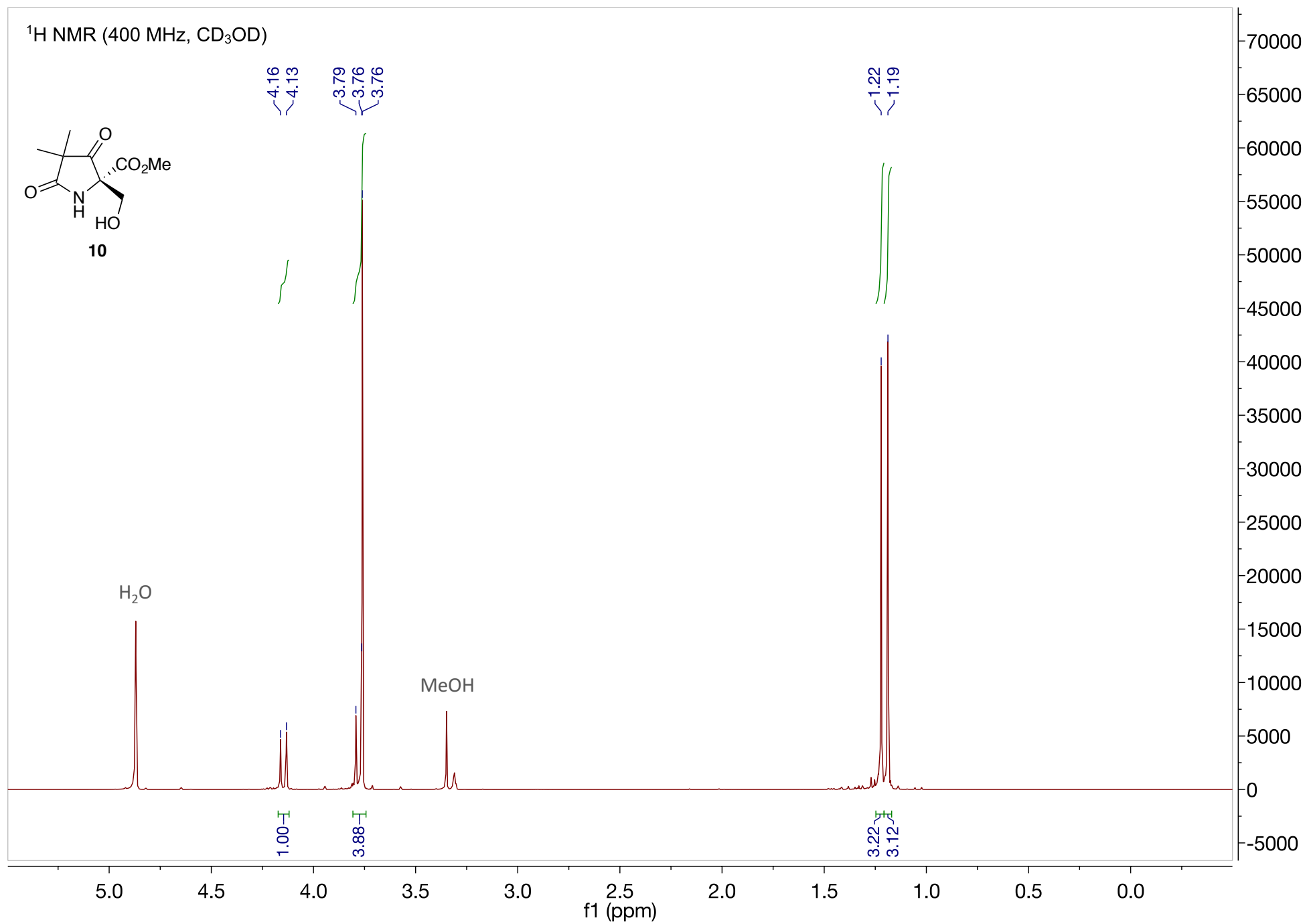
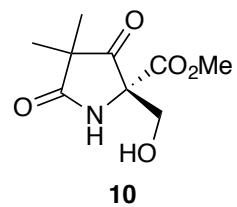
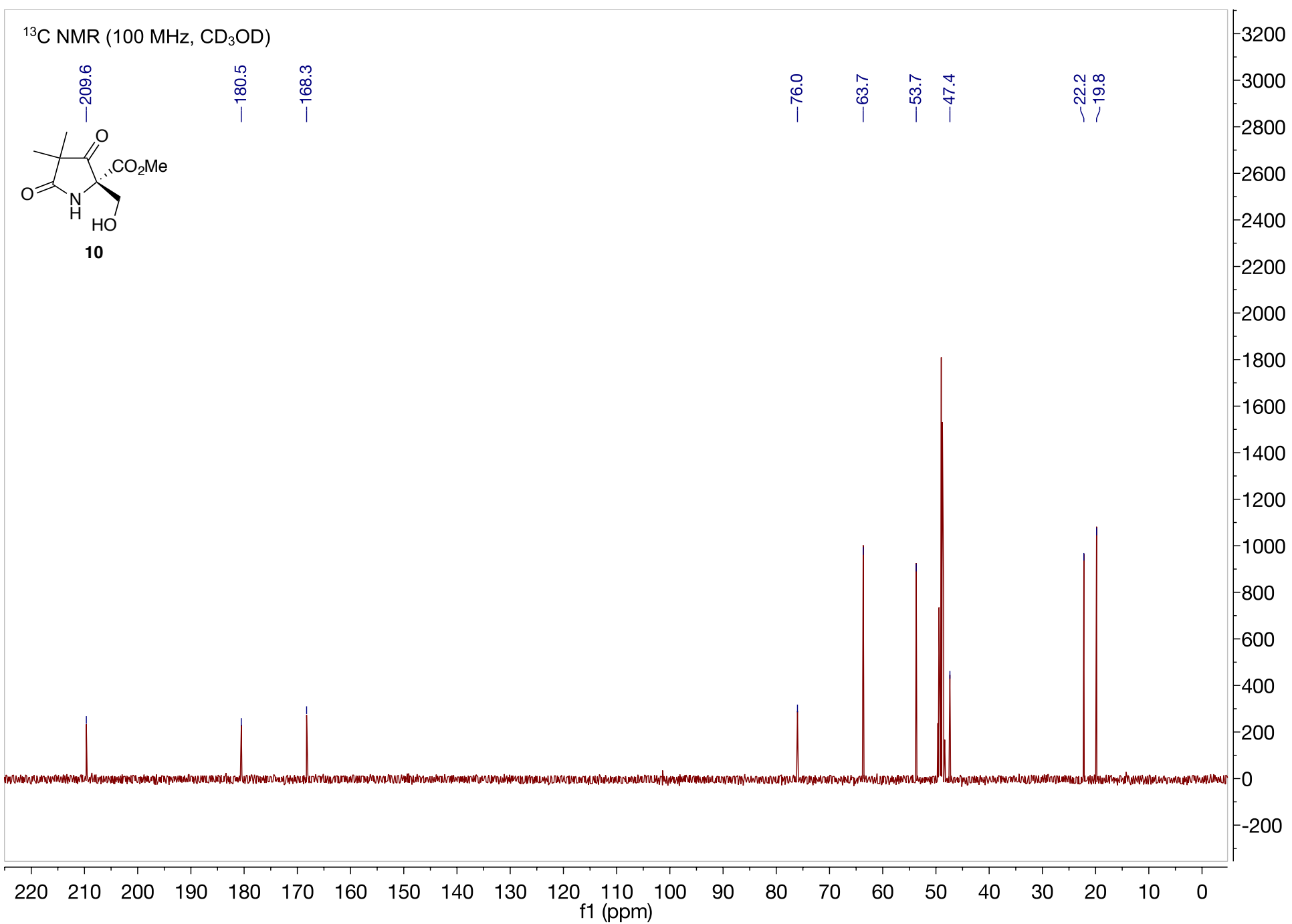


• **SUPPORTING INFORMATION**

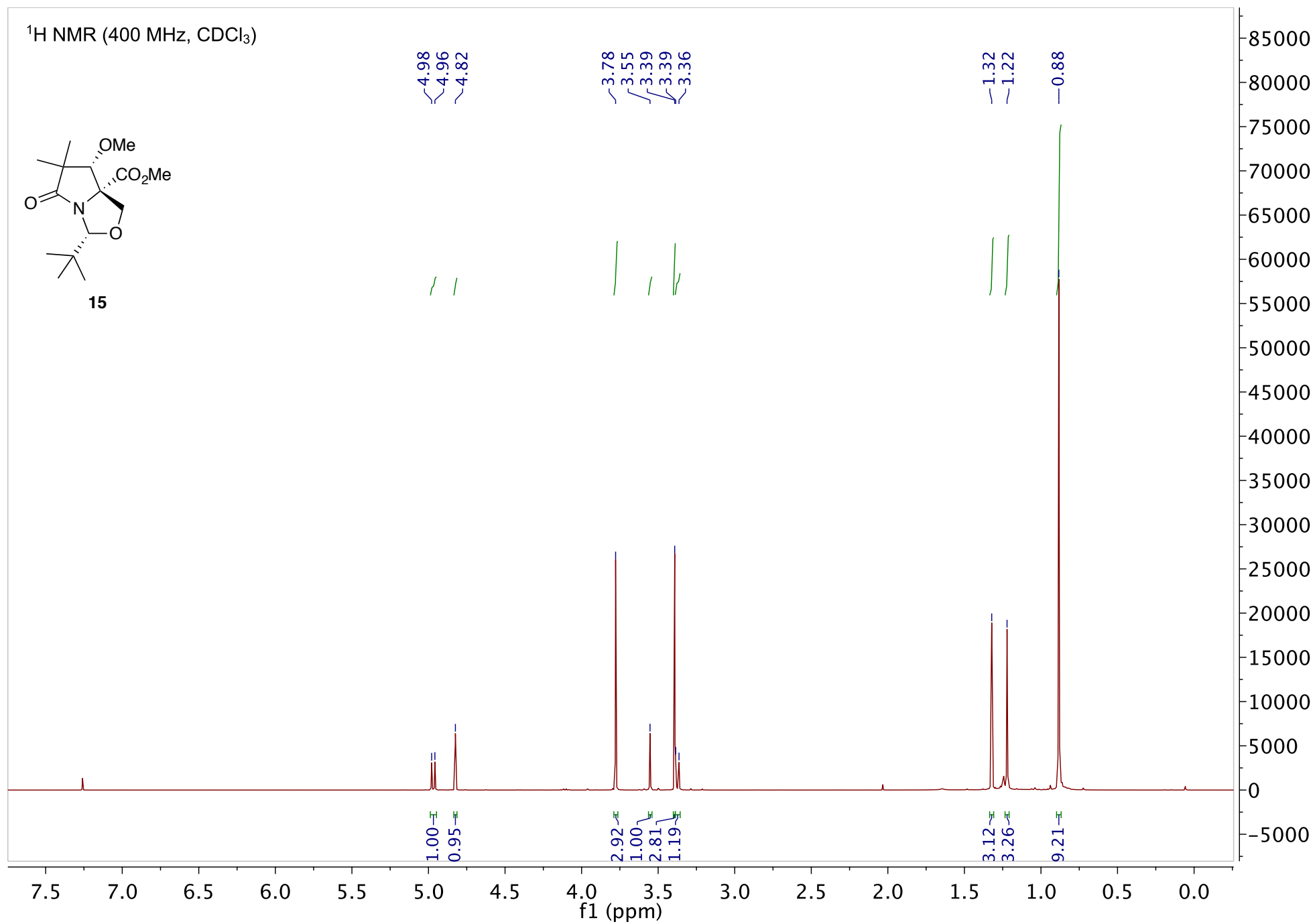
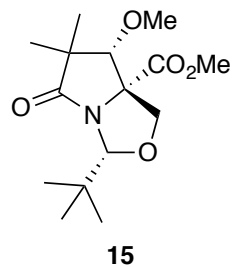
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- Synthesis and bioactivity of fused- and spiro- β -lactone-lactam systems
-
- Laia Josa-Culler ,^a Christopher Towers,^b Frances Willenbrock,^b Valentine M. Macaulay,^b Kirsten E. Christensen^a and Mark G. Moloney^{*b}
-
- Department of Chemistry, Chemistry Research Laboratory, The University of Oxford, 12 Mansfield Road, Oxford. OX1 3TA.
- ^a*Department of Chemistry, Chemistry Research Laboratory, University of Oxford, 12 Mansfield Road, Oxford, OX1 3TA, UK. E-mail: mark.moloney@chem.ox.ac.uk.*
- ^b*Department of Oncology, University of Oxford, Old Road Campus Research Building, Oxford, OX3 7LJ, UK.*
- e-mail: mark.moloney@chem.ox.ac.uk
-
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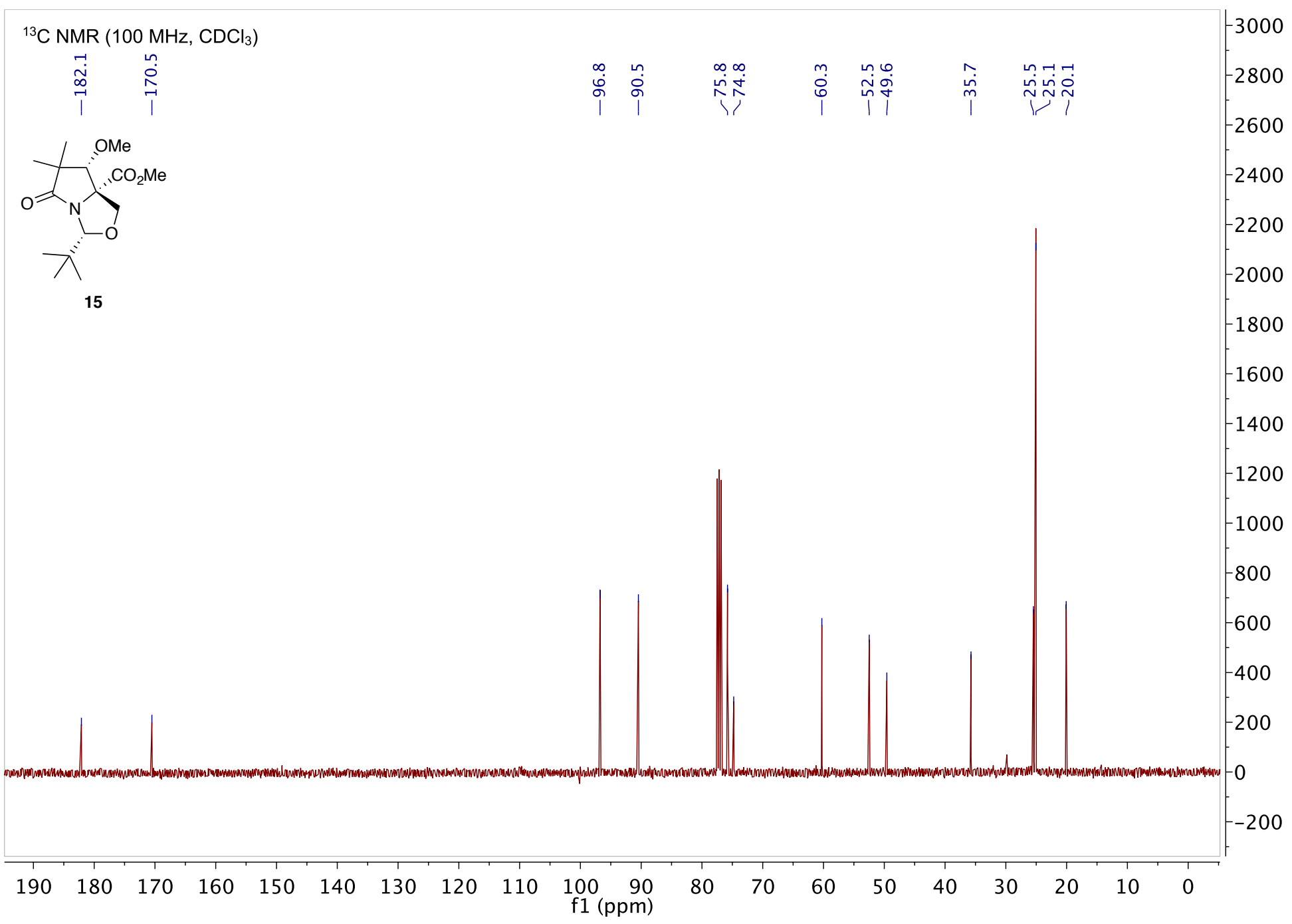
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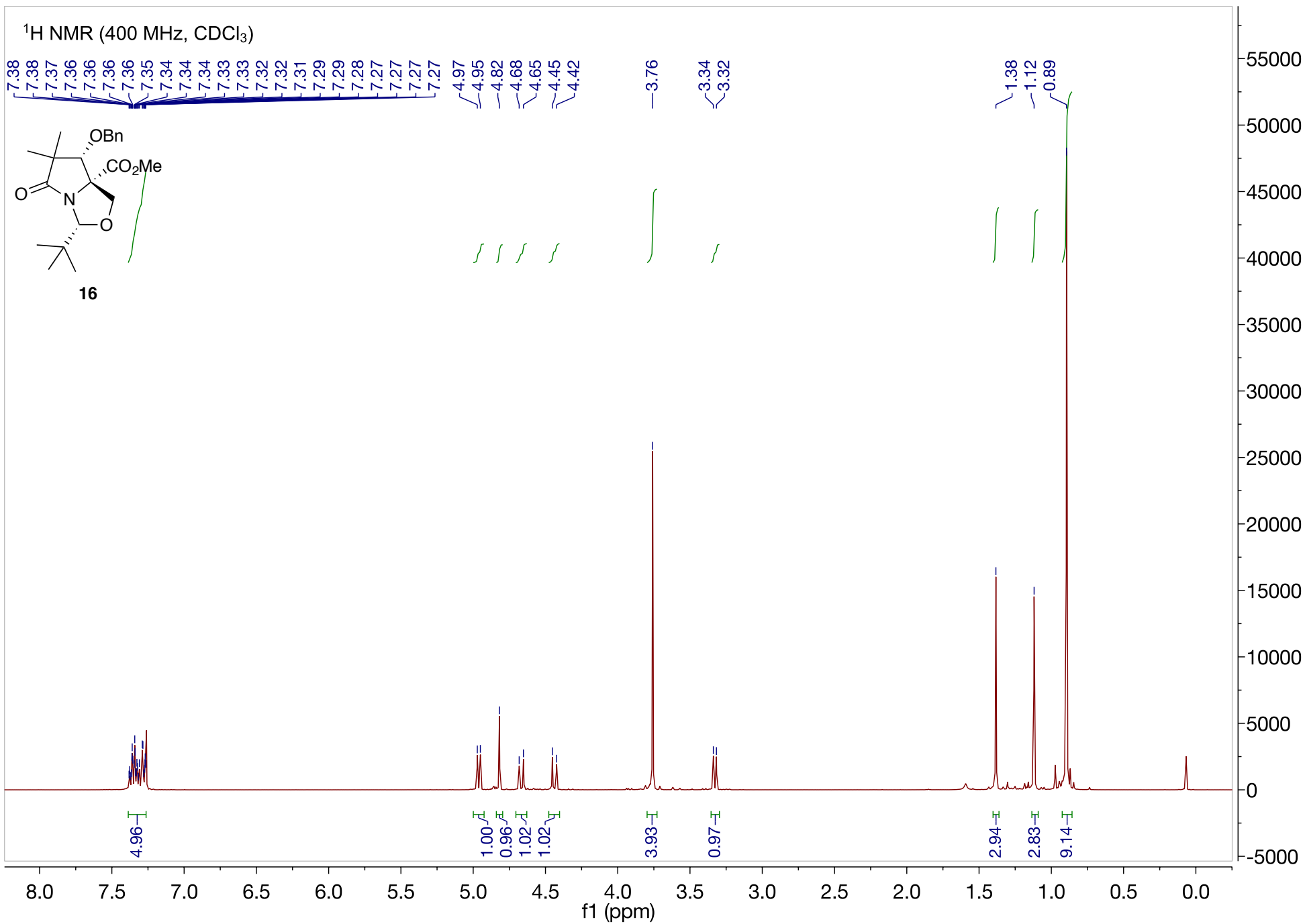




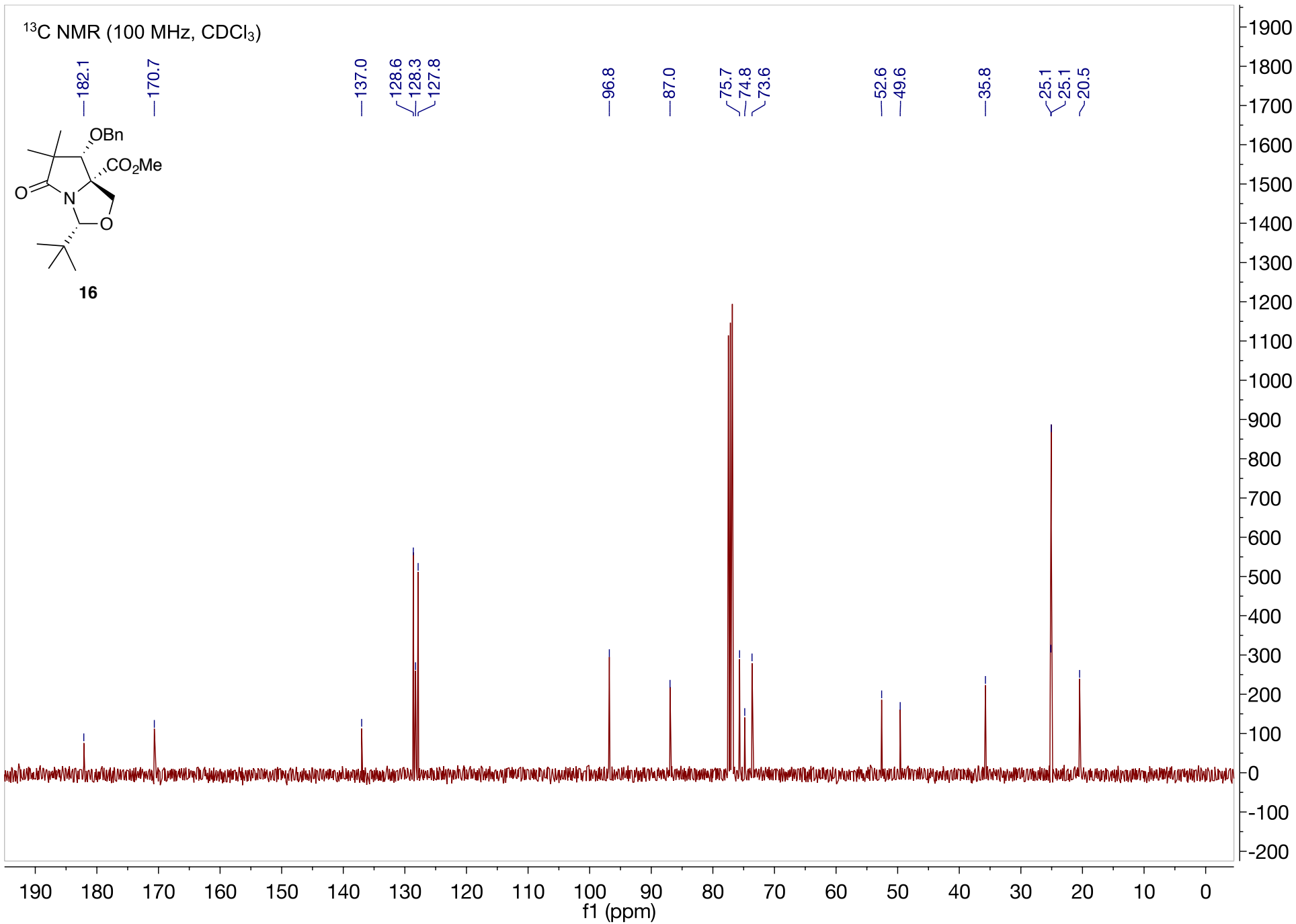
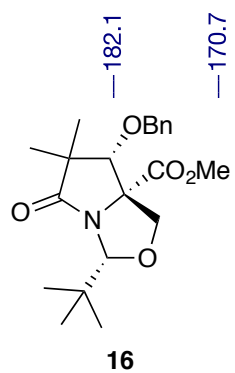
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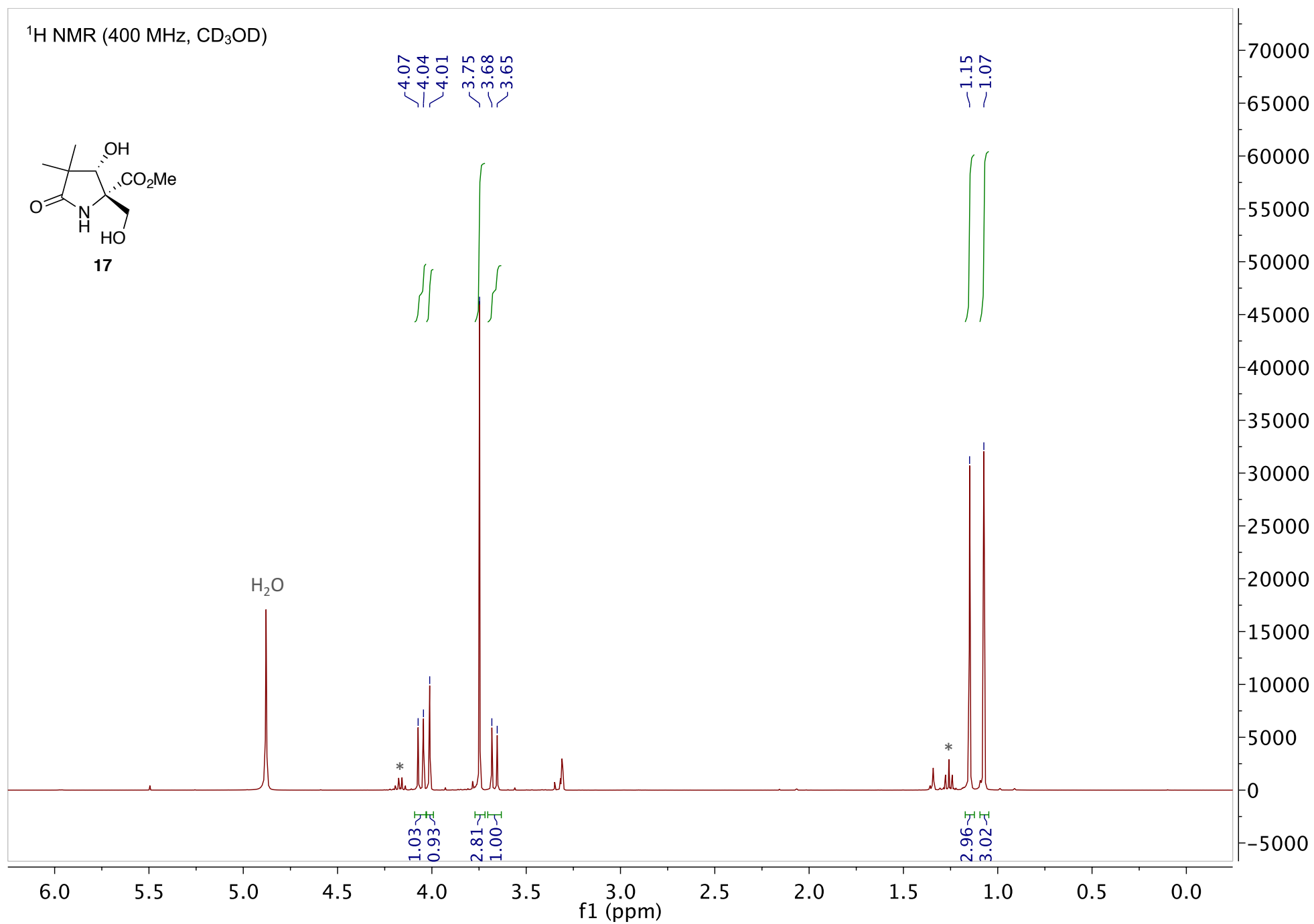
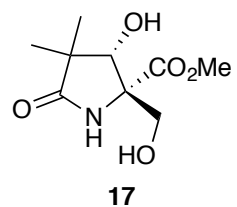




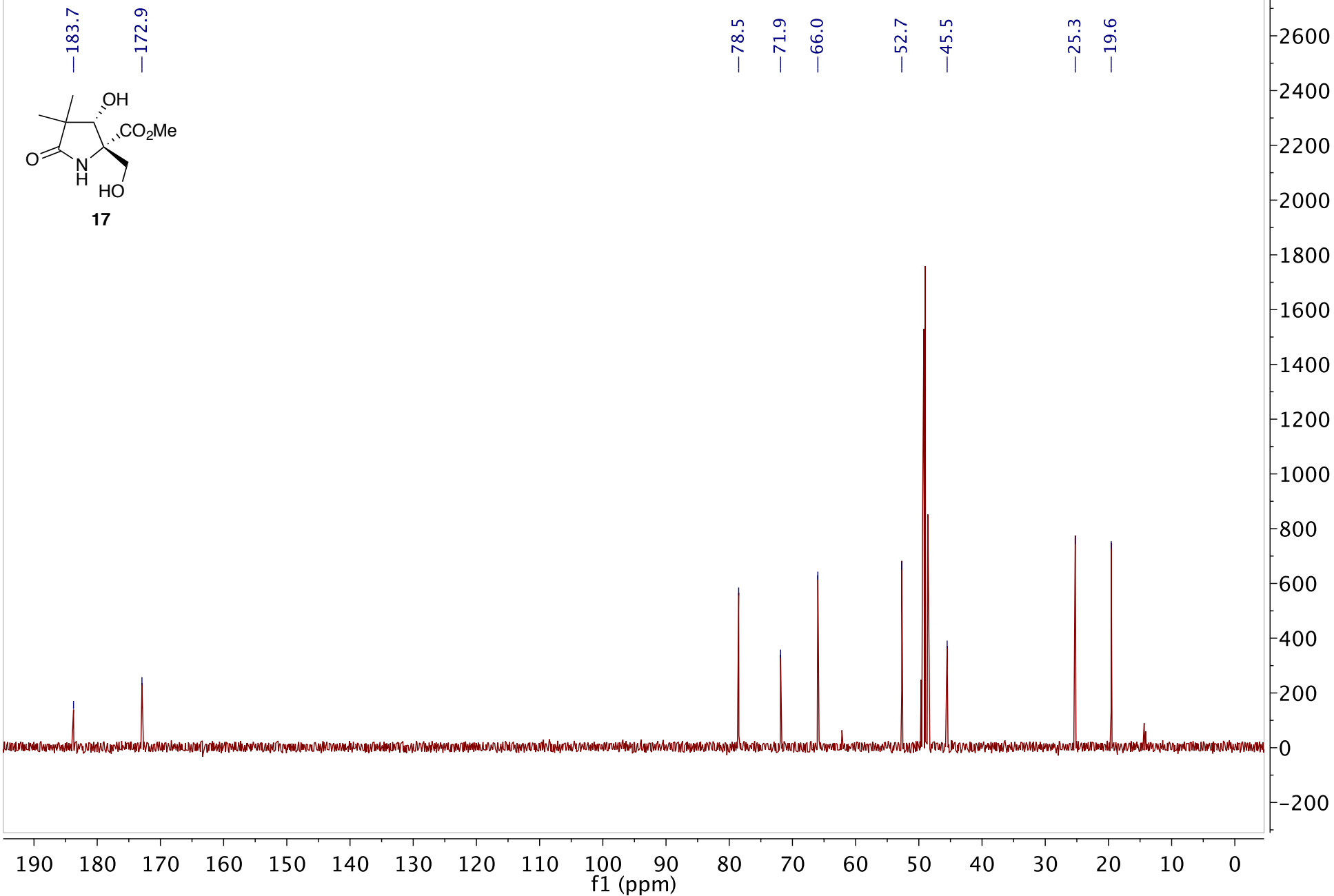
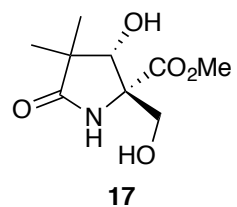
¹³C NMR (100 MHz, CDCl₃)



