

Supporting Information-II

NMR Spectral Data

Trienamine catalysed unprecedented remote olefin E/Z isomerisation/[4+2]-cycloaddition reaction to access spirooxindole hexahydroindoles

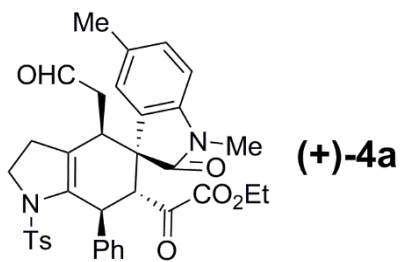
Madavi S. Prasad,^{*a} Murugesan Sivaprakash,^a Sankar Bharani^a and L. Raju Chowhan^b

^bAsymmetric Synthesis and Catalysis Laboratory, Department of Chemistry, Central University of Tamil Nadu, Thiruvarur, 610 005, India

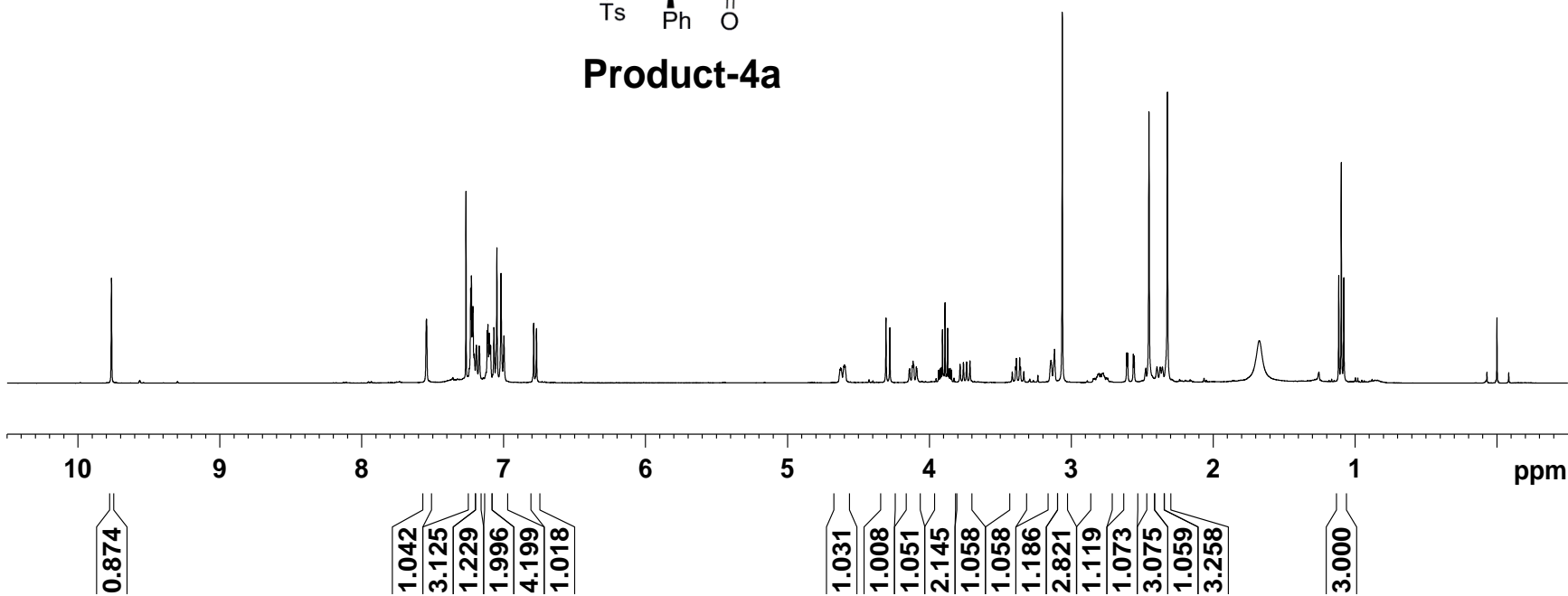
shivaprasad@cutn.ac.in and shivacutn@gmail.com

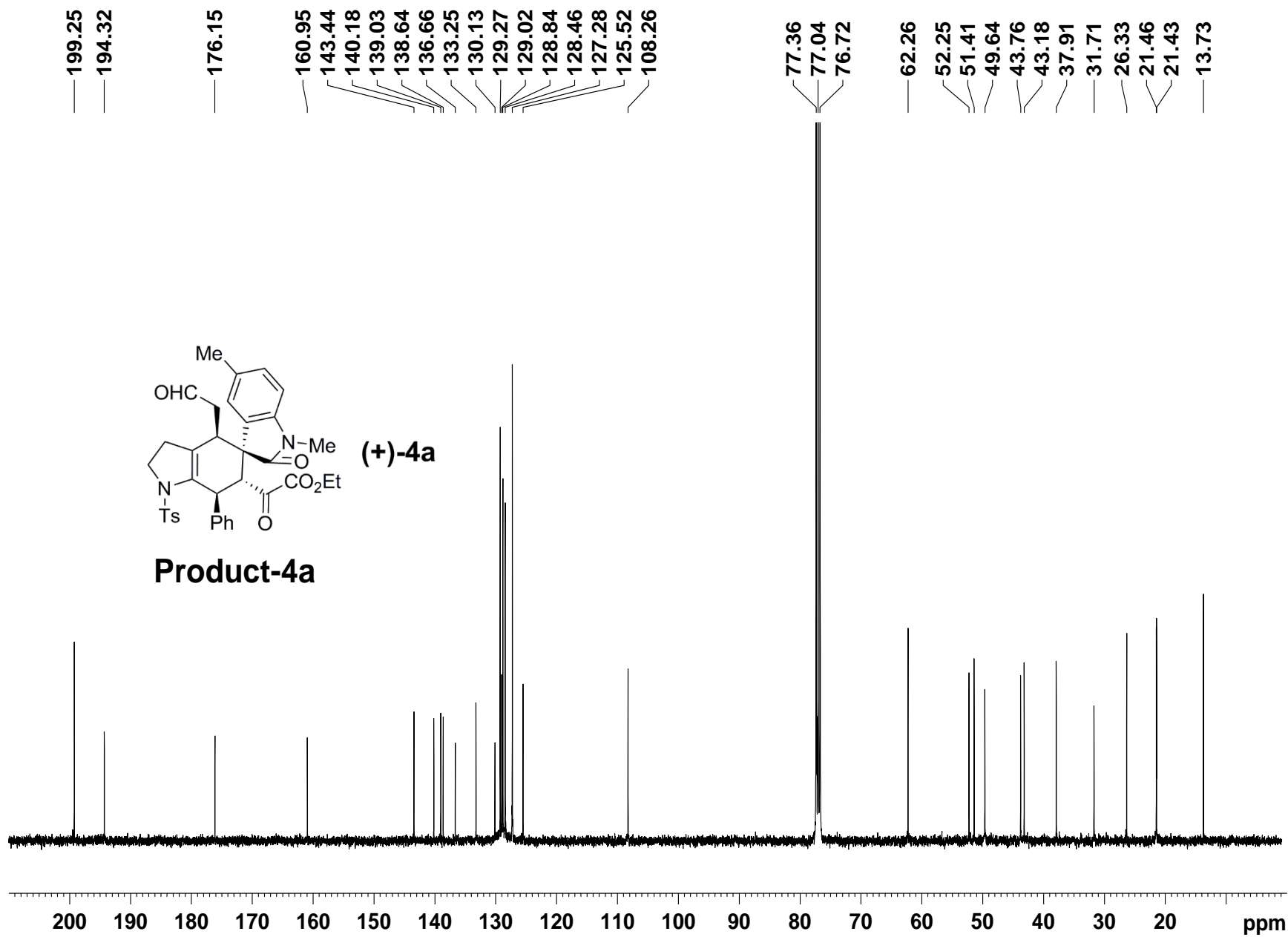
^bSchool of Applied Material Sciences, Centre for Applied Chemistry, Central University of Gujarat, Sector-30, Gandhinagar-382030, Gujarat, India.

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7.264
7.231
7.226
7.218
7.215
7.205
7.191
7.171
7.114
7.109
7.101
7.090
7.067
7.046
7.017
6.996
6.787
6.767
4.601
4.597
4.592
4.304
4.277
4.119
4.113
4.108
3.906
3.888
3.870
3.782
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3.712
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3.142
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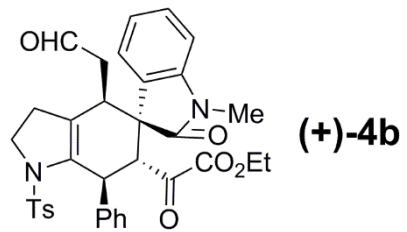


Product-4a

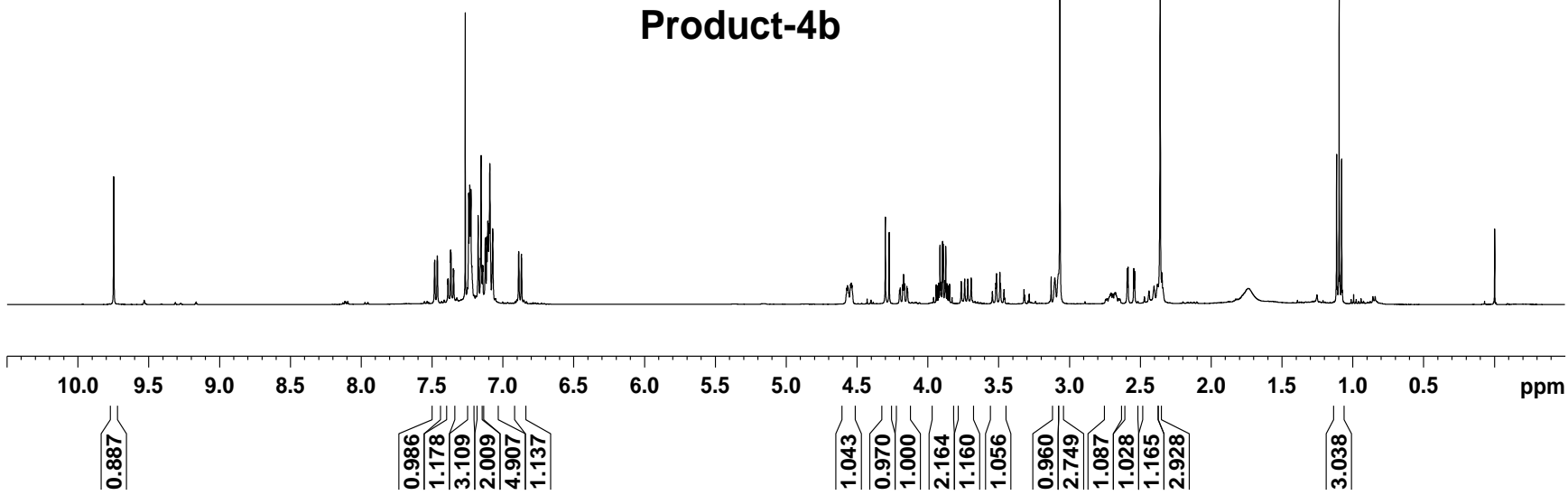


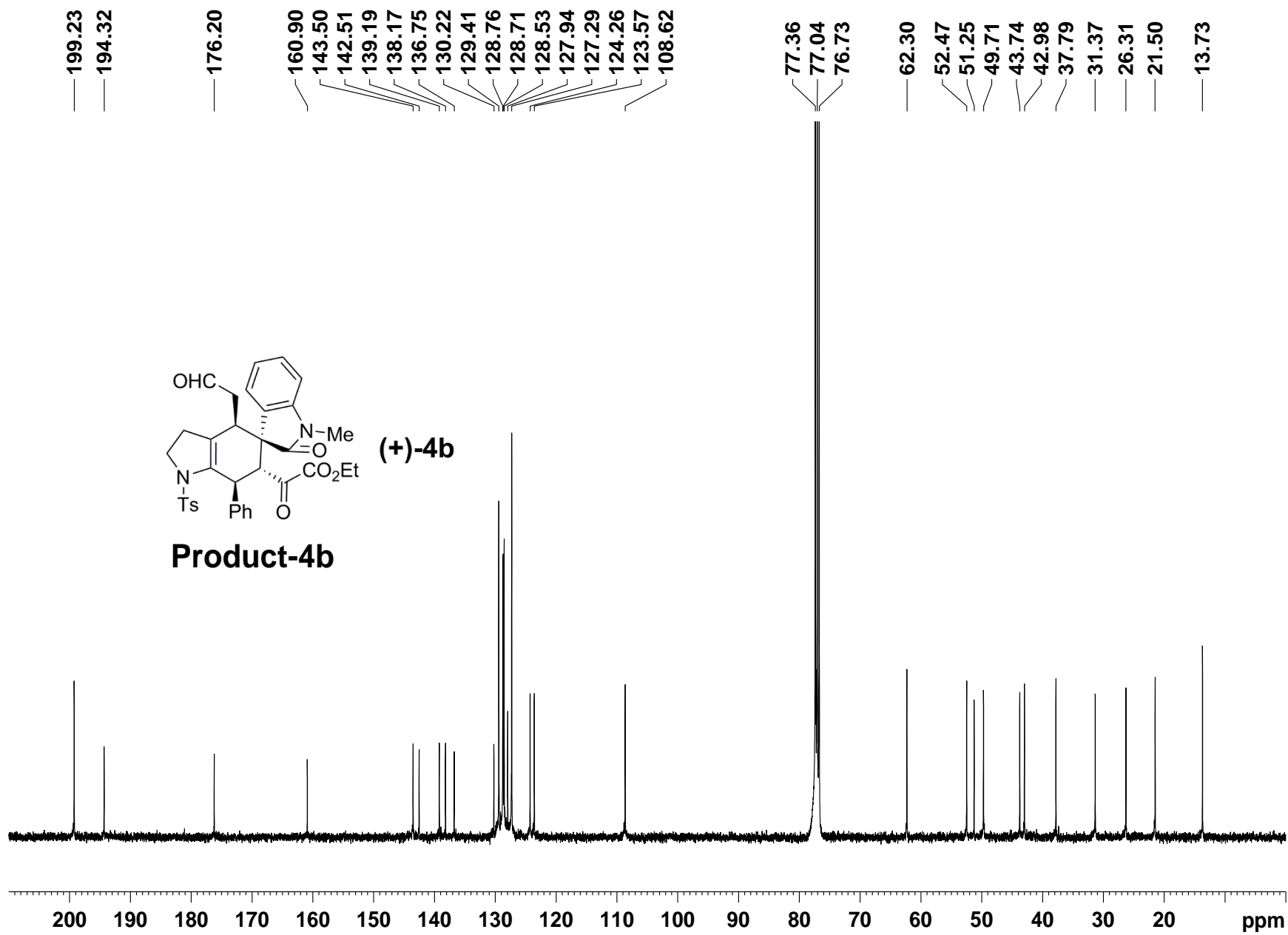


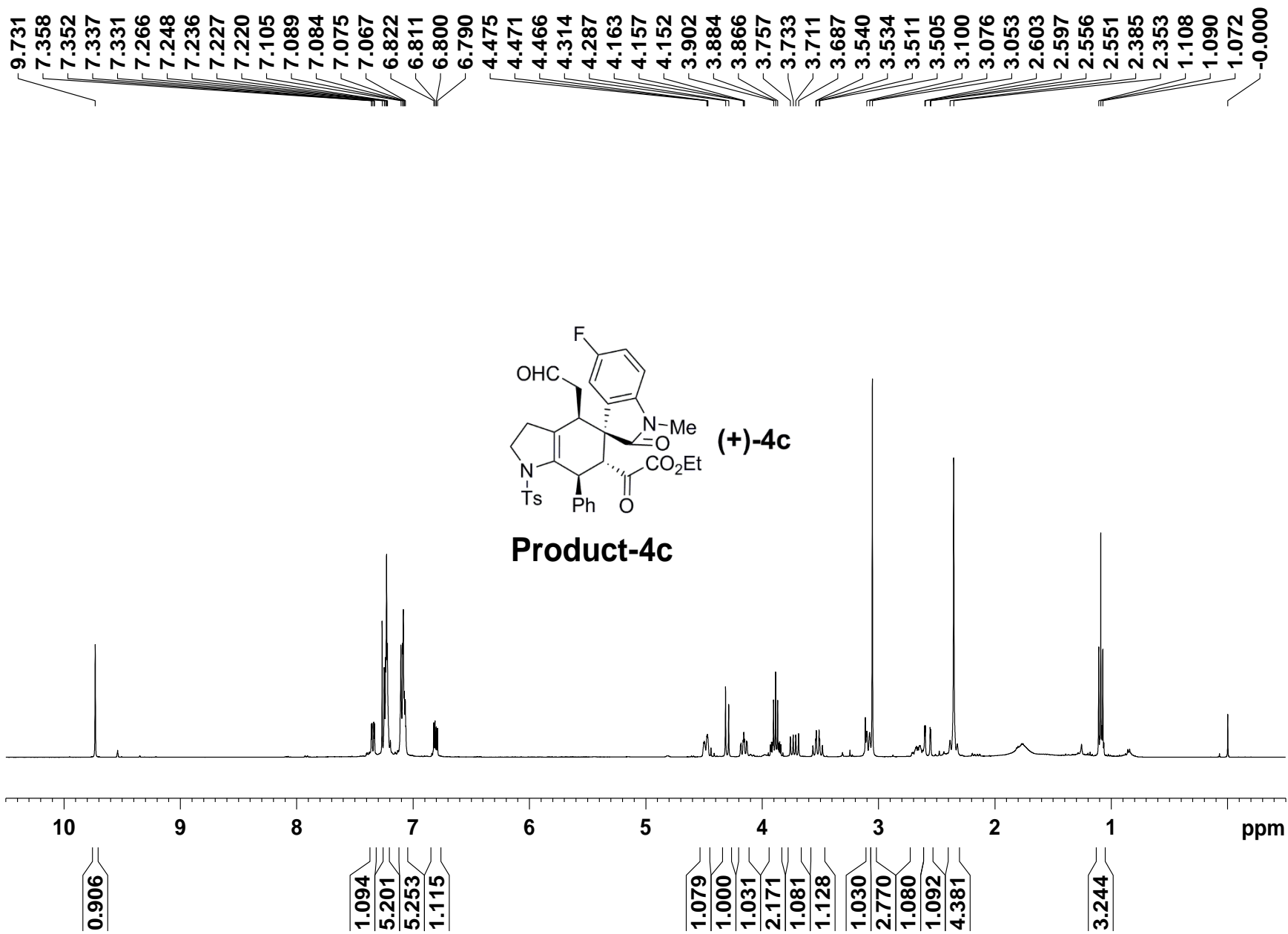
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7.225
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7.122
7.113
7.106
7.102
7.097
7.091
7.071
6.887
6.868
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4.301
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4.172
4.167
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3.915
3.911
3.897
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3.875
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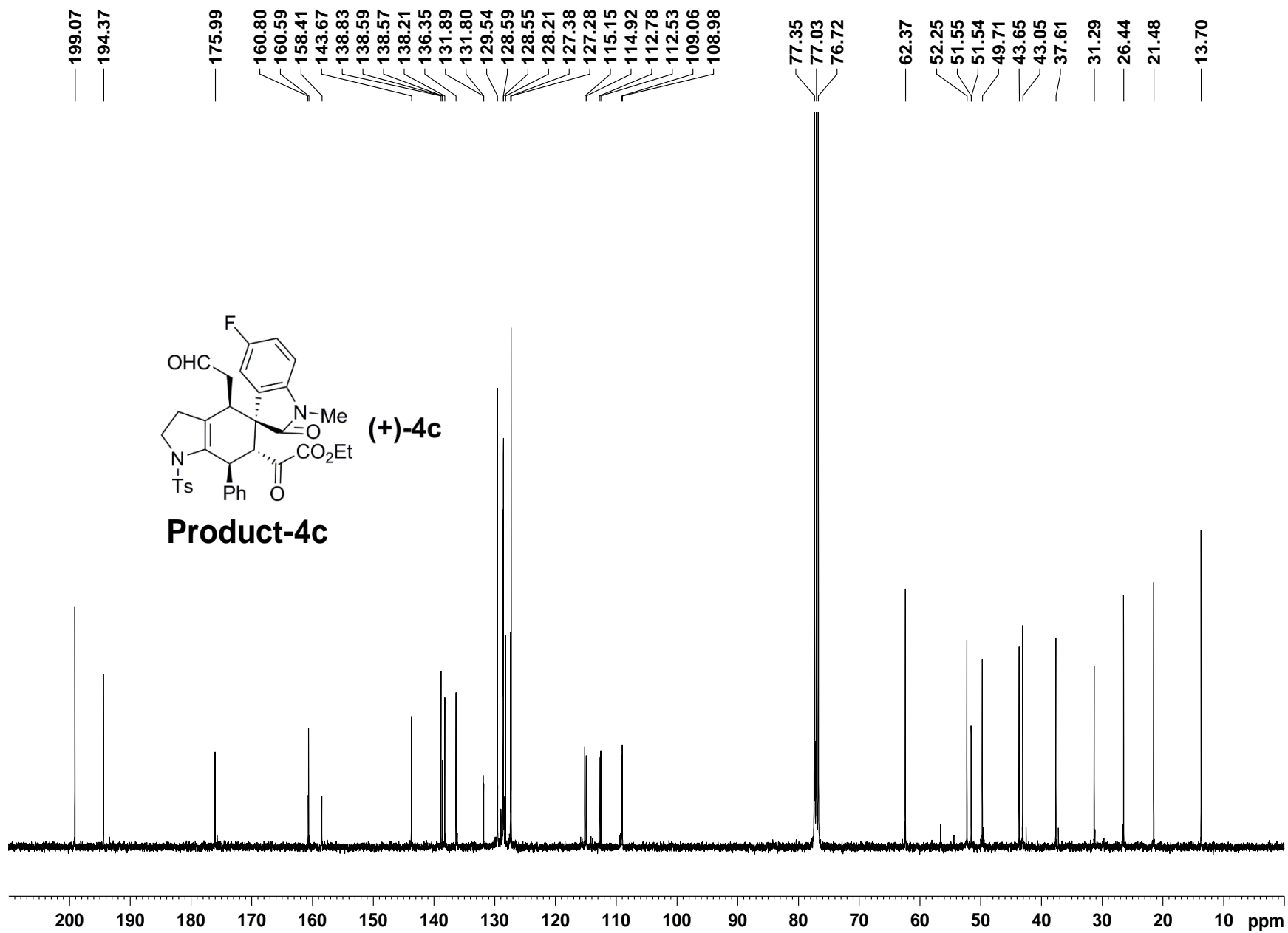


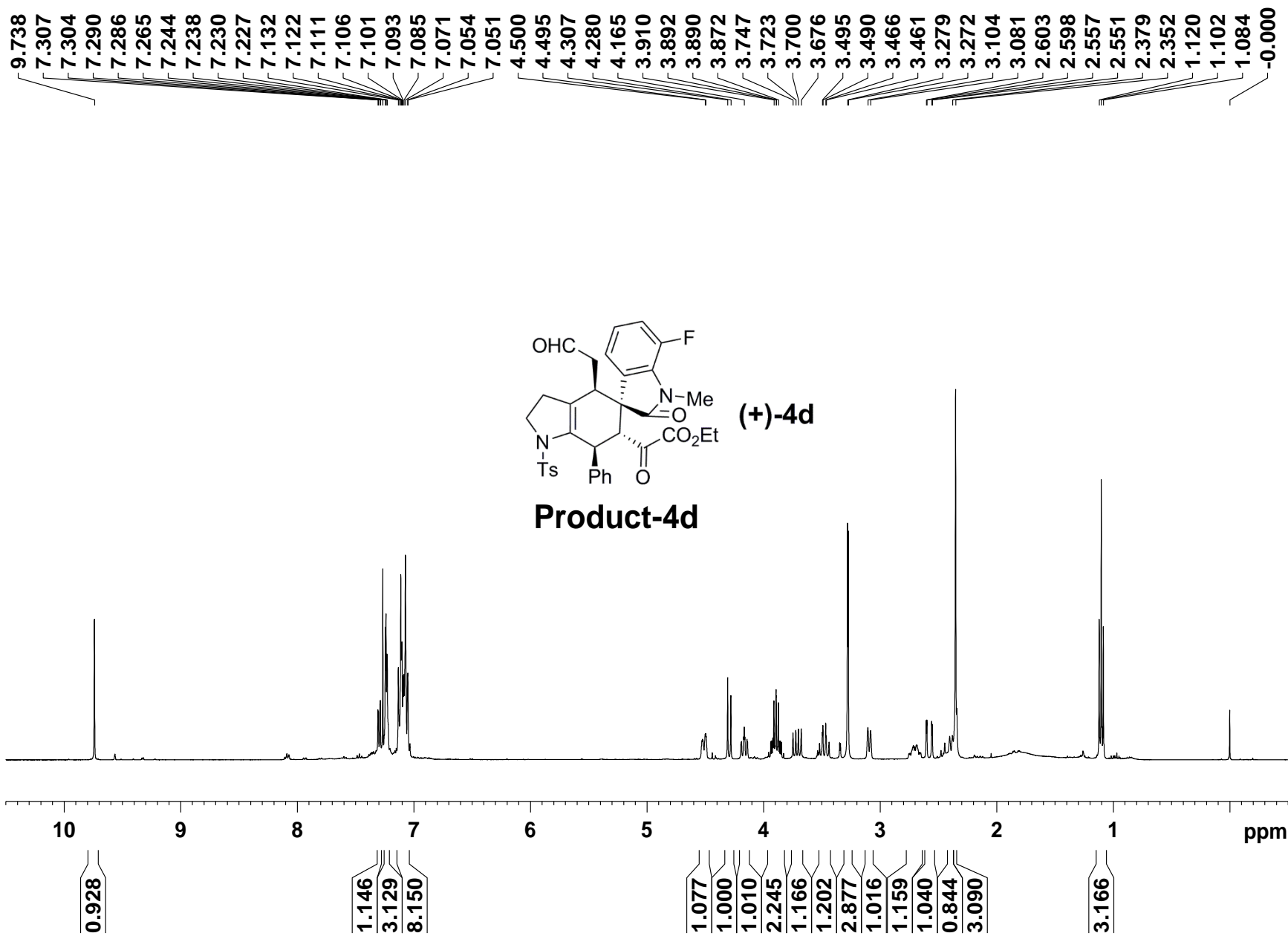
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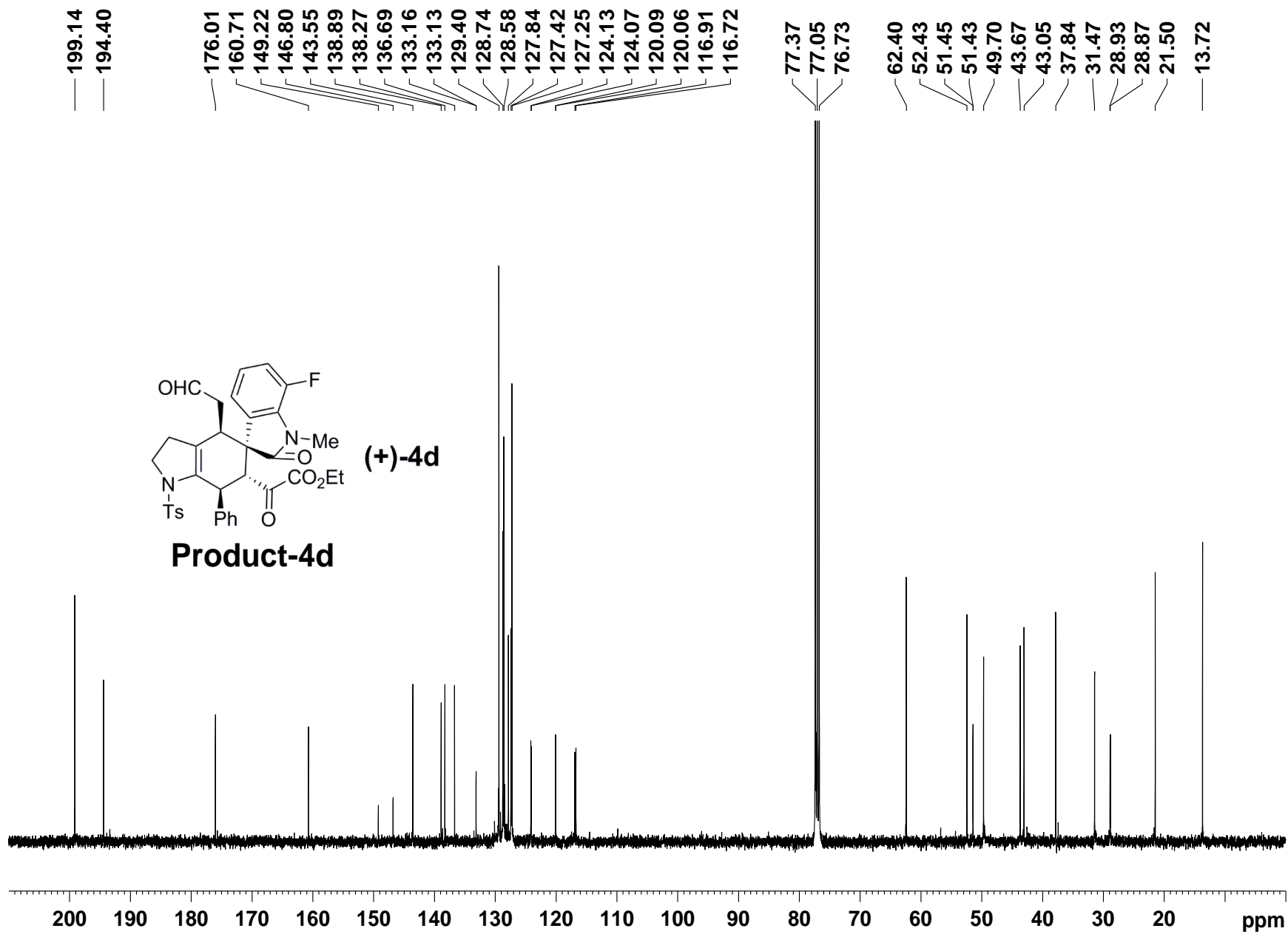


