



Supporting Information

for

Total synthesis of the O-antigen repeating unit of *Providencia stuartii* O49 serotype through linear and one-pot assemblies

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Copies of ^1H and ^{13}C NMR spectra of all known and new compounds synthesized

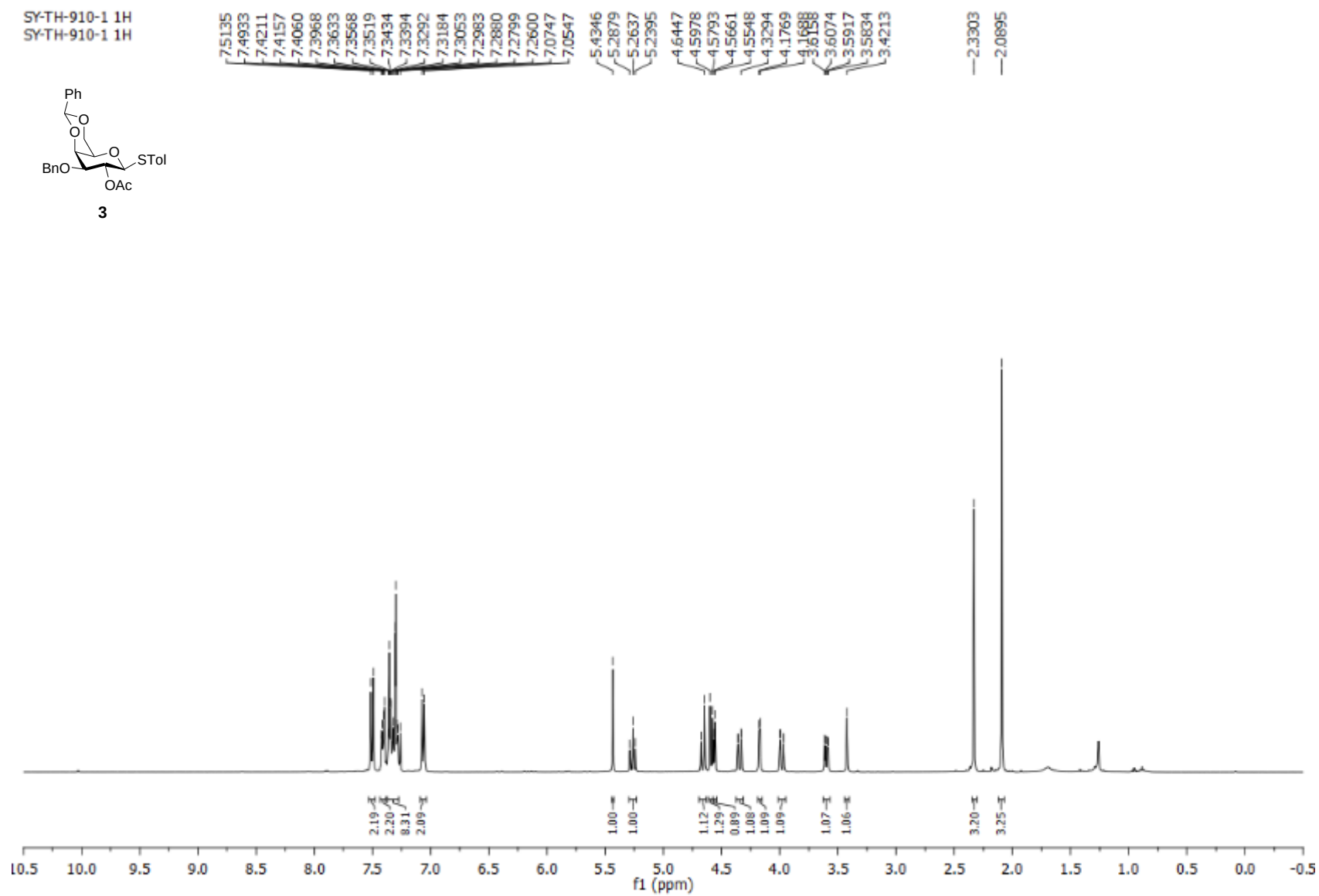


Figure S1: ^1H NMR spectrum (400 MHz, CDCl_3) of compound **3**.

SY-TH-910-1 13C
SY-TH-910-1 13C

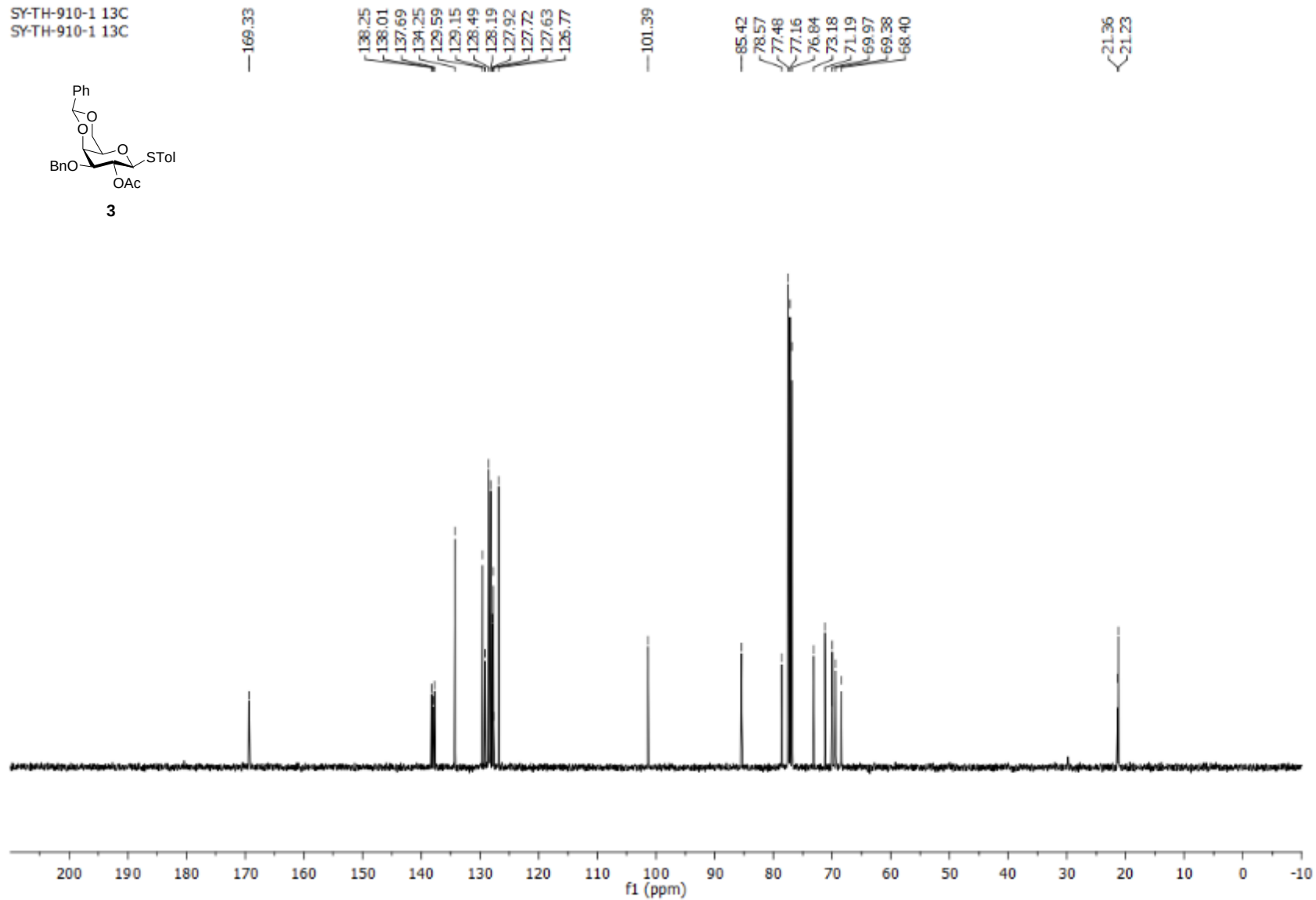
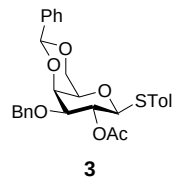


Figure S2: ^{13}C NMR spectrum (100 MHz, CDCl_3) of compound **3**.

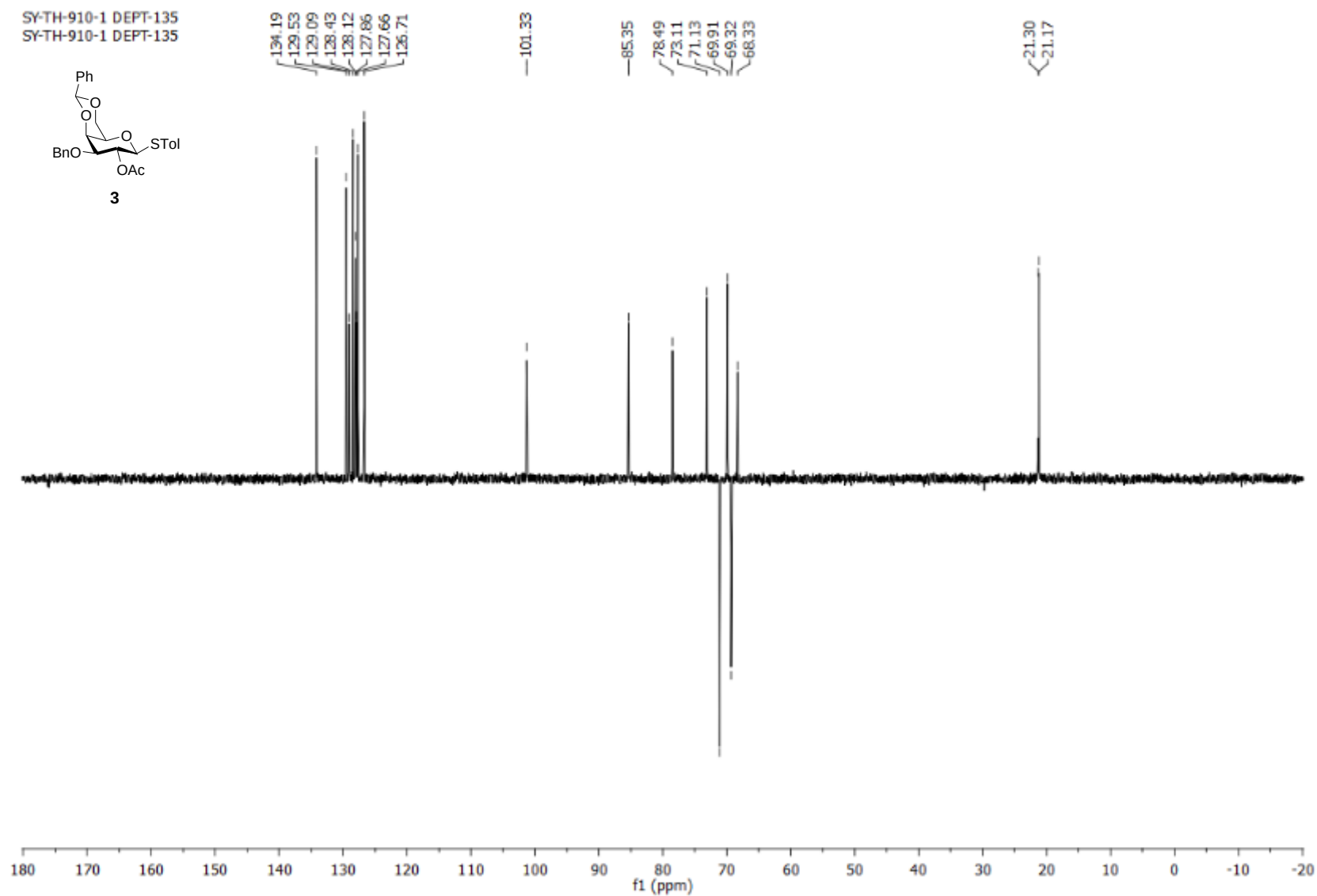


Figure S3: DEPT-135-NMR spectrum (100 MHz, CDCl₃) of compound **3**.

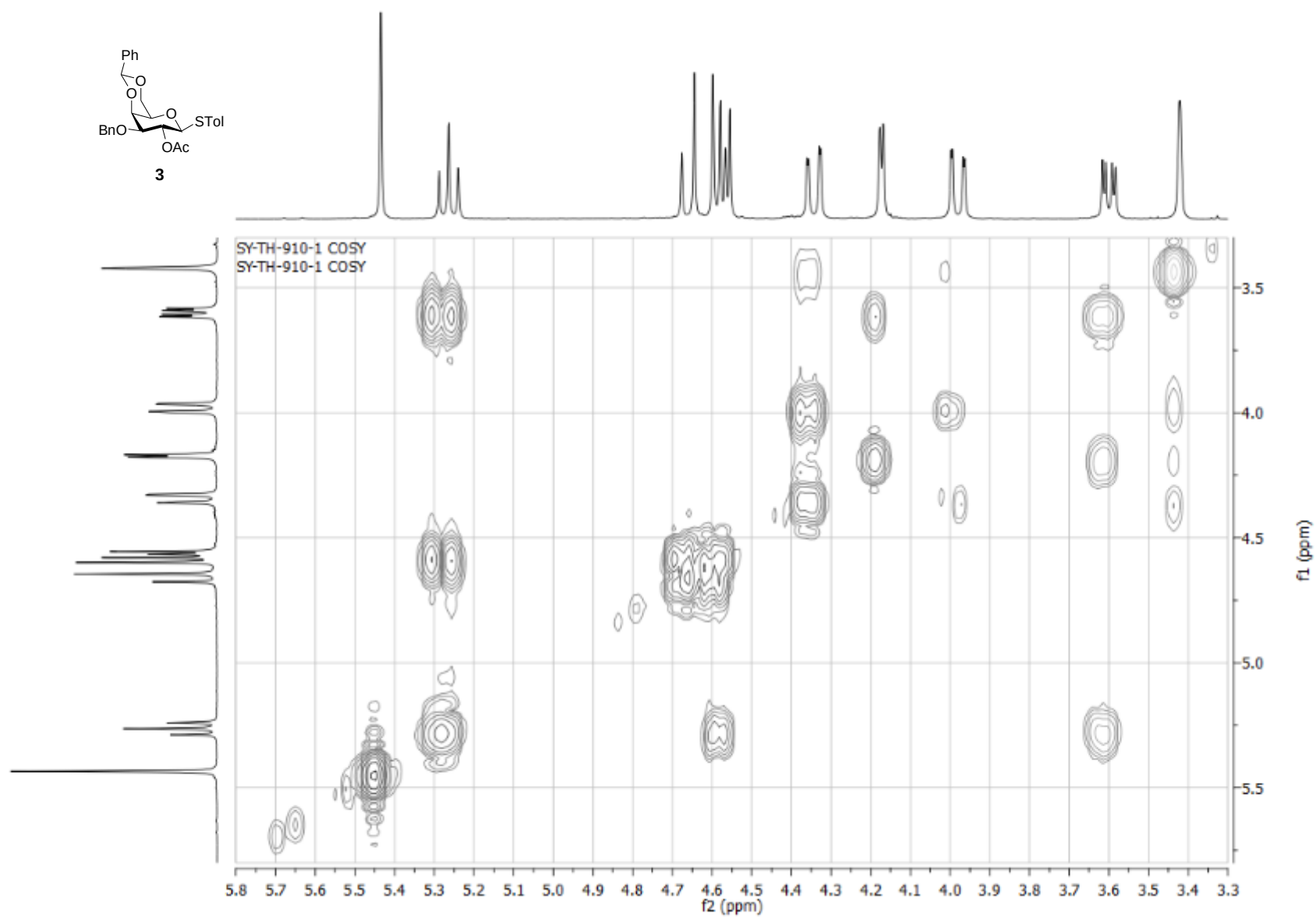


Figure S4: ^1H , ^1H -COSY-NMR spectrum (400 MHz, CDCl_3) of compound **3**.

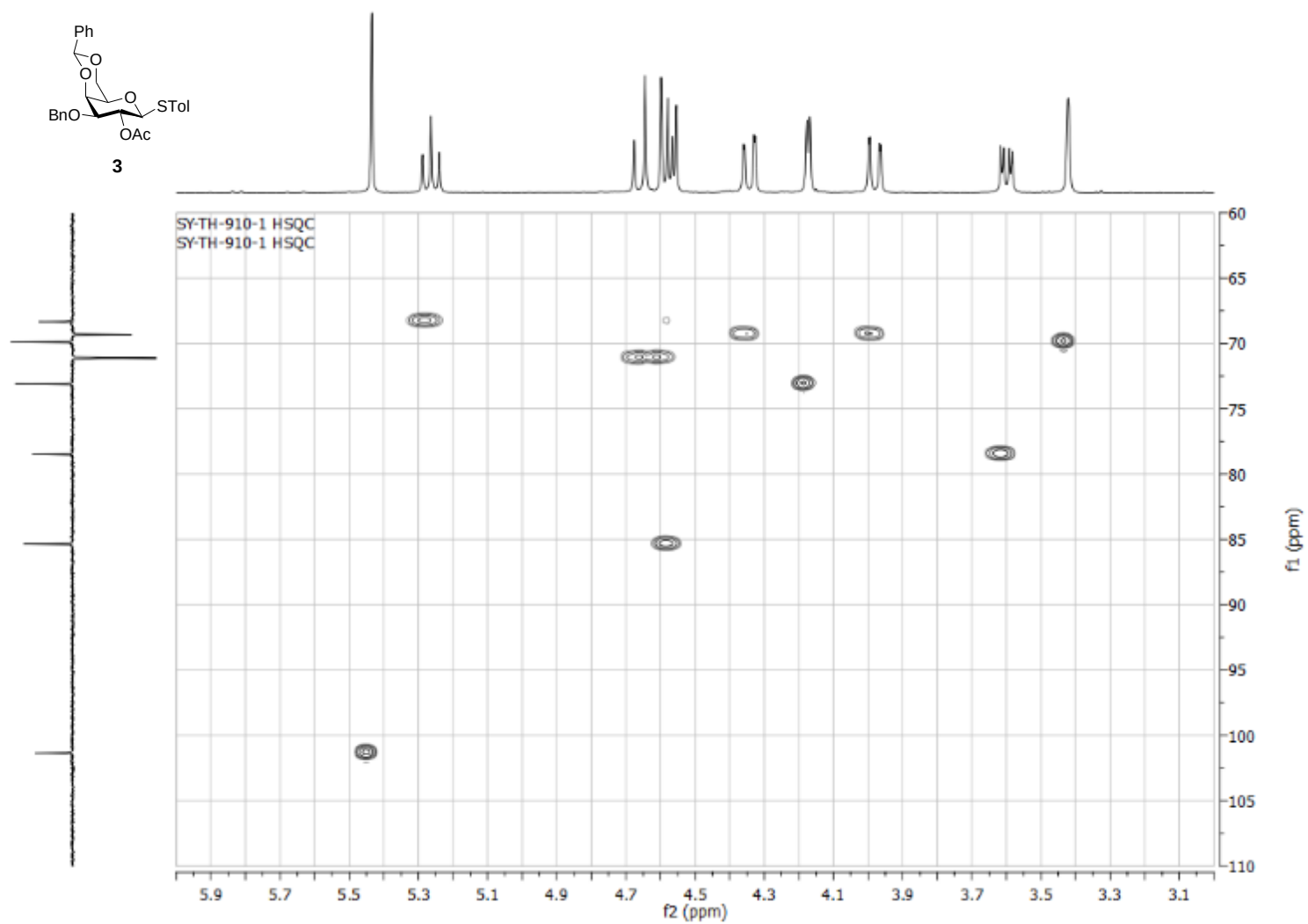


Figure S5: HSQC-NMR spectrum (400 MHz, CDCl₃) of compound **3**.

