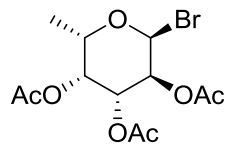
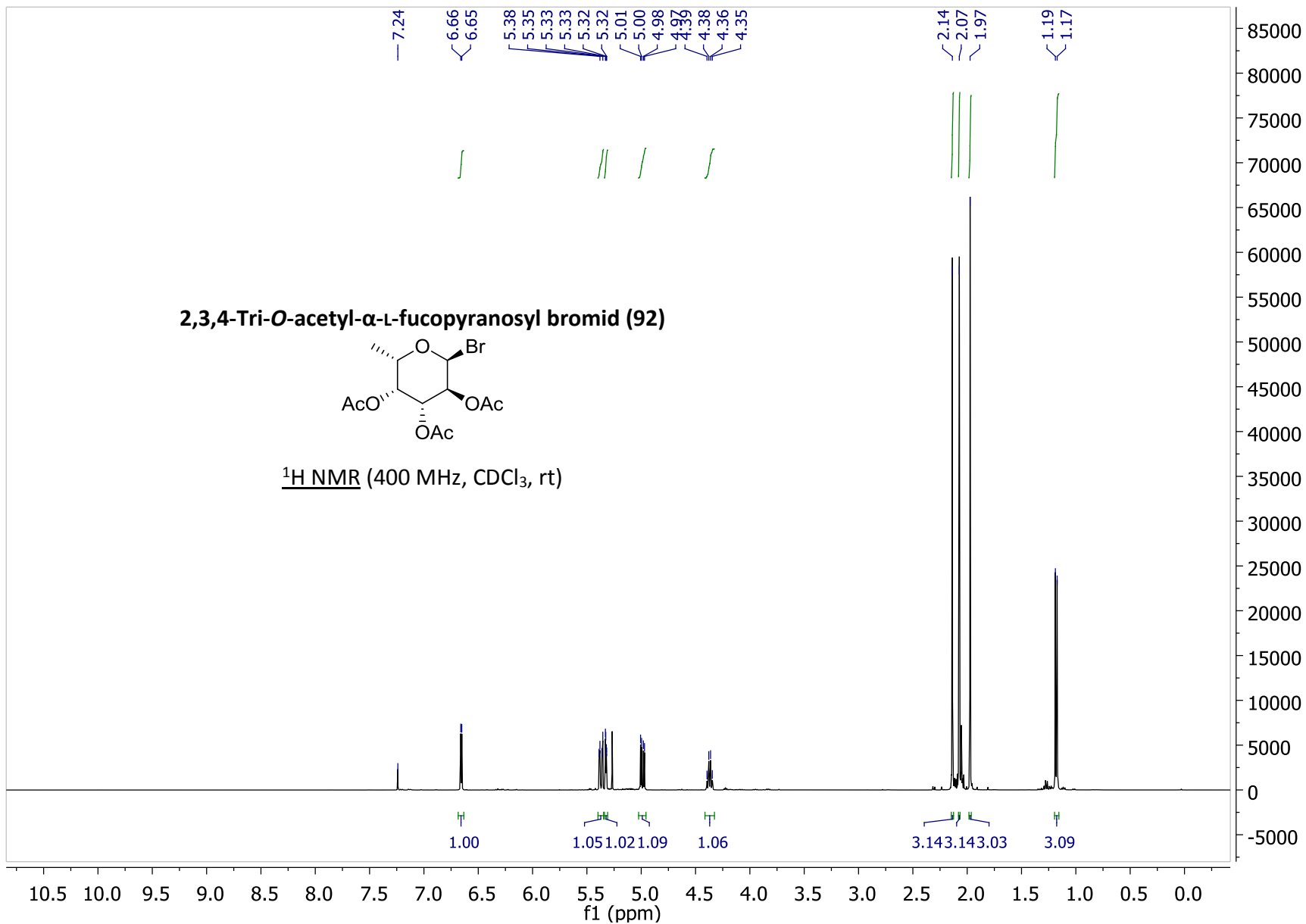
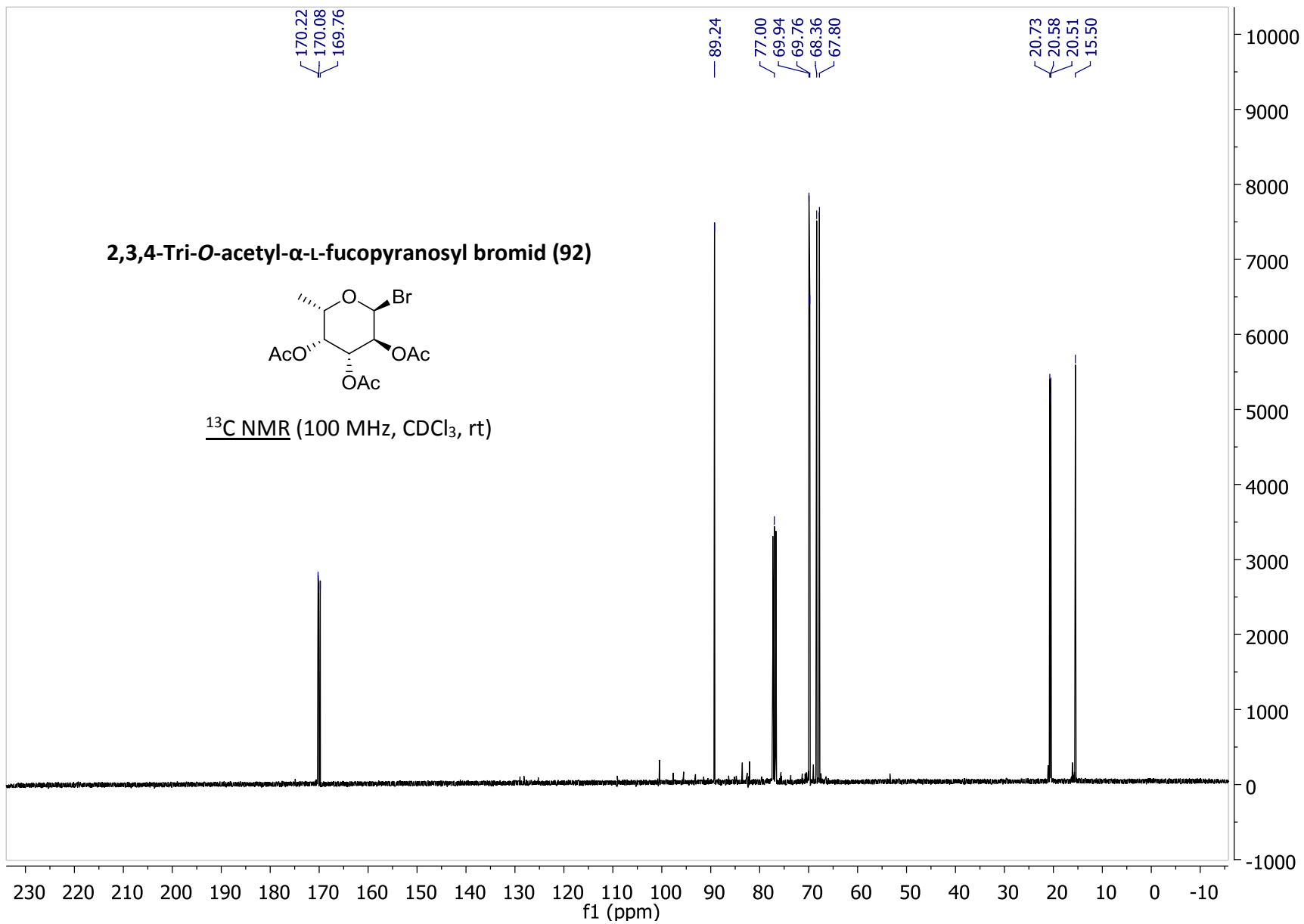


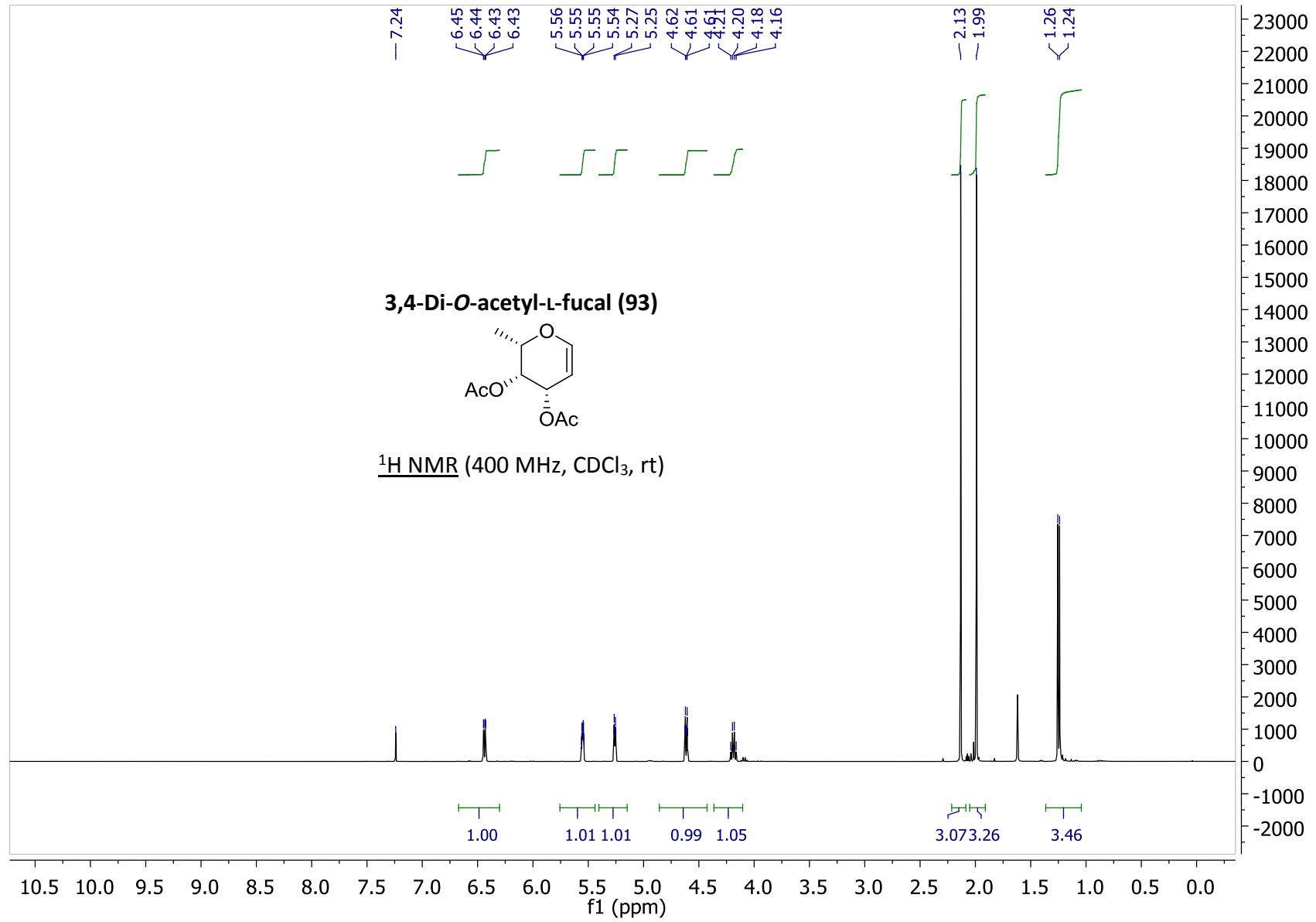
2,3,4-Tri-O-acetyl- α -L-fucopyranosyl bromid (92)



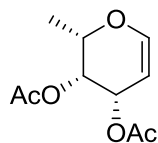
^1H NMR (400 MHz, CDCl_3 , rt)



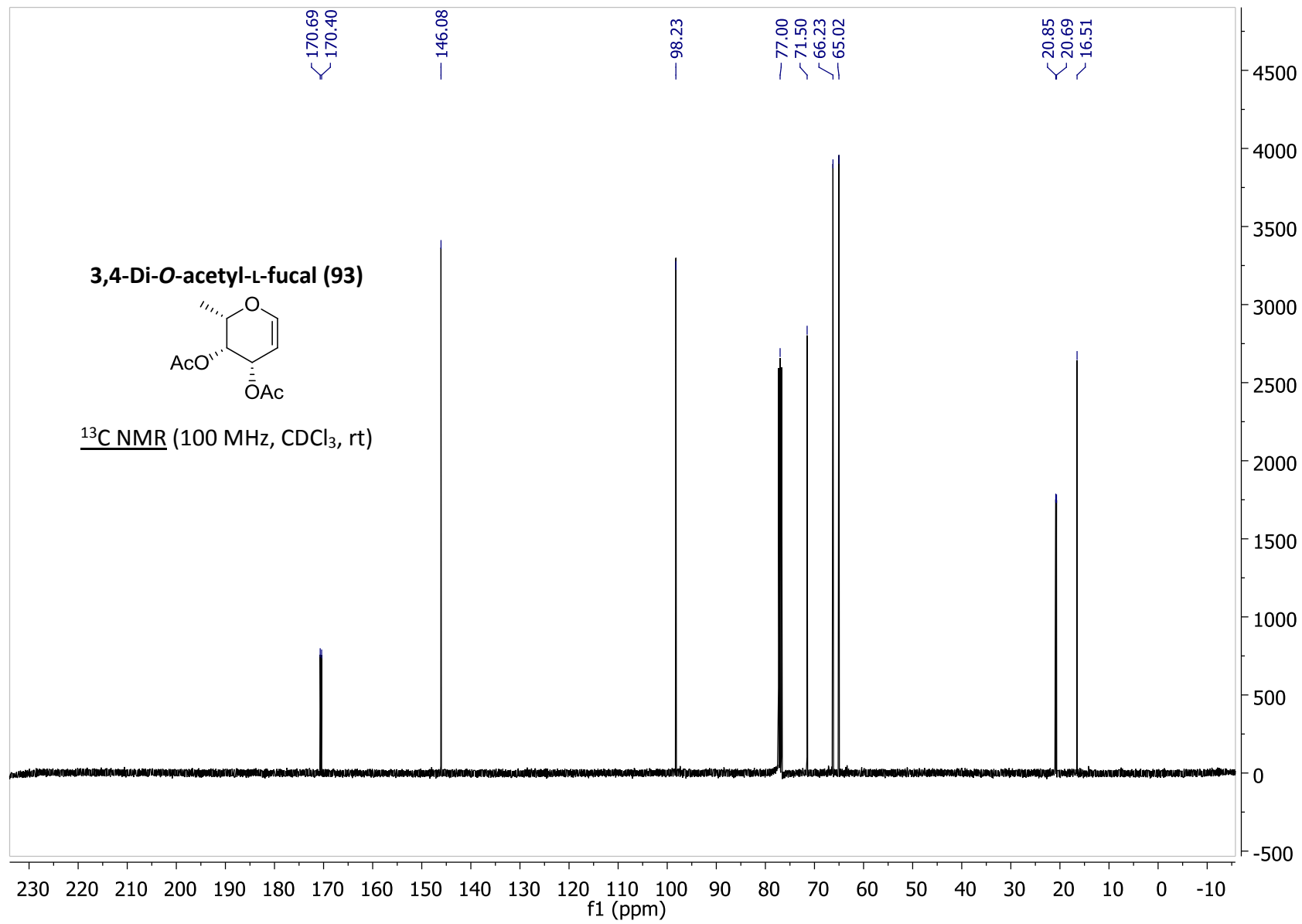


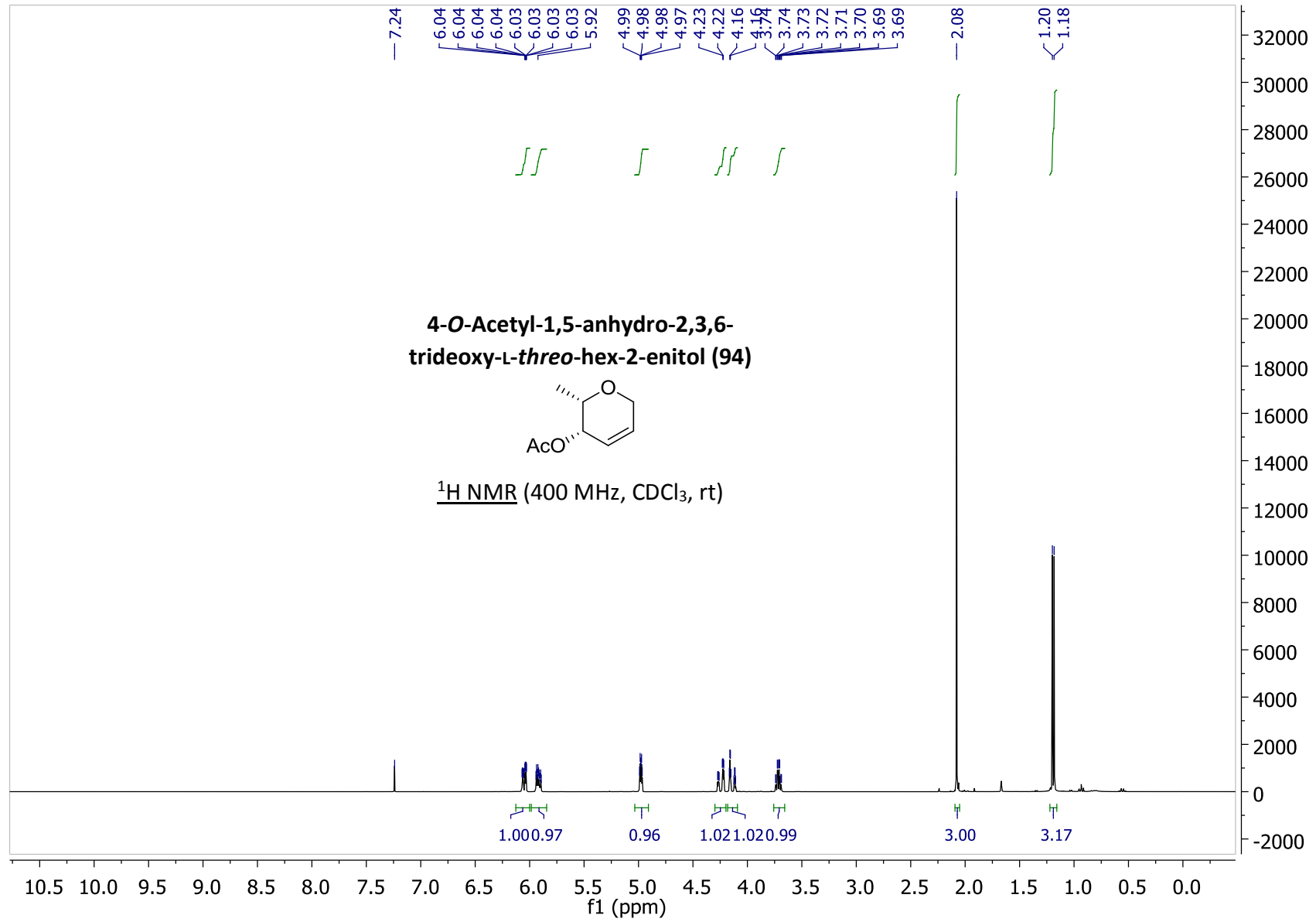


3,4-Di-O-acetyl-L-fucal (93)

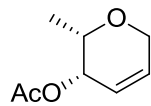


¹³C NMR (100 MHz, CDCl₃, rt)

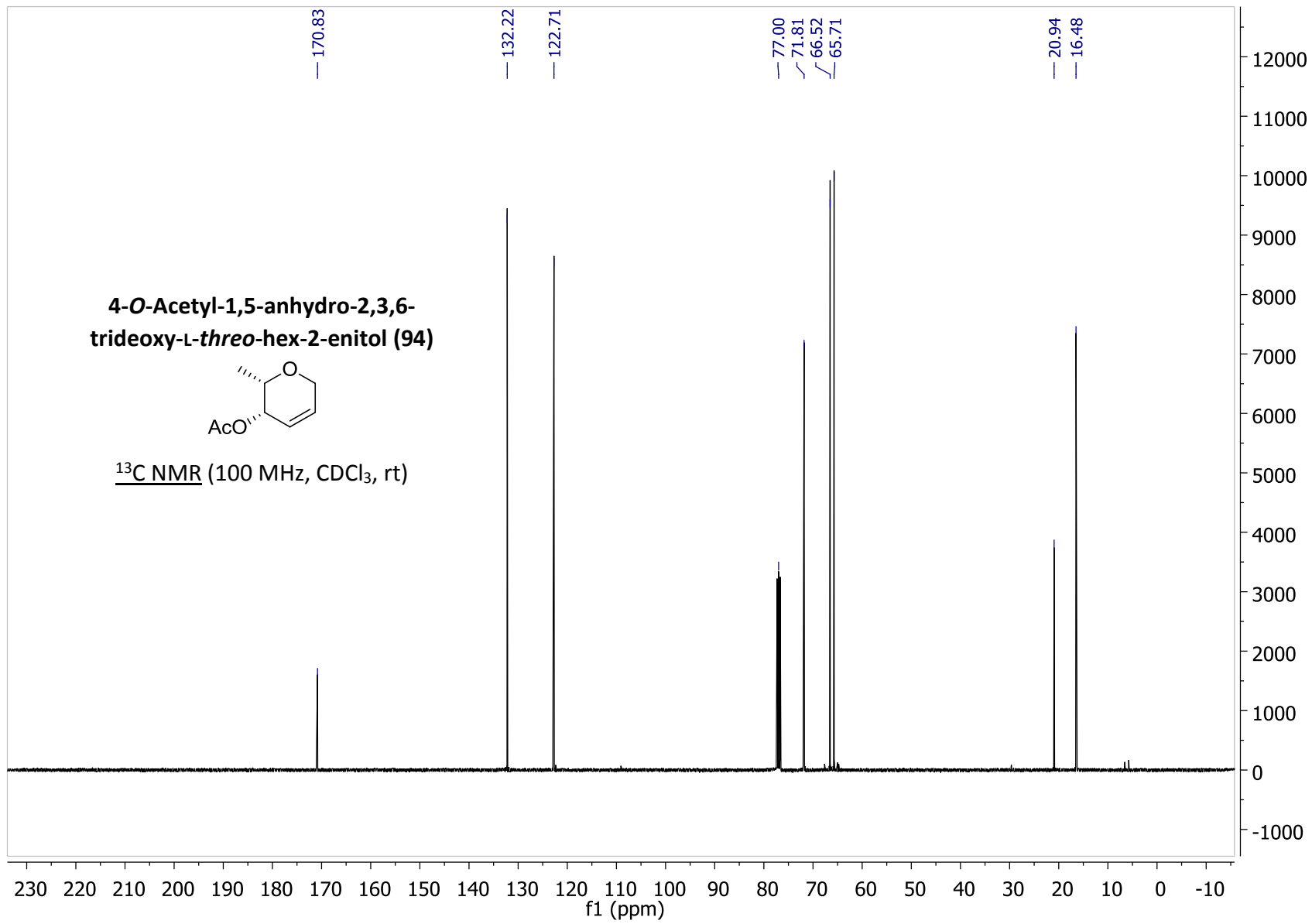


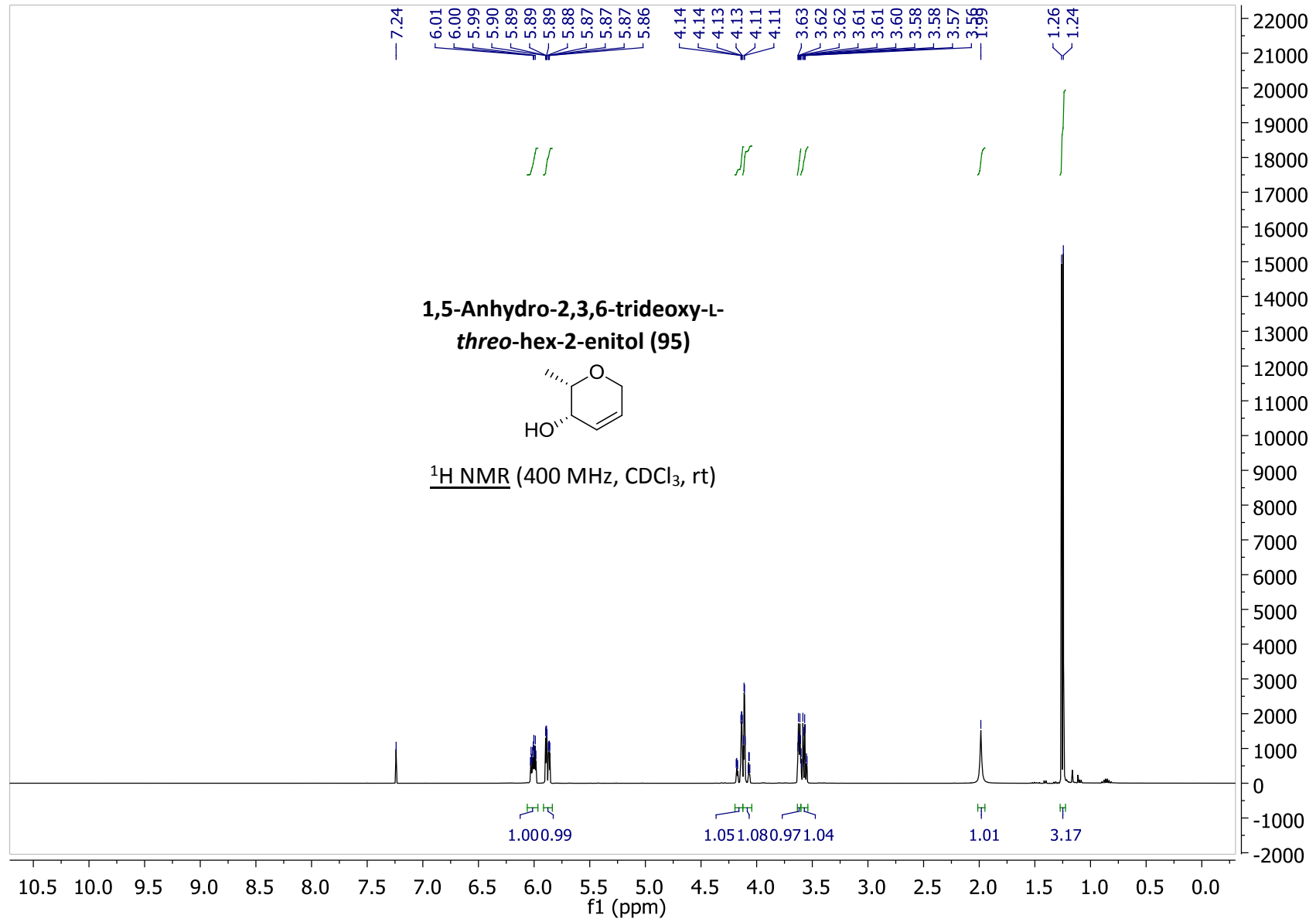


4-O-Acetyl-1,5-anhydro-2,3,6-trideoxy-L-threo-hex-2-enitol (94)

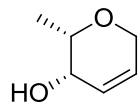


^{13}C NMR (100 MHz, CDCl_3 , rt)

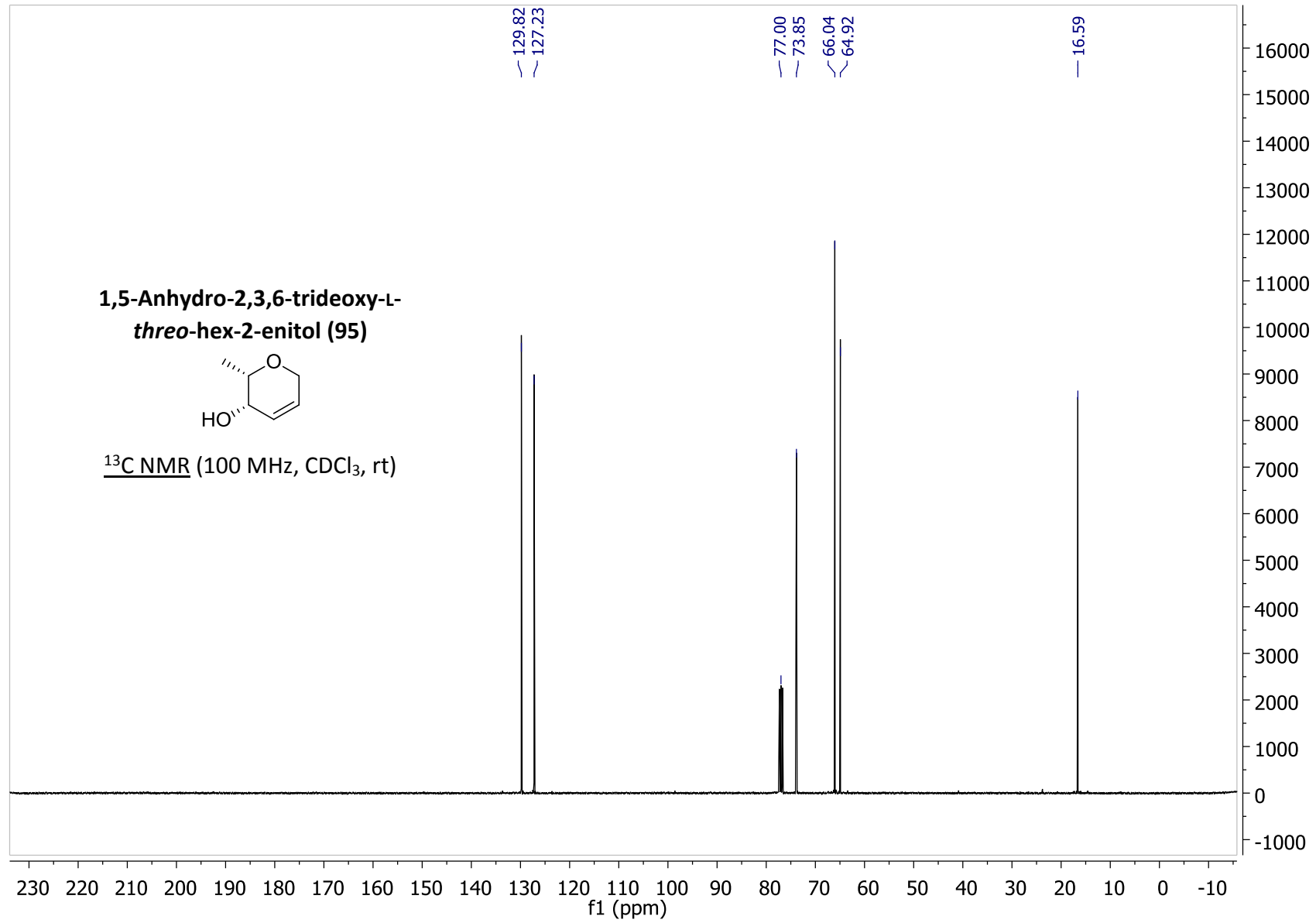


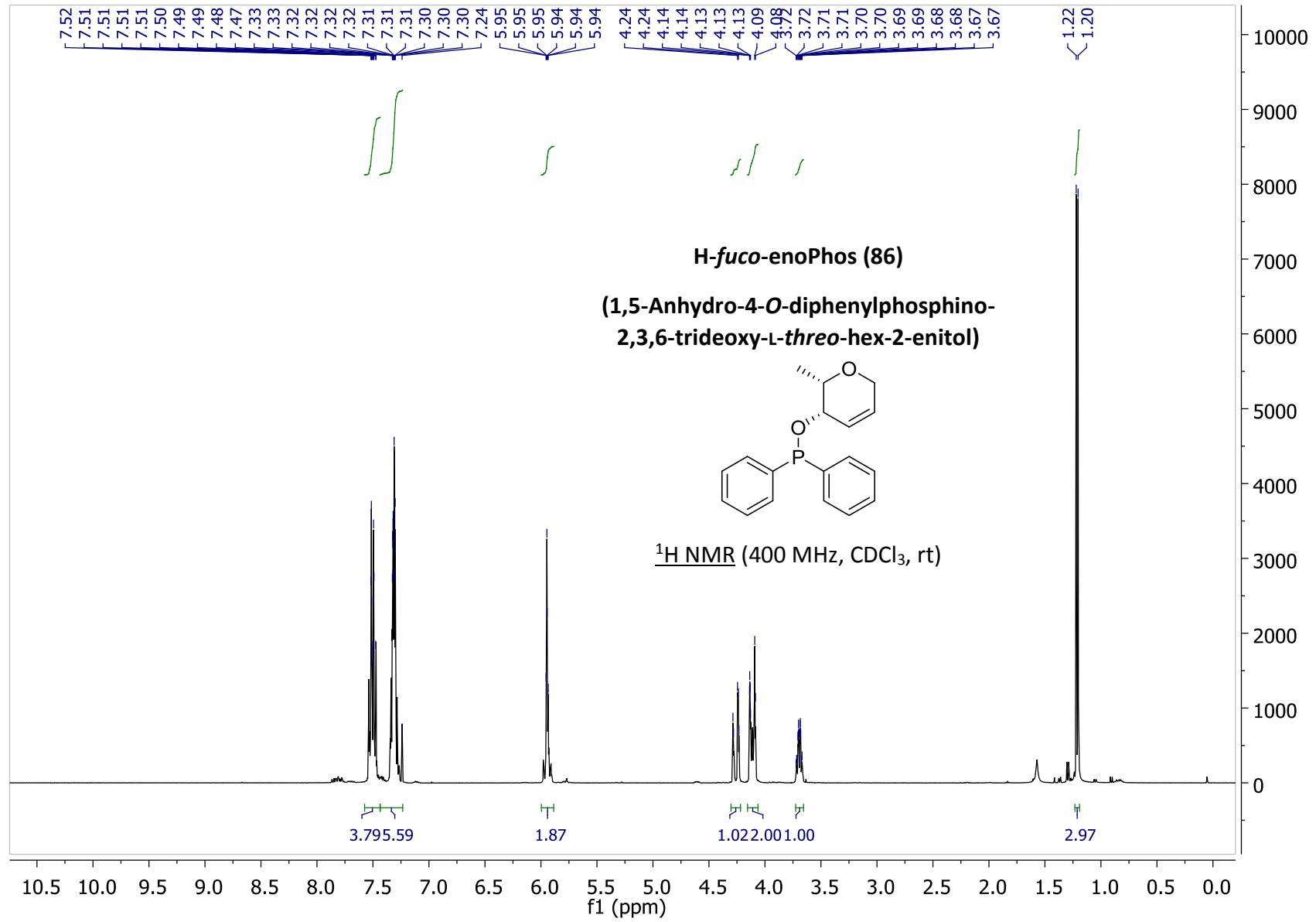


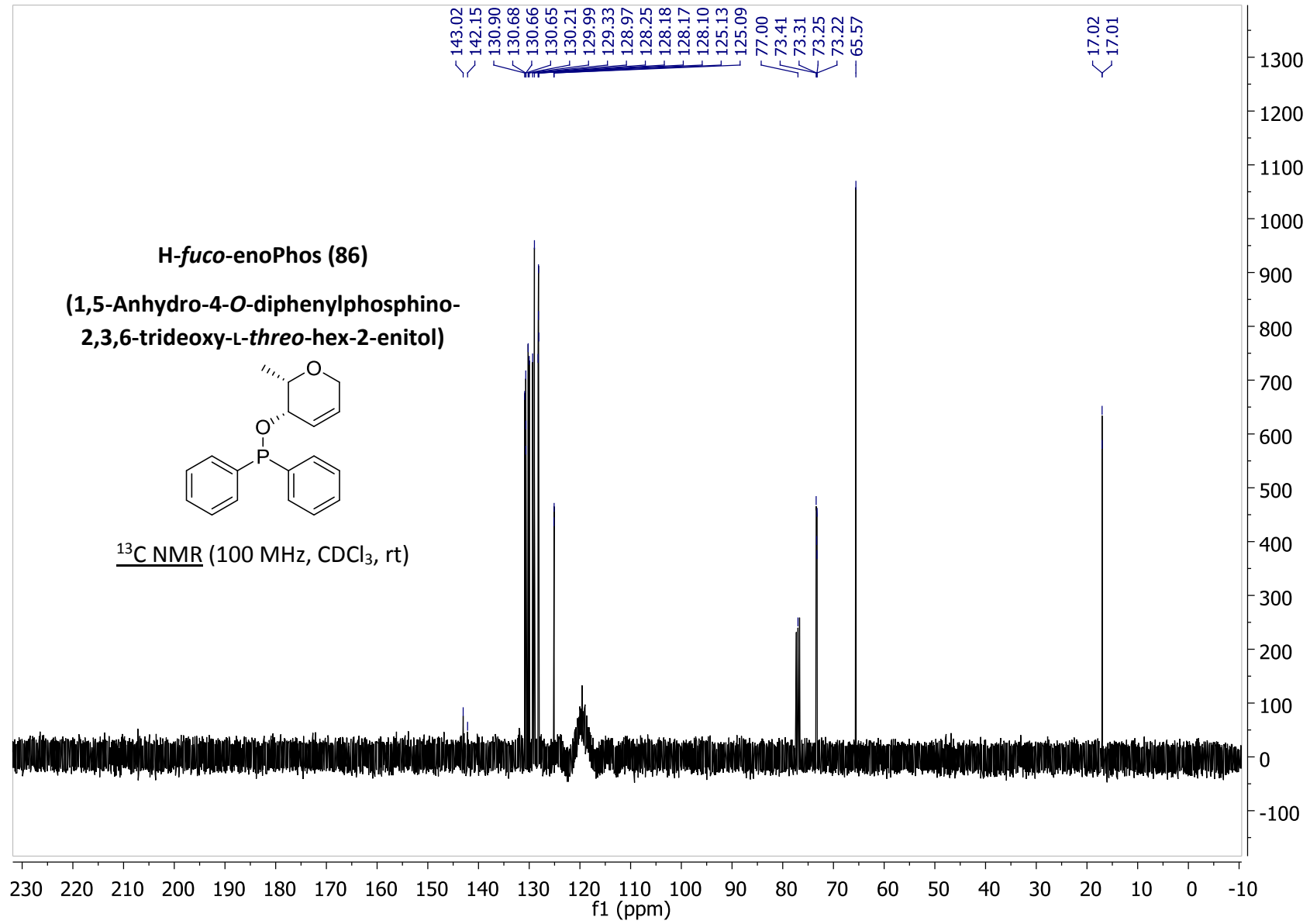
1,5-Anhydro-2,3,6-trideoxy-L-*threo*-hex-2-enitol (95)

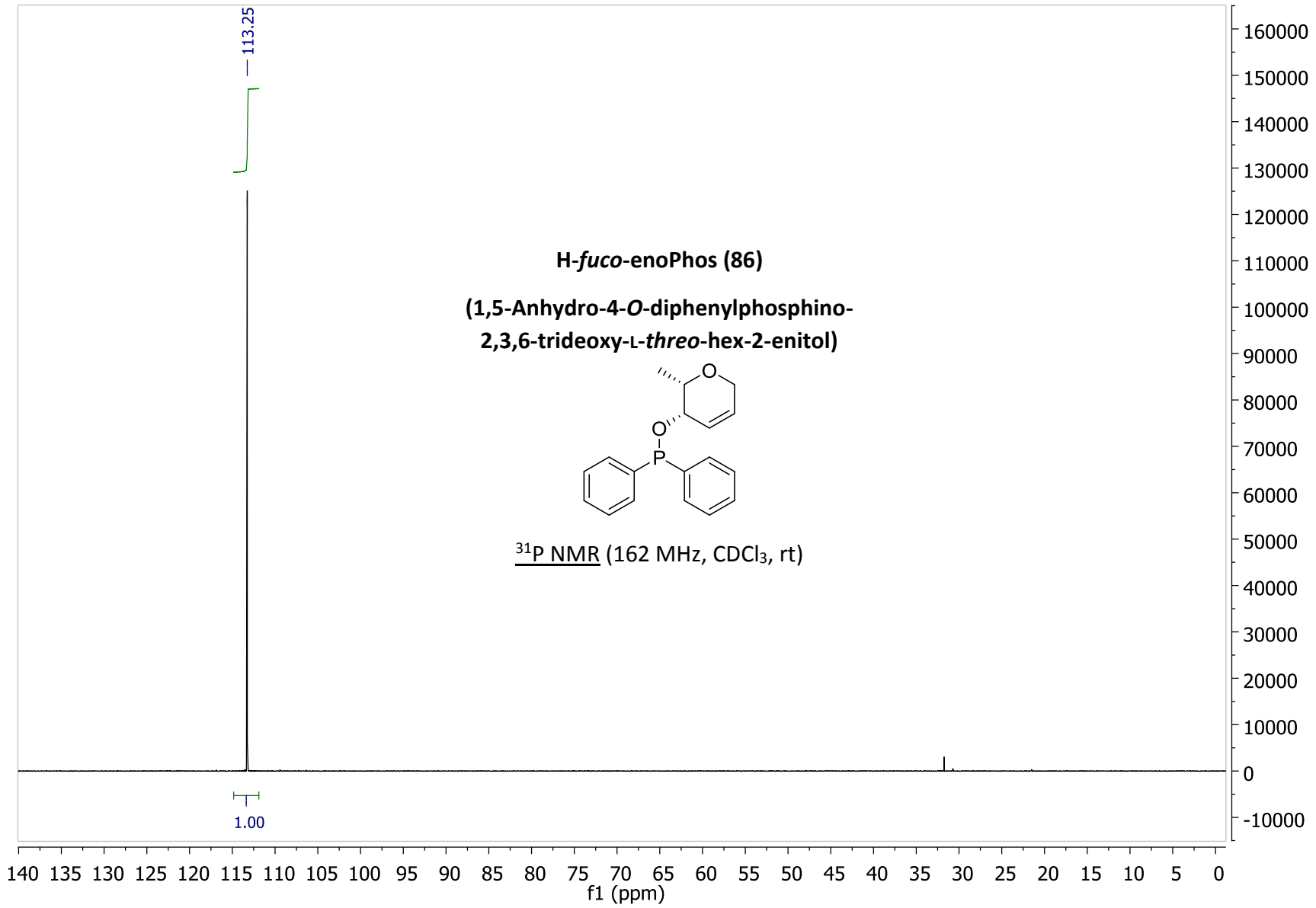


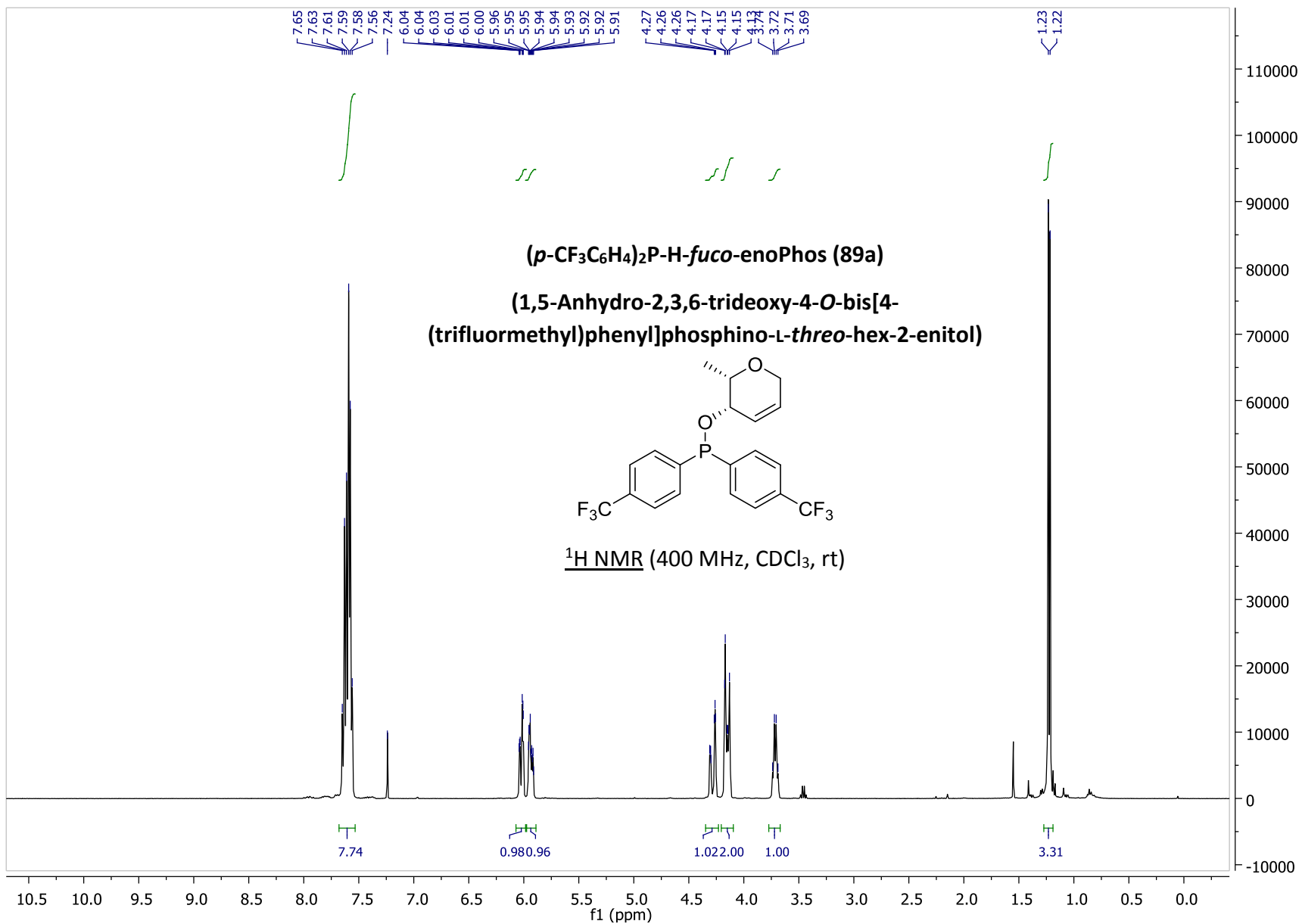
^{13}C NMR (100 MHz, CDCl_3 , rt)



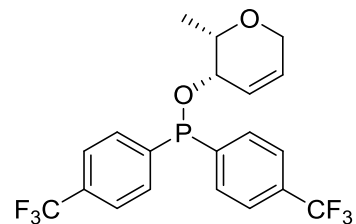




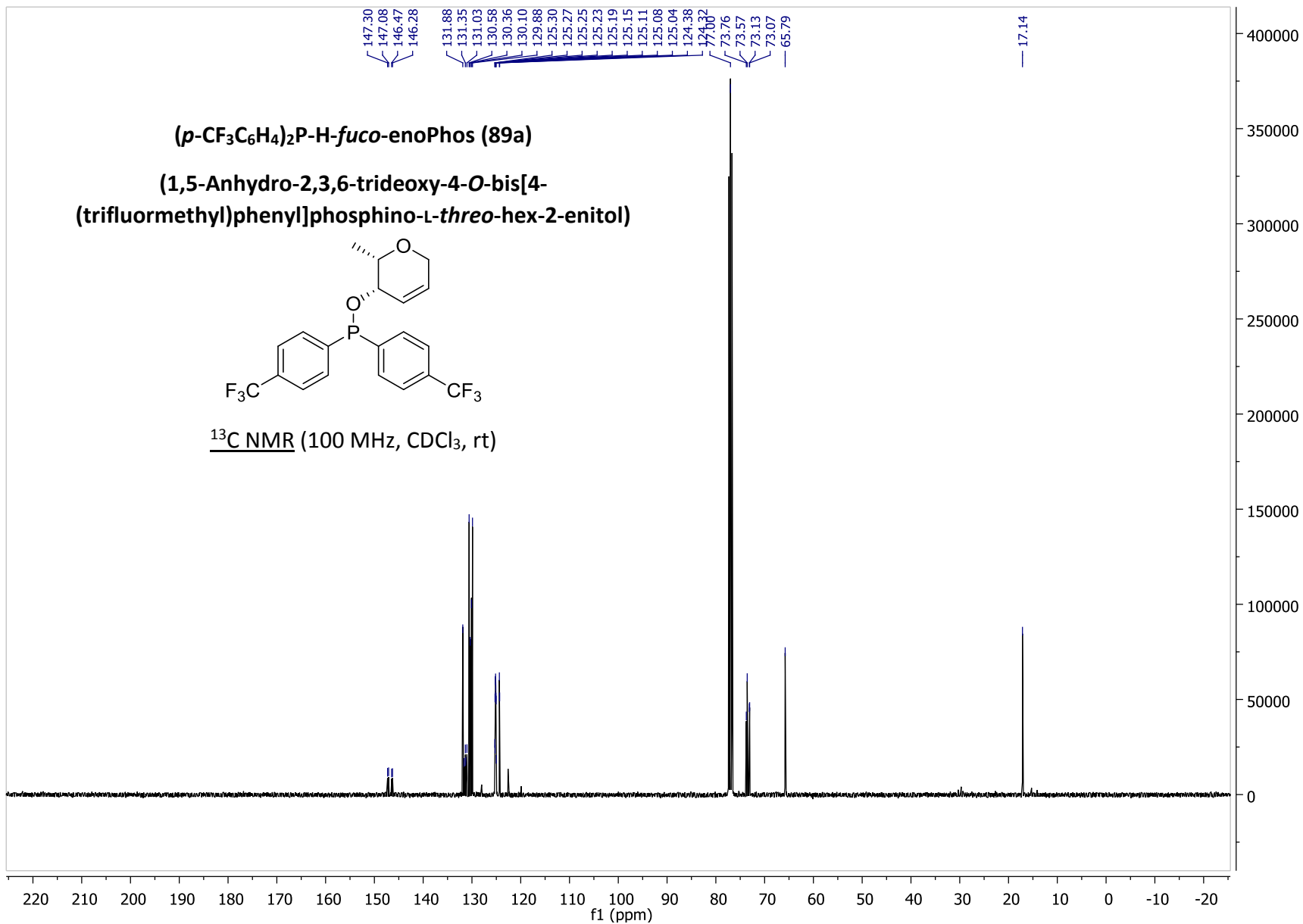


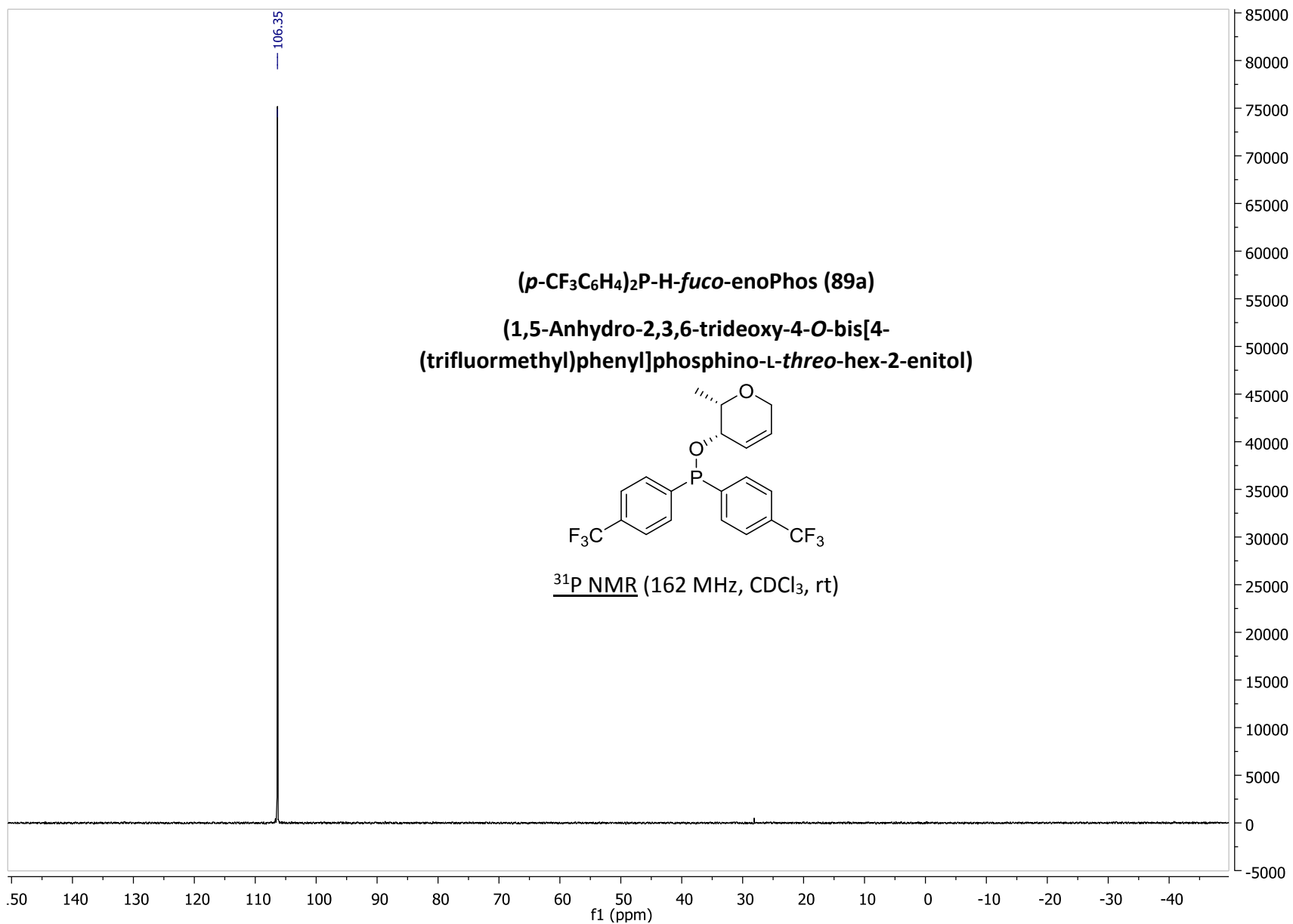


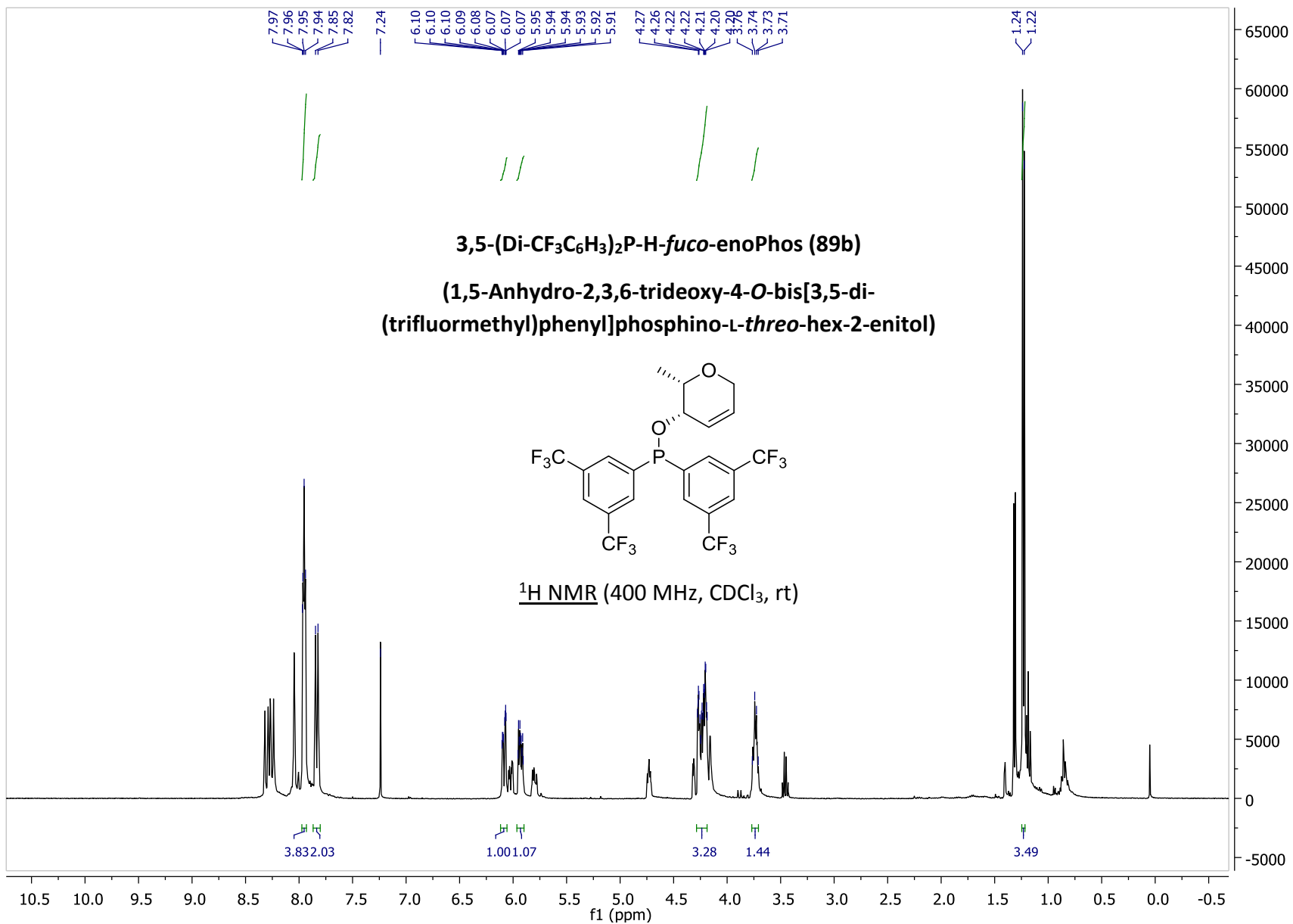
(*p*-CF₃C₆H₄)₂P-H-*fuco*-enoPhos (89a)
(1,5-Anhydro-2,3,6-trideoxy-4-*O*-bis[4-(trifluoromethyl)phenyl]phosphino-L-*threo*-hex-2-enitol)



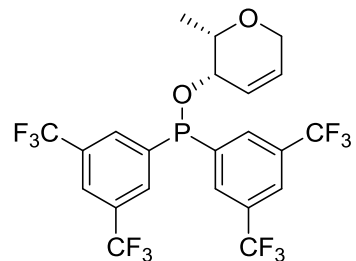
¹³C NMR (100 MHz, CDCl₃, rt)



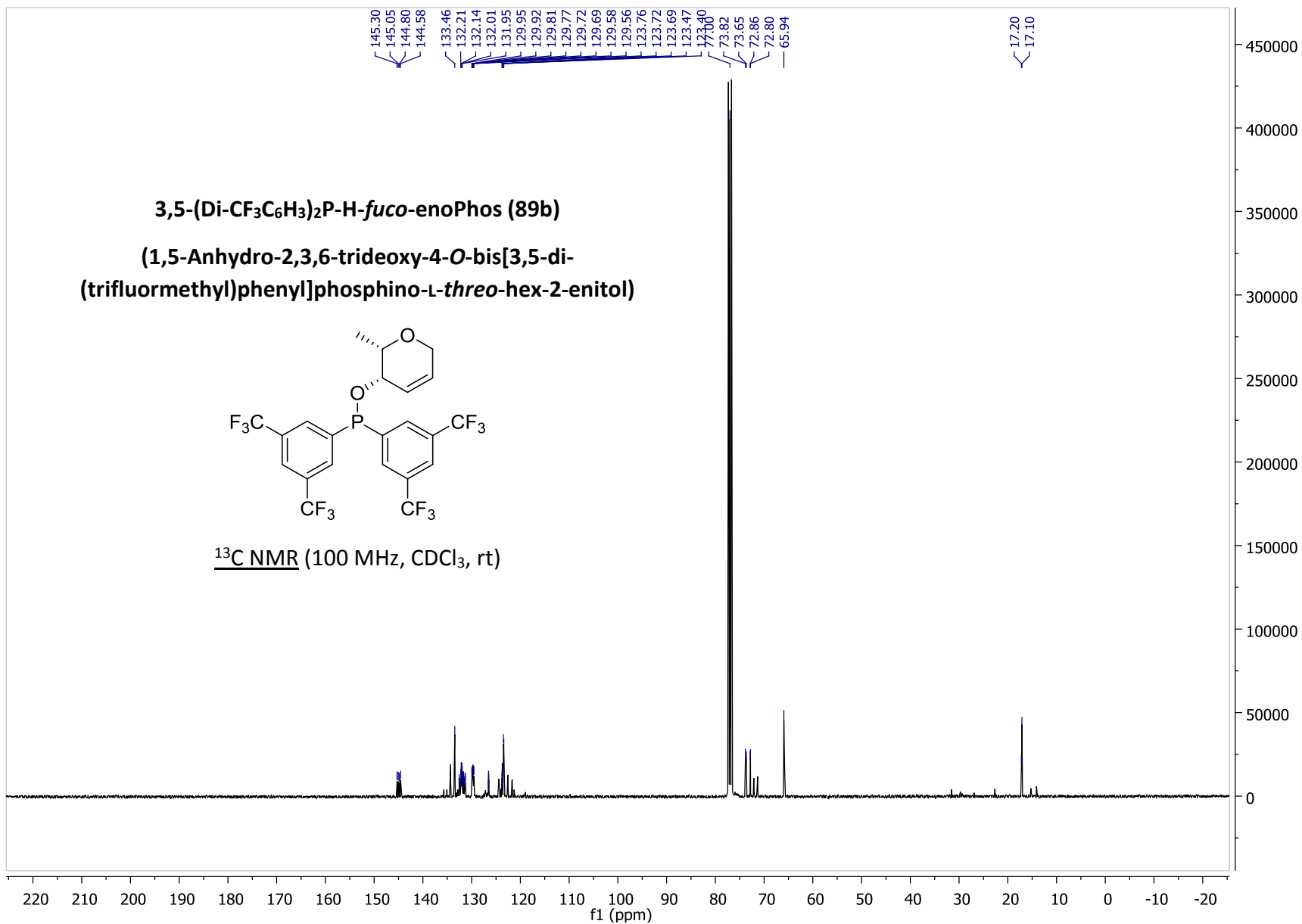


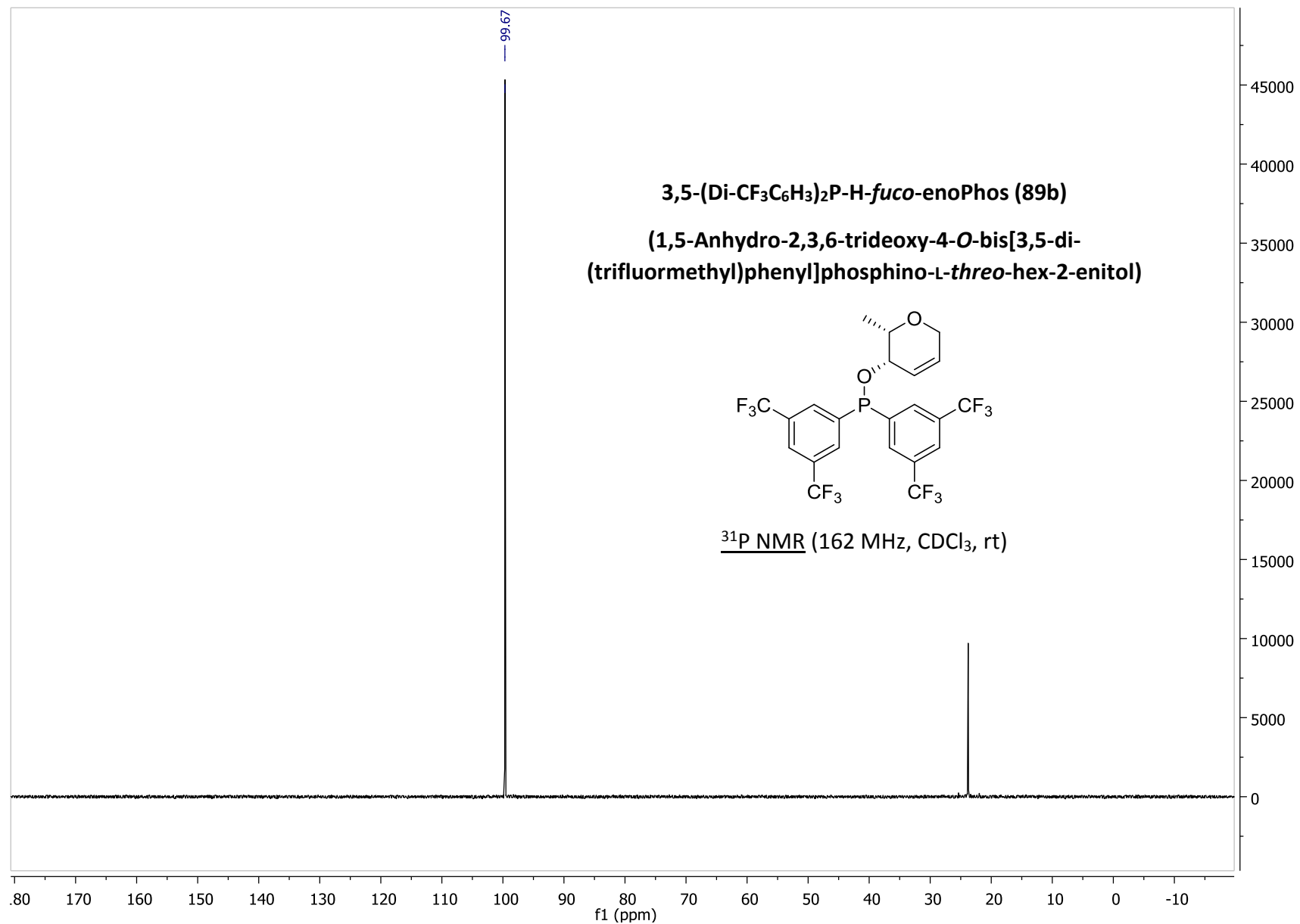


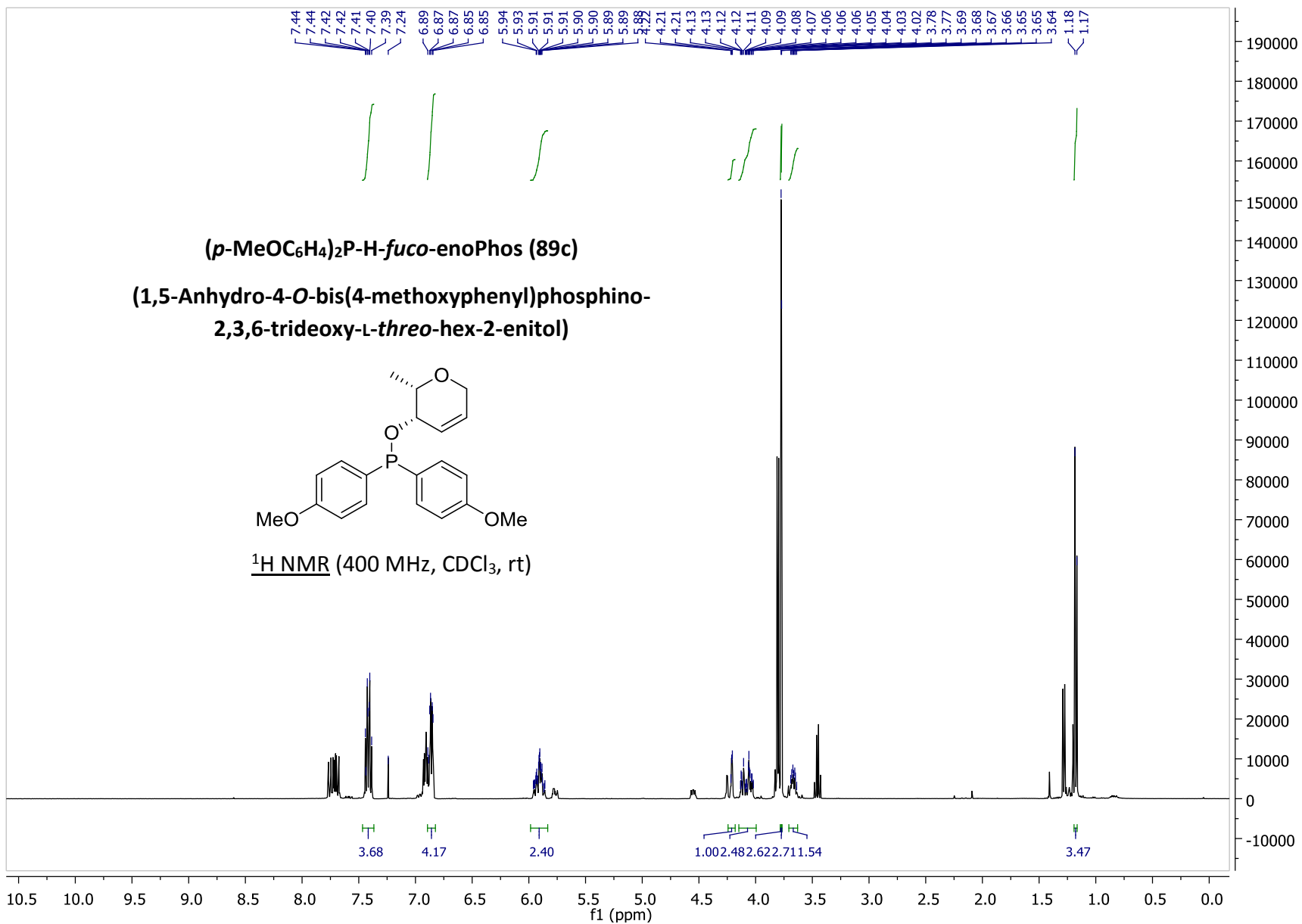
3,5-(Di-CF₃C₆H₃)₂P-H-*fuco*-enoPhos (89b)
(1,5-Anhydro-2,3,6-trideoxy-4-O-bis[3,5-di-
(trifluoromethyl)phenyl]phosphino-L-*threo*-hex-2-enitol)

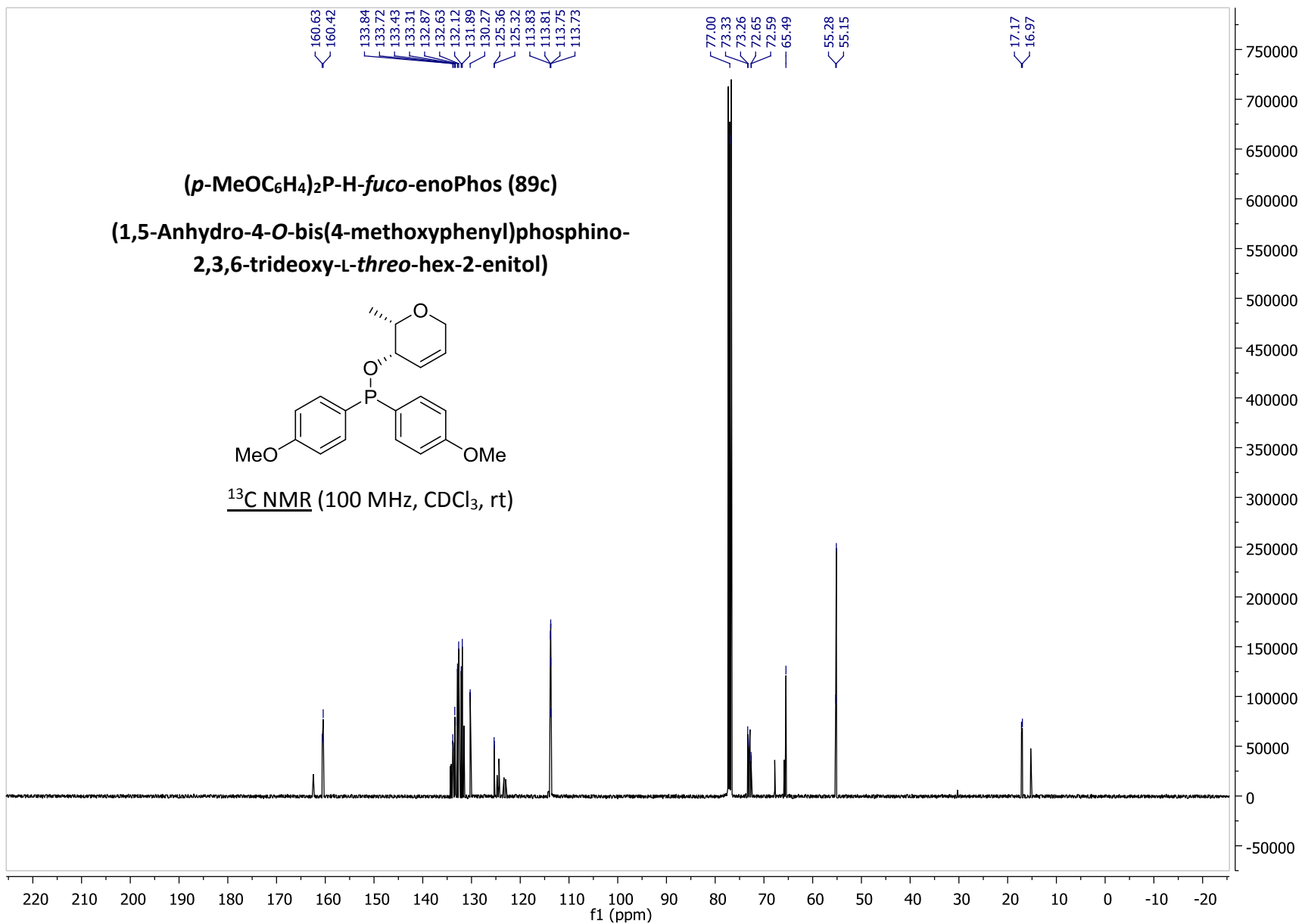


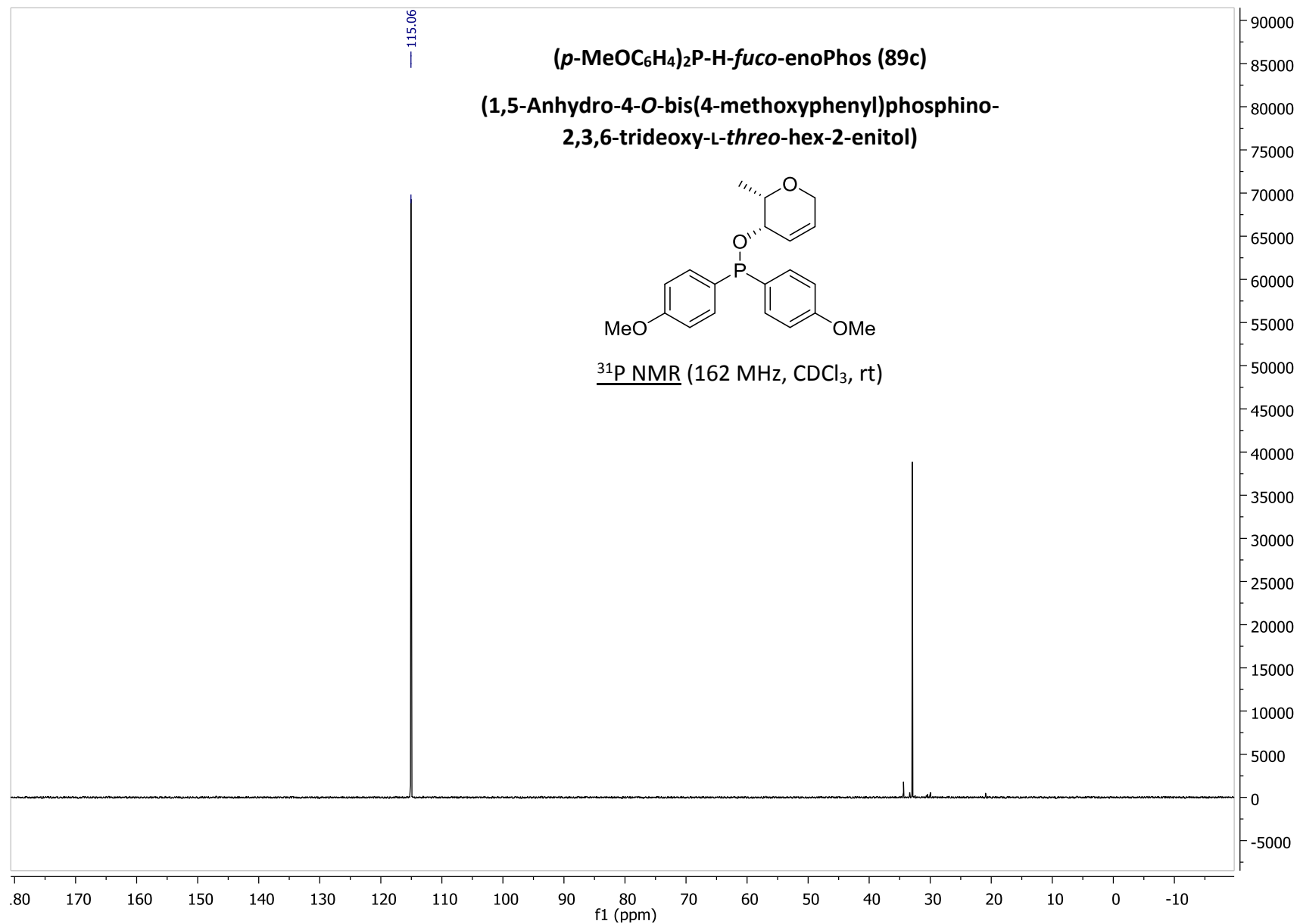
¹³C NMR (100 MHz, CDCl₃, rt)

