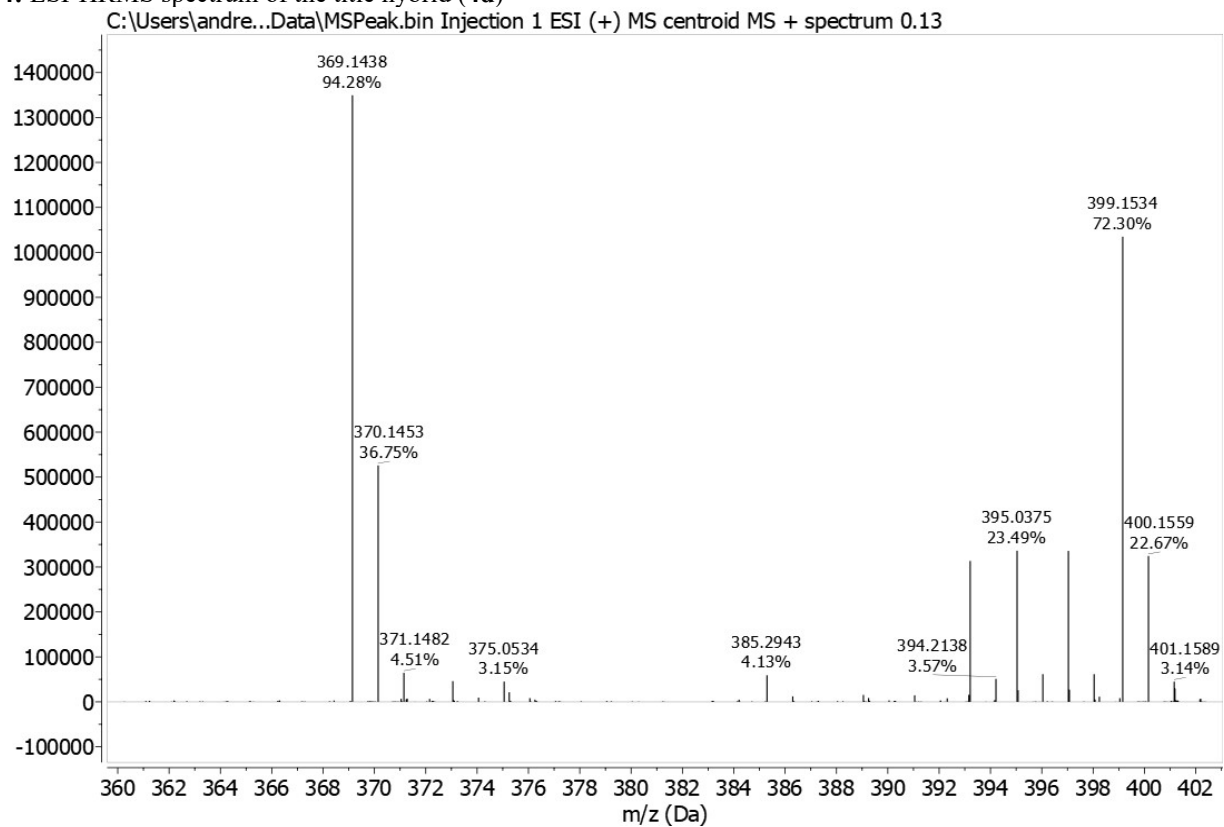


Fig. S65: ESI-HRMS spectrum of the title hybrid (**4e**)

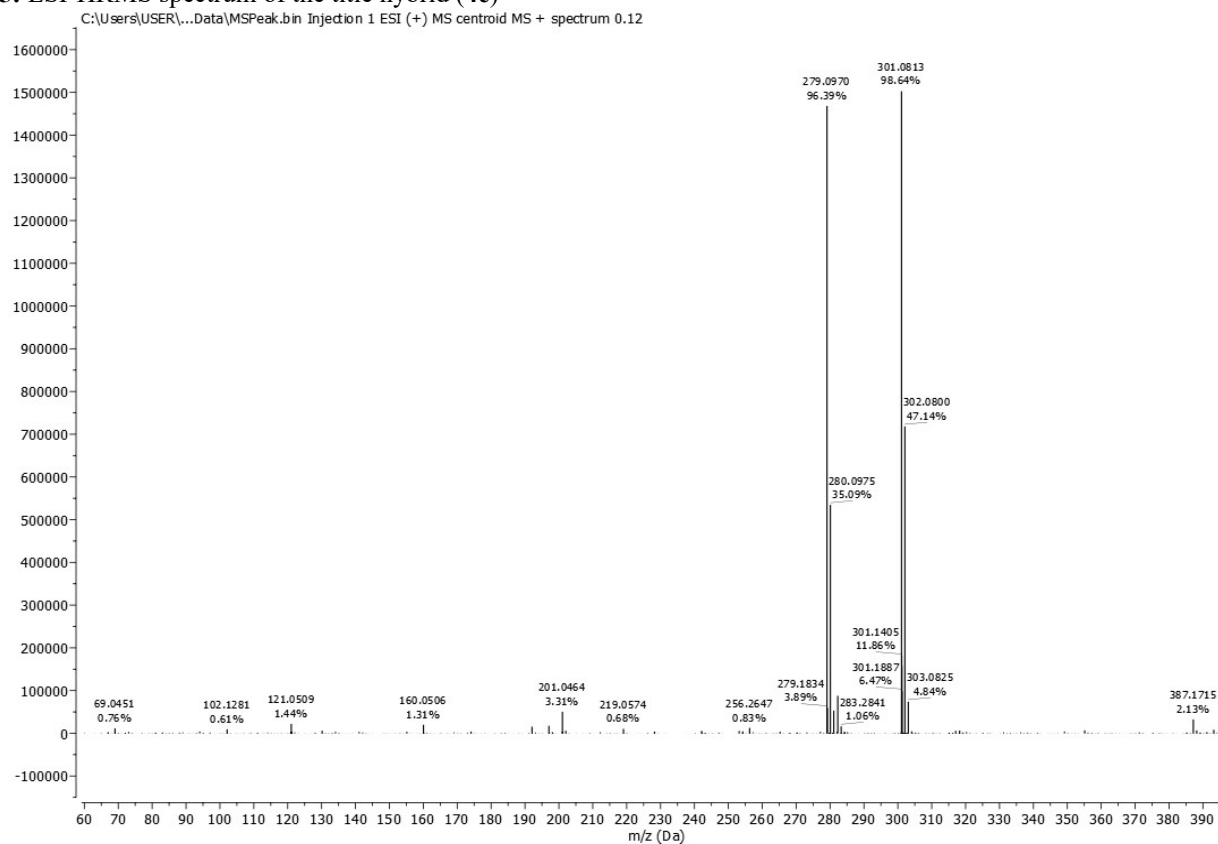


Fig. S66: ESI-HRMS spectrum of the title hybrid (**4f**)

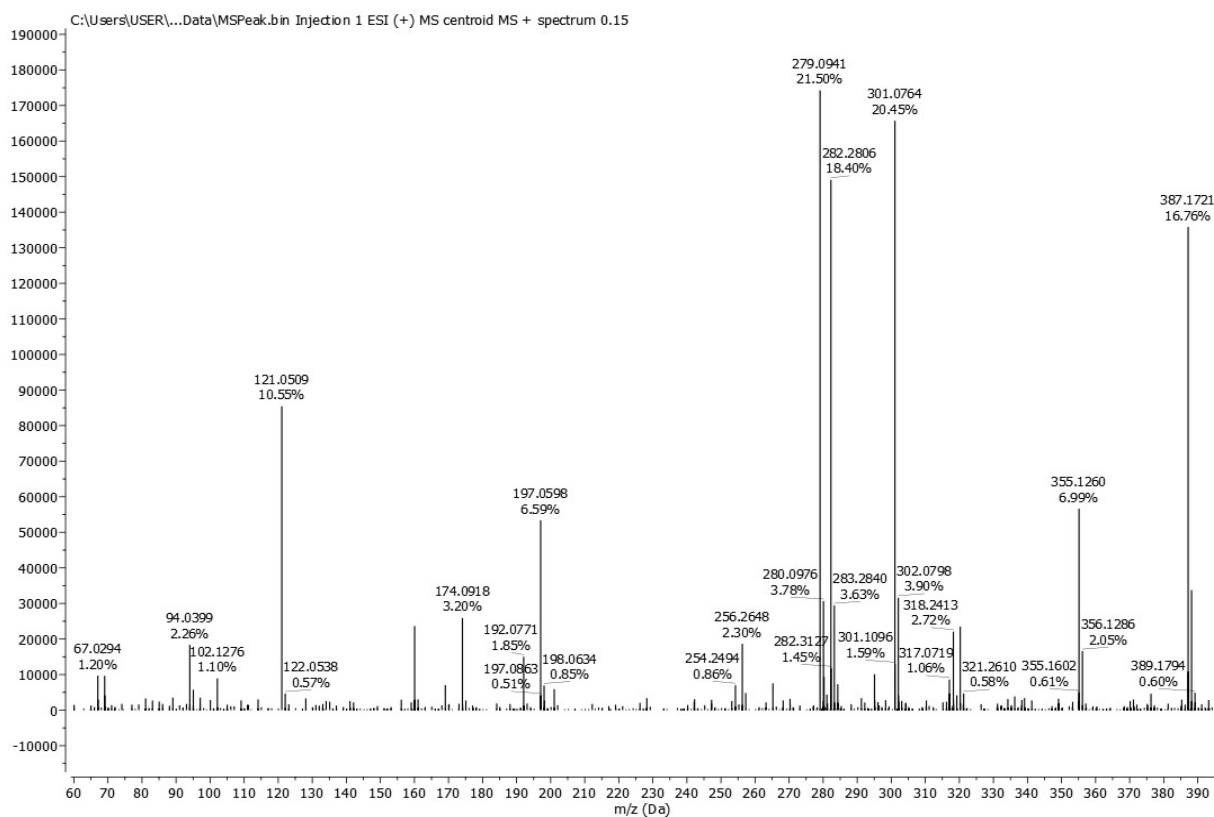


Fig. S67: ESI-HRMS spectrum of the title hybrid (**4g**)

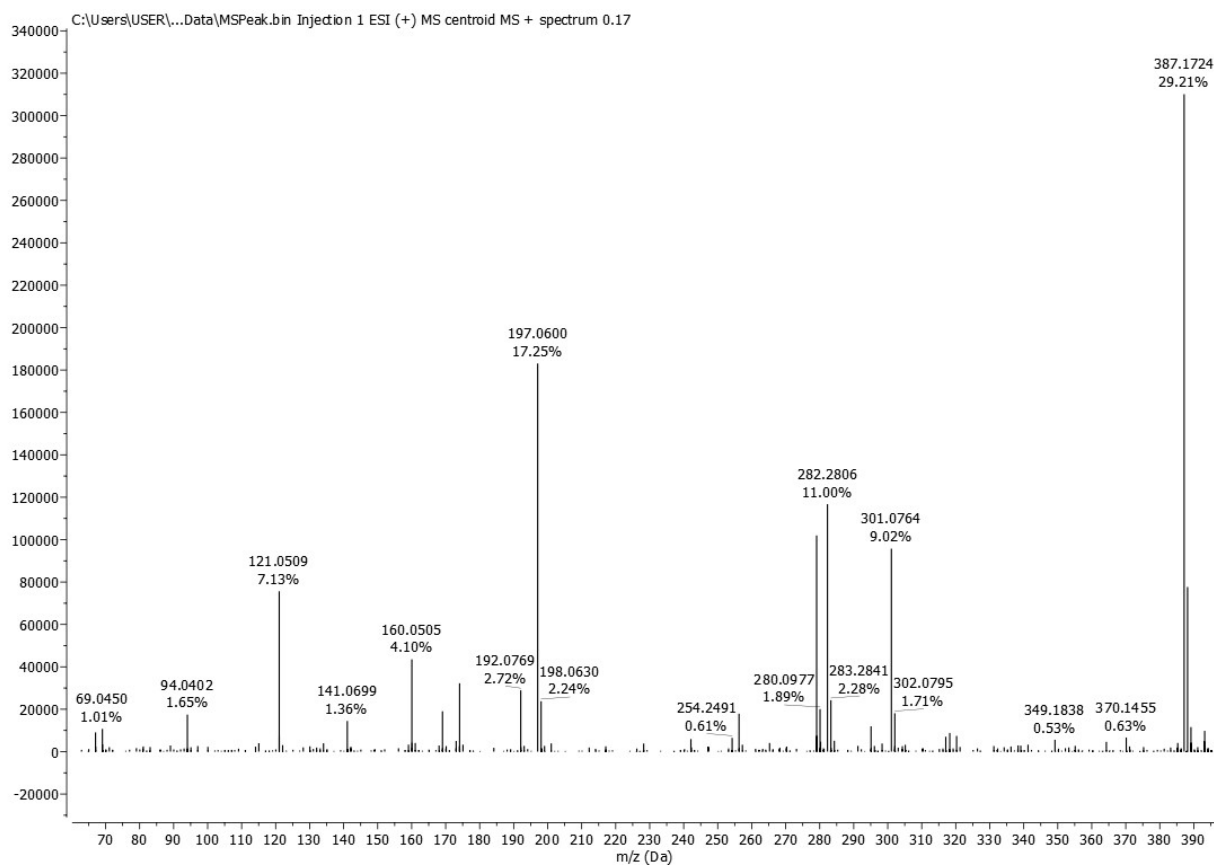


Fig. S68: ESI-HRMS spectrum of the title hybrid (**4h**)

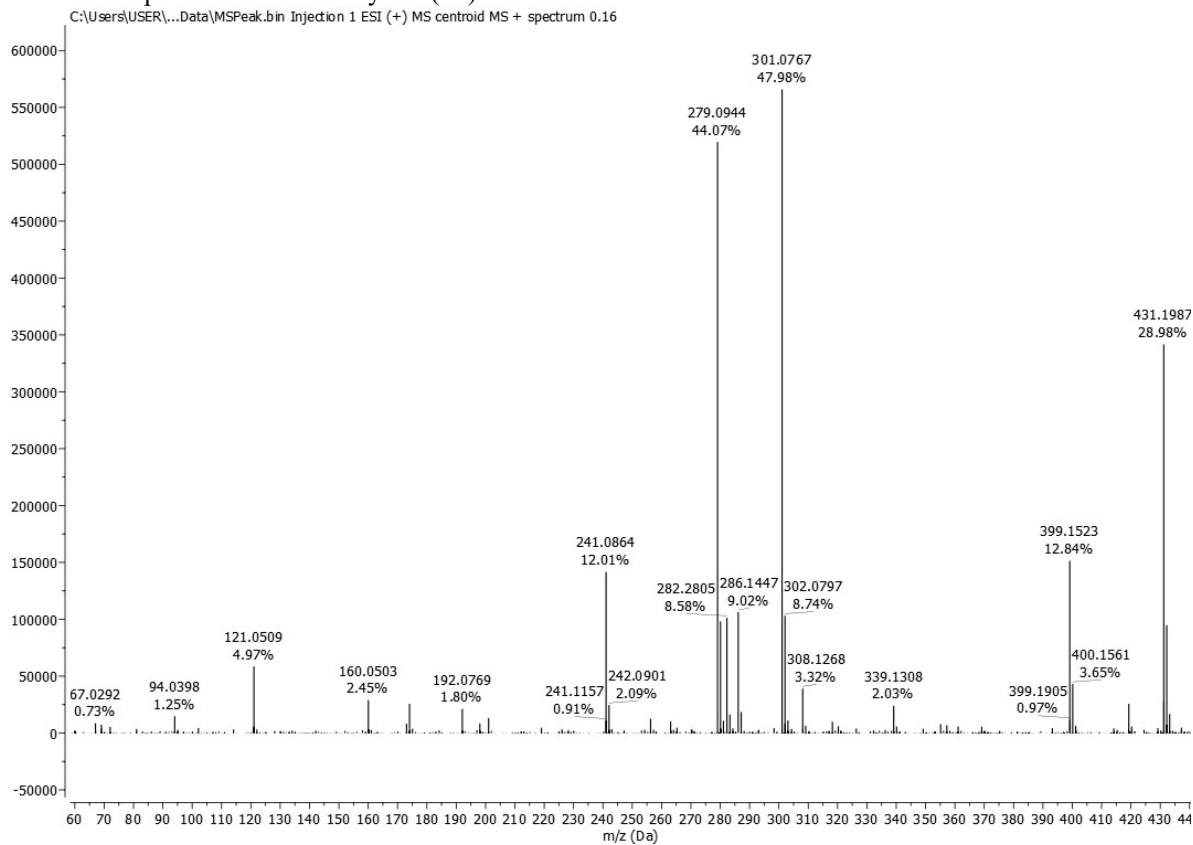


Fig. S69: ESI-HRMS spectrum of the title hybrid (**4i**)

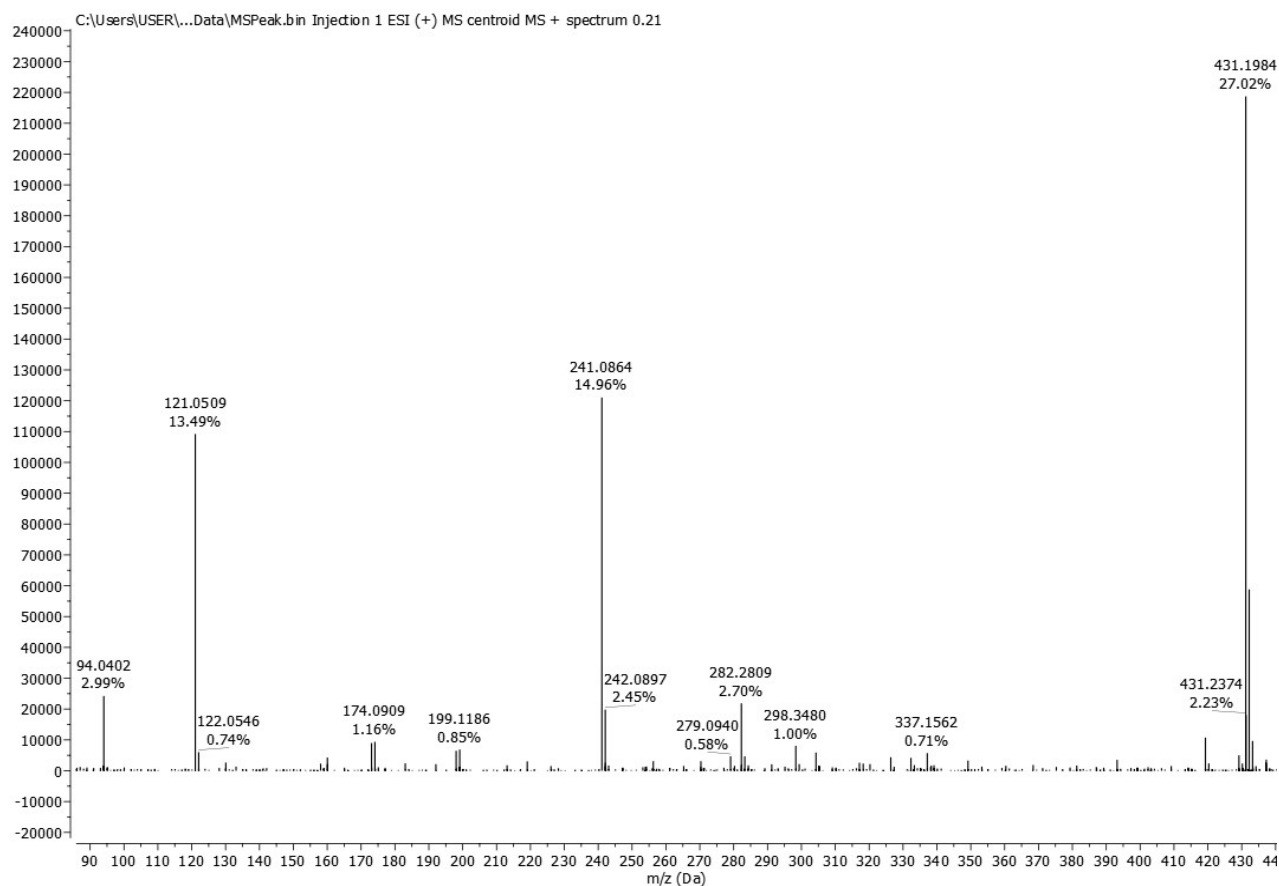


Fig. S70: ESI-HRMS spectrum of the title hybrid (**4j**)

