# Supplementary material

# Organoseleno cytostatic derivatives: autophagic cell death with AMPK and JNK activation.

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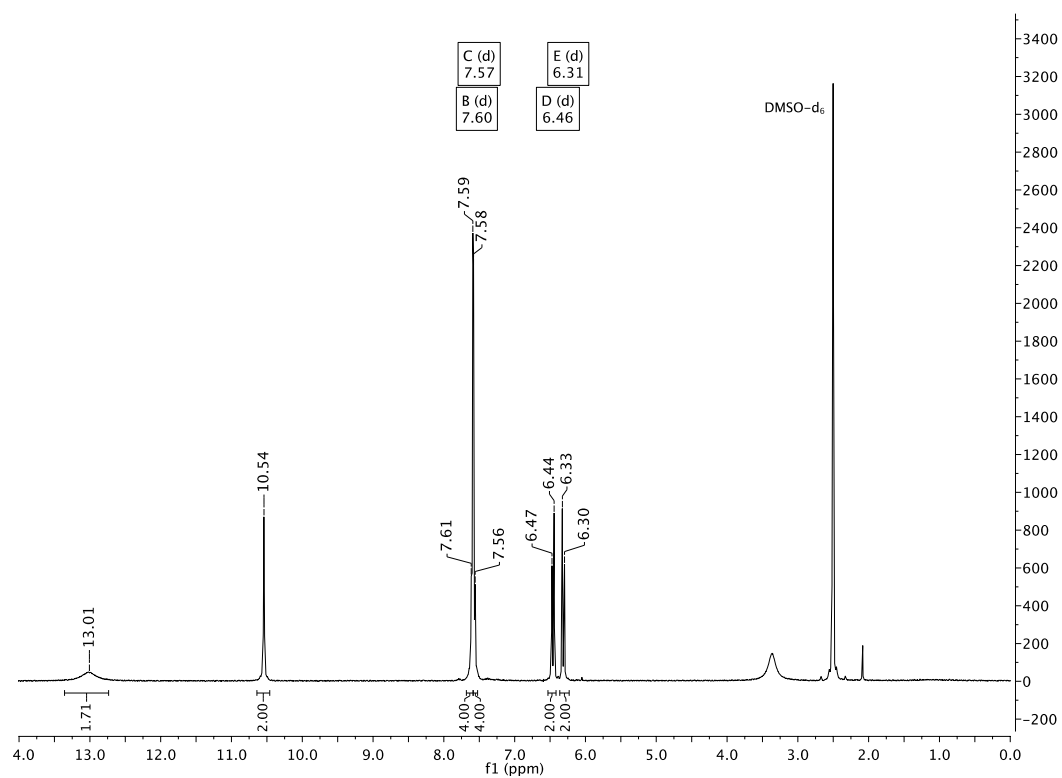


**Figure 1S.** $^1$H NMR of **1a**.
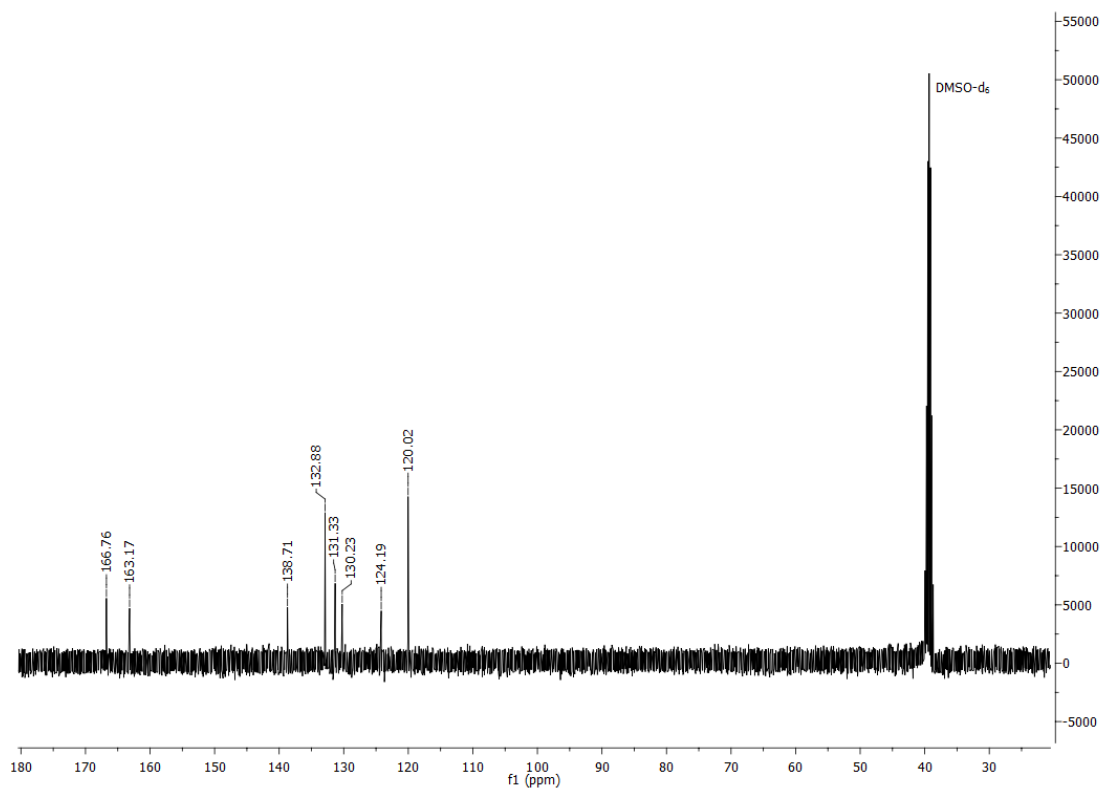


**Figure 2S.** $^{13}$C NMR of **1a**.
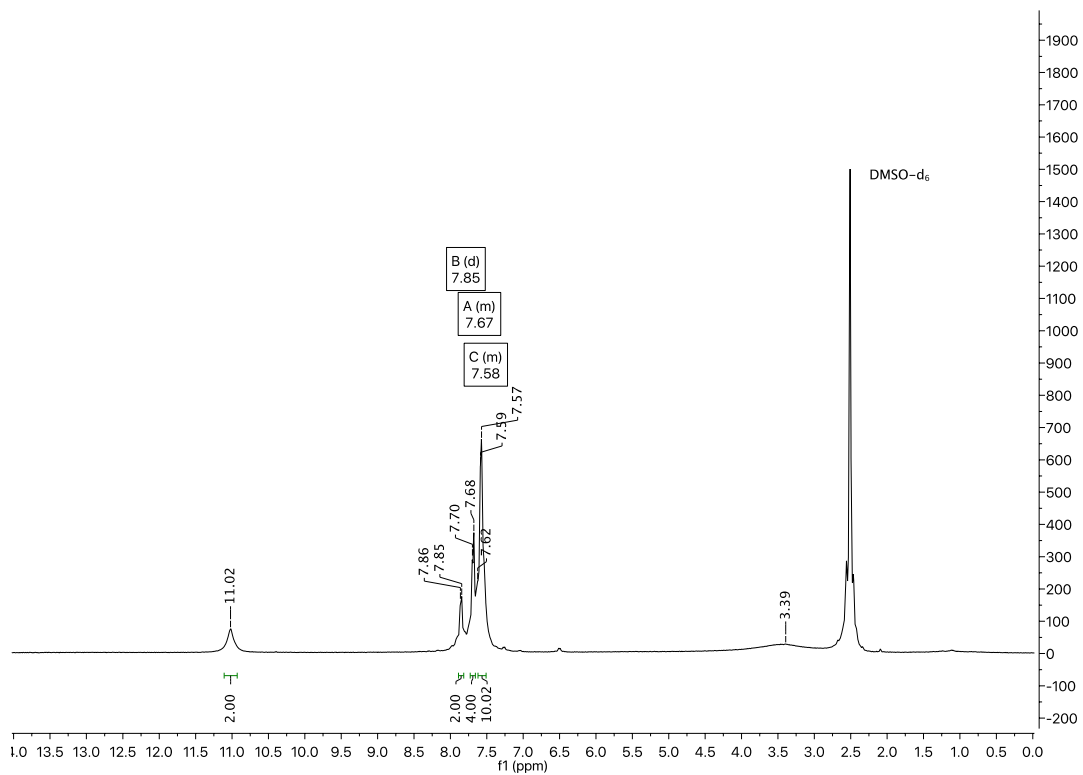
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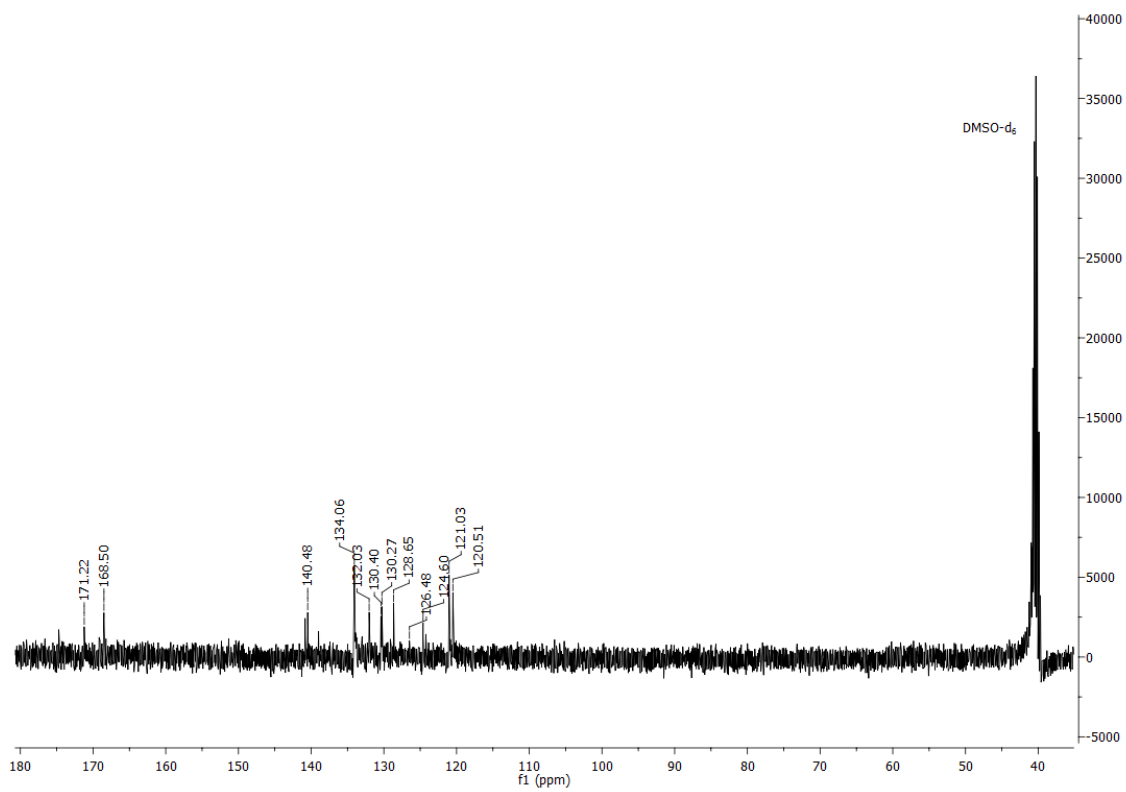


**Figure 4S.** $^{13}$C NMR of **2a**.
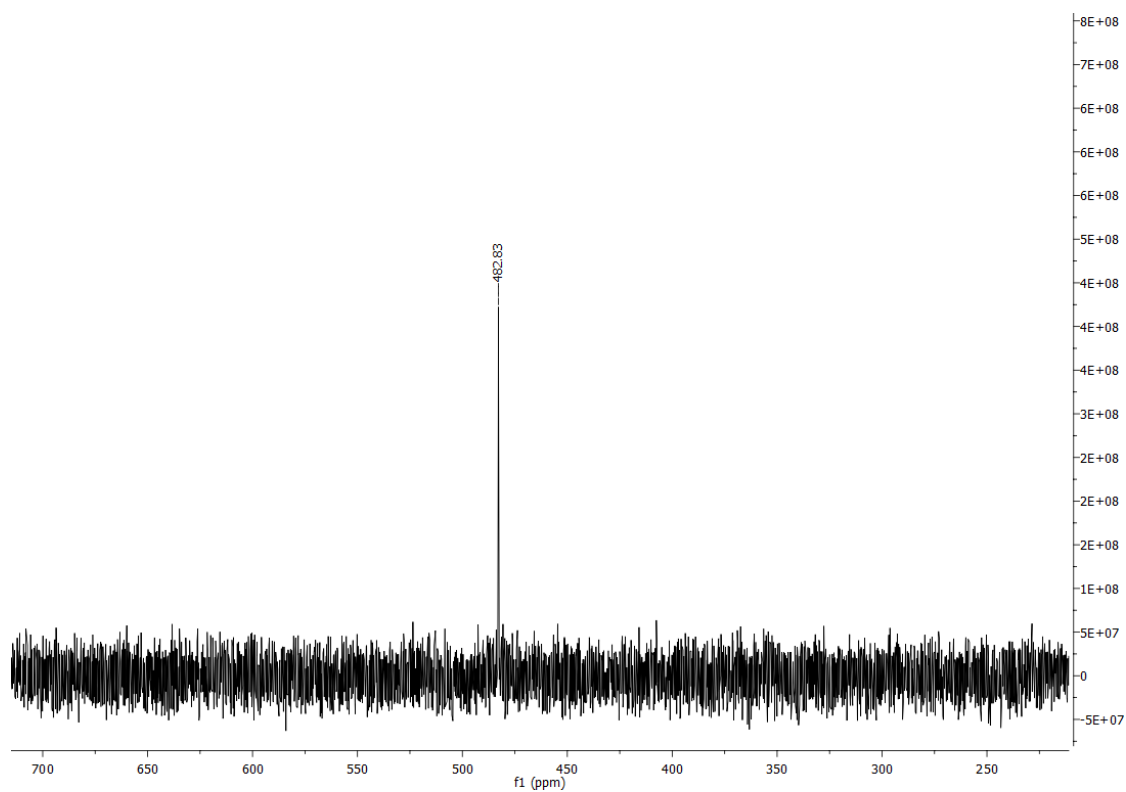
**Figure 5S.** $^{77}$Se NMR of **2a**.
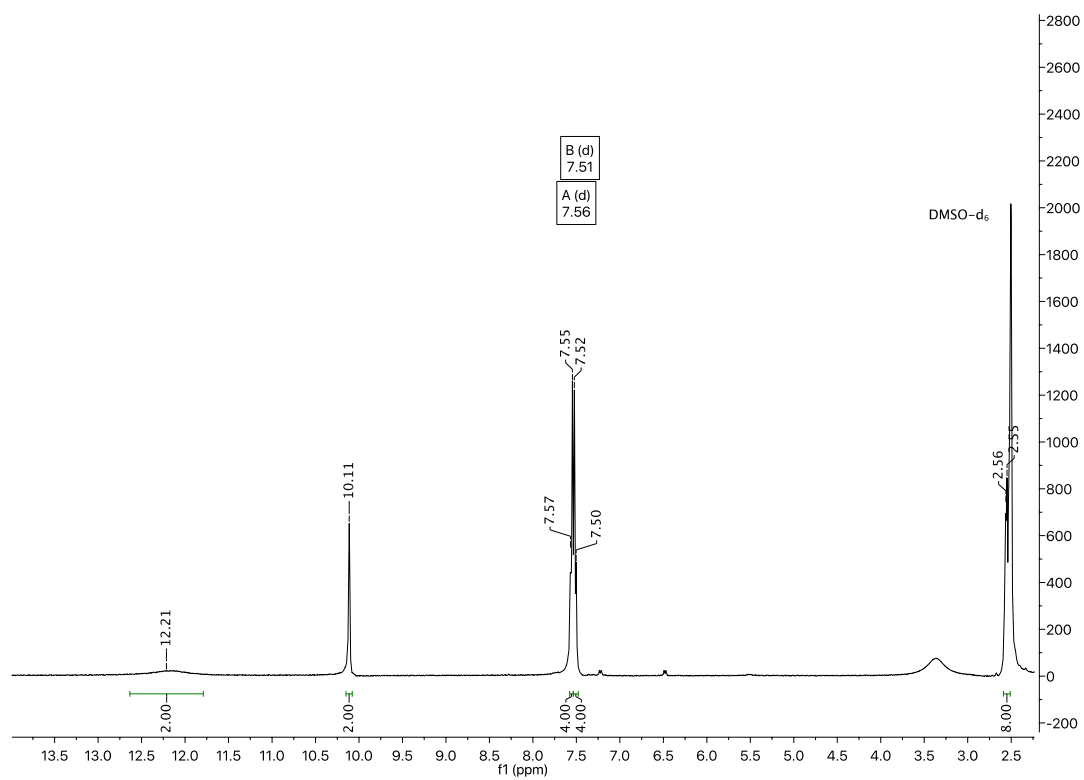


