

## SUPPLEMENTARY MATERIAL

### **Complete Stereocontrol in the Synthesis of Harmonine and Novel Analogues Facilitated by a Grubbs *Z*-Selective Cross-Metathesis Catalyst**

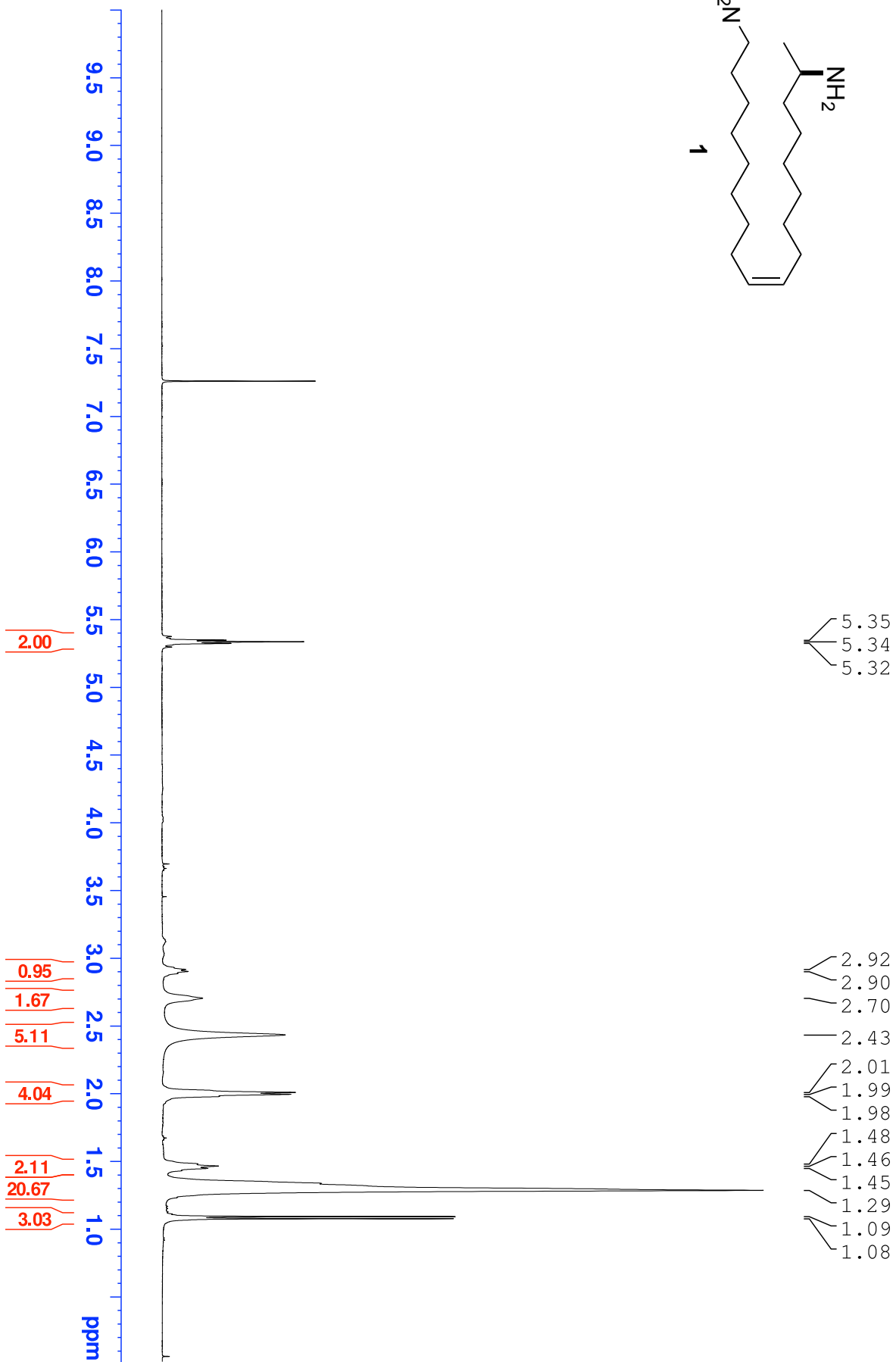
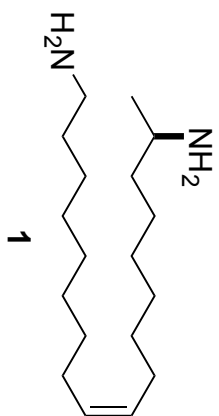
Steven-Alan G. Abel,<sup>A</sup> Wesley J. Olivier,<sup>A</sup> Richard L. Pederson,<sup>B</sup> Alex C. Bissember,<sup>A,C</sup> and Jason A. Smith<sup>A,C</sup>

<sup>A</sup>School of Physical Sciences - Chemistry, University of Tasmania, Hobart, Tasmania 7001, Australia

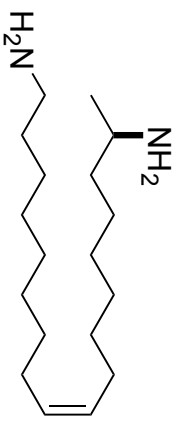
<sup>B</sup>Materia Inc., Pasadena, California 91107, USA

<sup>C</sup>Corresponding authors. Email: alex.bissember@utas.edu.au; jason.smith@utas.edu.au

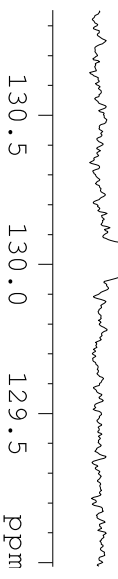
Harmonine



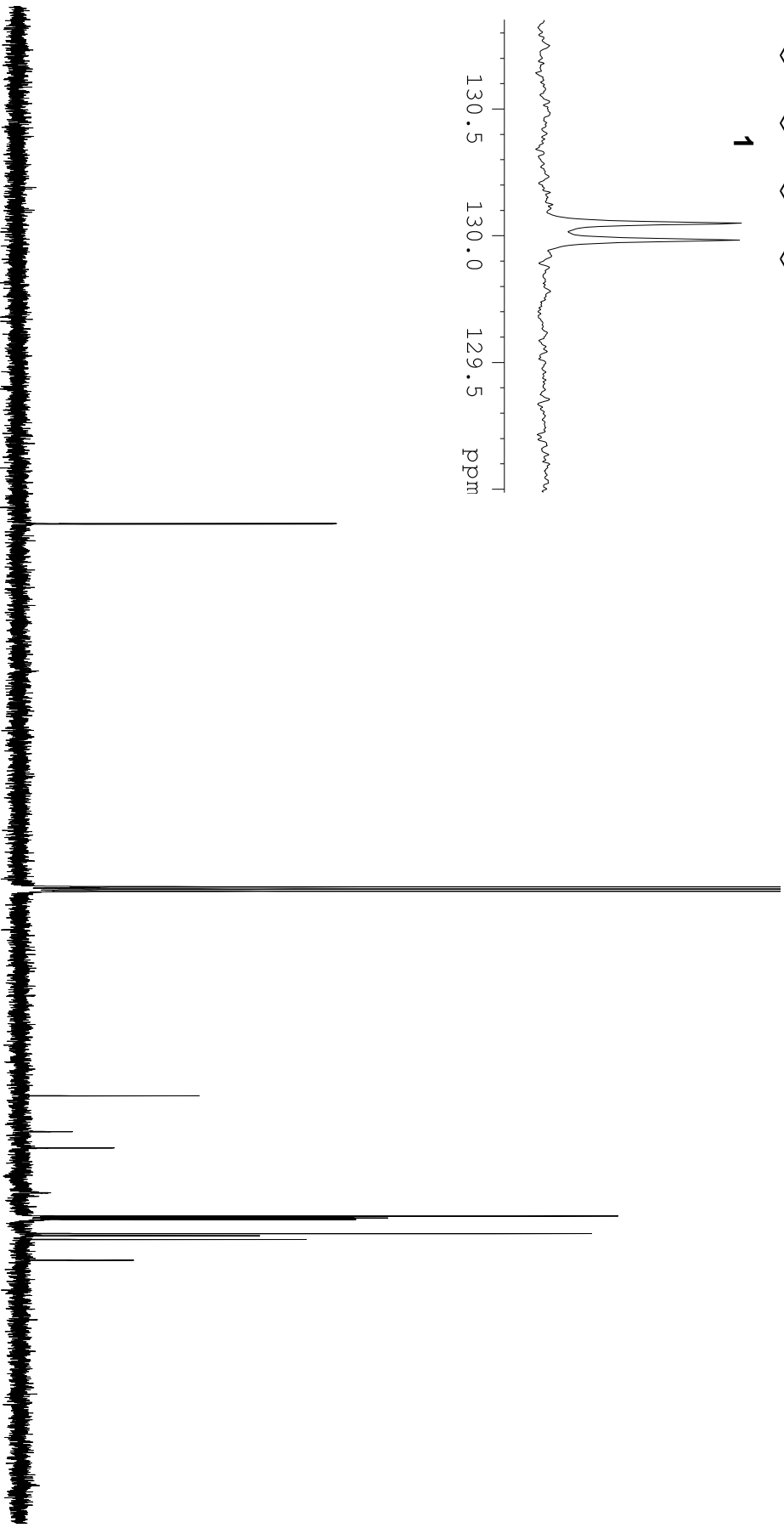
Avance III - <sup>13</sup>C with <sup>1</sup>H Power-gated Decoupling



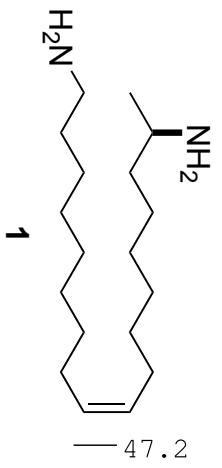
130.0  
130.0



47.2  
42.0  
39.7  
33.2  
29.8  
29.7  
29.6  
29.5  
29.4  
29.3  
27.3  
27.0  
26.4  
23.4