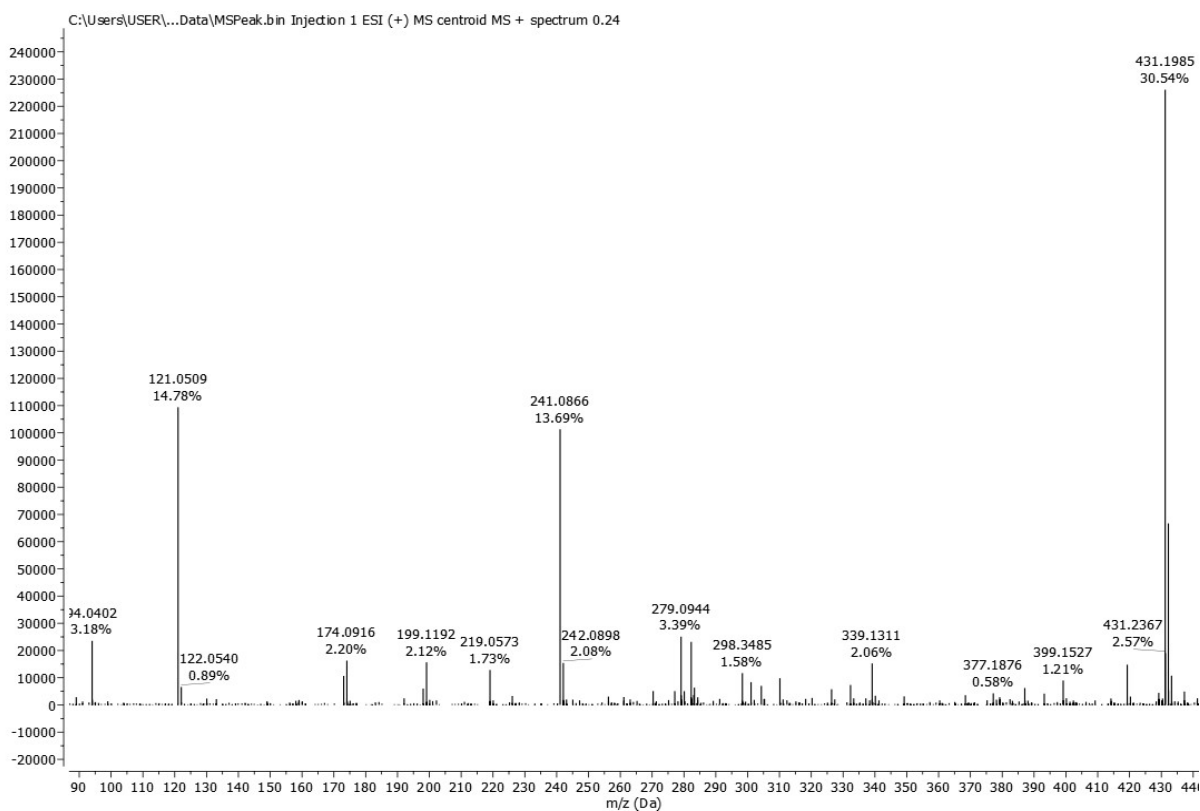
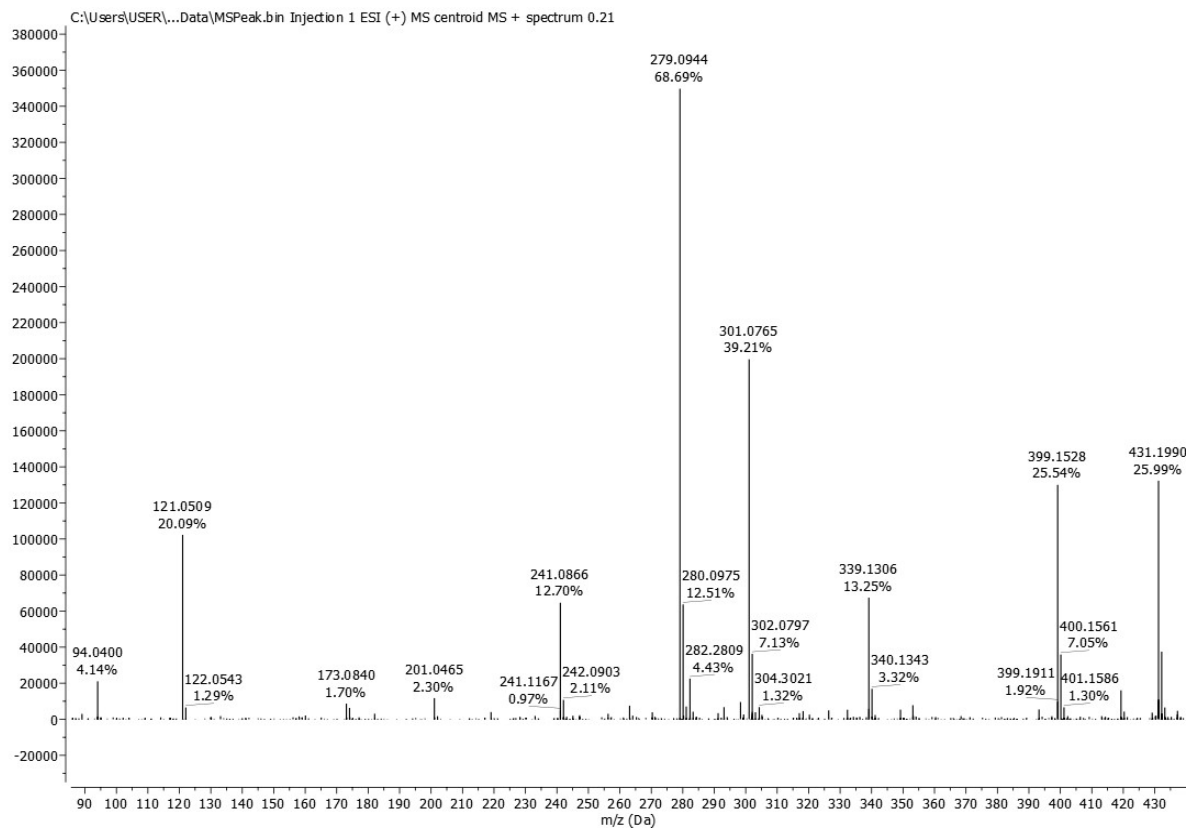


Fig. S71: ESI-HRMS spectrum of the title hybrid (**4l**)



8) HPLC purity of the target hybrids 3a-l.

Fig. S72: High-performance liquid chromatography (HPLC) analysis of title hybrid (**3a**)

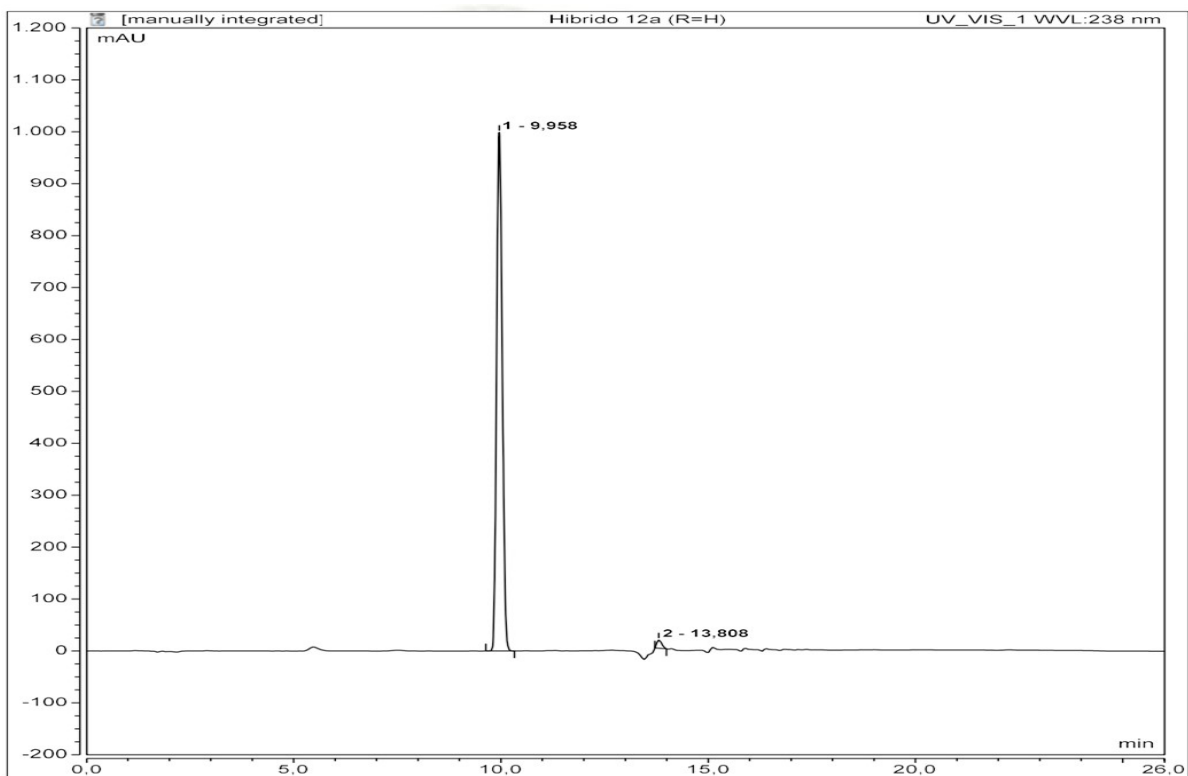


Fig. S73: High-performance liquid chromatography (HPLC) analysis of the title hybrid (**3b**)

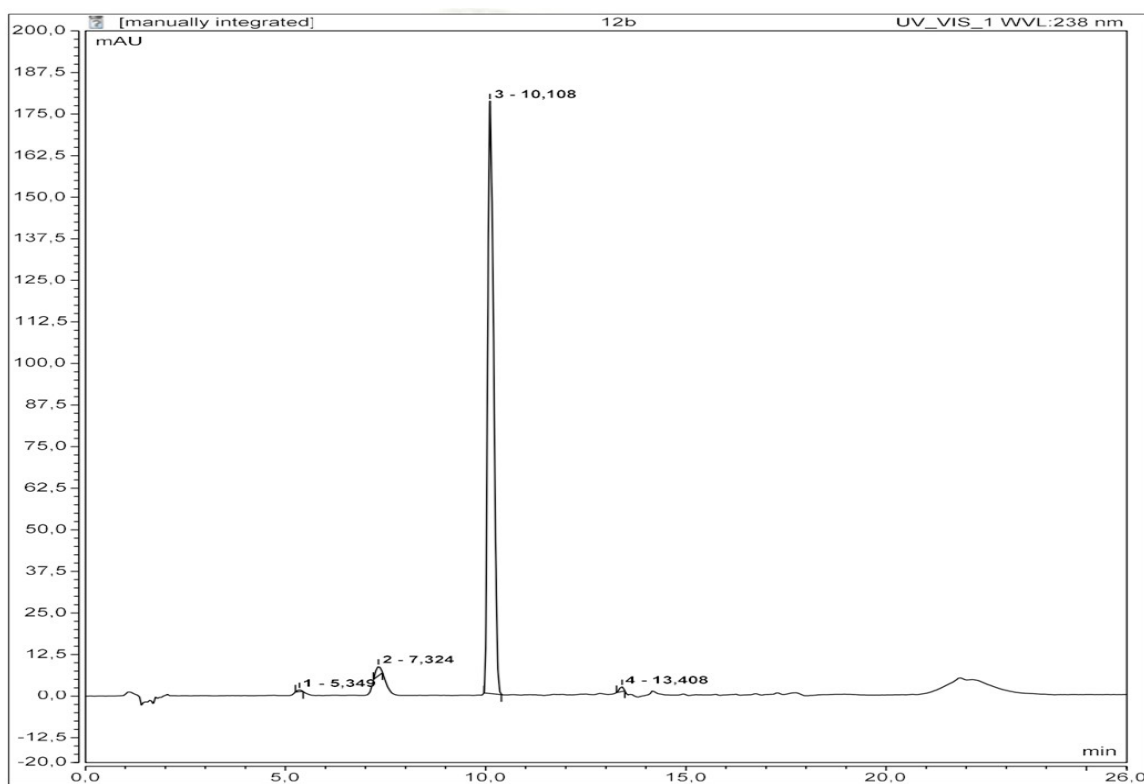


Fig. S74: High-performance liquid chromatography (HPLC) analysis of the title hybrid (**3c**)

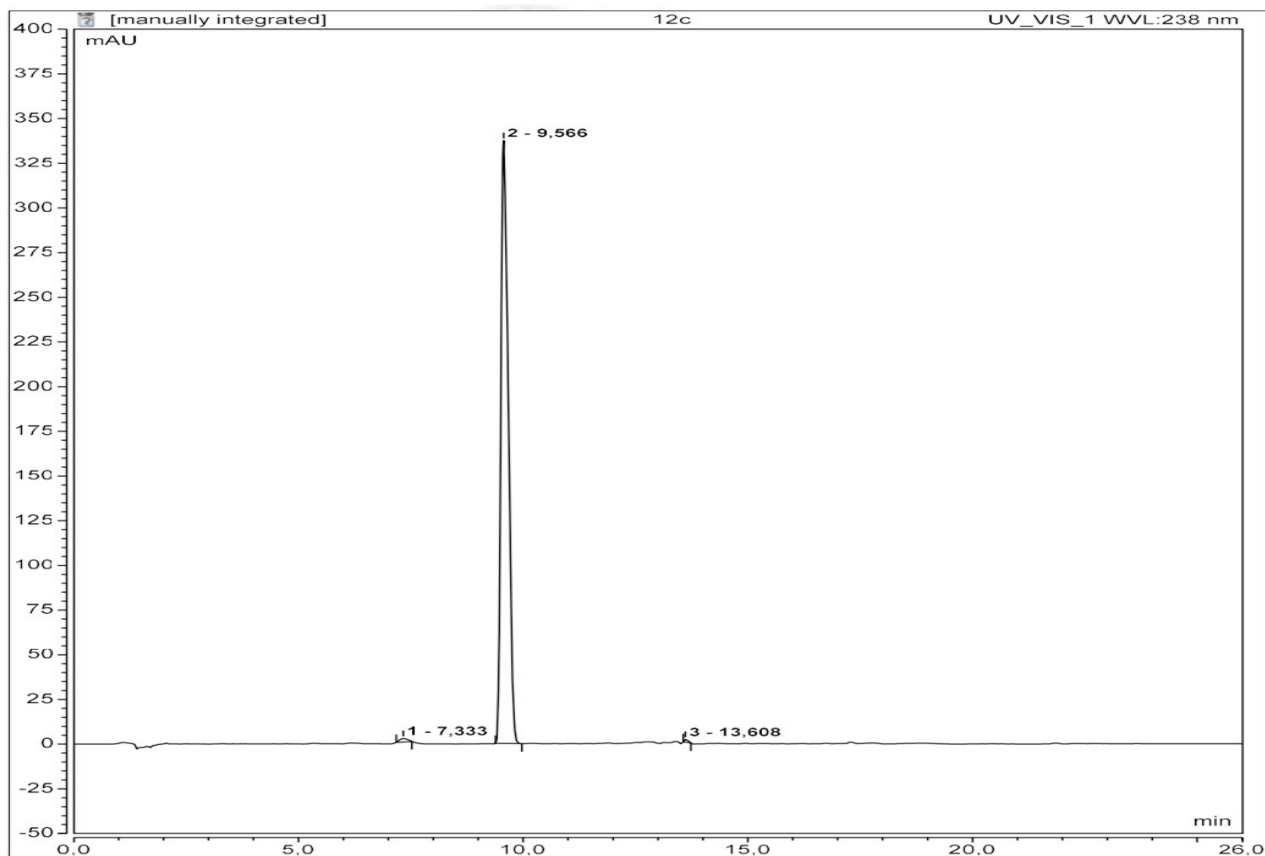


Fig. S75: High-performance liquid chromatography (HPLC) analysis of the title hybrid (**3d**)

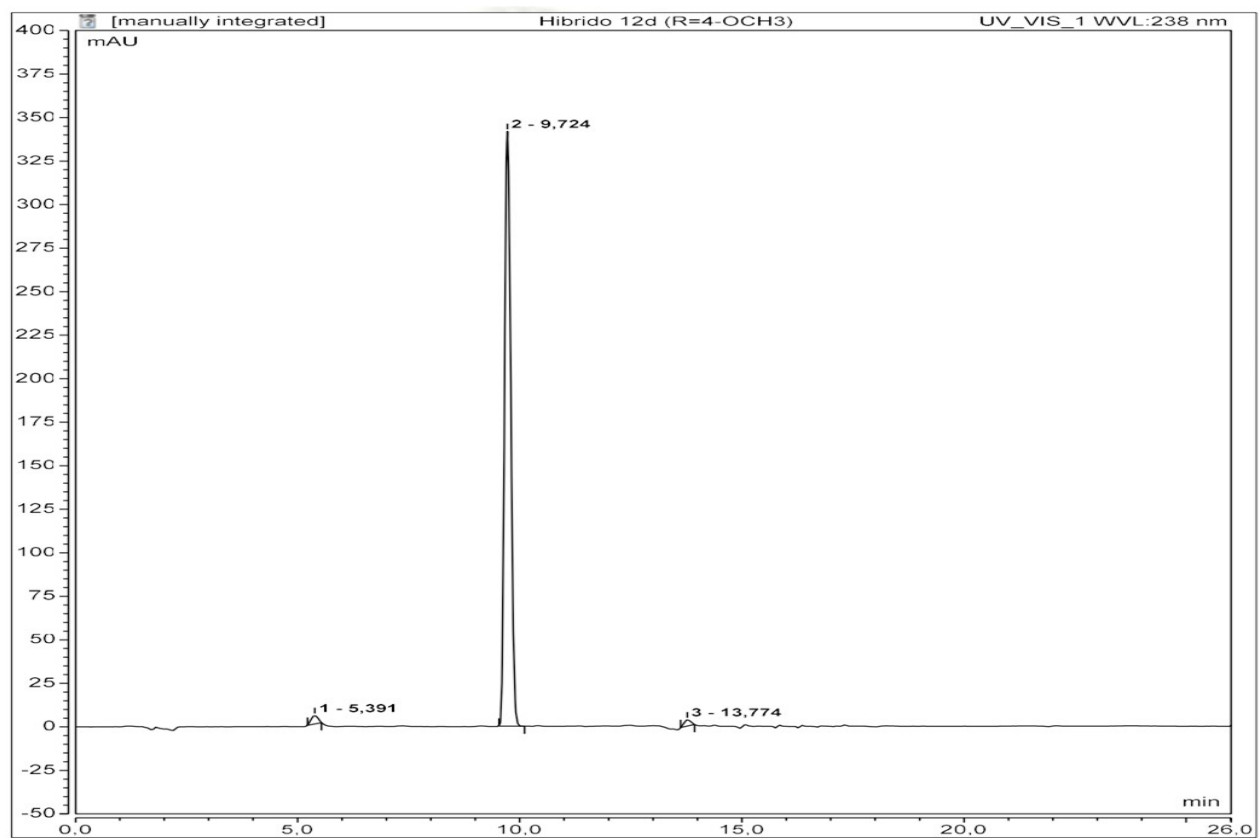


Fig. S76: High-performance liquid chromatography (HPLC) analysis of the title hybrid (**3e**)

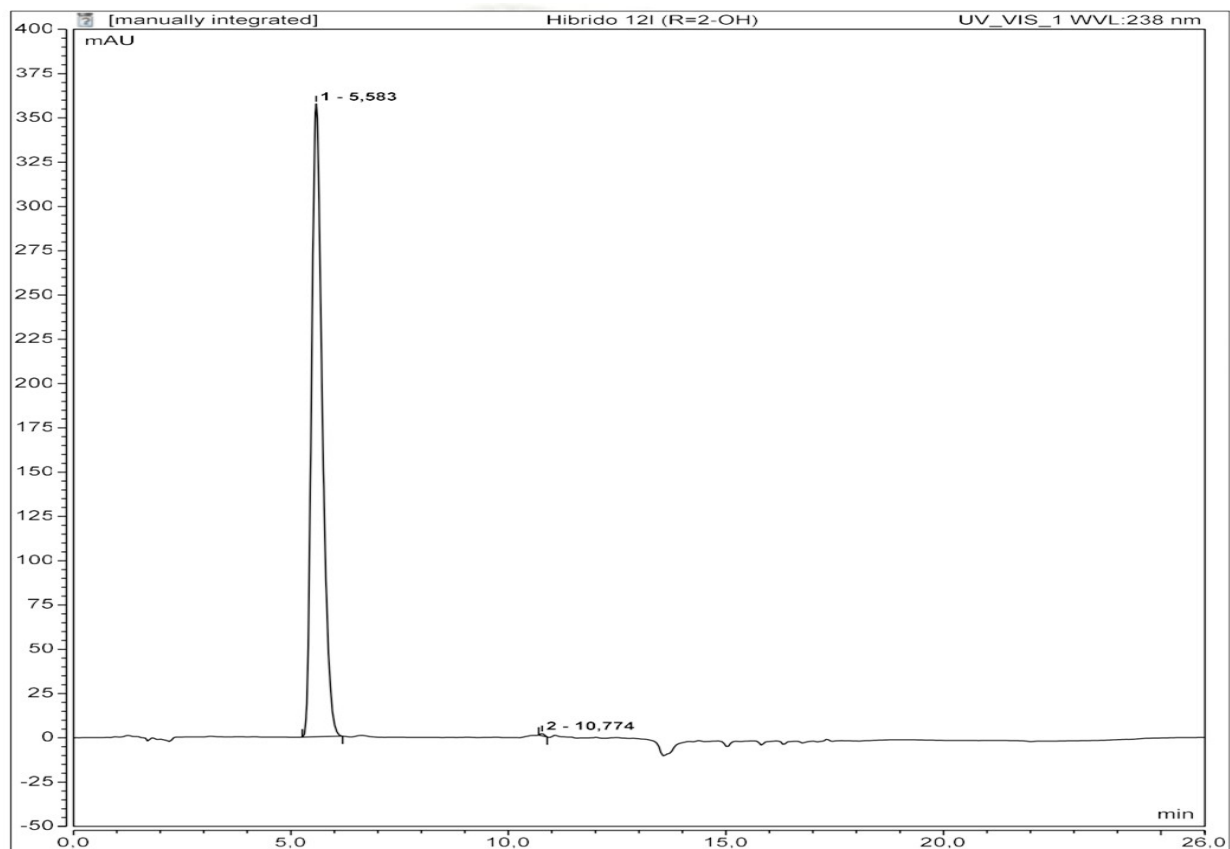


Fig. S77: High-performance liquid chromatography (HPLC) analysis of the title hybrid (**3f**)

