

# SUPPORTING INFORMATION FOR

## Carteriosulfonic Acids A-C, GSK-3 $\beta$ Inhibitors from a *Carteriospongia* sp.

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## Supporting information

The following supporting information is provided:

Figure S1.  $^1\text{H}$  NMR (600 MHz,  $\text{DMSO-d}_6$ ) of carteriosulfonic acid A (**1**)

Figure S2. gHMBC (600 MHz,  $\text{DMSO-d}_6$ ) of carteriosulfonic acid A (**1**)

Figure S3.  $^1\text{H}$  NMR (600 MHz,  $\text{DMSO-d}_6$ ) of carteriosulfonic acid B (**2**)

Figure S4. gHMBC (600 MHz,  $\text{DMSO-d}_6$ ) of carteriosulfonic acid B (**2**)

Figure S5.  $^1\text{H}$  NMR (600 MHz,  $\text{DMSO-d}_6$ ) of carteriosulfonic acid C (**3**)

Figure S6. gHMBC (600 MHz,  $\text{DMSO-d}_6$ ) of carteriosulfonic acid C (**3**)

Figure S7.  $^1\text{H}$  NMR (500 MHz,  $\text{CD}_3\text{OD}$ ) of desacyl-carteriosulfonic acid (**7**)

Figure S8.  $^{13}\text{C}$  NMR (125 MHz,  $\text{CD}_3\text{OD}$ ) of desacyl-carteriosulfonic acid (**7**)

Figure S9.  $^1\text{H}$  NMR (500 MHz,  $\text{CDCl}_3$ ) of **11**

Figure S10. gHSQC NMR (500 MHz,  $\text{CDCl}_3$ ) of **11**

Figure S11. gHMBC NMR (500 MHz,  $\text{CDCl}_3$ ) of **11**

Figure S12.  $^1\text{H}$  NMR (500 MHz,  $\text{CDCl}_3$ ) of **12**

Figure S13. gHSQC NMR (500 MHz,  $\text{CDCl}_3$ ) of **12**

Figure S14. Dose response of carteriosulfonic acids A, B and C against GSK-3 $\beta$

Figure S1.  $^1\text{H}$  NMR (600 MHz,  $\text{DMSO-d}_6$ ) of carteriosulfonic acid A (1)

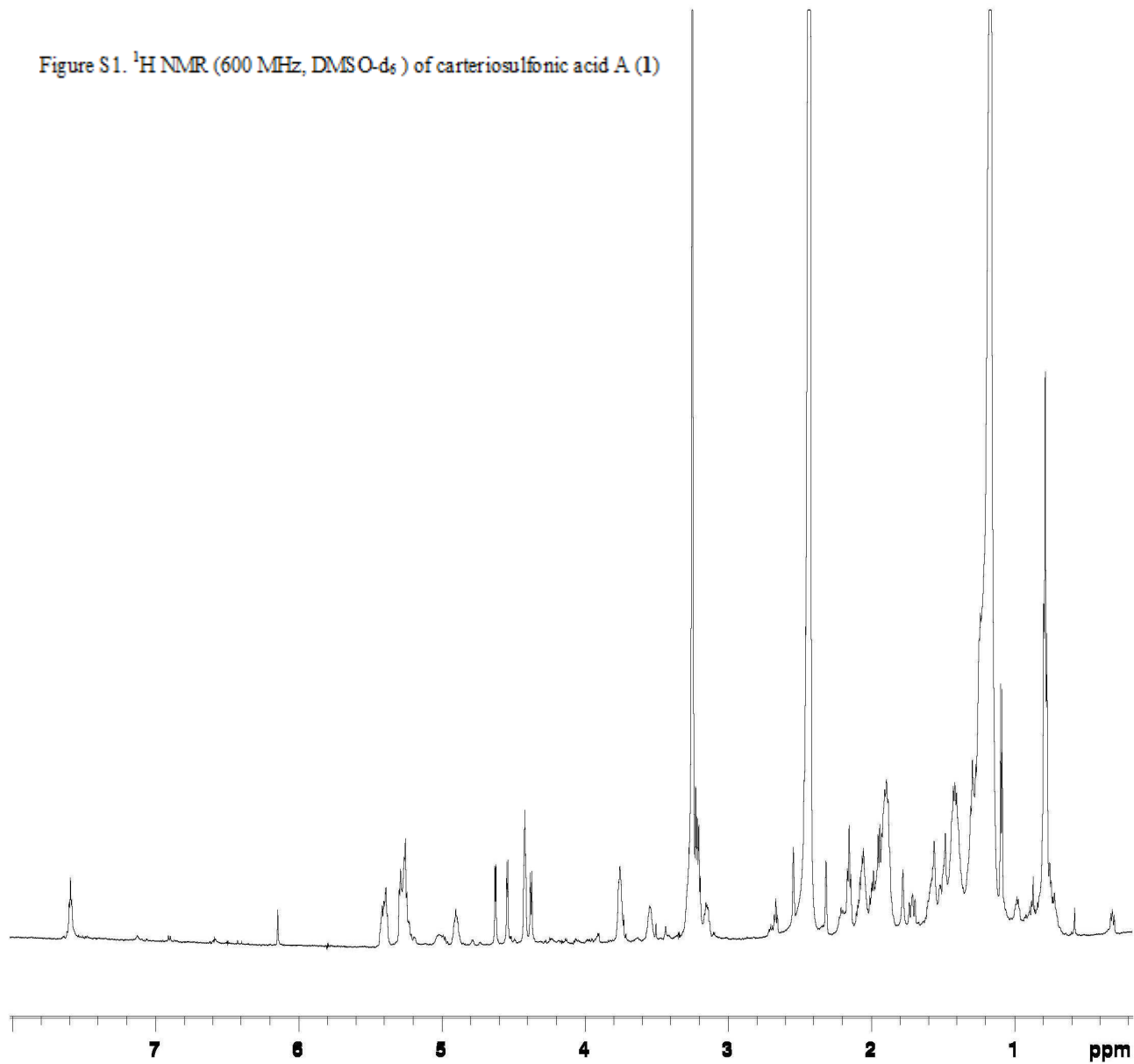


Figure S2. gHMBC (600 MHz, DMSO-d<sub>6</sub>) of carteriosulfonic acid A (1)