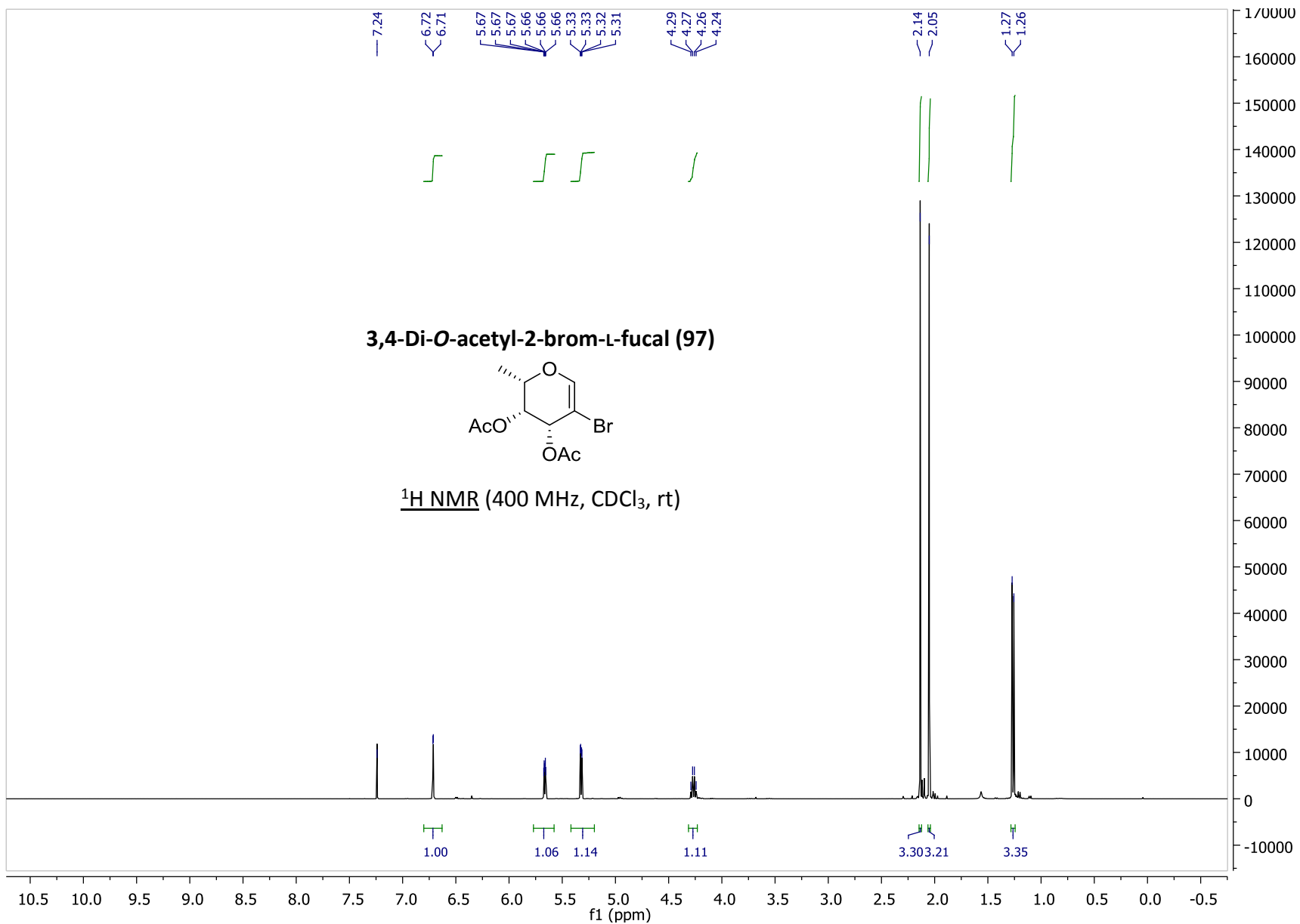




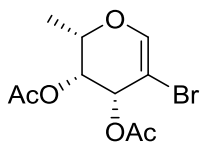




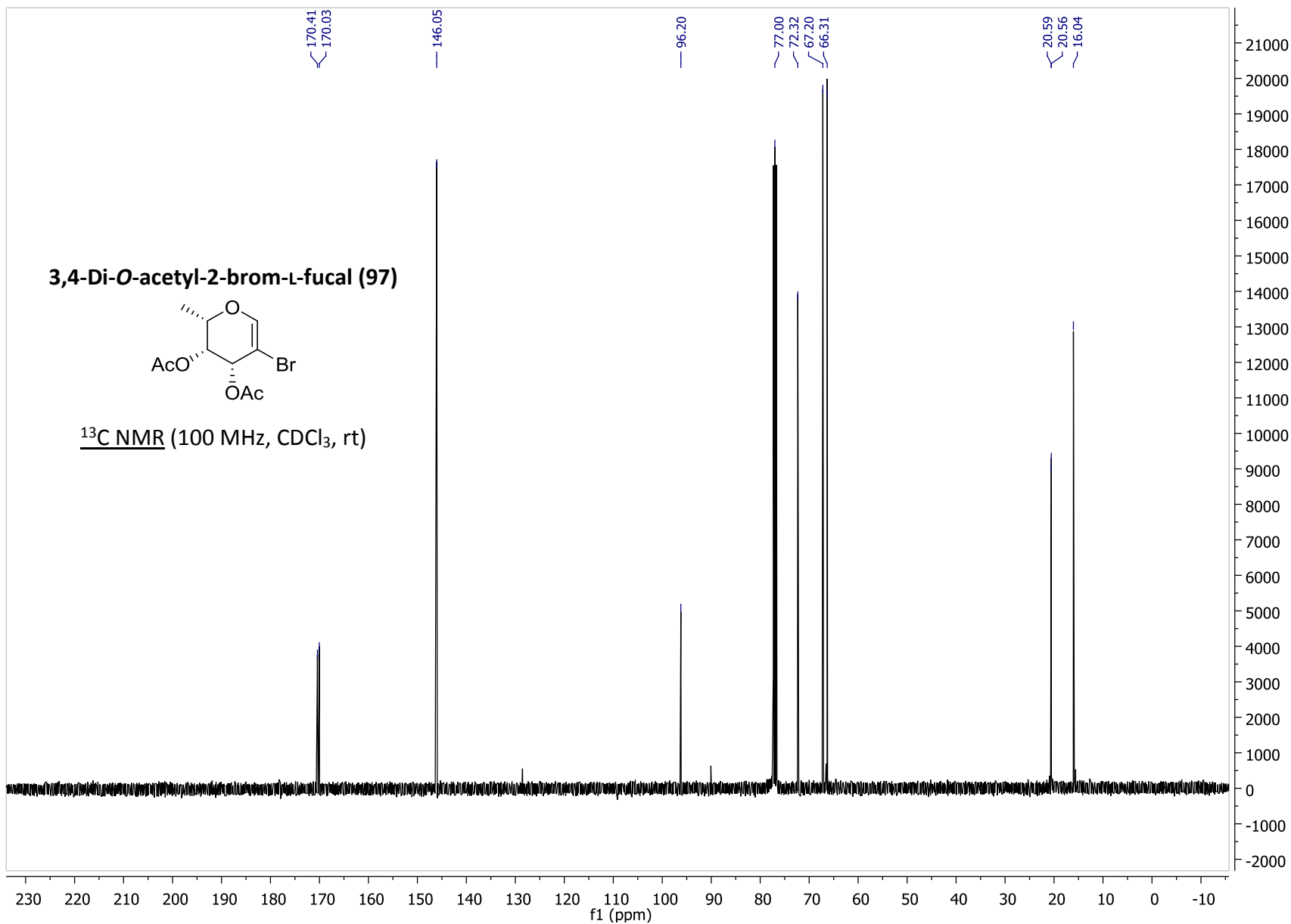


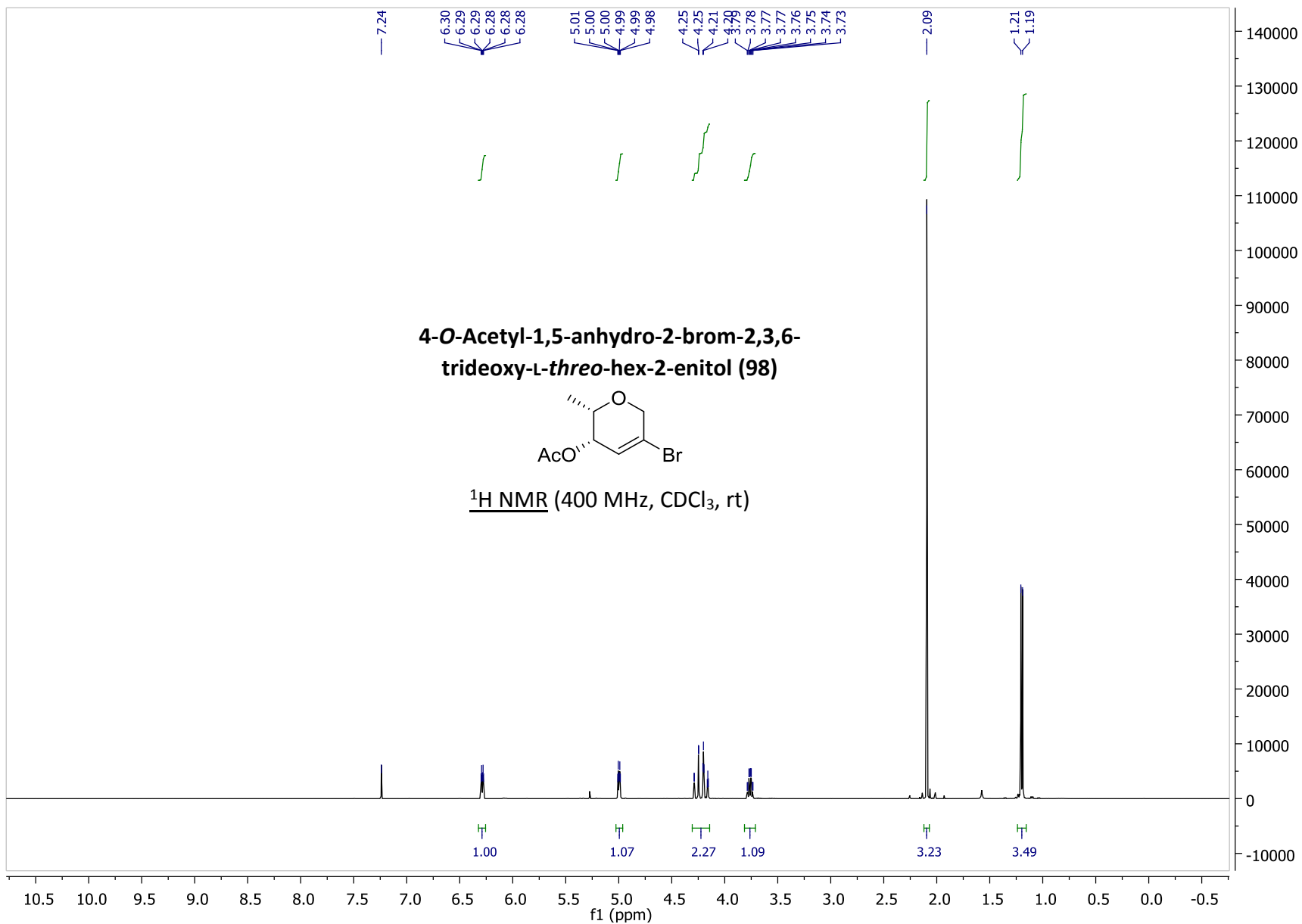


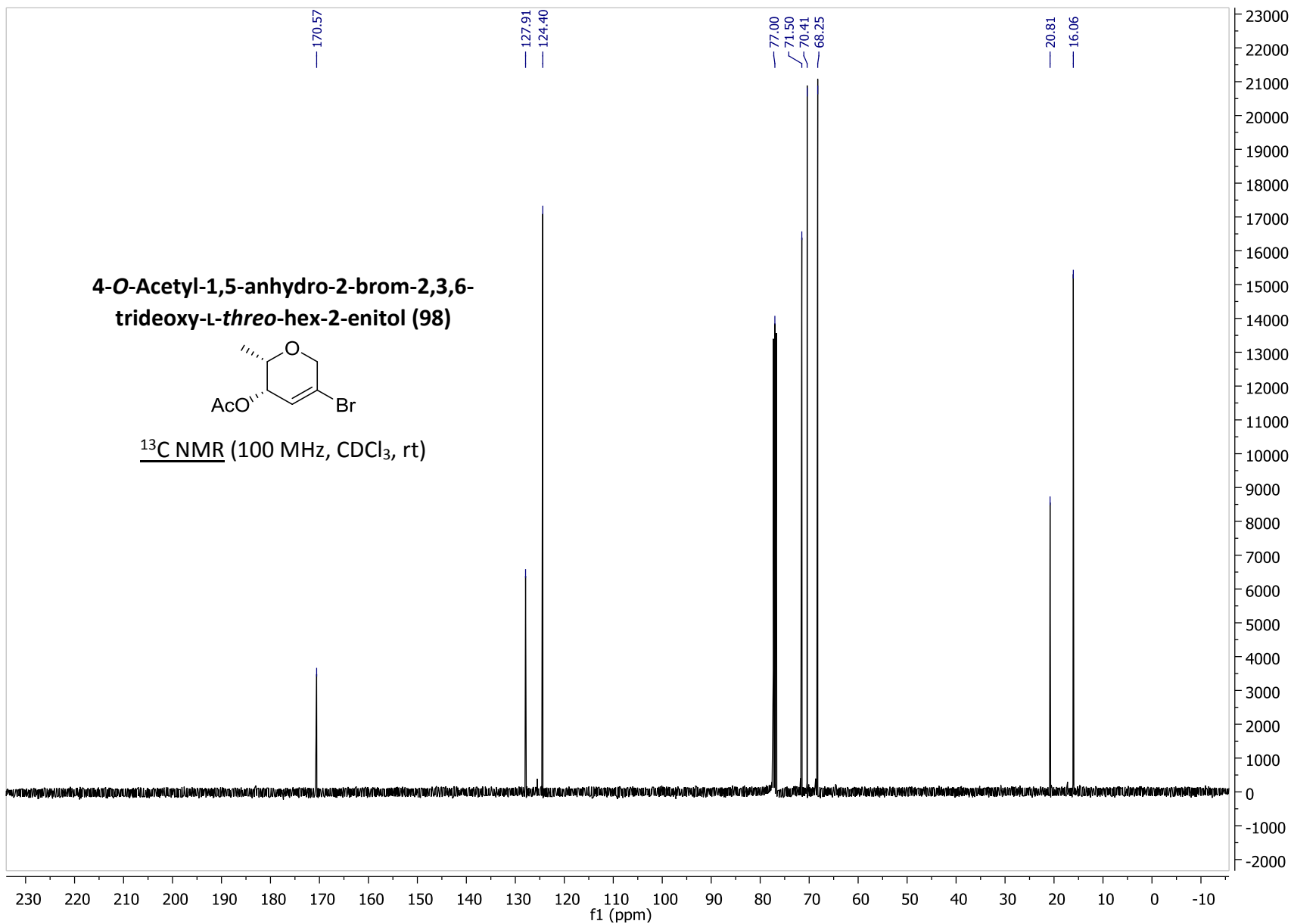
3,4-Di-O-acetyl-2-brom-L-fucal (97)

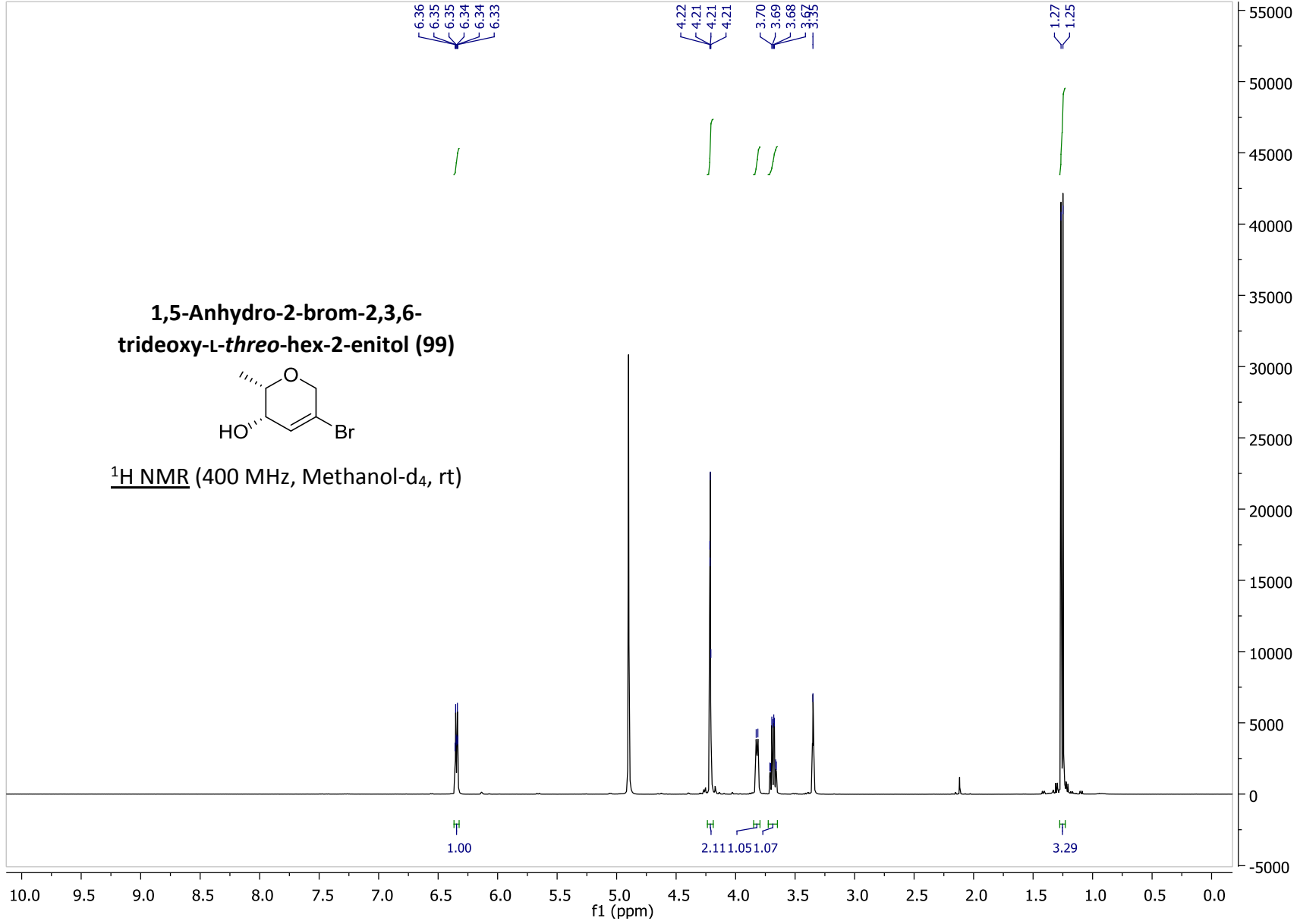


^{13}C NMR (100 MHz, CDCl_3 , rt)

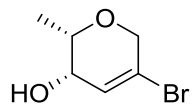




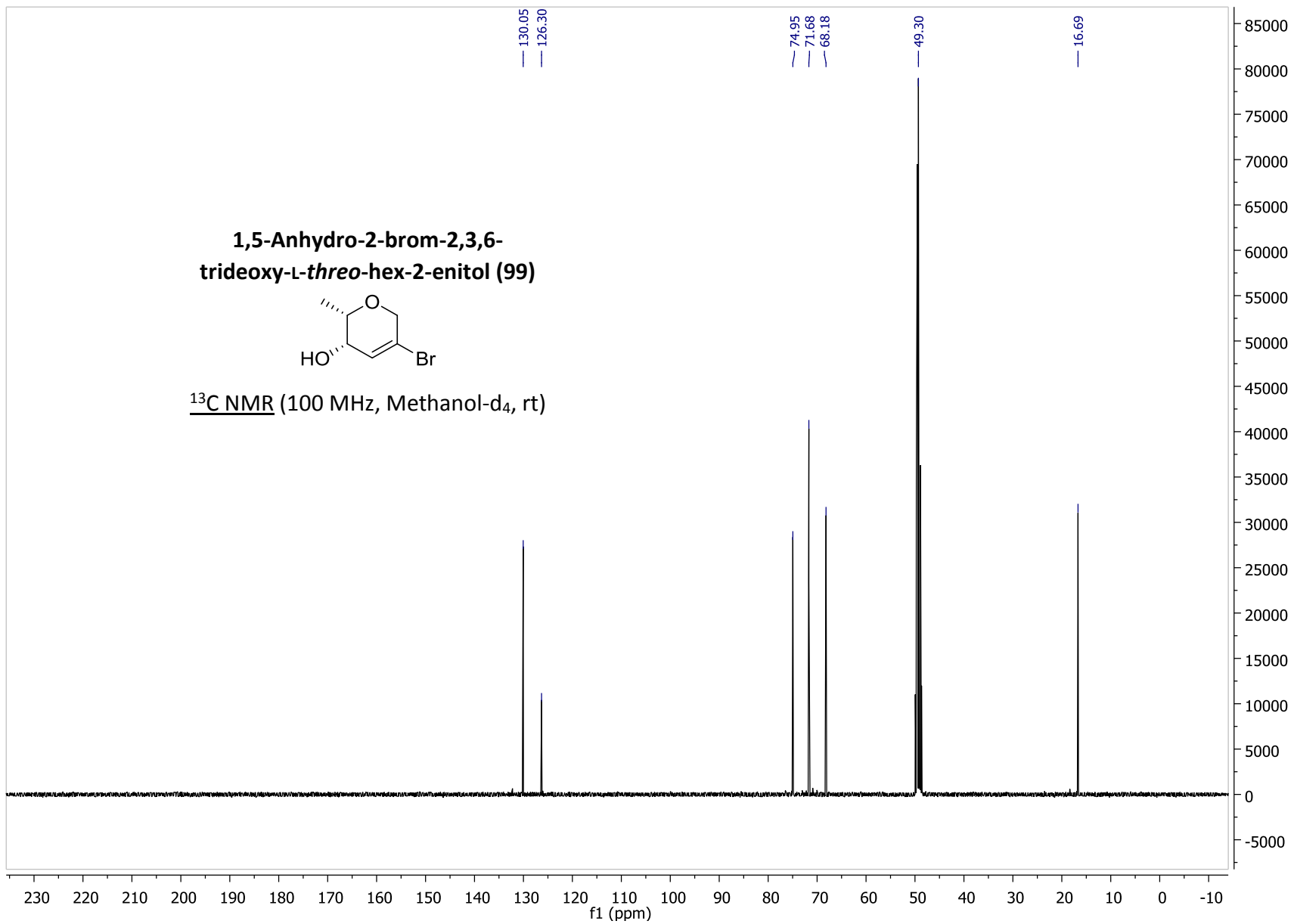


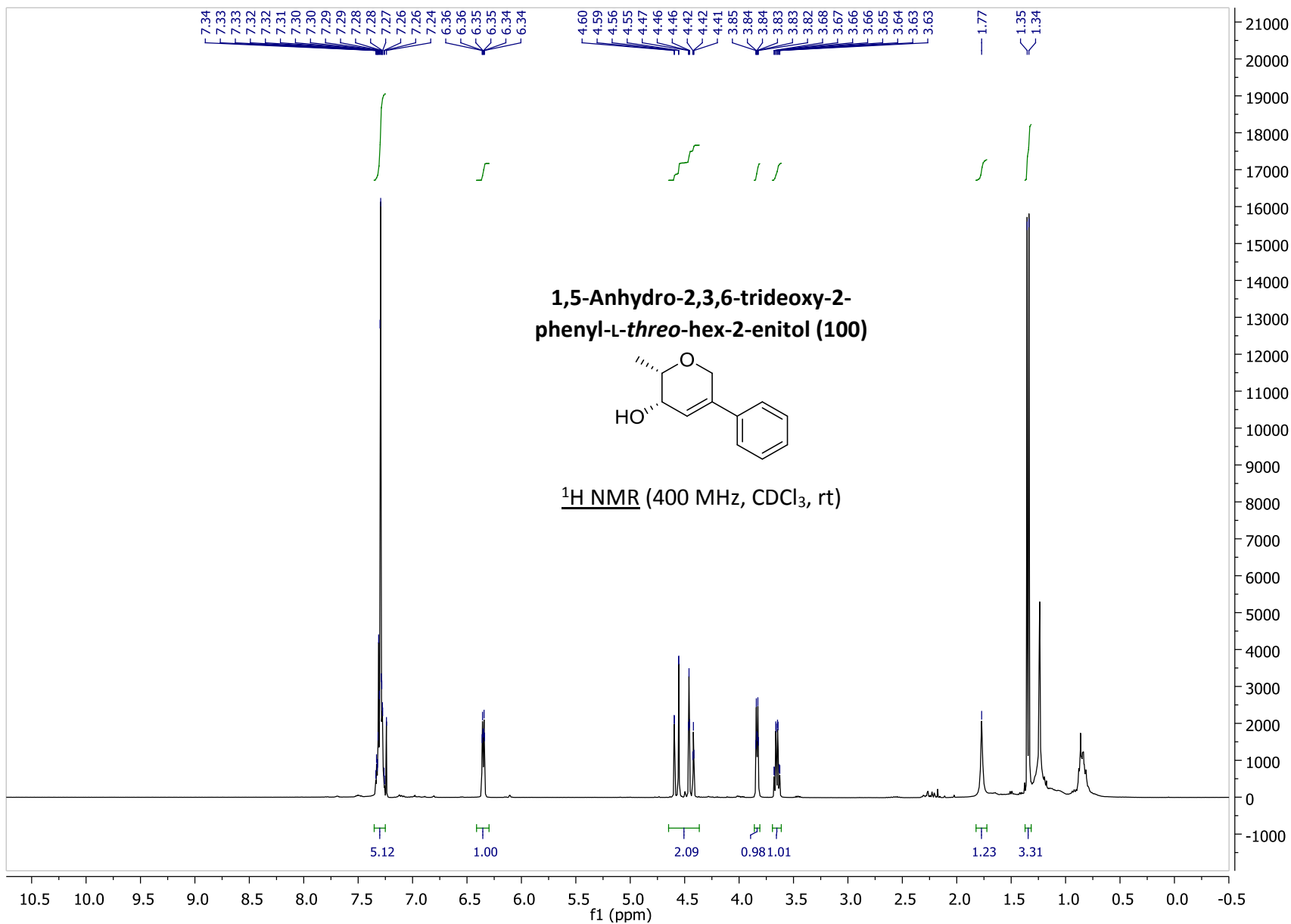


1,5-Anhydro-2-brom-2,3,6-trideoxy-L-threo-hex-2-enitol (99)

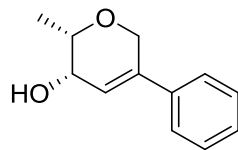


^{13}C NMR (100 MHz, Methanol- d_4 , rt)

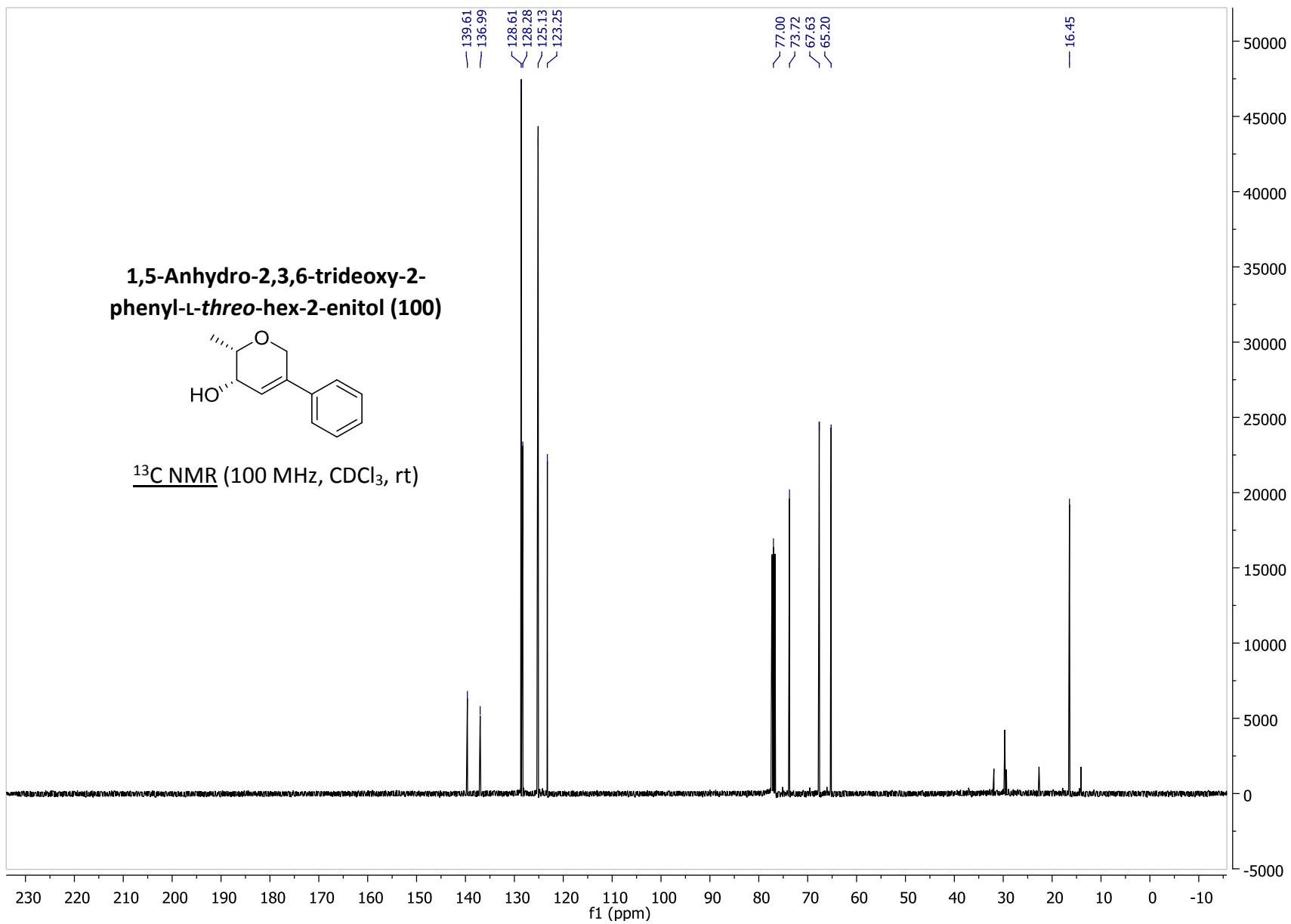


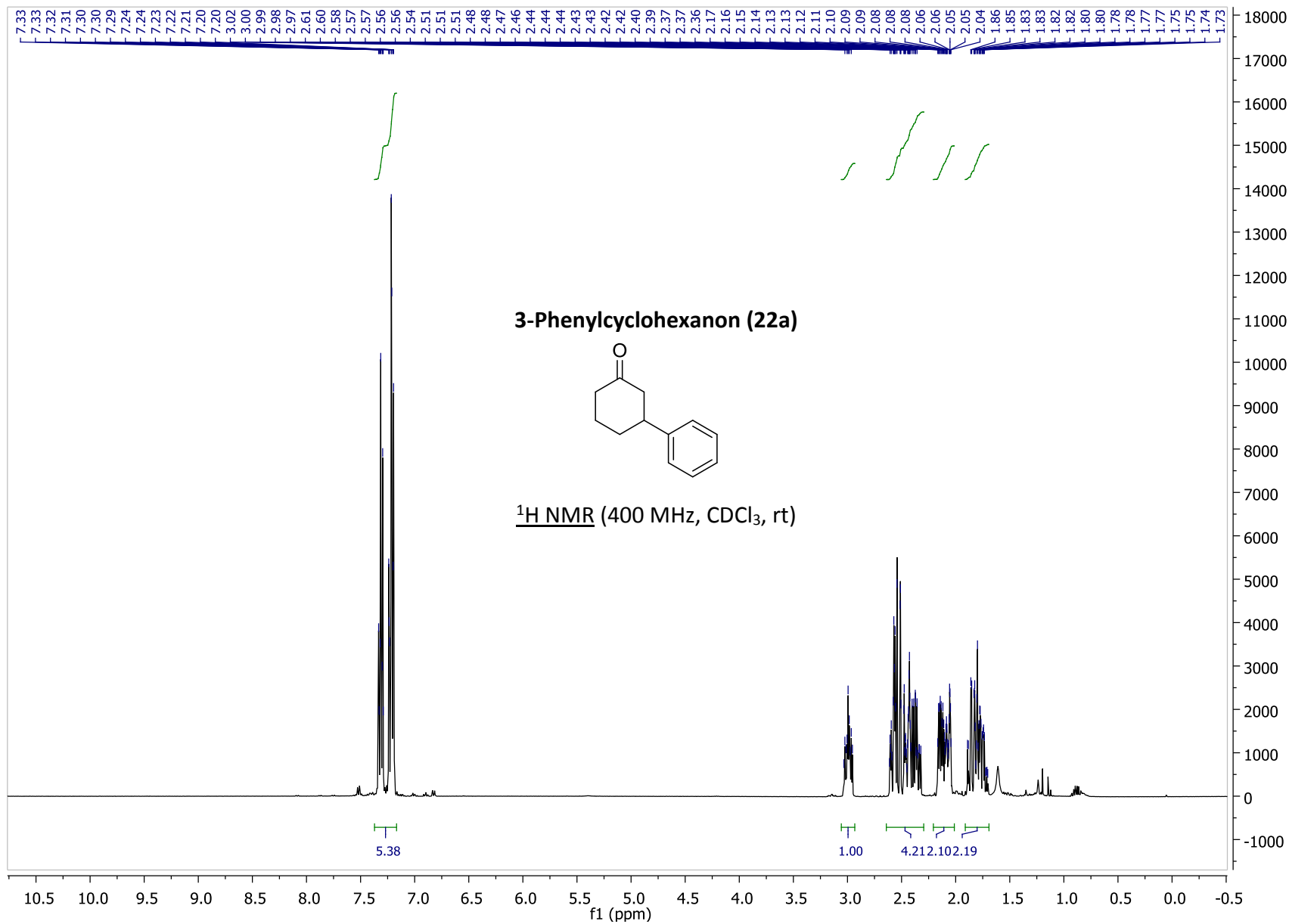


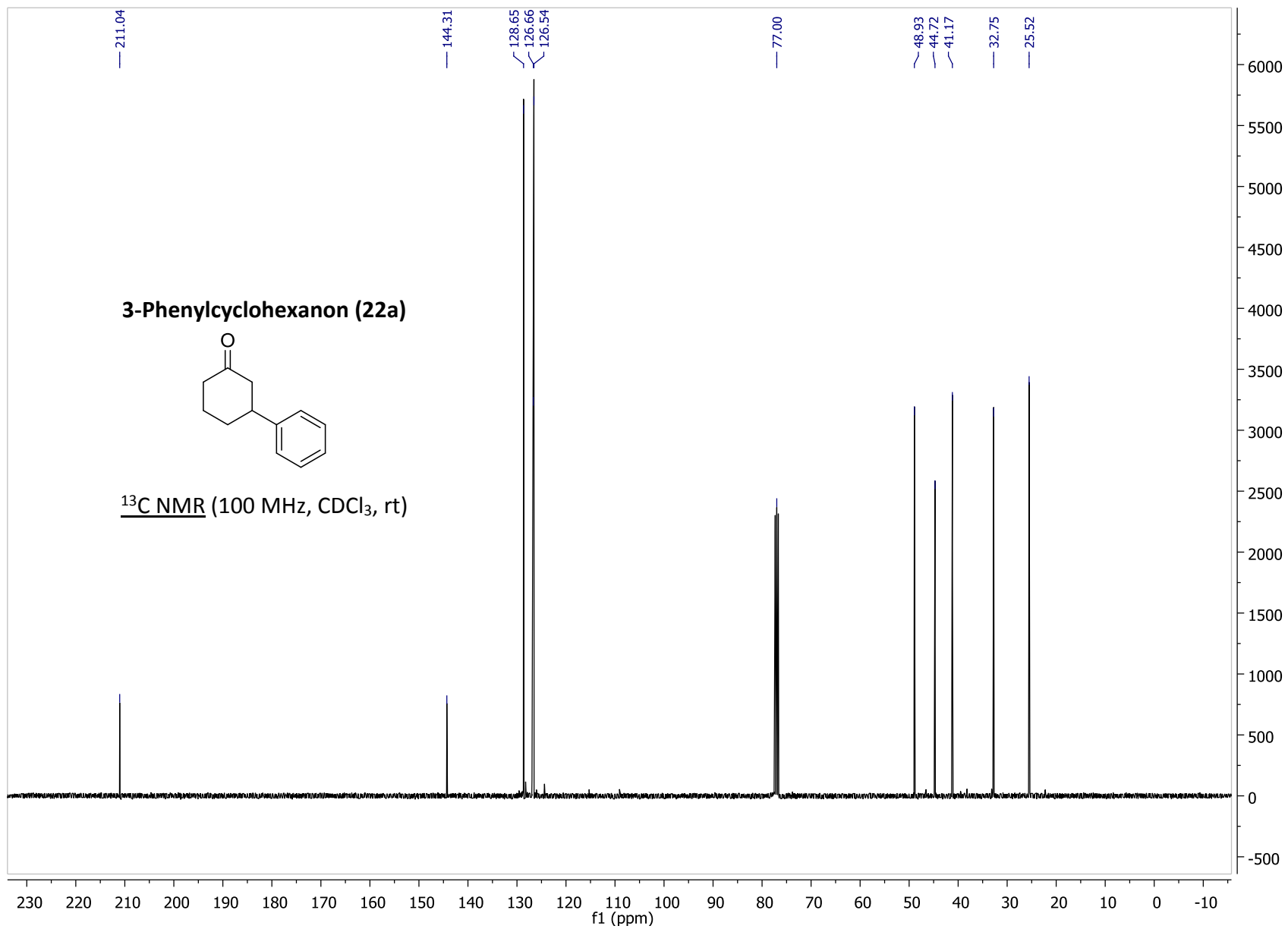
1,5-Anhydro-2,3,6-trideoxy-2-phenyl-L-threo-hex-2-enitol (100)



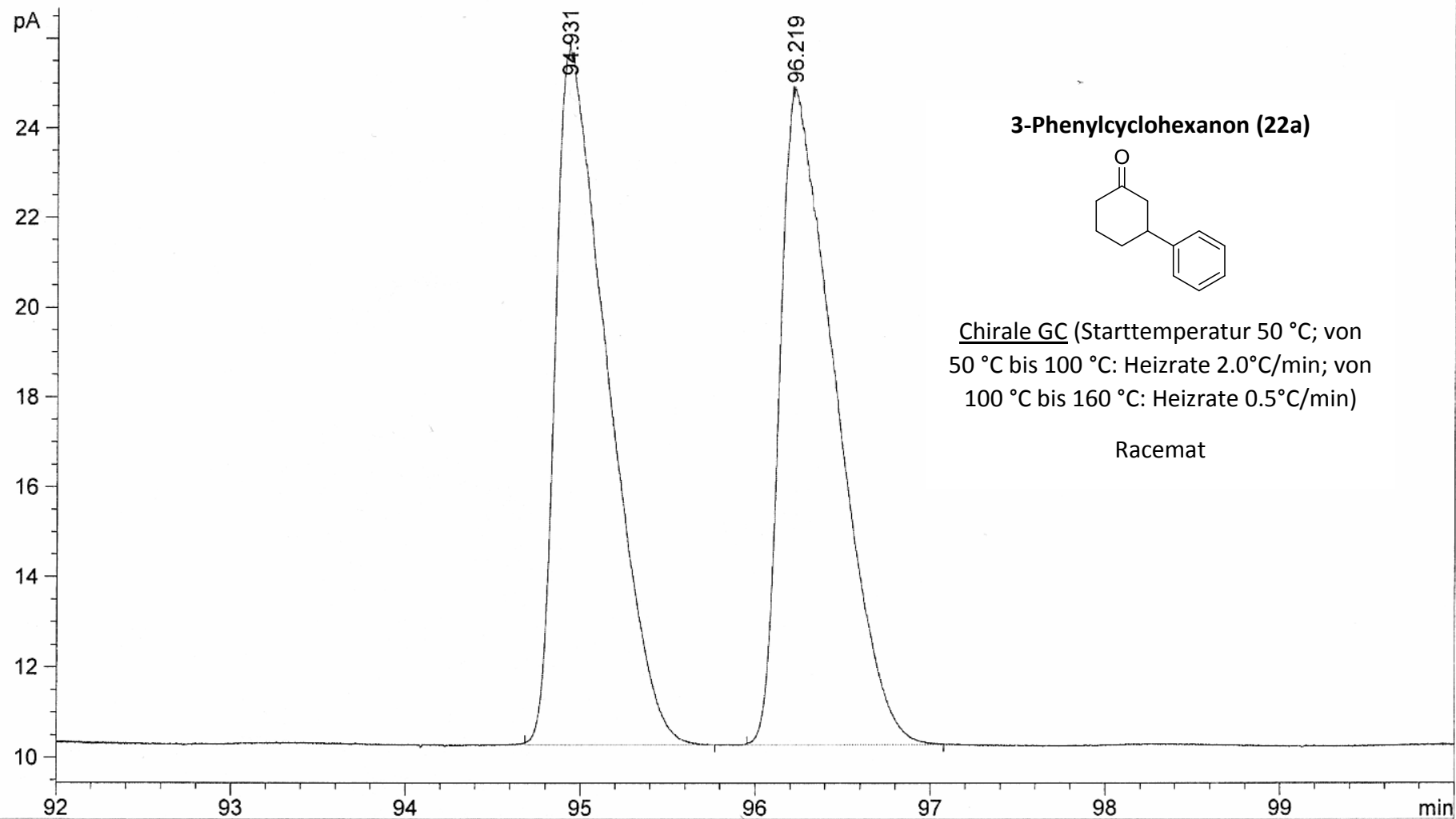
^{13}C NMR (100 MHz, CDCl_3 , rt)



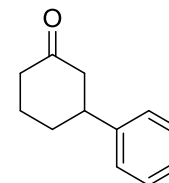




FID1 B, (SIG20541.D)



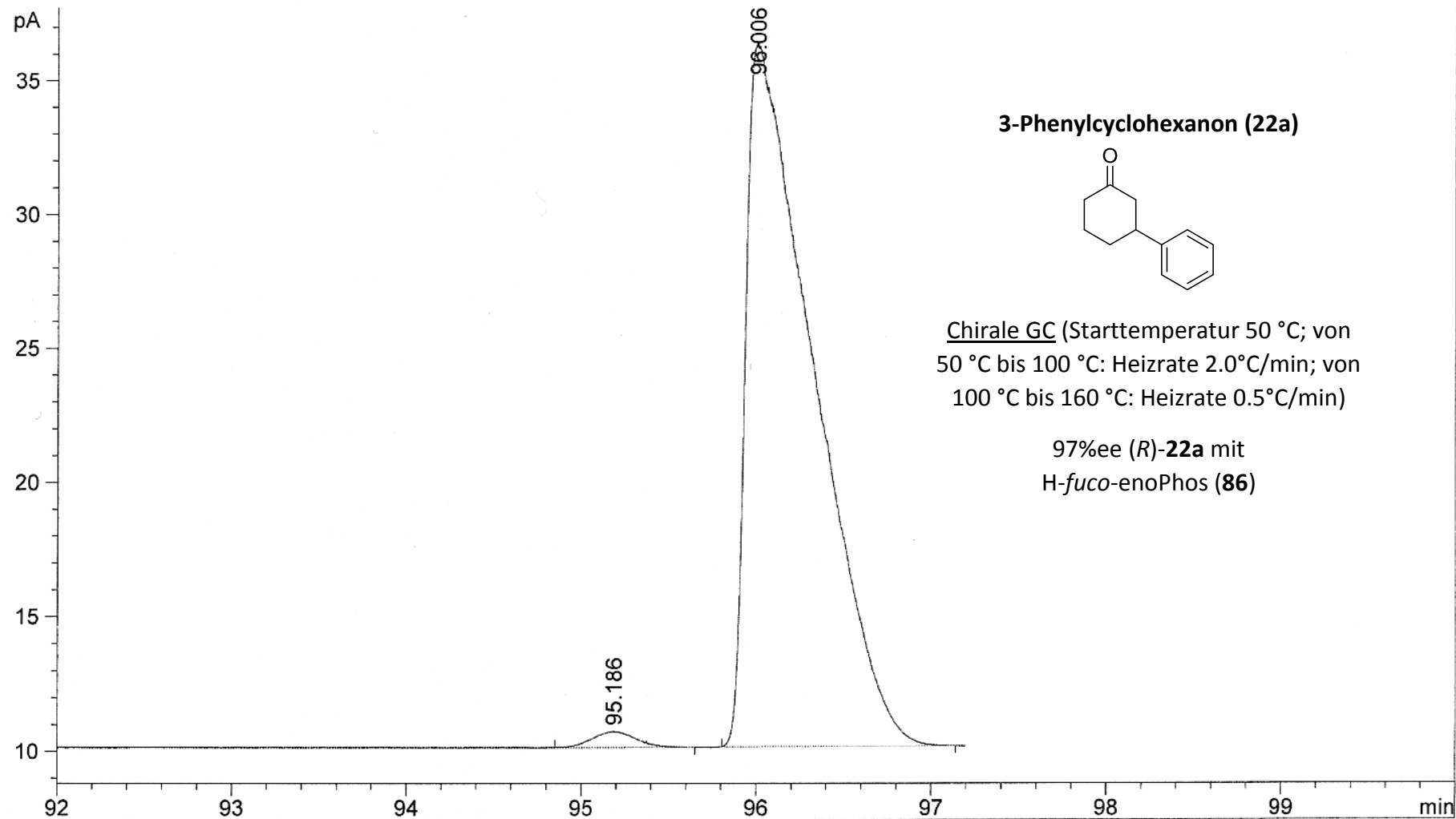
3-Phenylcyclohexanon (22a)



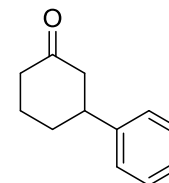
Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 0.5°C/min)

Racemat

FID1 B, (SIG20545.D)



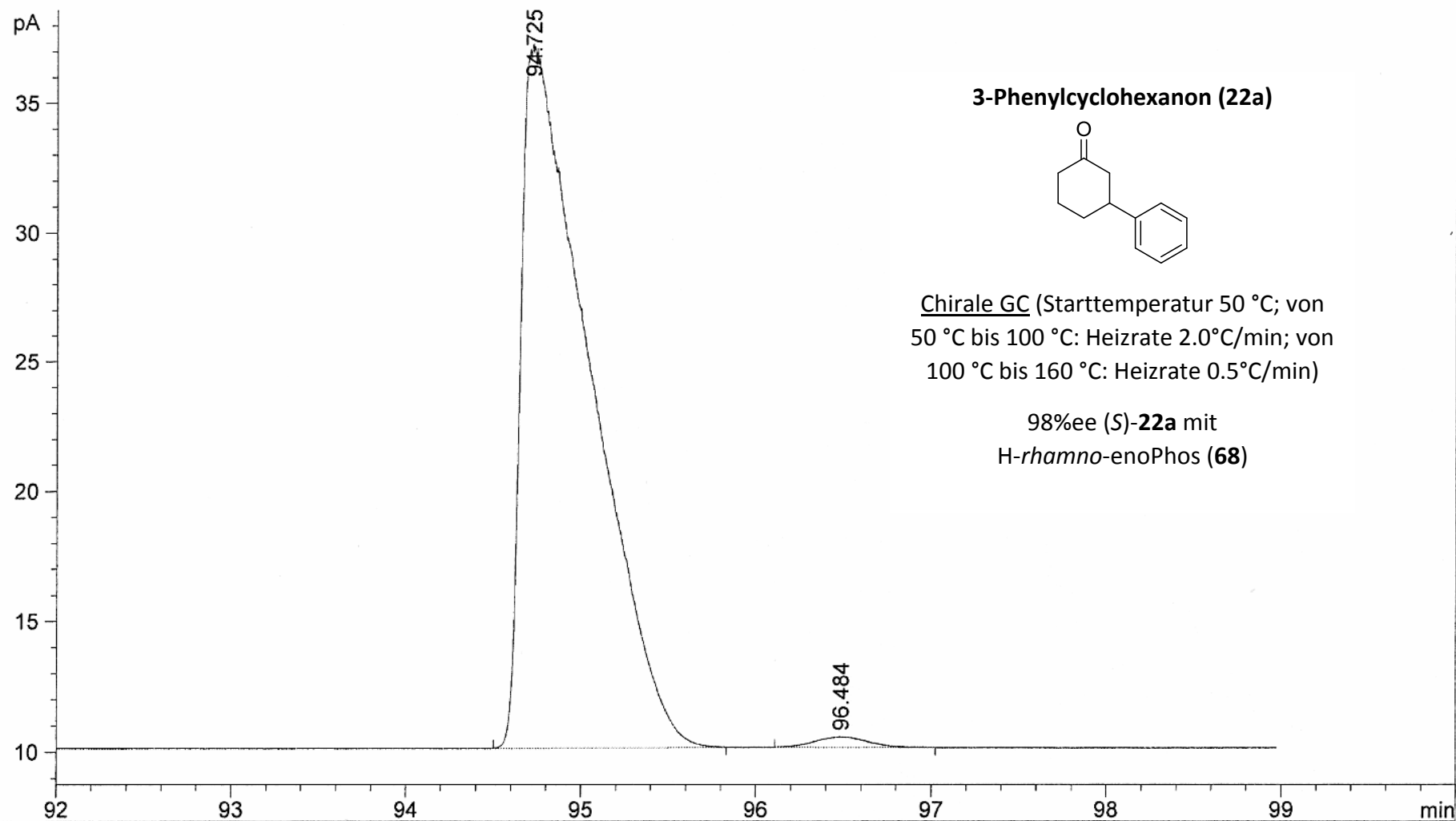
3-Phenylcyclohexanon (22a)



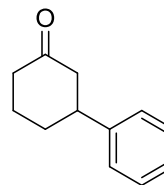
Chirale GC (Starttemperatur 50 °C; von 50 °C bis 100 °C: Heizrate 2.0°C/min; von 100 °C bis 160 °C: Heizrate 0.5°C/min)

97%ee (*R*)-**22a** mit H-*fuco*-enoPhos (**86**)

FID1 B, (SIG20544.D)



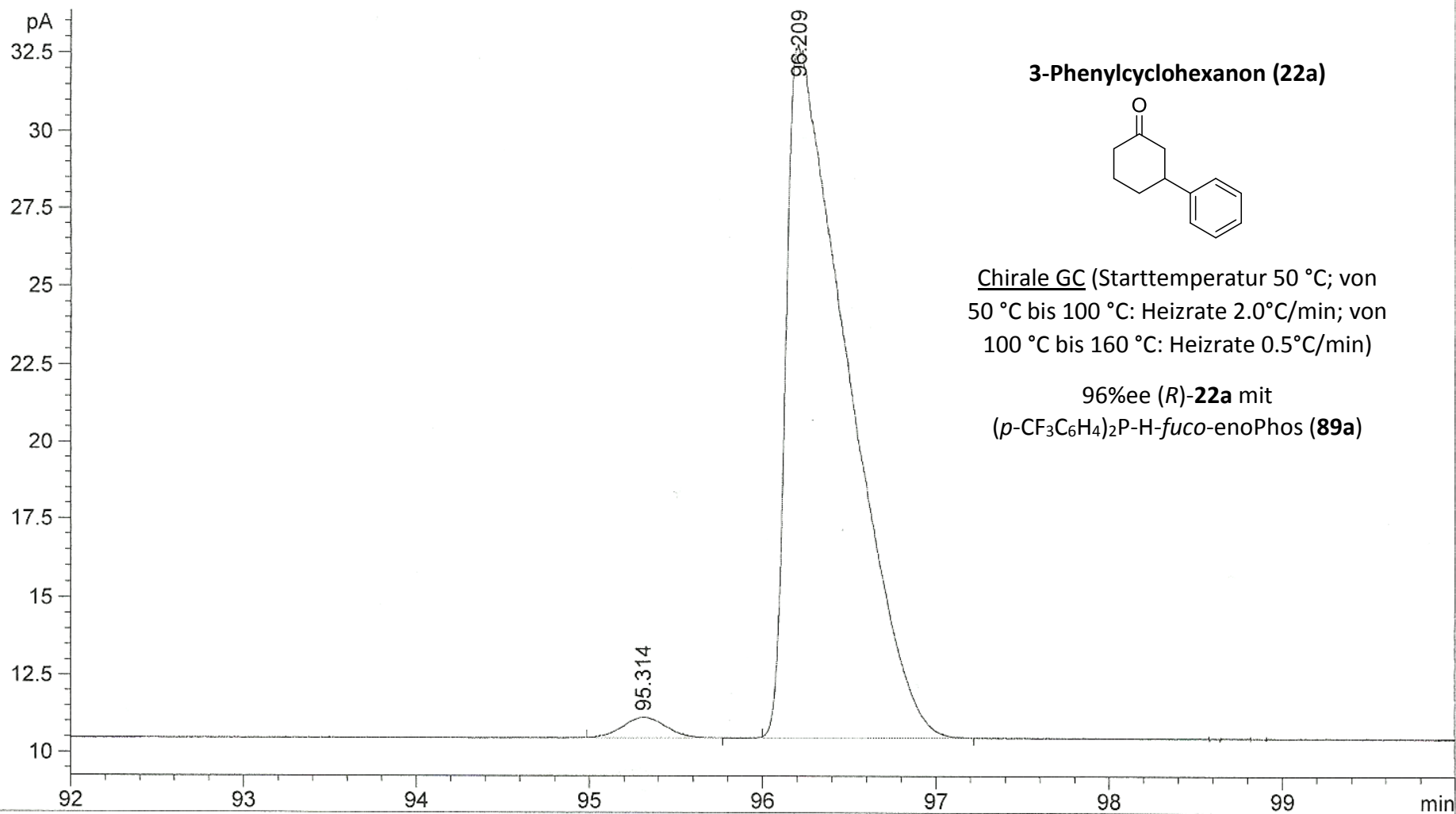
3-Phenylcyclohexanon (22a)



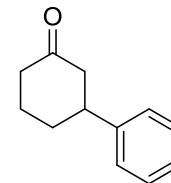
Chirale GC (Starttemperatur 50 °C; von 50 °C bis 100 °C: Heizrate 2.0°C/min; von 100 °C bis 160 °C: Heizrate 0.5°C/min)

98%ee (*S*)-**22a** mit
H-*rhamno*-enoPhos (**68**)

FID1 B, (SIM-CHECKOUT\SIG20691.D)



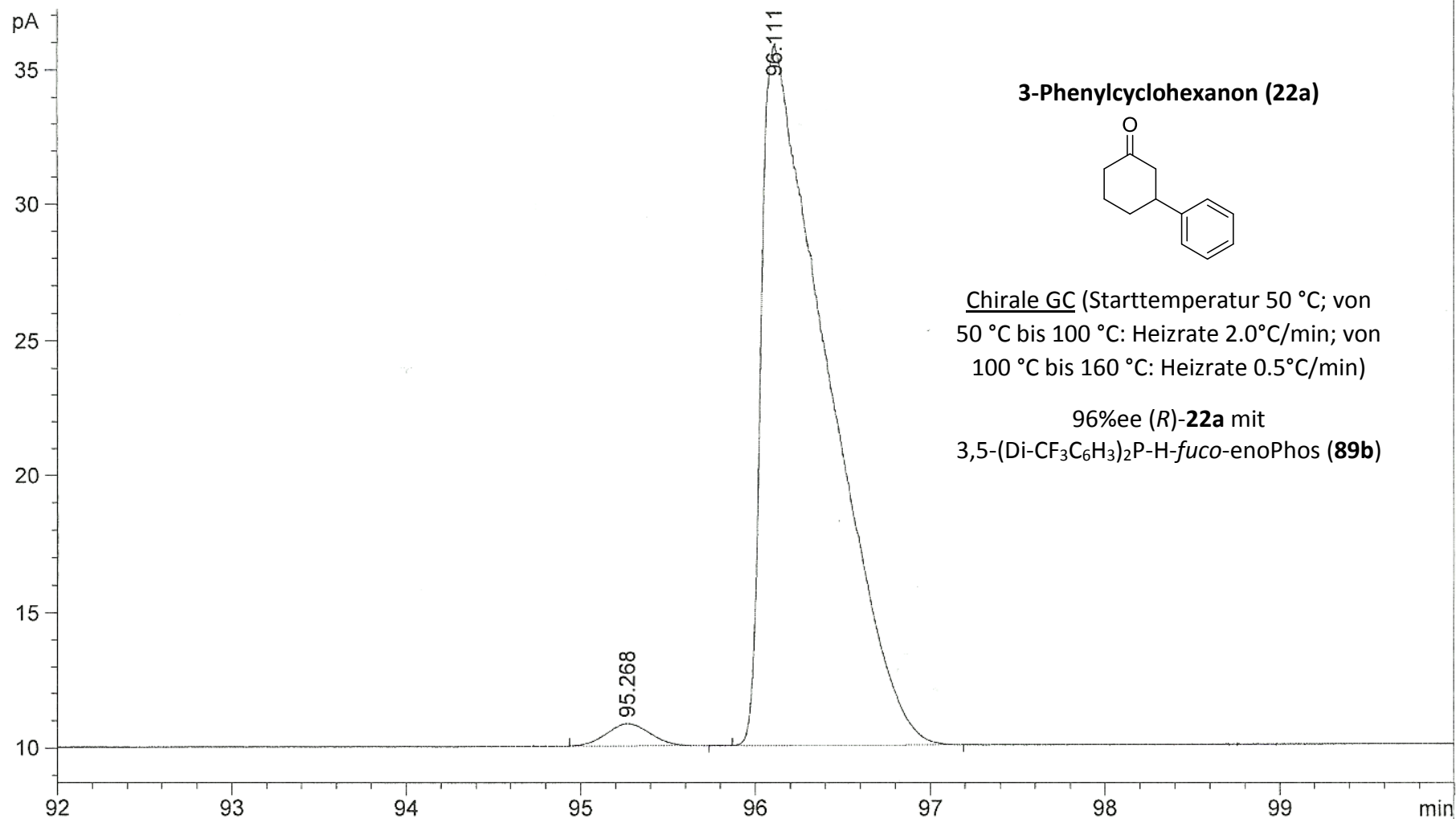
3-Phenylcyclohexanon (22a)



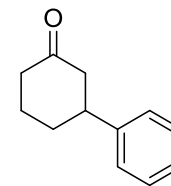
Chirale GC (Starttemperatur 50 °C; von 50 °C bis 100 °C: Heizrate 2.0°C/min; von 100 °C bis 160 °C: Heizrate 0.5°C/min)

96%ee (*R*)-**22a** mit
(*p*-CF₃C₆H₄)₂P-H-*fuco*-enoPhos (**89a**)

FID1 B, (SIM-CHECKOUT\SIG20734.D)



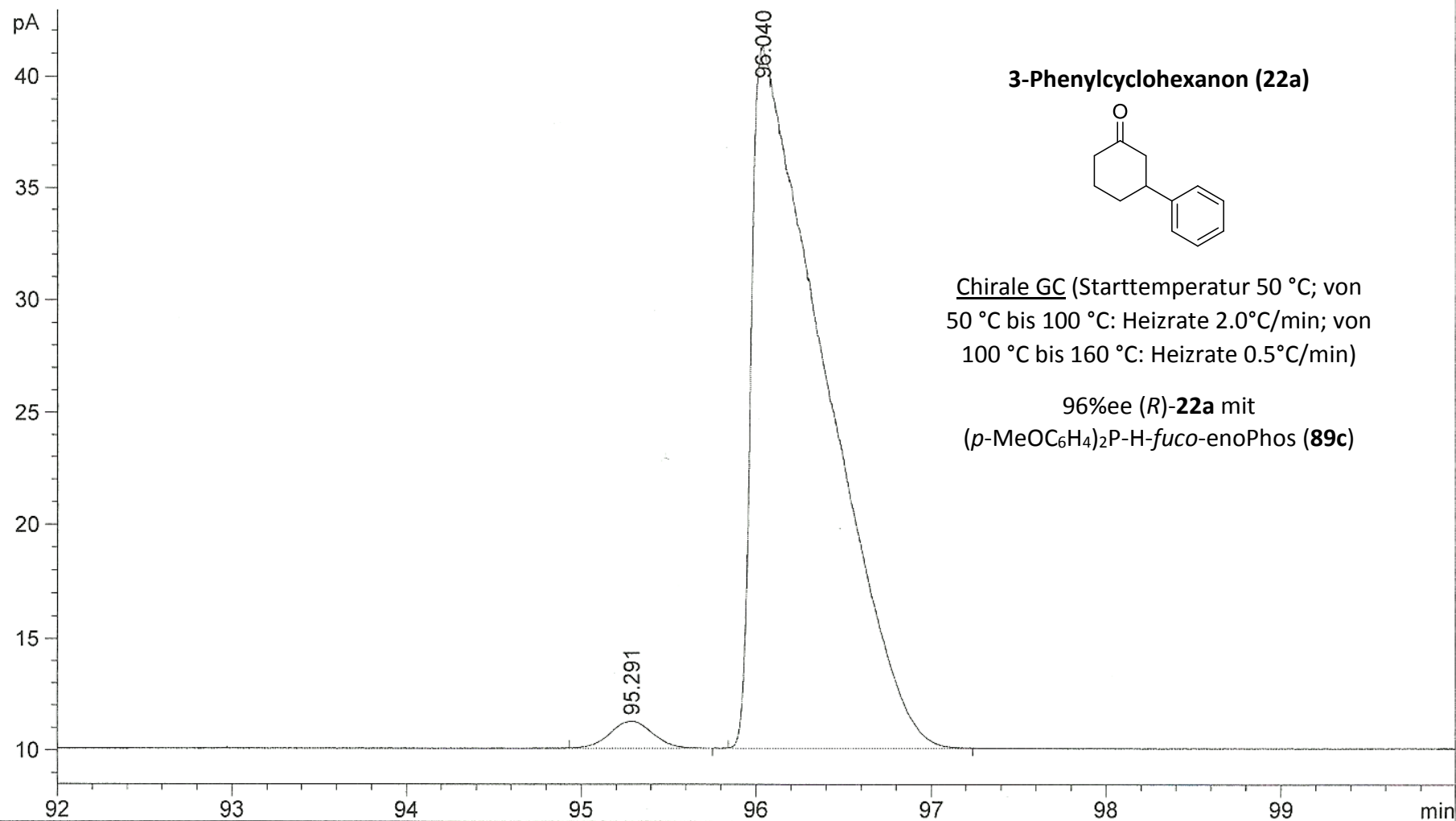
3-Phenylcyclohexanon (22a)



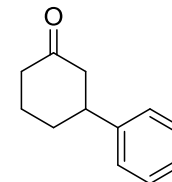
Chirale GC (Starttemperatur 50 °C; von 50 °C bis 100 °C: Heizrate 2.0°C/min; von 100 °C bis 160 °C: Heizrate 0.5°C/min)

96%ee (*R*)-**22a** mit 3,5-(Di-CF₃C₆H₃)₂P-H-*fuco*-enoPhos (**89b**)

FID1 B, (SIM-CHECKOUT\SIG20701.D)



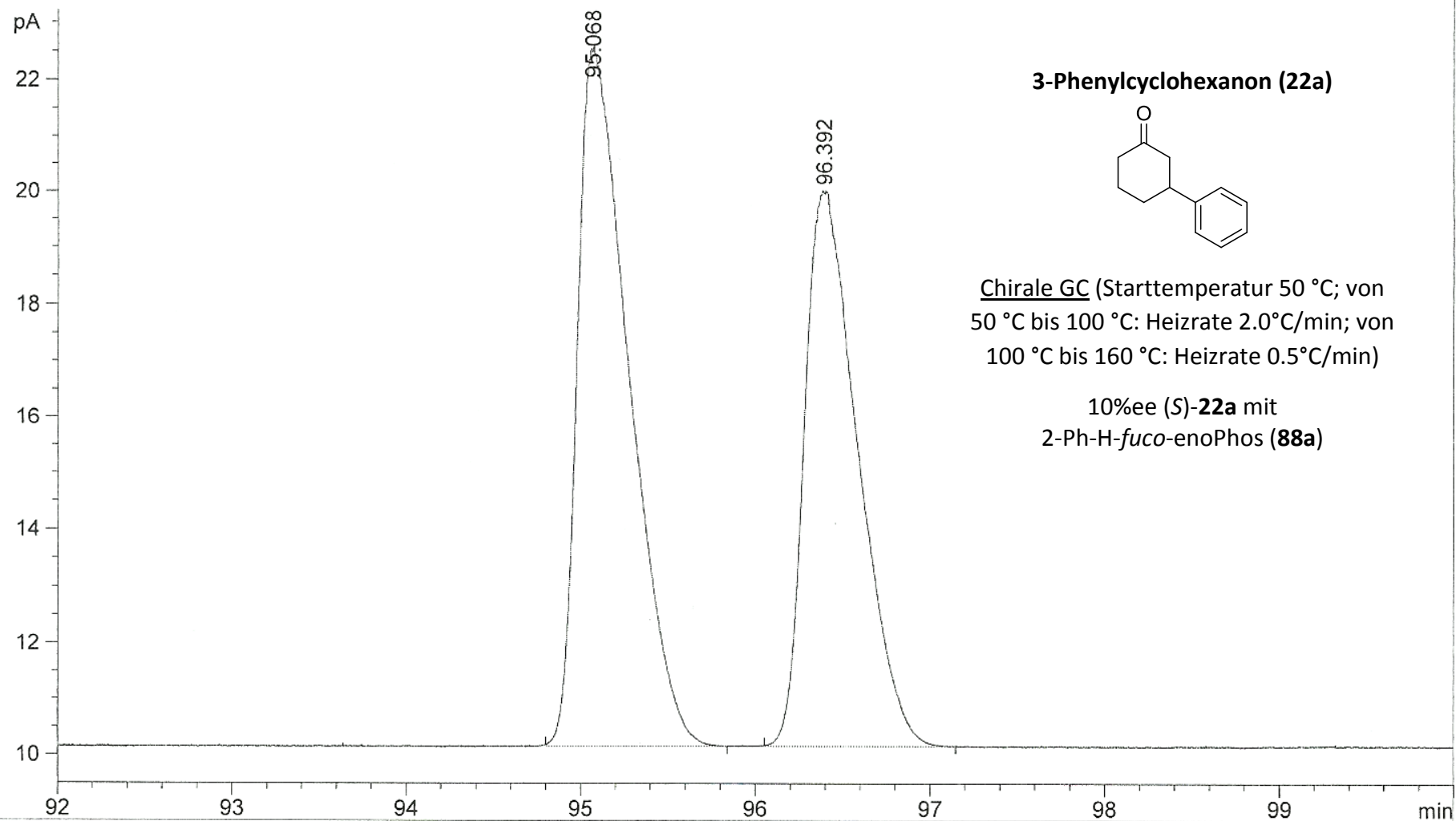
3-Phenylcyclohexanon (22a)



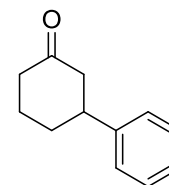
Chirale GC (Starttemperatur 50 °C; von 50 °C bis 100 °C: Heizrate 2.0°C/min; von 100 °C bis 160 °C: Heizrate 0.5°C/min)

96%ee (*R*)-**22a** mit (*p*-MeOC₆H₄)₂P-H-*fuco*-enoPhos (**89c**)

FID1 B, (SIM-CHECKOUT\FID-TESTMIX001.D)

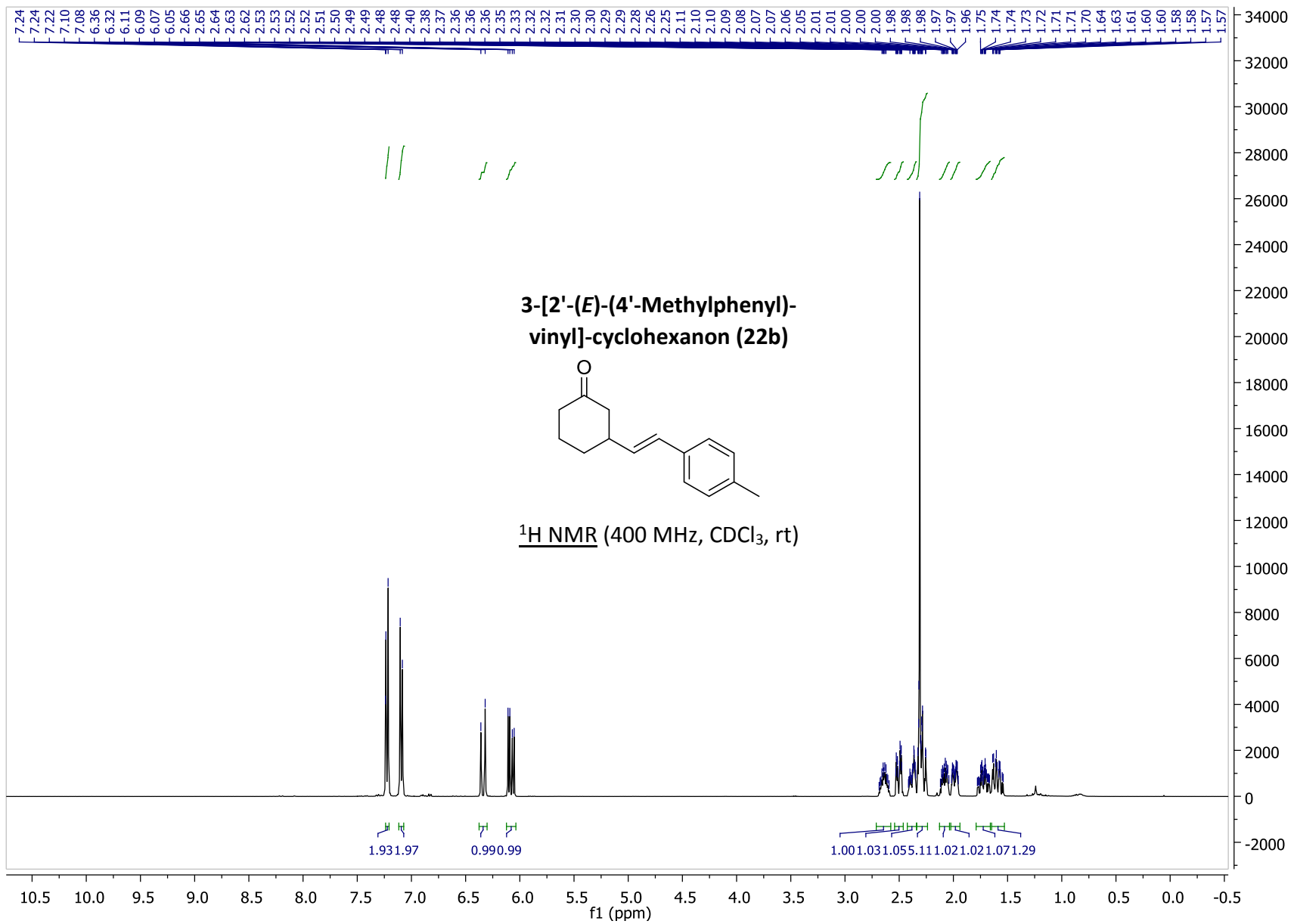


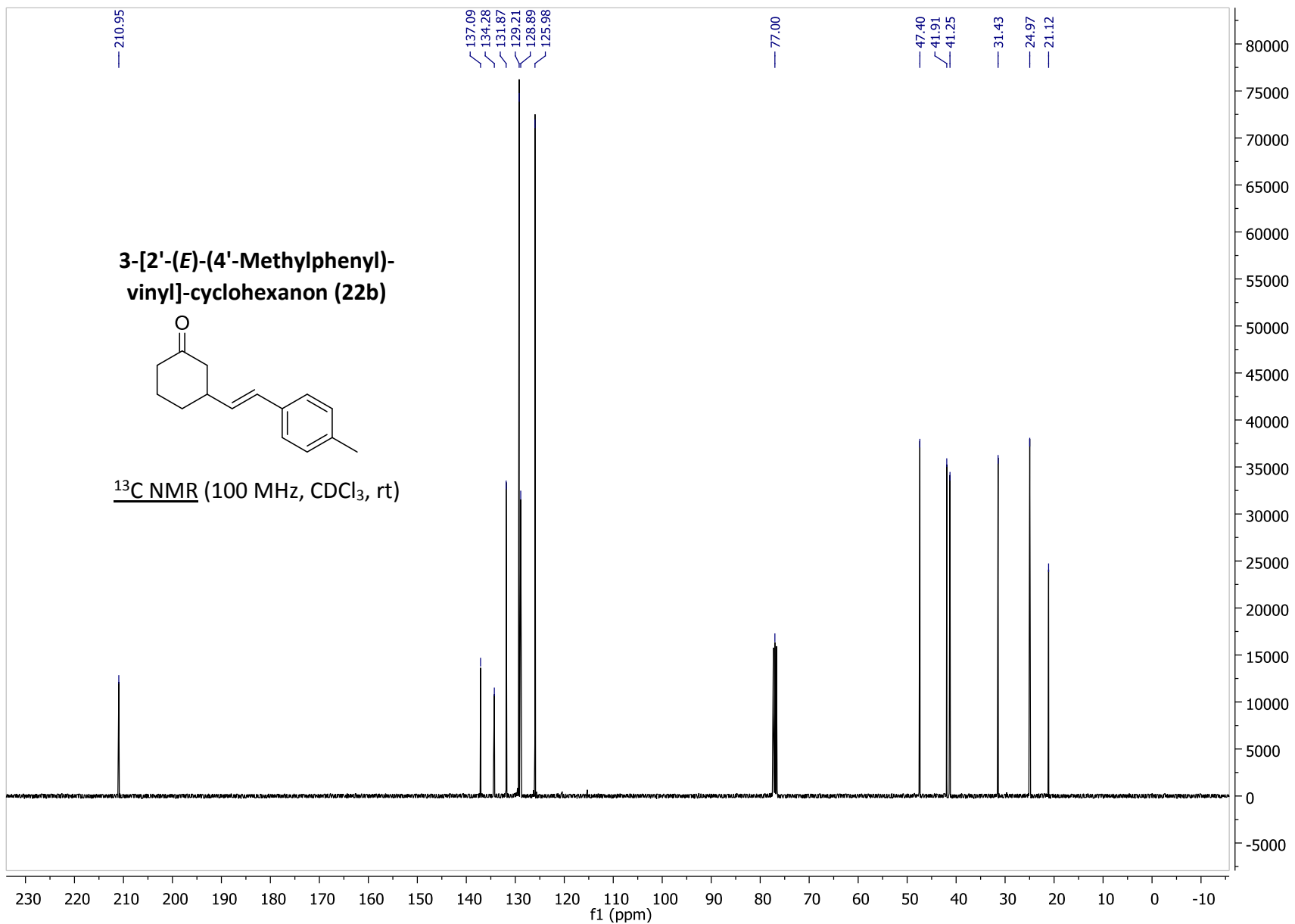
3-Phenylcyclohexanon (22a)

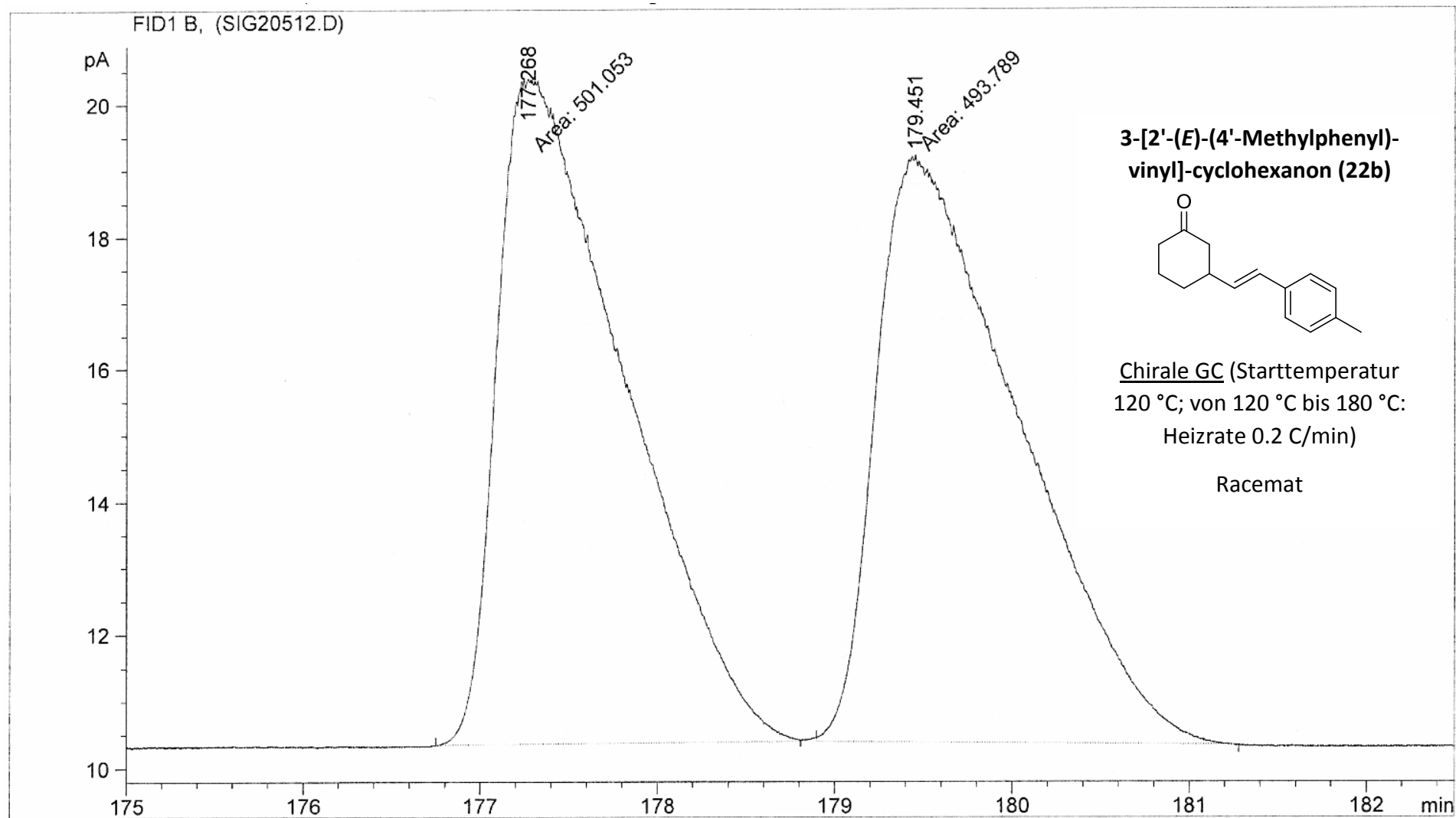


Chirale GC (Starttemperatur 50 °C; von 50 °C bis 100 °C: Heizrate 2.0°C/min; von 100 °C bis 160 °C: Heizrate 0.5°C/min)