Avance III -  $^{13}\text{C}$  with  $^1\text{H}$  Power-gated Decoupling



42.0

39.7

33.2

29.8

29.7

29.6

29.5

29.4

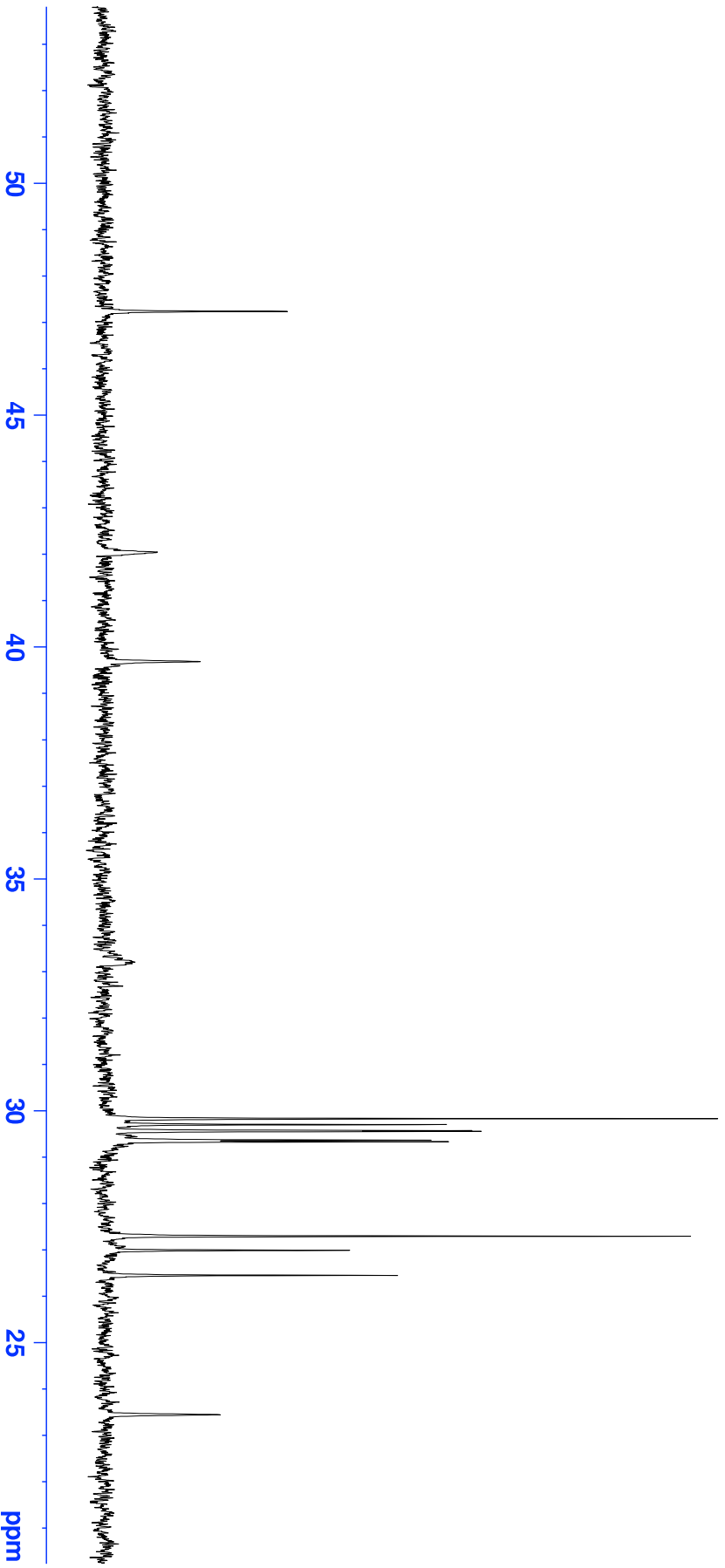
29.3

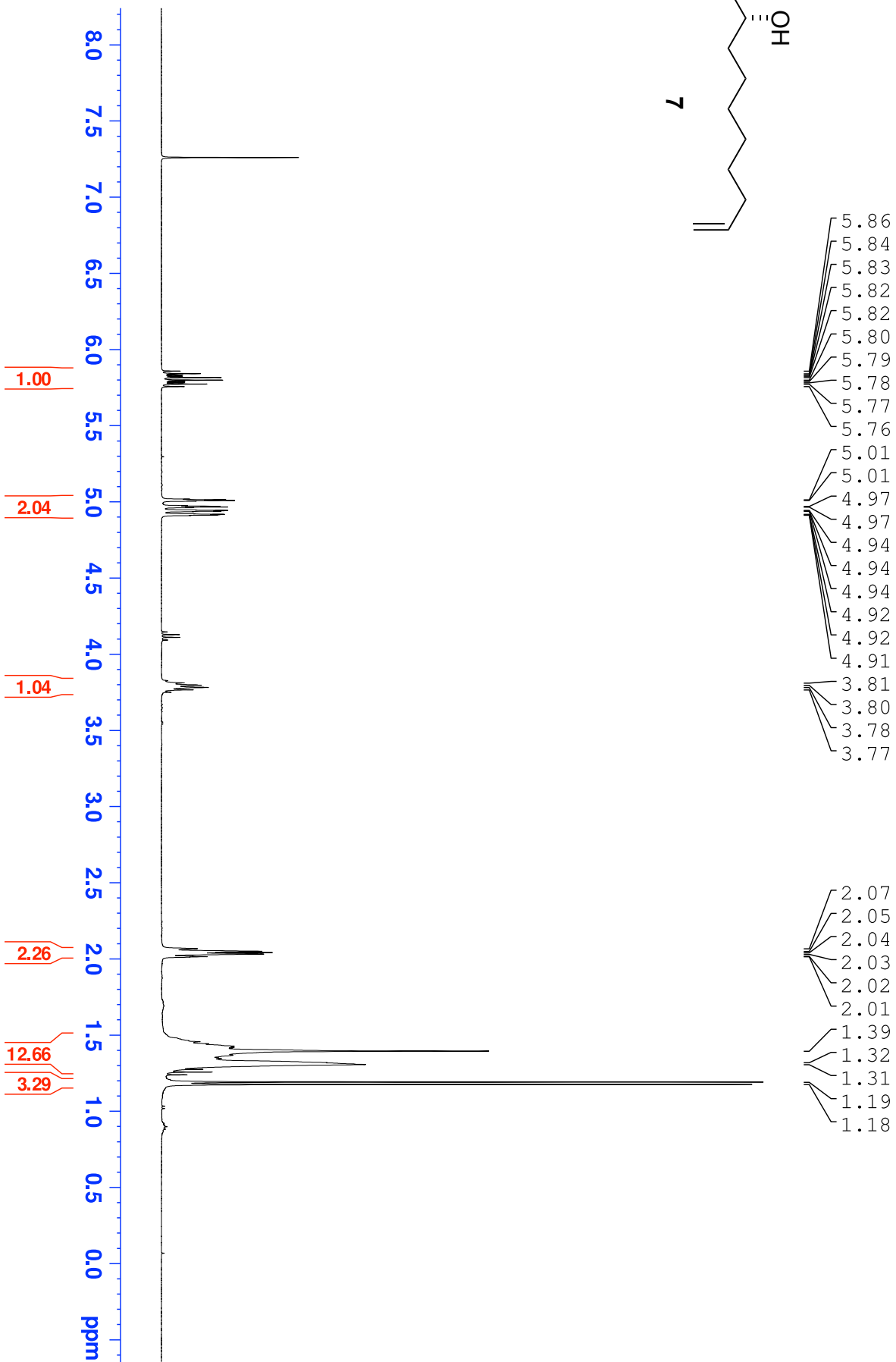
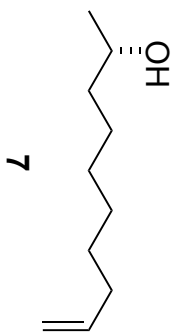
27.3

27.0

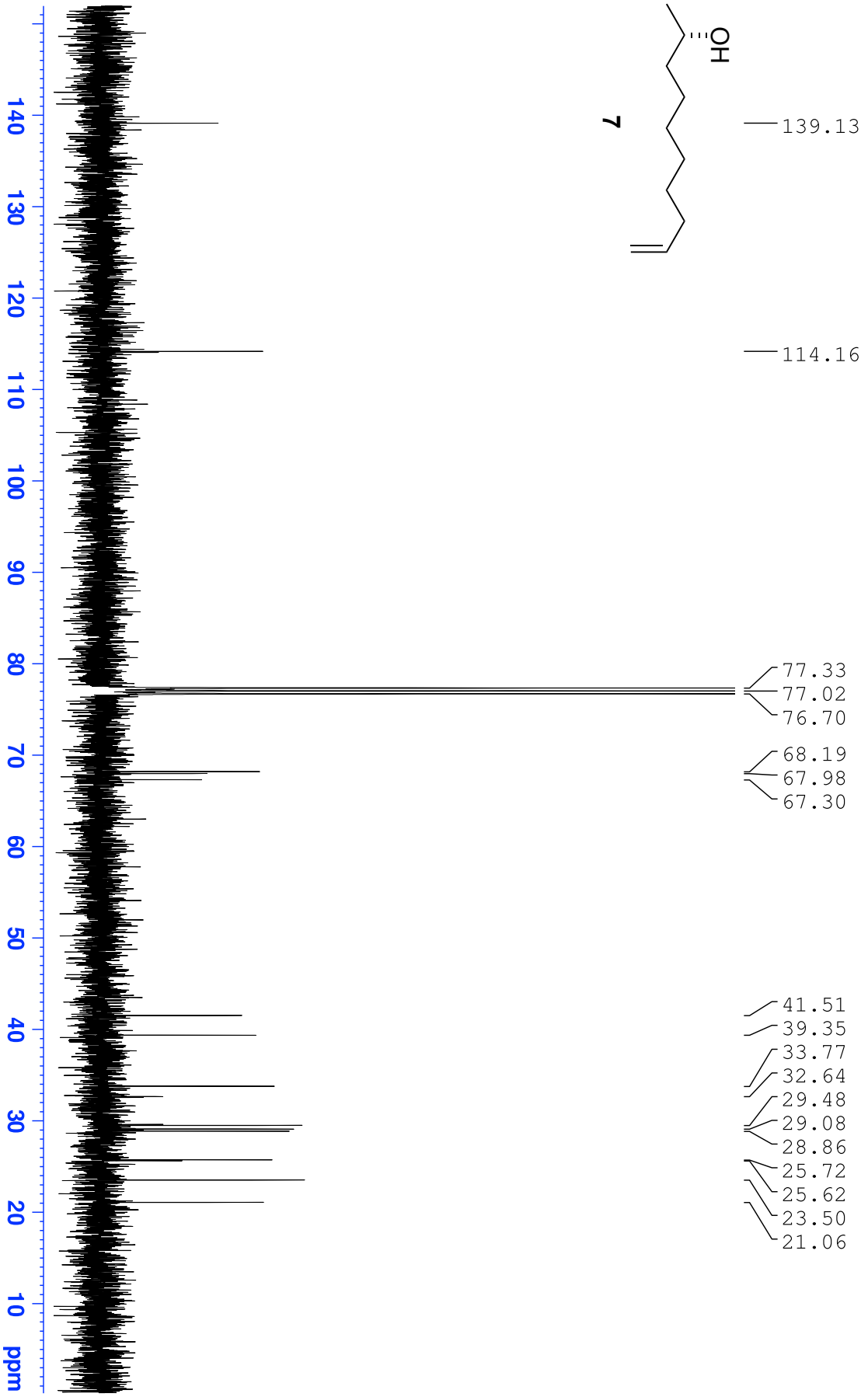
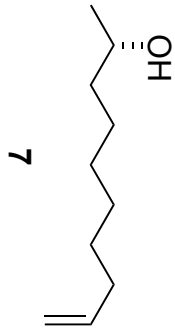
26.4

23.4

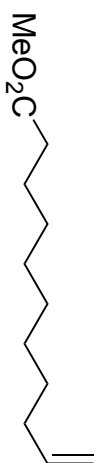




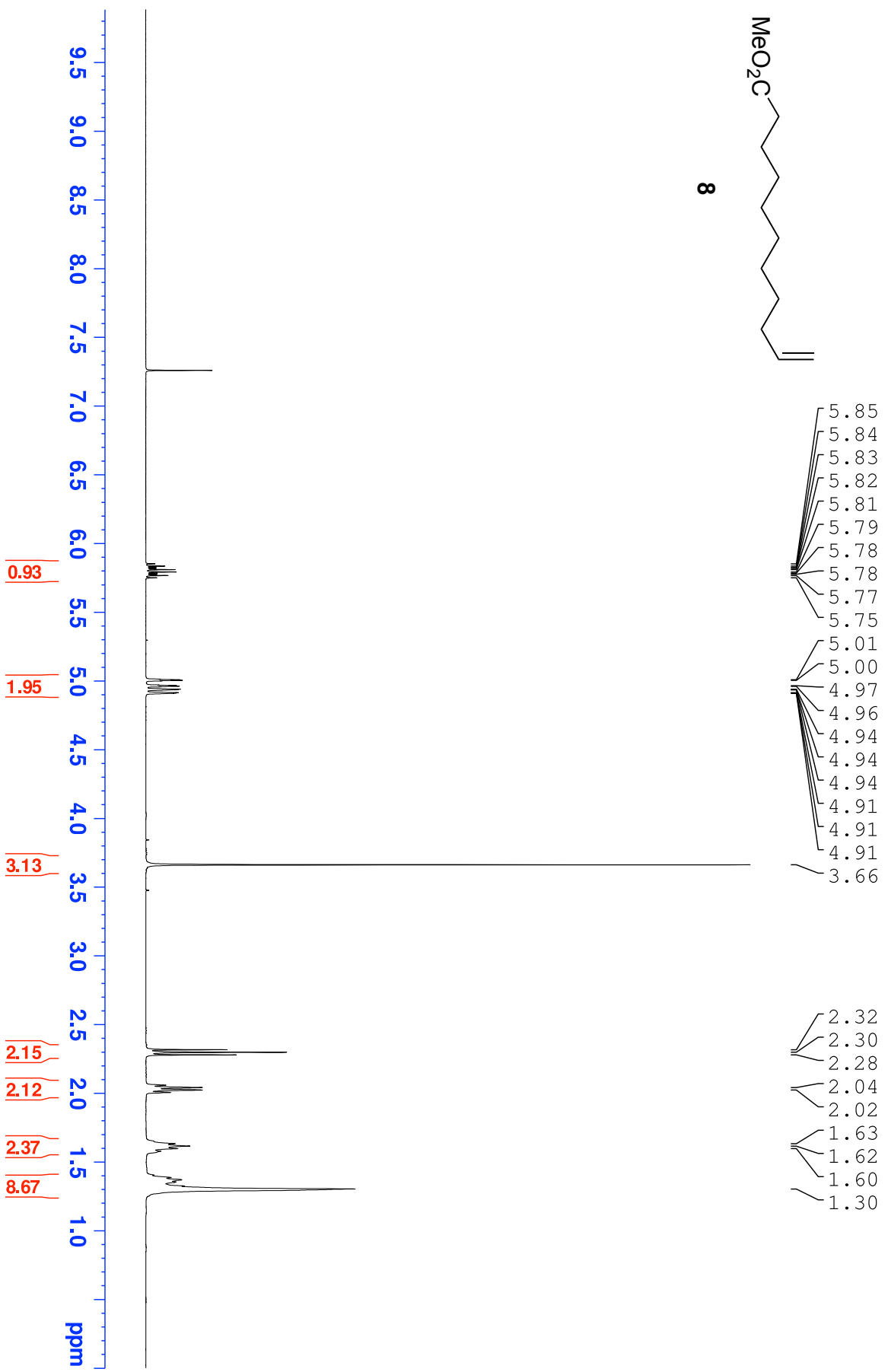
(S)-Dec-9-en-2-ol (7)



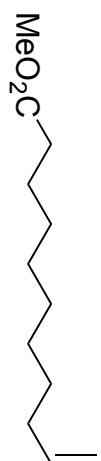
Methyl 9-decenoate (8)