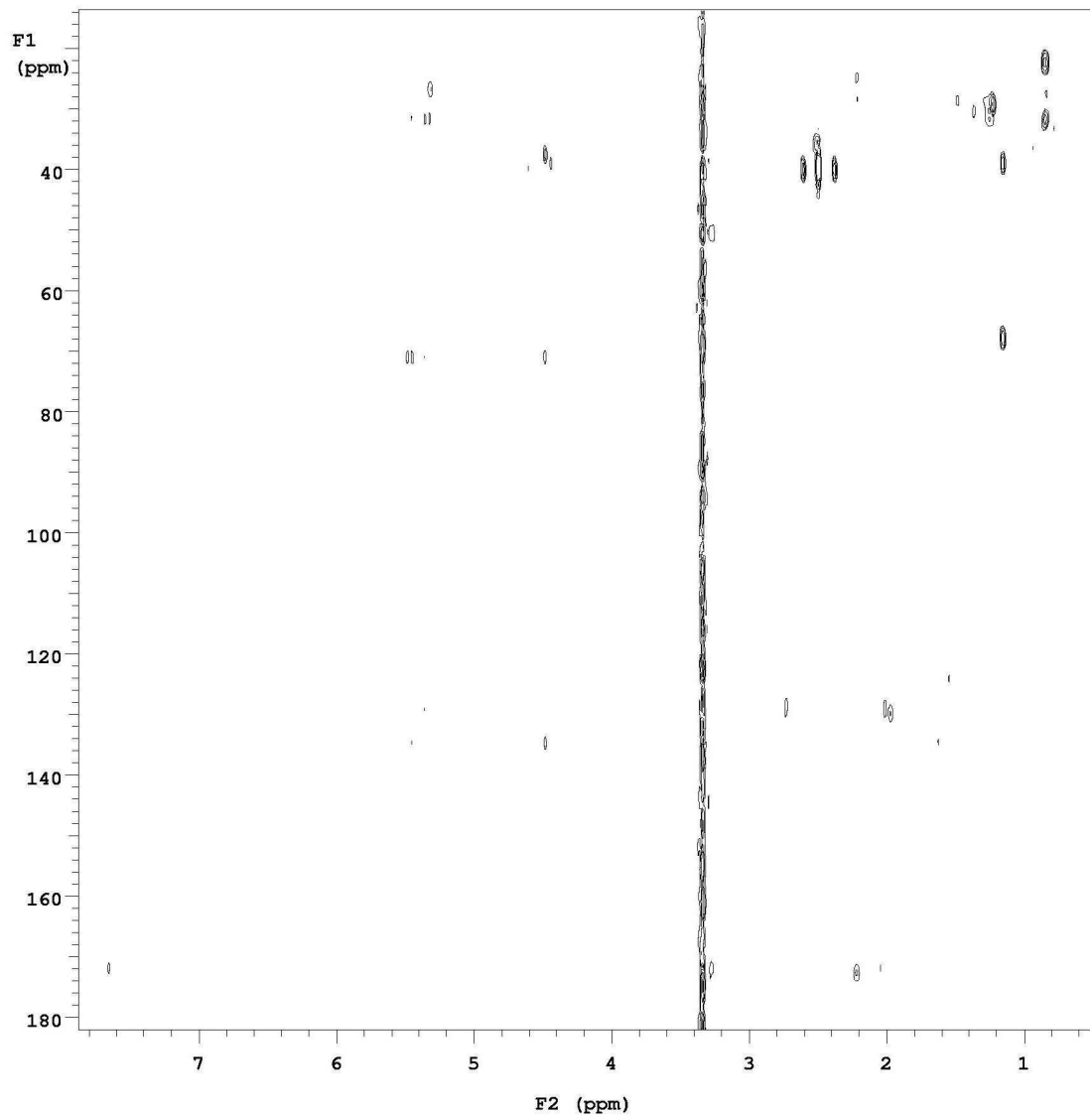


Figure S3.  $^1\text{H}$  NMR (600 MHz,  $\text{DMSO-d}_6$ ) of carteriosulfonic acid B (2)

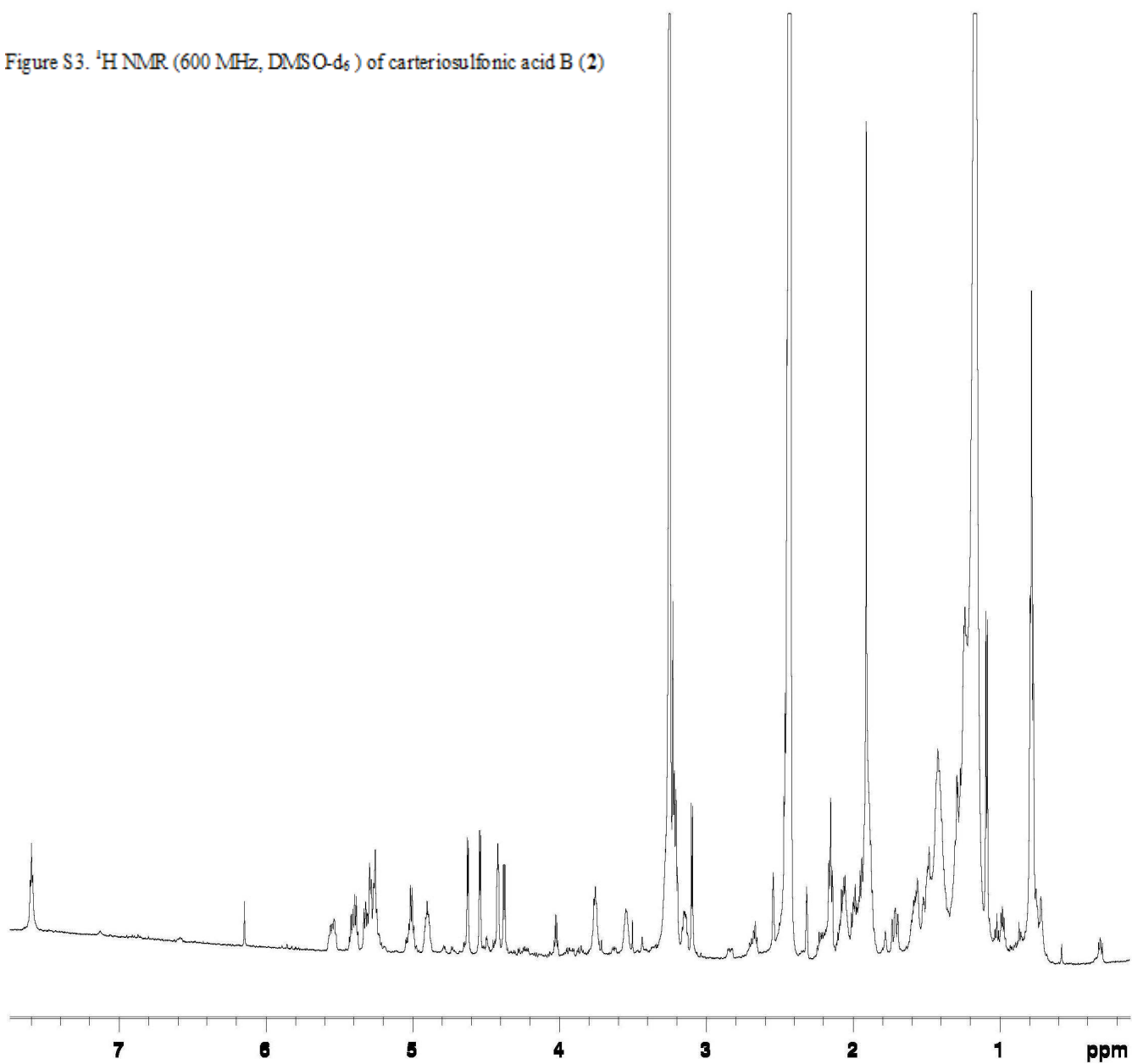


Figure S4. gHMBC (600 MHz, DMSO-d<sub>6</sub>) of carteriosulfonic acid B (2)