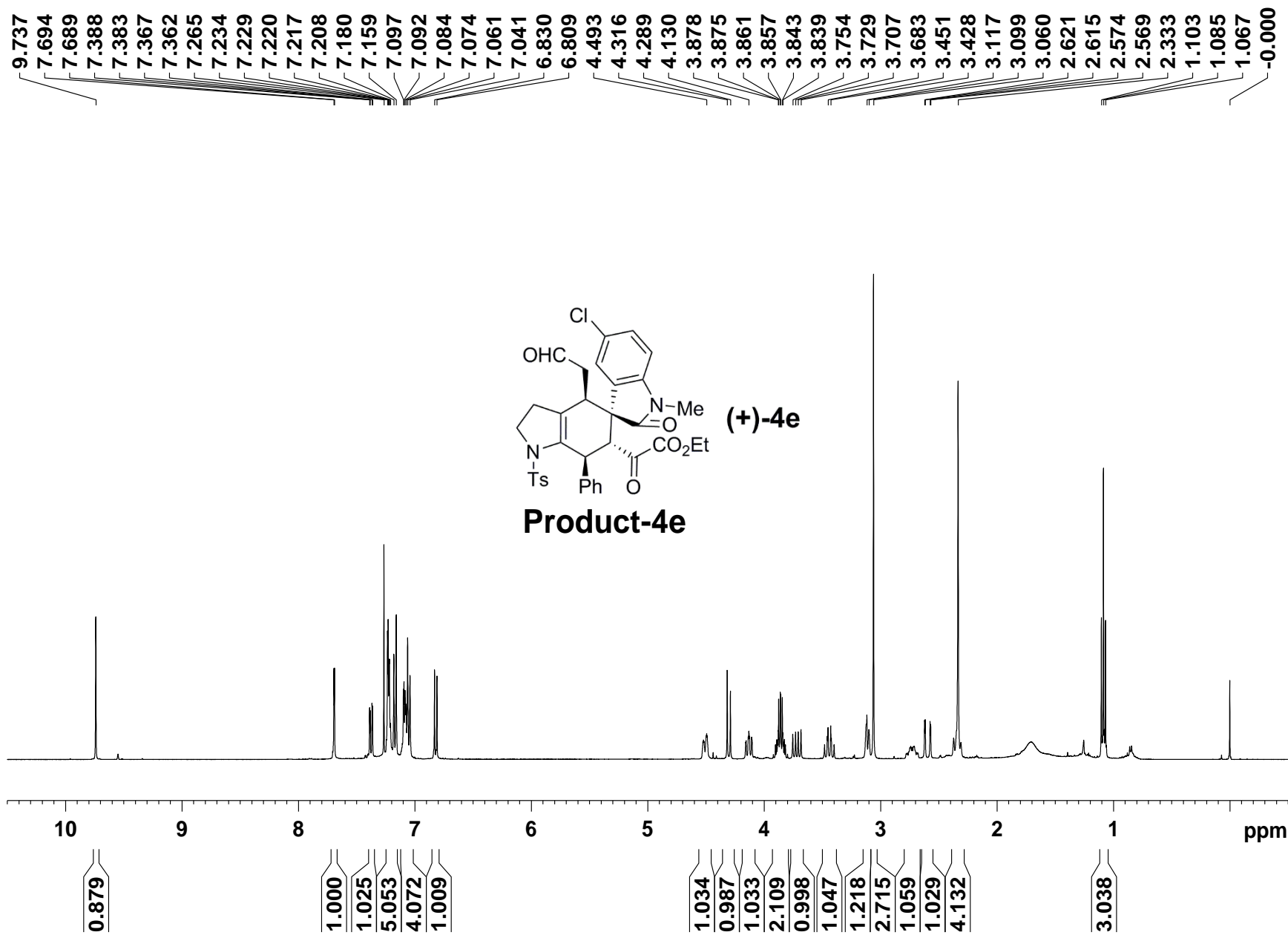


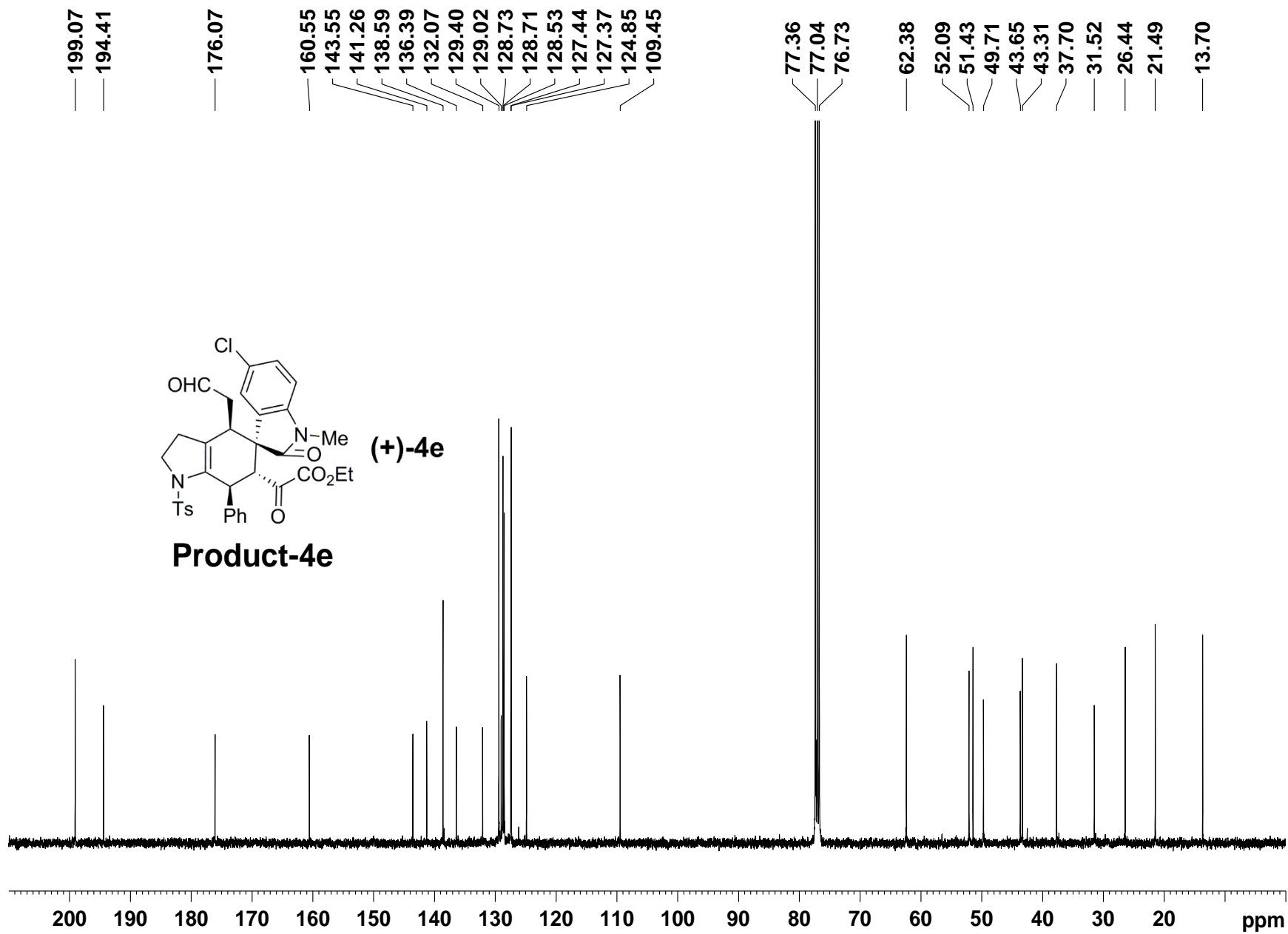


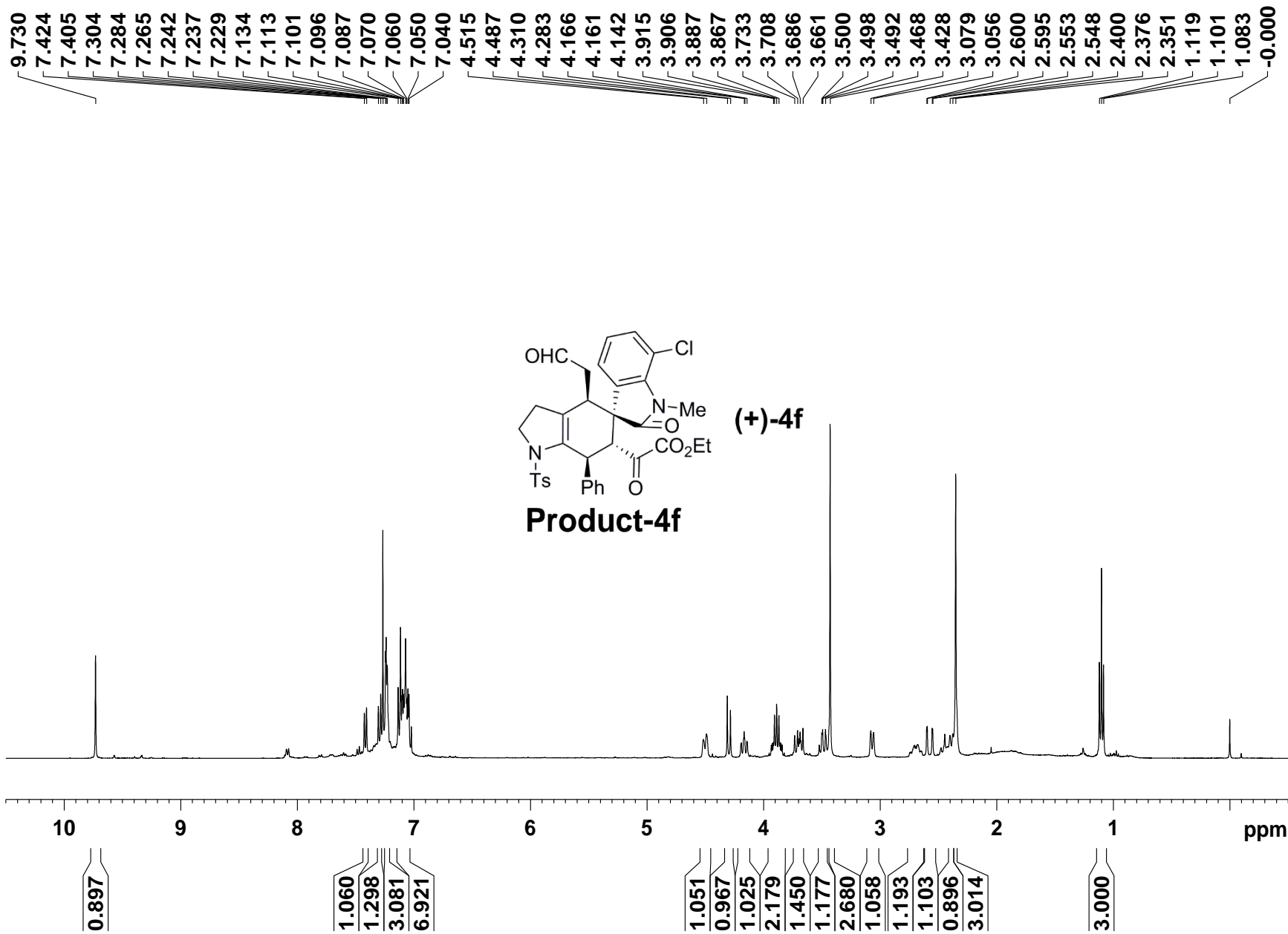


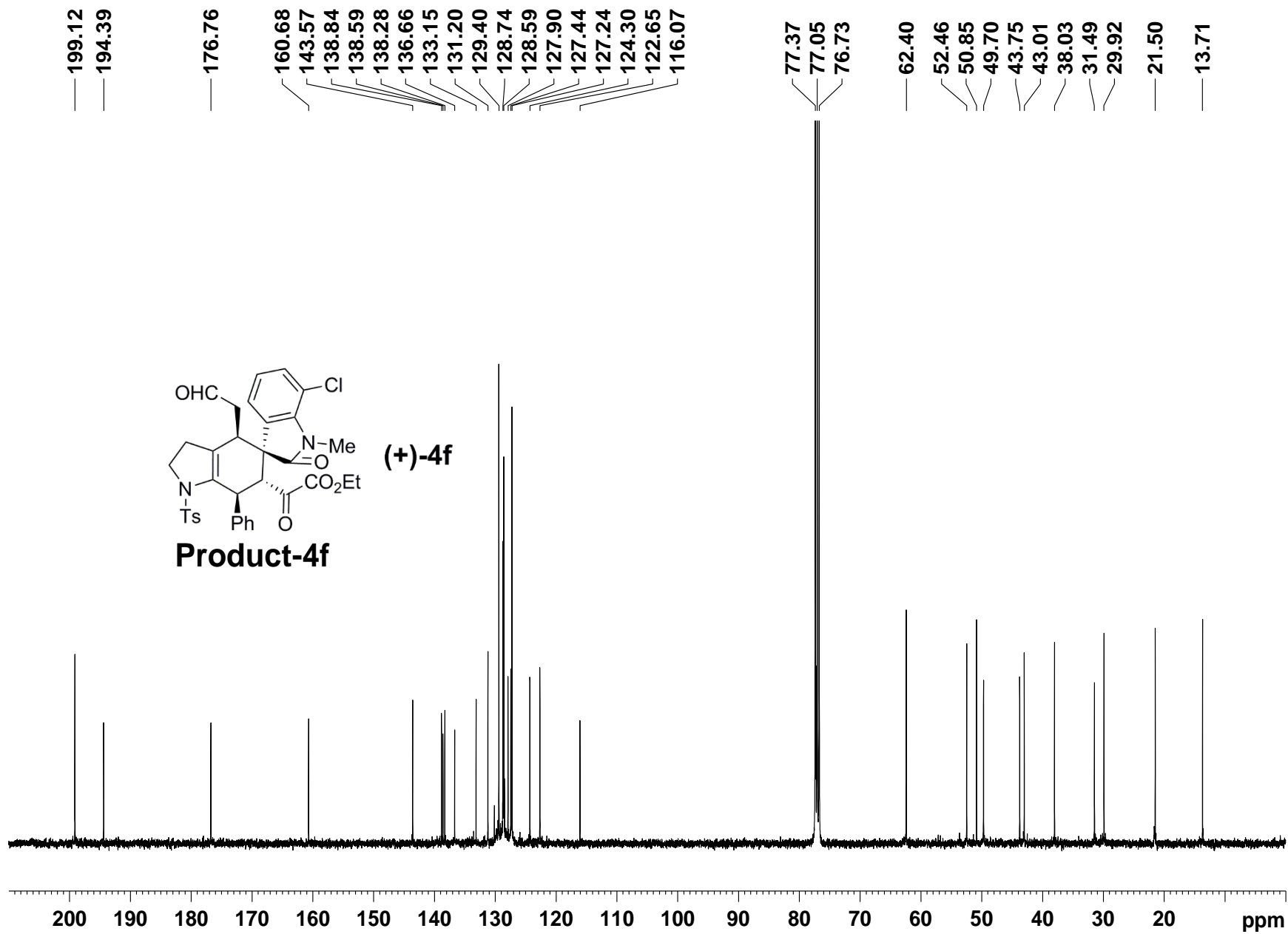




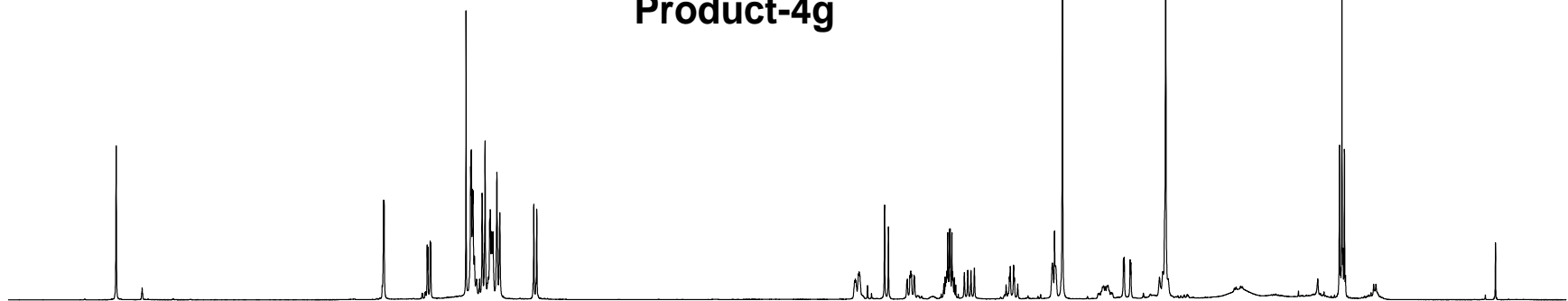
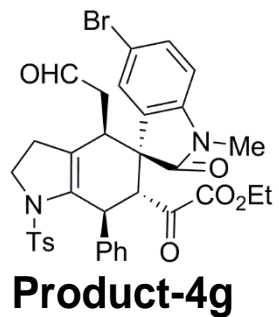








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7.515
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7.234
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7.217
7.207
7.153
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7.086
7.076
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7.028
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3.402
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3.112
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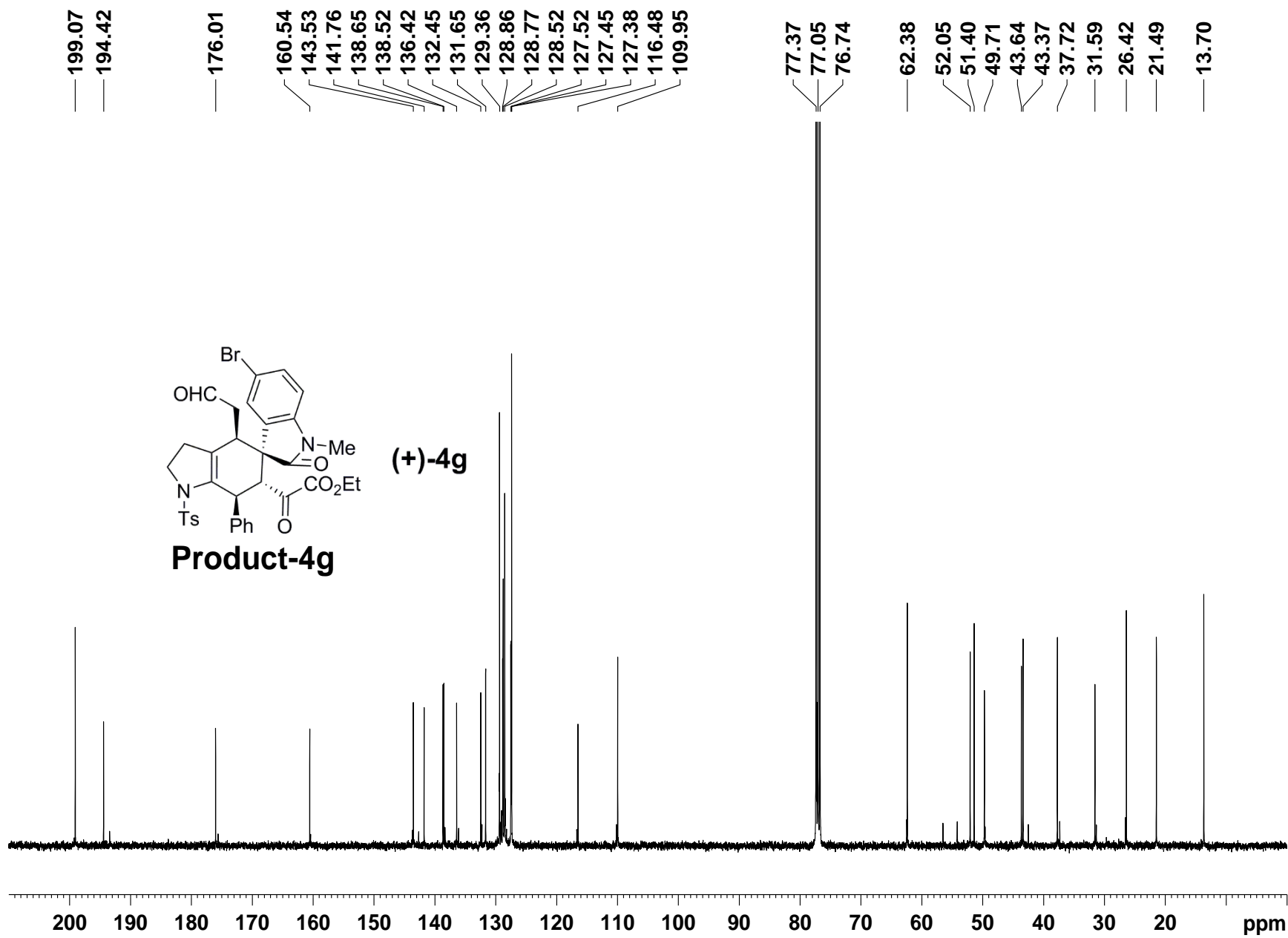
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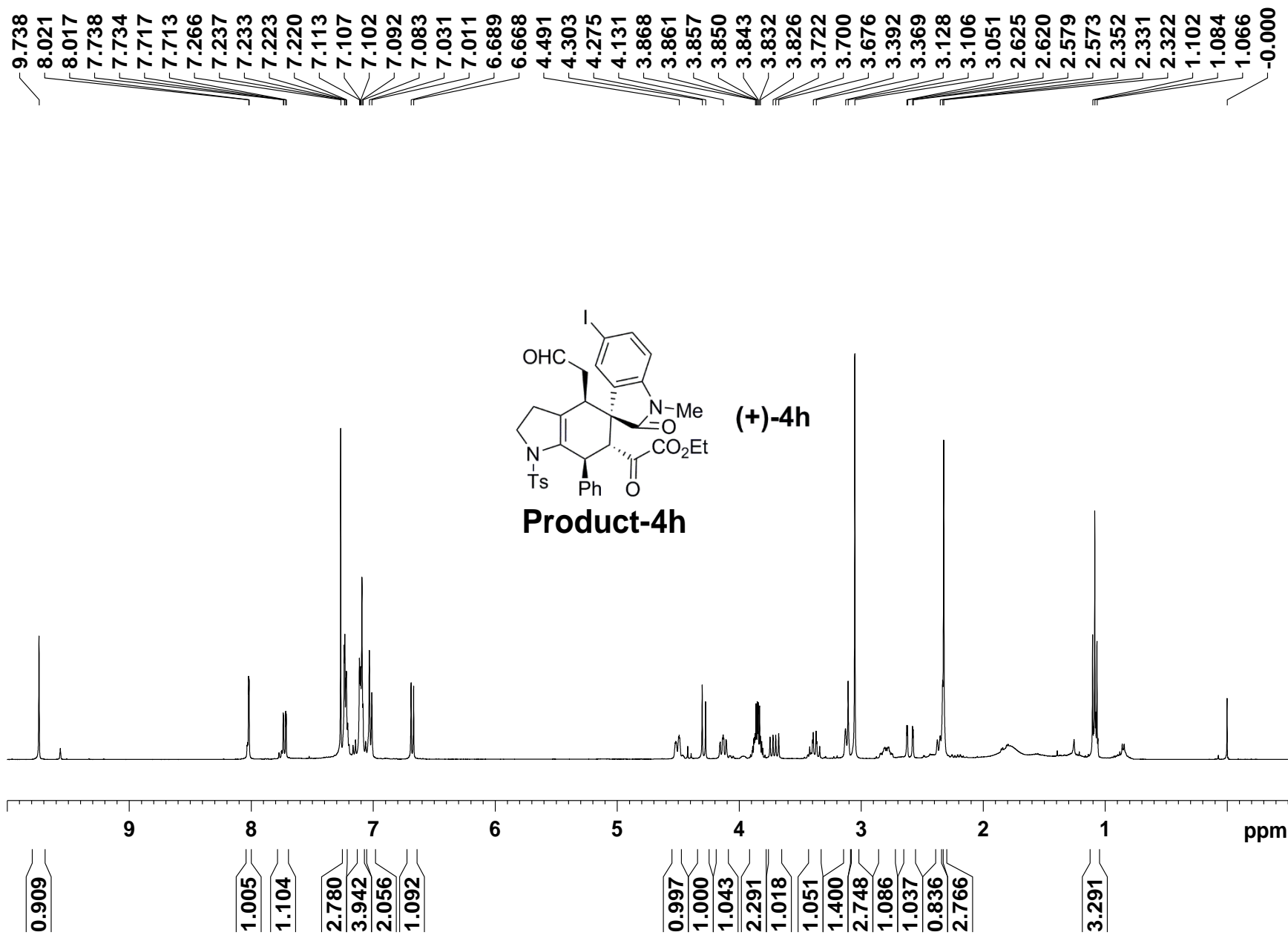
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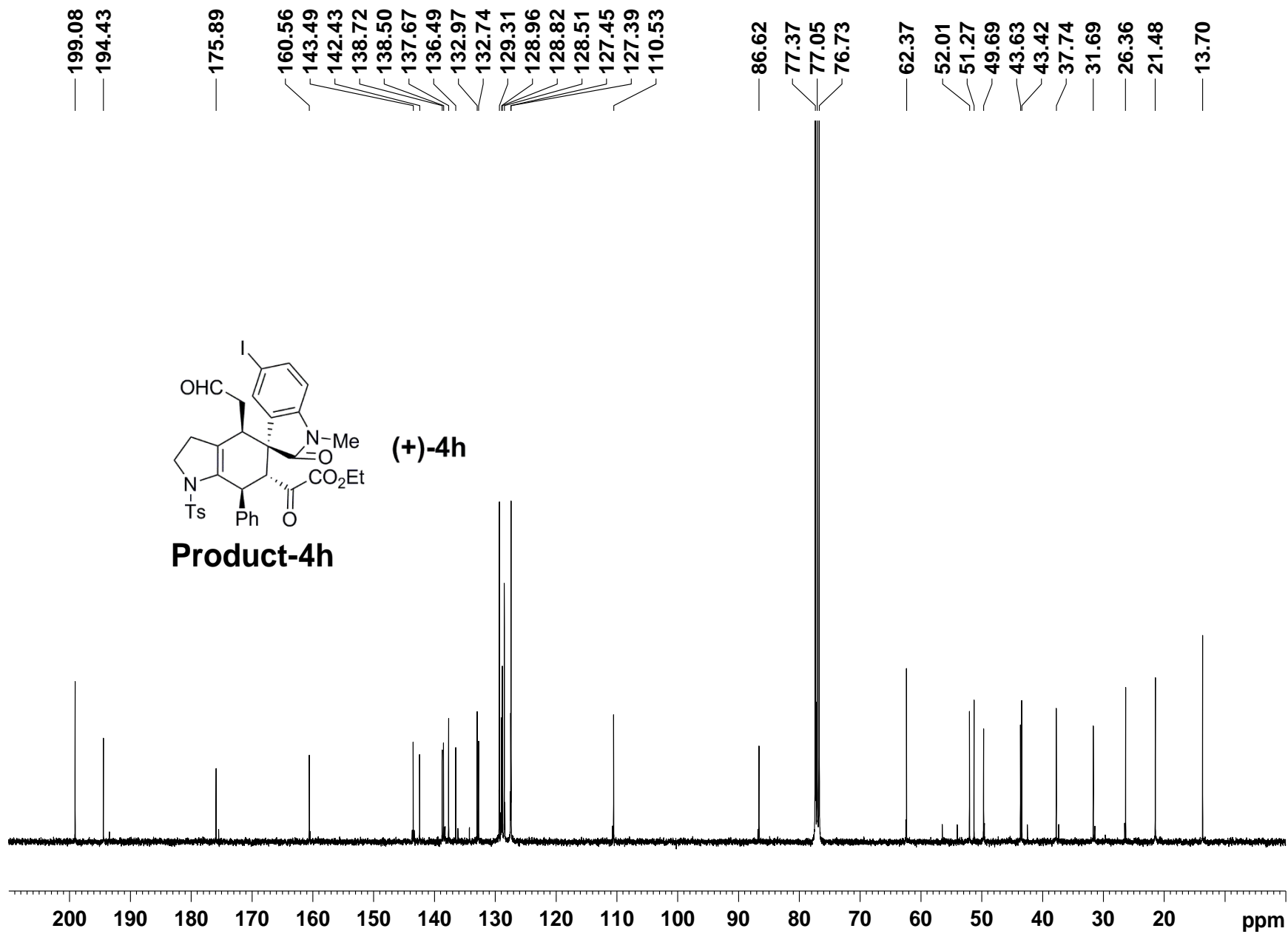
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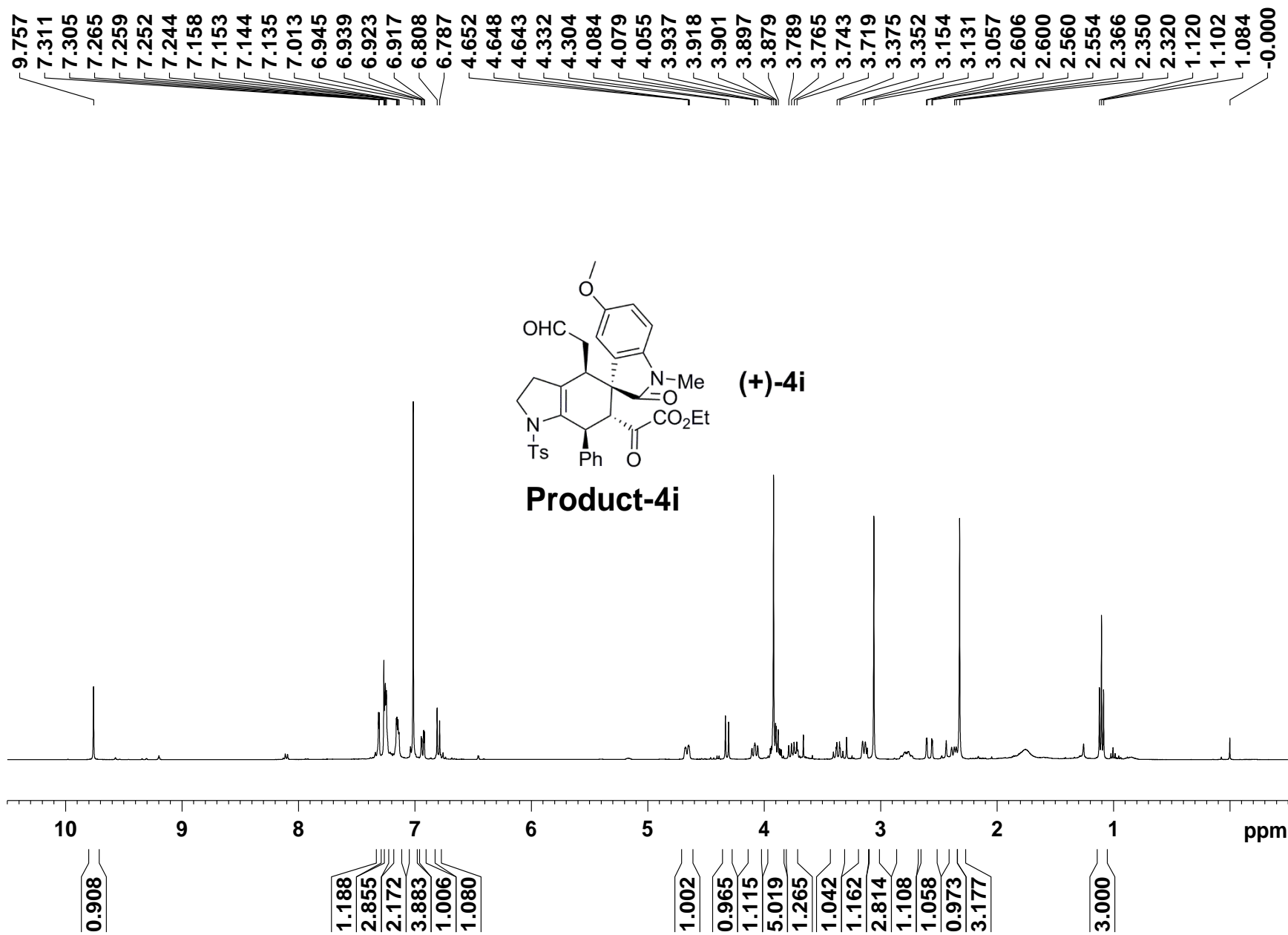
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1.047
1.432
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1.082
1.074
4.471

3.293









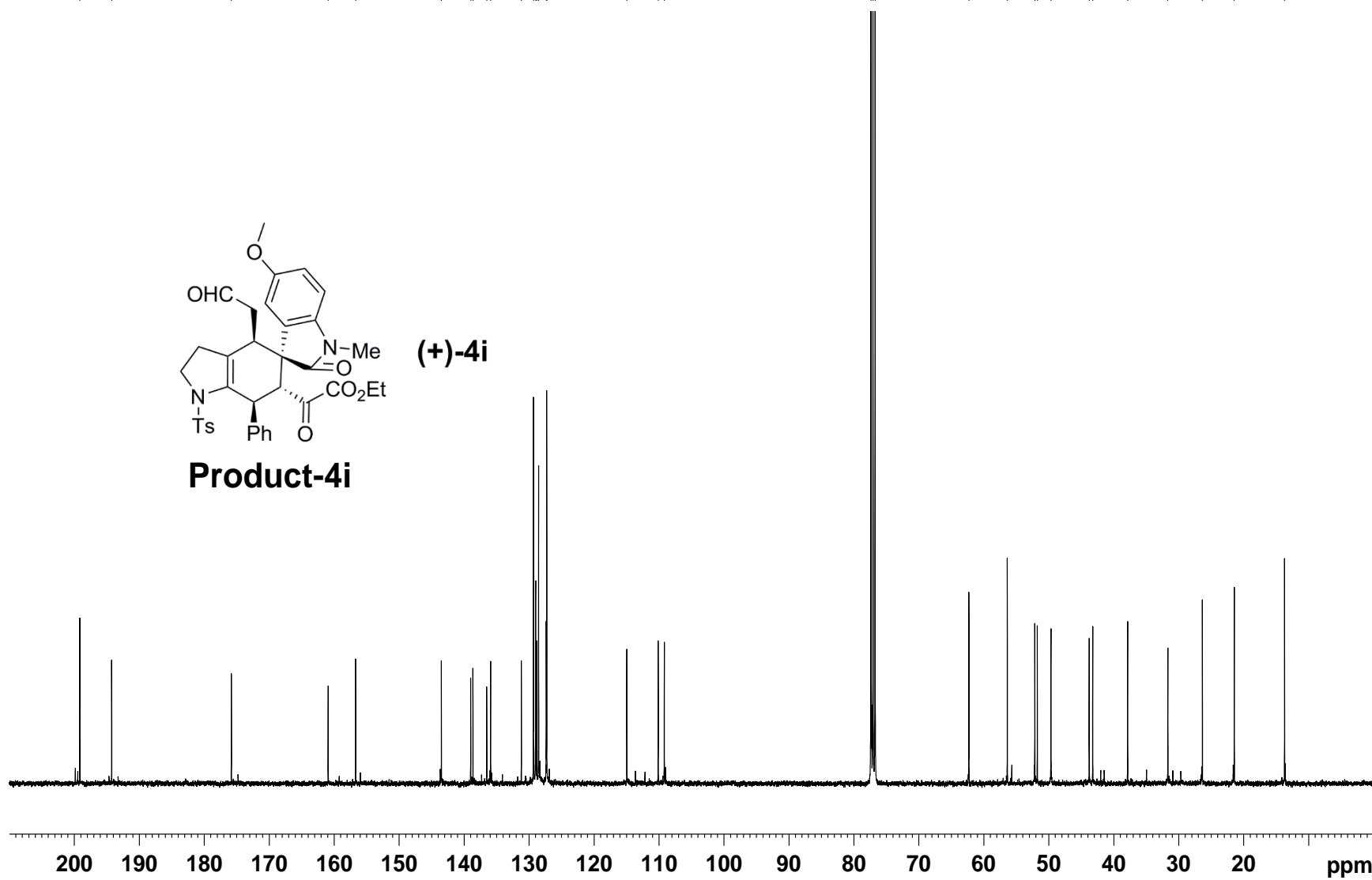
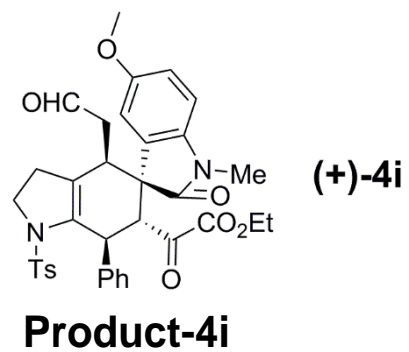
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— 194.24

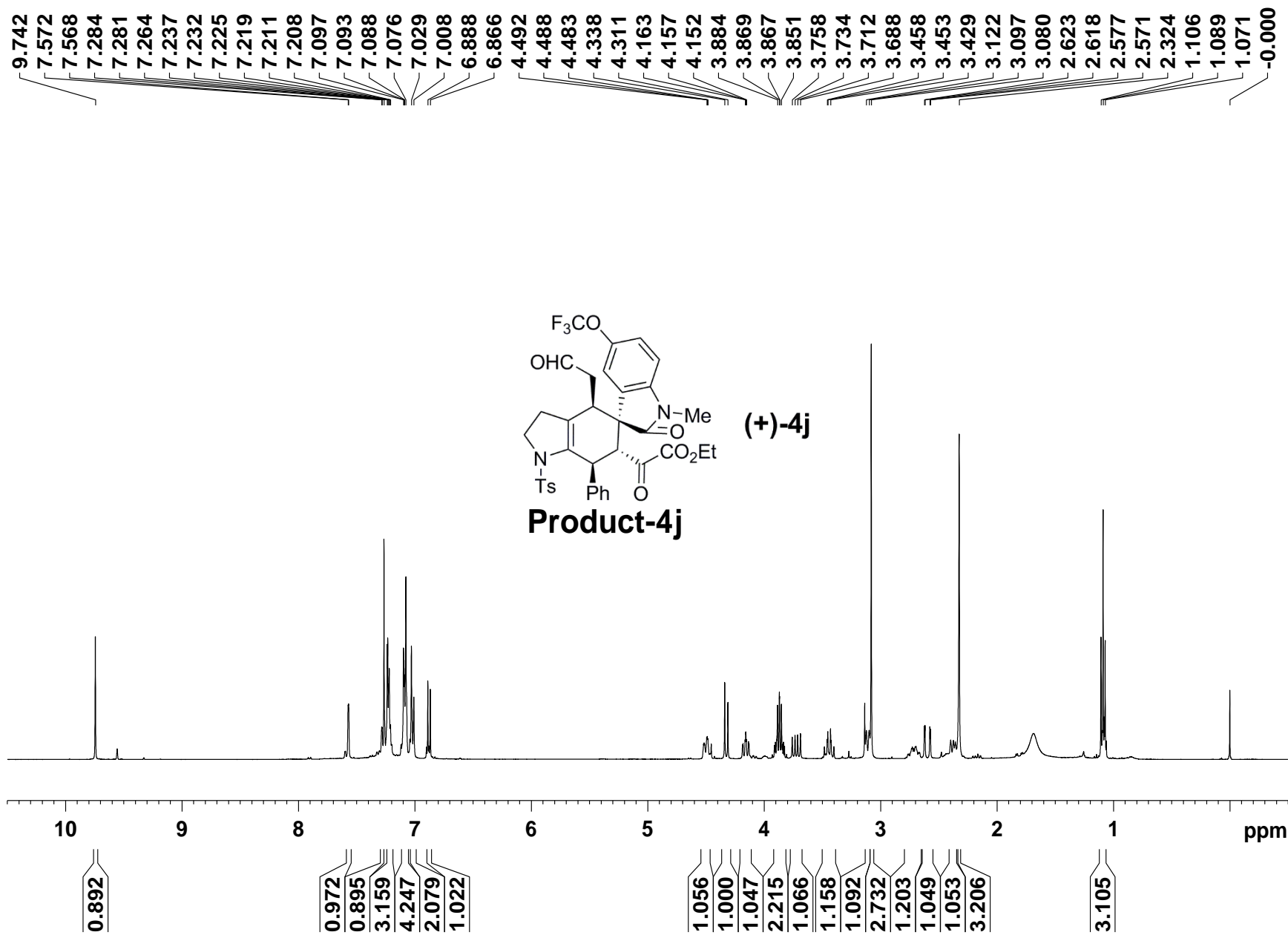
— 175.82

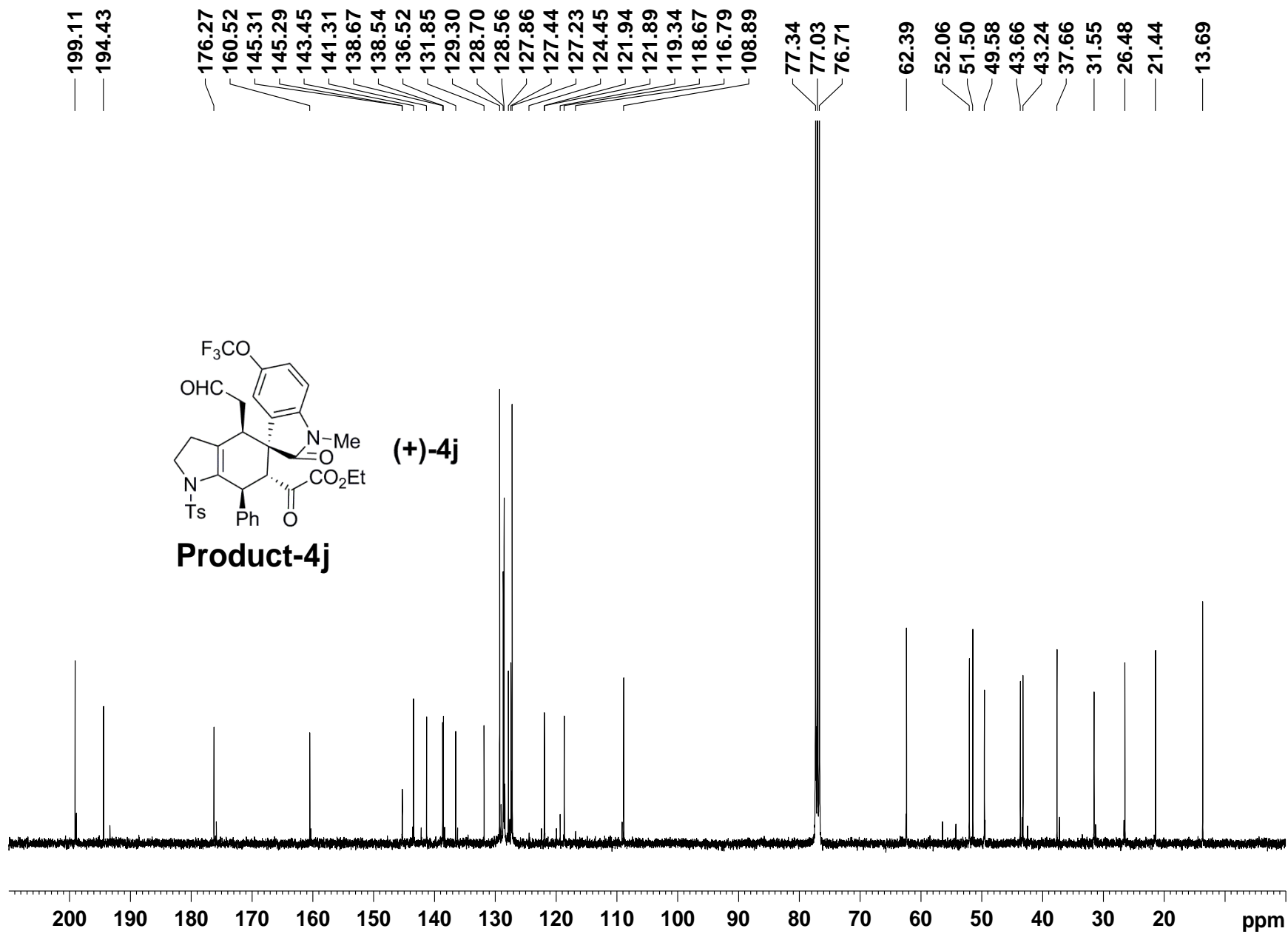
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127.27
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109.17