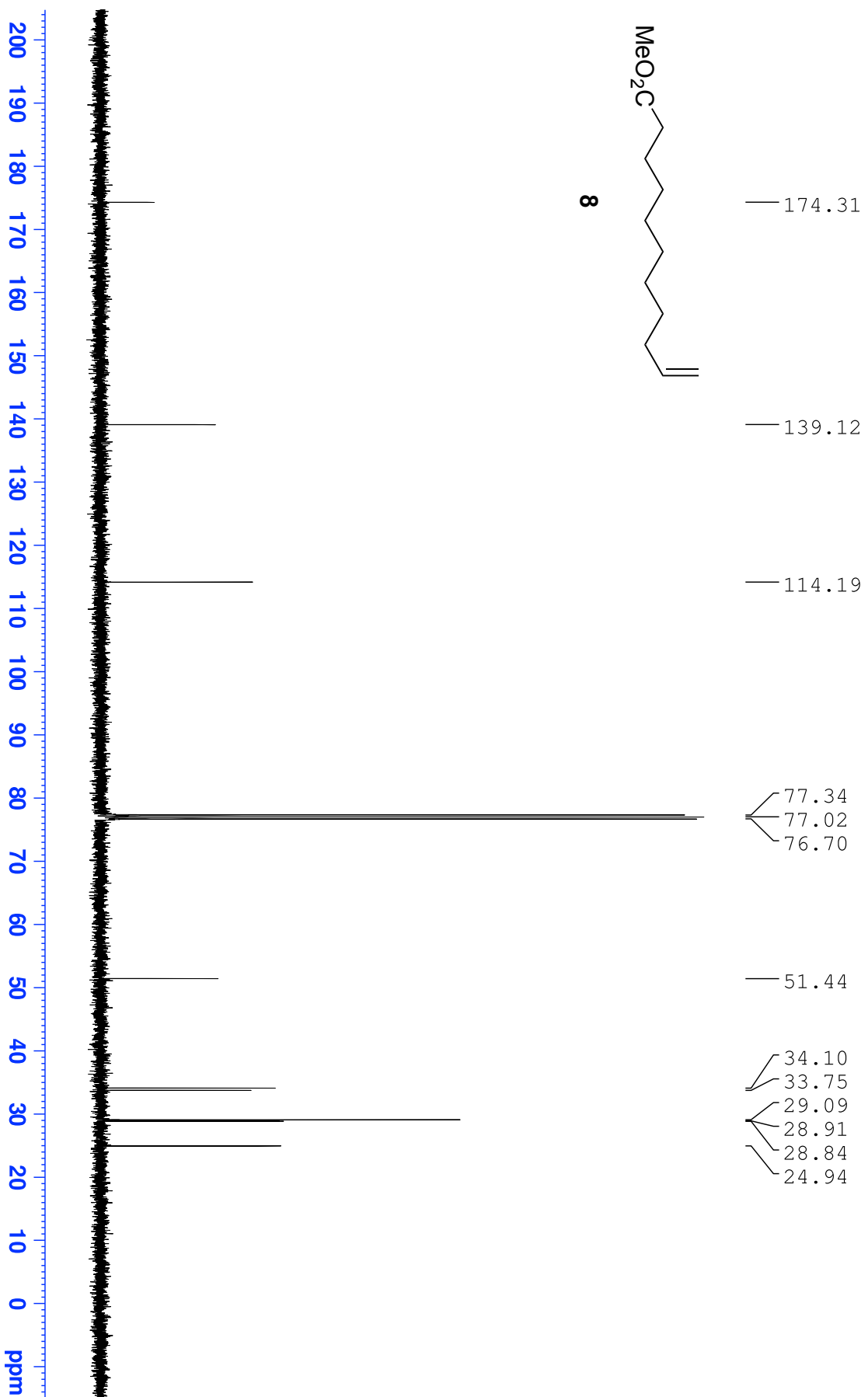
8



Avance III - <sup>13</sup>C with <sup>1</sup>H Power-gated Decoupling

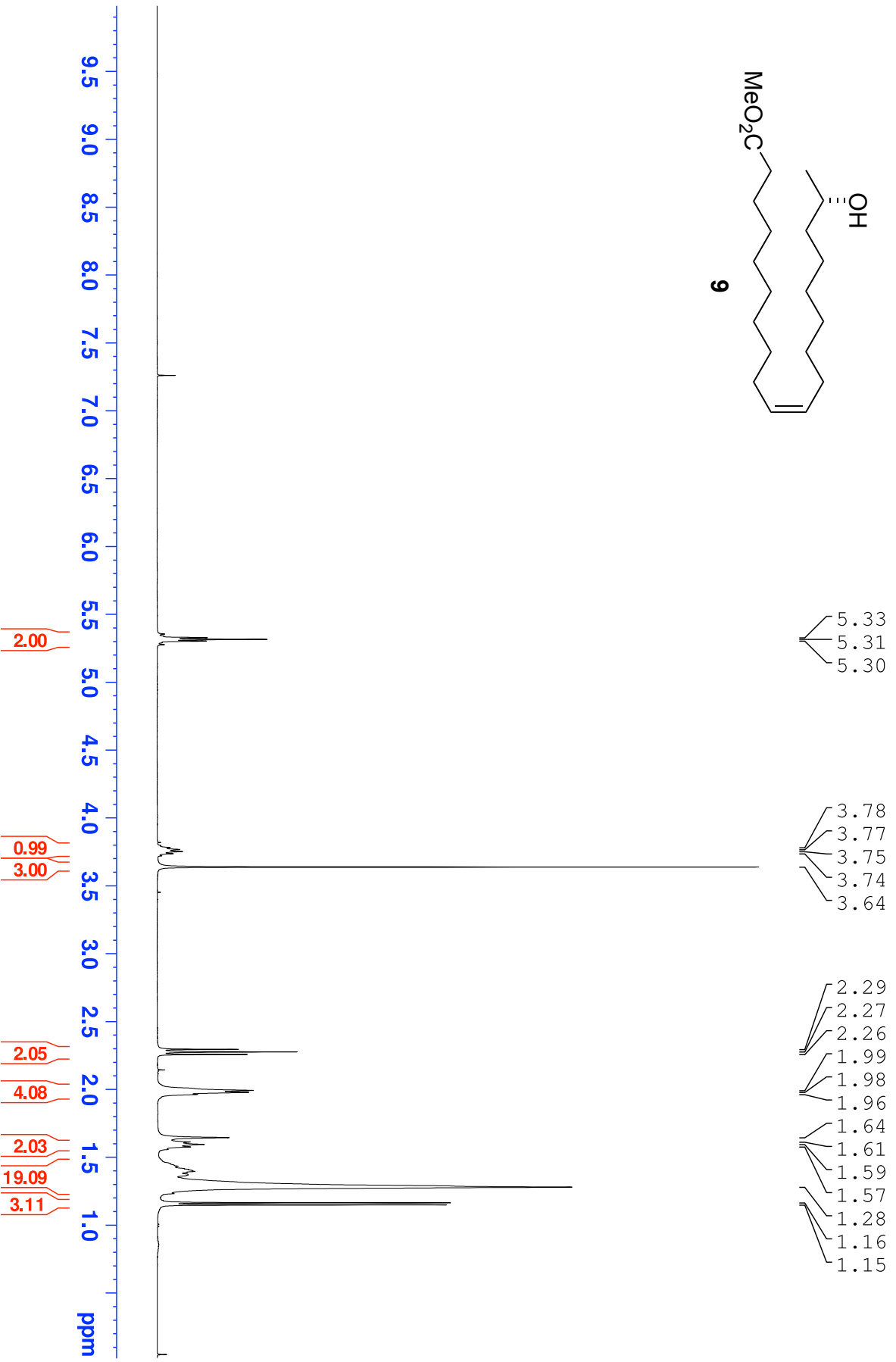
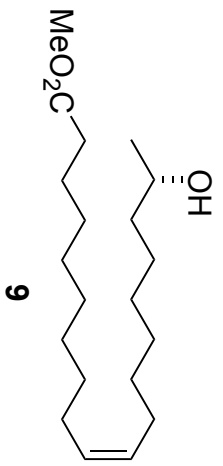


**8**

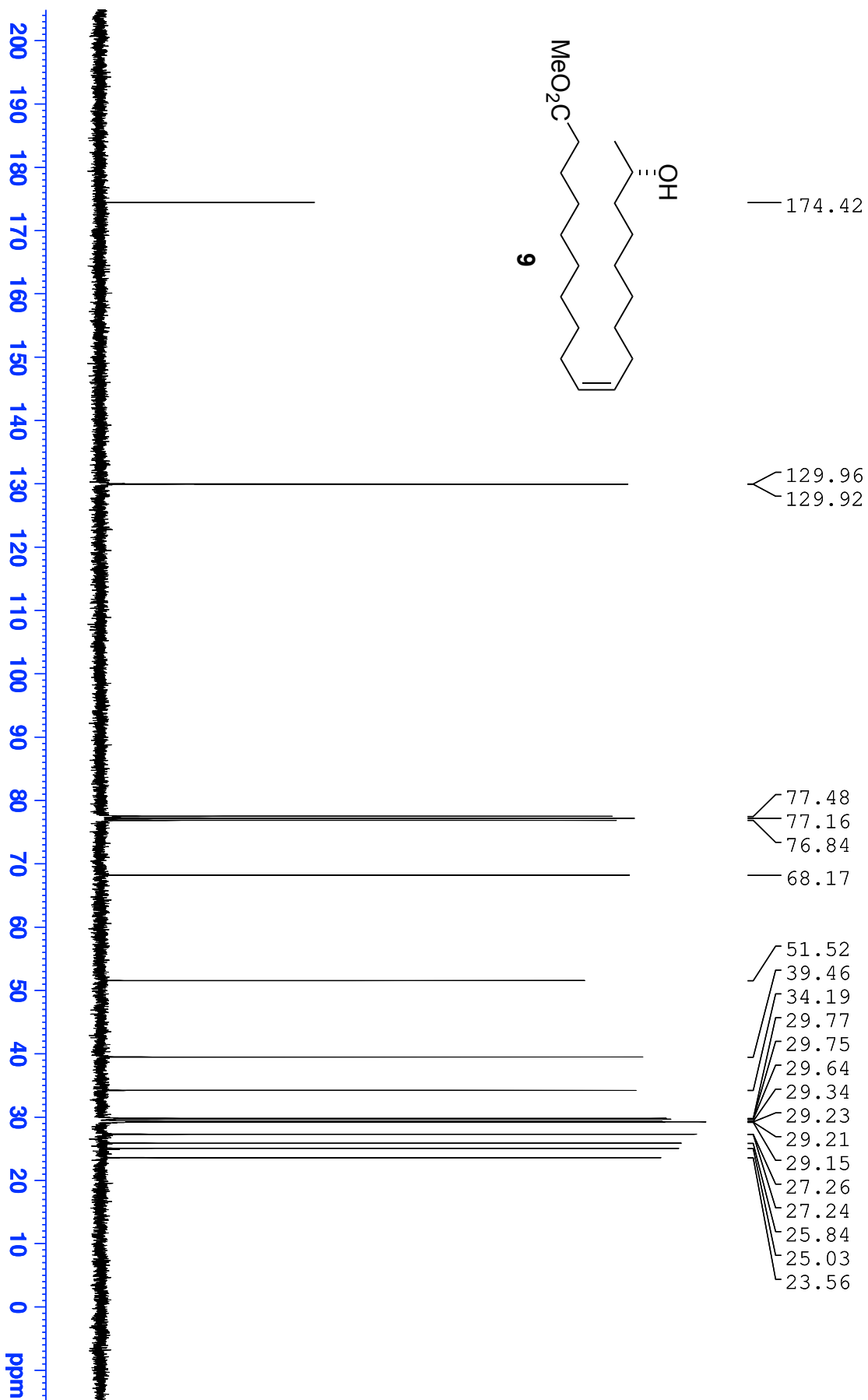


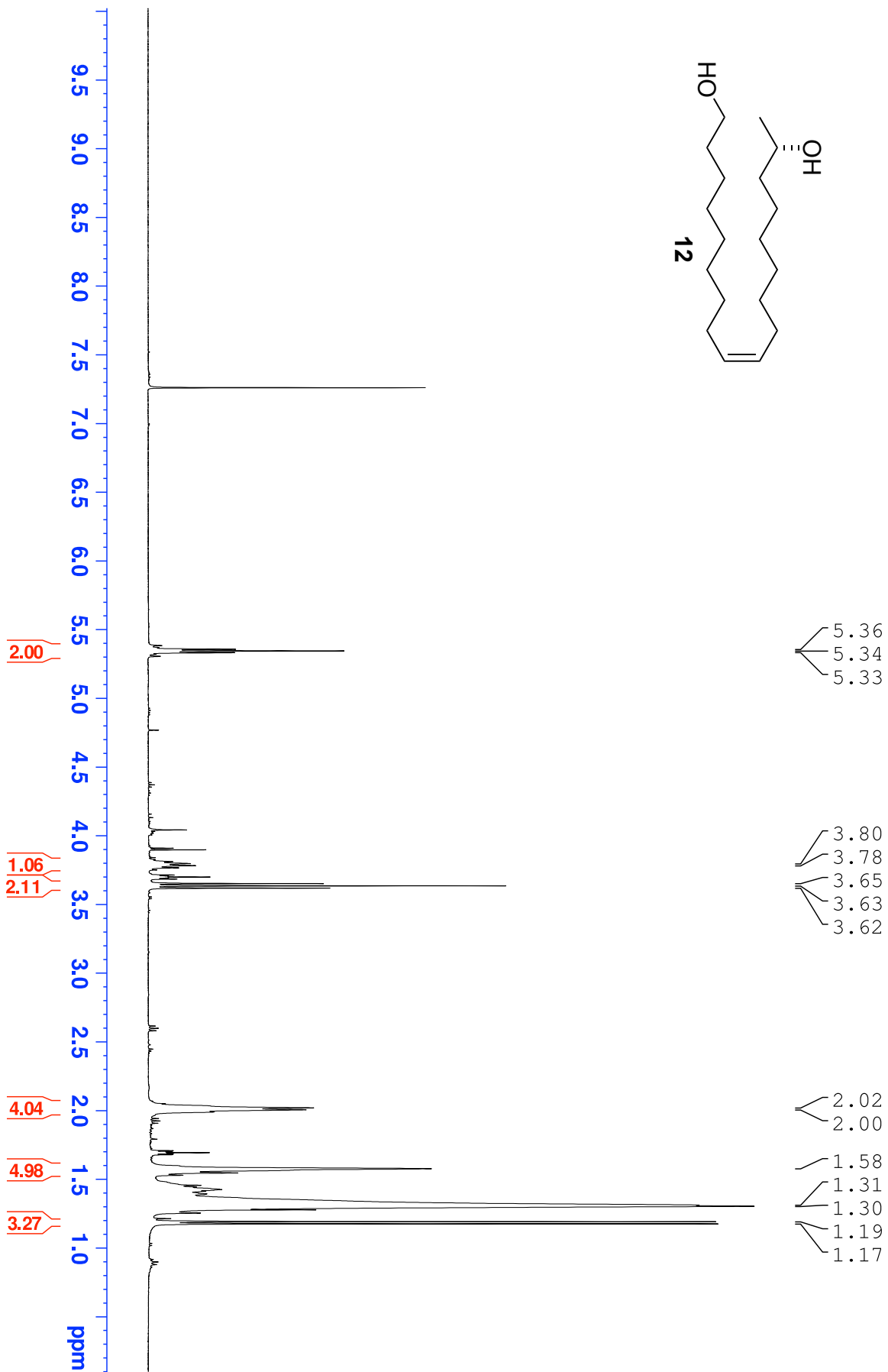
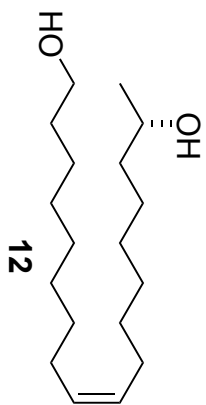