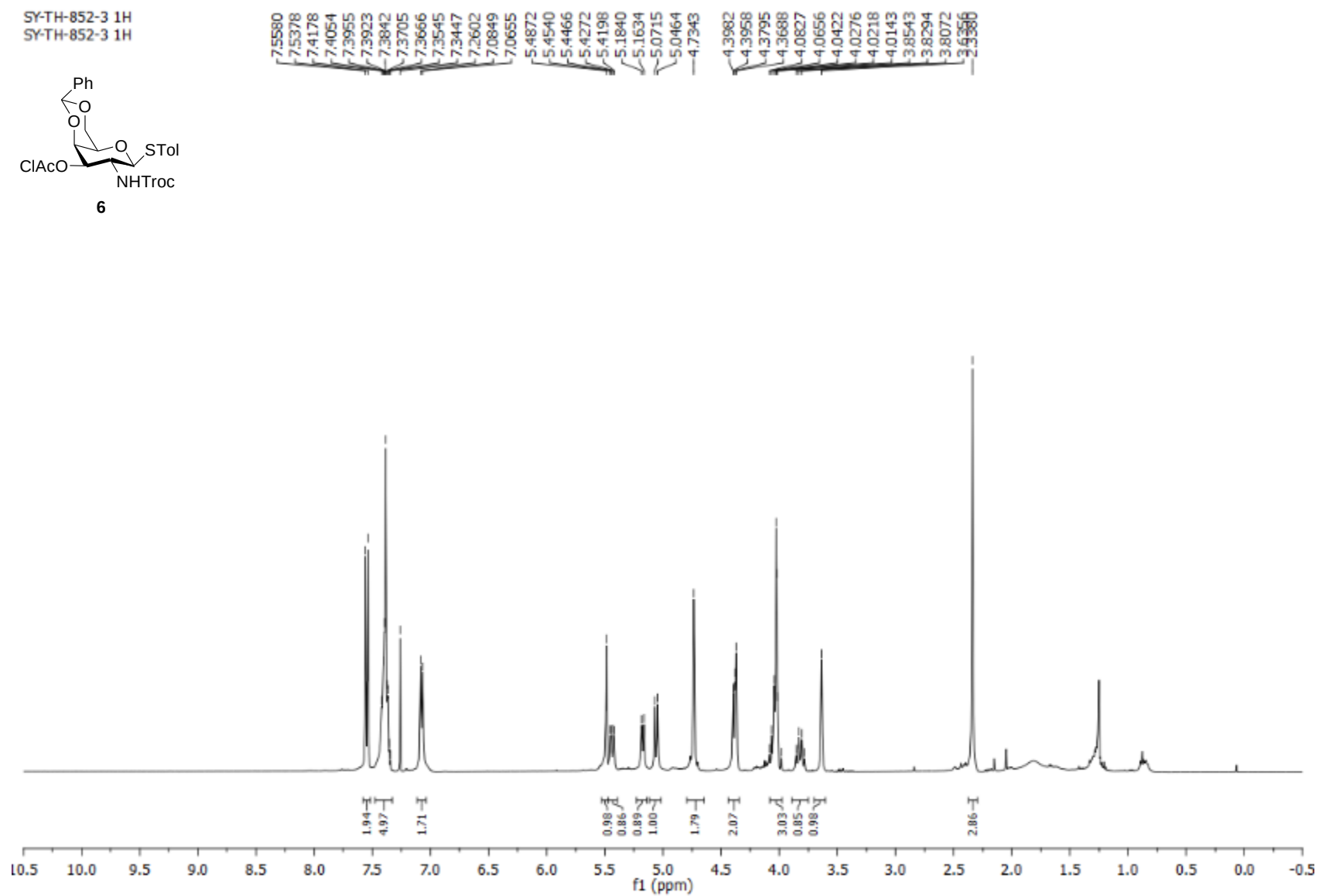


Figure S6: ^1H NMR spectrum (400 MHz, CDCl_3) of compound **6**.

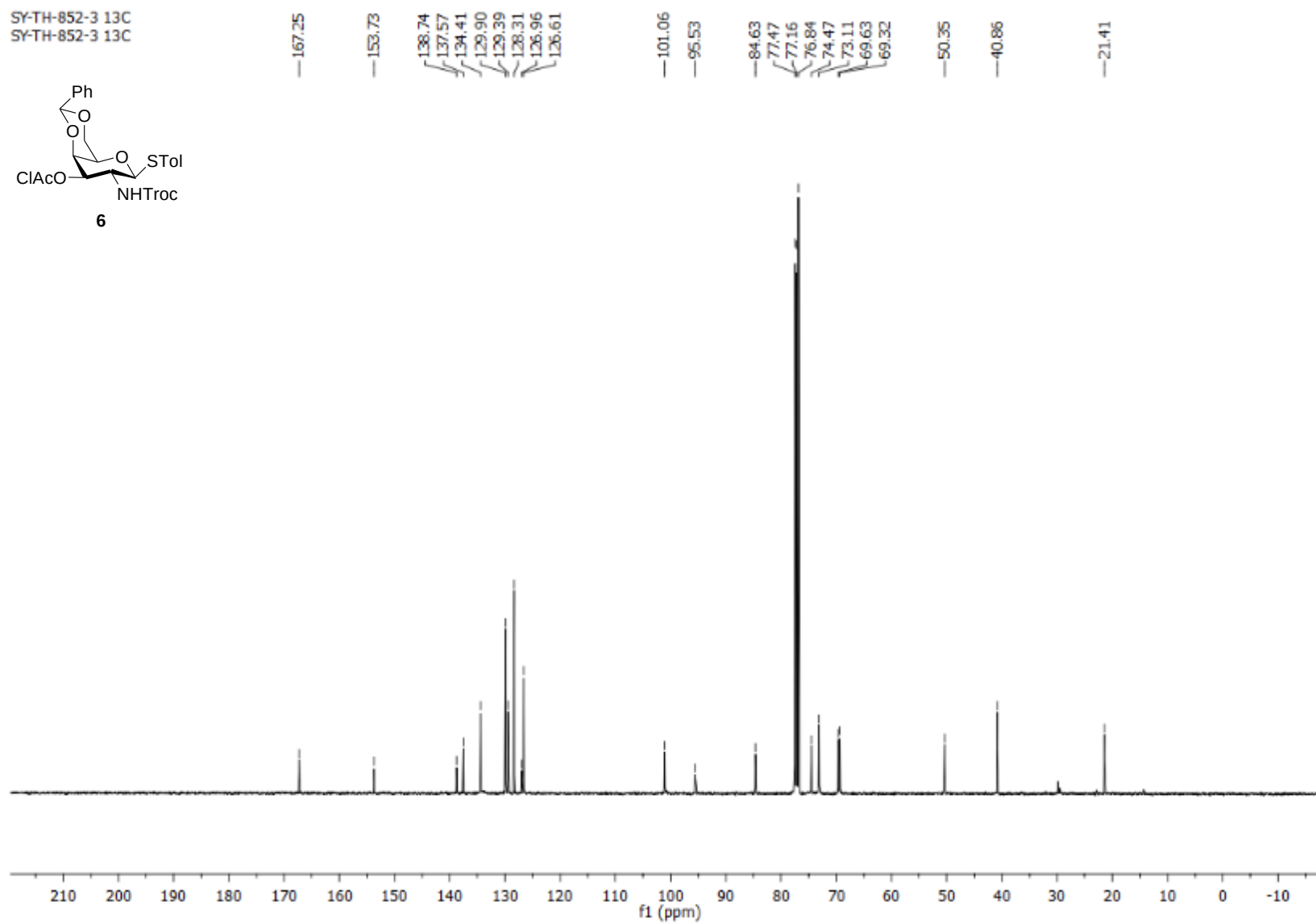


Figure S7: ^{13}C NMR spectrum (100 MHz, CDCl_3) of compound **6**.

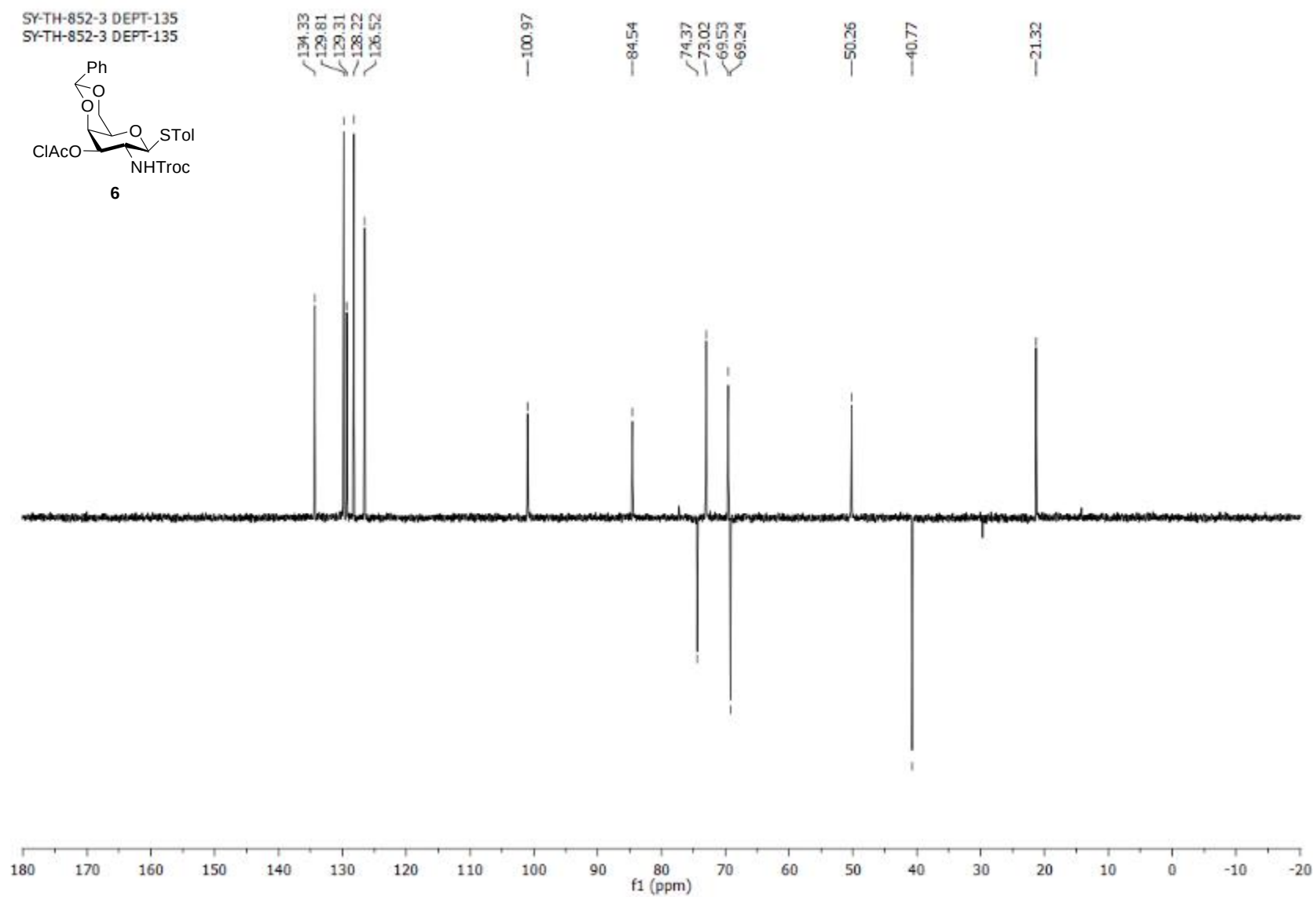


Figure S8: DEPT-135-NMR spectrum (100 MHz, CDCl₃) of compound **6**.

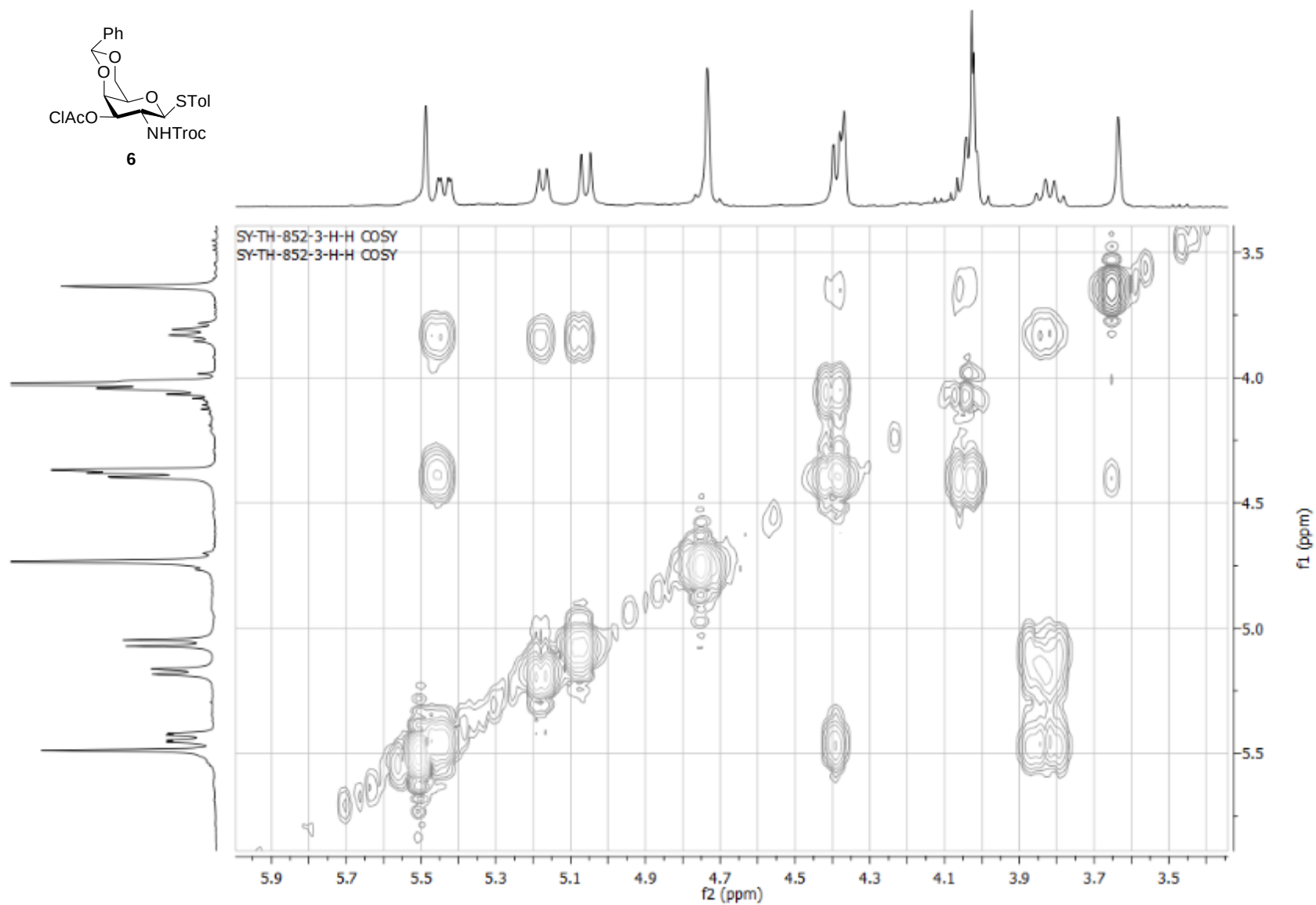


Figure S9: ^1H , ^1H -COSY-NMR spectrum (400 MHz, CDCl_3) of compound **6**.

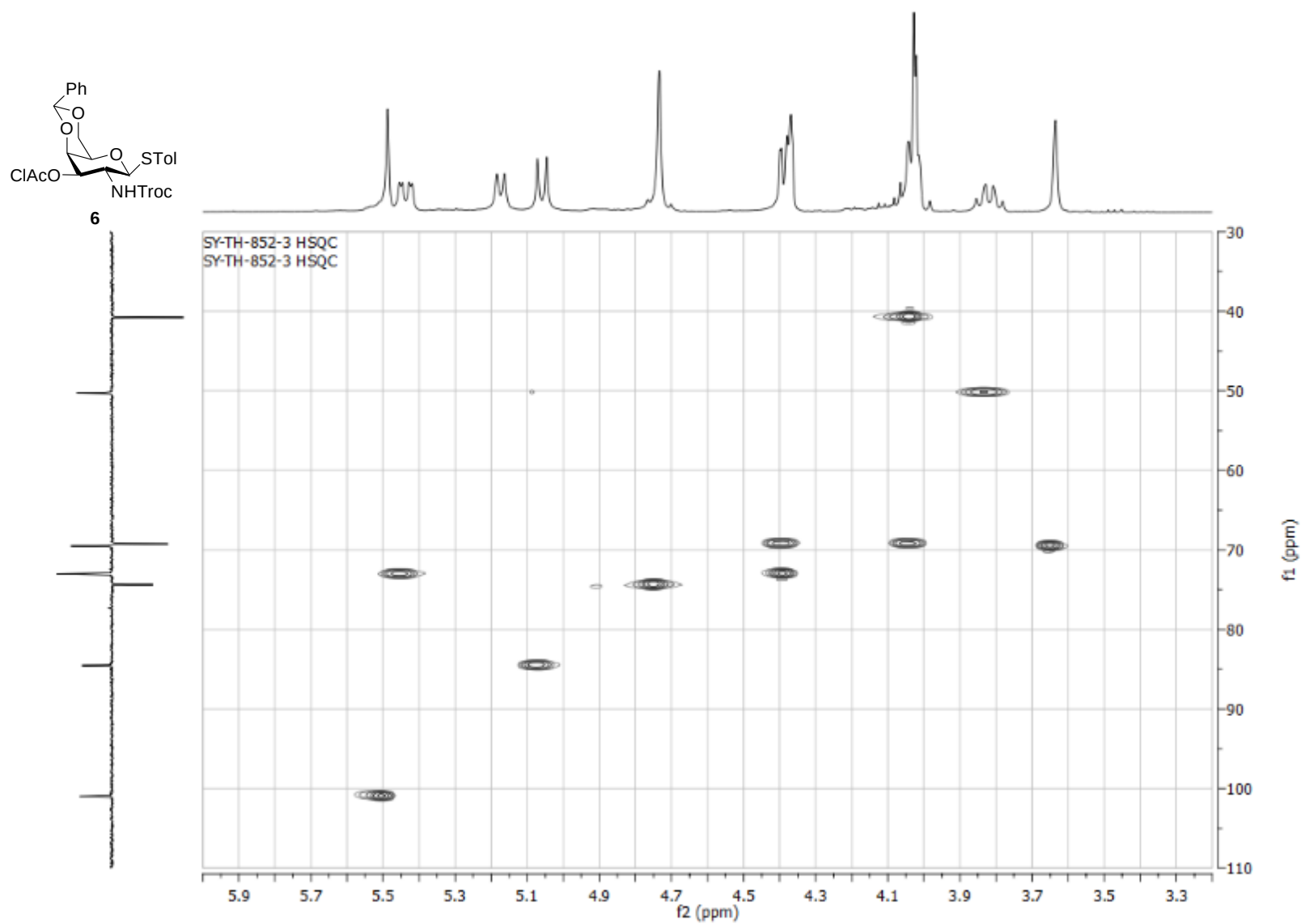


Figure S10: HSQC-NMR spectrum (400 MHz, CDCl₃) of compound **6**.