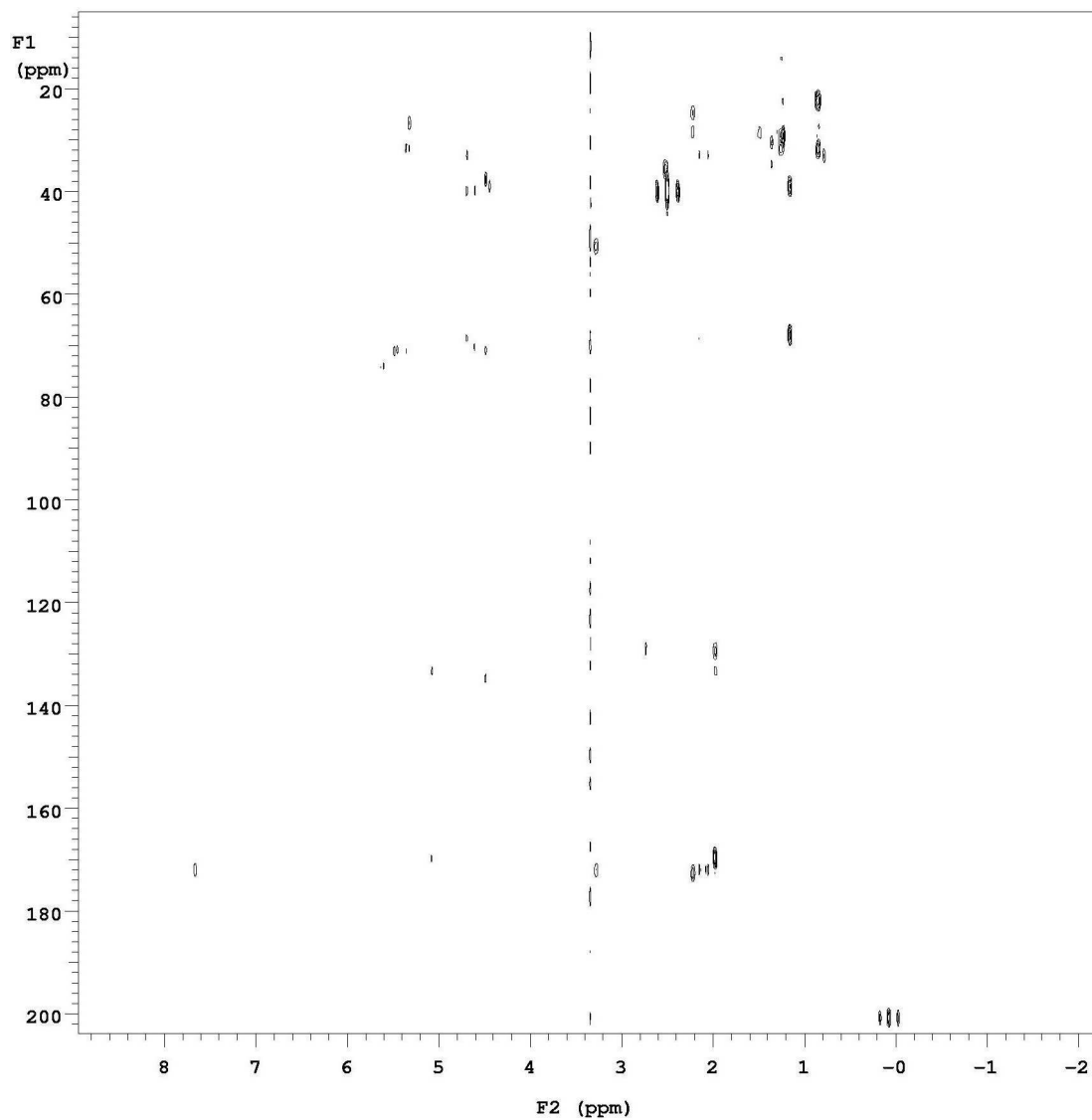


Figure S5.  $^1\text{H}$  NMR (600 MHz,  $\text{DMSO-d}_6$ ) of carteriosulfonic acid C (3)