10%ee (*S*)-**22a** mit
2-Ph-H-*fuco*-enoPhos (**88a**)



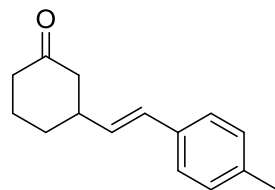




FID1 B, (SIM-CHECKOUT\SIG20694.D)

pA

**3-[2'-(E)-(4'-Methylphenyl)-vinyl]-
cyclohexanon (22b)**



Chirale GC (Starttemperatur 120 °C; von
120 °C bis 180 °C: Heizrate 0.2 C/min)

84%ee (-)-**22b** mit
(*p*-CF₃C₆H₄)₂P-H-*fuco*-enoPhos (**89a**)

12

10

178.474

179.915

170

172.5

175

177.5

180

182.5

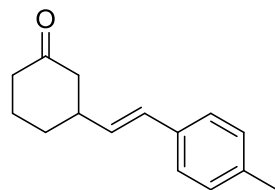
185

min

FID1 B, (SIM-CHECKOUT\SIG20754.D)

pA

**3-[2'-(E)-(4'-Methylphenyl)-vinyl]-
cyclohexanon (**22b**)**



Chirale GC (Starttemperatur 120 °C; von
120 °C bis 180 °C: Heizrate 0.2 C/min)

88%ee (-)-**22b** mit
3,5-(Di-CF₃C₆H₃)₂P-H-*fuco*-enoPhos (**89b**)

12

10

175

176

177

178

179

180

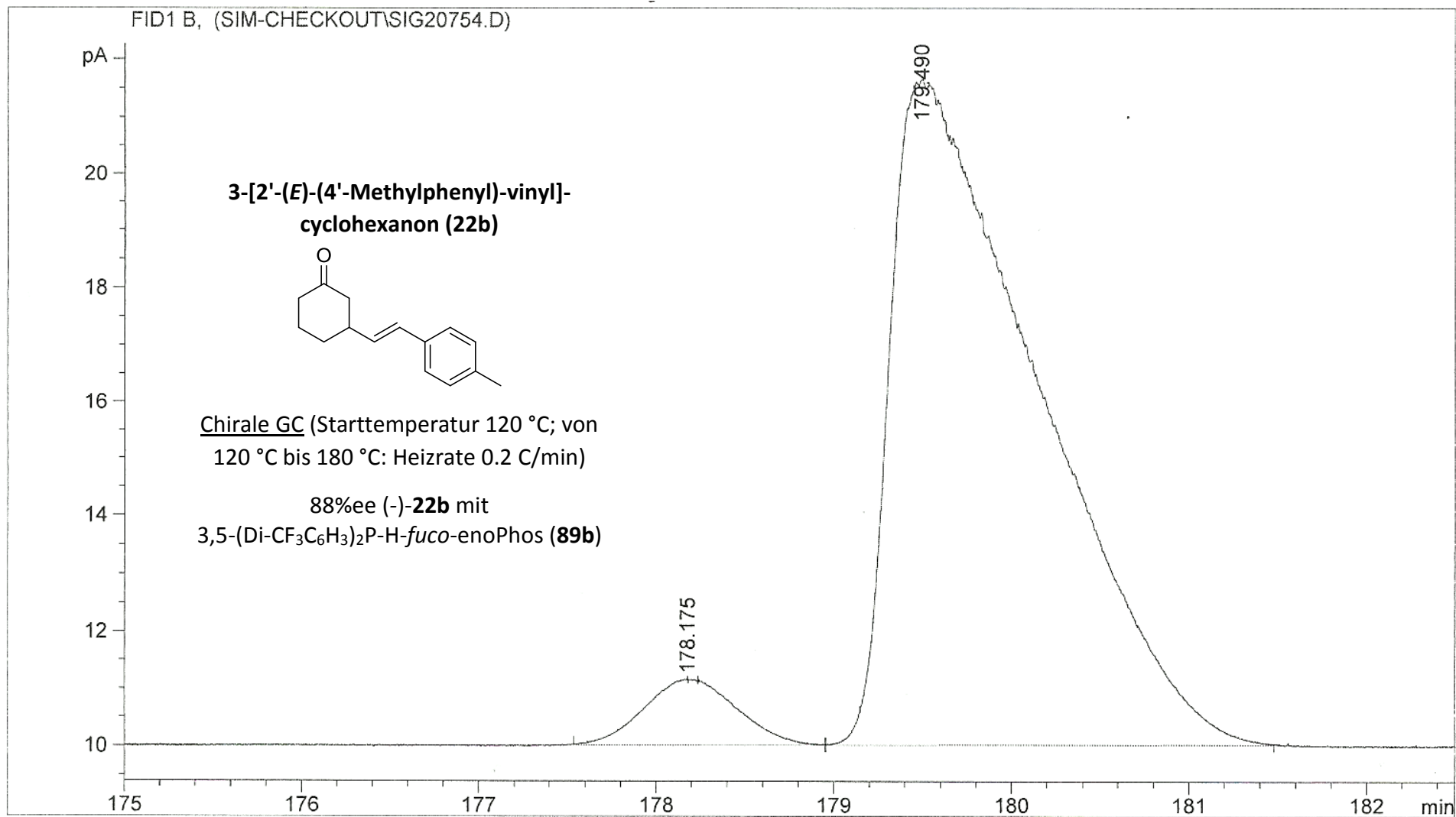
181

182

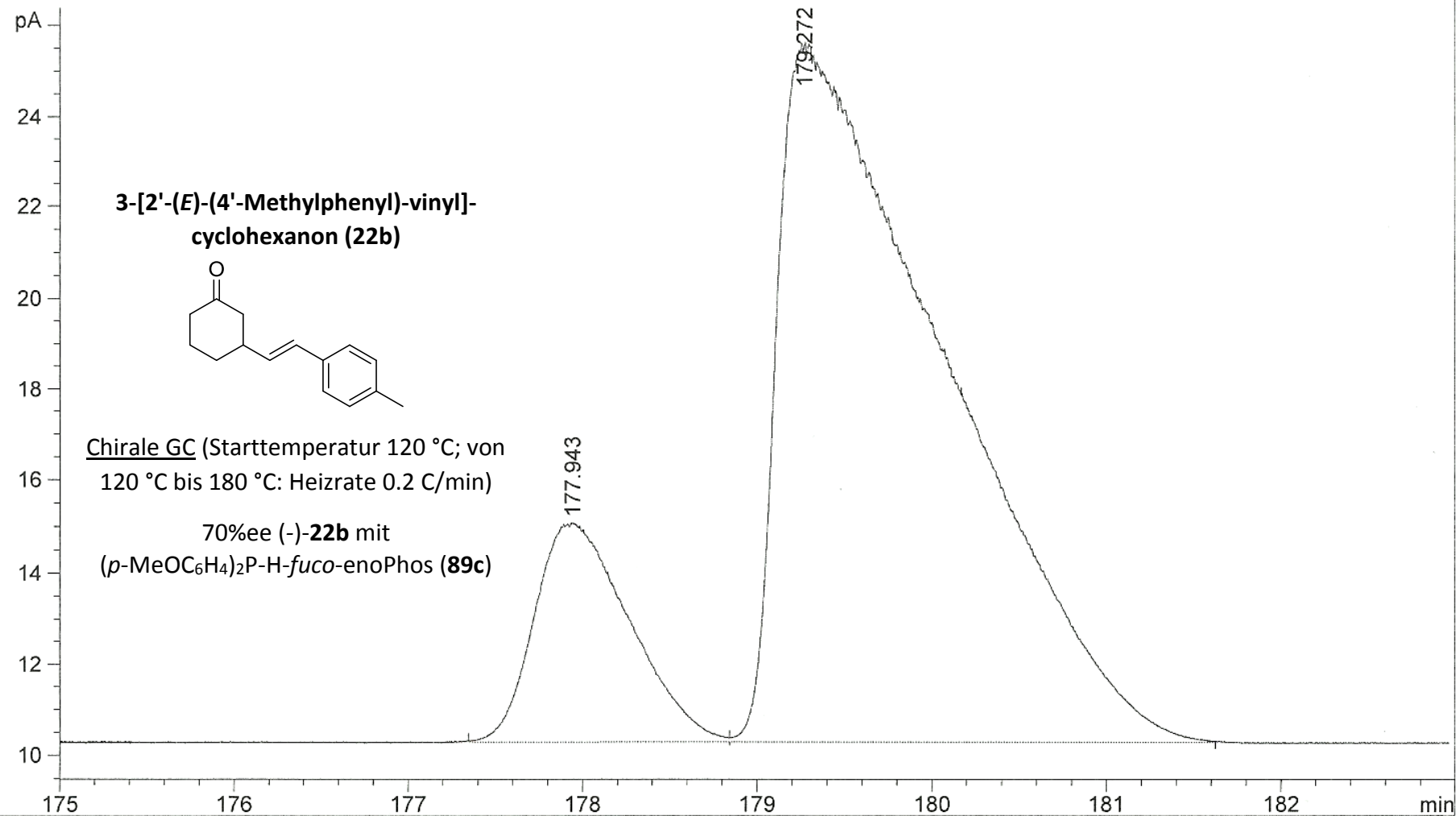
min

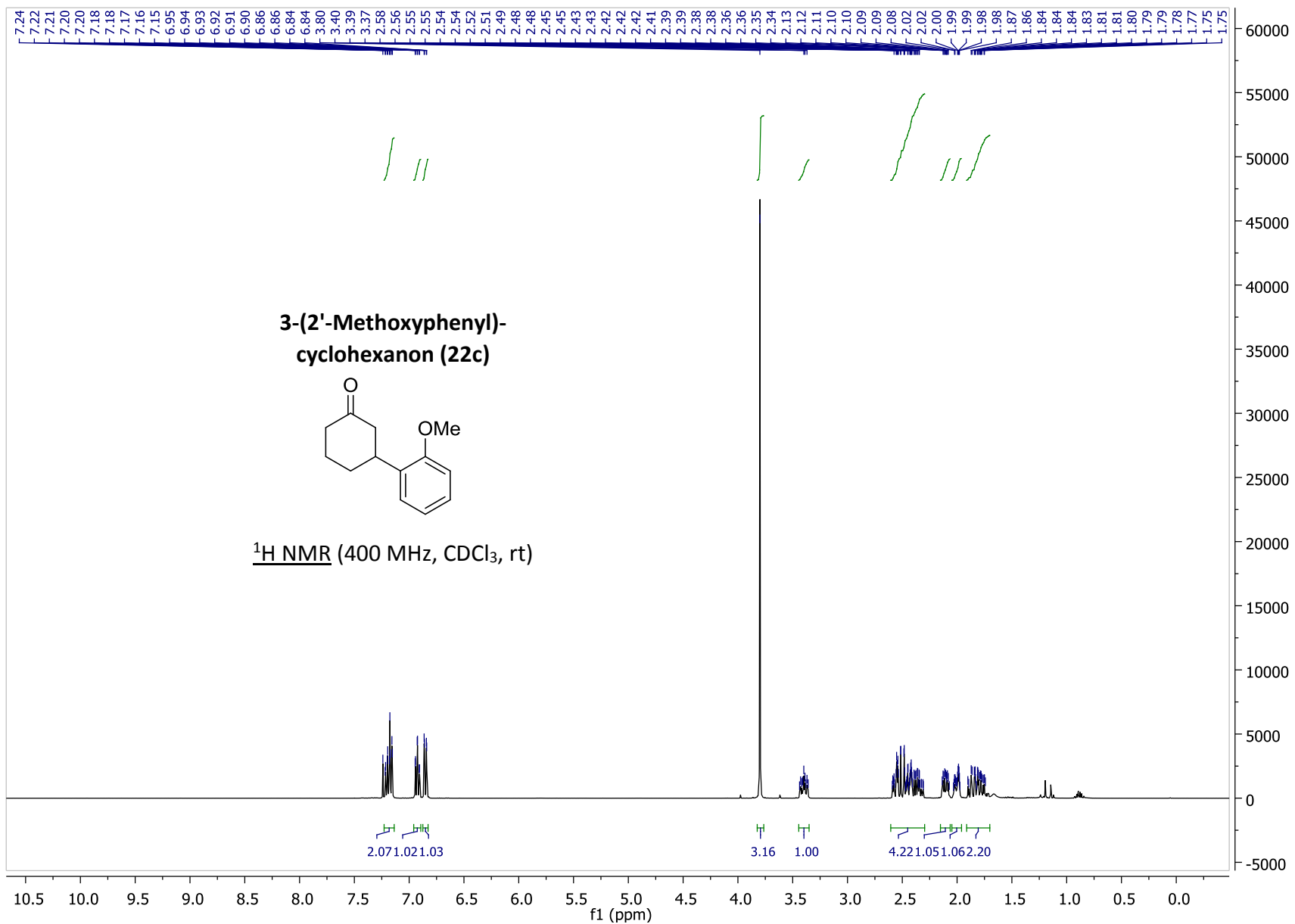
178.175

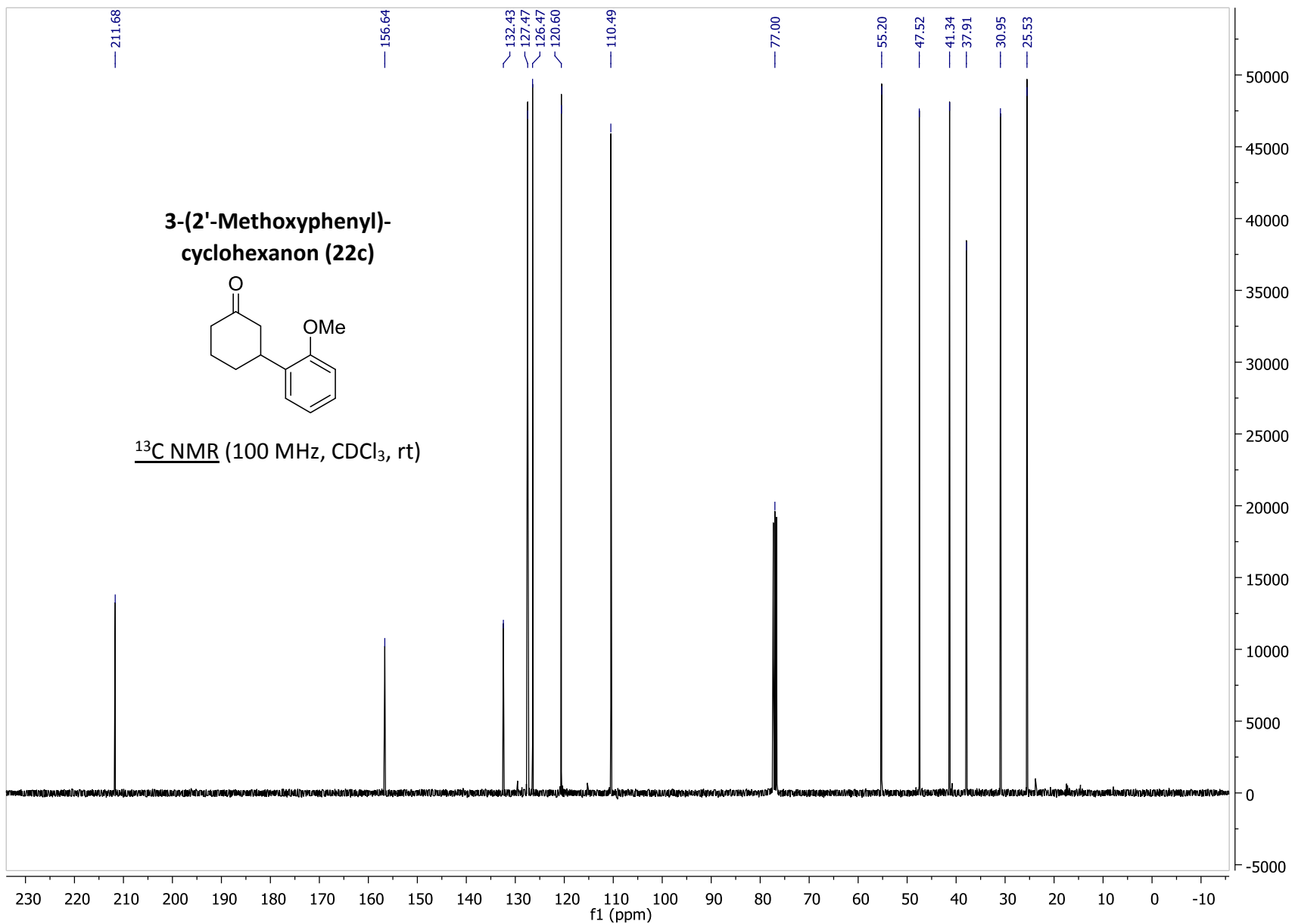
179.490



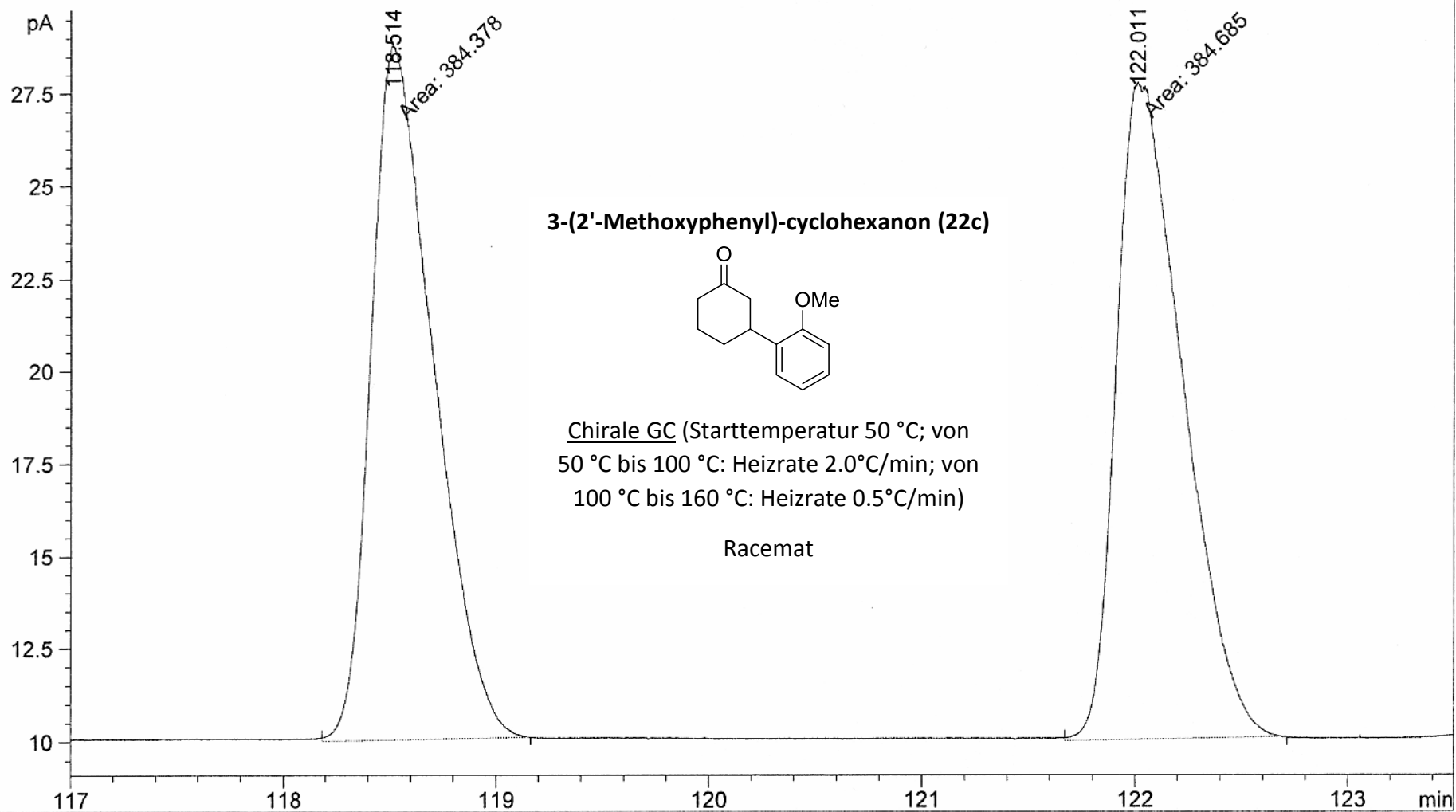
FID1 B, (SIM-CHECKOUT\SIG20704.D)







FID1 B, (SIG20551.D)



FID1 B, (SIM-CHECKOUT\SIG20695.D)

pA

45

40

35

30

25

20

15

10

117

118

119

120

121

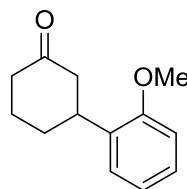
122

123

min

118.479

3-(2'-Methoxyphenyl)-cyclohexanon (22c)



Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 0.5°C/min)

93%ee (*R*)-**22c** mit
(*p*-CF₃C₆H₄)₂P-H-*fuco*-enoPhos (**89a**)

122.339

FID1 B, (SIM-CHECKOUT\SIG20735.D)

pA

30

25

20

15

10

117

118

119

120

121

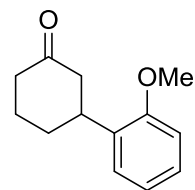
122

123

min

118.569

3-(2'-Methoxyphenyl)-cyclohexanon (22c)



Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 0.5°C/min)

92%ee (*R*)-**22c** mit
3,5-(Di-CF₃C₆H₃)₂P-H-*fuco*-enoPhos (**89b**)

122.298

FID1 B, (SIM-CHECKOUT\SIG20702.D)

pA

45

40

35

30

25

20

15

10

117

118

119

120

121

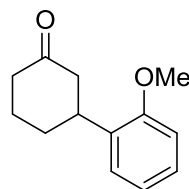
122

123

min

118.493

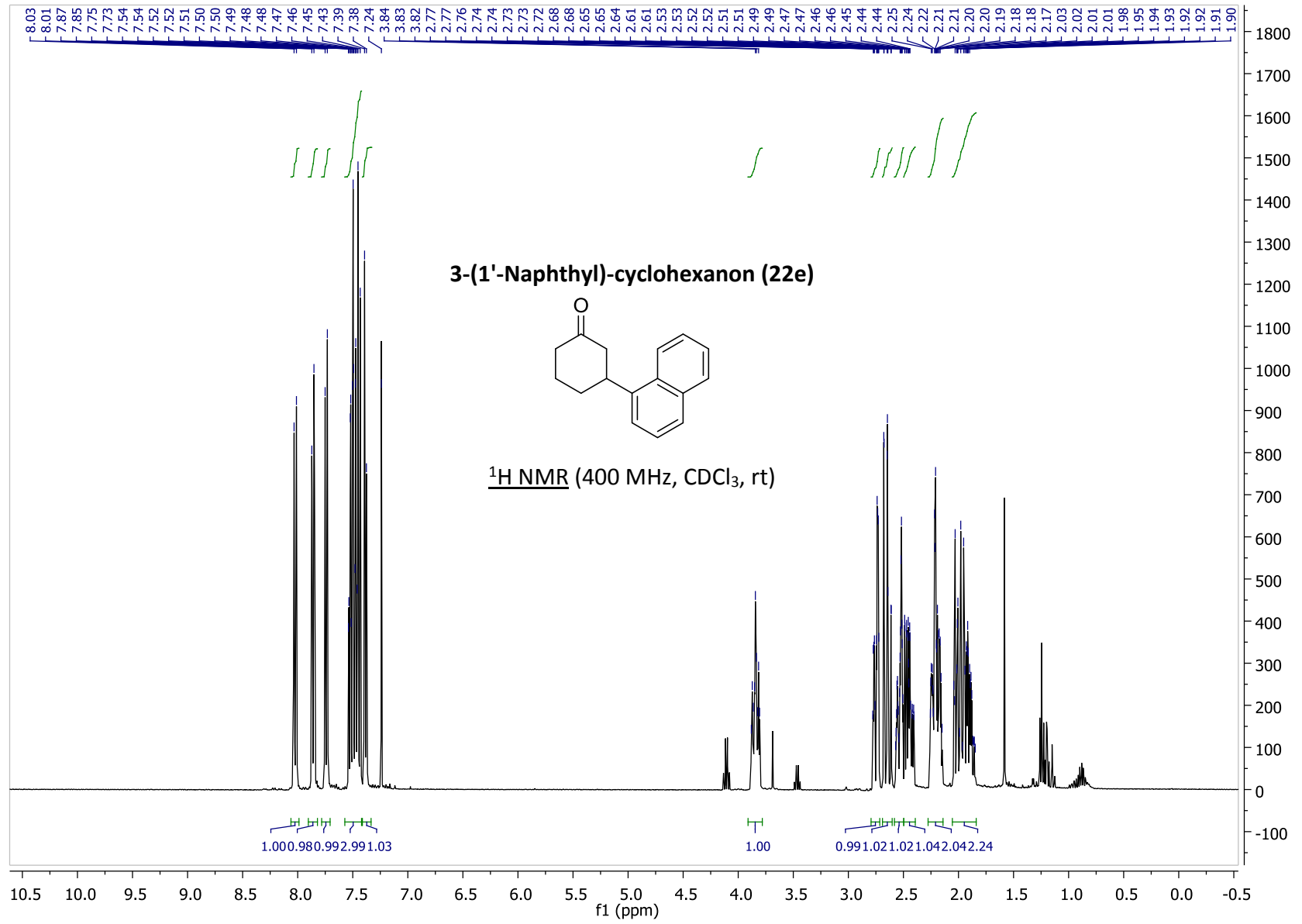
3-(2'-Methoxyphenyl)-cyclohexanon (22c)



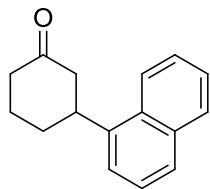
Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 0.5°C/min)

92%ee (*R*)-**22c** mit
(*p*-MeOC₆H₄)₂P-H-*fuco*-enoPhos (**89c**)

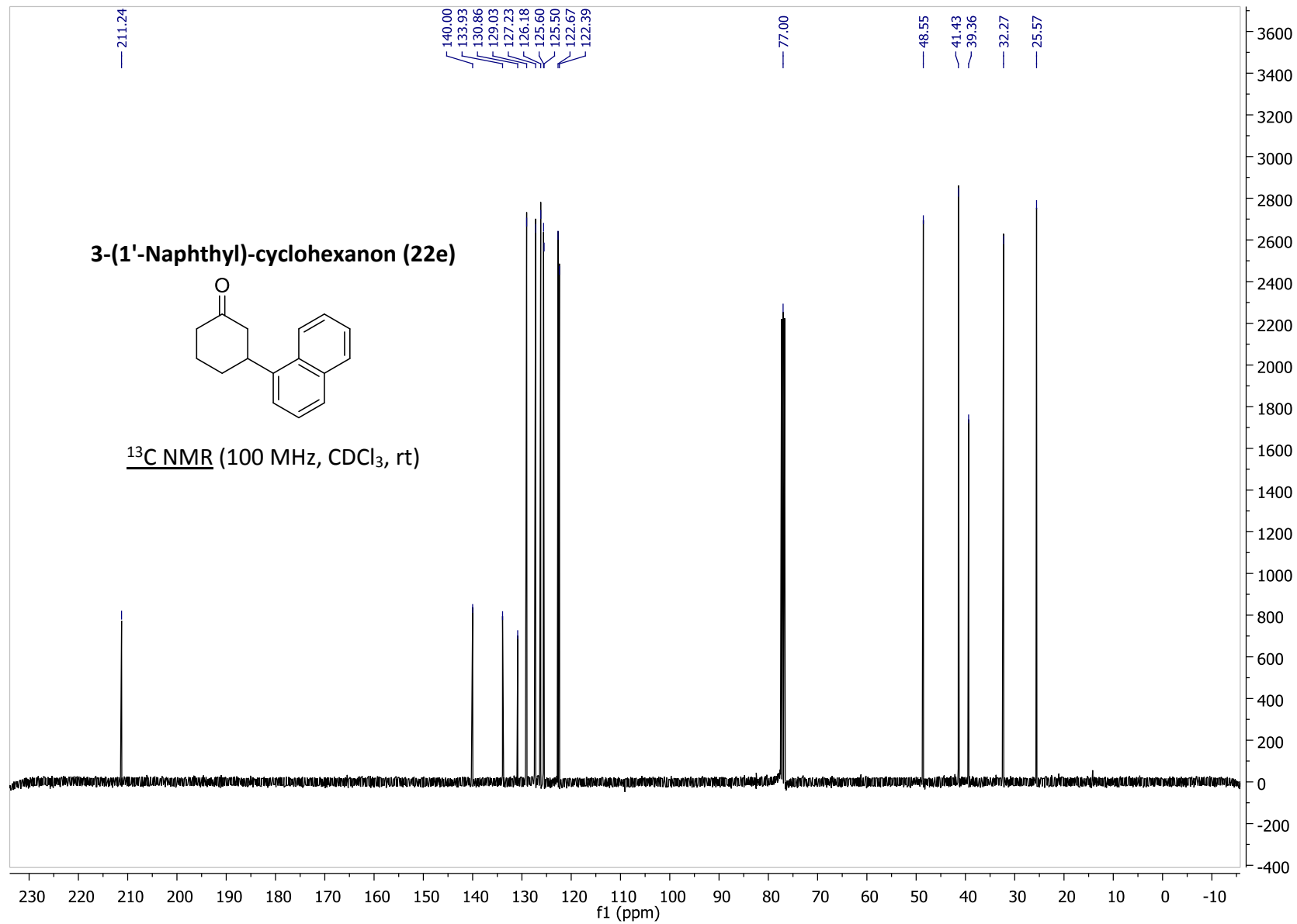
122.335



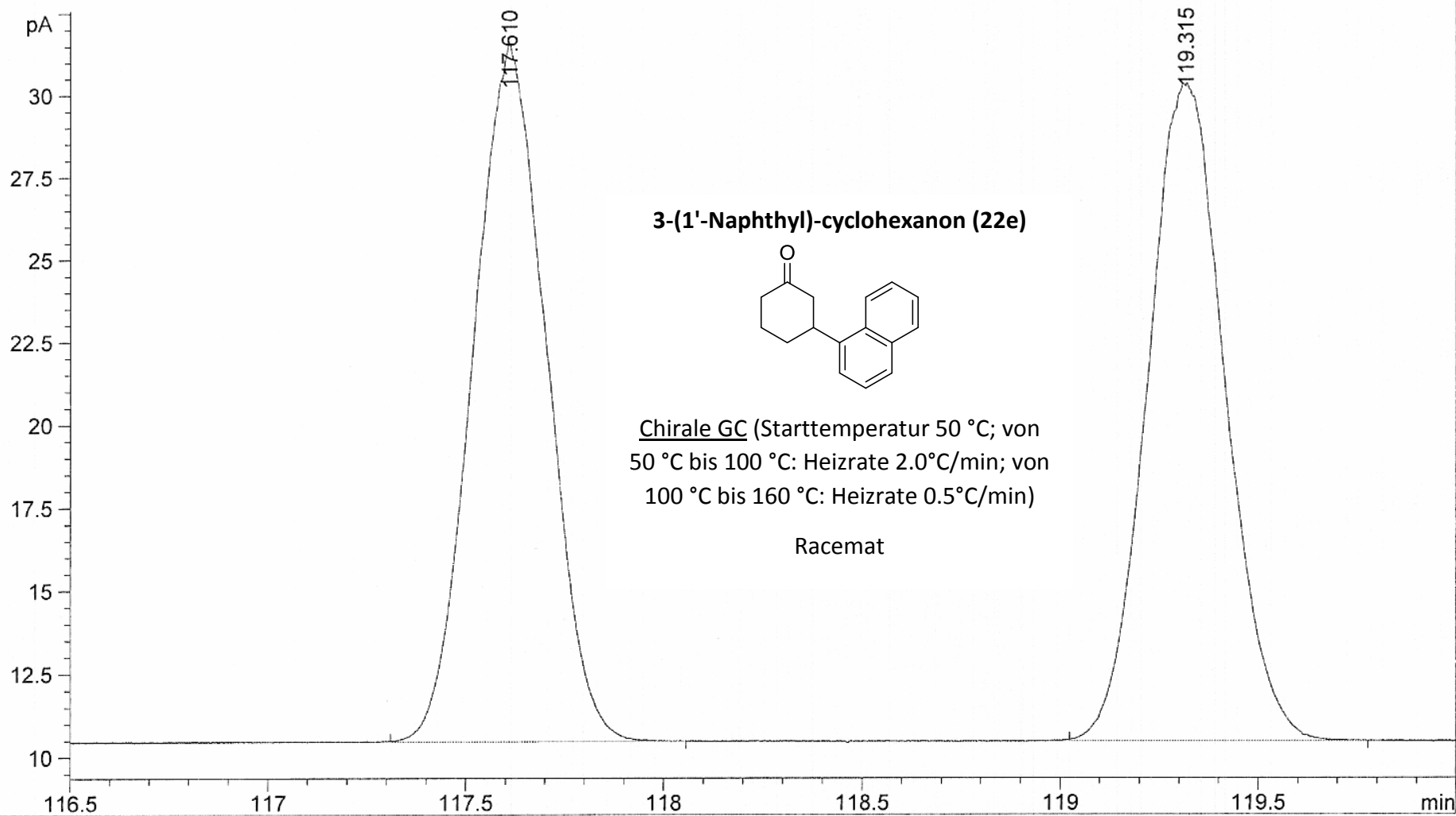
3-(1'-Naphthyl)-cyclohexanon (22e)



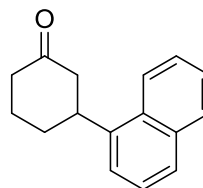
¹³C NMR (100 MHz, CDCl₃, rt)



FID1 B, (SIG20594.D)



3-(1'-Naphthyl)-cyclohexanon (22e)



Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 0.5°C/min)

Racemat

FID1 B, (SIG20625.D)

pA

50

45

40

35

30

25

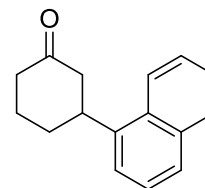
20

15

10

117.620

3-(1'-Naphthyl)-cyclohexanon (22e)



Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 0.5°C/min)

95%ee (*R*)-**22e** mit
H-*fuco*-enoPhos (**86**)

119.369

116.5

117

117.5

118

118.5

119

119.5

min

FID1 B, (SIG20615.D)

pA

90

80

70

60

50

40

30

20

10

116.5

117

117.5

118

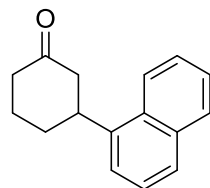
118.5

119

119.5

min

3-(1'-Naphthyl)-cyclohexanon (22e)

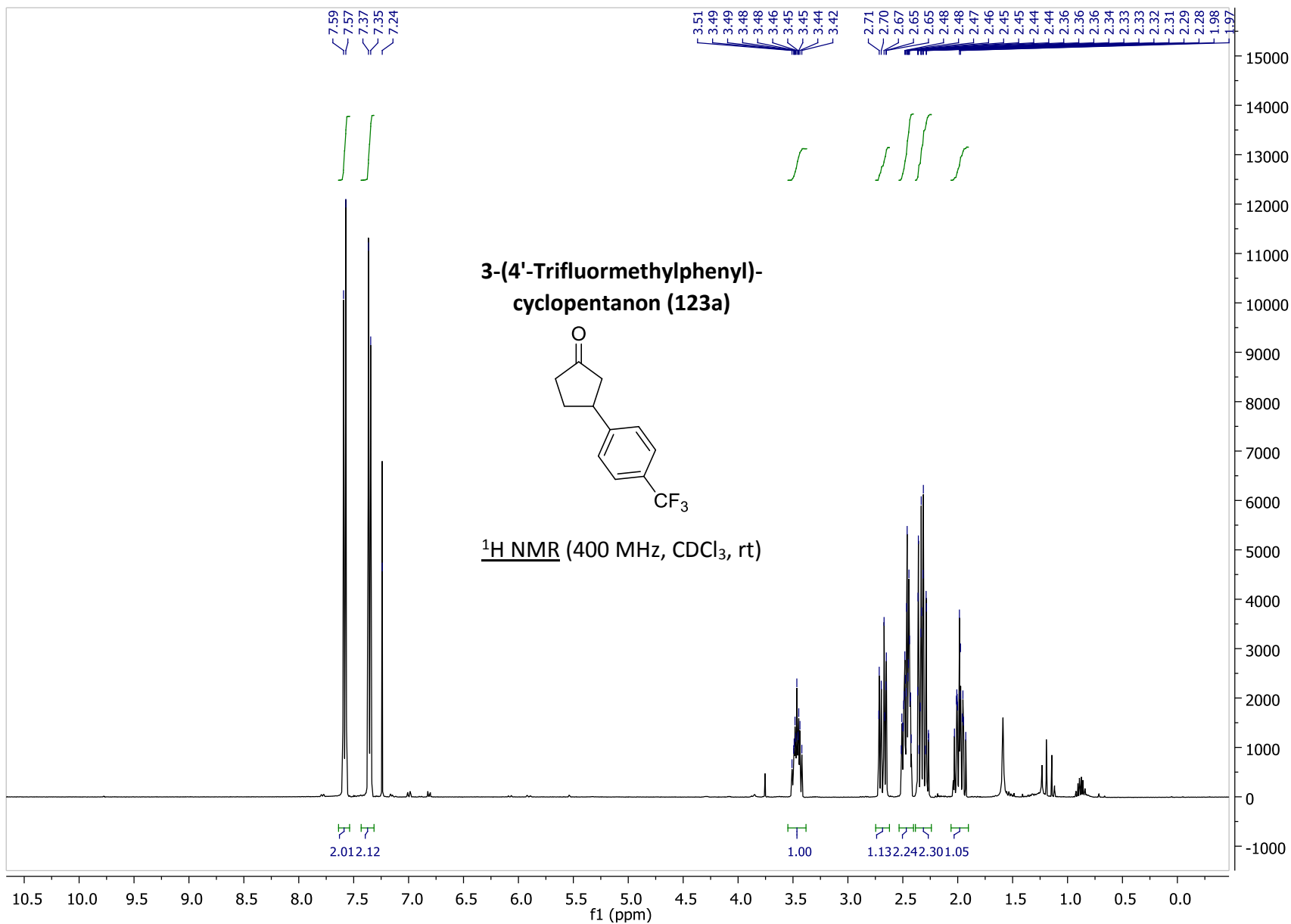


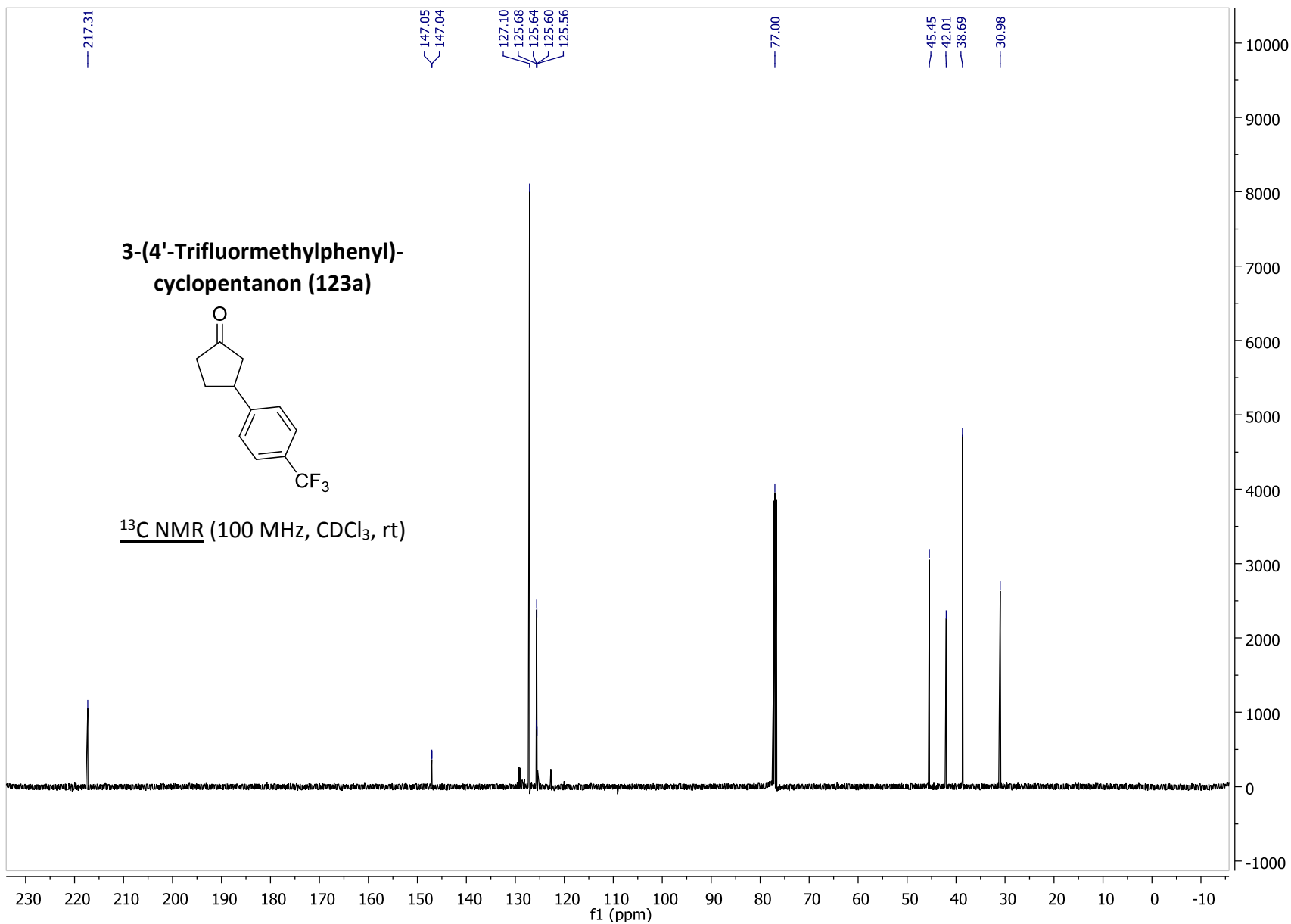
Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 0.5°C/min)

96%ee (*S*)-**22e** mit
H-*rhamno*-enoPhos (**68**)

117.641

119.245





FID1 B, (SIG20588.D)

pA

20

18

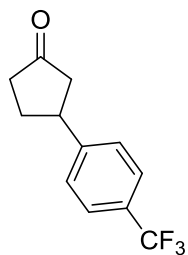
16

14

12

10

**3-(4'-Trifluormethylphenyl)-
cyclopentanon (123a)**



Chirale GC (Starttemperatur
50 °C; von 50°C bis 100 °C:
Heizrate 2.0°C/min; von 100 °C bis
160 °C: Heizrate 0.5 °C/min)

Racemat

100.998

102.904

96

98

100

102

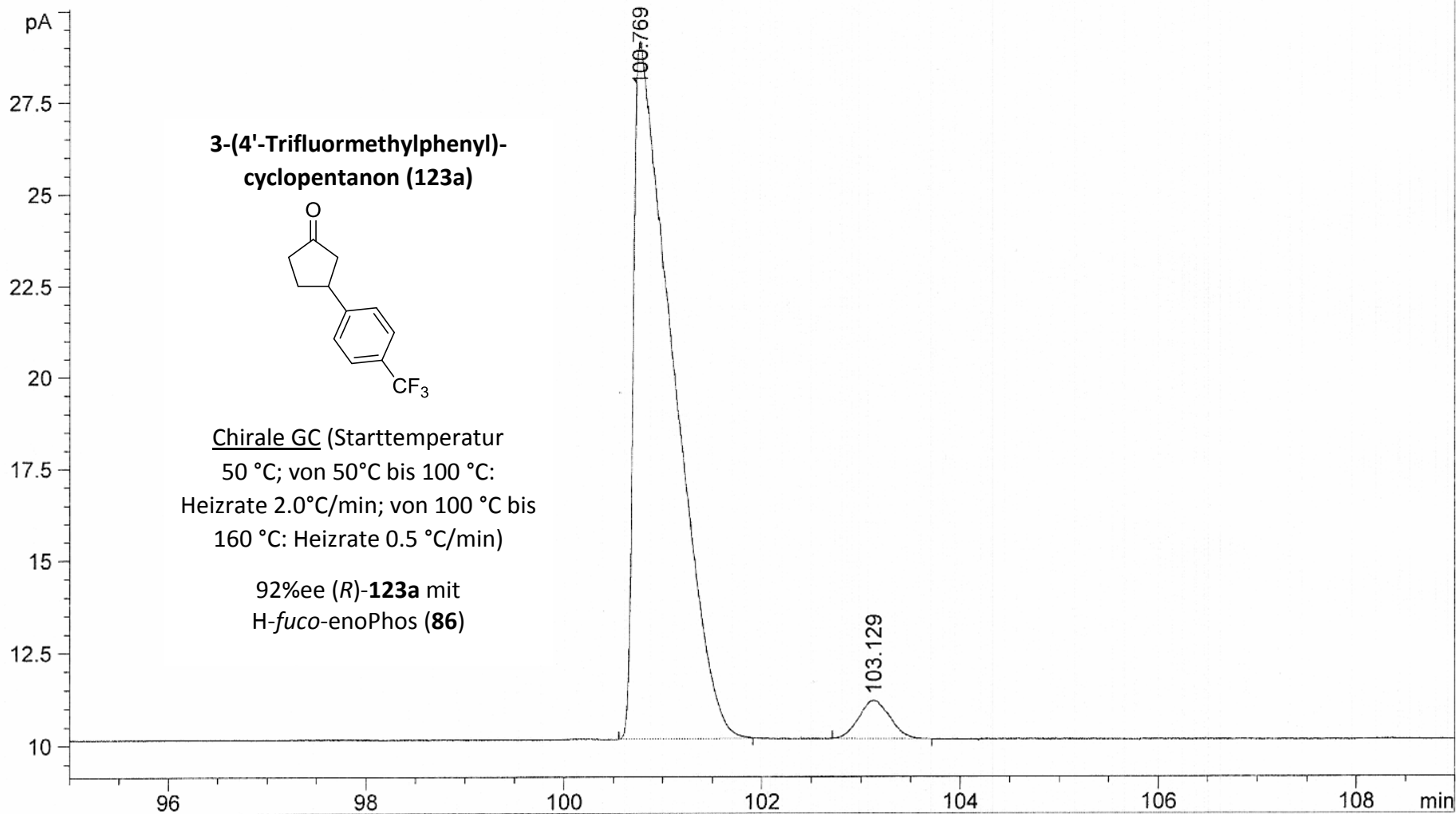
104

106

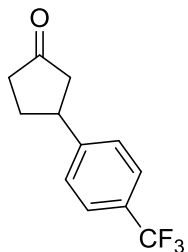
108

min

FID1 B, (SIG20596.D)



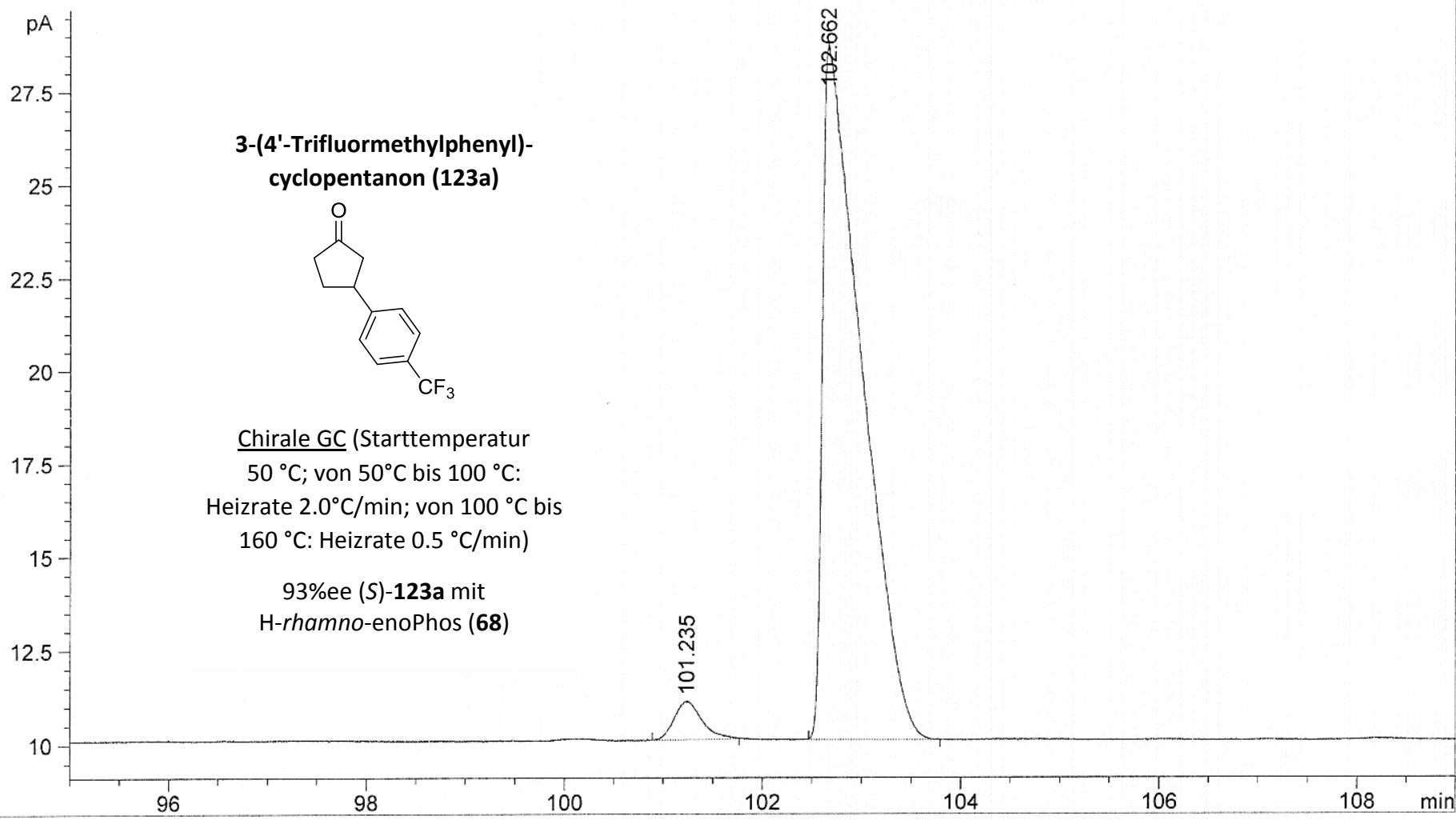
**3-(4'-Trifluormethylphenyl)-
cyclopentanon (123a)**



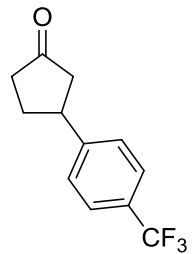
Chirale GC (Starttemperatur
50 °C; von 50°C bis 100 °C:
Heizrate 2.0°C/min; von 100 °C bis
160 °C: Heizrate 0.5 °C/min)

92%ee (*R*)-**123a** mit
H-*fuco*-enoPhos (**86**)

FID1 B, (SIG20595.D)



**3-(4'-Trifluormethylphenyl)-
cyclopentanon (123a)**



Chirale GC (Starttemperatur
50 °C; von 50°C bis 100 °C:
Heizrate 2.0°C/min; von 100 °C bis
160 °C: Heizrate 0.5 °C/min)

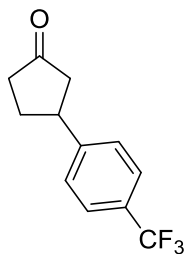
93%ee (S)-**123a** mit
H-*rhamno*-enoPhos (**68**)

FID1 B, (SIM-CHECKOUT\SIG20696.D)

pA

35

**3-(4'-Trifluormethylphenyl)-
cyclopentanon (123a)**



30

25

Chirale GC (Starttemperatur 50 °C;
von 50°C bis 100 °C: Heizrate
2.0°C/min; von 100 °C bis 160 °C:
Heizrate 0.5 °C/min)

20

86%ee (*R*)-**123a** mit

(*p*-CF₃C₆H₄)₂P-H-*fuco*-enoPhos (**89a**)

15

10

100.591

103.104

96

98

100

102

104

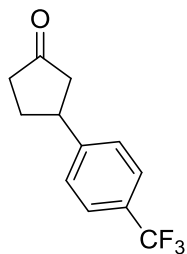
106

min

FID1 B, (SIM-CHECKOUT\SIG20760.D)

pA

**3-(4'-Trifluormethylphenyl)-
cyclopentanon (123a)**



Chirale GC (Starttemperatur 50 °C;
von 50°C bis 100 °C: Heizrate
2.0°C/min; von 100 °C bis 160 °C:
Heizrate 0.5 °C/min)

39%ee (*R*)-**123a** mit
3,5-(Di-CF₃C₆H₃)₂P-
H-*fuco*-enoPhos (**89b**)

12

10

96

98

100

102

104

106

min

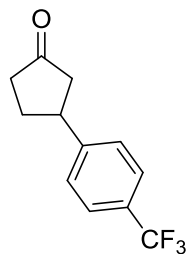
100.931

102.991

FID1 B, (SIM-CHECKOUT\SIG20703.D)

pA

**3-(4'-Trifluormethylphenyl)-
cyclopentanon (123a)**



Chirale GC (Starttemperatur
50 °C; von 50°C bis 100 °C:
Heizrate 2.0°C/min; von 100 °C
bis 160 °C: Heizrate 0.5 °C/min)

87%ee (*R*)-**123a** mit
(*p*-MeOC₆H₄)₂P-
H-*fuco*-enoPhos (**89c**)

10

96

98

100

102

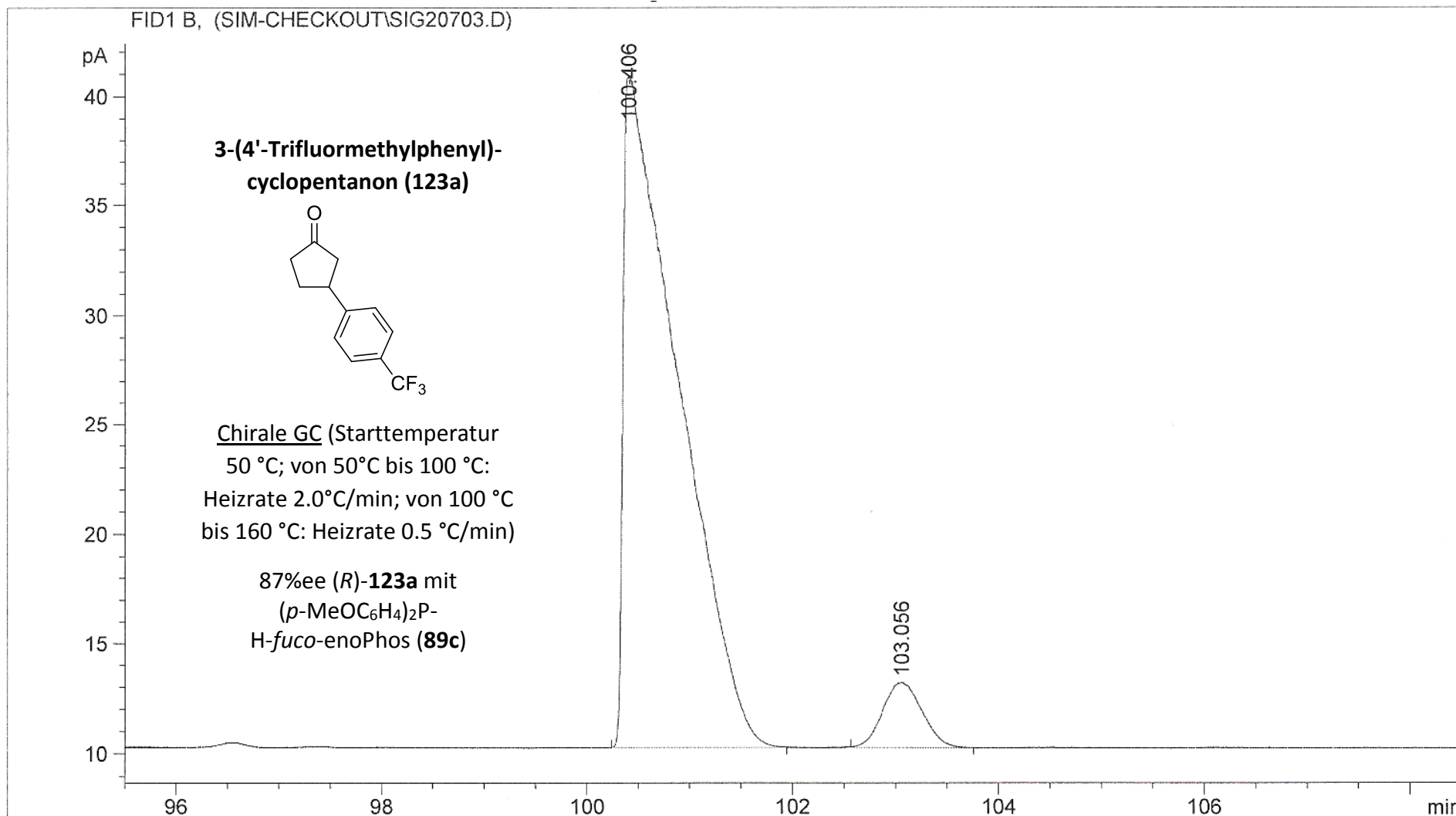
104

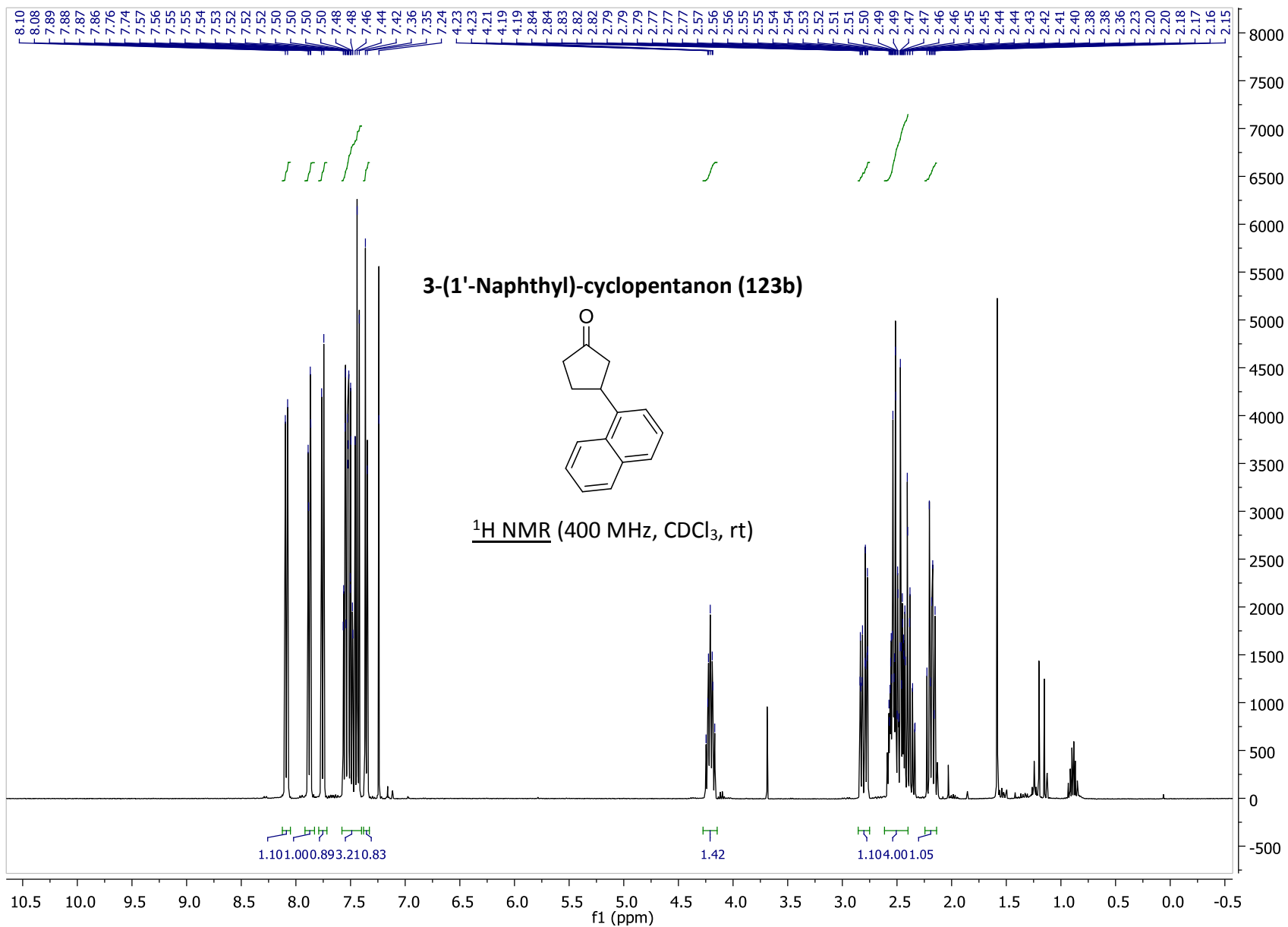
106

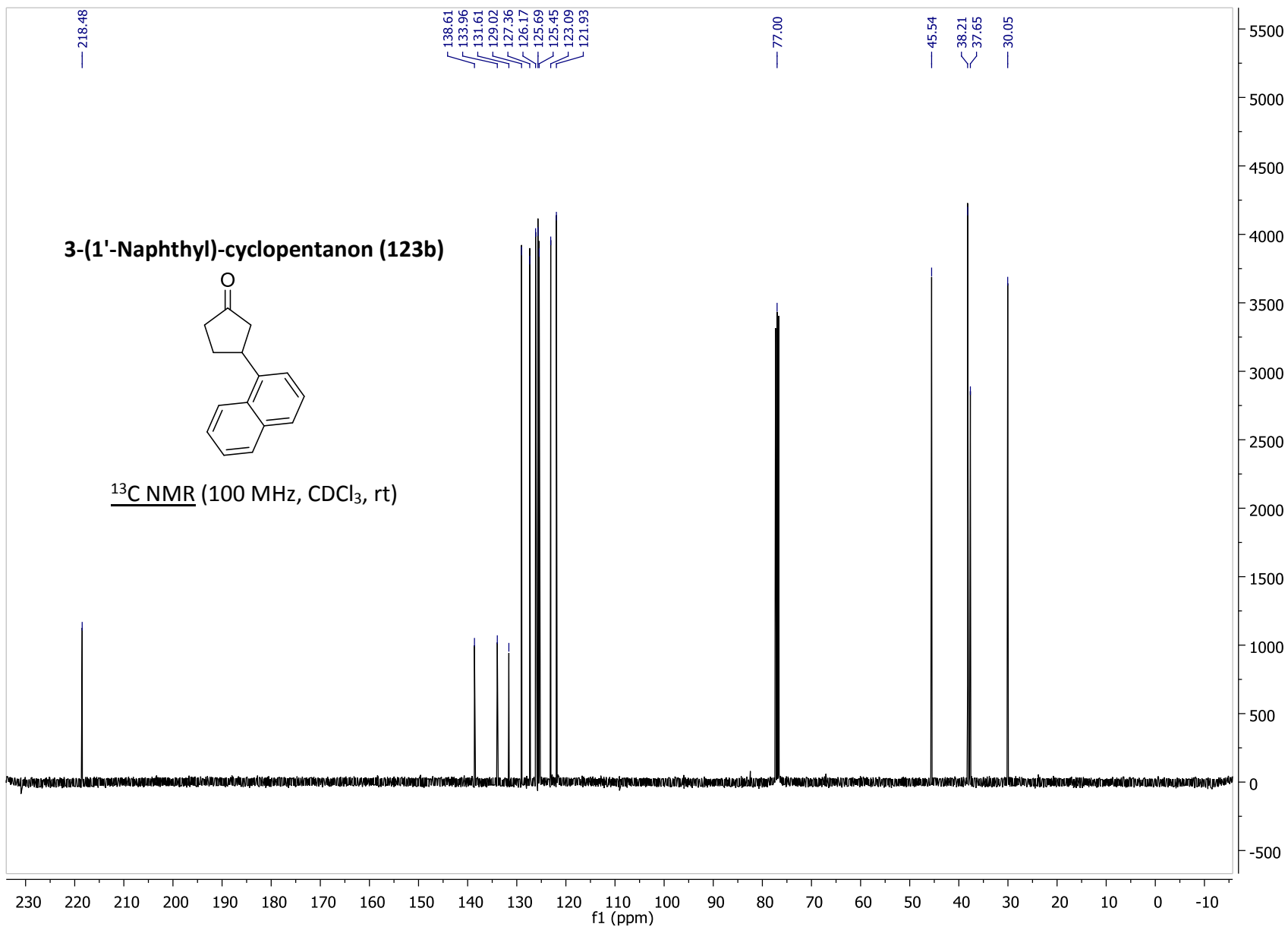
min

100.406

103.056







FID1 B, (SIG20597.D)

pA

40

35

30

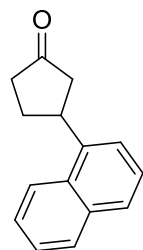
25

20

15

10

3-(1'-Naphthyl)-cyclopentanon (123b)



Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 1.0 °C/min)

Racemat

114.115

114.707

110

111

112

113

114

115

116

117

118

min

FID1 B, (SIG20610.D)

pA

80

70

60

50

40

30

20

10

110

111

112

113

114

115

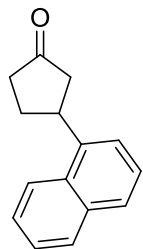
116

117

118

min

3-(1'-Naphthyl)-cyclopentanon (123b)



Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 1.0 °C/min)

92%ee (+)-**123b** mit
H-*fuco*-enoPhos (**86**)

114.027

114.759

FID1 B, (SIG20614.D)

pA

60

50

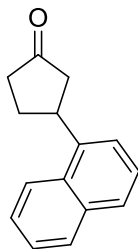
40

30

20

10

3-(1'-Naphthyl)-cyclopentanon (123b)



Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 1.0 °C/min)

90%ee (-)-**123b** mit
H-*rhamno*-enoPhos (**68**)

114.187

114.686

110

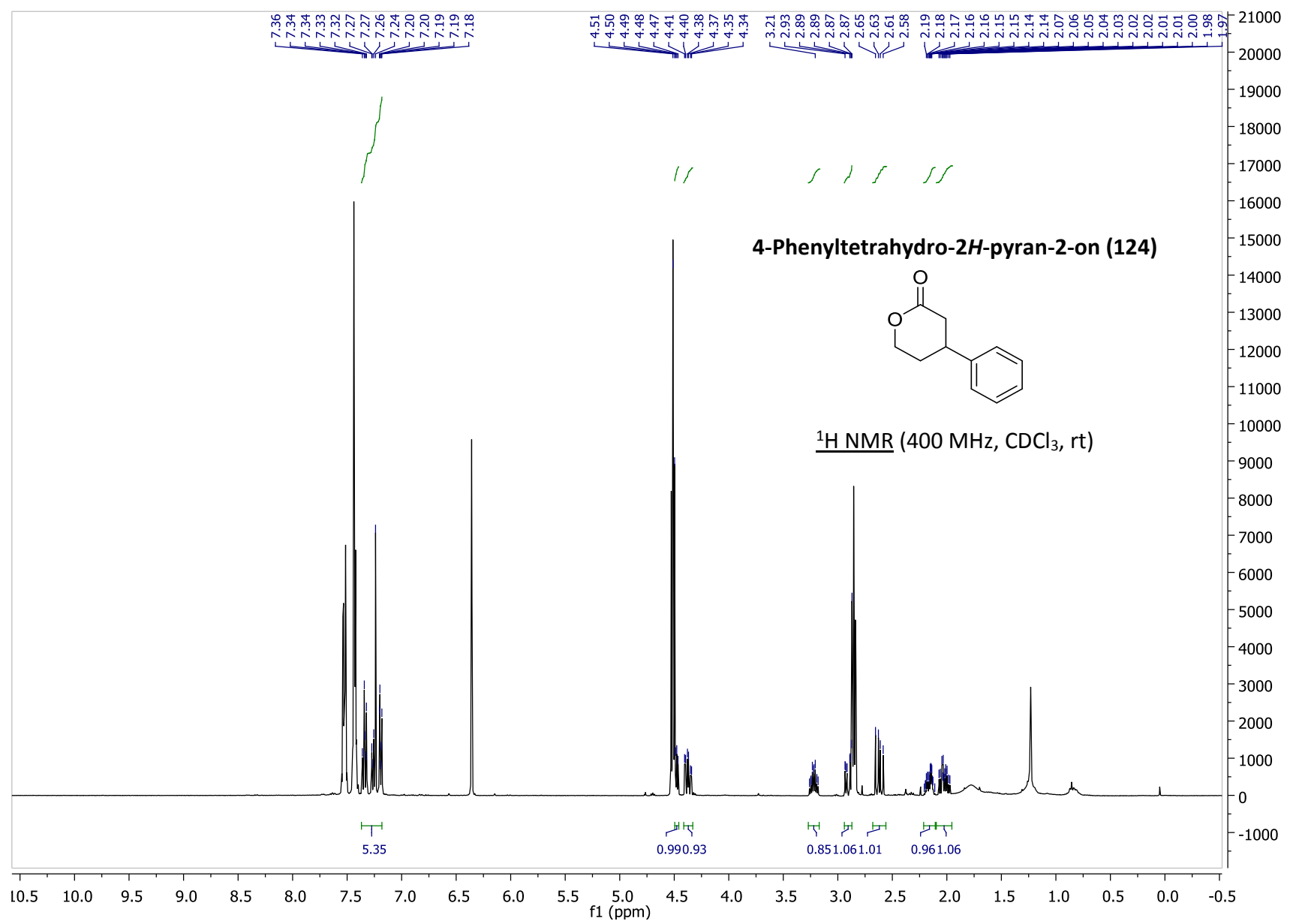
112

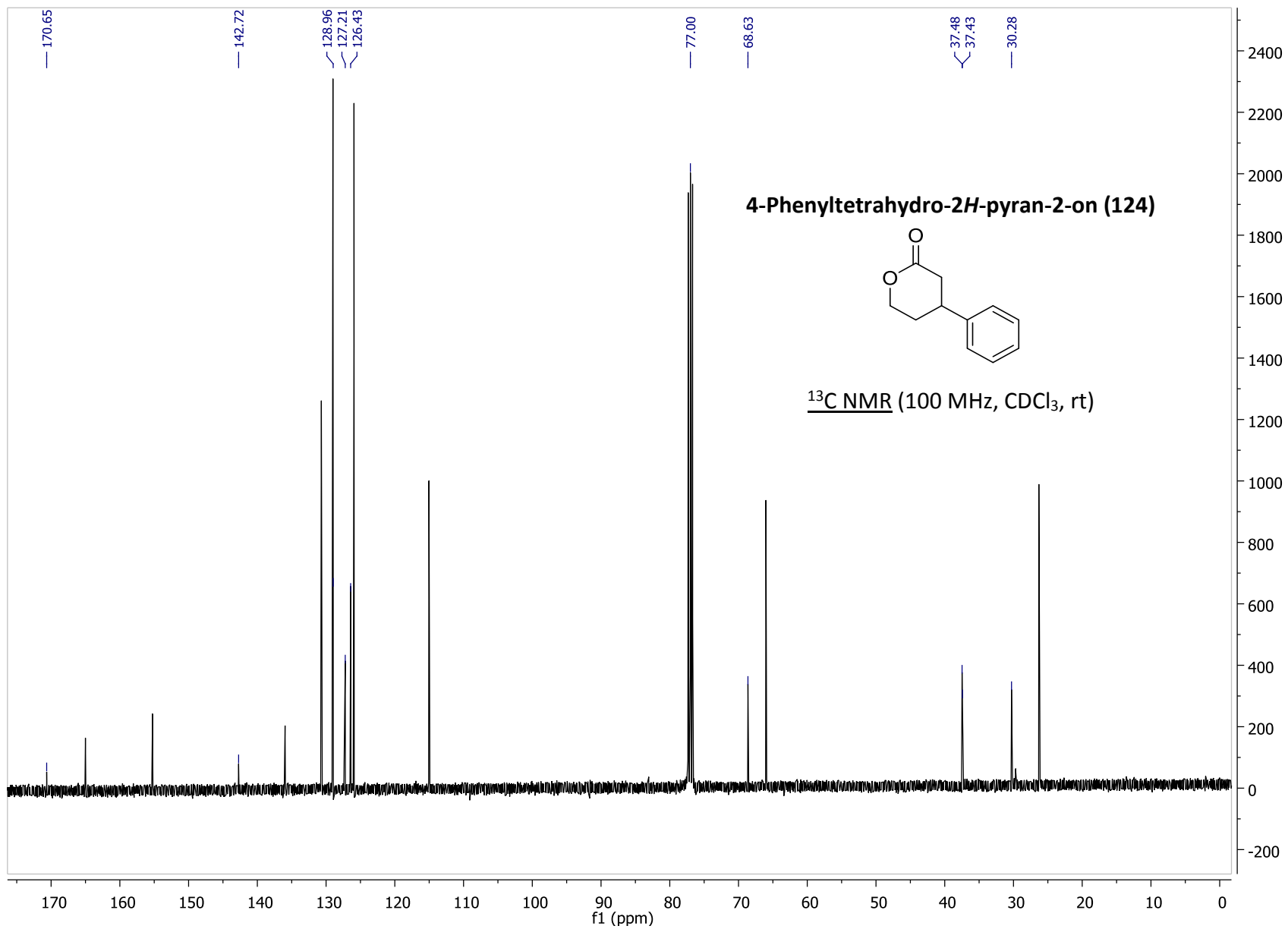
114

116

118

min





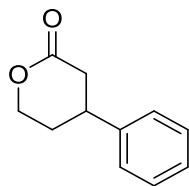
FID1 B, (SIG20574.D)

pA

24

22

4-Phenyltetrahydro-2H-pyran-2-on (124)



20

18

Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 0.5°C/min)

Racemat

16

14

12

10

142.846

144.907

138

140

142

144

146

148

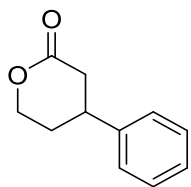
150min

FID1 B, (SIG20633.D)

pA

24

4-Phenyltetrahydro-2H-pyran-2-on (124)



20

18

Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 0.5°C/min)

16

89%ee (*R*)-**124** mit
H-*fuco*-enoPhos (**86**)

14

12

10

138

140

142

144

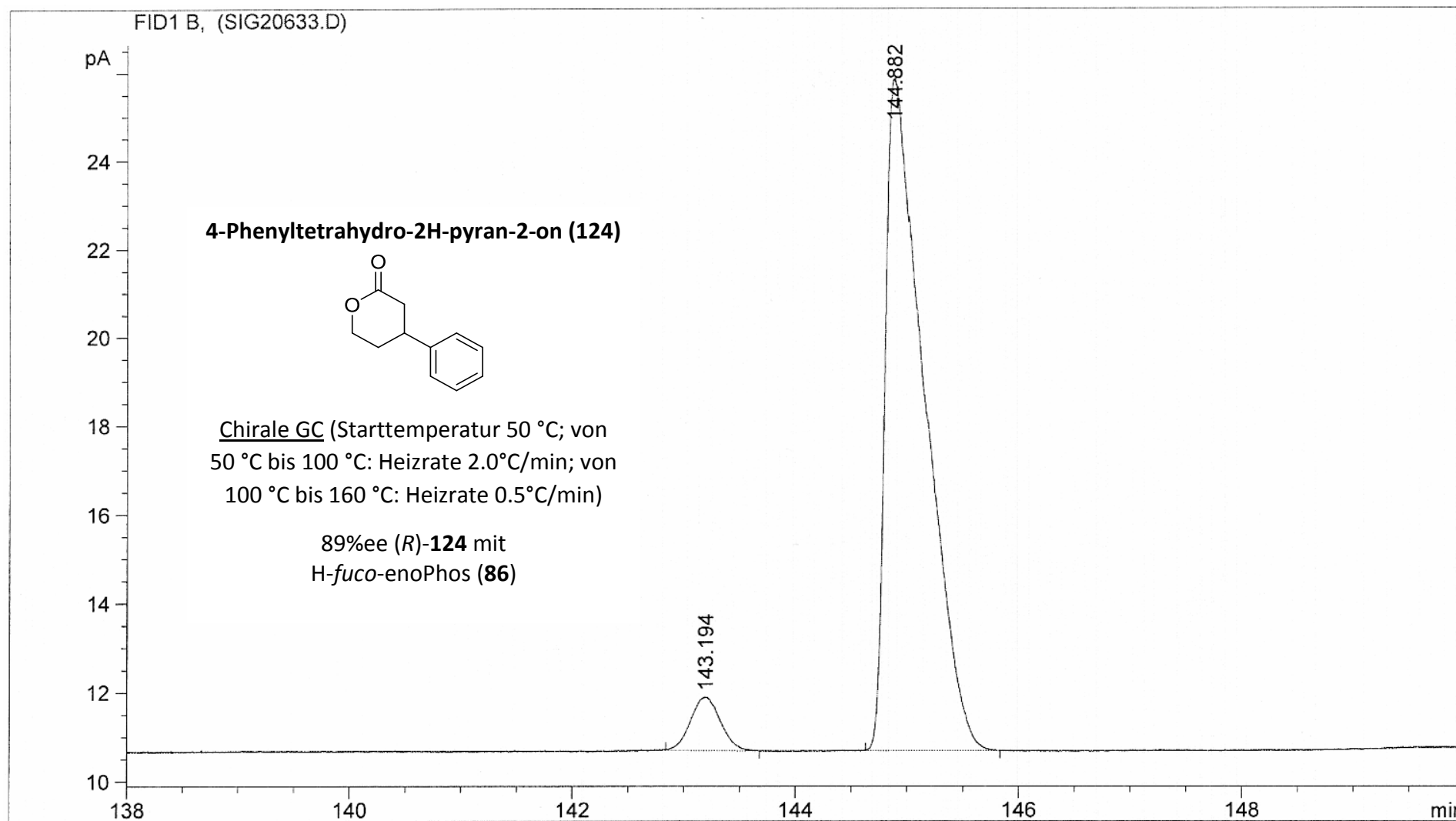
146

148

min

143.194

144.882



FID1 B, (SIG20630.D)

pA

16

15

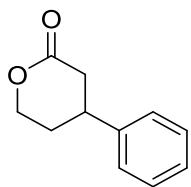
14

13

12

11

4-Phenyltetrahydro-2H-pyran-2-on (124)



Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 0.5°C/min)

86%ee (*S*)-**124** mit
H-rhamno-enoPhos (**68**)

143.119

145.283

138

140

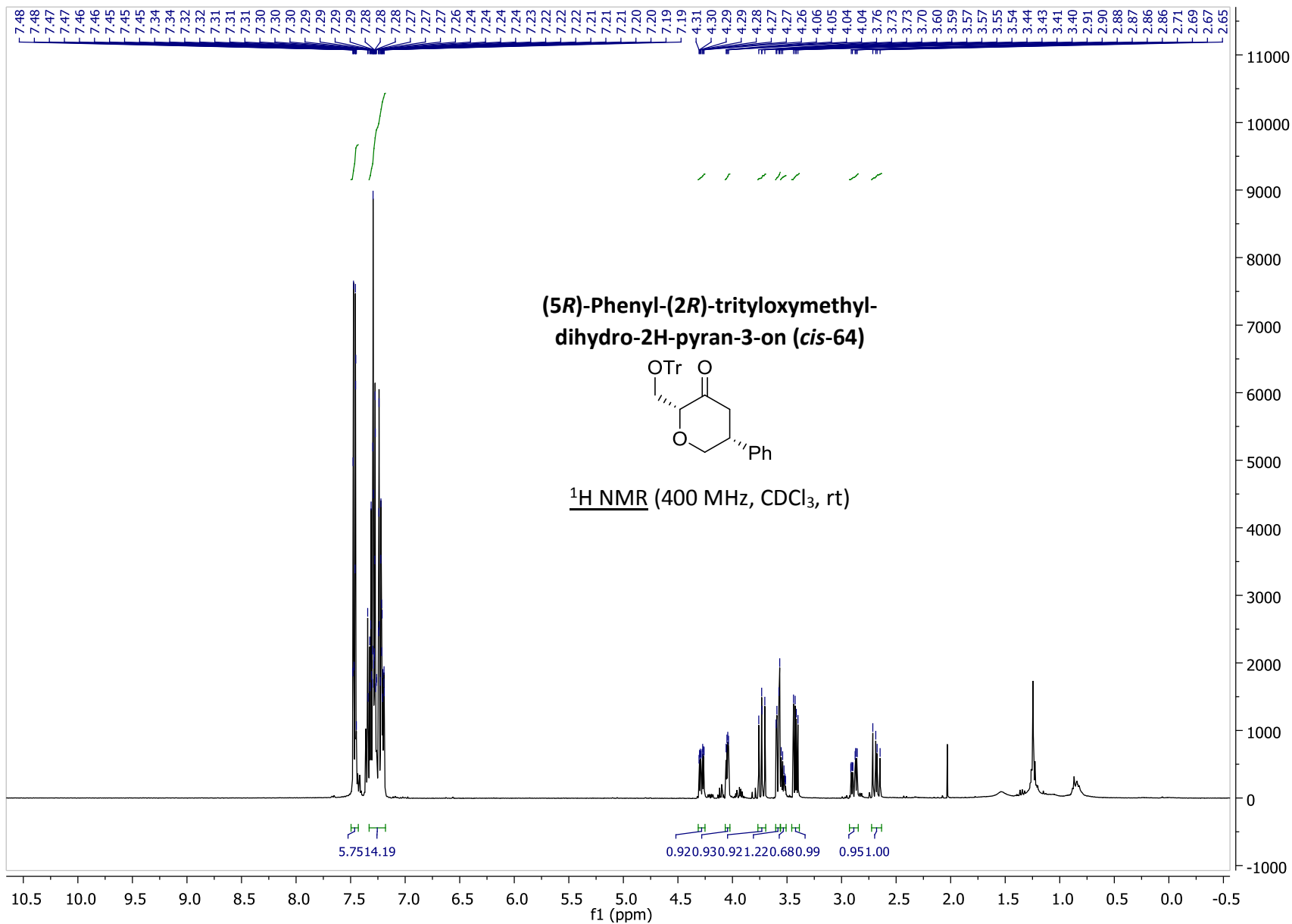
142

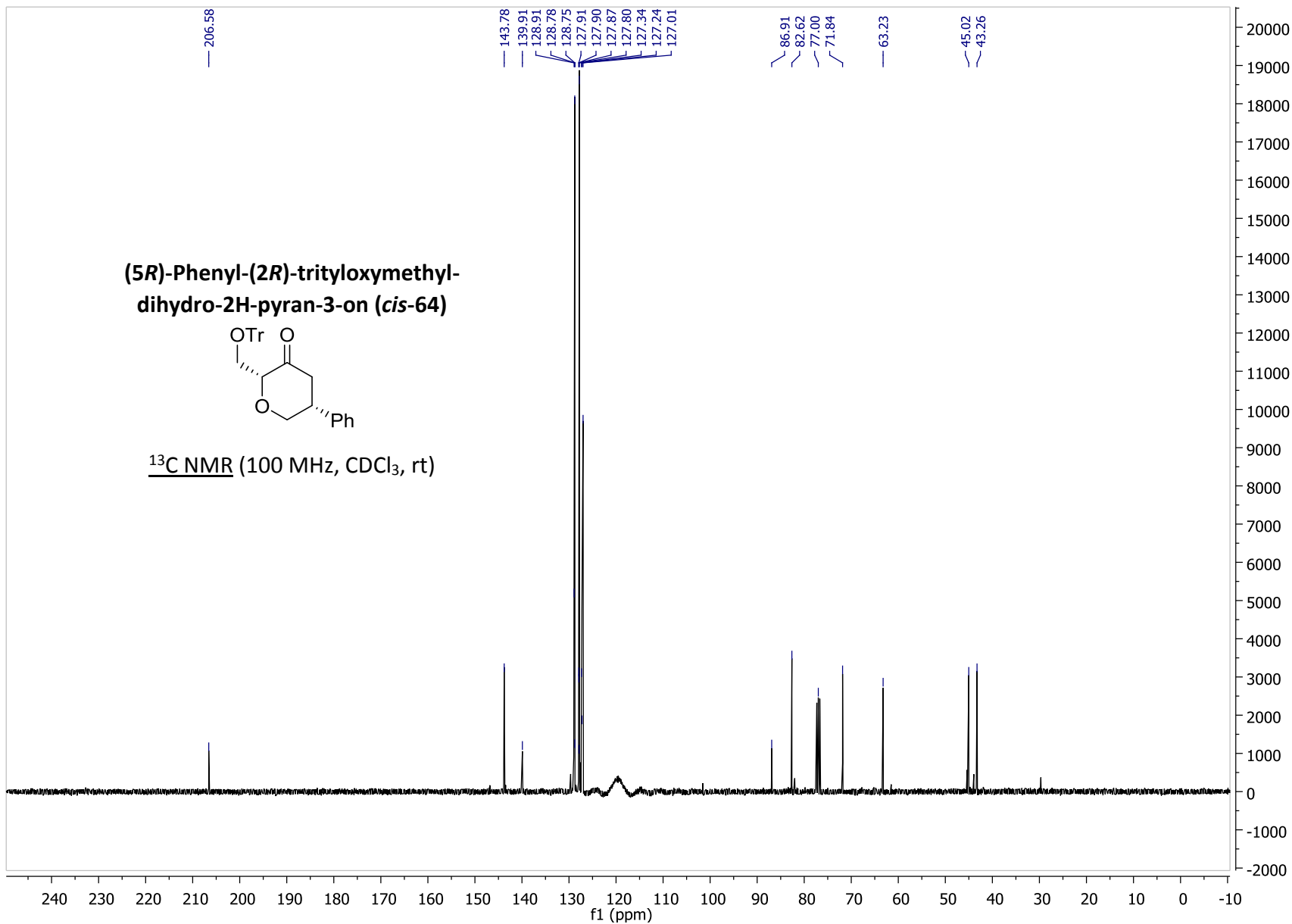
144

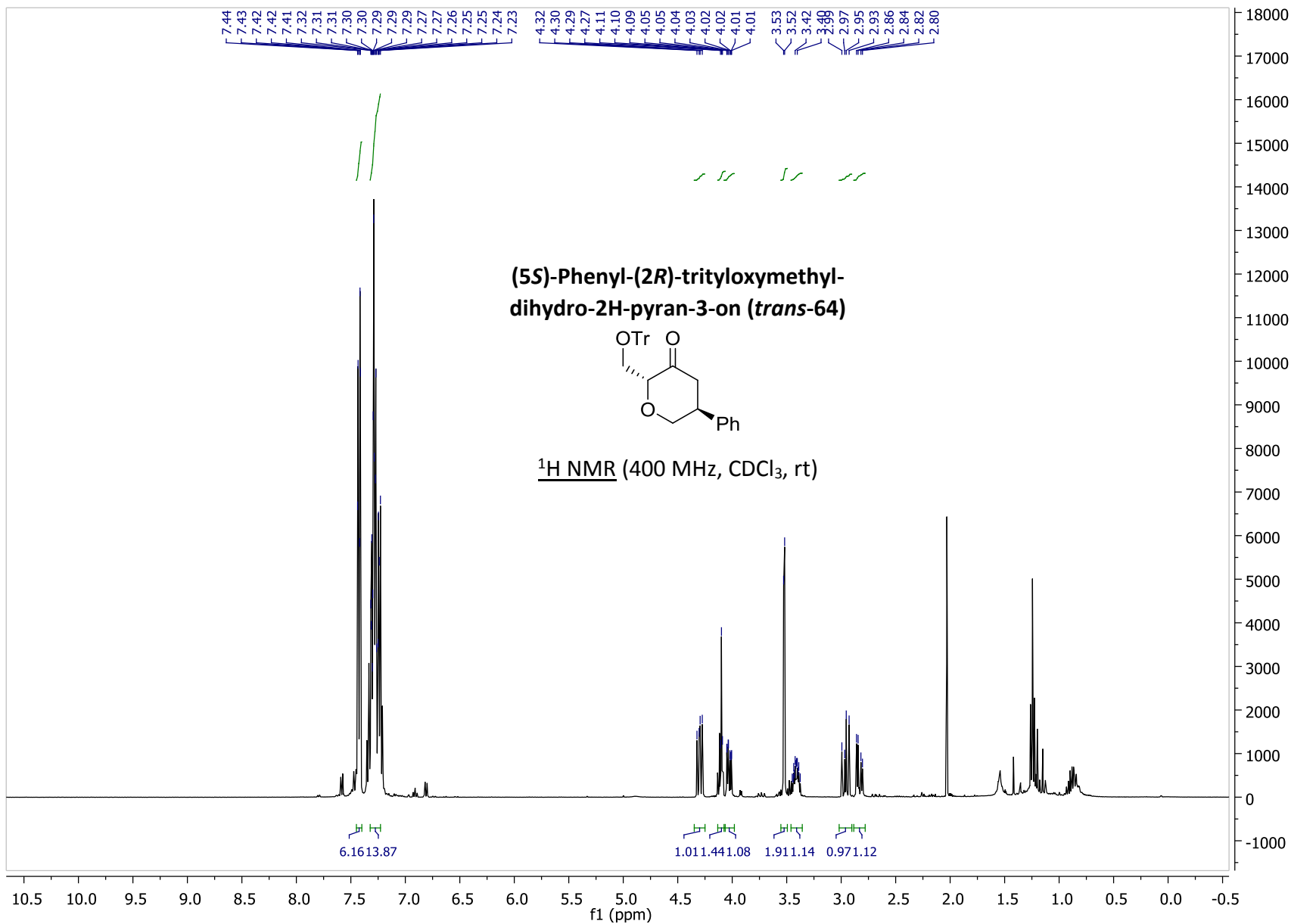
146

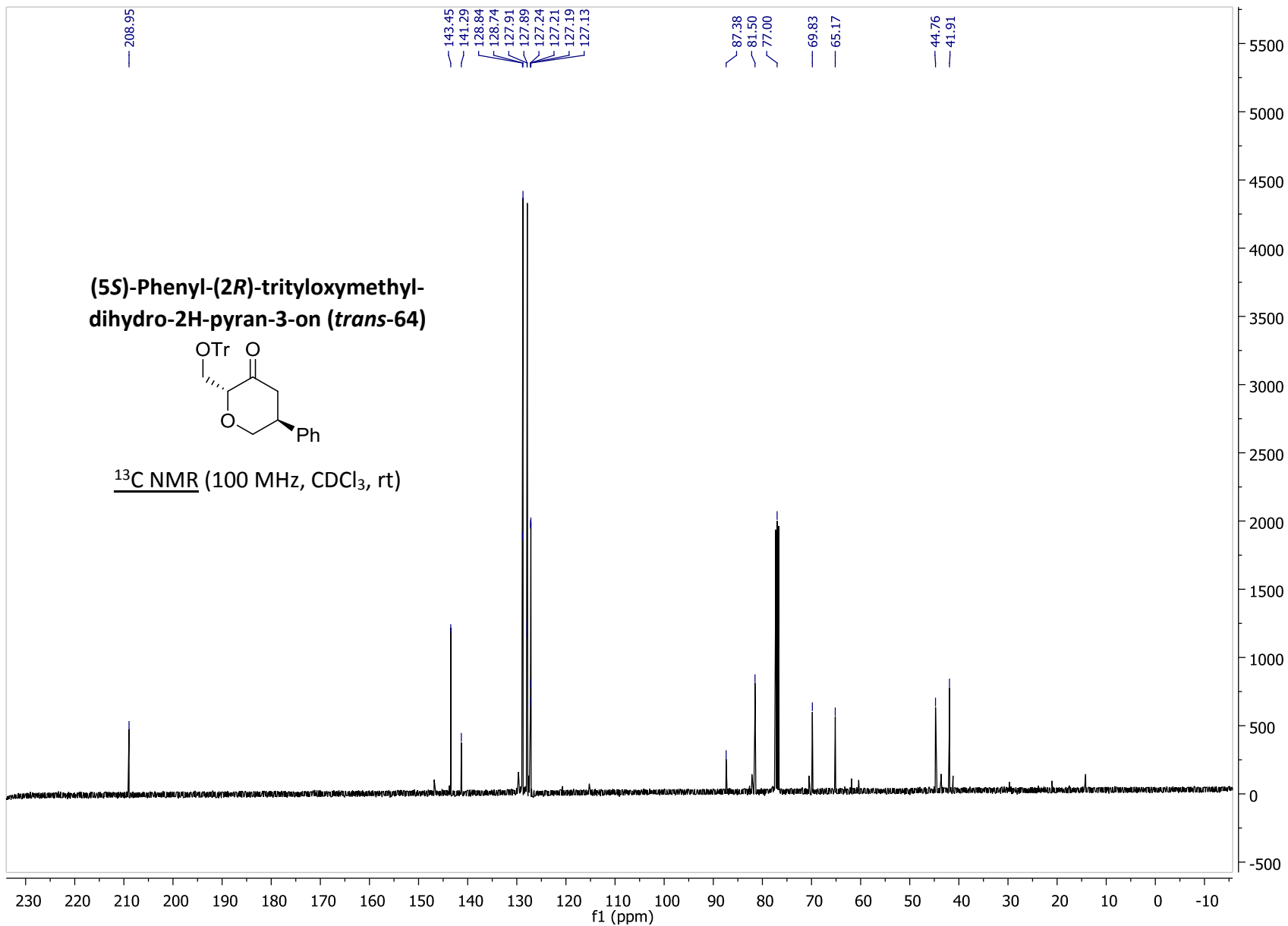
148

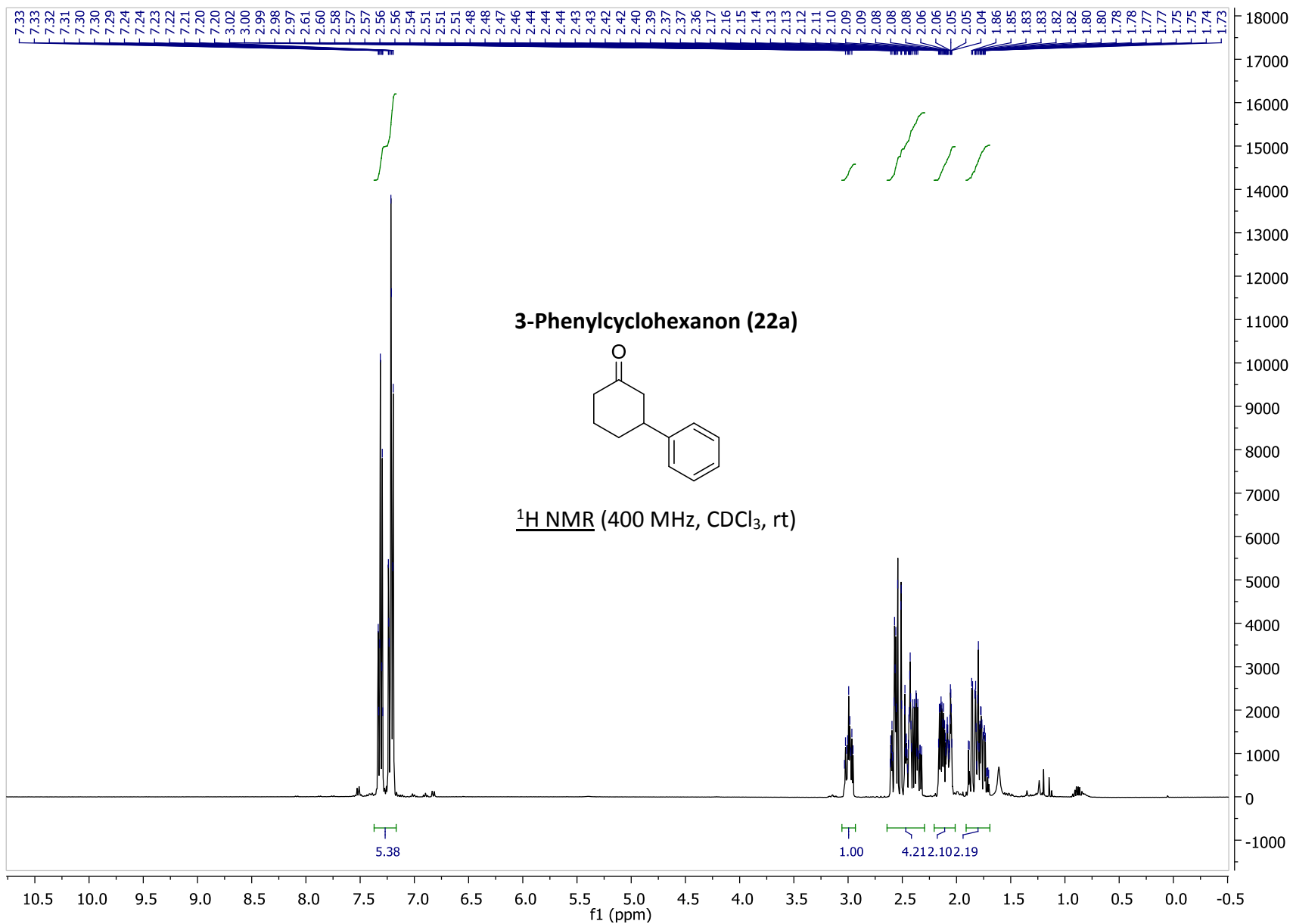
min

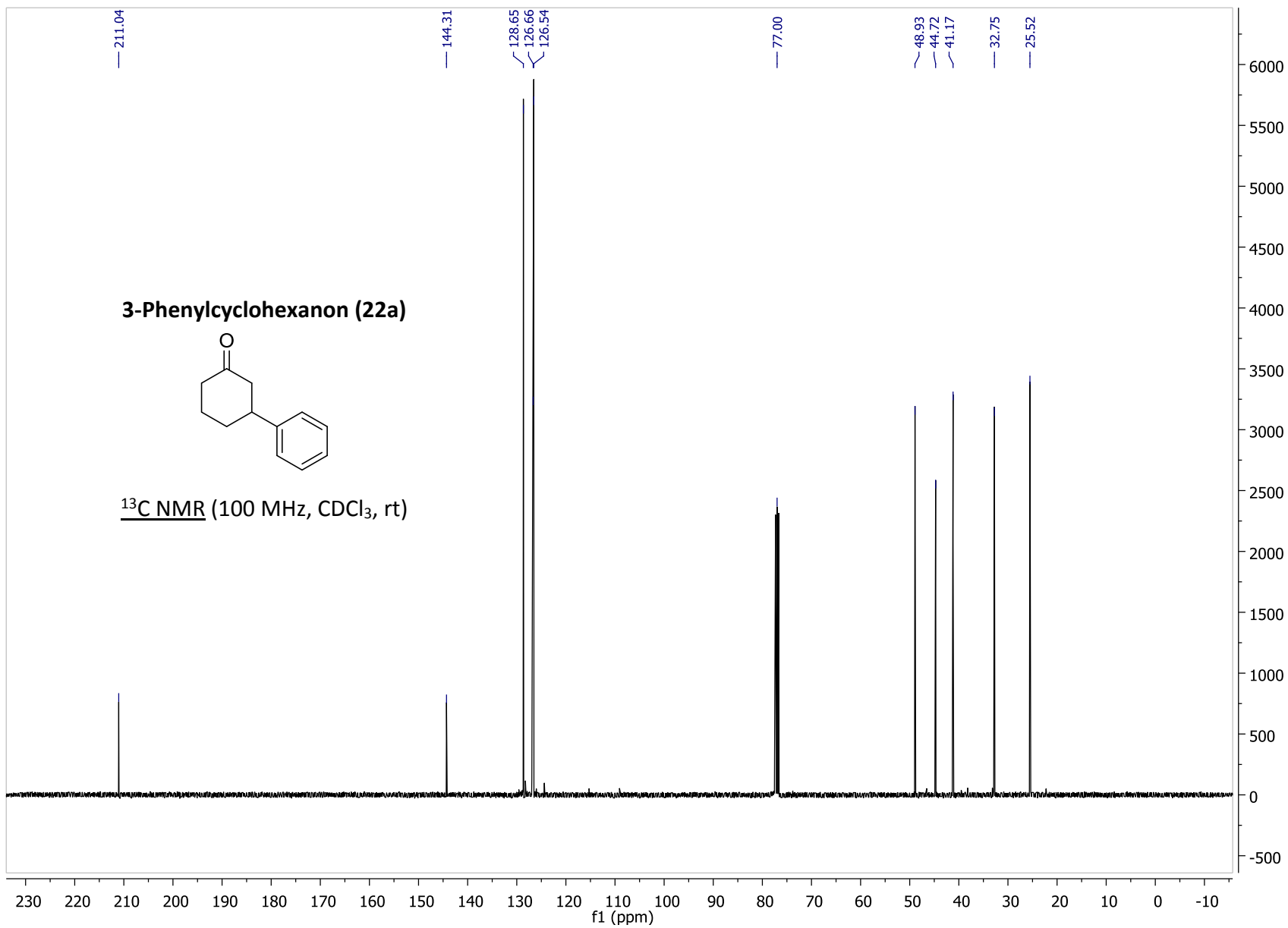




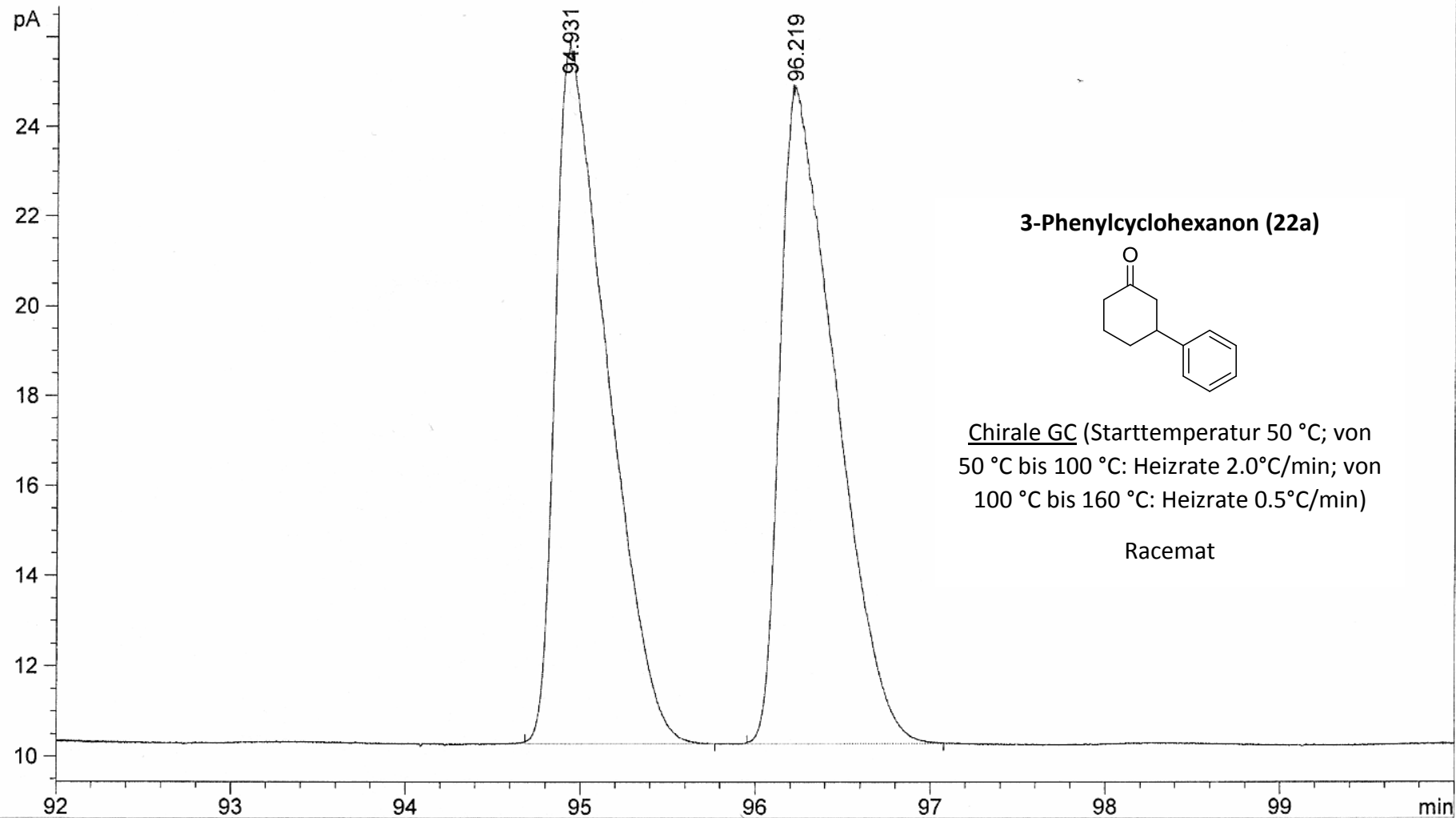




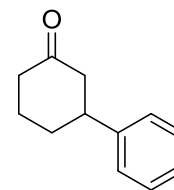




FID1 B, (SIG20541.D)



3-Phenylcyclohexanon (22a)



Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 0.5°C/min)

Racemat

FID1 B, (SIG20548.D)

pA

30

25

20

15

10

92

93

94

95

96

97

98

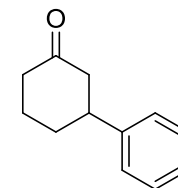
99

min

95.187

96.077

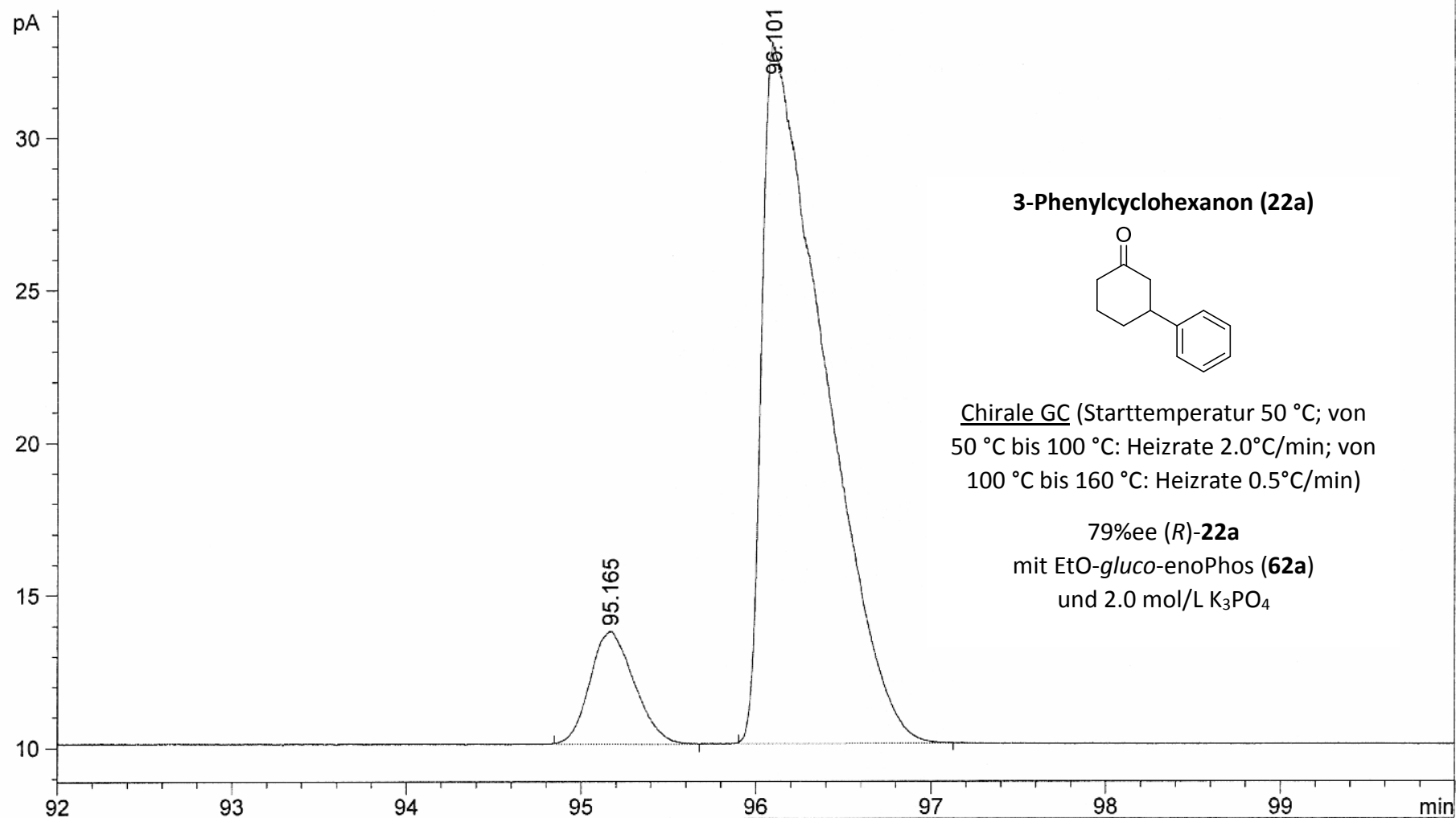
3-Phenylcyclohexanon (22a)



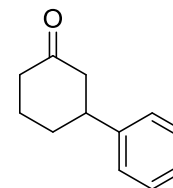
Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 0.5°C/min)

92%ee (*R*)-**22a**
mit EtO-*gluco*-enoPhos (**62a**)
und 0.5 mol/L K₃PO₄

FID1 B, (SIG20550.D)



3-Phenylcyclohexanon (22a)



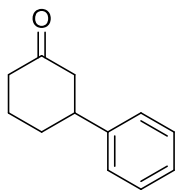
Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 0.5°C/min)

79%ee (*R*)-**22a**
mit EtO-*gluco*-enoPhos (**62a**)
und 2.0 mol/L K₃PO₄

FID1 B, (SIM-CHECKOUT\SIG20791.D)

pA

3-Phenylcyclohexanon (22a)



Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 0.5°C/min)

90%ee (*R*)-**22a**
mit EtO-*gluco*-enoPhos (**62a**)
und 3.0 mol/L K₃PO₄

15

10

95.080

95.909

91

92

93

94

95

96

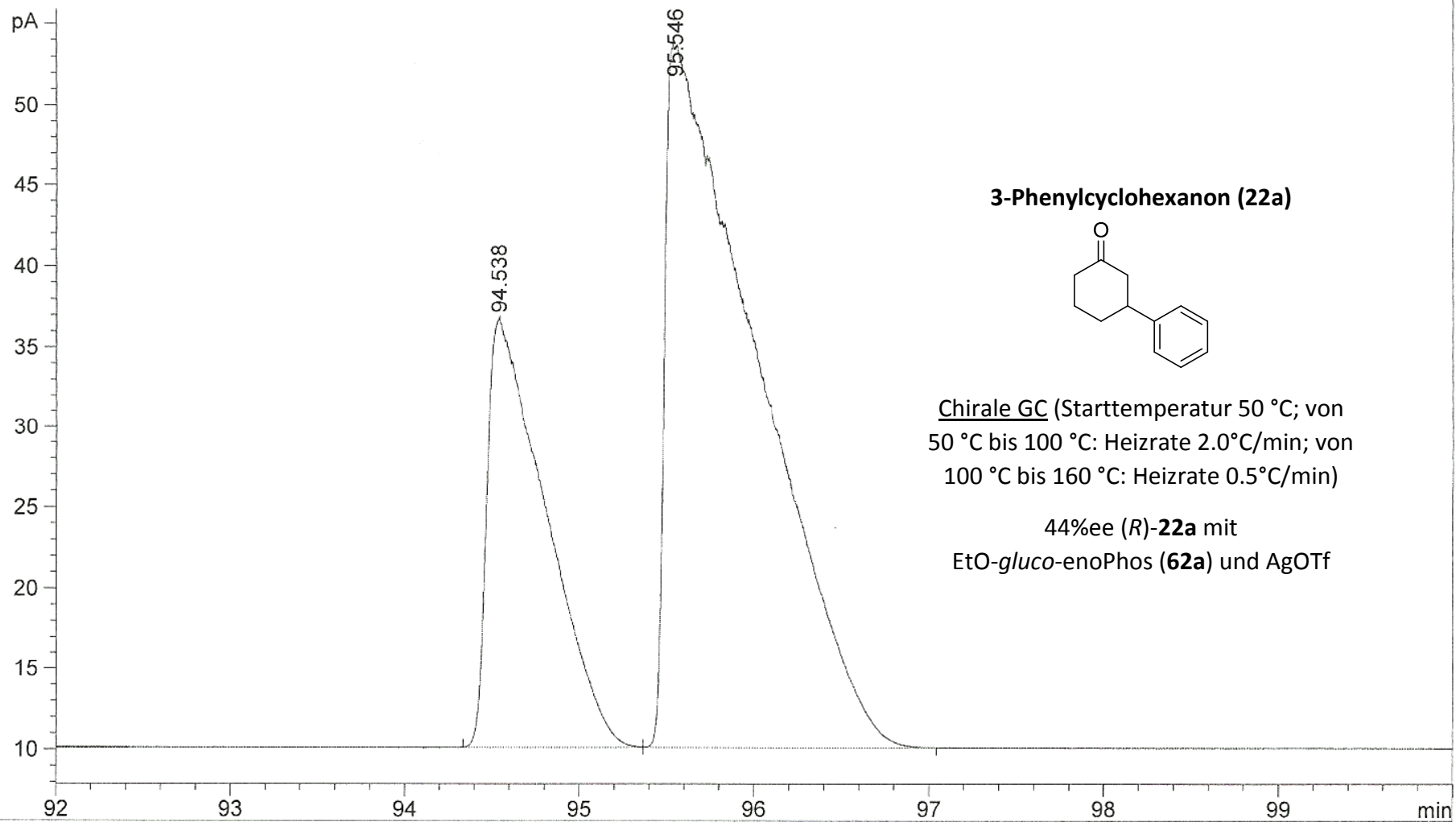
97

98

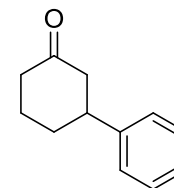
99

min

FID1 B, (SIM-CHECKOUT\SIG20793.D)



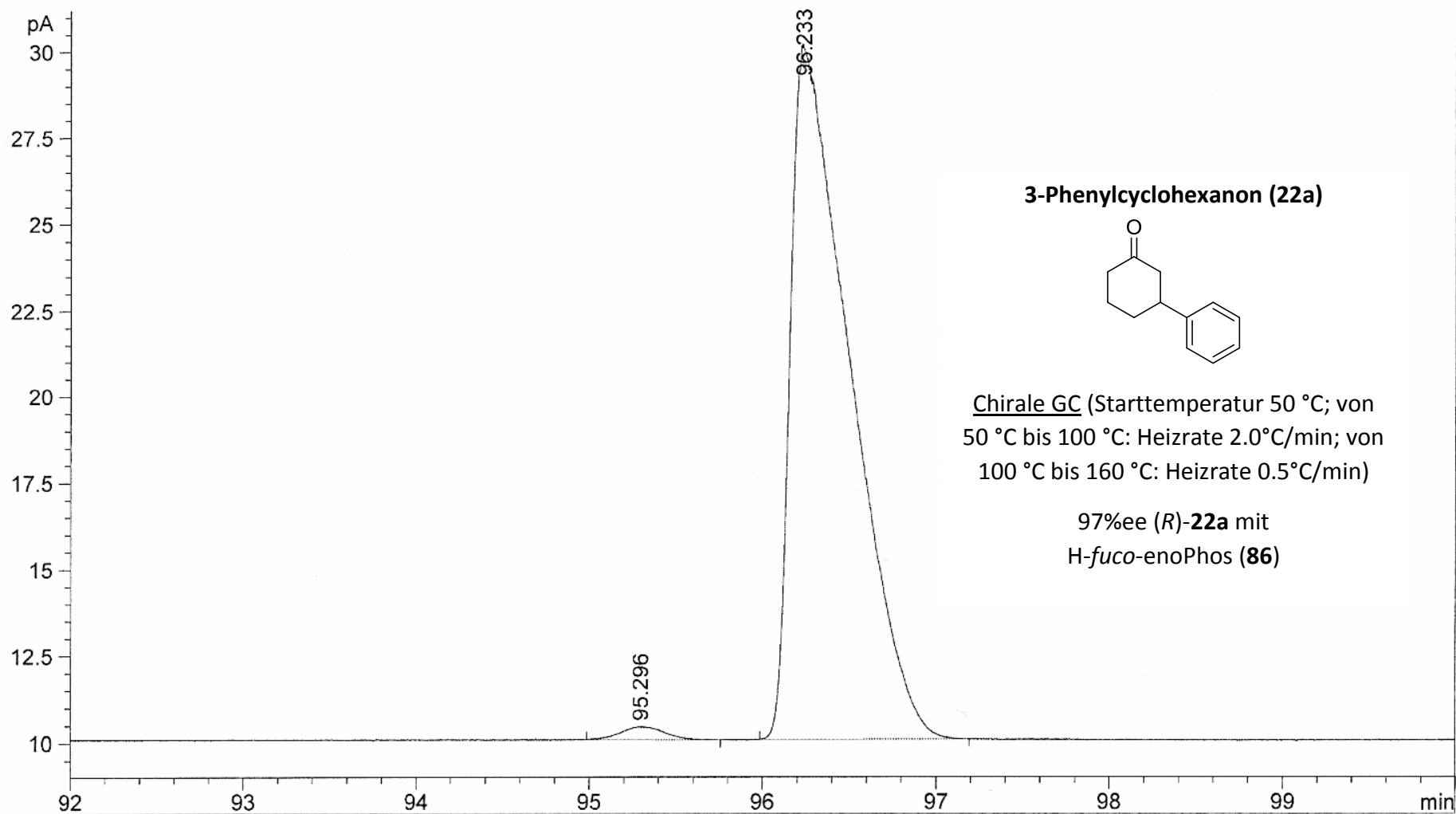
3-Phenylcyclohexanon (22a)



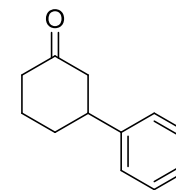
Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 0.5°C/min)

44%ee (*R*)-**22a** mit
EtO-*gluco*-enoPhos (**62a**) und AgOTf

FID1 B, (SIG20601.D)

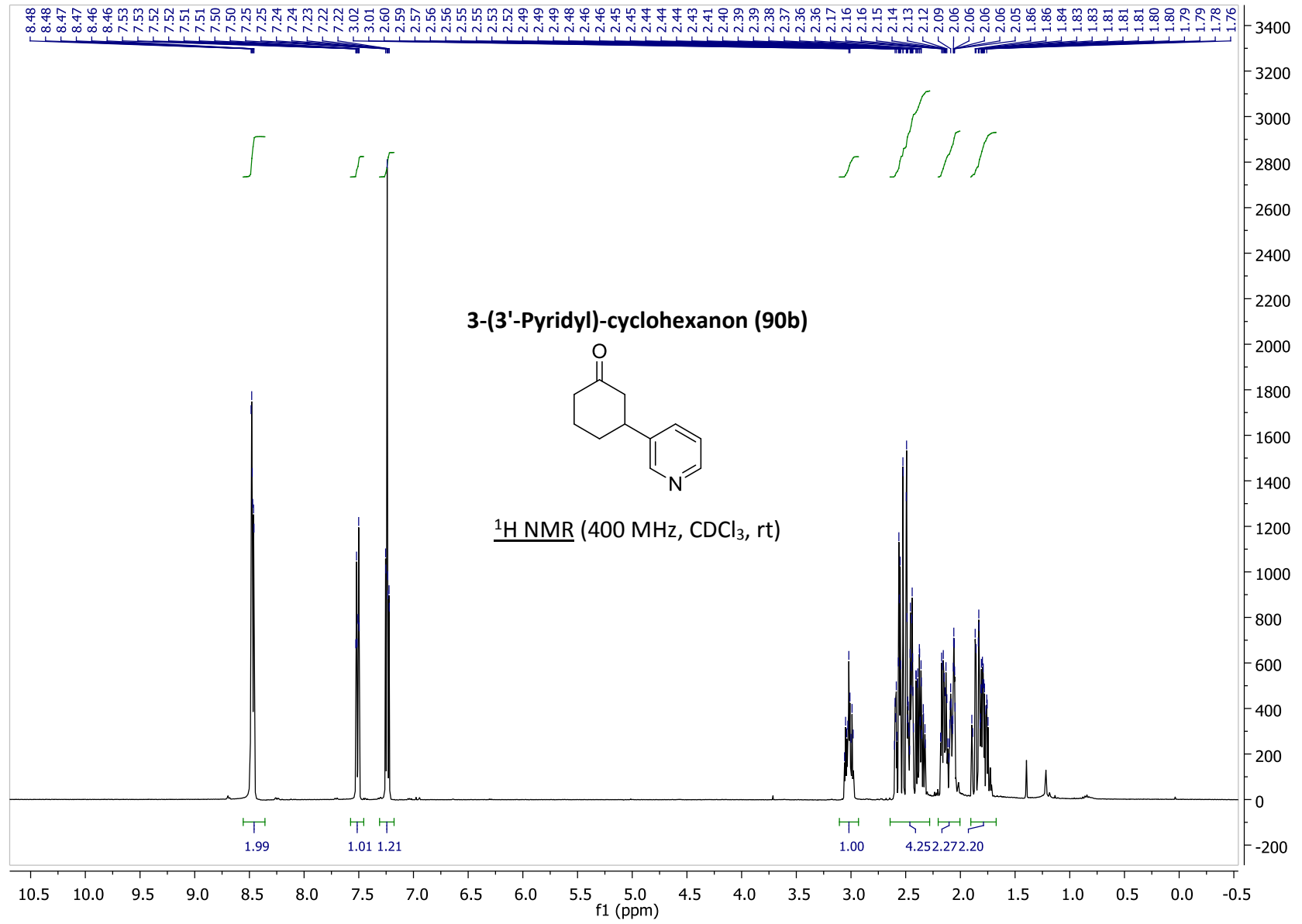


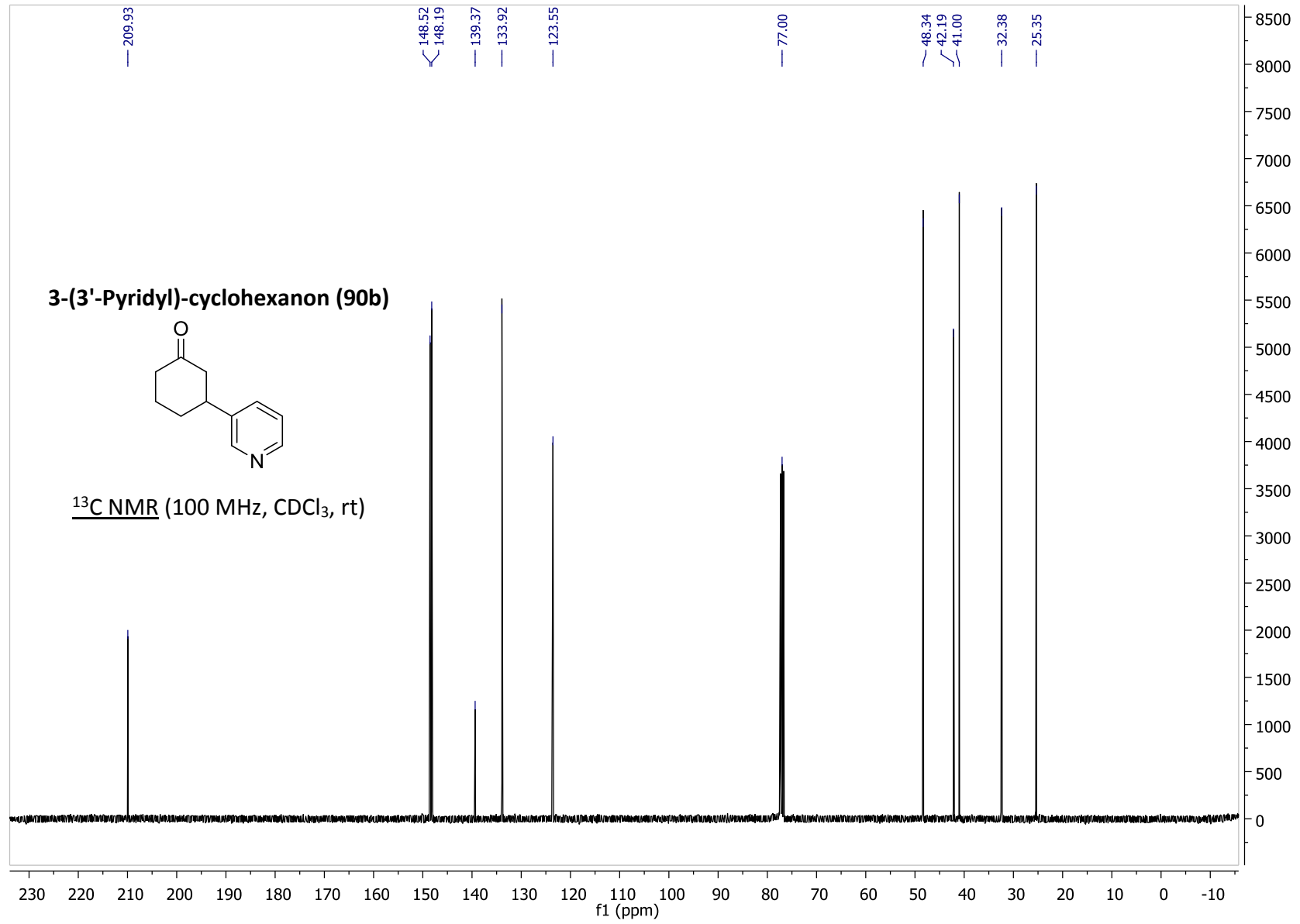
3-Phenylcyclohexanon (22a)

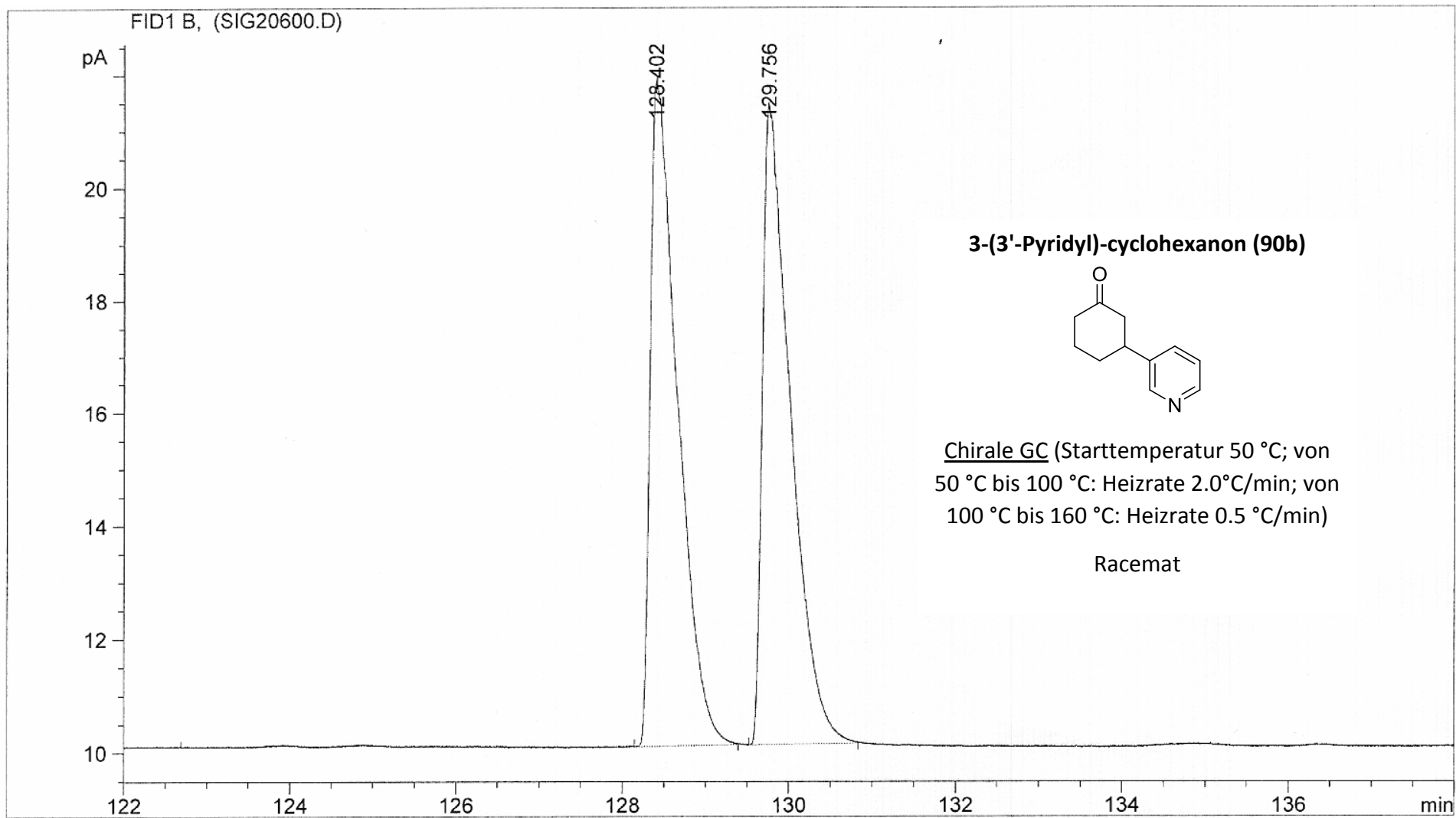


Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 0.5°C/min)

97%ee (*R*)-**22a** mit
H-*fuco*-enoPhos (**86**)







FID1 B, (SIG20627.D)

pA

20

18

16

14

12

126

127

128

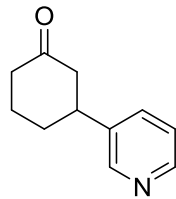
129

130

131

min

3-(3'-Pyridyl)-cyclohexanon (90b)

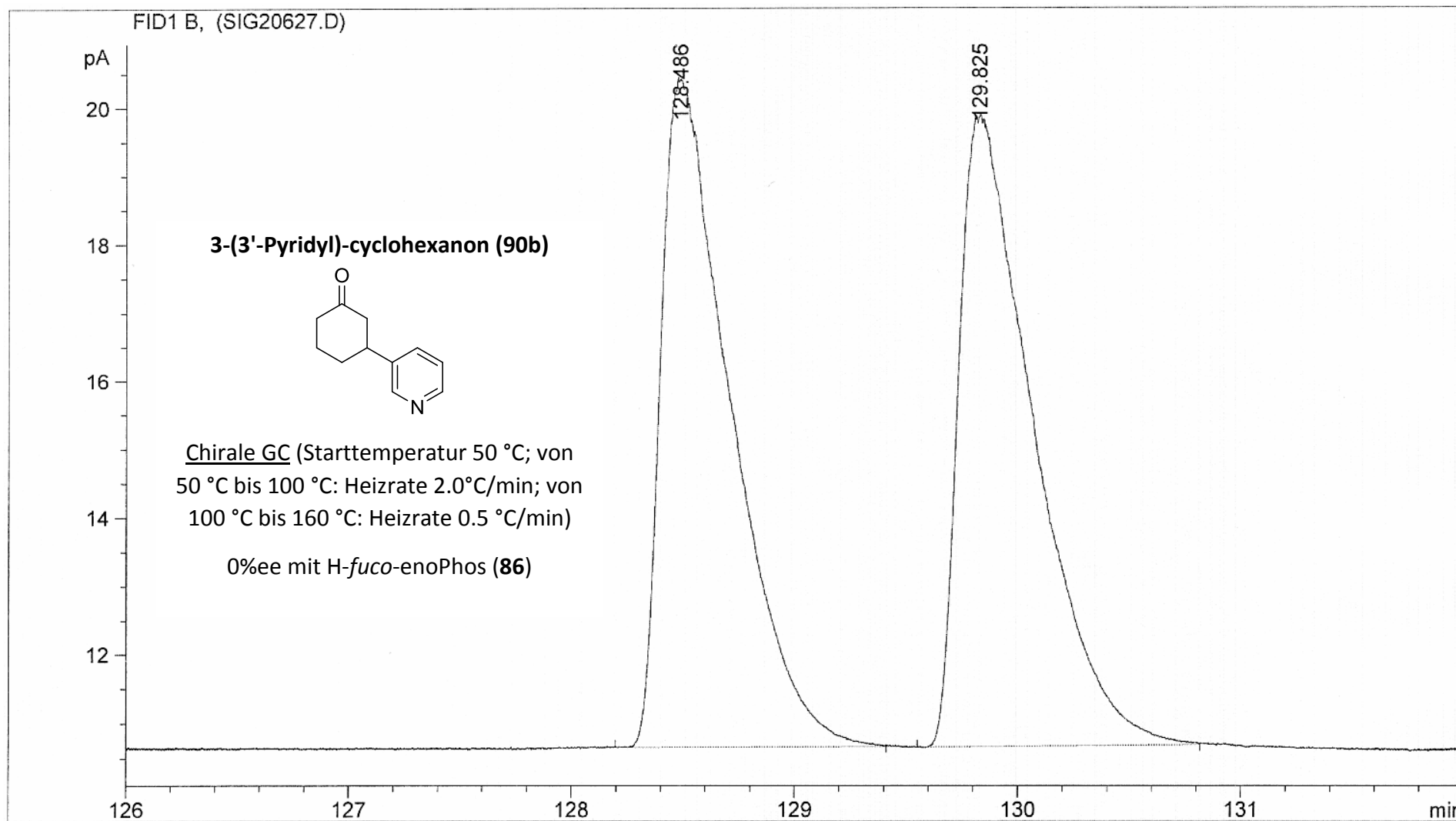


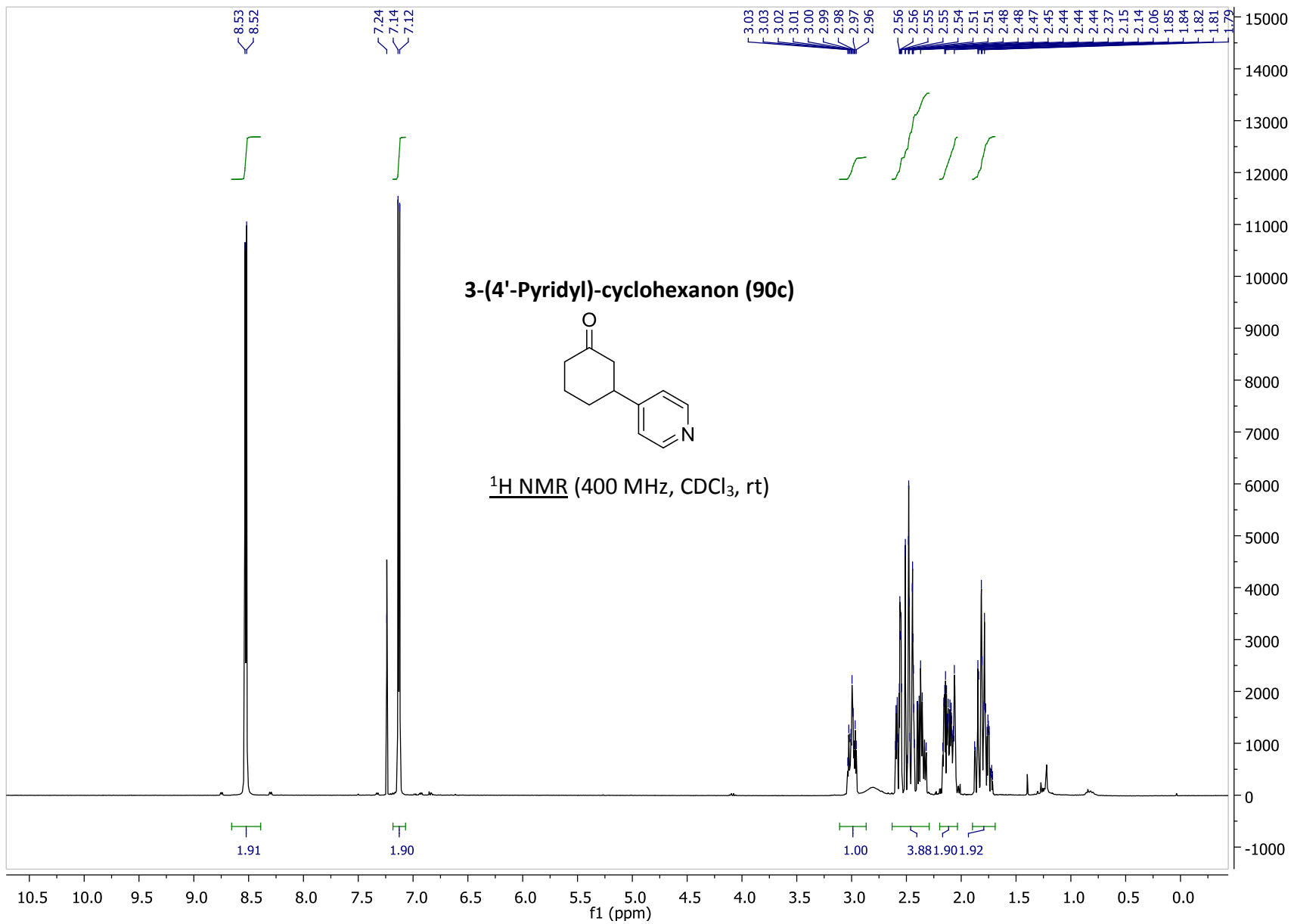
Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 0.5 °C/min)

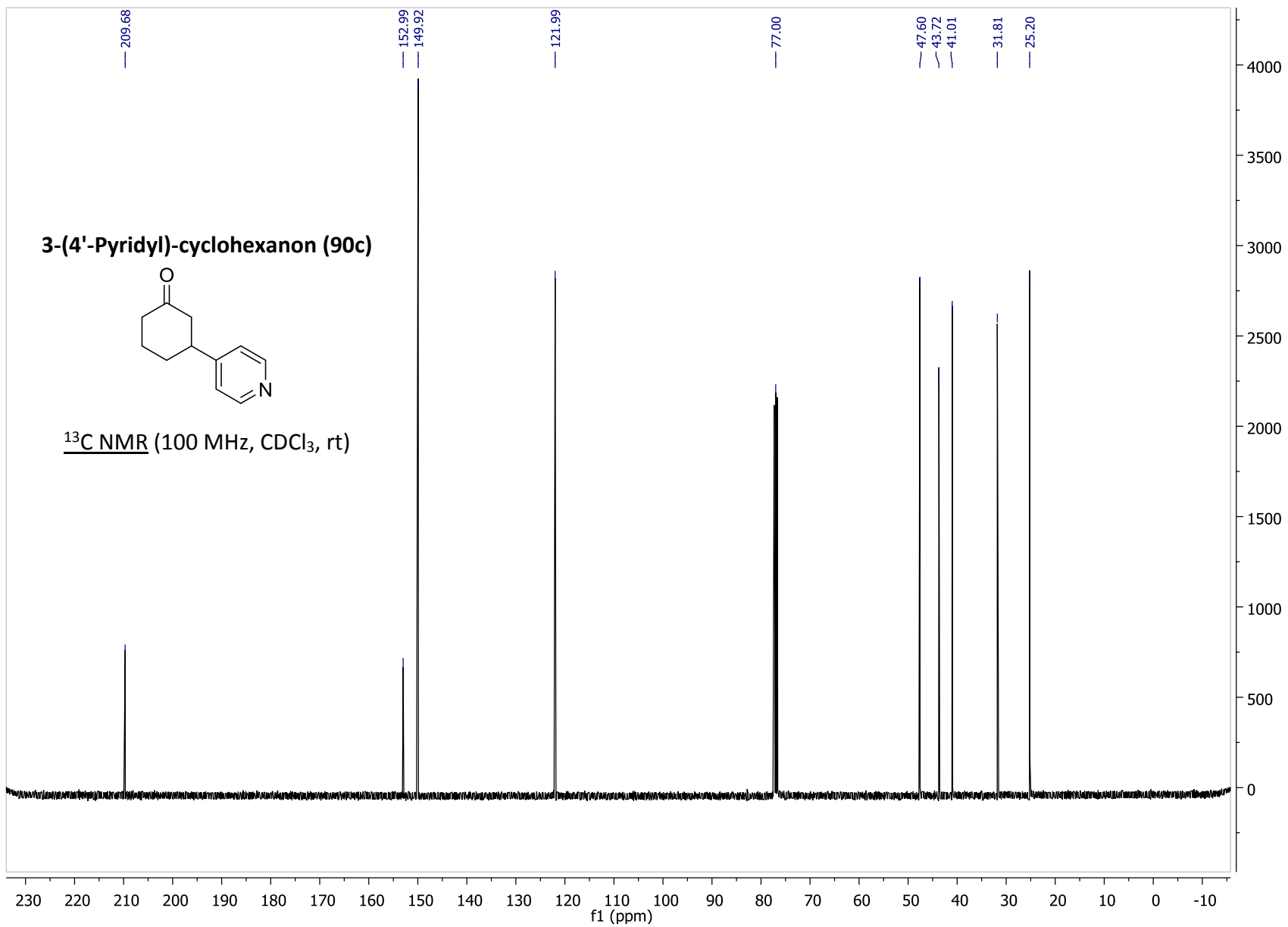
0%ee mit H-*fuco*-enoPhos (**86**)

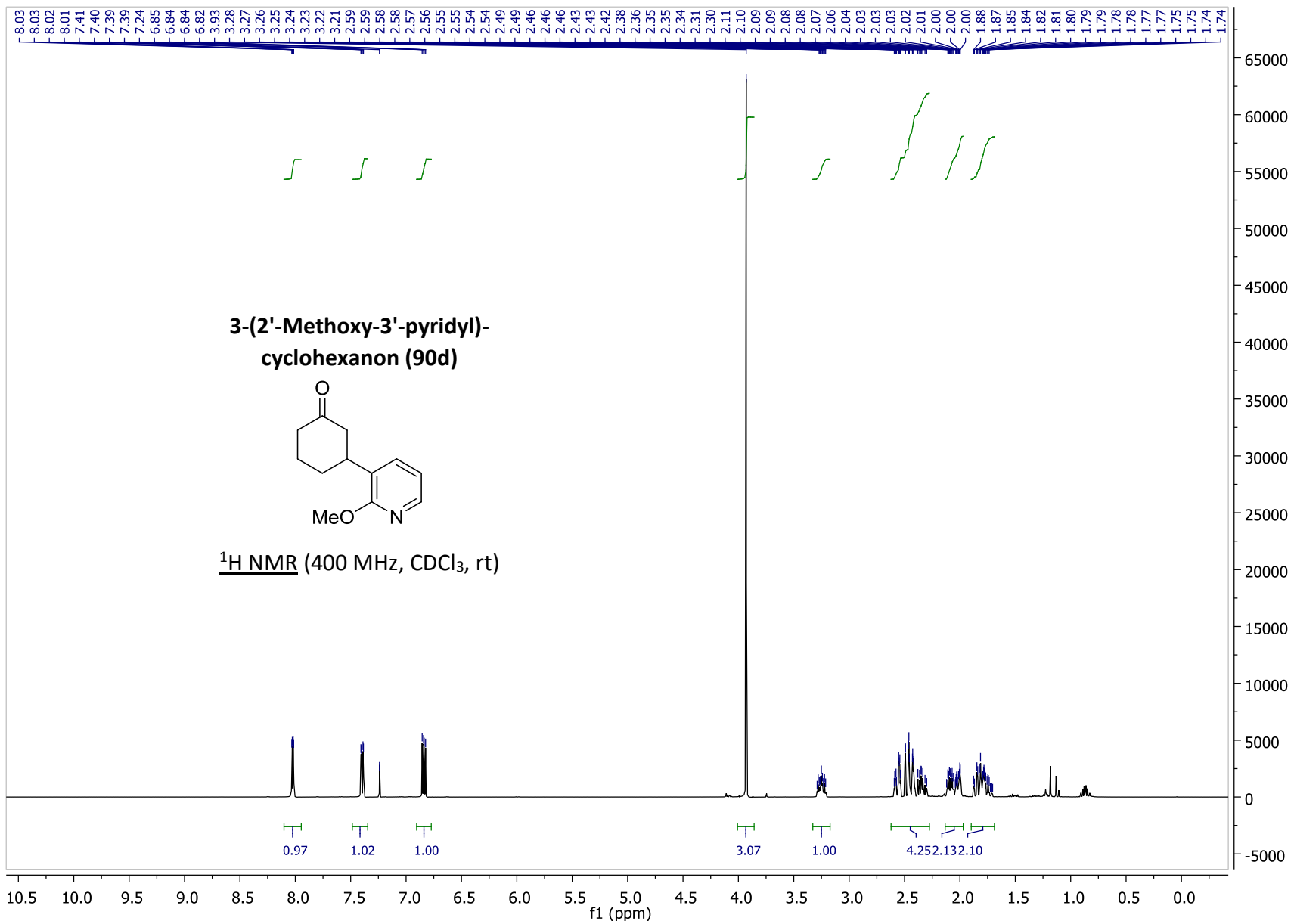
128.486

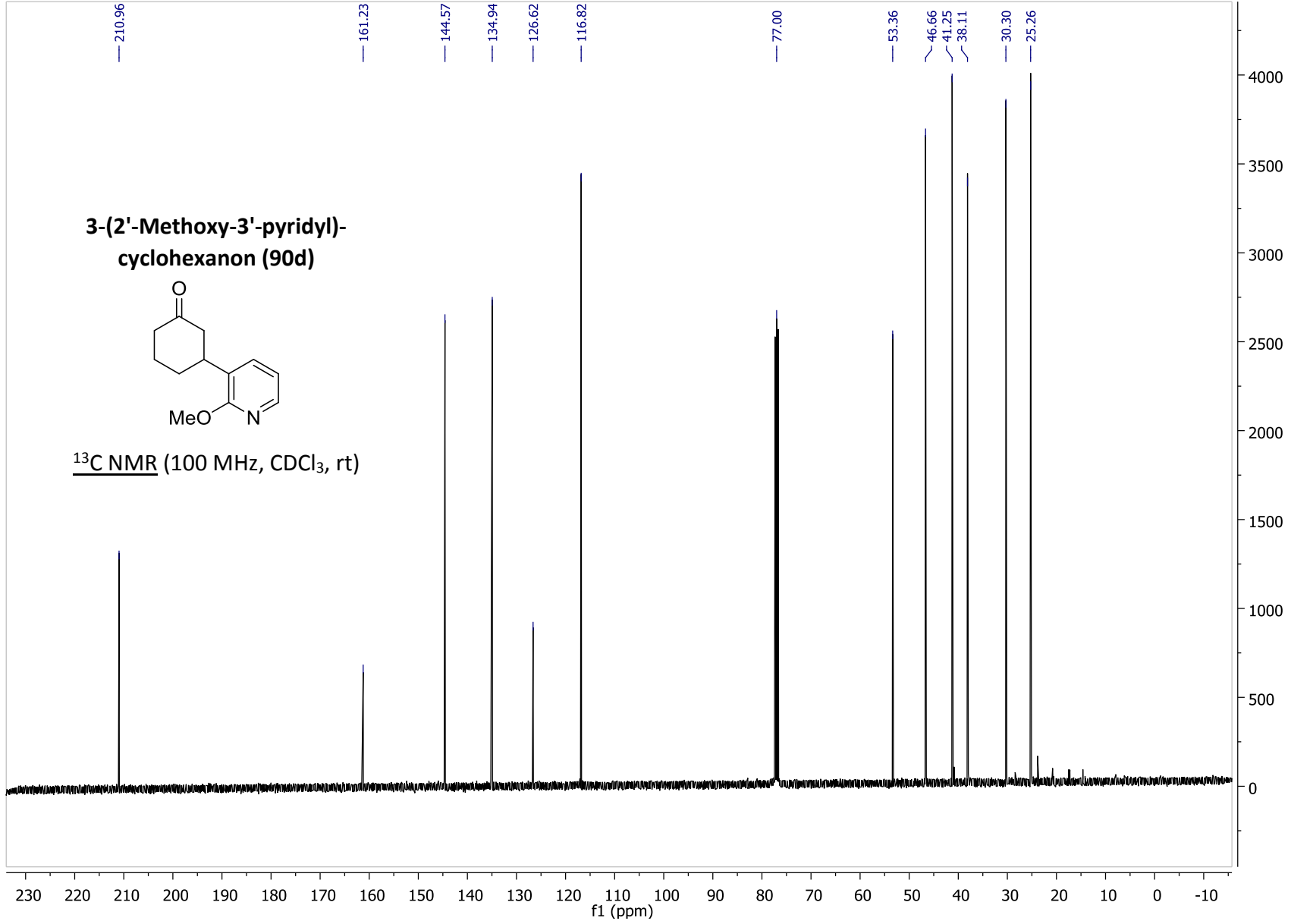
129.825



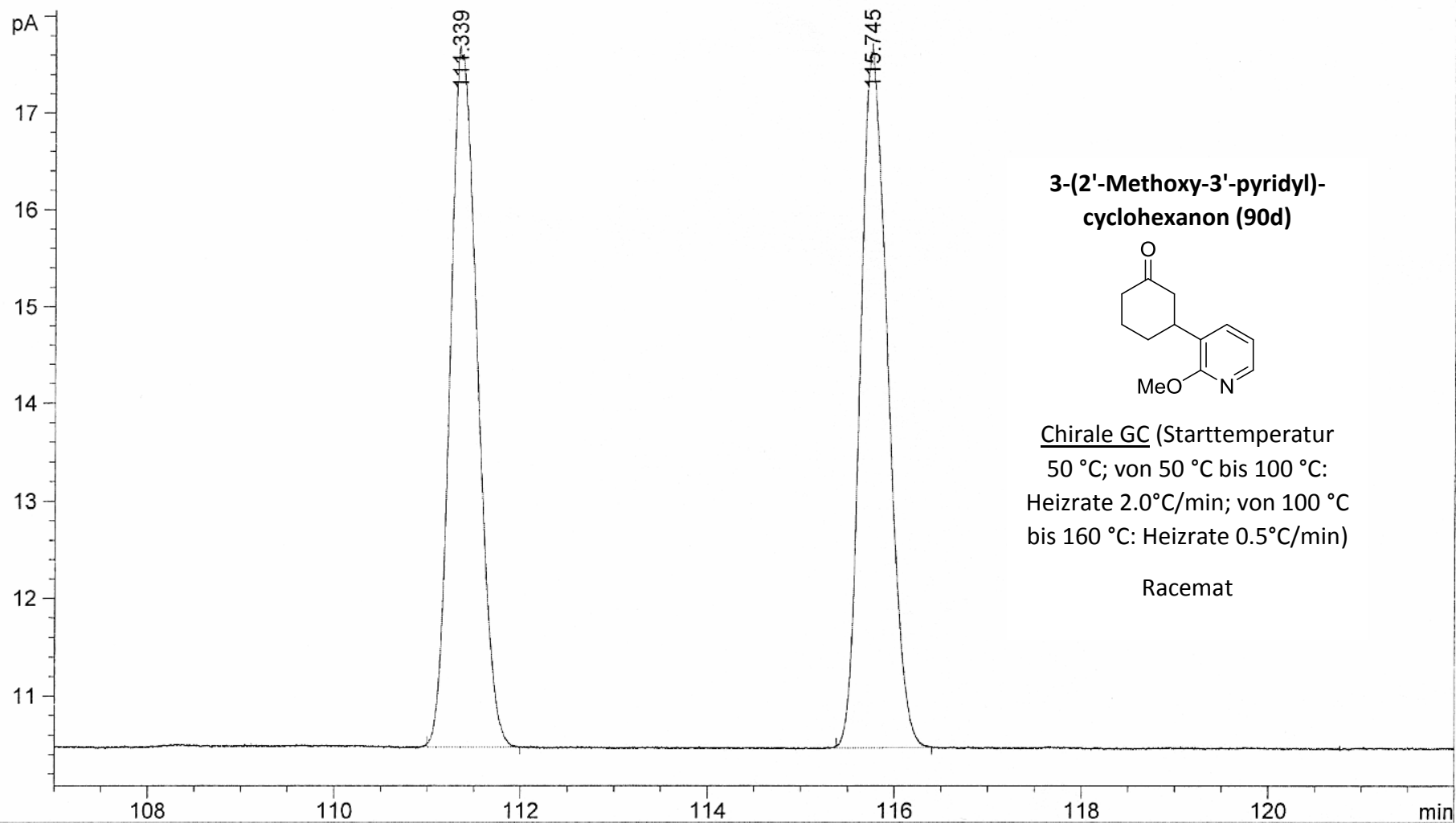




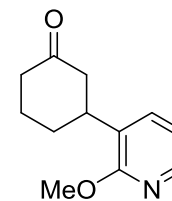




FID1 B, (SIG20646.D)



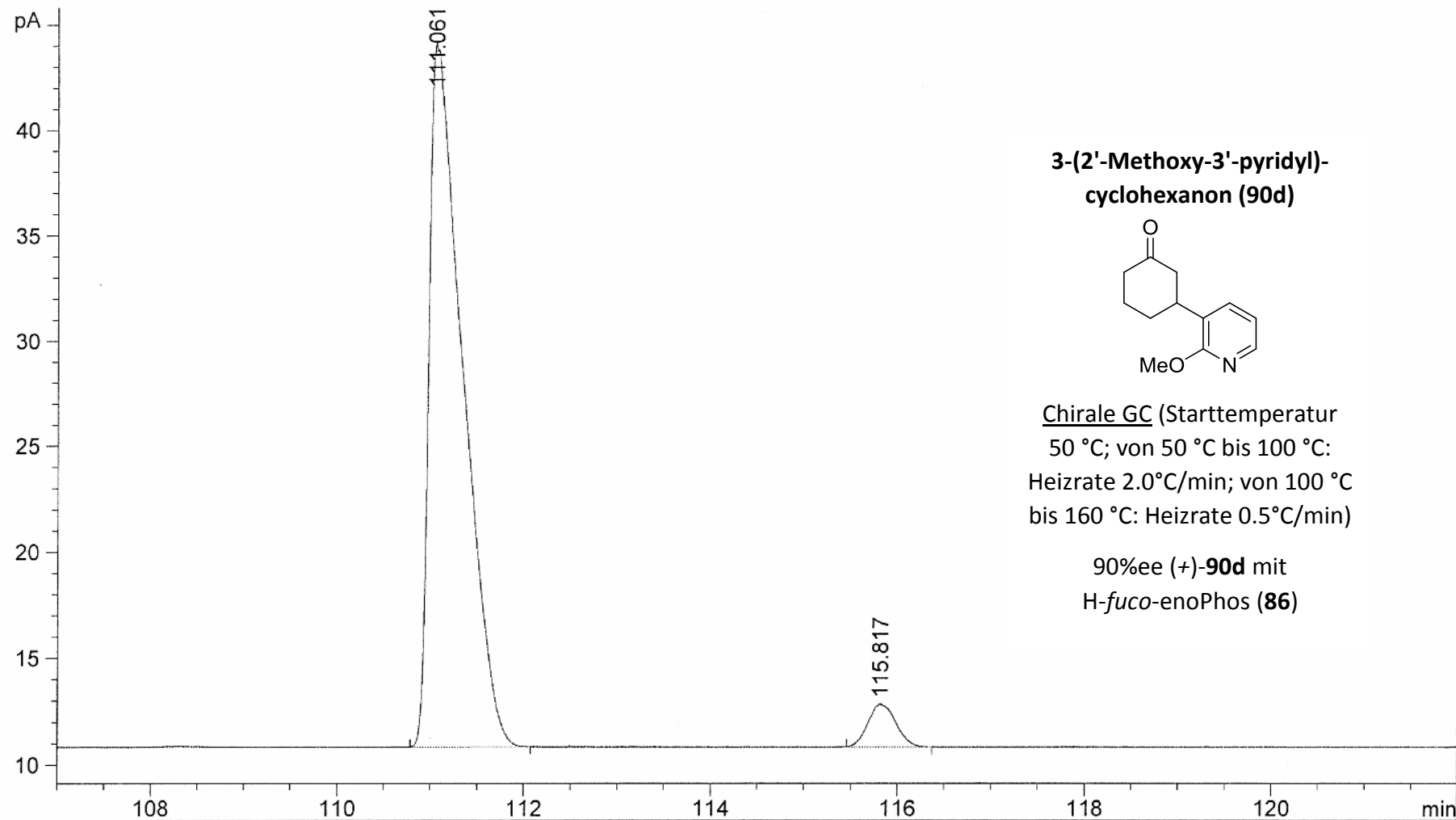
**3-(2'-Methoxy-3'-pyridyl)-
cyclohexanon (90d)**