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77.05
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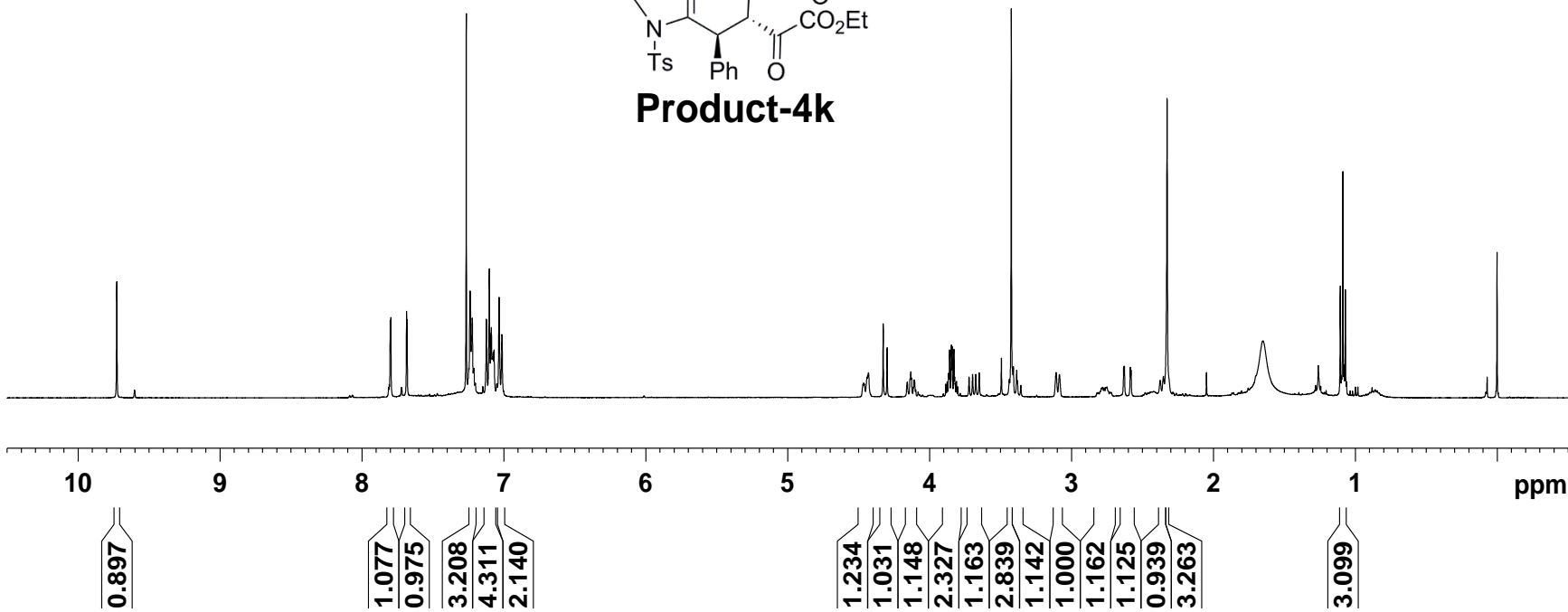
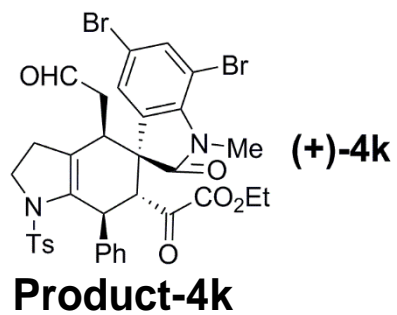
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26.38
21.47
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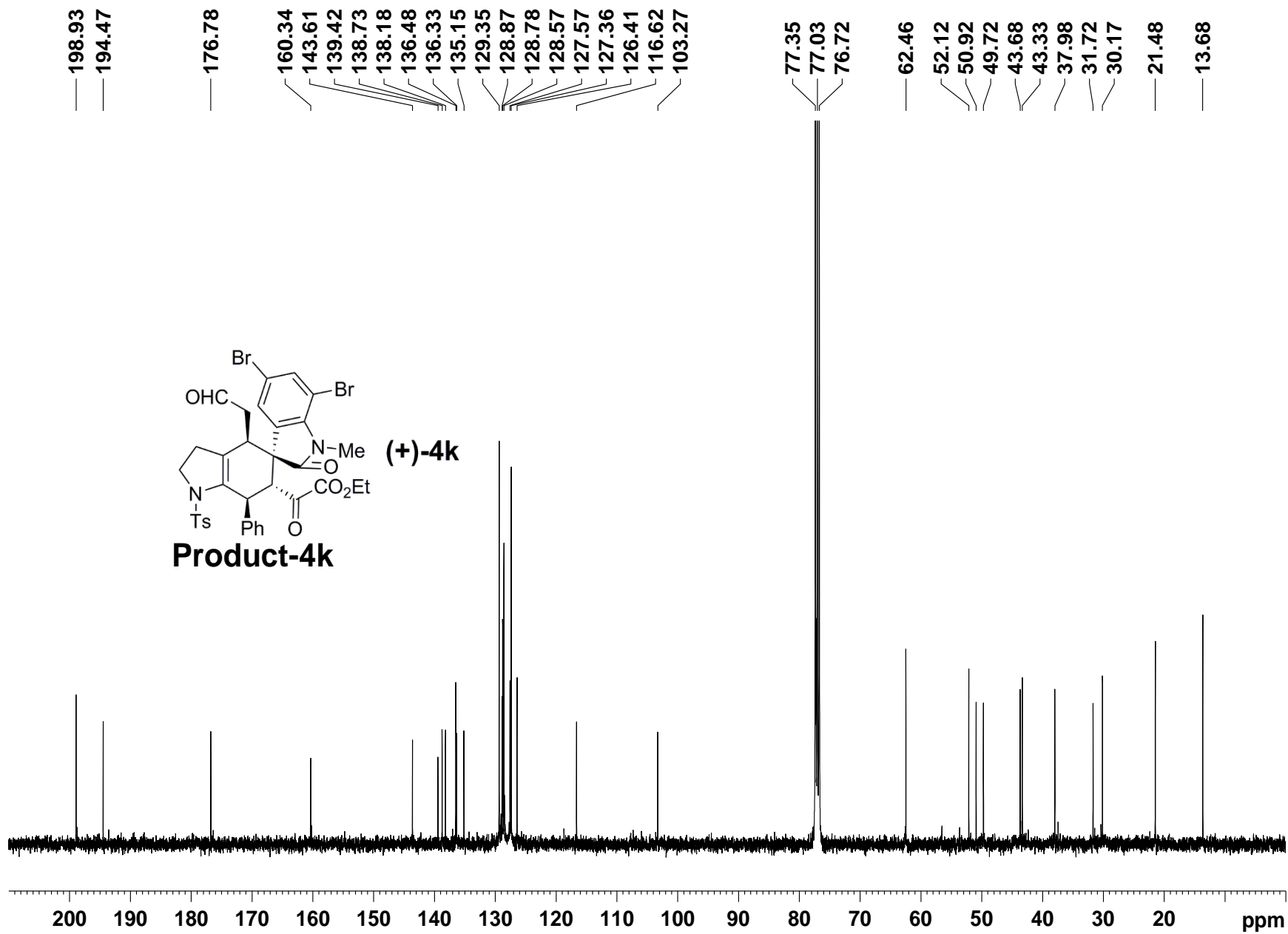




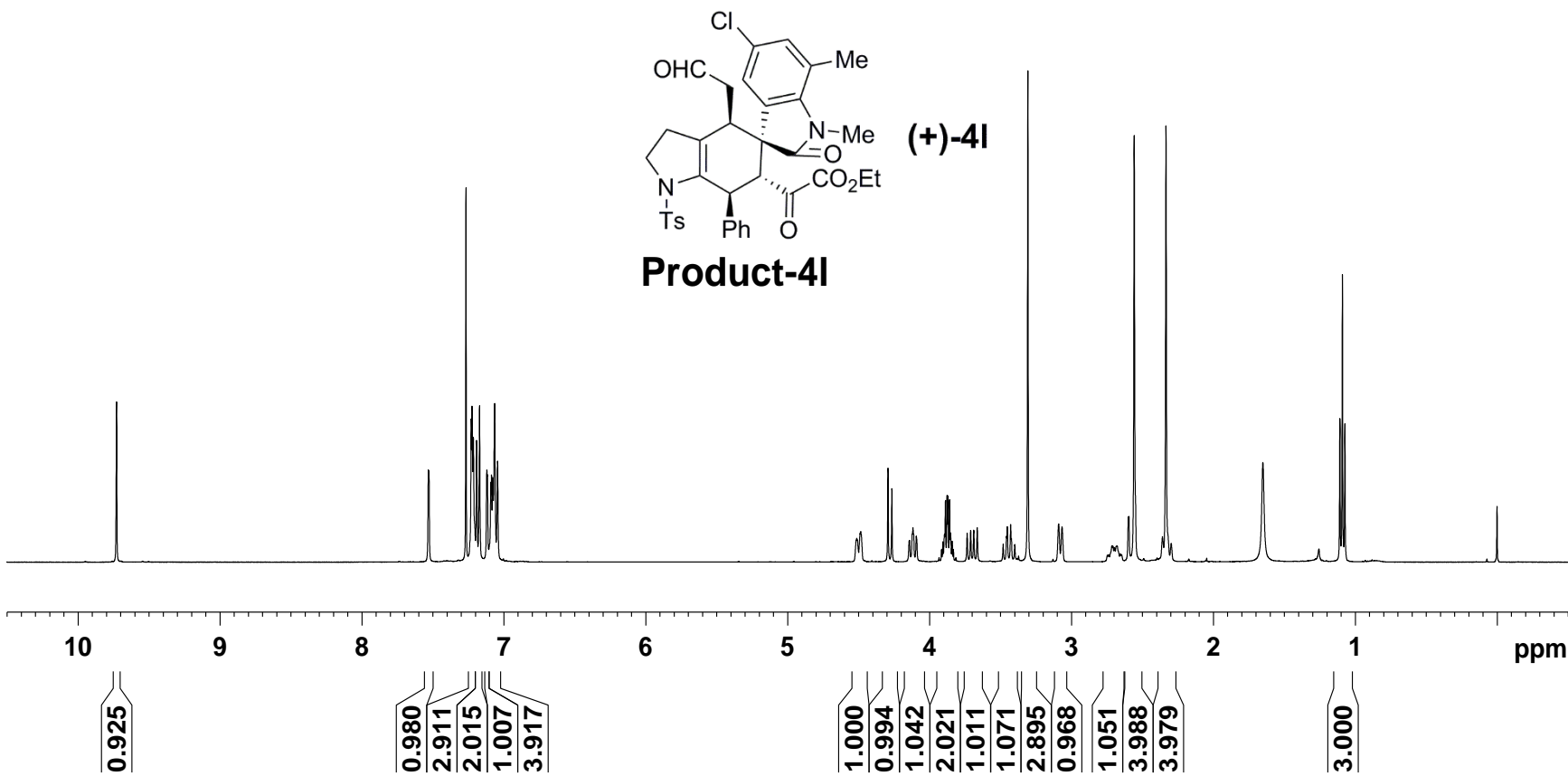
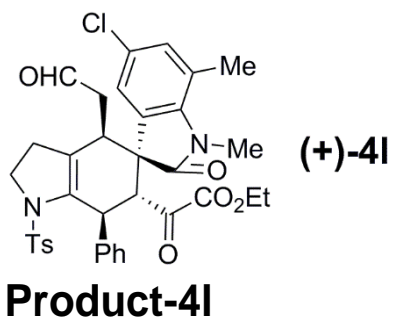


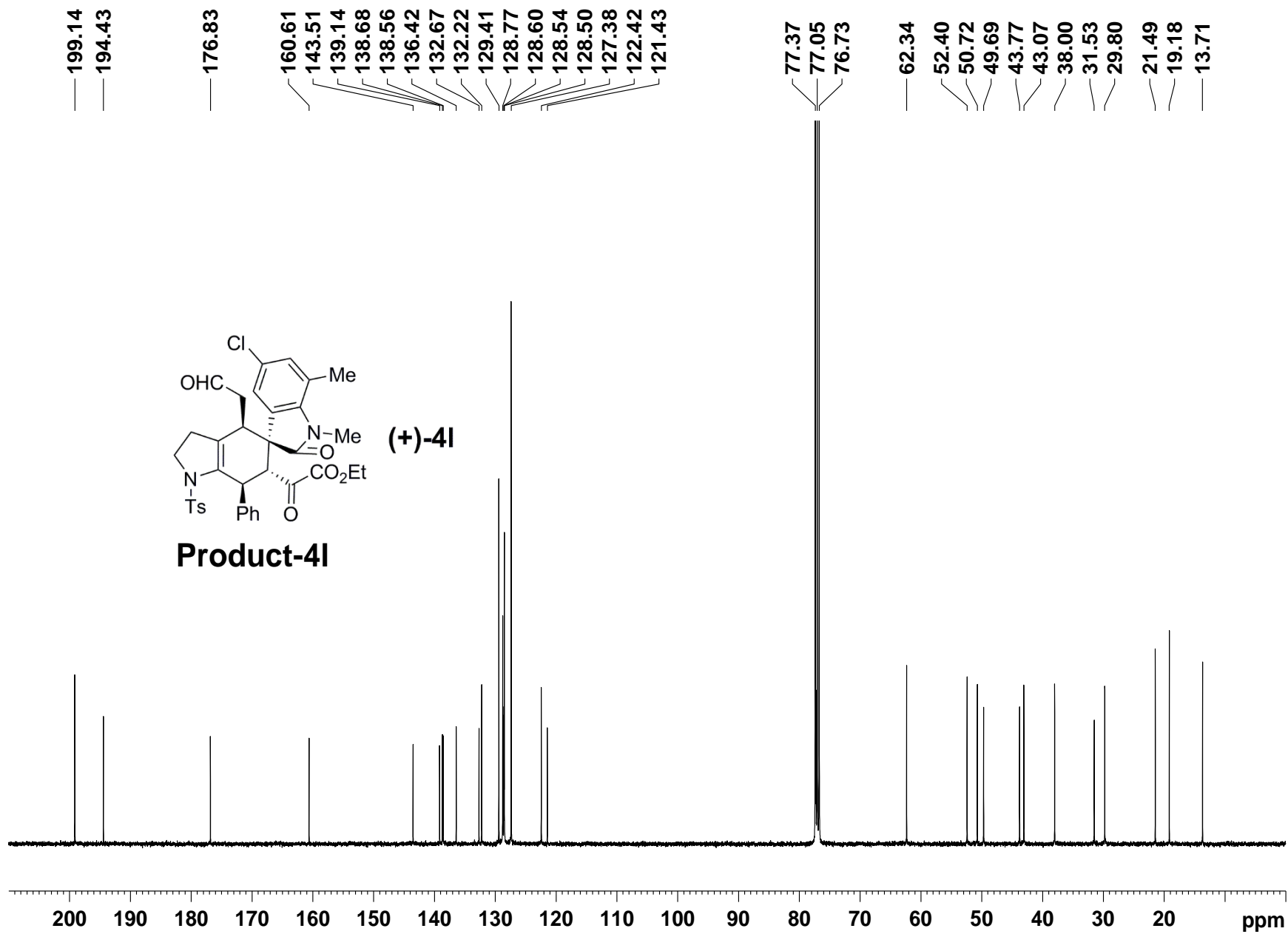
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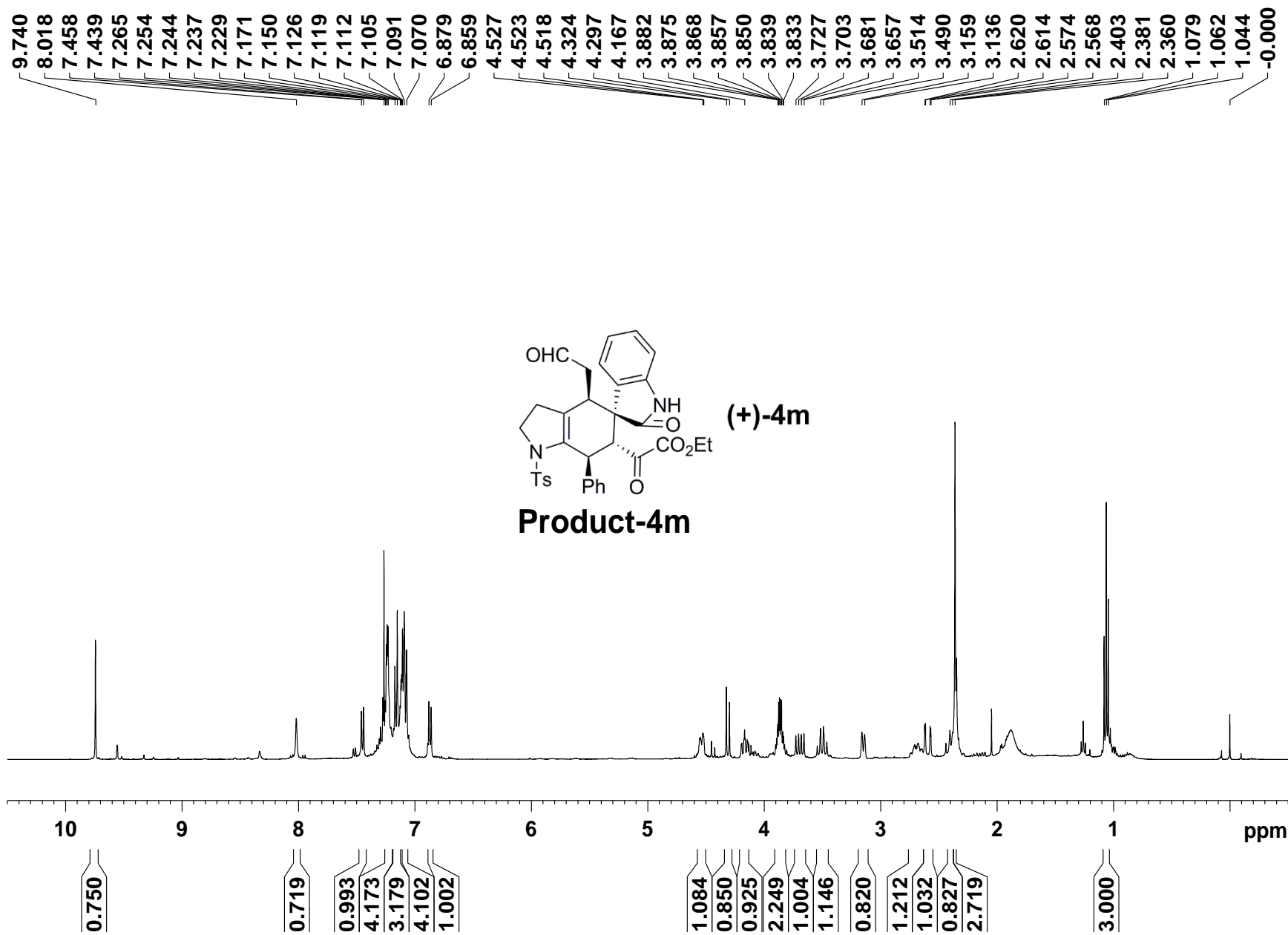


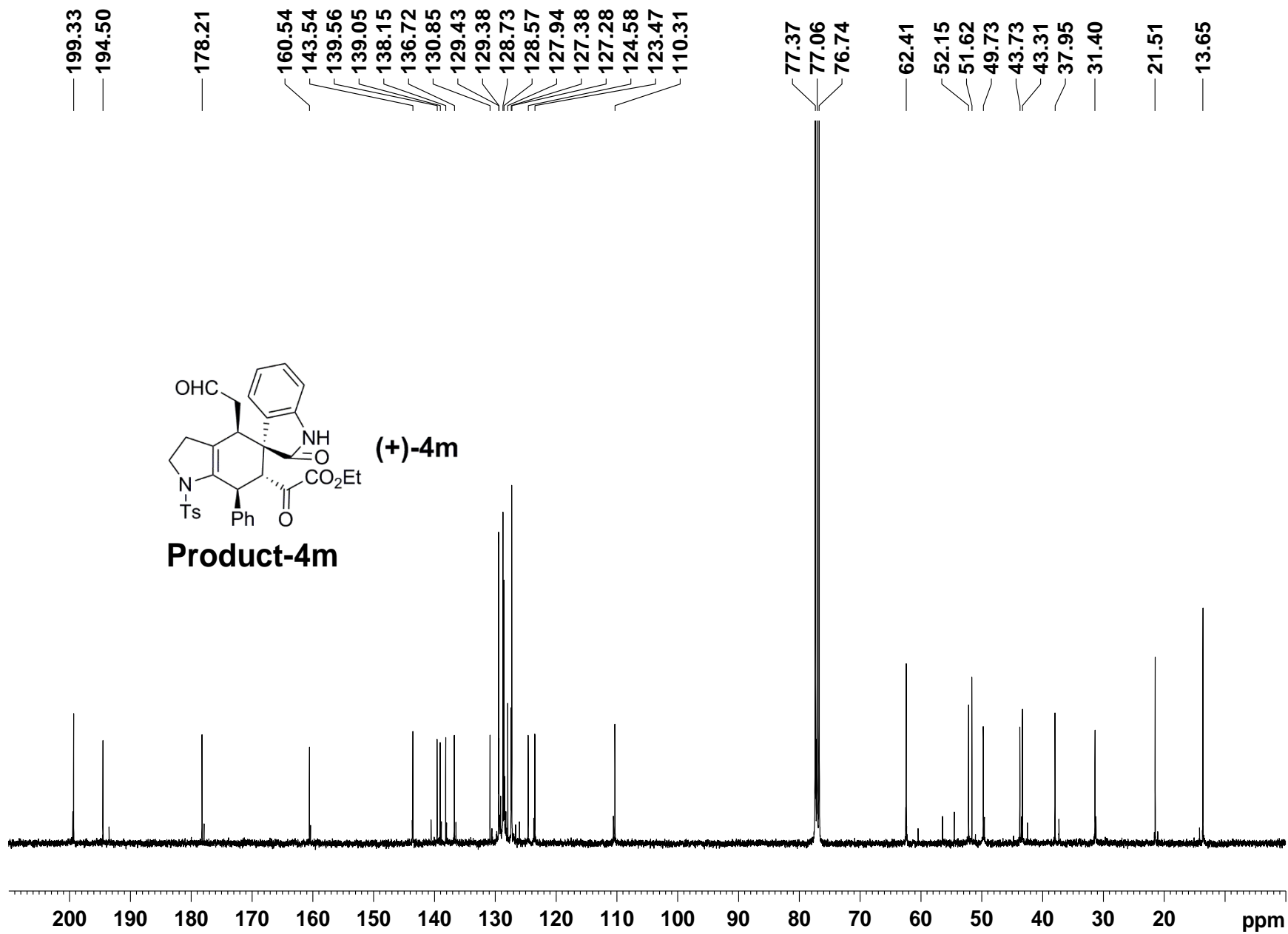


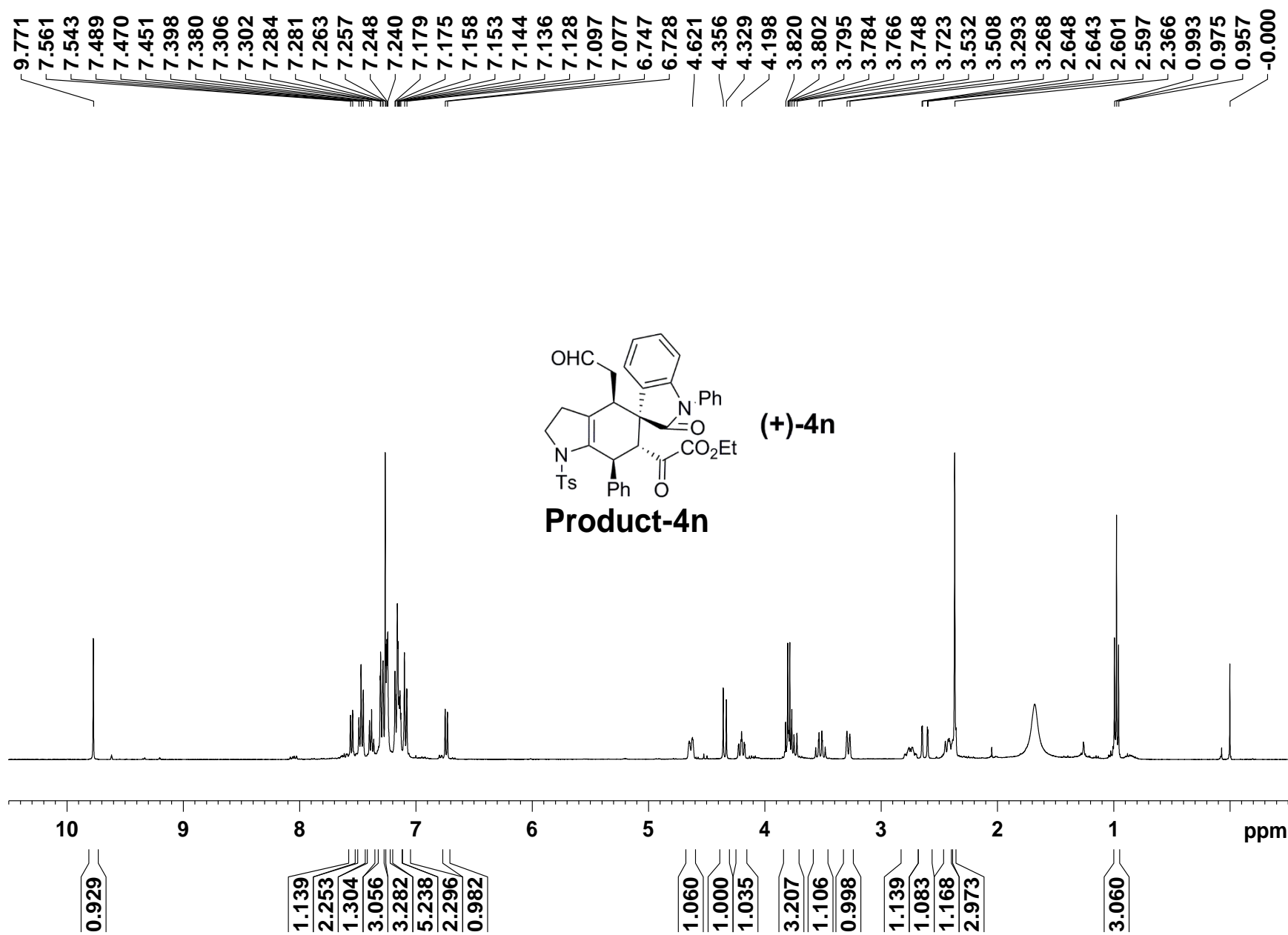
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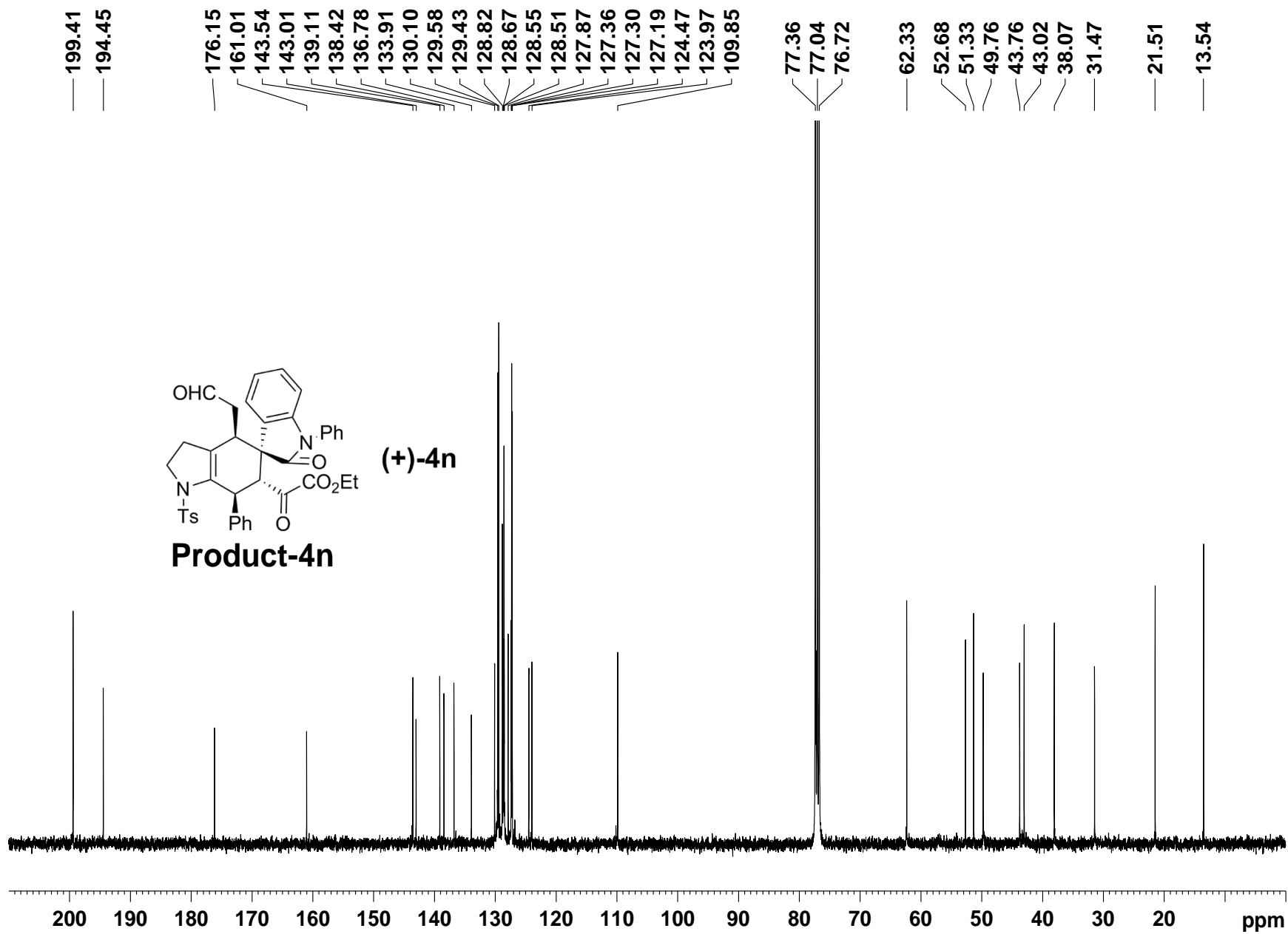