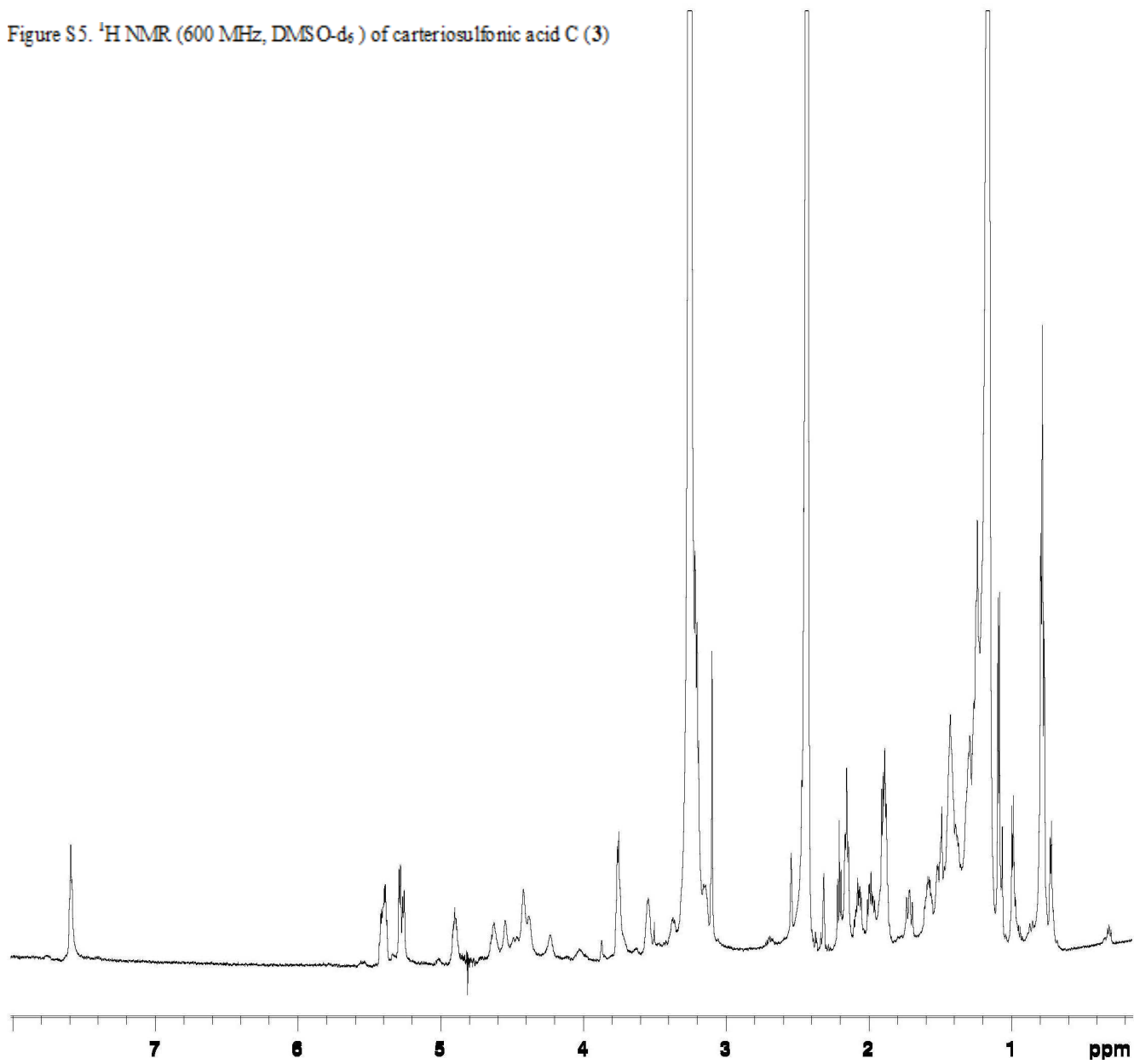


Figure S6. gHMBC (600 MHz, DMSO-d<sub>6</sub>) of carteriosulfonic acid C (3)

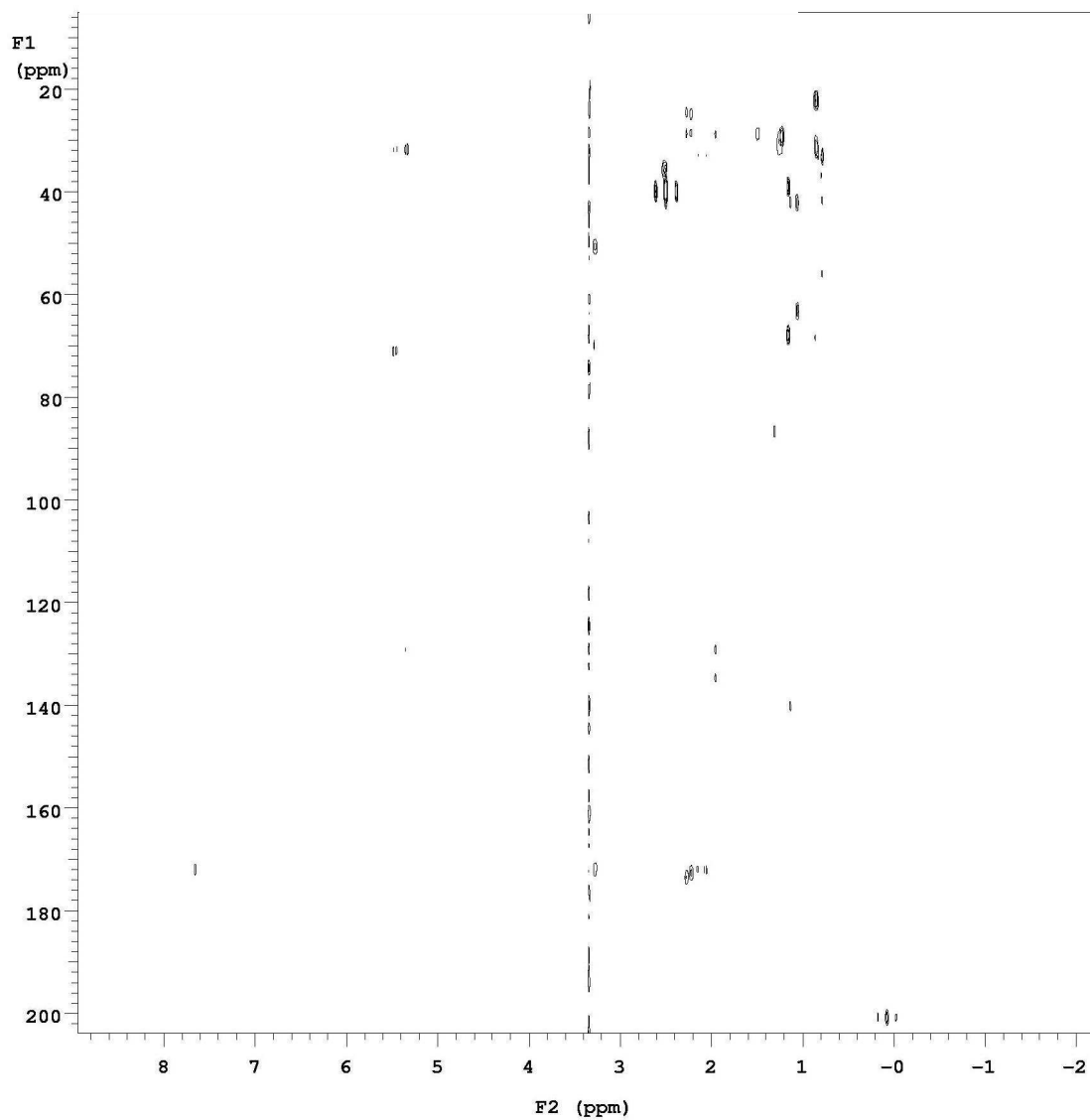




Figure S7.  $^1\text{H}$  NMR (500 MHz,  $\text{CD}_3\text{OD}$ ) of desacyl-carteriosulfonic acid (7)