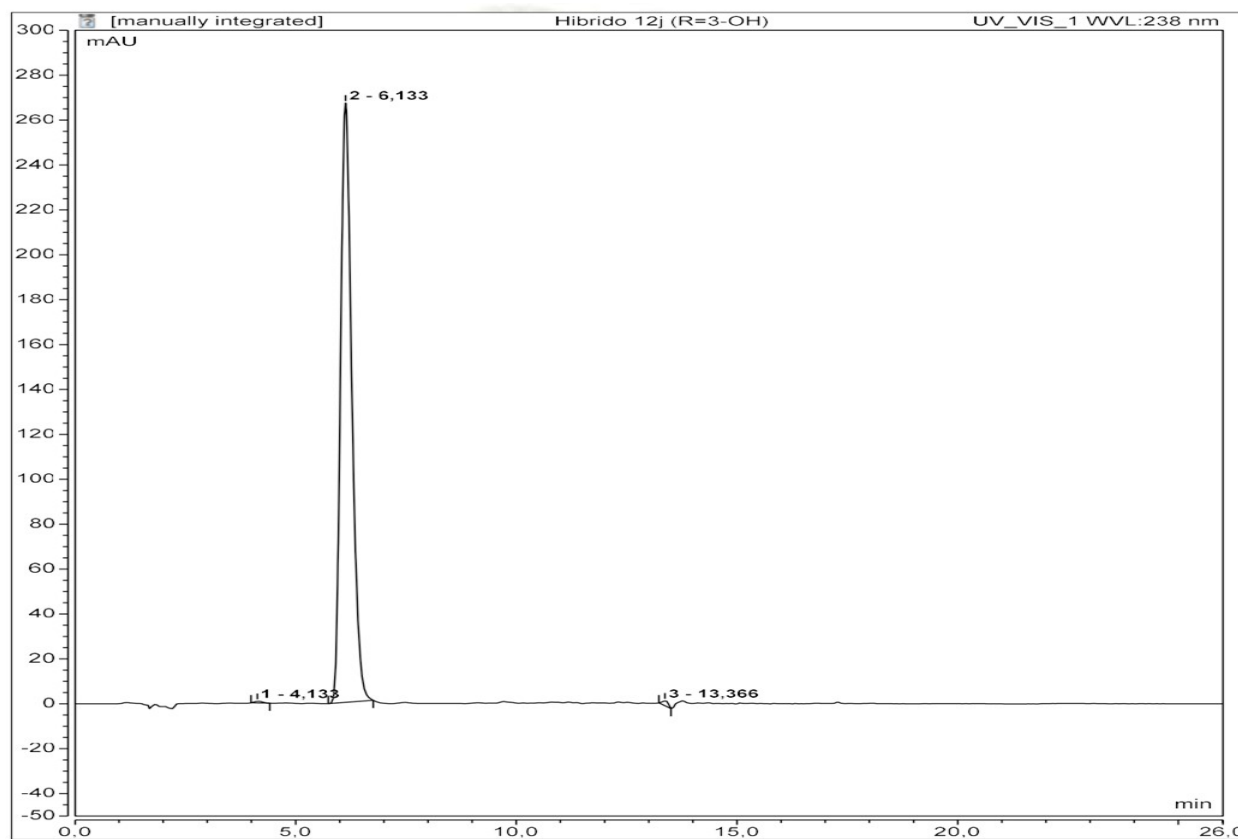


Fig. S78: High-performance liquid chromatography (HPLC) analysis of the title hybrid (**3g**)

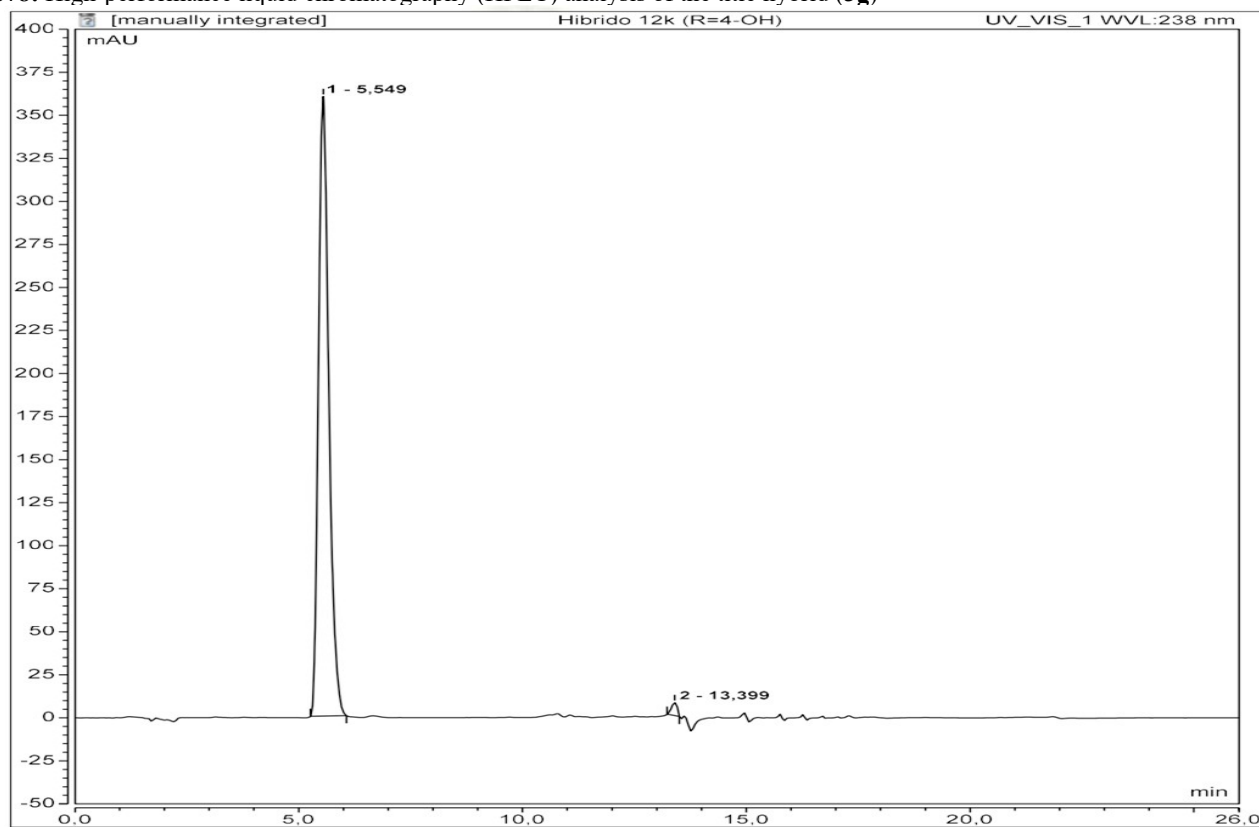


Fig. S79: High-performance liquid chromatography (HPLC) analysis of the title hybrid (**3h**)

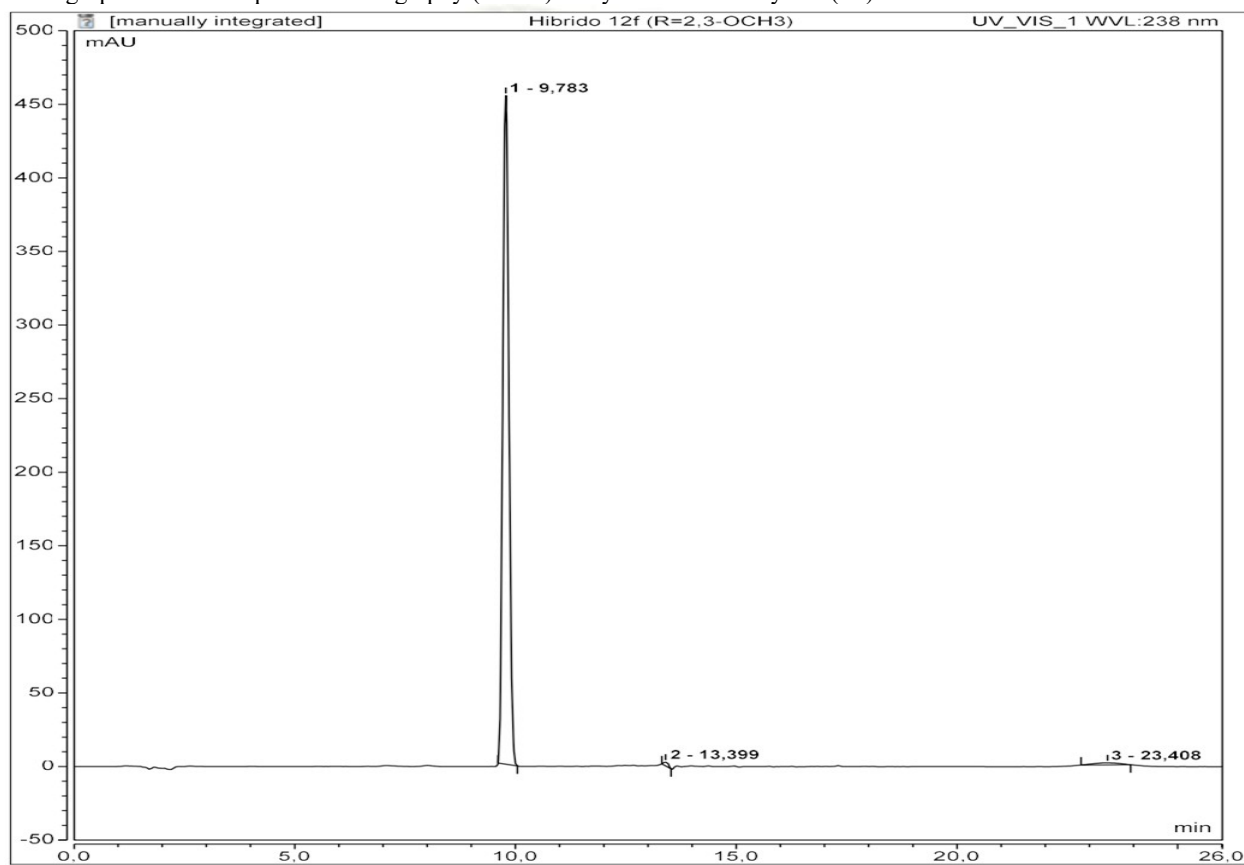


Fig. S80: High-performance liquid chromatography (HPLC) analysis of the title hybrid (**3i**)

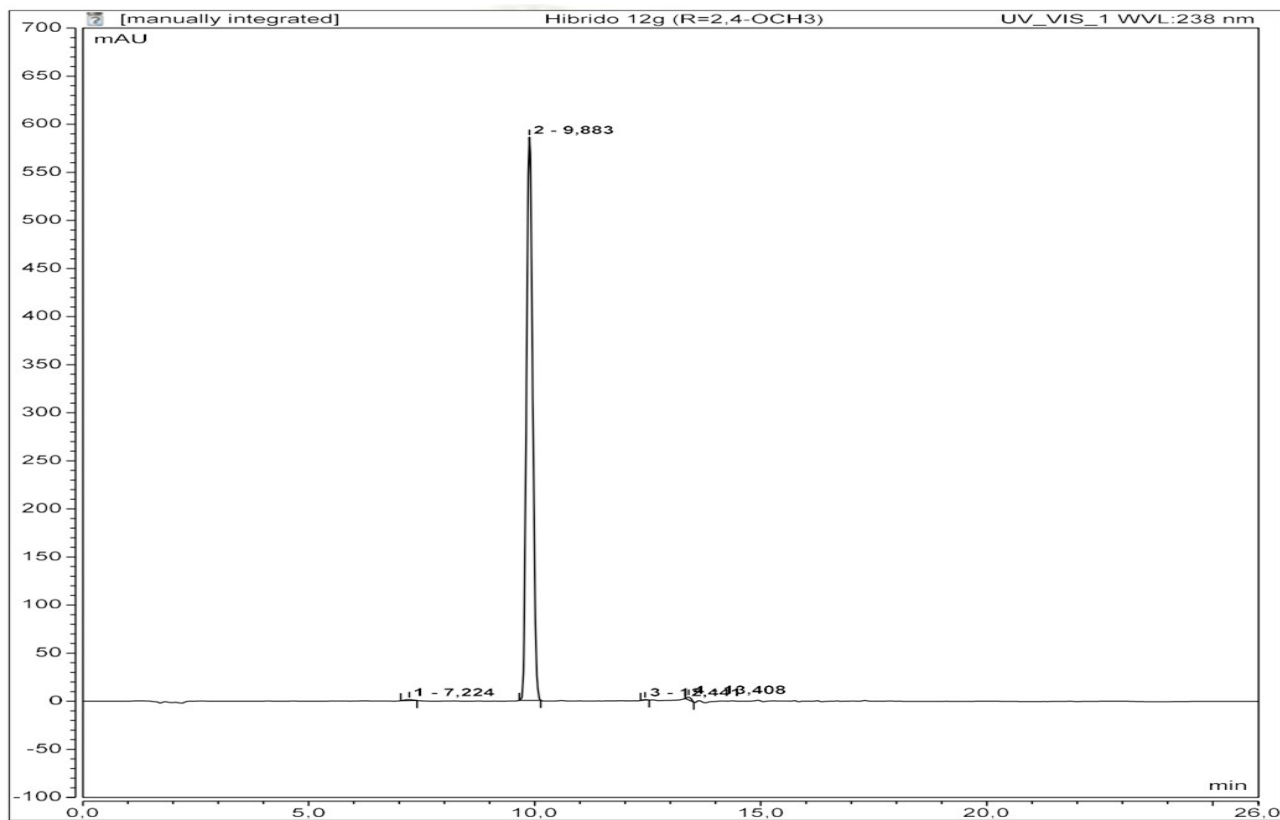


Fig. S81: High-performance liquid chromatography (HPLC) analysis of the title hybrid (**3j**)

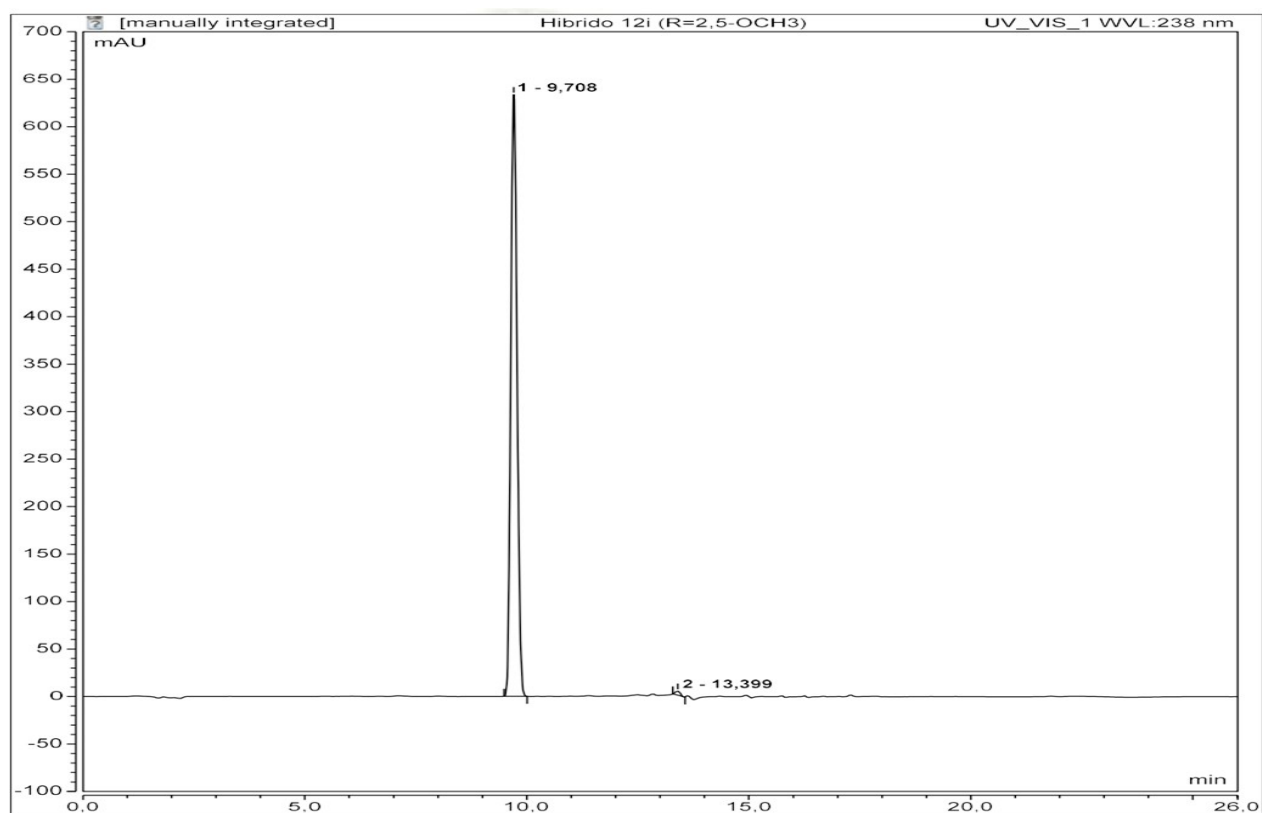


Fig. S82: High-performance liquid chromatography (HPLC) analysis of the title hybrid (**3k**)

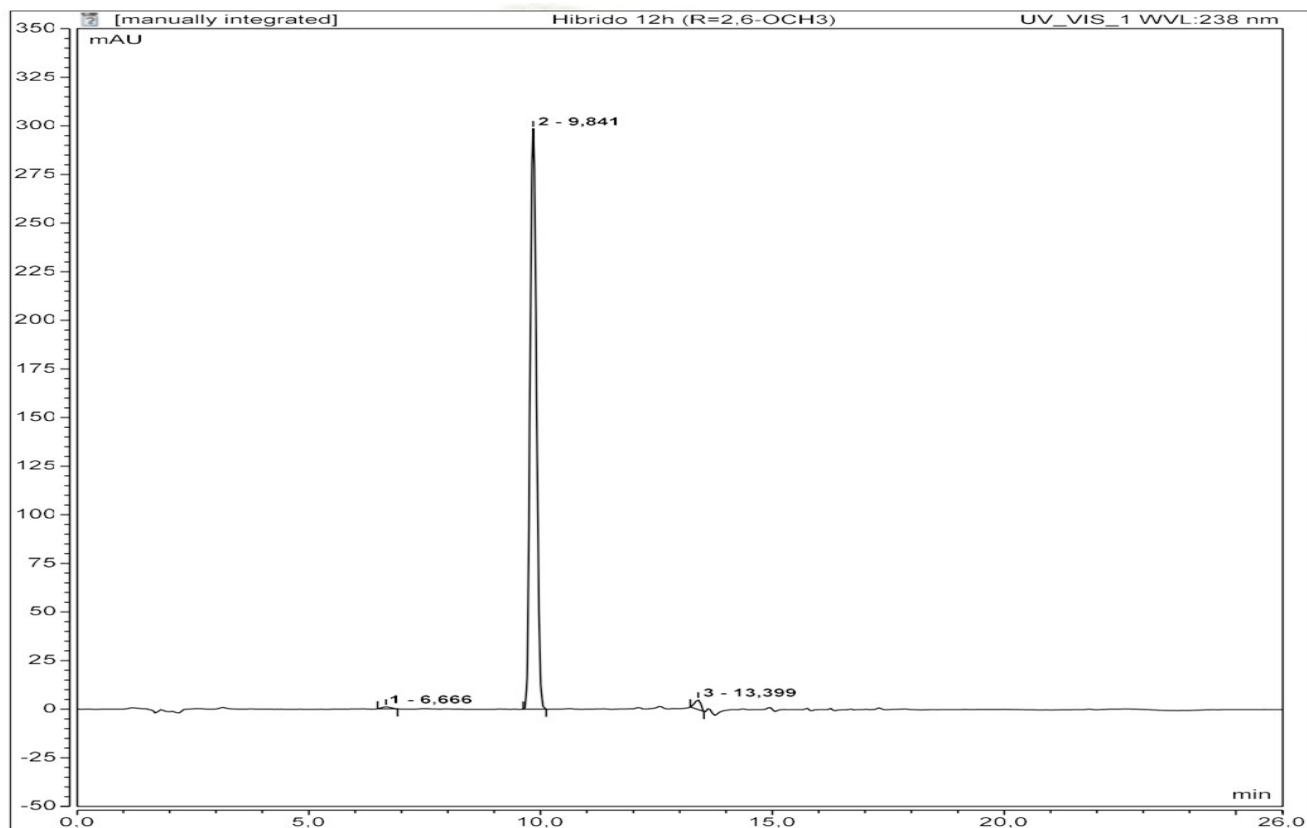
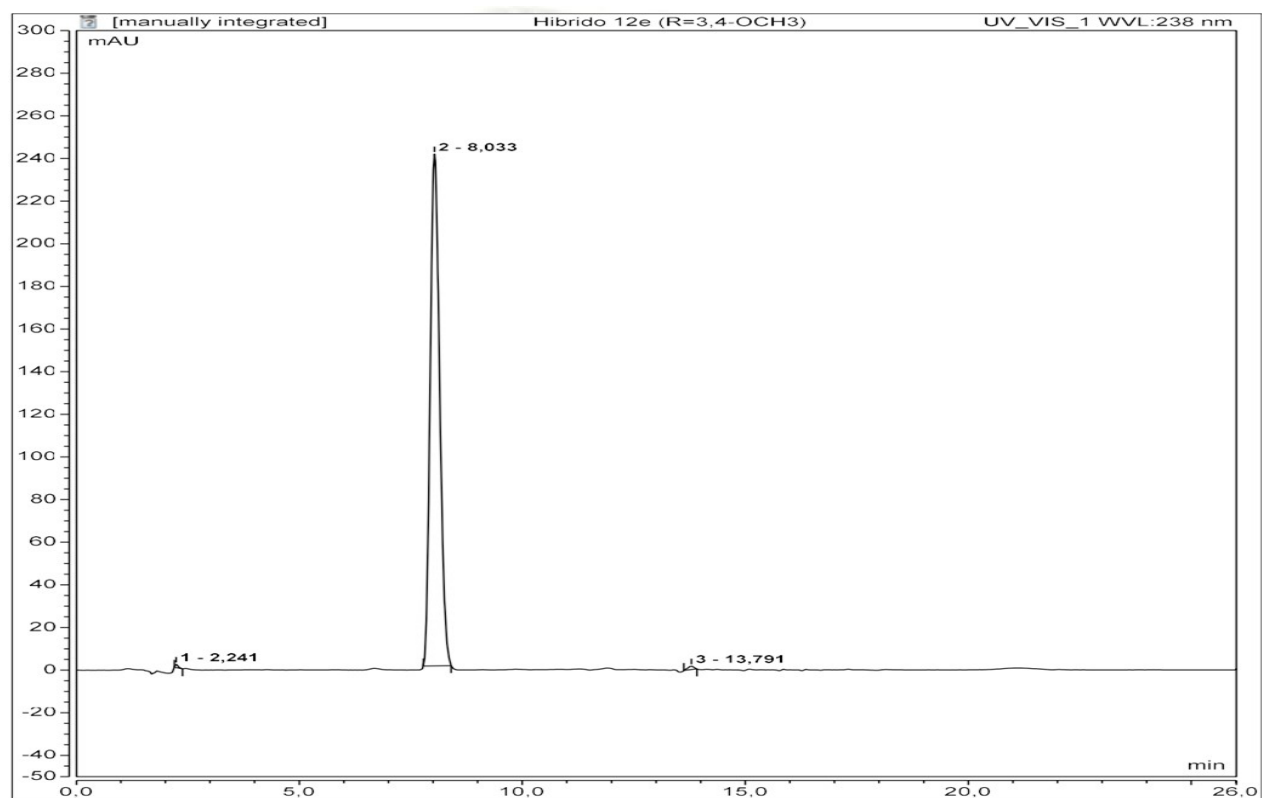


Fig. S83: High-performance liquid chromatography (HPLC) analysis of the title hybrid (**3l**)



9) HPLC purity of the target hybrids **4a-j**.