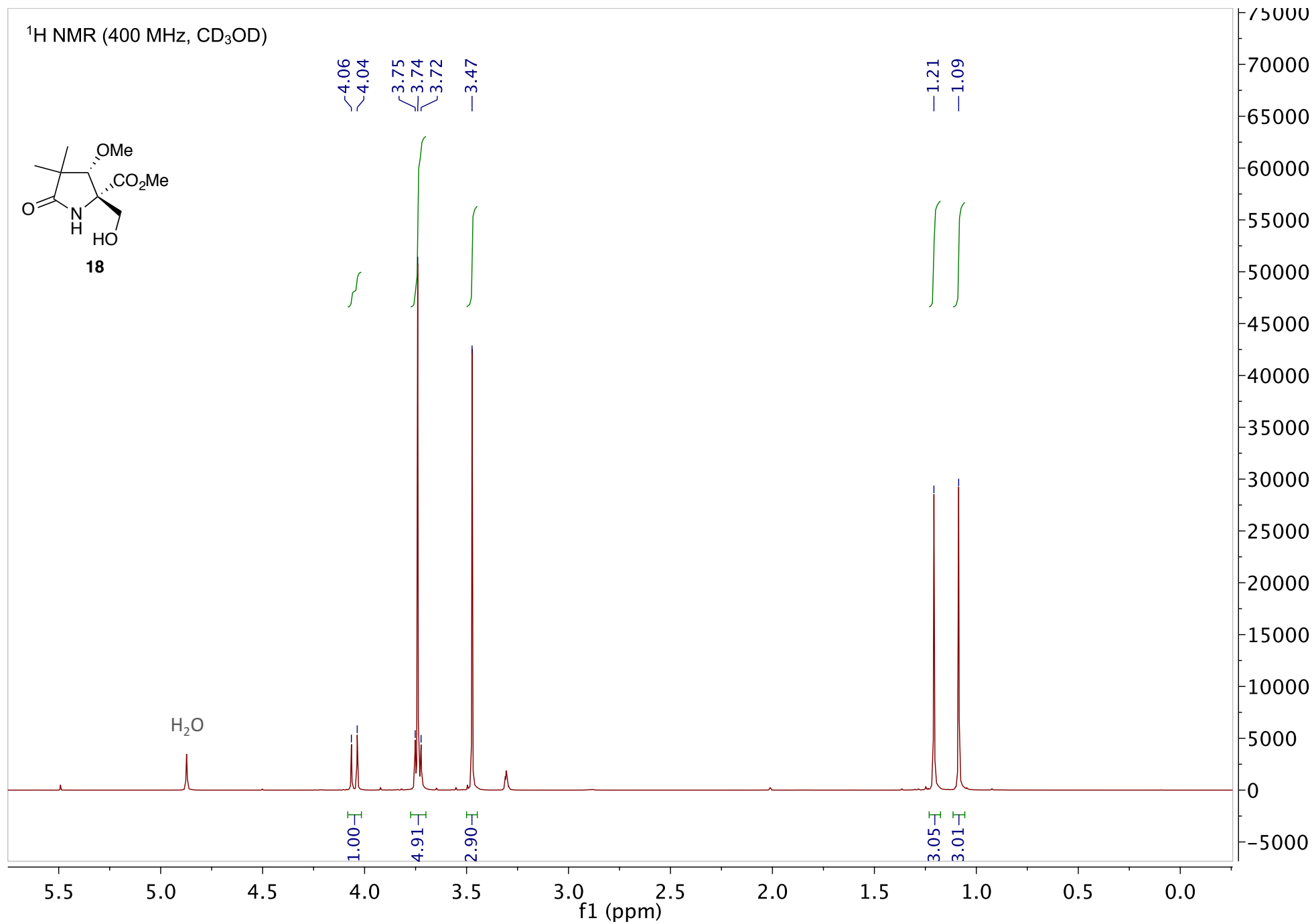
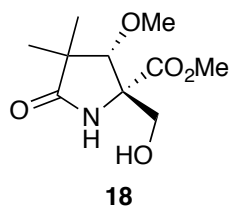
¹H NMR (400 MHz, CD₃OD)



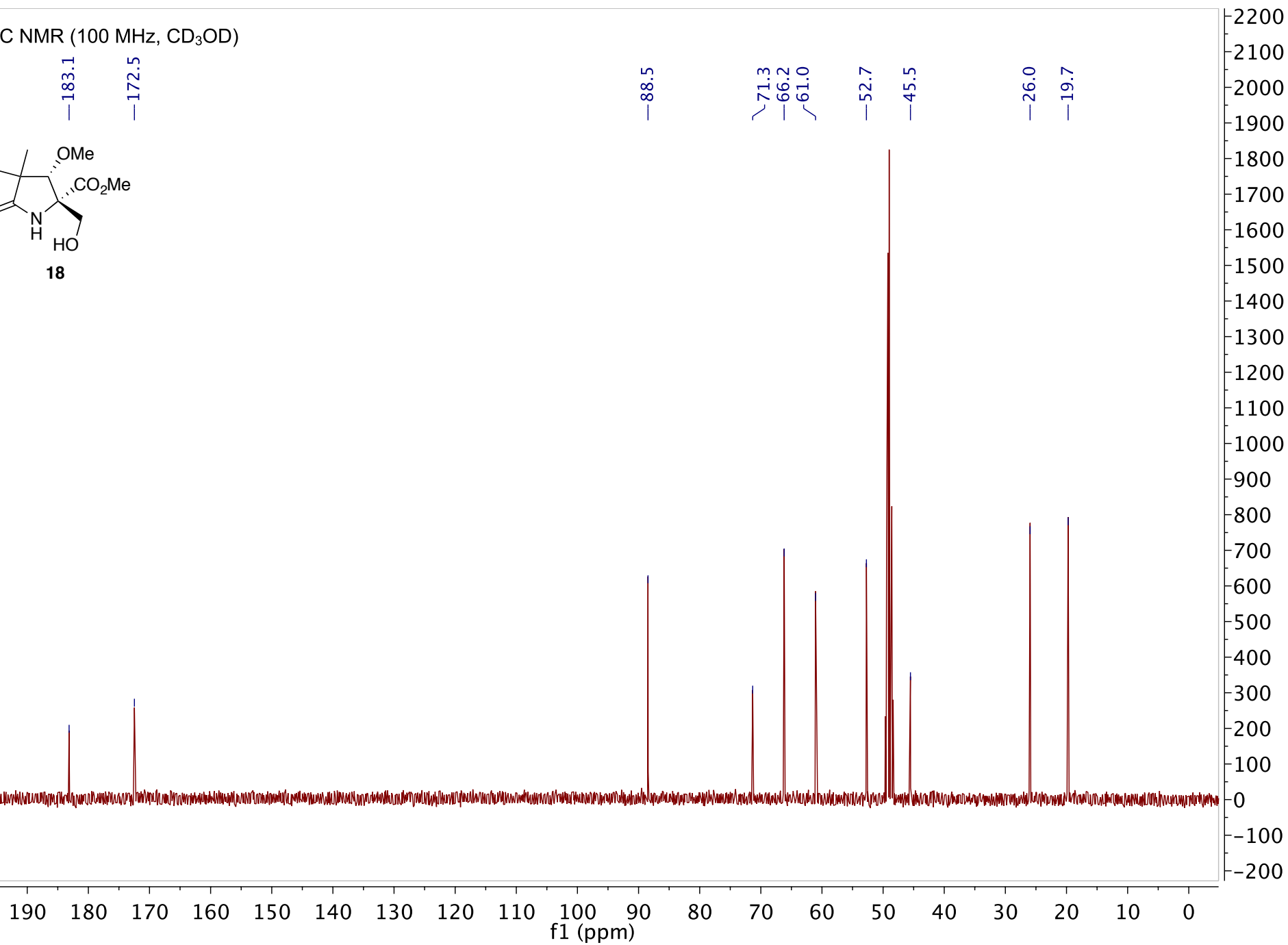
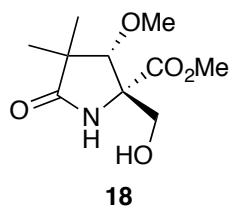
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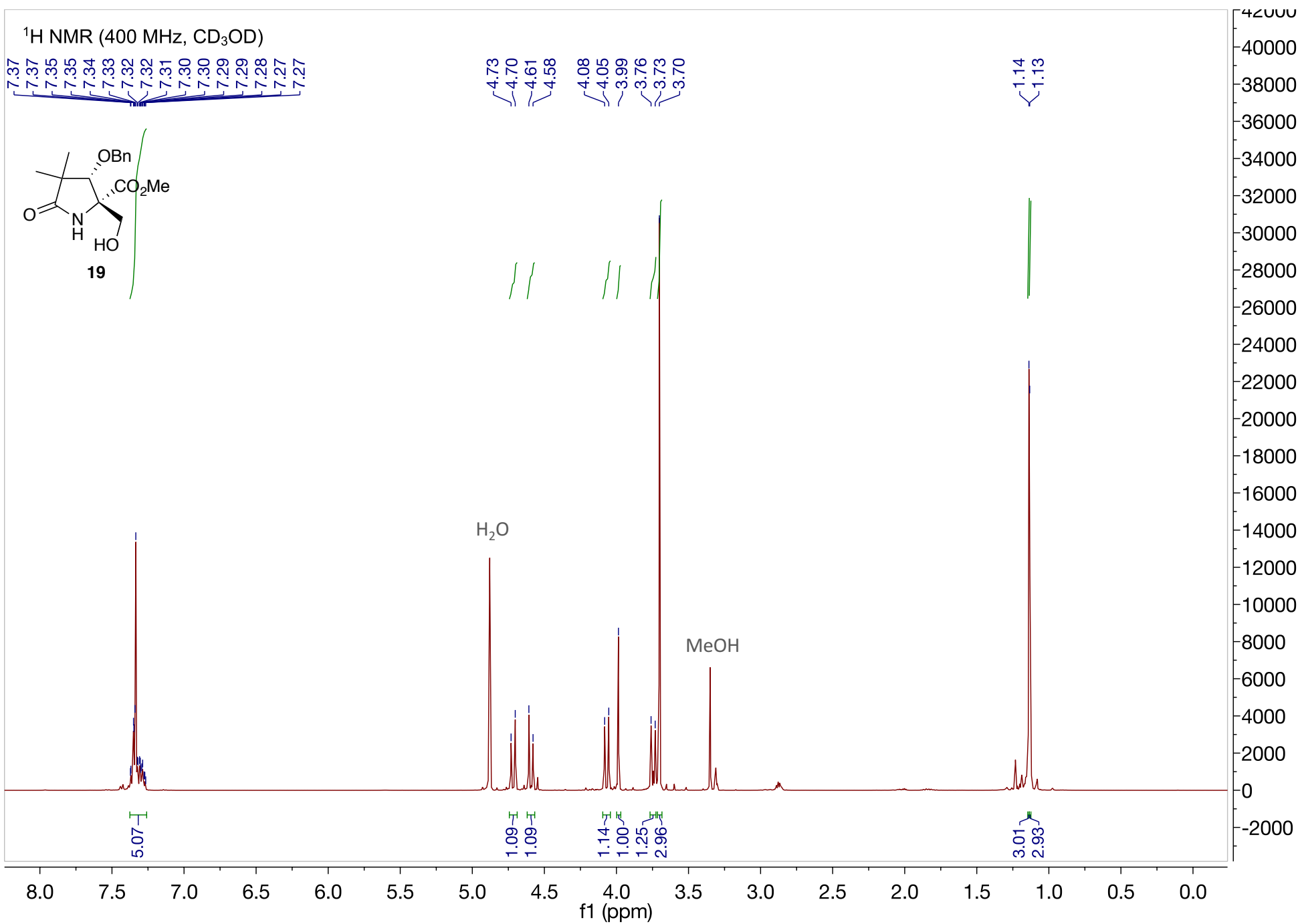


¹H NMR (400 MHz, CD₃OD)

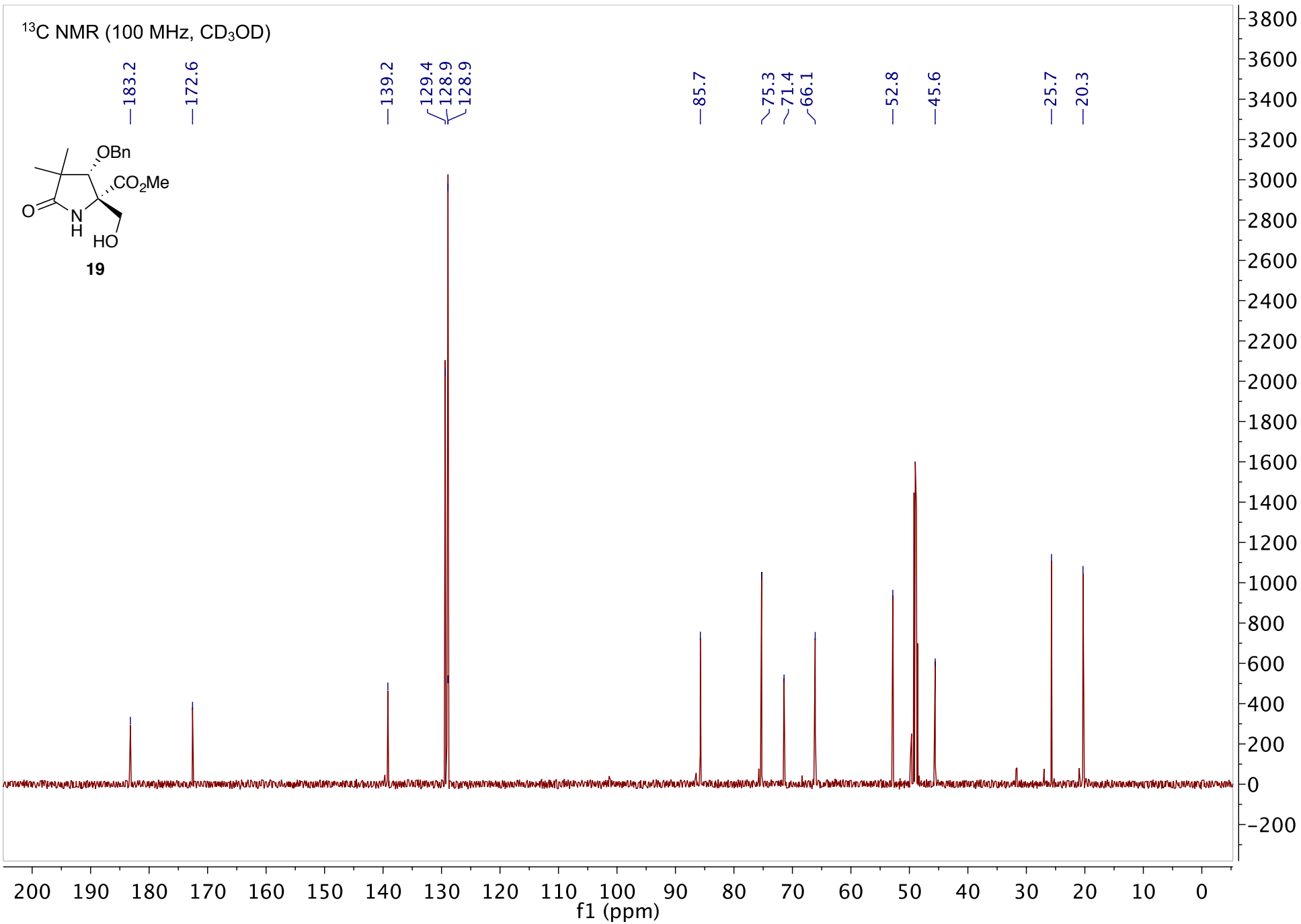
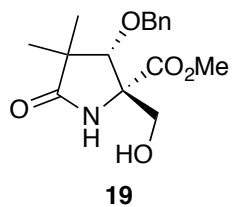


¹³C NMR (100 MHz, CD₃OD)

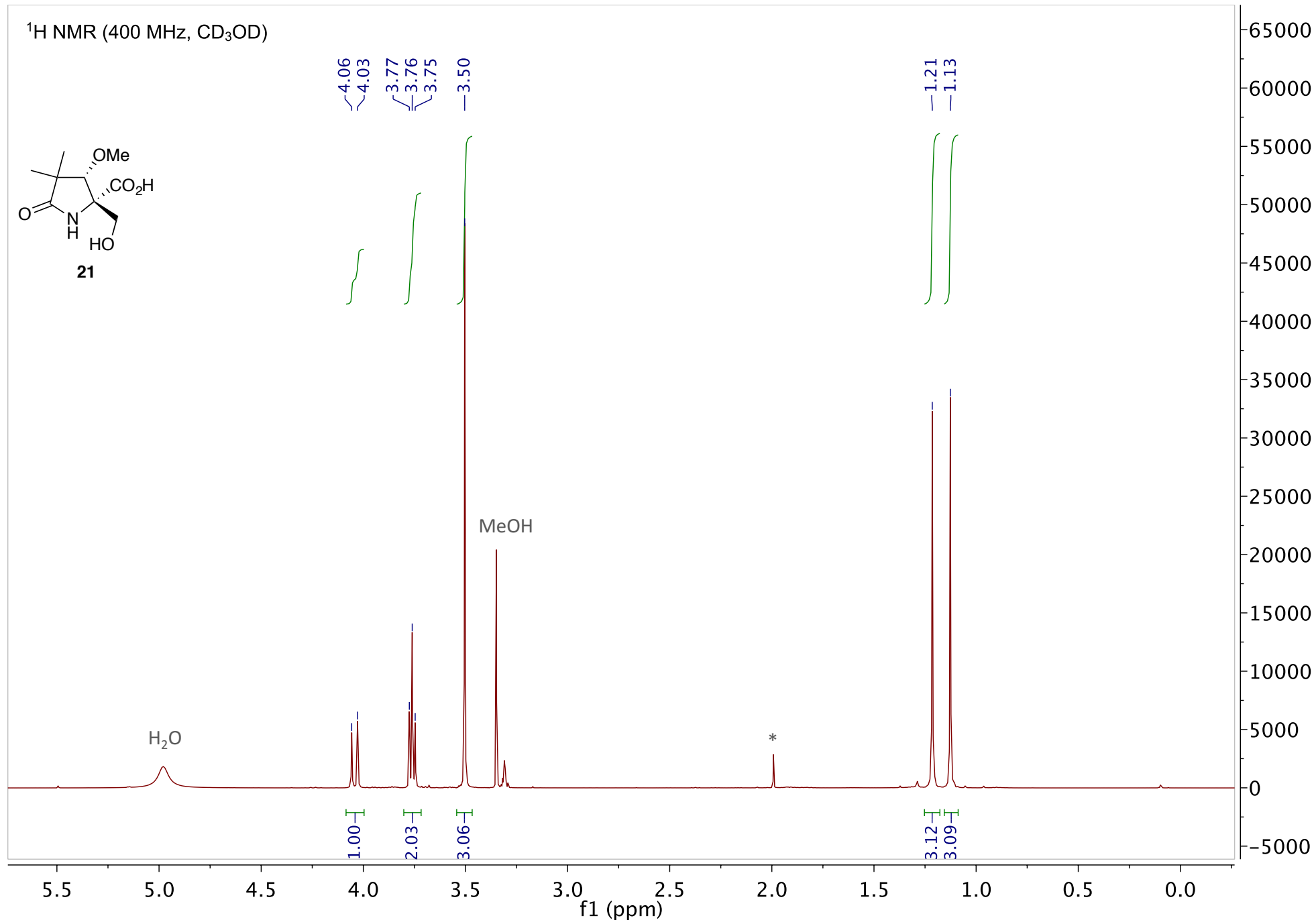
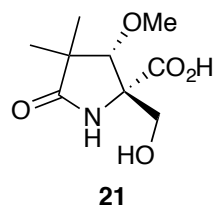




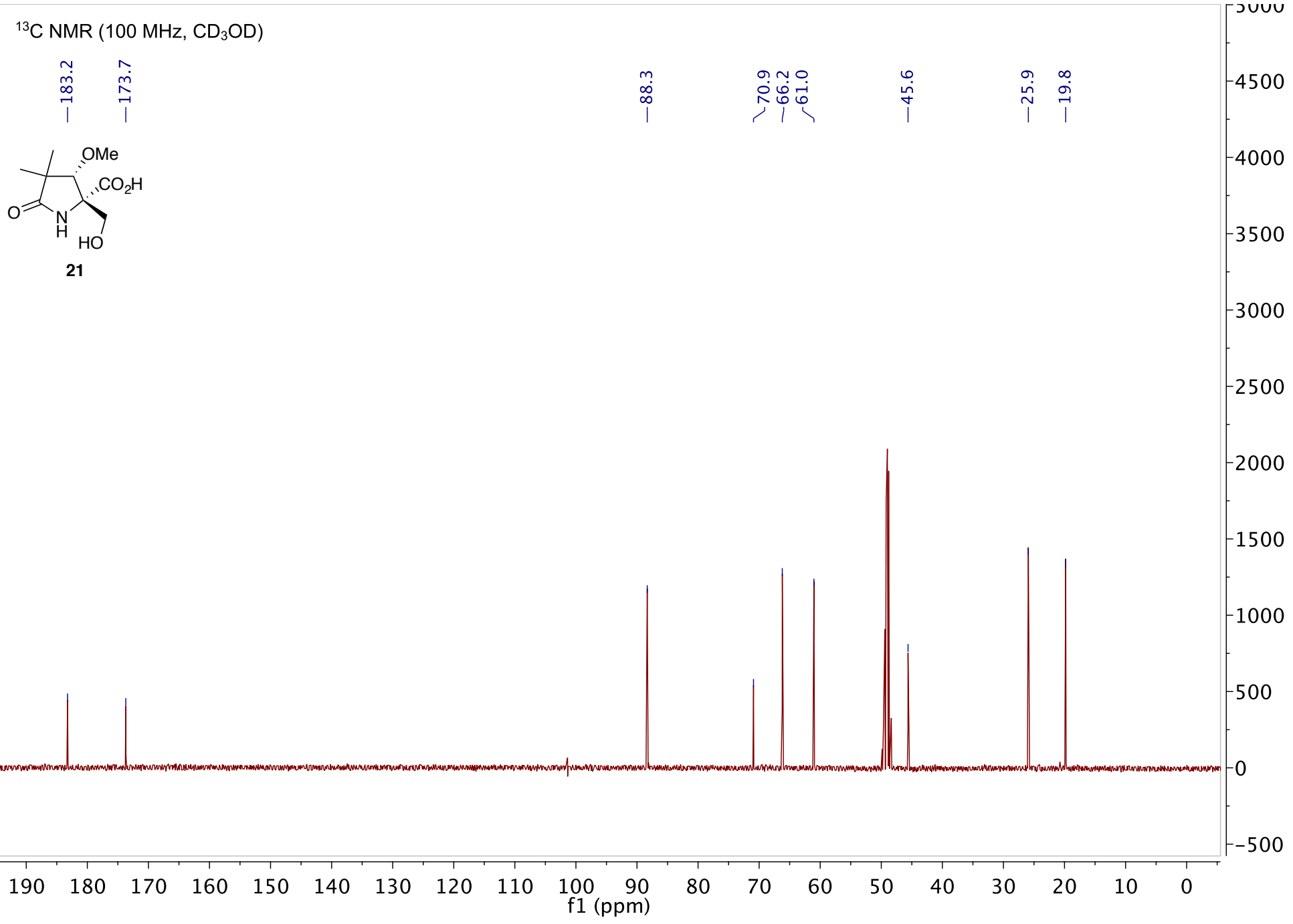
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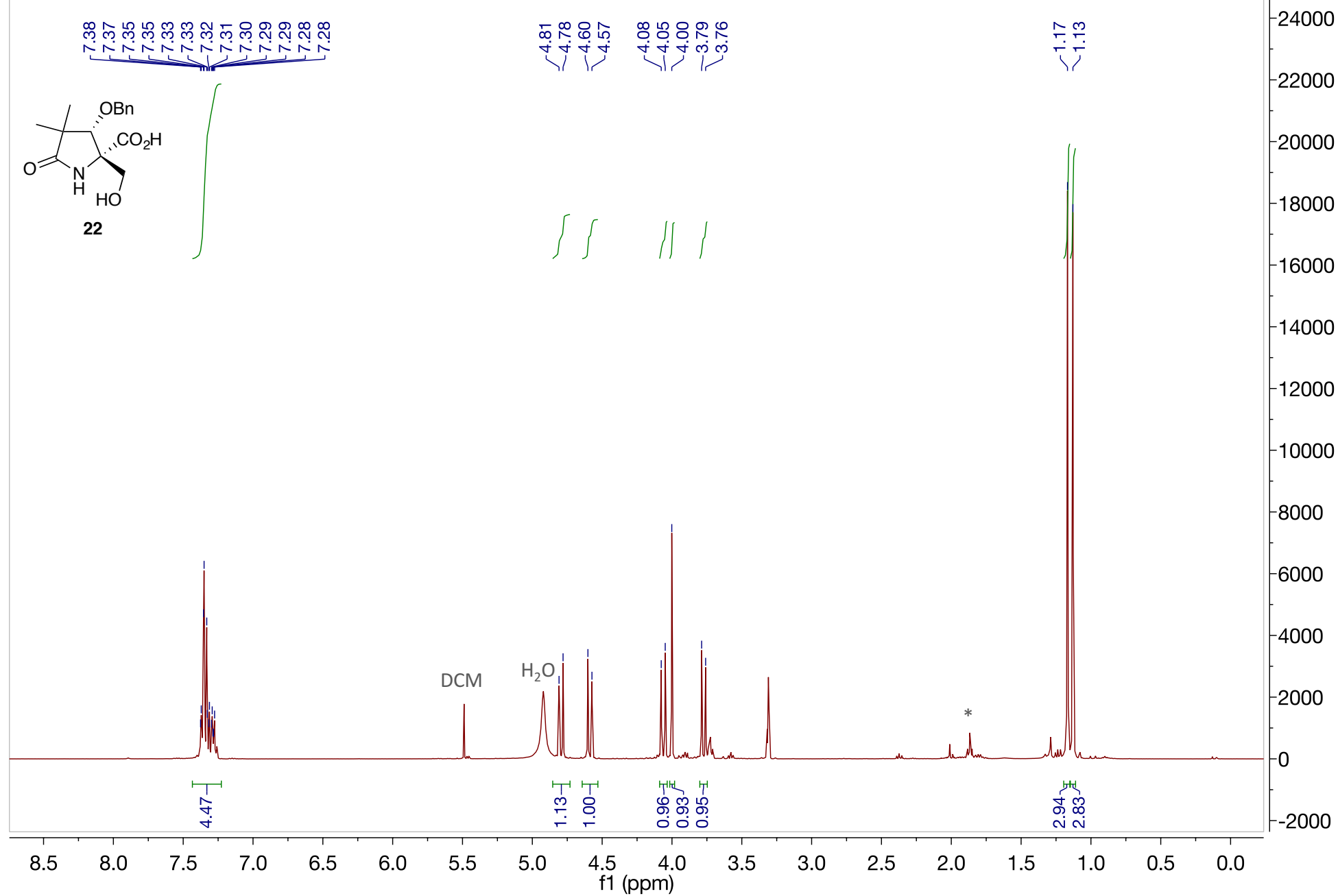
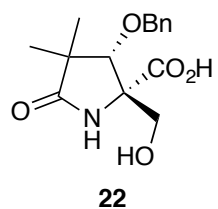
¹H NMR (400 MHz, CD₃OD)



*impurity

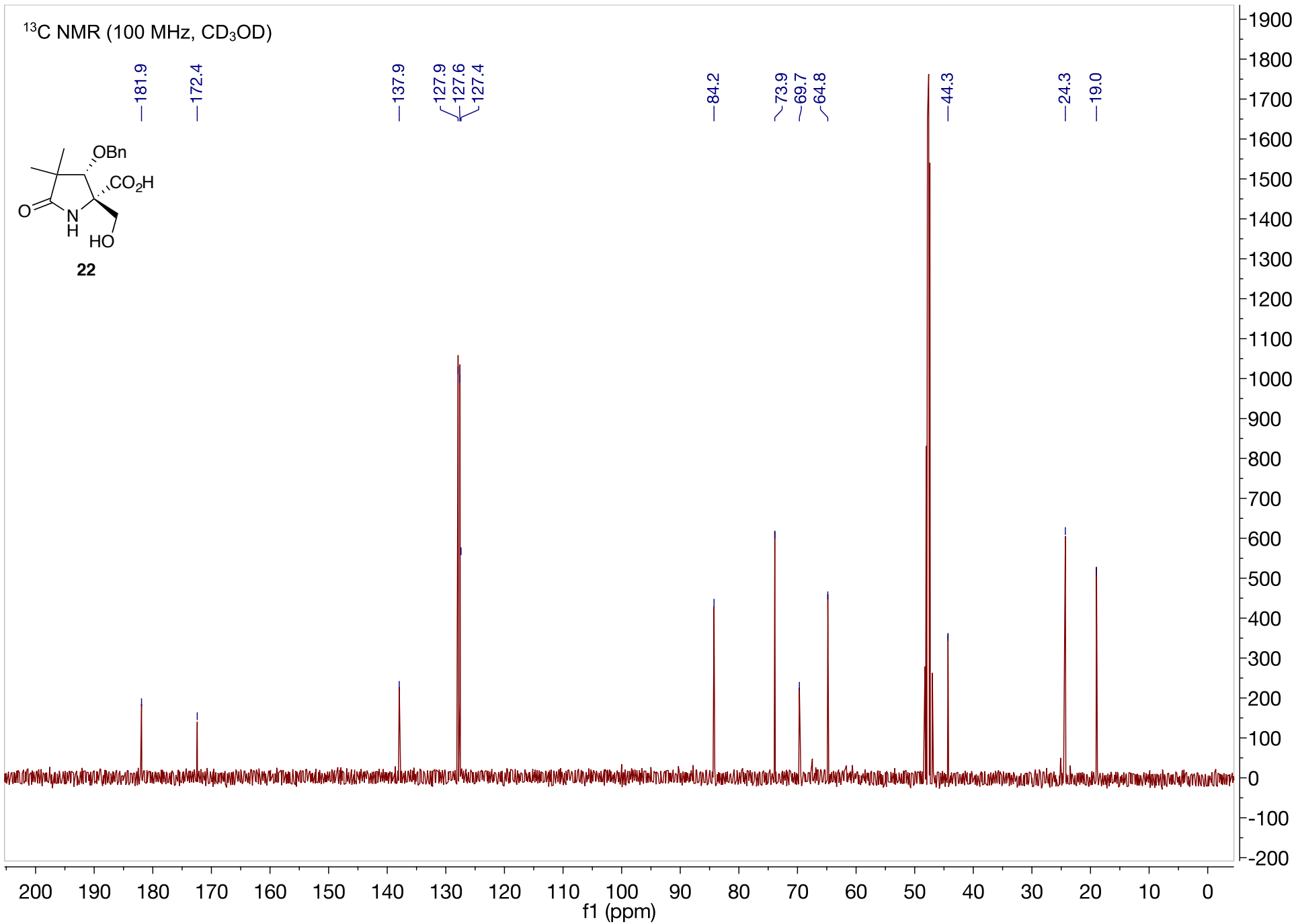
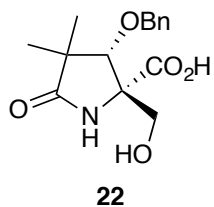