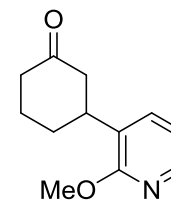
Chirale GC (Starttemperatur
50 °C; von 50 °C bis 100 °C:
Heizrate 2.0°C/min; von 100 °C
bis 160 °C: Heizrate 0.5°C/min)

Racemat

FID1 B, (SIG20662.D)



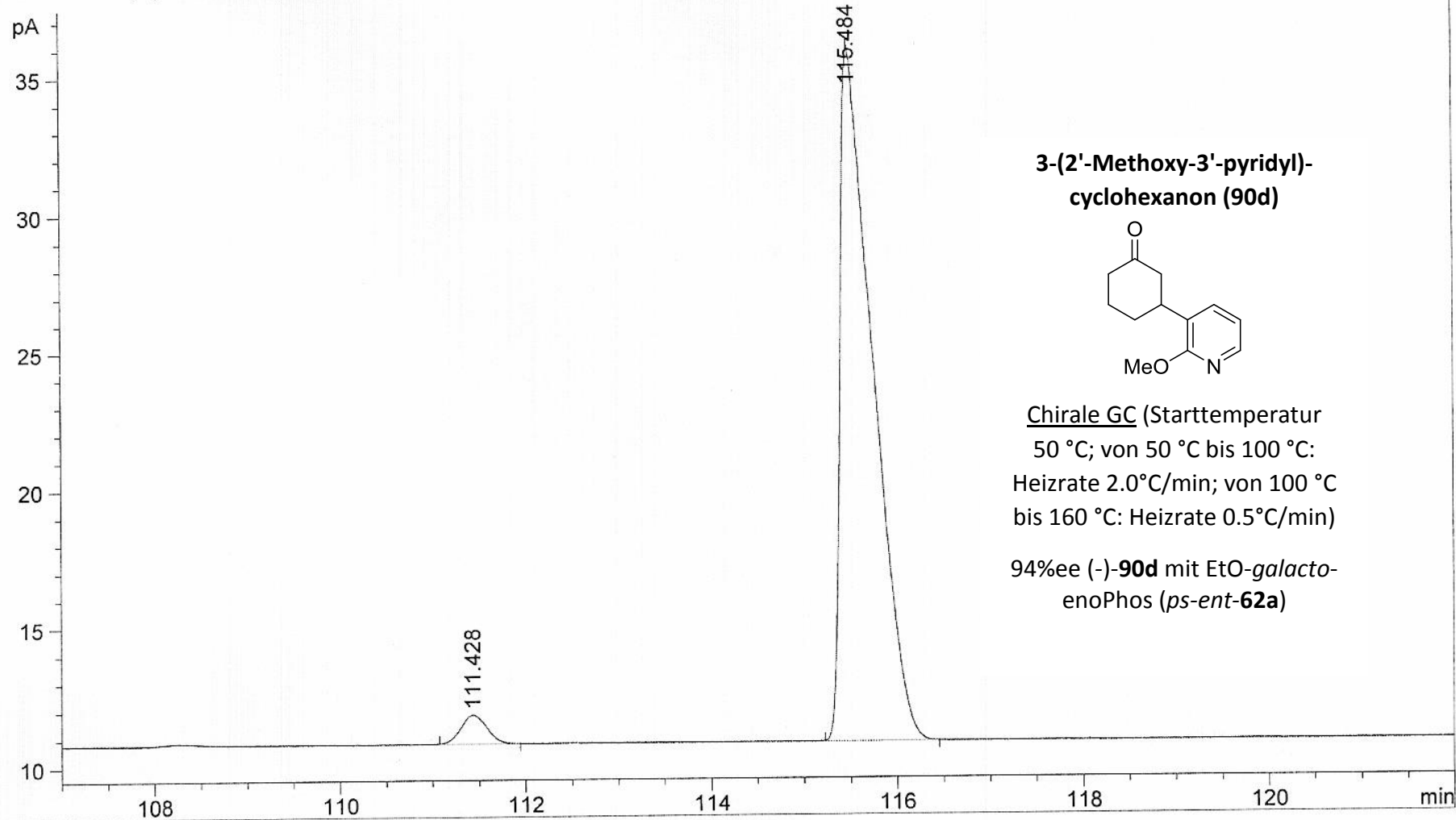
**3-(2'-Methoxy-3'-pyridyl)-
cyclohexanon (90d)**



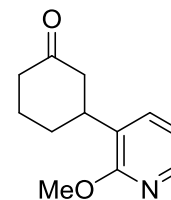
Chirale GC (Starttemperatur
50 °C; von 50 °C bis 100 °C:
Heizrate 2.0°C/min; von 100 °C
bis 160 °C: Heizrate 0.5°C/min)

90%ee (+)-**90d** mit
H-*fuco*-enoPhos (**86**)

FID1 B, (SIG20664.D)

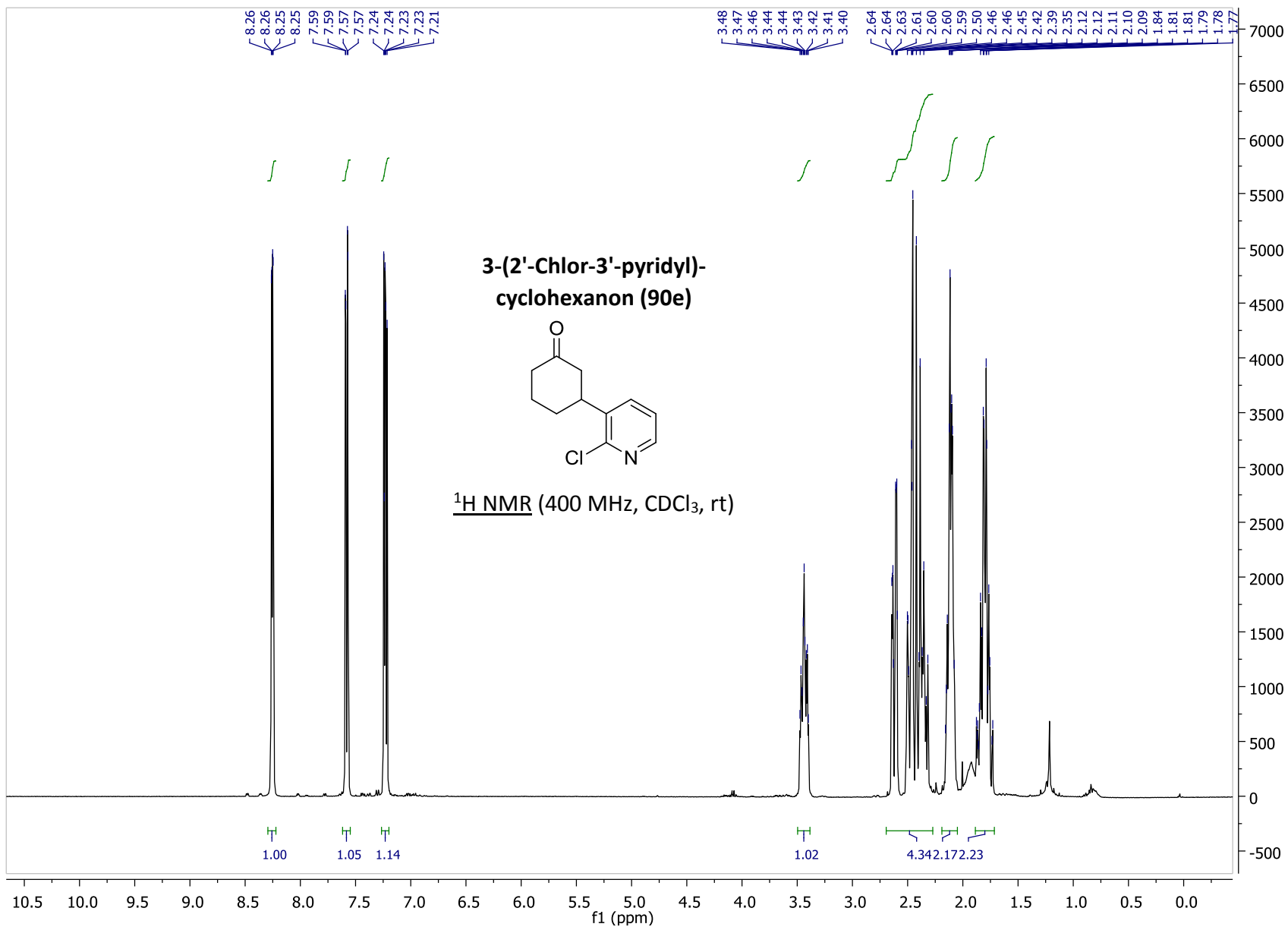


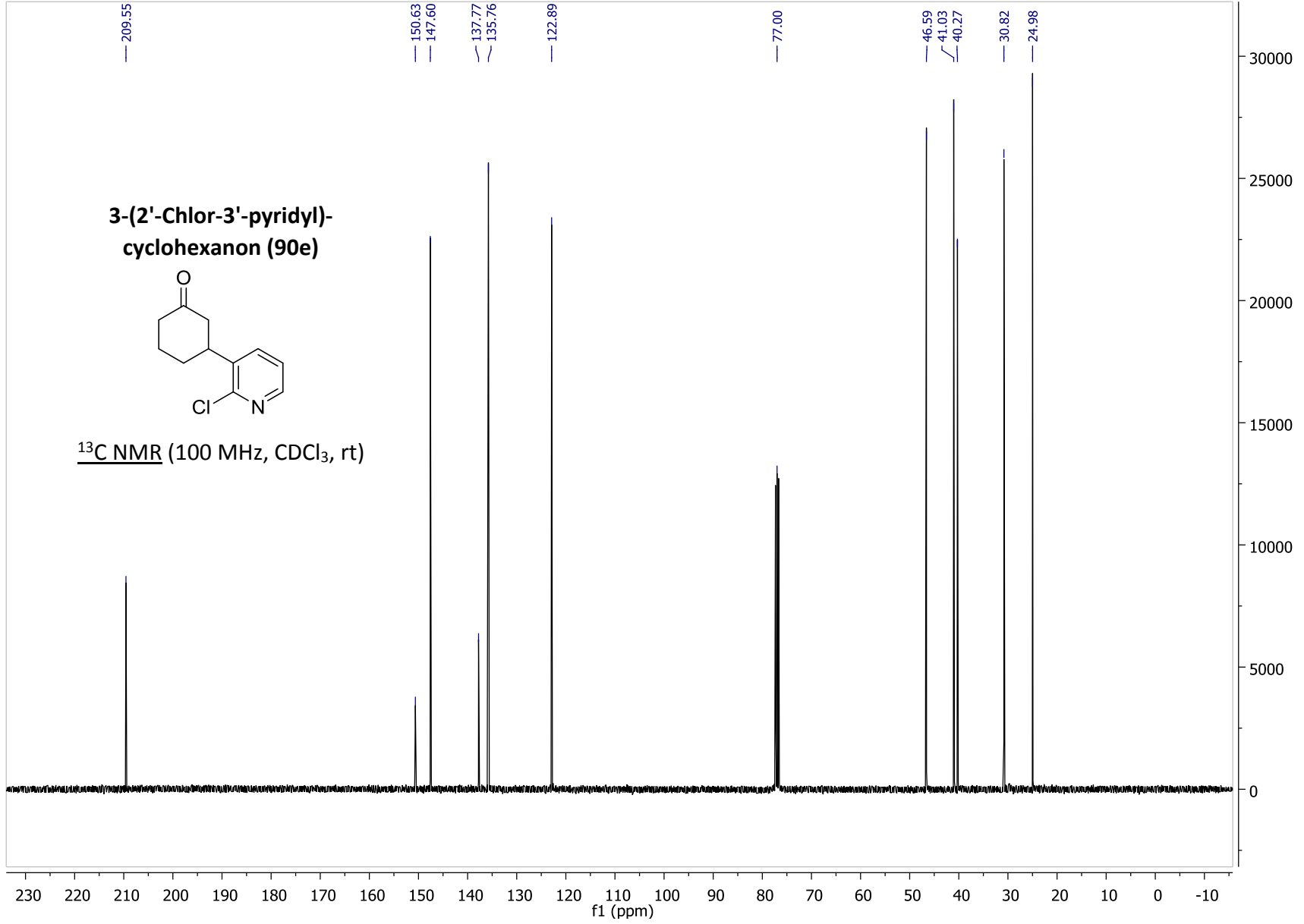
**3-(2'-Methoxy-3'-pyridyl)-
cyclohexanon (90d)**



Chirale GC (Starttemperatur
50 °C; von 50 °C bis 100 °C:
Heizrate 2.0°C/min; von 100 °C
bis 160 °C: Heizrate 0.5°C/min)

94%ee (-)-**90d** mit EtO-galacto-
enoPhos (*ps-ent-62a*)



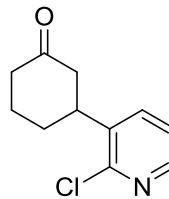


FID1 B, (SIM-CHECKOUT\FID-TESTMIX001.D)

pA
28
26
24
22
20
18
16
14
12
10

139.757

**3-(2'-Chlor-3'-pyridyl)-
cyclohexanon (90e)**



Chirale GC (Starttemperatur
50 °C; von 50 °C bis 100 °C:
Heizrate 2.0°C/min; von 100 °C
bis 200 °C: Heizrate 0.5°C/min)

Racemat

143.441

137 138 139 140 141 142 143 144 145 min

FID1 B, (SIM-CHECKOUT\FID-TESTMIX001.D)

pA

17

16

15

14

13

12

11

138

139

140

141

142

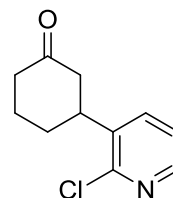
143

144

min

139.775

**3-(2'-Chlor-3'-pyridyl)-
cyclohexanon (90e)**



Chirale GC (Starttemperatur
50 °C; von 50 °C bis 100 °C:
Heizrate 2.0°C/min; von 100 °C
bis 200 °C: Heizrate 0.5°C/min)

58%ee (+)-**90e** mit
H-*fuco*-enoPhos (**86**)

143.548

FID1 B, (SIM-CHECKOUT\FID-TESTMIX001.D)

pA

18

16

14

12

10

138

139

140

141

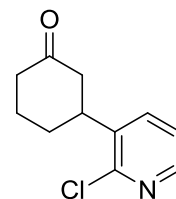
142

143

144

min

**3-(2'-Chlor-3'-pyridyl)-
cyclohexanon (90e)**



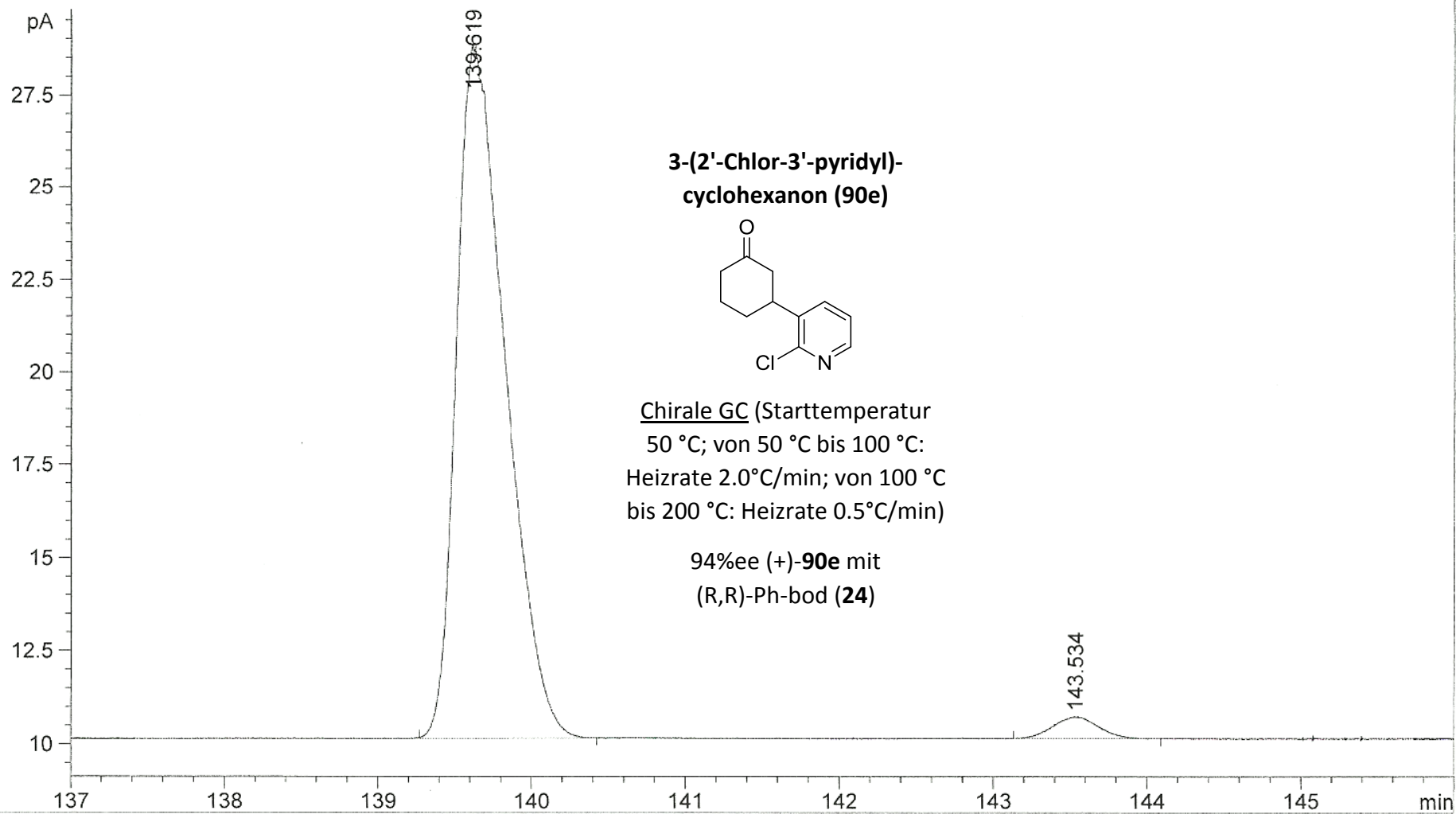
Chirale GC (Starttemperatur
50 °C; von 50 °C bis 100 °C:
Heizrate 2.0°C/min; von 100 °C
bis 200 °C: Heizrate 0.5°C/min)

66%ee (-)-**90e** mit
H-galacto-enoPhos (ps-ent-62b)

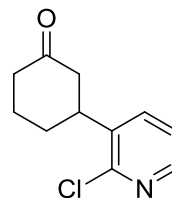
139.813

143.448

FID1 B, (SIM-CHECKOUT\SIG20776.D)

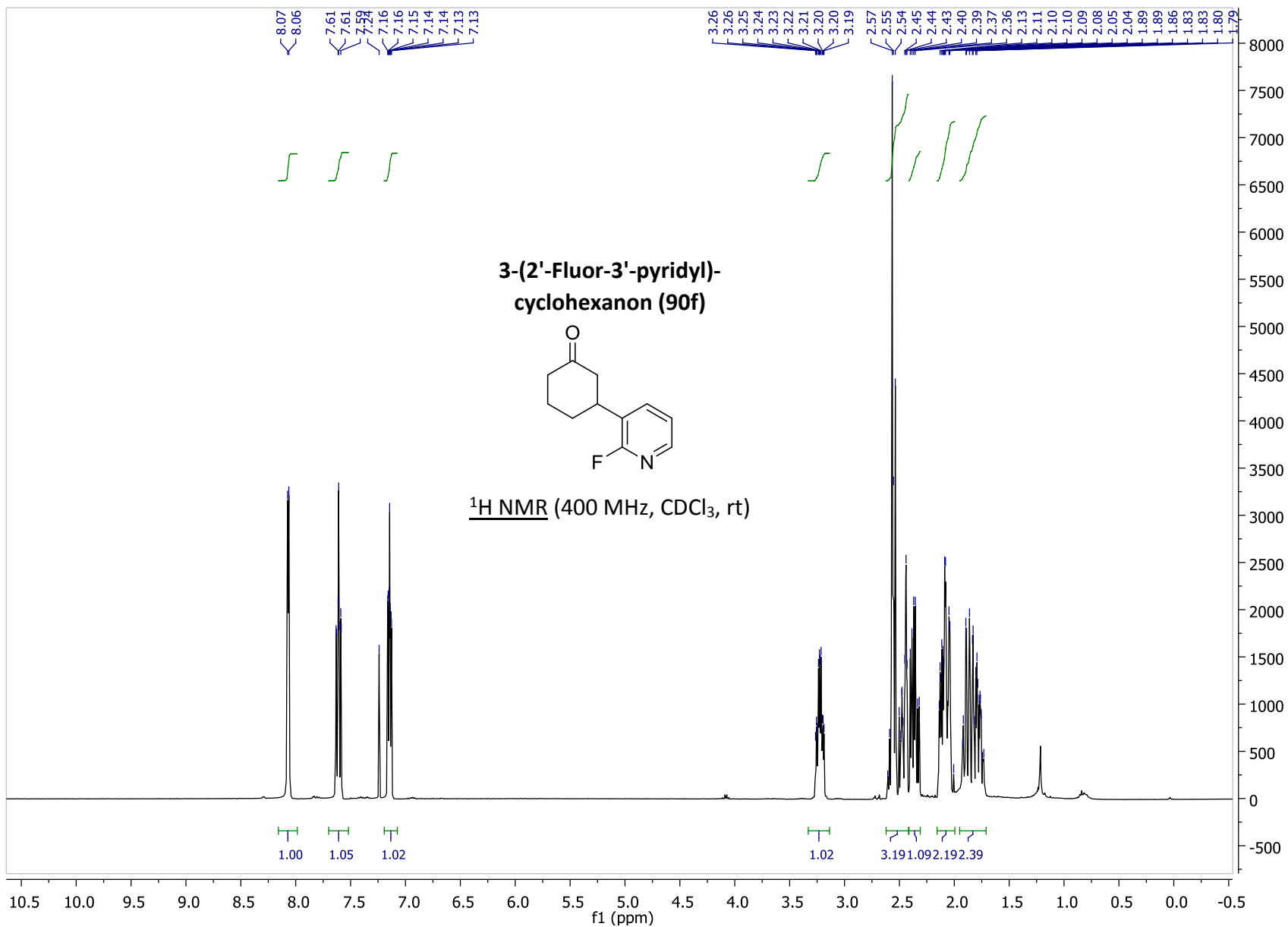


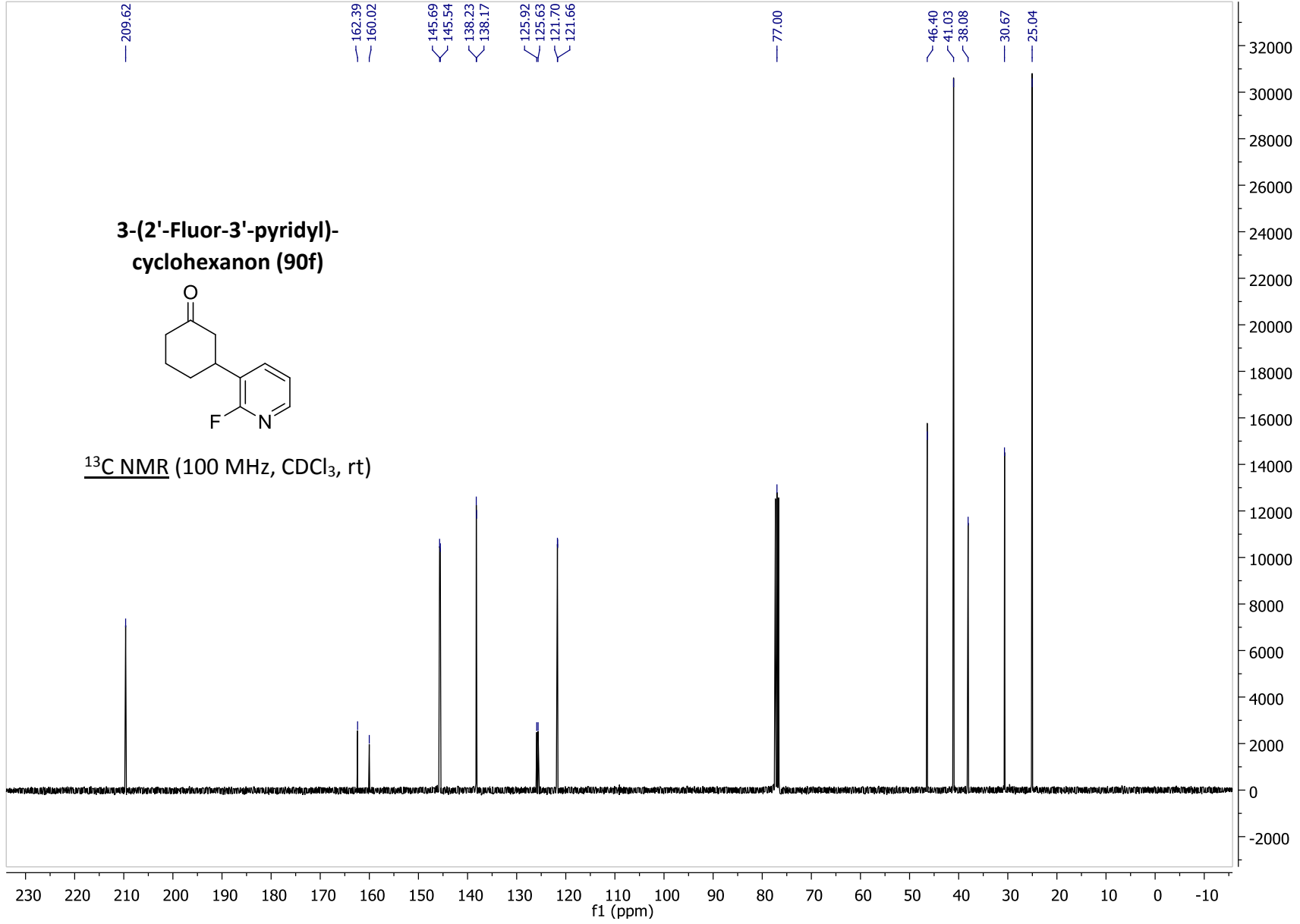
**3-(2'-Chlor-3'-pyridyl)-
cyclohexanon (90e)**



Chirale GC (Starttemperatur
50 °C; von 50 °C bis 100 °C:
Heizrate 2.0°C/min; von 100 °C
bis 200 °C: Heizrate 0.5°C/min)

94%ee (+)-**90e** mit
(R,R)-Ph-bod (**24**)





FID1 B, (SIM-CHECKOUTFID-TESTMIX001.D)

pA

24

22

20

18

16

14

12

10

107

108

109

110

111

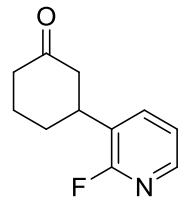
112

113

114

min

**3-(2'-Fluor-3'-pyridyl)-
cyclohexanon (90f)**

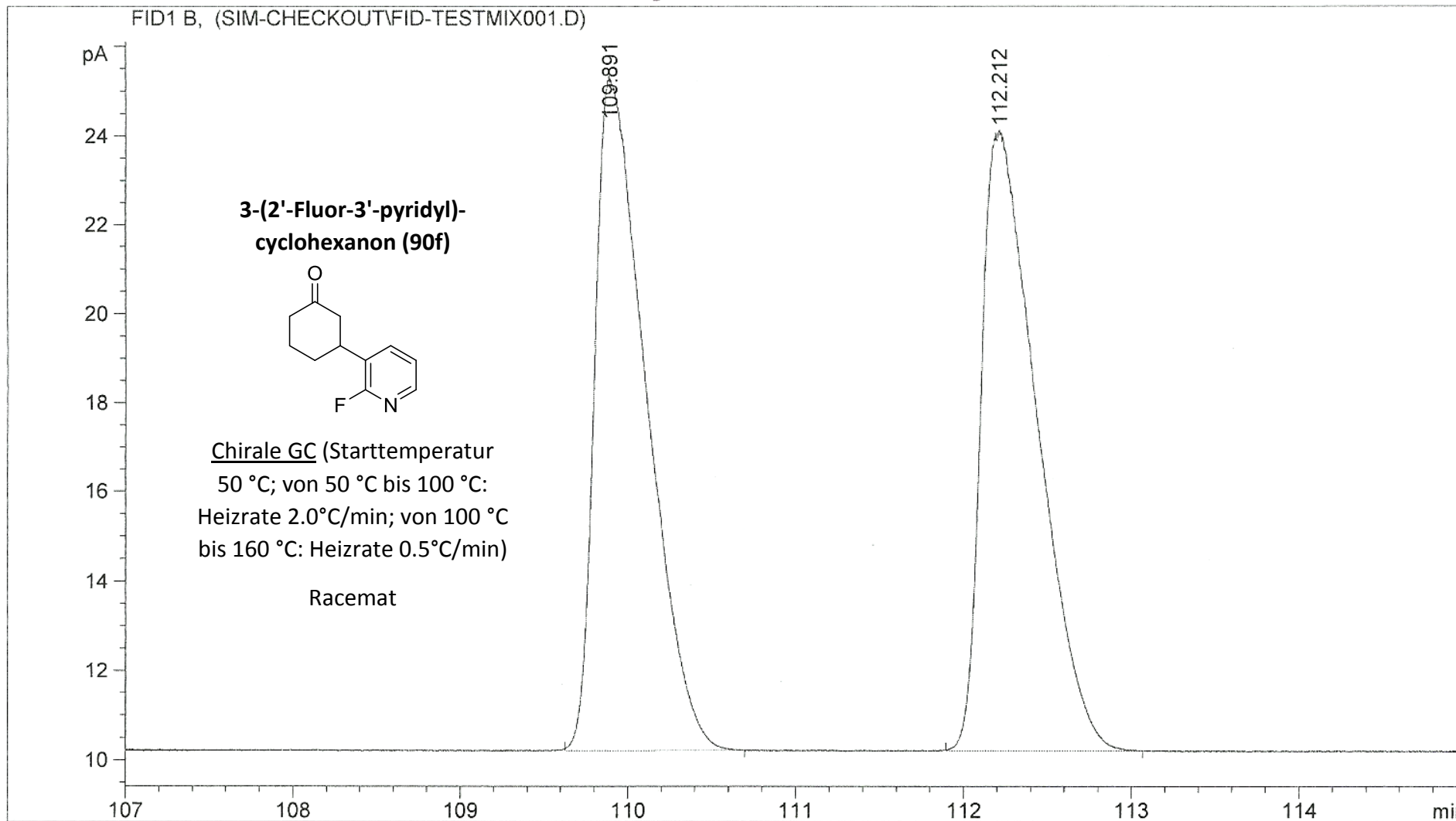


Chirale GC (Starttemperatur
50 °C; von 50 °C bis 100 °C:
Heizrate 2.0°C/min; von 100 °C
bis 160 °C: Heizrate 0.5°C/min)

Racemat

109.891

112.212



FID1 B, (SIM-CHECKOUT\FID-TESTMIX001.D)

pA

28

26

24

22

20

18

16

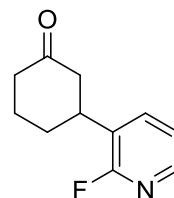
14

12

10

109.882

**3-(2'-Fluor-3'-pyridyl)-
cyclohexanon (90f)**



Chirale GC (Starttemperatur
50 °C; von 50 °C bis 100 °C:
Heizrate 2.0°C/min; von 100 °C
bis 160 °C: Heizrate 0.5°C/min)

88%ee (+)-**90f** mit
H-*fuco*-enoPhos (**86**)

112.396

108

109

110

111

112

113

min

FID1 B, (SIM-CHECKOUT\FID-TESTMIX001.D)

pA

16

15

14

13

12

11

109

110

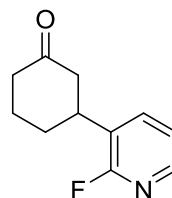
111

112

113

min

**3-(2'-Fluor-3'-pyridyl)-
cyclohexanon (90f)**

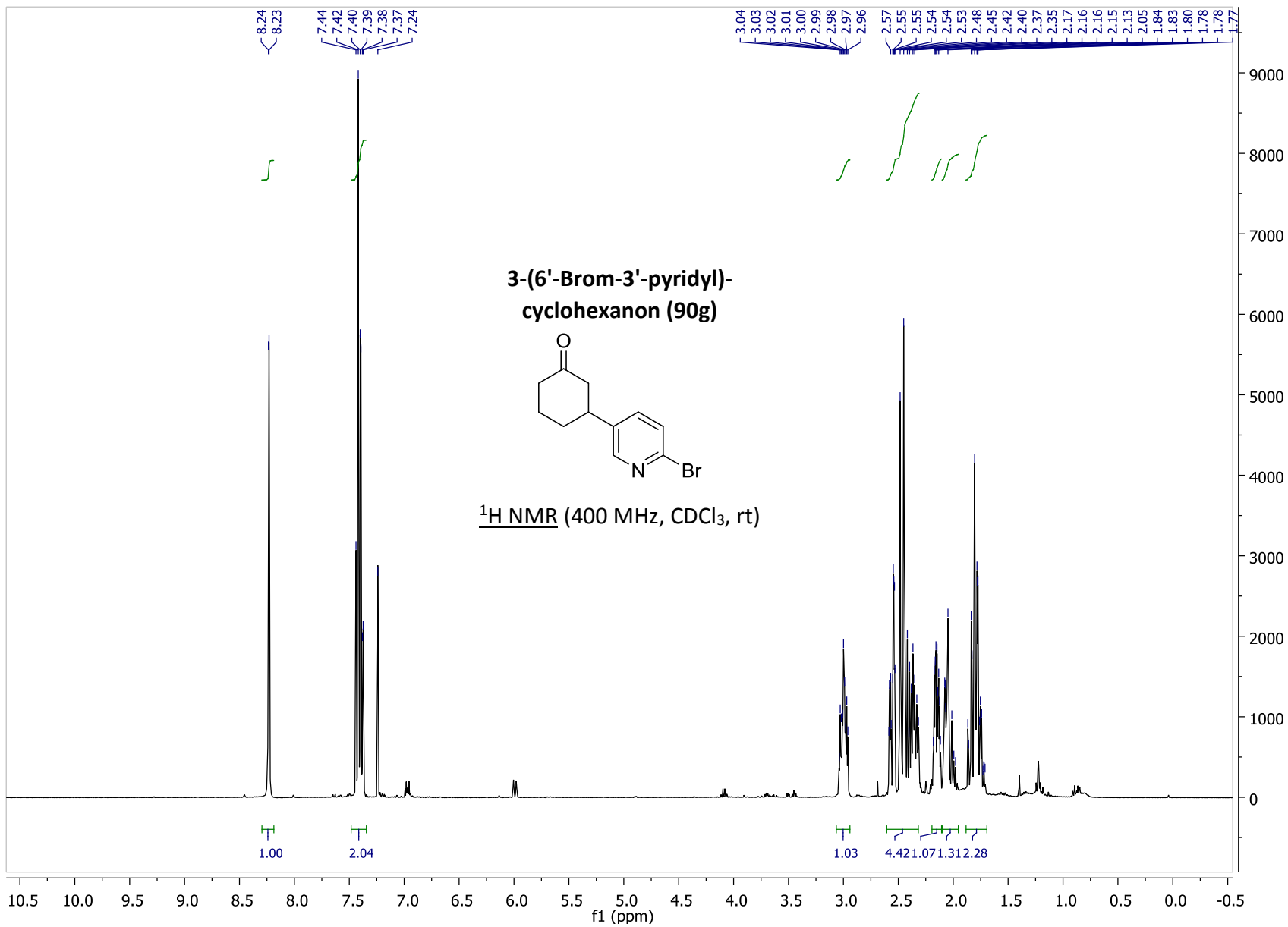


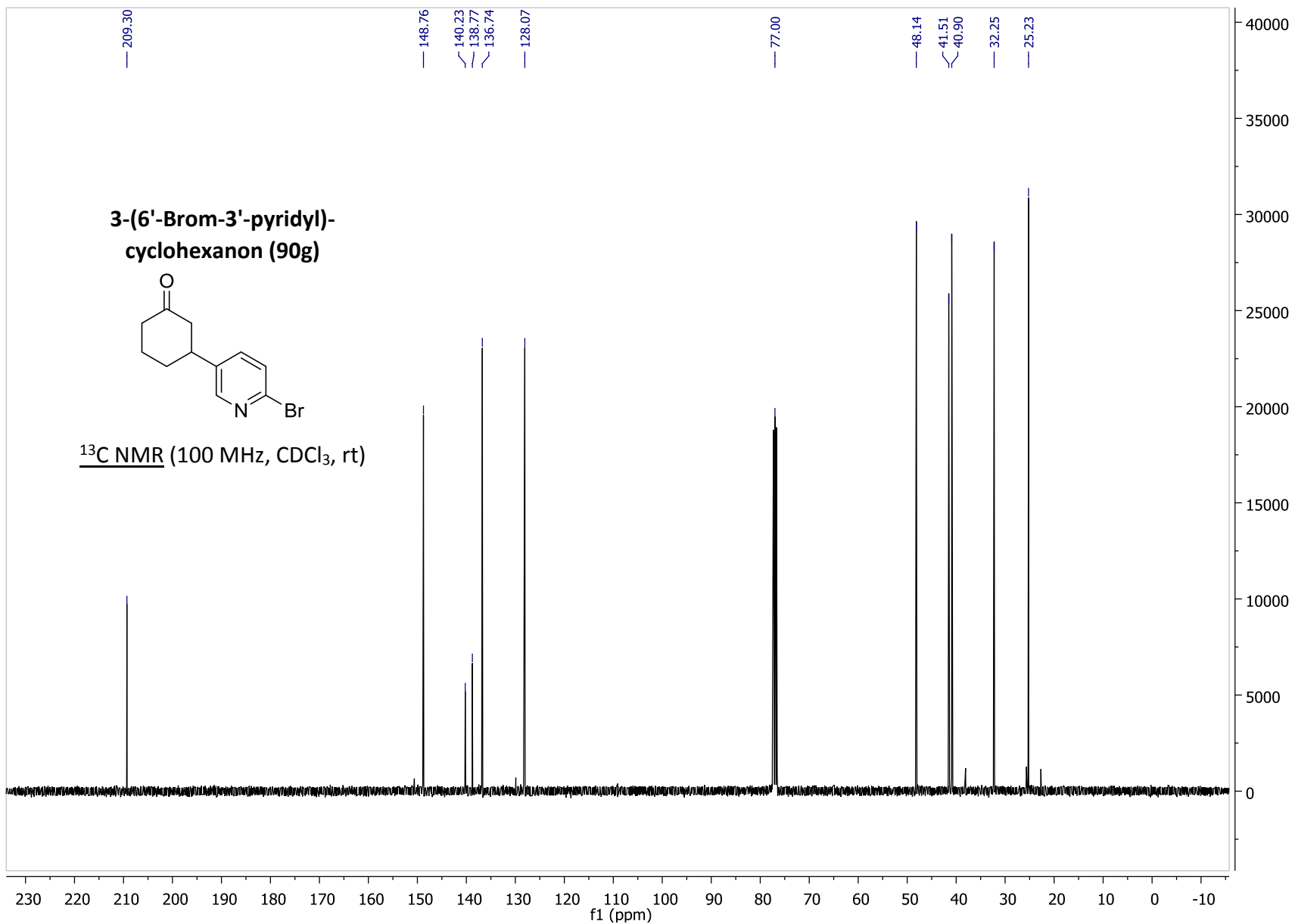
Chirale GC (Starttemperatur
50 °C; von 50 °C bis 100 °C:
Heizrate 2.0°C/min; von 100 °C
bis 160 °C: Heizrate 0.5°C/min)

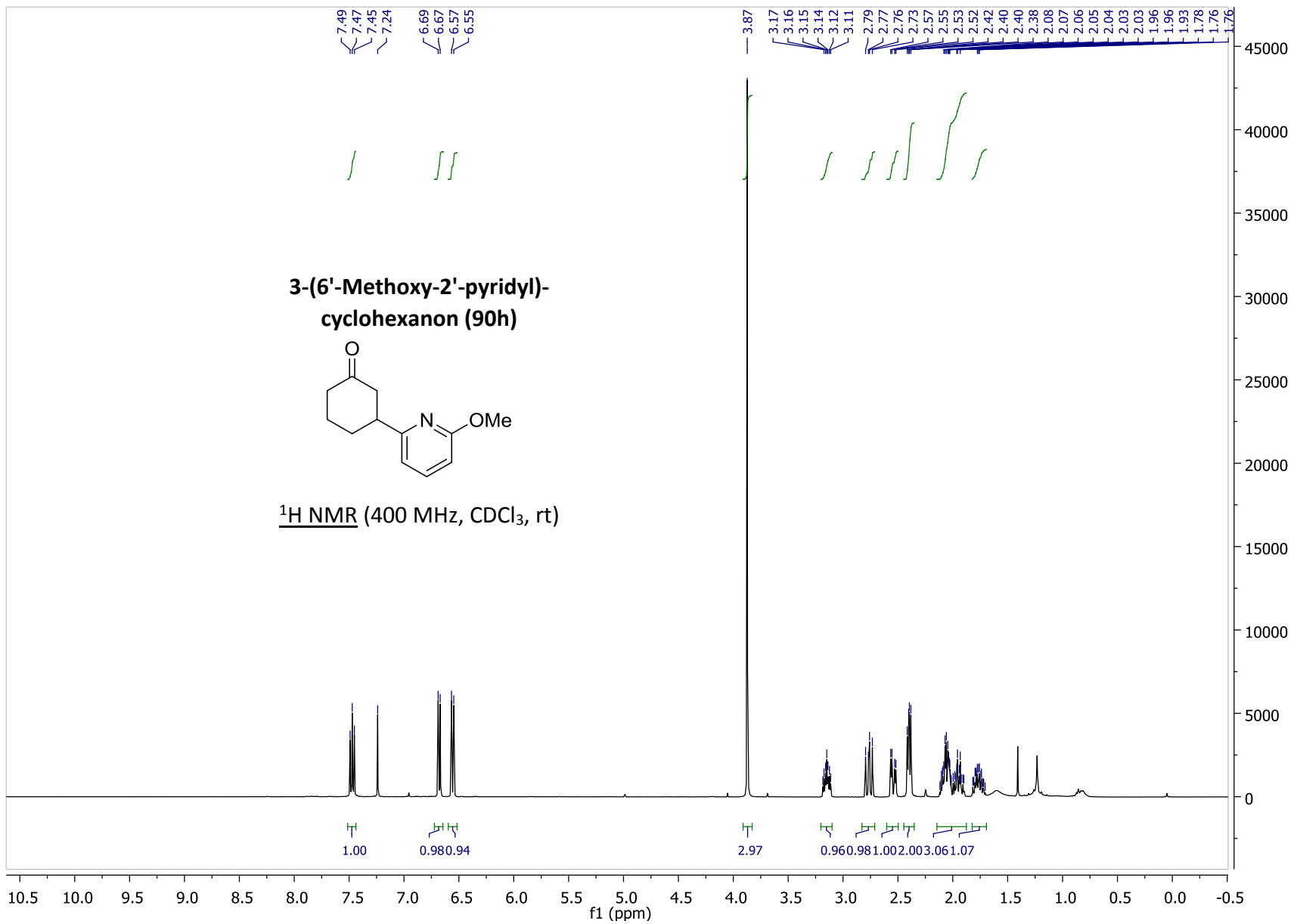
93%ee (-)-**90f** mit
H-galacto-enoPhos (*ps-ent*-**62b**)

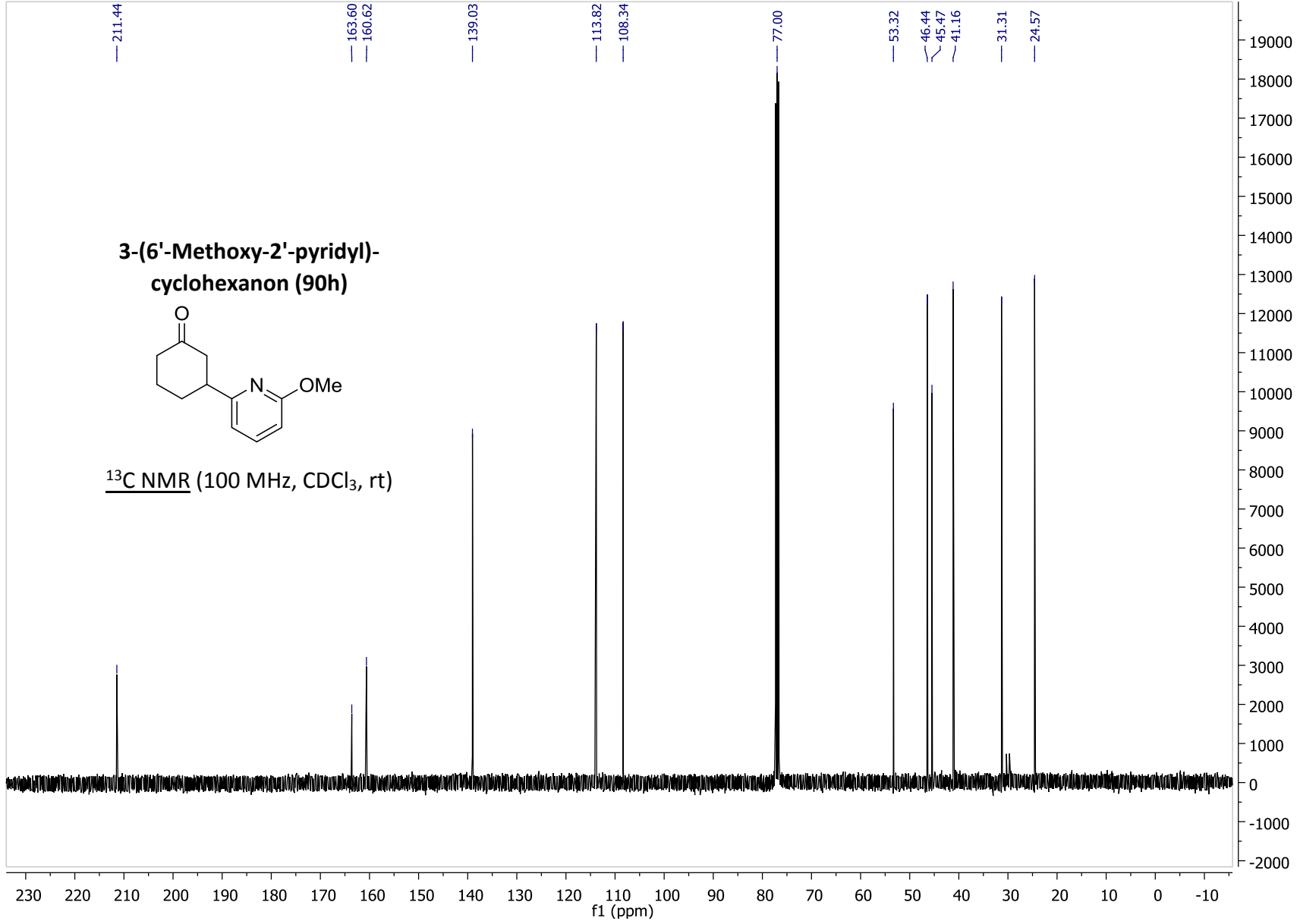
110.111

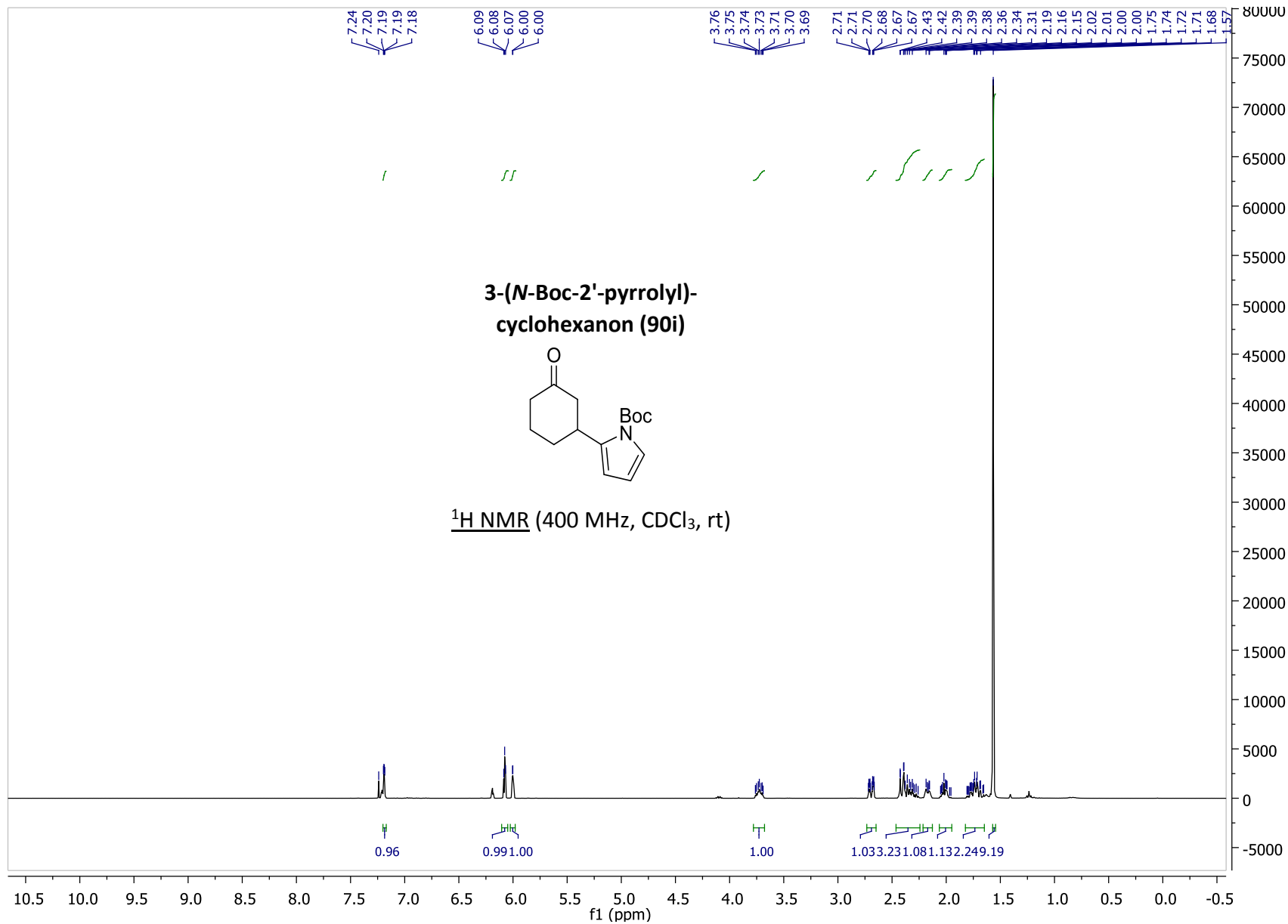
112.330

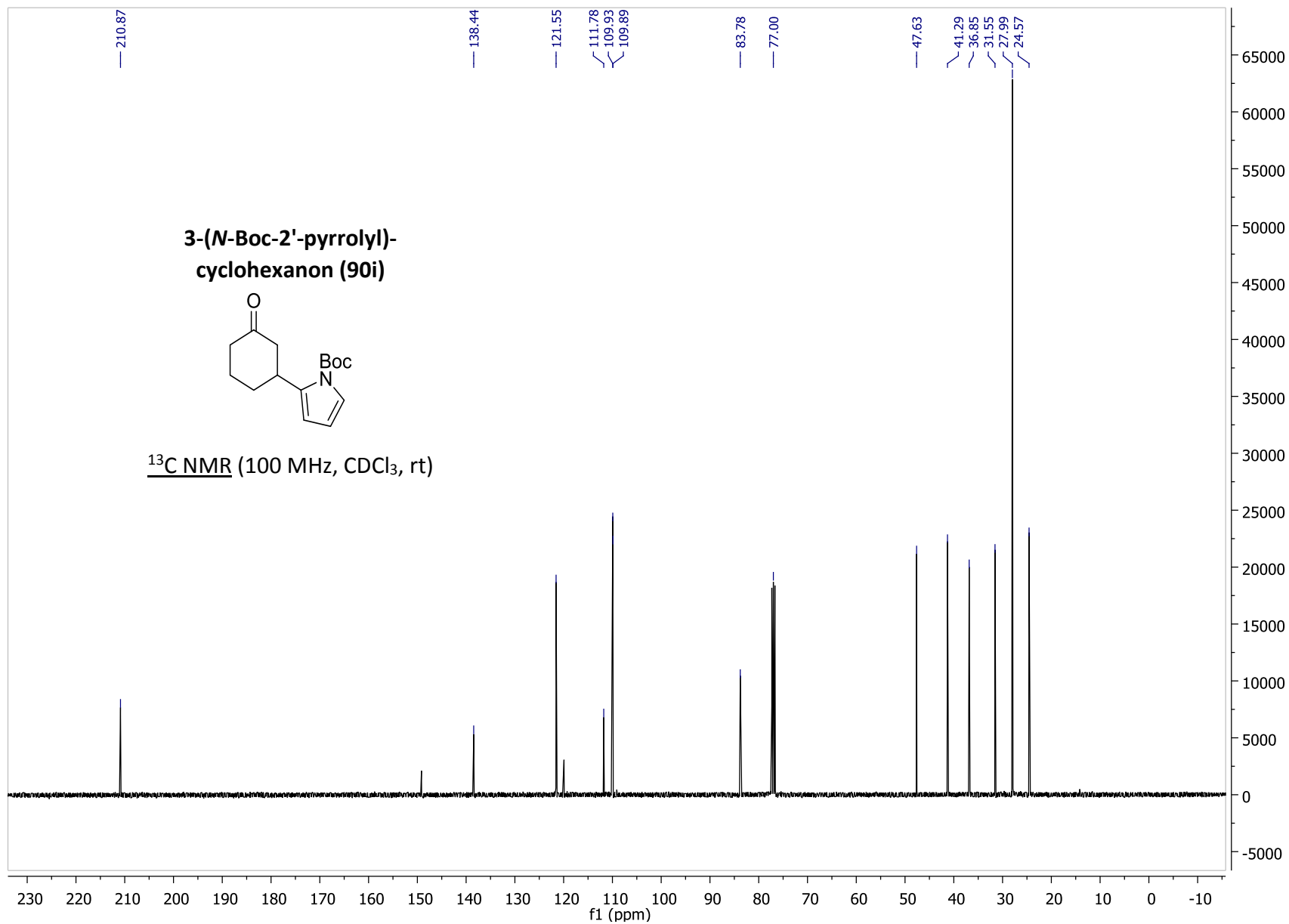












FID1 B, (SIM-CHECKOUT\FID-TESTMIX001.D)

pA

20

18

16

14

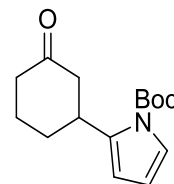
12

10

140.759

146.821

**3-(*N*-Boc-2'-pyrrolyl)-
cyclohexanon (90i)**



Chirale GC (Starttemperatur
50 °C; von 50 °C bis 100 °C:
Heizrate 2.0°C/min; von 100 °C
bis 175 °C: Heizrate 0.5°C/min)

Racemat

136

138

140

142

144

146

148

150

min

FID1 B, (SIM-CHECKOUT\SIG20774.D)

pA

20

18

16

14

12

10

136

138

140

142

144

146

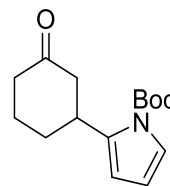
148

150

min

140.616

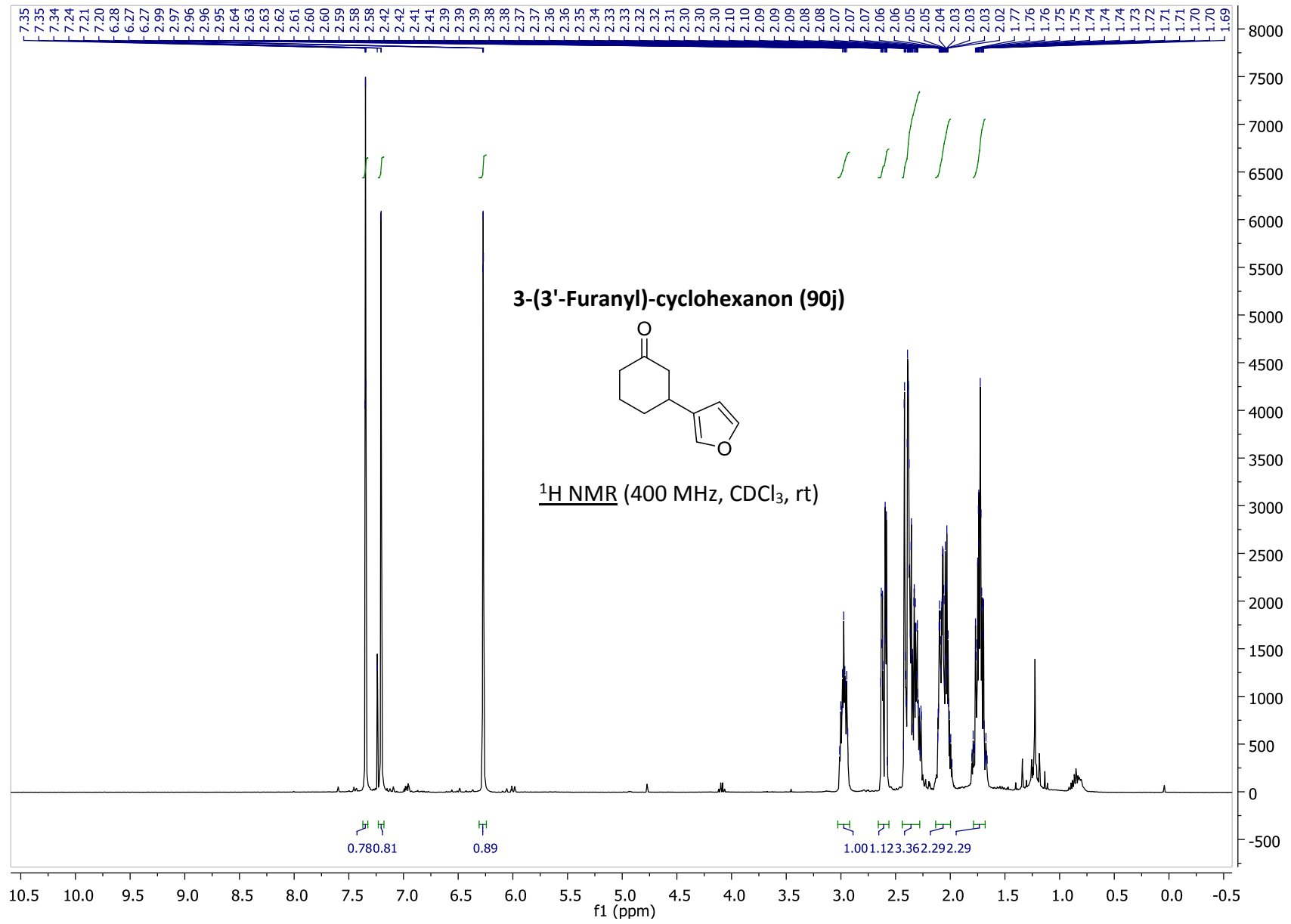
**3-(N-Boc-2'-pyrrolyl)-
cyclohexanon (90i)**



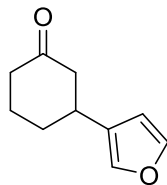
Chirale GC (Starttemperatur
50 °C; von 50 °C bis 100 °C:
Heizrate 2.0°C/min; von 100 °C
bis 175 °C: Heizrate 0.5°C/min)

83%ee (-)-**90i** mit
(*R,R*)-Ph-bod (**24**)

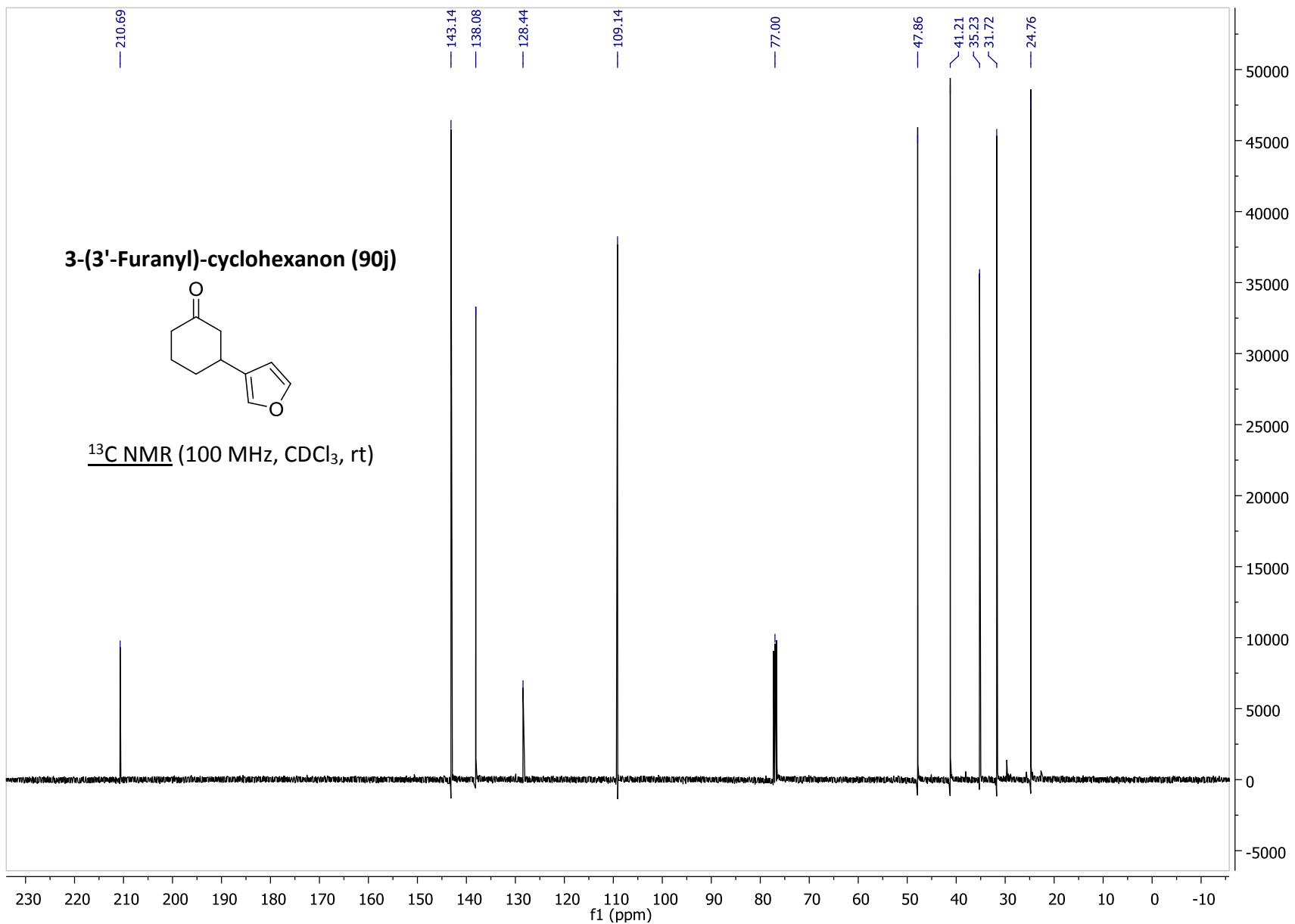
146.800



3-(3'-Furanyl)-cyclohexanon (90j)



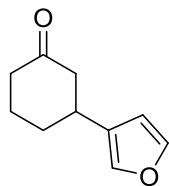
¹³C NMR (100 MHz, CDCl₃, rt)



FID1 B, (SIM-CHECKOUT\FID-TESTMIX001.D)

pA

3-(3'-Furanyl)-cyclohexanon (90j)



Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 0.5°C/min)

Racemat

67.461

69.094

10

11

12

13

14

15

16

65

66

67

68

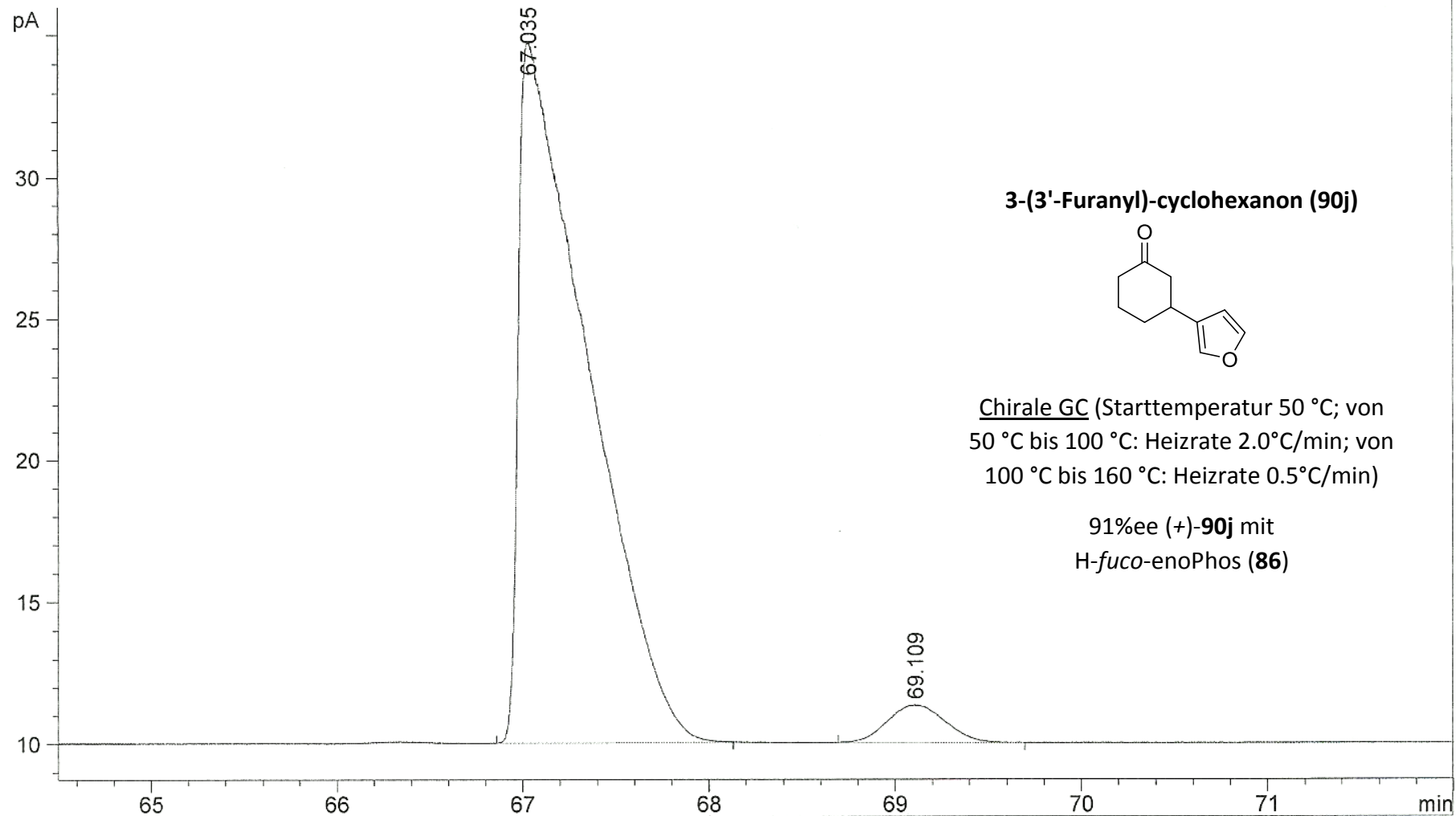
69

70

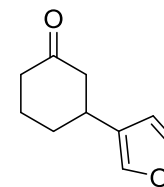
71

min

FID1 B, (SIM-CHECKOUT\FID-TESTMIX001.D)



3-(3'-Furanyl)-cyclohexanon (90j)



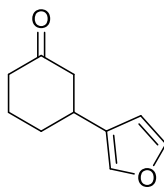
Chirale GC (Starttemperatur 50 °C; von 50 °C bis 100 °C: Heizrate 2.0°C/min; von 100 °C bis 160 °C: Heizrate 0.5°C/min)

91%ee (+)-**90j** mit
H-*fuco*-enoPhos (**86**)

FID1 B, (SIM-CHECKOUT\FID-TESTMIX001.D)

pA

3-(3'-Furanyl)-cyclohexanon (90j)



Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 0.5°C/min)

93%ee (-)-**90j** mit
H-galacto-enoPhos (*ps-ent-62b*)

15

10

65

66

67

68

69

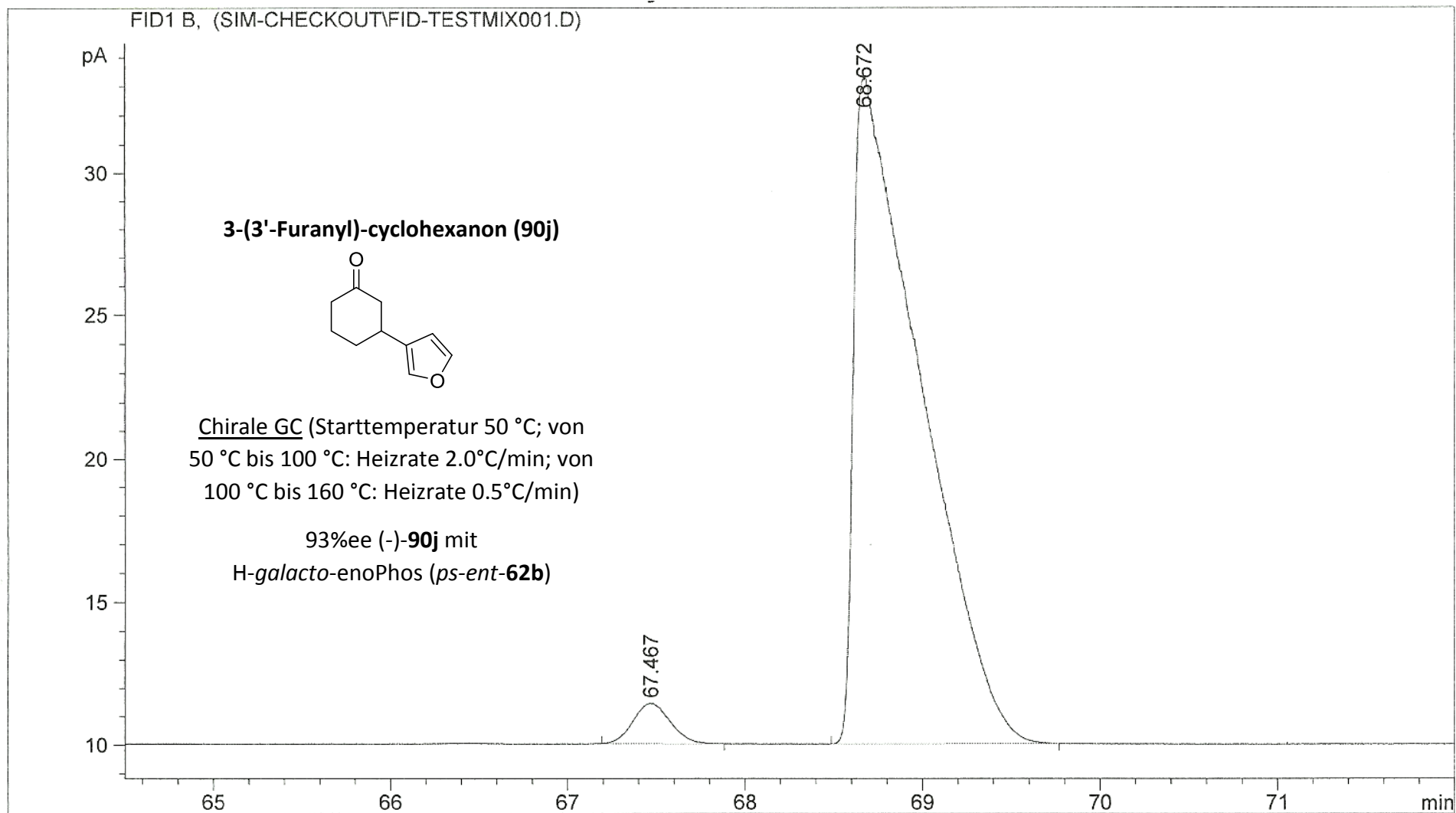
70

71

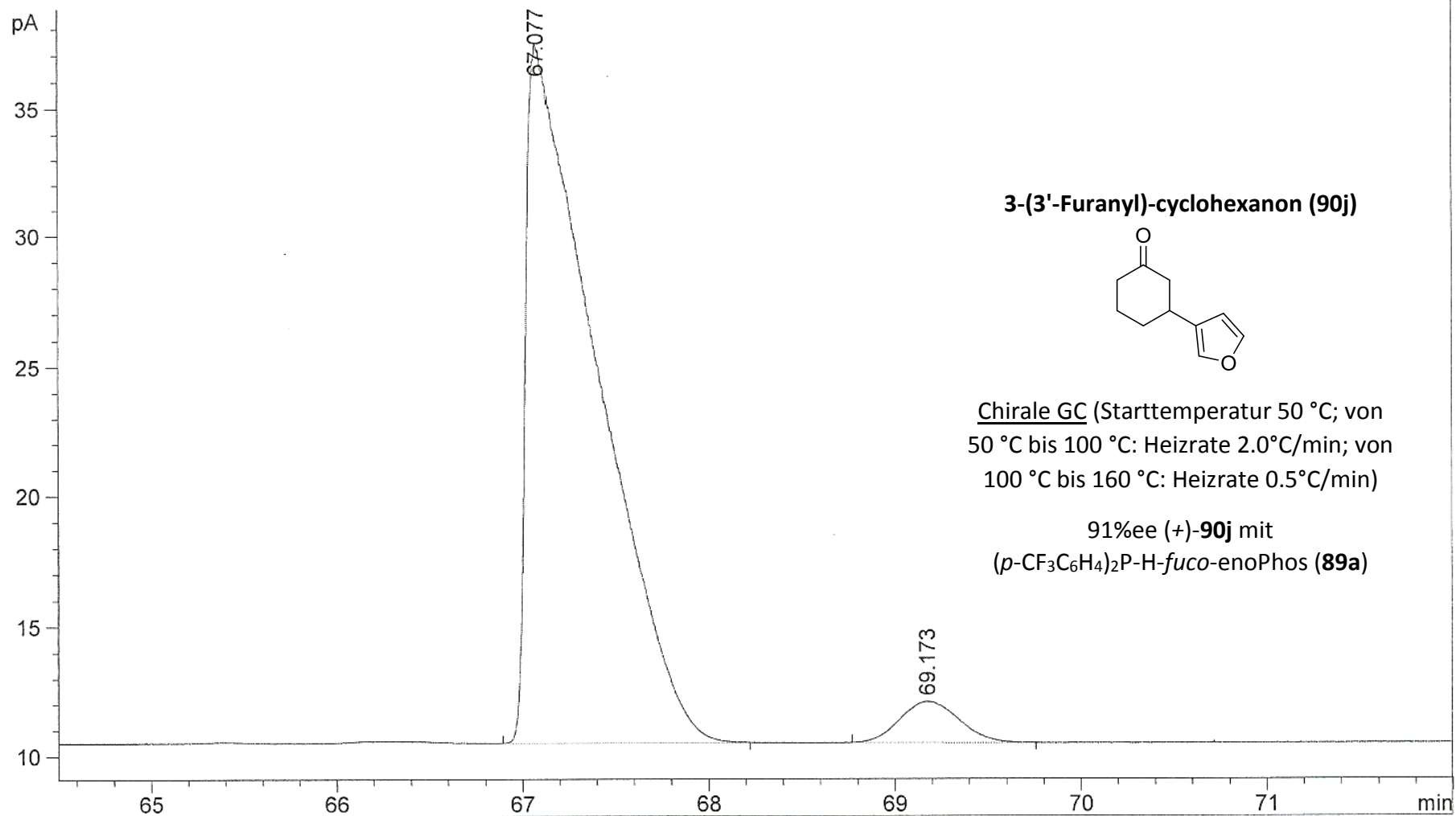
min

67.467

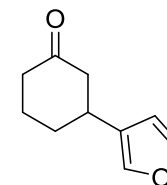
68.672



FID1 B, (SIM-CHECKOUT\SIG20708.D)