Fig. S84: High-performance liquid chromatography (HPLC) analysis of title hybrid (**4a**)

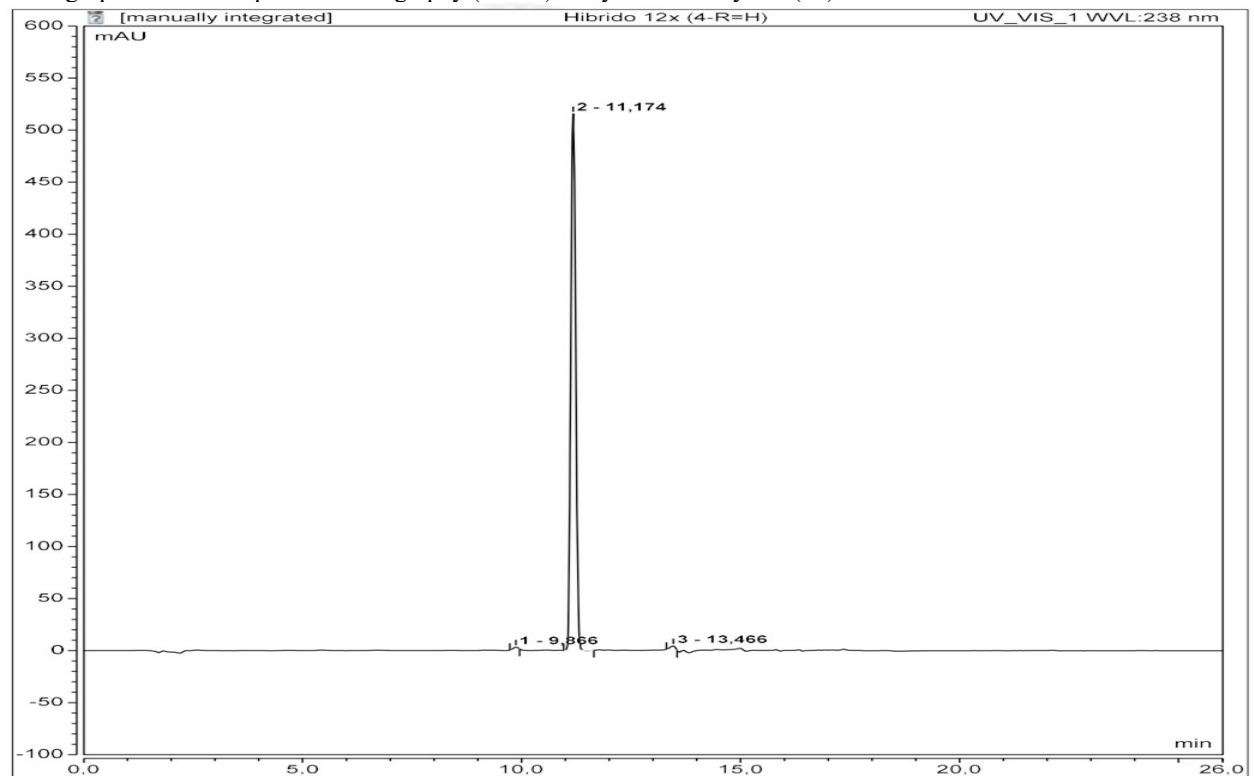


Fig. S85: High-performance liquid chromatography (HPLC) analysis of the title hybrid (**4b**)

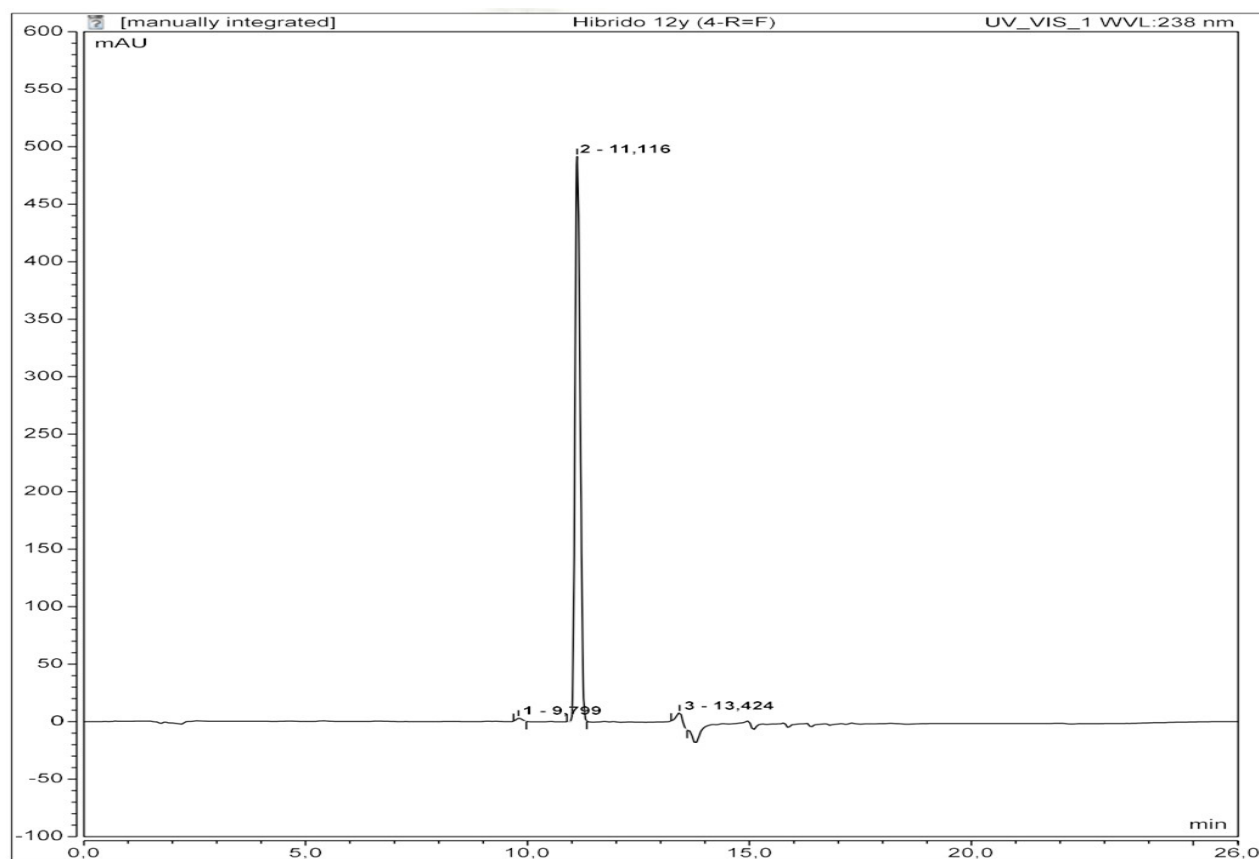


Fig. S86: High-performance liquid chromatography (HPLC) analysis of the title hybrid (**4d**)

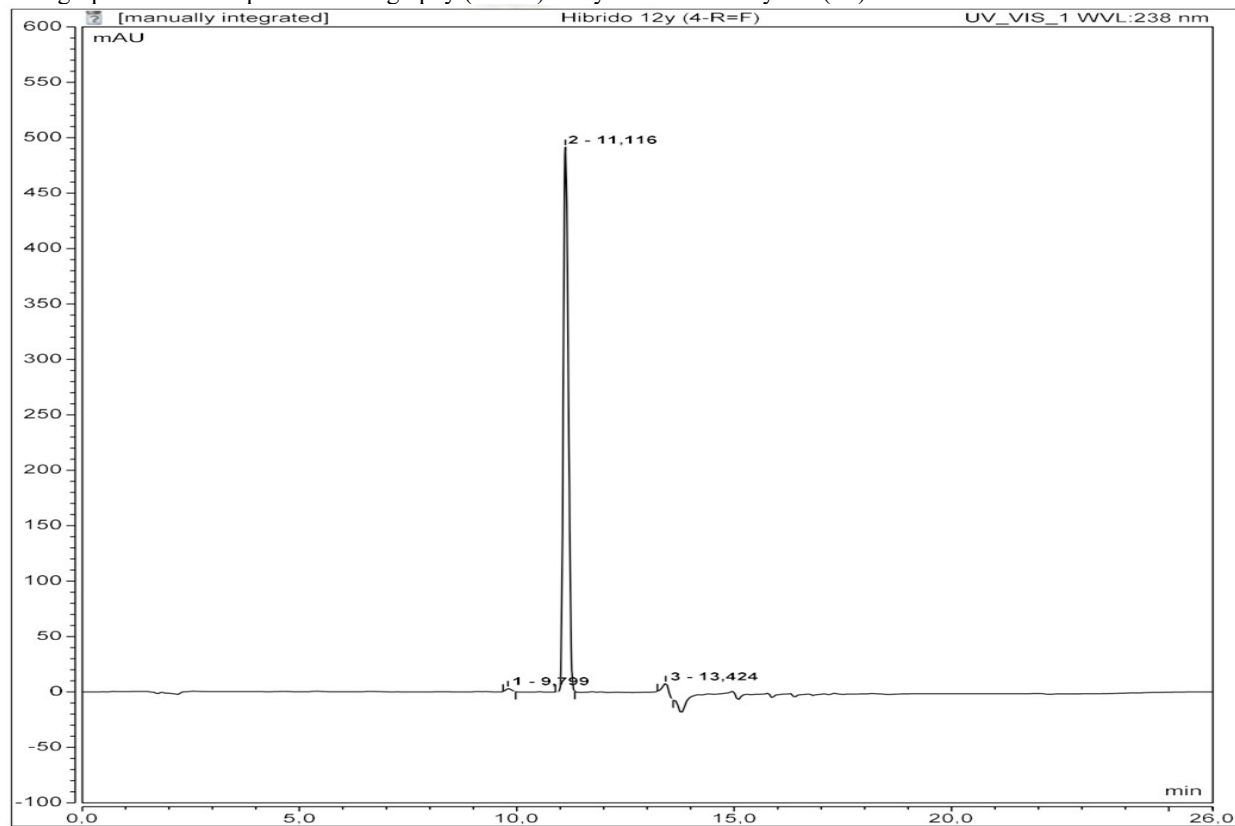


Fig. S87: High-performance liquid chromatography (HPLC) analysis of the title hybrid (**4e**)

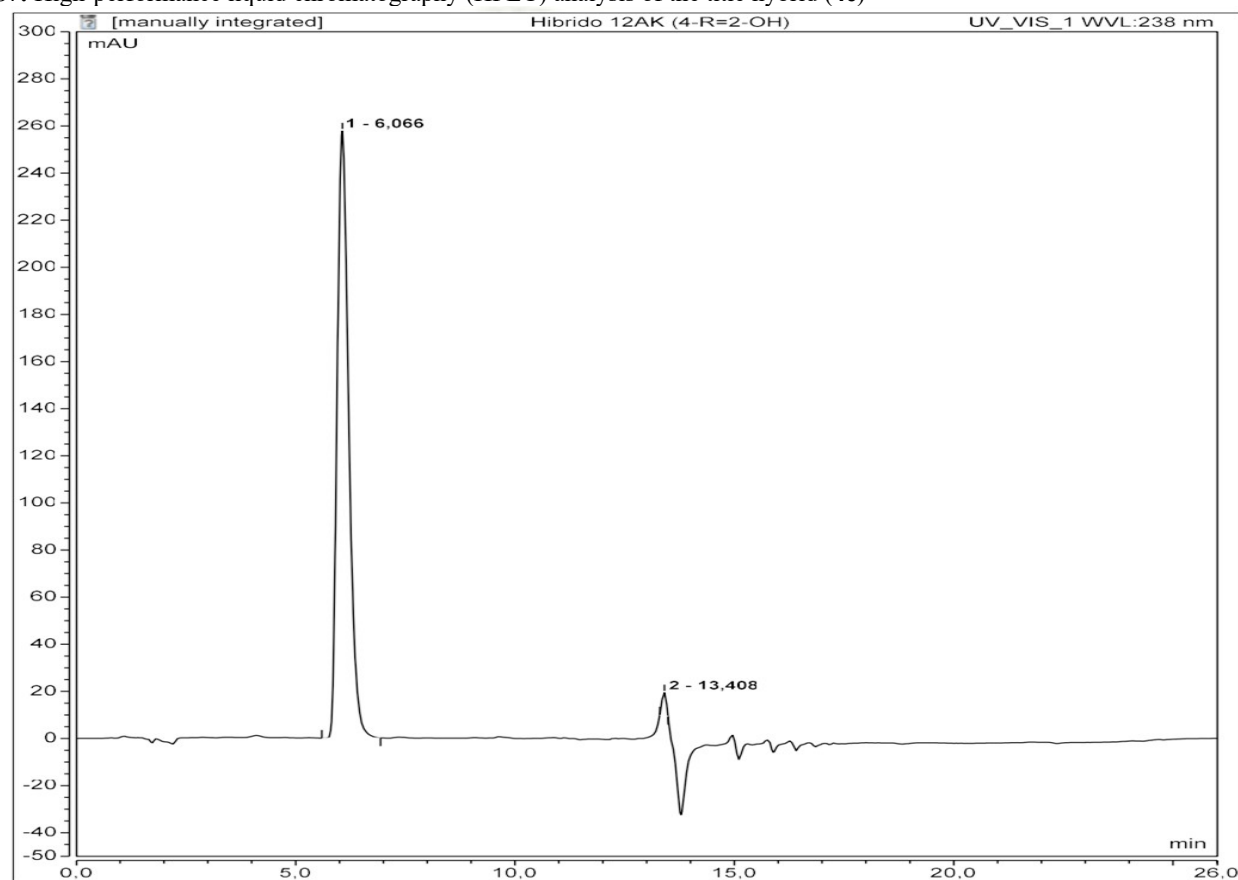


Fig. S88: High-performance liquid chromatography (HPLC) analysis of the title hybrid (**4f**)

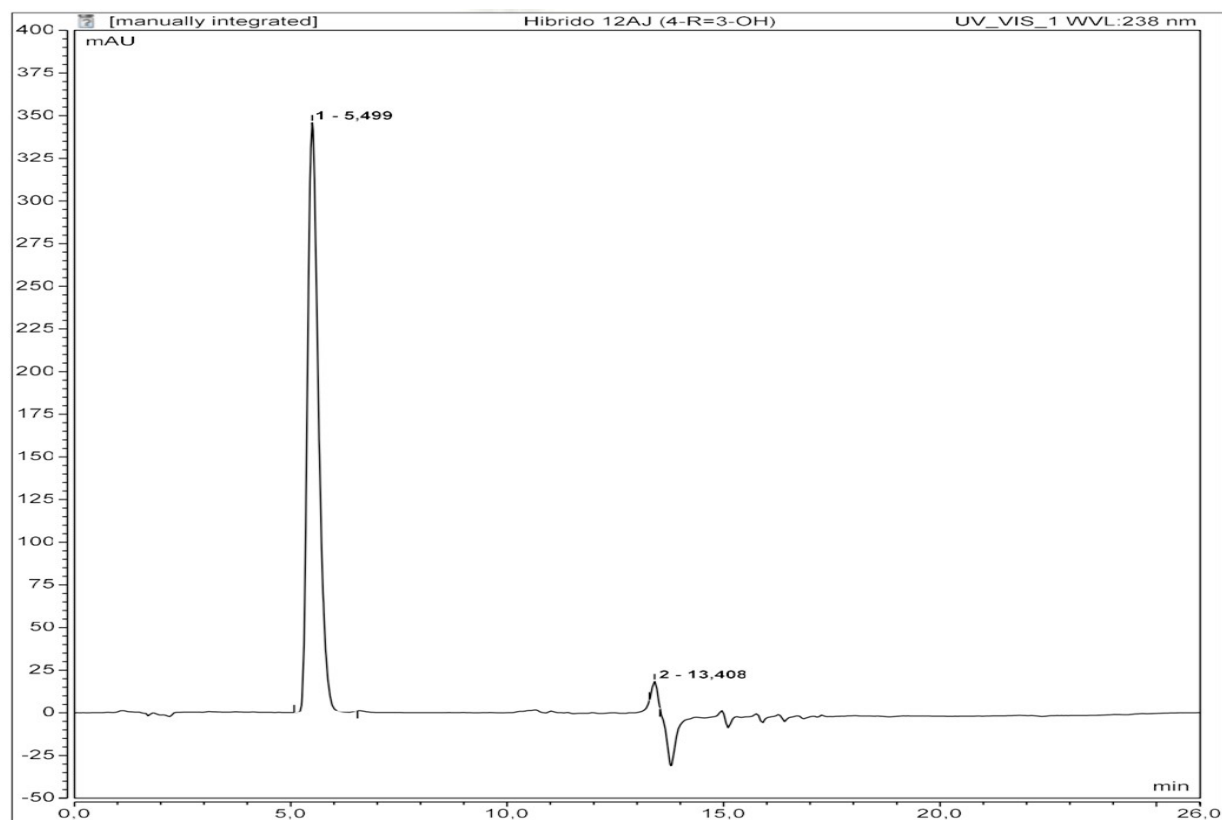


Fig. S89: High-performance liquid chromatography (HPLC) analysis of the title hybrid (**4g**)

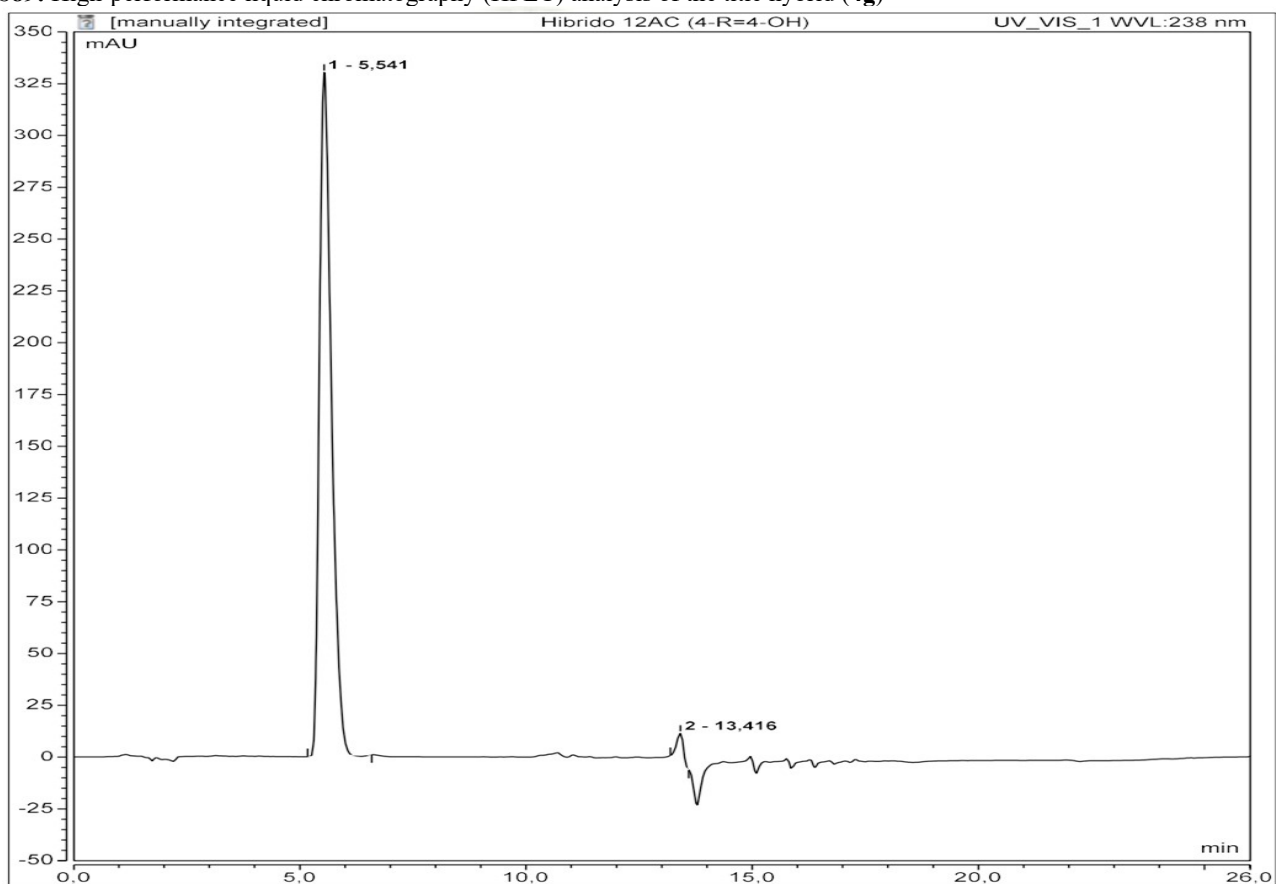


Fig. S90: High-performance liquid chromatography (HPLC) analysis of the title hybrid (**4h**)