¹H NMR (400 MHz, CD₃OD)

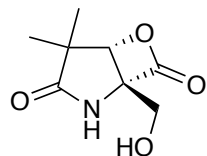


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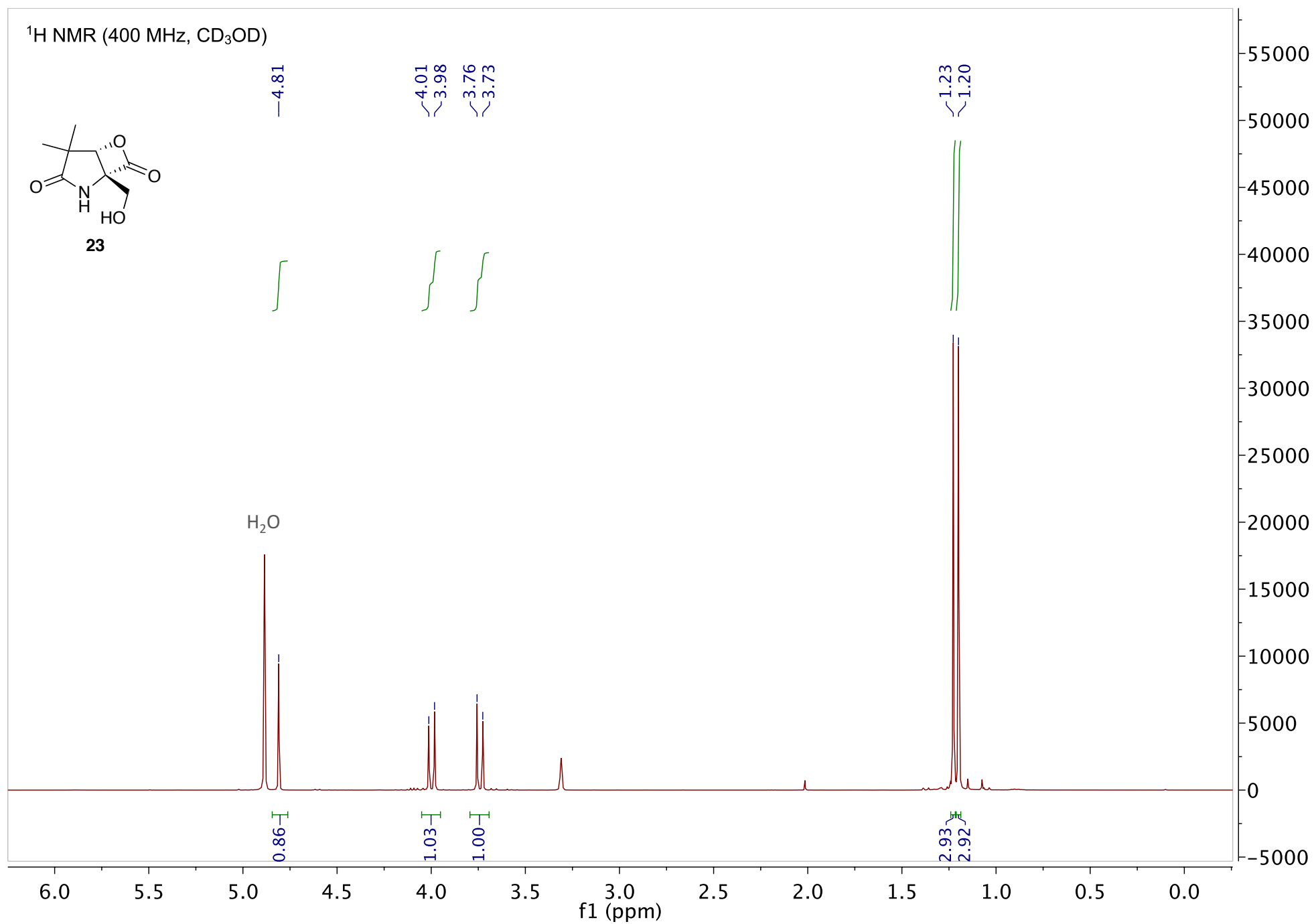
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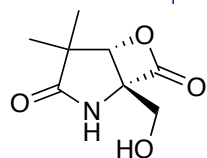
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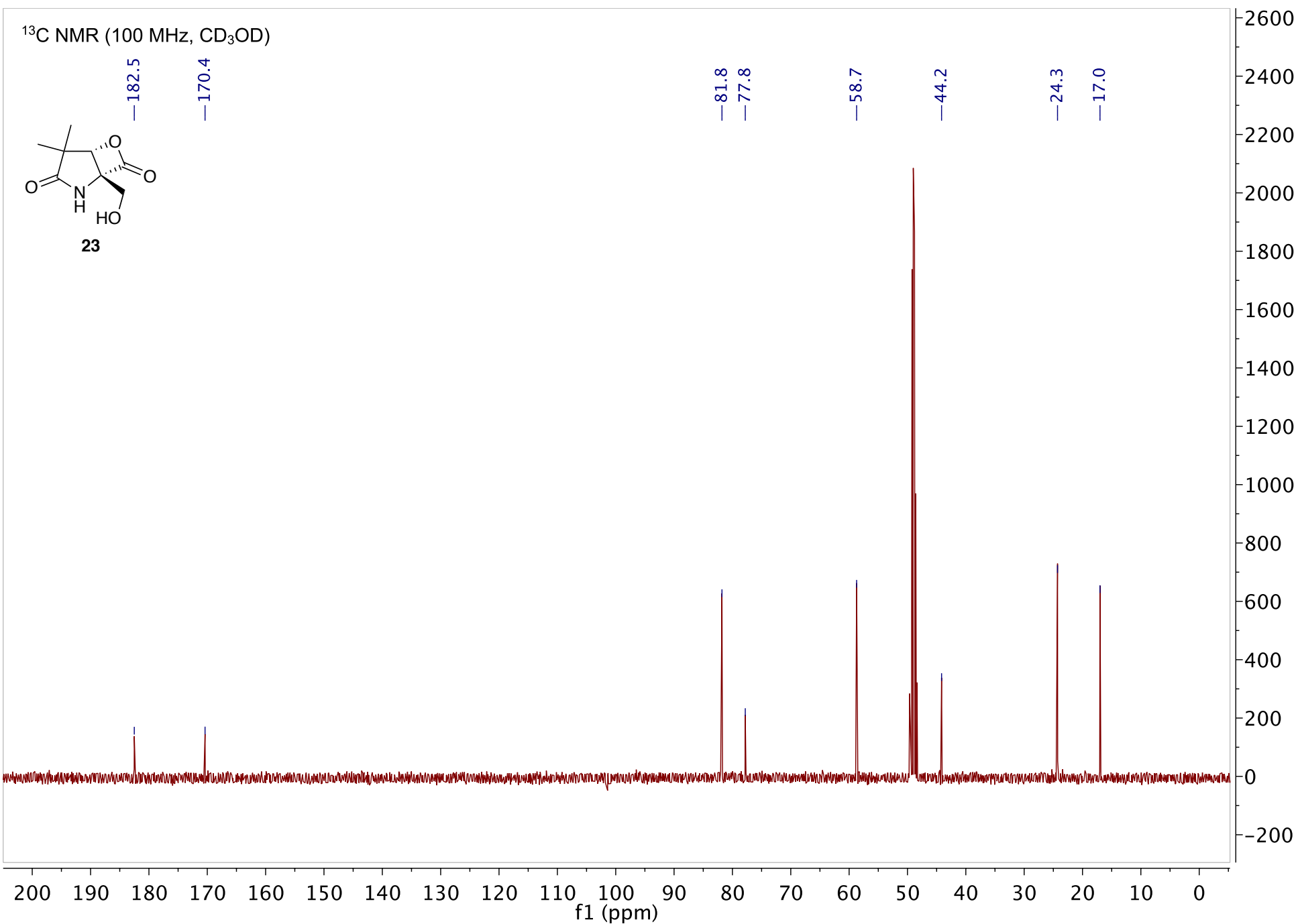
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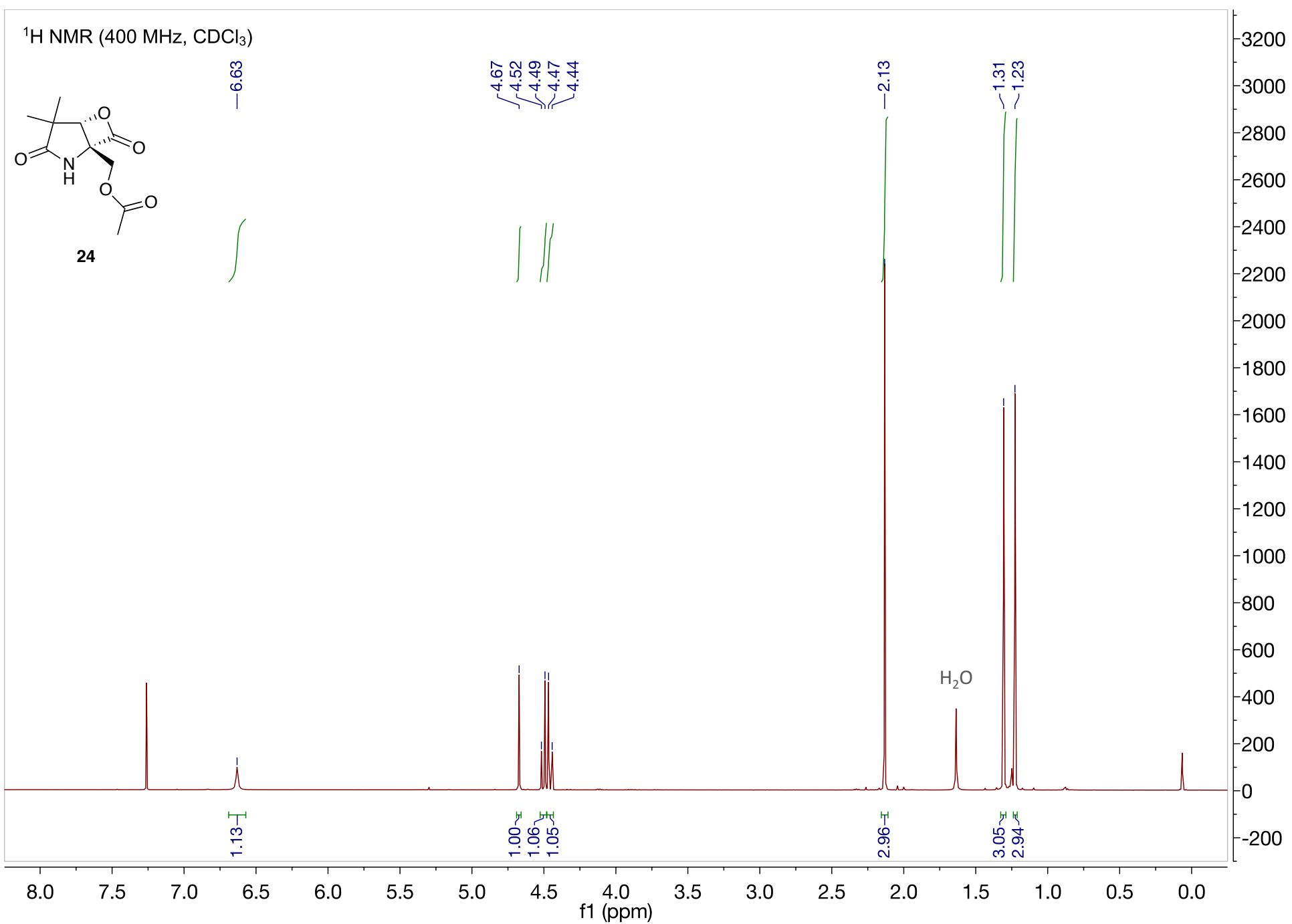


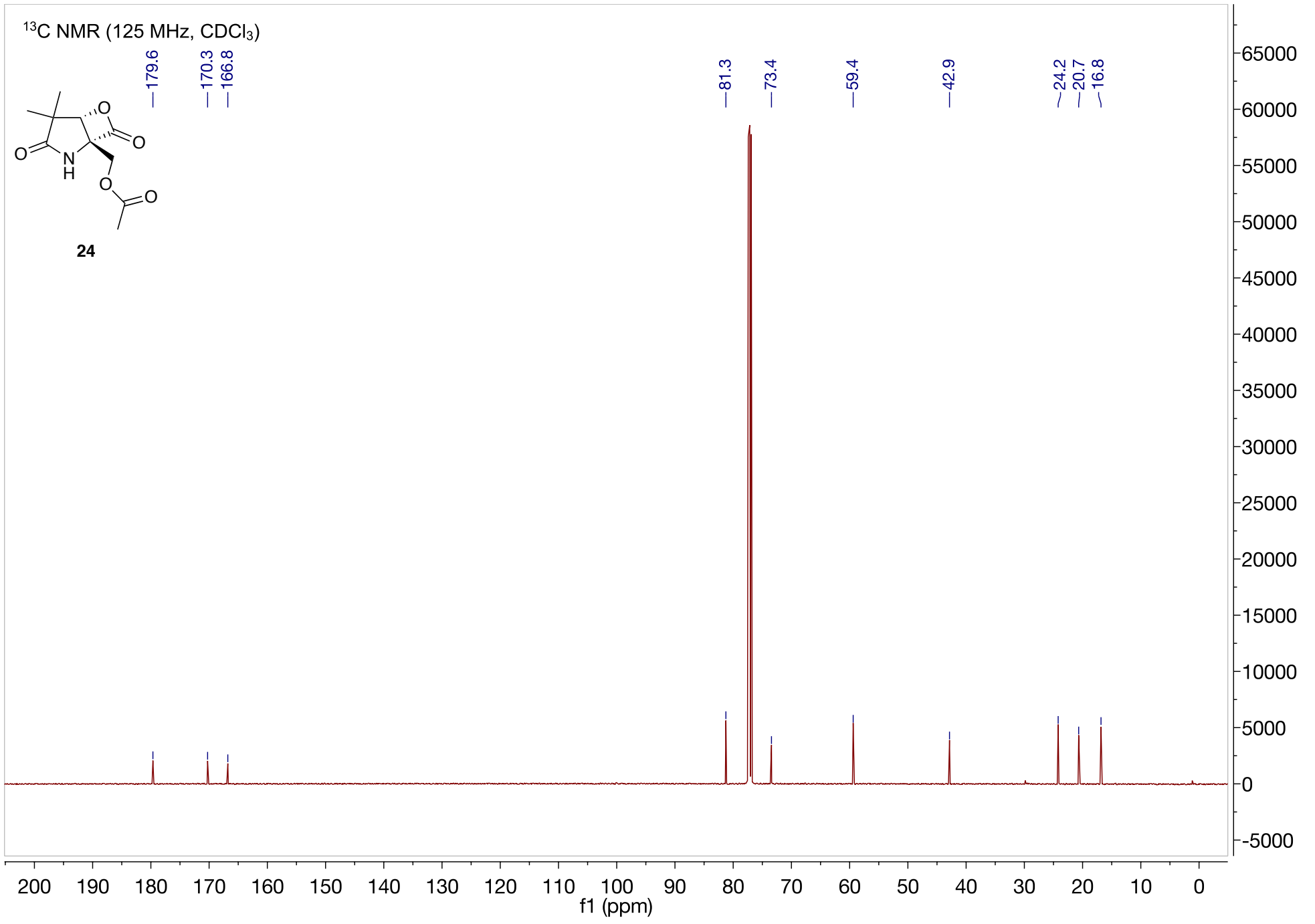
¹³C NMR (100 MHz, CD₃OD)



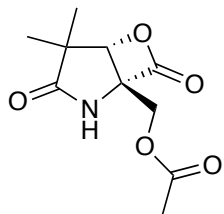
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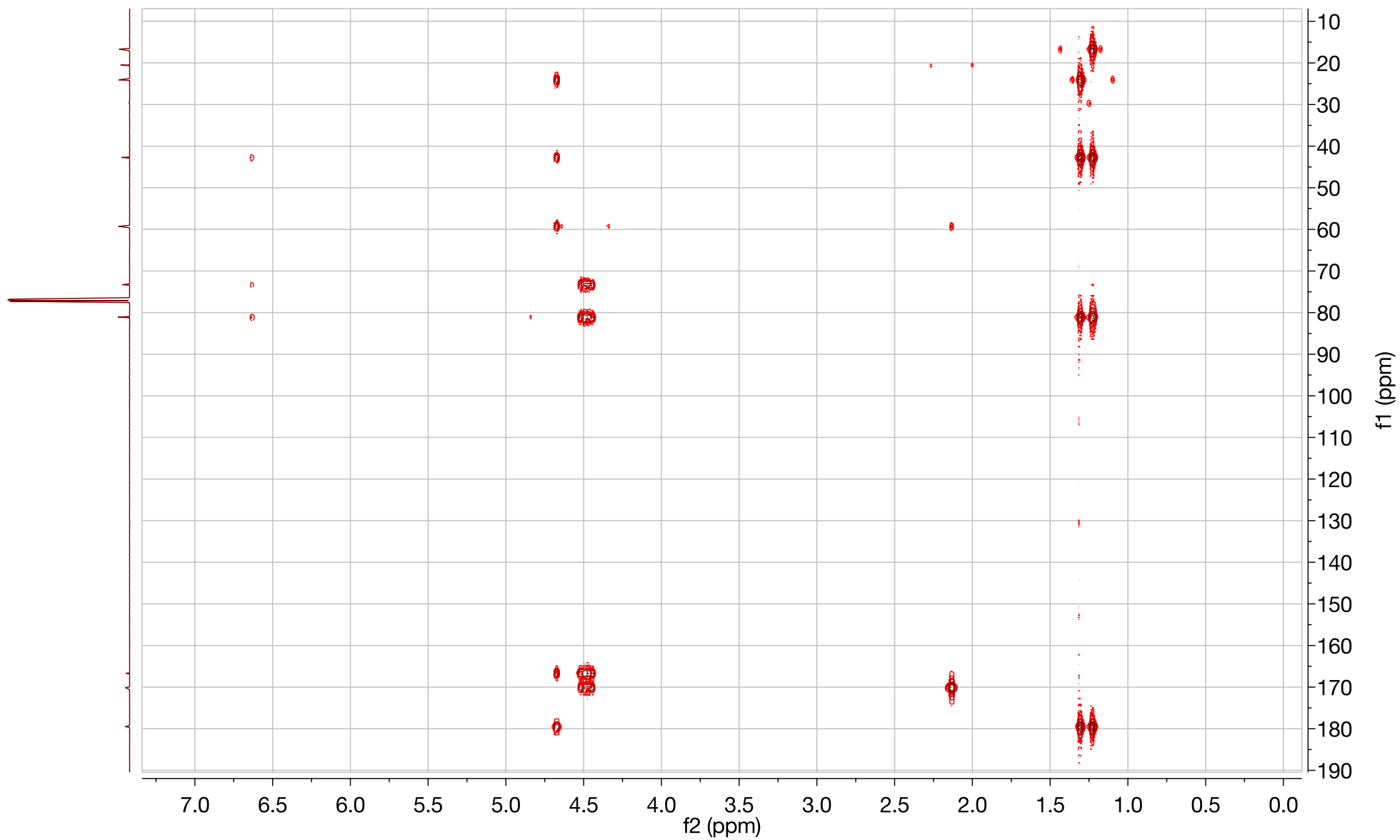


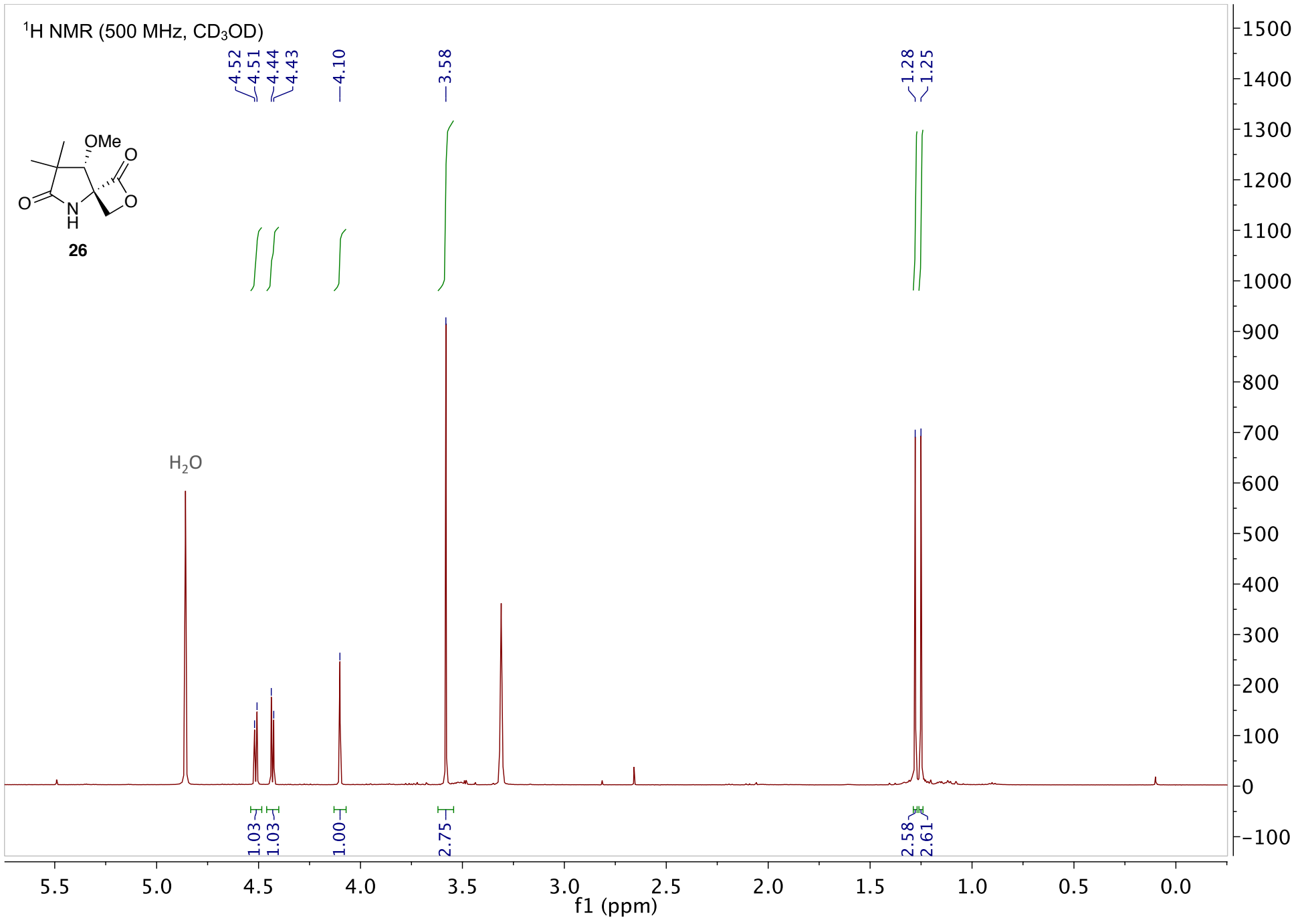


HMBC

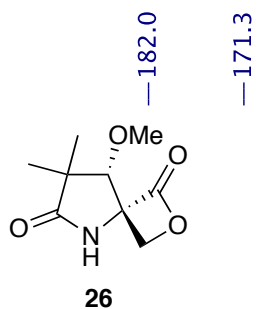


24





¹³C NMR (125 MHz, CD₃OD)



f1 (ppm)

—88.8

—77.2

—70.6

—60.4

—45.4

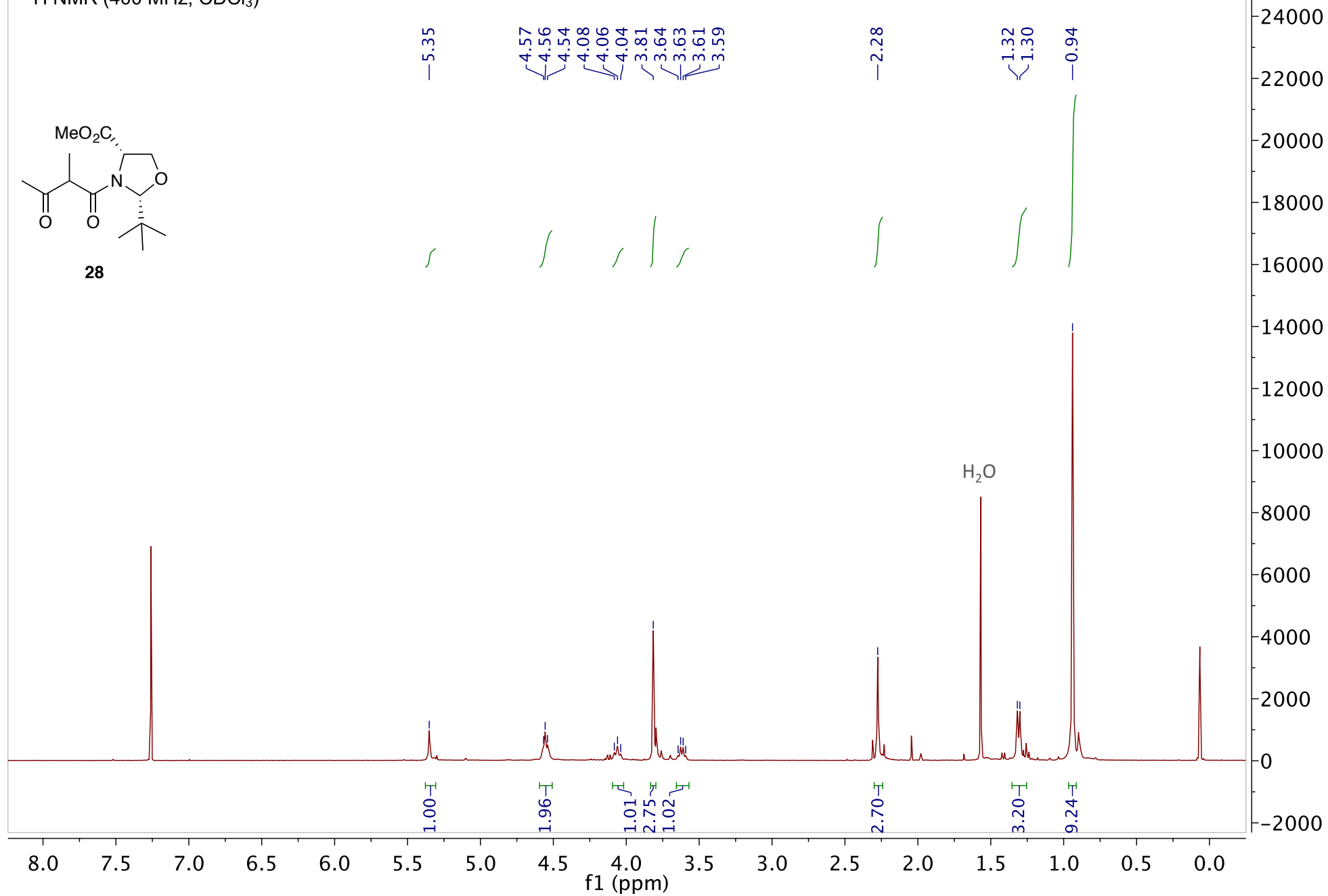
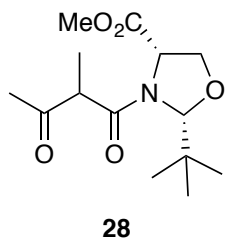
—24.2