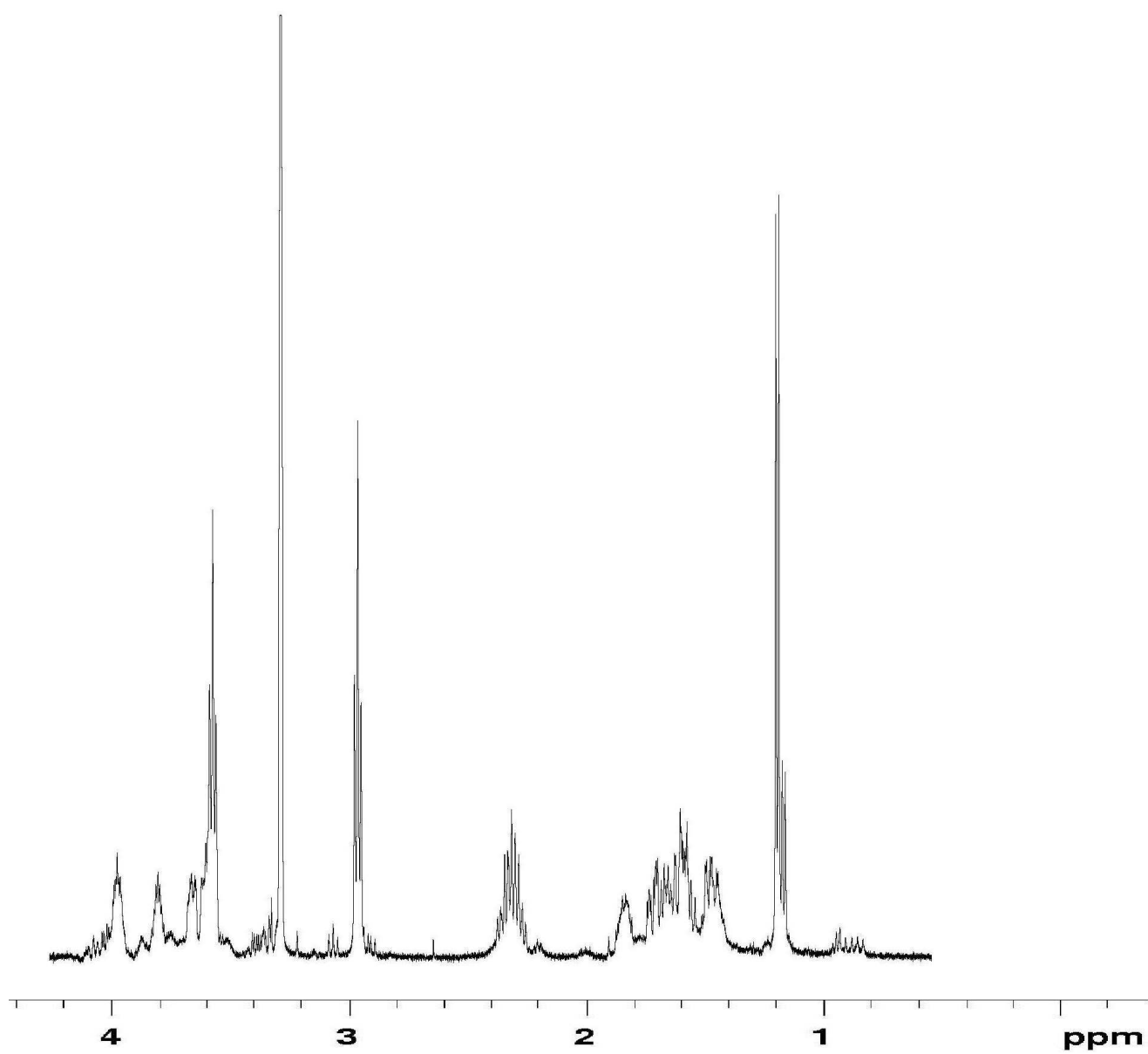


Figure S8.  $^{13}\text{C}$  NMR (125 MHz,  $\text{CD}_3\text{OD}$ ) of desacyl-carteriosulfonic acid (7)