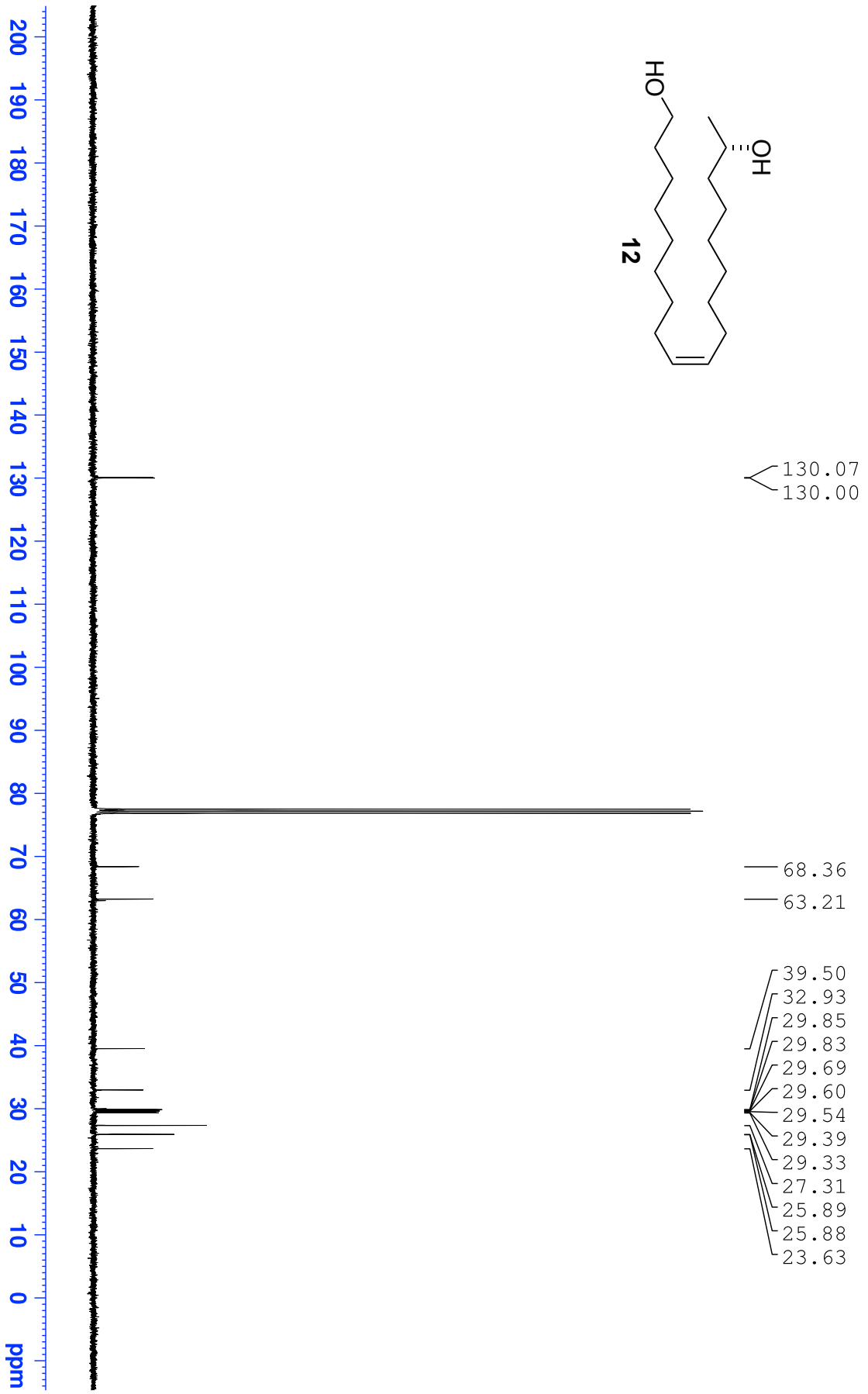
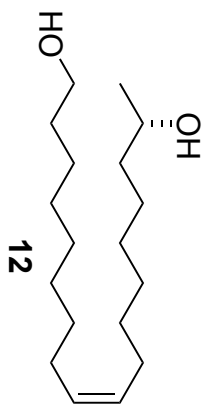
2ndary alcohol to ester Xmetath  
Fr. 14-17

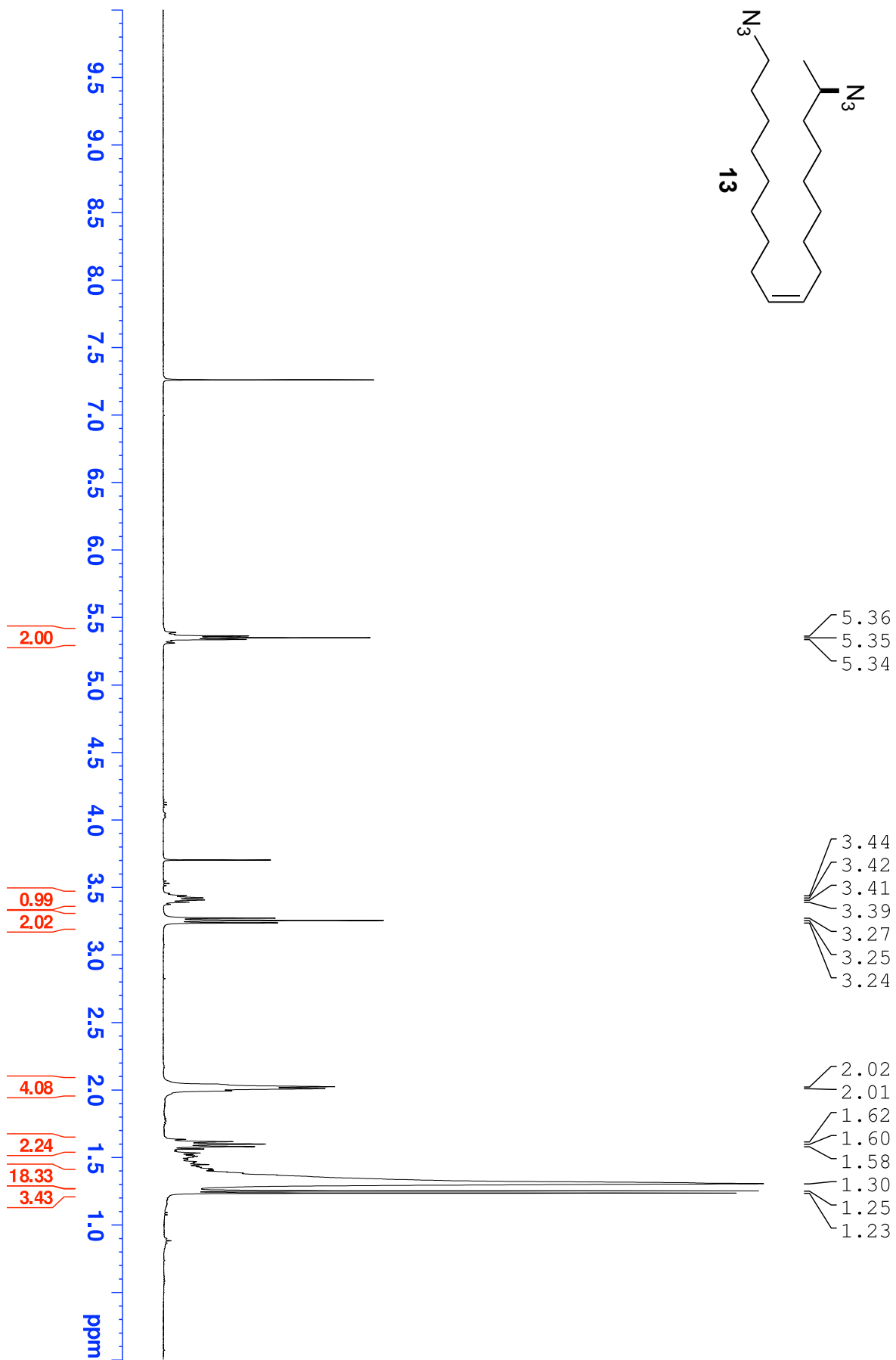
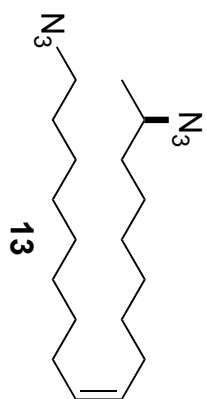


Fr. 14-17 Carbon

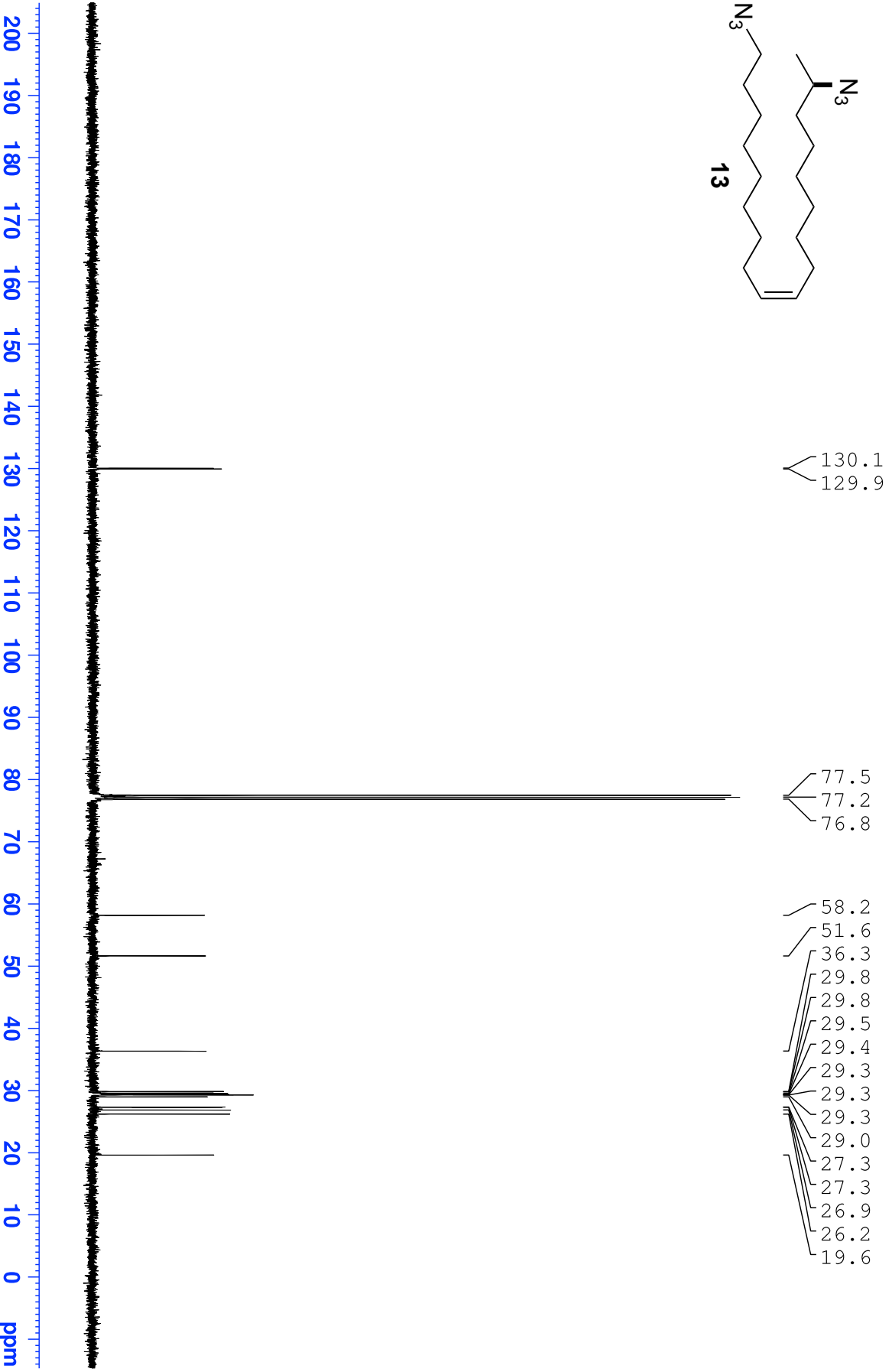
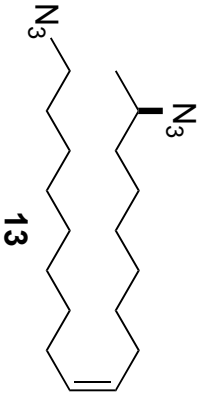