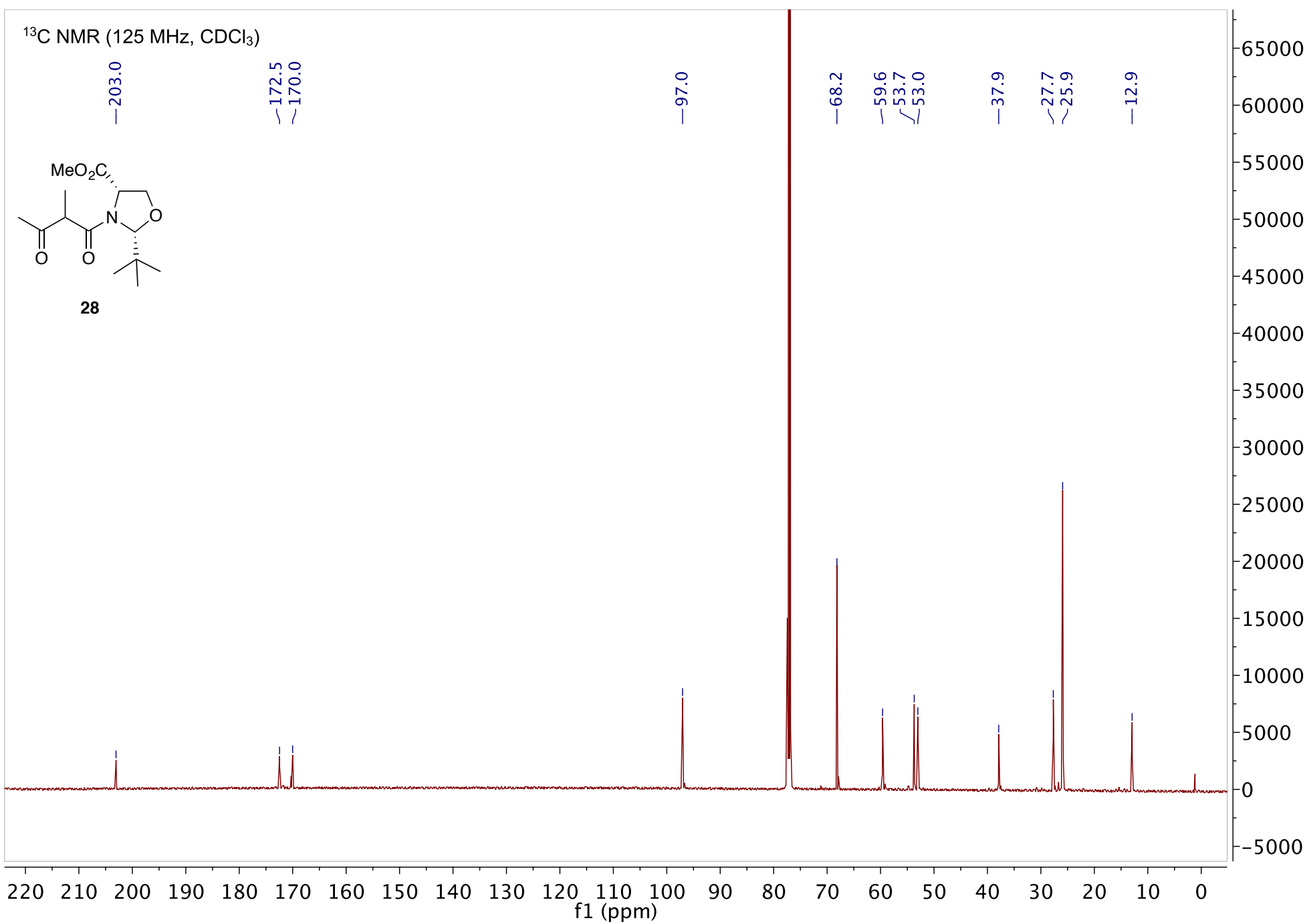
—20.2

—182.0

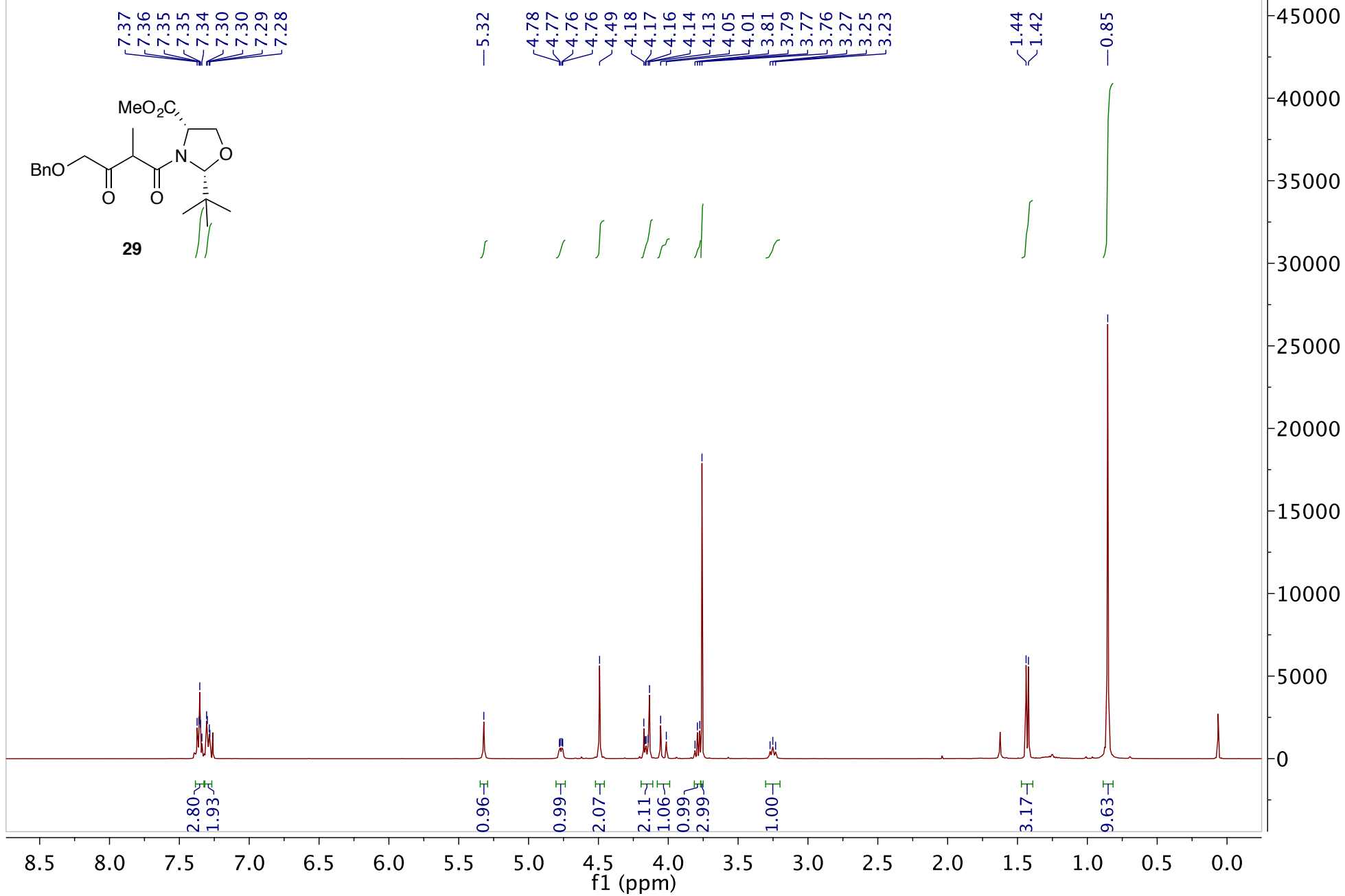
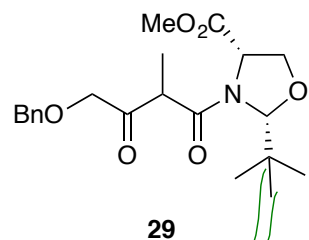
—171.3

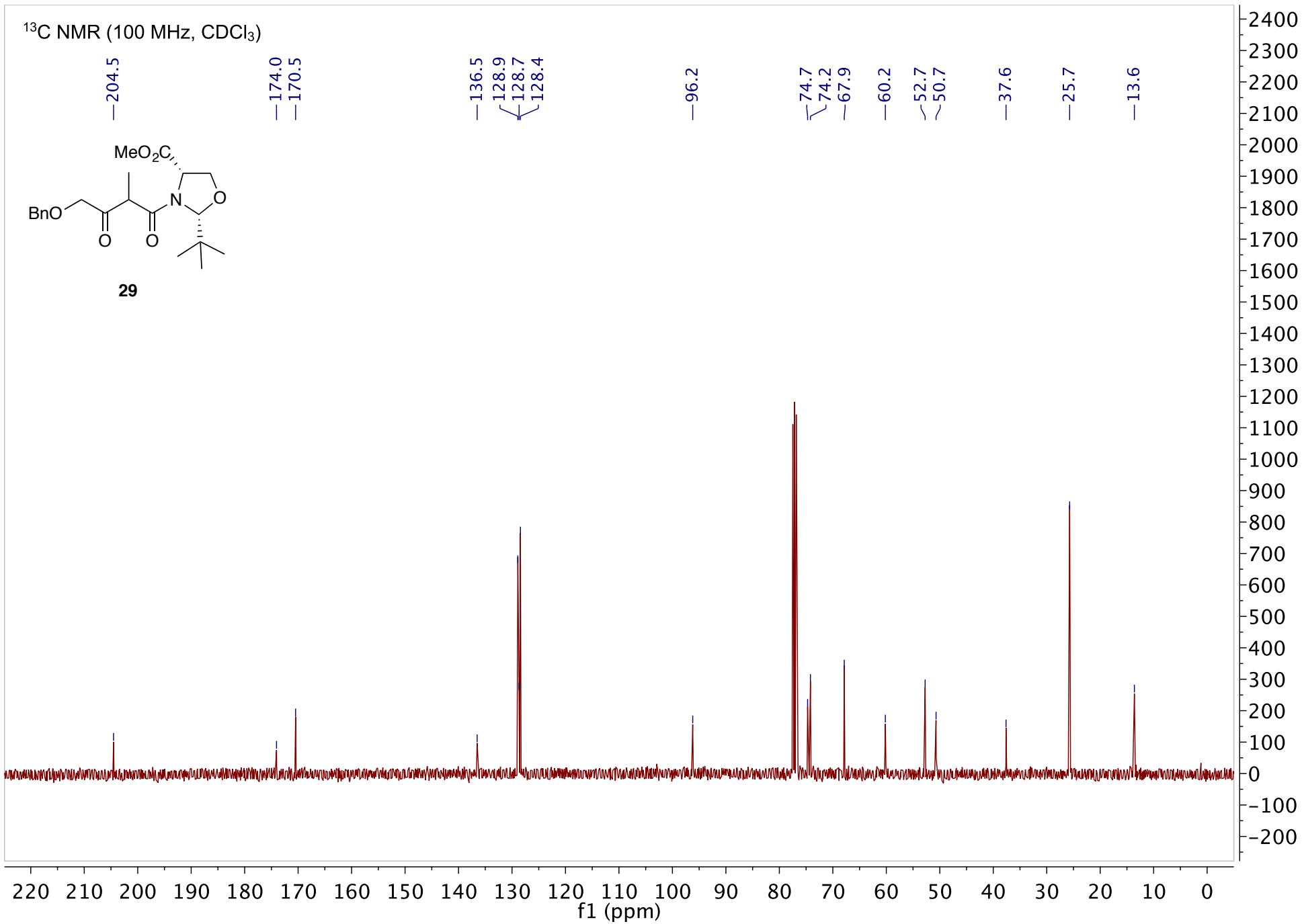
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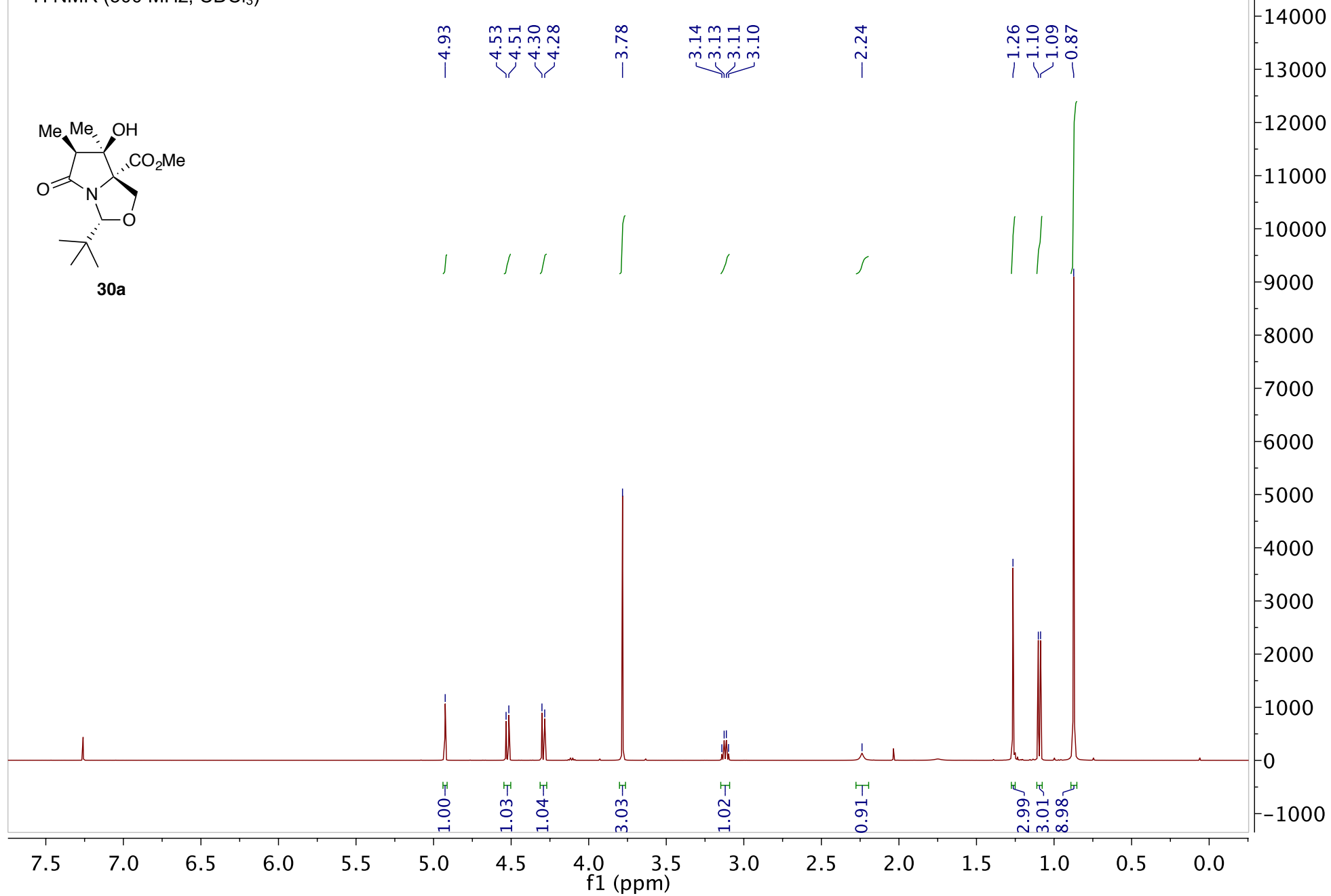
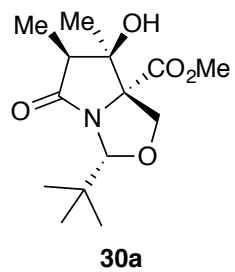


¹H NMR (400 MHz, CDCl₃)

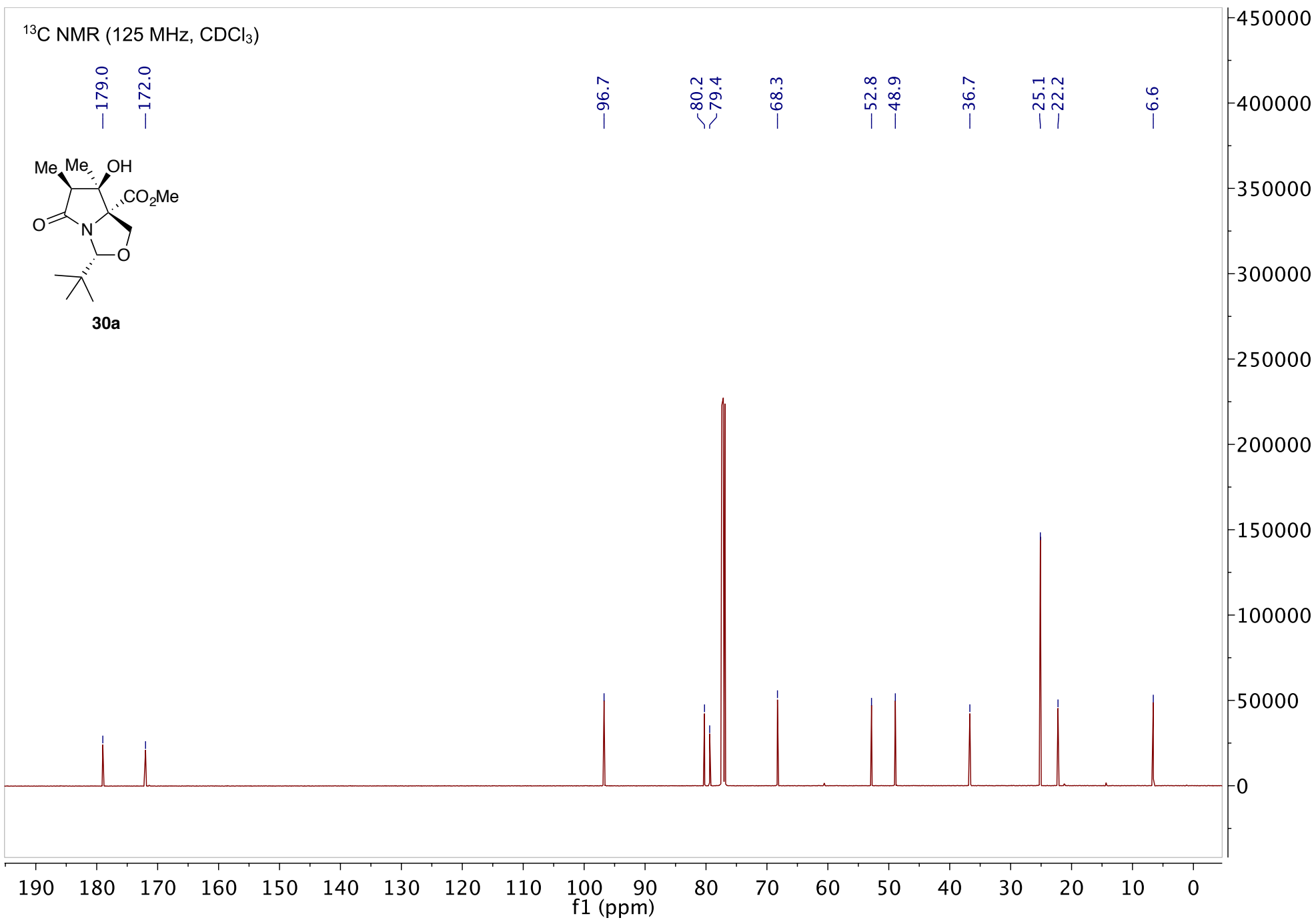
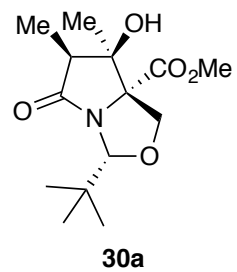




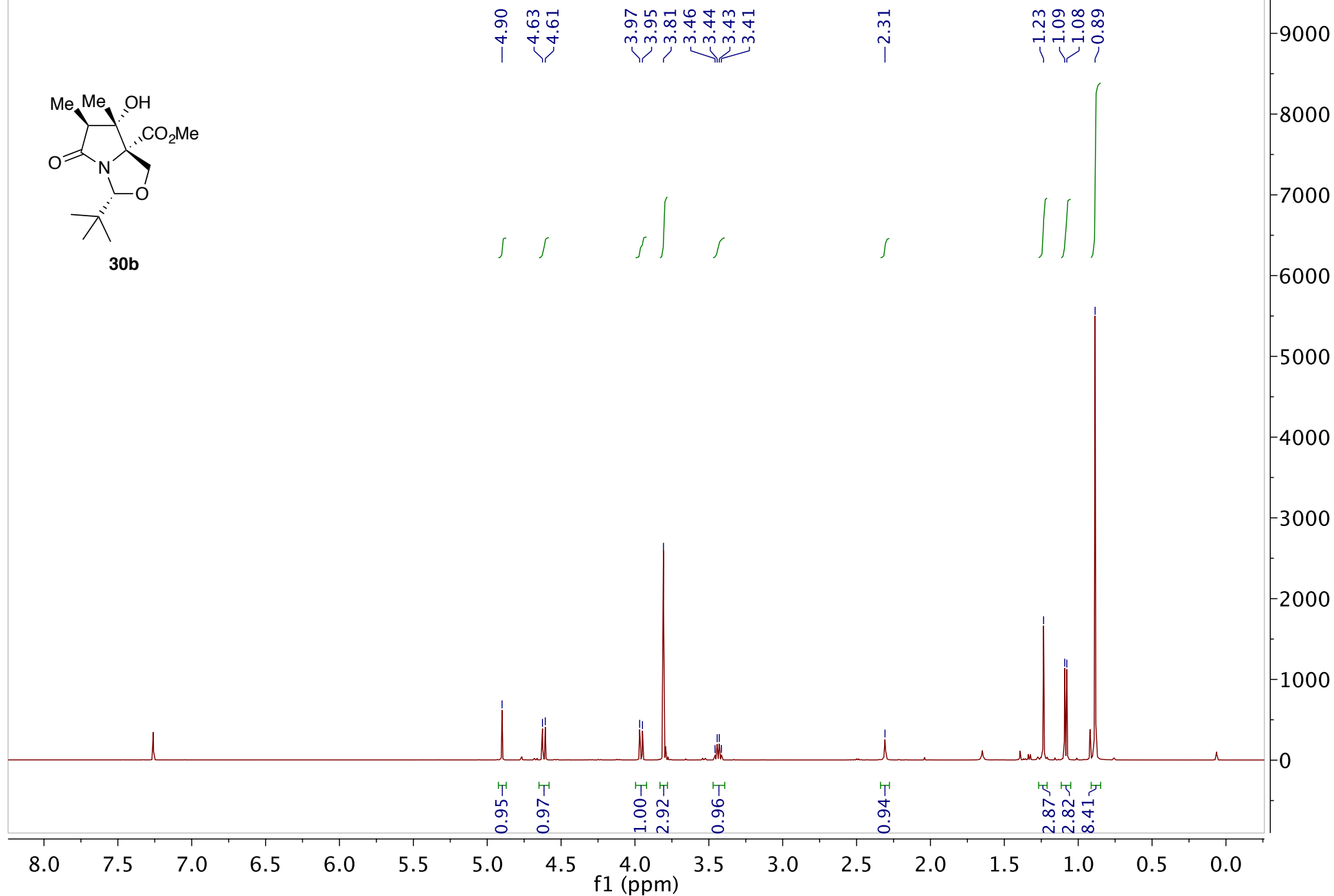
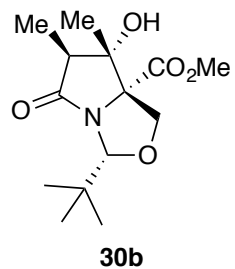
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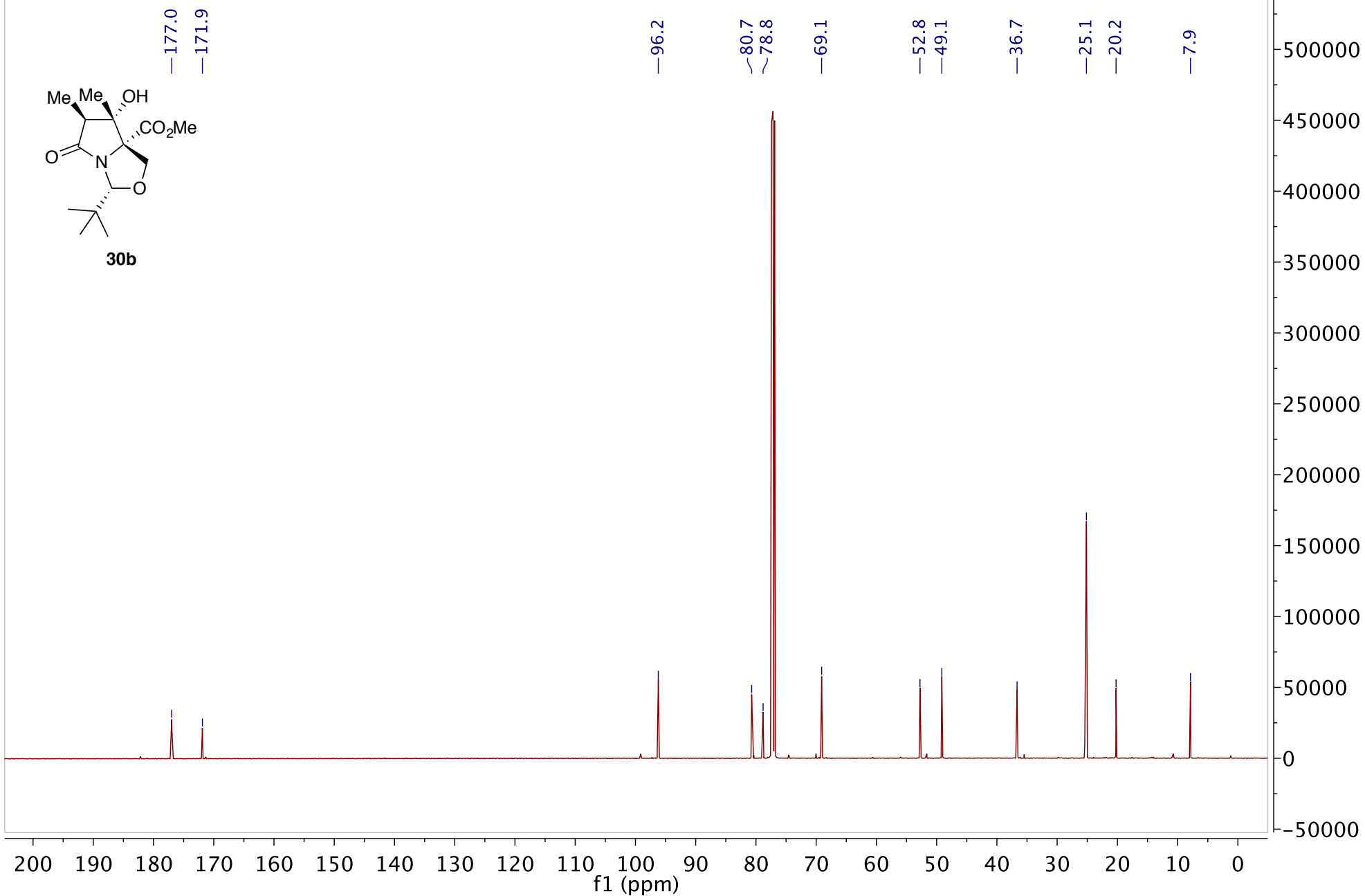
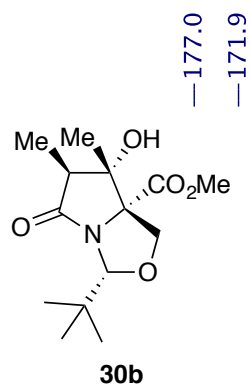
¹³C NMR (125 MHz, CDCl₃)

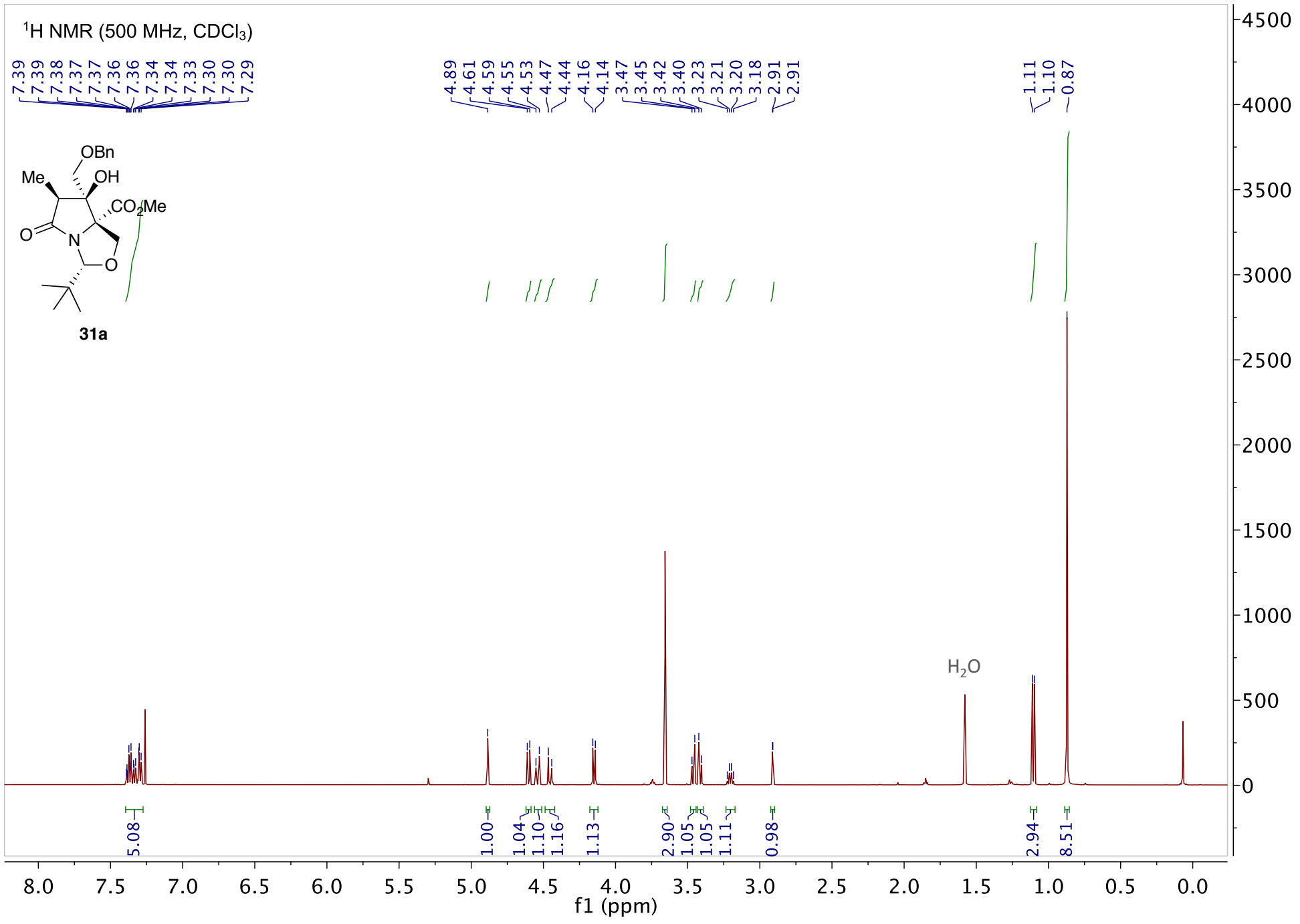


¹H NMR (500 MHz, CDCl₃)

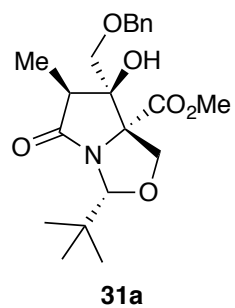


¹³C NMR (125 MHz, CDCl₃)





¹³C NMR (125 MHz, CDCl₃)