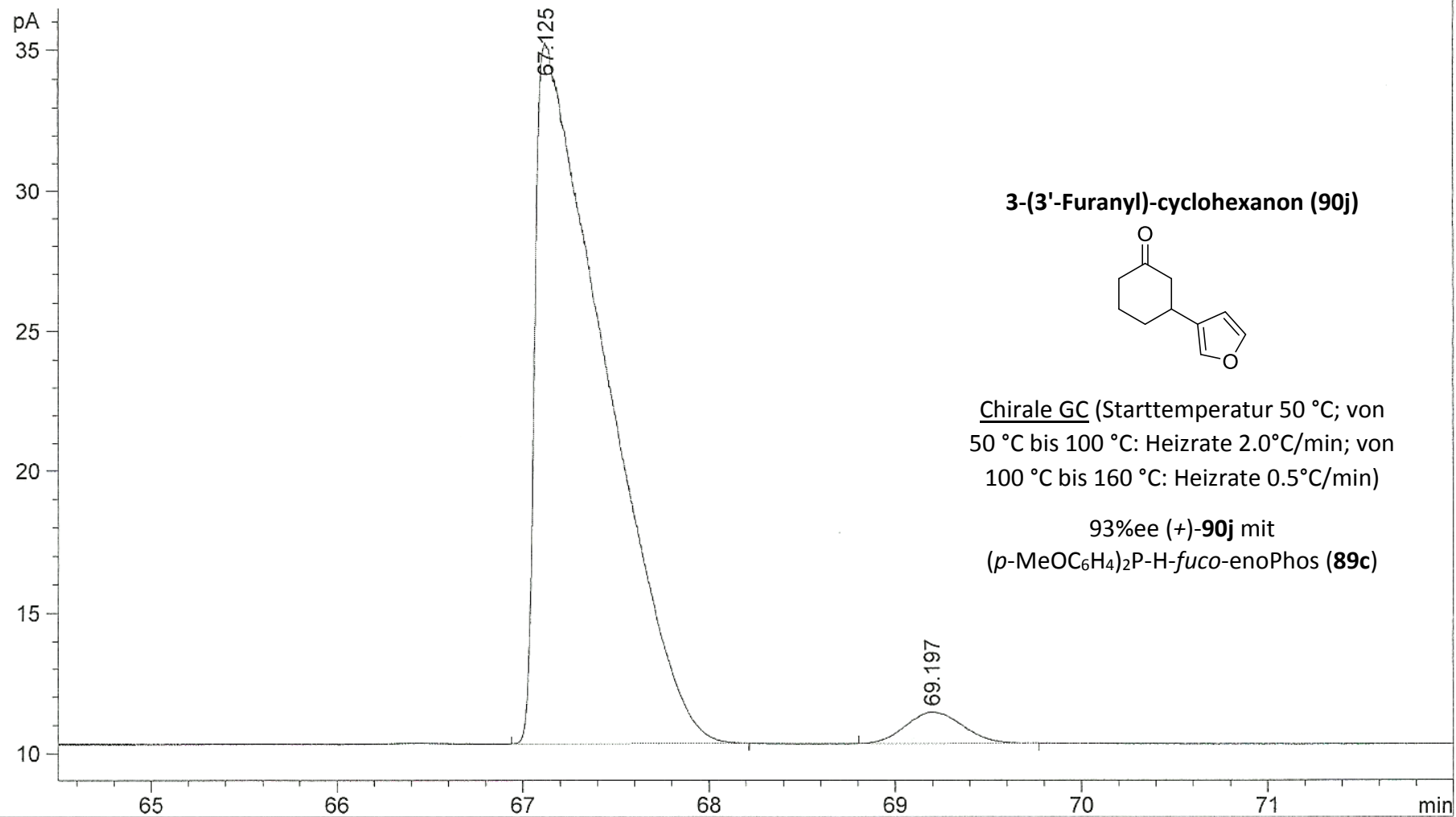
3-(3'-Furanyl)-cyclohexanon (90j)



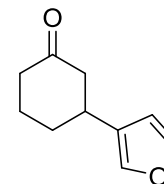
Chirale GC (Starttemperatur 50 °C; von 50 °C bis 100 °C: Heizrate 2.0°C/min; von 100 °C bis 160 °C: Heizrate 0.5°C/min)

91%ee (+)-**90j** mit
(*p*-CF₃C₆H₄)₂P-H-*fuco*-enoPhos (**89a**)

FID1 B, (SIM-CHECKOUT\SIG20709.D)



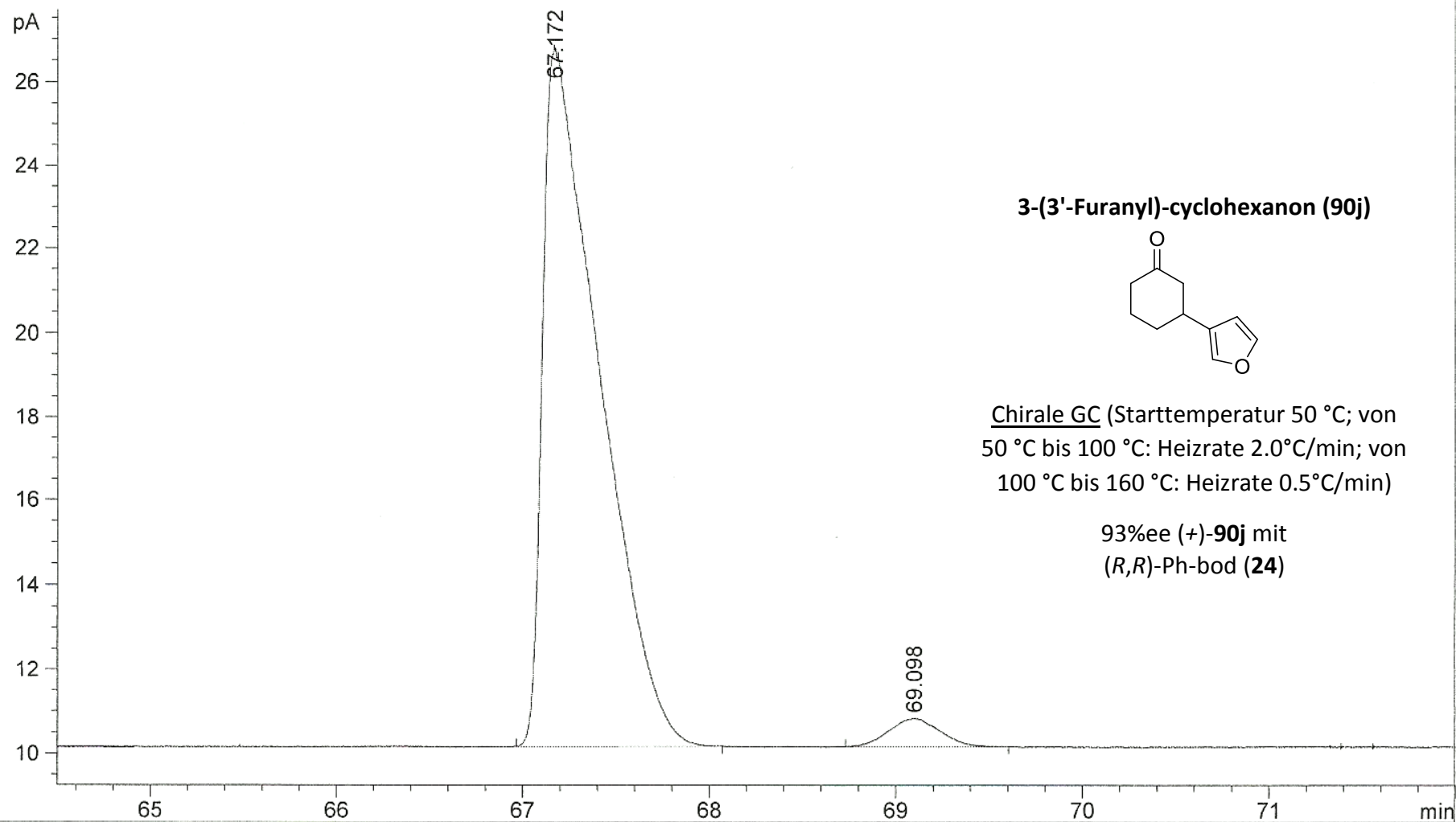
3-(3'-Furanyl)-cyclohexanon (90j)



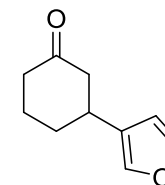
Chirale GC (Starttemperatur 50 °C; von 50 °C bis 100 °C: Heizrate 2.0°C/min; von 100 °C bis 160 °C: Heizrate 0.5°C/min)

93%ee (+)-**90j** mit
(*p*-MeOC₆H₄)₂P-H-*fuco*-enoPhos (**89c**)

FID1 B, (SIM-CHECKOUT\SIG20773.D)



3-(3'-Furanyl)-cyclohexanon (90j)



Chirale GC (Starttemperatur 50 °C; von 50 °C bis 100 °C: Heizrate 2.0°C/min; von 100 °C bis 160 °C: Heizrate 0.5°C/min)

93%ee (+)-**90j** mit
(*R,R*)-Ph-bod (**24**)

FID1 B, (SIM-CHECKOUT\SIG20772.D)

pA

16

15

14

13

12

11

10

60

65

70

75

80

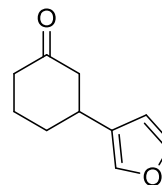
85

90

95

min

3-(3'-Furanyl)-cyclohexanon (90j)



Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 0.5°C/min)

91%ee (+)-**90j** mit H-*fuco*-enoPhos (**86**)
und Phenylboronsäure-MIDA-Ester (**76a**)

67.487

69.165

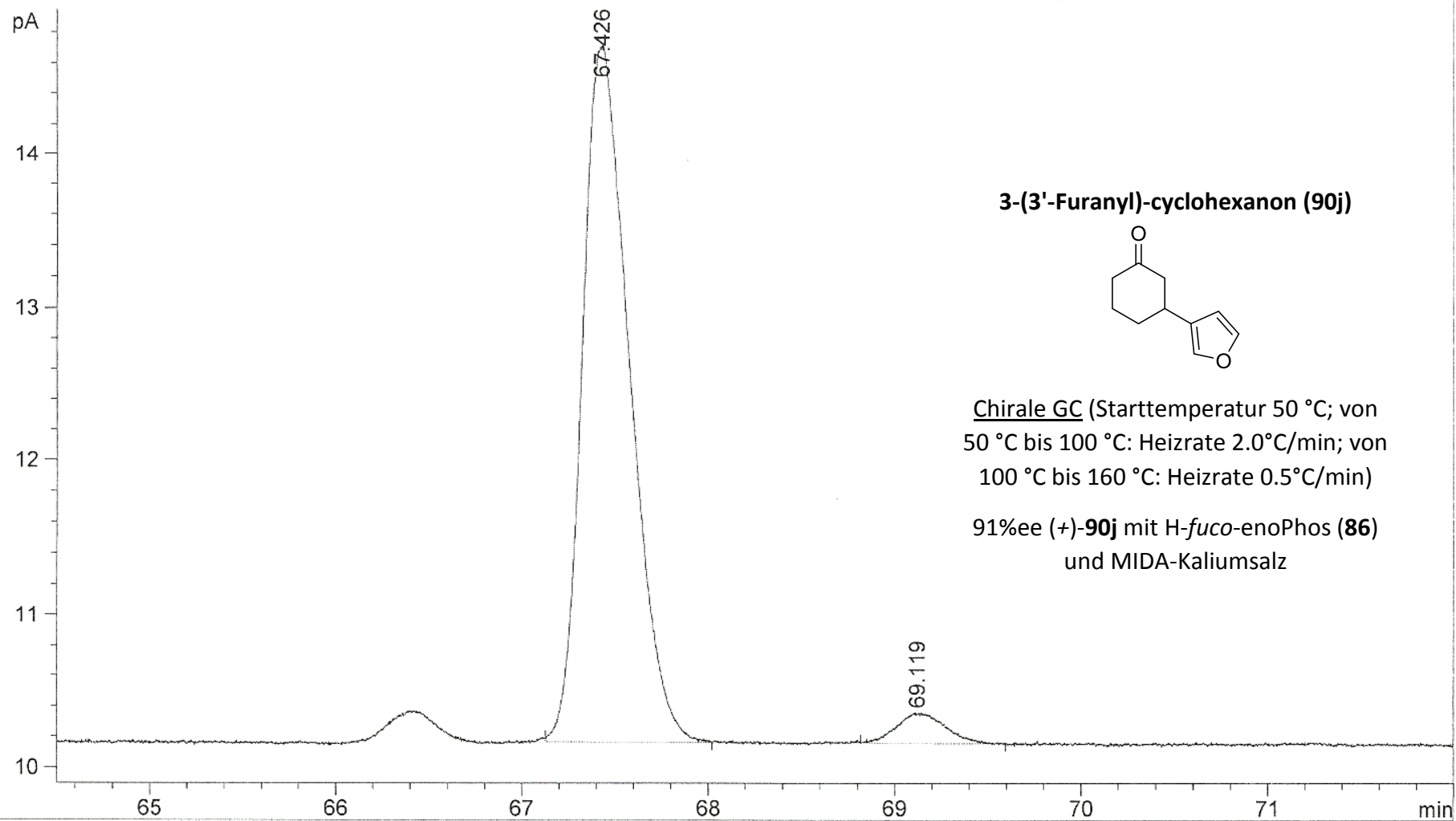
Area: 1.8823

95.206

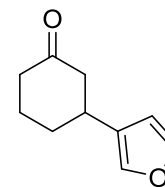
Area: 2.7221

96.383

FID1 B, (SIM-CHECKOUT\SIG20779.D)



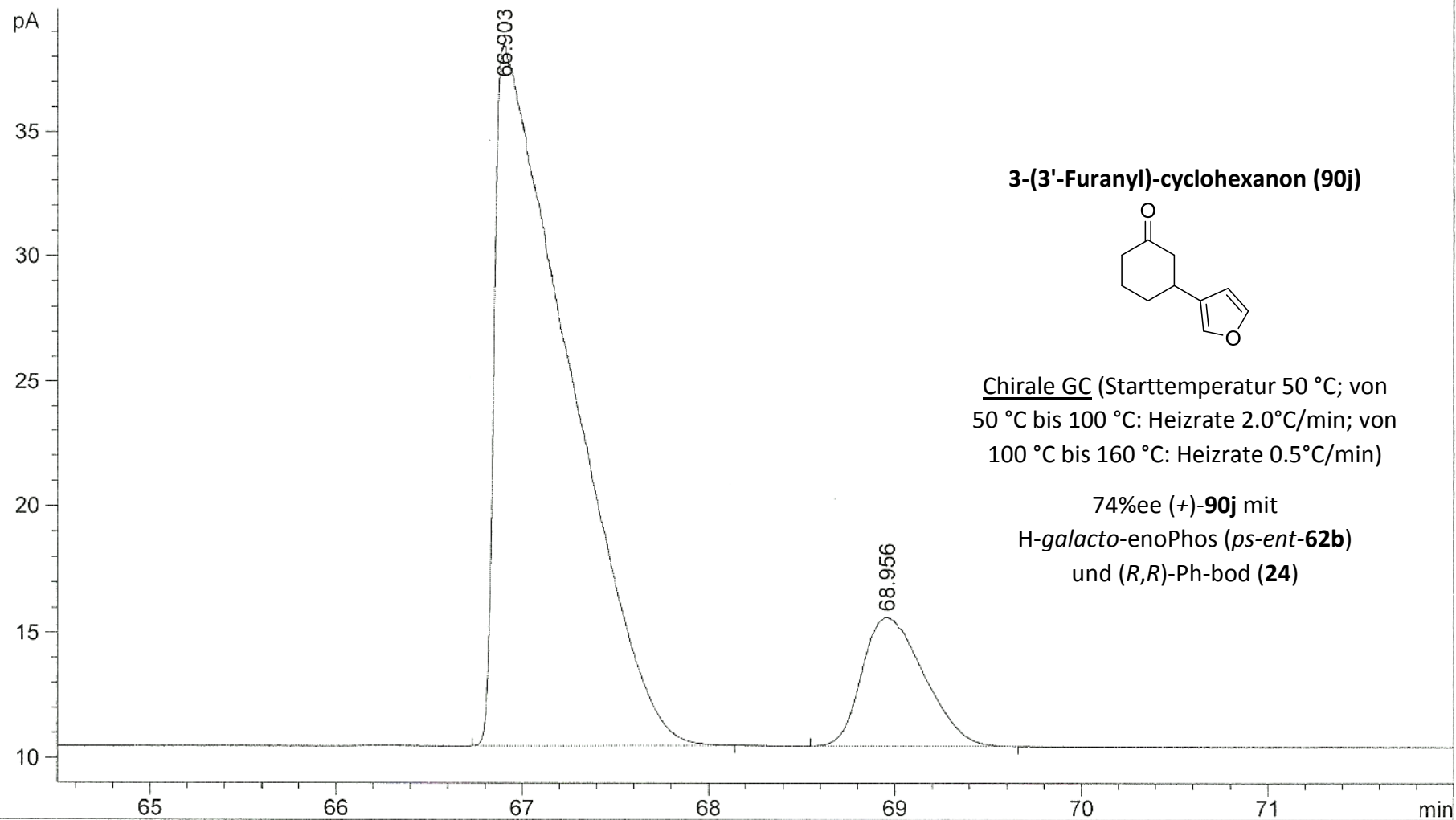
3-(3'-Furanyl)-cyclohexanon (90j)



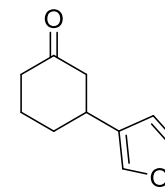
Chirale GC (Starttemperatur 50 °C; von 50 °C bis 100 °C: Heizrate 2.0°C/min; von 100 °C bis 160 °C: Heizrate 0.5°C/min)

91%ee (+)-**90j** mit H-*fuco*-enoPhos (**86**) und MIDA-Kaliumsalz

FID1 B, (SIM-CHECKOUT\SIG20785.D)

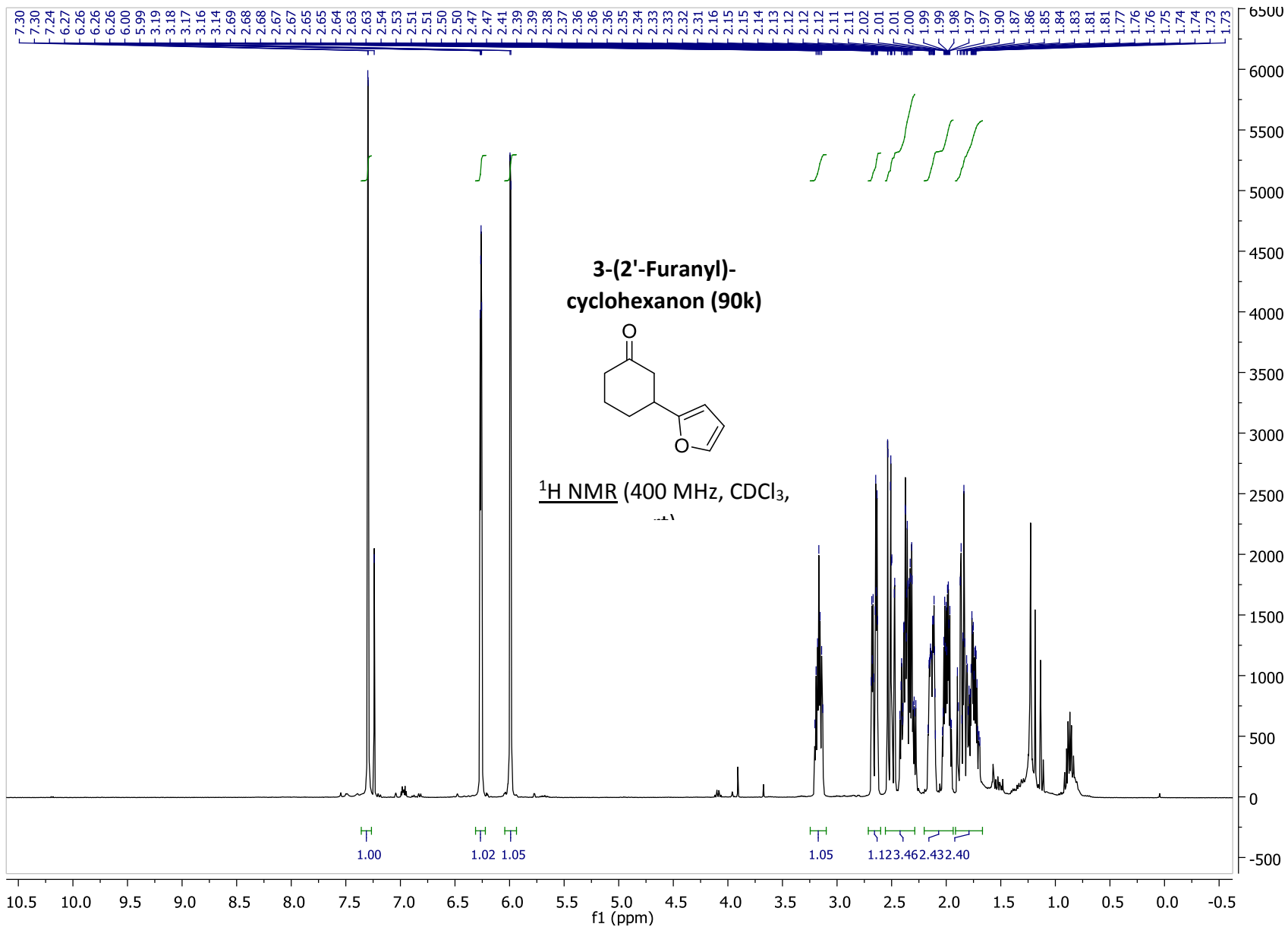


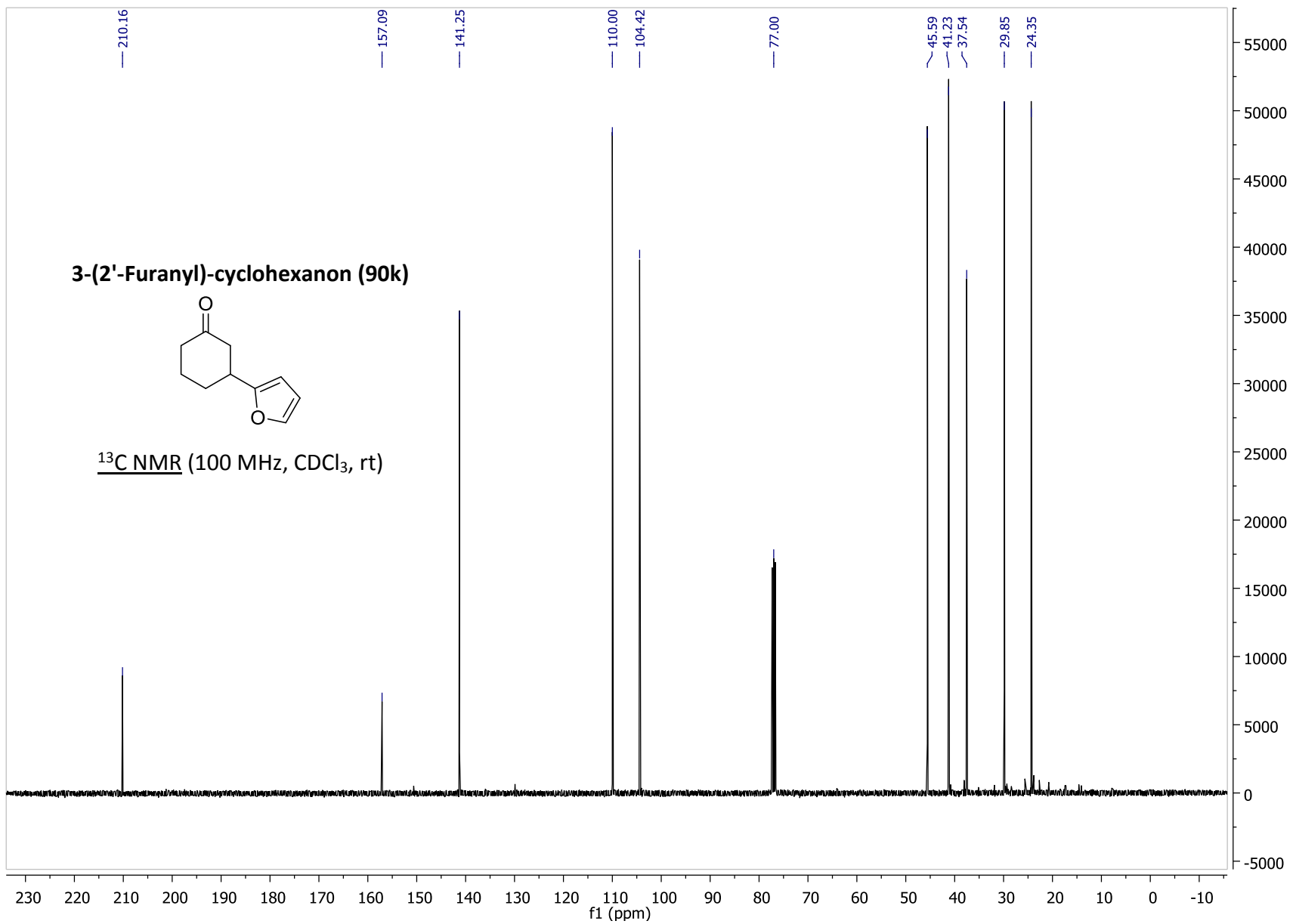
3-(3'-Furanyl)-cyclohexanon (90j)



Chirale GC (Starttemperatur 50 °C; von 50 °C bis 100 °C: Heizrate 2.0°C/min; von 100 °C bis 160 °C: Heizrate 0.5°C/min)

74%ee (+)-**90j** mit
H-galacto-enoPhos (*ps-ent-62b*)
und (*R,R*)-Ph-bod (**24**)





FID1 B, (SIM-CHECKOUT\FID-TESTMIX001.D)

pA

24

22

20

18

16

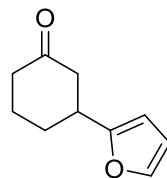
14

12

10

54.688

3-(2'-Furanyl)-cyclohexanon (90k)



Chirale GC (Starttemperatur 50 °C;

von 50 °C bis 100 °C: Heizrate

2.0°C/min; von 100 °C bis 160 °C:

Heizrate 0.5°C/min)

Racemat

57.347

53

54

55

56

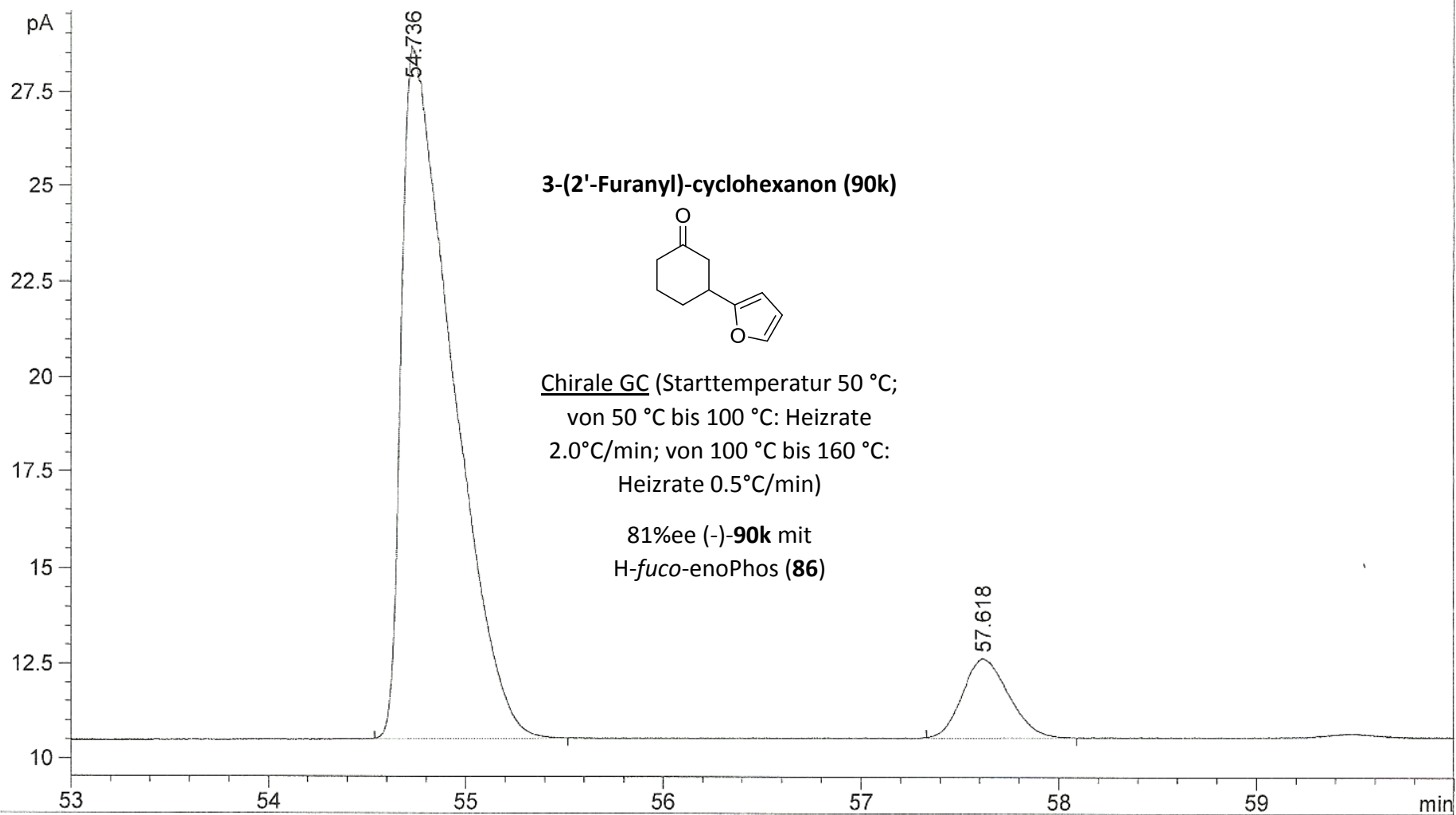
57

58

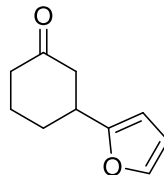
59

min

FID1 B, (SIM-CHECKOUT\FID-TESTMIX001.D)



3-(2'-Furanyl)-cyclohexanon (90k)



Chirale GC (Starttemperatur 50 °C;
von 50 °C bis 100 °C: Heizrate
2.0°C/min; von 100 °C bis 160 °C:
Heizrate 0.5°C/min)

81%ee (-)-**90k** mit
H-*fuco*-enoPhos (**86**)

FID1 B, (SIM-CHECKOUT\SIG20675.D)

pA

30

27.5

25

22.5

20

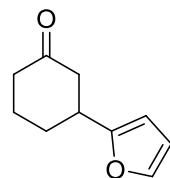
17.5

15

12.5

10

3-(2'-Furanyl)-cyclohexanon (90k)



Chirale GC (Starttemperatur
50 °C; von 50 °C bis 100 °C:
Heizrate 2.0°C/min; von 100 °C bis
160 °C: Heizrate 0.5°C/min)

90%ee (+)-**90k** mit
H-galacto-enoPhos (*ps-ent-62b*)

54.966

57.350

53

54

55

56

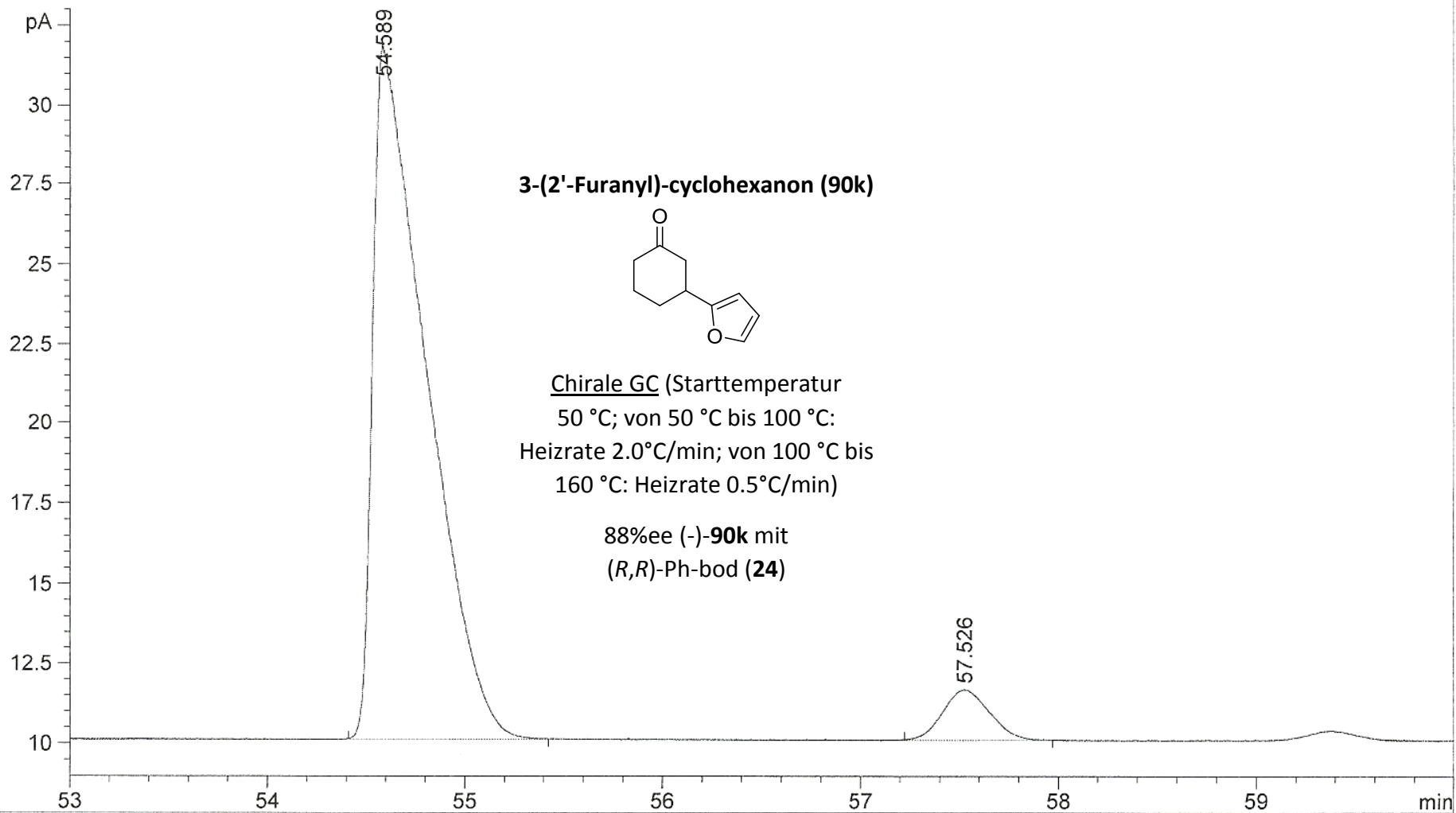
57

58

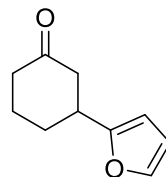
59

min

FID1 B, (SIM-CHECKOUT\SIG20775.D)

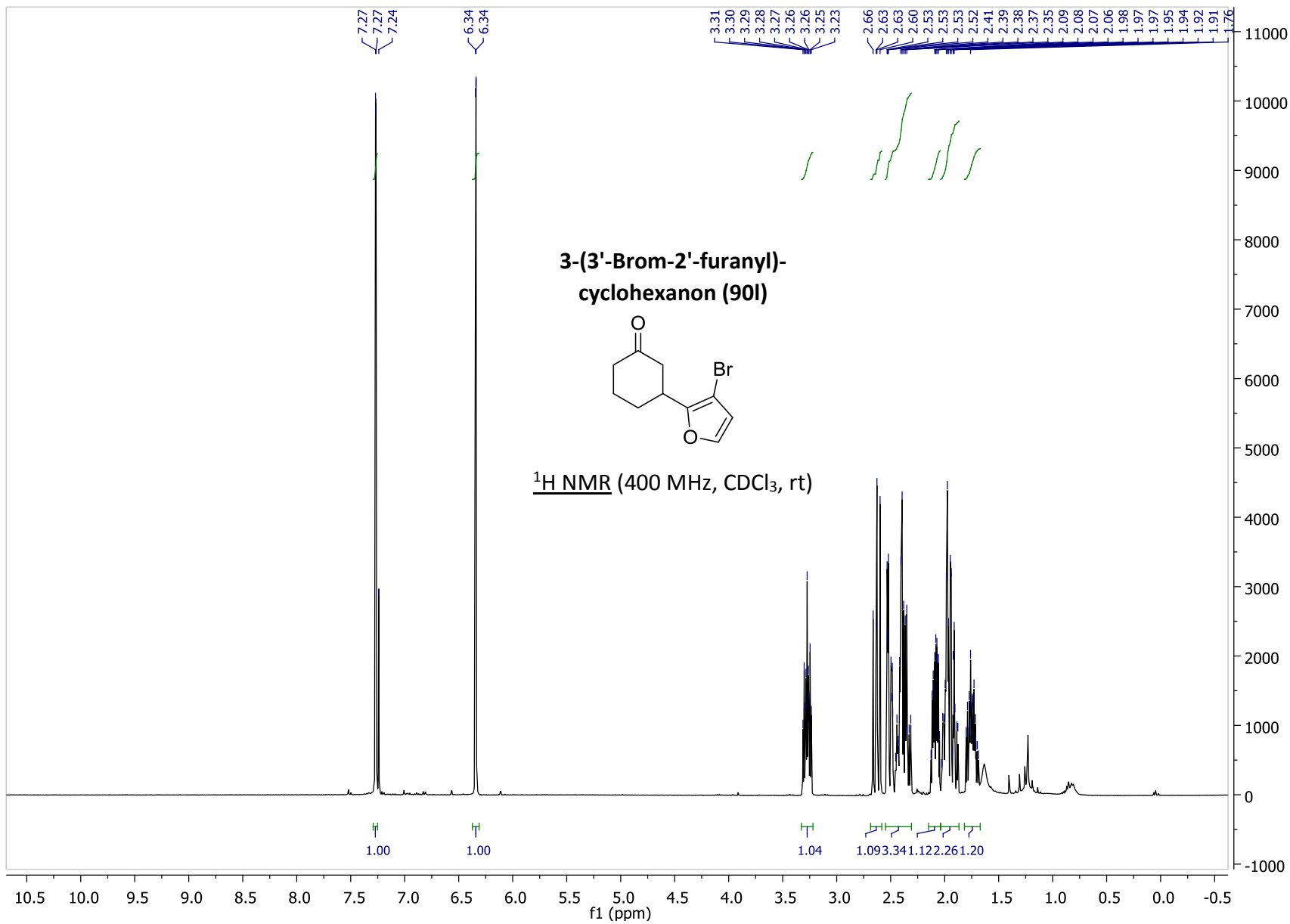


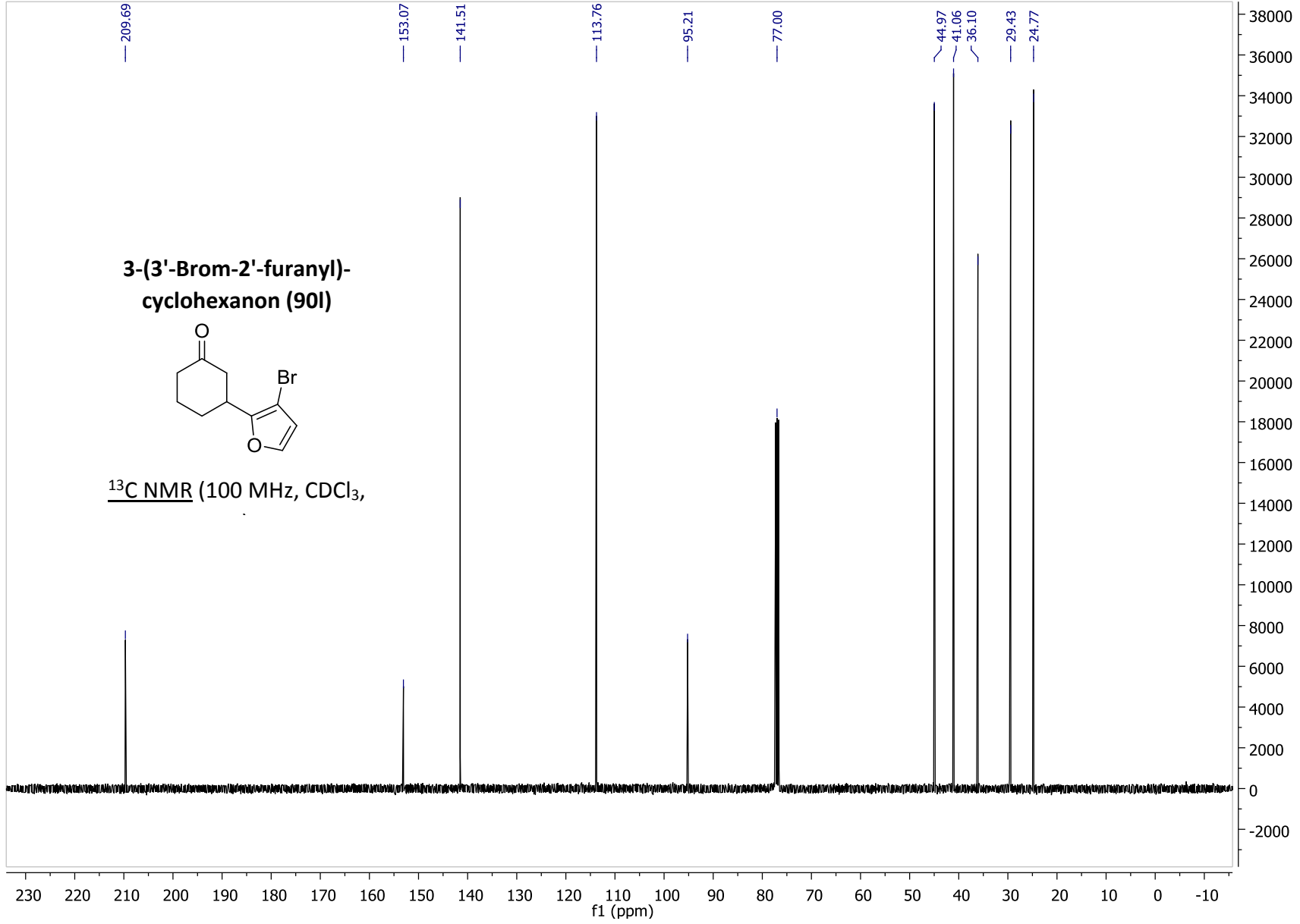
3-(2'-Furanyl)-cyclohexanon (90k)



Chirale GC (Starttemperatur
50 °C; von 50 °C bis 100 °C:
Heizrate 2.0°C/min; von 100 °C bis
160 °C: Heizrate 0.5°C/min)

88%ee (-)-**90k** mit
(*R,R*)-Ph-bod (**24**)





FID1 B, (SIM-CHECKOUT\FID-TESTMIX001.D)

pA

20

18

16

14

12

81

82

83

84

85

86

87

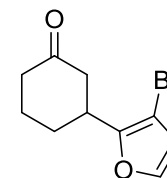
88

min

83.030

85.092

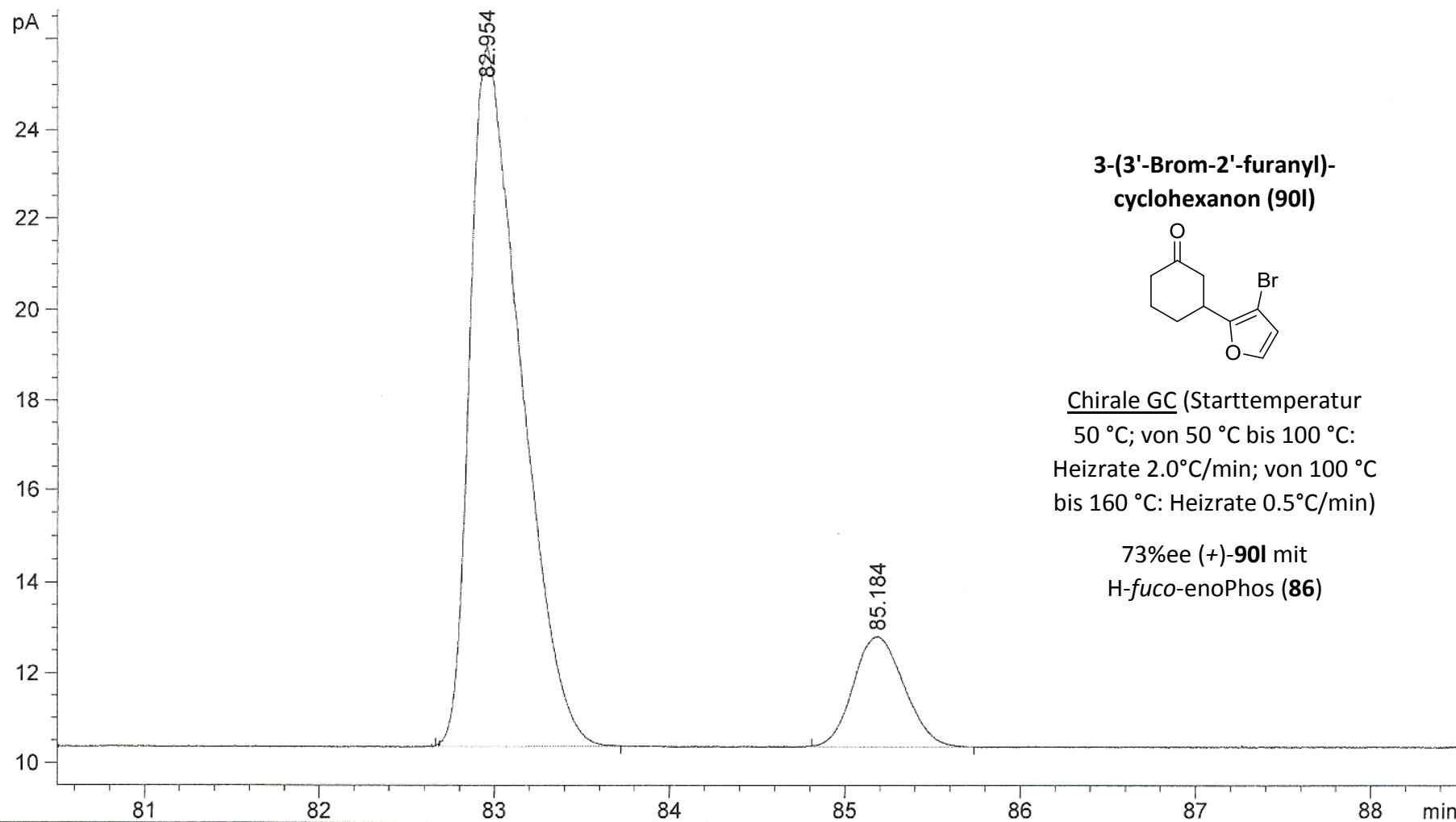
**3-(3'-Brom-2'-furanyl)-
cyclohexanon (90I)**



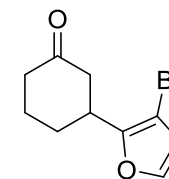
Chirale GC (Starttemperatur
50 °C; von 50 °C bis 100 °C:
Heizrate 2.0°C/min; von 100 °C
bis 160 °C: Heizrate 0.5°C/min)

Racemat

FID1 B, (SIM-CHECKOUT\FID-TESTMIX001.D)



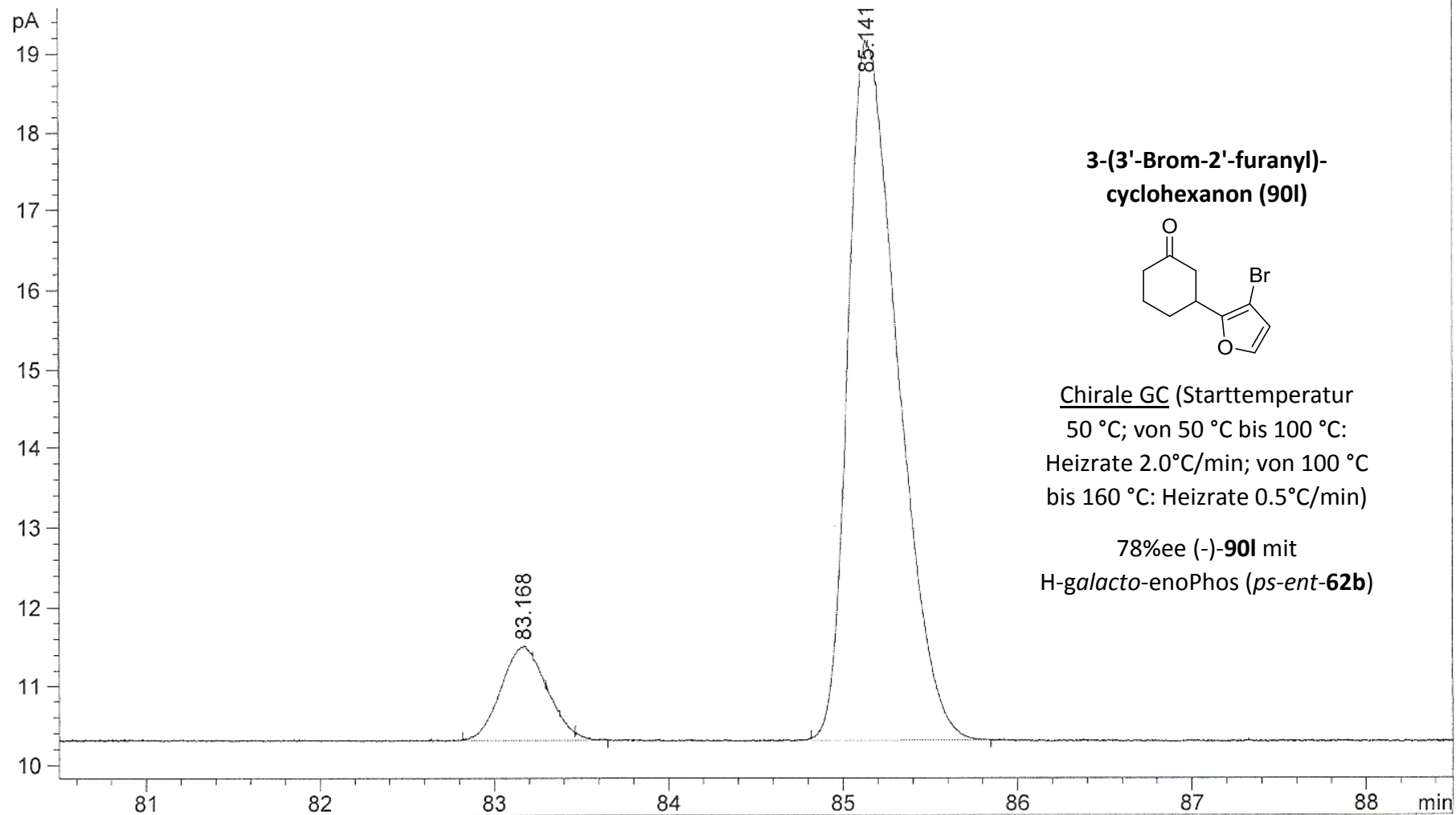
**3-(3'-Brom-2'-furanlyl)-
cyclohexanon (90I)**



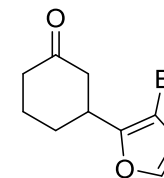
Chirale GC (Starttemperatur
50 °C; von 50 °C bis 100 °C:
Heizrate 2.0°C/min; von 100 °C
bis 160 °C: Heizrate 0.5°C/min)

73%ee (+)-**90I** mit
H-*fuco*-enoPhos (**86**)

FID1 B, (SIM-CHECKOUT\SIG20676.D)

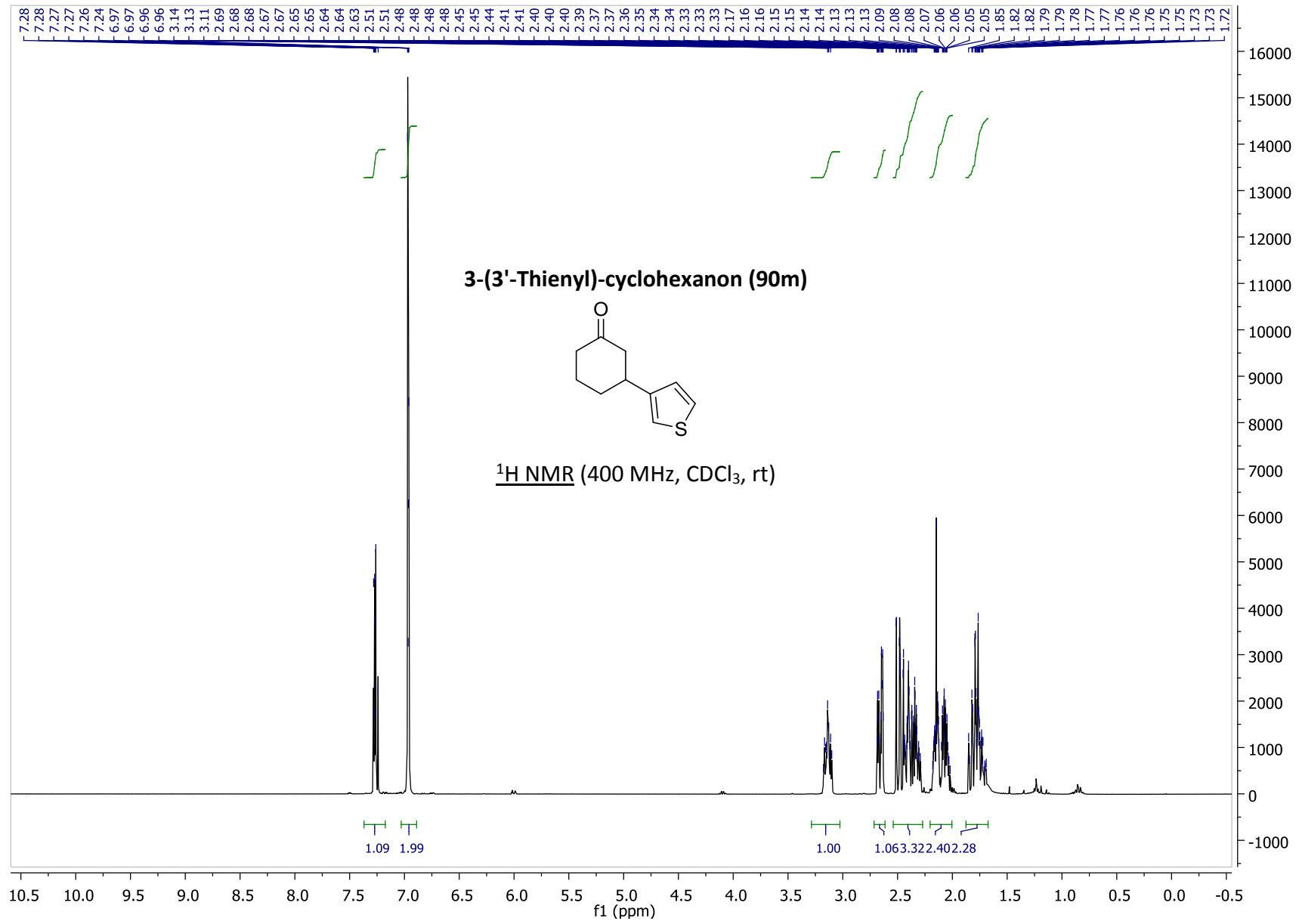


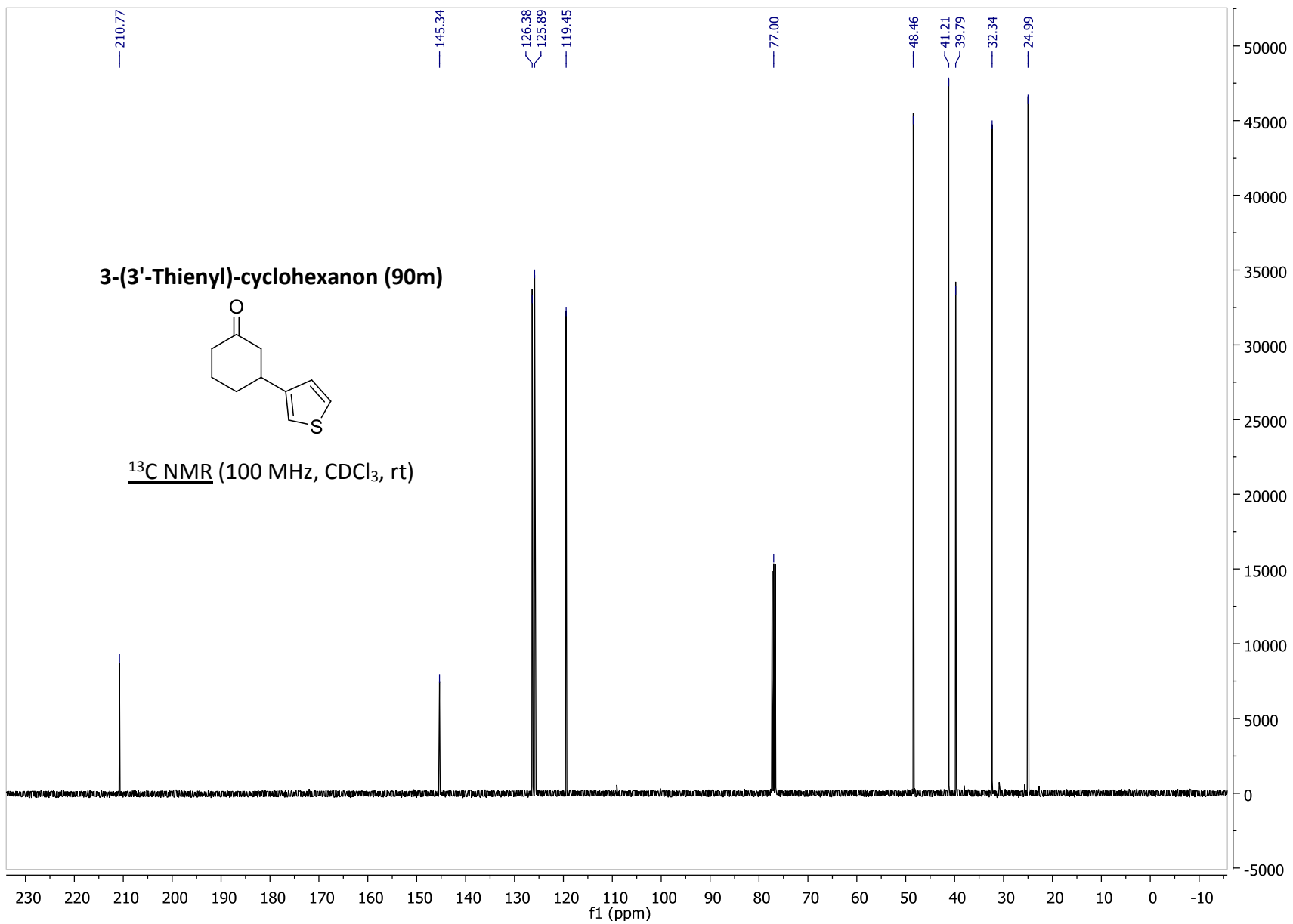
**3-(3'-Brom-2'-furyl)-
cyclohexanon (90I)**



Chirale GC (Starttemperatur
50 °C; von 50 °C bis 100 °C:
Heizrate 2.0°C/min; von 100 °C
bis 160 °C: Heizrate 0.5°C/min)

78%ee (-)-**90I** mit
H-galacto-enoPhos (*ps-ent-62b*)





FID1 B, (SIM-CHECKOUT\FID-TESTMIX001.D)

pA

26

24

22

20

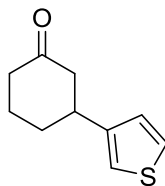
18

16

14

10

3-(3'-Thienyl)-cyclohexanon (90m)



Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 0.5°C/min)

Racemat

104.817

105.850

101

102

103

104

105

106

107

108

109

min

FID1 B, (SIM-CHECKOUT\FID-TESTMIX001.D)

pA

26

24

22

20

18

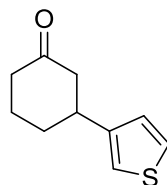
16

14

12

10

3-(3'-Thienyl)-cyclohexanon (90m)



Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 0.5°C/min)

95%ee (*R*)-**90m** mit
H-*fuco*-enoPhos (**86**)

104.873

106.196

101

102

103

104

105

106

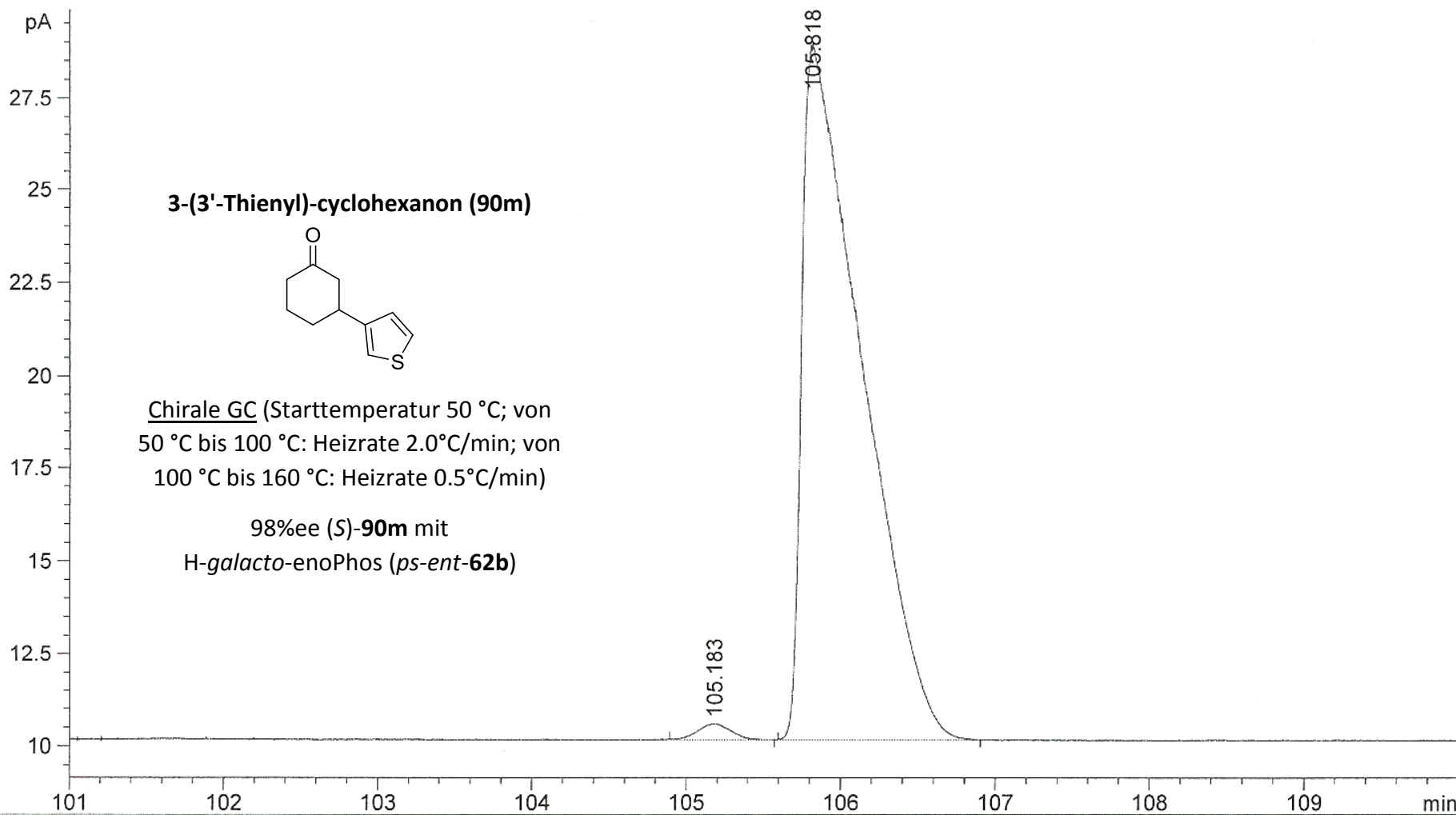
107

108

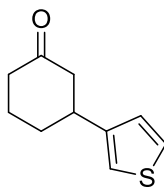
109

min

FID1 B, (SIM-CHECKOUT\SIG20673.D)

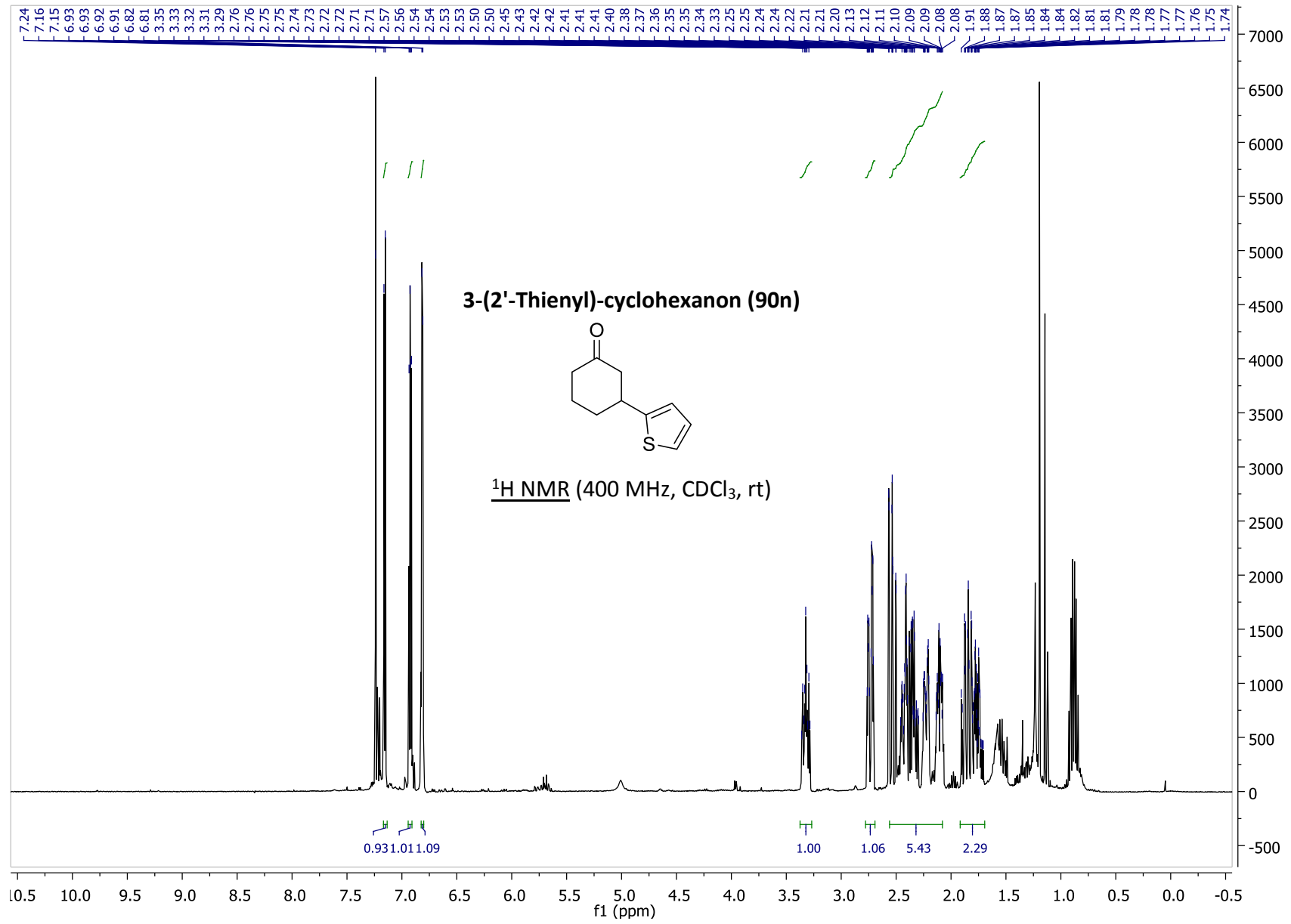


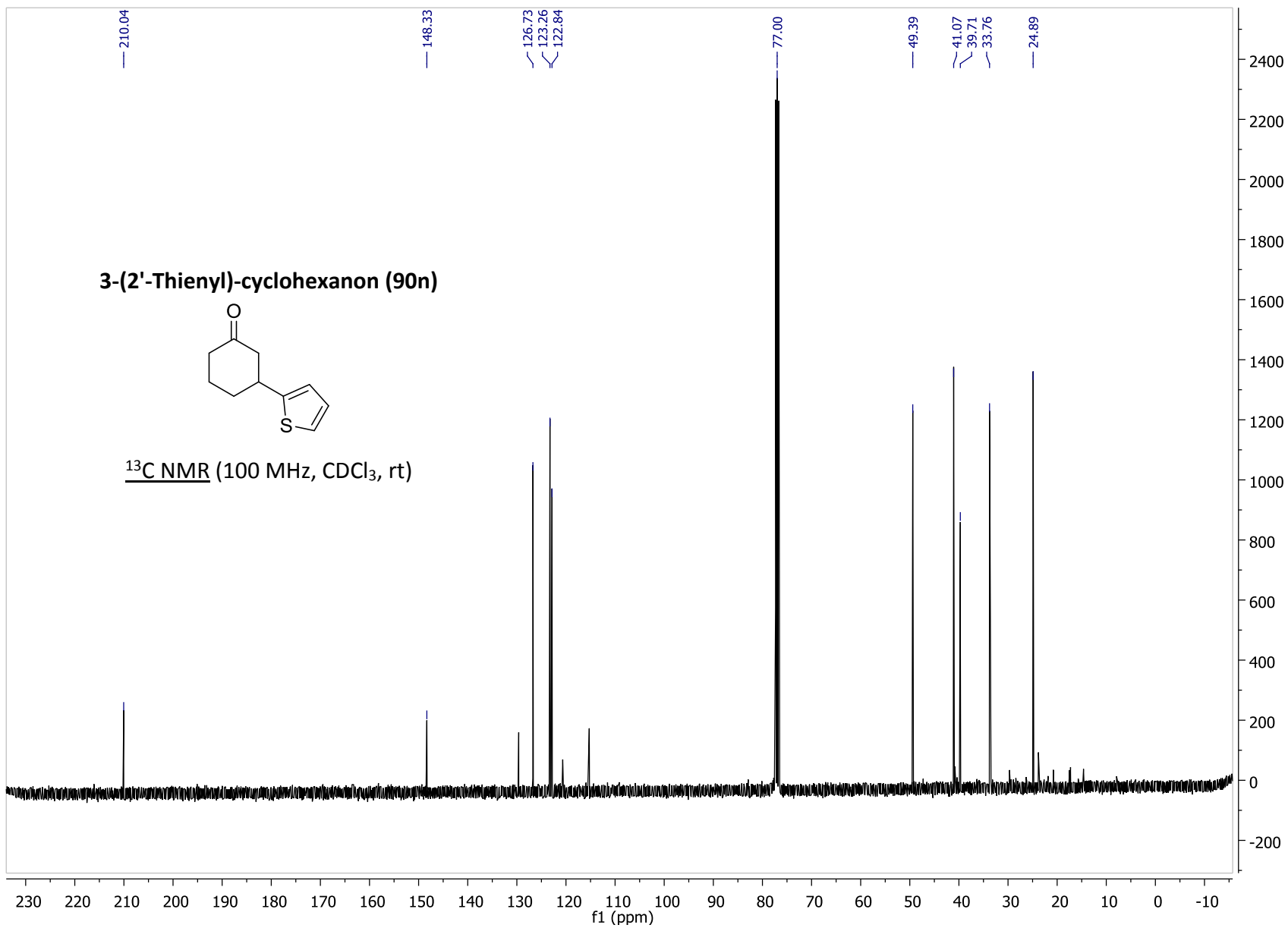
3-(3'-Thienyl)-cyclohexanon (90m)



Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 0.5°C/min)

98%ee (S)-**90m** mit
H-galacto-enoPhos (*ps-ent-62b*)





FID1 B, (SIM-CHECKOUT\FID-TESTMIX001.D)

pA

24

22

20

18

16

14

12

10

88

89

90

91

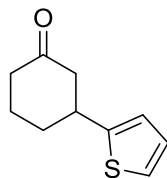
92

93

94

min

3-(2'-Thienyl)-cyclohexanon (90n)

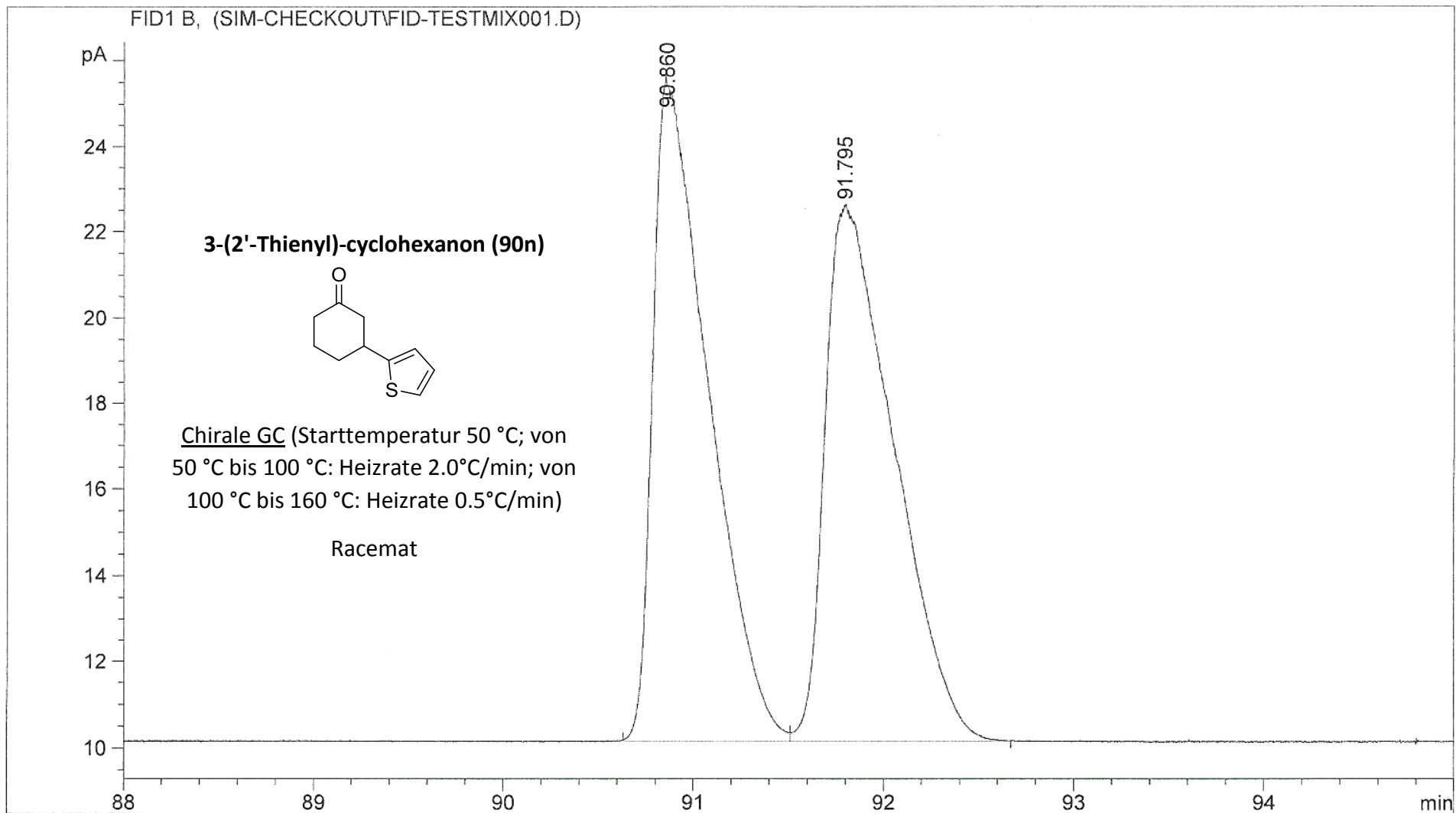


Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 0.5°C/min)

Racemat

90.860

91.795

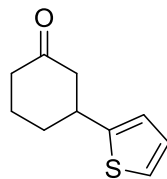


FID1 B, (SIM-CHECKOUT\FID-TESTMIX001.D)

pA

22

3-(2'-Thienyl)-cyclohexanon (90n)



18

Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 0.5°C/min)

14

90%ee (-)-**90n** mit
H-*fuco*-enoPhos (**86**)

12

10

88

89

90

91

92

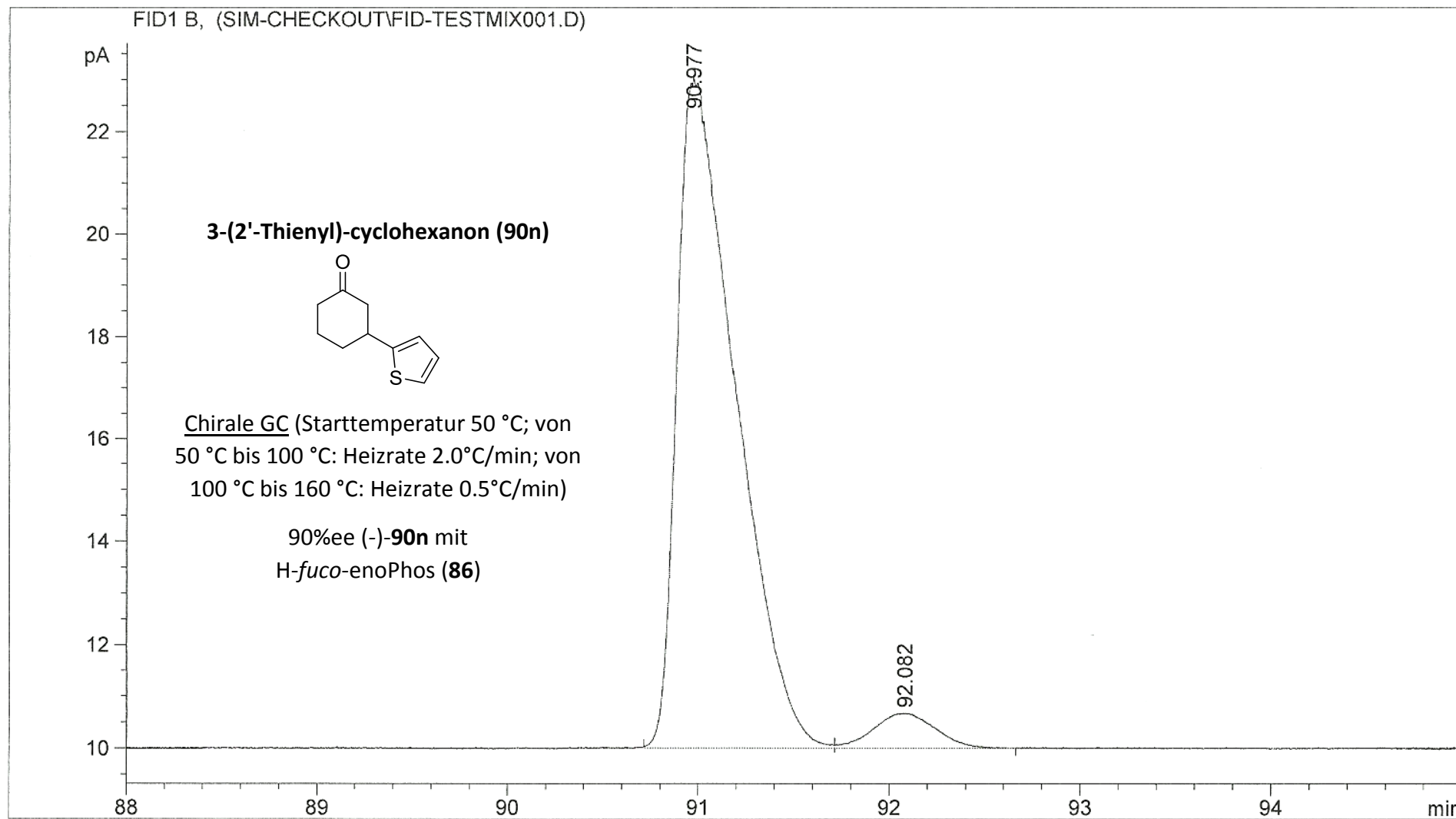
93

94

min

90.977

92.082



FID1 B, (SIM-CHECKOUT\SIG20677.D)

pA

22

20

18

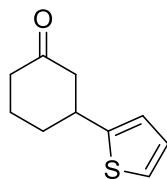
16

14

12

10

3-(2'-Thienyl)-cyclohexanon (90n)