**Figure 6S.** $^1$H NMR of **3a**.
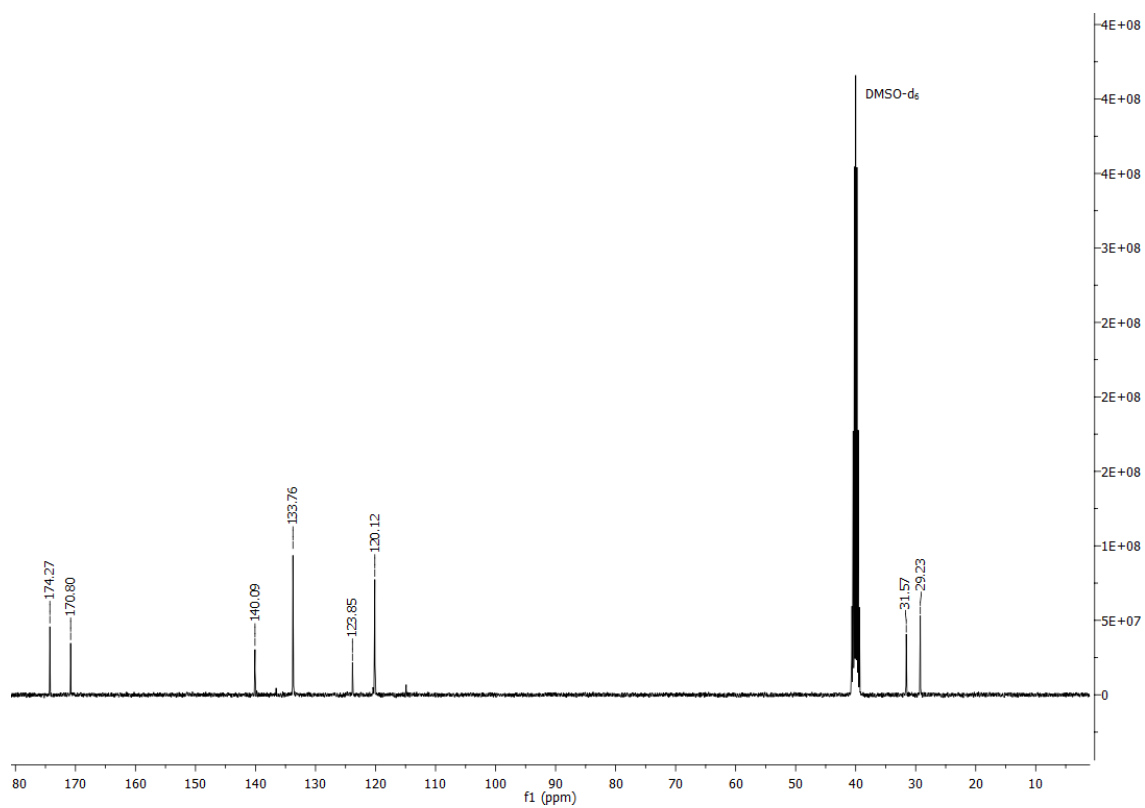
**Figure 7S.** $^{13}$C NMR of **3a**.
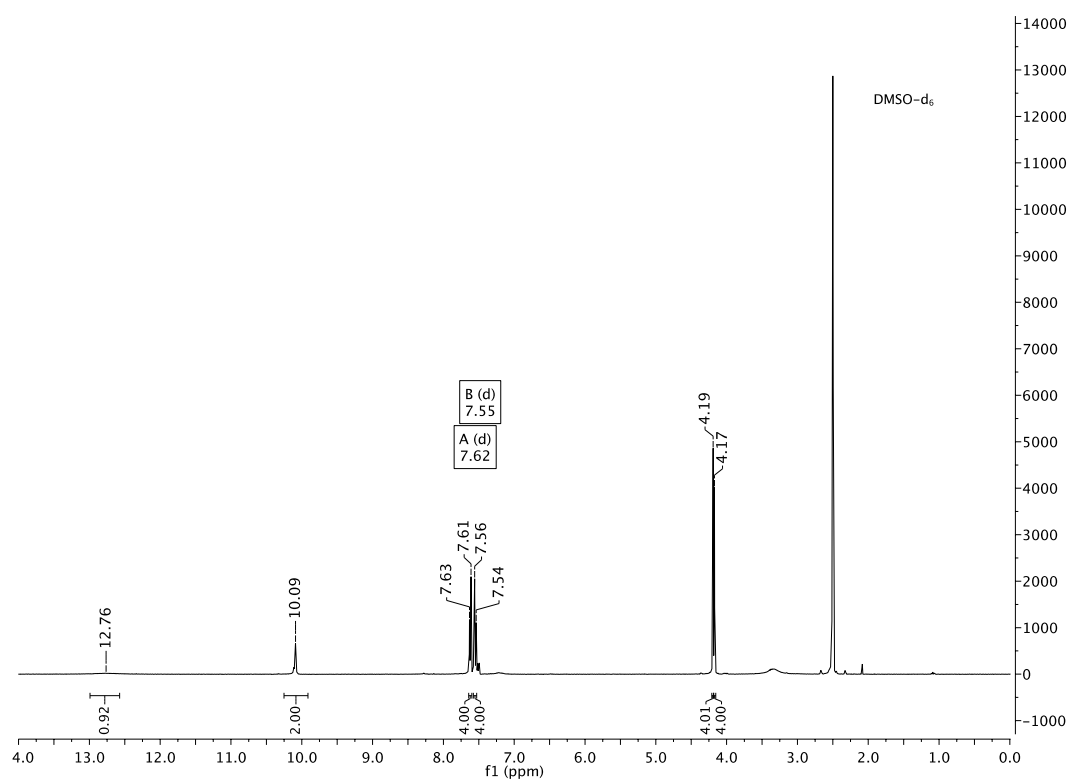


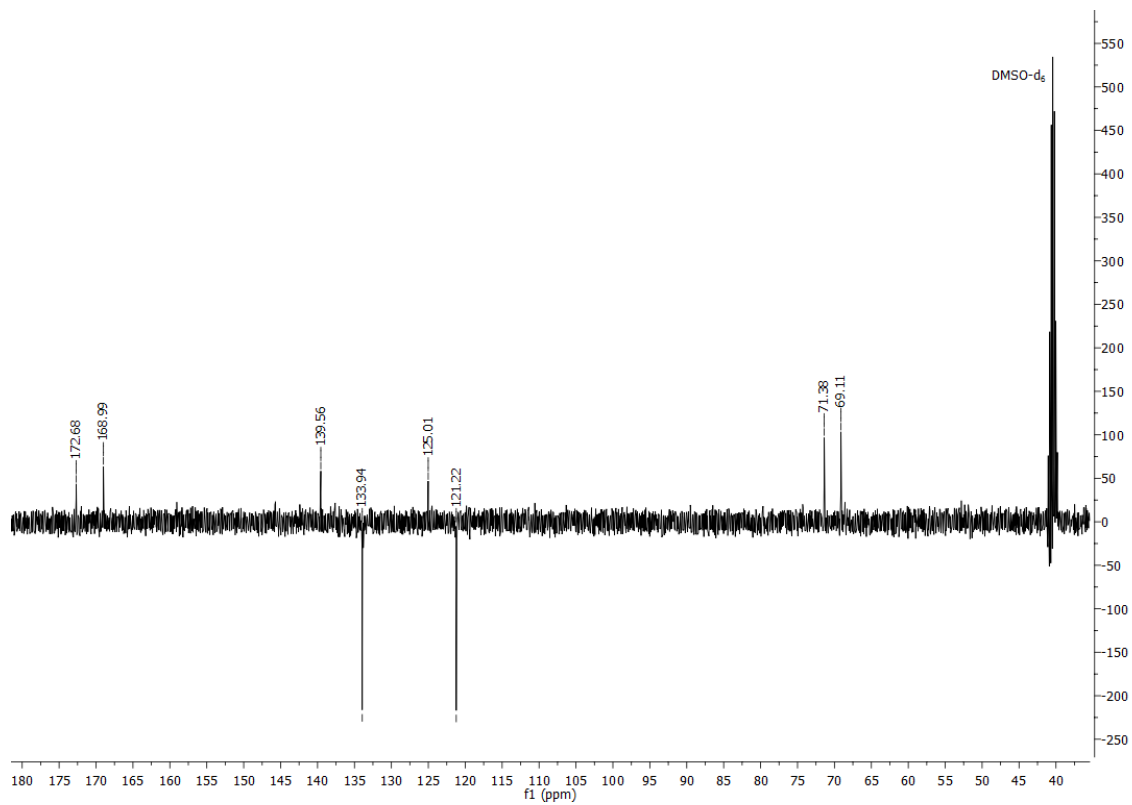**Figure 8S.** $^{1}$H NMR of **5a**.