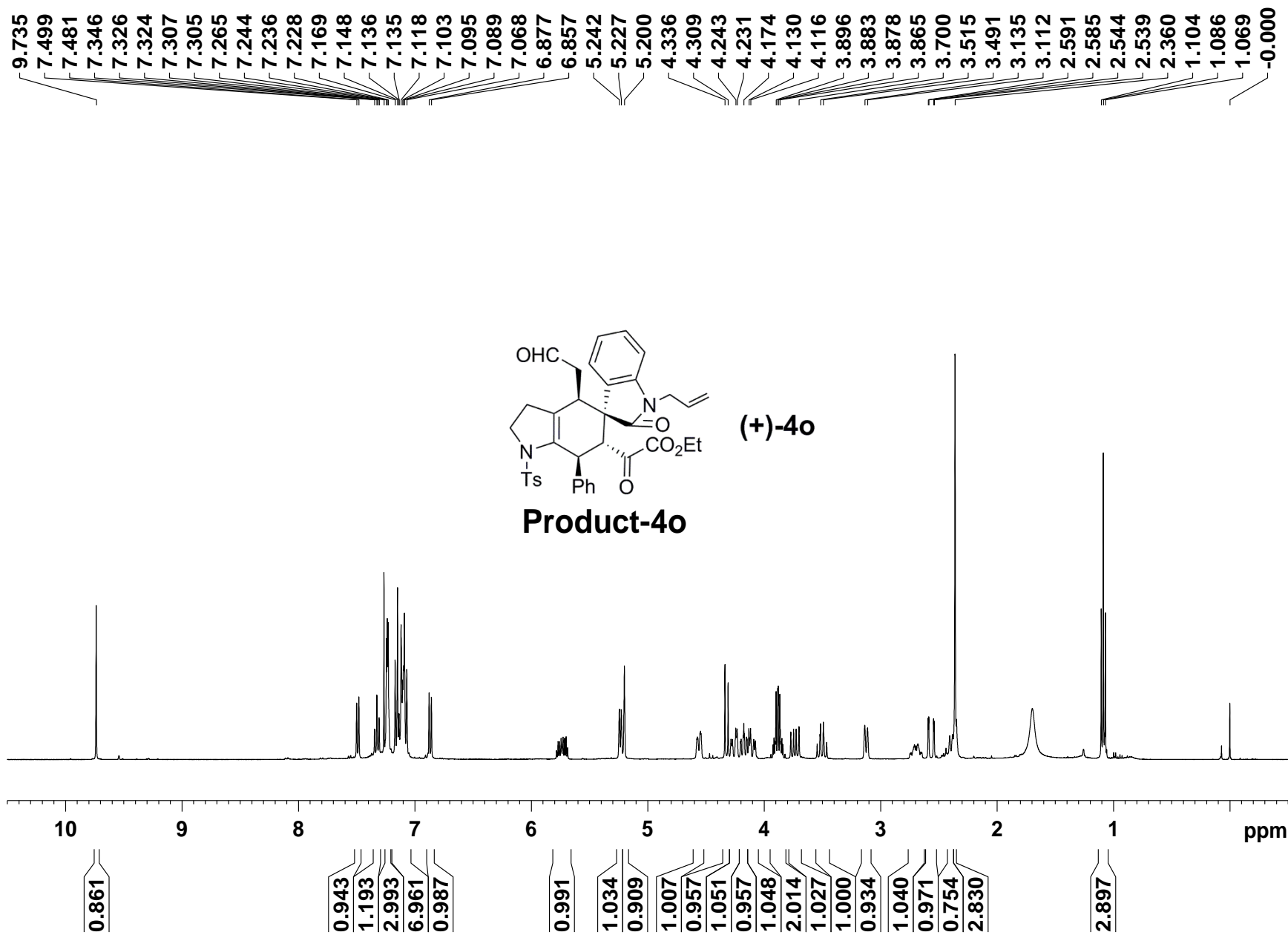


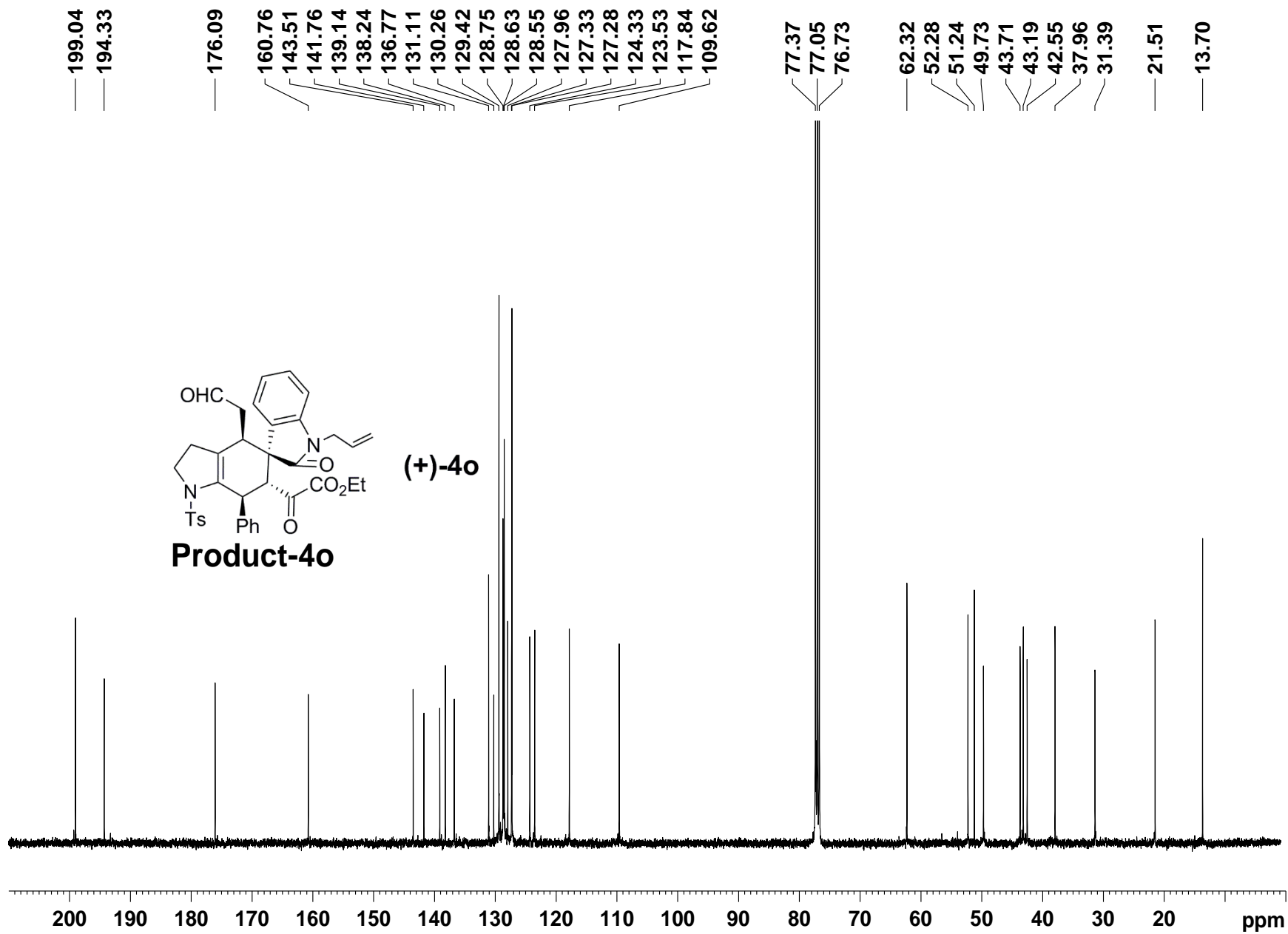




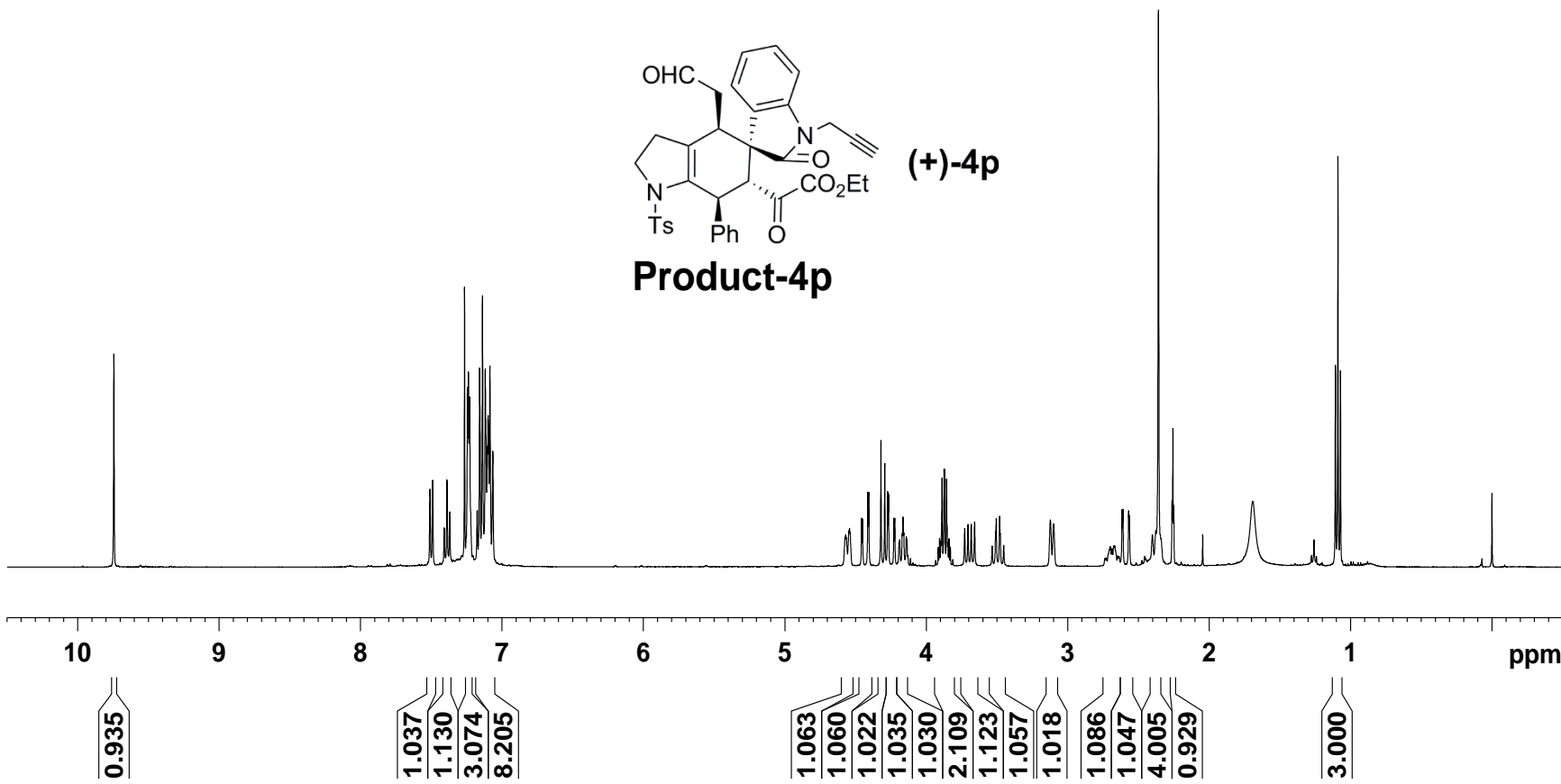
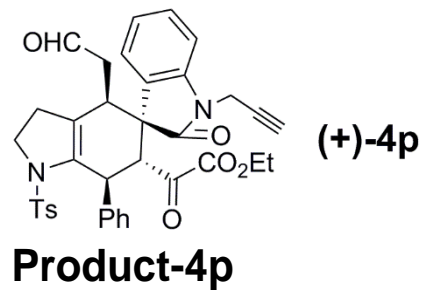


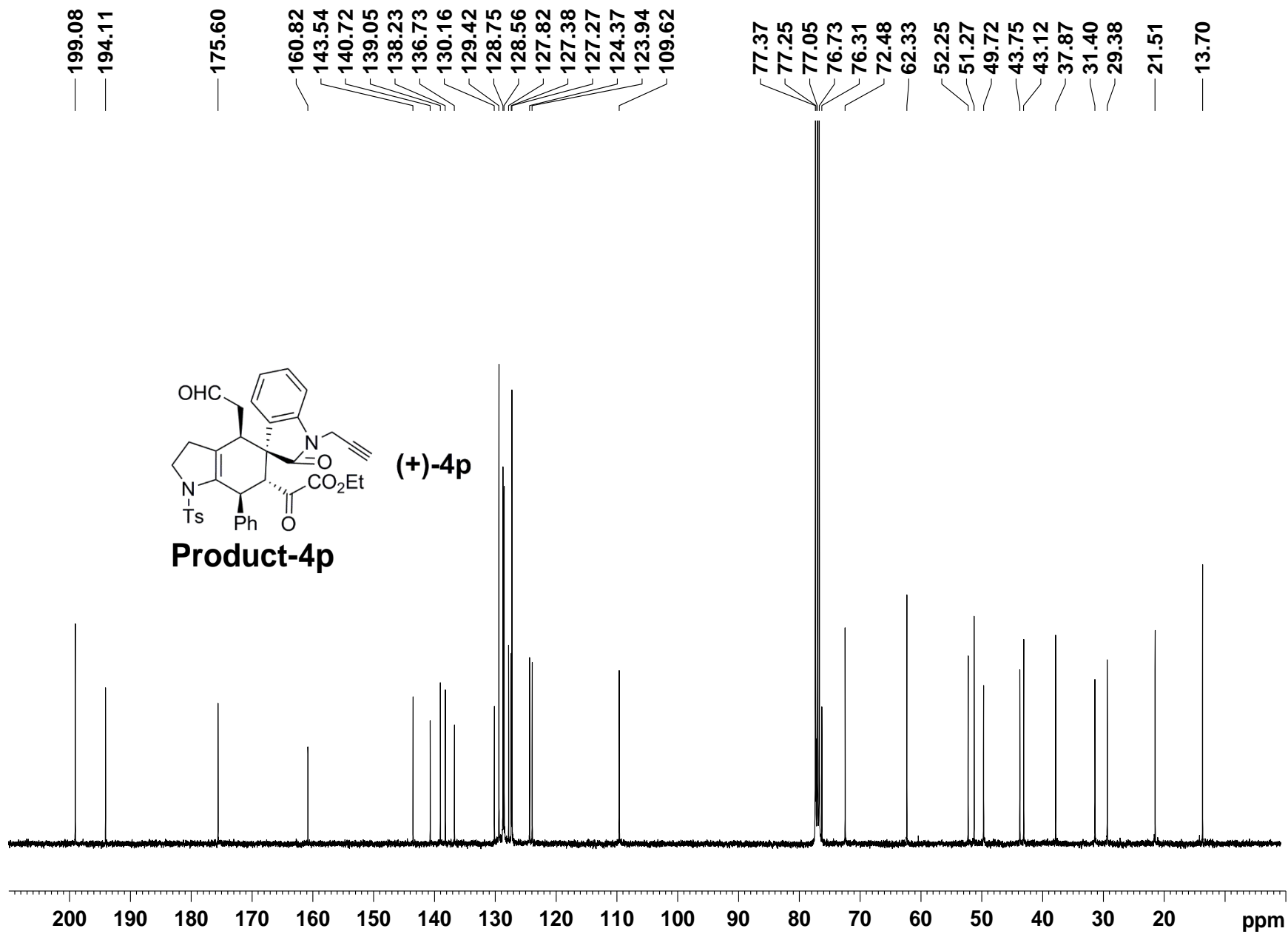




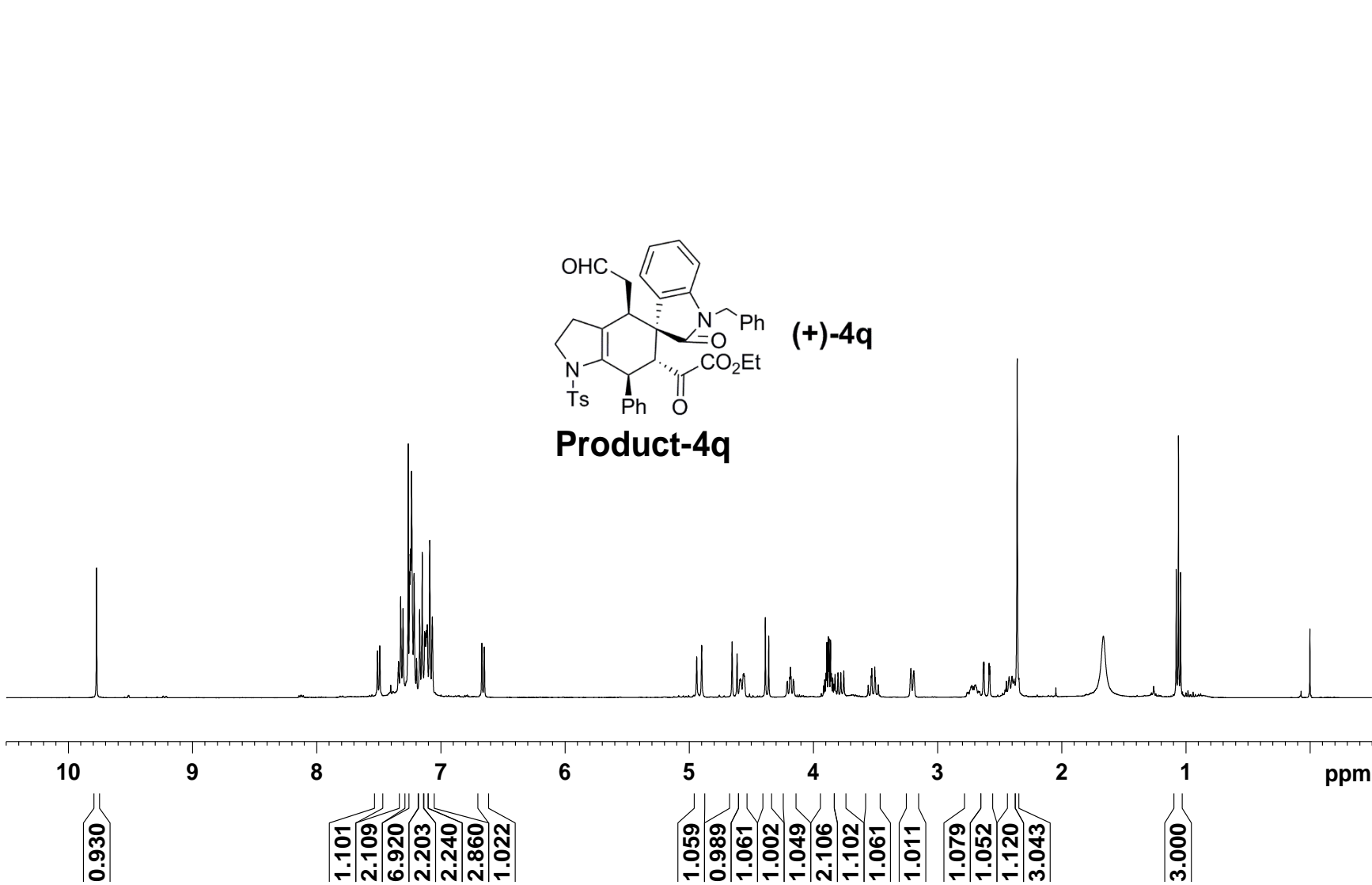
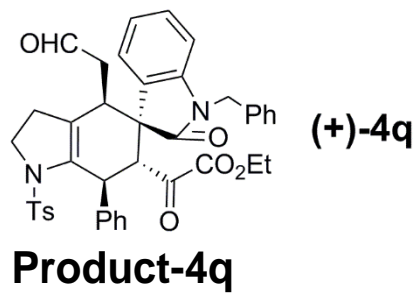


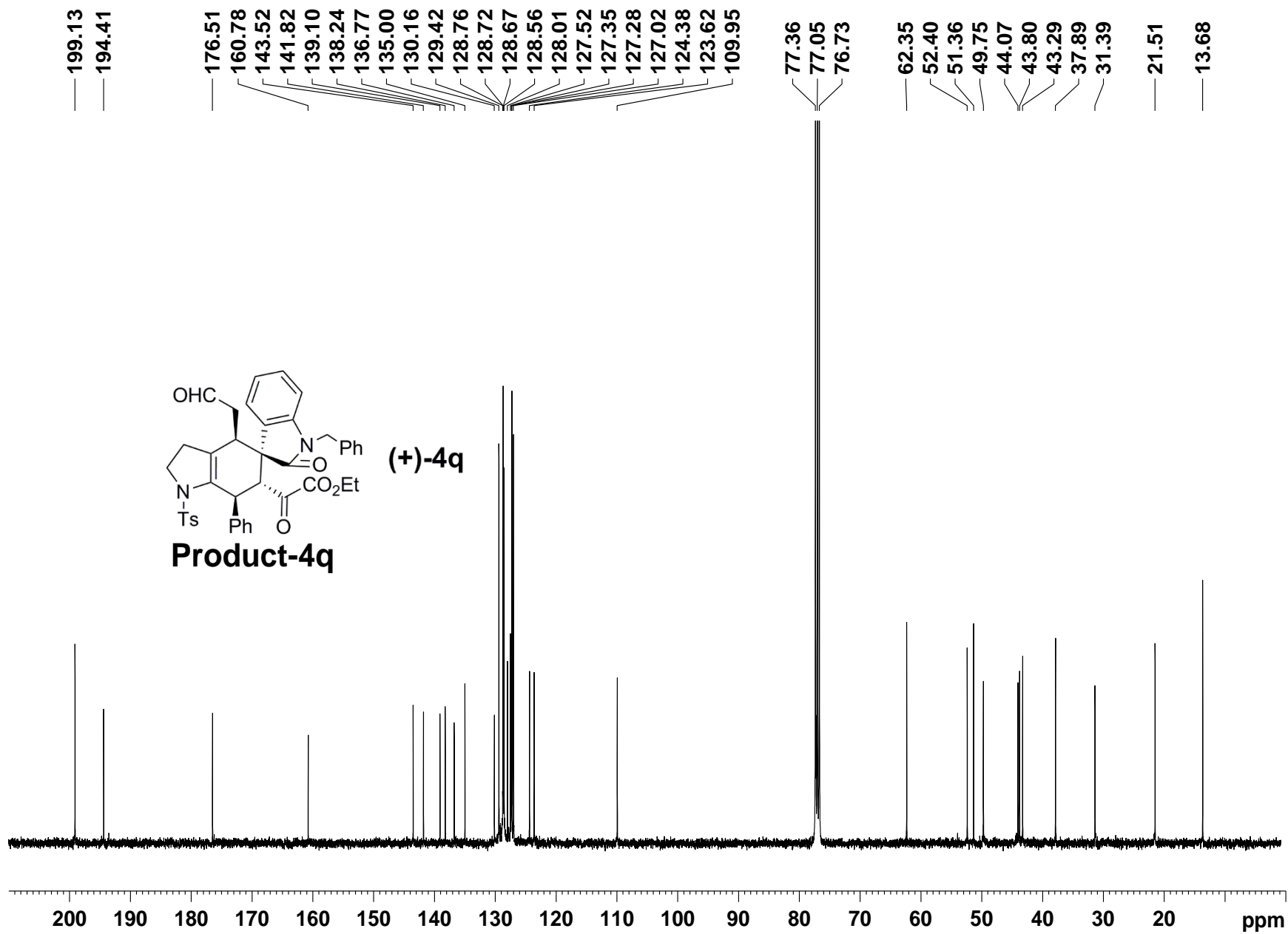
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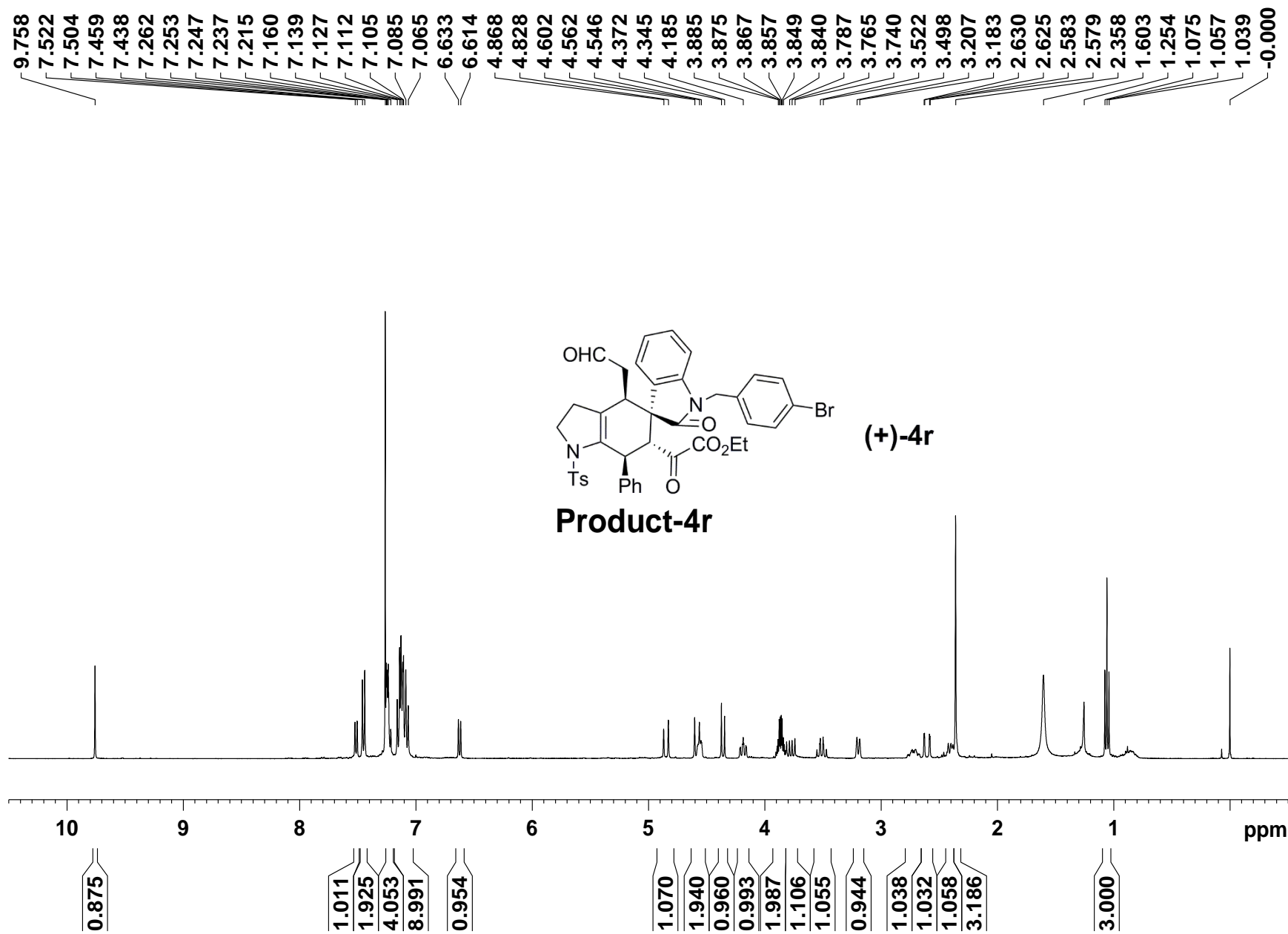


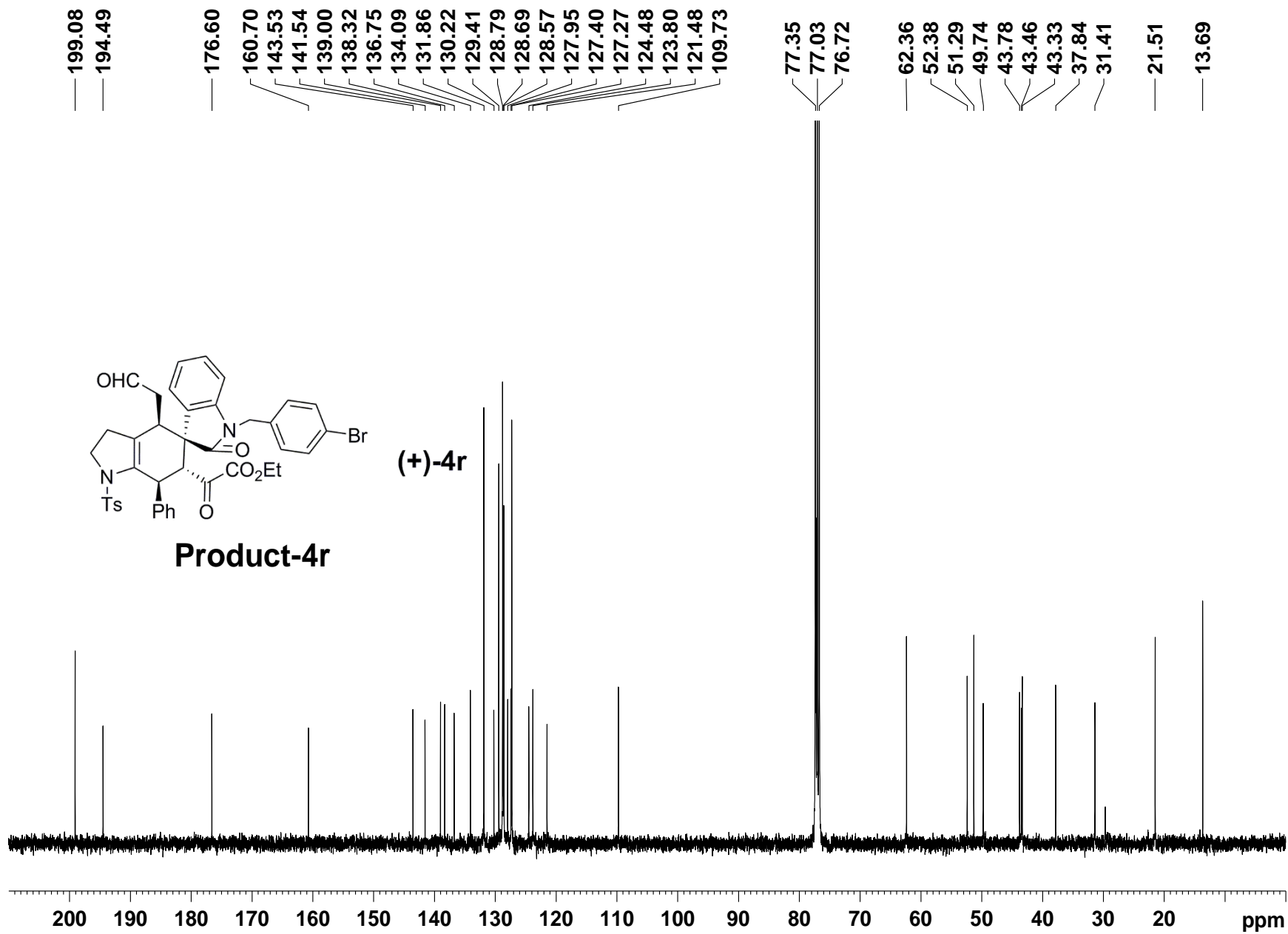


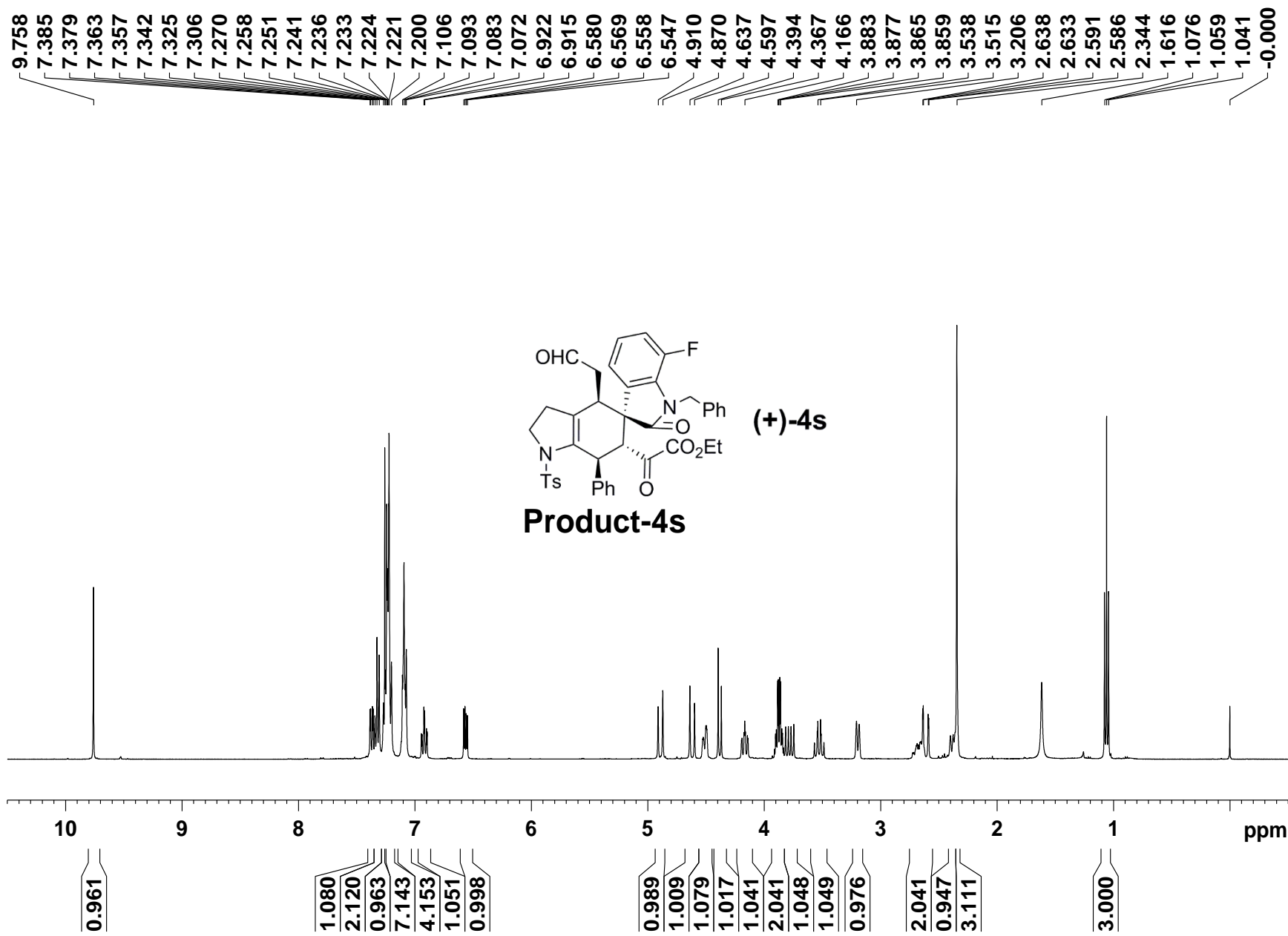
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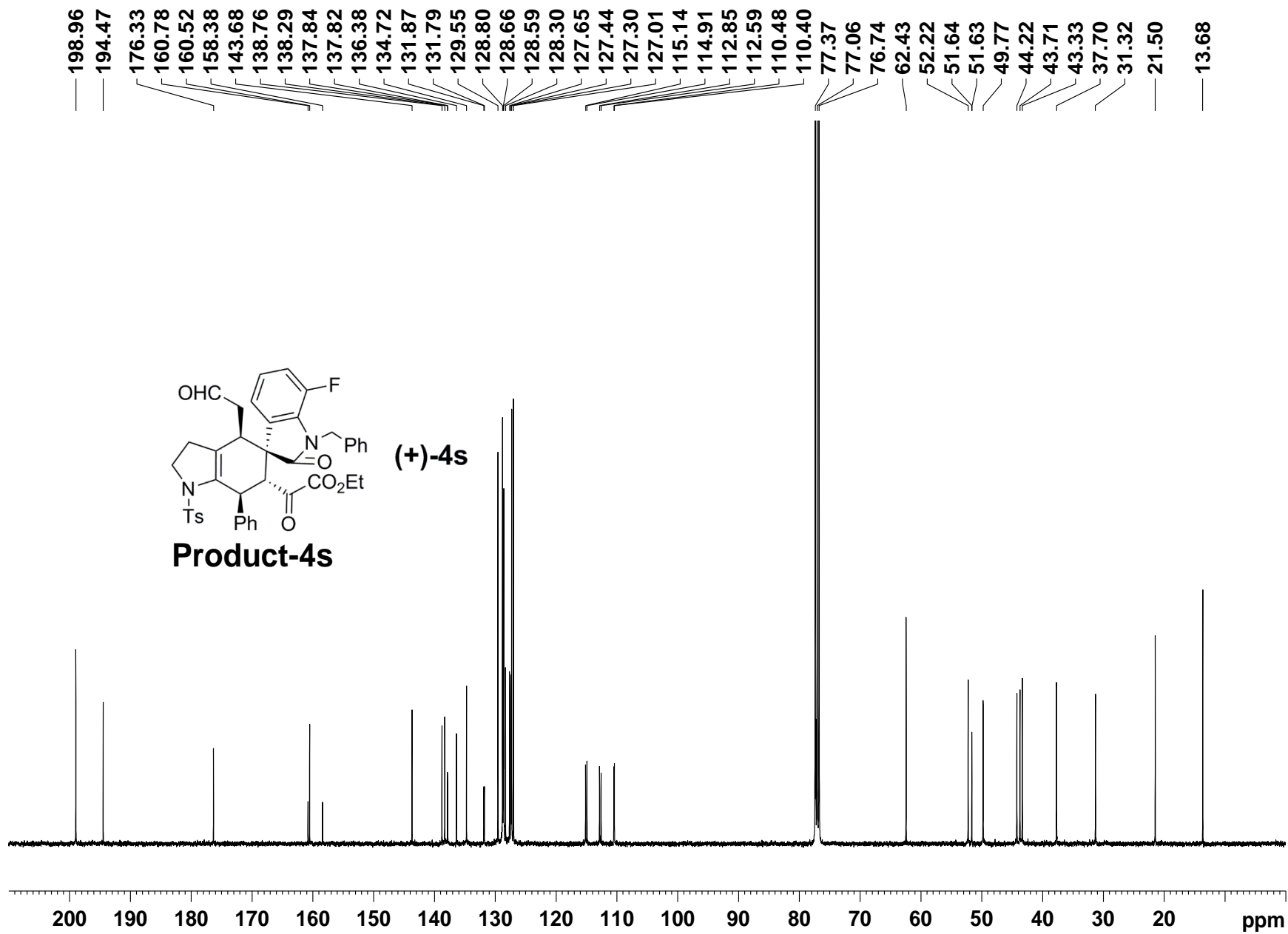