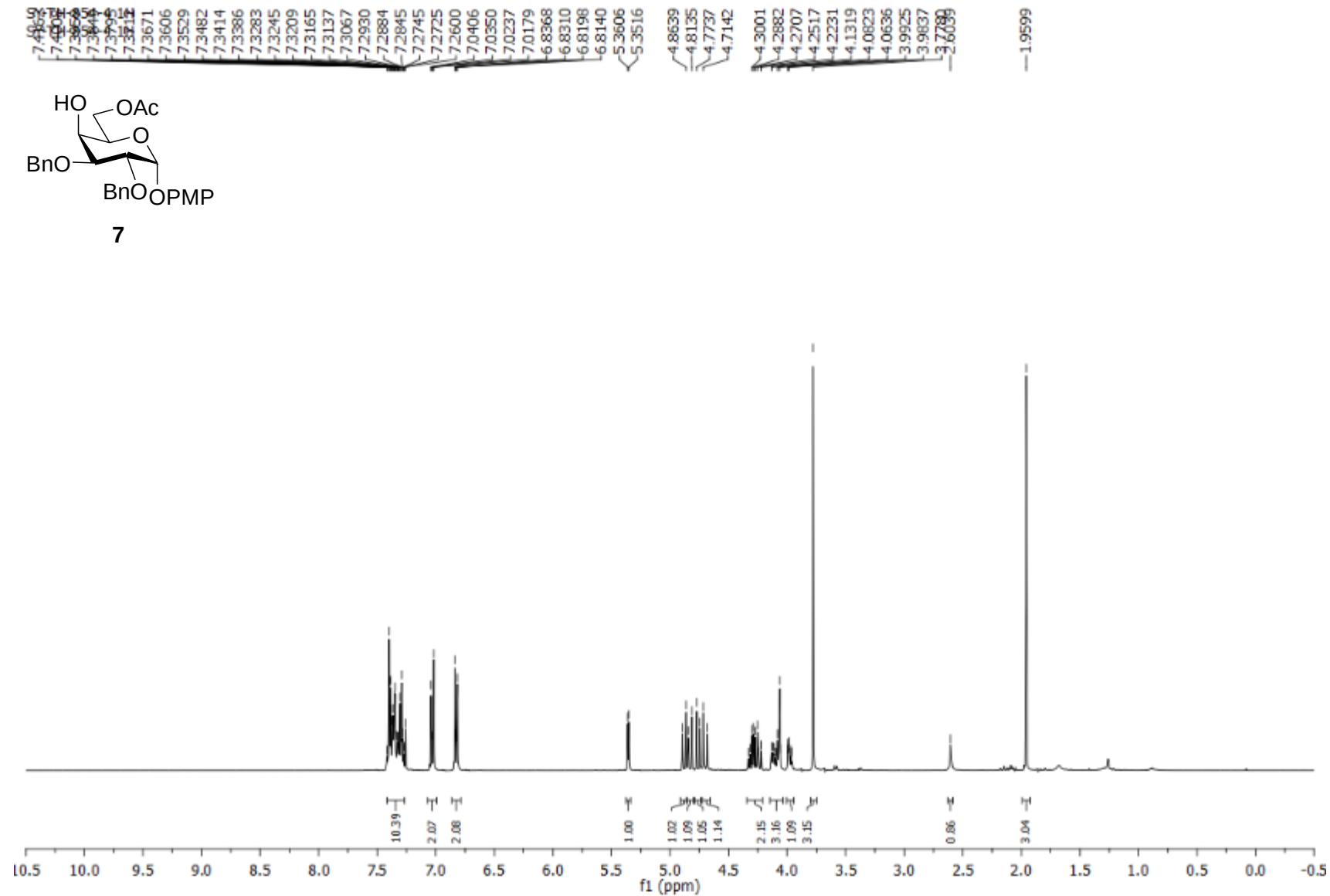


Figure S11. ^1H NMR spectrum (400 MHz, CDCl_3) of compound 7.

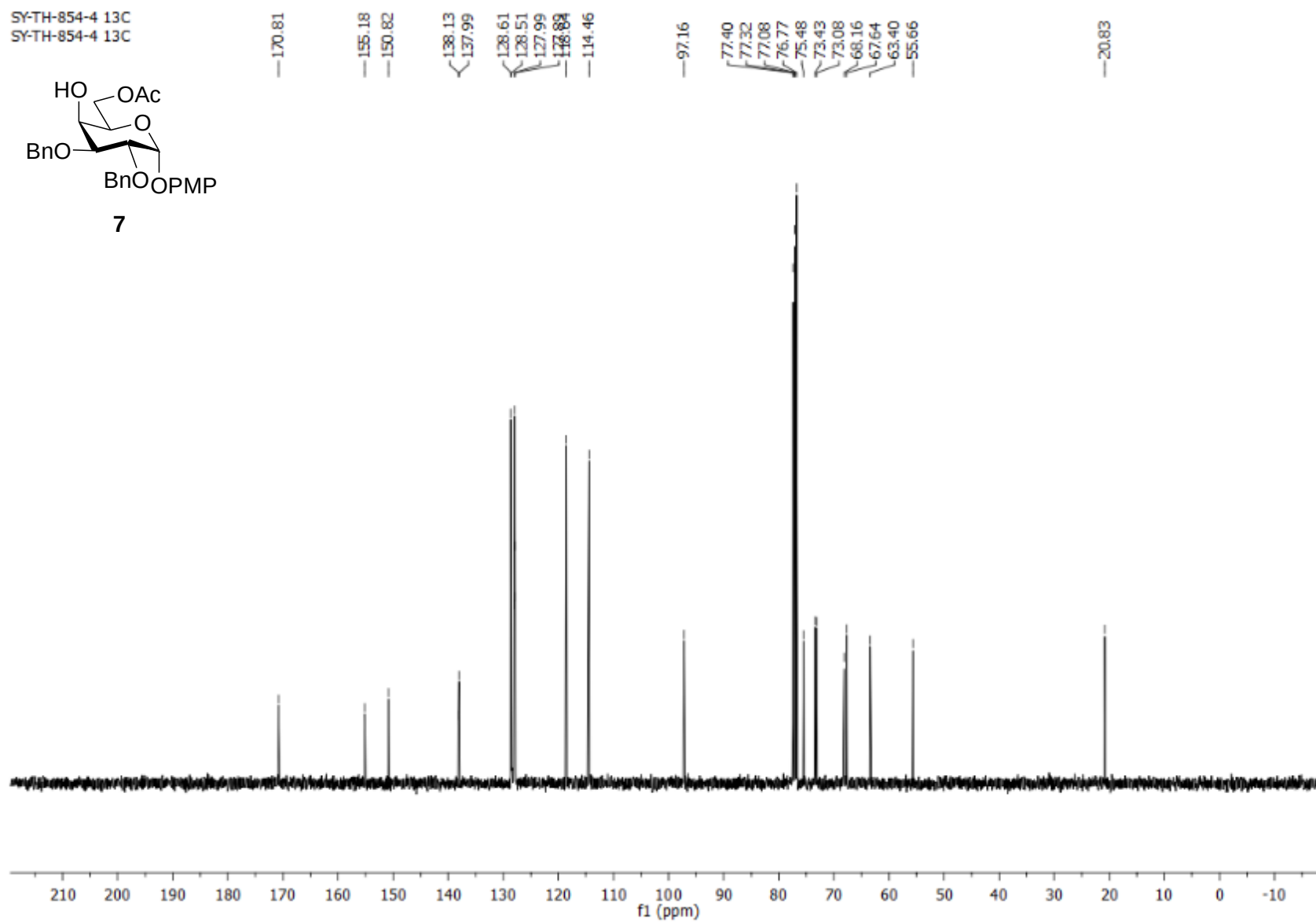


Figure S12: ^{13}C NMR spectrum (100 MHz, CDCl_3) of compound **7**.

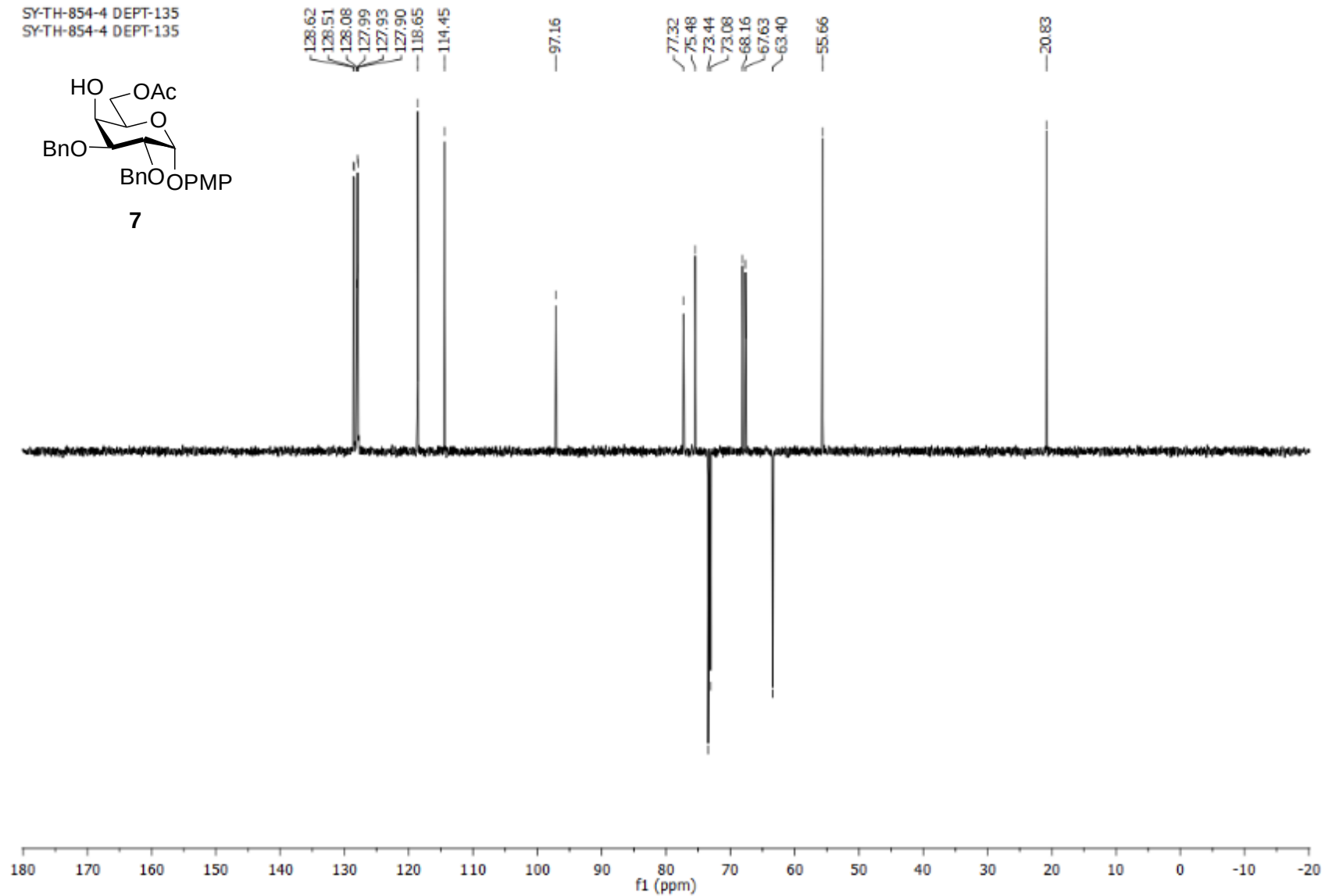


Figure S13: DEPT-135-NMR spectrum (100 MHz, CDCl_3) of compound 7.

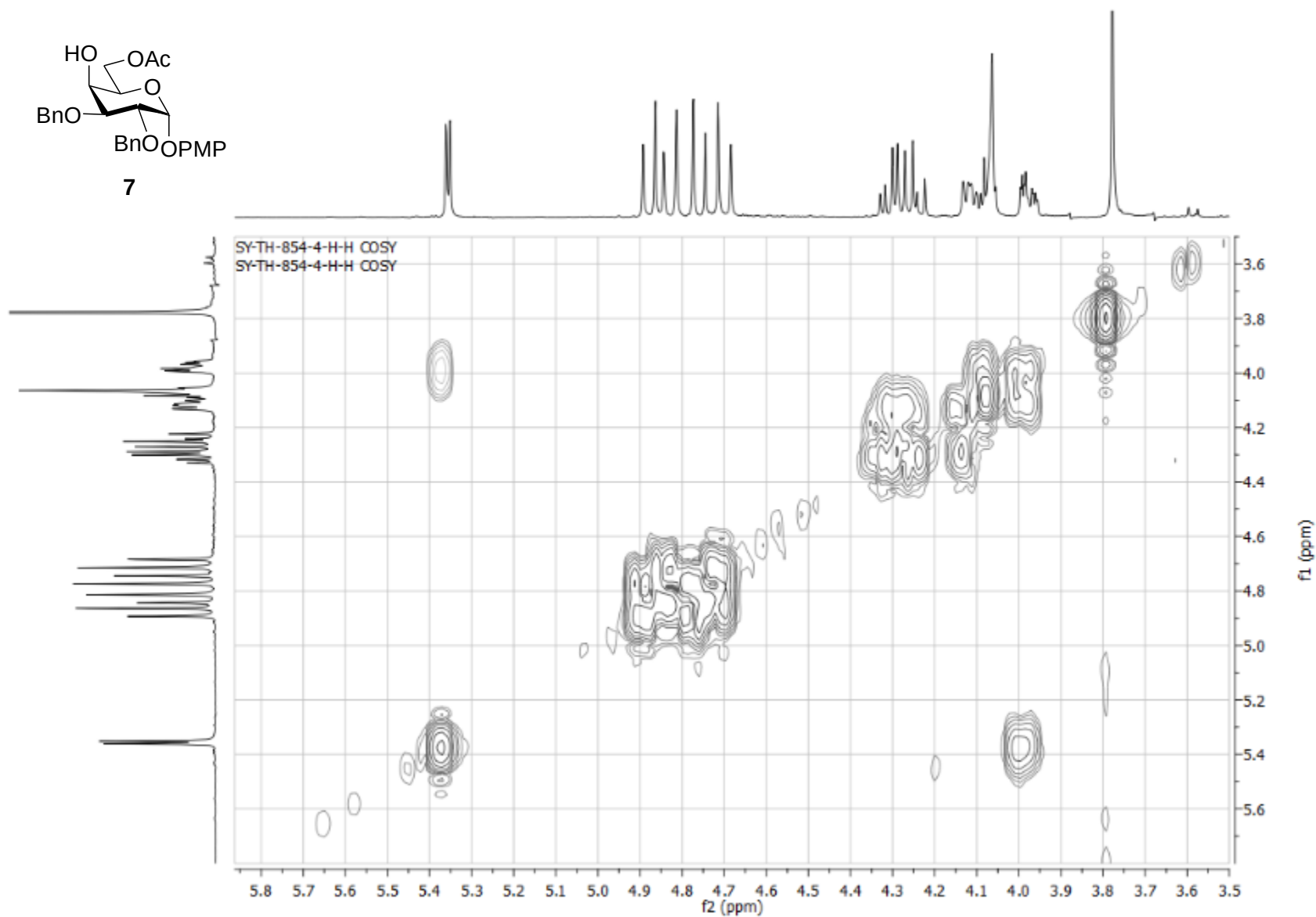
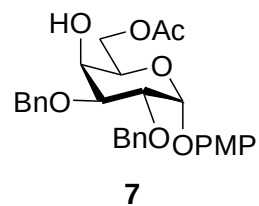


Figure S14: ^1H , ^1H -COSY-NMR spectrum (400 MHz, CDCl_3) of compound **7**.

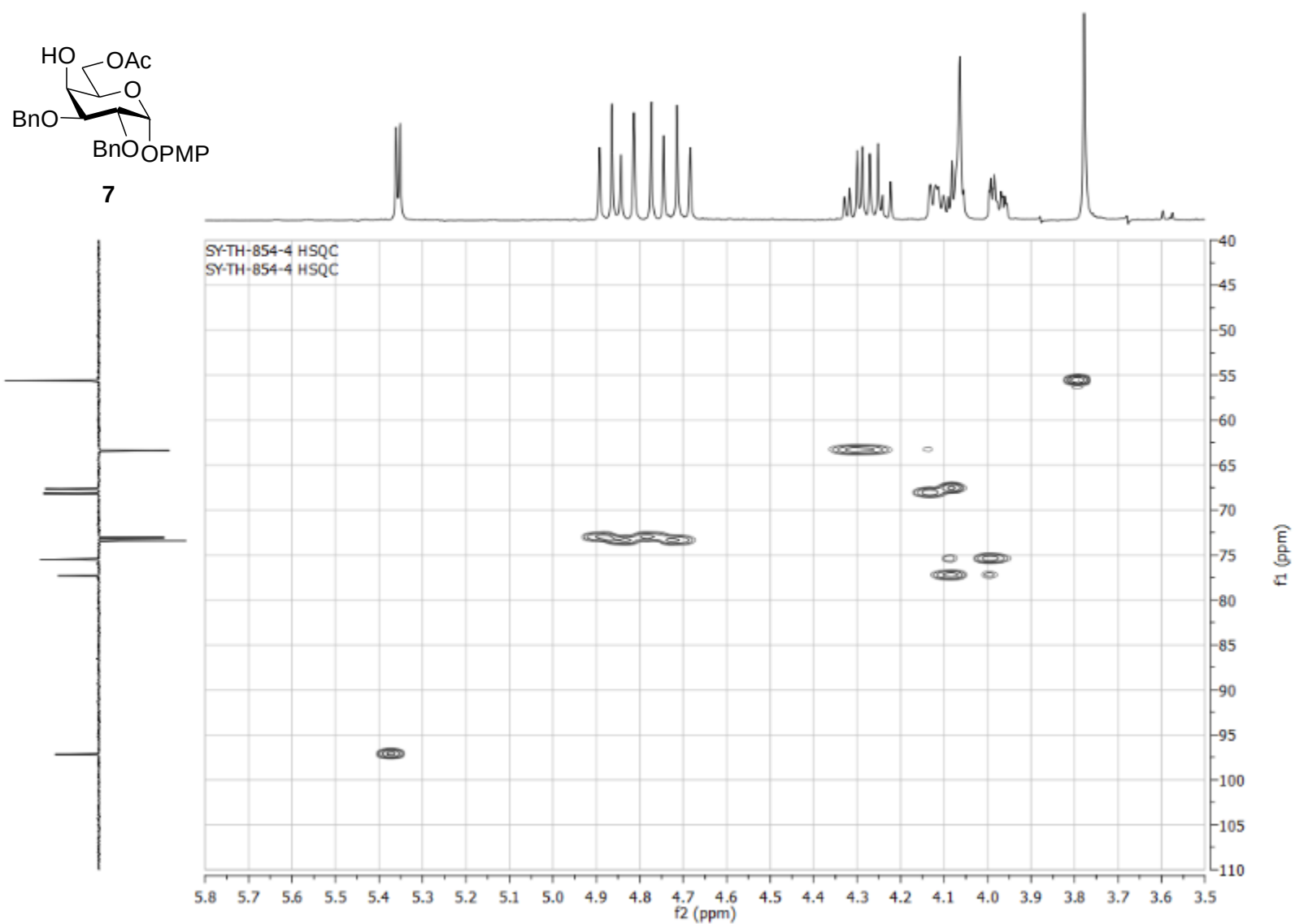


Figure S15: HSQC-NMR spectrum (400 MHz, CDCl₃) of compound 7.