**Figure 9S.** $^{13}$C APT NMR of **5a**.
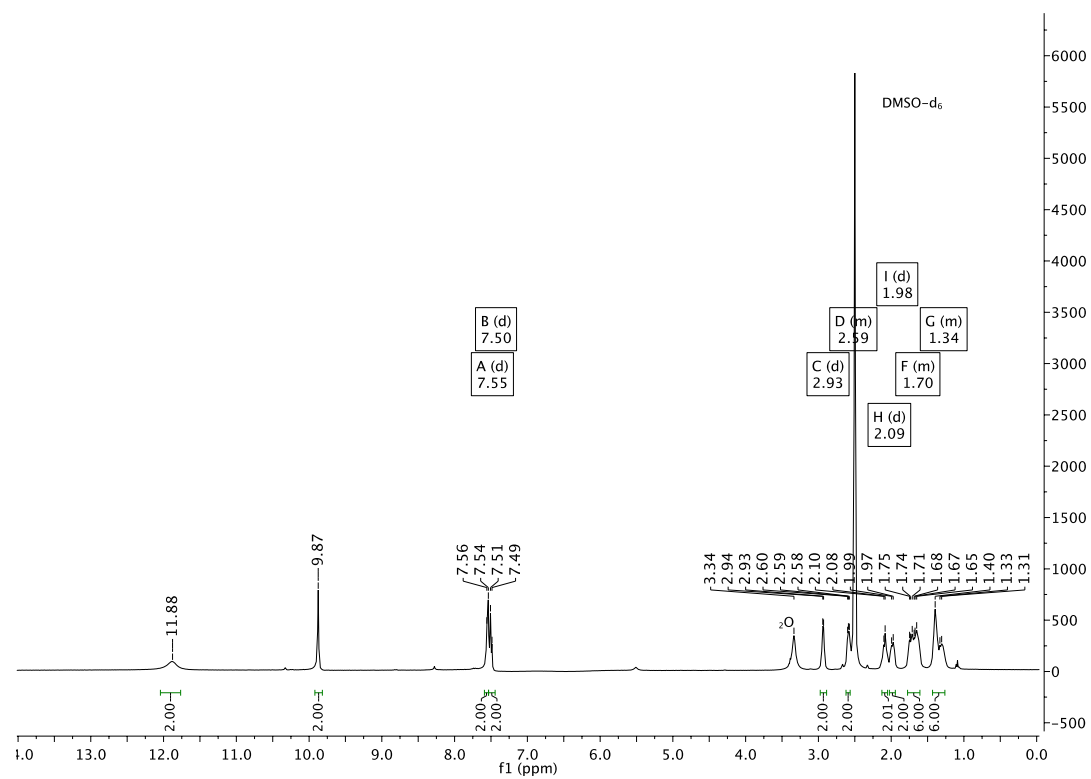


**Figure 10S.** $^{1}$H NMR of **7a**.
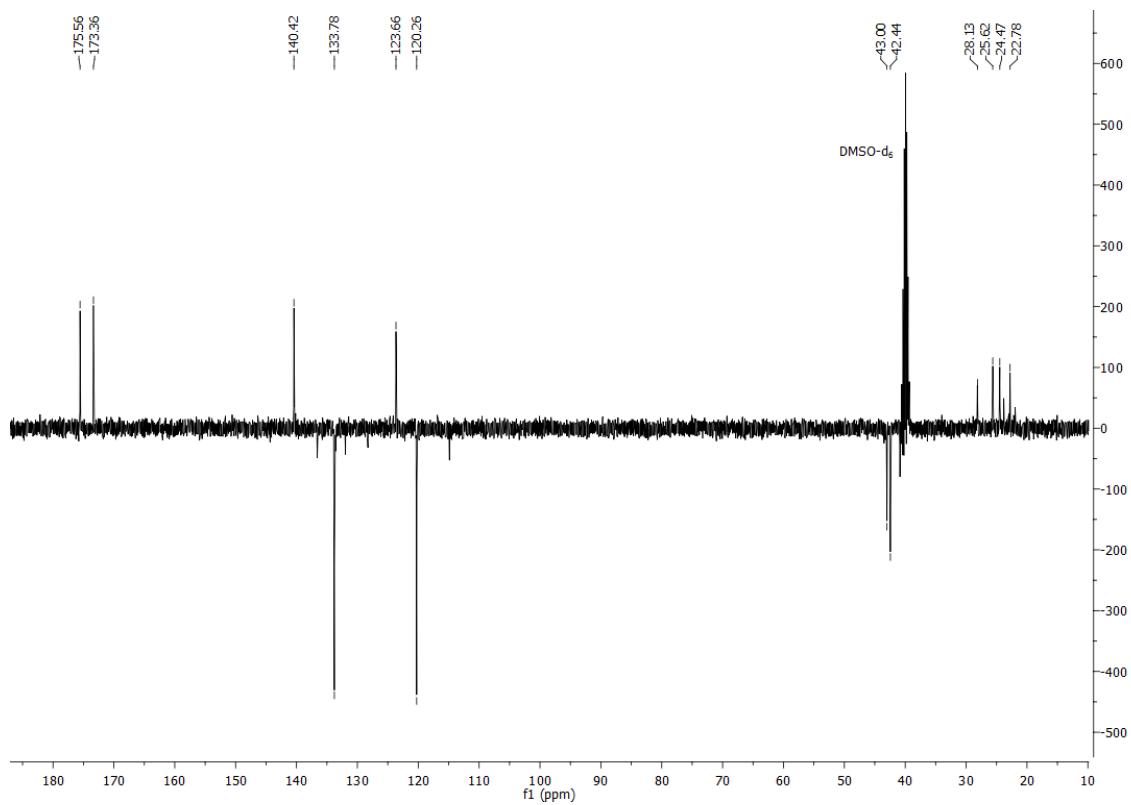
**Figure 11S.** $^{13}$C APT NMR of **7a**.
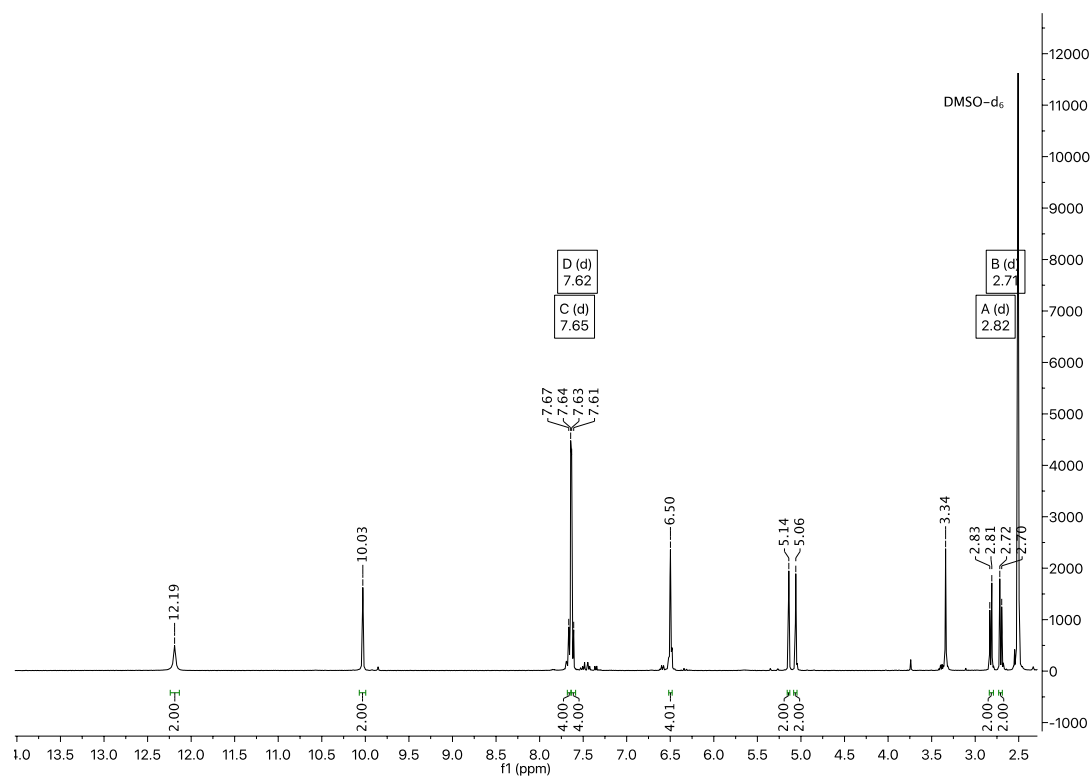


**Figure 12S.** $^{1}$H NMR of **8a**.
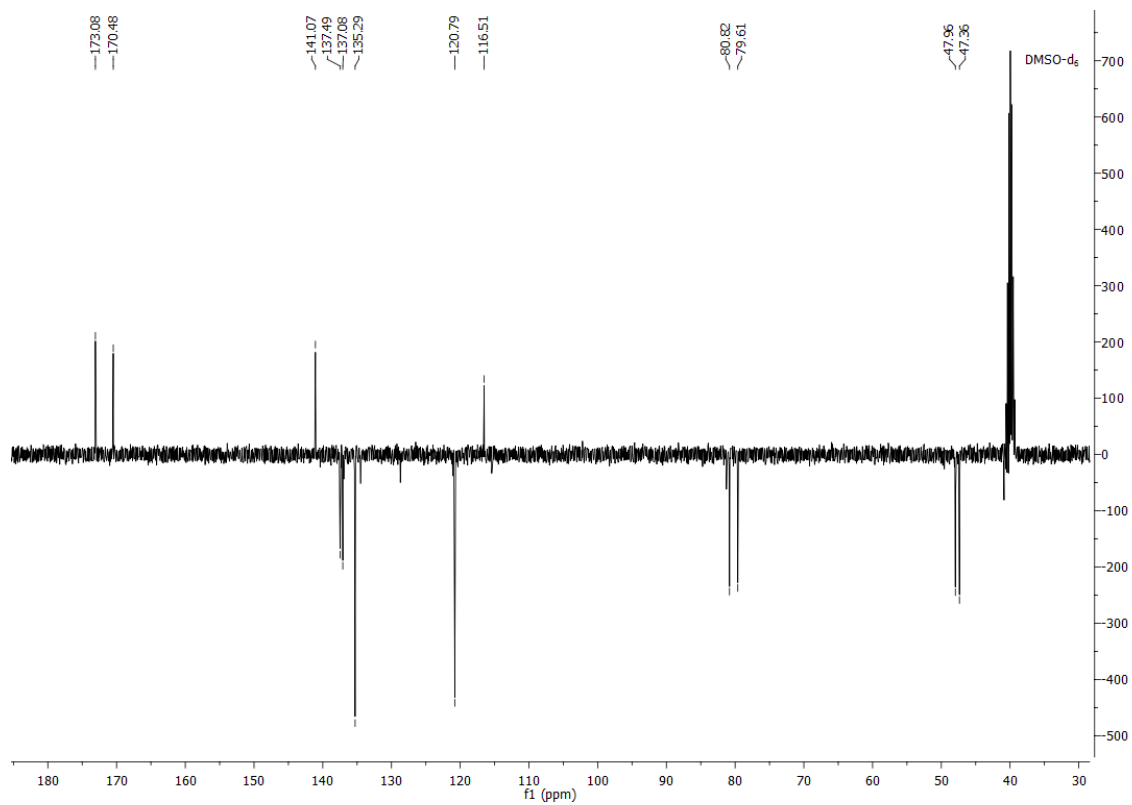
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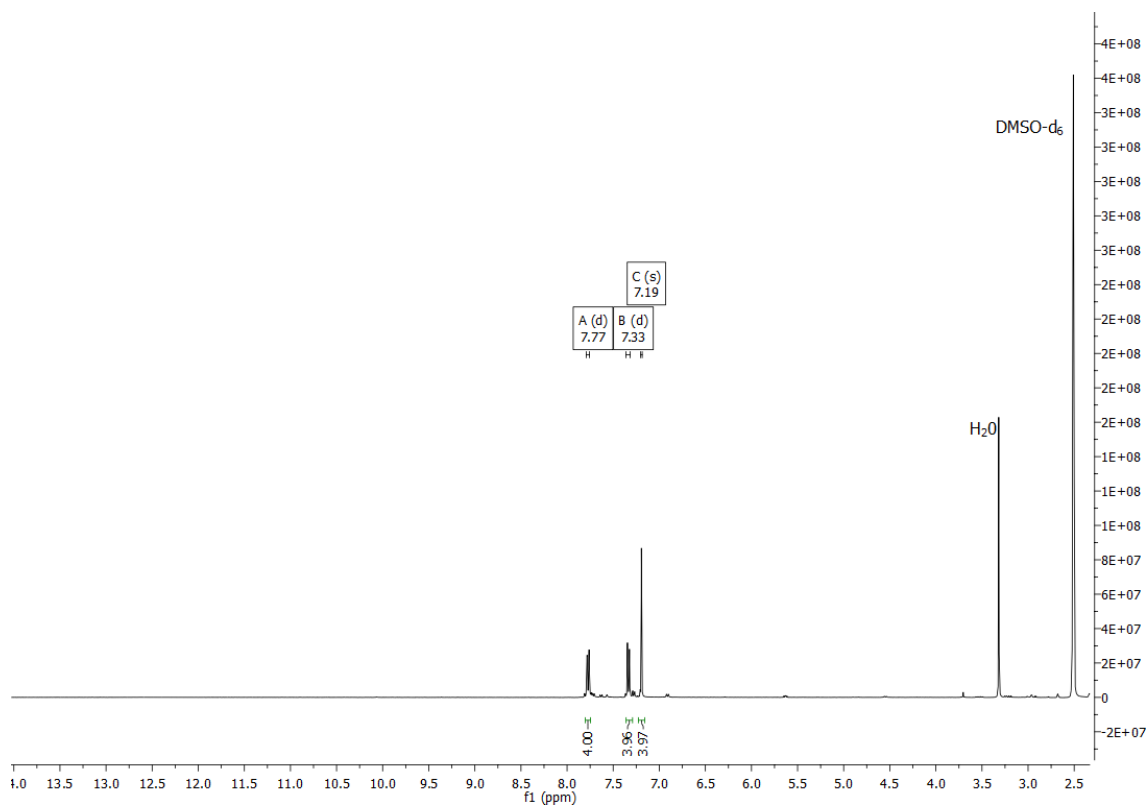


**Figure 14S.** $^{1}H$ NMR of **9a**.
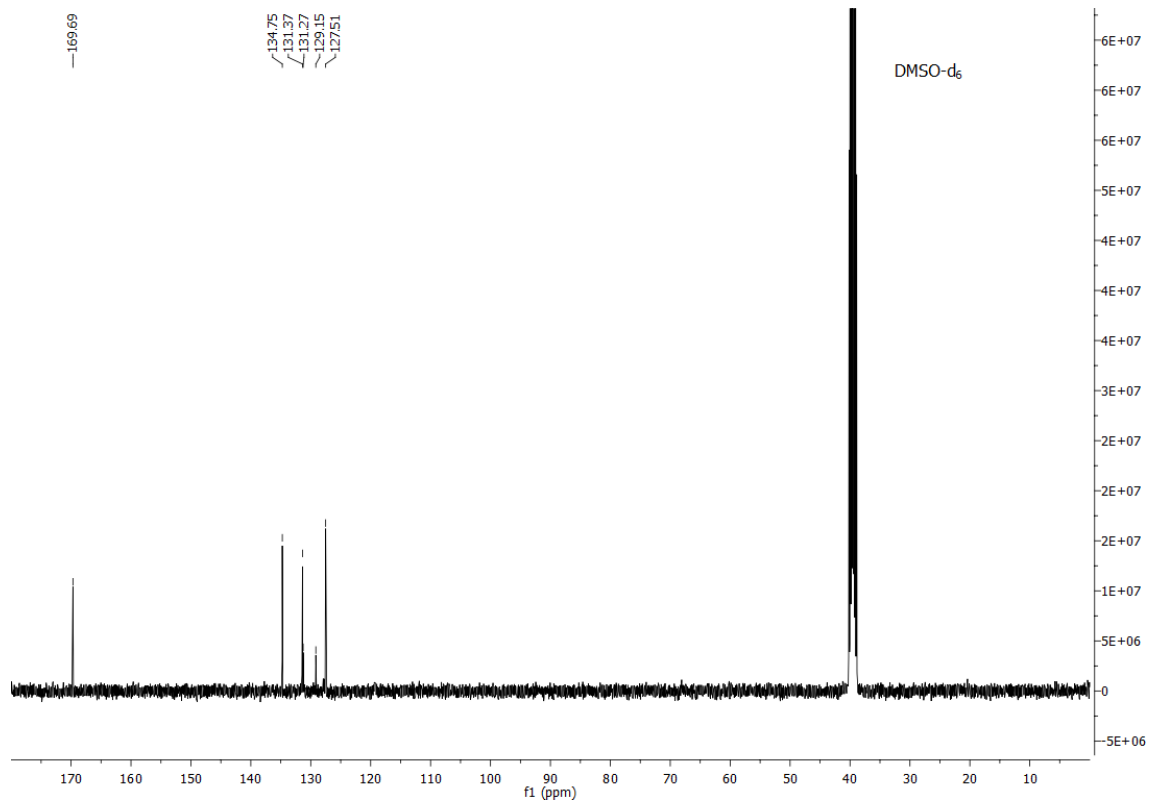
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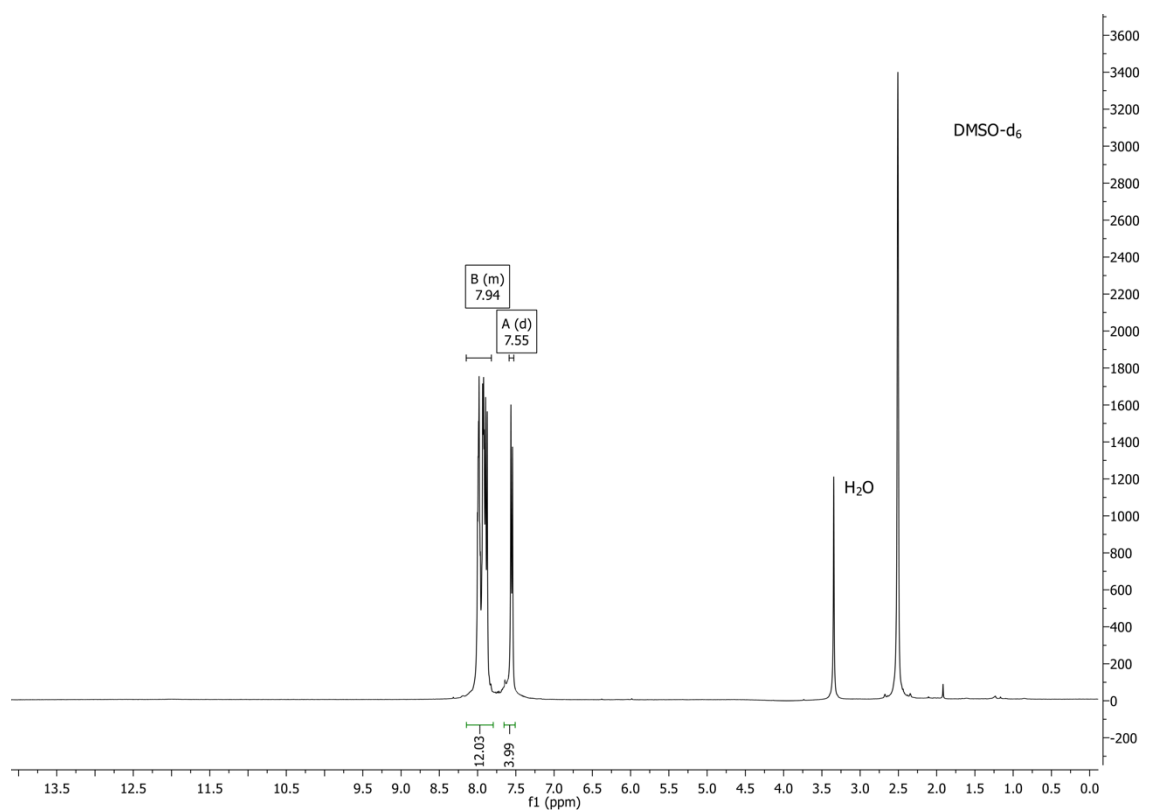