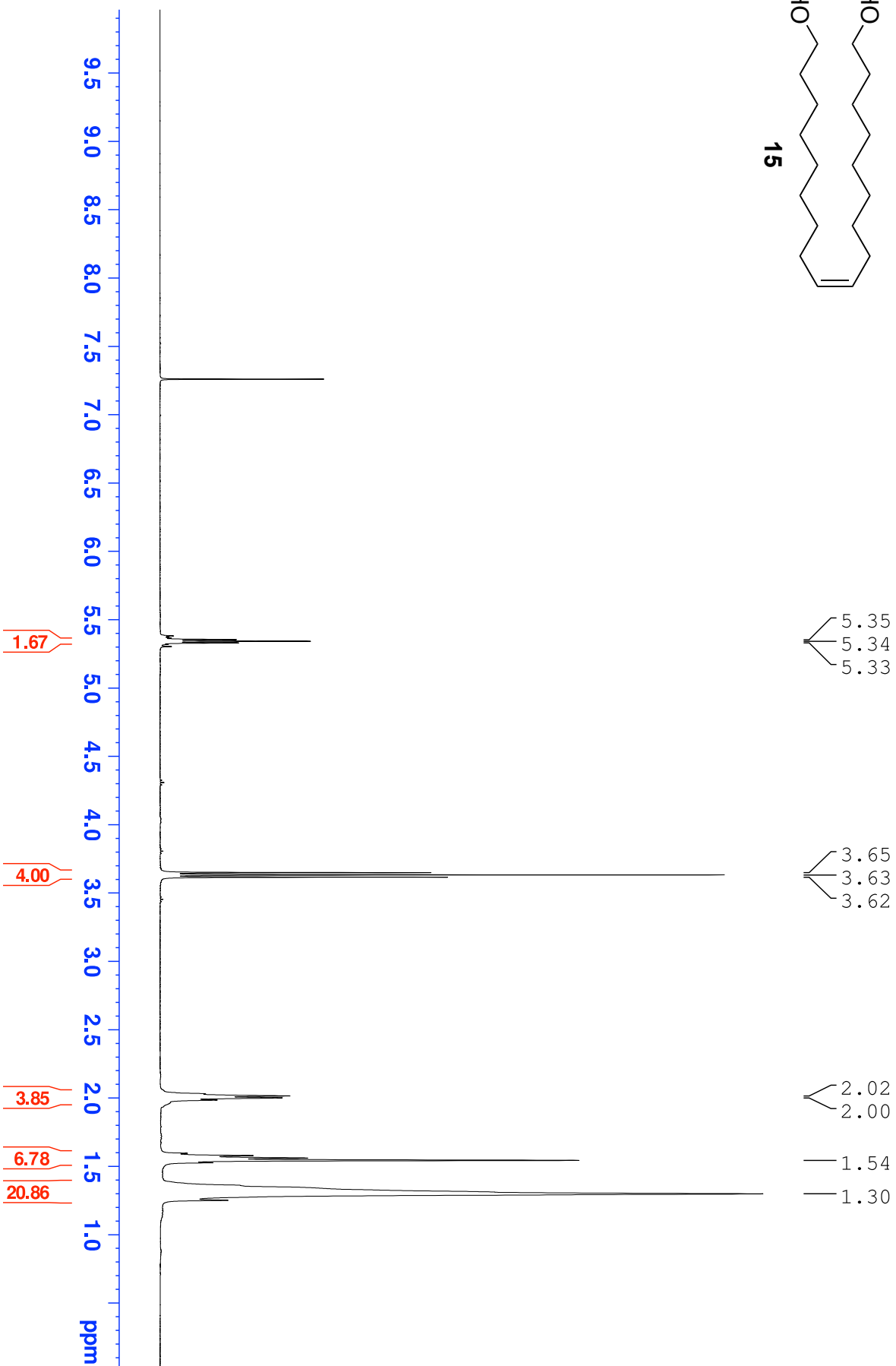
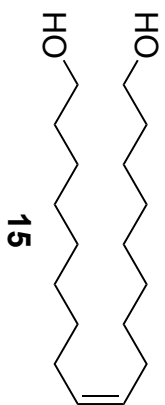




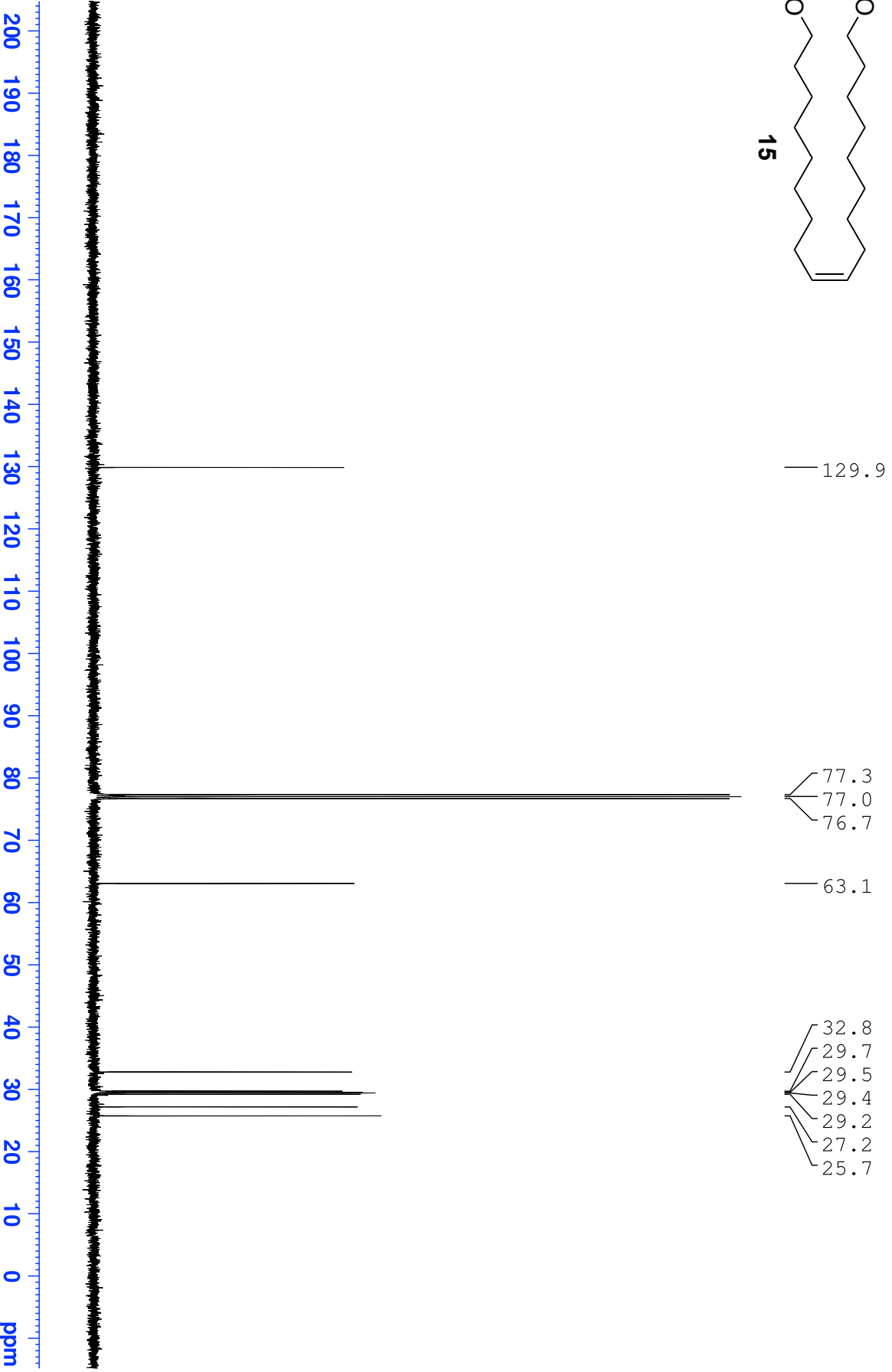
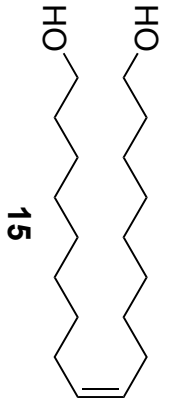
CPD 13C



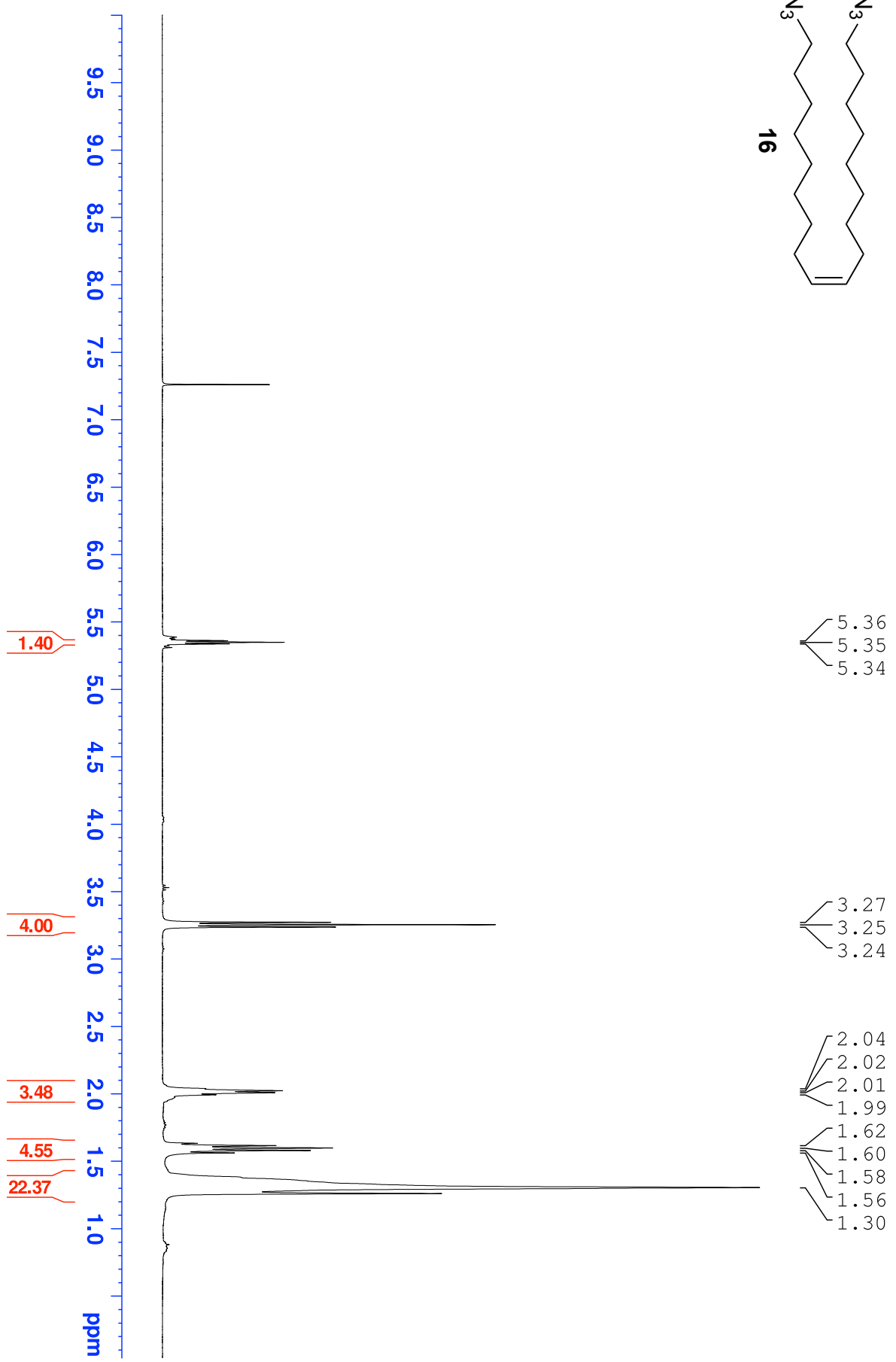
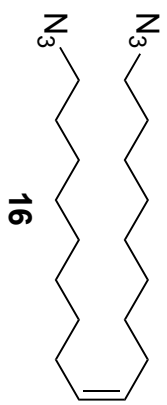
CPD 15H