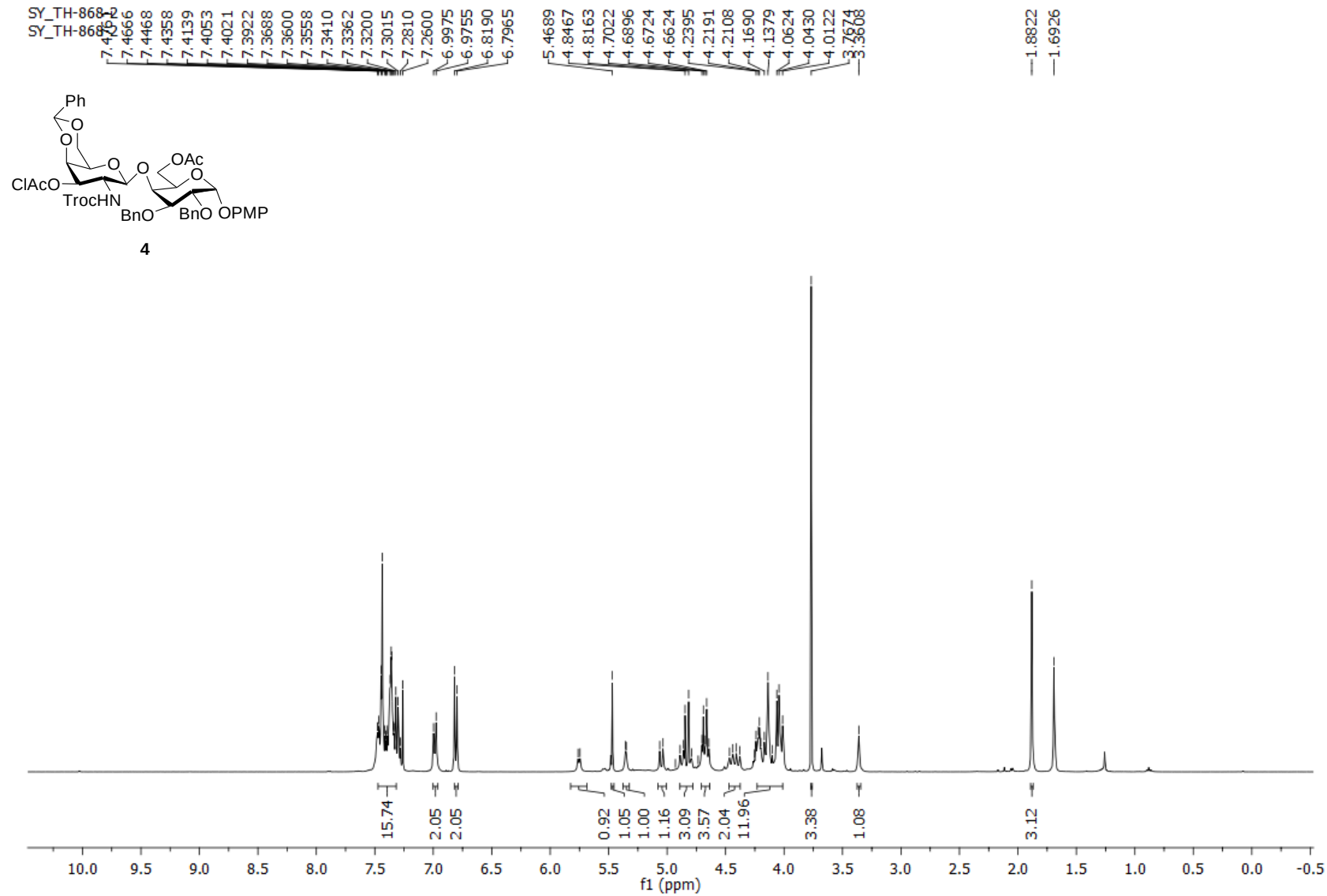


Figure S16: ¹H NMR spectrum (400 MHz, CDCl₃) of compound **4**.

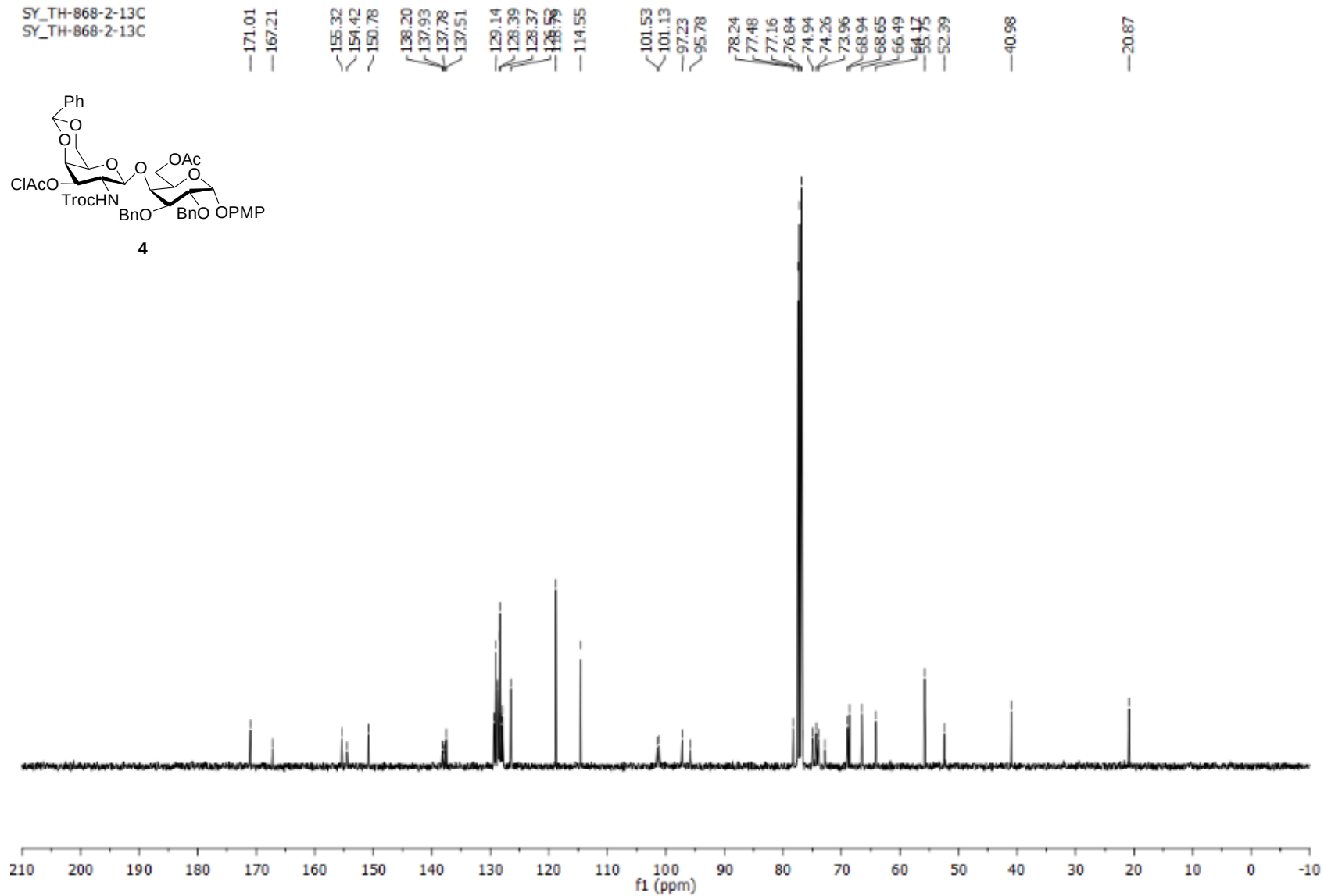


Figure S17: ^{13}C NMR spectrum (100 MHz, CDCl_3) of compound 4.

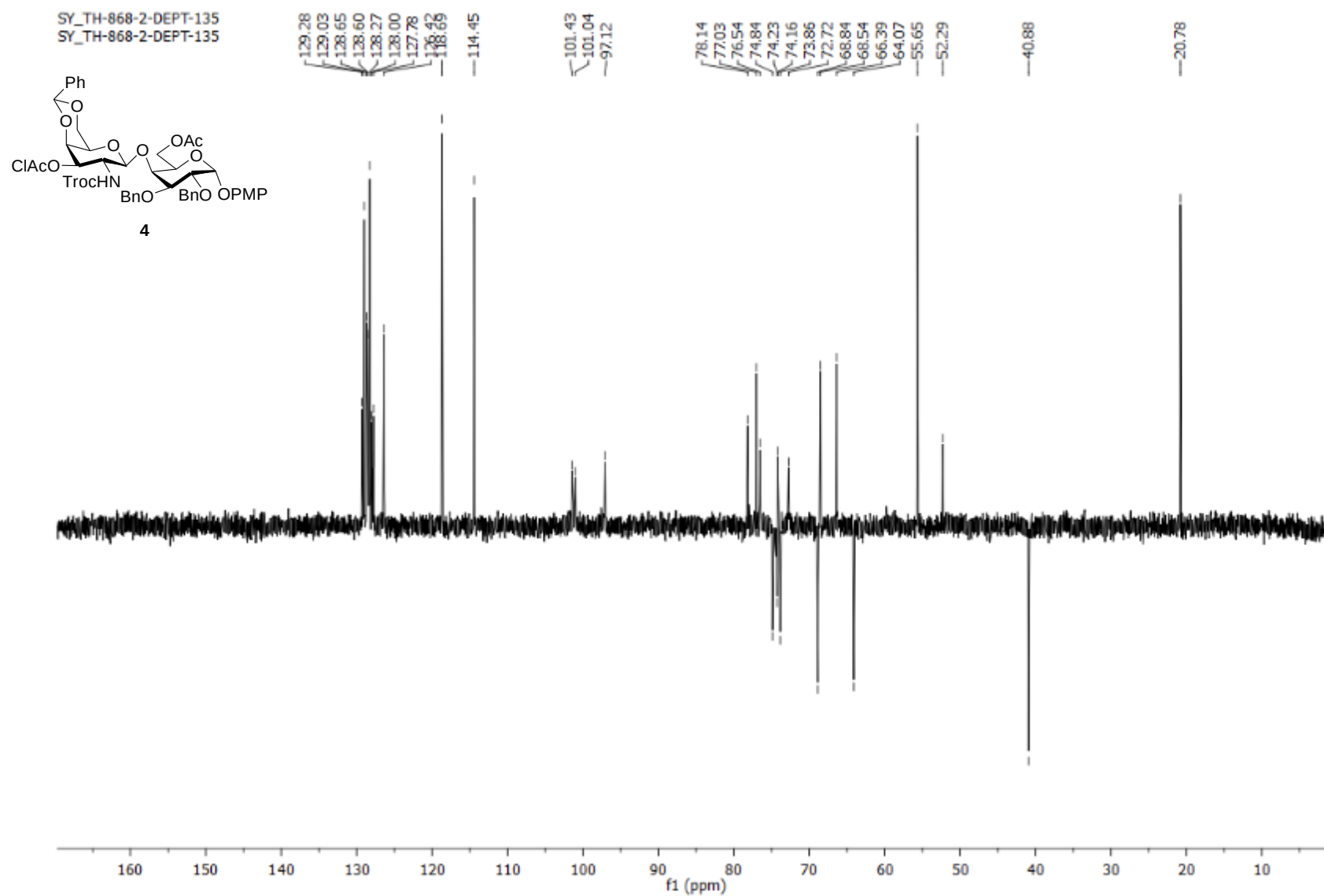


Figure S18: DEPT-135-NMR spectrum (100 MHz, CDCl₃) of compound 4.

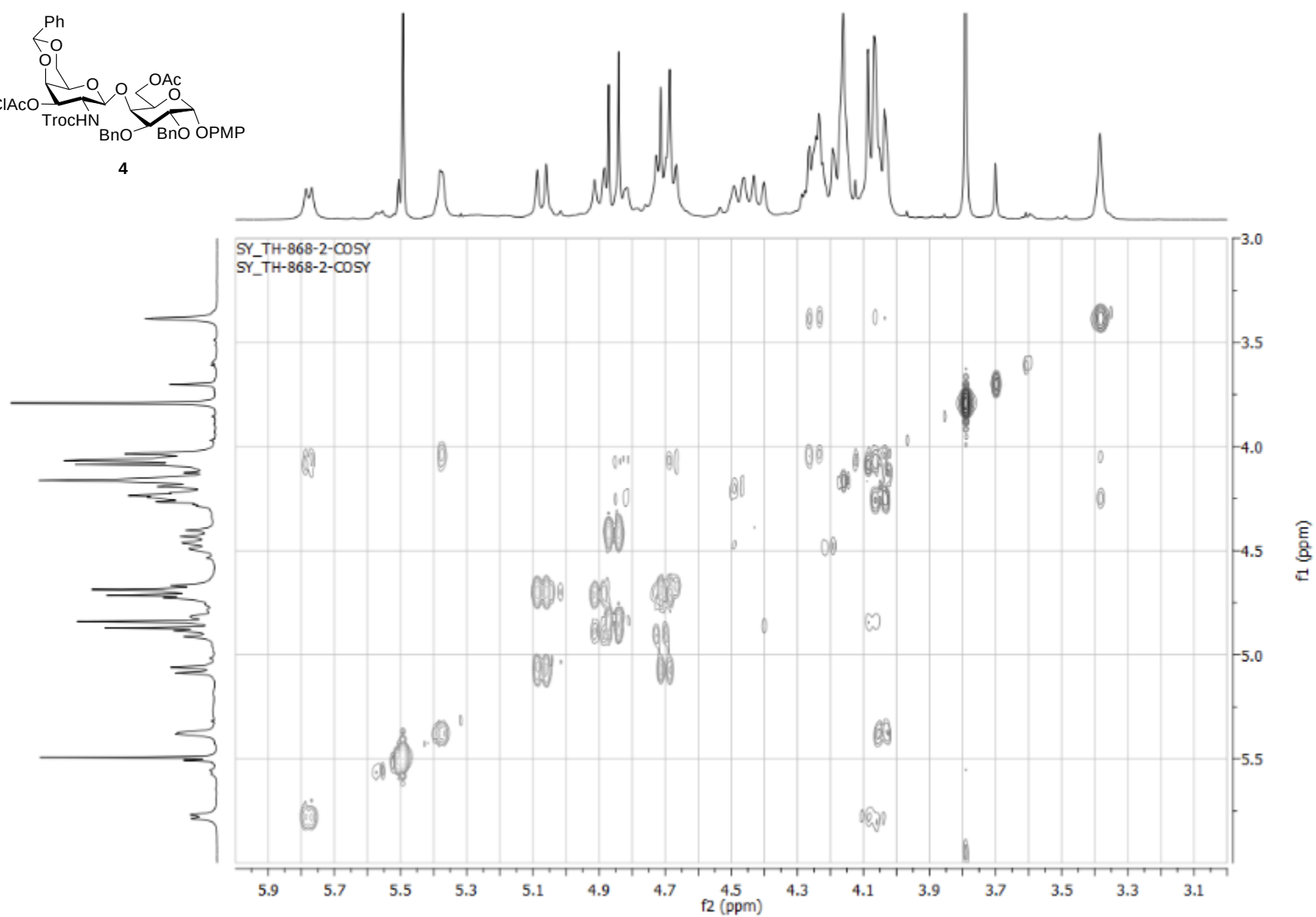
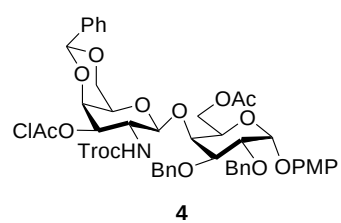


Figure S19: ^1H , ^1H -COSY-NMR spectrum (400 MHz, CDCl_3) of compound **4**.