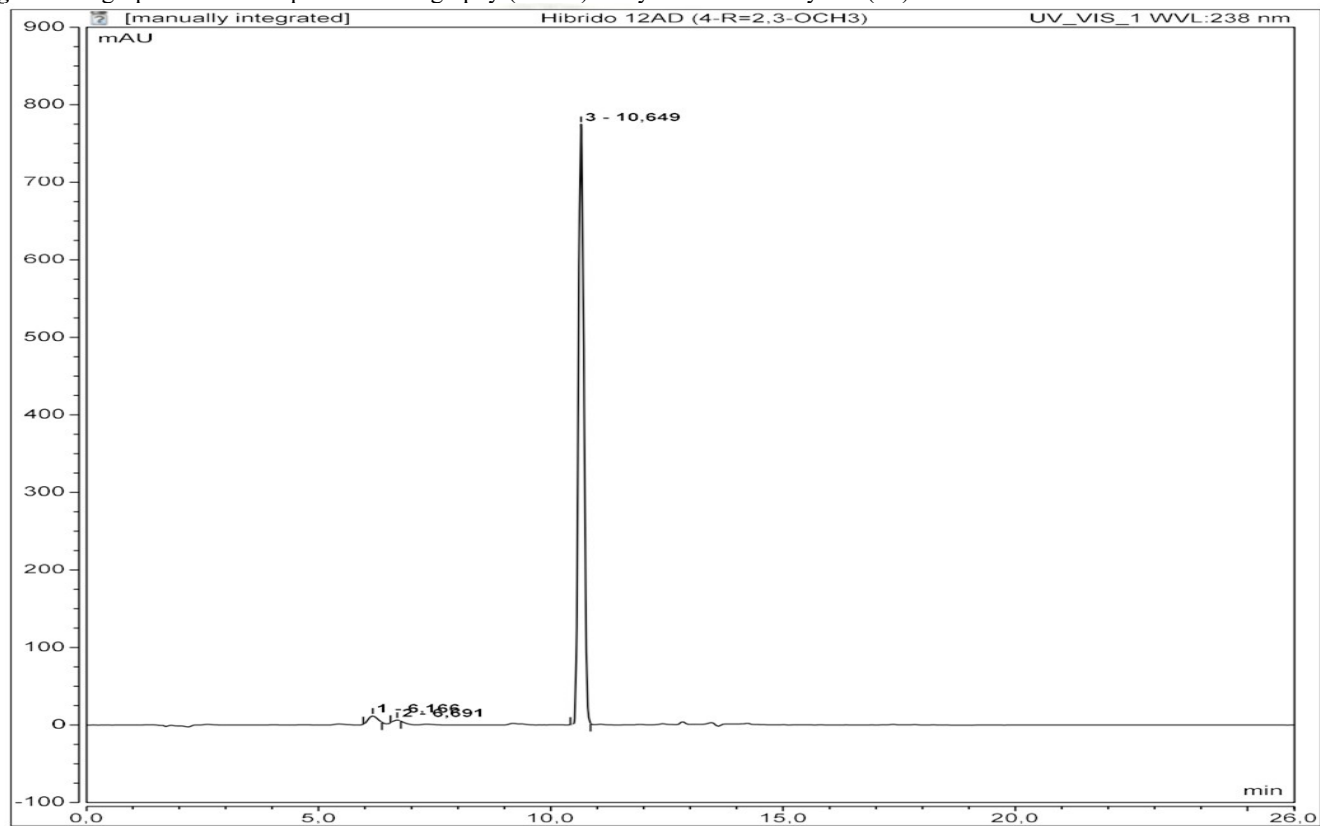


Fig. S91: High-performance liquid chromatography (HPLC) analysis of the title hybrid (**4i**)

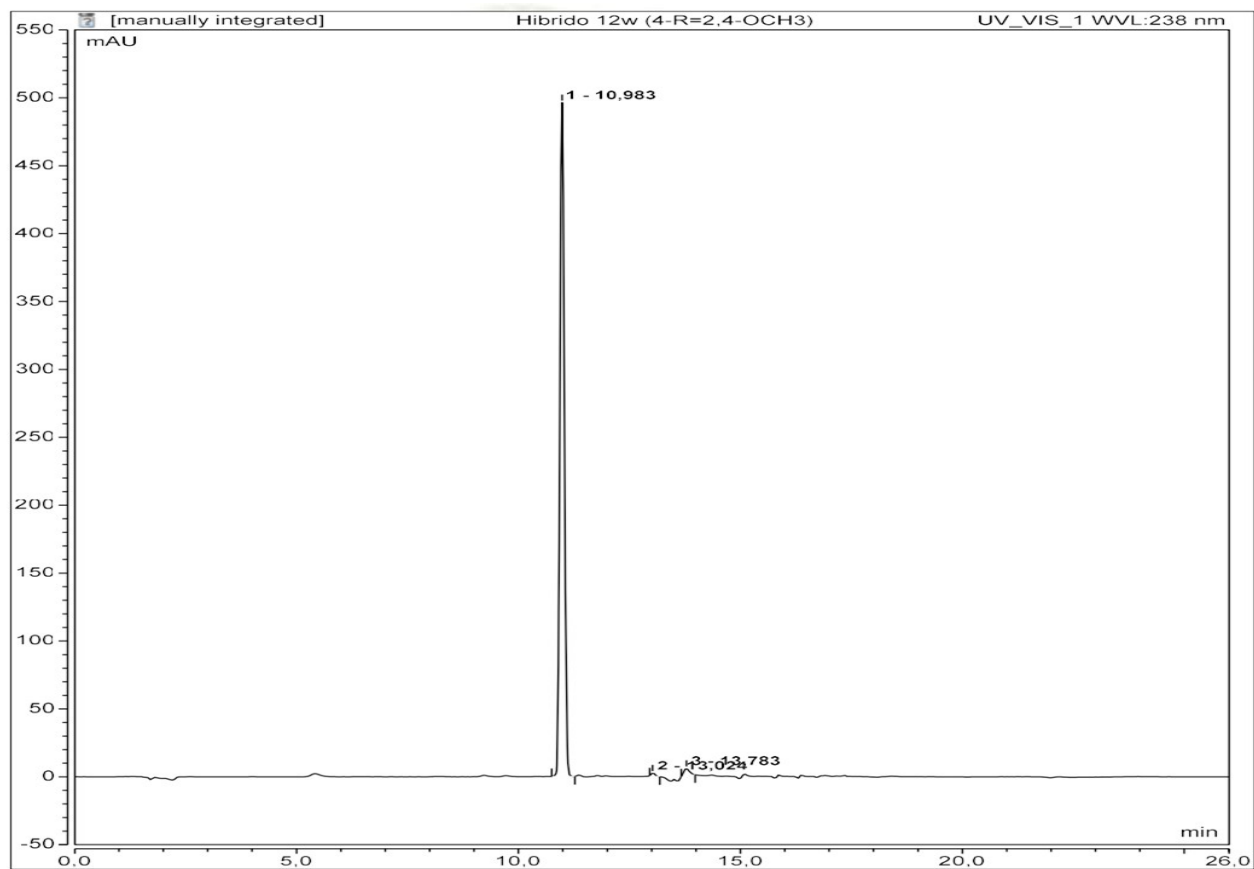


Fig. S92: High-performance liquid chromatography (HPLC) analysis of the title hybrid (**4j**)

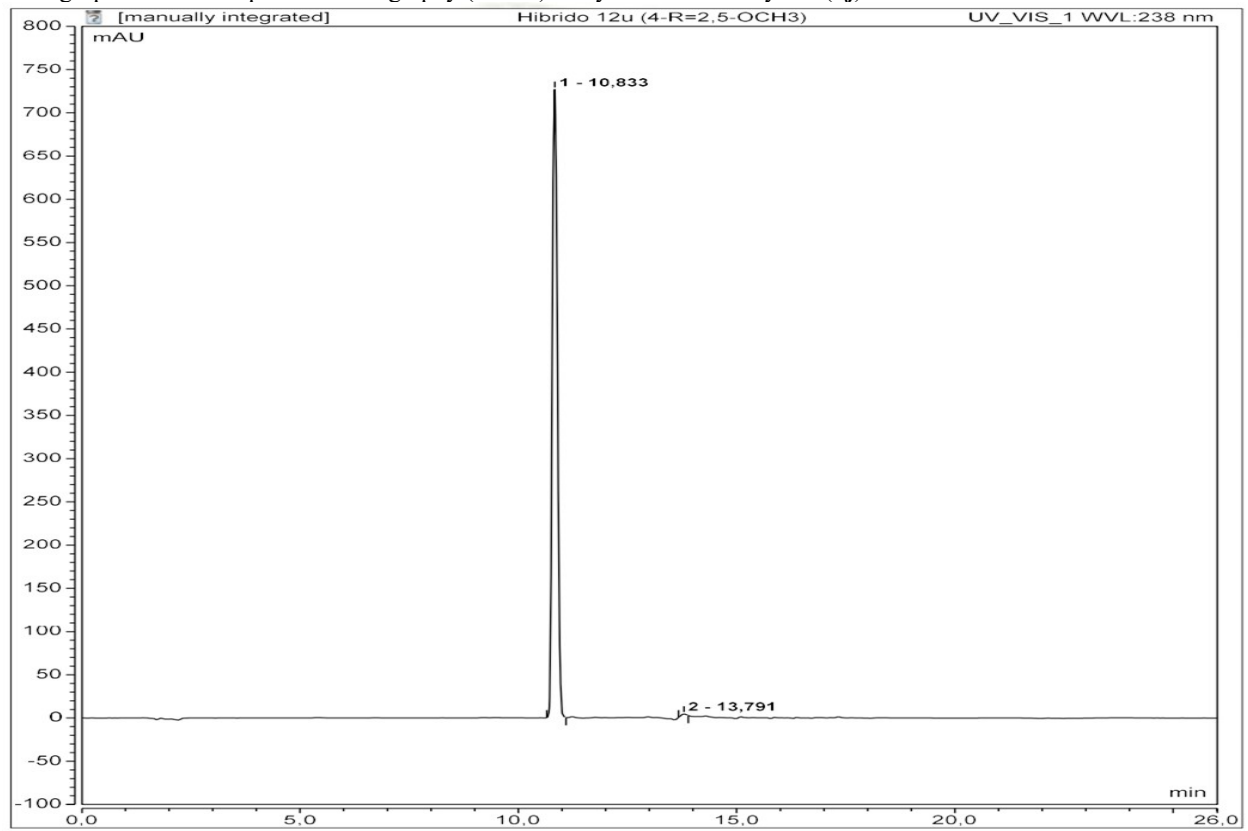
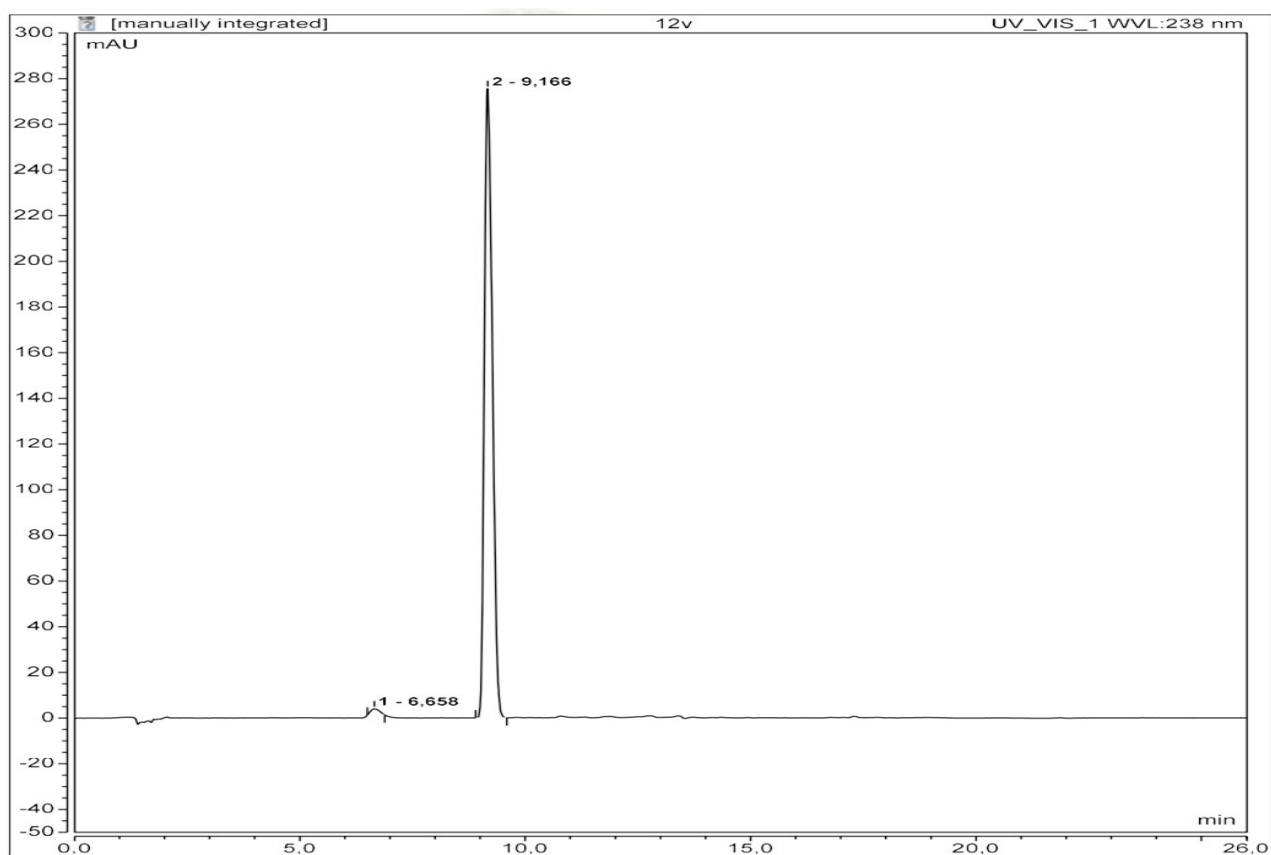


Fig. S93 High-performance liquid chromatography (HPLC) analysis of the title hybrid (**4l**)



8) FT-IR spectra of the intermediates 1 and 2

Fig. S94: FT-IR spectrum of the intermediate (**1**)

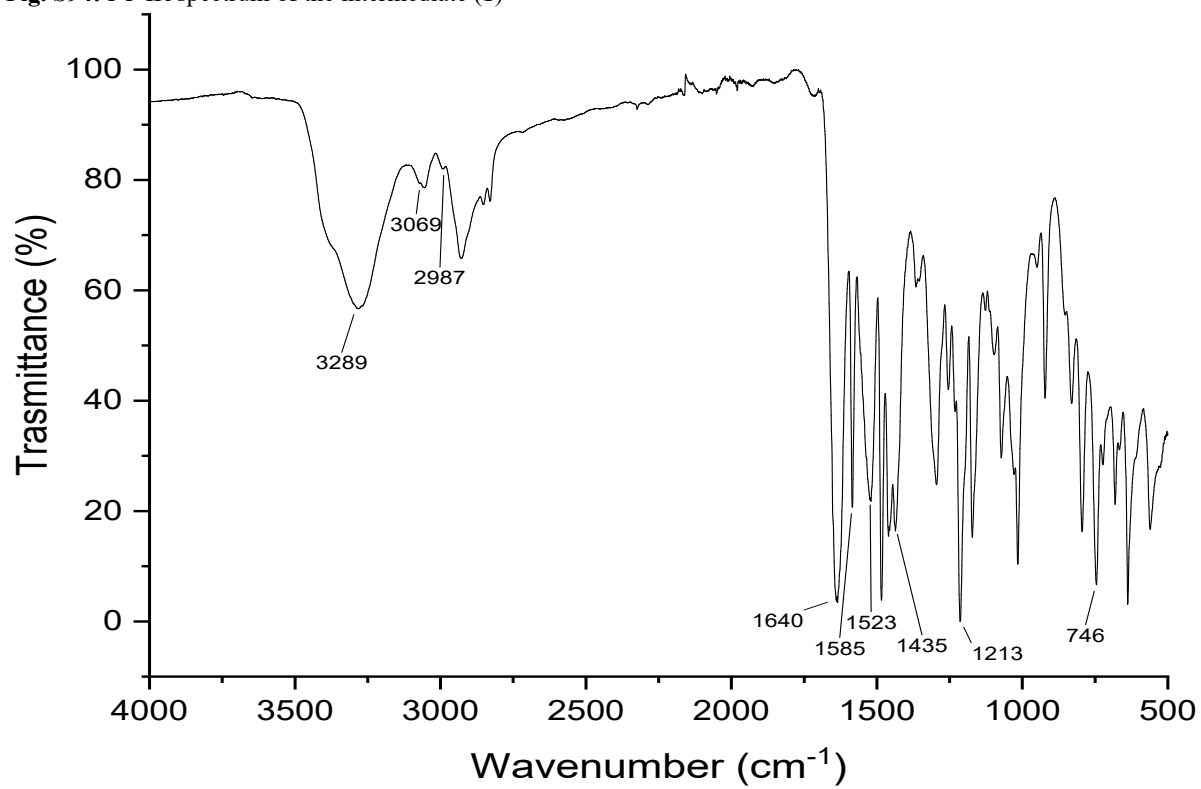
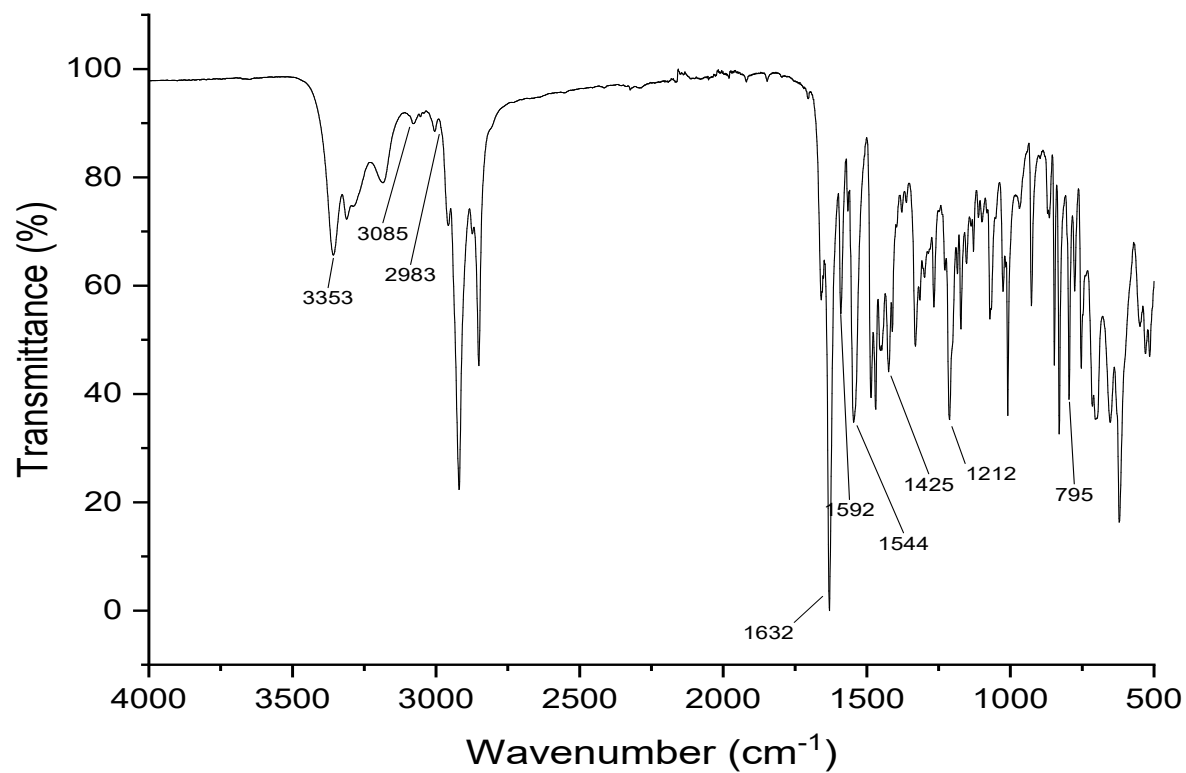