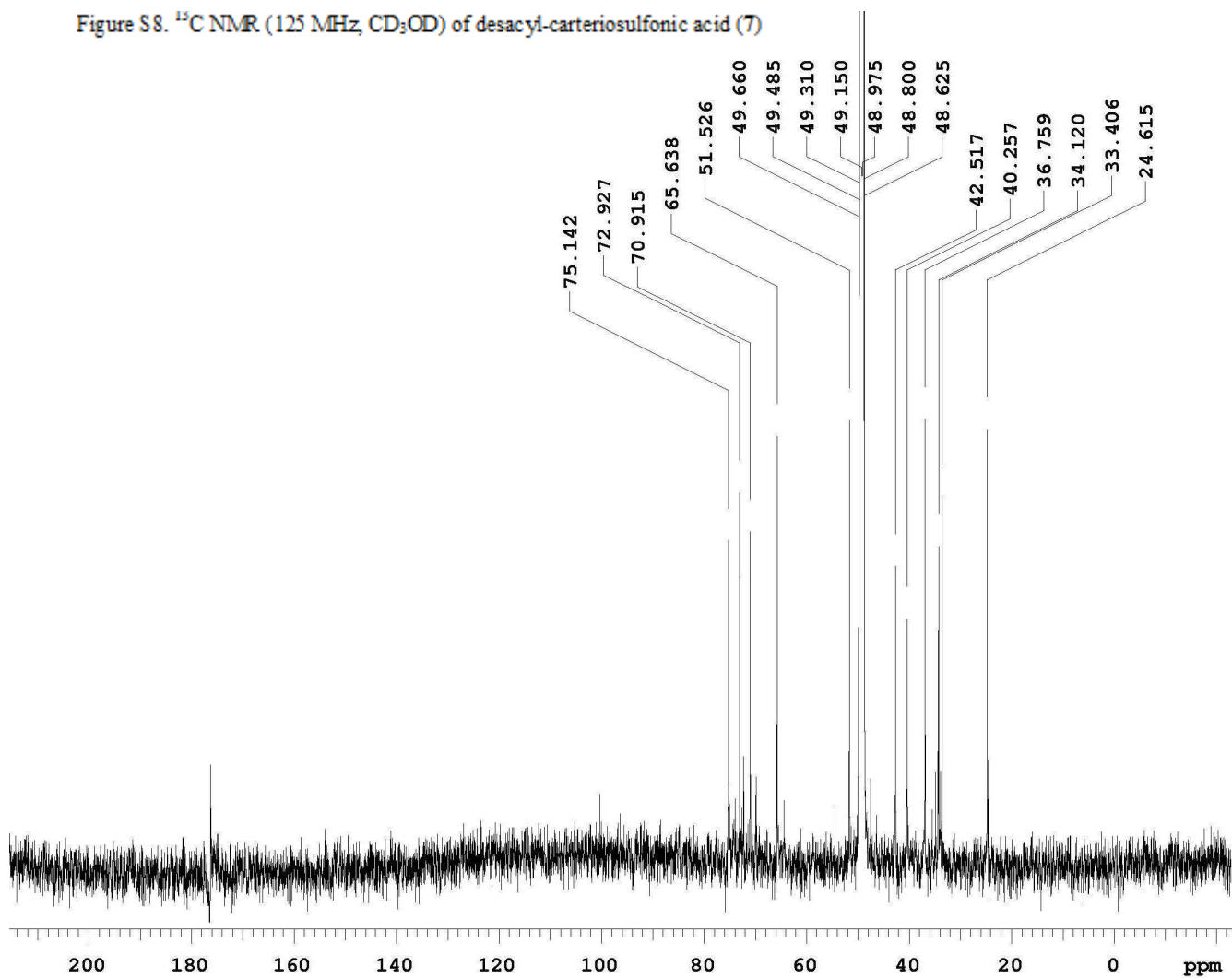


Figure S9.  $^1\text{H}$  NMR (500 MHz,  $\text{CDCl}_3$ ) of **11**

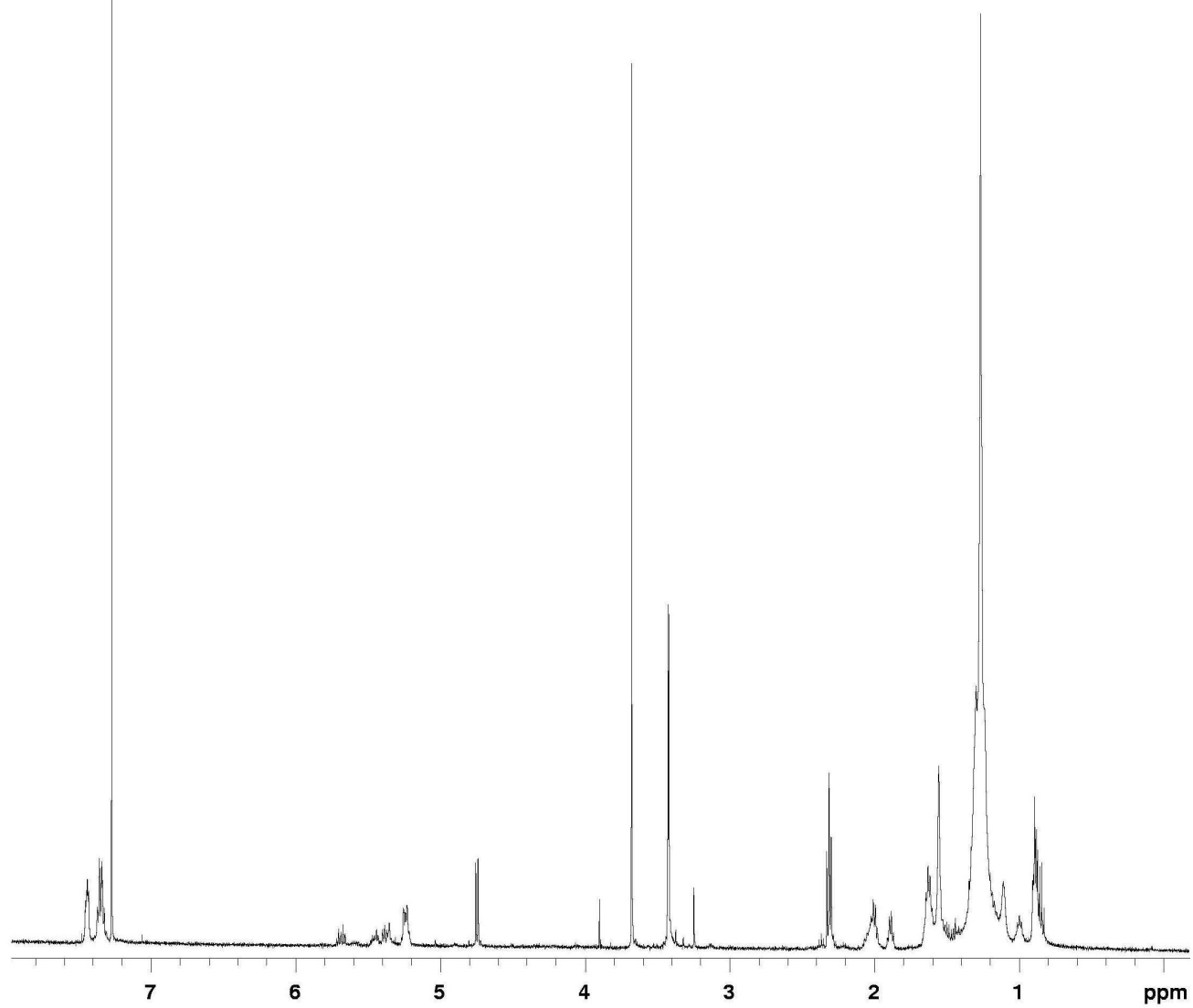


Figure S10. gHSQC NMR (500 MHz, CDCl<sub>3</sub>) of 11