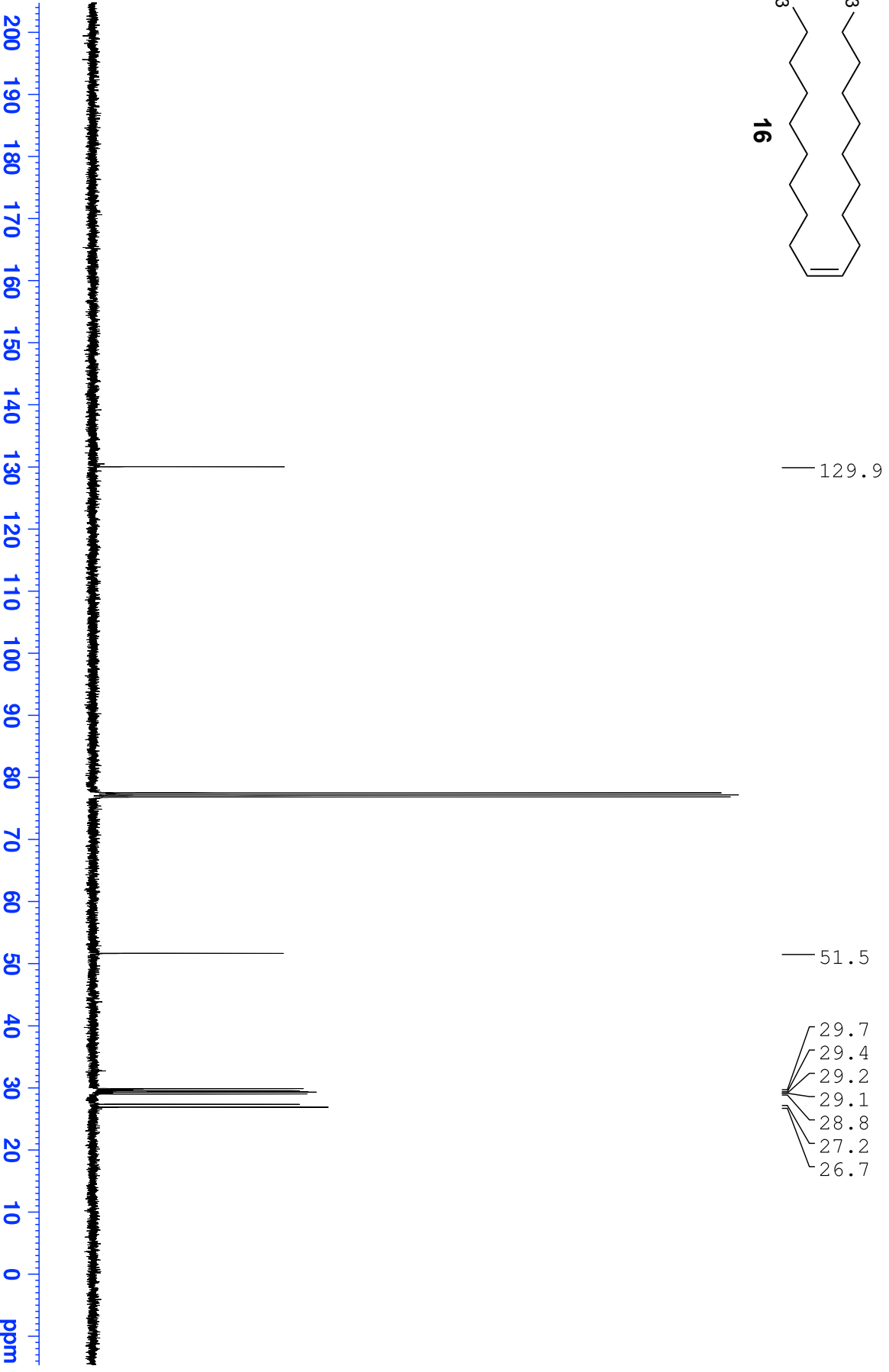
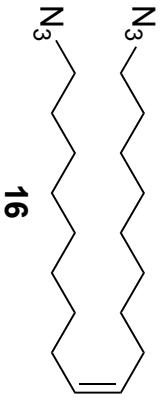
CPD 15C



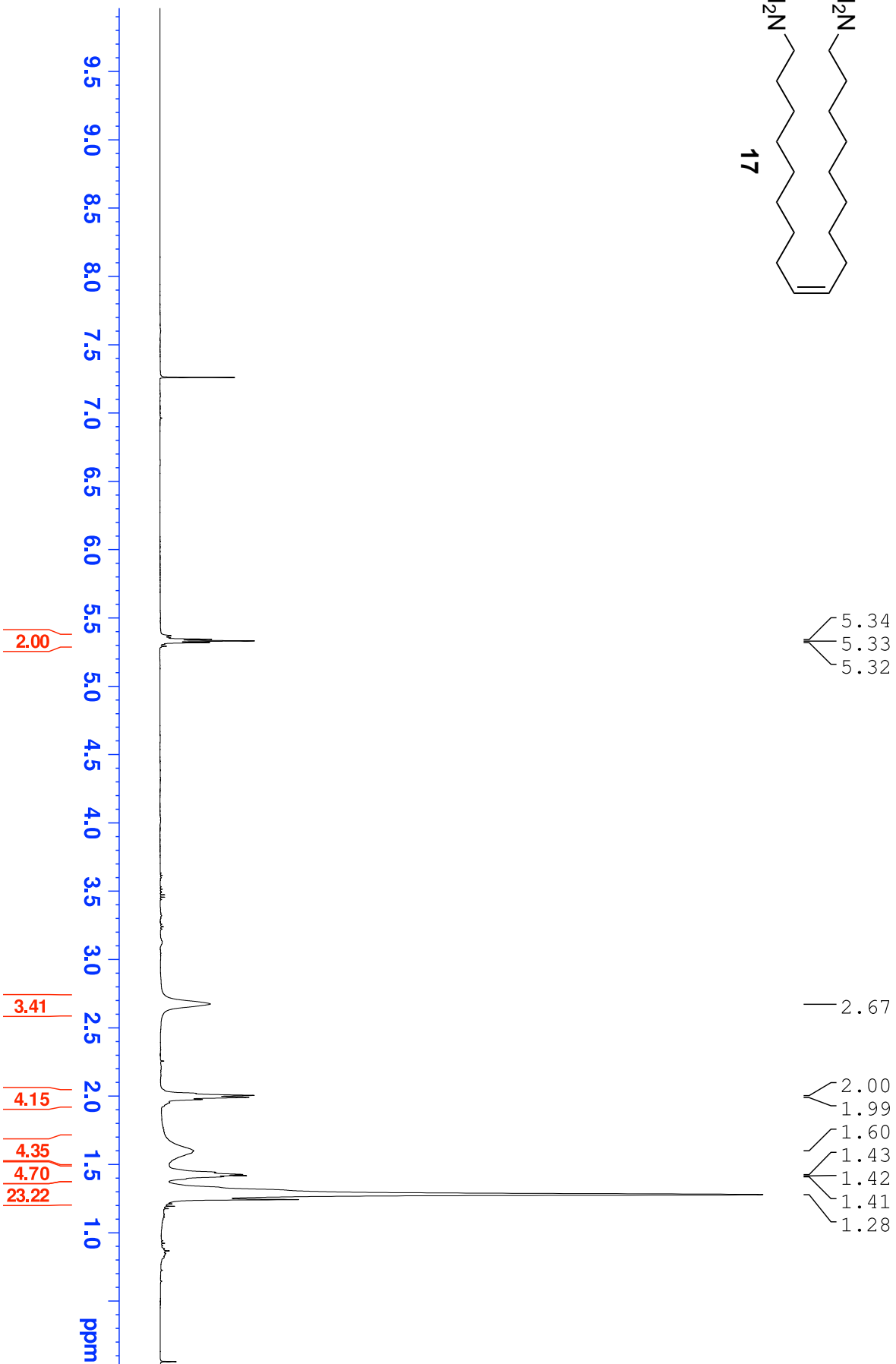
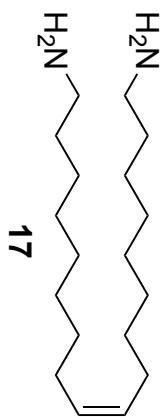




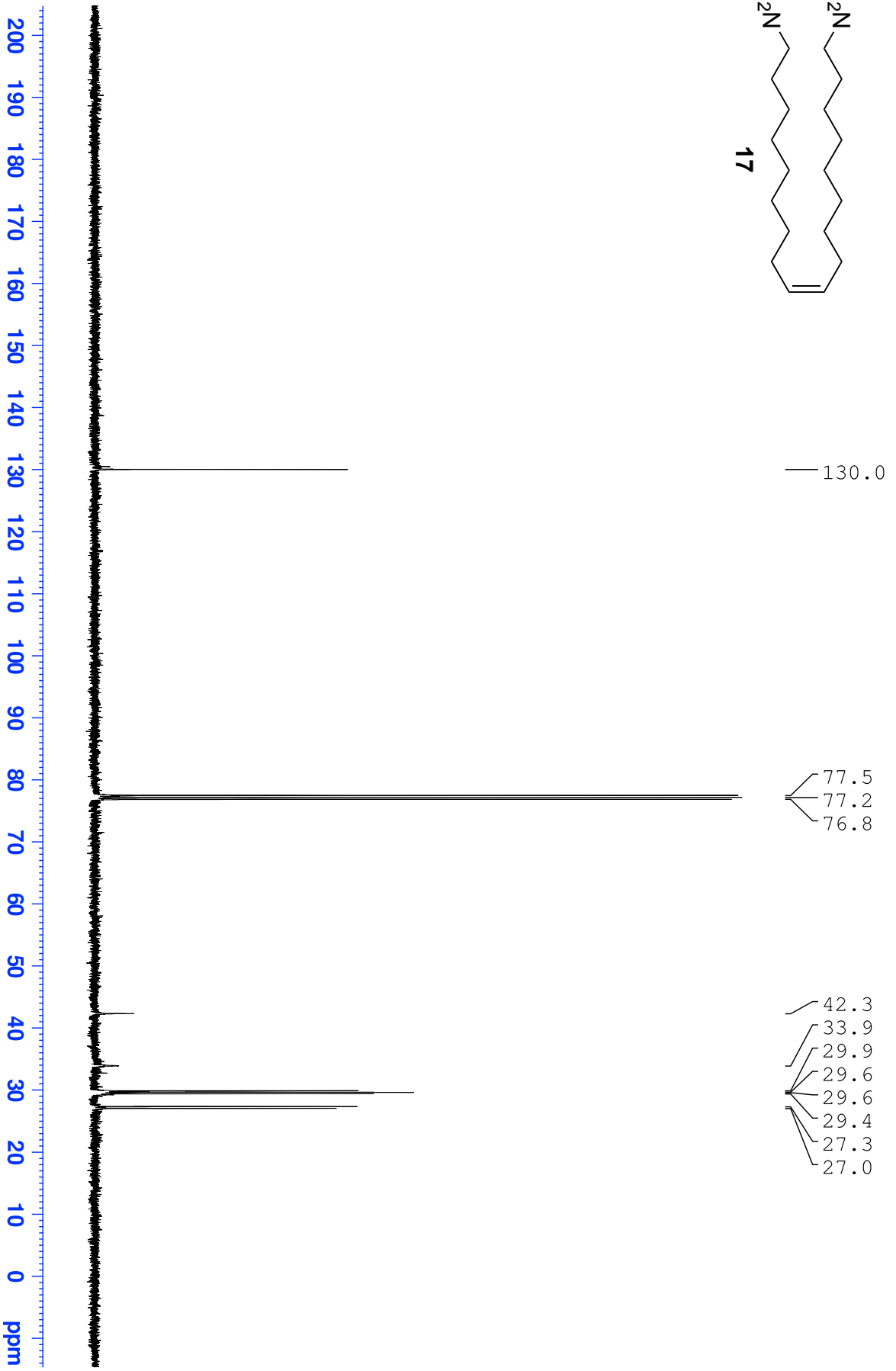
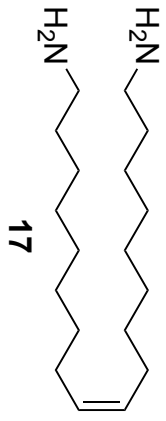
CPD 16C