Chirale GC (Starttemperatur 50 °C; von
50 °C bis 100 °C: Heizrate 2.0°C/min; von
100 °C bis 160 °C: Heizrate 0.5°C/min)

95%ee (+)-**90n** mit
H-galacto-enoPhos (*ps-ent-62b*)

91.208

91.916

89

90

91

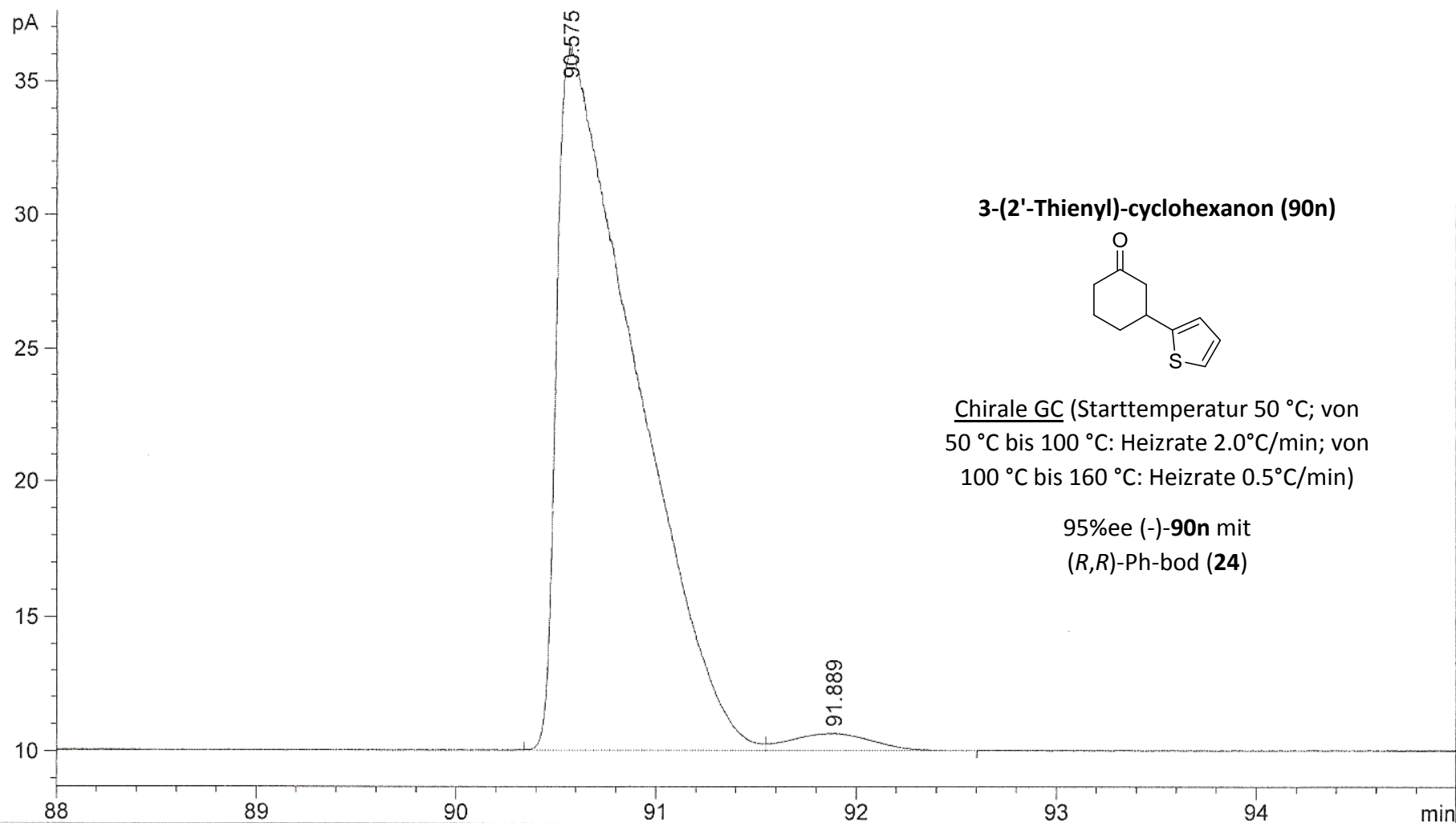
92

93

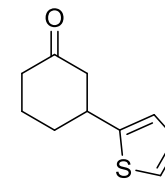
94

min

FID1 B, (SIM-CHECKOUT\SIG20777.D)

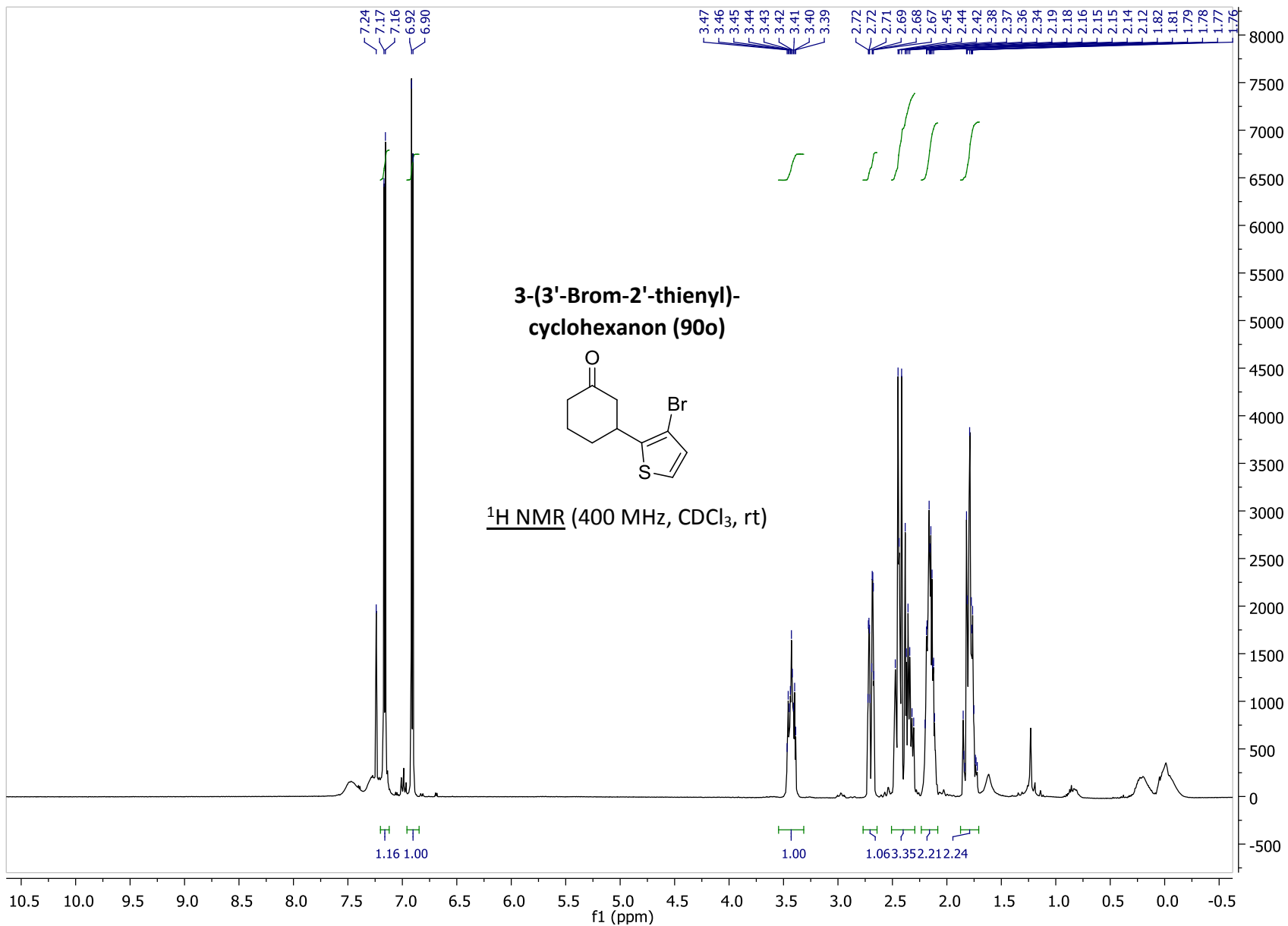


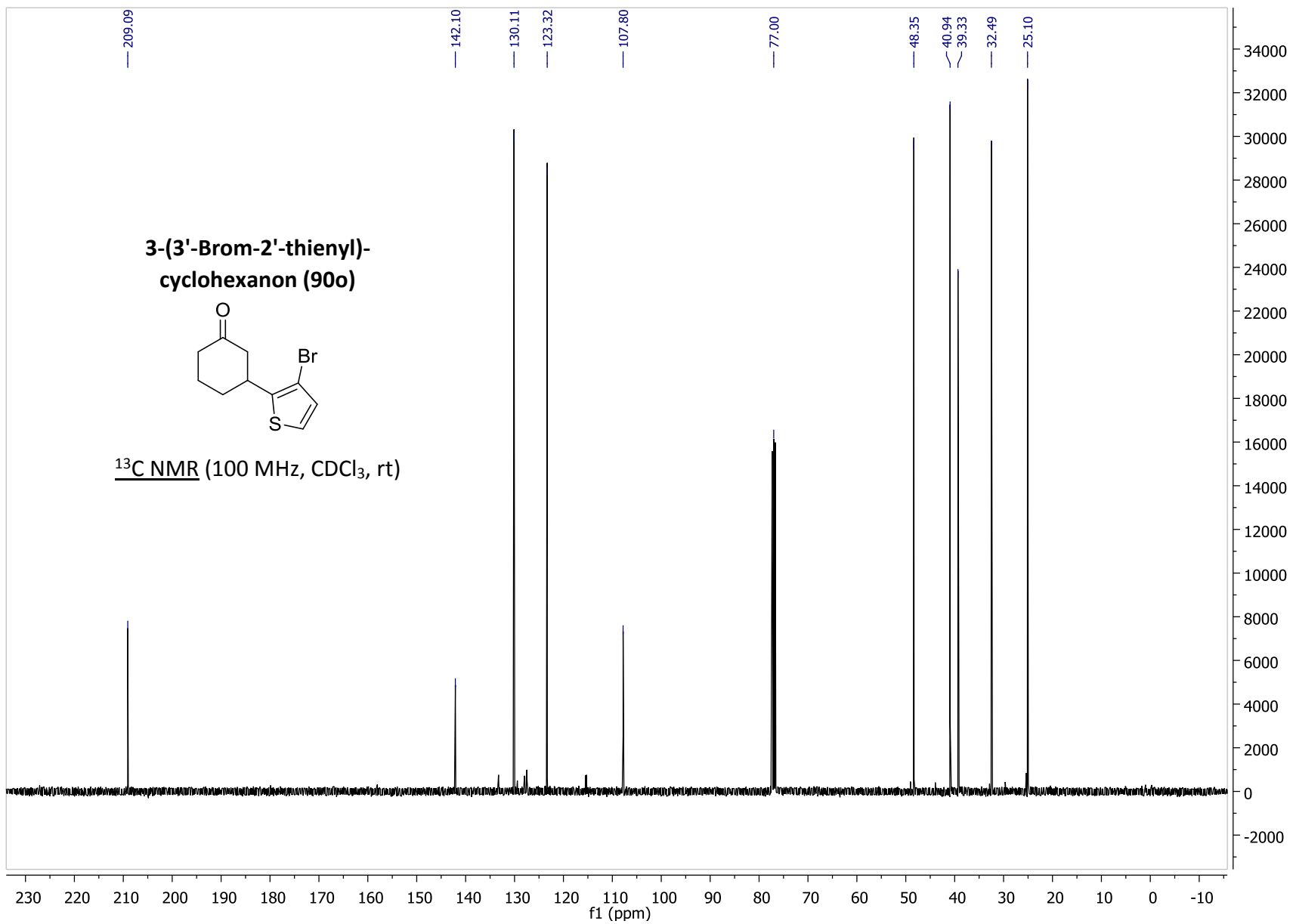
3-(2'-Thienyl)-cyclohexanon (90n)



Chirale GC (Starttemperatur 50 °C; von 50 °C bis 100 °C: Heizrate 2.0°C/min; von 100 °C bis 160 °C: Heizrate 0.5°C/min)

95%ee (-)-**90n** mit
(*R,R*)-Ph-bod (**24**)





FID1 B, (SIM-CHECKOUT\SIG20792.D)

pA

60

50

40

30

20

10

103

103.5

104

104.5

105

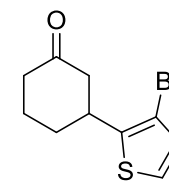
105.5

min

103.920

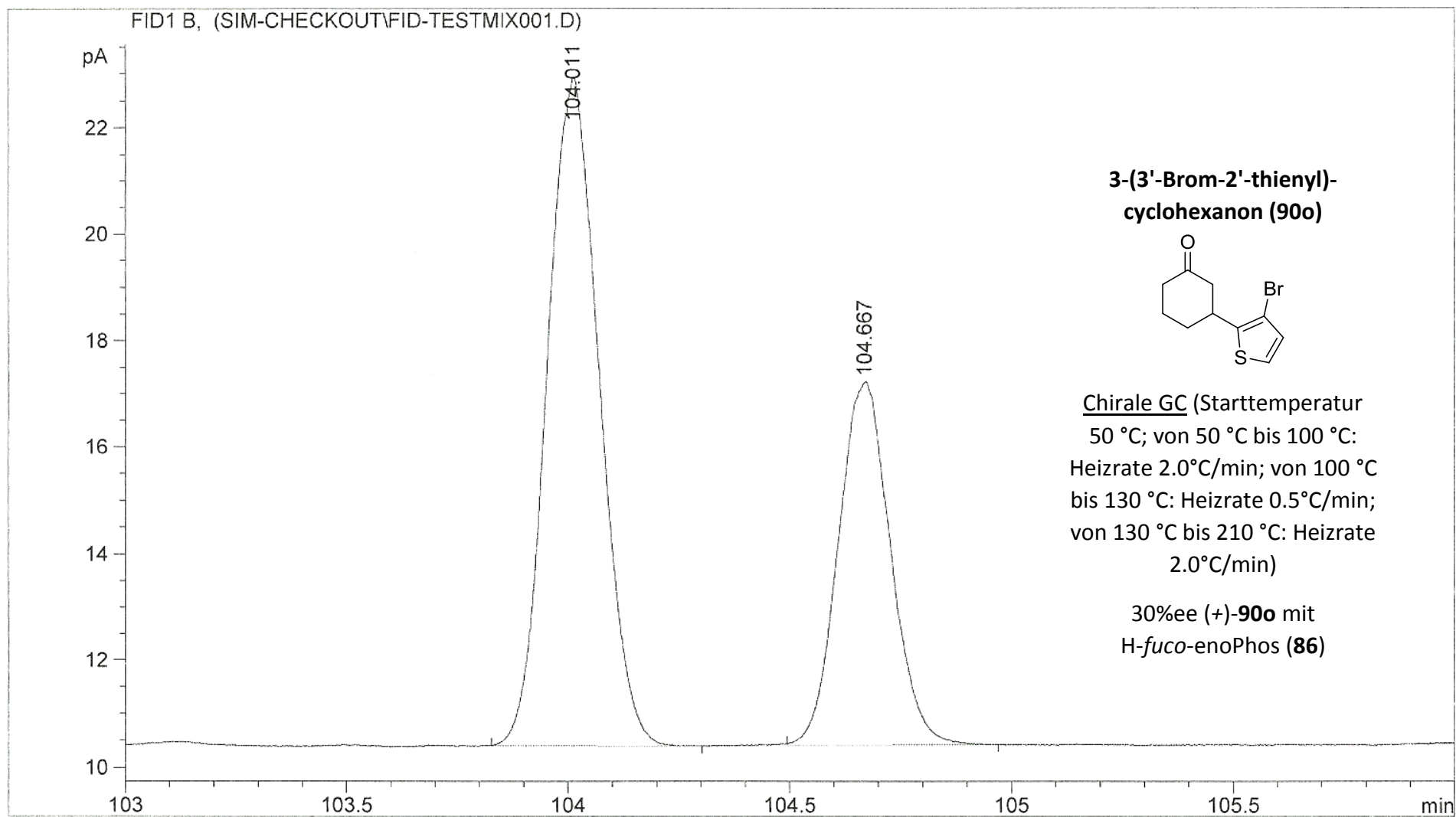
104.570

**3-(3'-Brom-2'-thienyl)-
cyclohexanon (90o)**

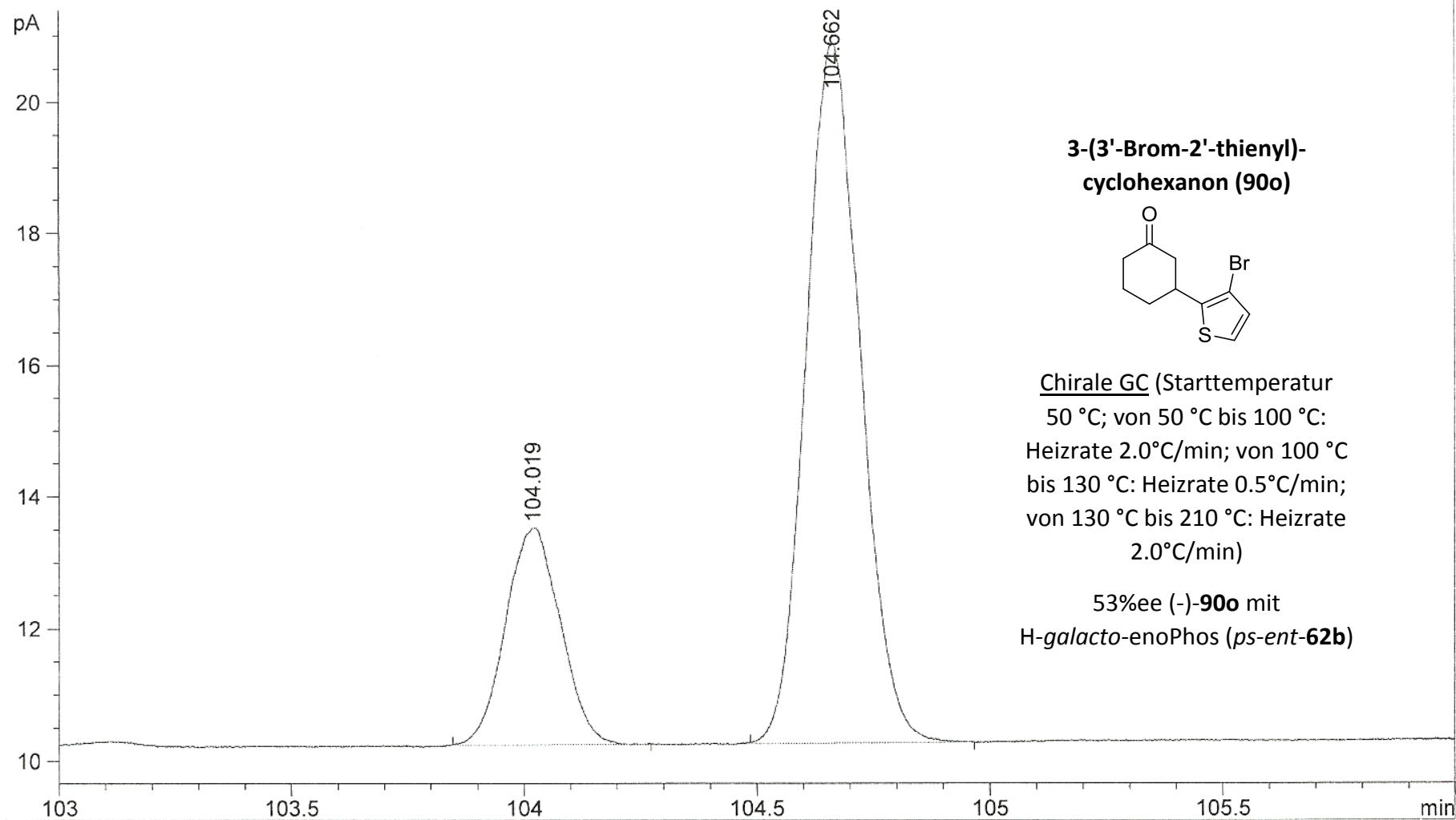


Chirale GC (Starttemperatur
50 °C; von 50 °C bis 100 °C:
Heizrate 2.0°C/min; von 100 °C
bis 130 °C: Heizrate 0.5°C/min;
von 130 °C bis 210 °C: Heizrate
2.0°C/min)

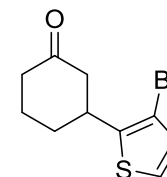
Racemat



FID1 B, (SIM-CHECKOUT\FID-TESTMIX001.D)

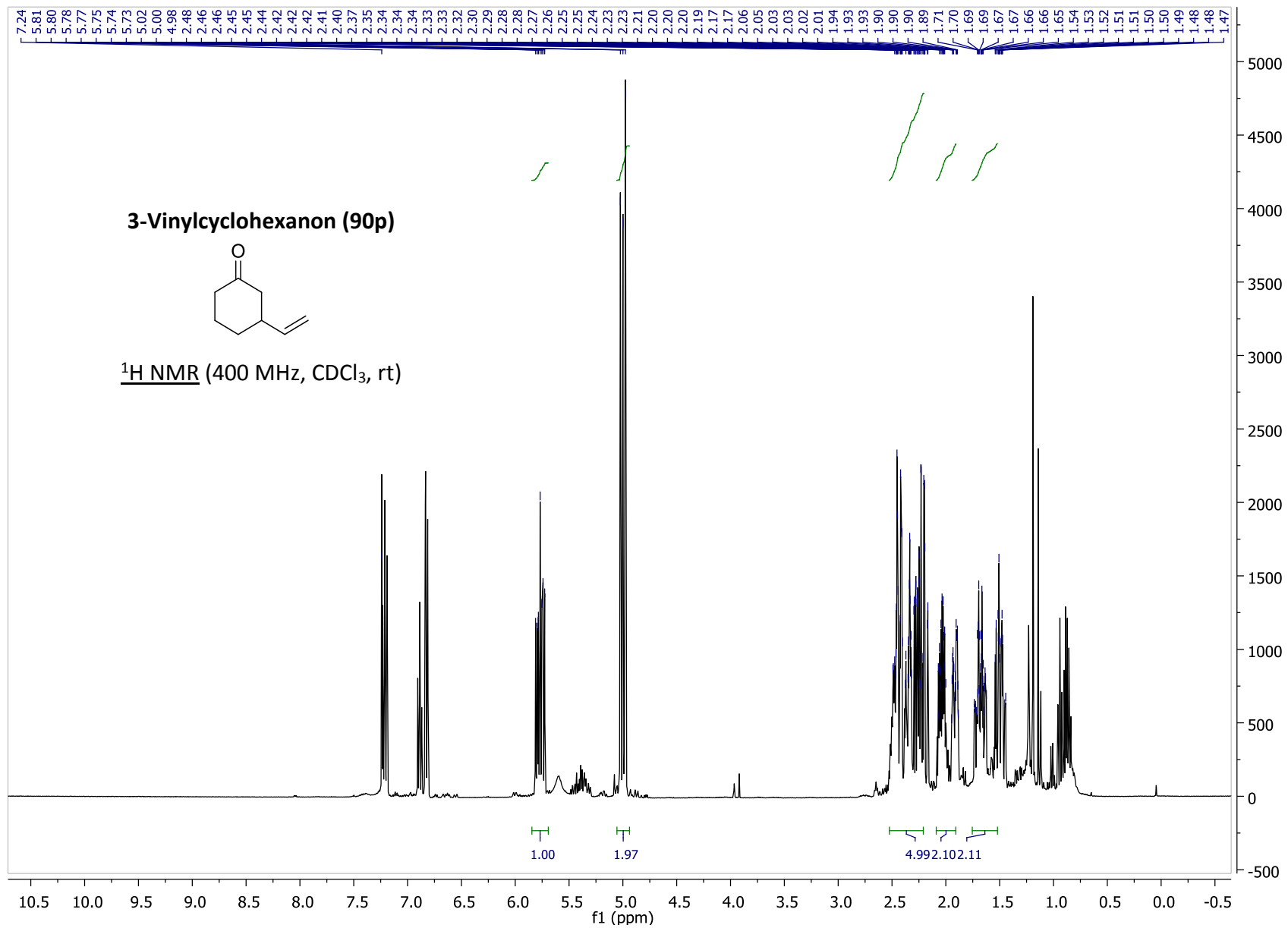


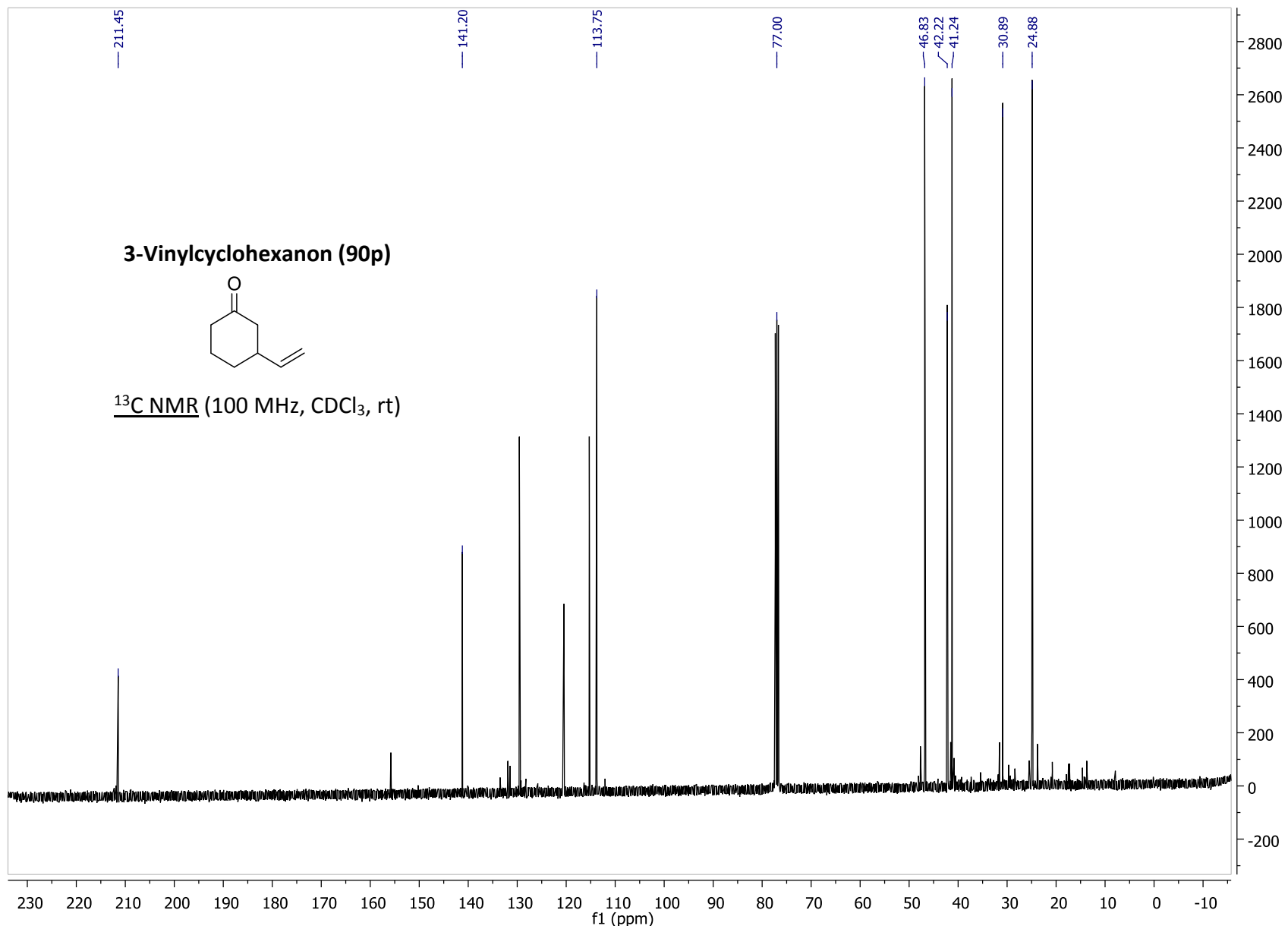
**3-(3'-Brom-2'-thienyl)-
cyclohexanon (90o)**



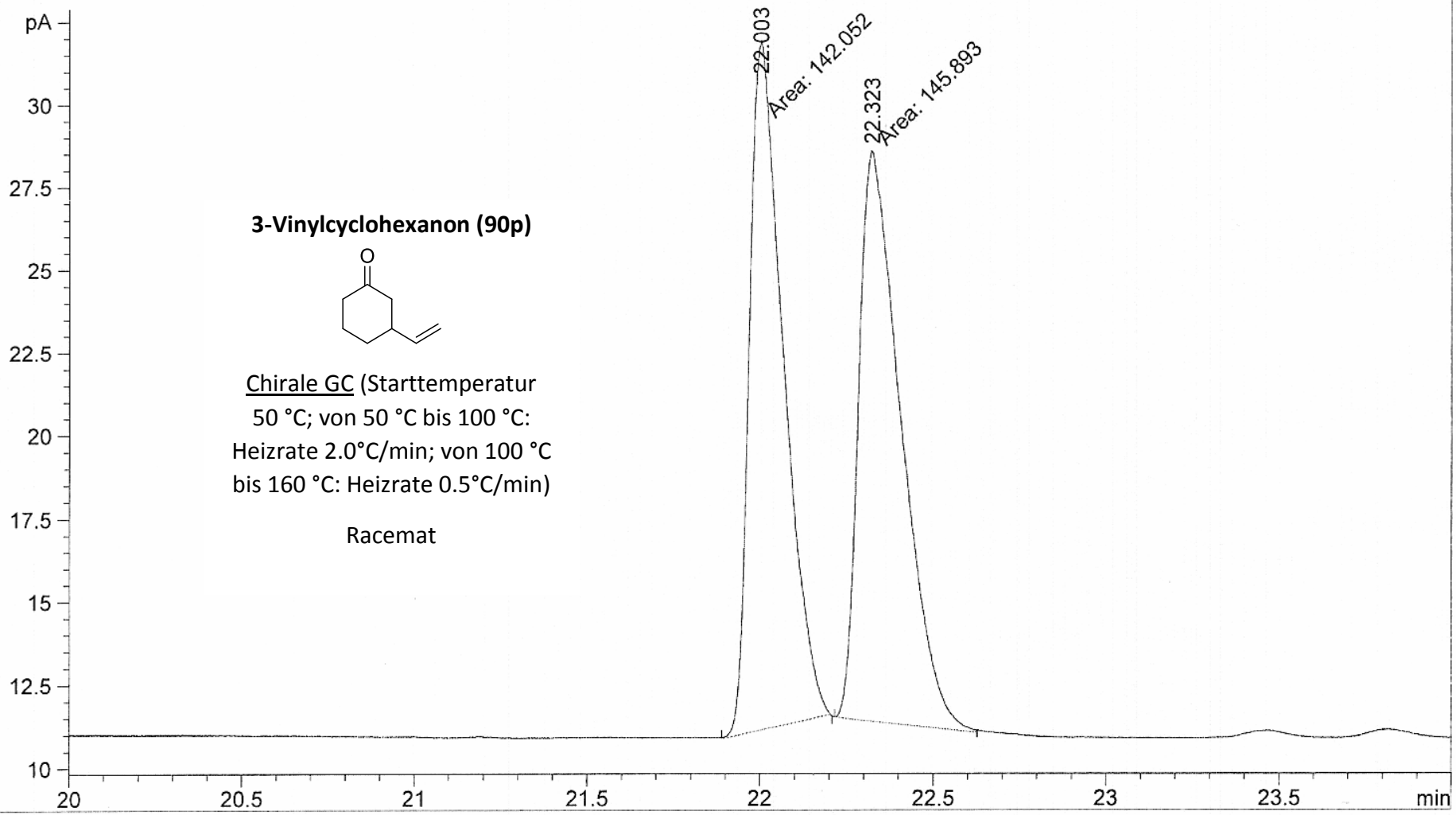
Chirale GC (Starttemperatur
50 °C; von 50 °C bis 100 °C:
Heizrate 2.0°C/min; von 100 °C
bis 130 °C: Heizrate 0.5°C/min;
von 130 °C bis 210 °C: Heizrate
2.0°C/min)

53%ee (-)-**90o** mit
H-galacto-enoPhos (*ps-ent-62b*)

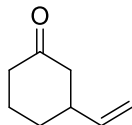




FID1 B, (SIG20650.D)



3-Vinylcyclohexanon (90p)



Chirale GC (Starttemperatur
50 °C; von 50 °C bis 100 °C:
Heizrate 2.0°C/min; von 100 °C
bis 160 °C: Heizrate 0.5°C/min)

Racemat

FID1 B, (SIG20666.D)

pA

45

40

35

30

25

20

15

10

21

21.5

22

22.5

23

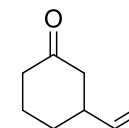
23.5

min

21.980

22.370

3-Vinylcyclohexanon (90p)



Chirale GC (Starttemperatur
50 °C; von 50 °C bis 100 °C:
Heizrate 2.0°C/min; von 100 °C
bis 160 °C: Heizrate 0.5°C/min)

84%ee (*R*)-**90p** mit
H-*fuco*-enoPhos (**86**)

FID1 B, (SIG20667.D)

pA

30

25

20

15

10

21

21.5

22

22.5

23

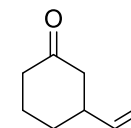
23.5

min

22.060

22.331

3-Vinylcyclohexanon (90p)

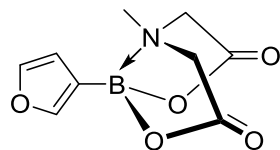


Chirale GC (Starttemperatur
50 °C; von 50 °C bis 100 °C:
Heizrate 2.0°C/min; von 100 °C bis
160 °C: Heizrate 0.5°C/min)

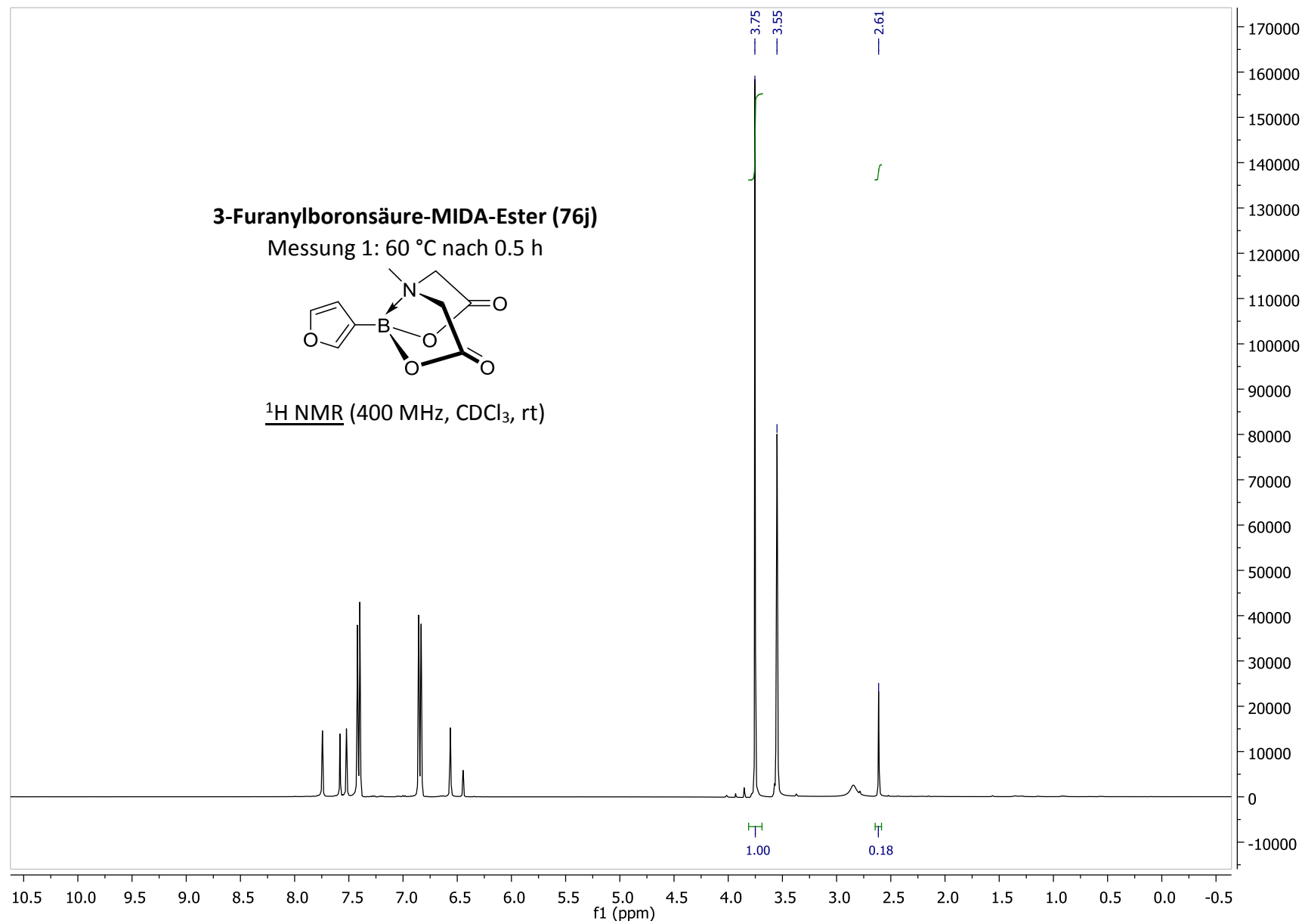
86%ee (S)-**90p** mit
EtO-*galacto*-enoPhos (*ps-ent*-**62a**)

3-Furanylboronsäure-MIDA-Ester (76j)

Messung 1: 60 °C nach 0.5 h

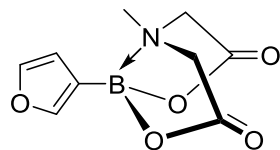


^1H NMR (400 MHz, CDCl_3 , rt)

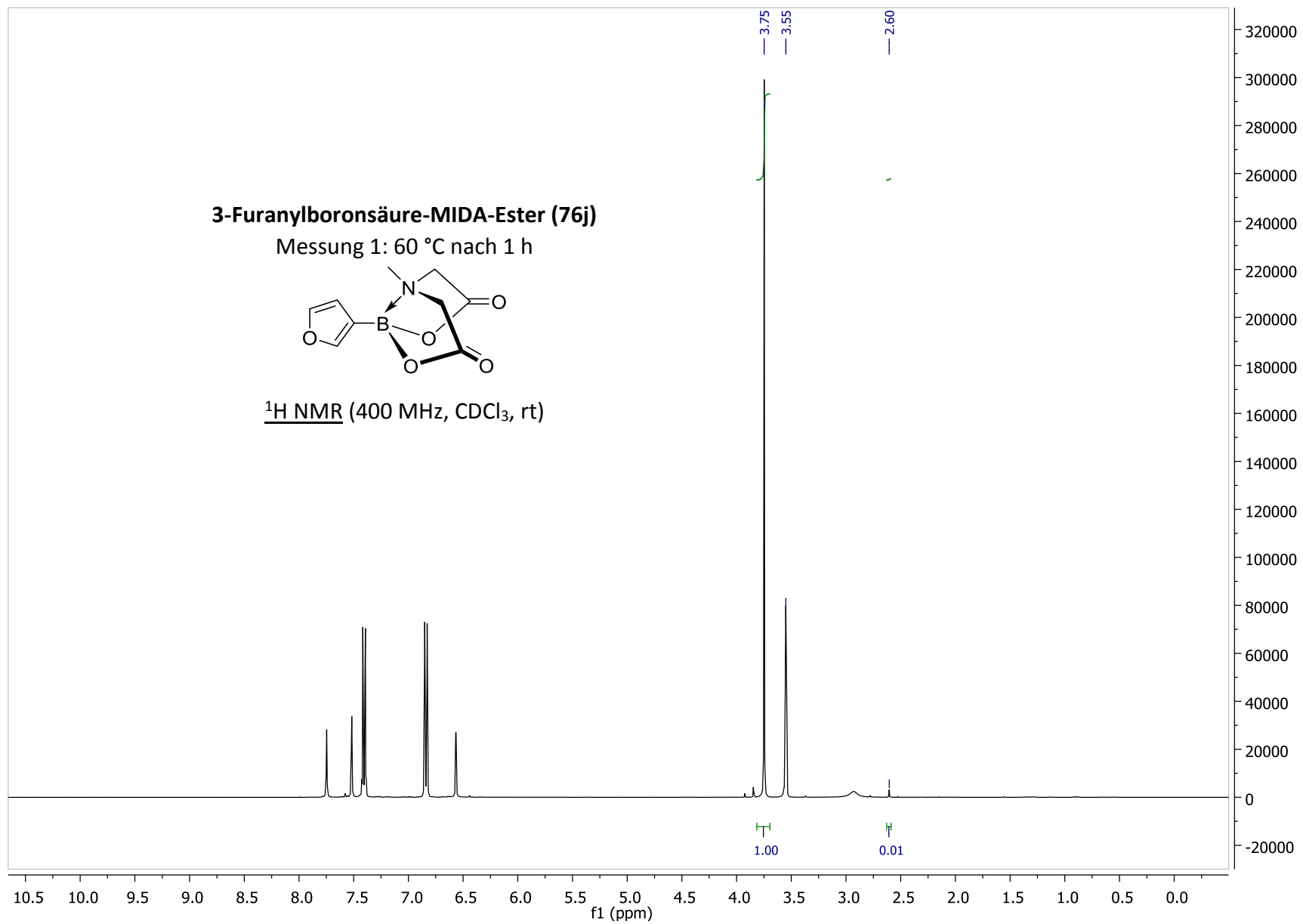


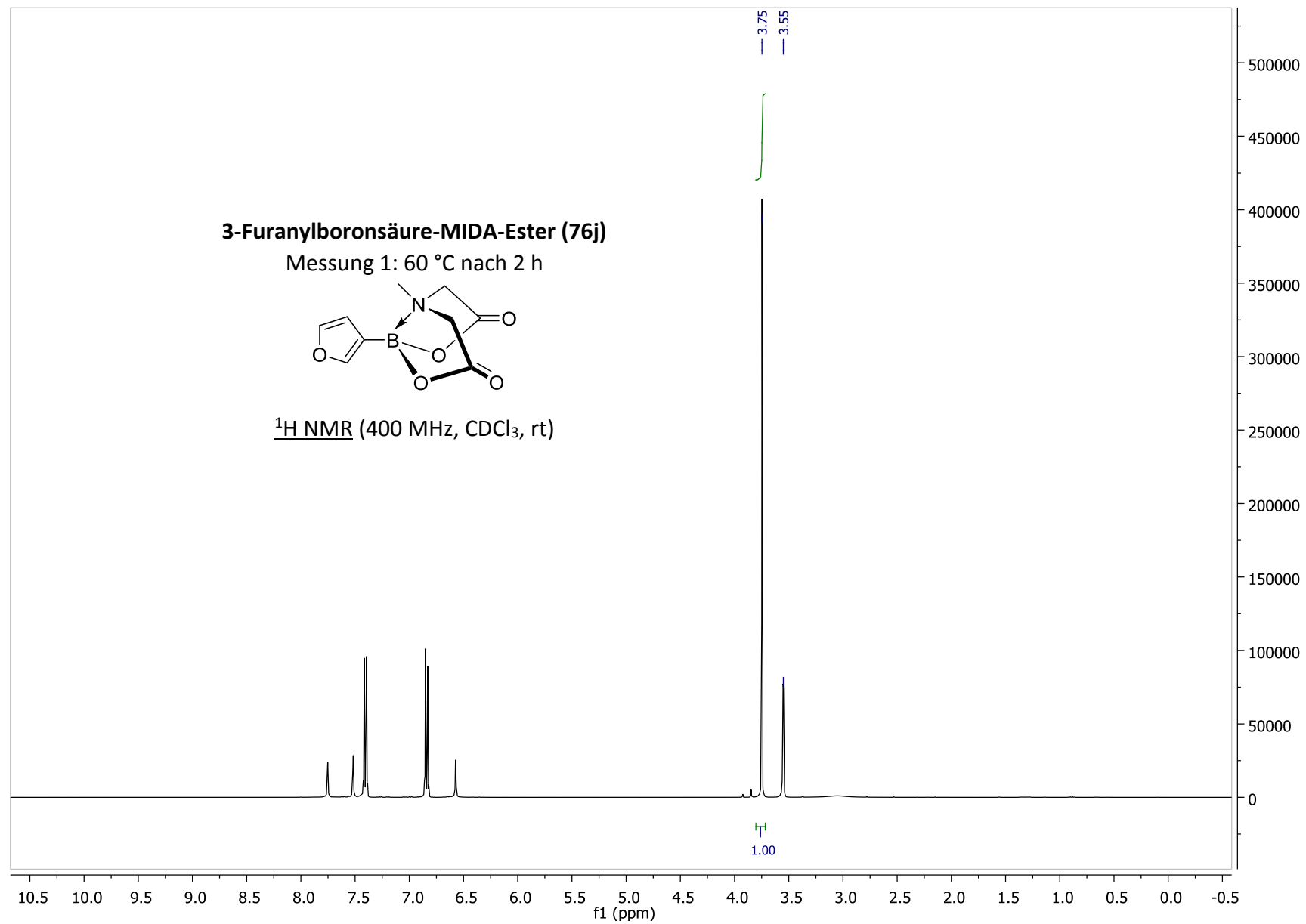
3-Furanylboronsäure-MIDA-Ester (76j)

Messung 1: 60 °C nach 1 h



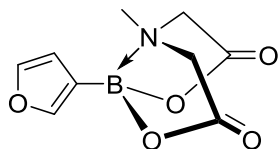
¹H NMR (400 MHz, CDCl₃, rt)



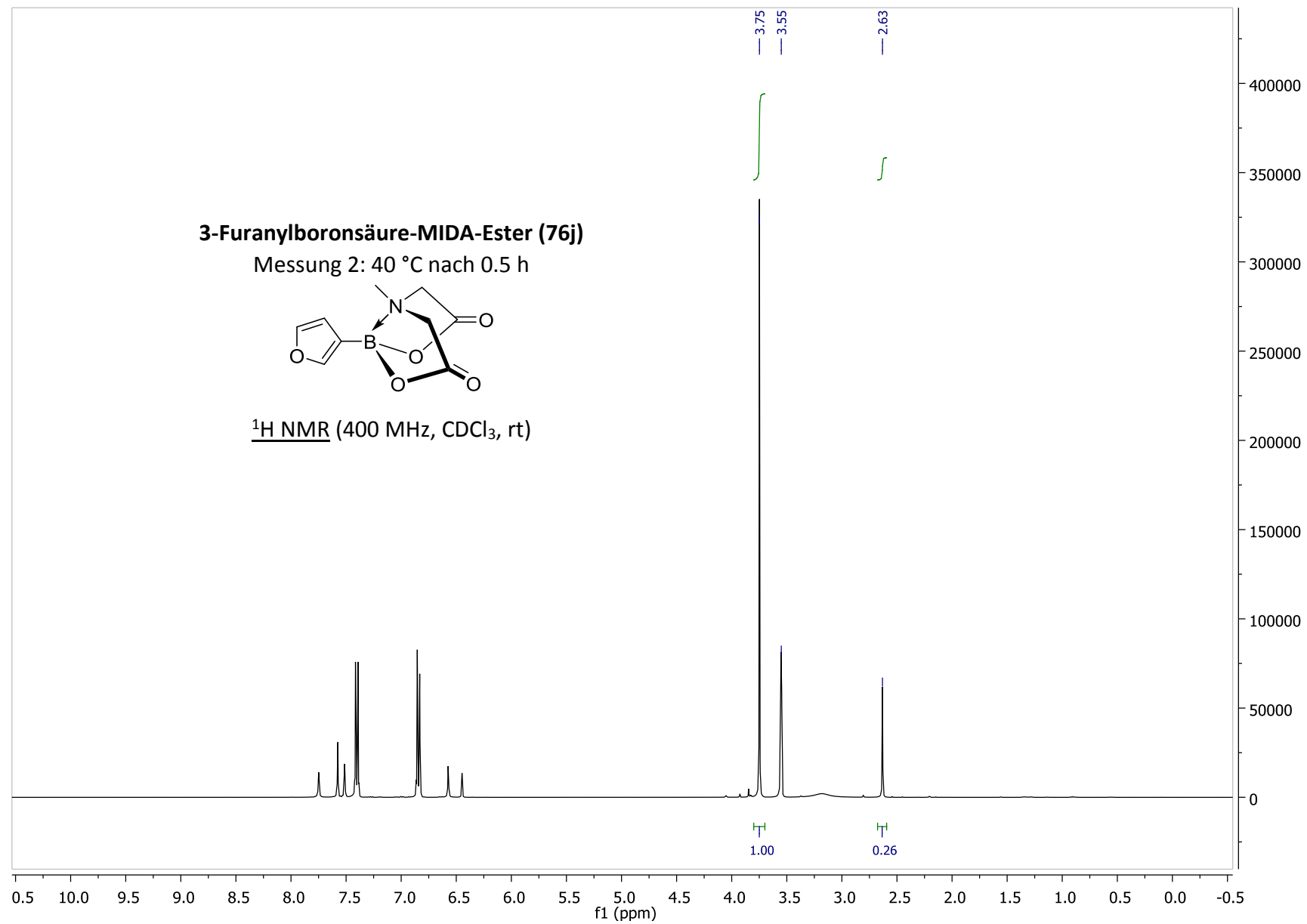


3-Furanylboronsäure-MIDA-Ester (76j)

Messung 2: 40 °C nach 0.5 h

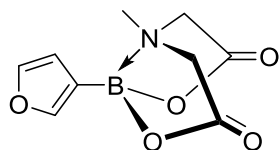


¹H NMR (400 MHz, CDCl₃, rt)

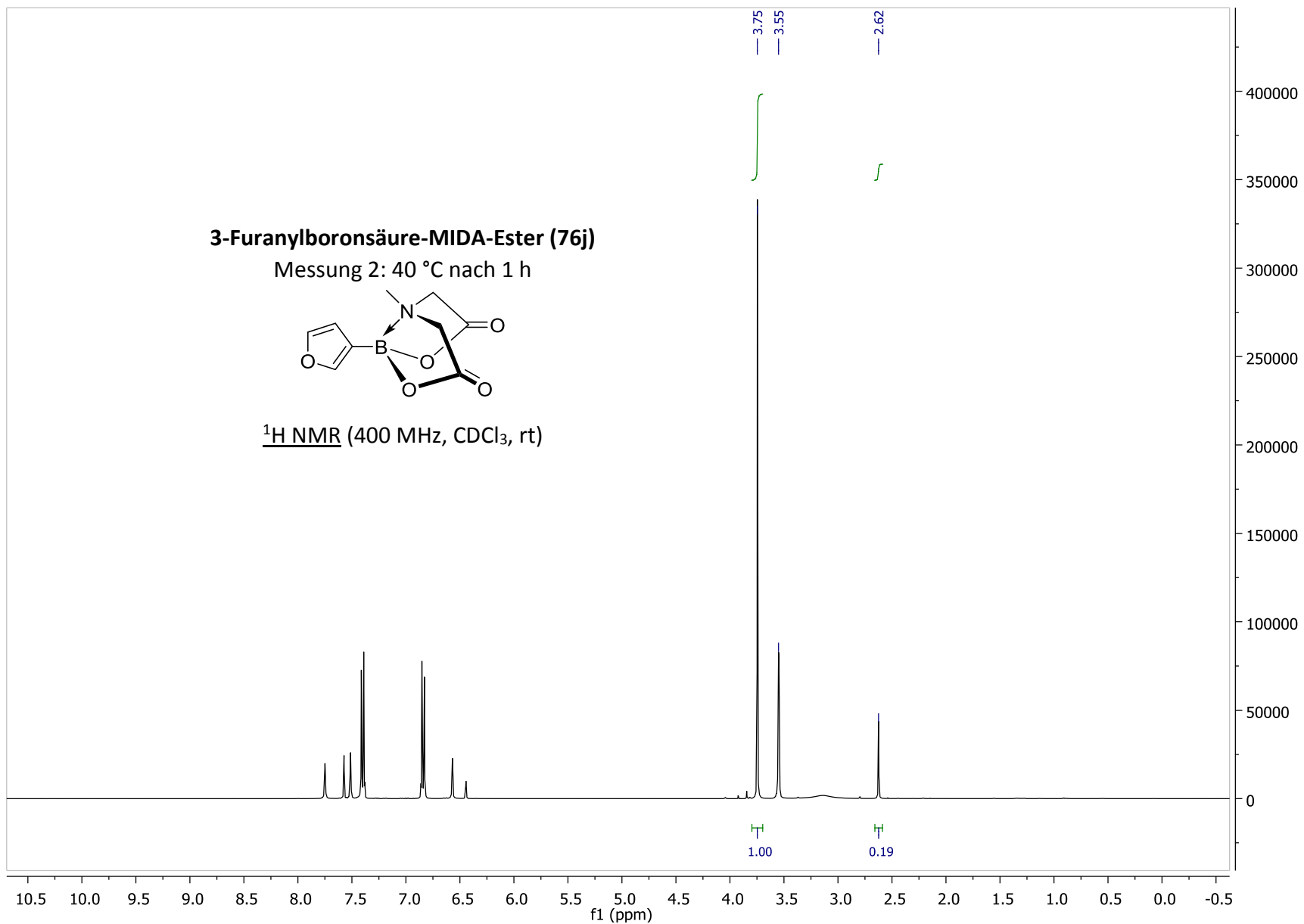


3-Furanylboronsäure-MIDA-Ester (76j)

Messung 2: 40 °C nach 1 h

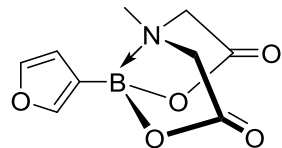


^1H NMR (400 MHz, CDCl_3 , rt)

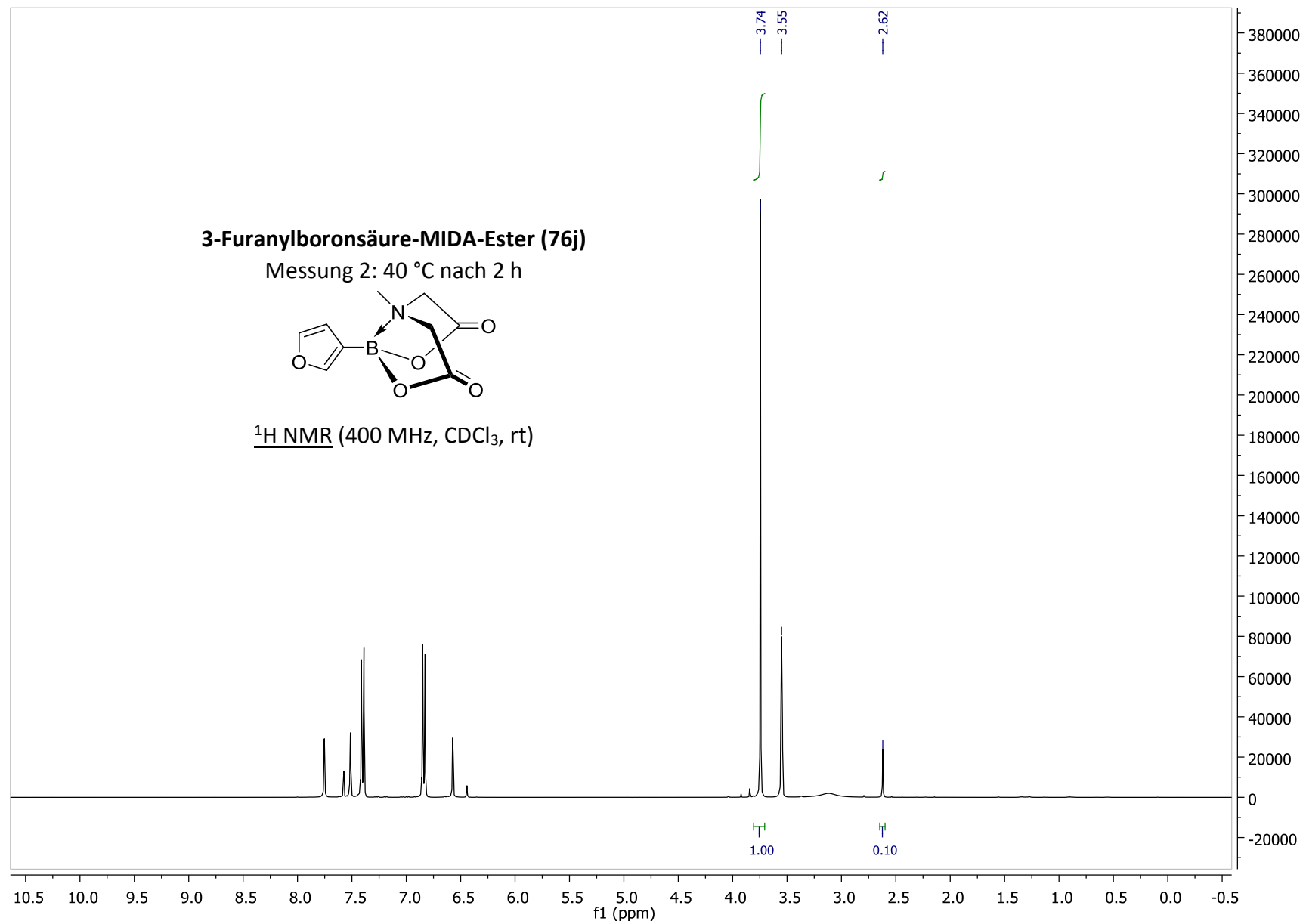


3-Furanylboronsäure-MIDA-Ester (76j)

Messung 2: 40 °C nach 2 h

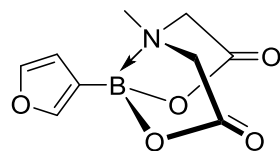


^1H NMR (400 MHz, CDCl_3 , rt)

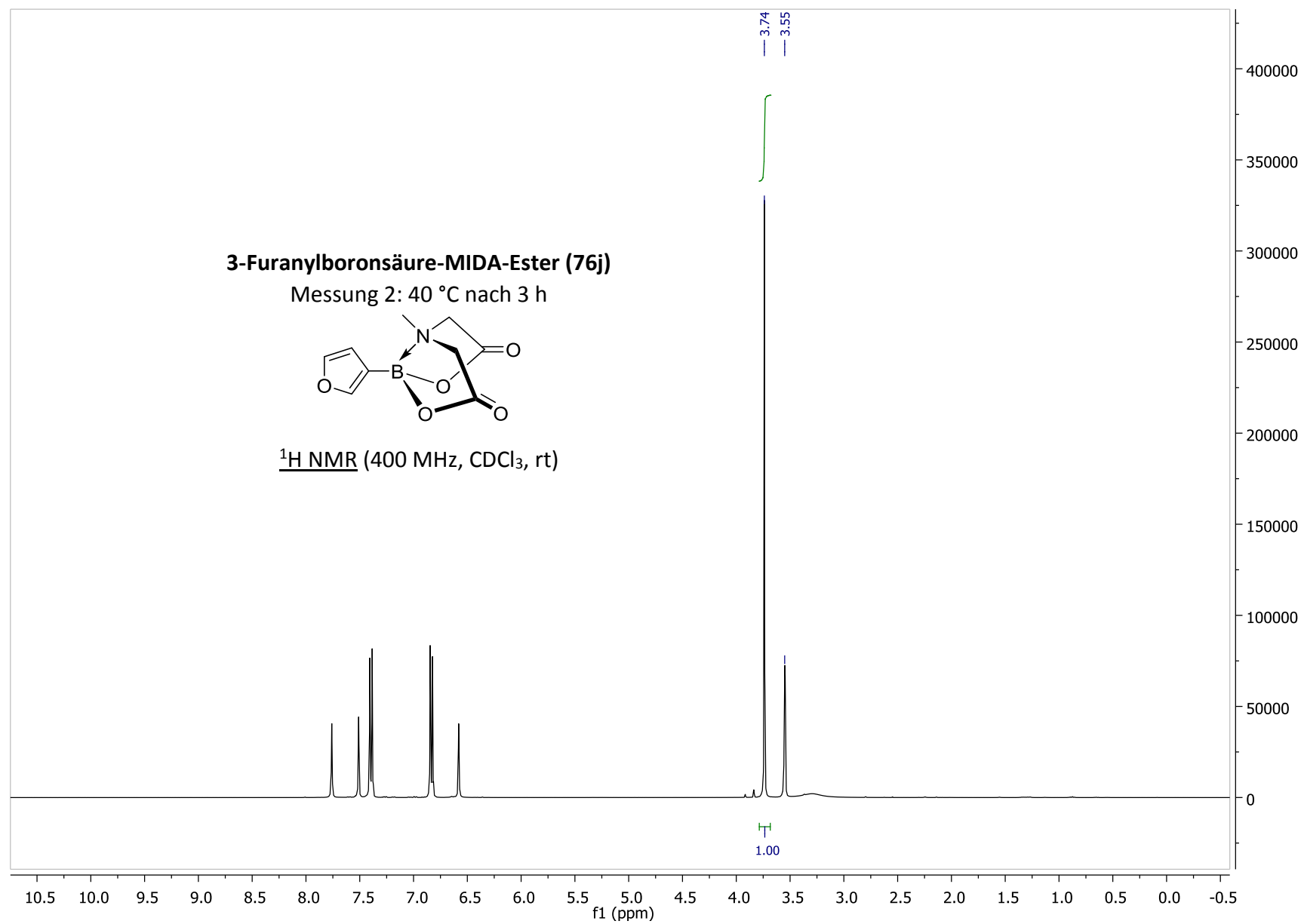


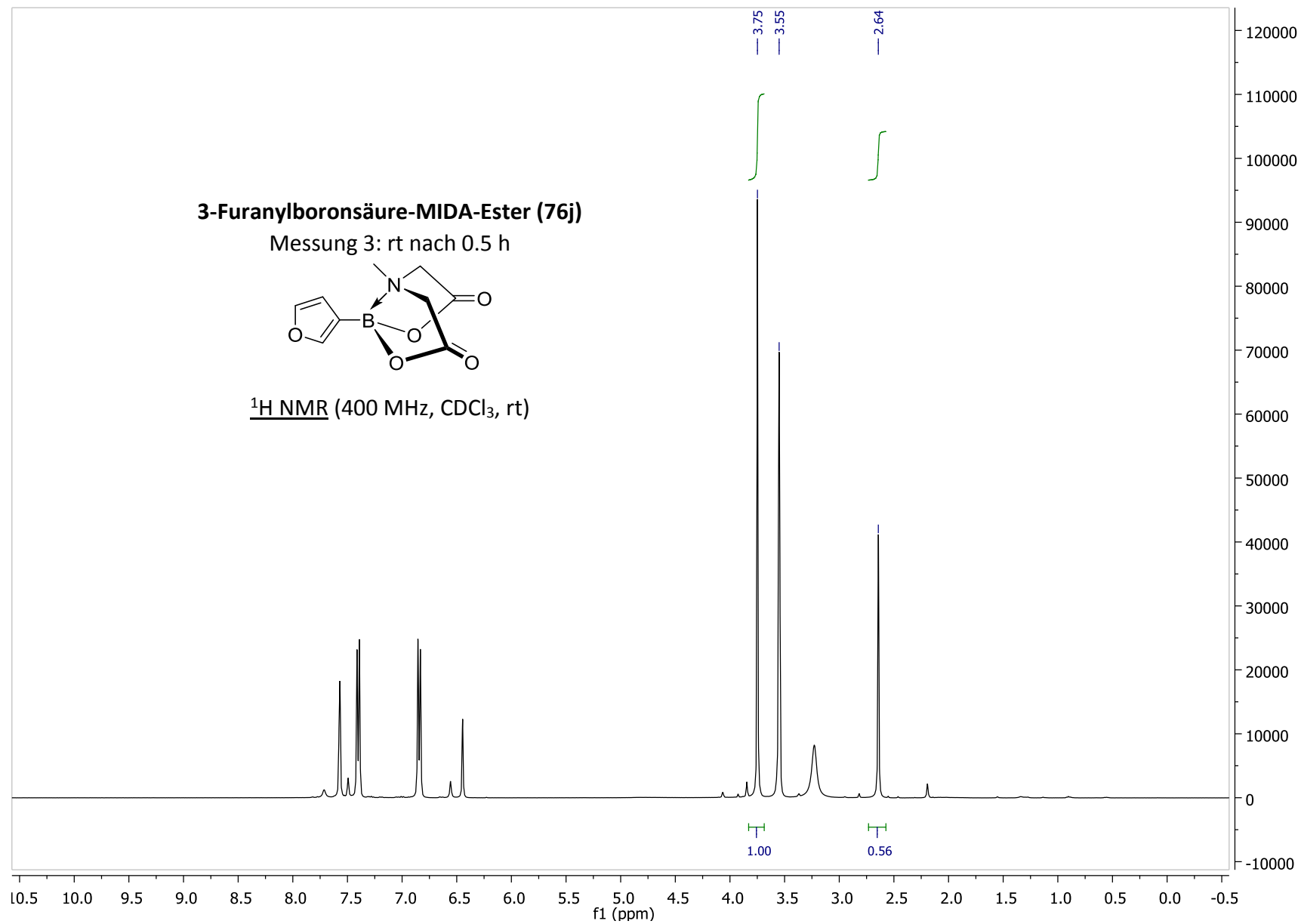
3-Furanylboronsäure-MIDA-Ester (76j)

Messung 2: 40 °C nach 3 h



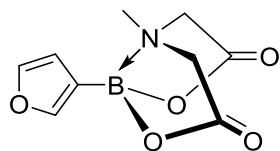
¹H NMR (400 MHz, CDCl₃, rt)



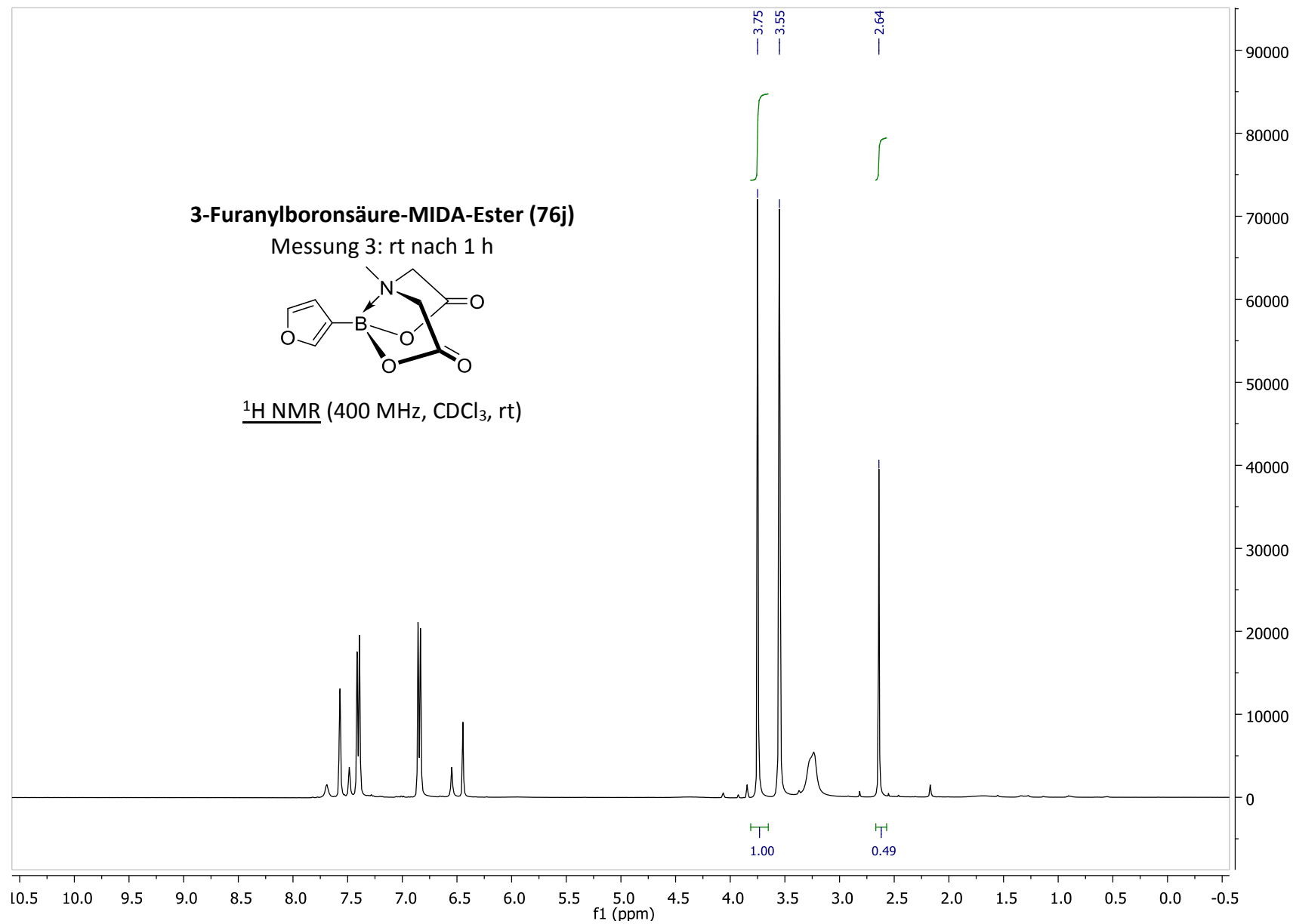


3-Furanylboronsäure-MIDA-Ester (76j)

Messung 3: rt nach 1 h

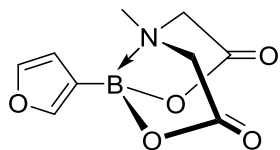


^1H NMR (400 MHz, CDCl_3 , rt)

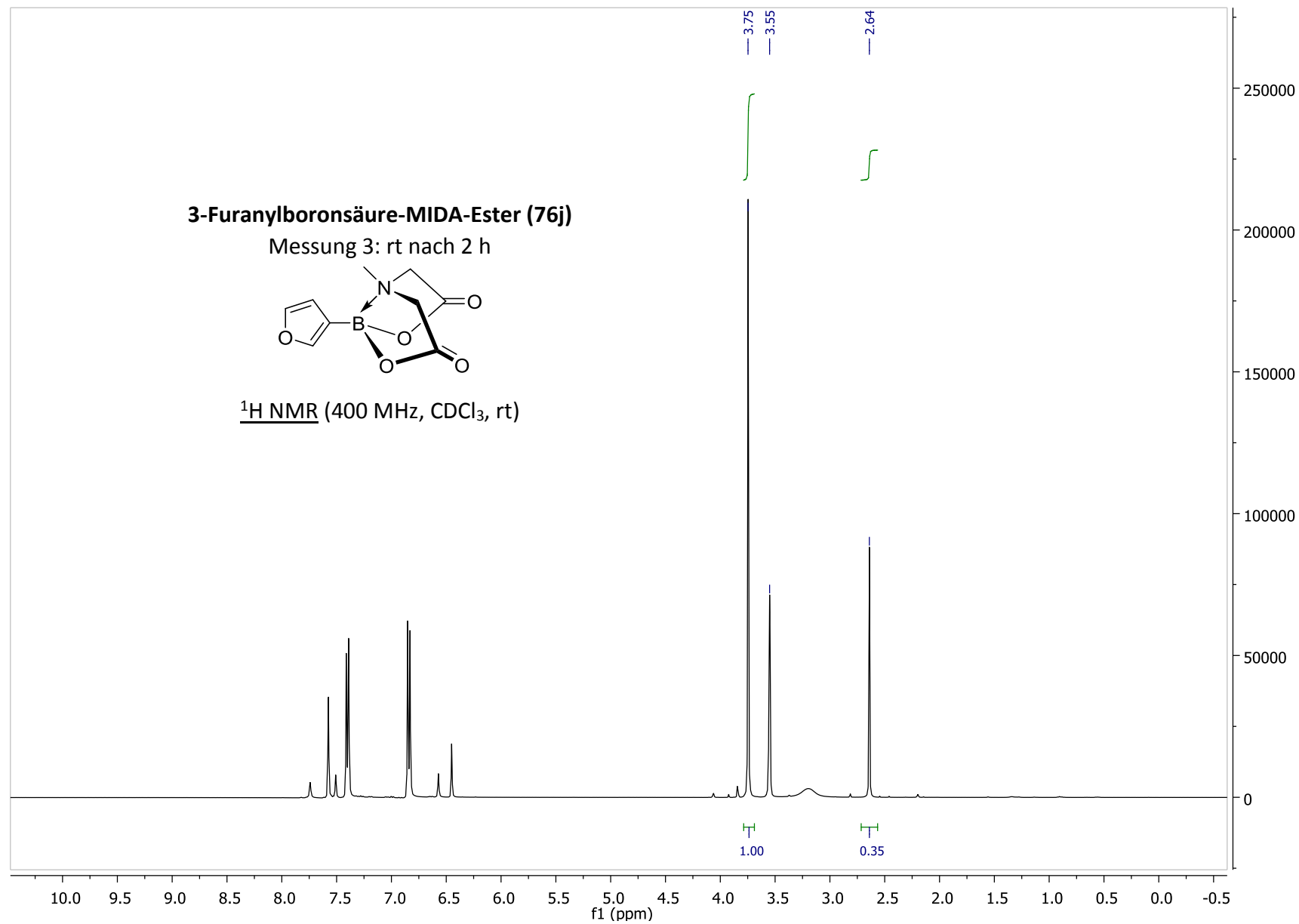


3-Furanylboronsäure-MIDA-Ester (76j)

Messung 3: rt nach 2 h

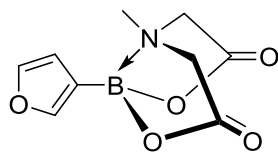


$^1\text{H NMR}$ (400 MHz, CDCl_3 , rt)