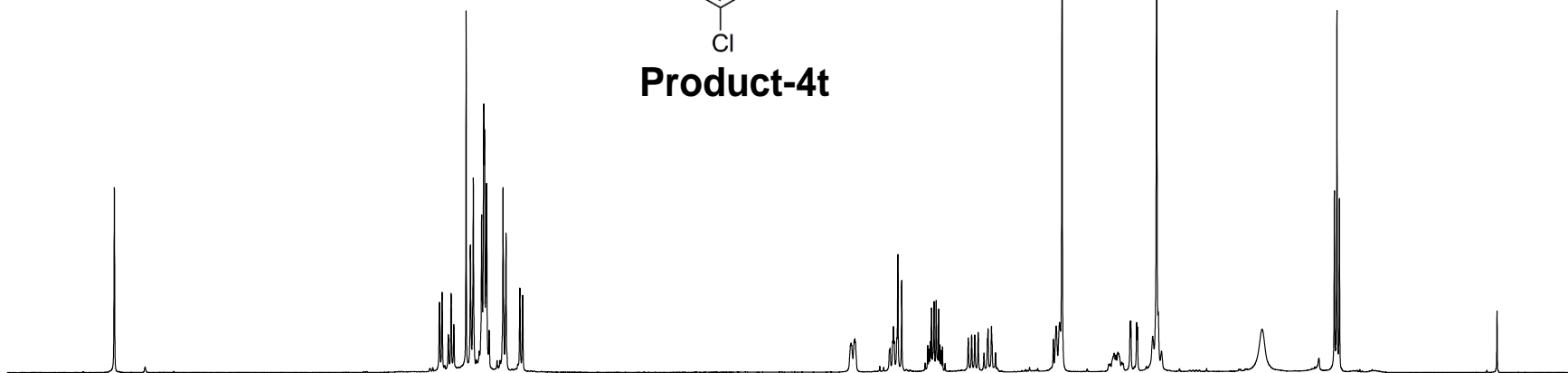
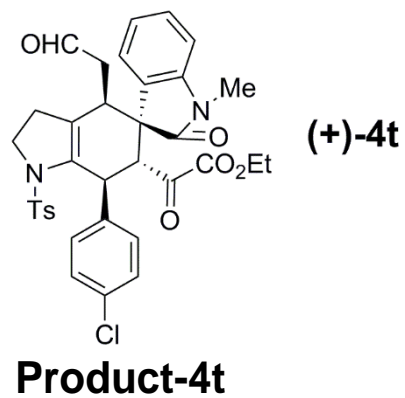








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10

9

8

7

6

5

4

3

2

1

ppm

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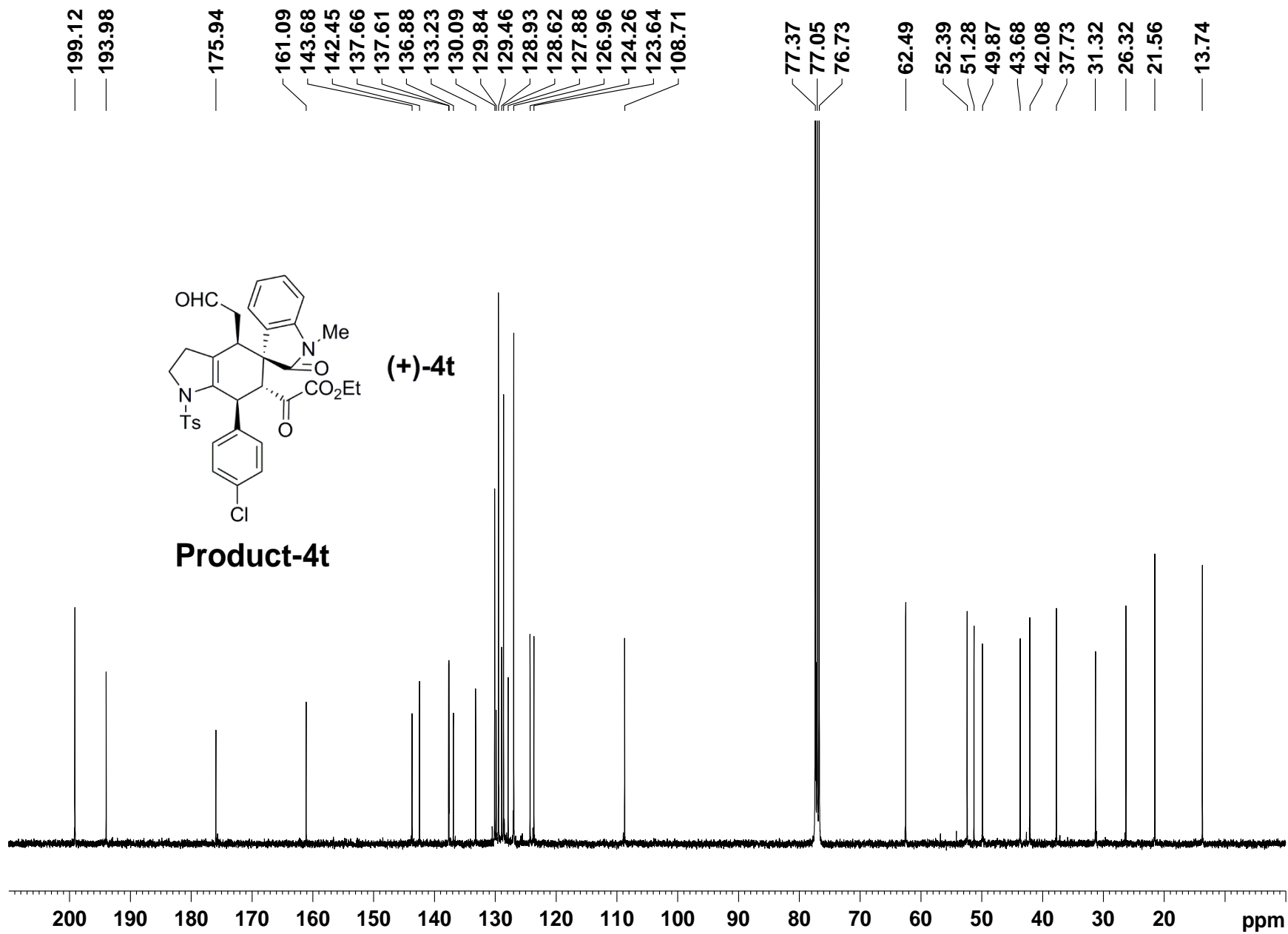
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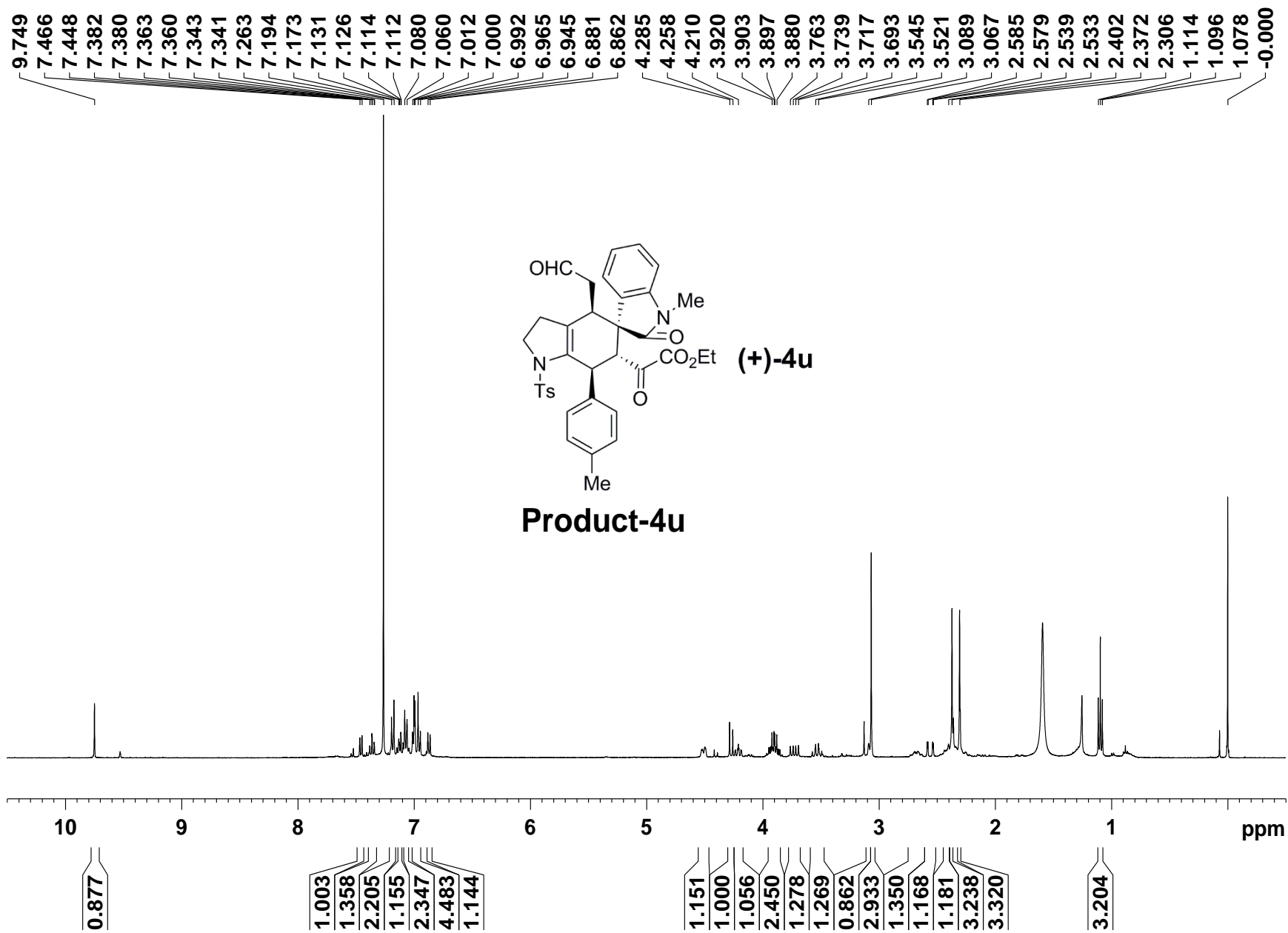
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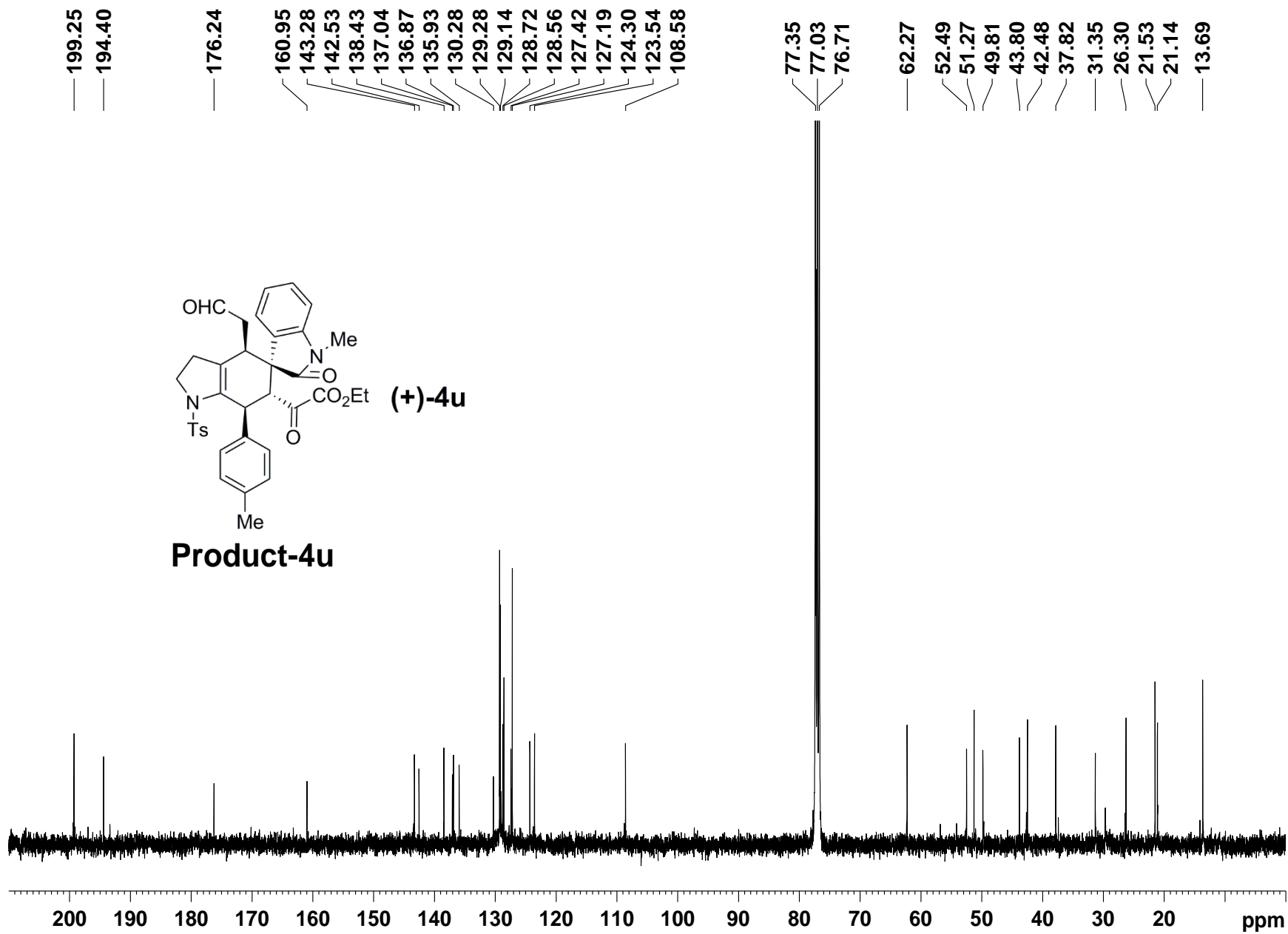
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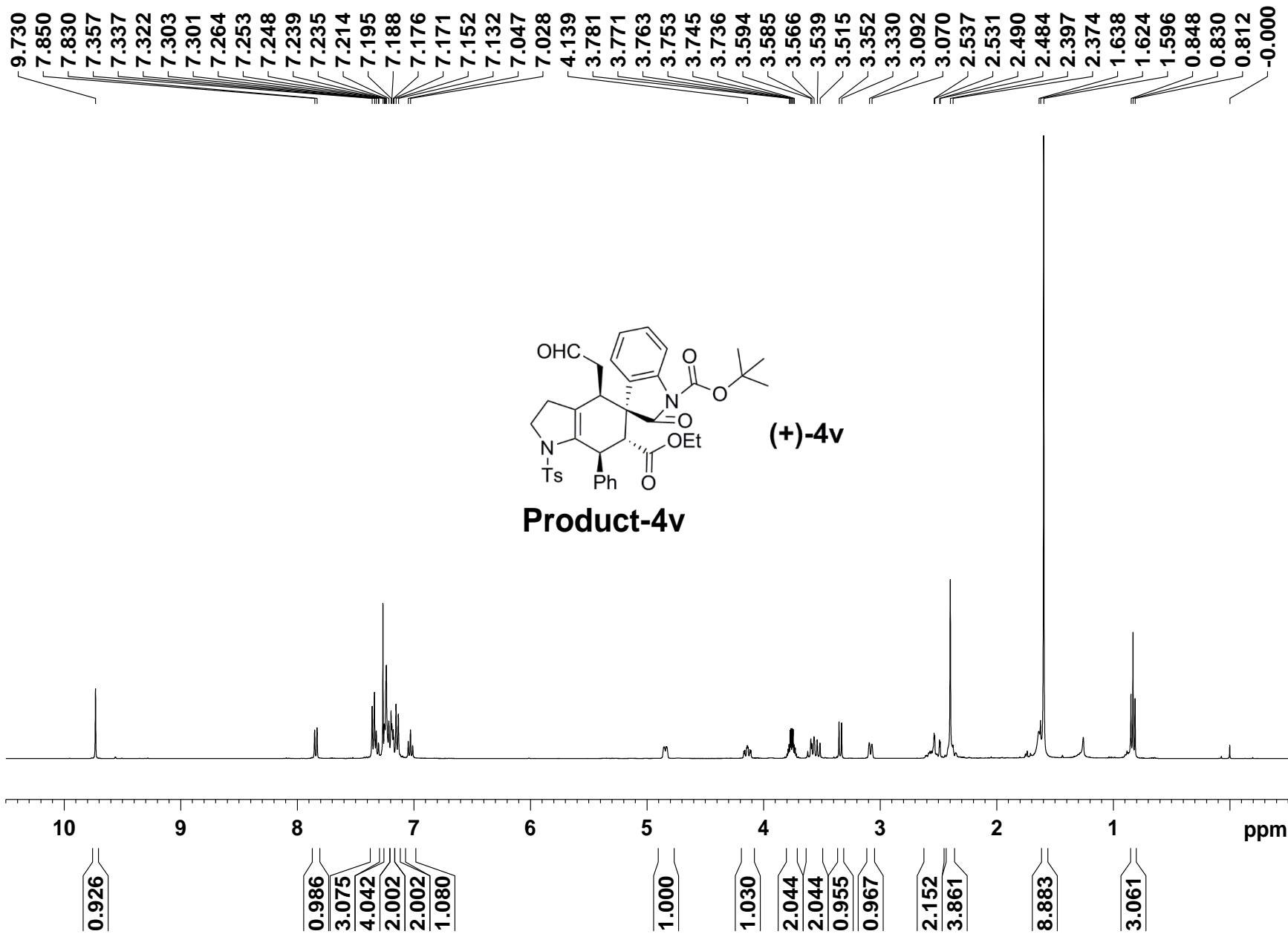
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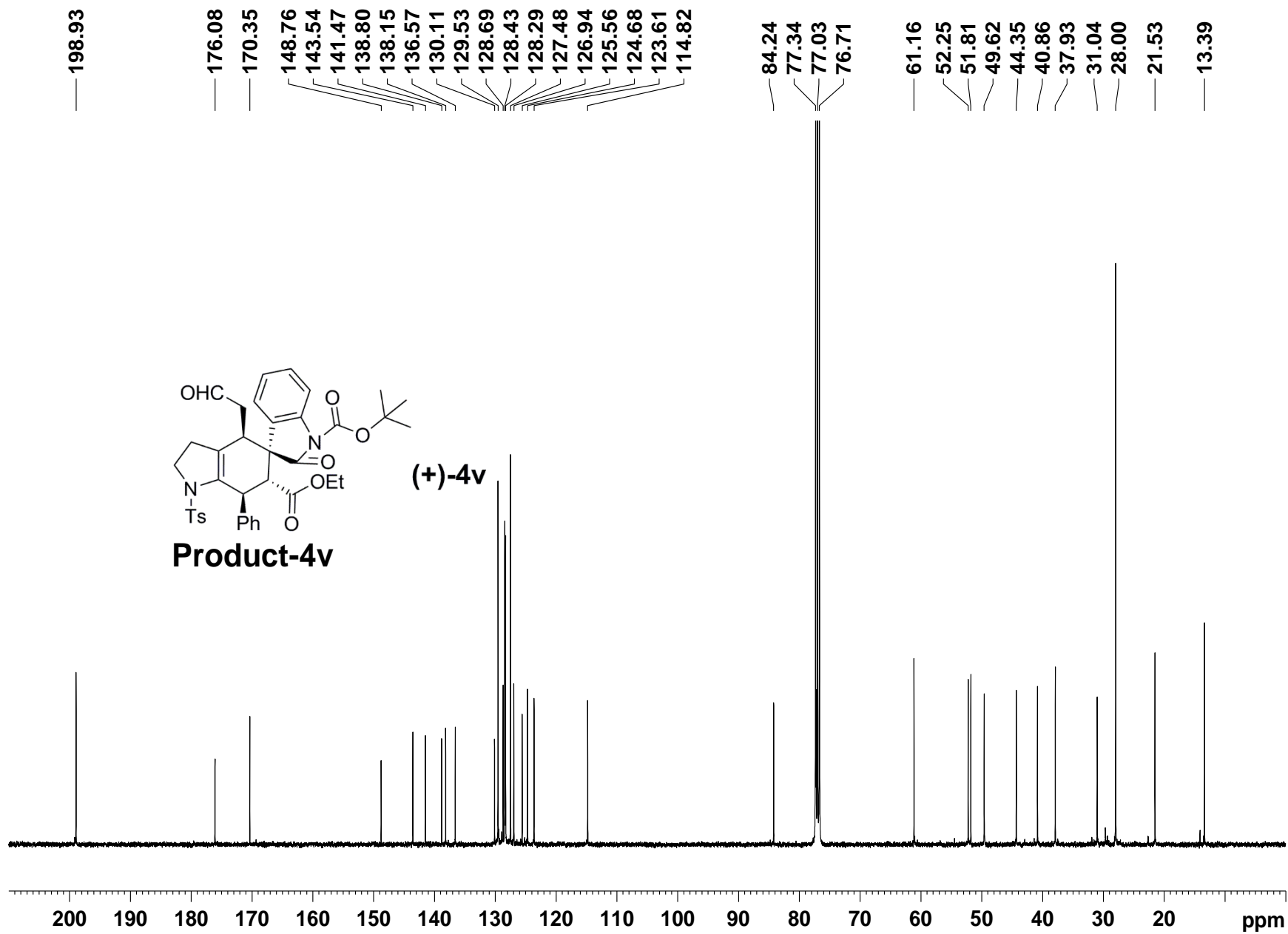
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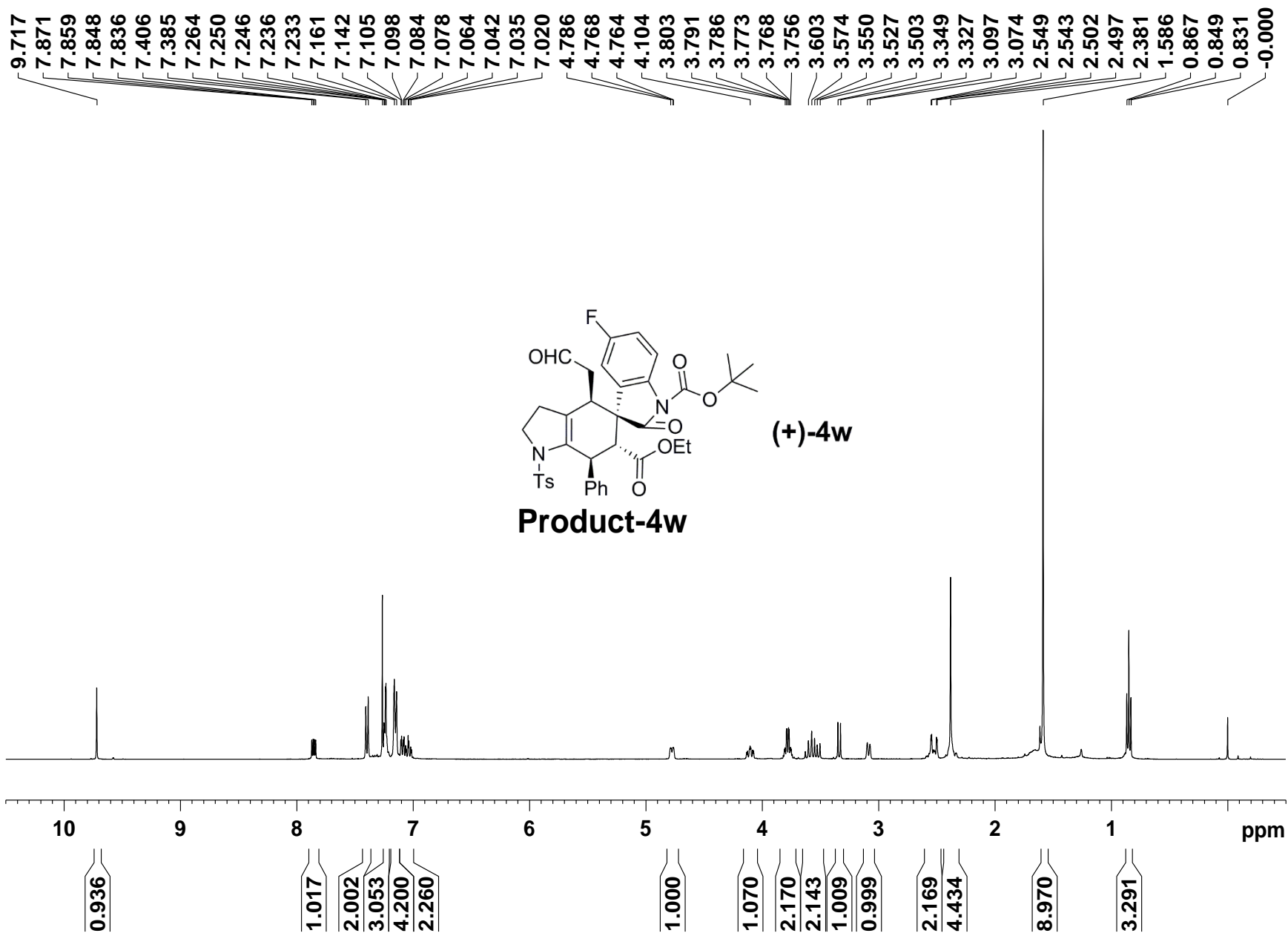