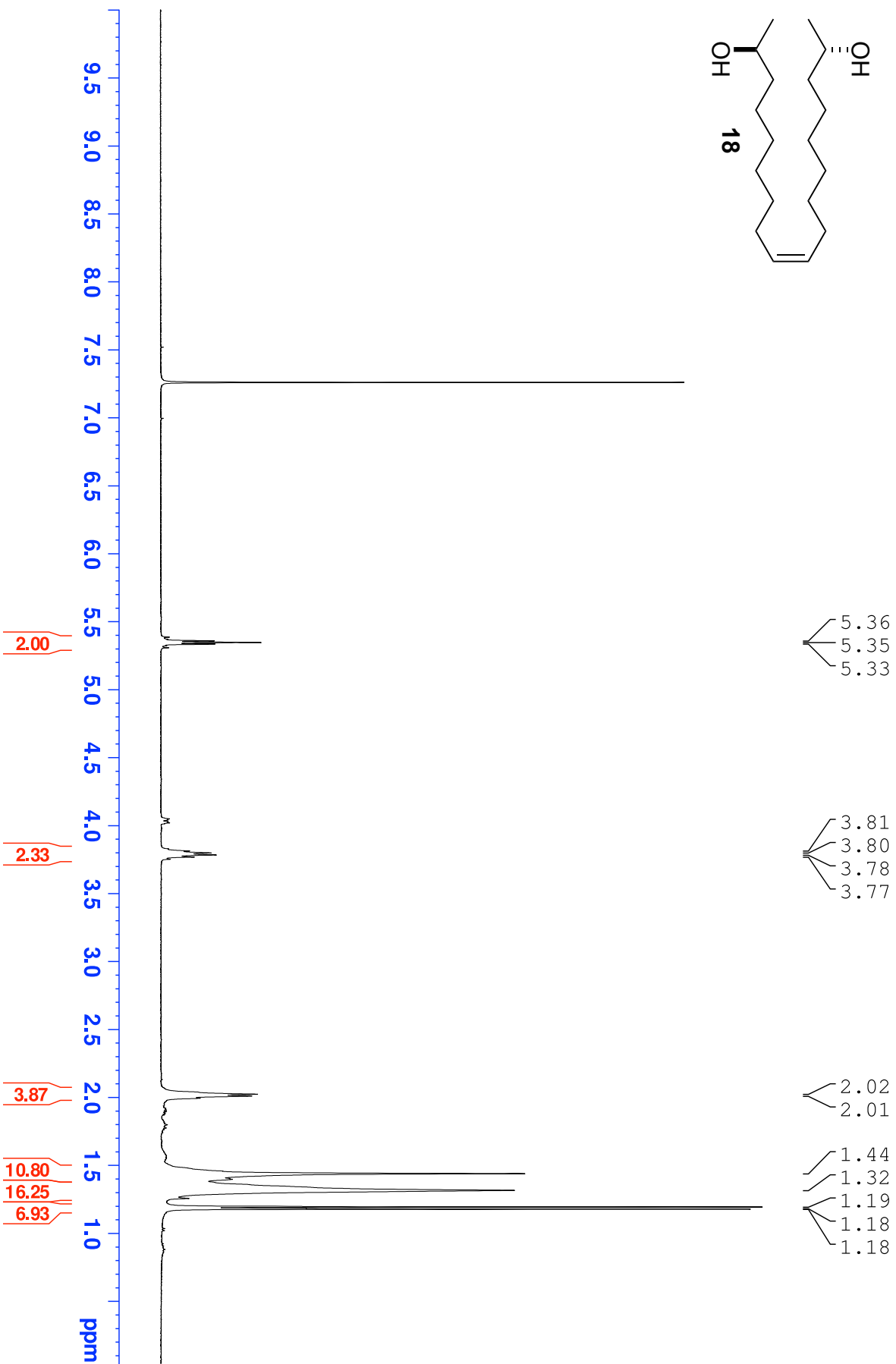
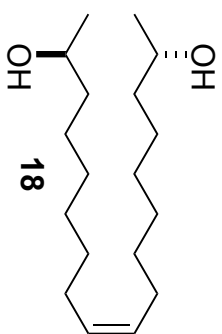
CPD 17H



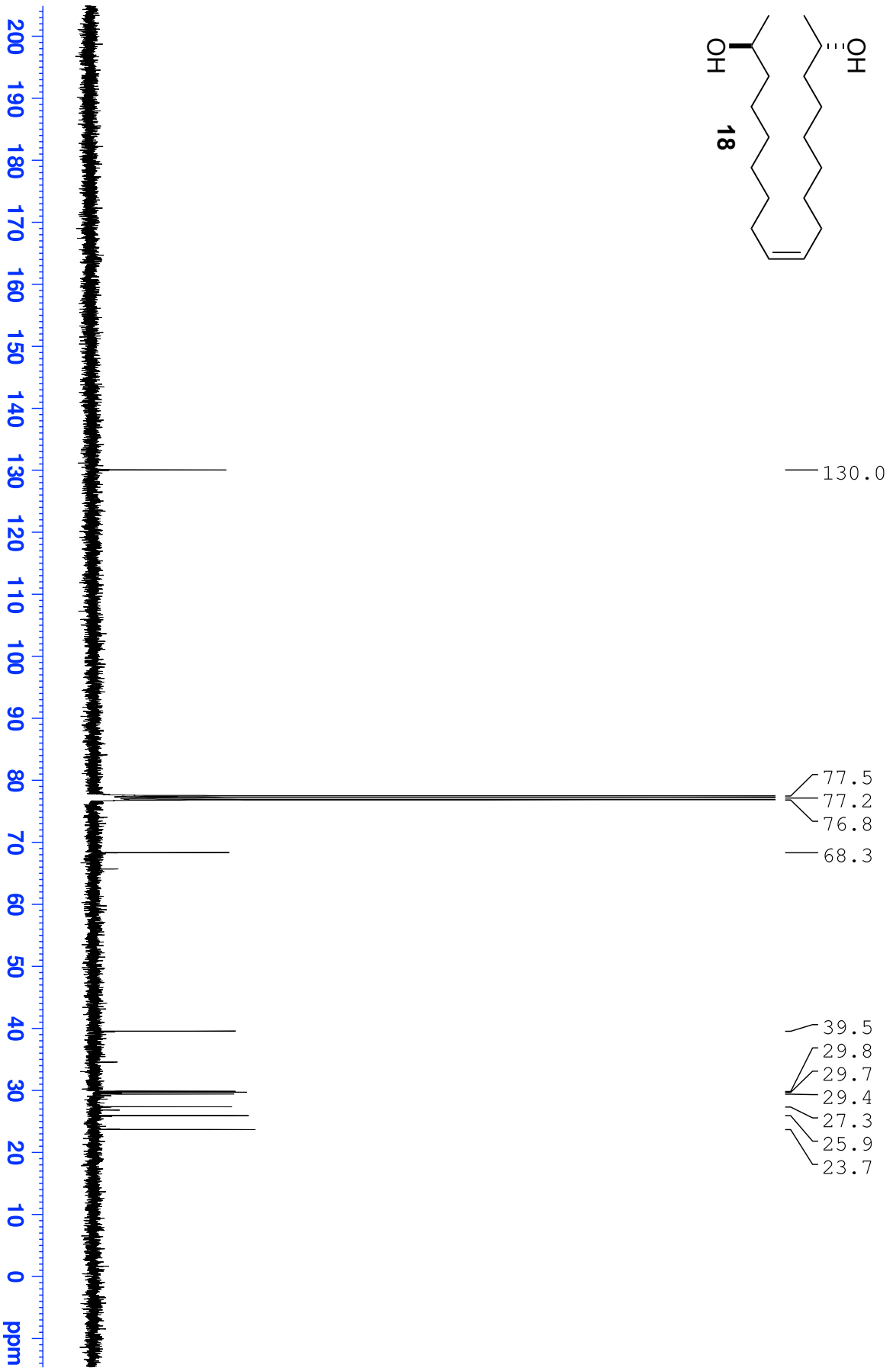
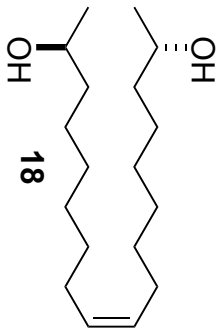
CPD 17C

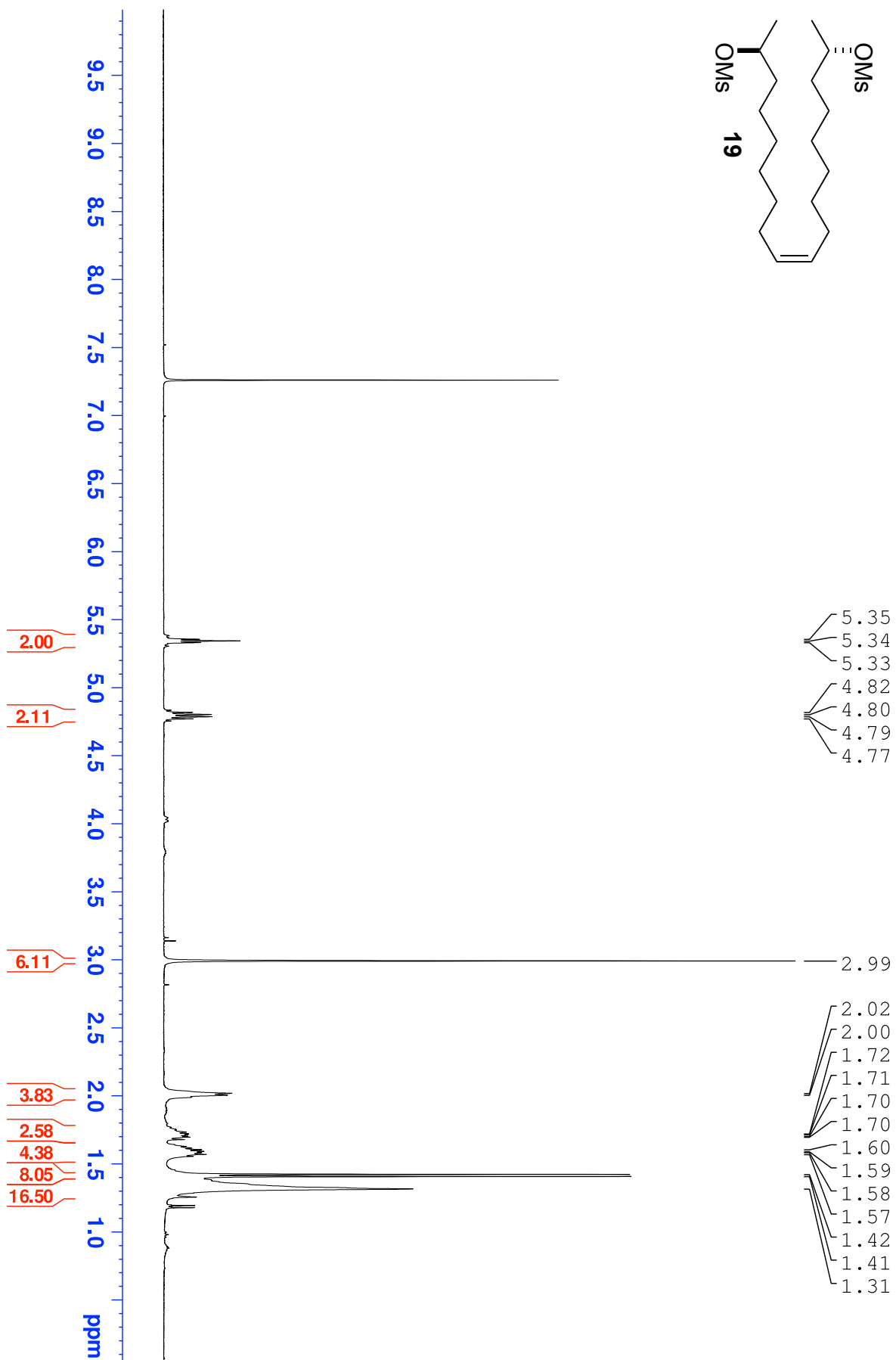
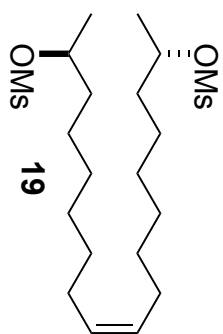


CPD 18H

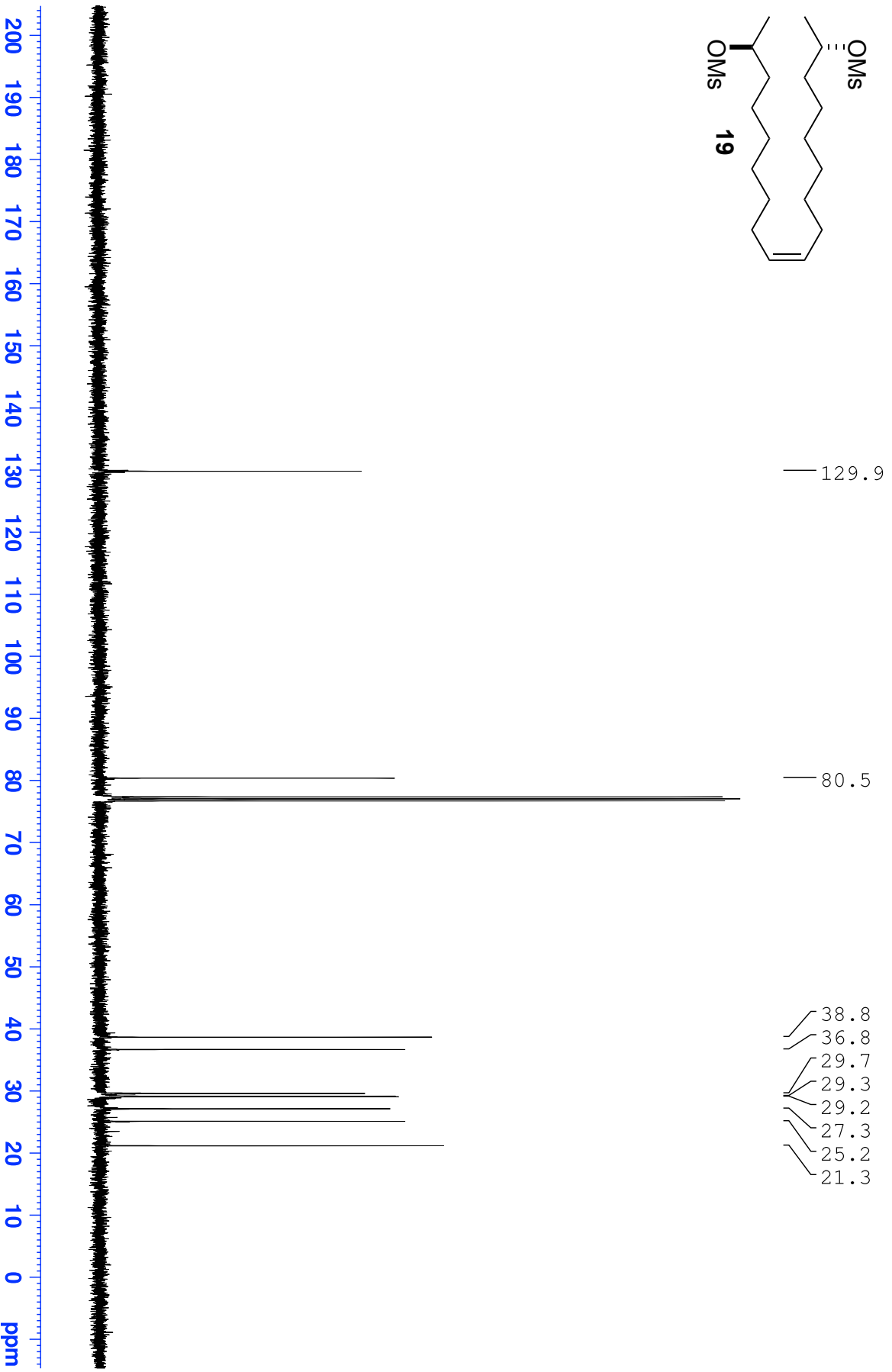
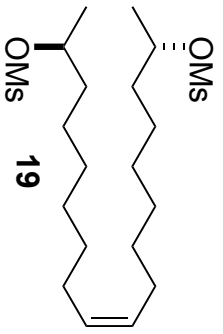