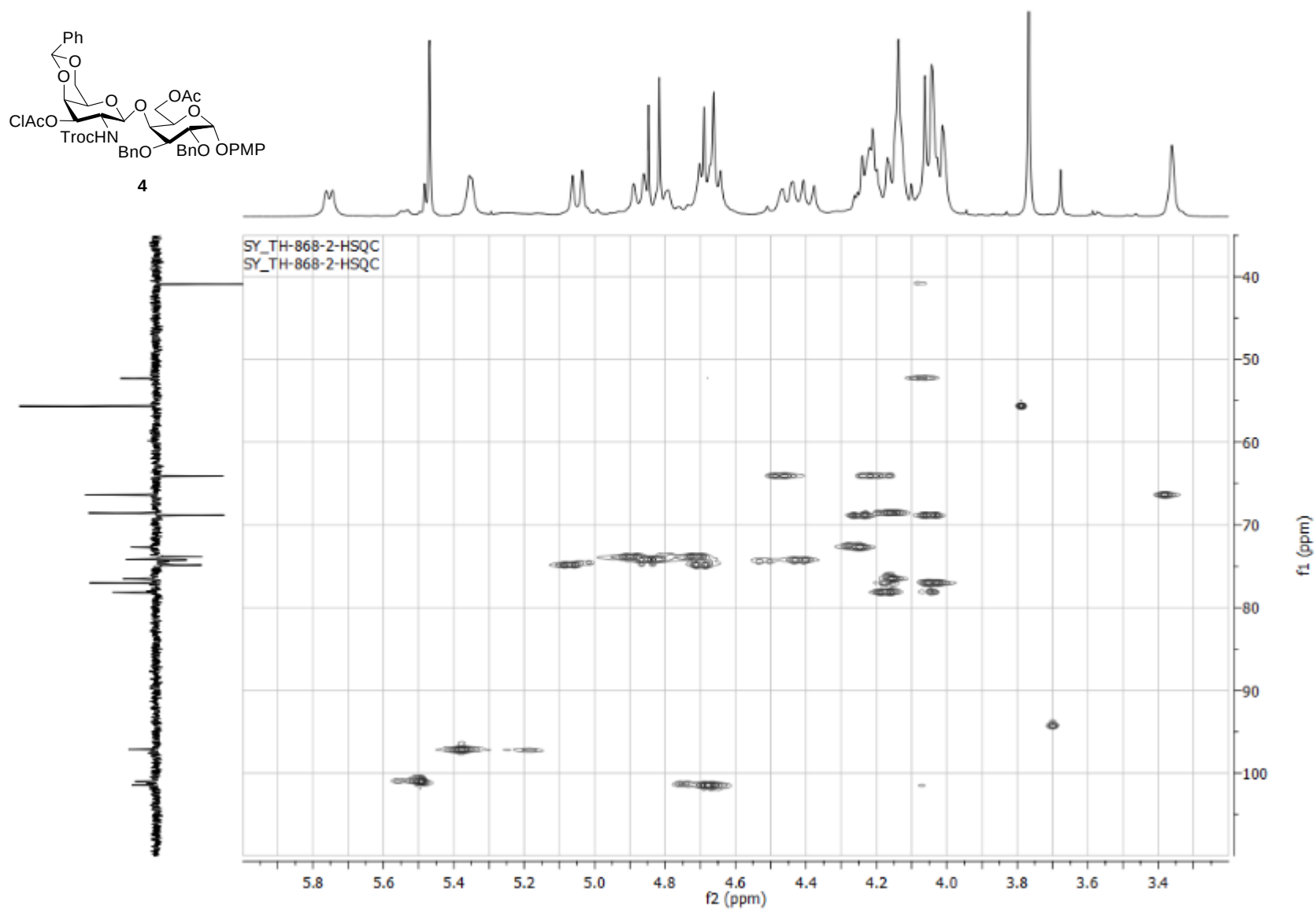


Figure S20: HSQC-NMR spectrum (400 MHz, CDCl₃) of compound 4.

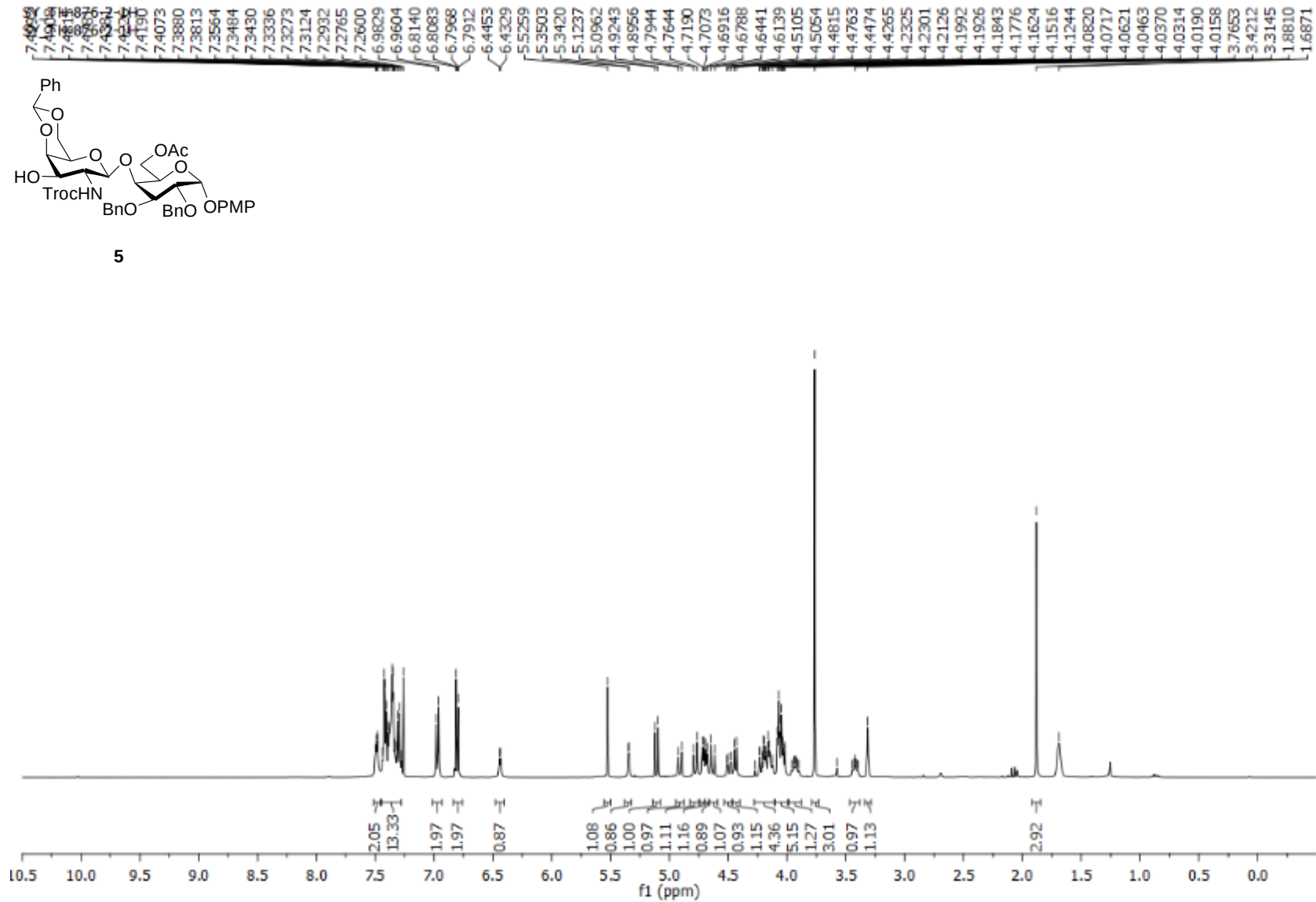


Figure S21: ¹H NMR spectrum (400 MHz, CDCl₃) of compound 5.

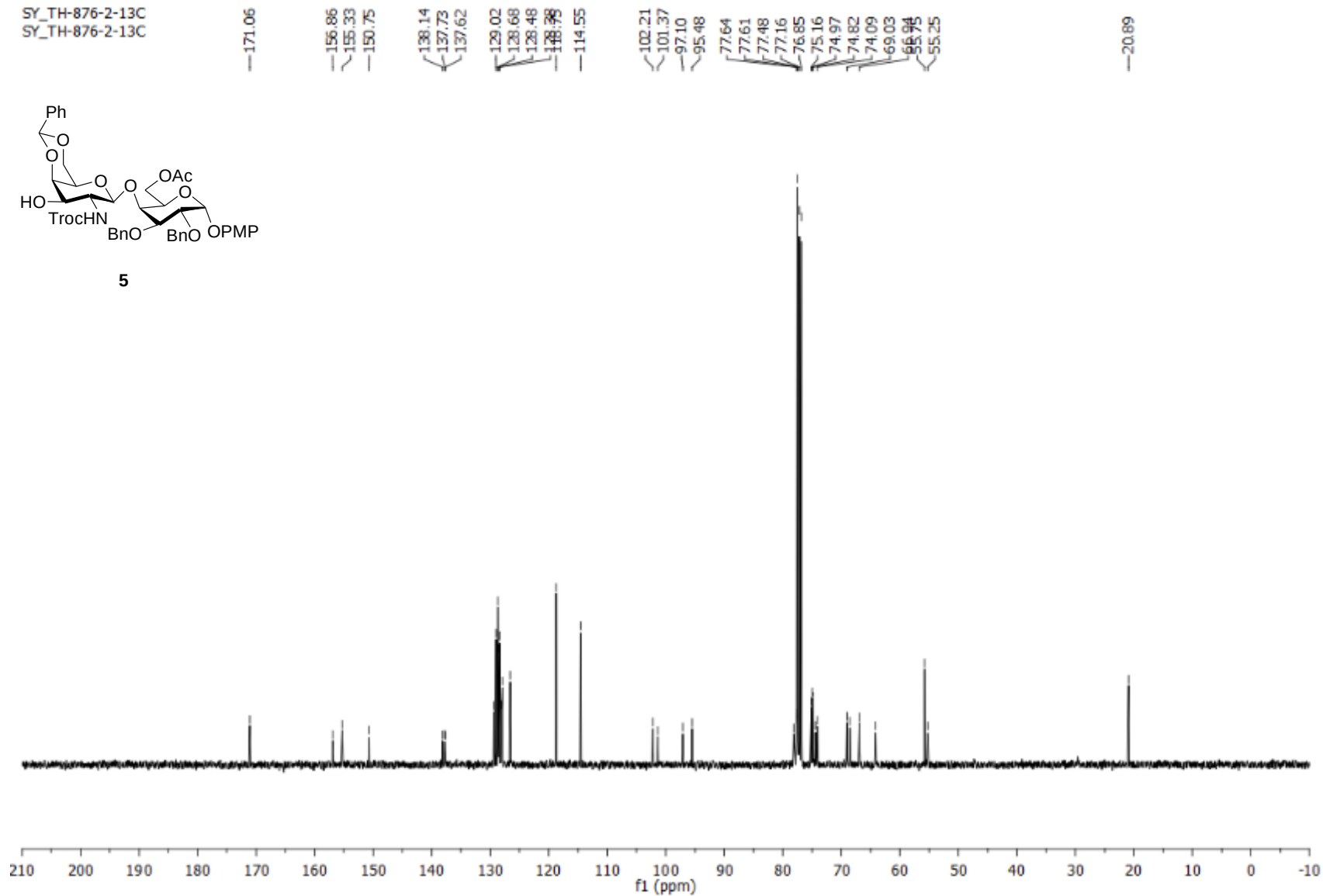


Figure S22: ¹³C NMR spectrum (100 MHz, CDCl₃) of compound 5.

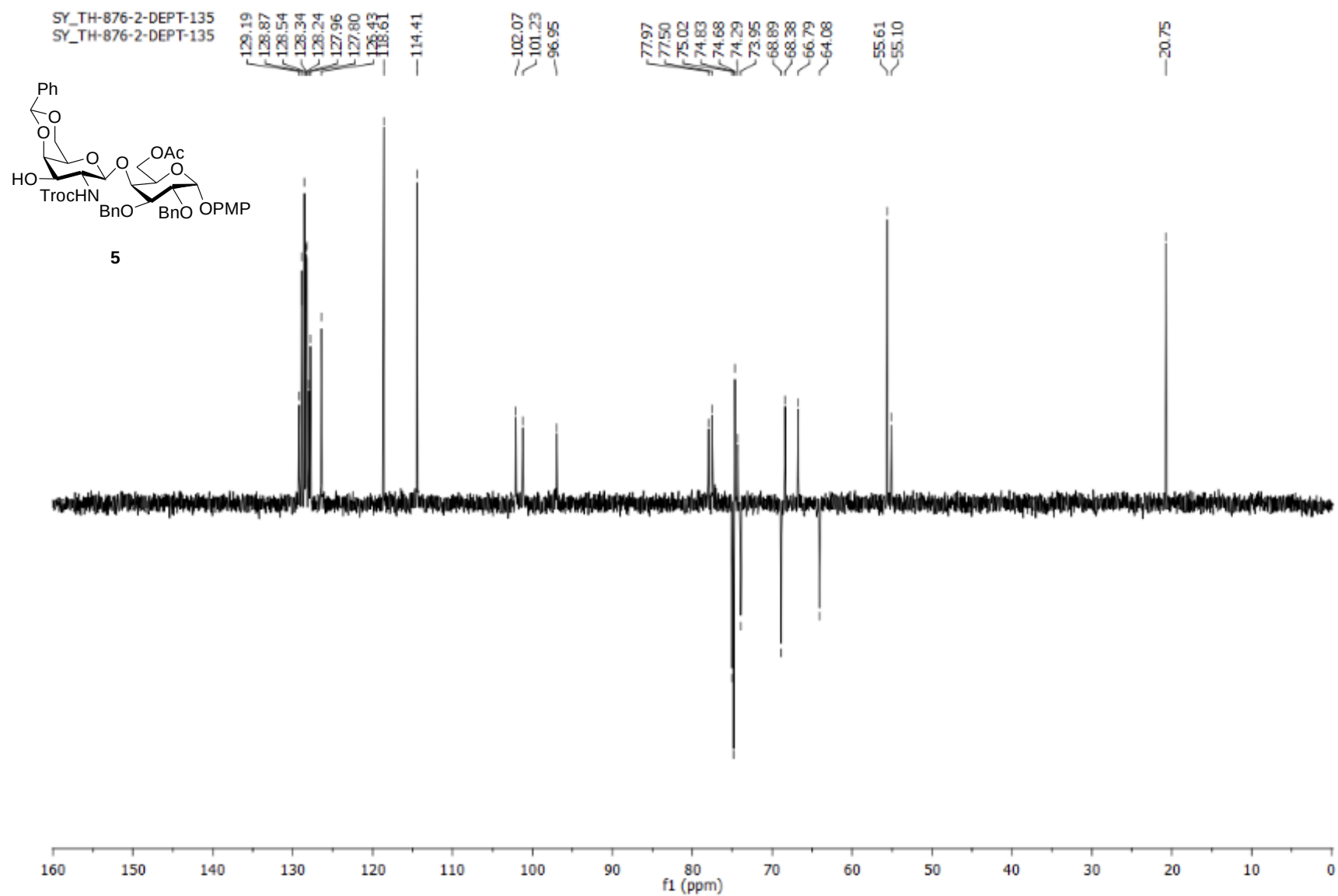


Figure S23: DEPT-135-NMR spectrum (100 MHz, CDCl_3) of compound 5.

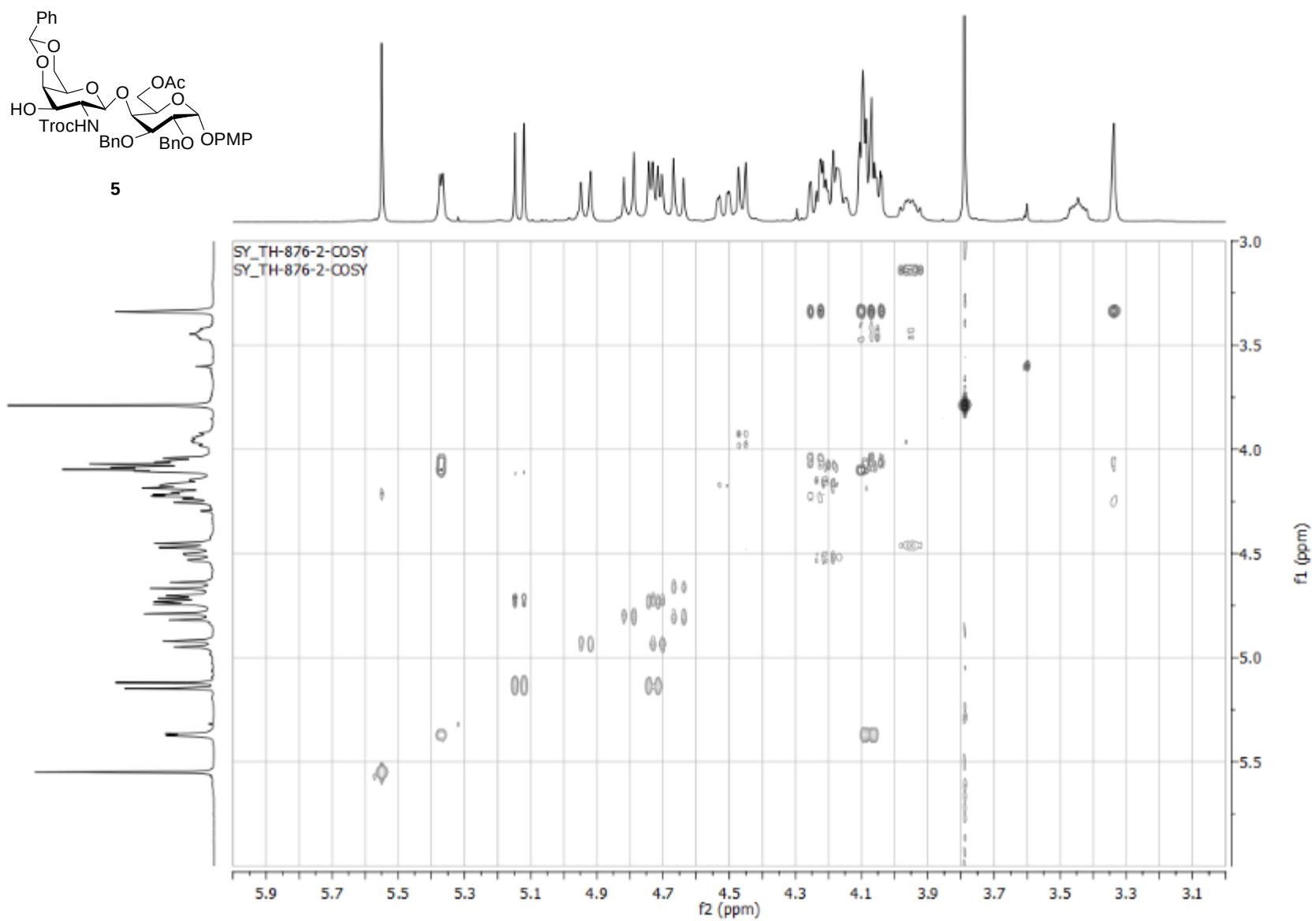


Figure S24: ^1H , ^1H -COSY-NMR spectrum (400 MHz, CDCl_3) of compound 5.