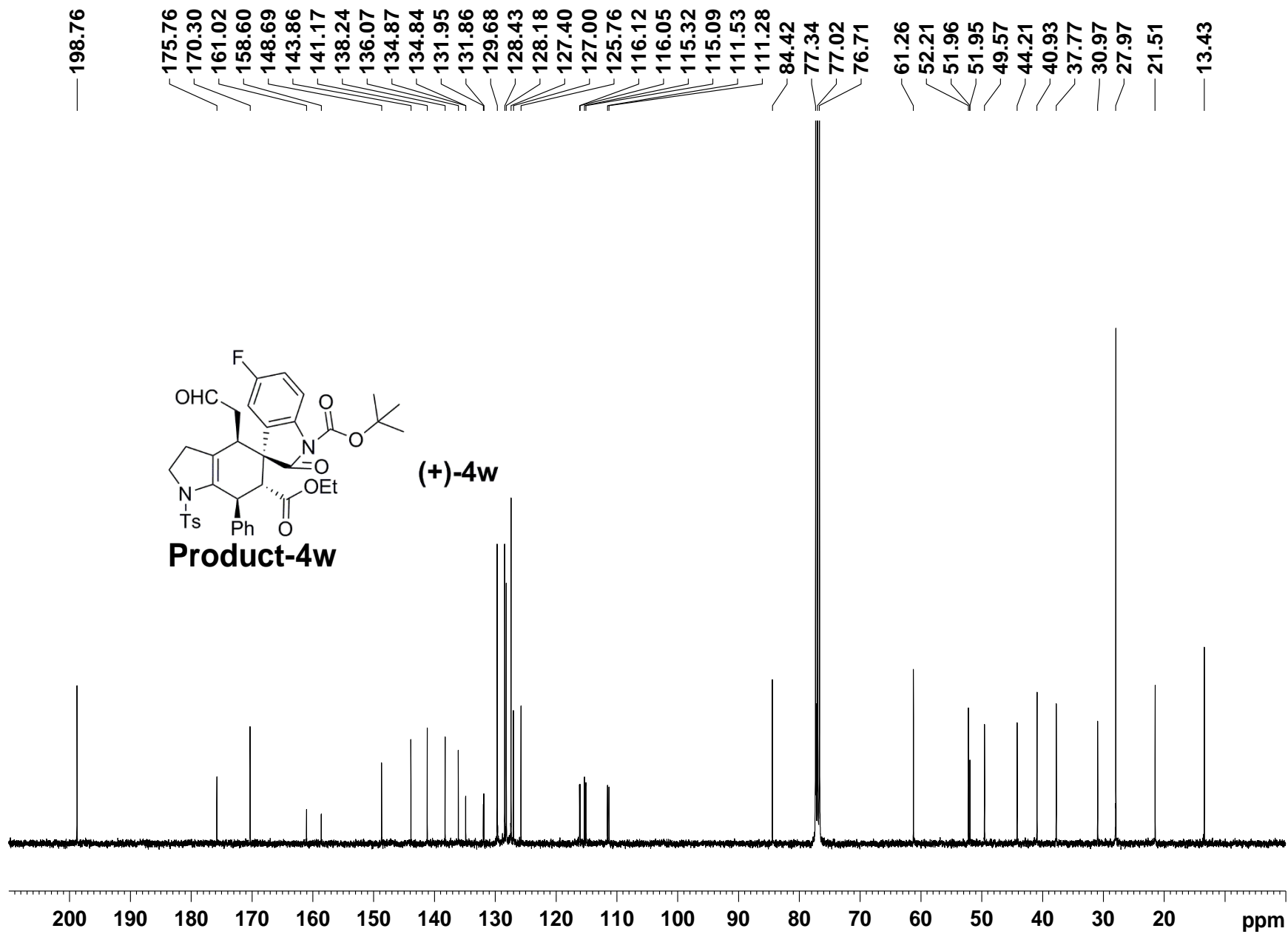


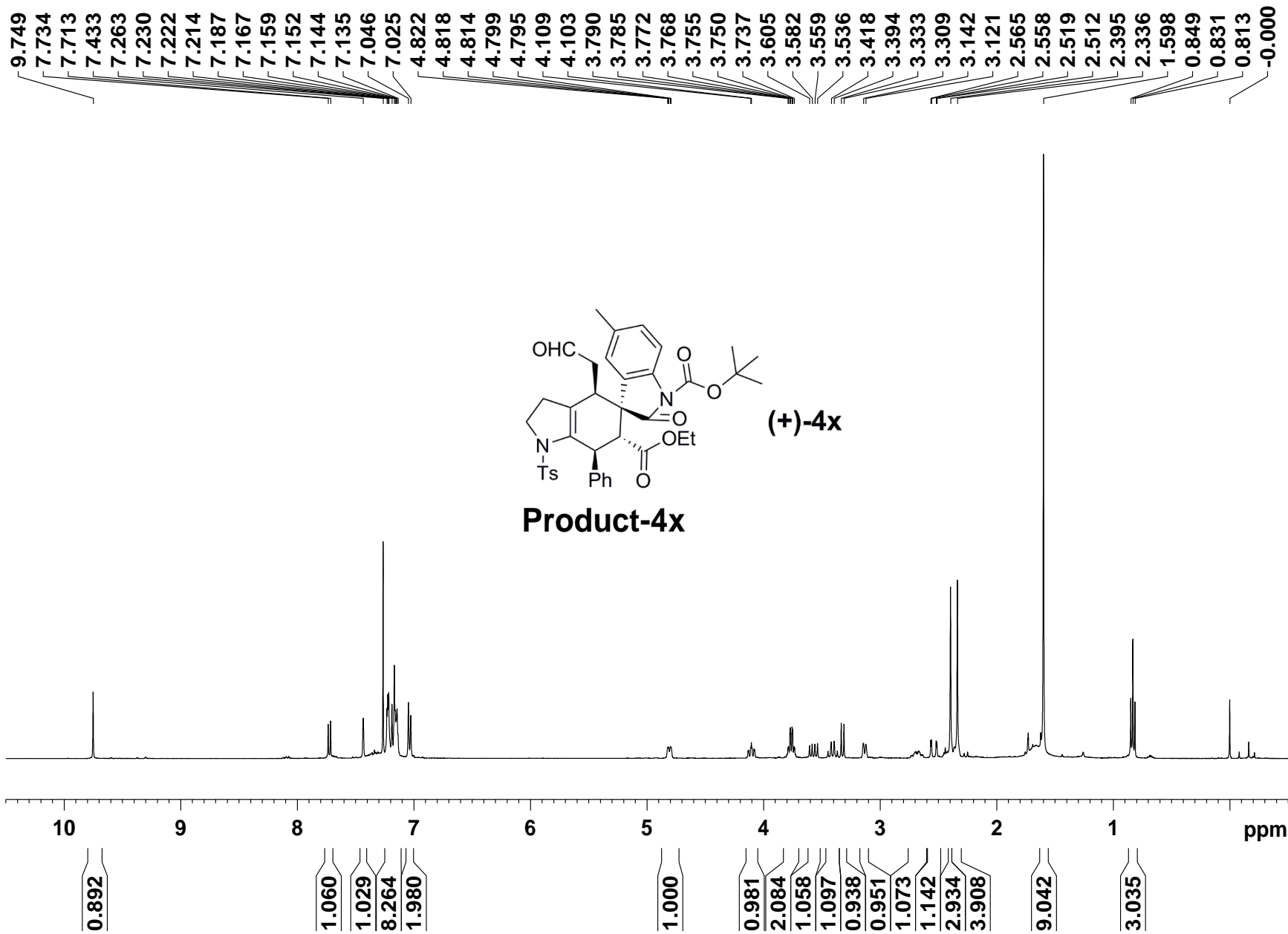


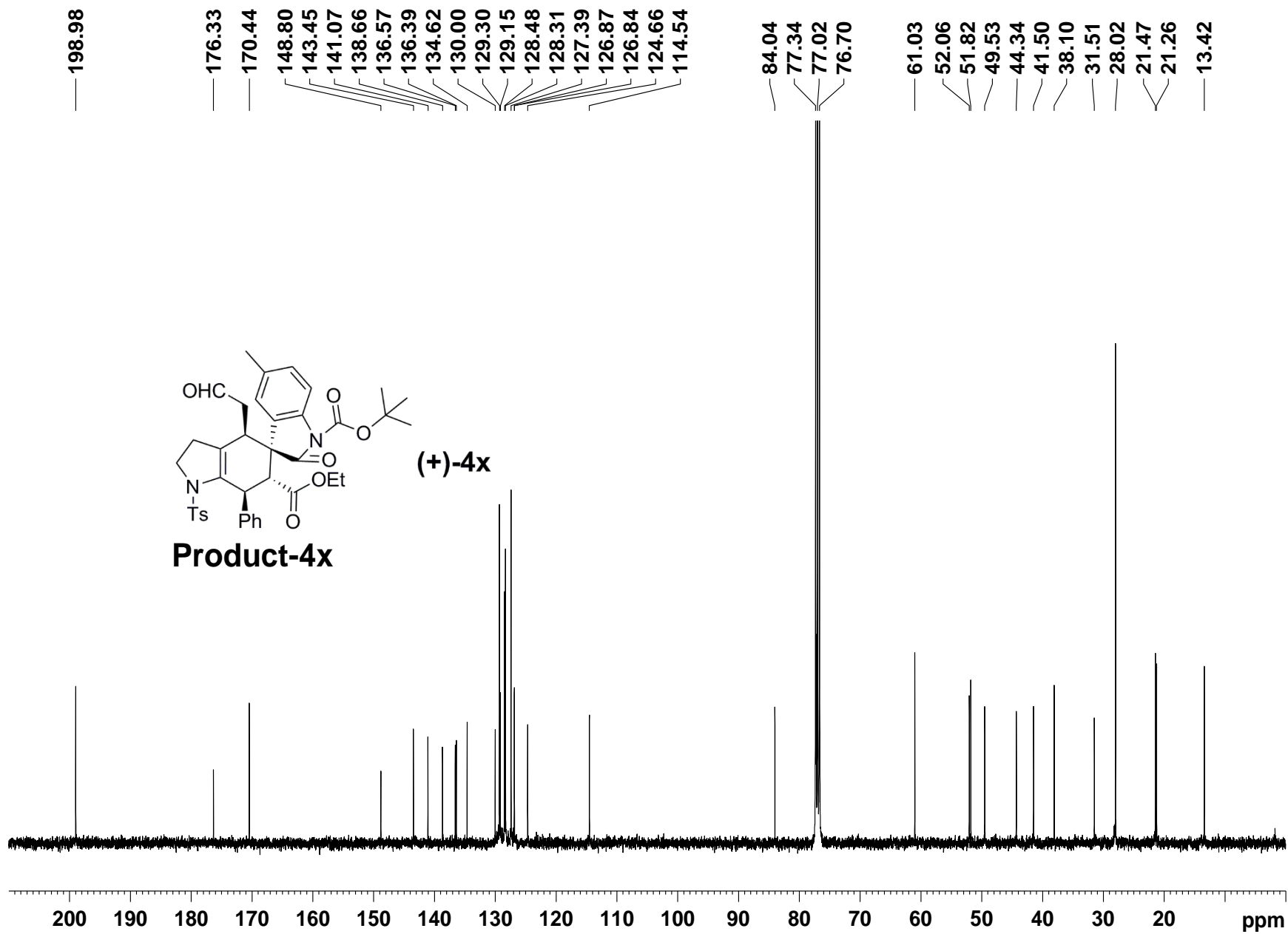


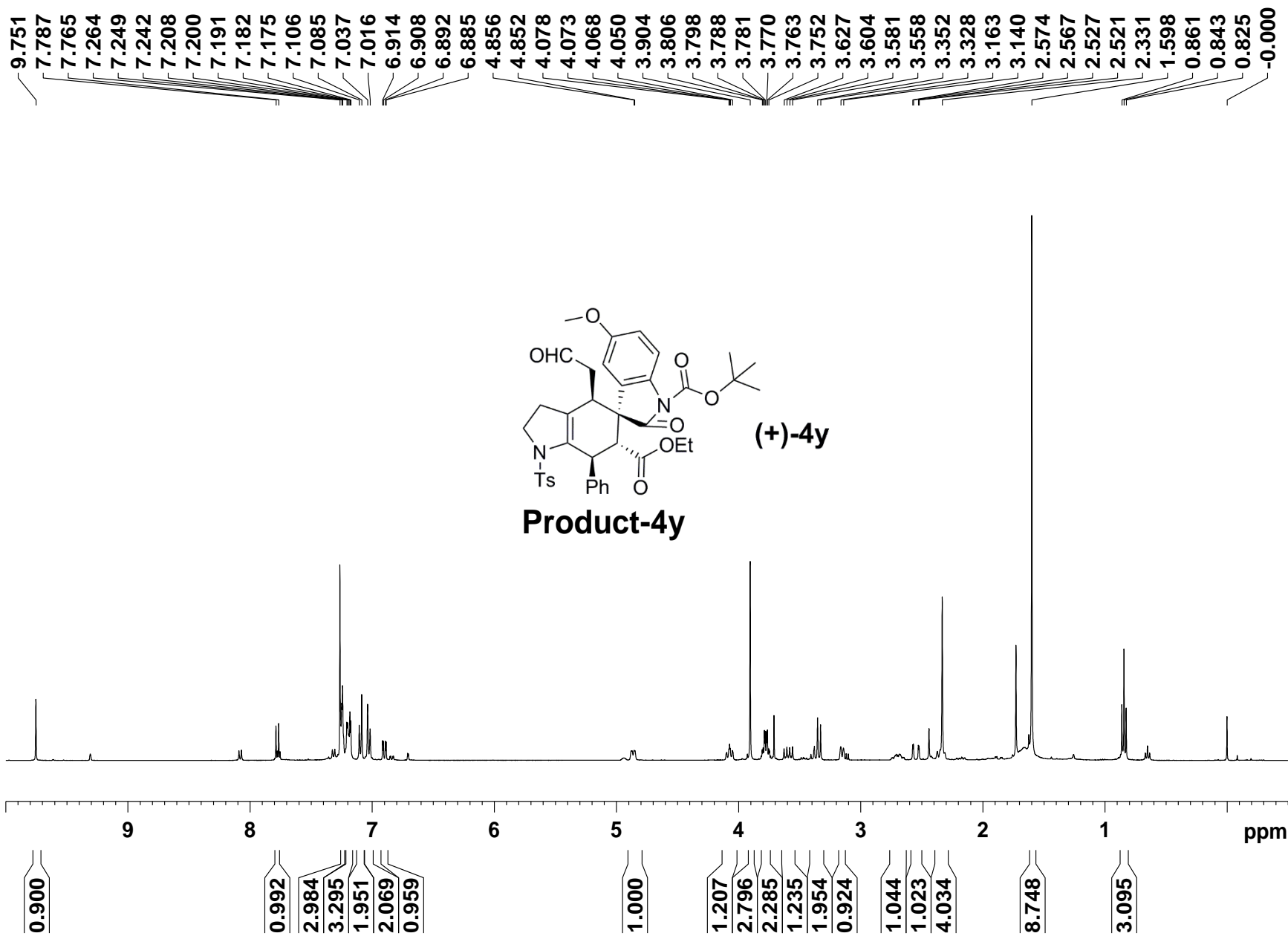


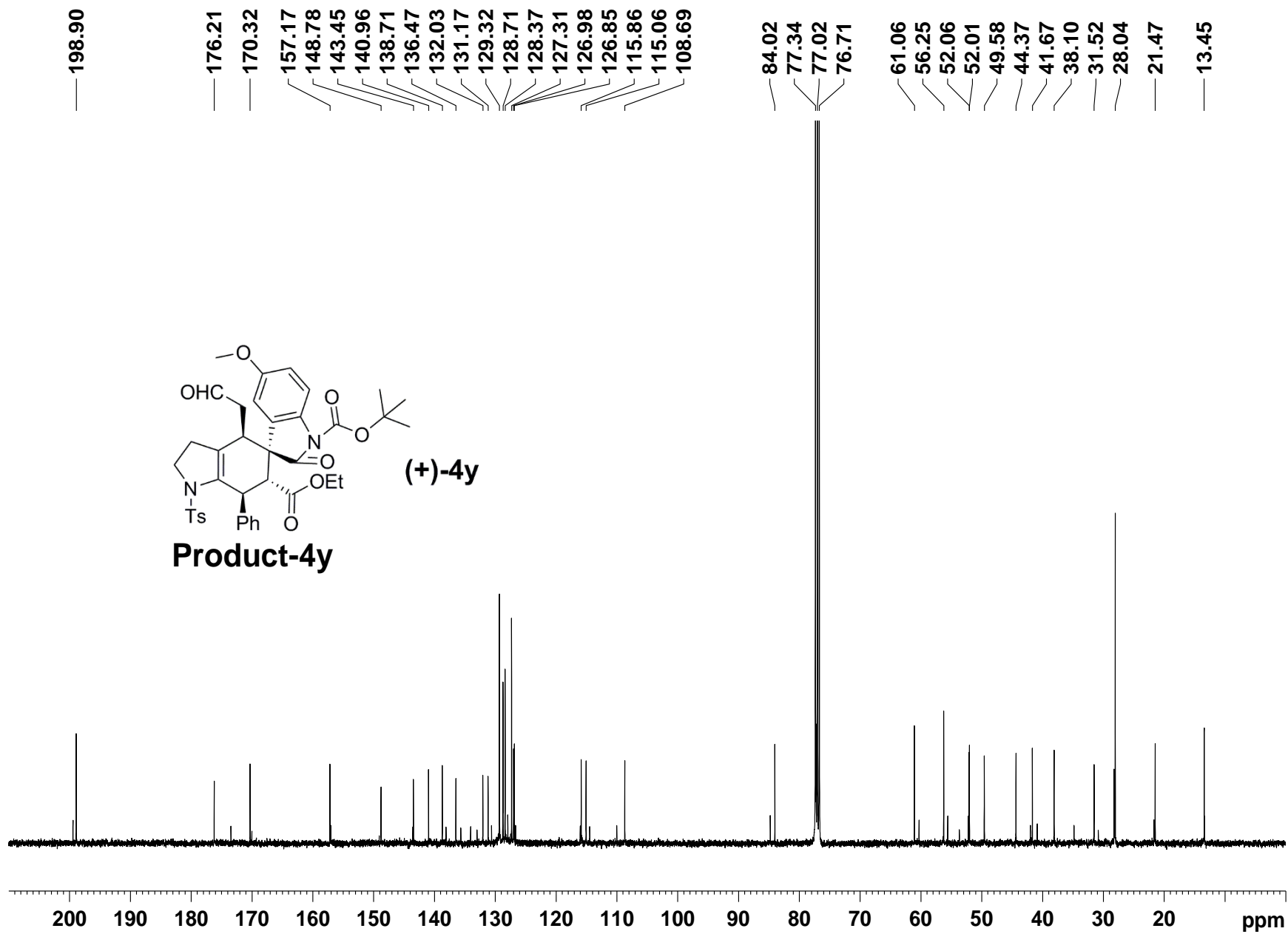


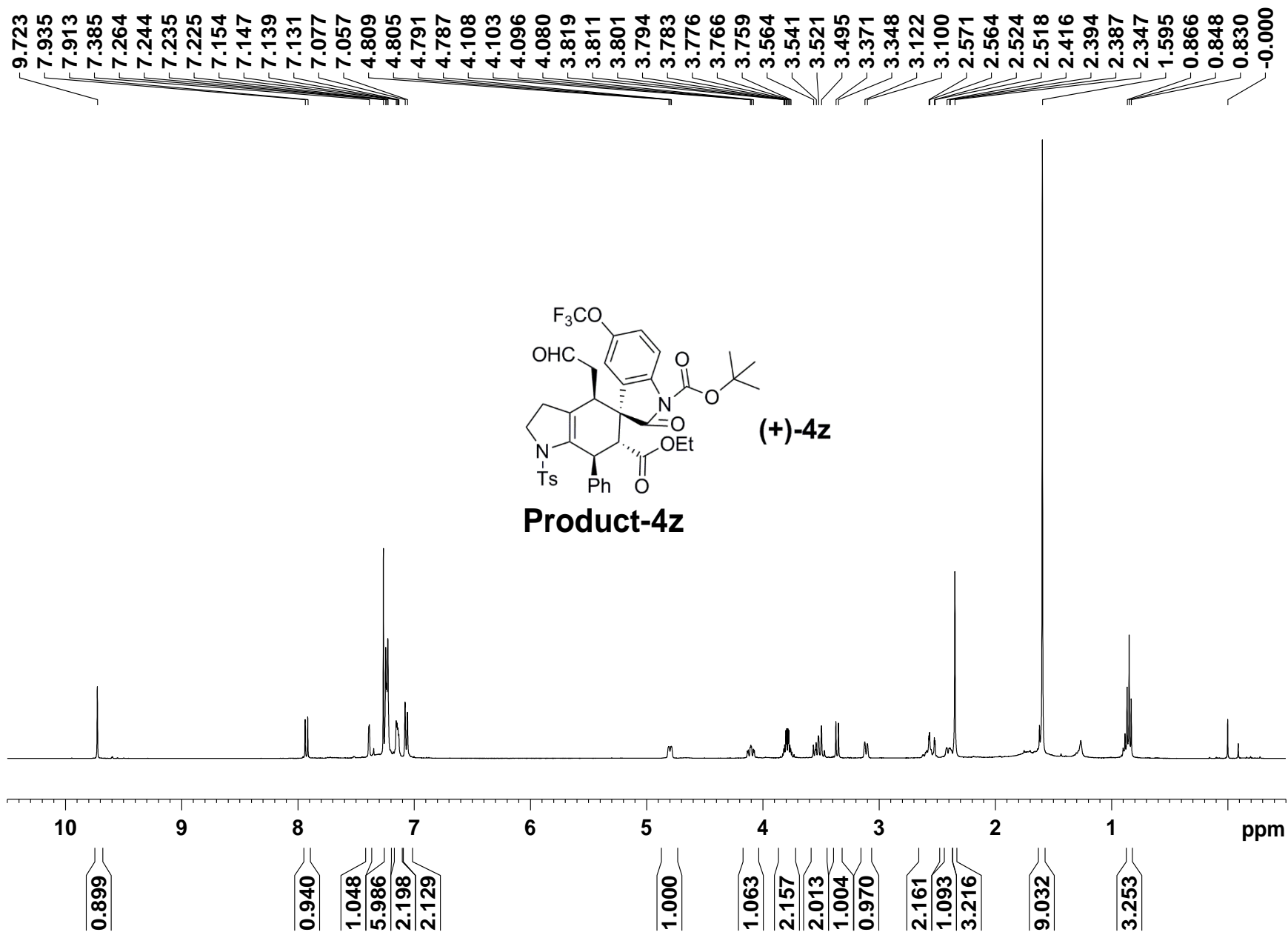


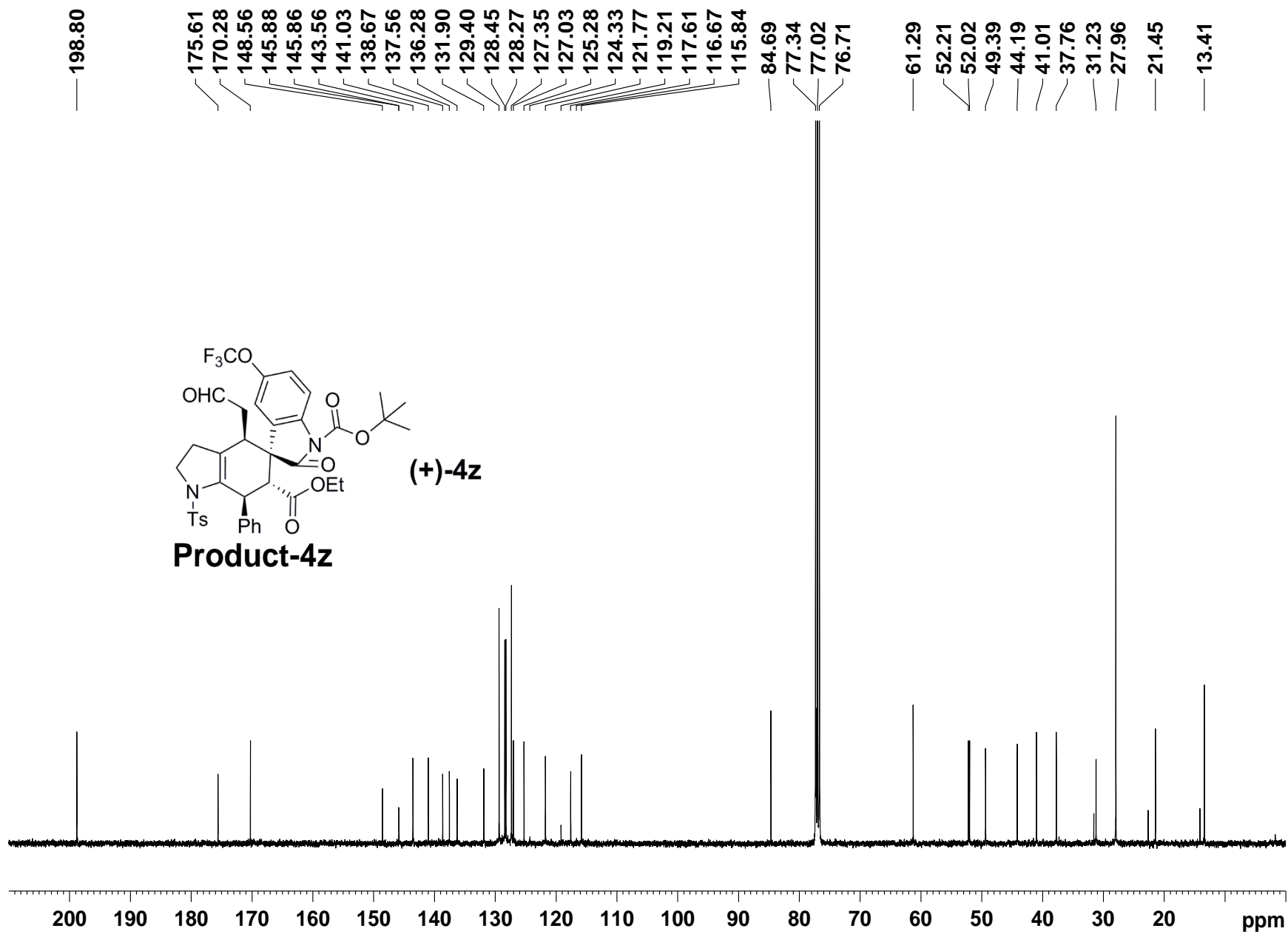


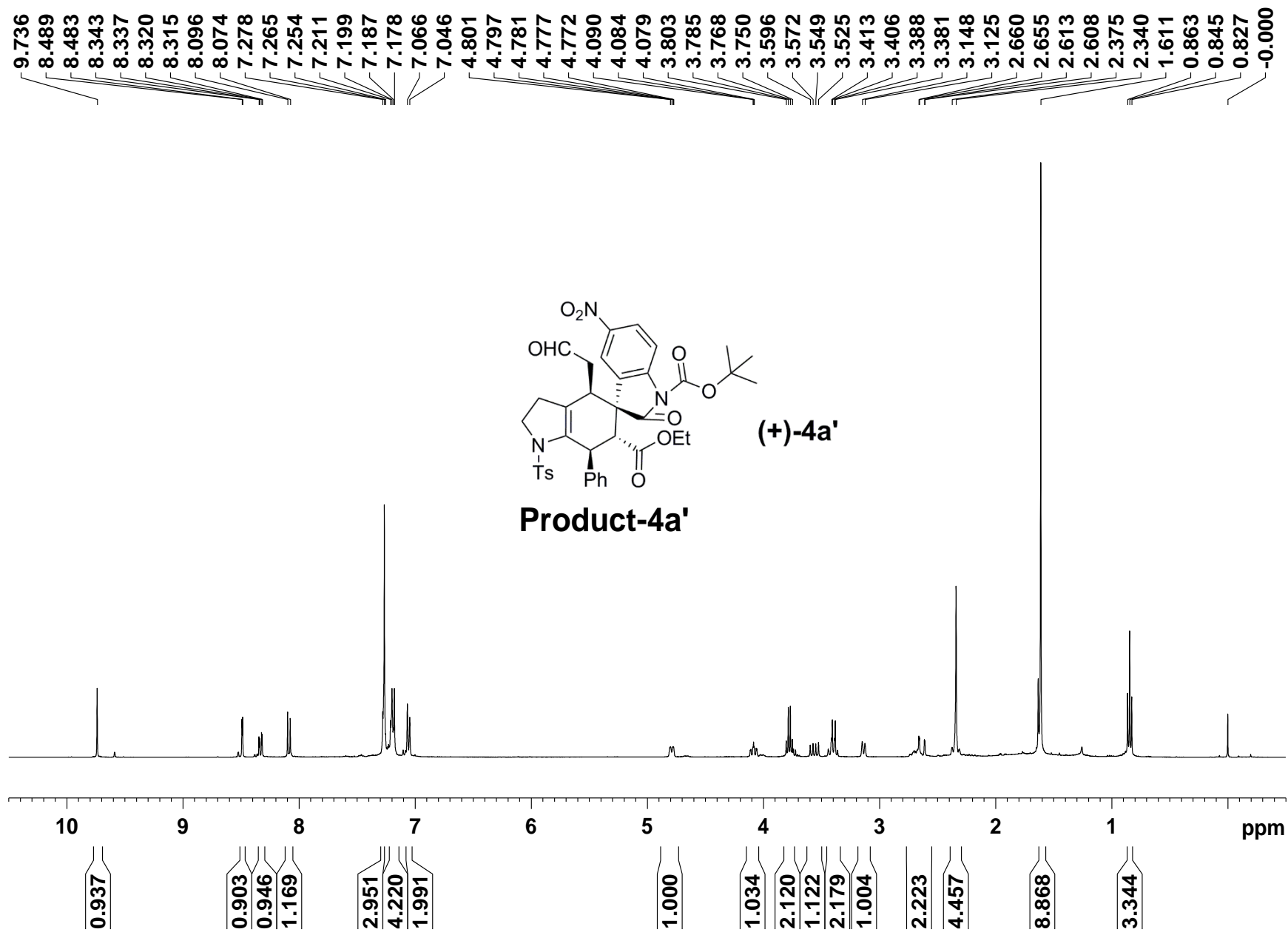


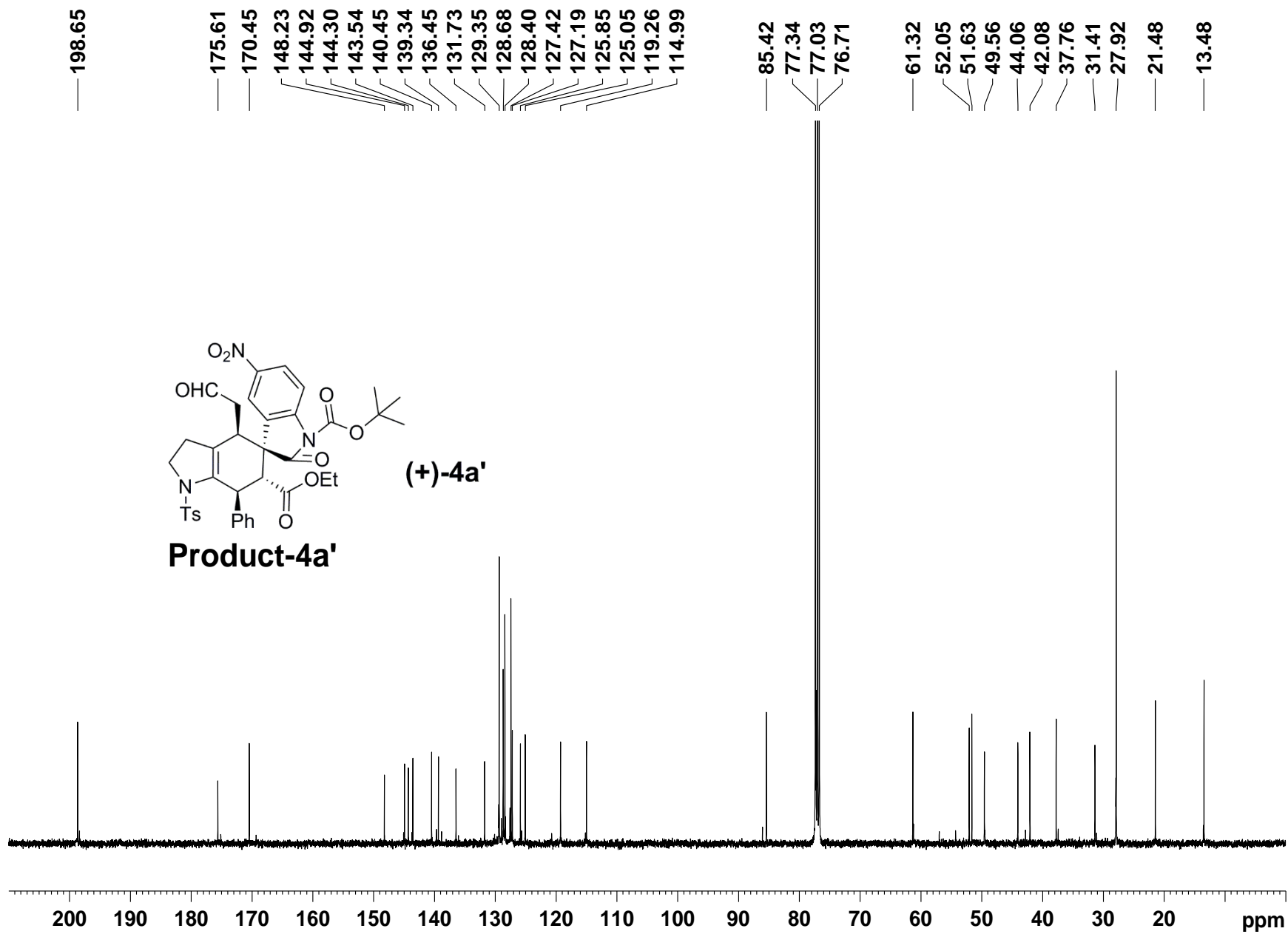


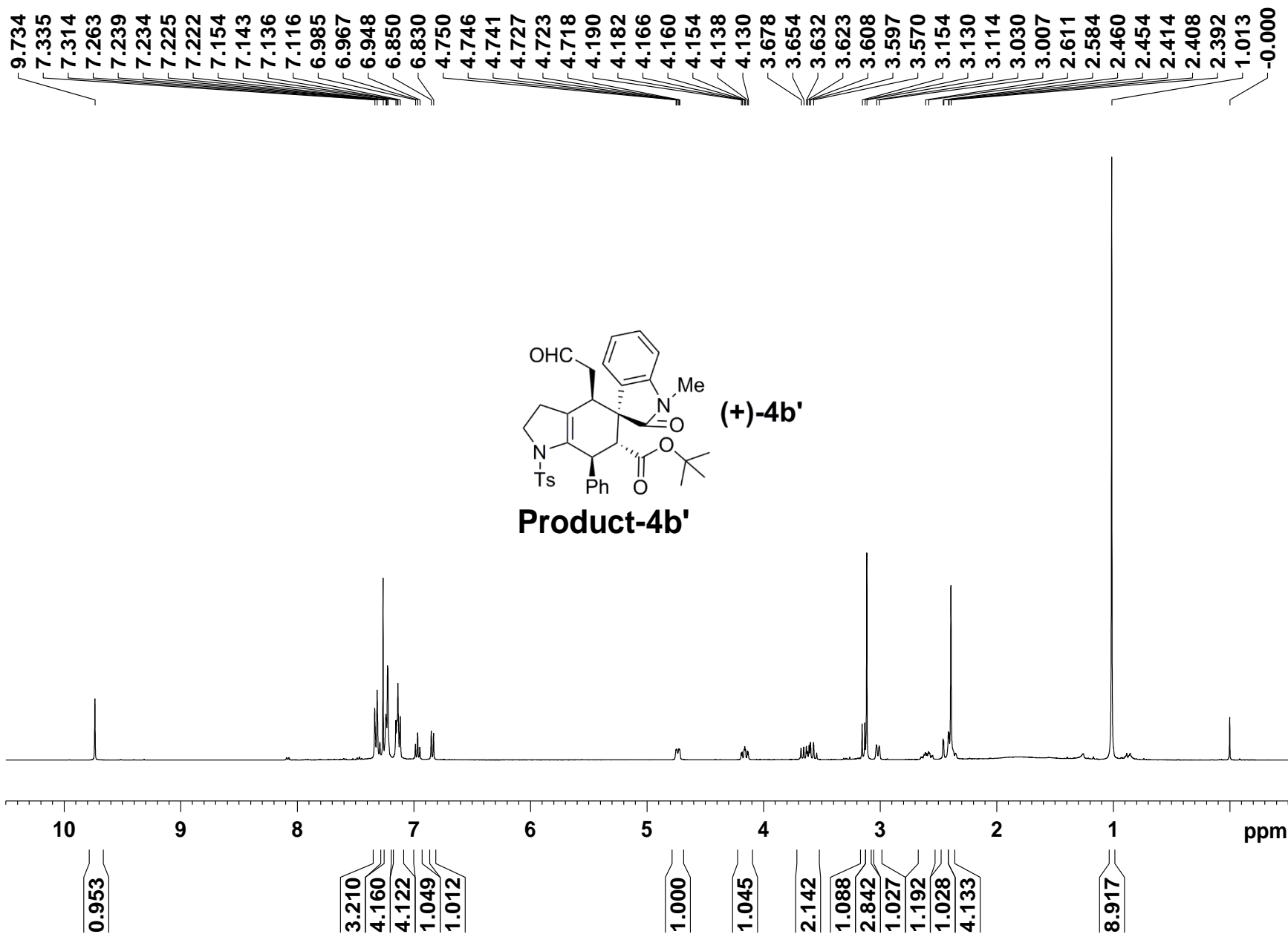


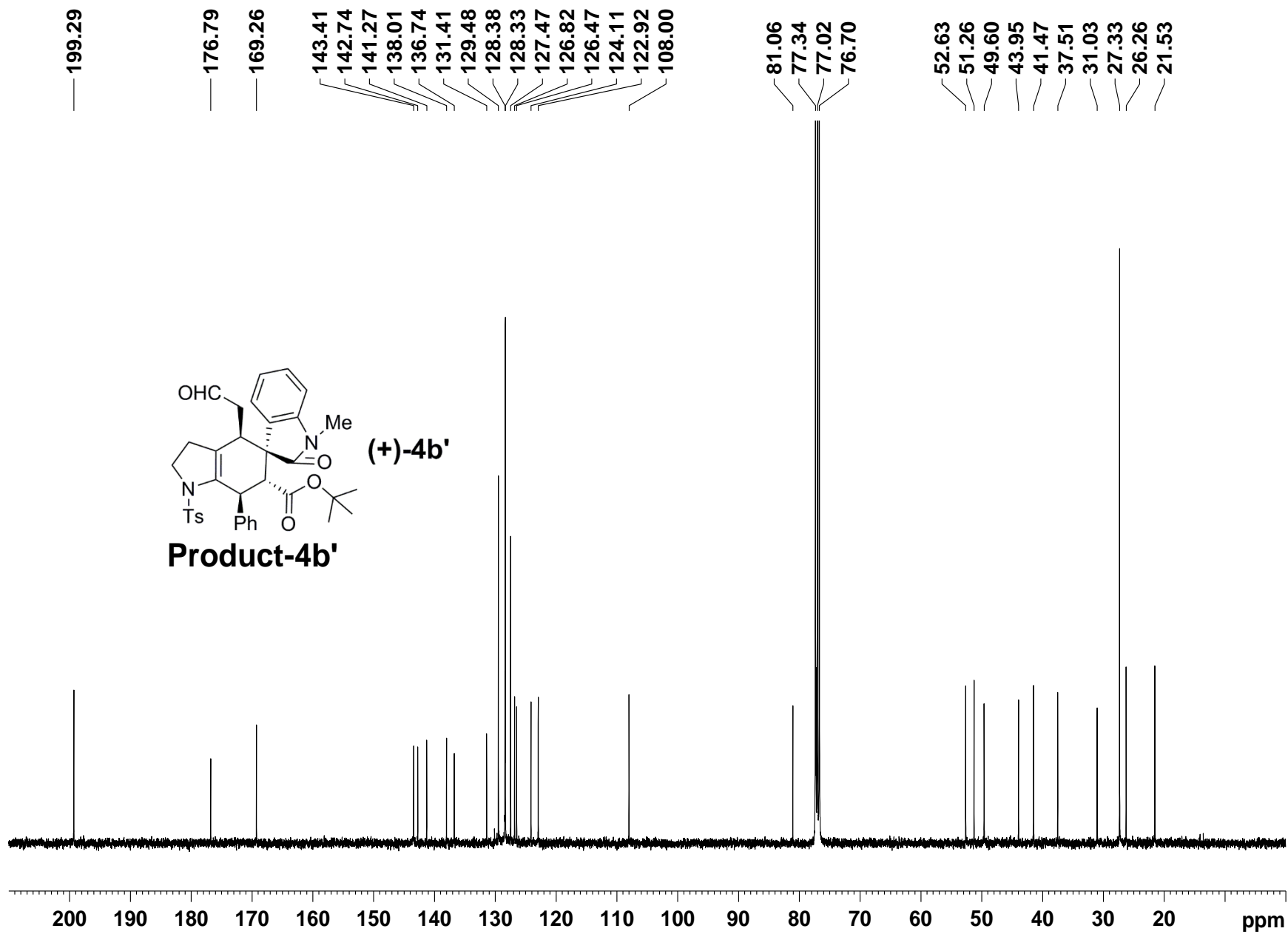


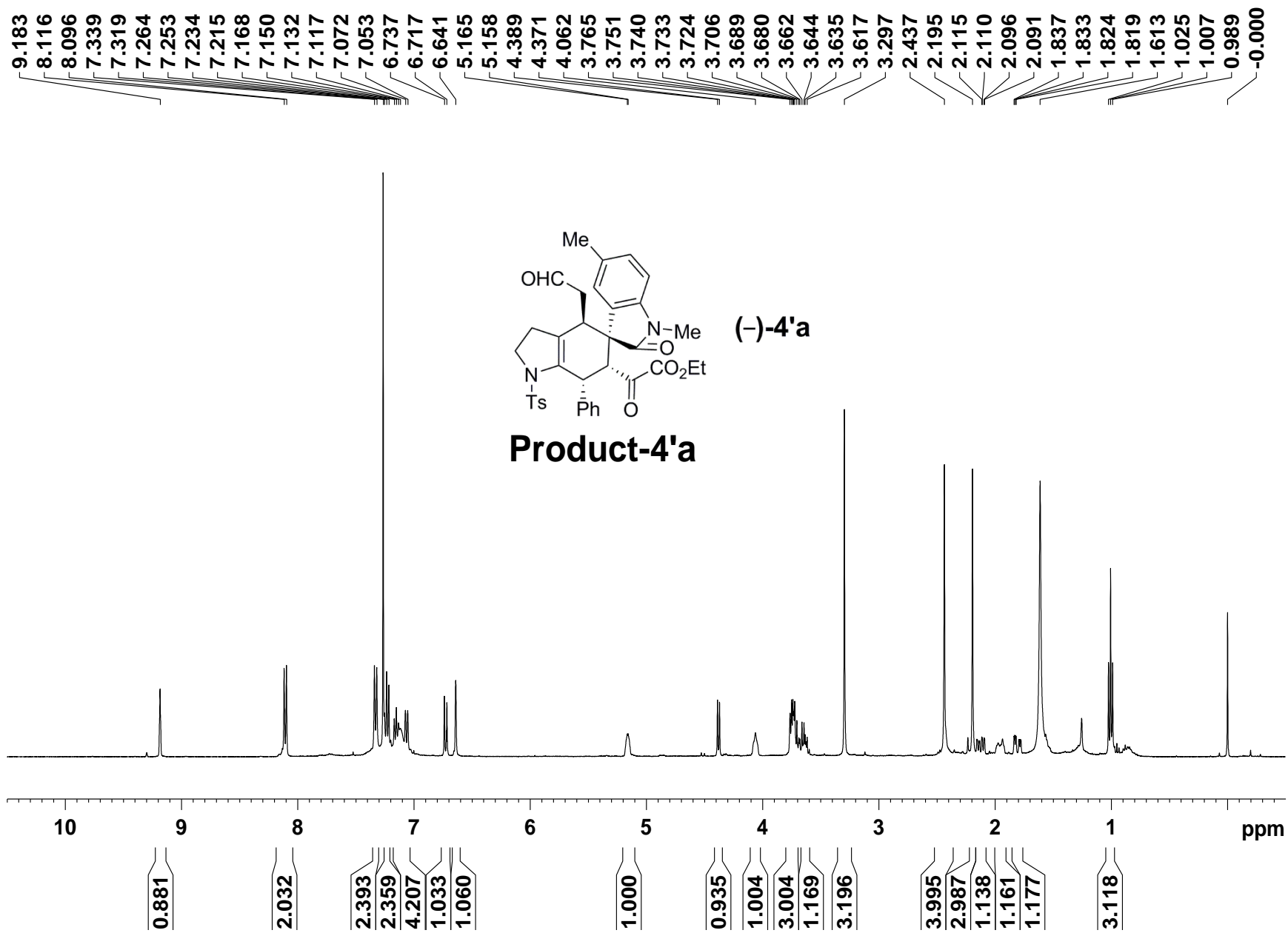


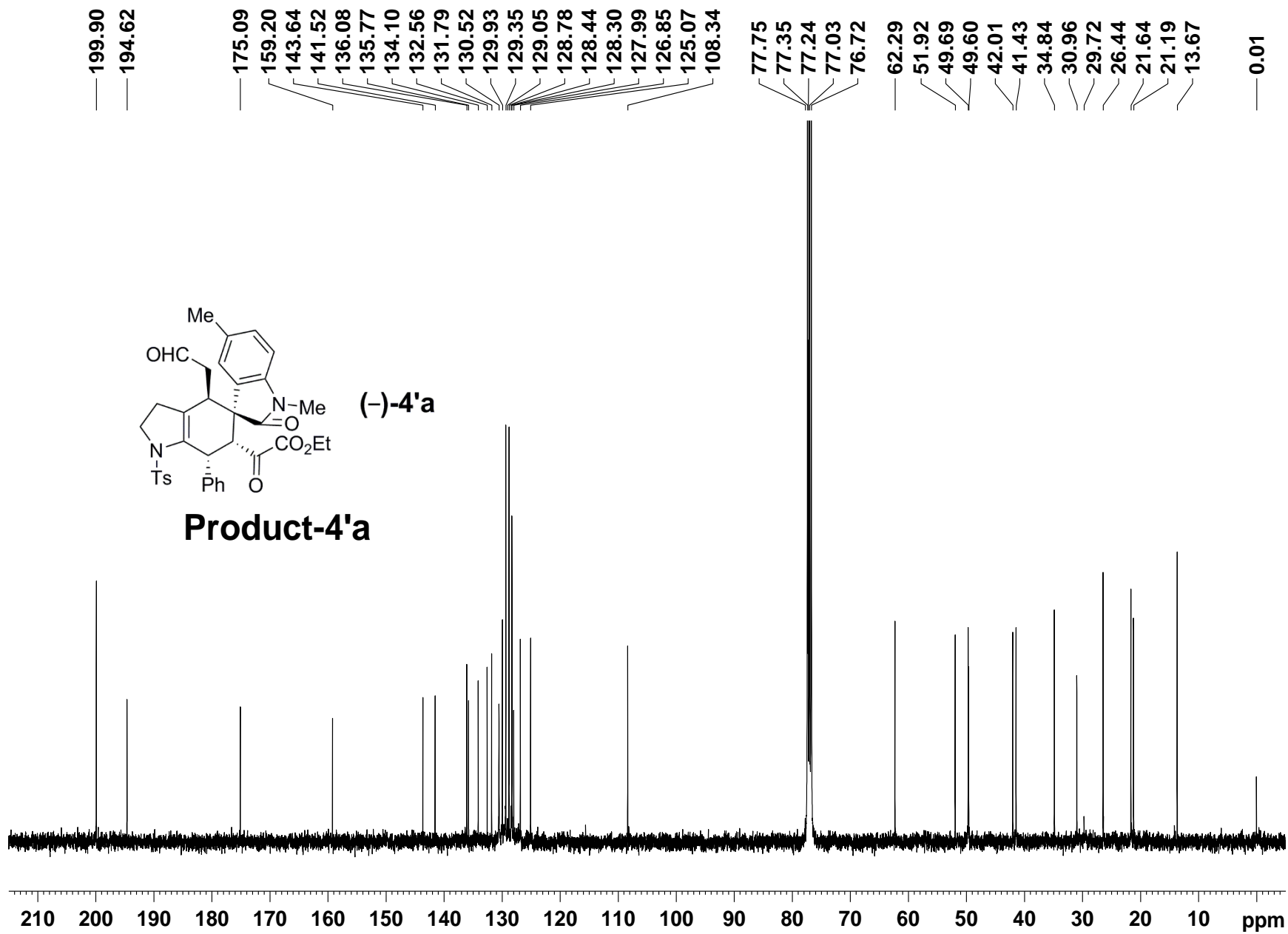










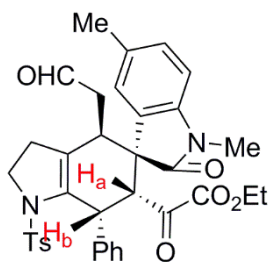


8.117
8.097

7.117

5.166

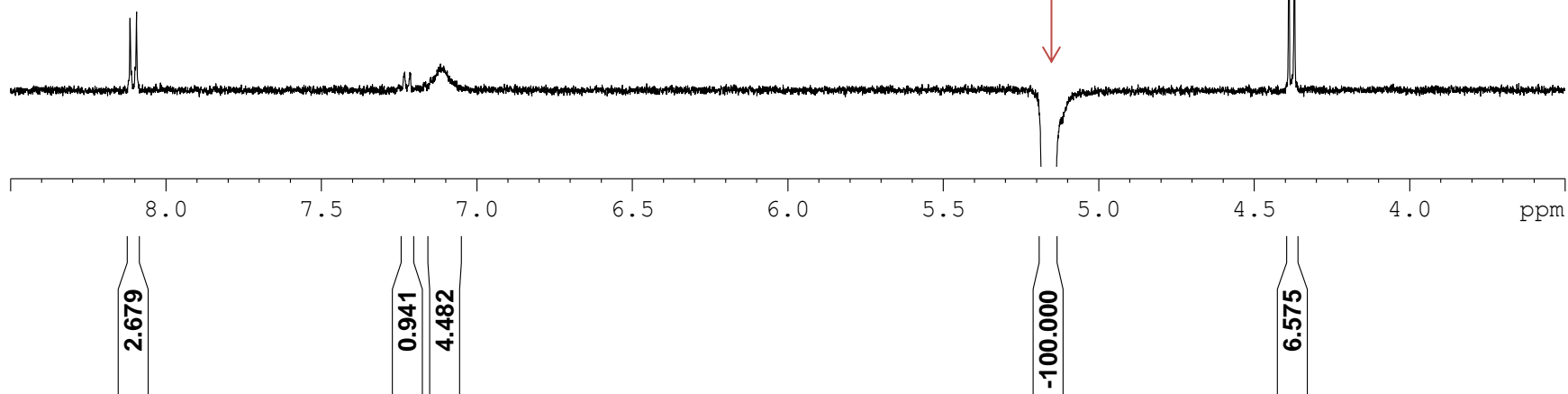
4.389
4.370

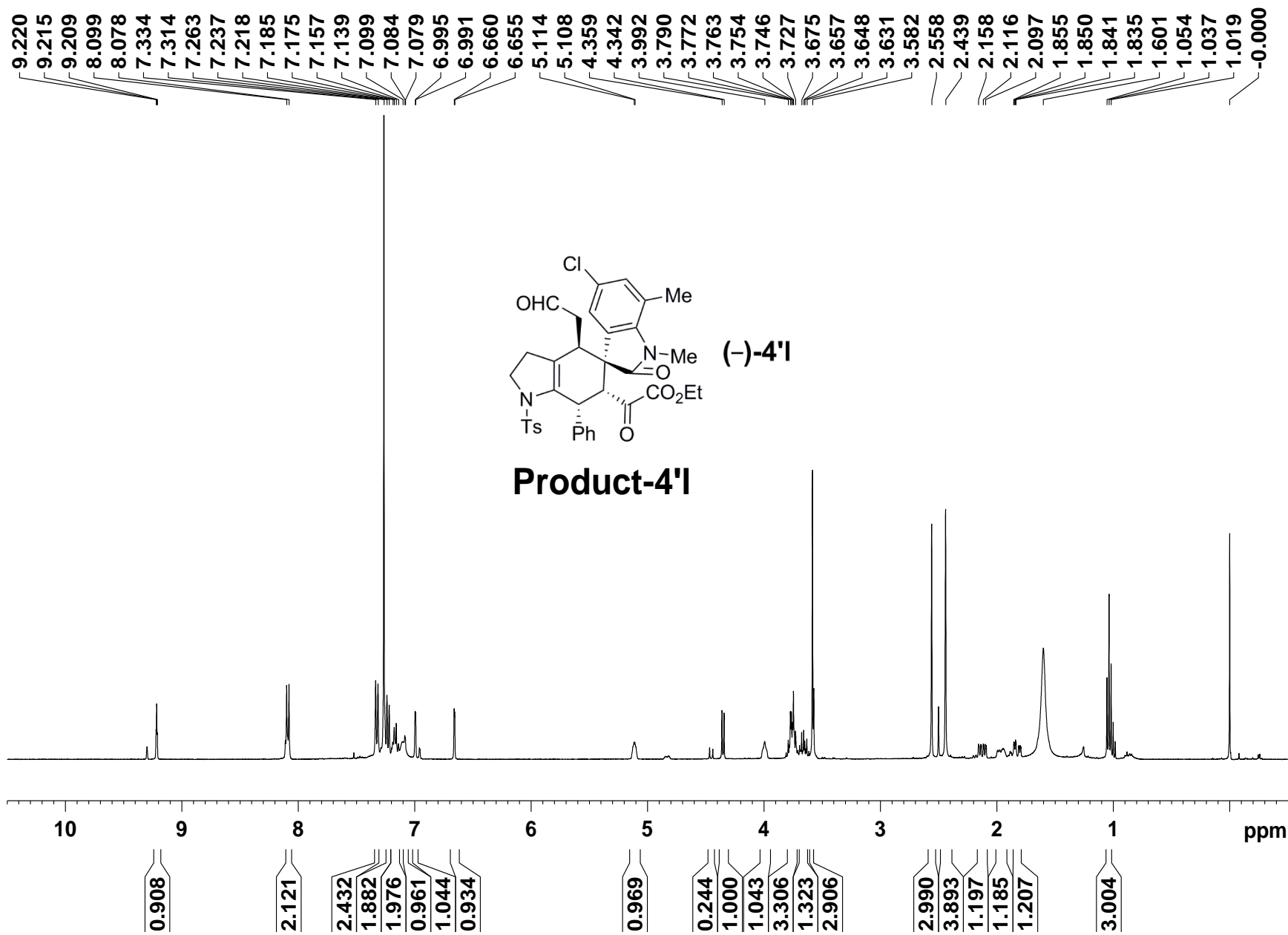


NOE of 4'a

**NOE of H_a at
4.38 ppm**

**irradiation of H_b at
5.18 ppm**