—178.0

—171.7

—136.9

—128.7

—128.4

—128.1

—96.3

—81.4

—78.2

—74.0

—71.4

—68.4

—52.7

—46.0

—36.5

—25.1

—7.4

250000

200000

150000

100000

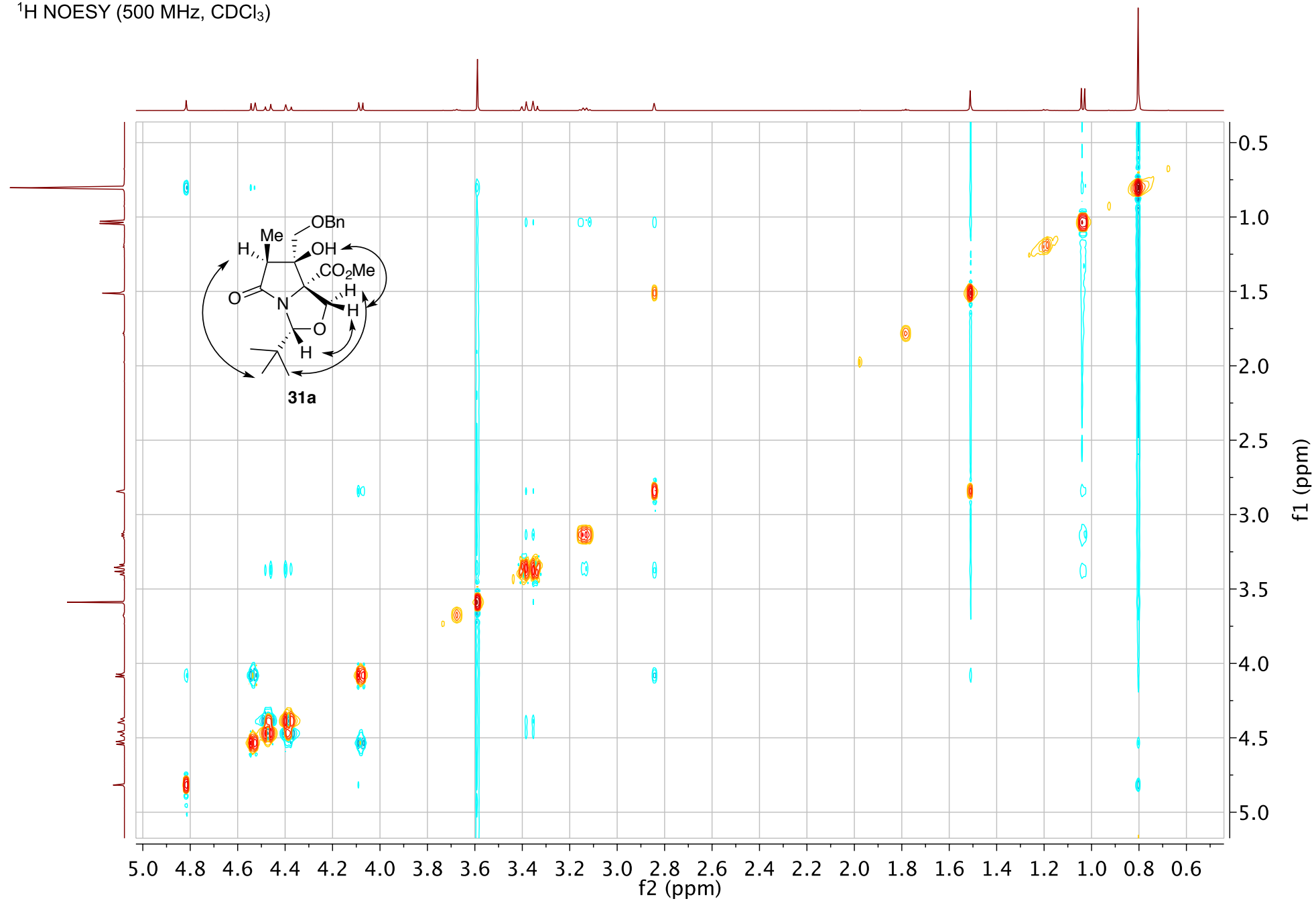
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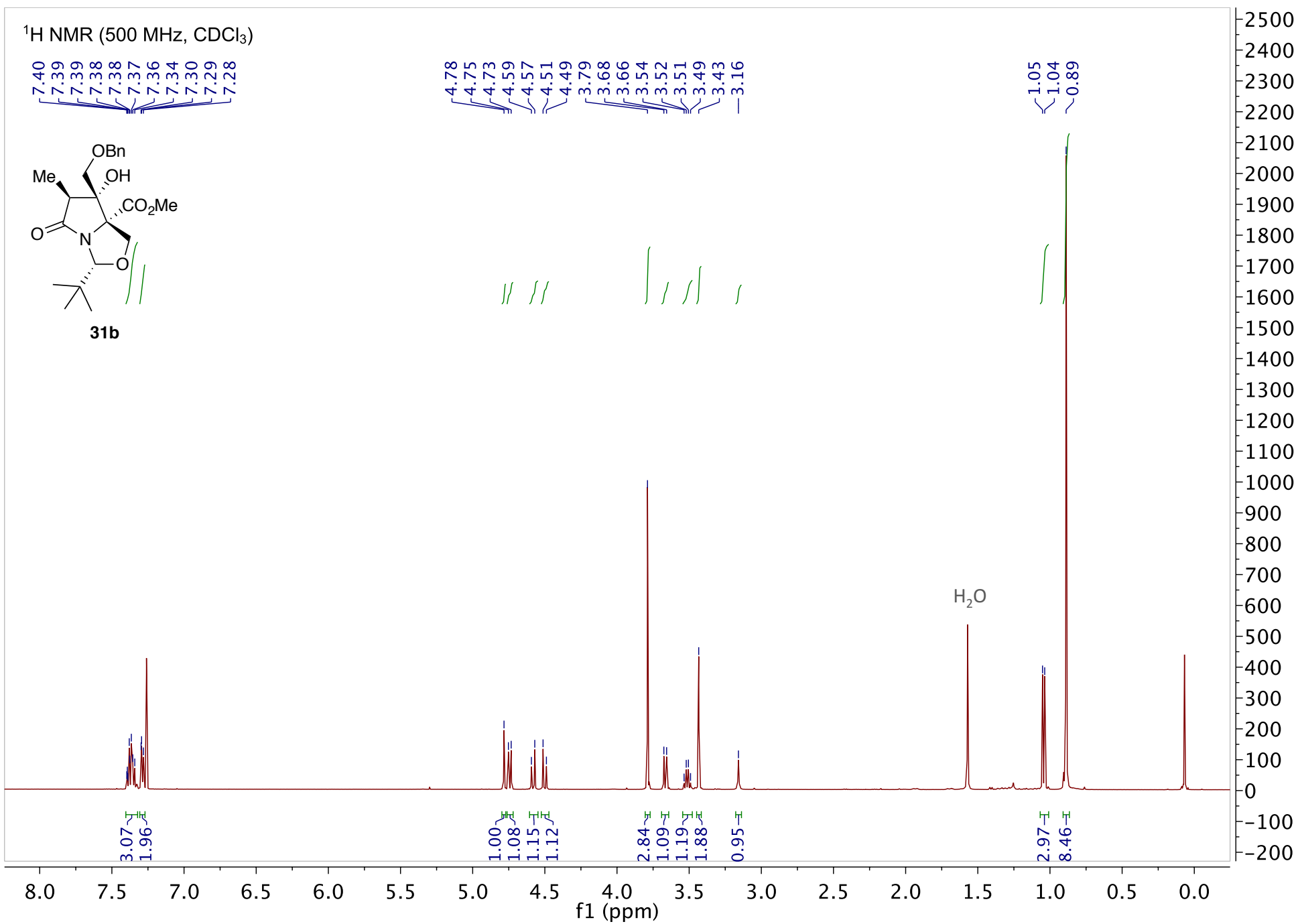
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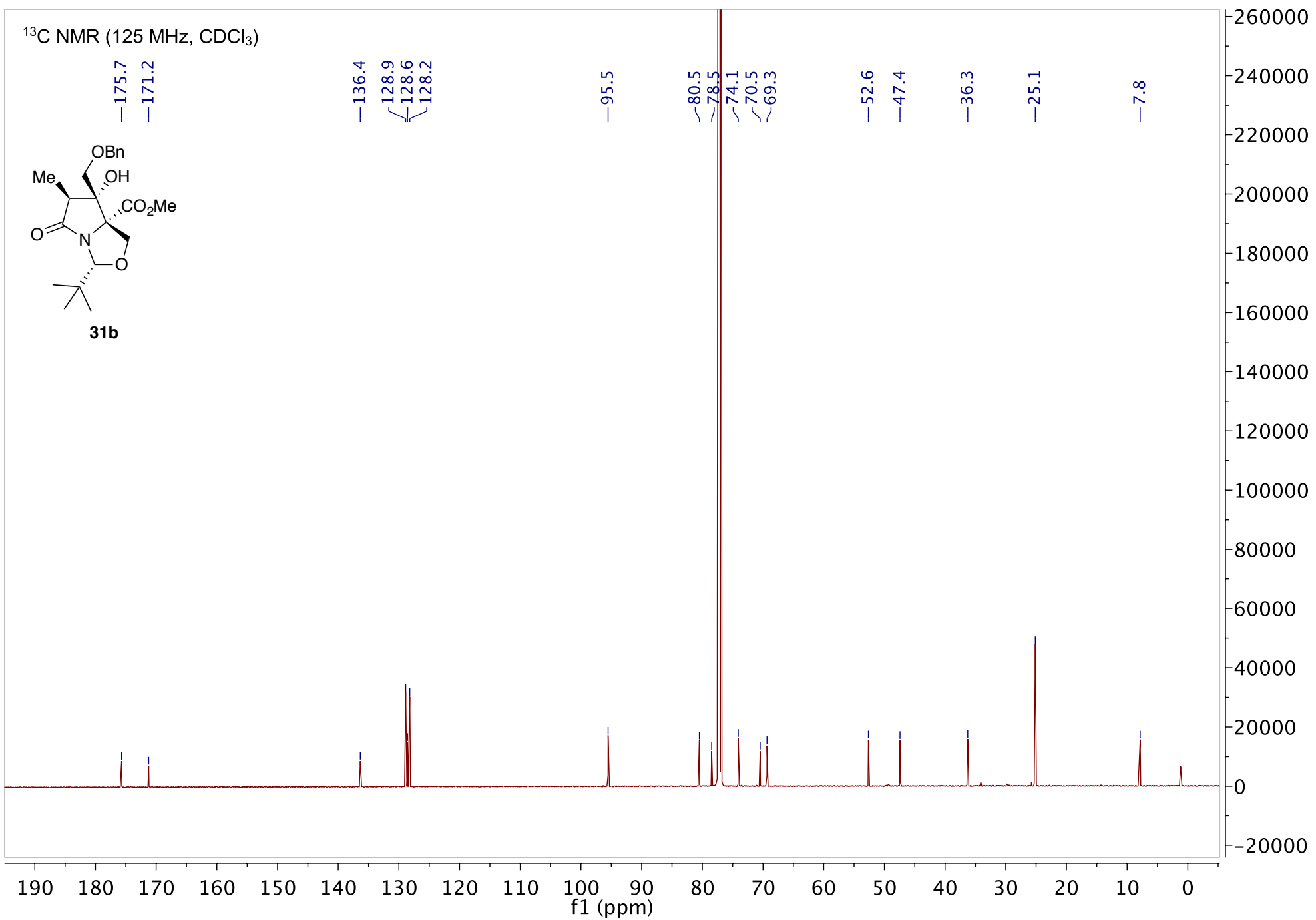
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f1 (ppm)

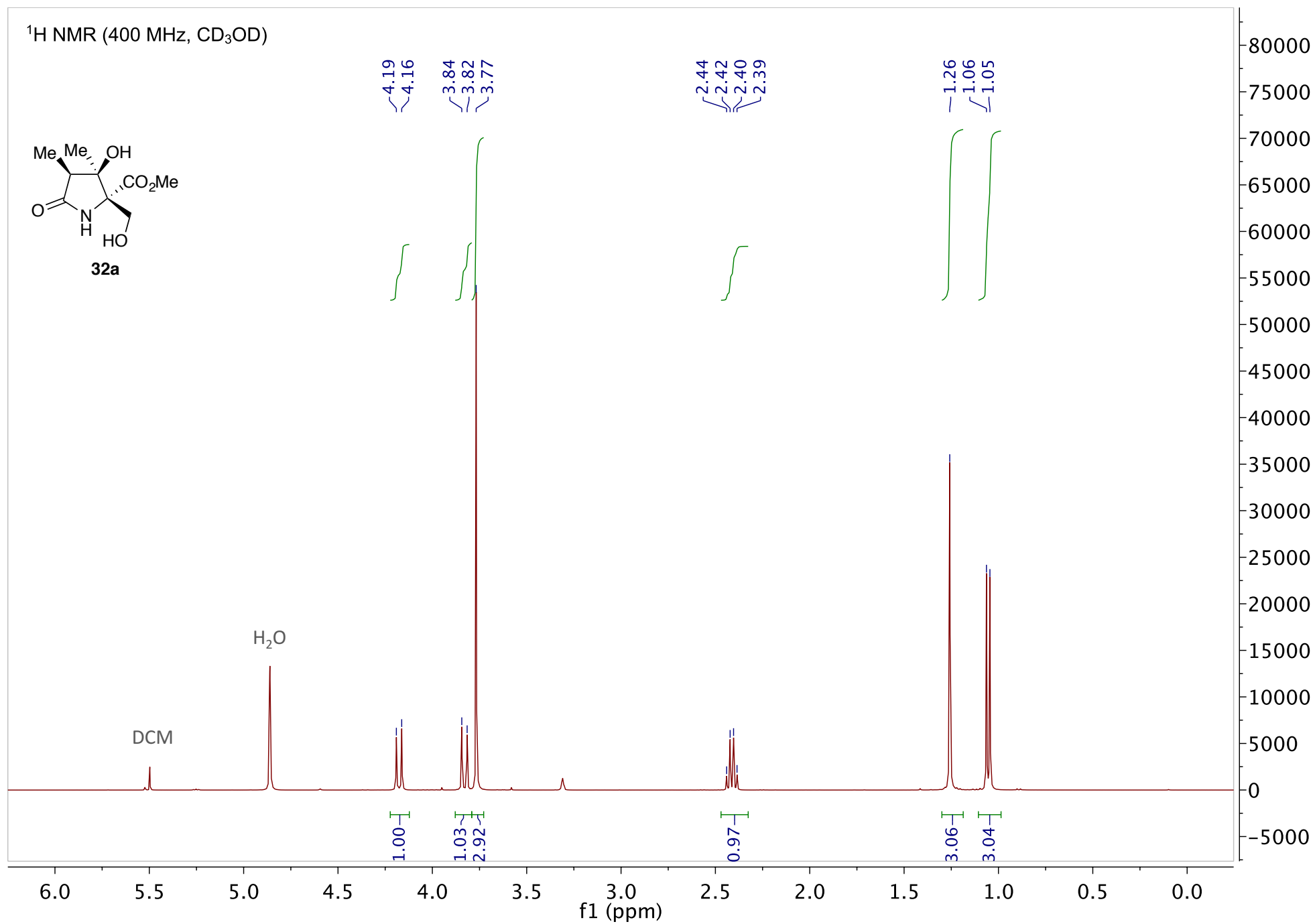
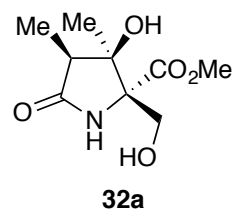
^1H NOESY (500 MHz, CDCl_3)



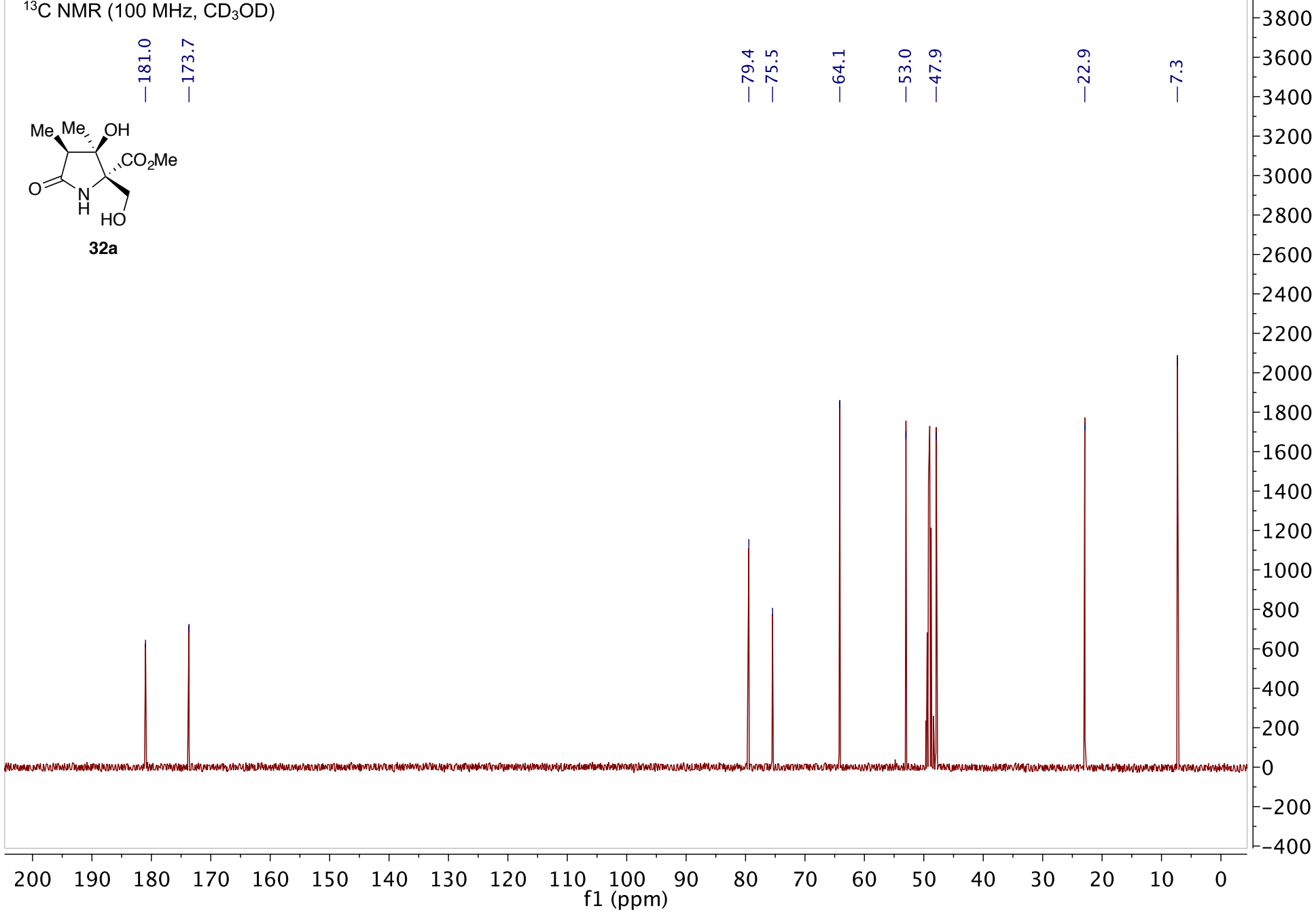
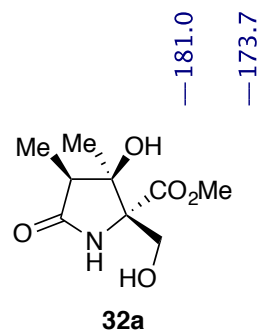




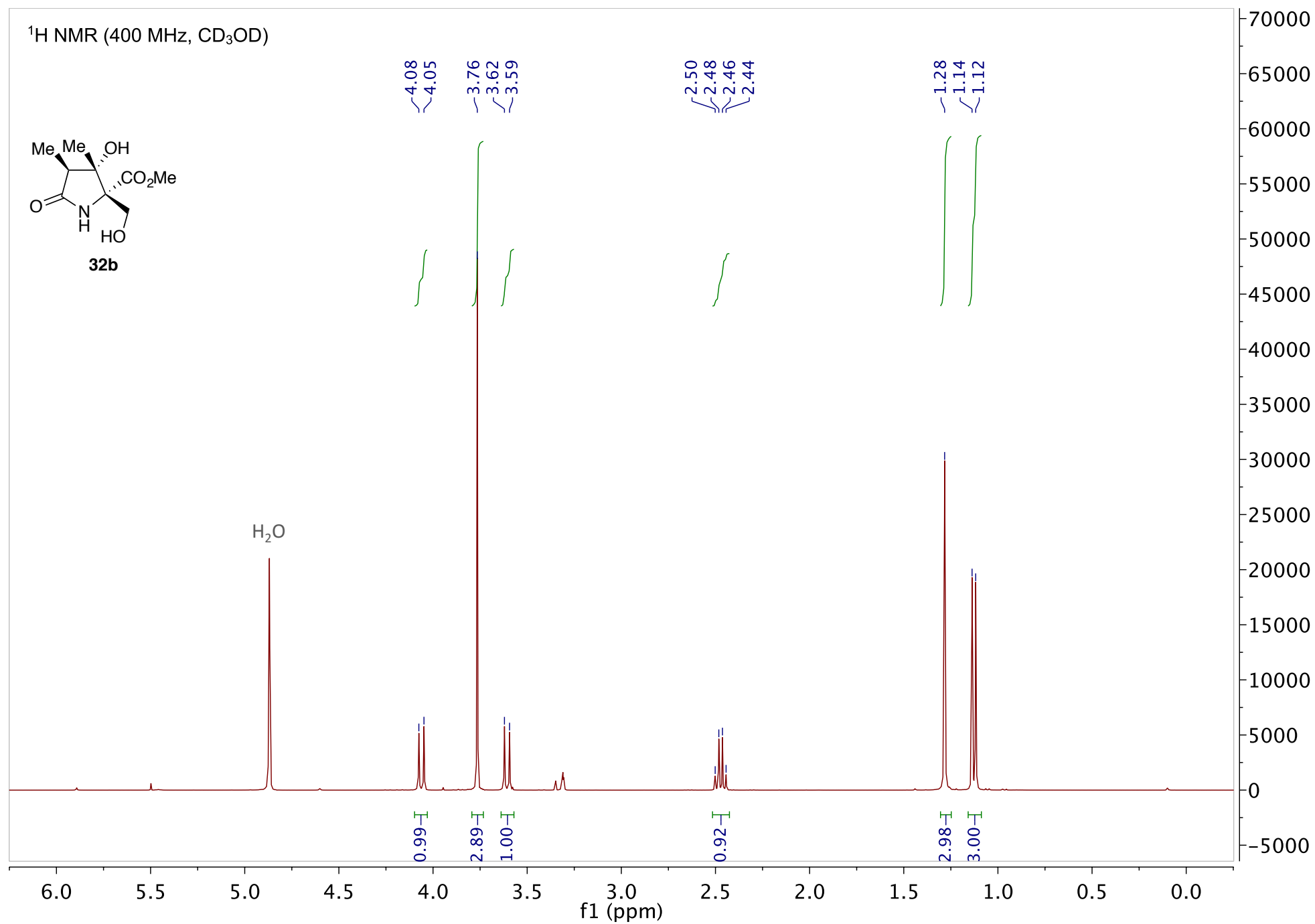
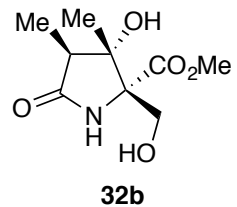
¹H NMR (400 MHz, CD₃OD)



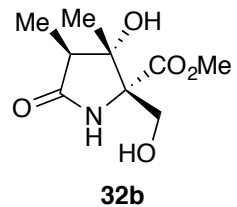
^{13}C NMR (100 MHz, CD_3OD)



¹H NMR (400 MHz, CD₃OD)



¹³C NMR (100 MHz, CD₃OD)



— 180.8

— 172.4

— 79.4

— 76.5

— 65.1

— 52.7

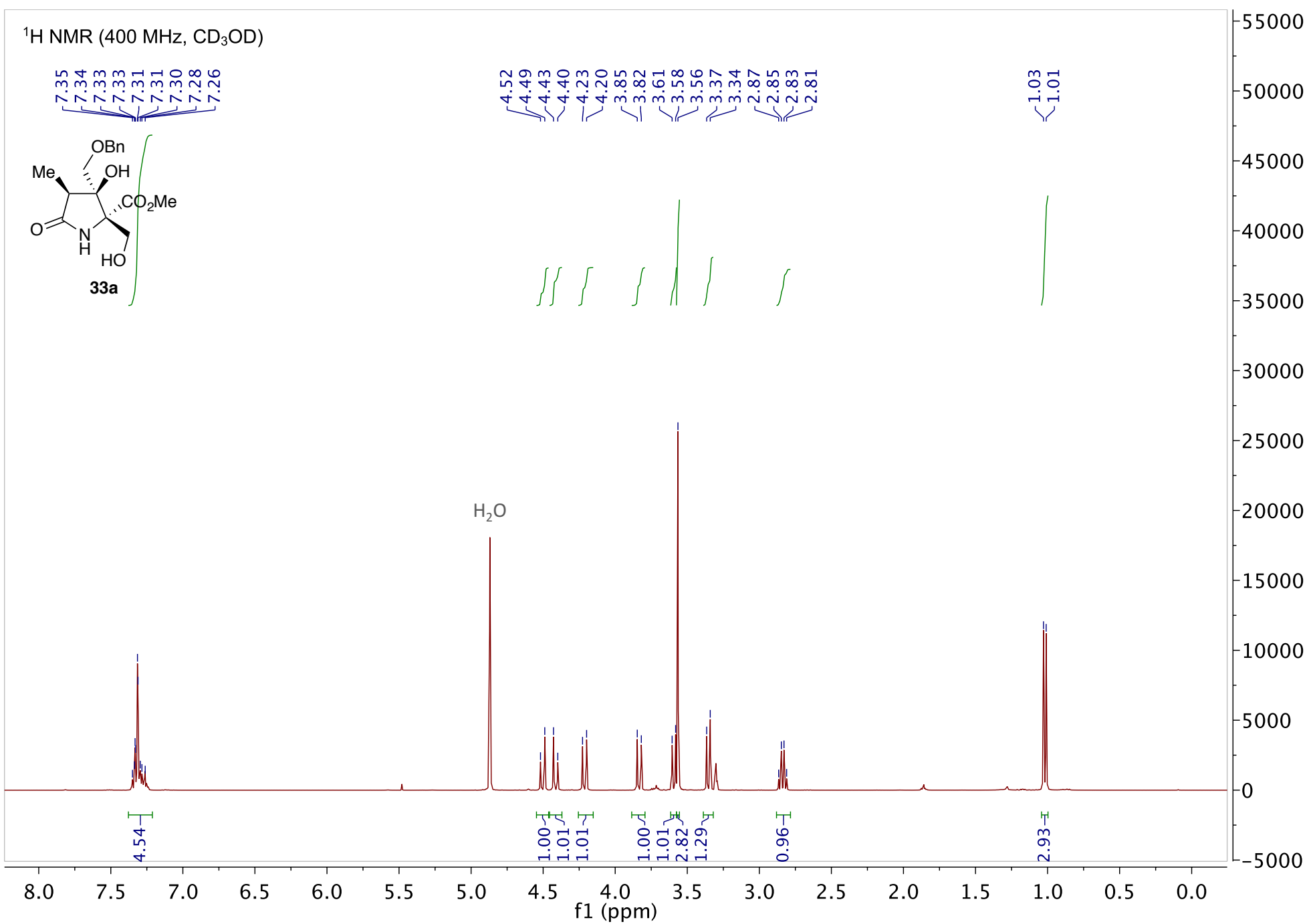
— 50.3

— 19.0

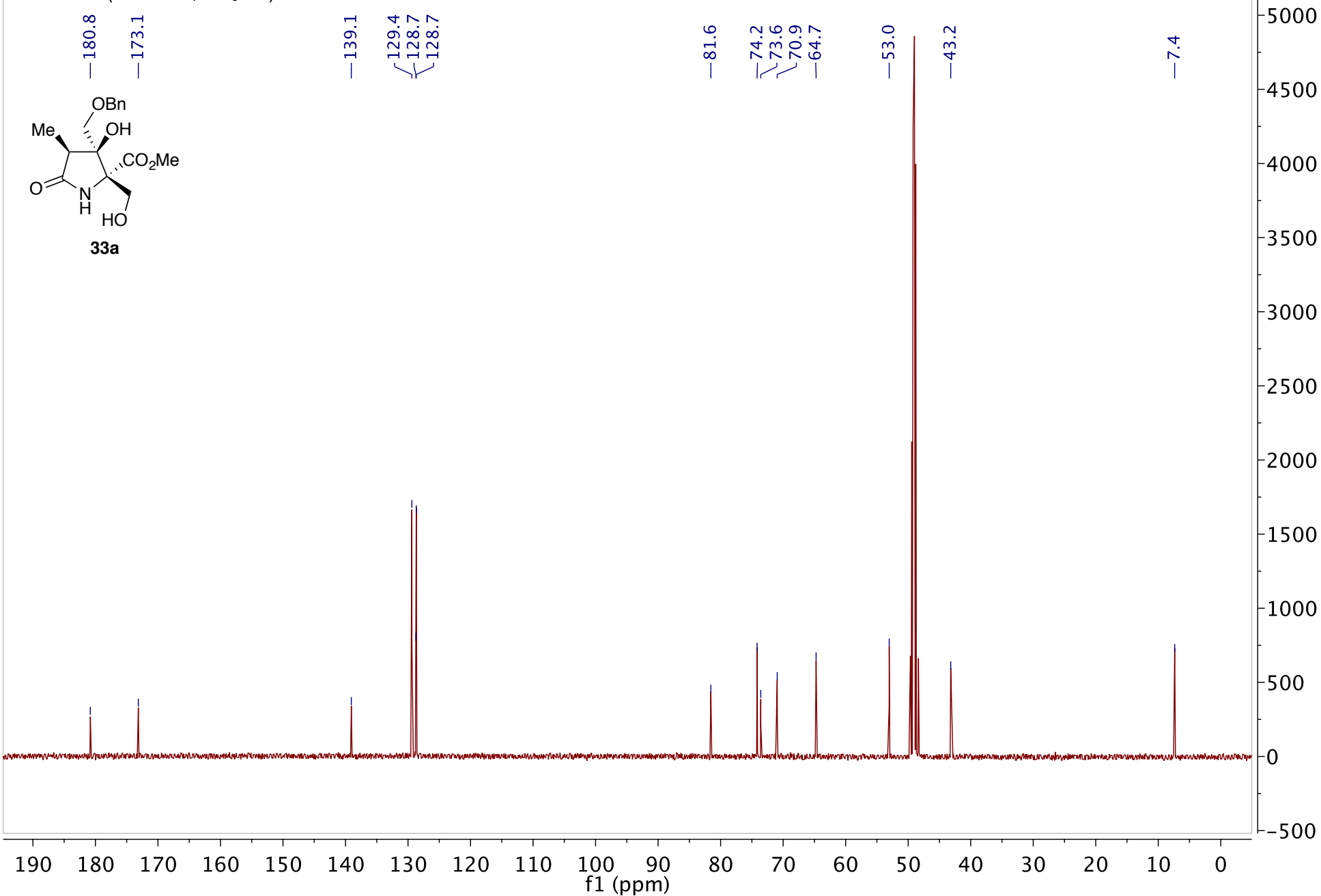
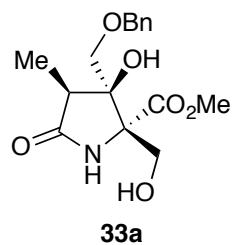
— 11.7