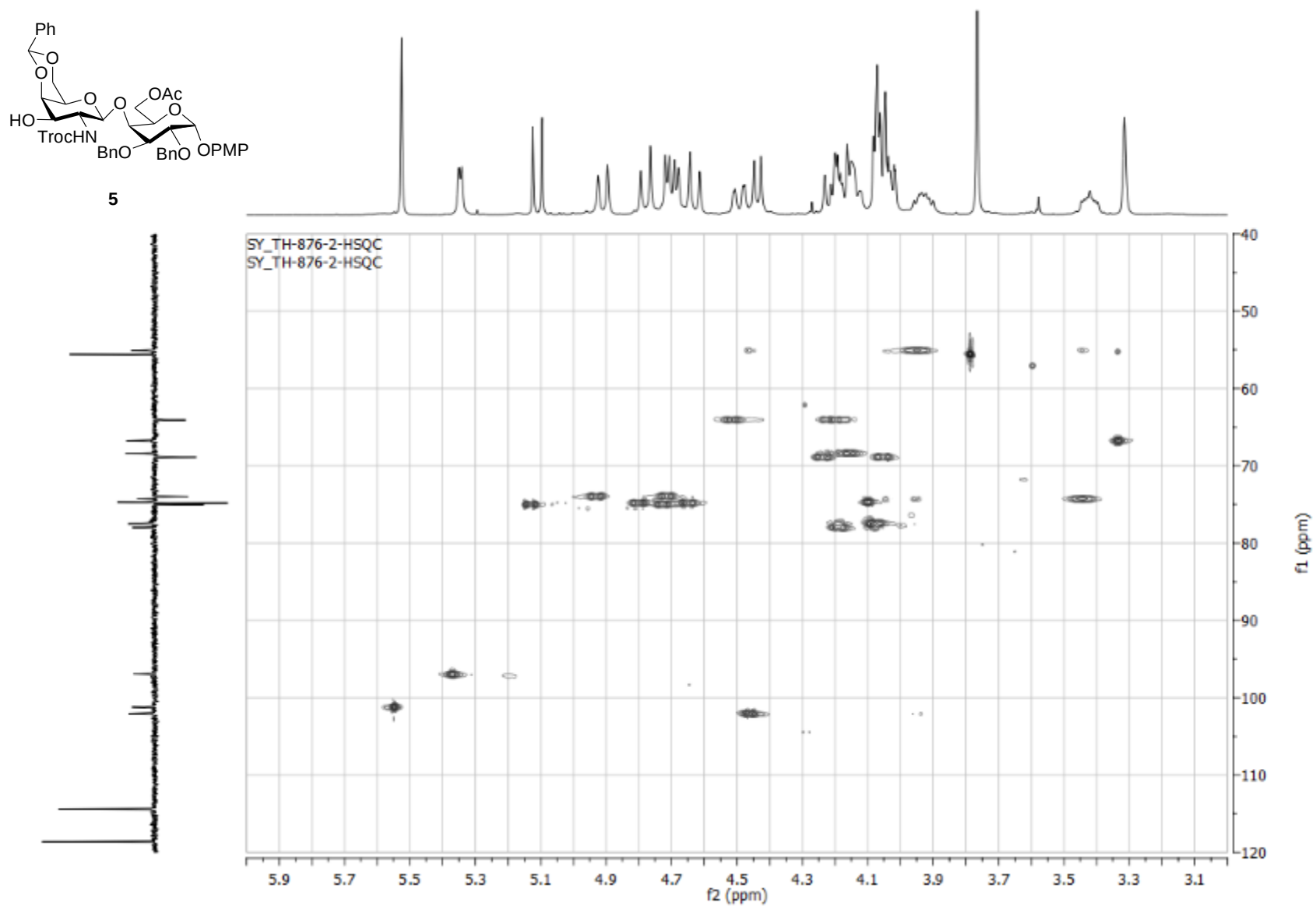


Figure S25: HSQC-NMR spectrum (400 MHz, CDCl₃) of compound 5.

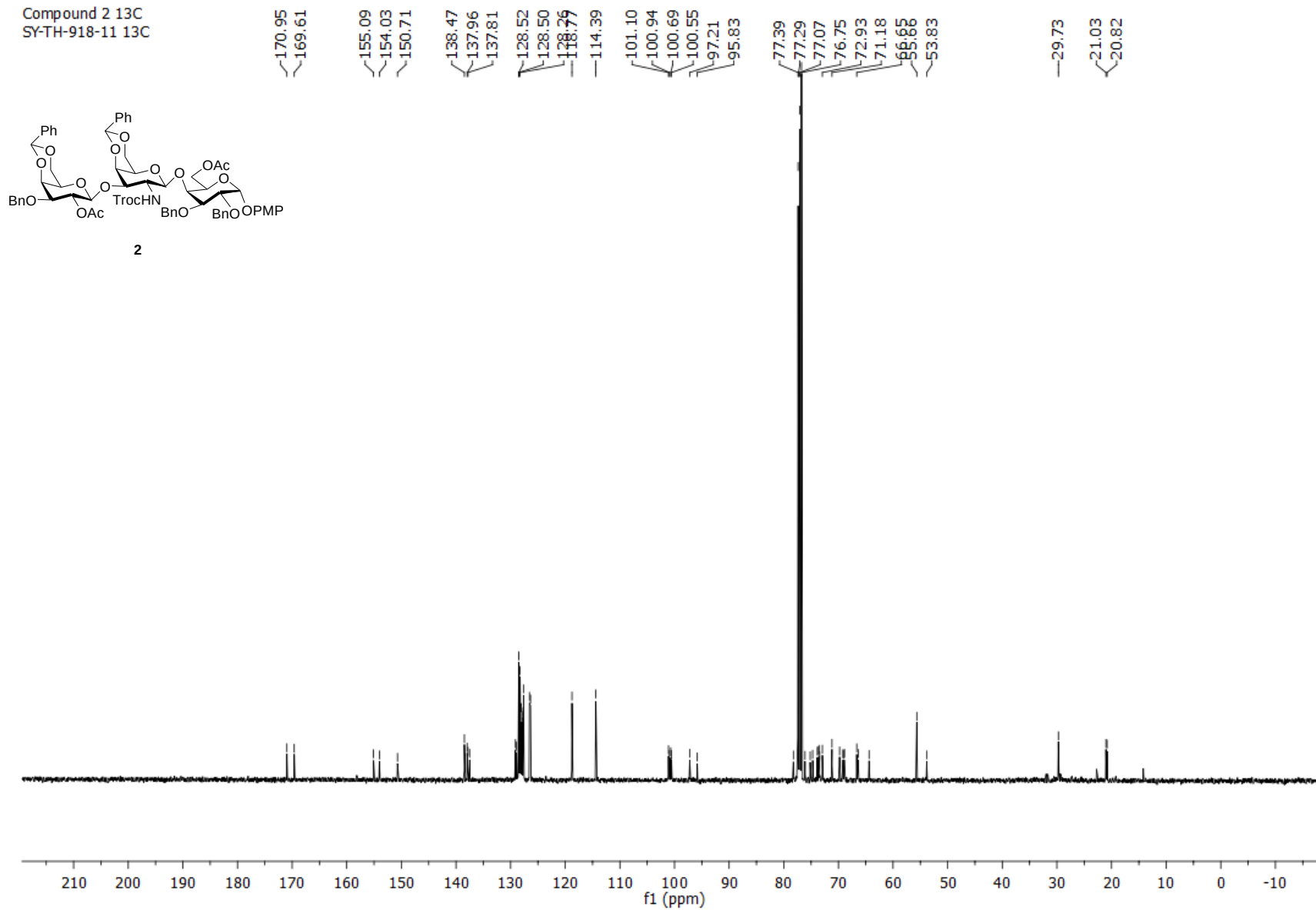


Figure S27: ^{13}C NMR spectrum (100 MHz, CDCl_3) of compound 2.

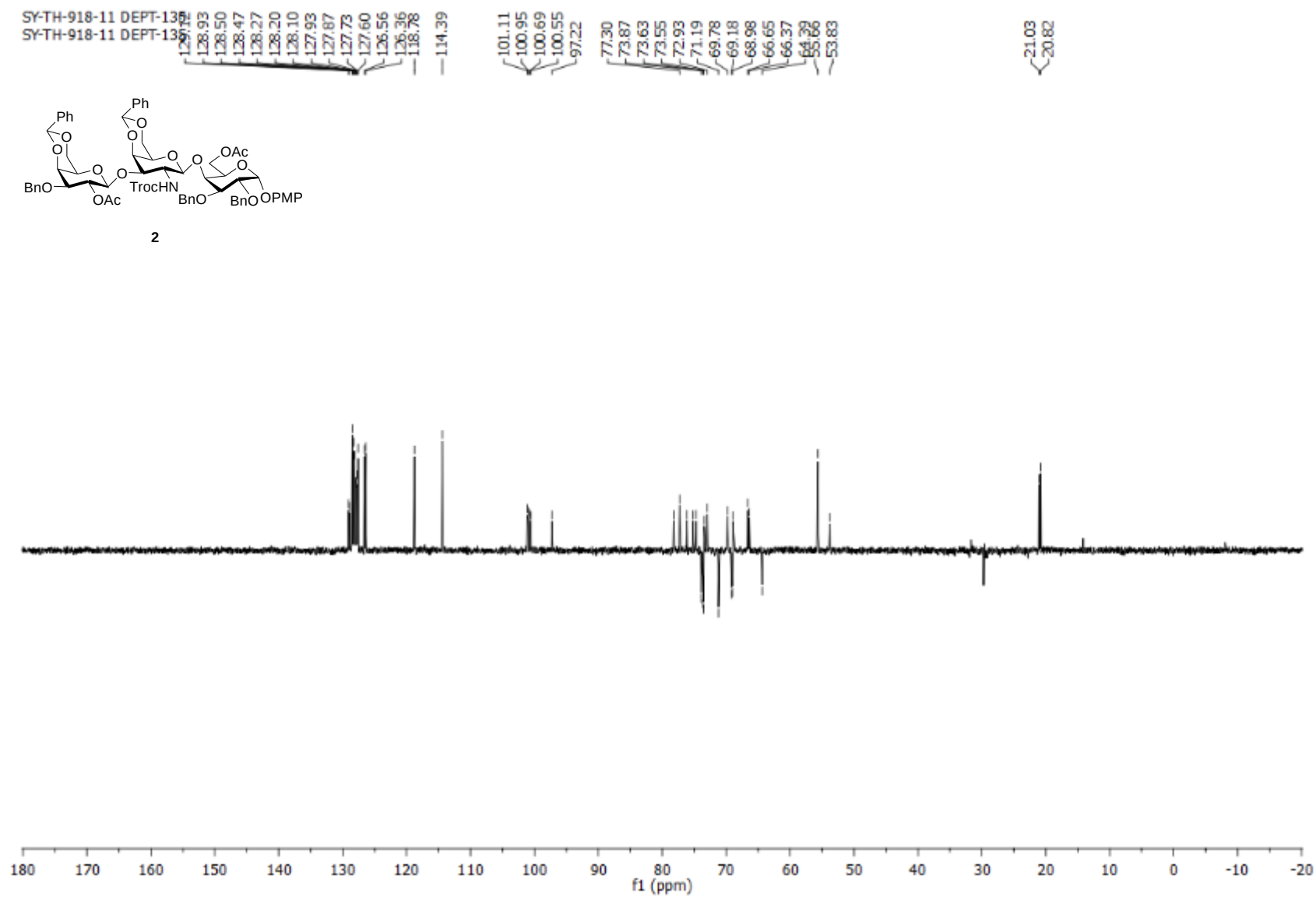


Figure S28: DEPT-135-NMR spectrum (100 MHz, CDCl_3) of compound **2**.

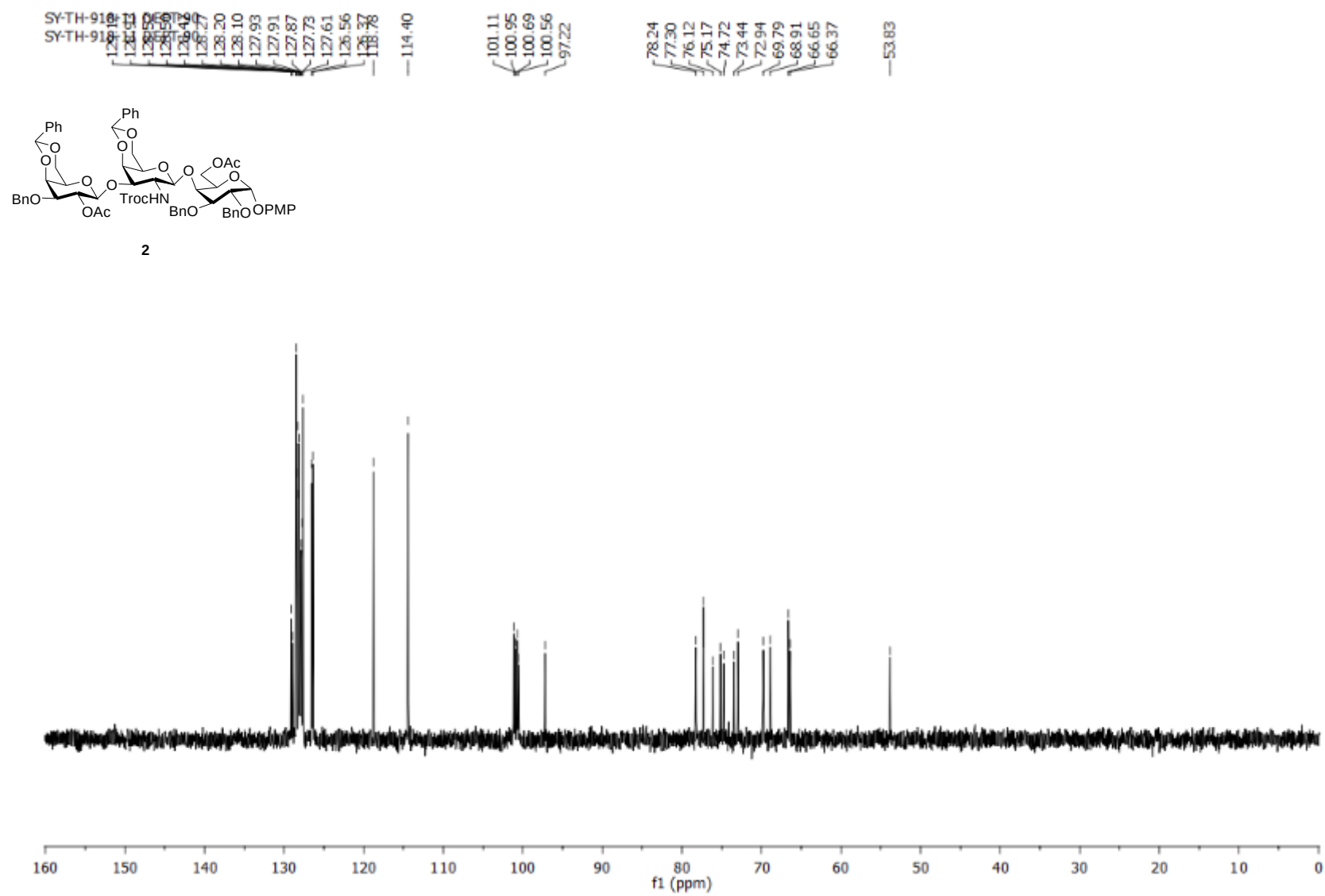


Figure S29: DEPT-90-NMR spectrum (100 MHz, CDCl_3) of compound **2**.

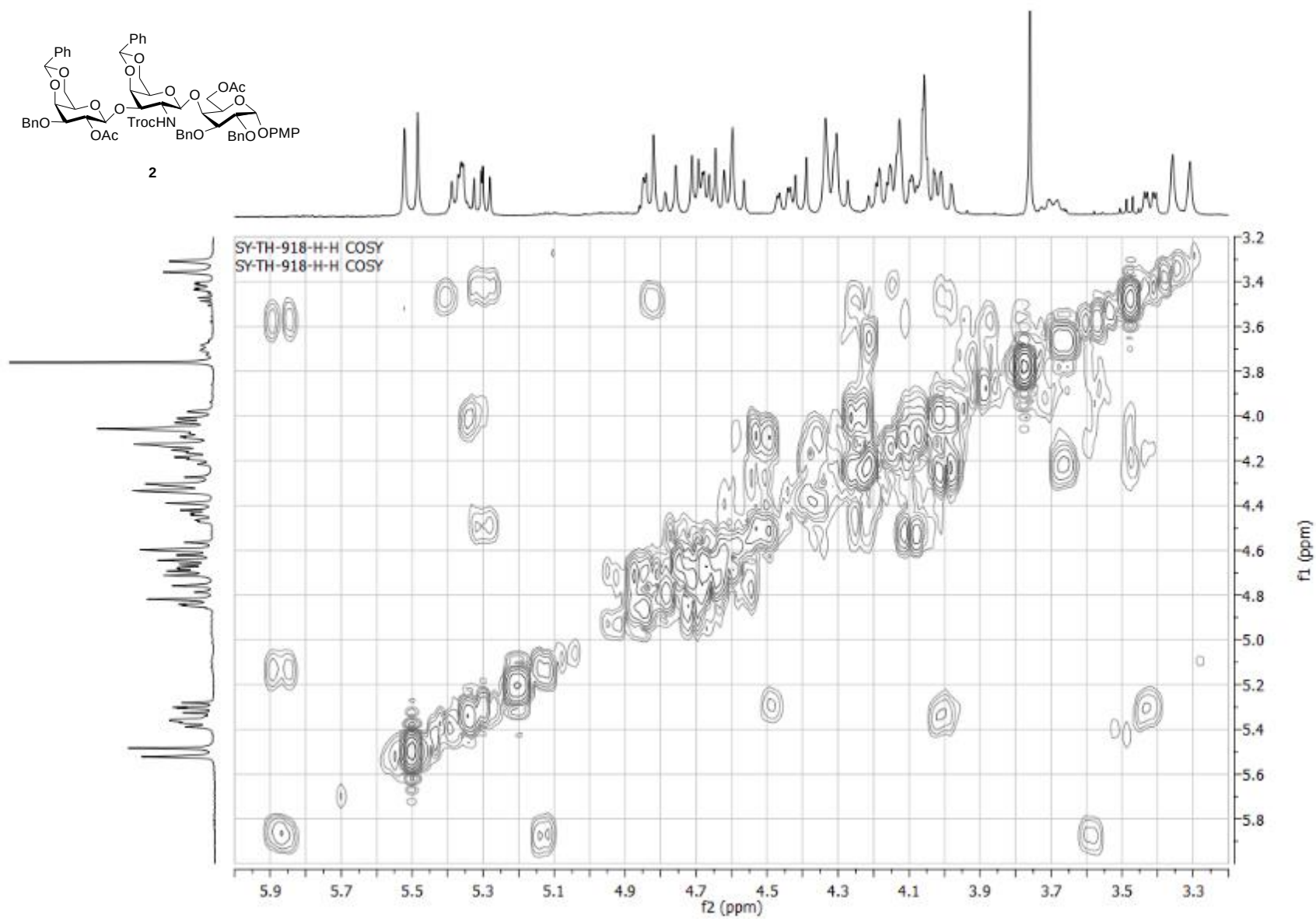


Figure S30: ^1H , ^1H -COSY-NMR spectrum (400 MHz, CDCl_3) of compound 2.