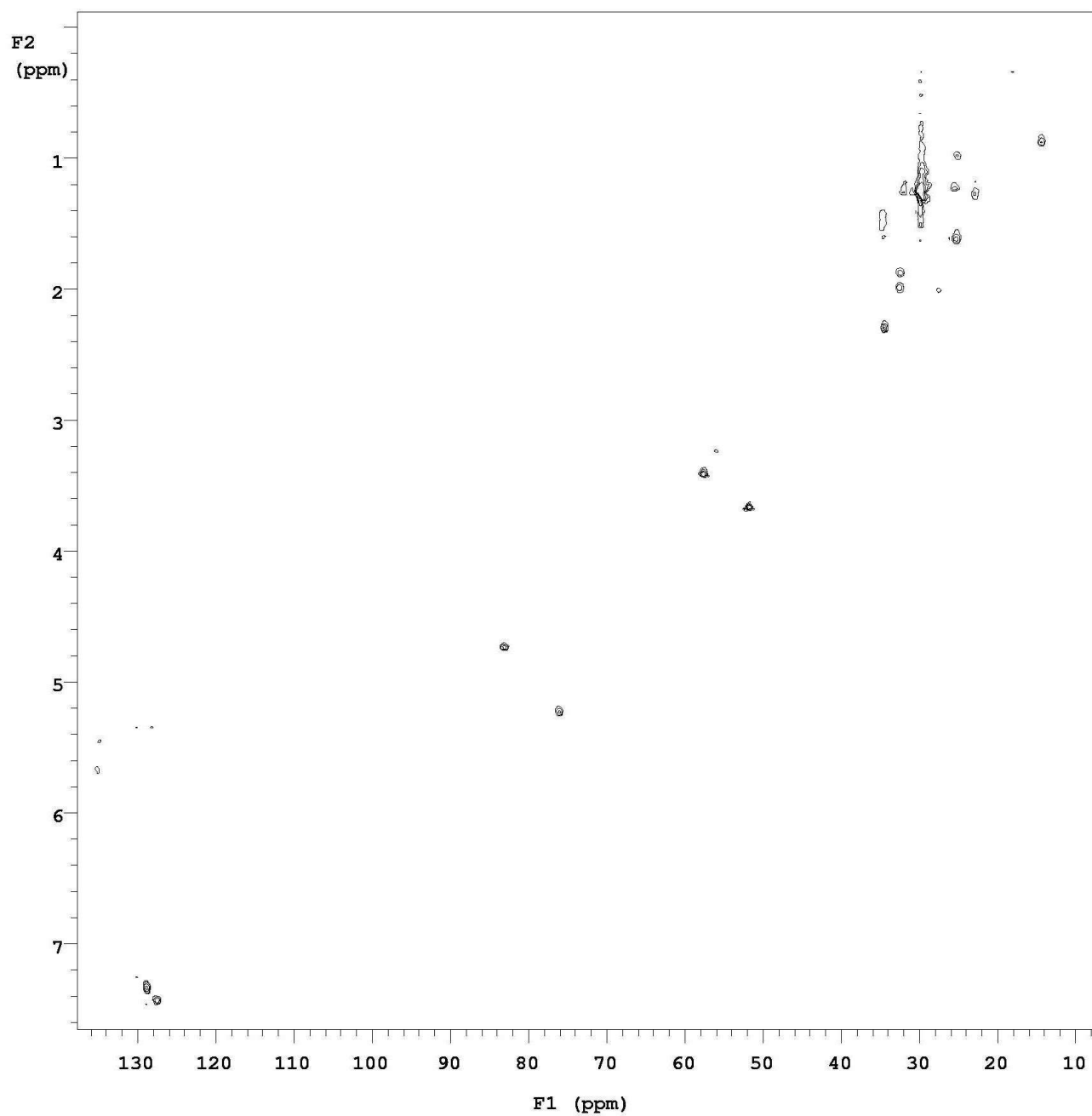


Figure S11. gHMBC NMR (500 MHz, CDCl<sub>3</sub>) of 11

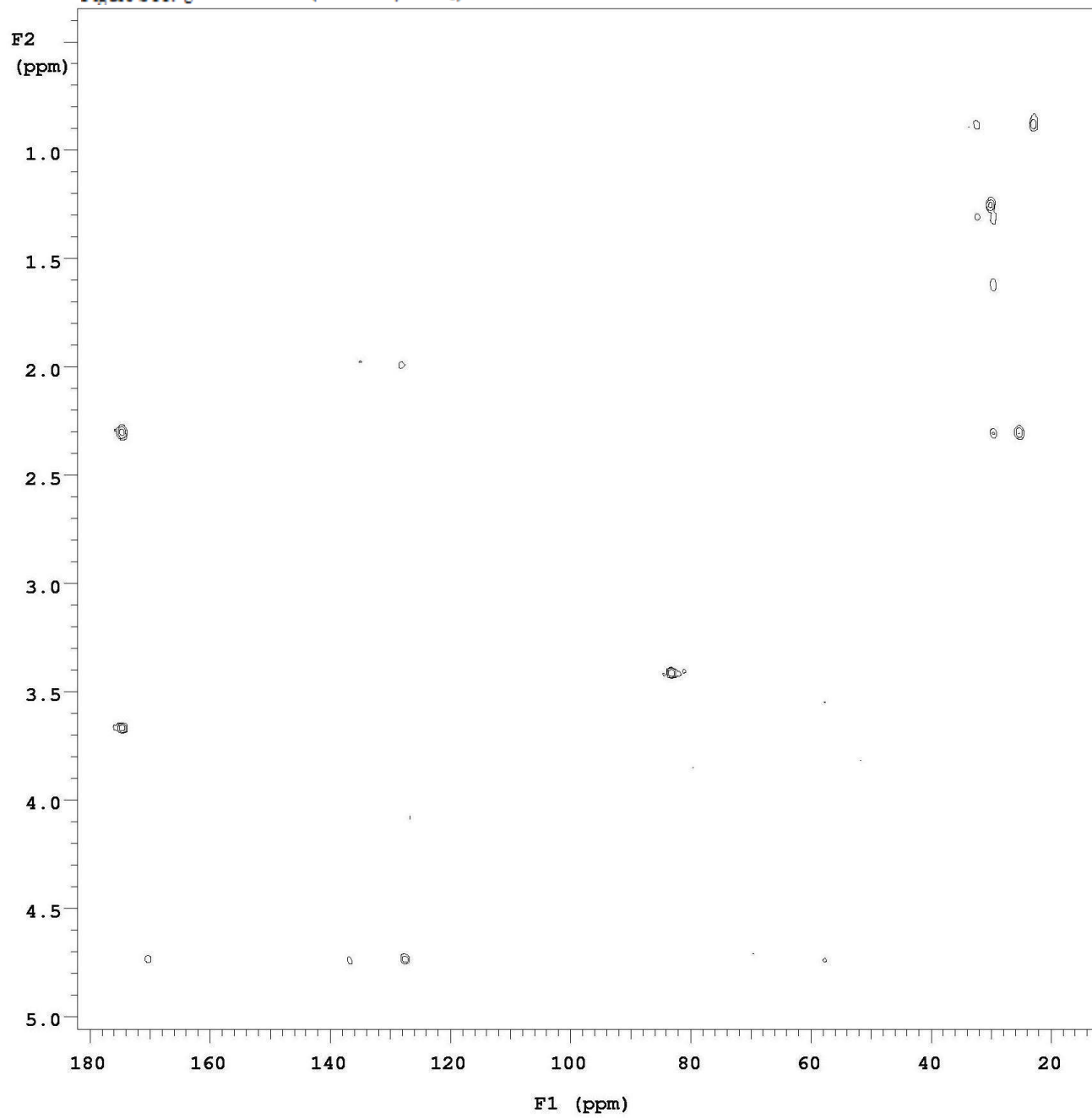


Figure S12.  $^1\text{H}$  NMR (500 MHz,  $\text{CDCl}_3$ ) of **12**