**Figure 16S.** $^{1}$H NMR of **10a**.
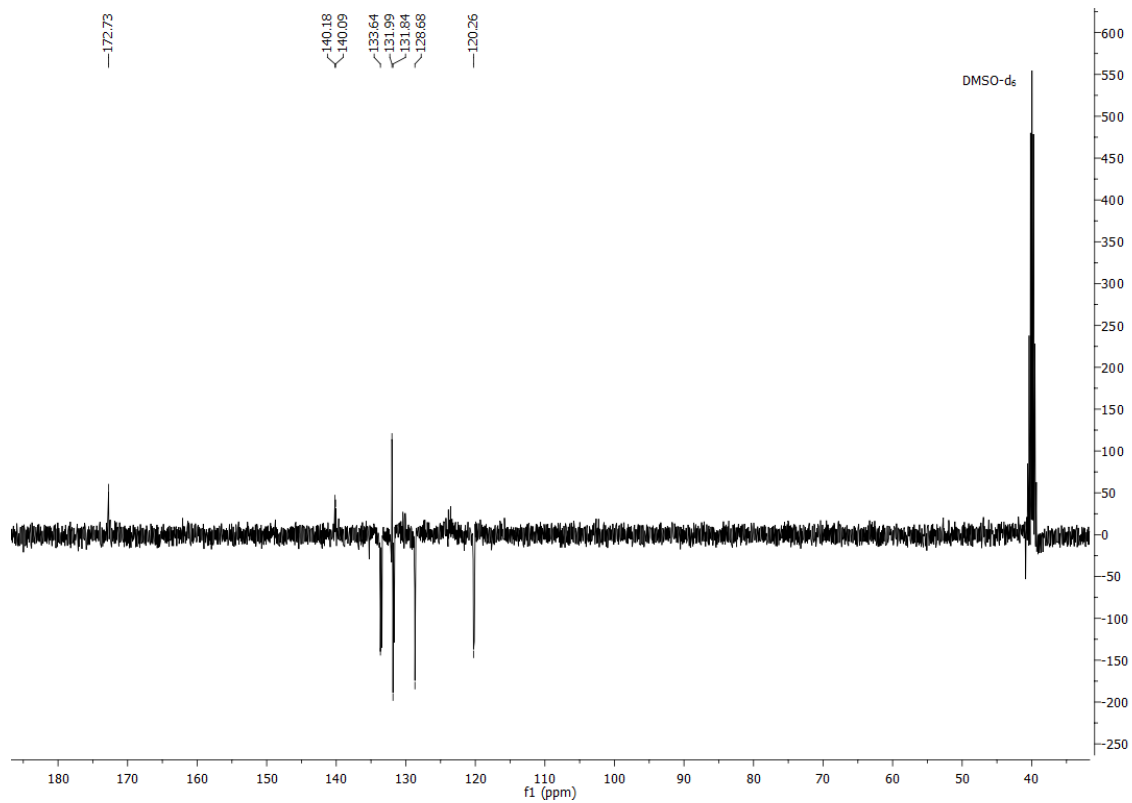
**Figure 17S.** $^{13}$C APT NMR of **10a**.
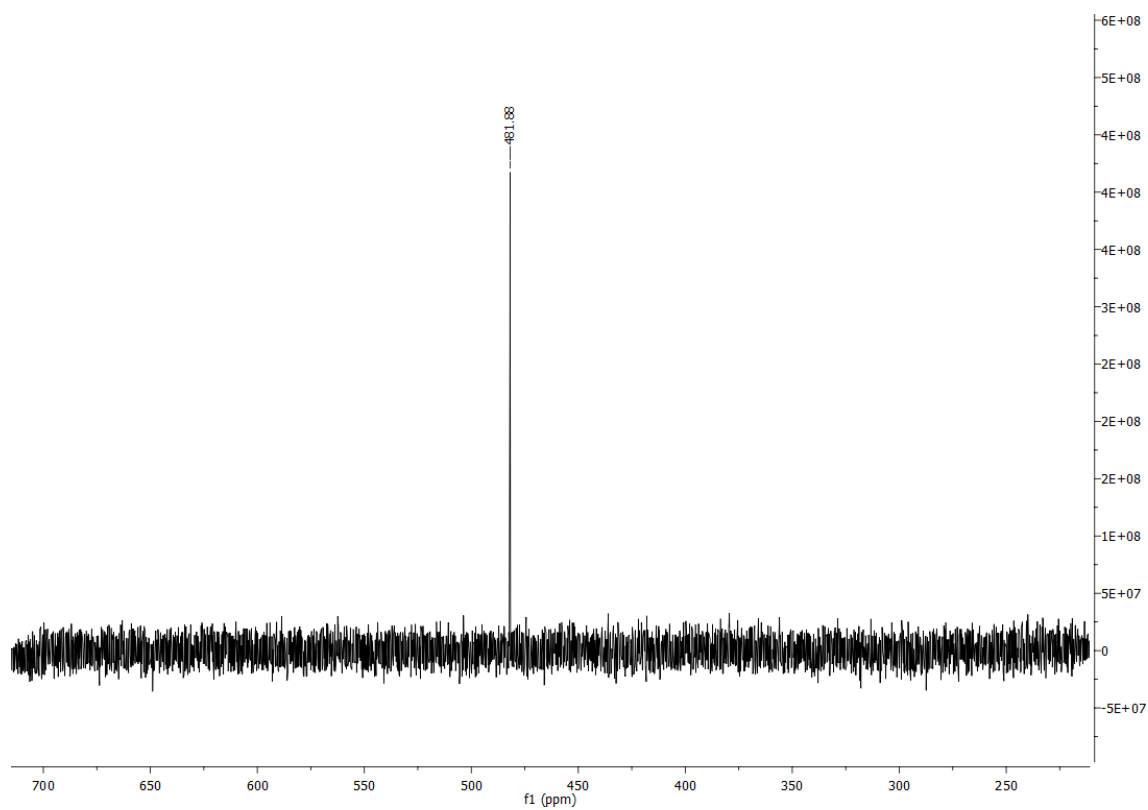


**Figure 18S.** $^{77}$Se NMR of **10a**.
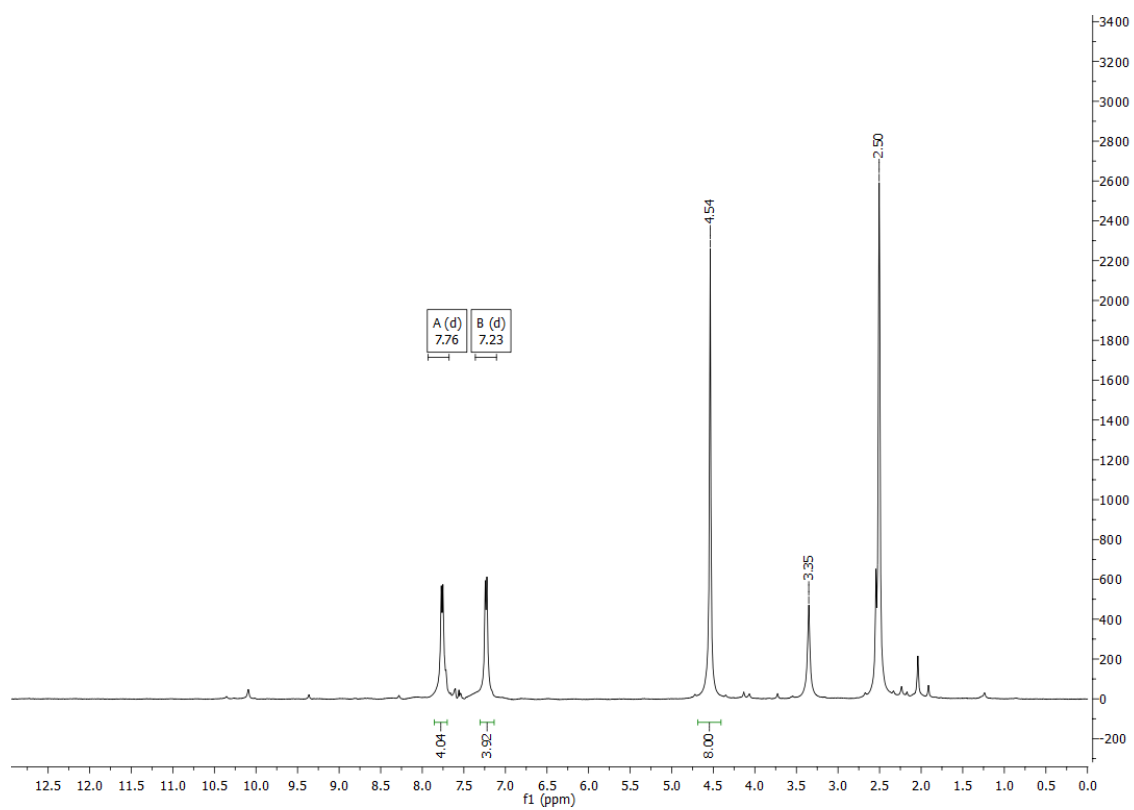
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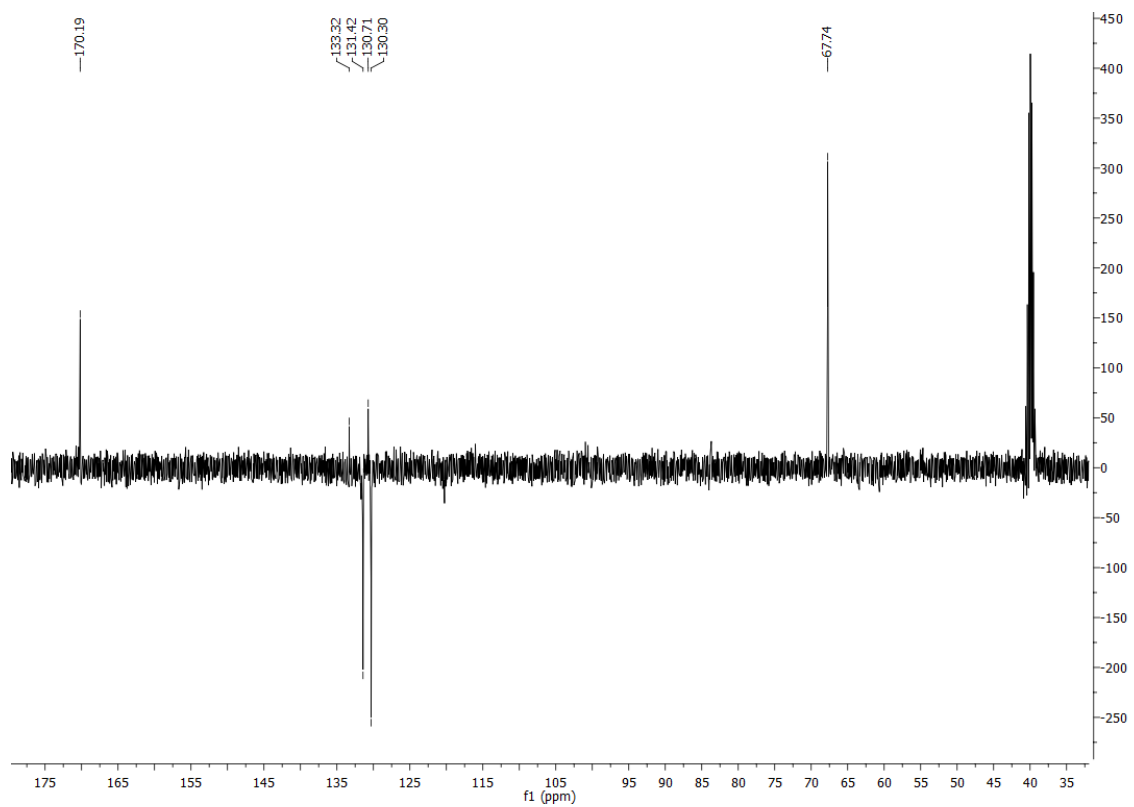