Fig. S95: FT-IR spectrum of the intermediate (2)



9) FT-IR spectra of the target hybrids 3a-l

Fig. S96: FT-IR spectrum of the title hybrid (3a)

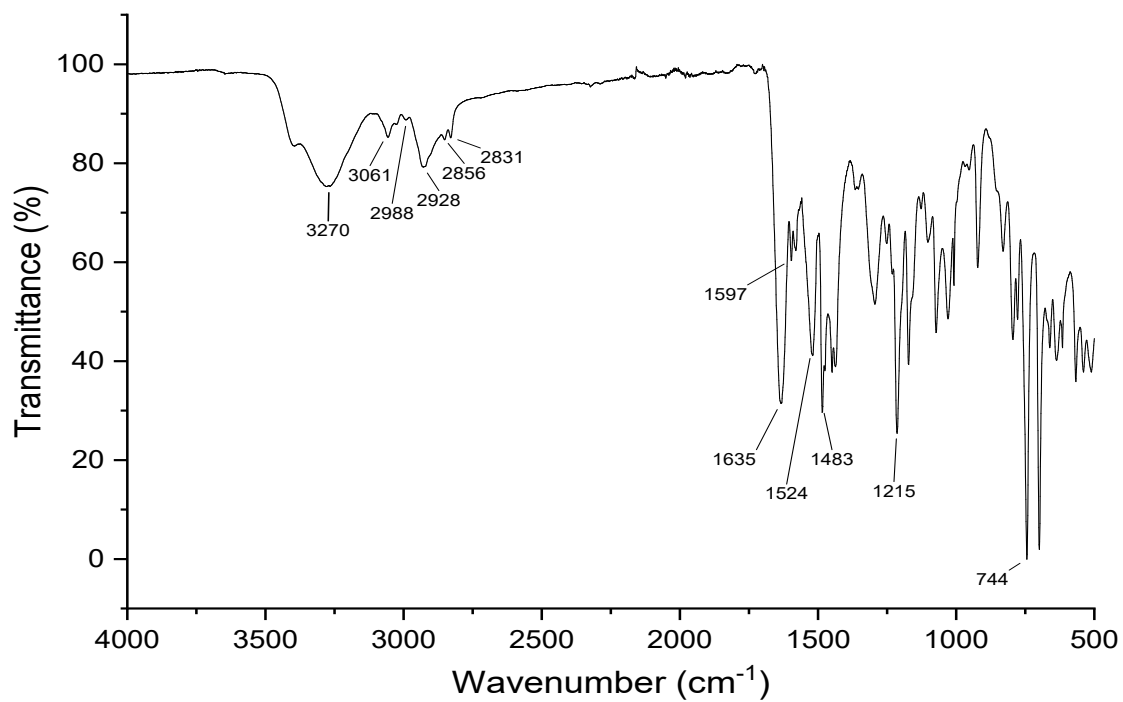


Fig. S97: FT-IR spectrum of the title hybrid (**3b**)

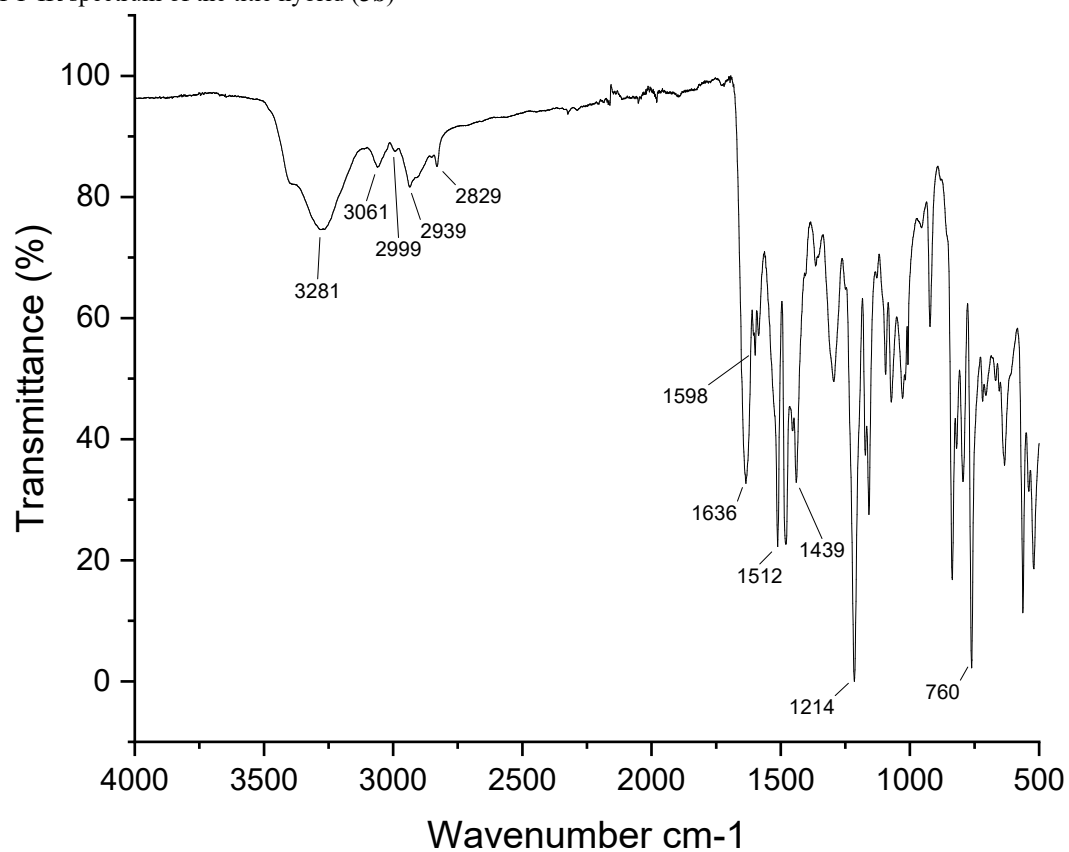


Fig. S98: FT-IR spectrum of the title hybrid (**3c**)

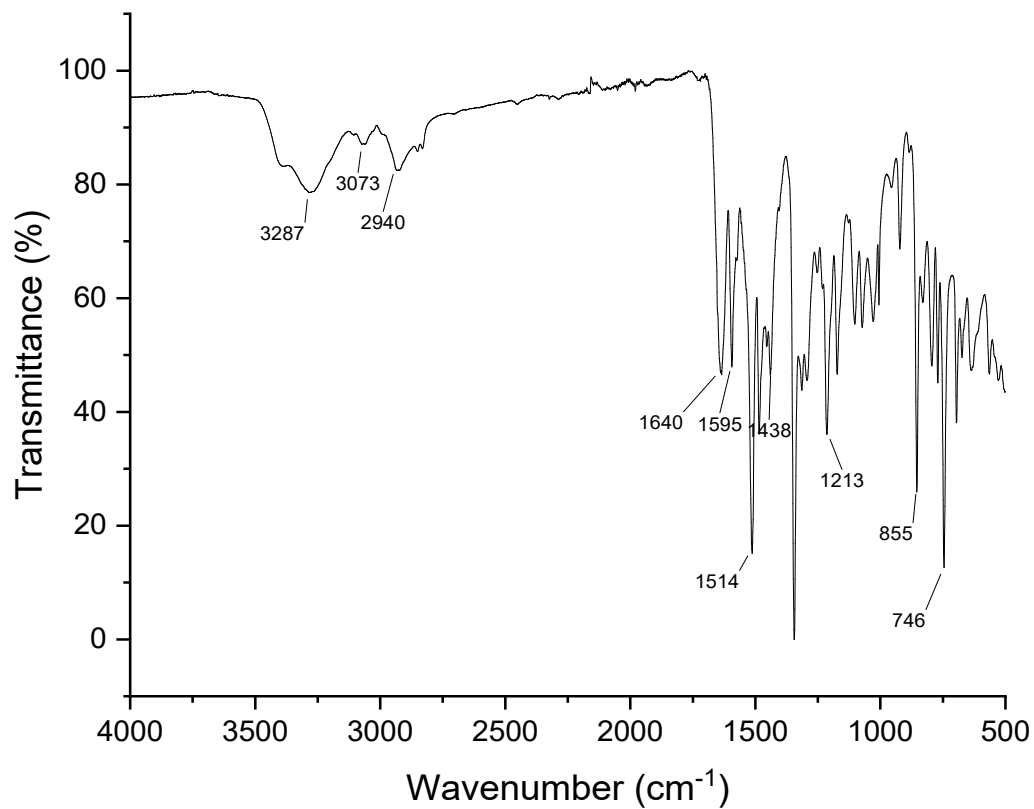


Fig. S99: FT-IR spectrum of the title hybrid (**3d**)

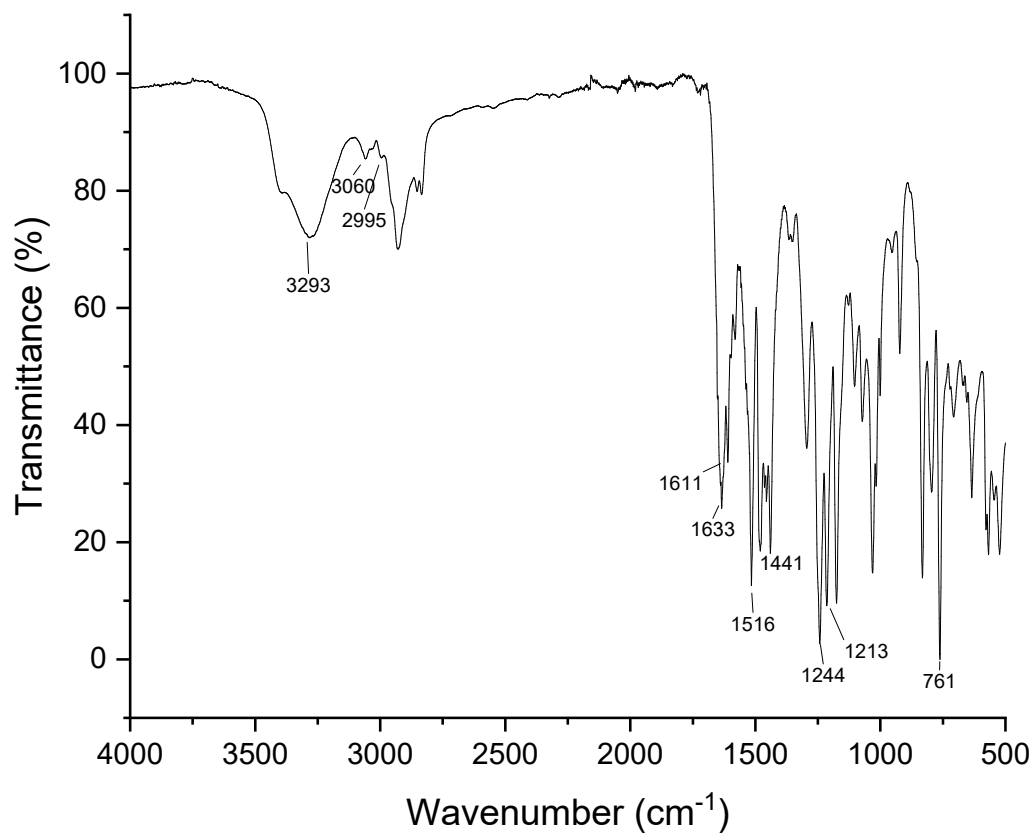


Fig. S100: FT-IR spectrum of the title hybrid (**3e**)

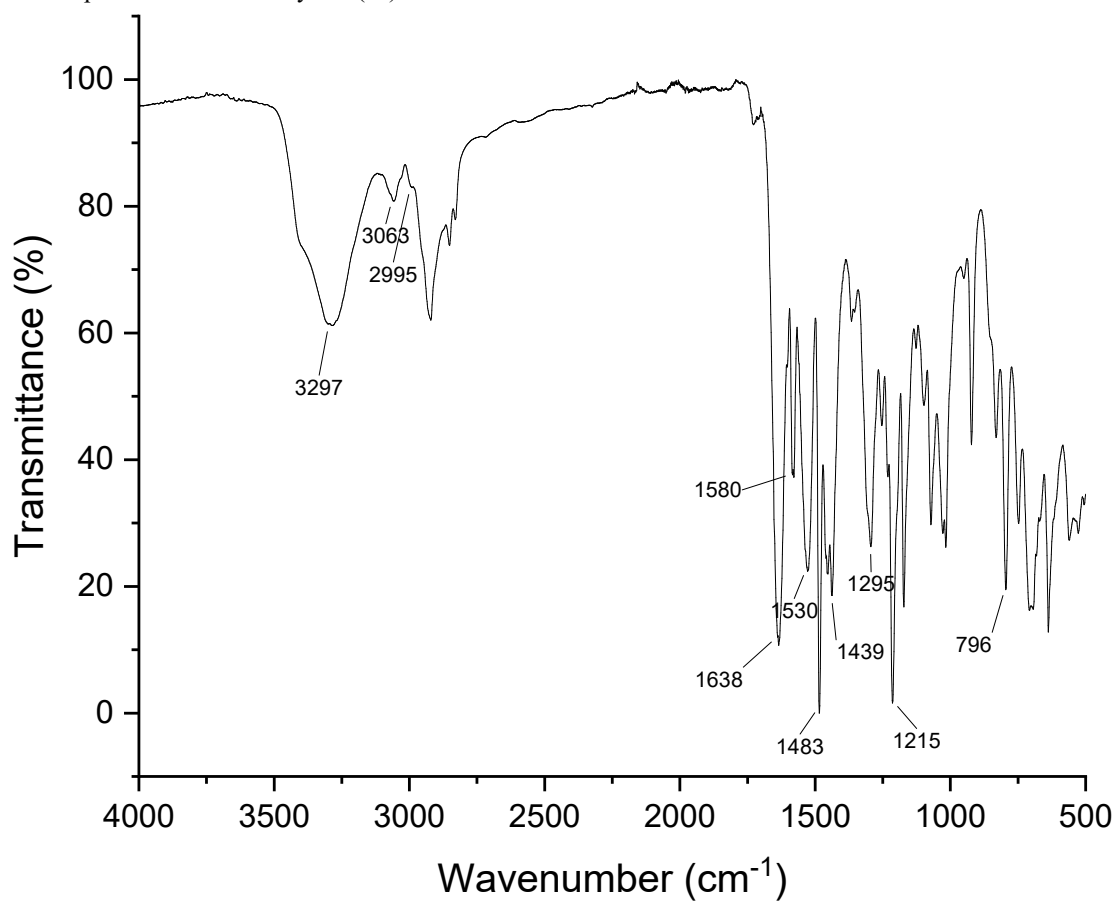


Fig. S101: FT-IR spectrum of the title hybrid (**3f**)

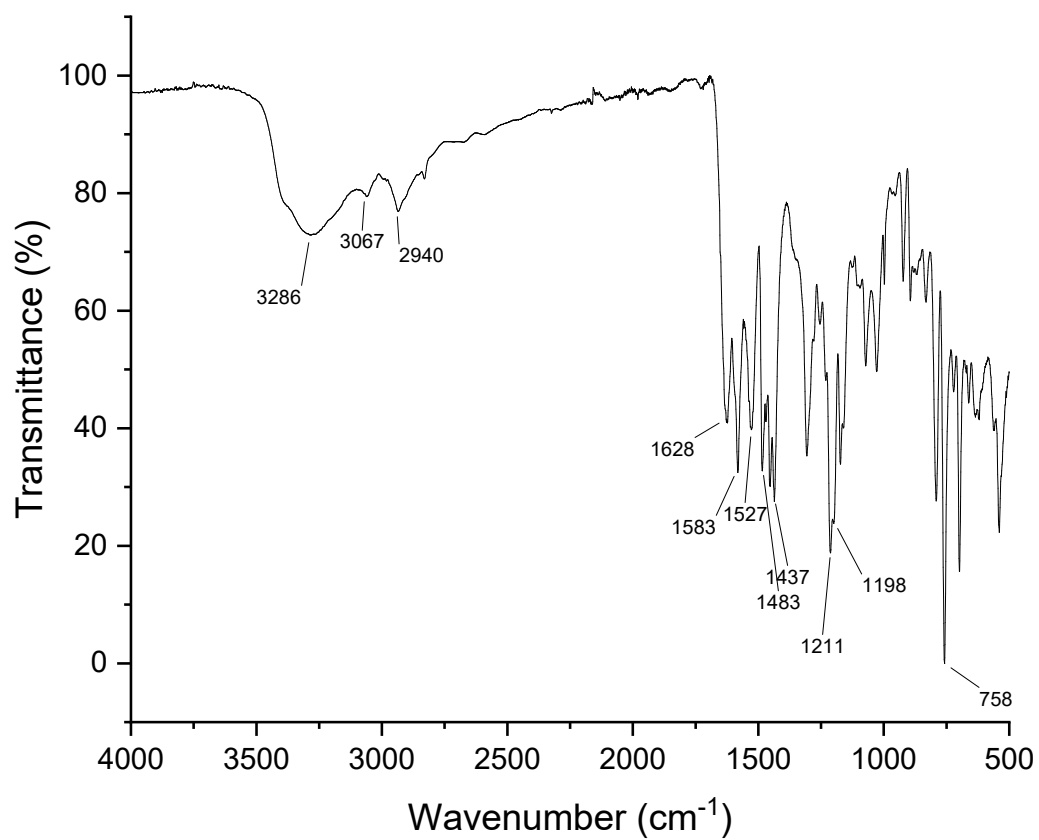


Fig. S102: FT-IR spectrum of the title hybrid (**3g**)

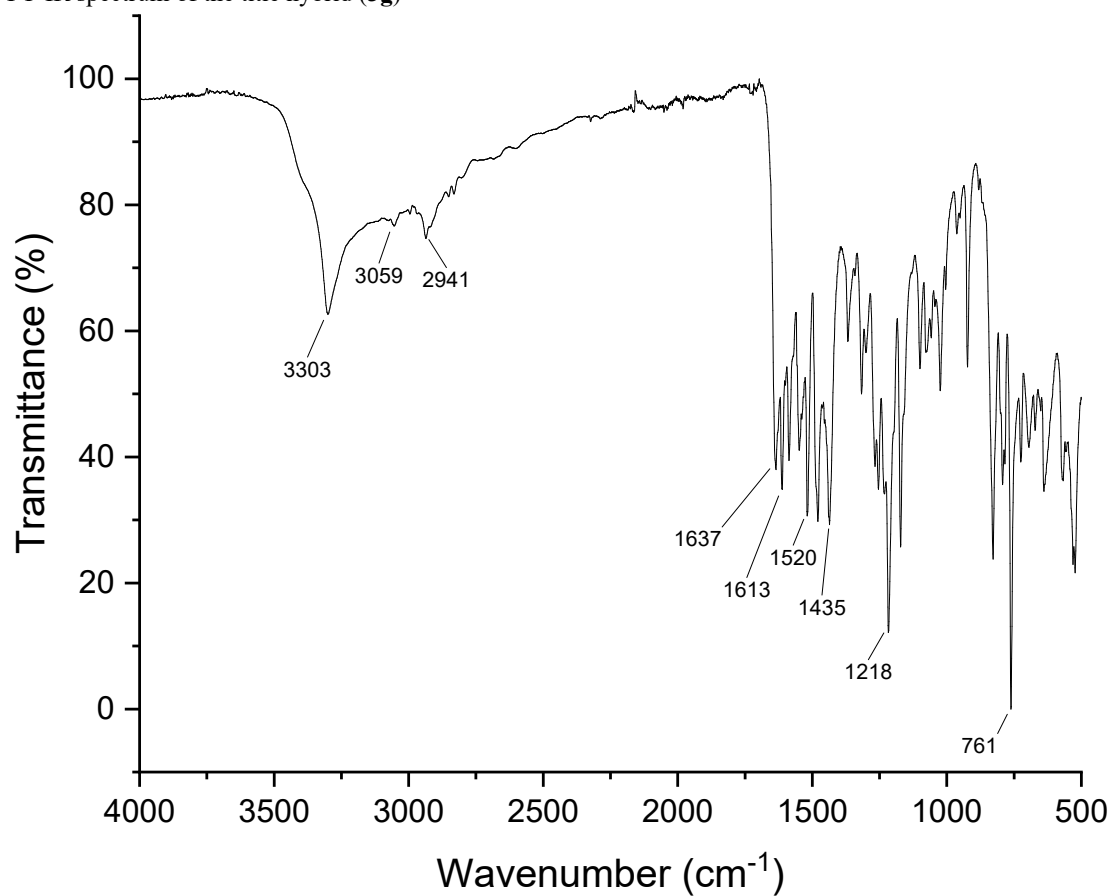


Fig. S103: FT-IR spectrum of the title hybrid (**3h**)