— 199.68
— 194.44

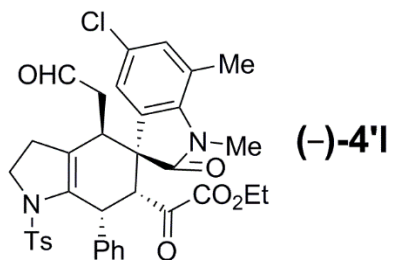
— 175.36

159.33
143.68
140.36
135.77
134.10
132.95
131.48
130.51
130.25
129.34
128.79
128.75
128.34
127.79
126.93
122.37
121.74

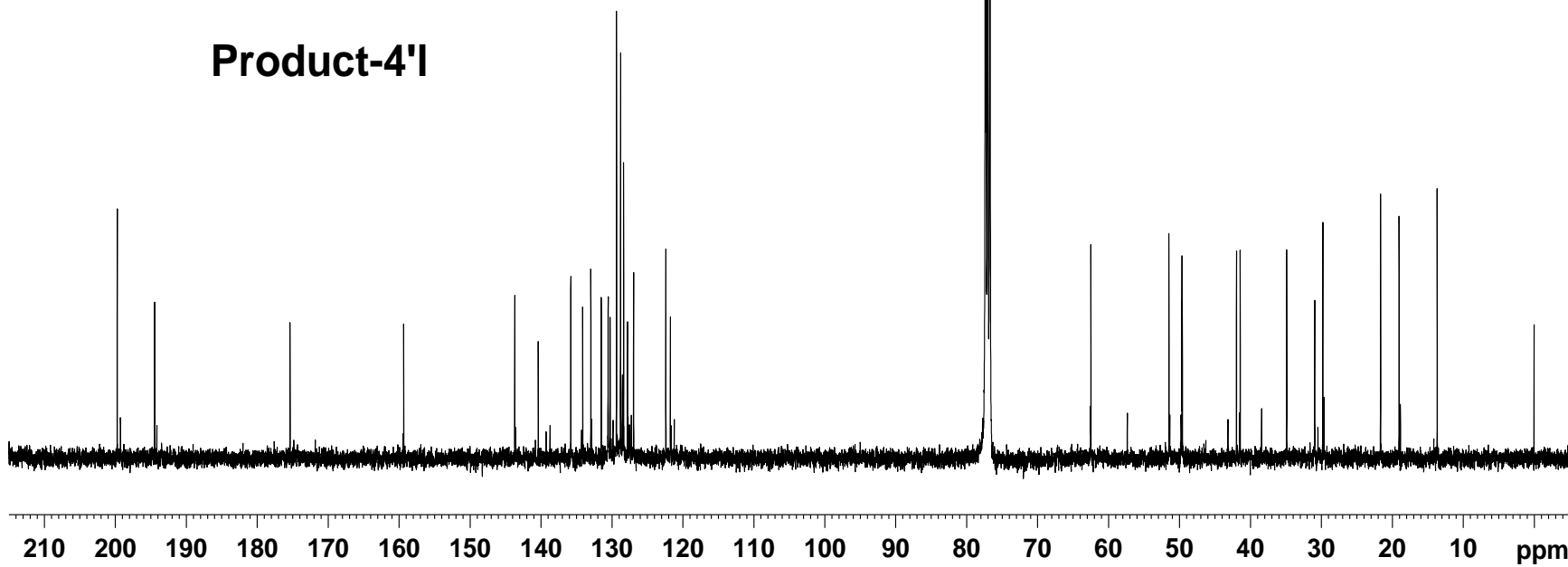
77.33
77.02
76.70

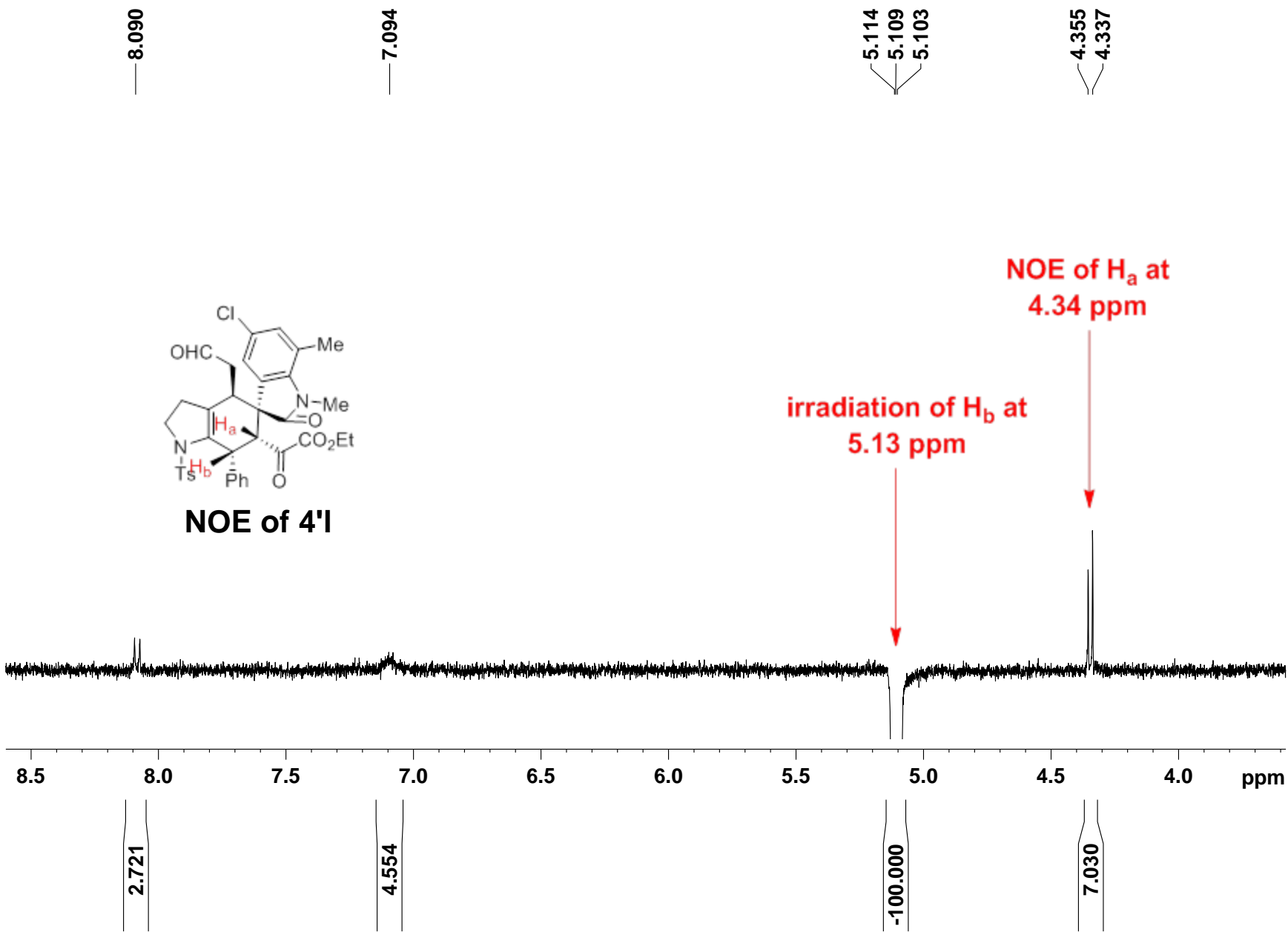
— 62.46
51.47
49.63
49.58
41.94
41.42
34.88
30.91
29.78
21.63
19.01
13.65

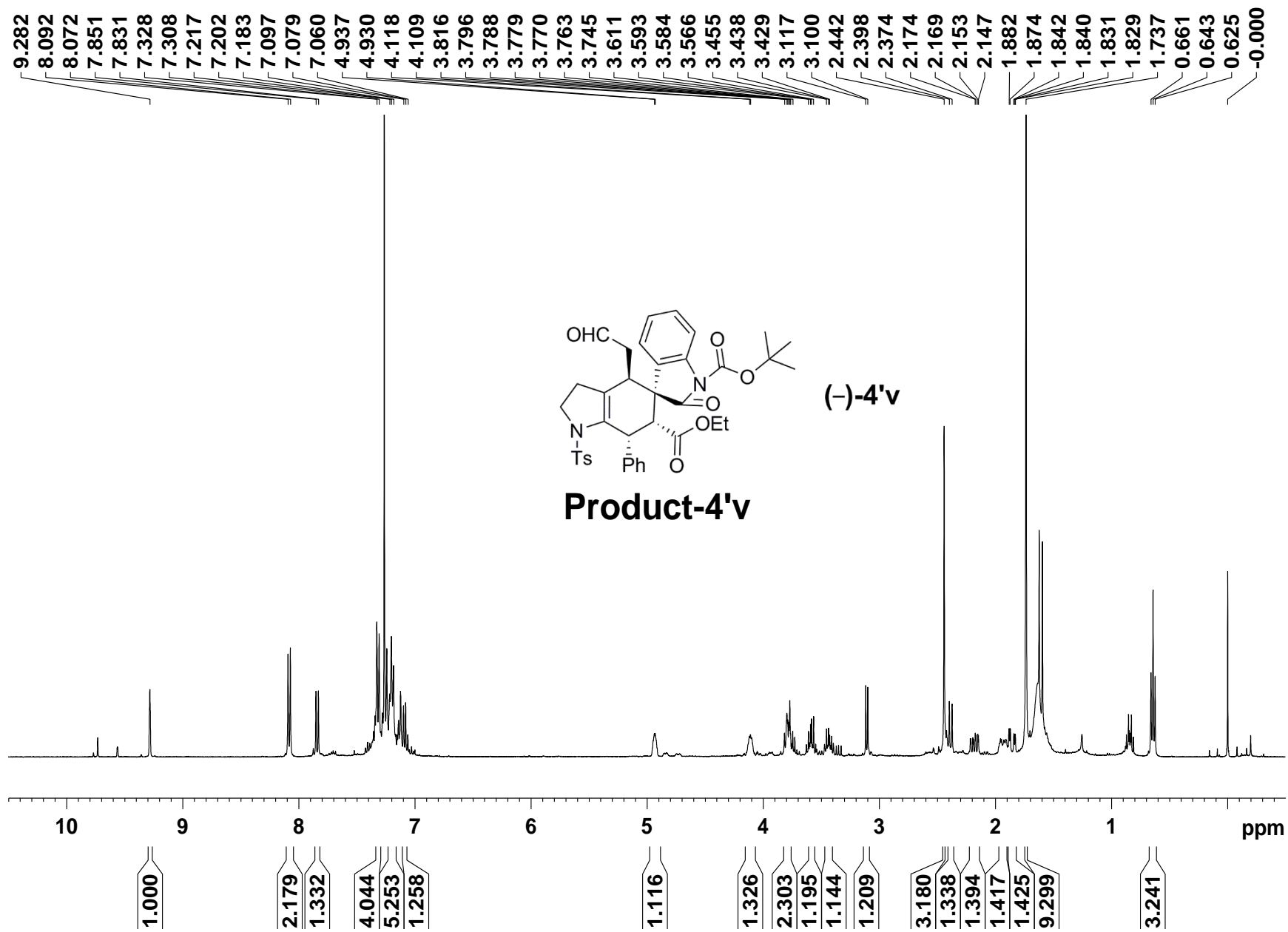
— -0.00

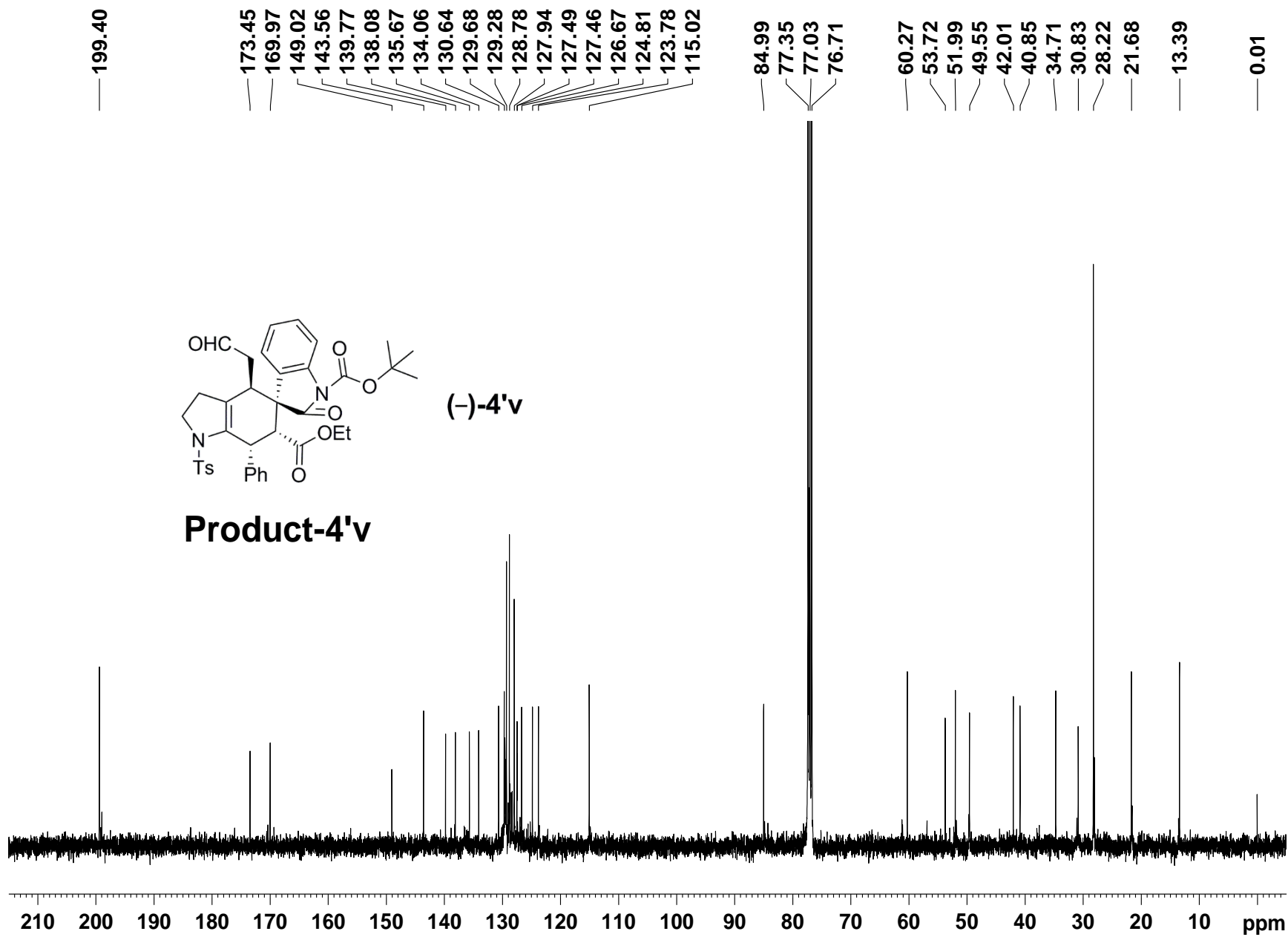


Product-4'I







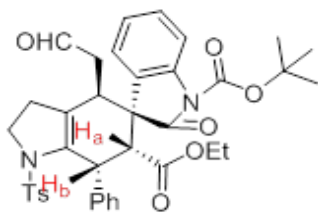


8.090
8.069

7.198
7.181

4.929

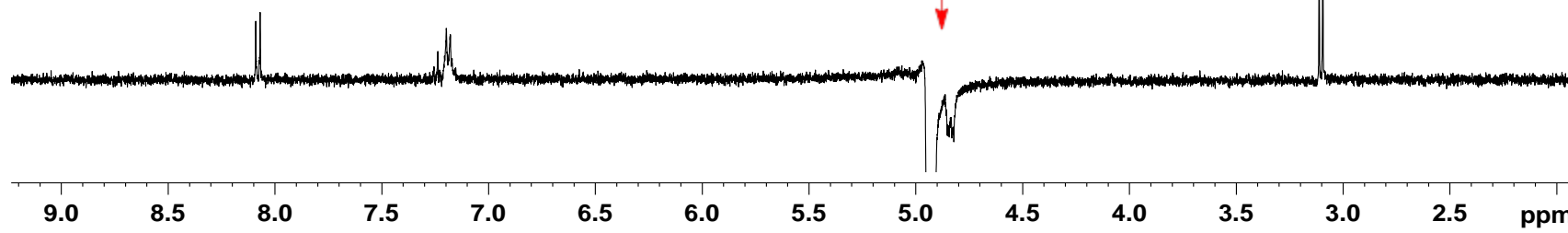
3.112
3.095



NOE of 4'v

irradiation of H_b at
4.95 ppm

NOE of H_a at
3.10 ppm

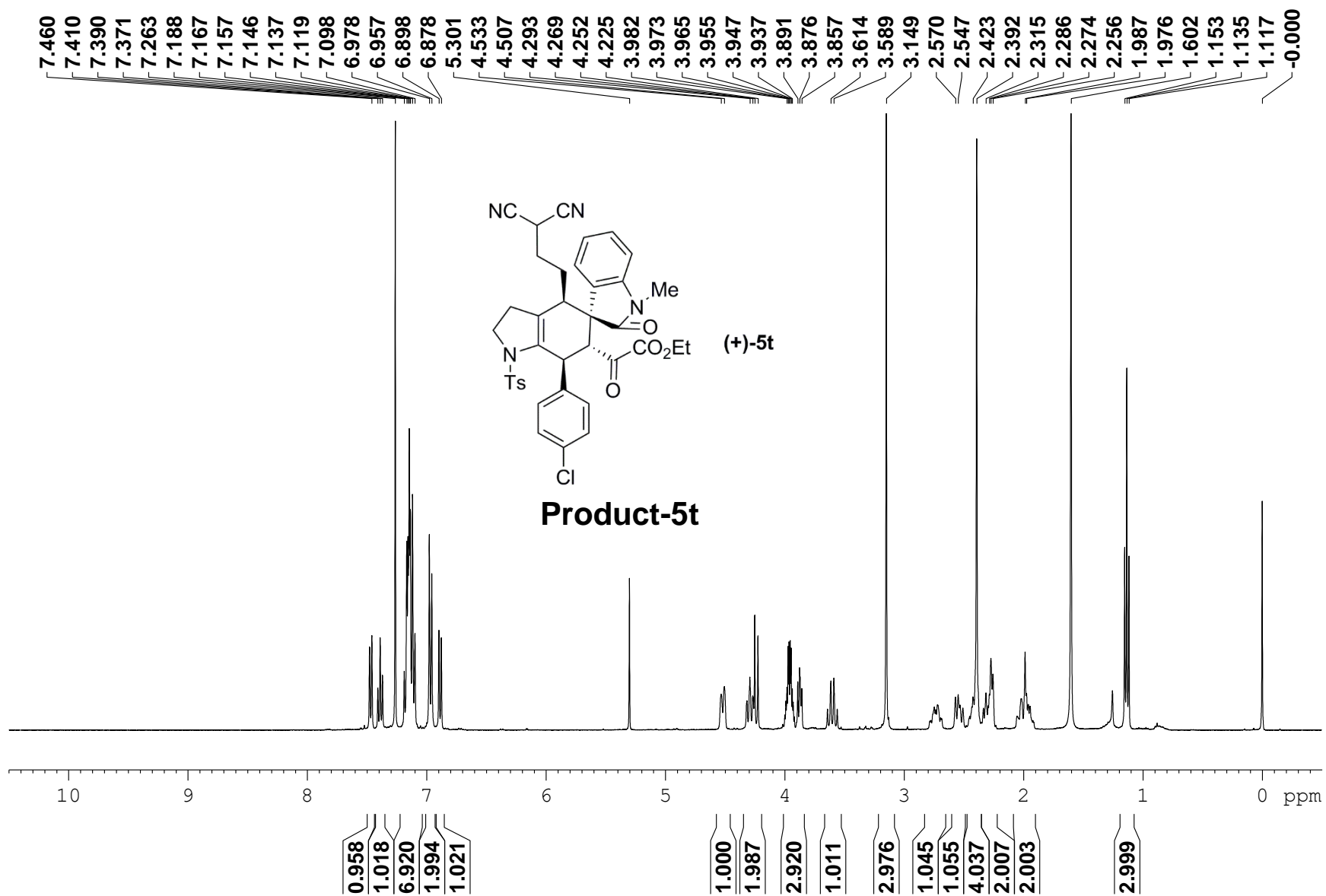


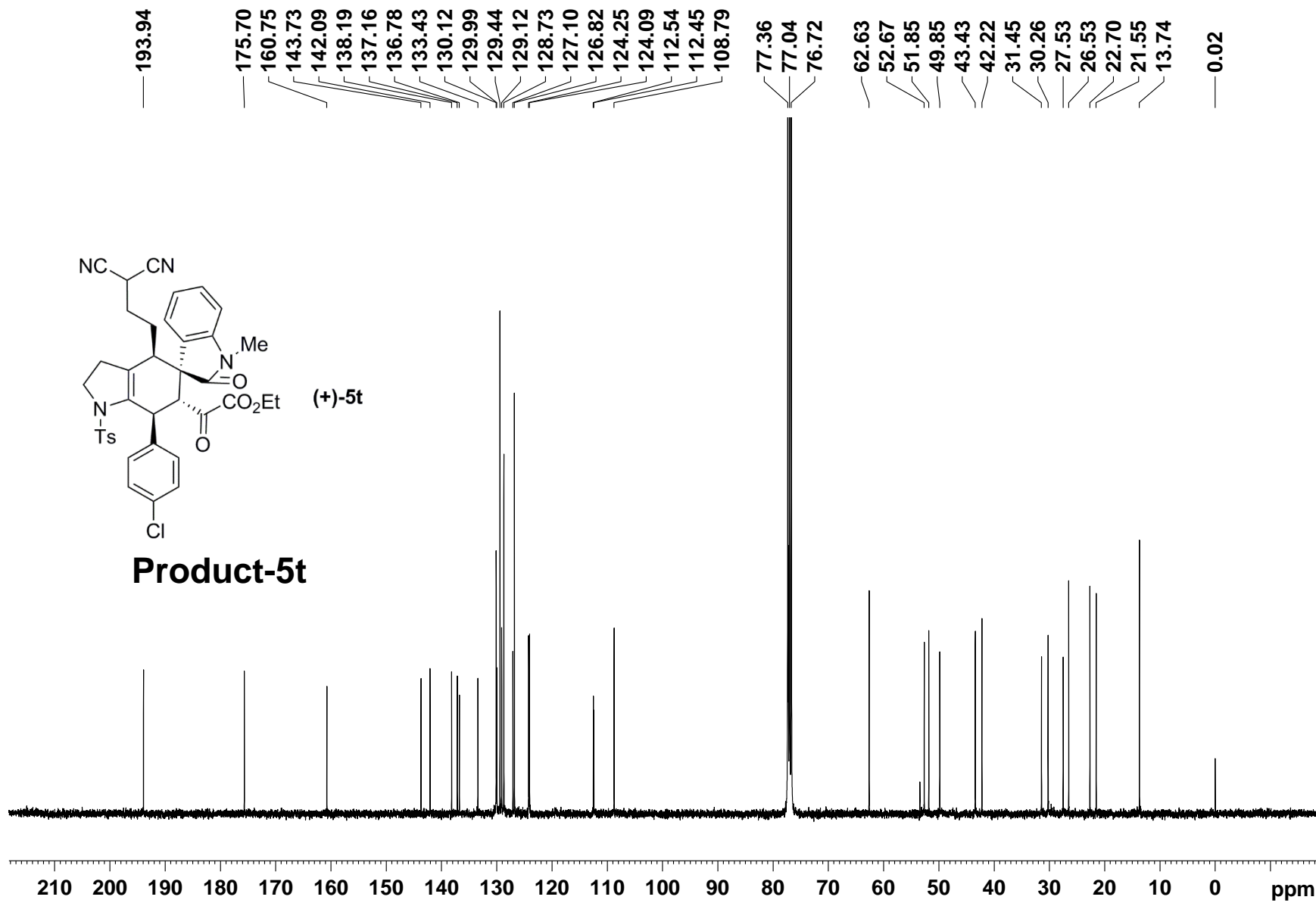
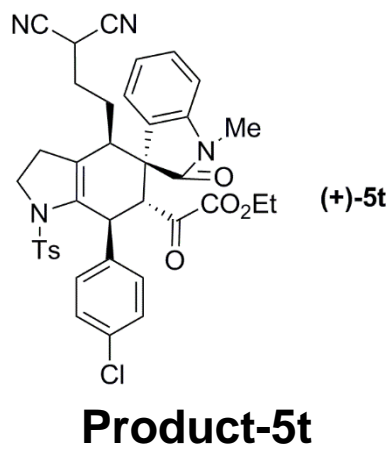
2.705