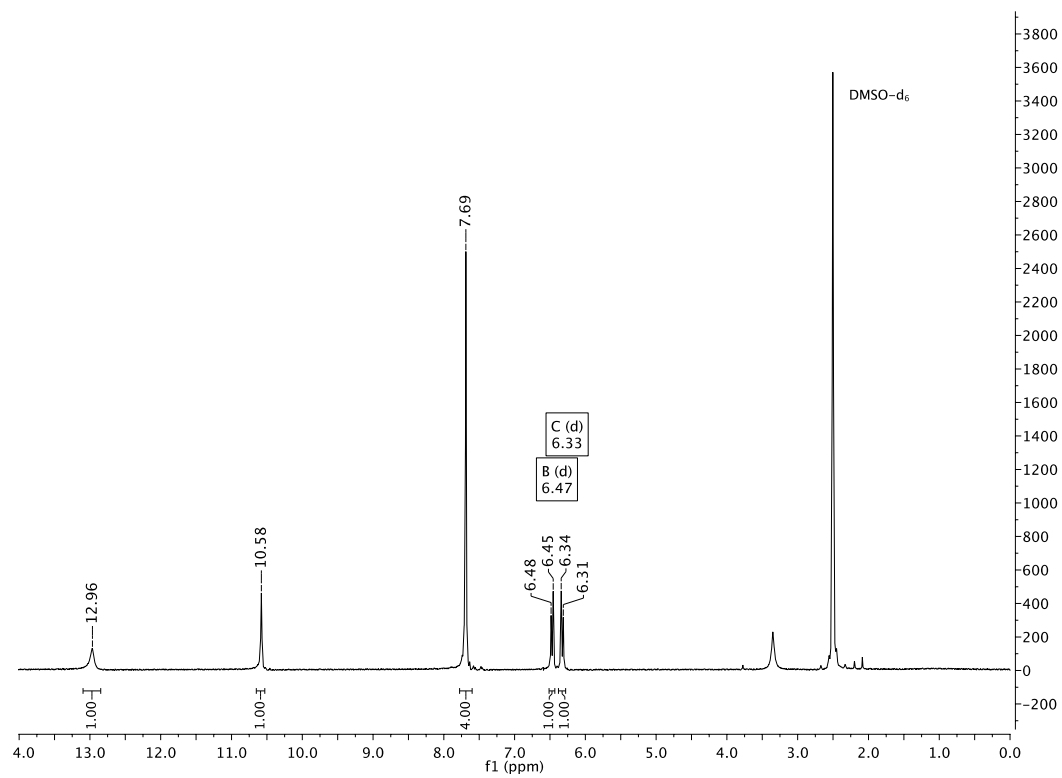**Figure 20S.** $^{13}$C APT NMR of **11a**.

**Figure 21S.** $^1$H NMR of **1b**.
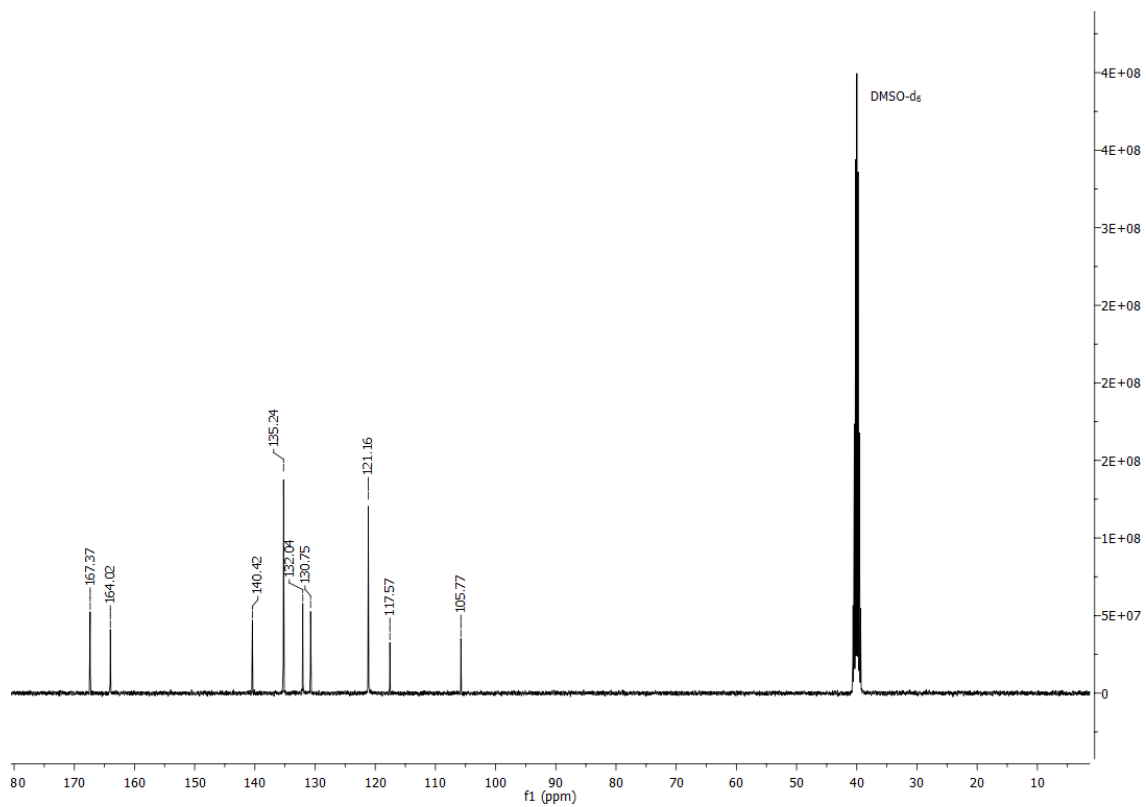


**Figure 22S.** $^{13}$C NMR of **1b**.
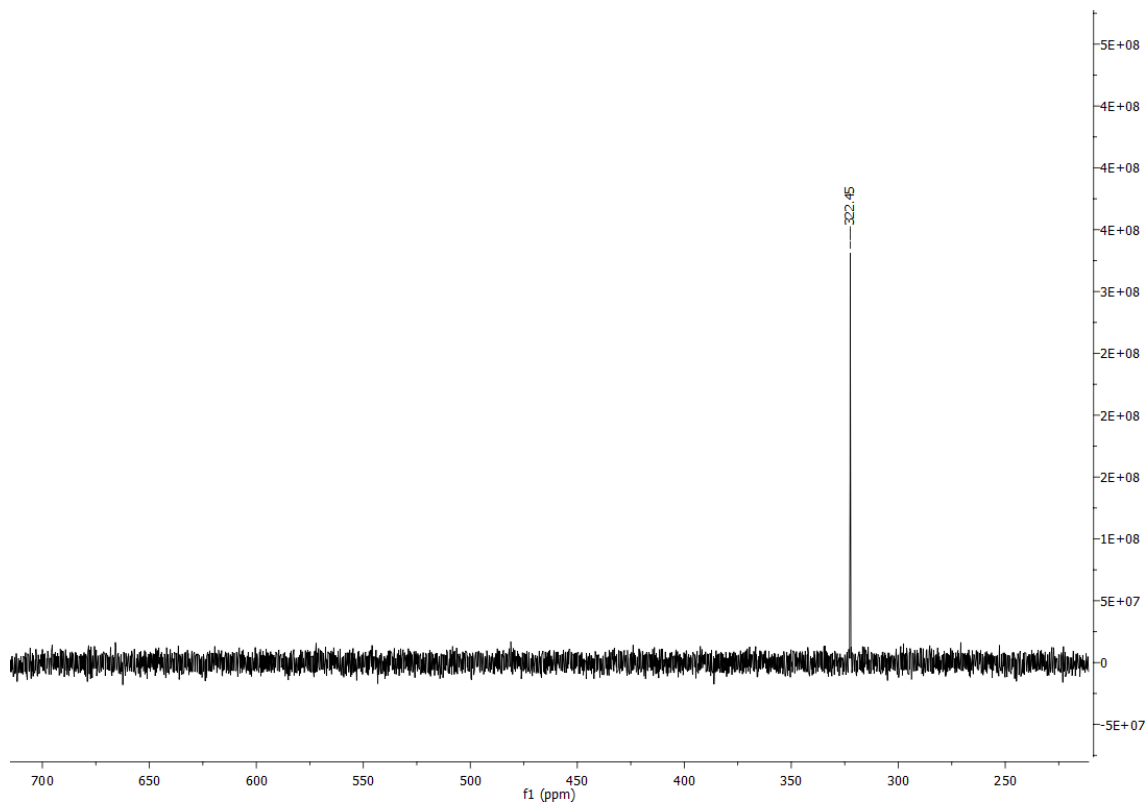
**Figure 23S.** $^{77}$Se NMR of **1b**.
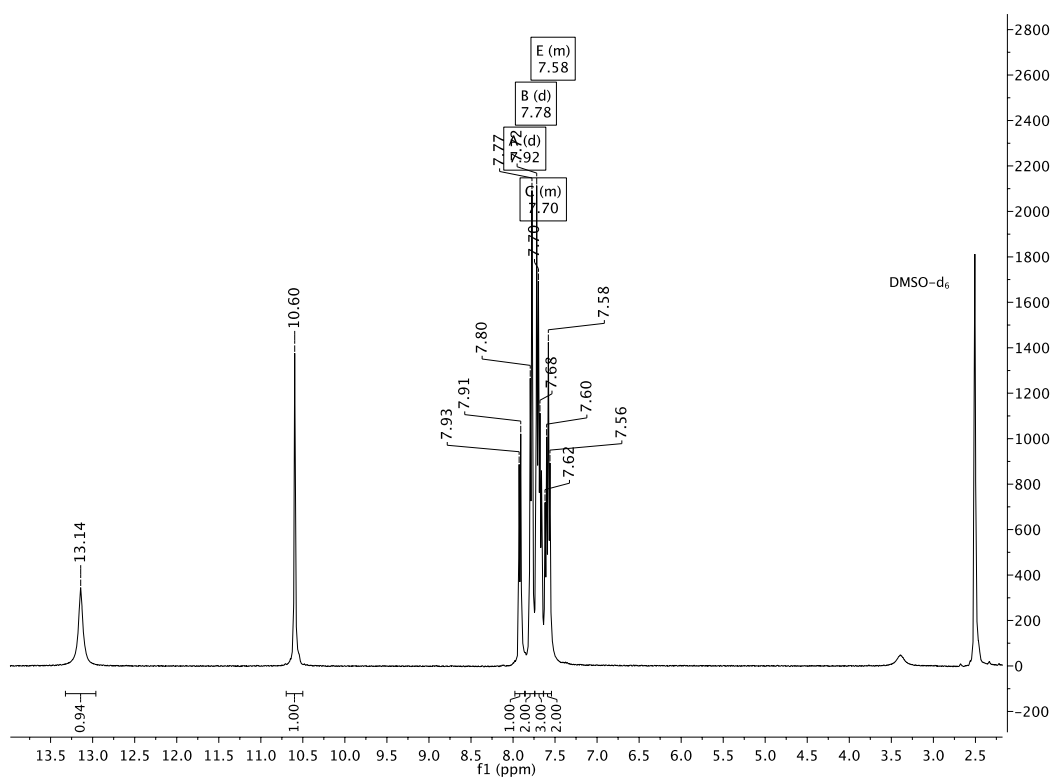