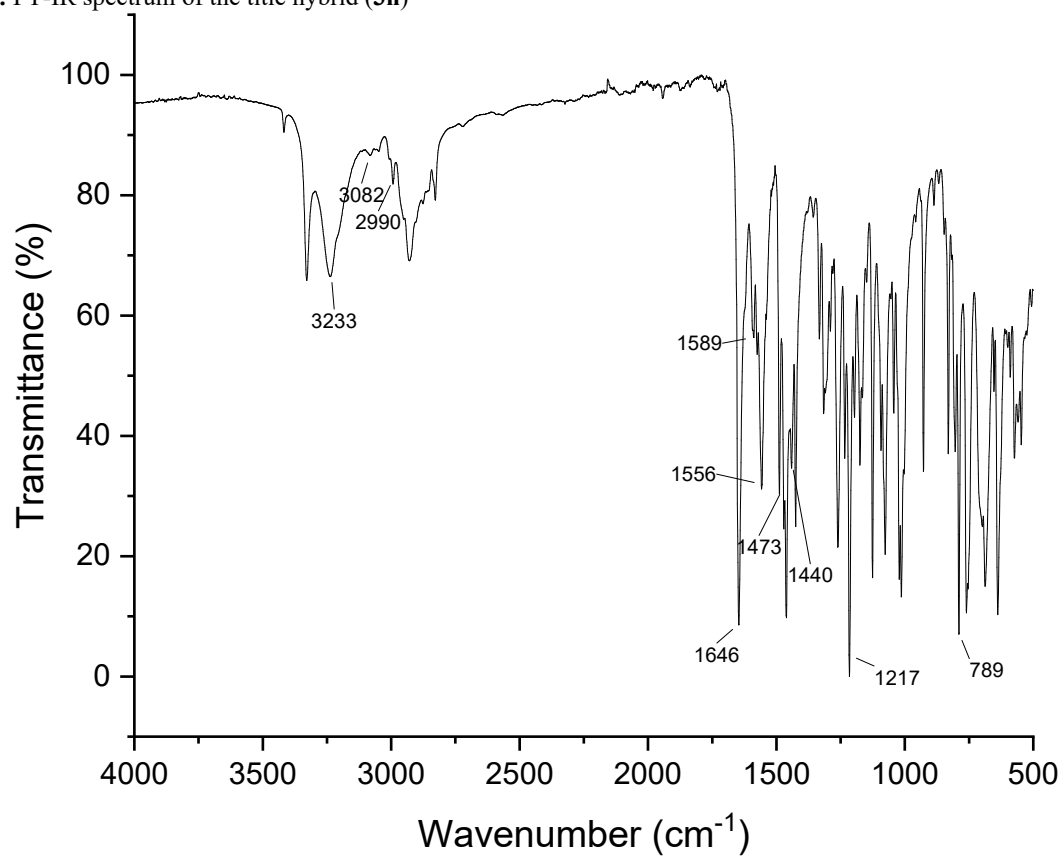


Fig. S104: FT-IR spectrum of the title hybrid (**3i**)

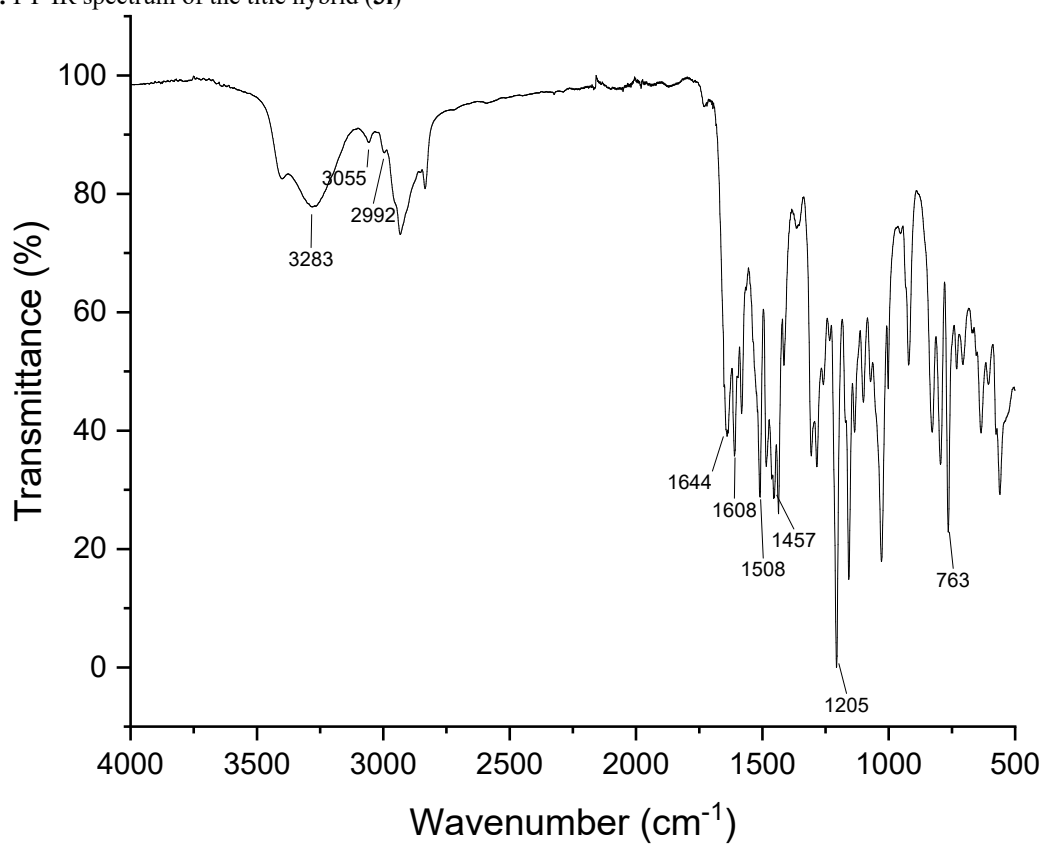


Fig. S105 FT-IR spectrum of the title hybrid (**3j**)

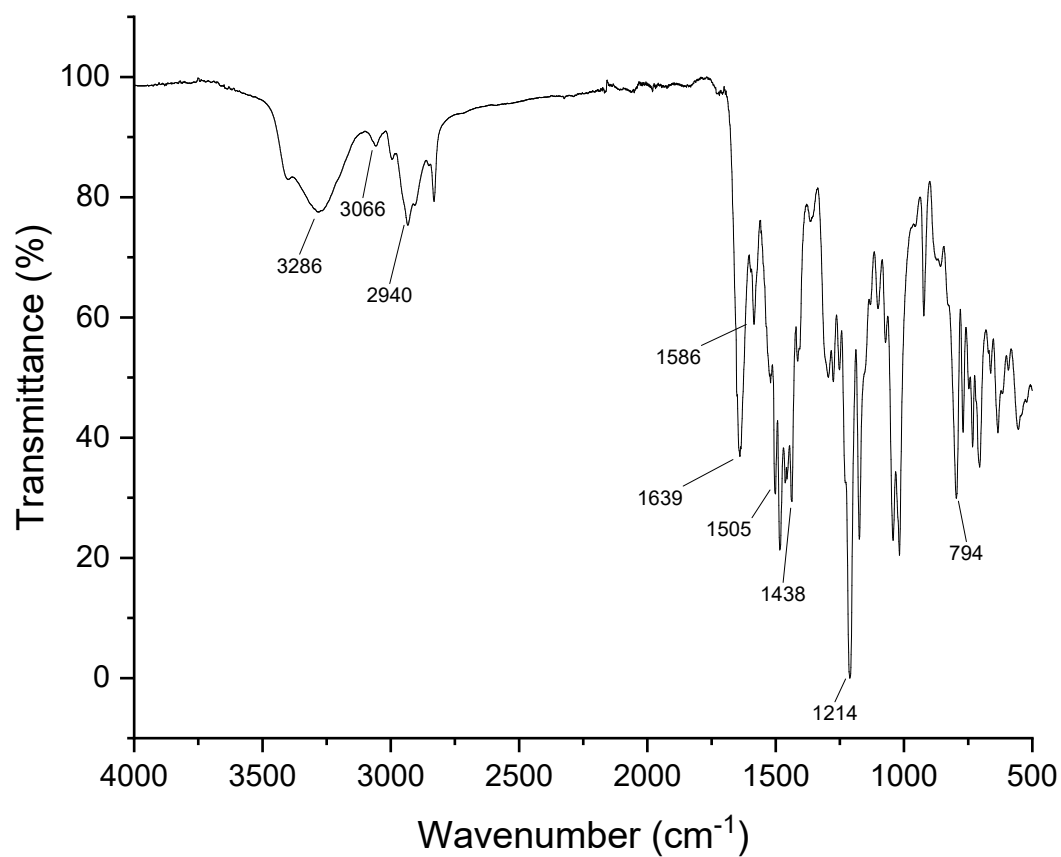


Fig. S106 FT-IR spectrum of the title hybrid (**3k**)

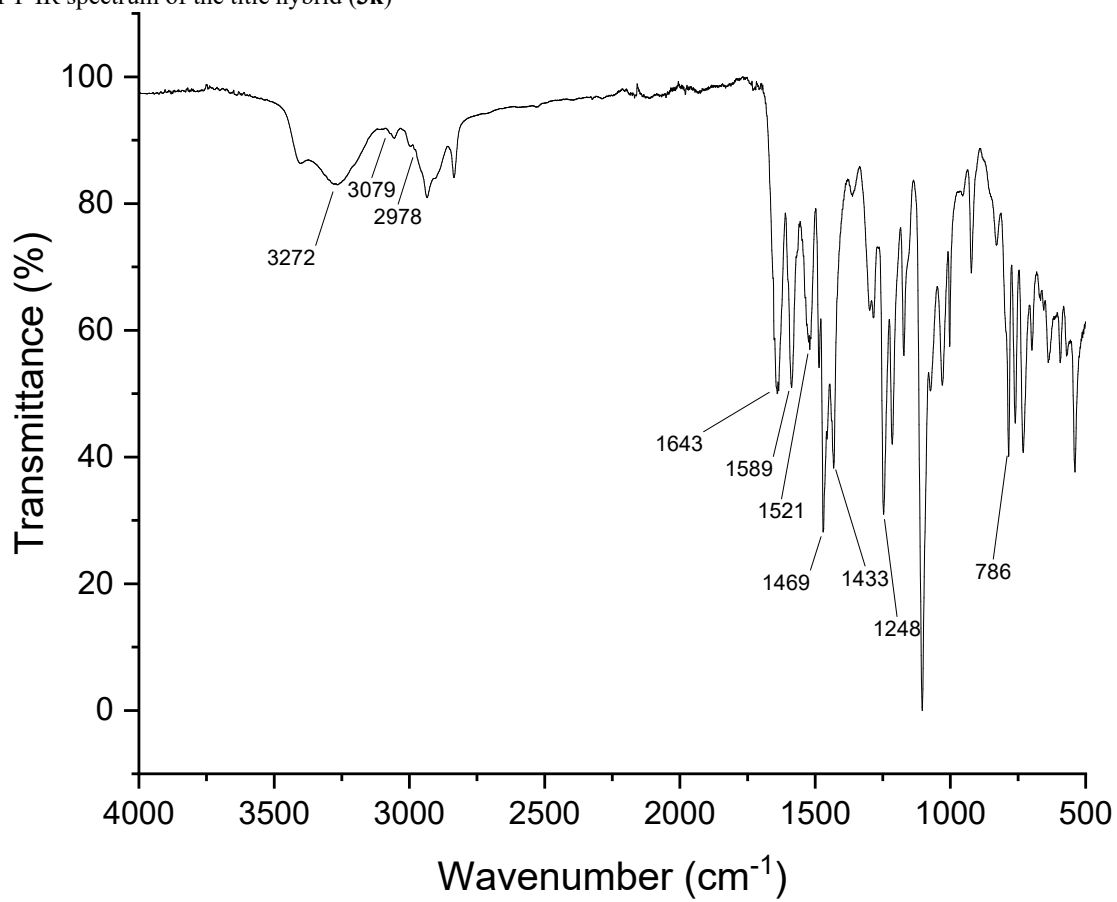
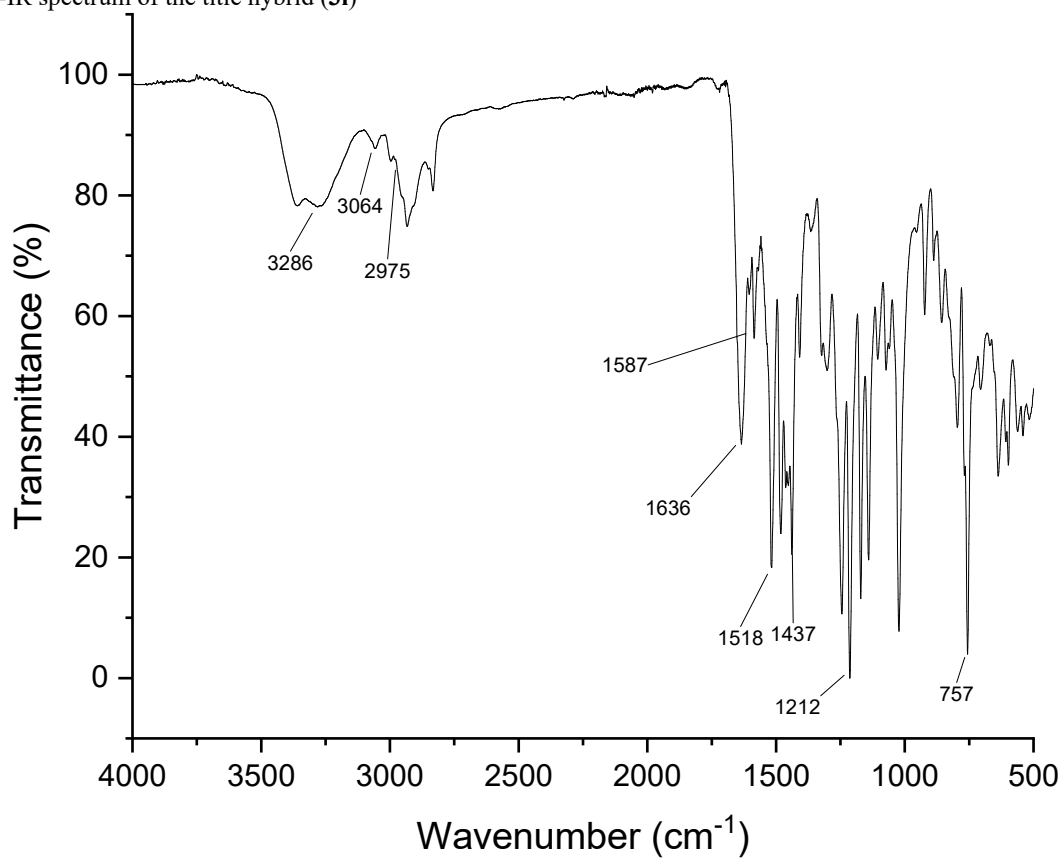


Fig. S107 FT-IR spectrum of the title hybrid (**3I**)



10) FT-IR spectra of the target hybrids 4a-l

Fig. S108: FT-IR spectrum of the title hybrid (**4a**)

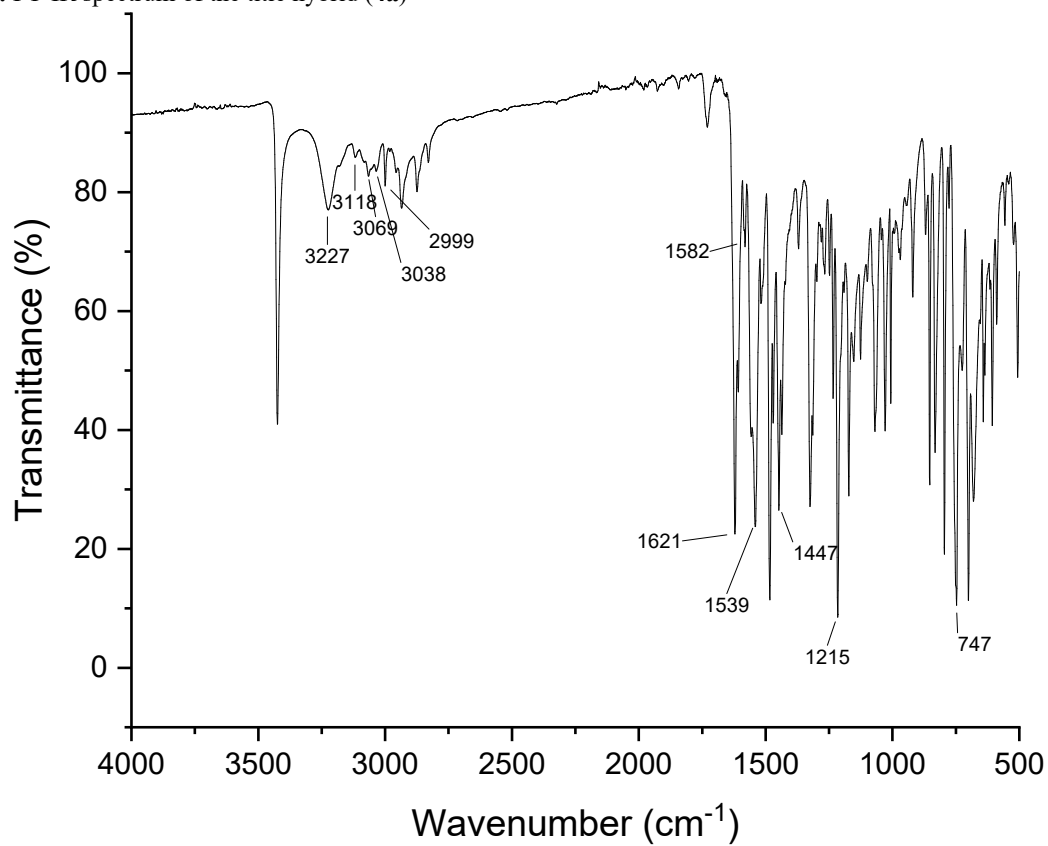


Fig. S109: FT-IR spectrum of the title hybrid (**4b**)

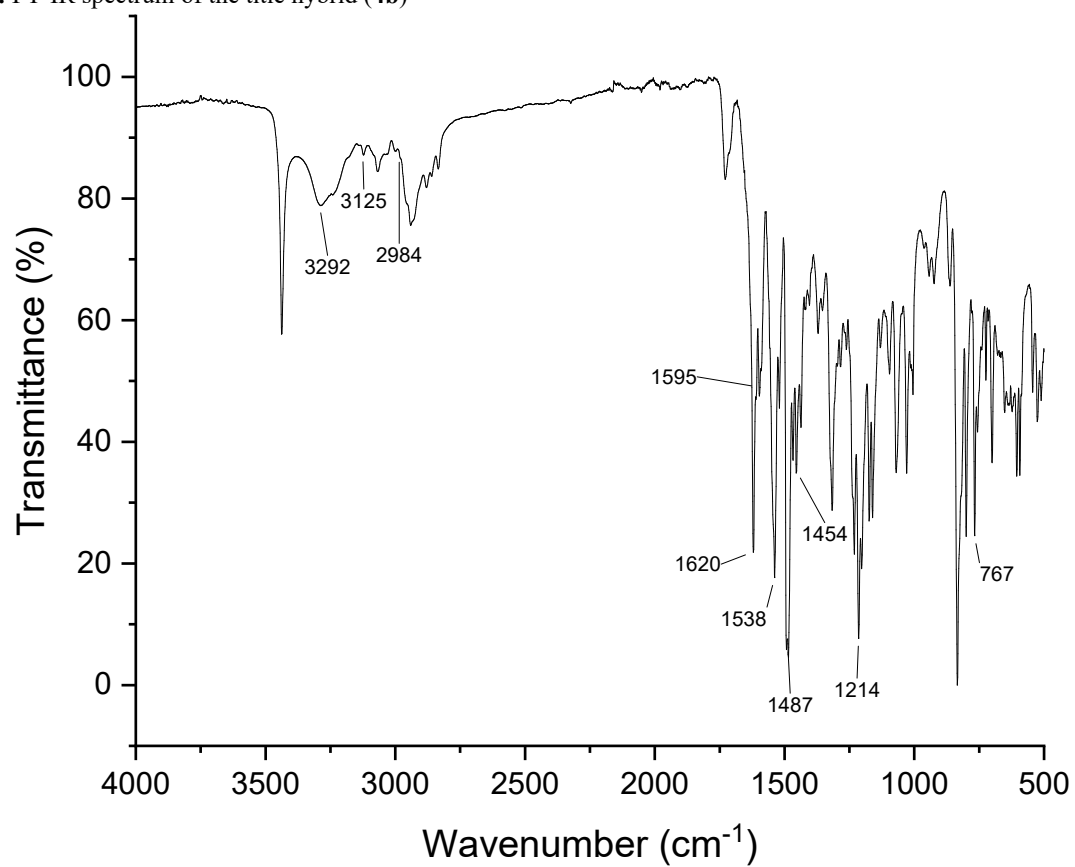


Fig. S110: FT-IR spectrum of the title hybrid (**4d**)