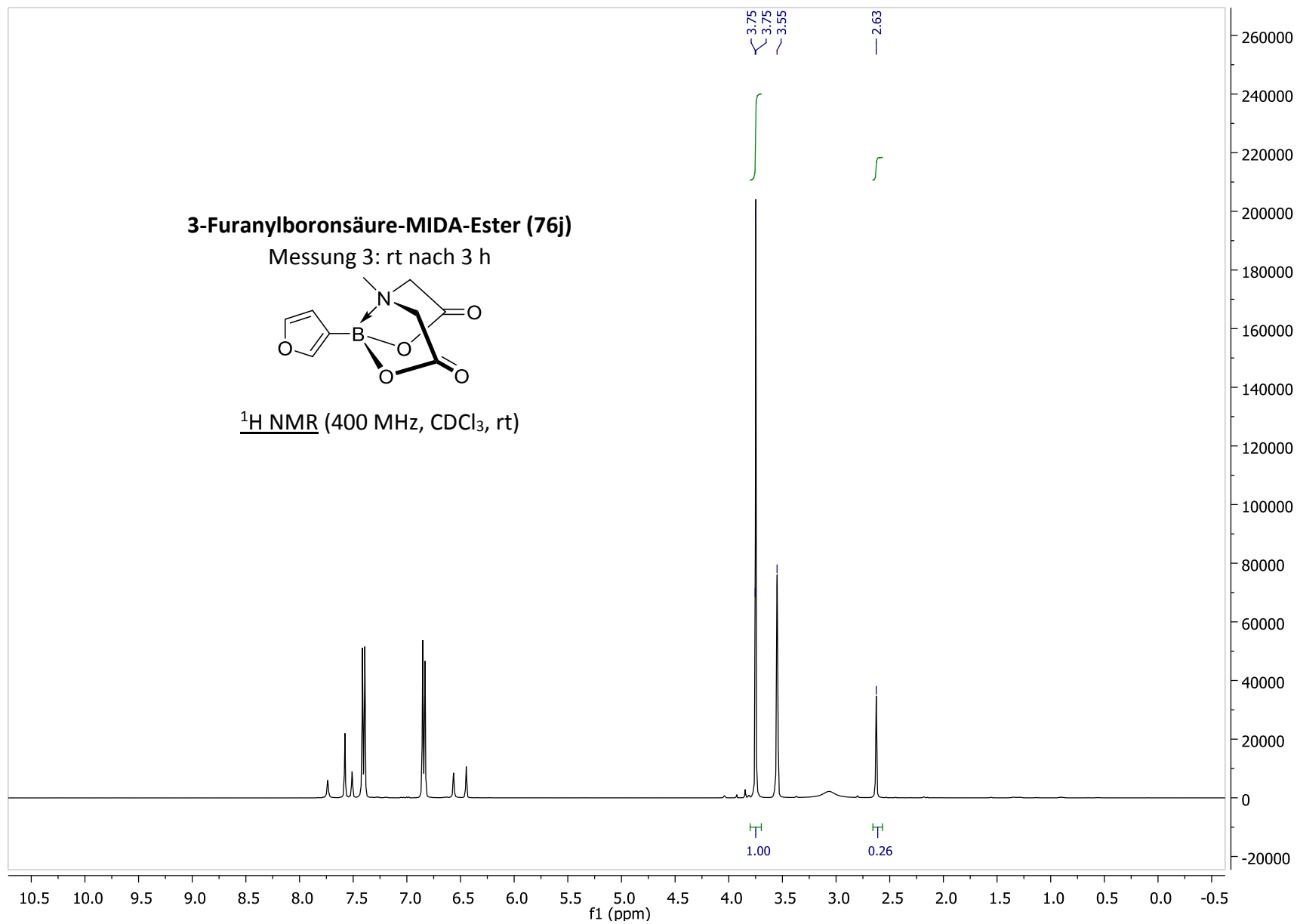


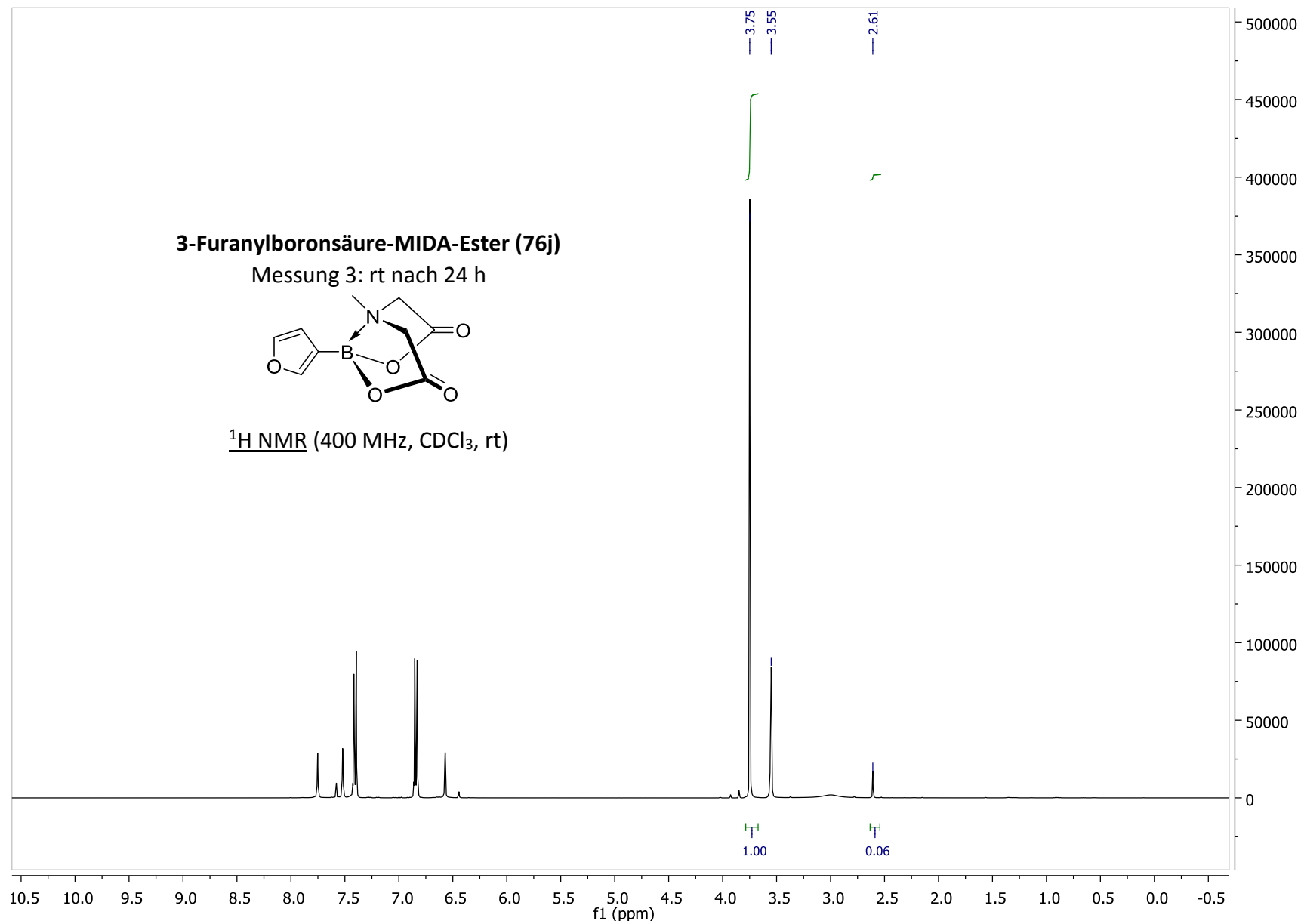
3-Furanylboronsäure-MIDA-Ester (76j)

Messung 3: rt nach 3 h

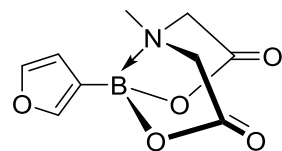


$^1\text{H NMR}$ (400 MHz, CDCl_3 , rt)

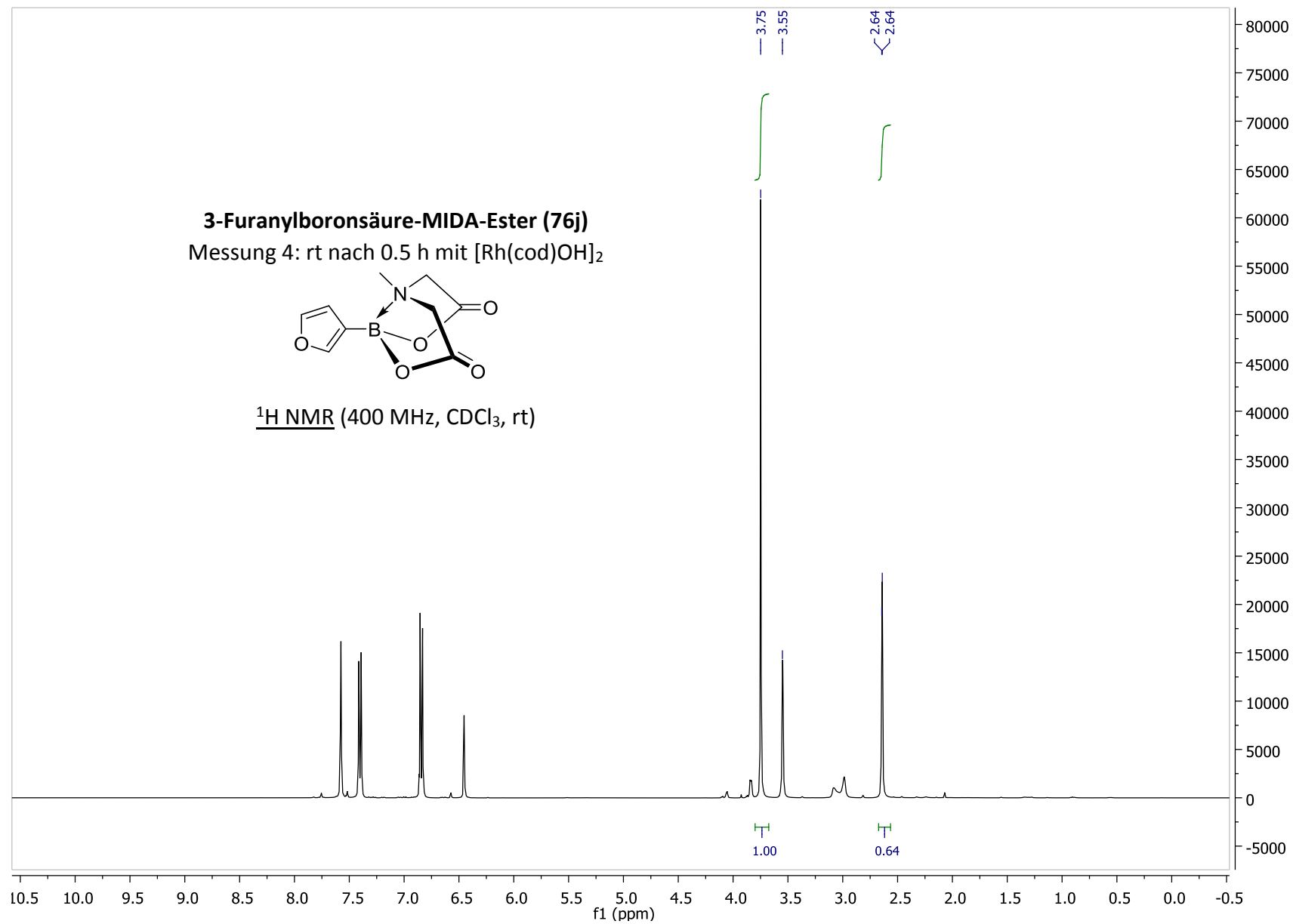




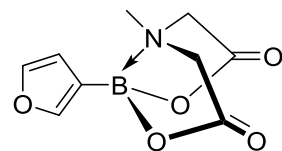
3-Furanylboronsäure-MIDA-Ester (76j)
Messung 4: rt nach 0.5 h mit $[\text{Rh}(\text{cod})\text{OH}]_2$



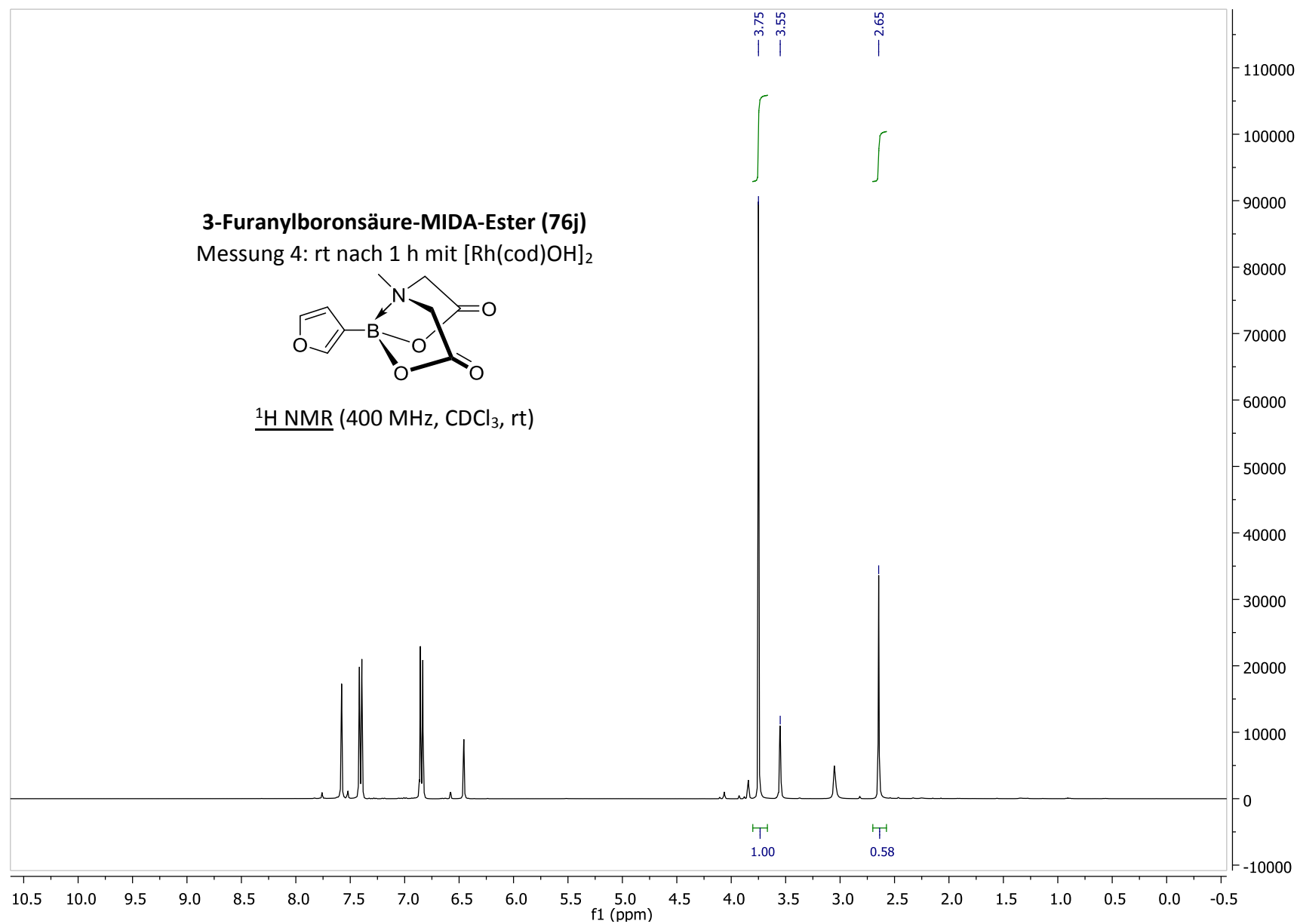
$^1\text{H NMR}$ (400 MHz, CDCl_3 , rt)



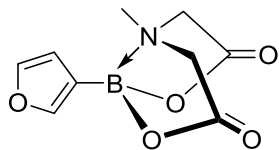
3-Furanylboronsäure-MIDA-Ester (76j)
Messung 4: rt nach 1 h mit [Rh(cod)OH]₂



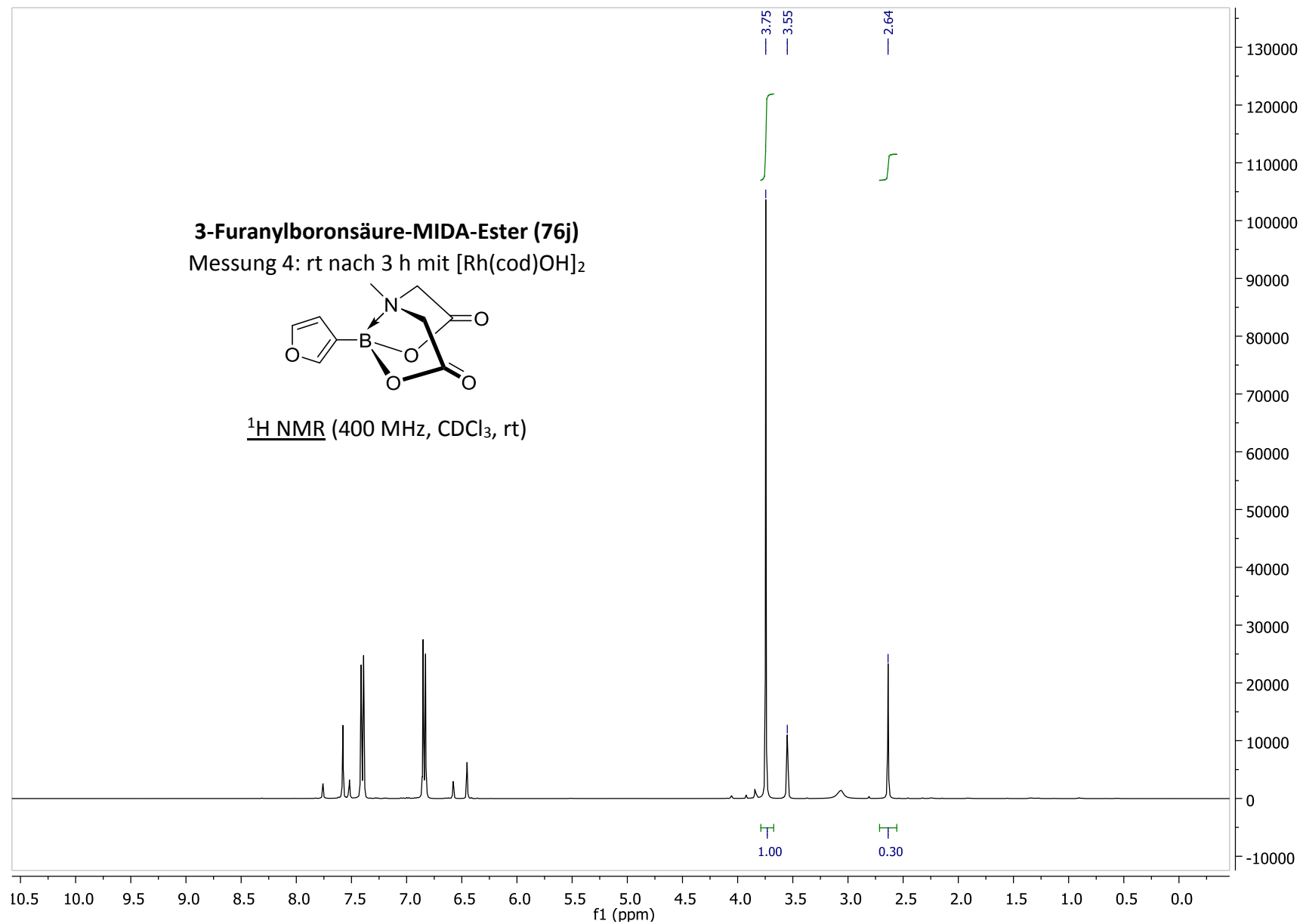
¹H NMR (400 MHz, CDCl₃, rt)



3-Furanylboronsäure-MIDA-Ester (76j)
Messung 4: rt nach 3 h mit $[\text{Rh}(\text{cod})\text{OH}]_2$

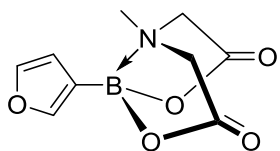


$^1\text{H NMR}$ (400 MHz, CDCl_3 , rt)

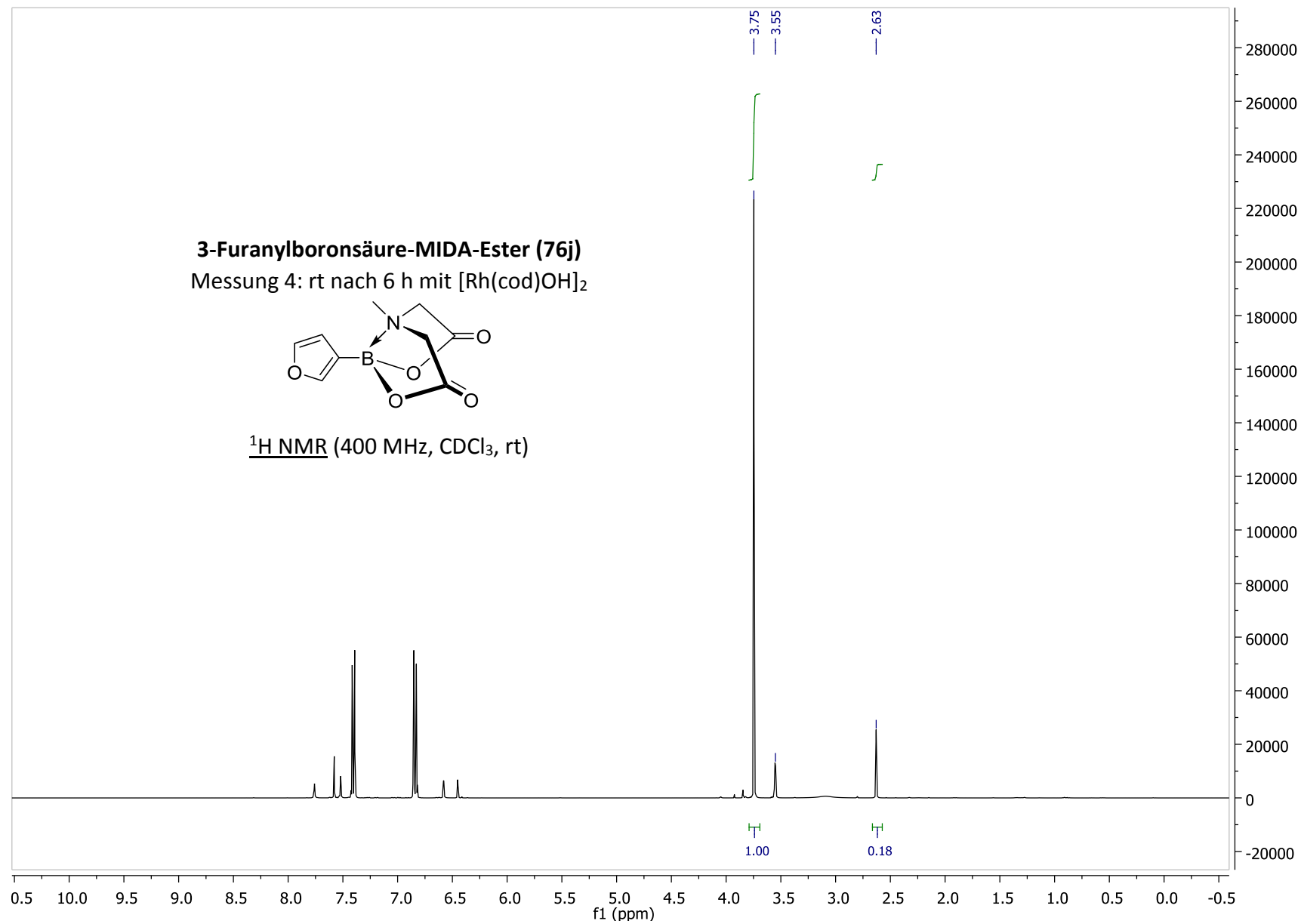


3-Furanylboronsäure-MIDA-Ester (76j)

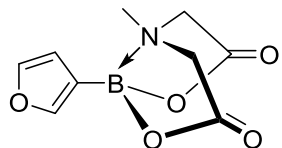
Messung 4: rt nach 6 h mit $[\text{Rh}(\text{cod})\text{OH}]_2$



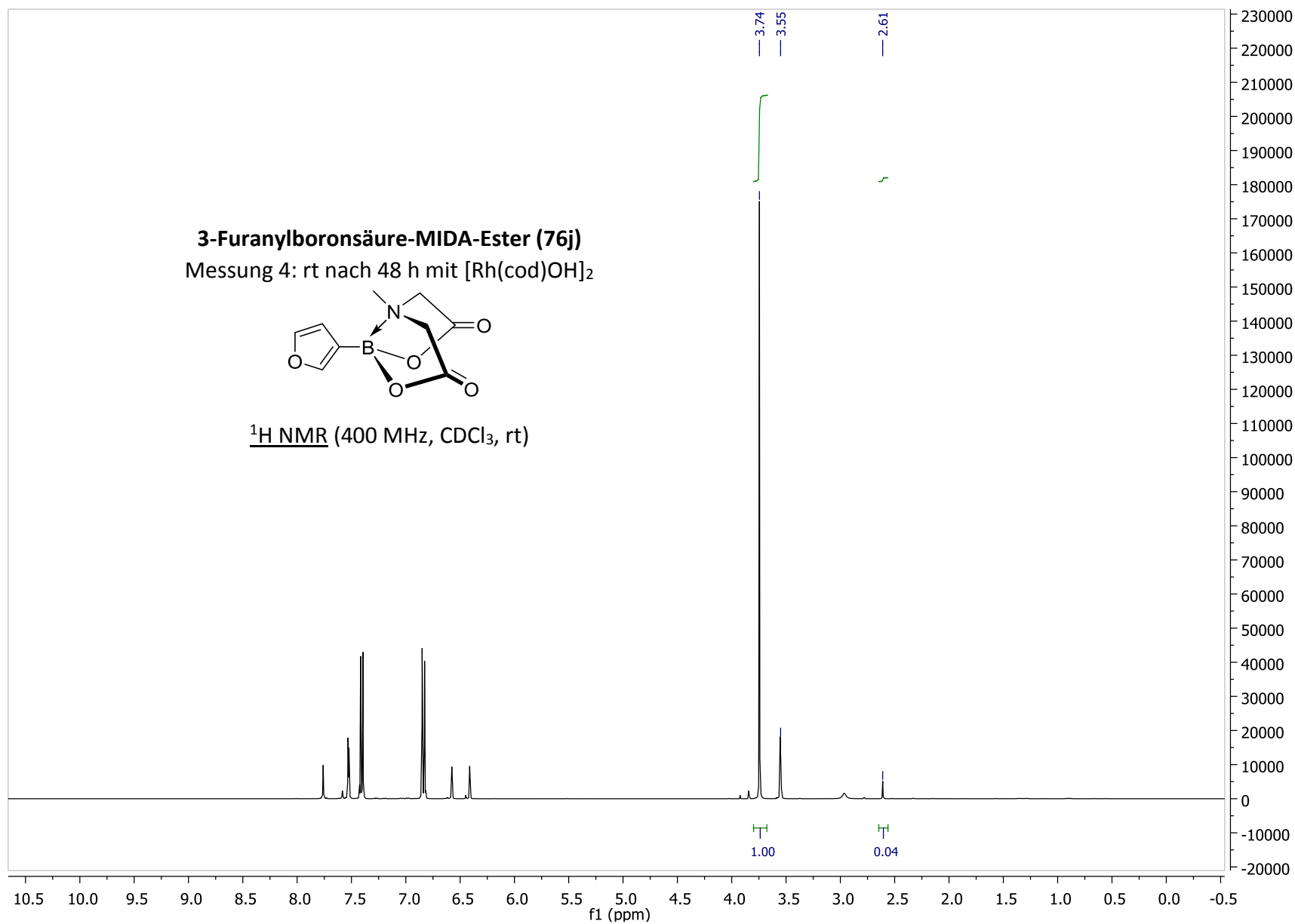
$^1\text{H NMR}$ (400 MHz, CDCl_3 , rt)



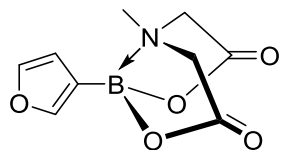
3-Furanylboronsäure-MIDA-Ester (76j)
Messung 4: rt nach 48 h mit [Rh(cod)OH]₂



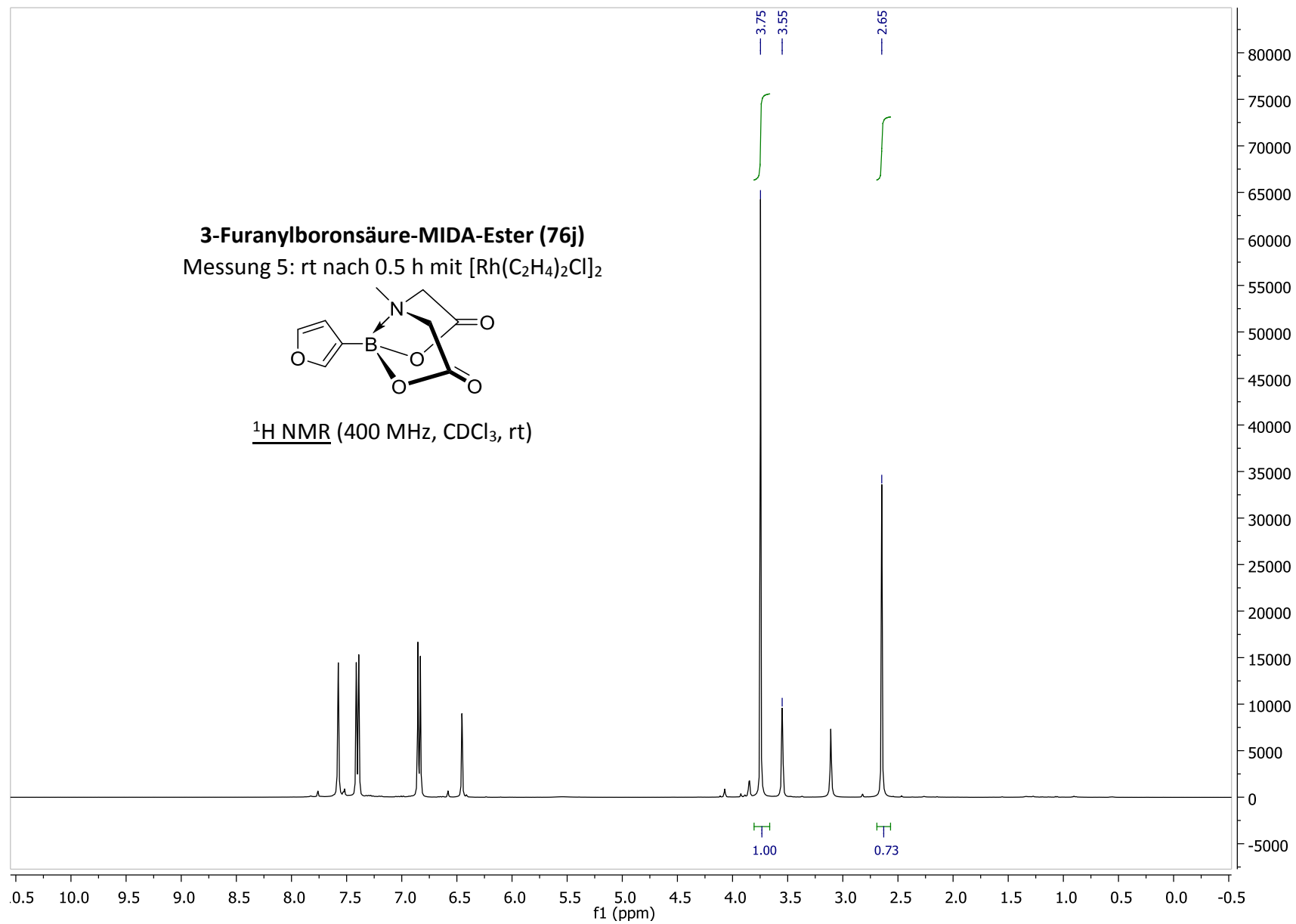
¹H NMR (400 MHz, CDCl₃, rt)



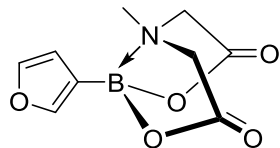
3-Furanylboronsäure-MIDA-Ester (76j)
Messung 5: rt nach 0.5 h mit $[\text{Rh}(\text{C}_2\text{H}_4)_2\text{Cl}]_2$



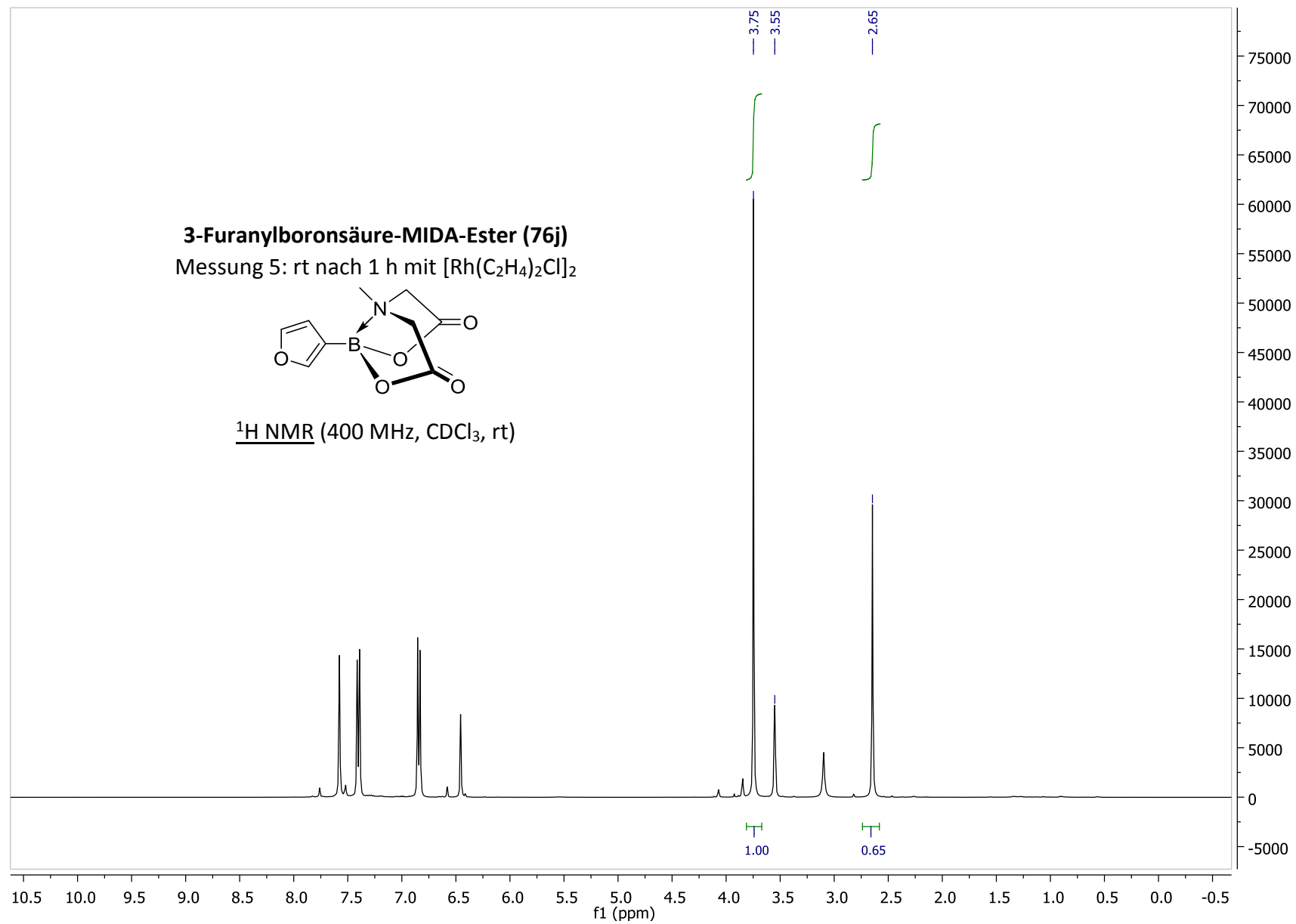
^1H NMR (400 MHz, CDCl_3 , rt)



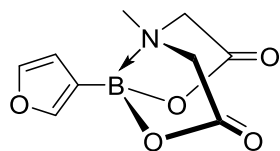
3-Furanylboronsäure-MIDA-Ester (76j)
Messung 5: rt nach 1 h mit $[\text{Rh}(\text{C}_2\text{H}_4)_2\text{Cl}]_2$



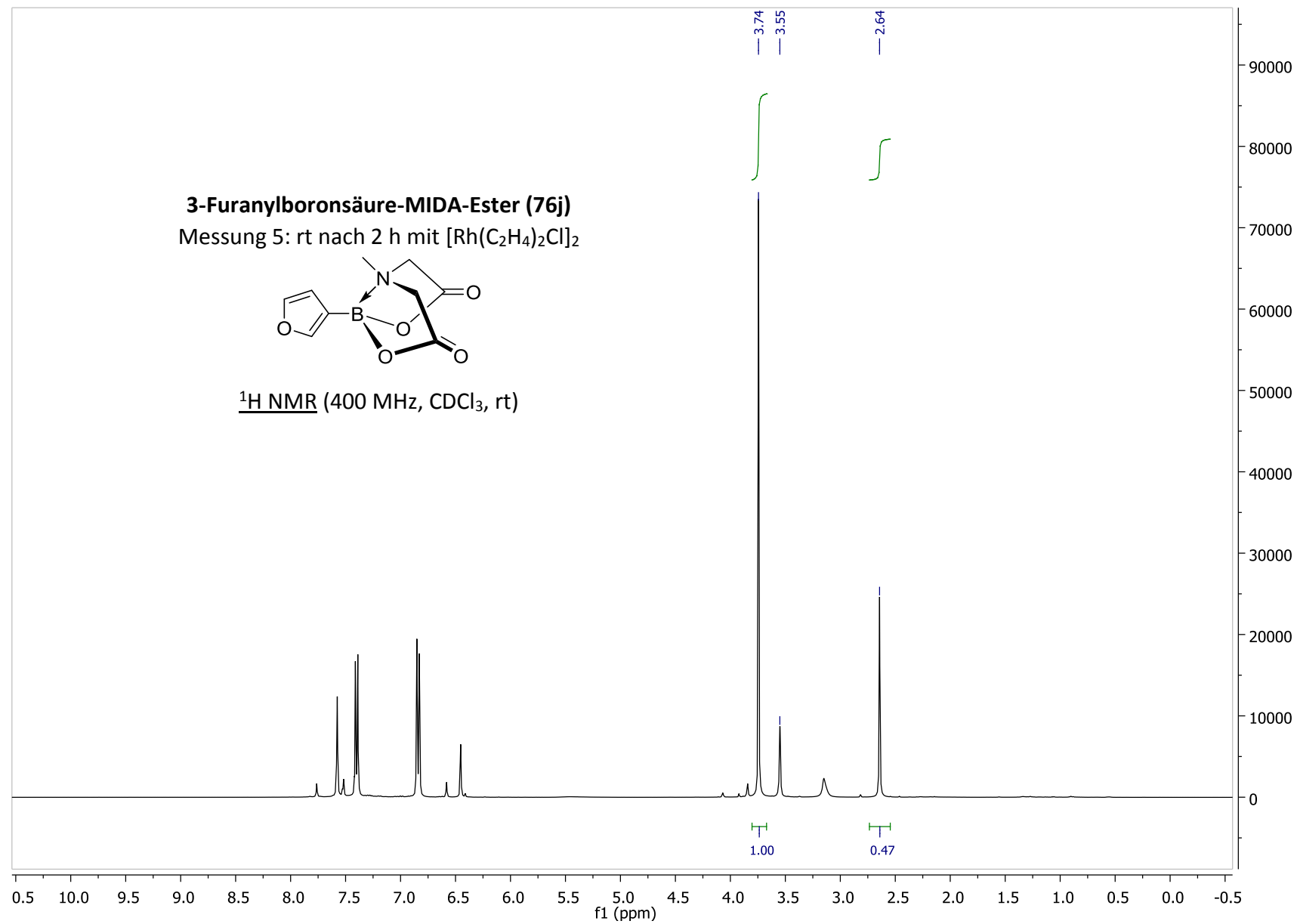
^1H NMR (400 MHz, CDCl_3 , rt)



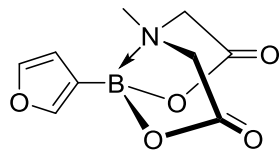
3-Furanylboronsäure-MIDA-Ester (76j)
Messung 5: rt nach 2 h mit $[\text{Rh}(\text{C}_2\text{H}_4)_2\text{Cl}]_2$



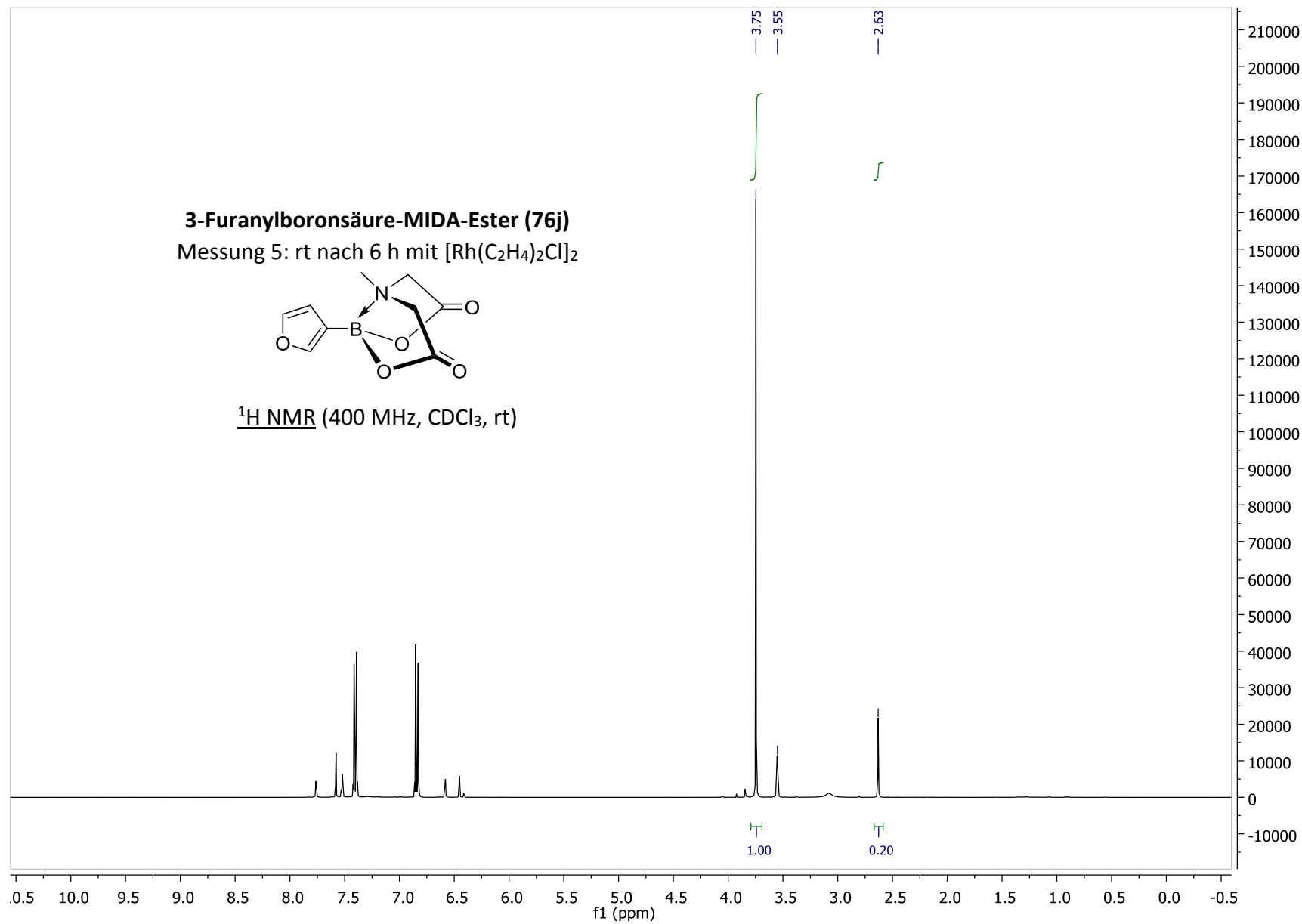
$^1\text{H NMR}$ (400 MHz, CDCl_3 , rt)

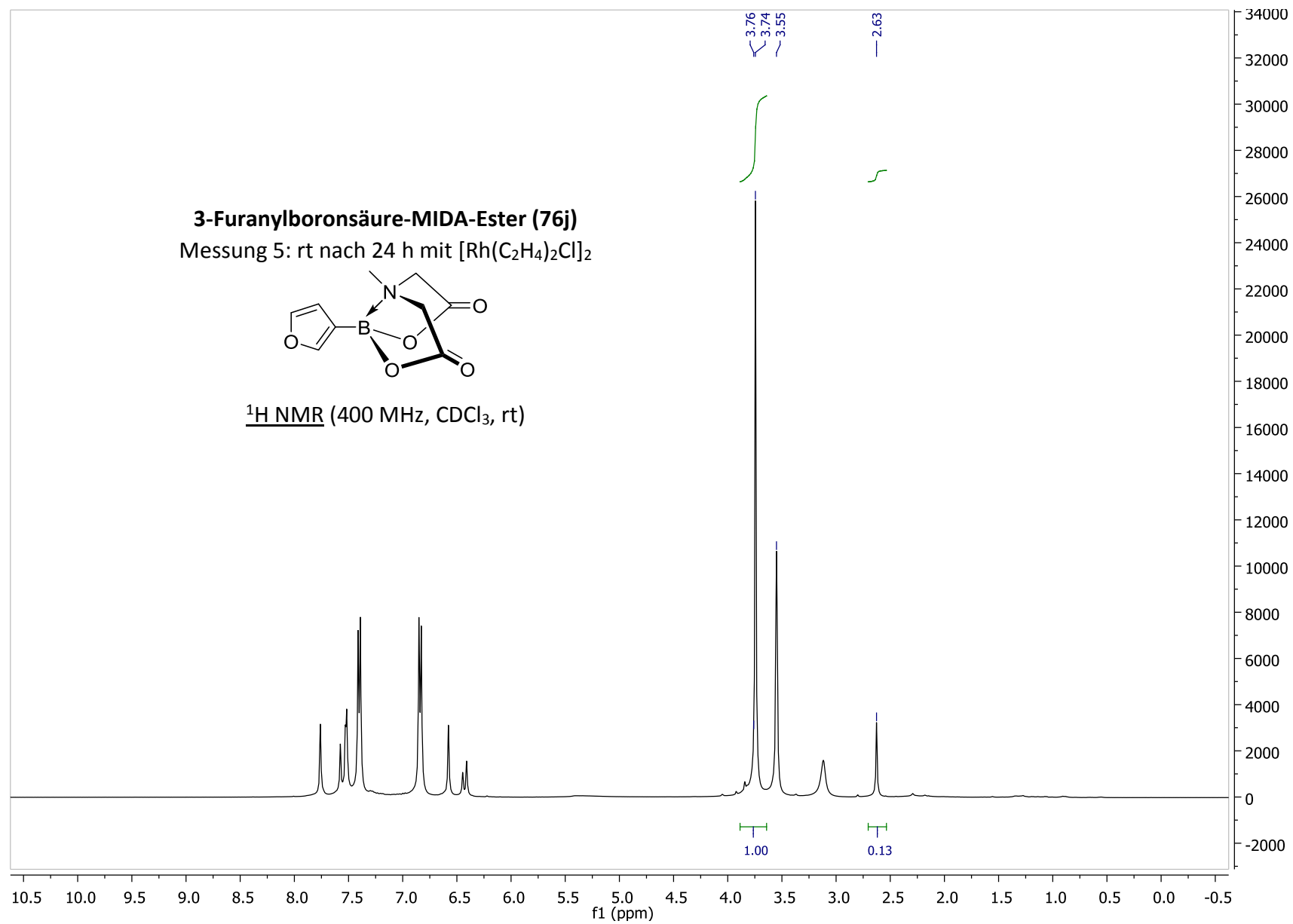


3-Furanylboronsäure-MIDA-Ester (76j)
Messung 5: rt nach 6 h mit $[\text{Rh}(\text{C}_2\text{H}_4)_2\text{Cl}]_2$

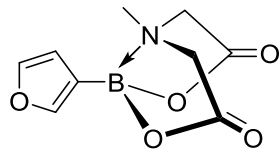


^1H NMR (400 MHz, CDCl_3 , rt)

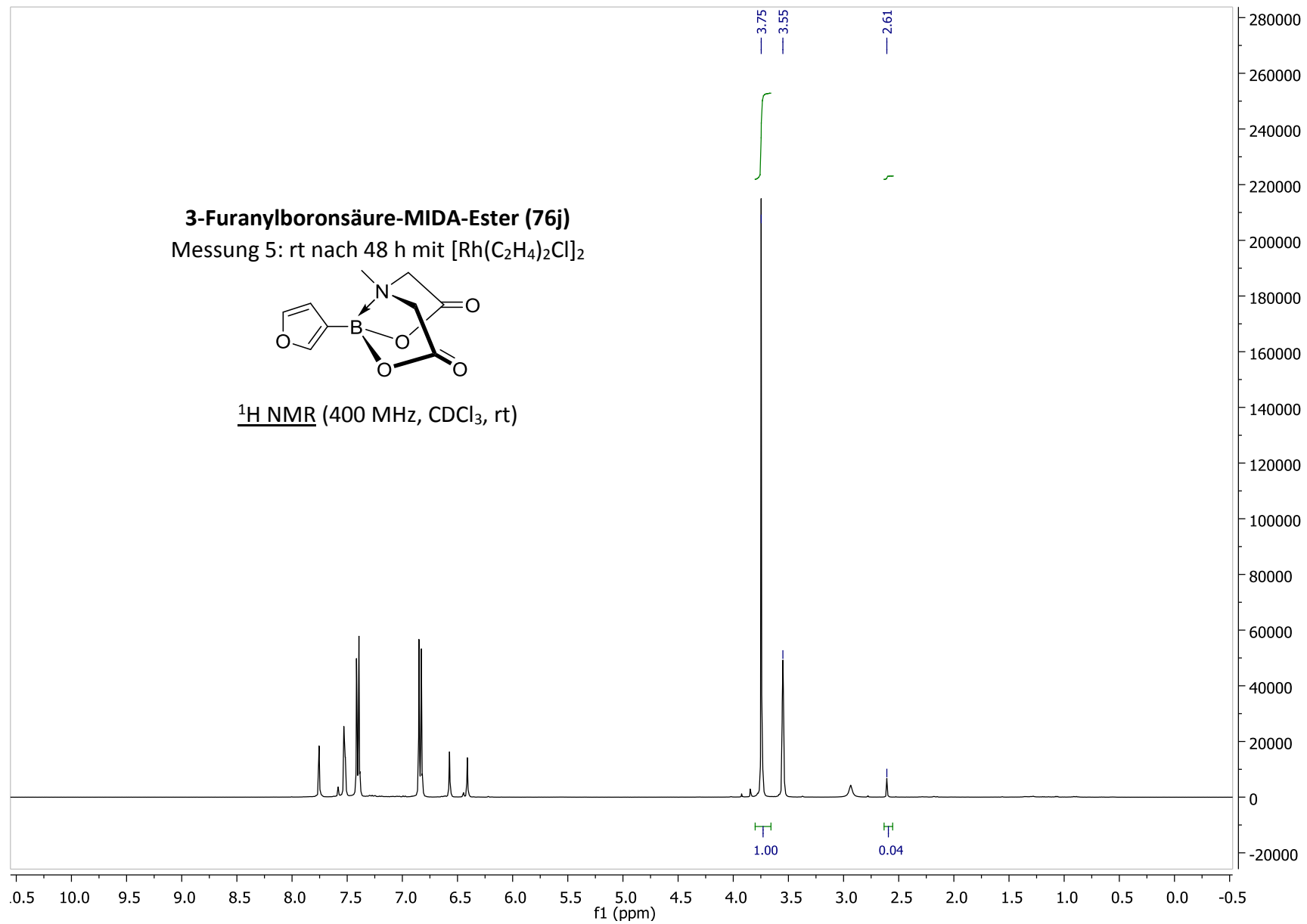




3-Furanylboronsäure-MIDA-Ester (76j)
Messung 5: rt nach 48 h mit $[\text{Rh}(\text{C}_2\text{H}_4)_2\text{Cl}]_2$

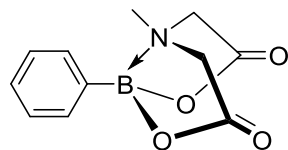


^1H NMR (400 MHz, CDCl_3 , rt)

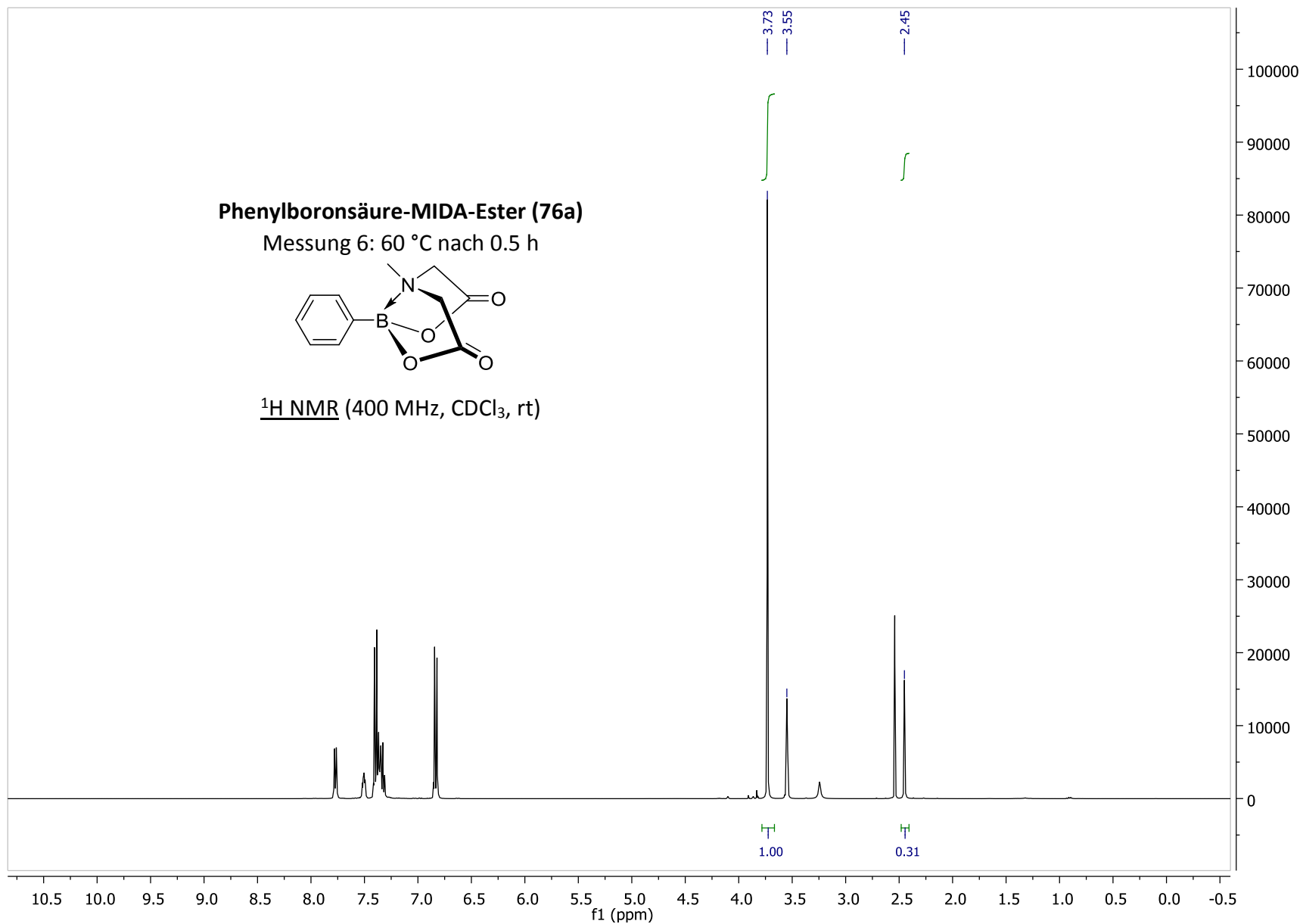


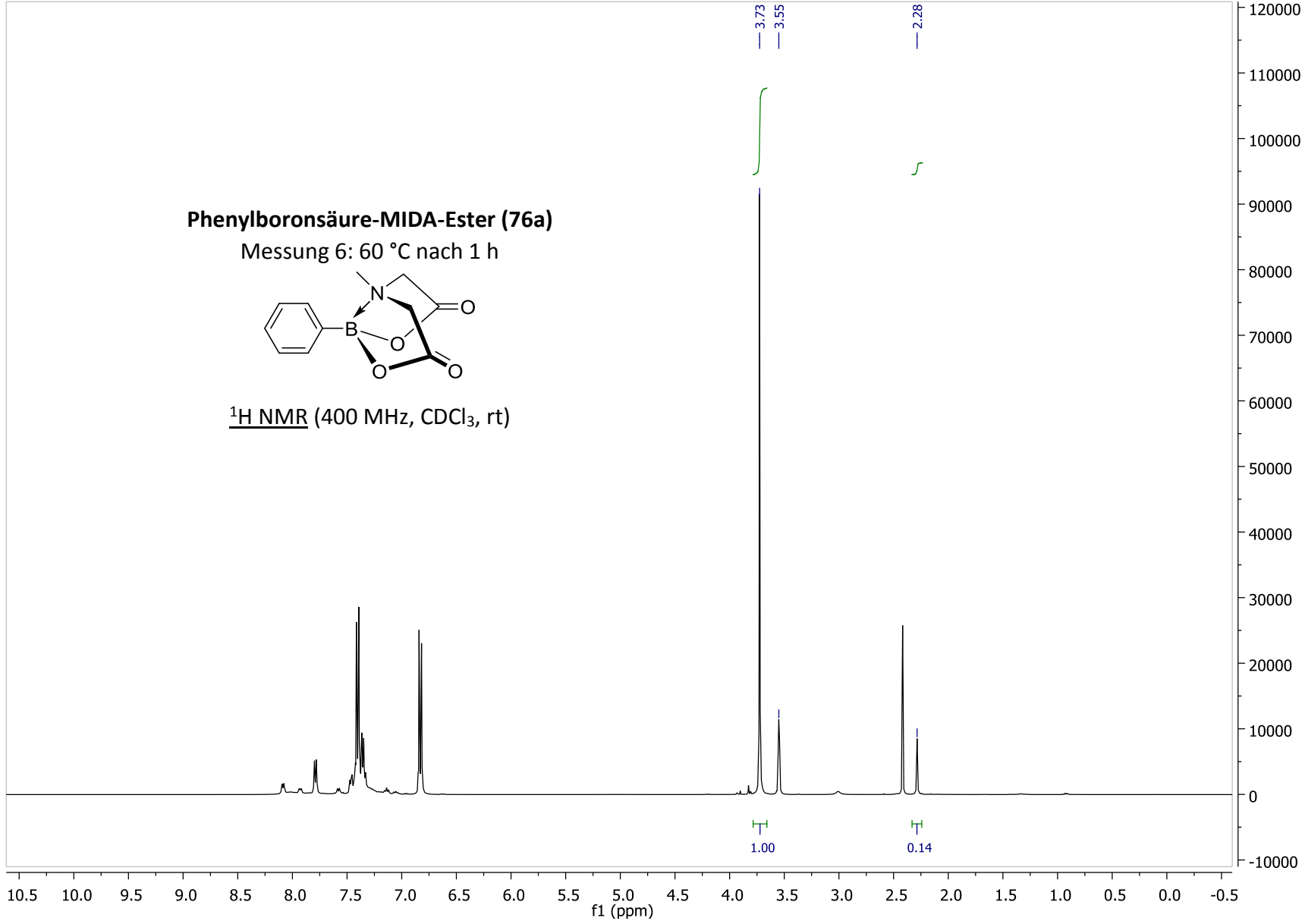
Phenylboronsäure-MIDA-Ester (76a)

Messung 6: 60 °C nach 0.5 h



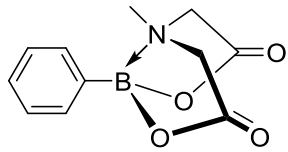
^1H NMR (400 MHz, CDCl_3 , rt)



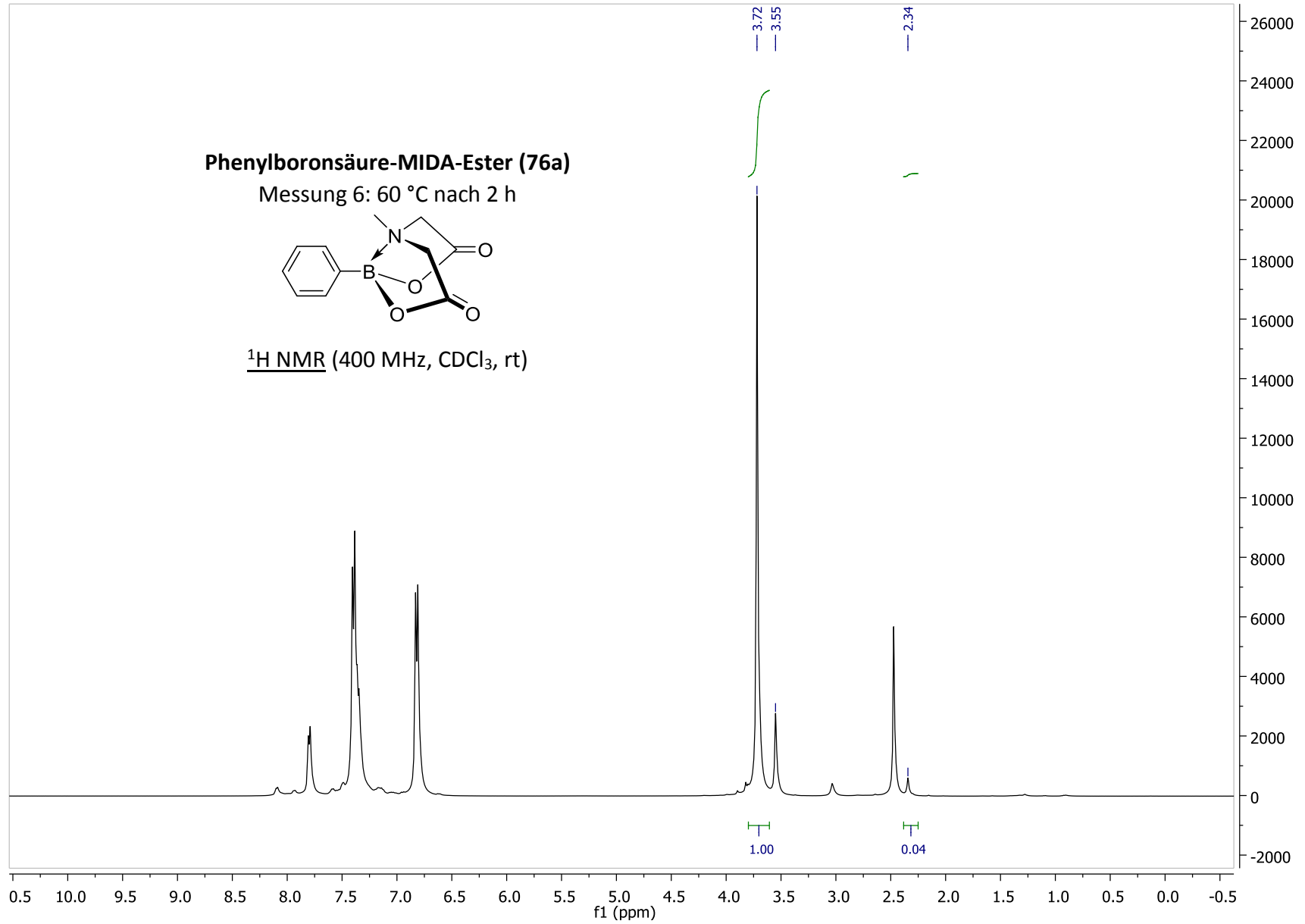


Phenylboronsäure-MIDA-Ester (76a)

Messung 6: 60 °C nach 2 h

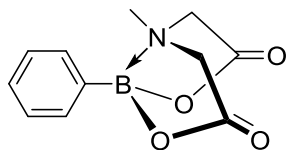


¹H NMR (400 MHz, CDCl₃, rt)

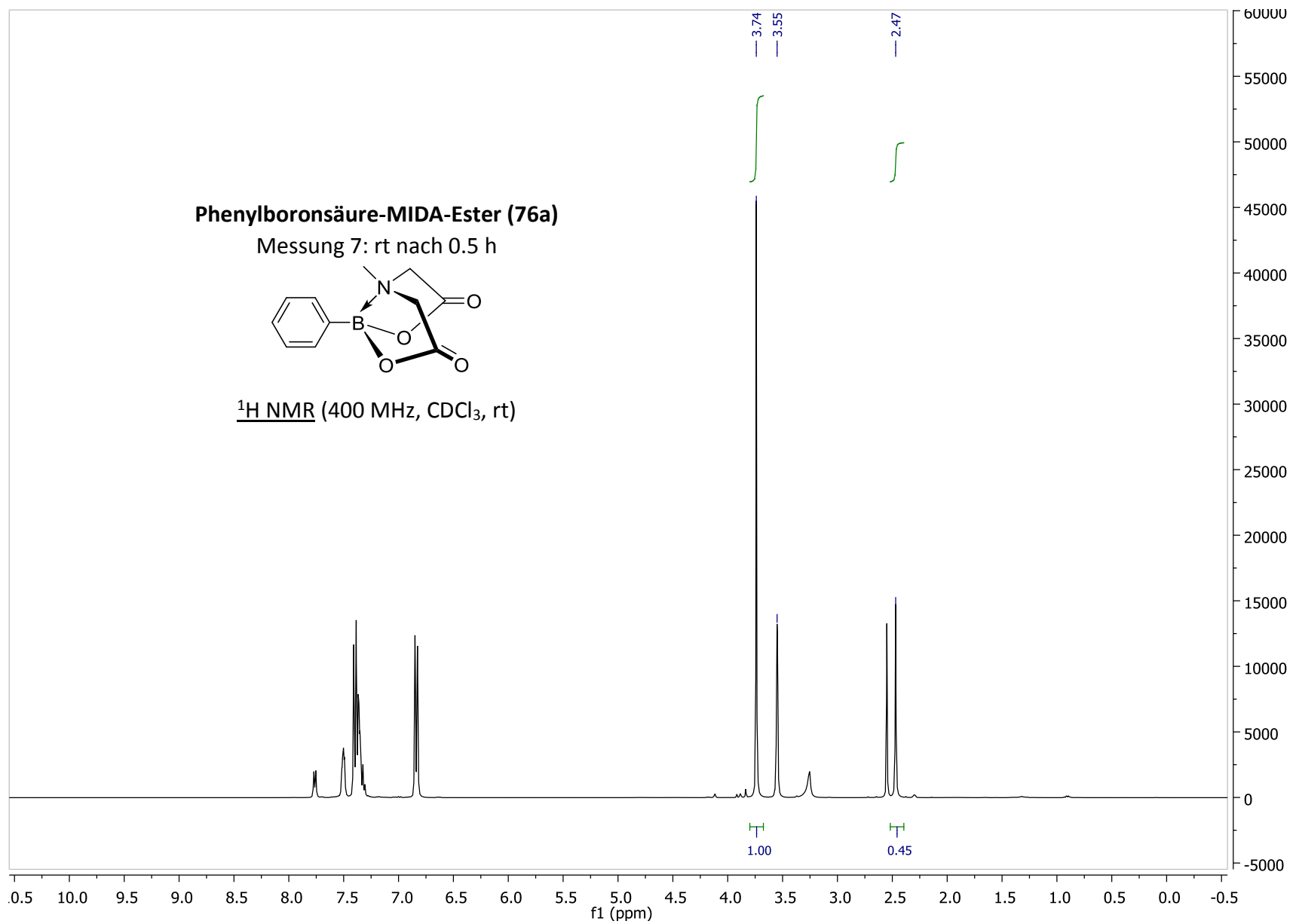


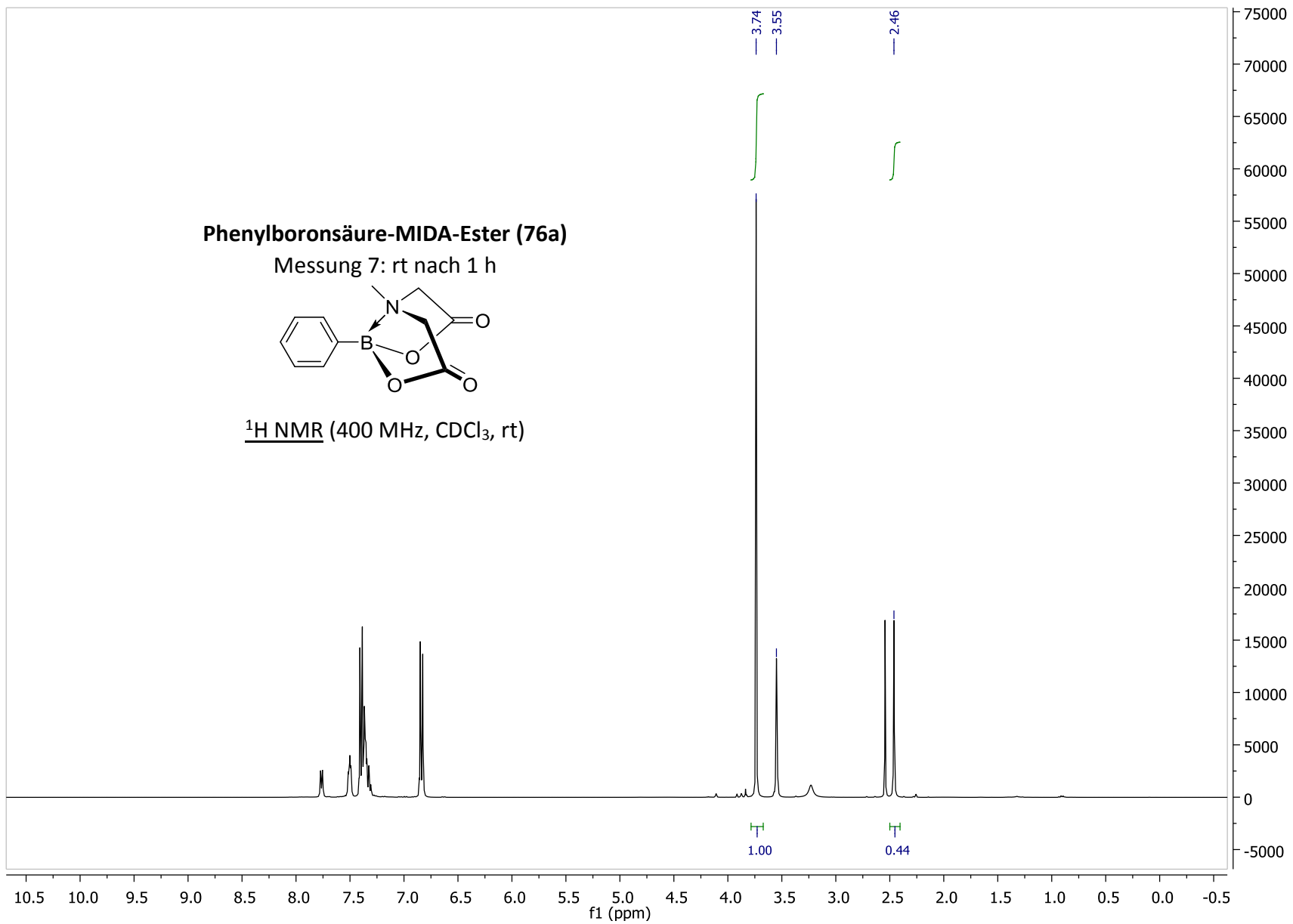
Phenylboronsäure-MIDA-Ester (76a)

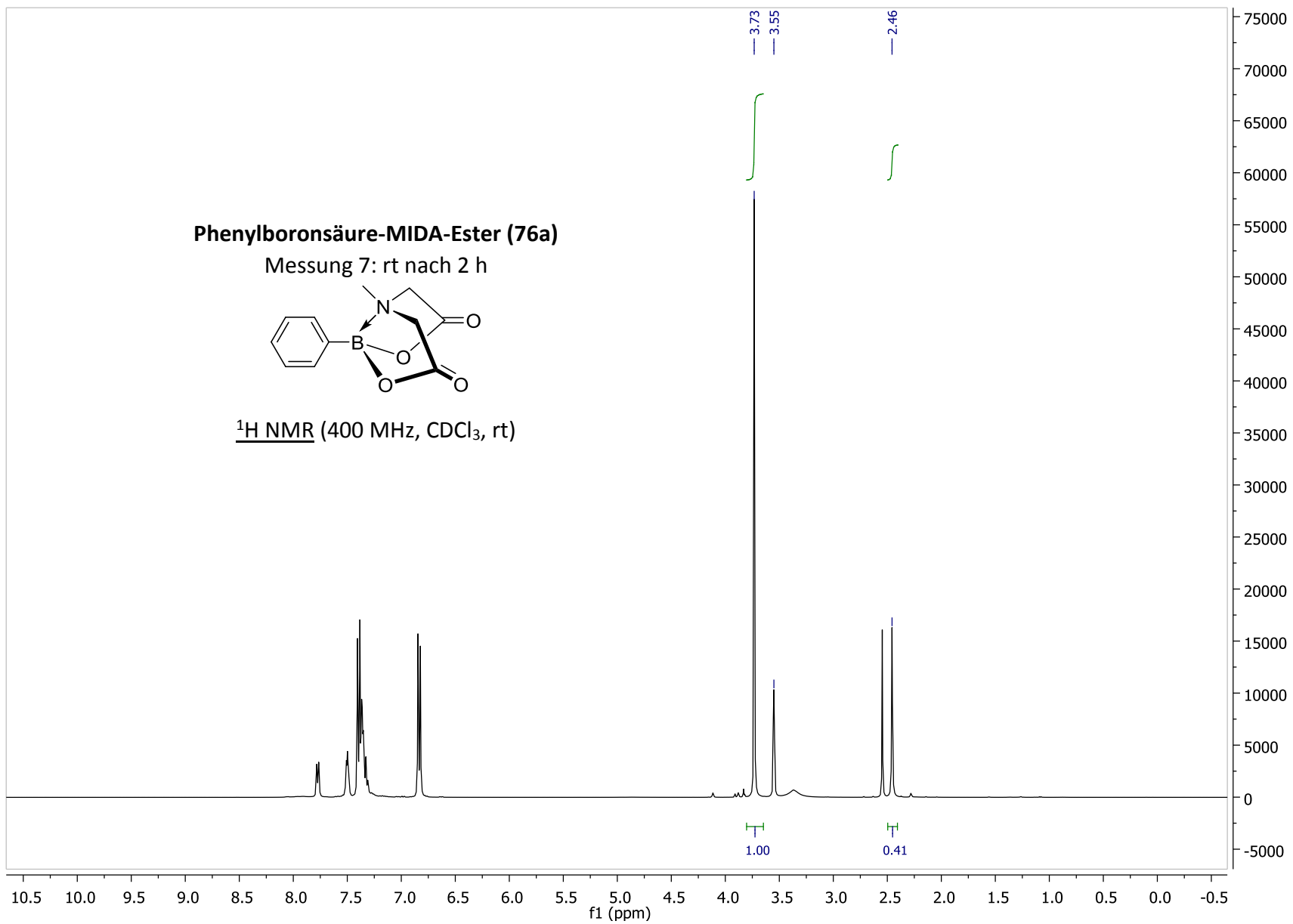
Messung 7: rt nach 0.5 h



^1H NMR (400 MHz, CDCl_3 , rt)

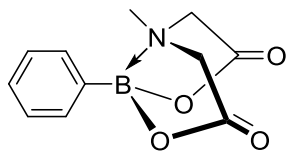




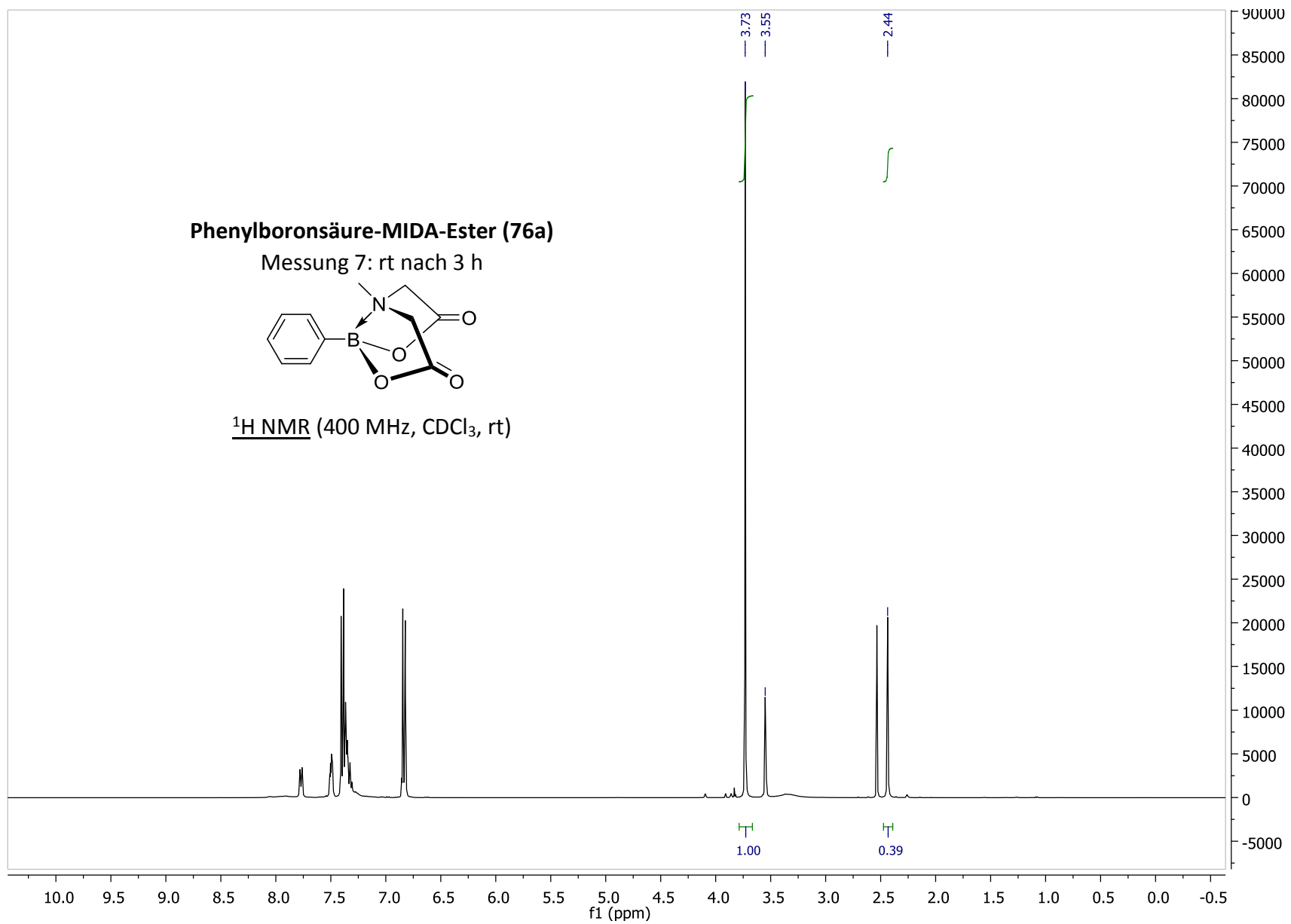


Phenylboronsäure-MIDA-Ester (76a)

Messung 7: rt nach 3 h

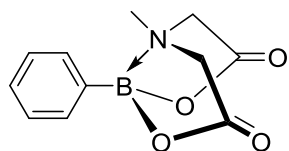


$^1\text{H NMR}$ (400 MHz, CDCl_3 , rt)



Phenylboronsäure-MIDA-Ester (76a)

Messung 7: rt nach 24 h



^1H NMR (400 MHz, CDCl_3 , rt)