**Figure 24S.** $^{1}$H NMR of **2b**.
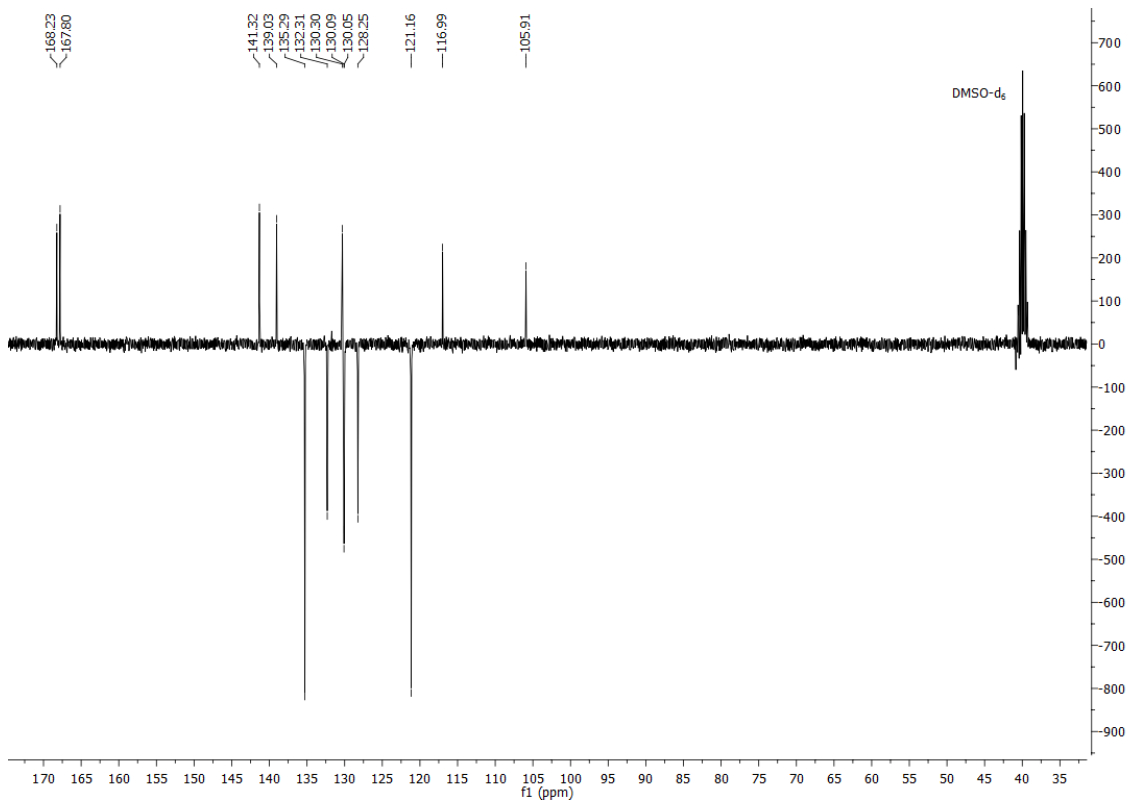
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**Figure 26S.** $^{1}$H NMR of **3b**.
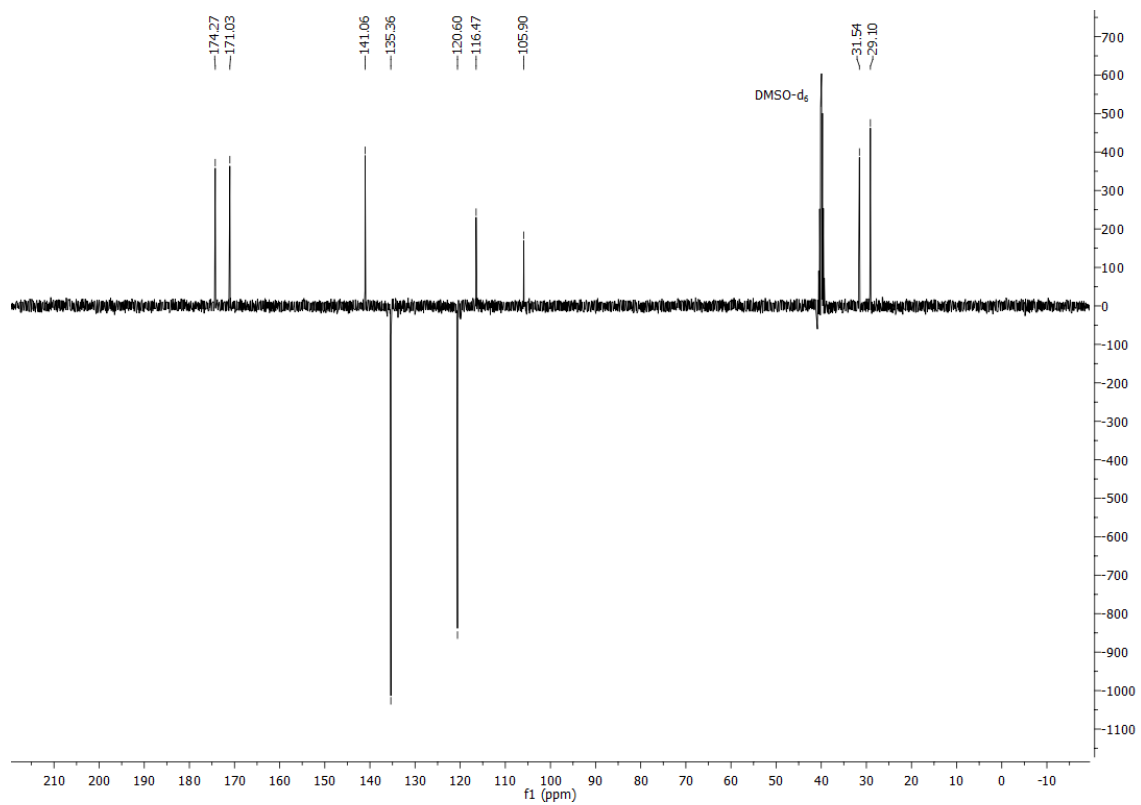
**Figure 27S.** $^{13}C$ APT NMR of **3b**.
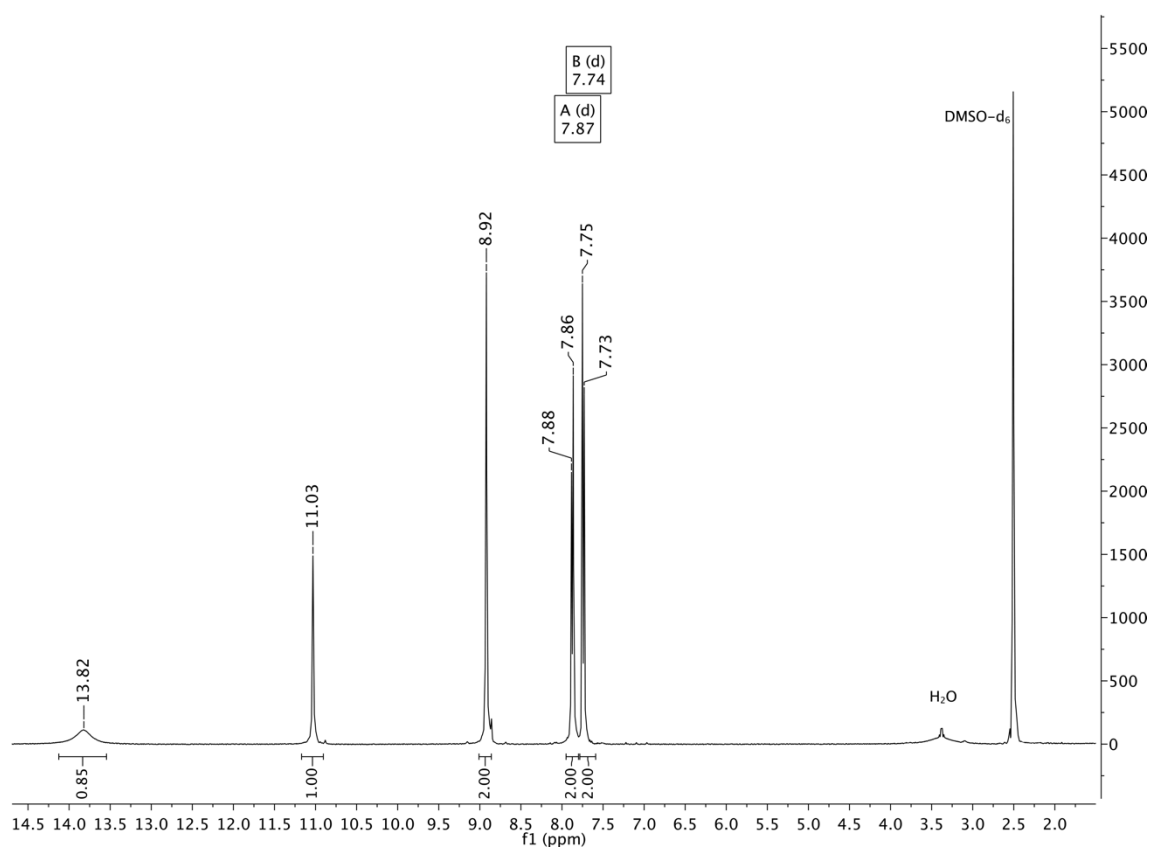


**Figure 28S.** $^{1}H$ NMR of **4b**.
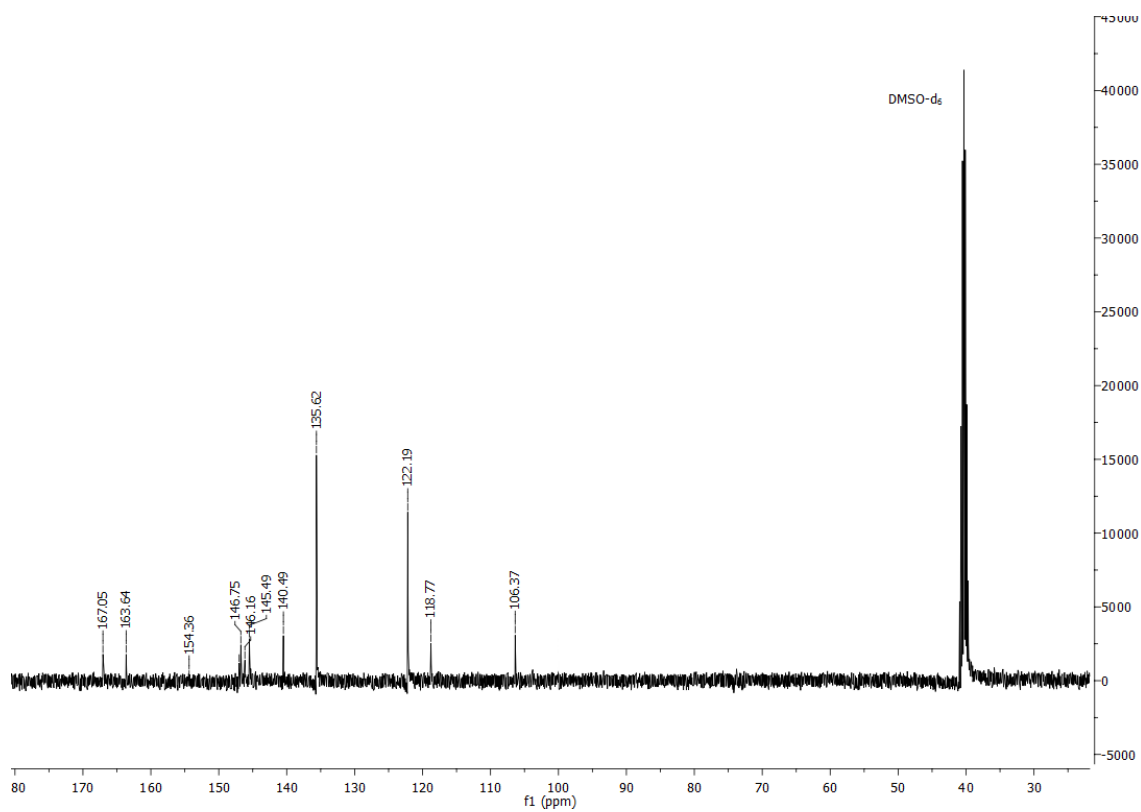
**Figure 29S.** $^{13}$C NMR of **4b**.
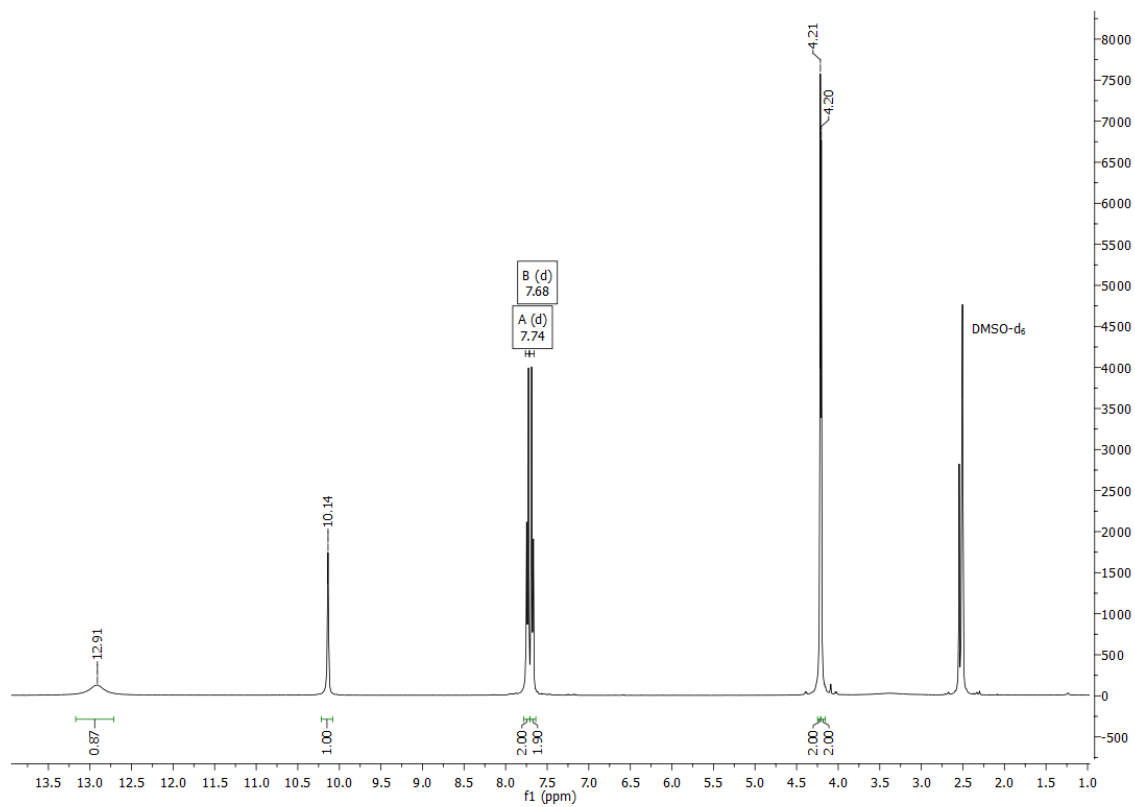


**Figure 30S.** $^{1}$H NMR of **5b**.
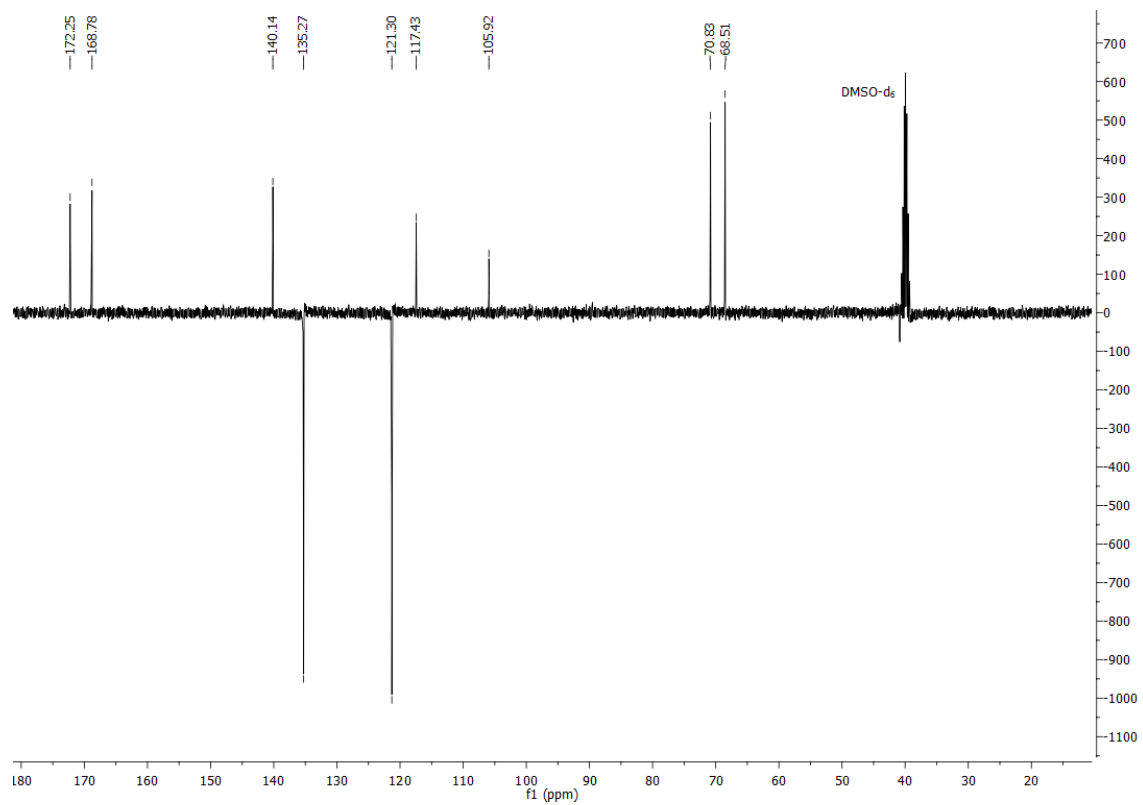
**Figure 31S.** $^{13}$C APT NMR of **5b**.