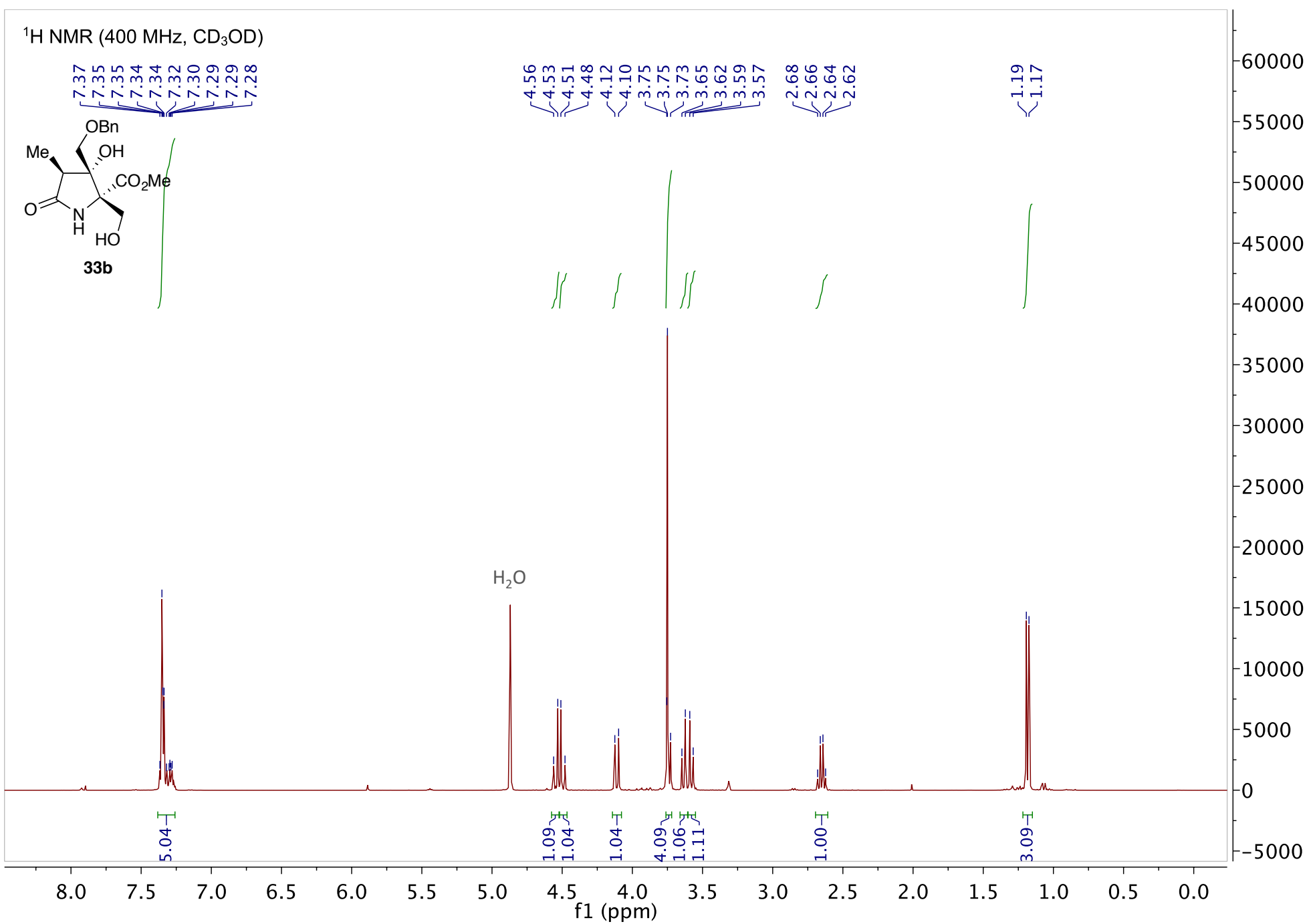
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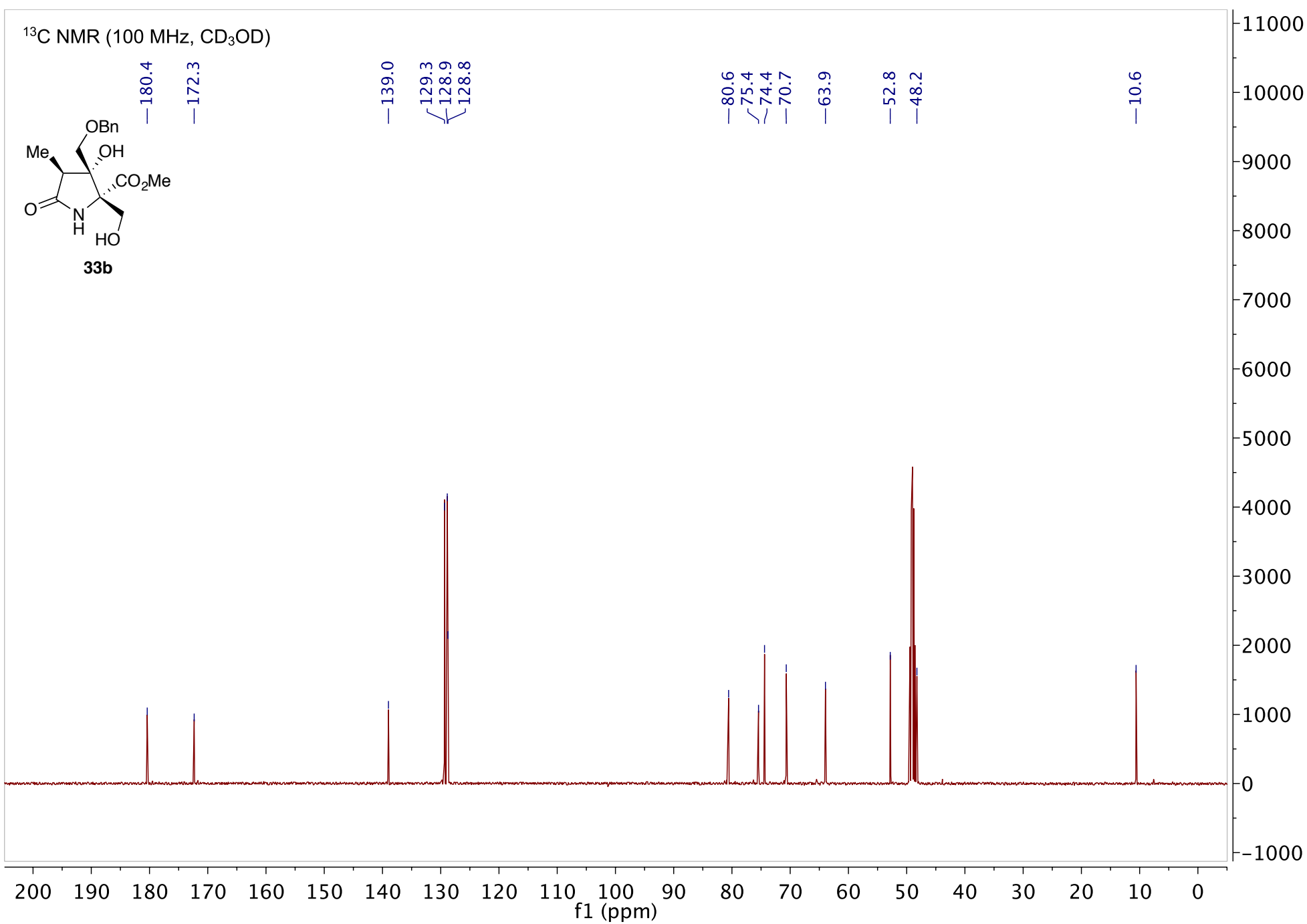
f1 (ppm)

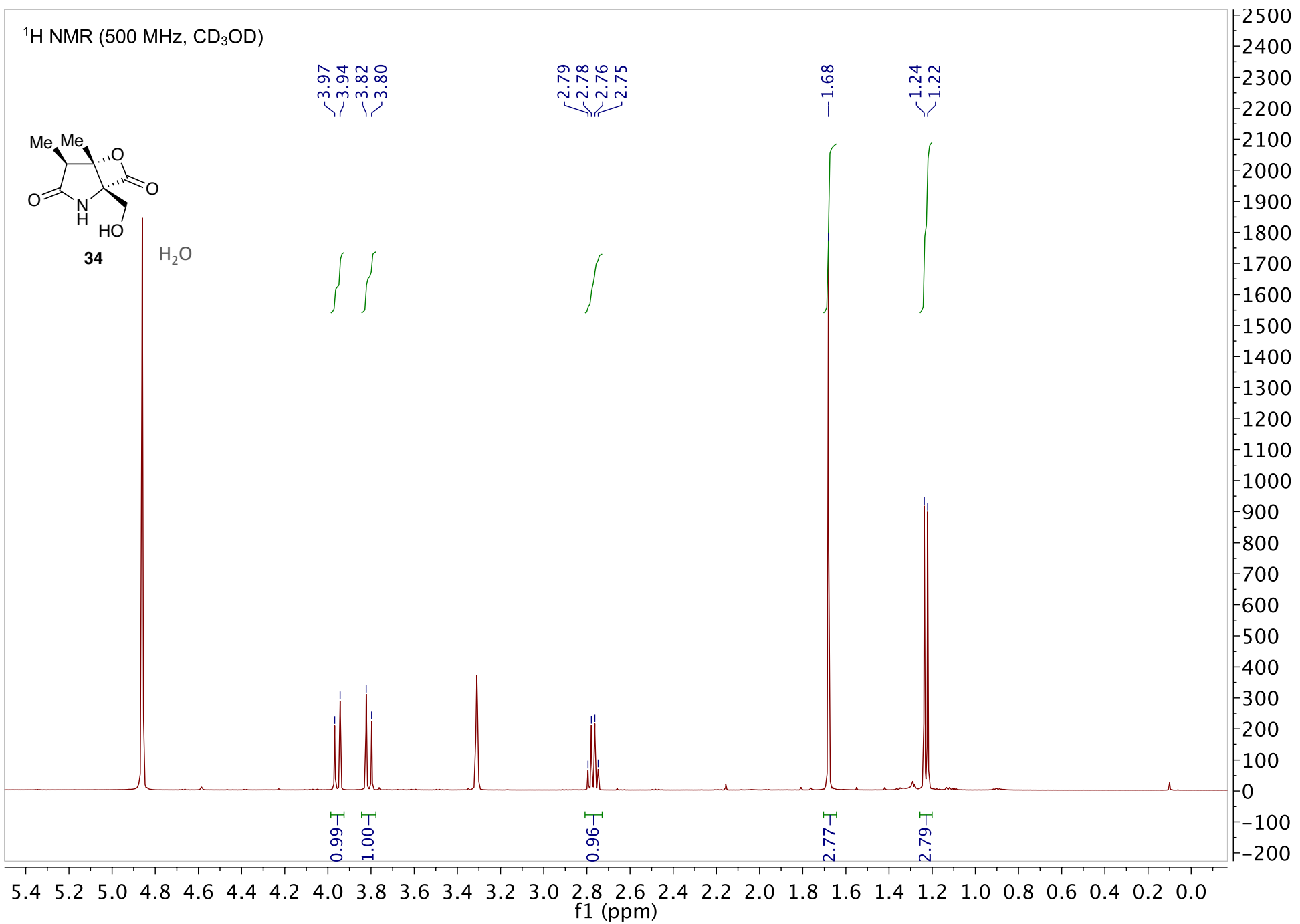


¹³C NMR (100 MHz, CD₃OD)

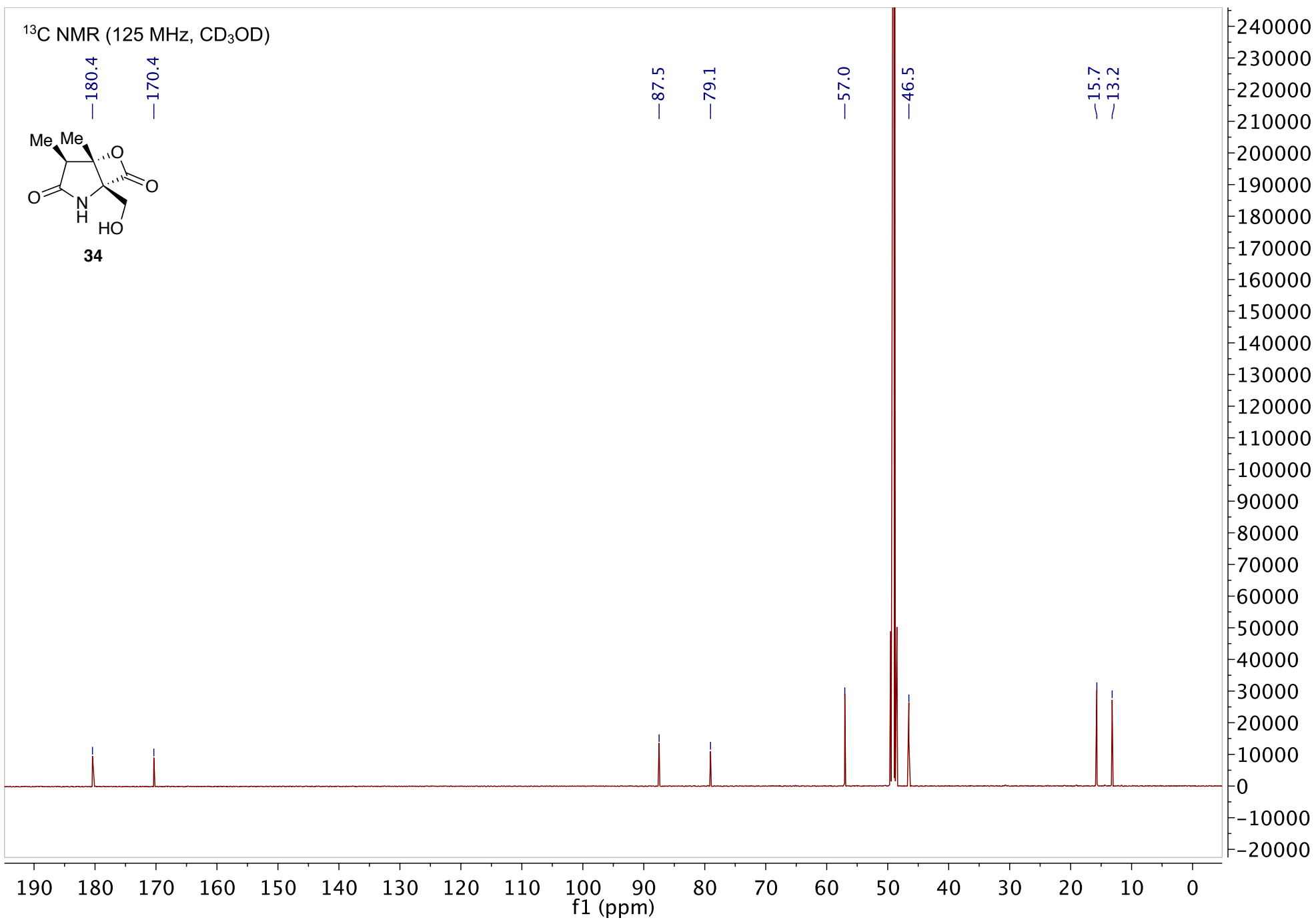
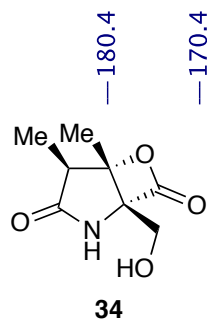




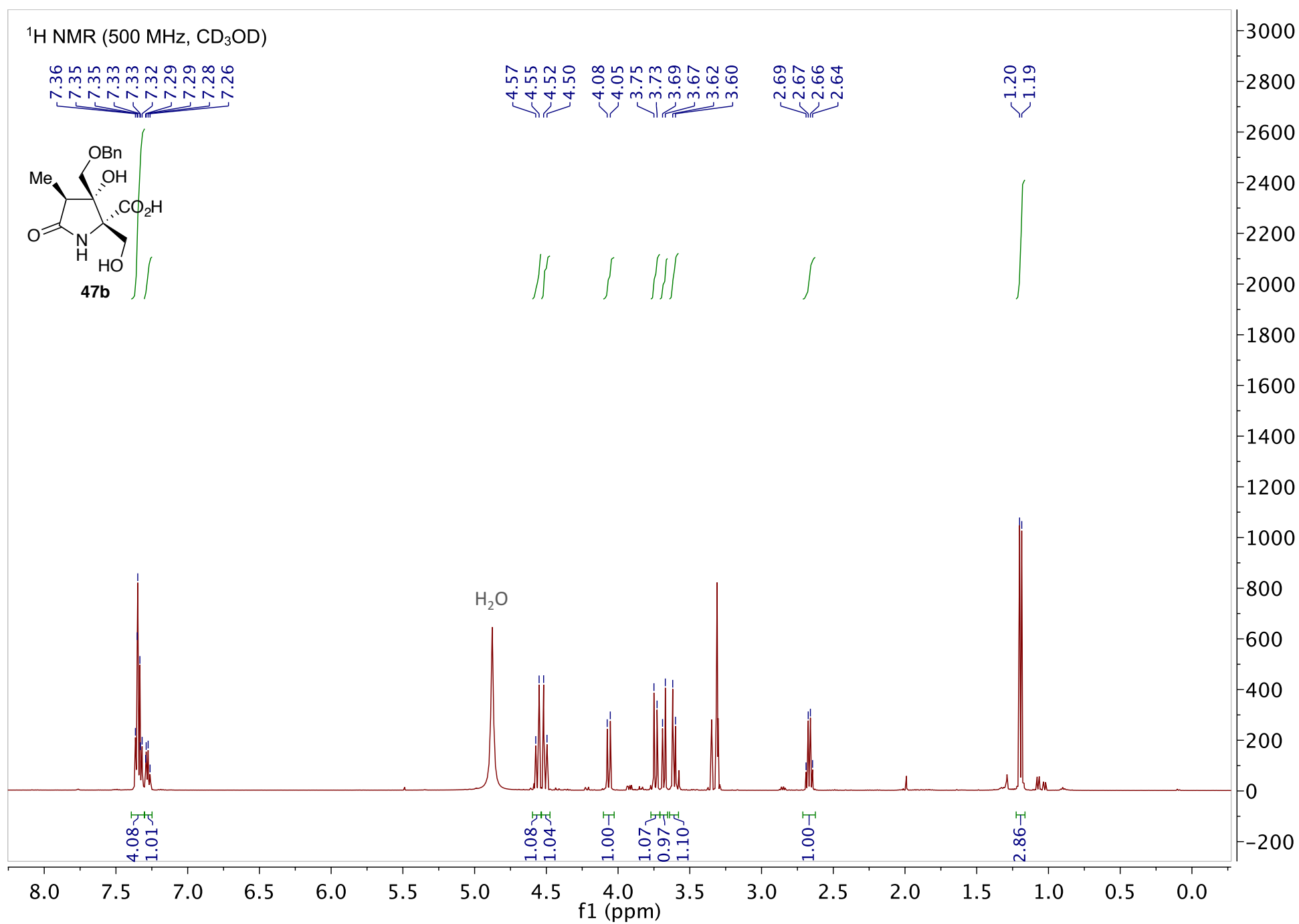
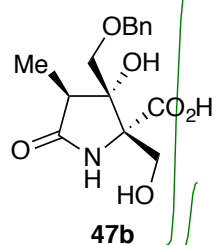




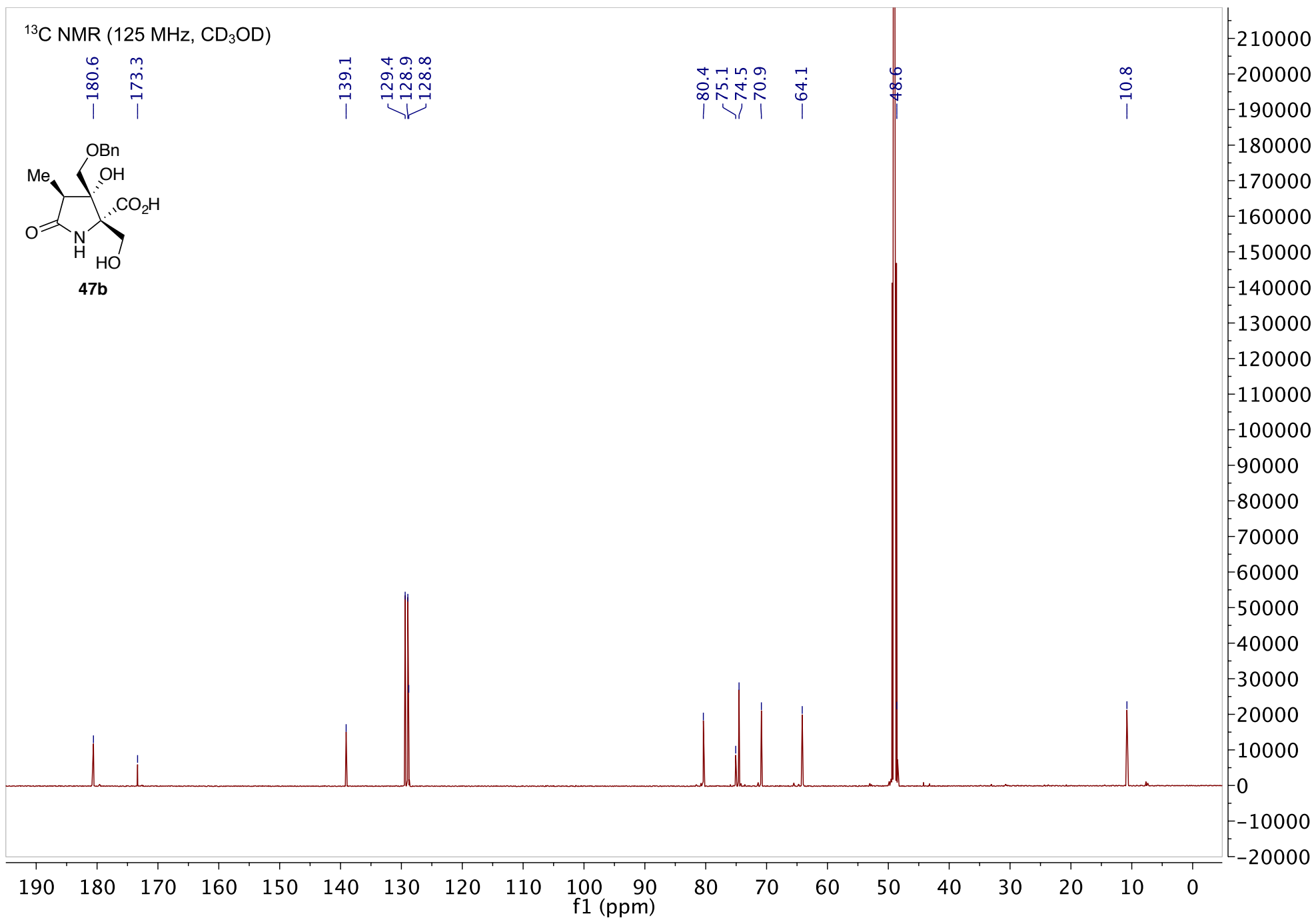
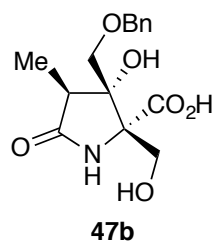
¹³C NMR (125 MHz, CD₃OD)

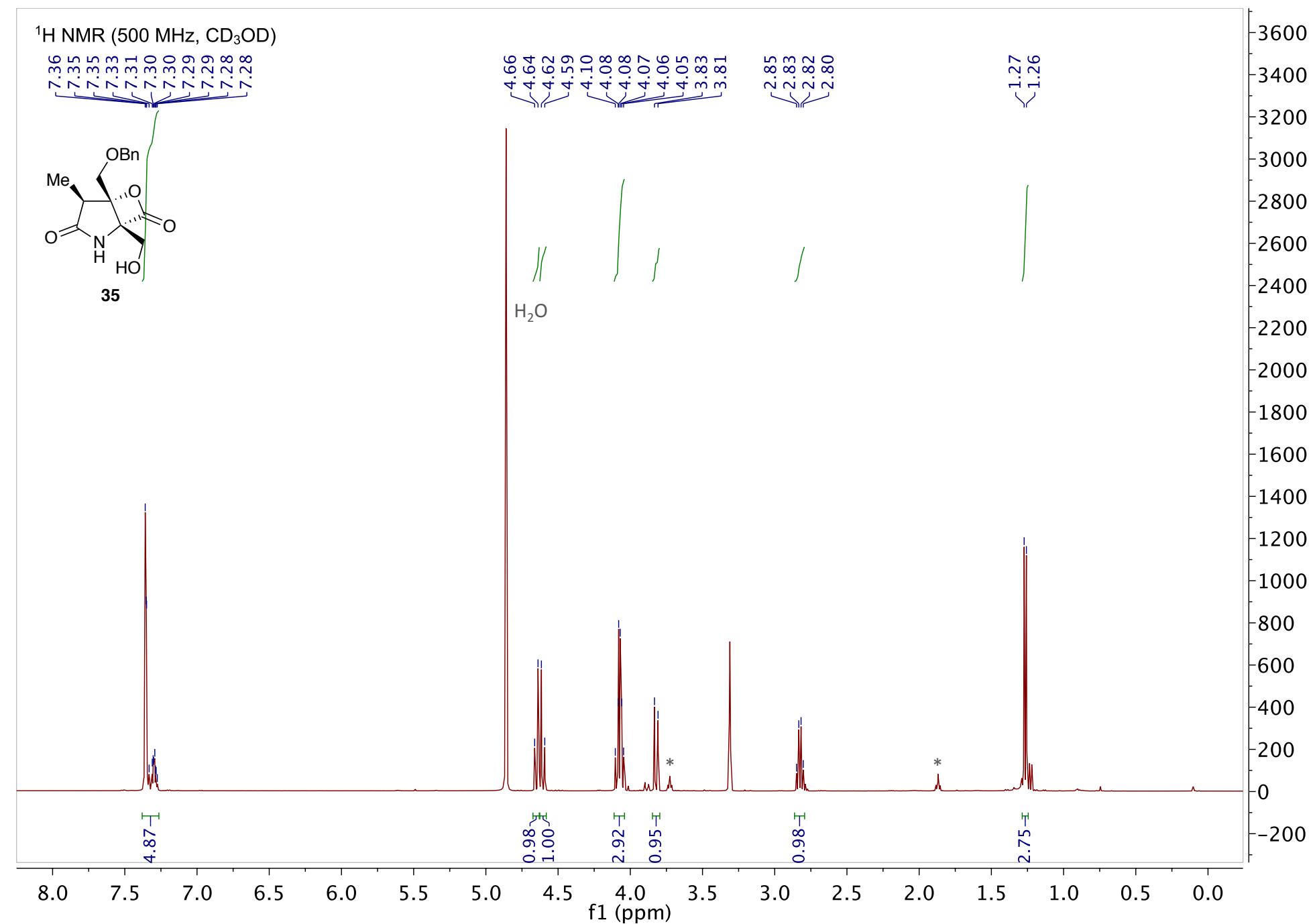


¹H NMR (500 MHz, CD₃OD)



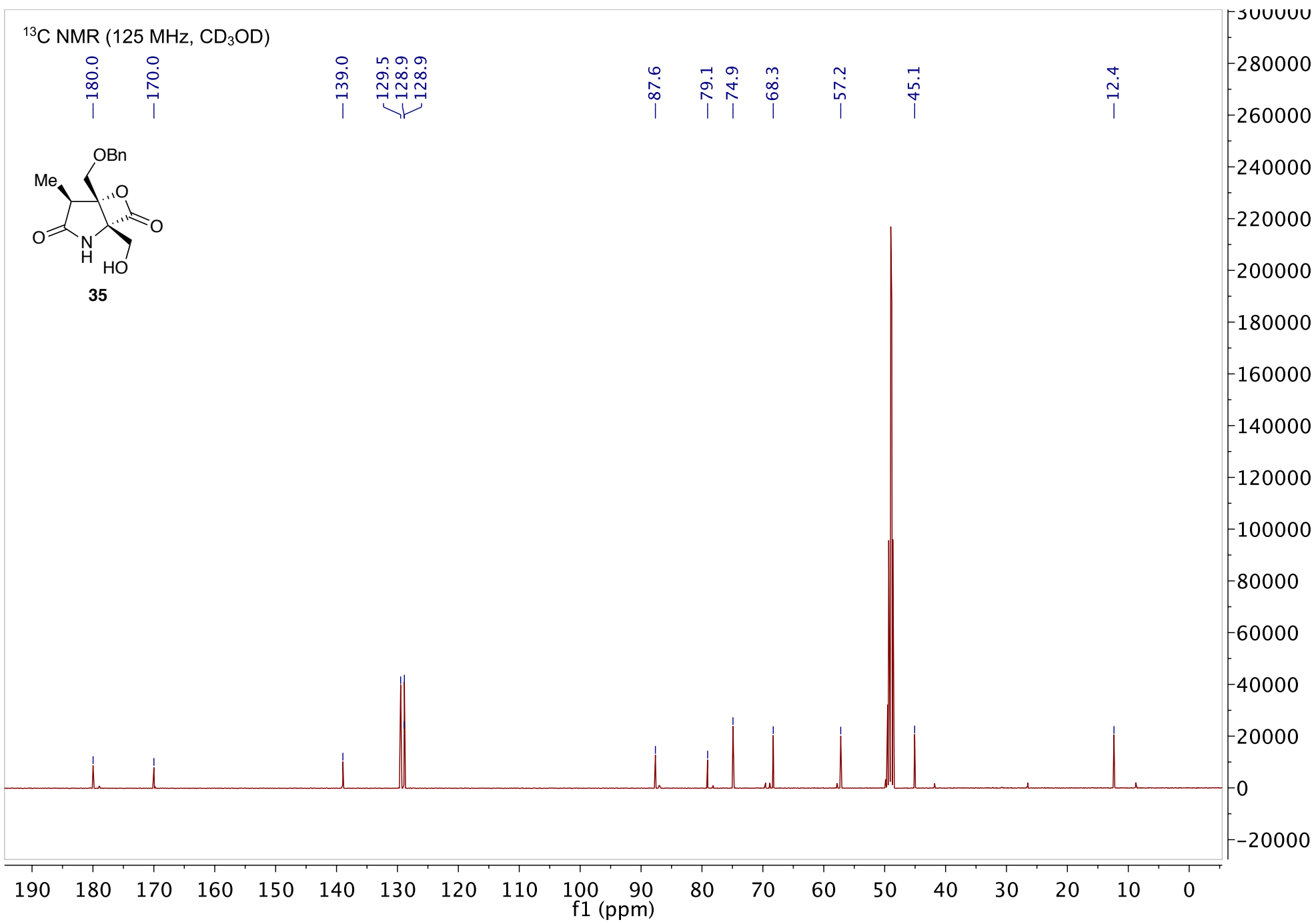
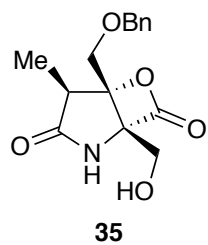
¹³C NMR (125 MHz, CD₃OD)