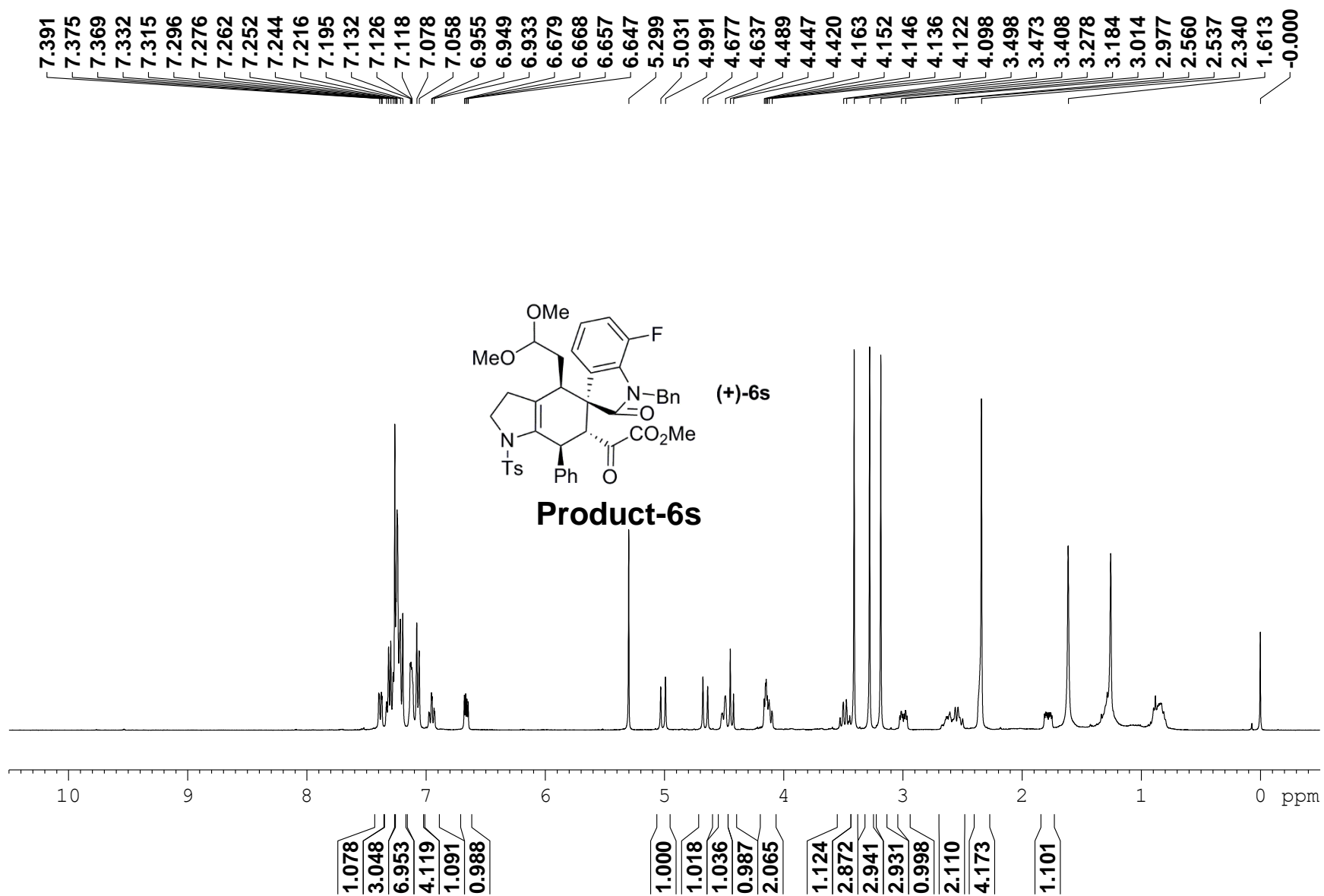
5.885

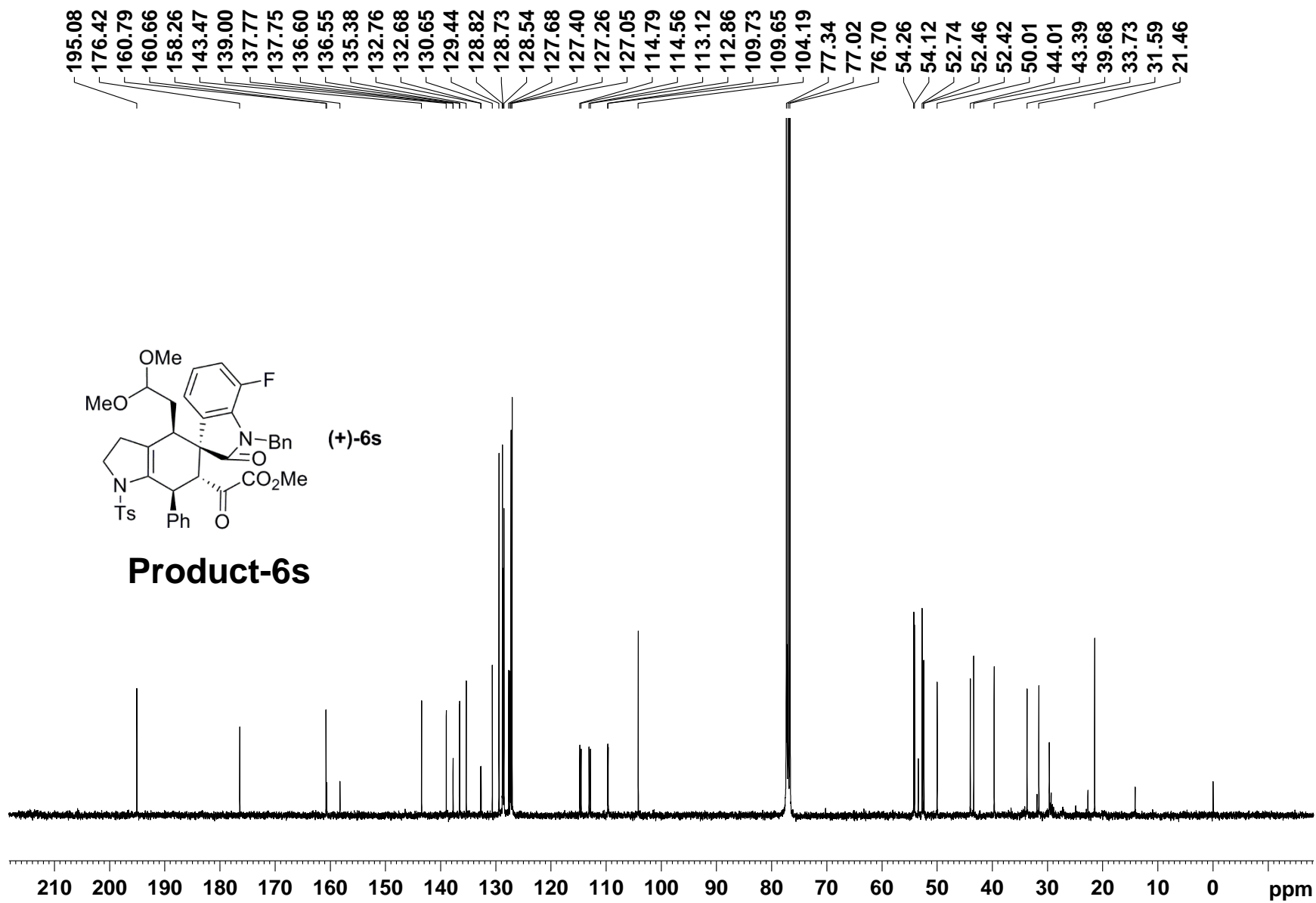
-100.000

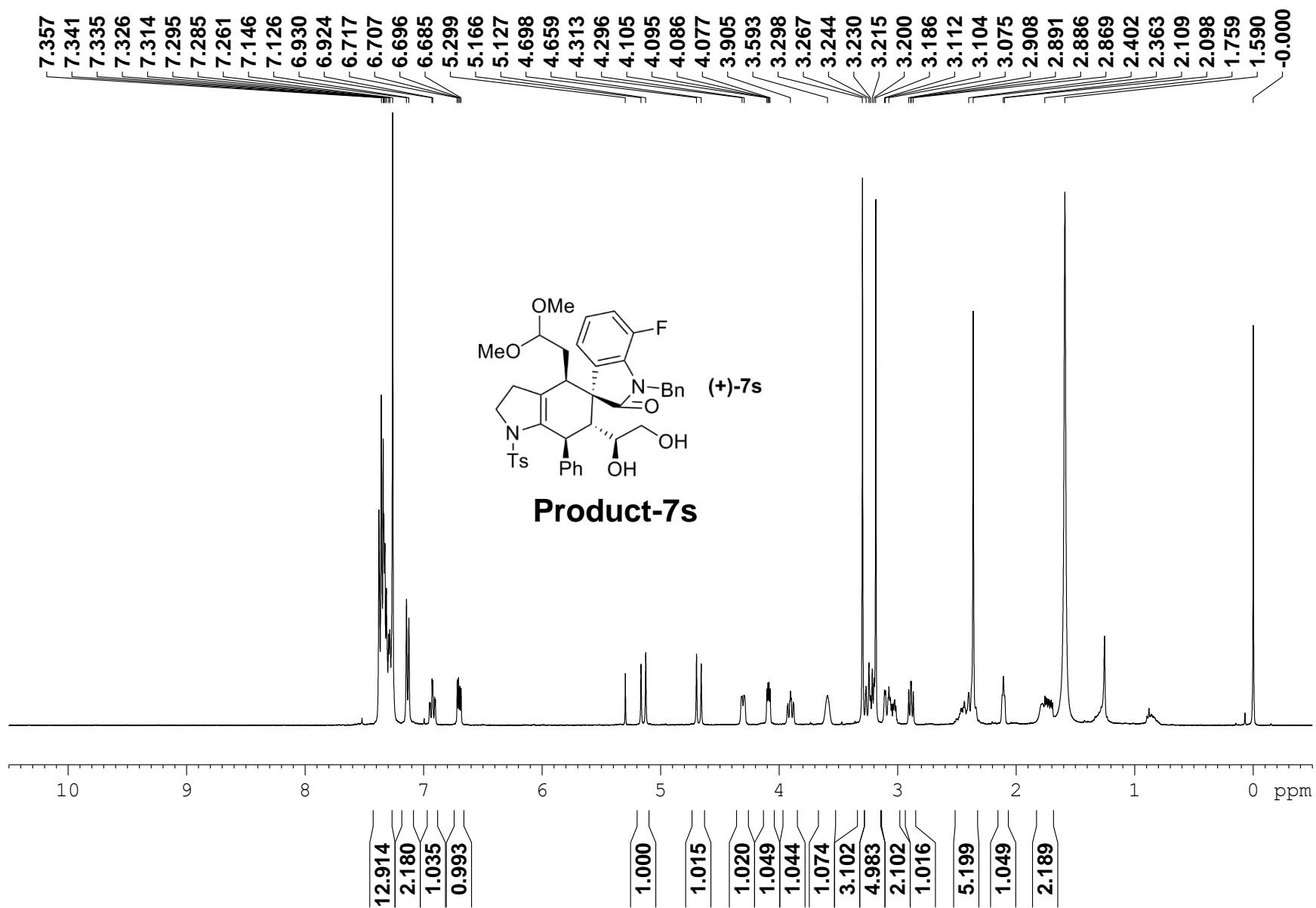
6.617

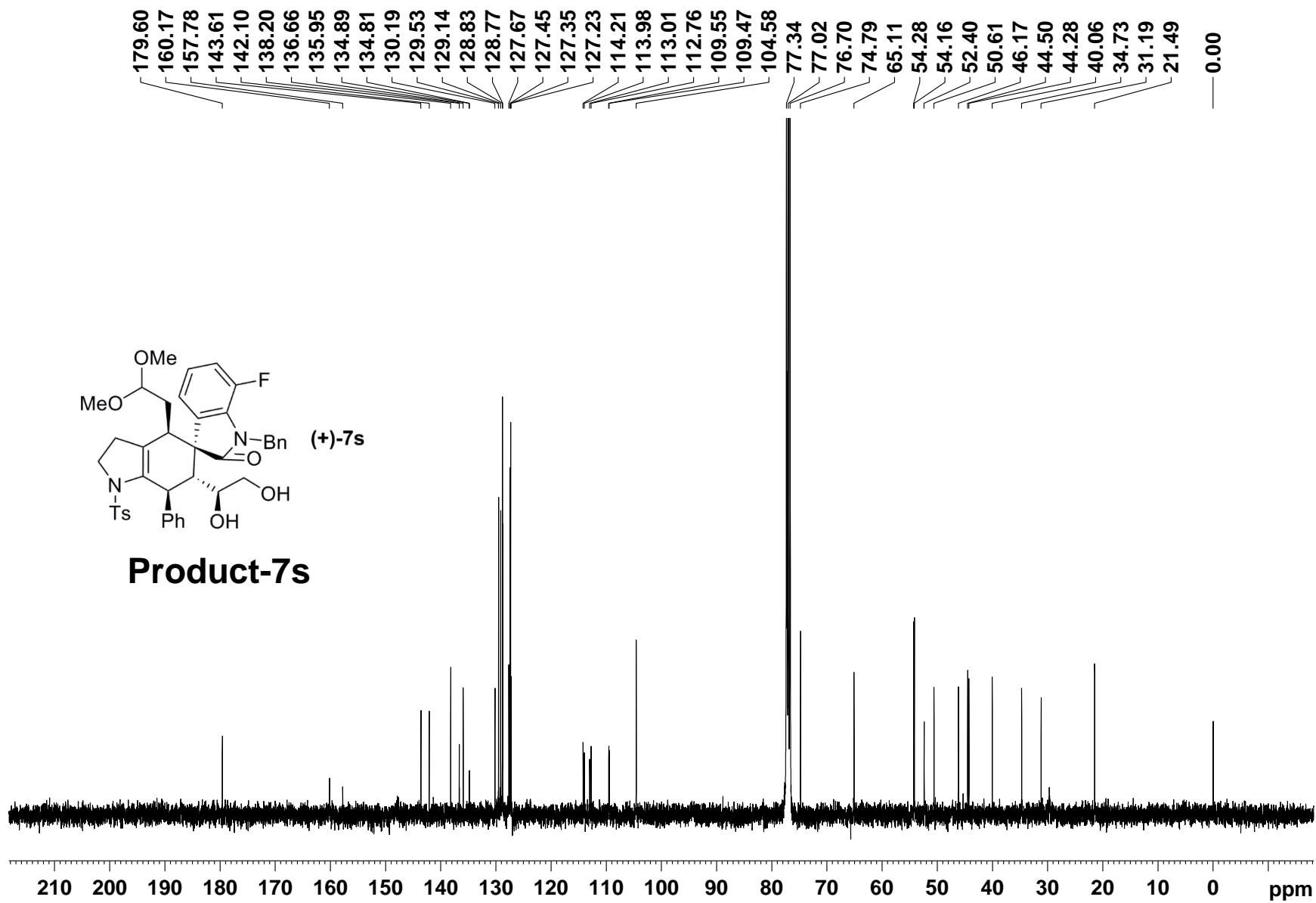












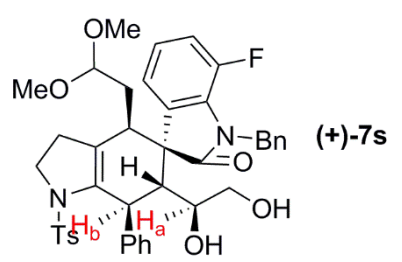
7.376
7.369
7.360
7.355

4.305

3.596

3.224

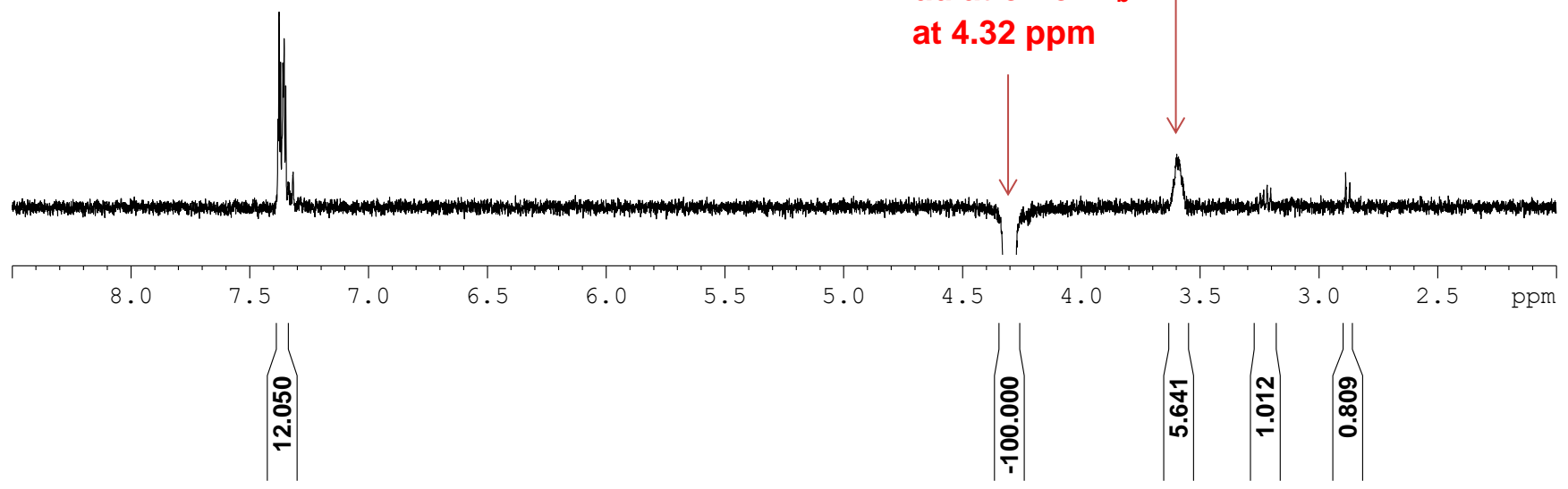
2.879

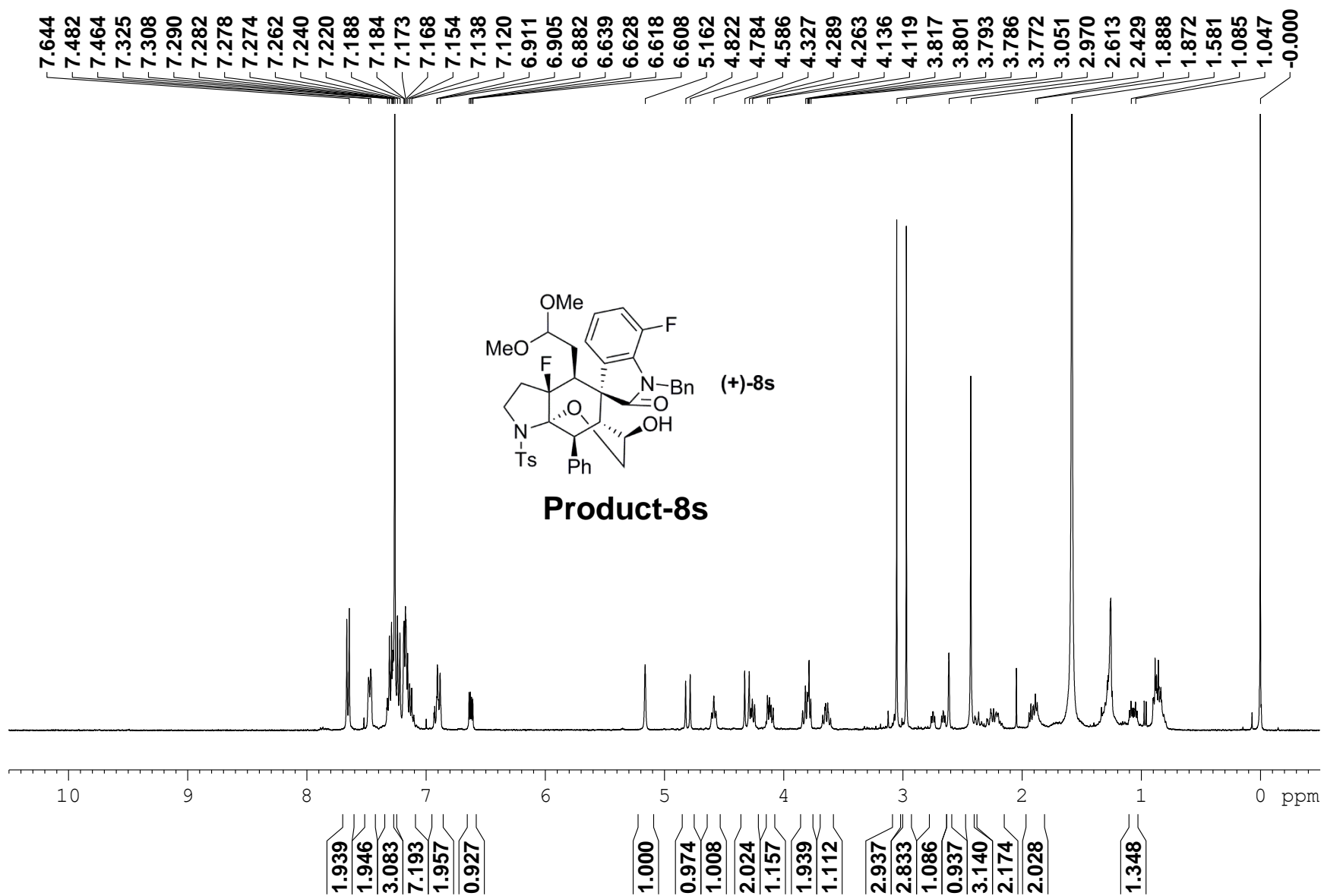


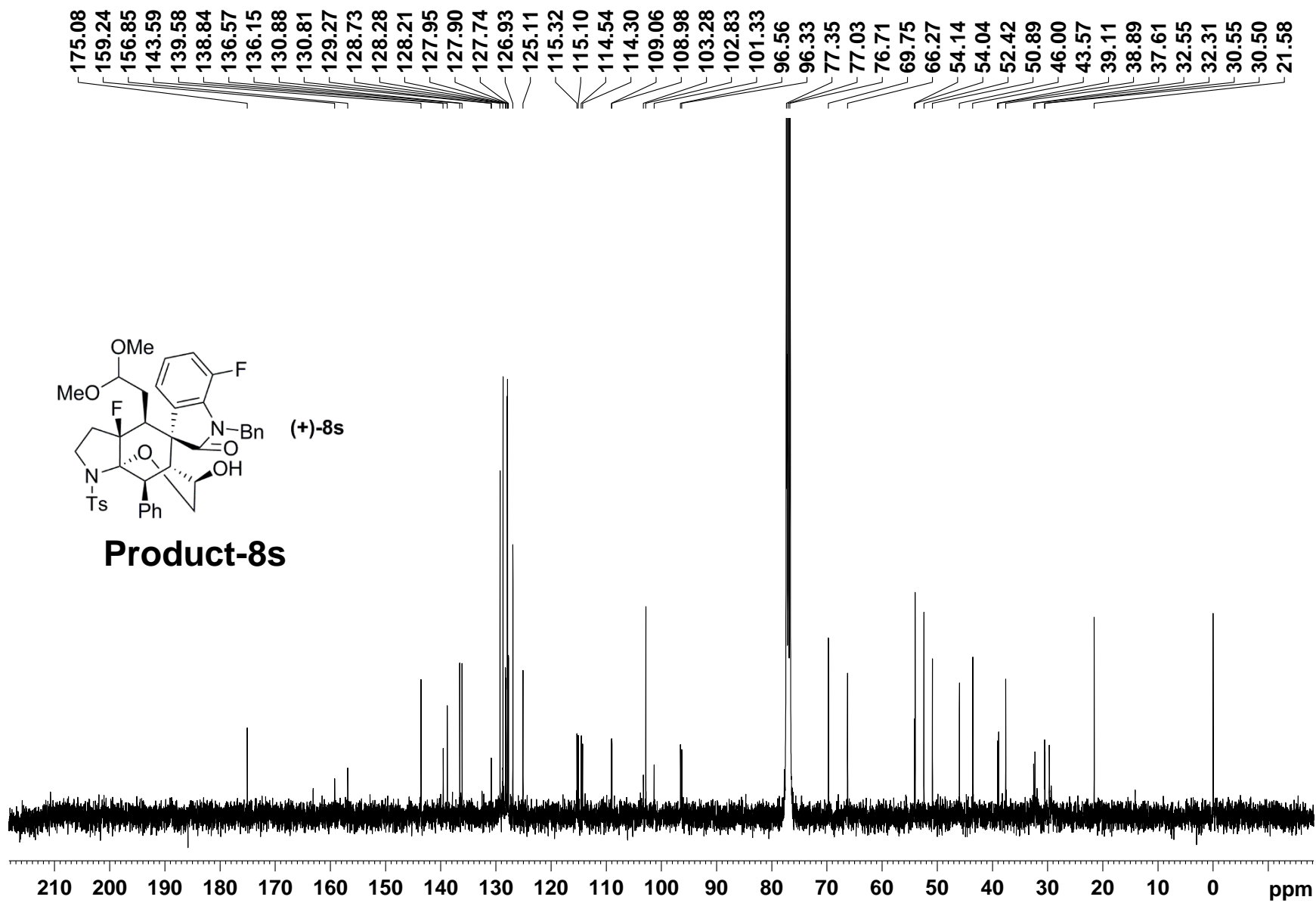
NOE of 7s

NOE of H_a at 3.60 ppm

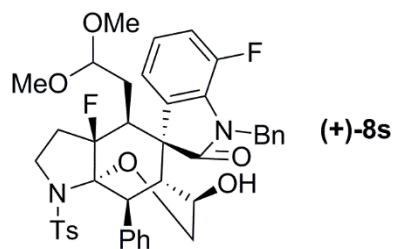
Irradiation of H_b at 4.32 ppm



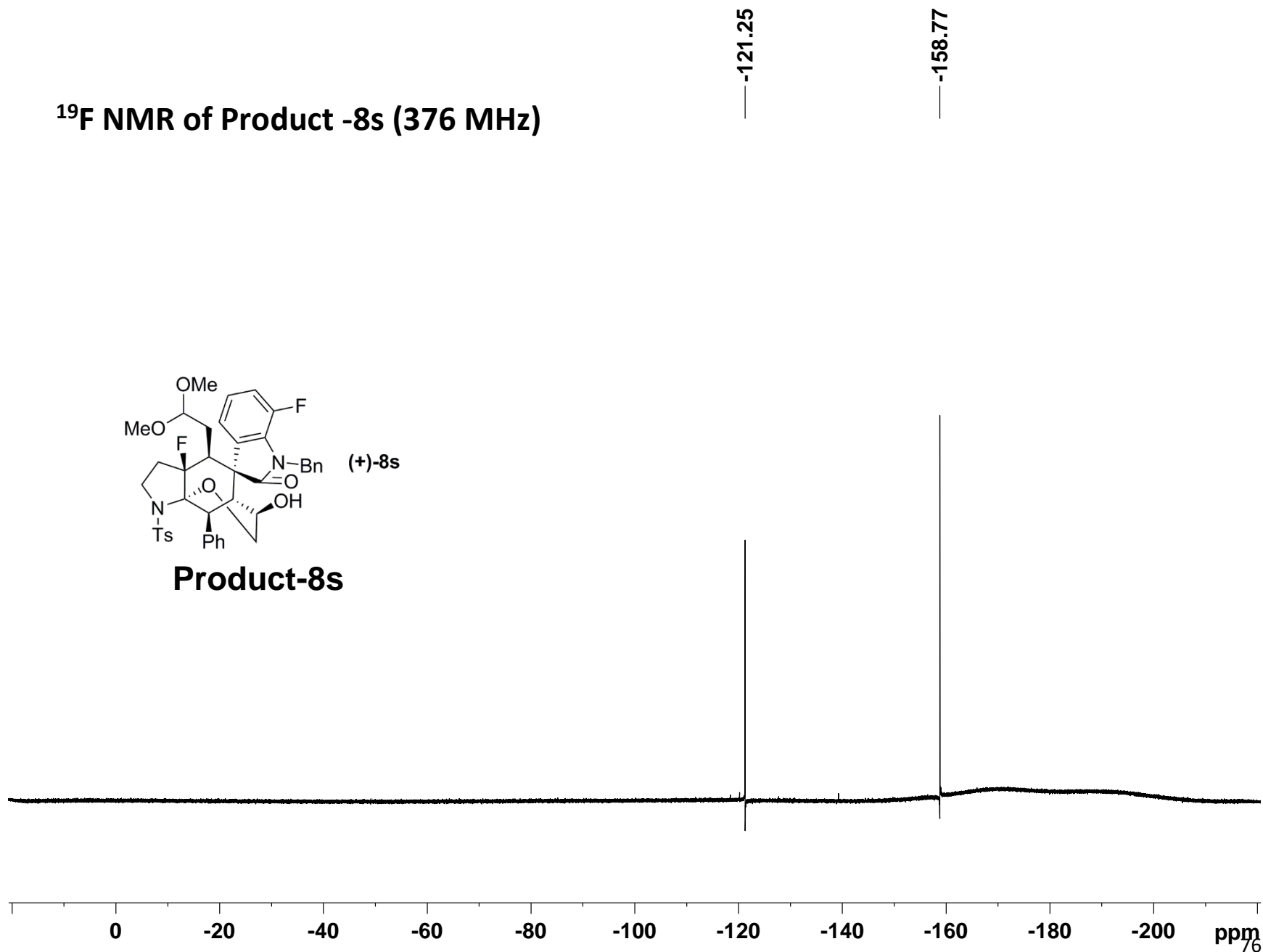


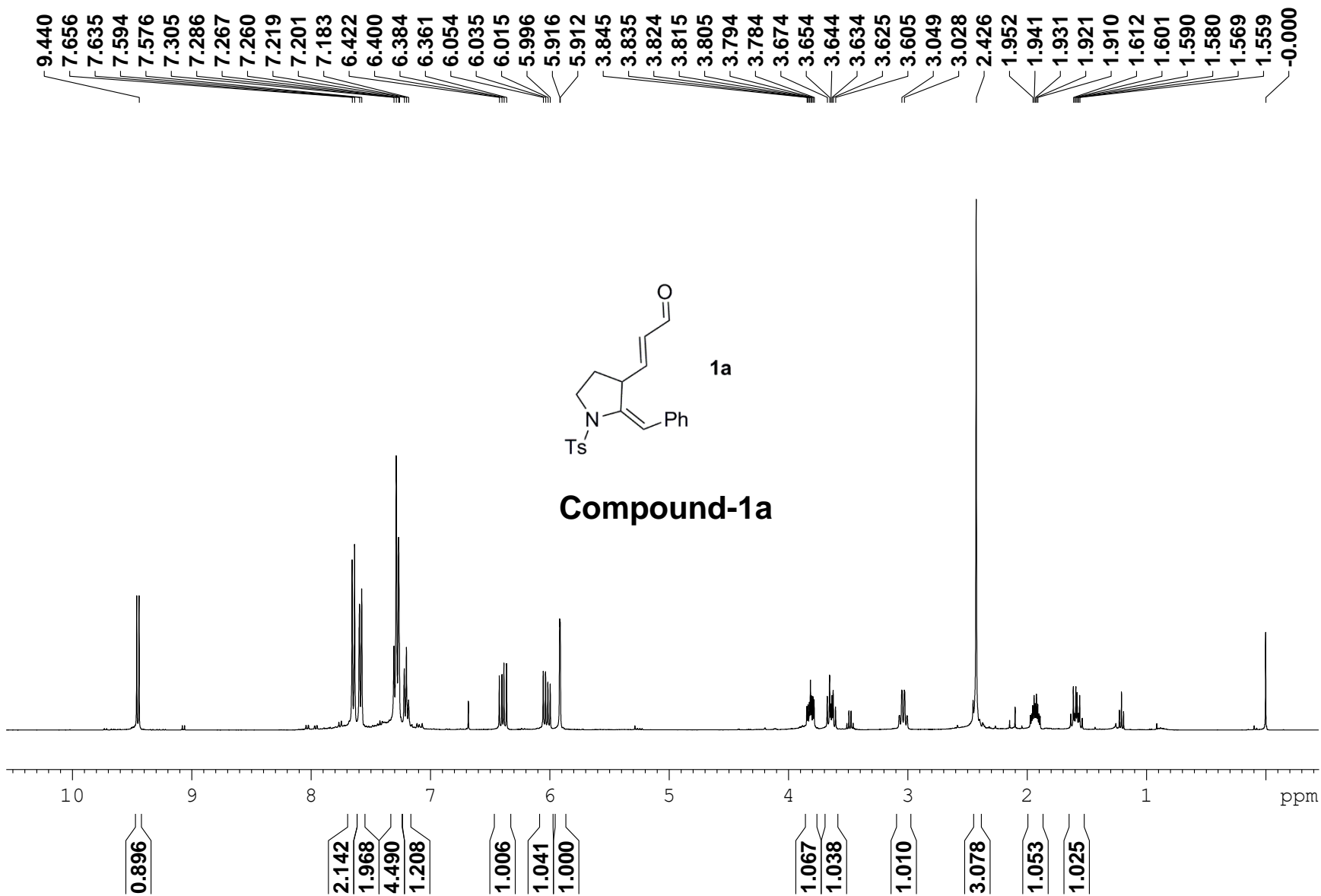


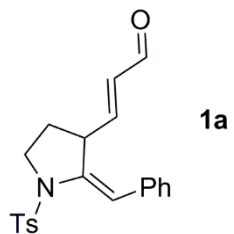
^{19}F NMR of Product -8s (376 MHz)



Product-8s







Compound-1a