**Figure 32S.** $^{1}$H NMR of **6b**.

**Figure 33S.** $^{13}$C APT NMR of **6b**.



**Figure 34S.** $^{1}$H NMR of **7b**.

**Figure 35S.** $^{13}$C APT NMR of **7b**.
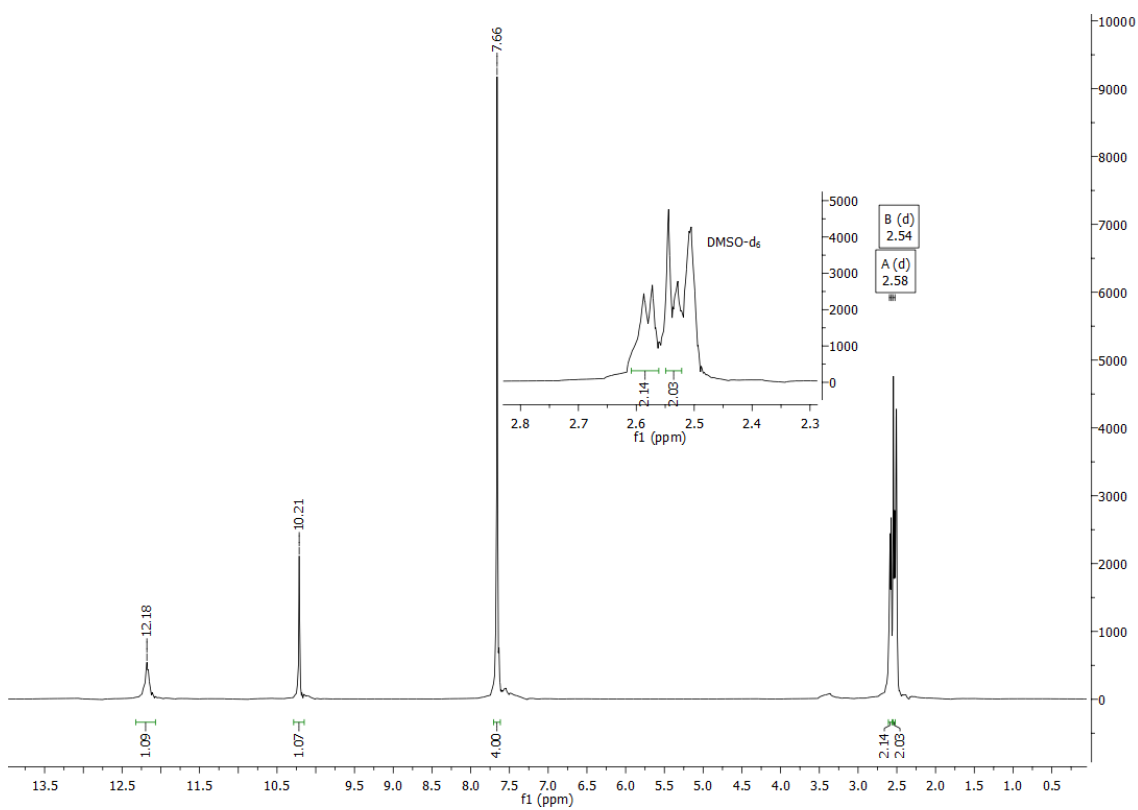


**Figure 36S.** $^1$H NMR of **8b**.
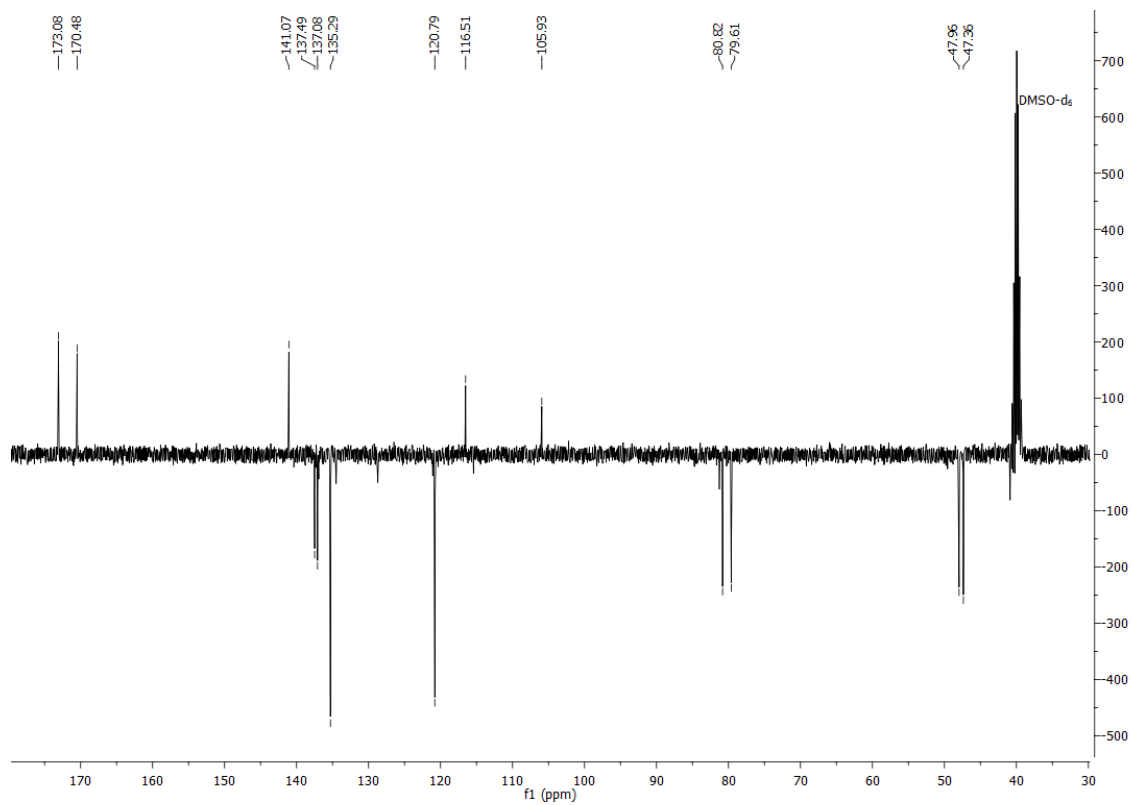
**Figure 37S.** $^{13}$C APT NMR of **8b**.
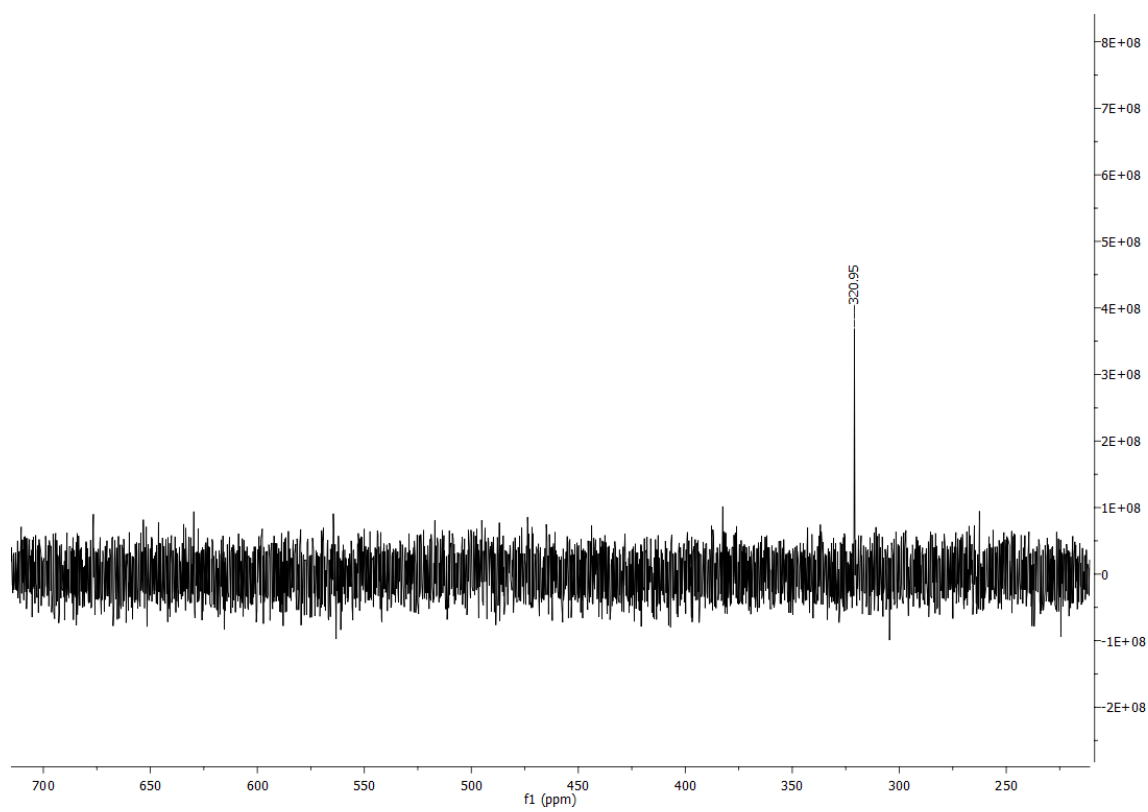