SY_TH_918_6

IIT(ISM).DHANBAD
Central Research Facility,HRMS

10-Feb-2021

11:25:10

SY_TH_918_6 40 (0.739) AM2 (Ar,30000.0,556.28,0.00,LS 10); Cm (25:54)

1: TOF MS ES+
1.31e8

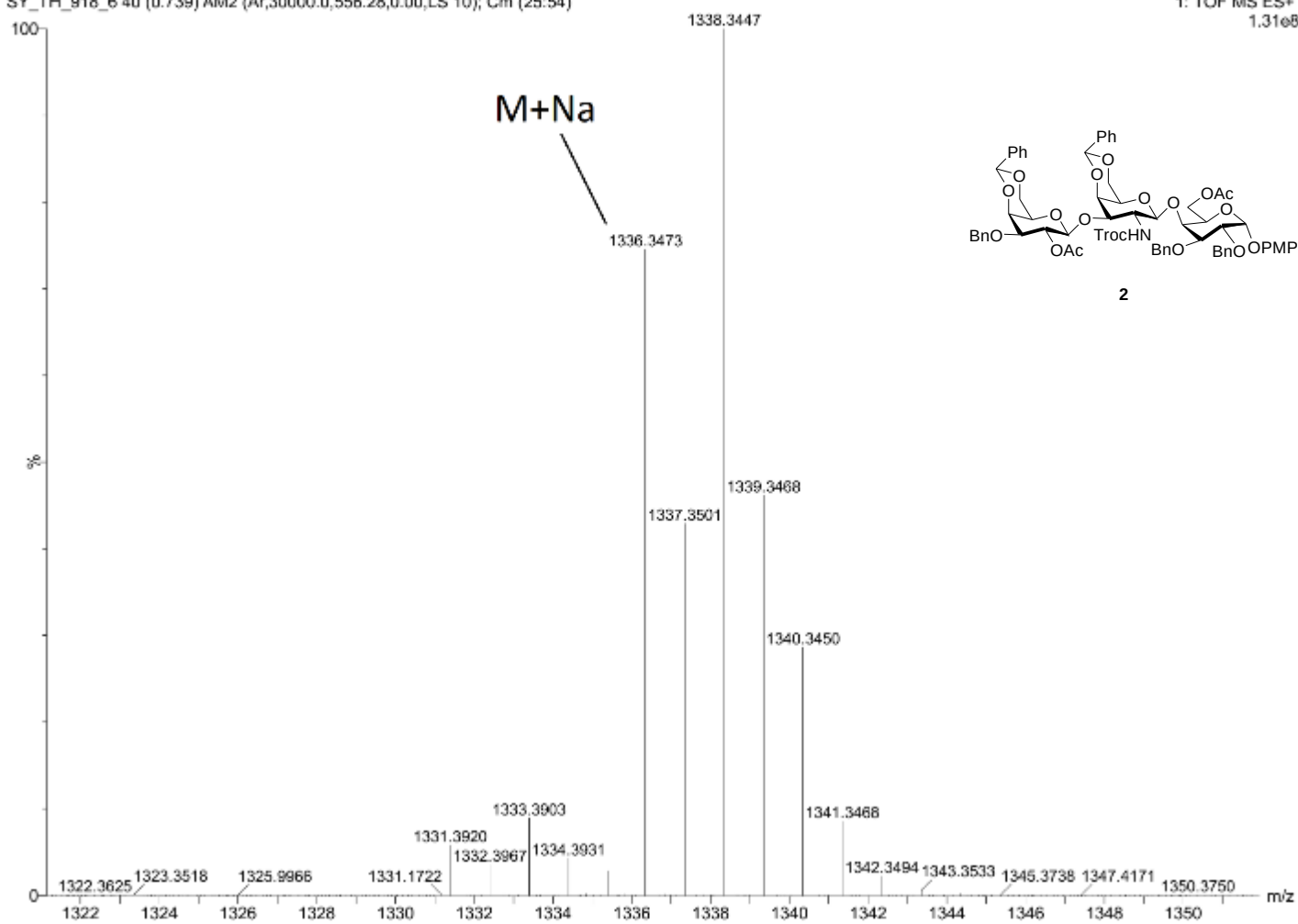
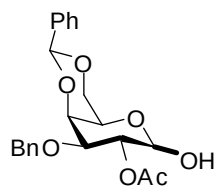


Figure S32: HRMS spectrum of compound 2.

SY-TH-928 1H
SY-TH-928 1H



11

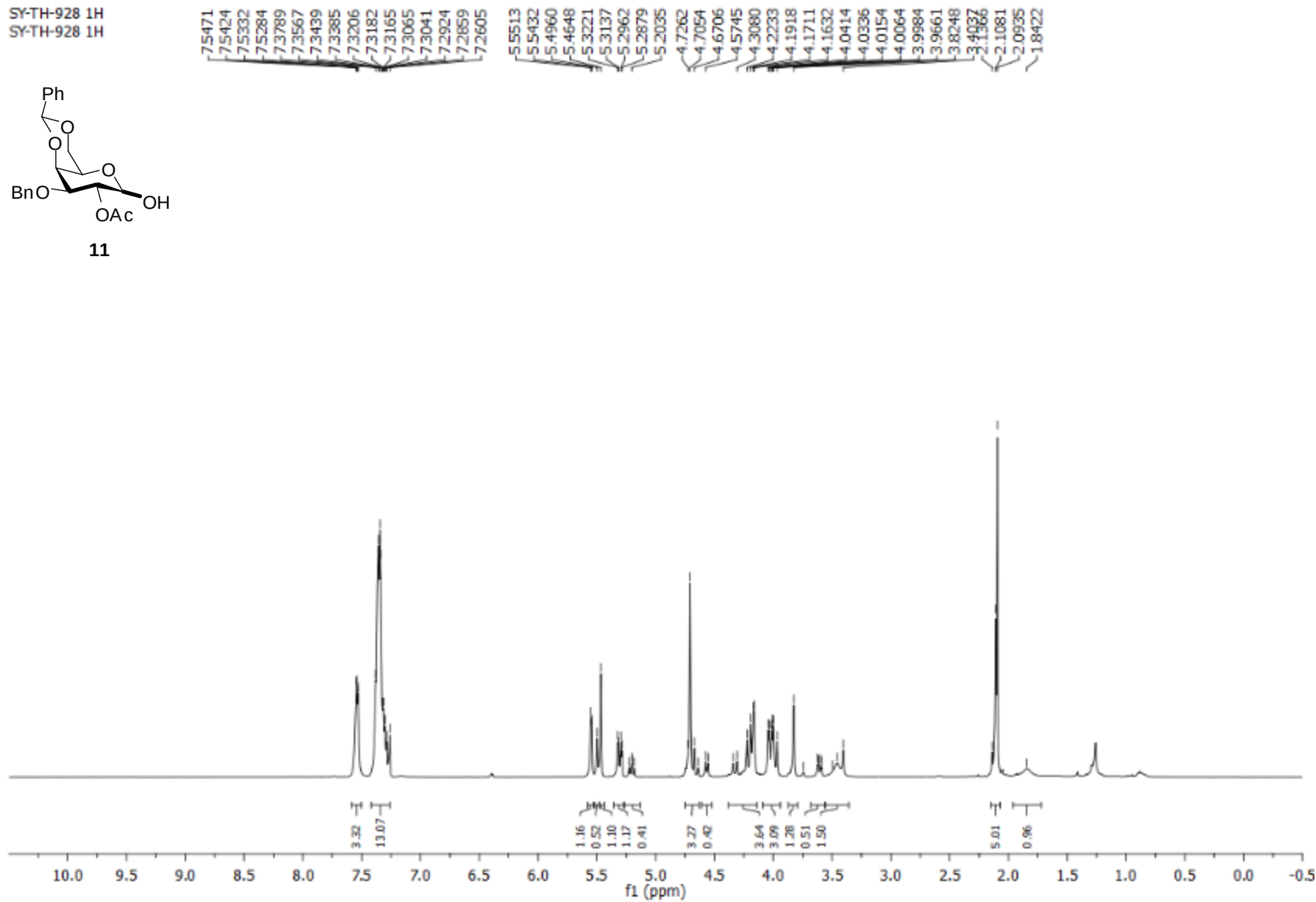


Figure S33: ^1H NMR spectrum (400 MHz, CDCl_3) of compound **11**.

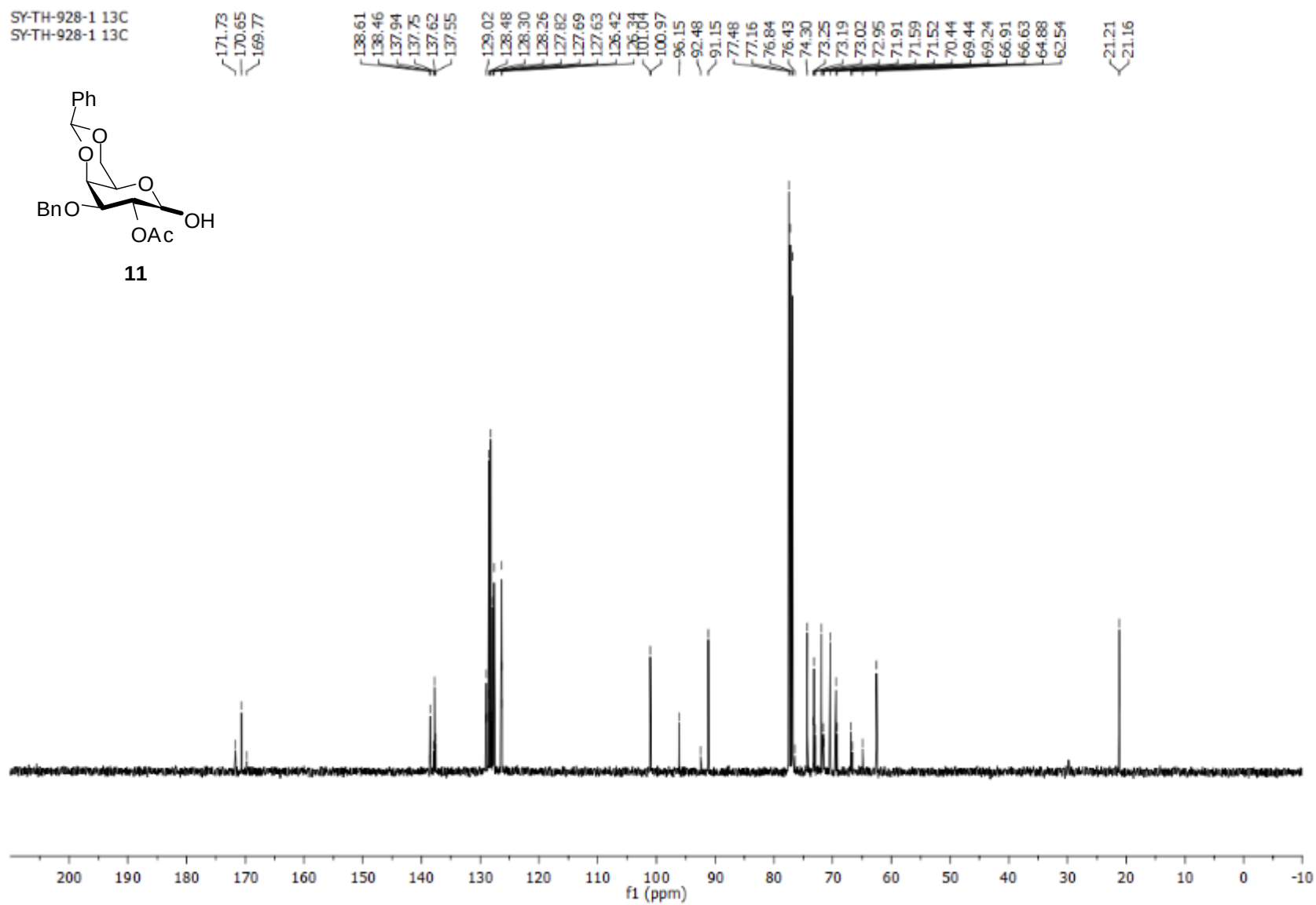


Figure S34: ^{13}C NMR spectrum (100 MHz, CDCl_3) of compound **11**.

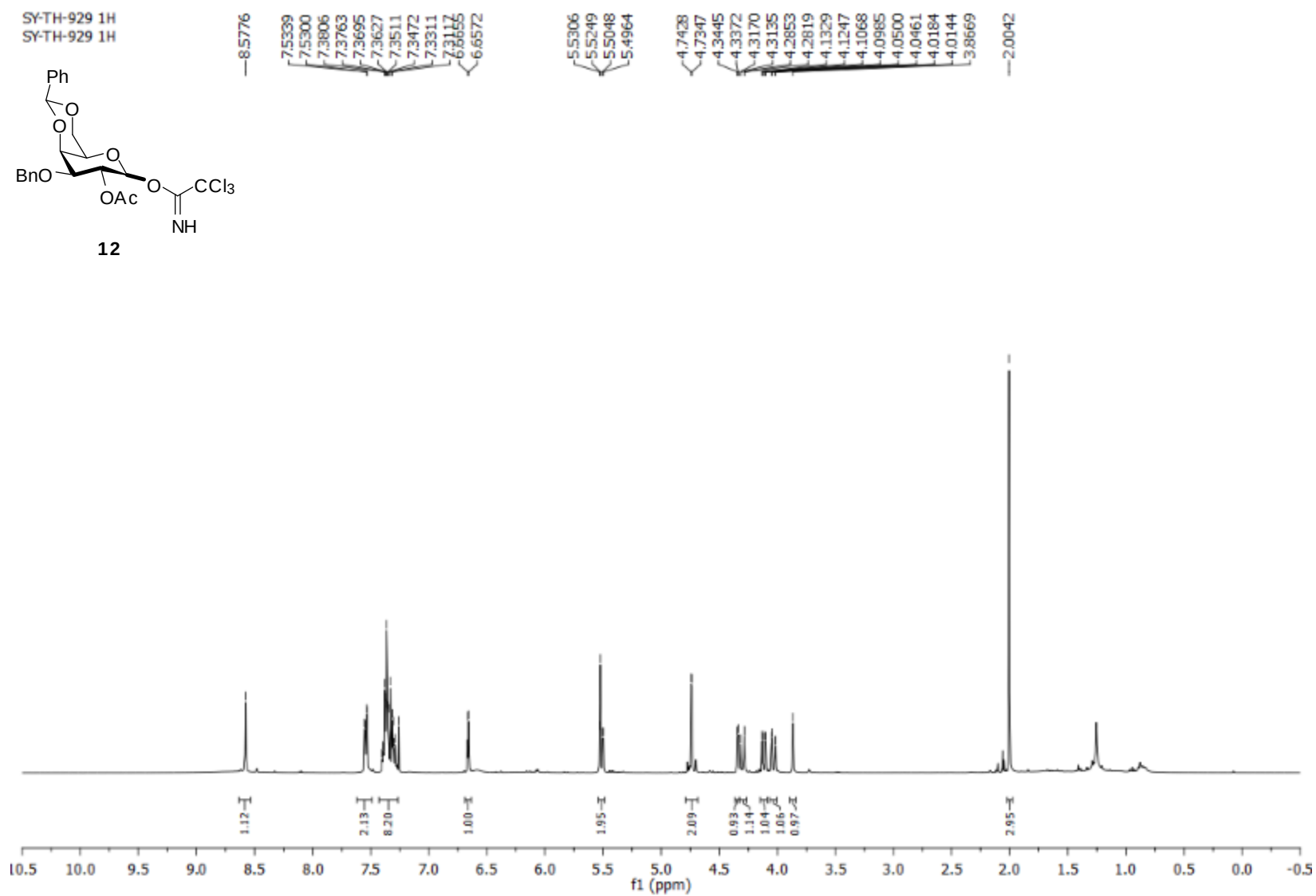


Figure S35: ¹H NMR spectrum (400 MHz, CDCl₃) of compound 12.

SY-TH-929 13C
SY-TH-929 13C

— 170.27

— 160.90

137.86

137.44

129.27

128.51

128.39

128.07

128.05

126.46

126.28

101.26

94.94

91.16

77.48

77.16

76.84

73.85

72.77

72.01

69.04

69.01

65.40

— 20.84

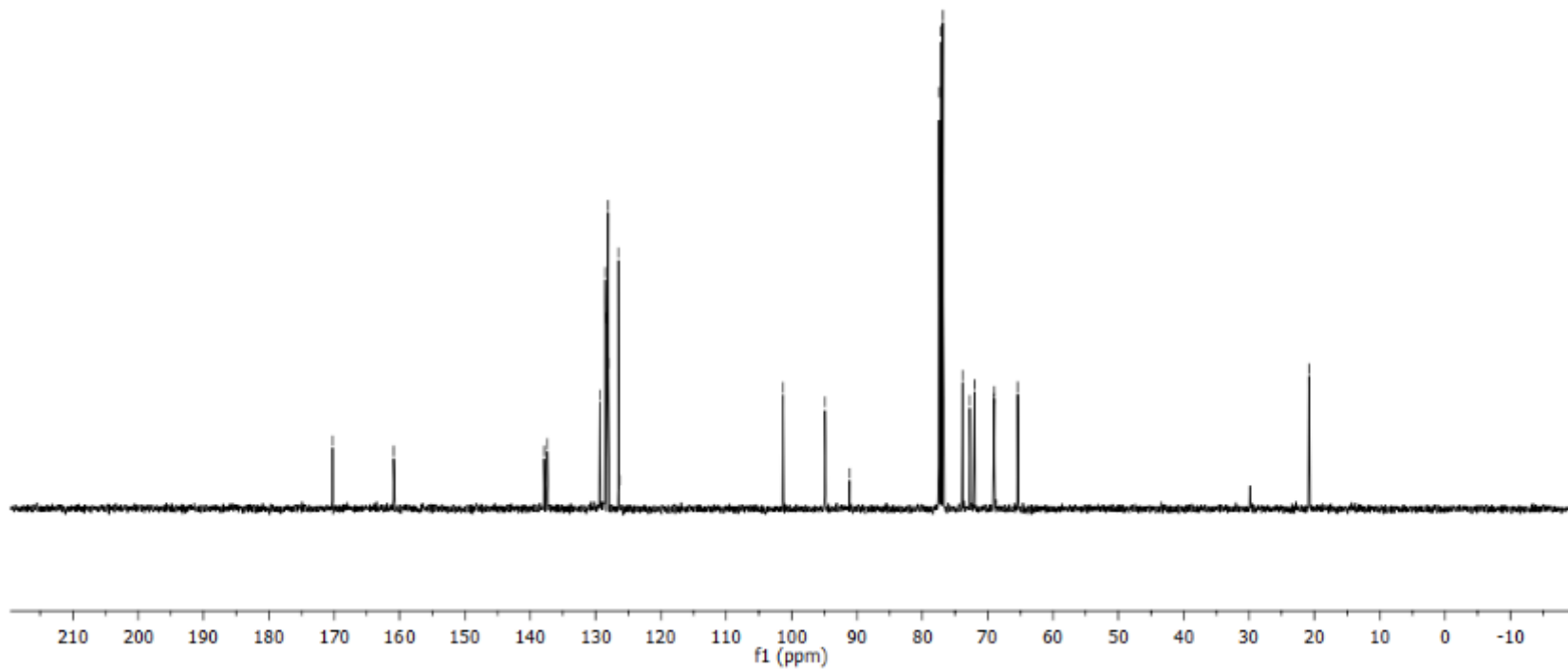
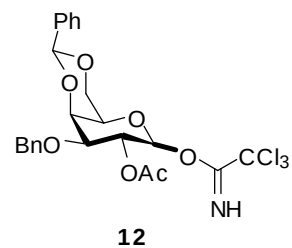


Figure S36: ¹³C NMR spectrum (100 MHz, CDCl₃) of compound **12**.