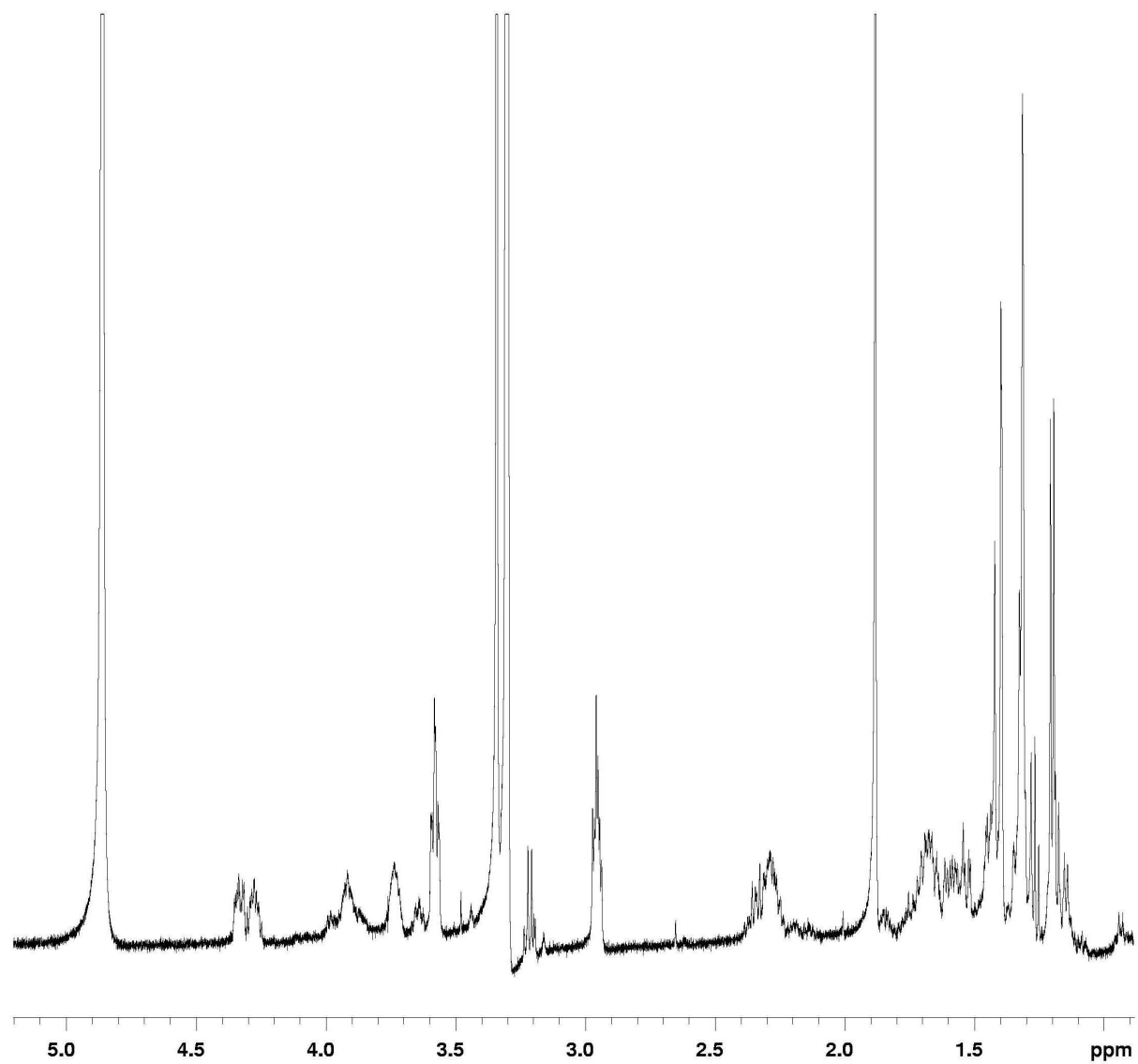


Figure S13. gHSQC NMR (500 MHz, CDCl<sub>3</sub>) of 12

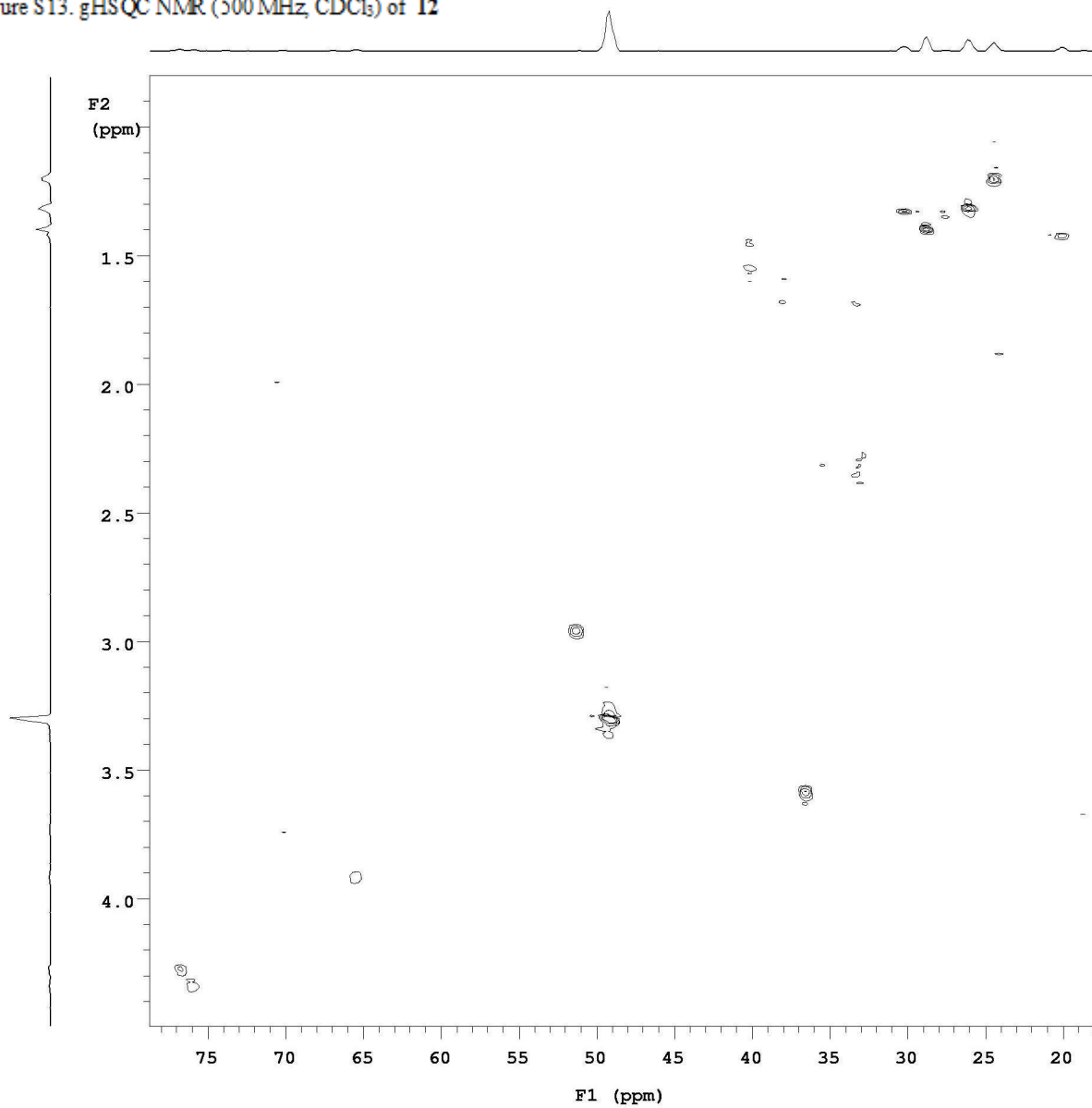


Figure S14. Dose response of carteriosulfonic acids A, B and C against GSK-3 $\beta$