**Figure 38S.** $^{77}$Se NMR of **8b**.

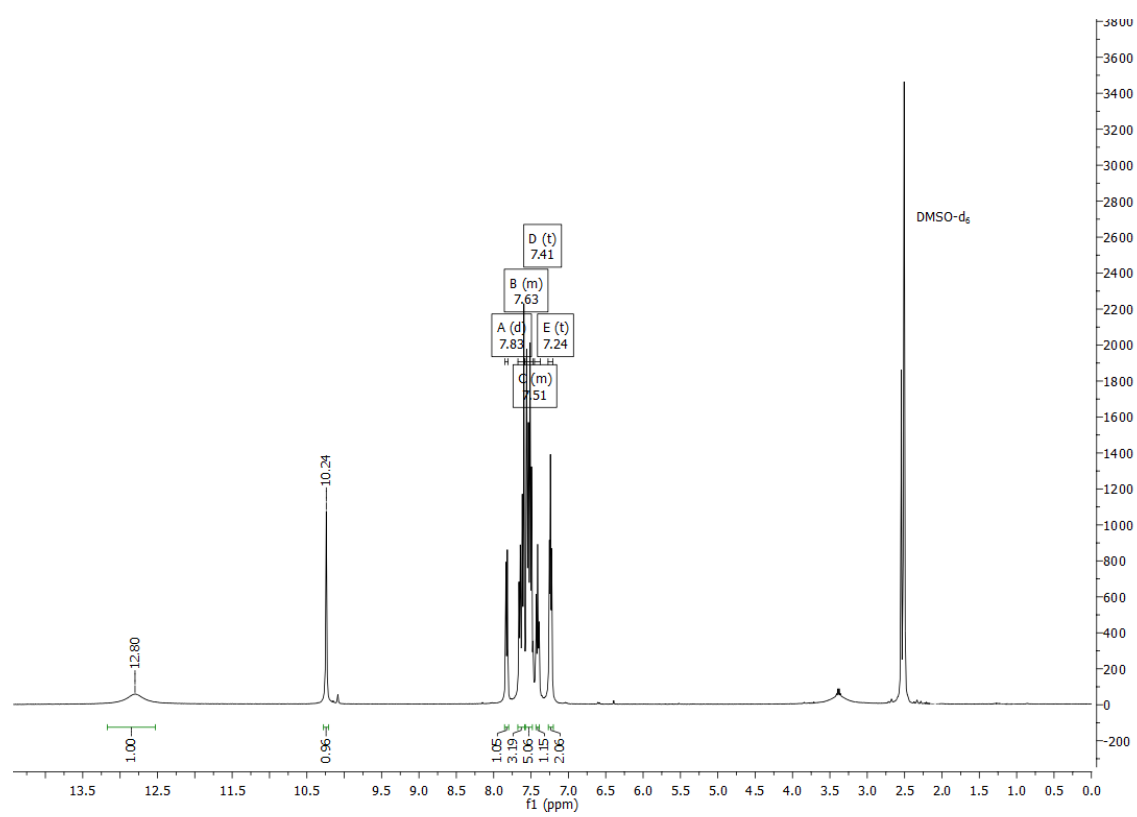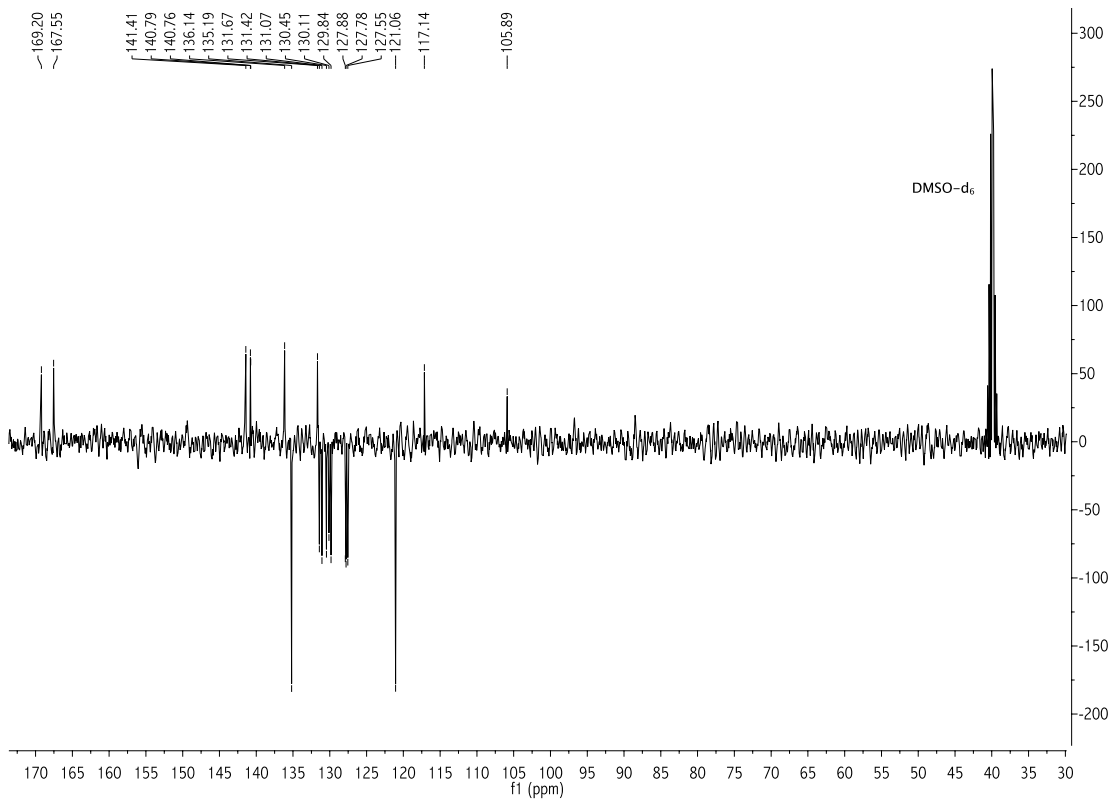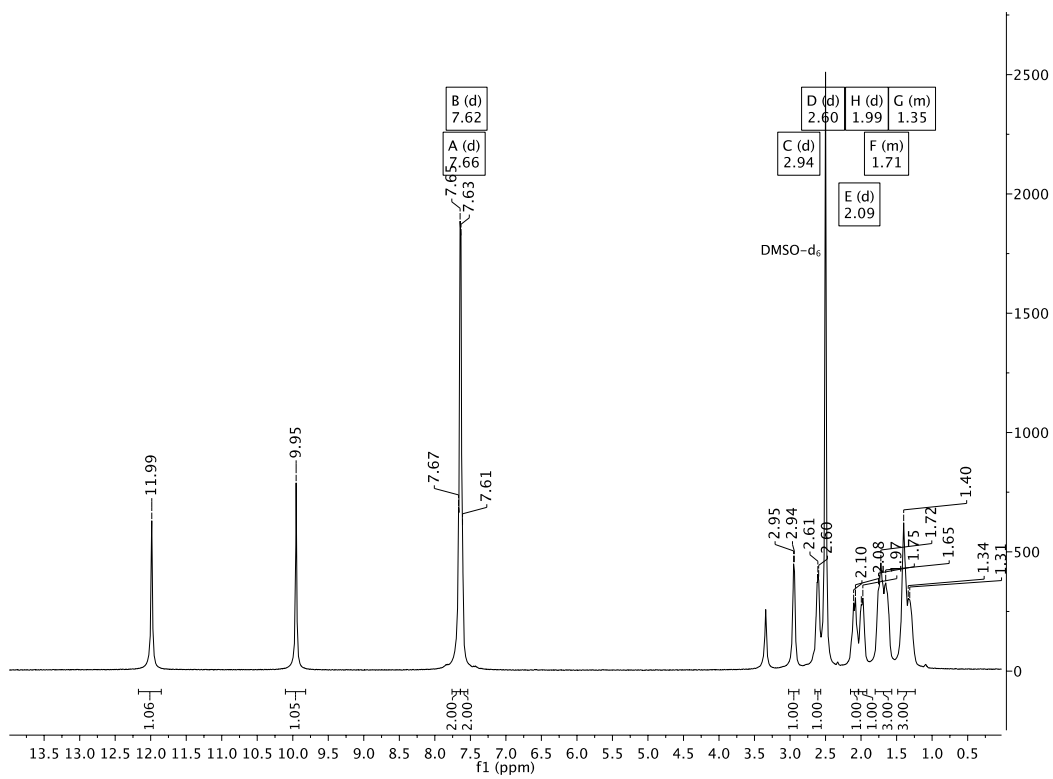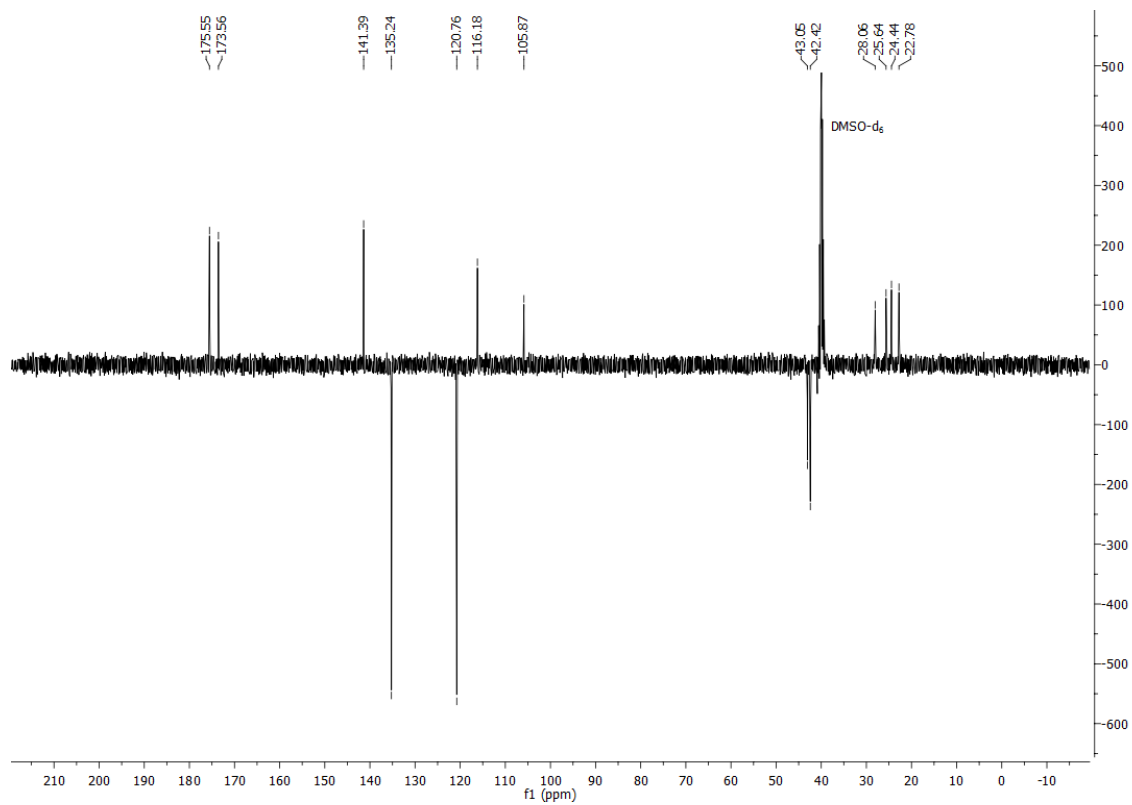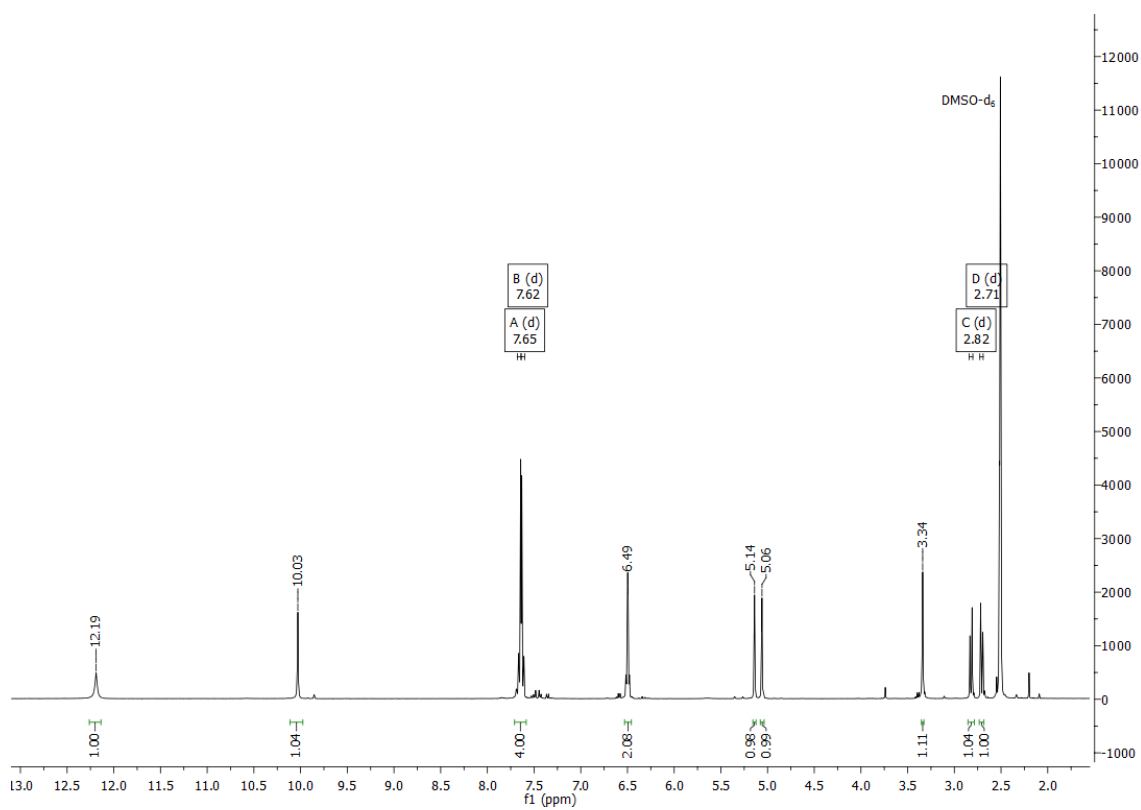## 2. Representative examples of cell cycle and subdiploid population analysis

| | | |
|---|---|---|
| Control/ **8b** 10 µM | Control/ **8b** 40 µM | Control/ **8b** 80 µM |
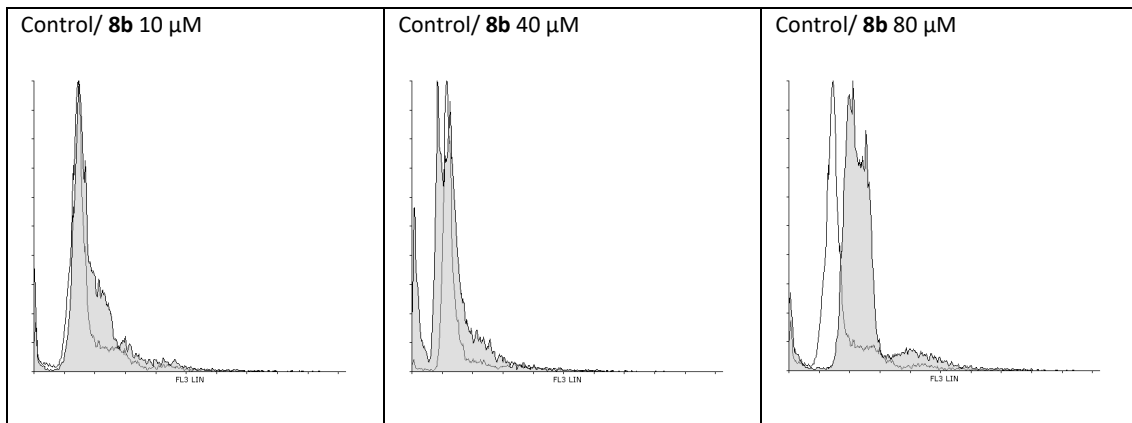
**Figure 39. Cell cycle arrest evolution for treatment with increasing doses for 48h of compound 8b.**

| | | | |
|---|---|---|---|
| Control/ Control+Wortmannin | Control/ Control+Chloroquine | Control / Control+Z-VAD | |
| Control / 80 µM **10a** | Control / 80 µM **8b** | Control+Z Z-VAD-FMK / 80 µM **10a**+Z-VAD-FMK | Control+ Z-VAD-FMK / 80 µM **8b**+Z-VAD-FMK |
| Control+Wortmannin/ 80 µM **10a**+Wortmannin | Control+Wortmannin/ 80 µM **8b**+Wortmannin | Control+Chloroquine/ 80 µM **10a**+Chloroquine | Control+Chloroquine/ 80 µM **8b**+Chloroquine |

| Control/ 30 µM Rapamycin | Control+Wortmannin / Rapamycin+Wortmannin | Control+Chloroquine/ Rapmamycin+Chloroquine |

FL1 LOG        FL1 LOG        FL1 LOG

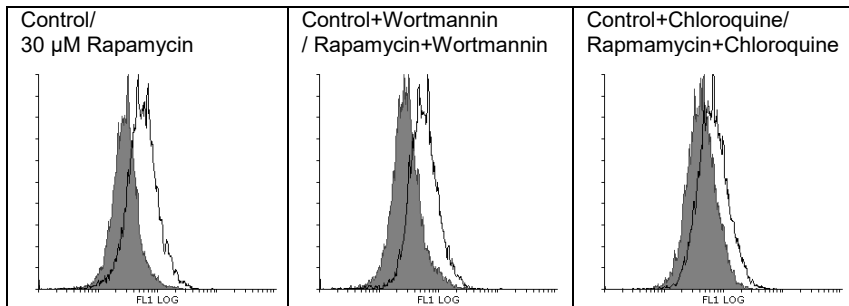**Figure 40S. Cell death induced by compounds 10a and 8b at 80 µM concentration is blocked by wortmannin and chloroquine but not by caspase inhibitor Z- VAD-FMK.** Figure shows representative experiments stacked with the control graphs for each experiment including experiments for the reference drug Rapamycin at 30 µM. Control histograms are color-coded in grey while the corresponding treatment histogram is plotted as a transparent histogram.