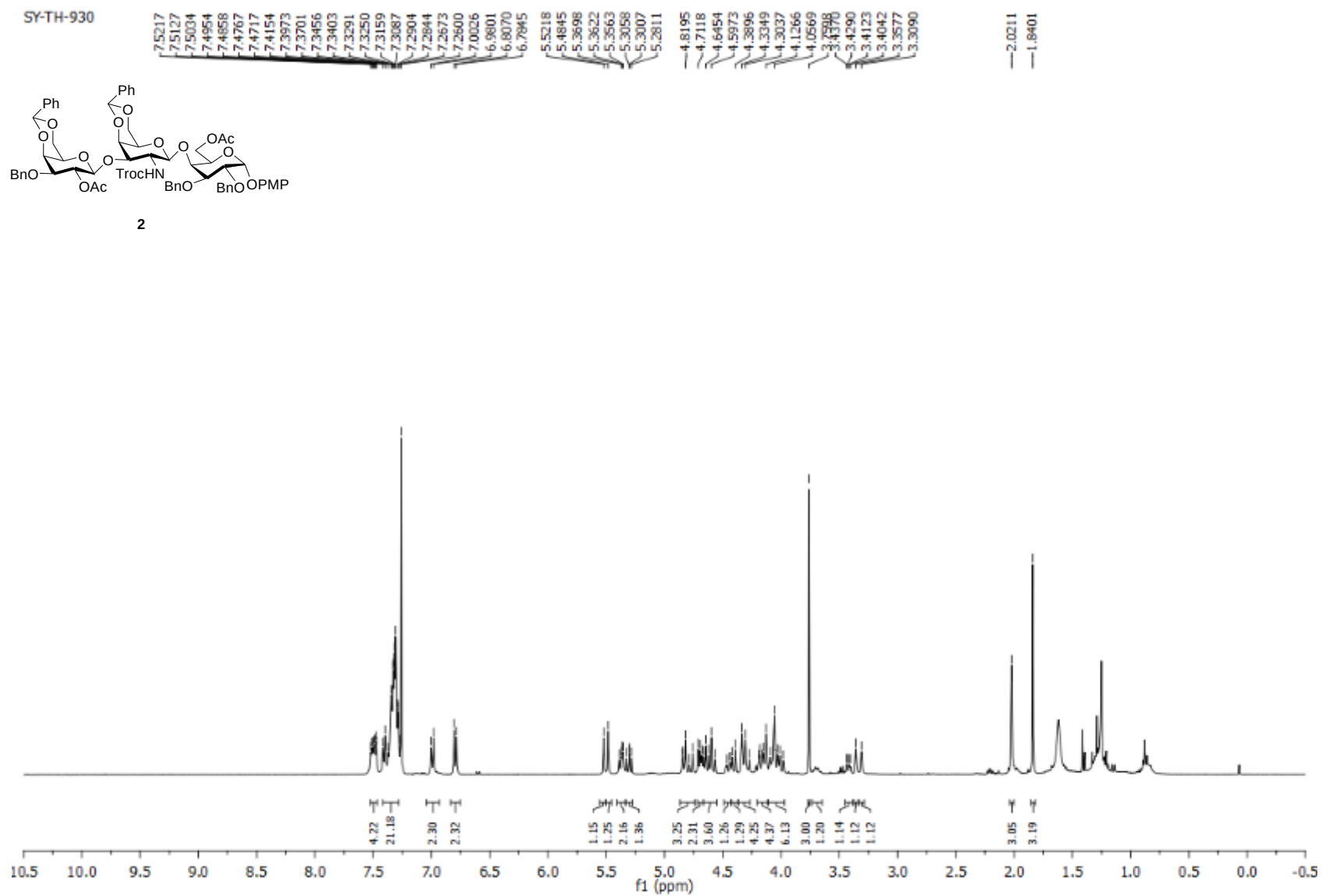


Figure S37: ¹H NMR spectrum (400 MHz, CDCl₃) of compound 2.

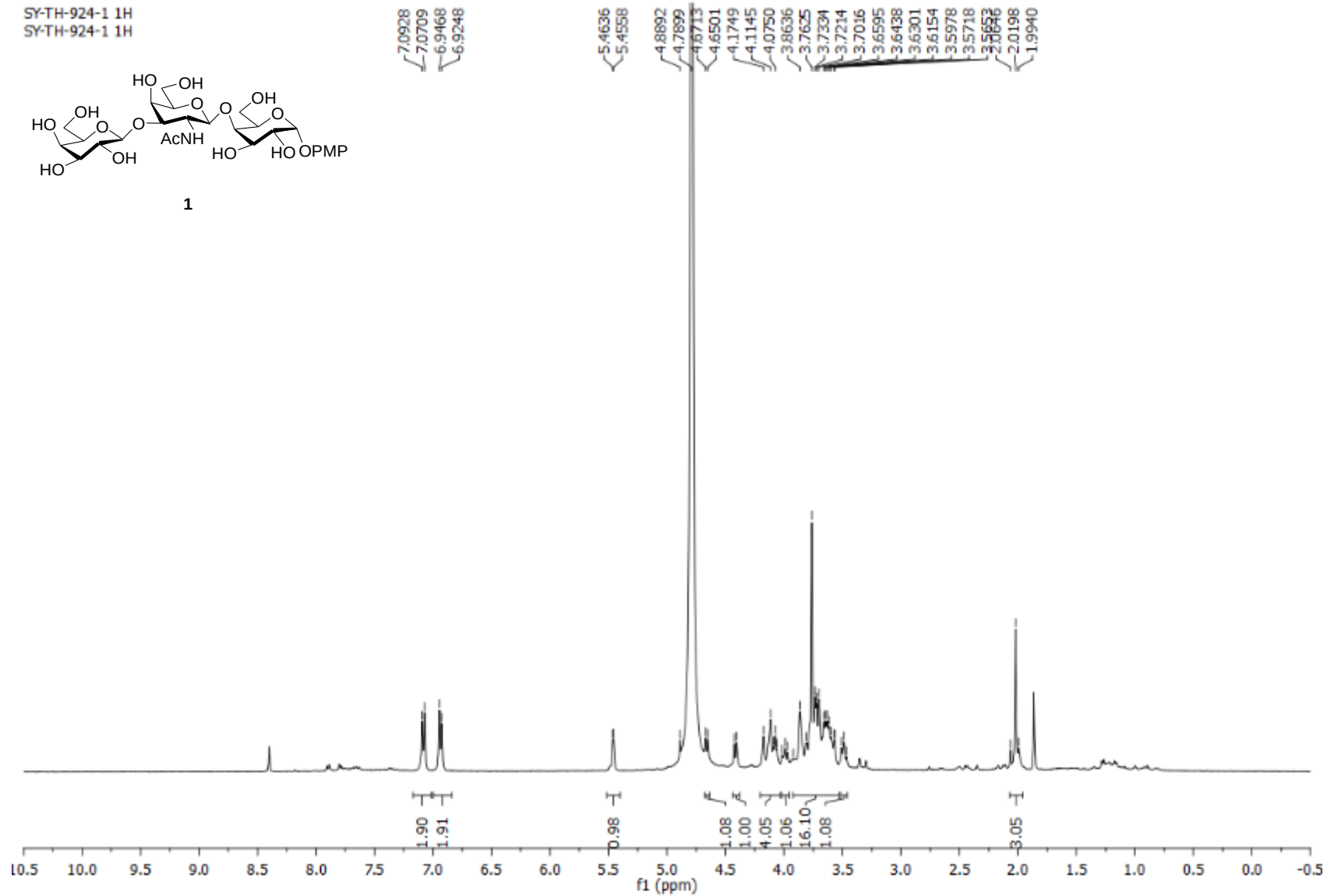
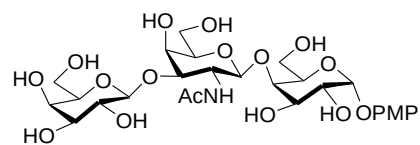


Figure S39: ^1H NMR spectrum (400 MHz, D_2O) of compound **1**.

SY-TH-924 13C
SY-TH-924 13C



1

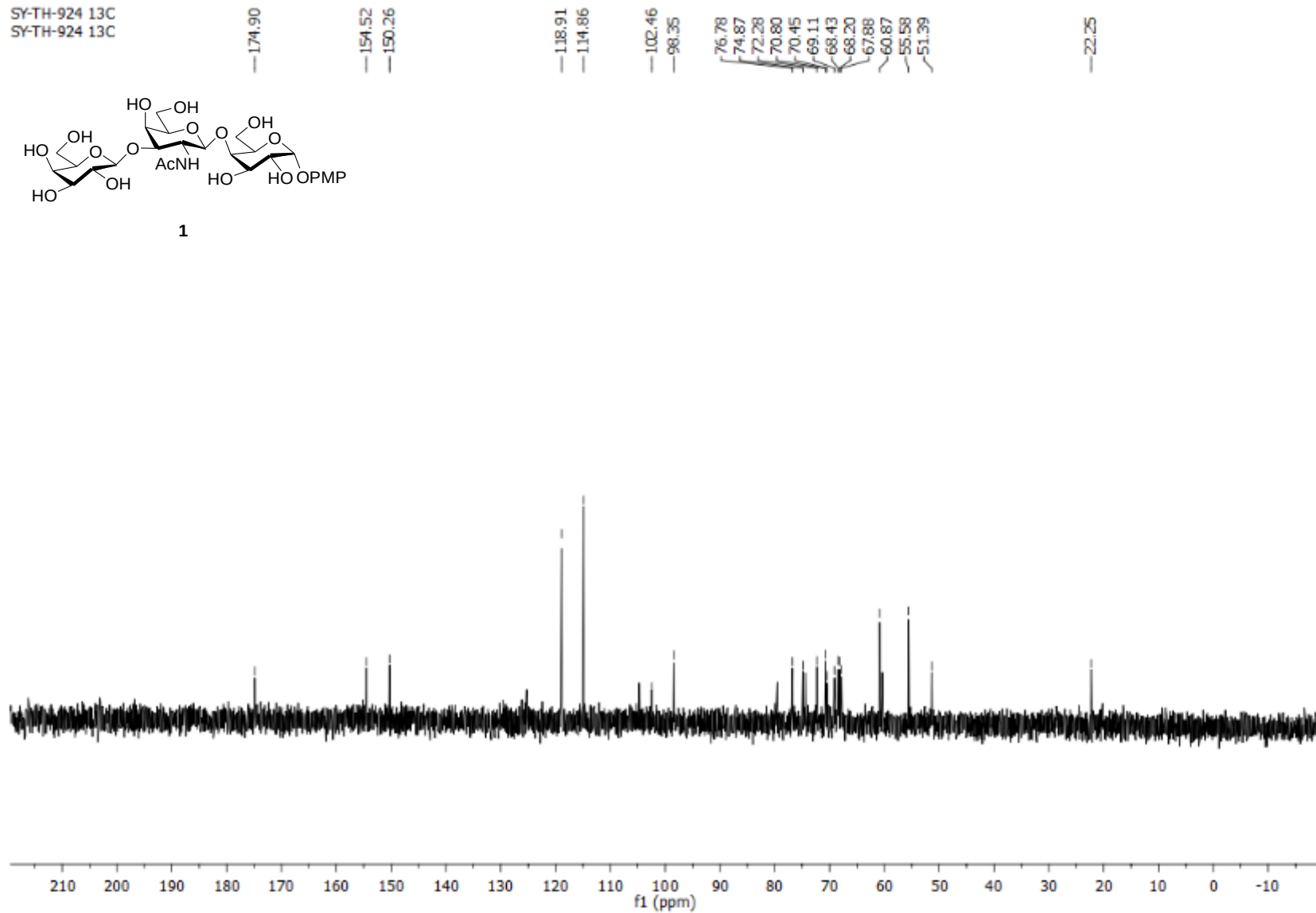


Figure S40: ^{13}C NMR spectrum (100 MHz, D_2O) of compound 1.

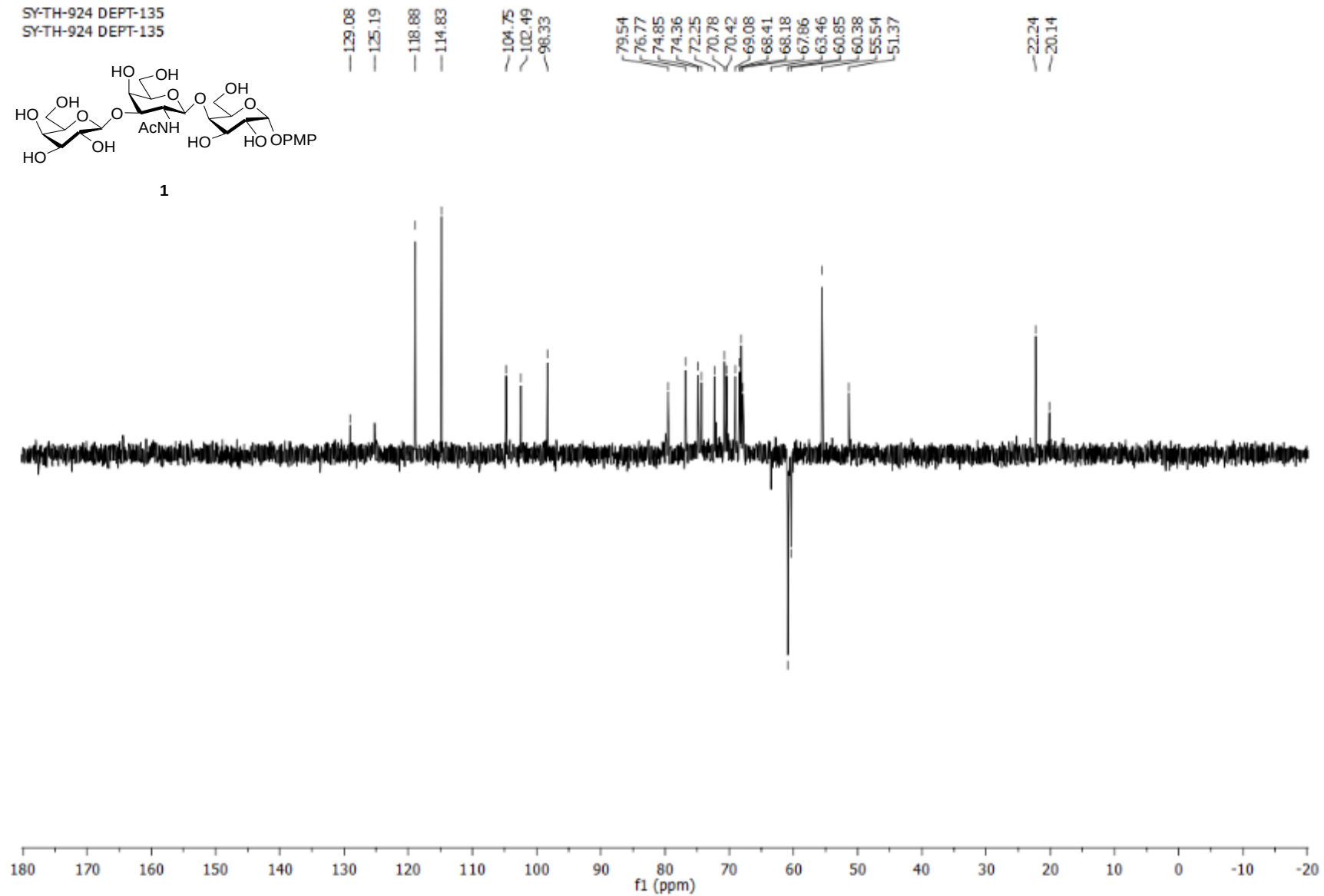


Figure S41: DEPT-135-NMR spectrum (100 MHz, D₂O) of compound **1**.

TH_924

IIT(ISM).DHANBAD
Central Research Facility,HRMS

06-Jan-2021
15:15:46
1: TOF MS ES+
1.51e8

TH_924 26 (0.480) Cm (26:37)

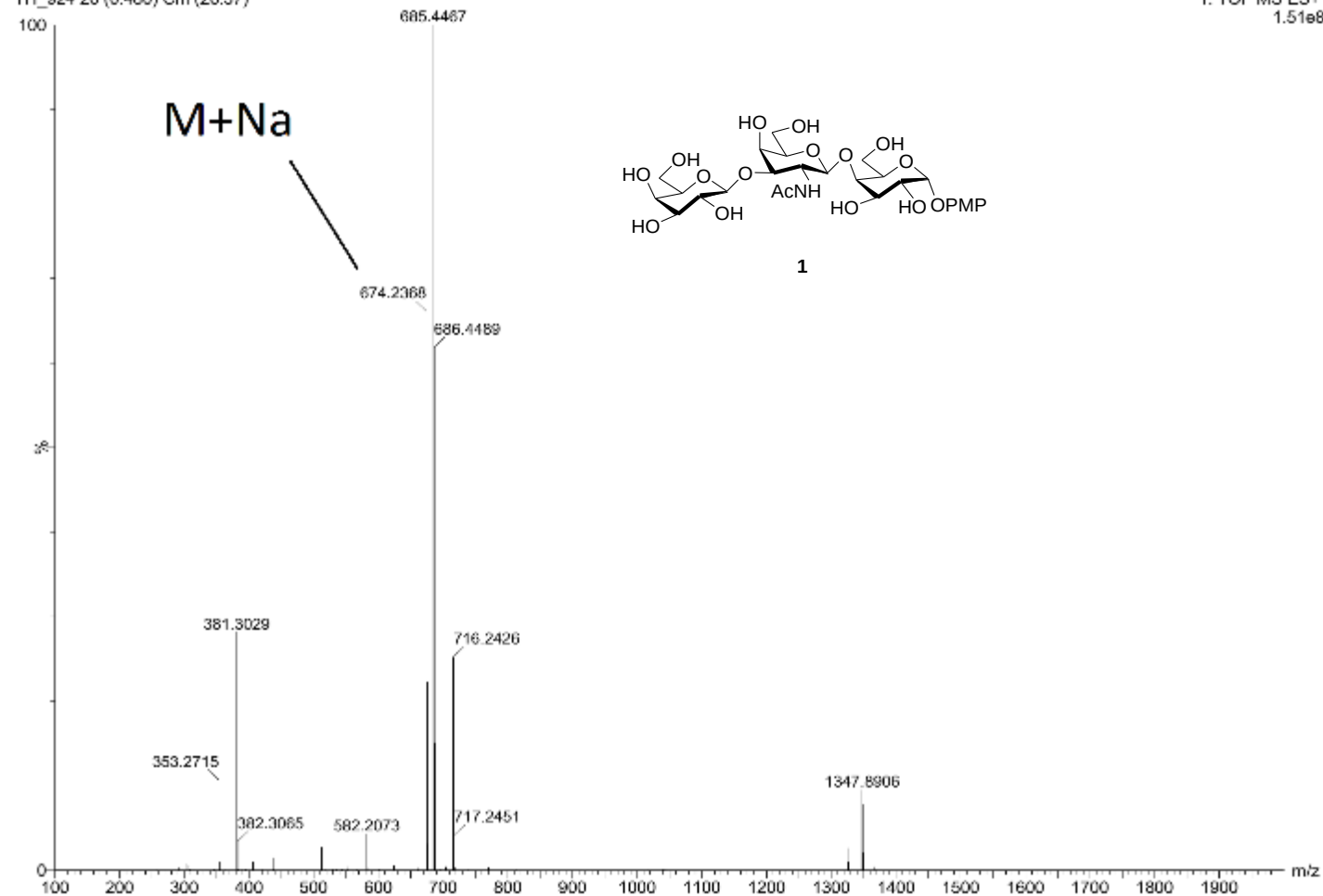


Figure S42: HRMS spectrum of compound 2.