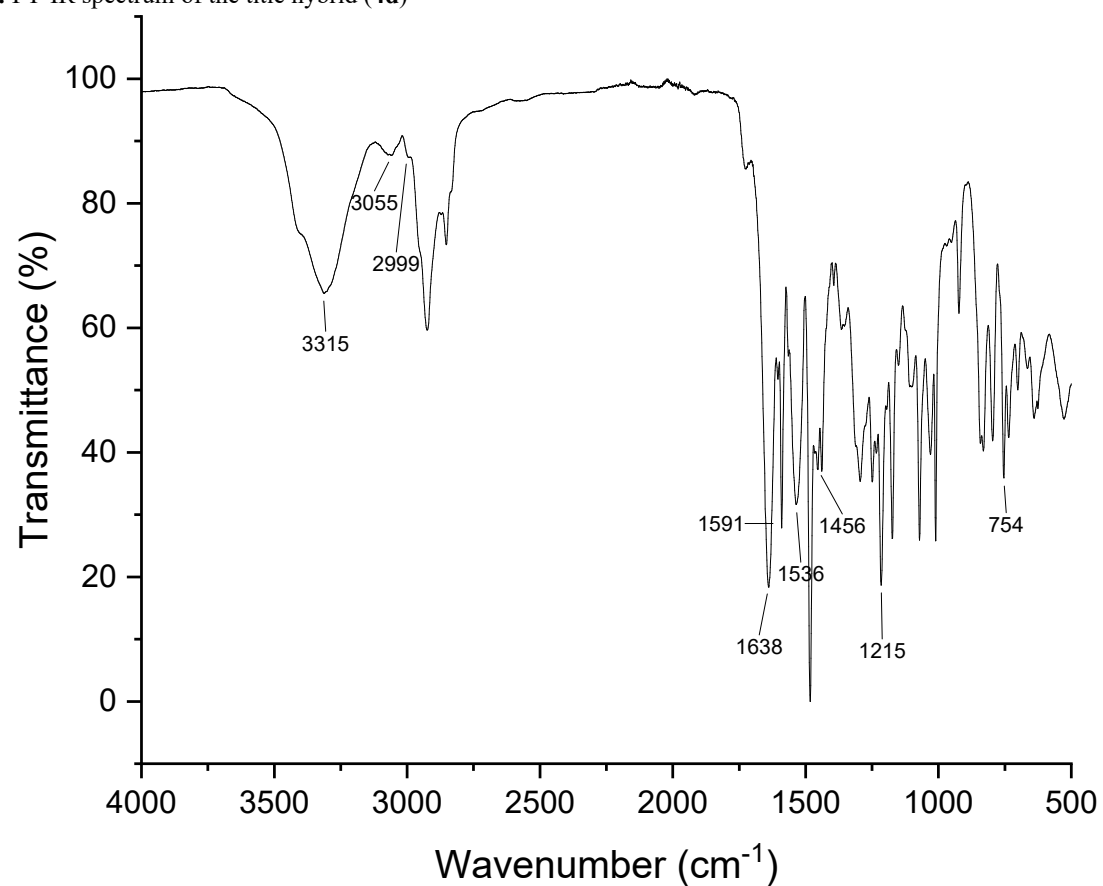


Fig. S111: FT-IR spectrum of the title hybrid (**4e**)

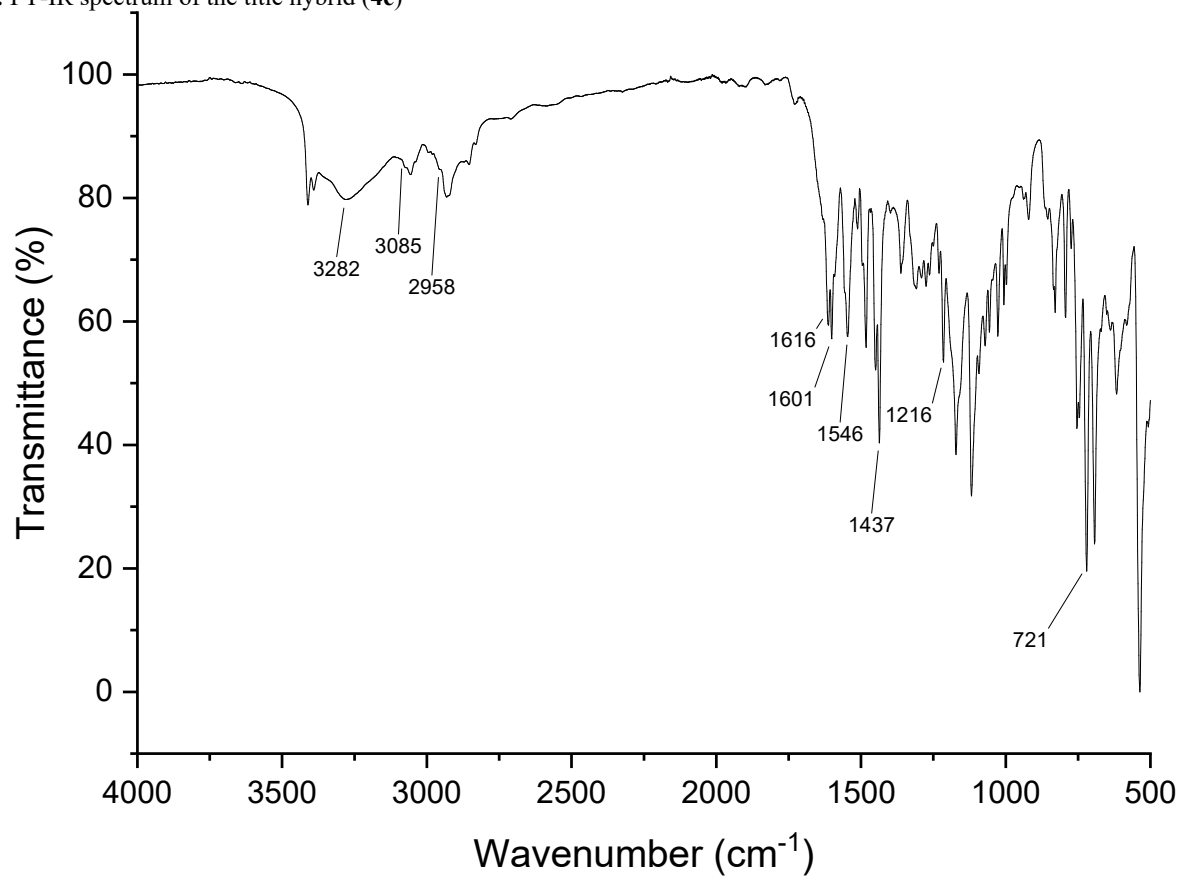


Fig. S112: FT-IR spectrum of the title hybrid (**4f**)

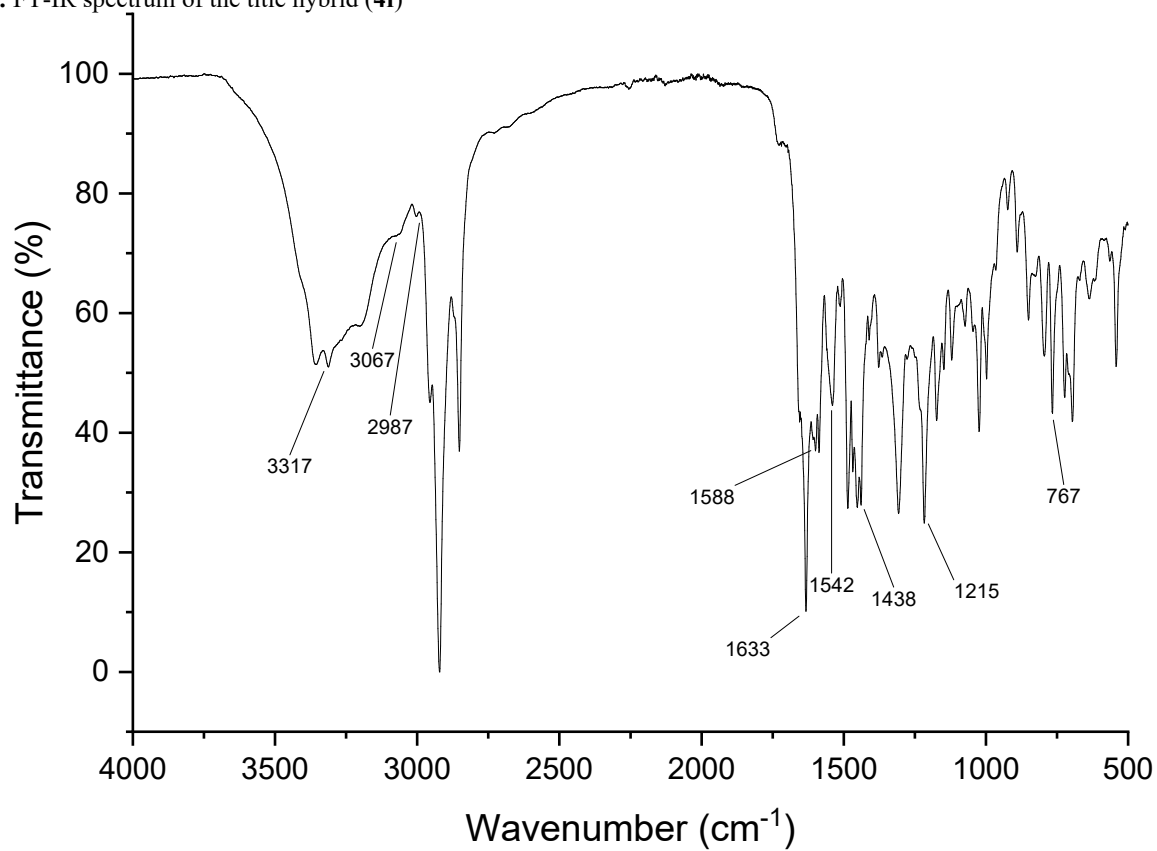


Fig. S113: FT-IR spectrum of the title hybrid (**4g**)

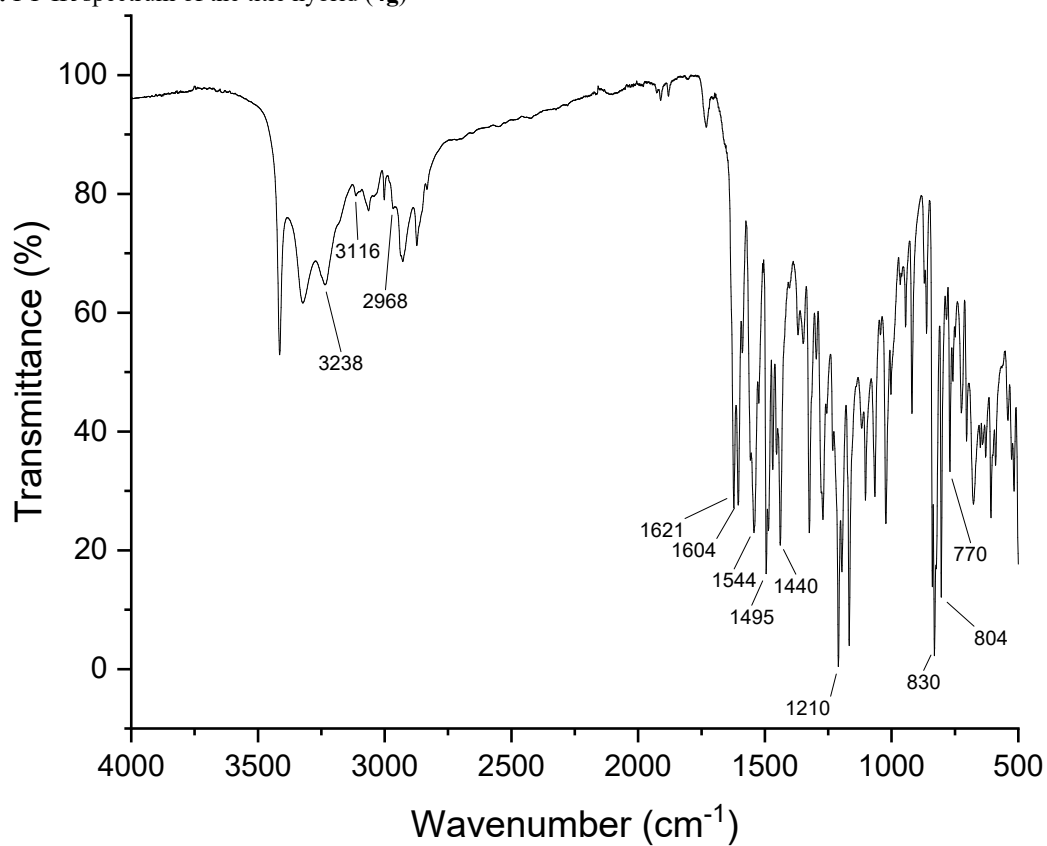


Fig. S114: FT-IR spectrum of the title hybrid (**4h**)

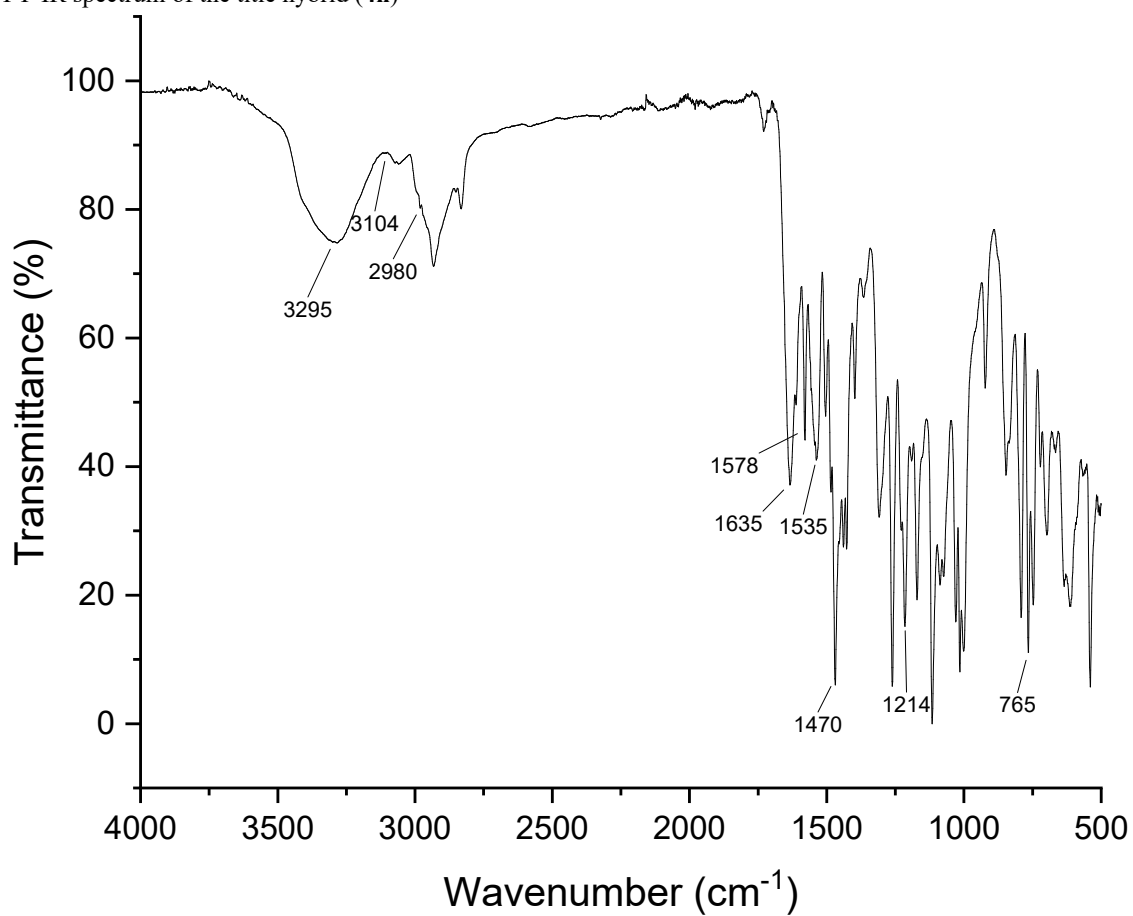


Fig. S115: FT-IR spectrum of the title hybrid (**4i**)

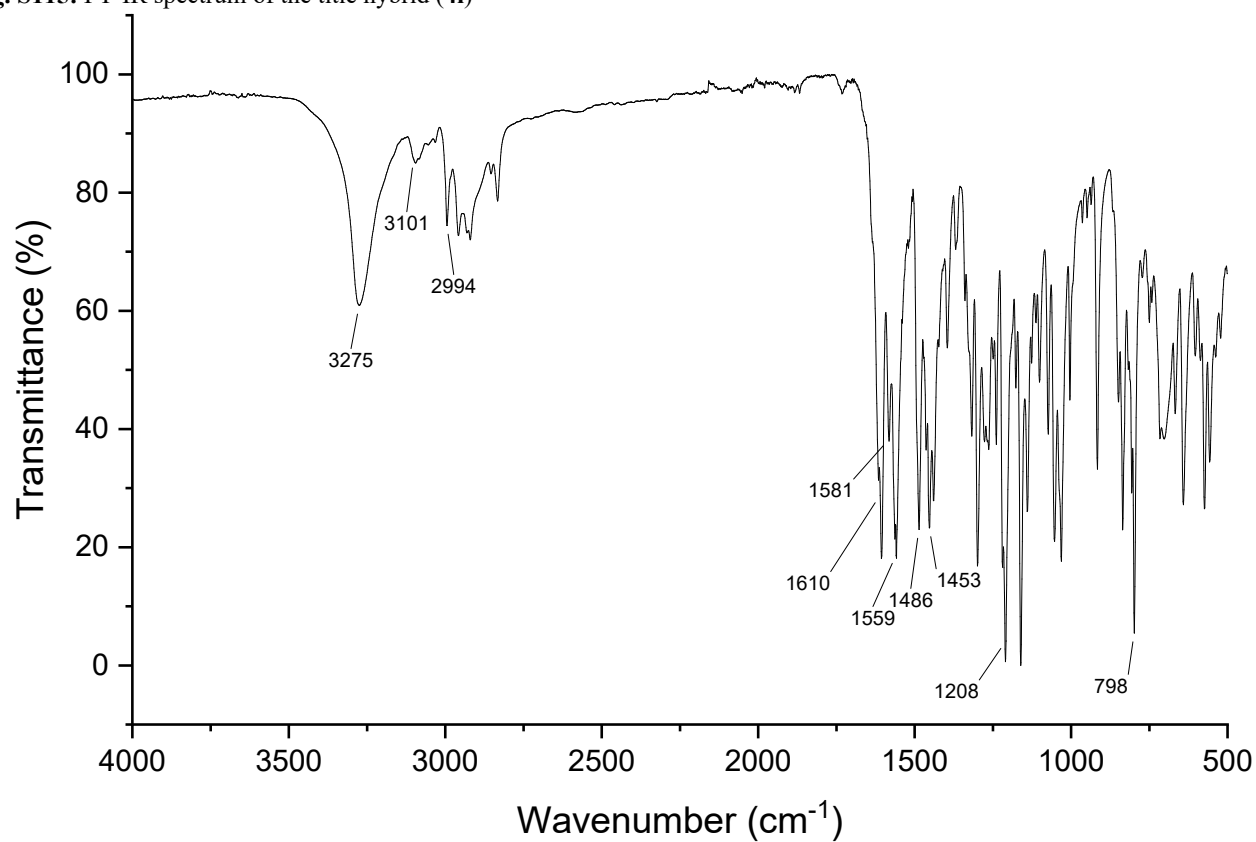


Fig. S116: FT-IR spectrum of the title hybrid (**4j**)

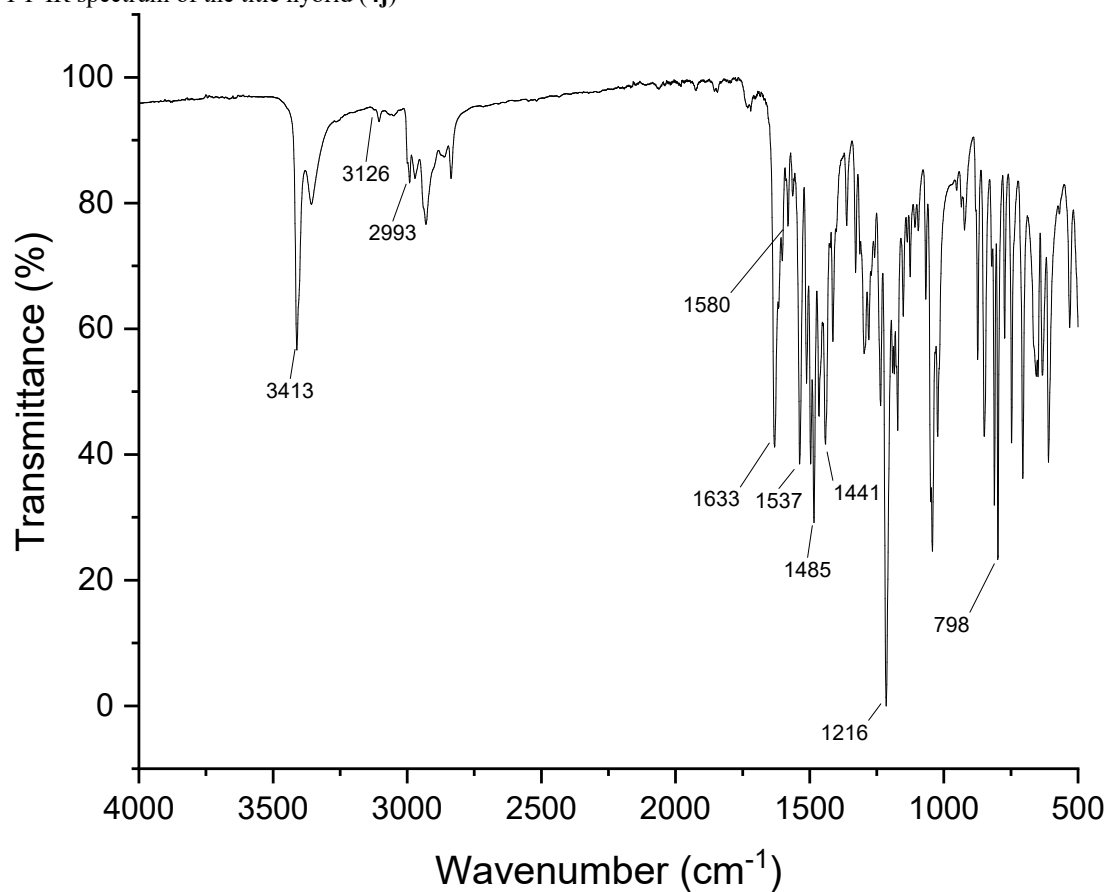


Fig. S117 FT-IR spectrum of the title hybrid (**4l**)