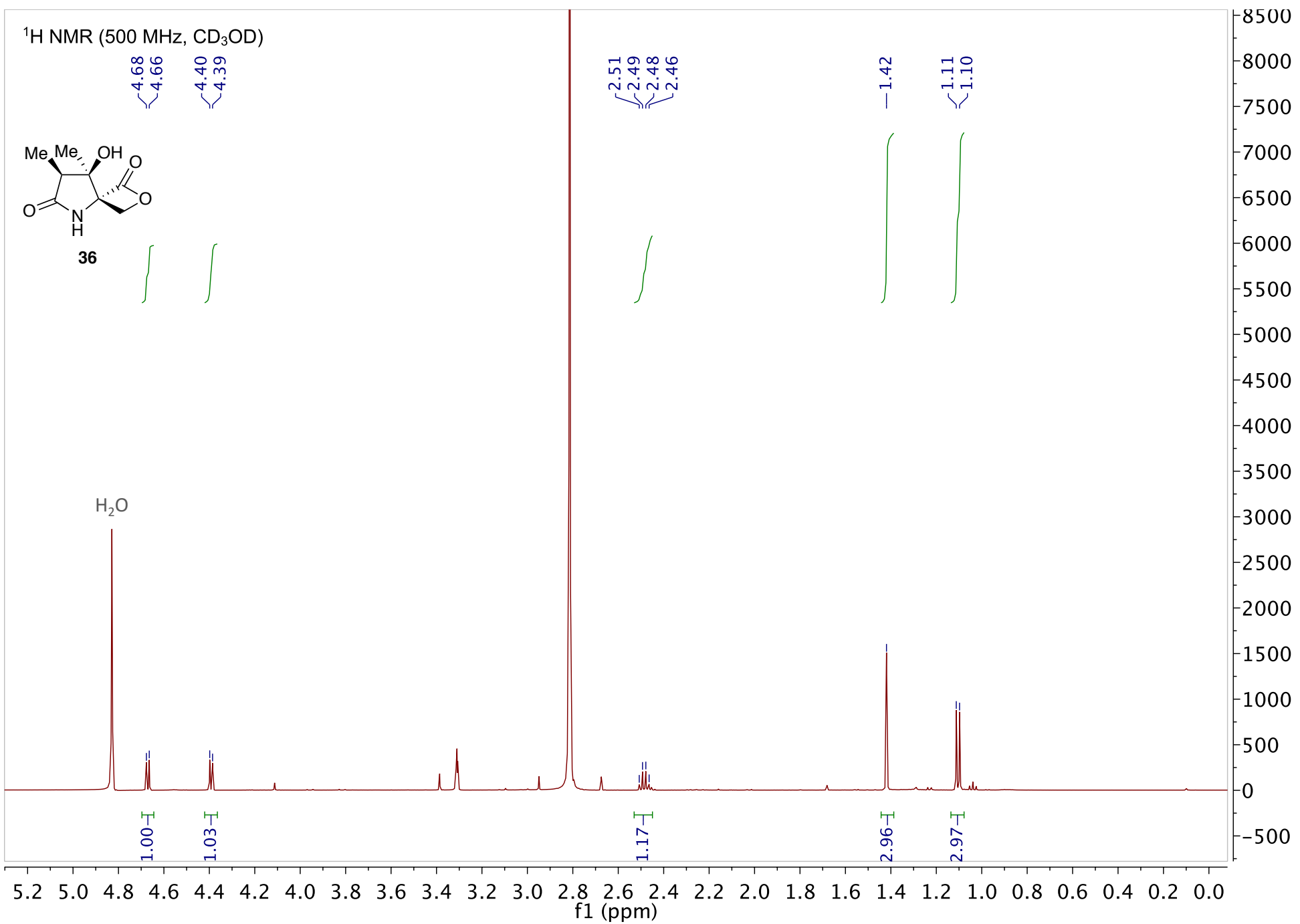




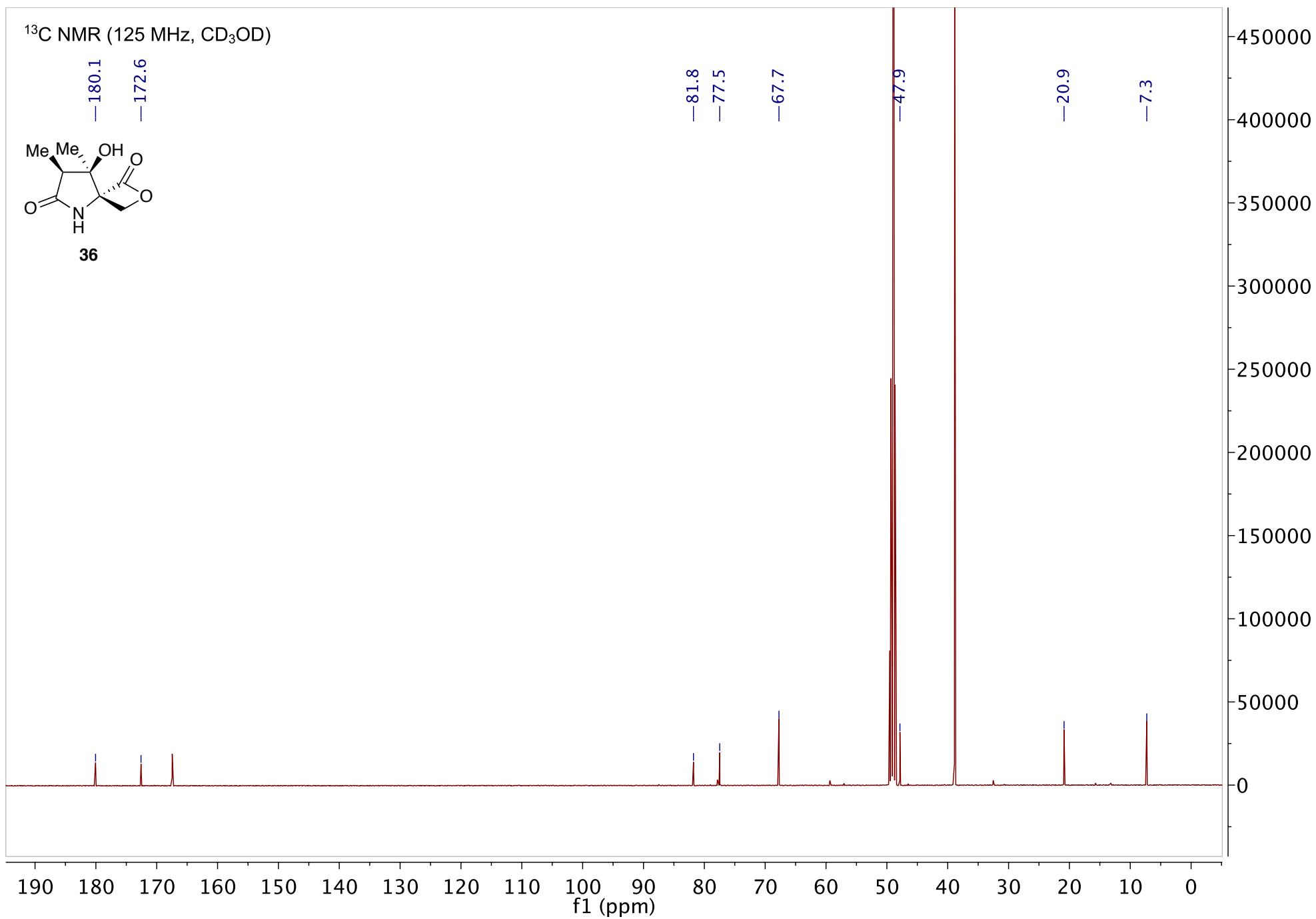
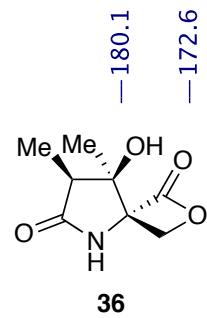
*impurity

¹³C NMR (125 MHz, CD₃OD)

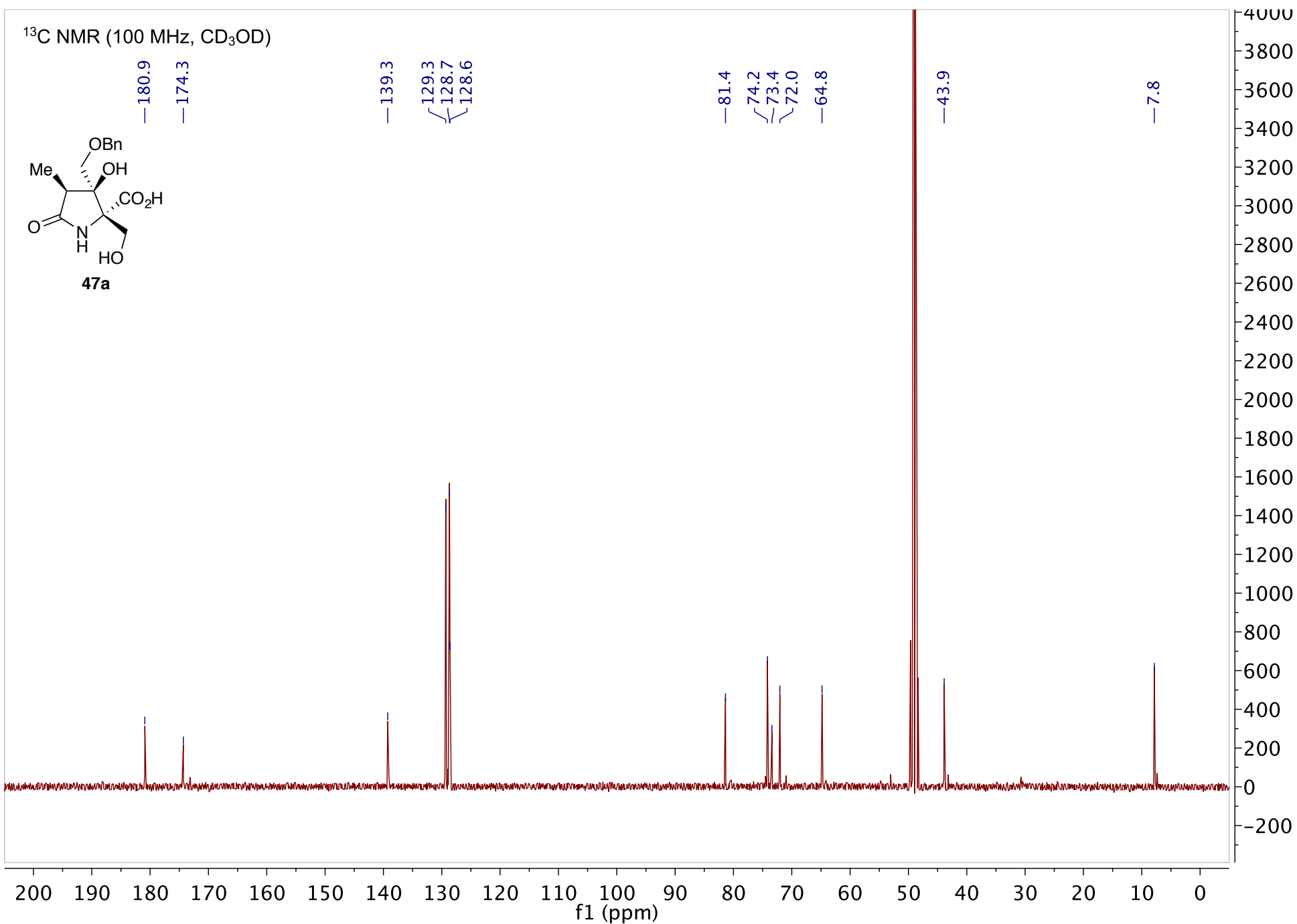
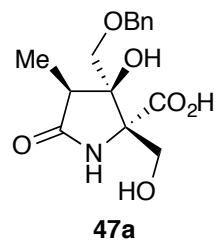


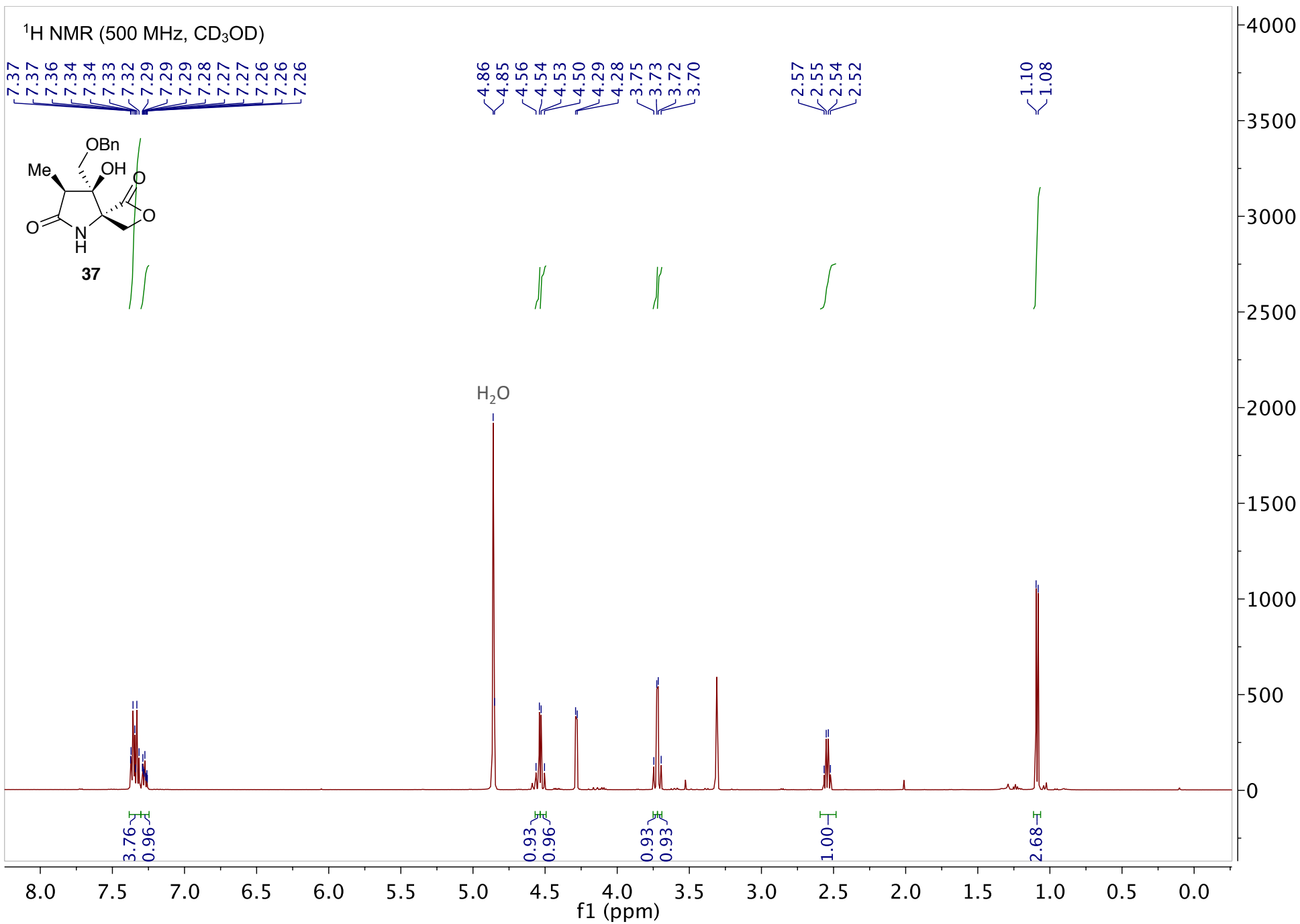


¹³C NMR (125 MHz, CD₃OD)

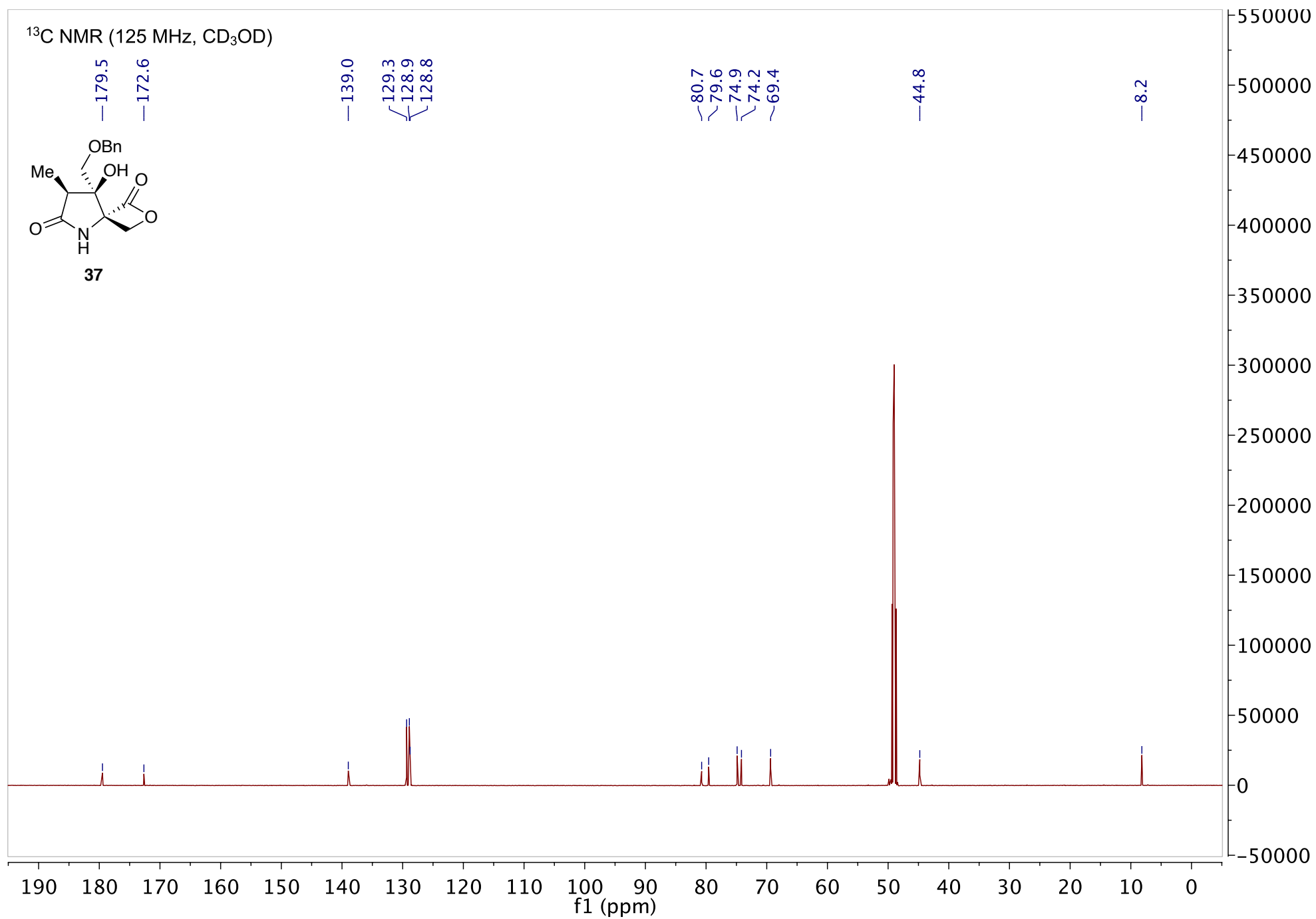
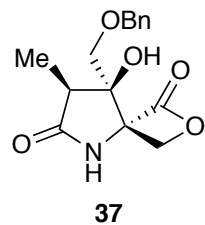


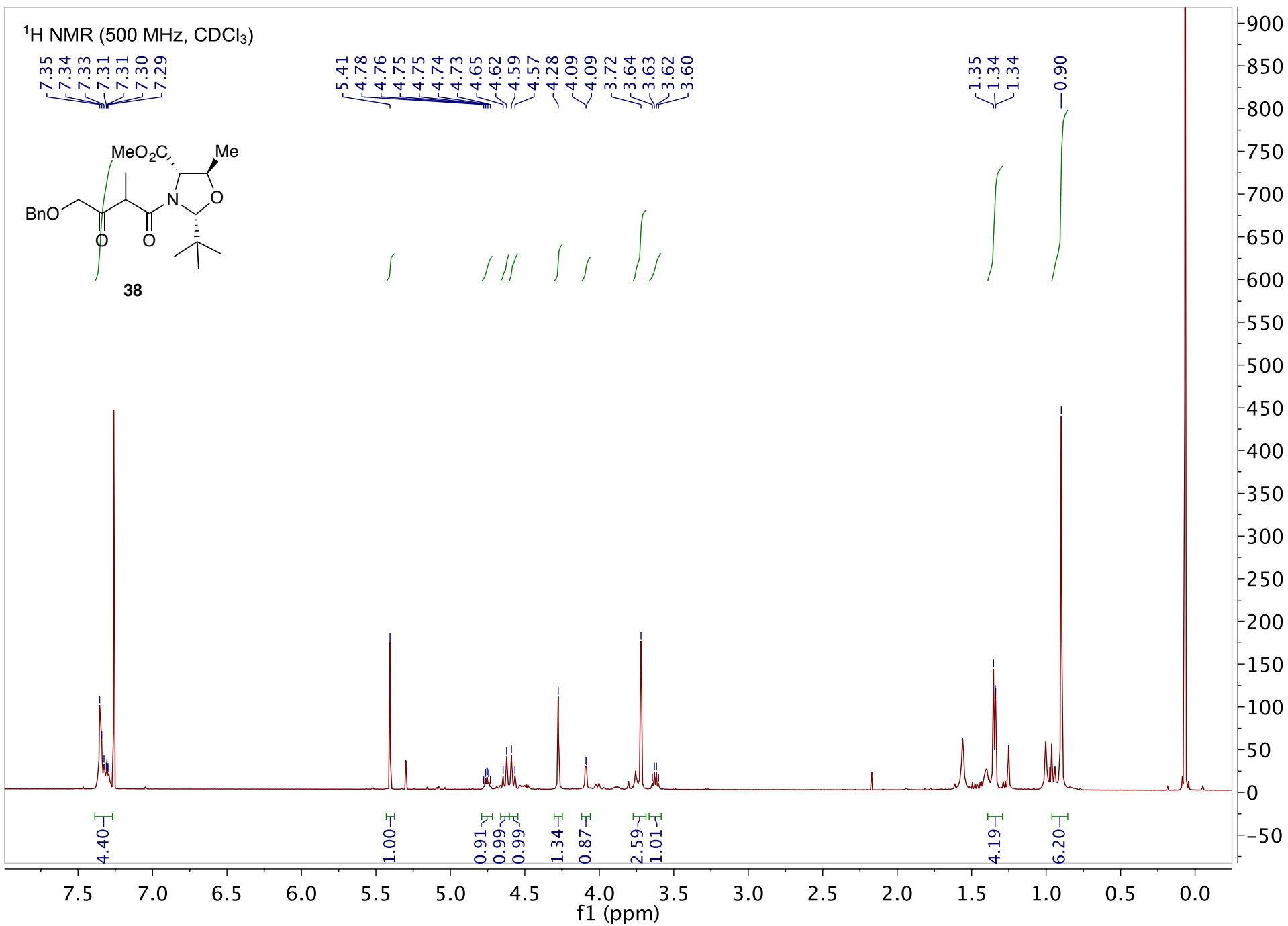
¹³C NMR (100 MHz, CD₃OD)

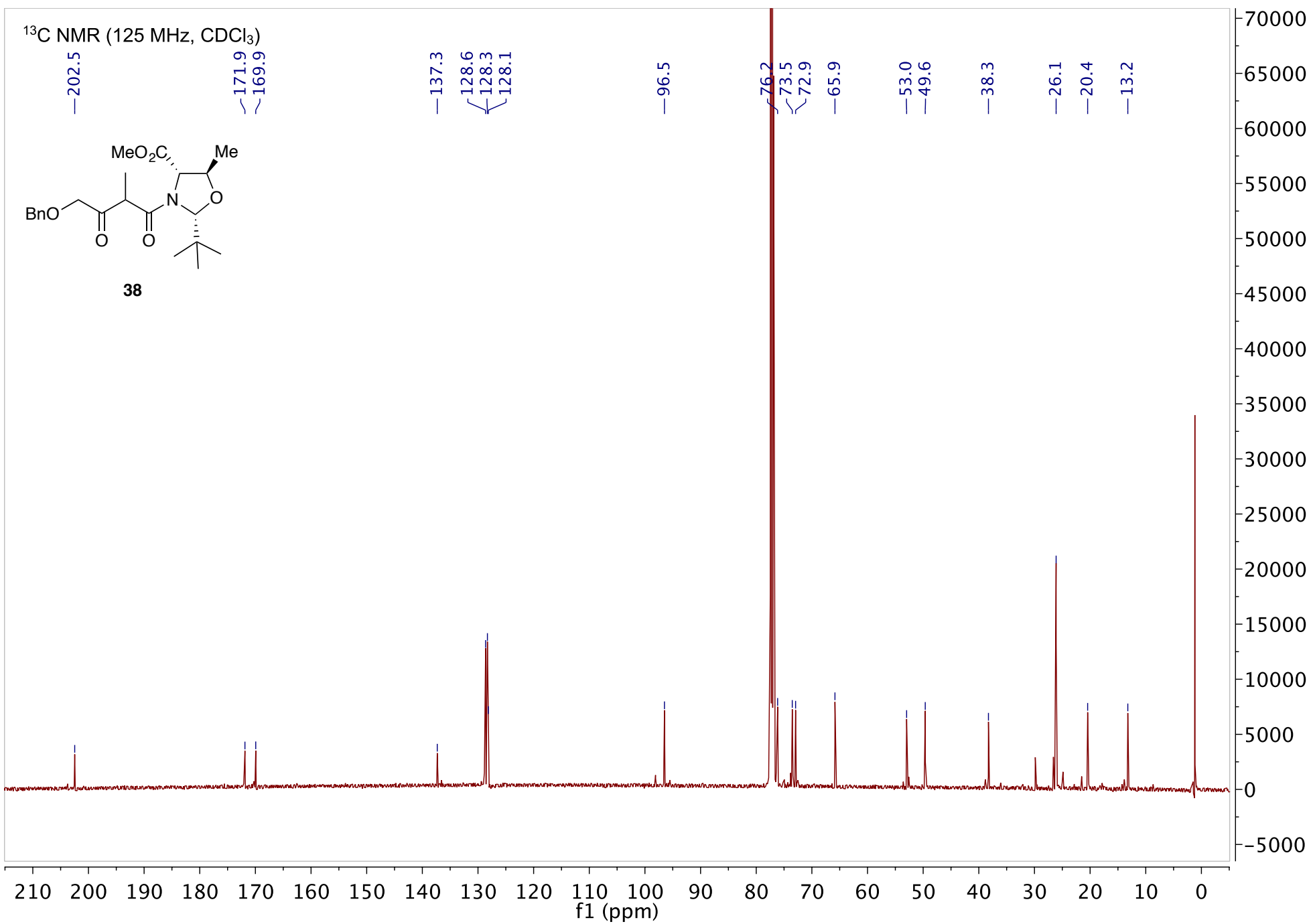


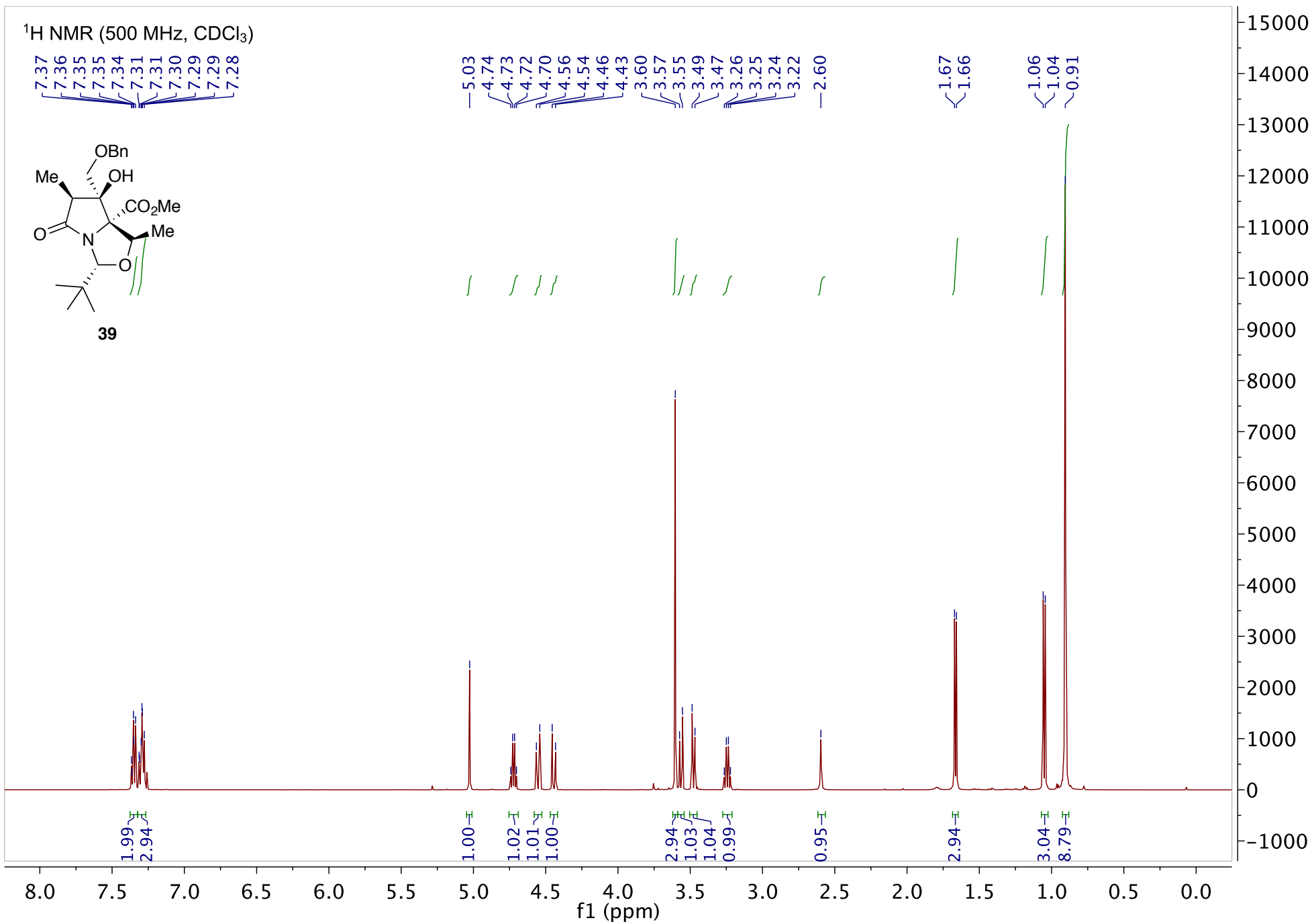


¹³C NMR (125 MHz, CD₃OD)

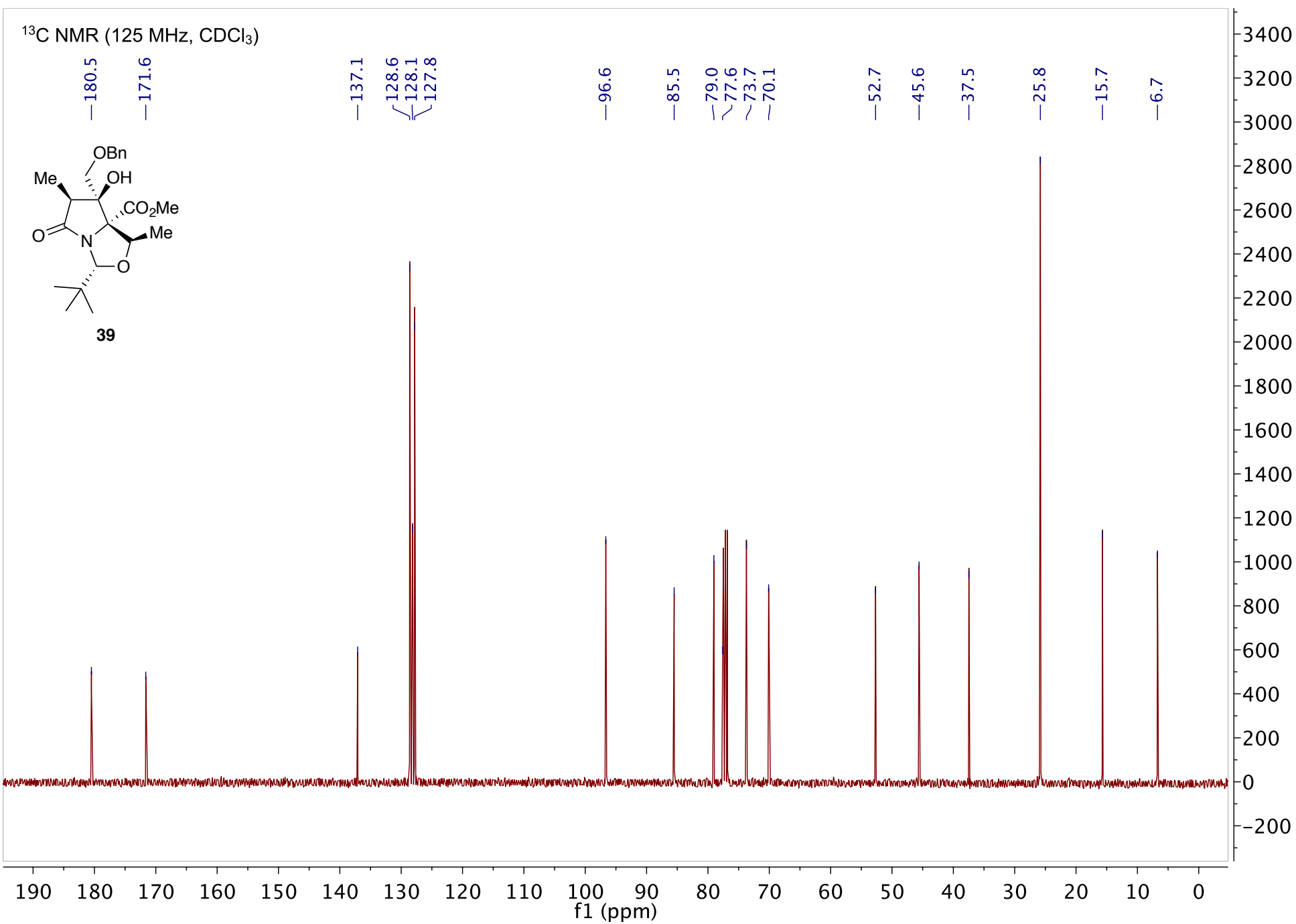
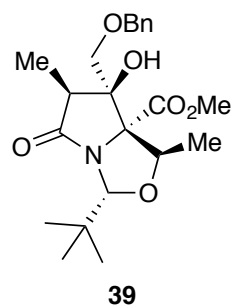




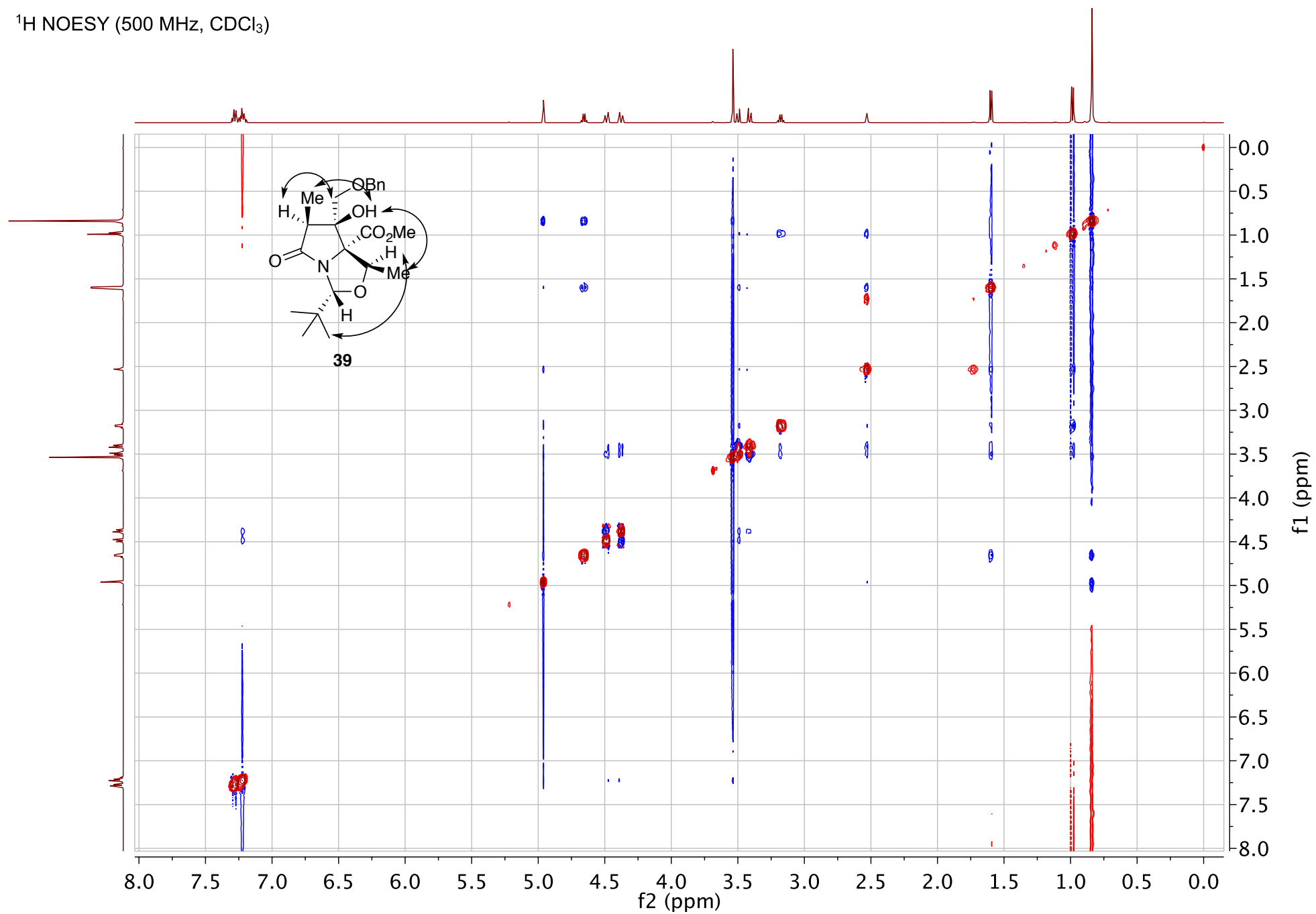


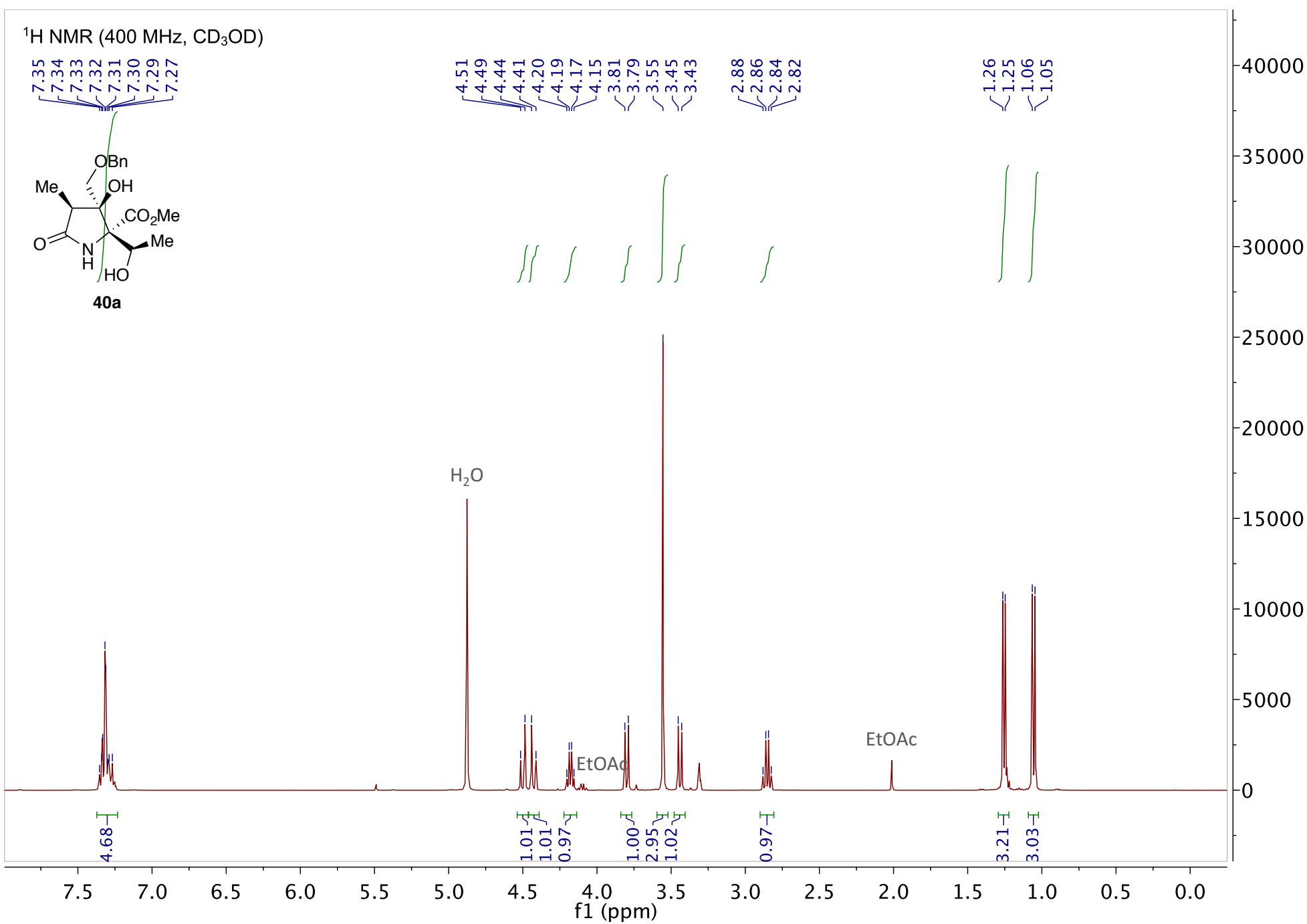


¹³C NMR (125 MHz, CDCl₃)

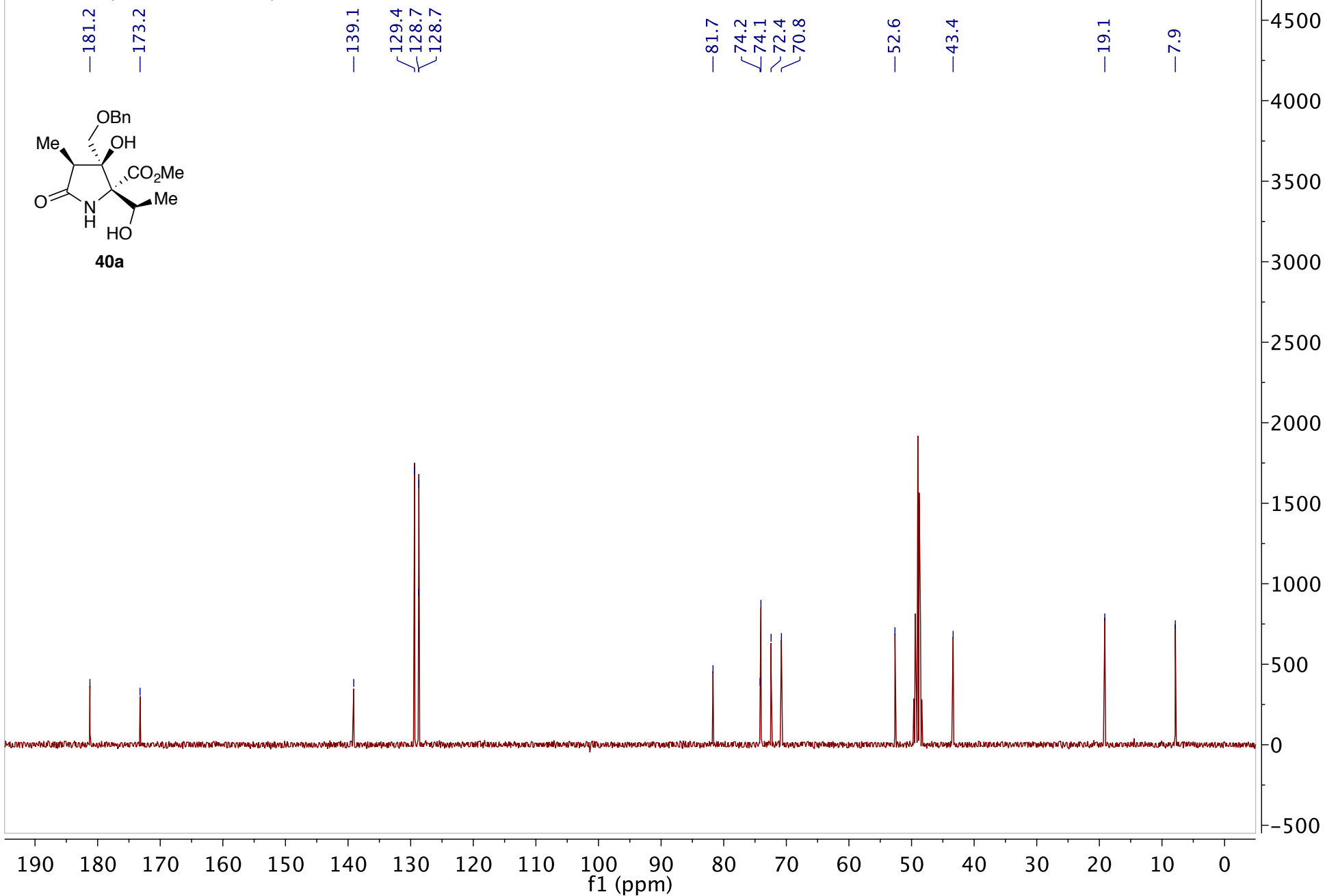
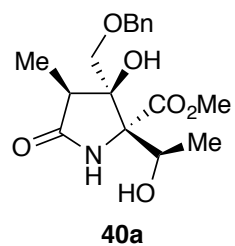


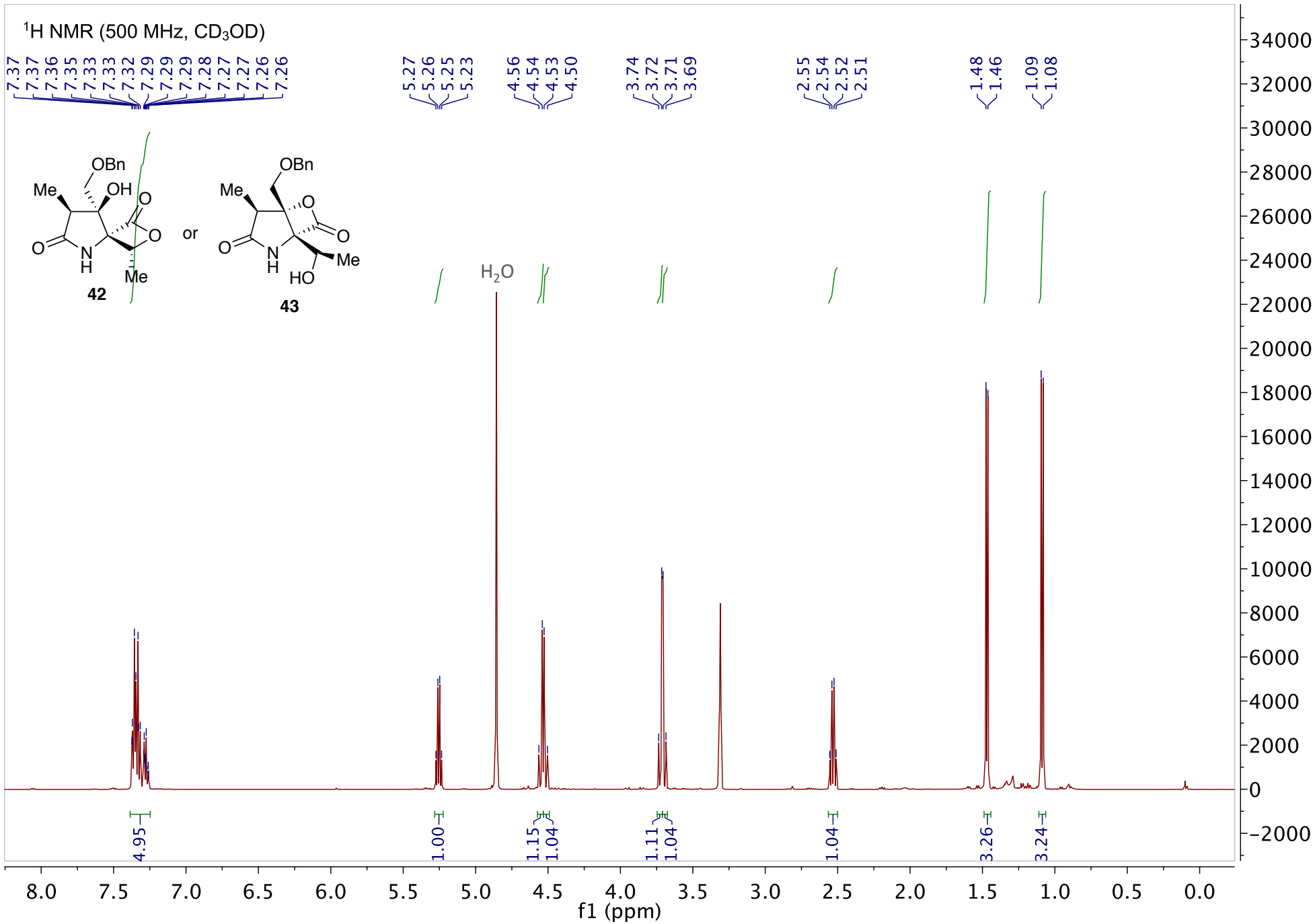
^1H NOESY (500 MHz, CDCl_3)



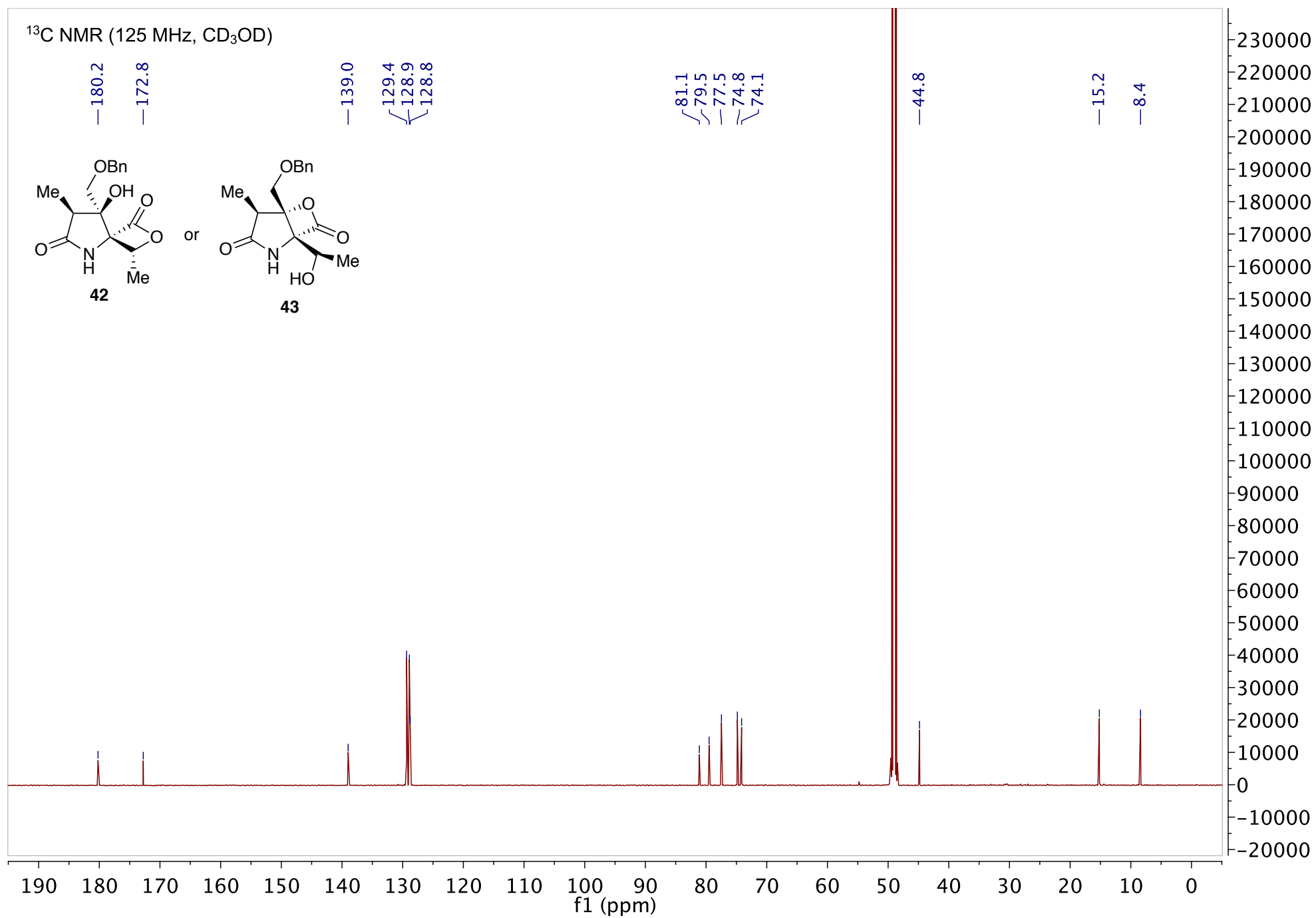
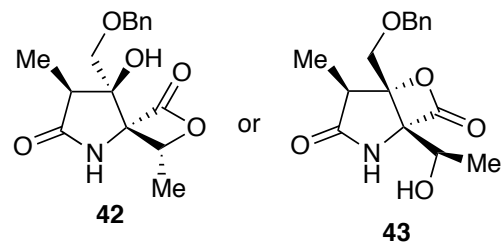


¹³C NMR (100 MHz, CD₃OD)

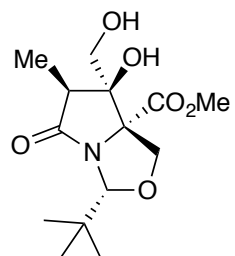




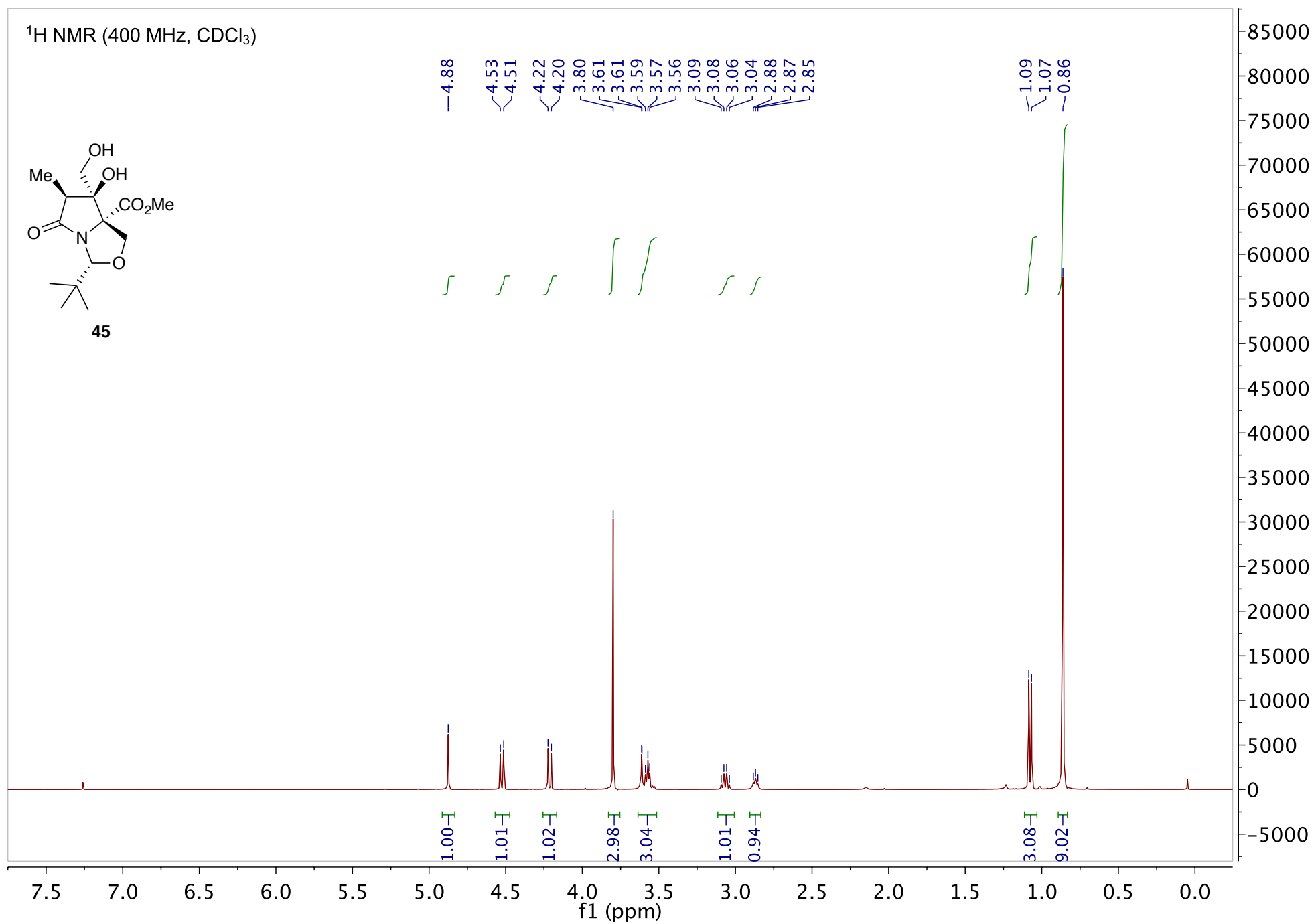
^{13}C NMR (125 MHz, CD_3OD)



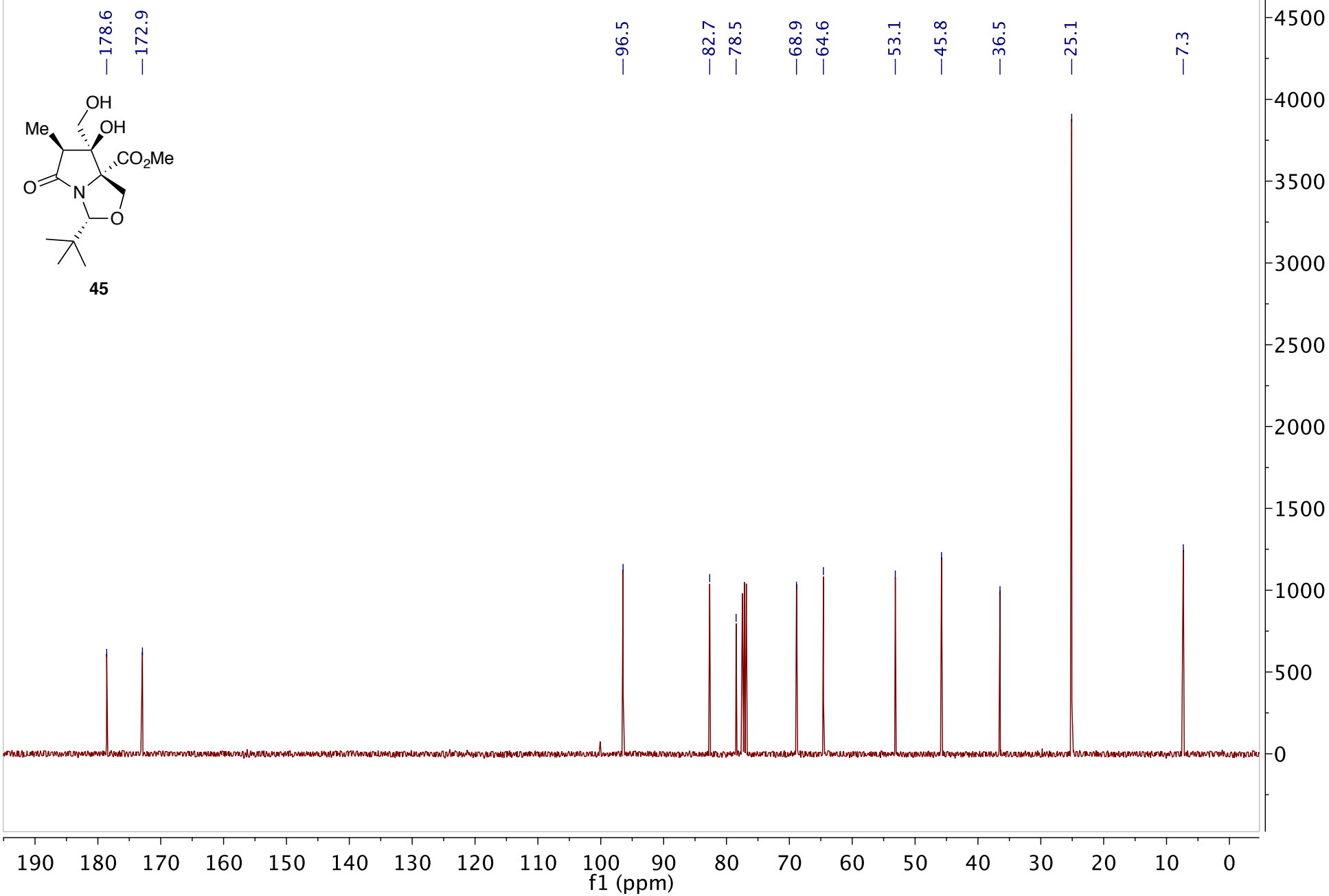
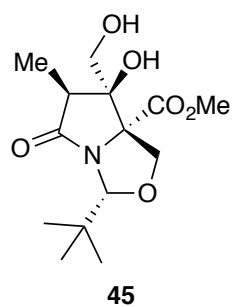
¹H NMR (400 MHz, CDCl₃)



45



^{13}C NMR (100 MHz, CDCl_3)



¹H NMR (500 MHz, CDCl₃)