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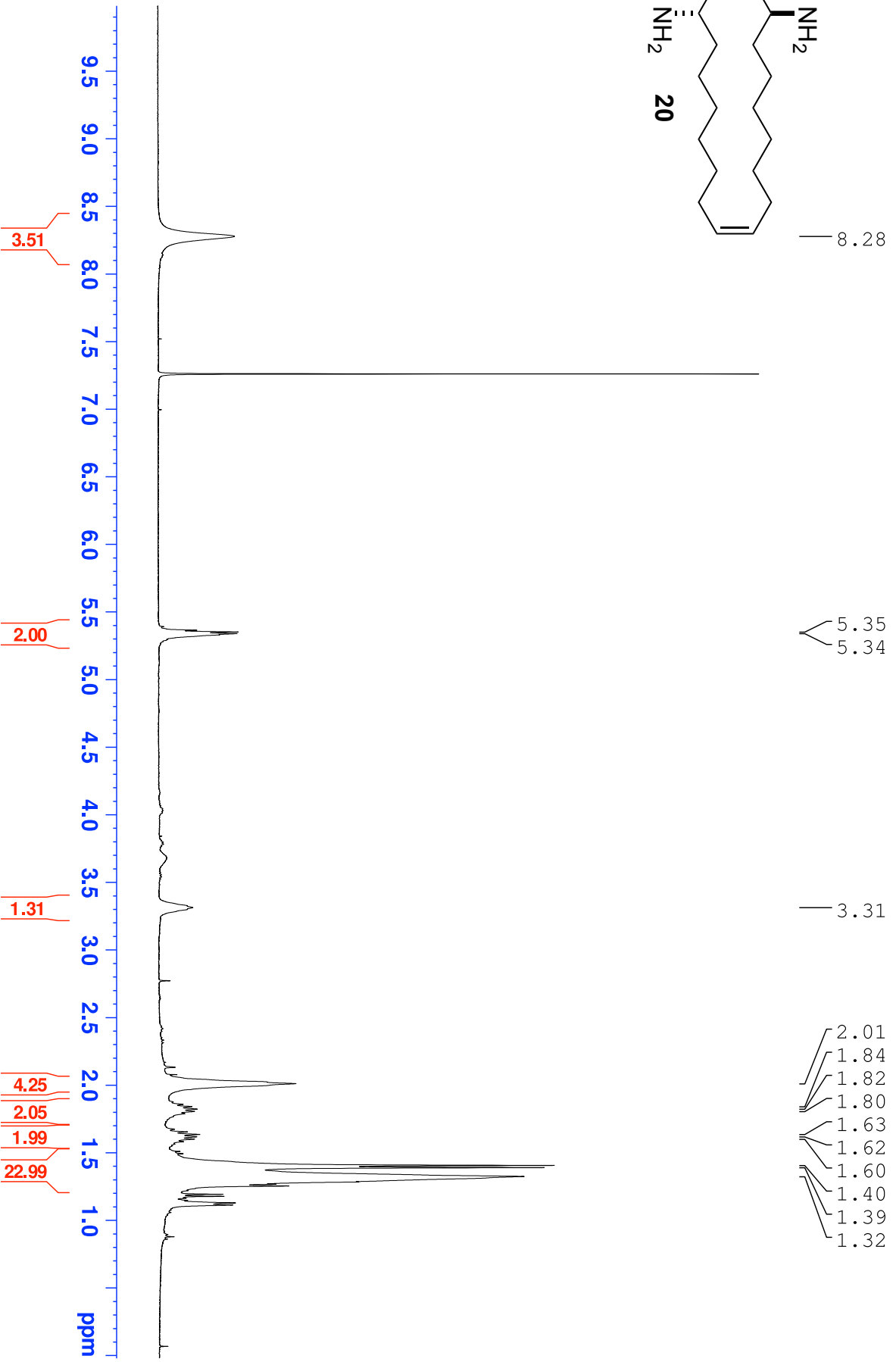
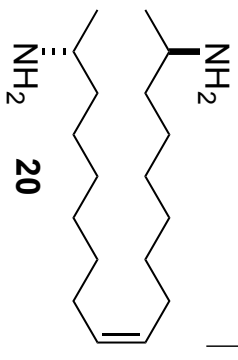


CPD 19C

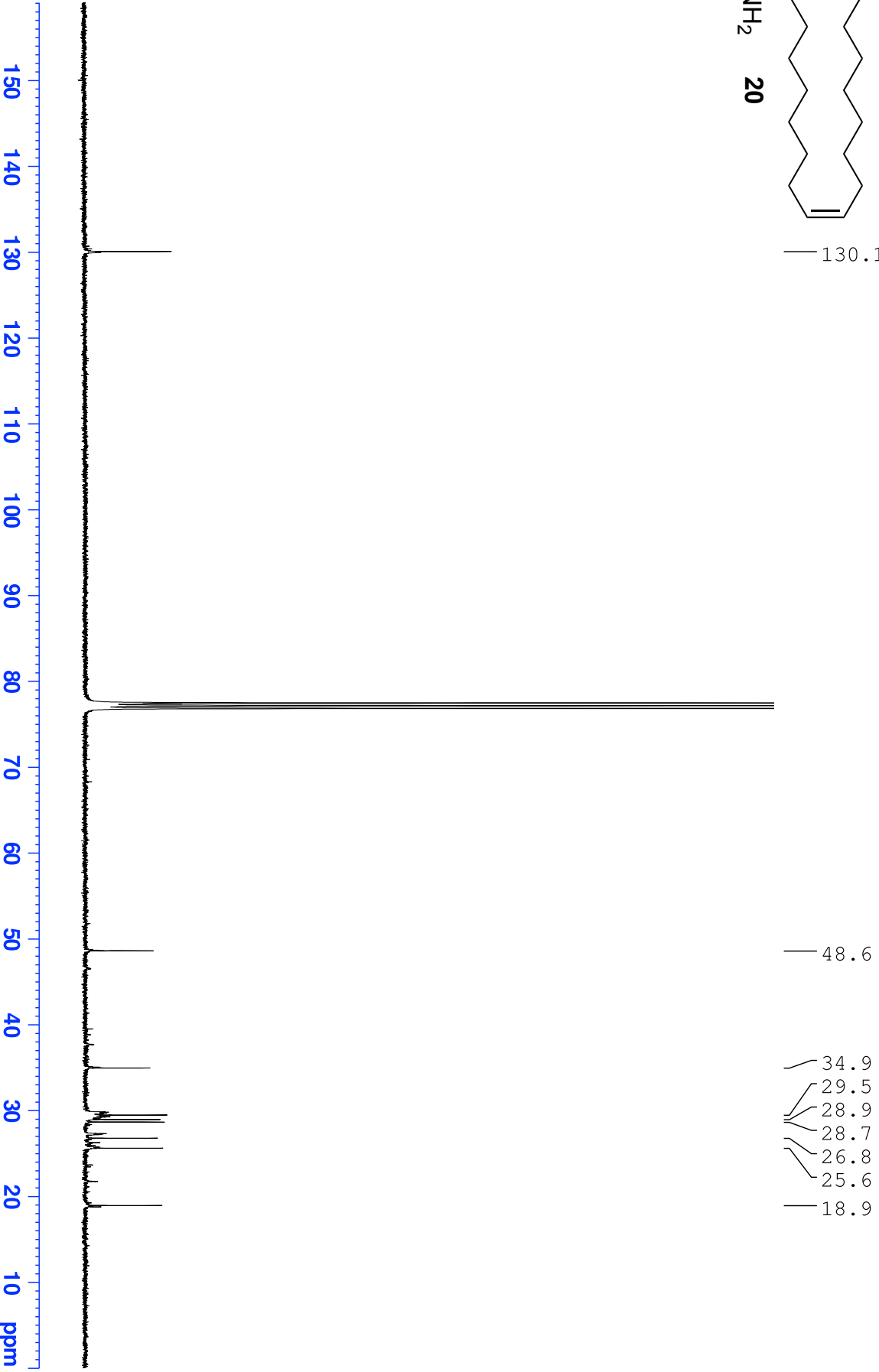
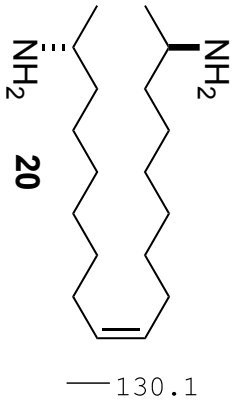




cpd 20



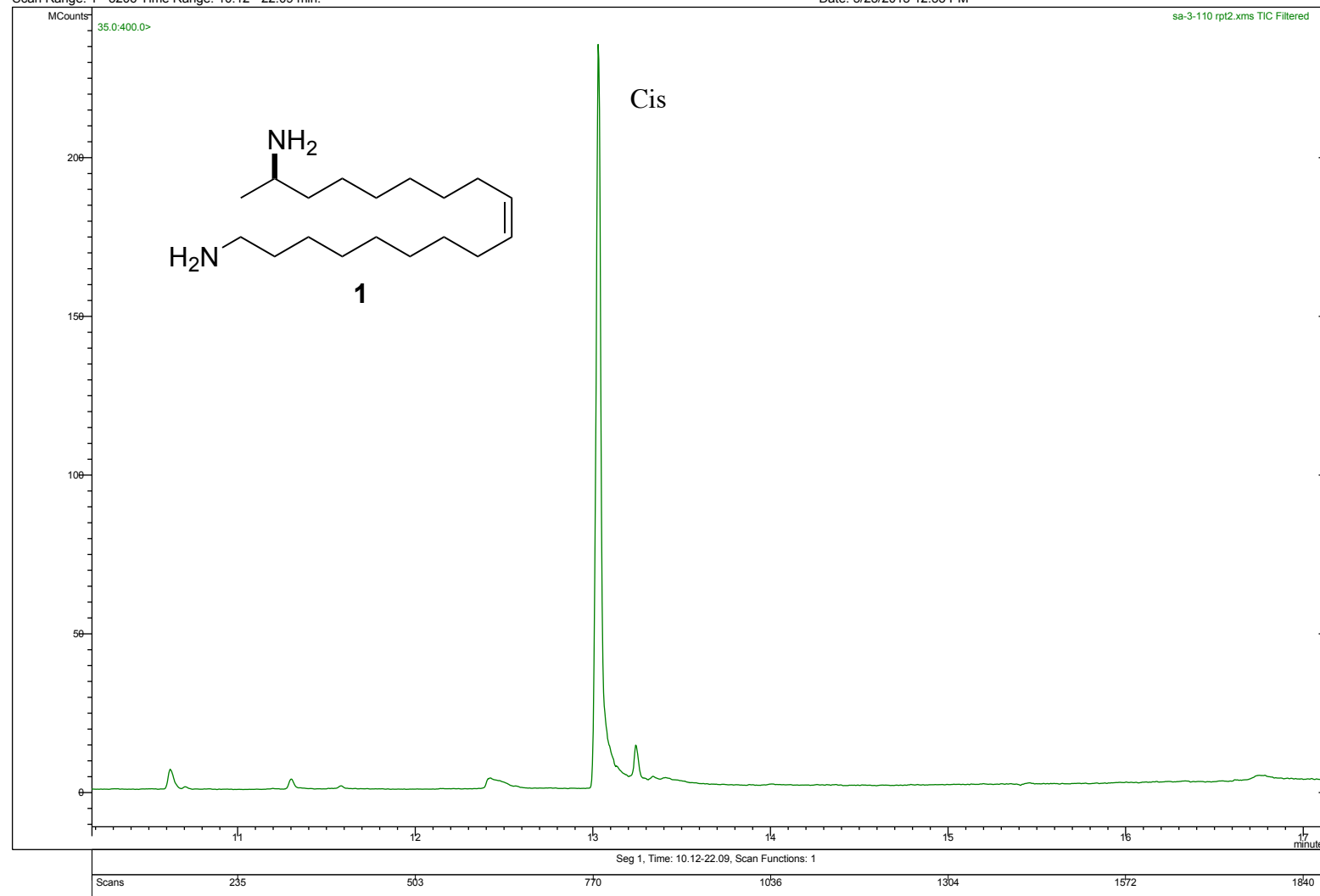
CPD 20 Final carbon



# Chromatogram Plot

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Sample: SA-3-110 rpt2  
Scan Range: 1 - 3206 Time Range: 10.12 - 22.09 min.

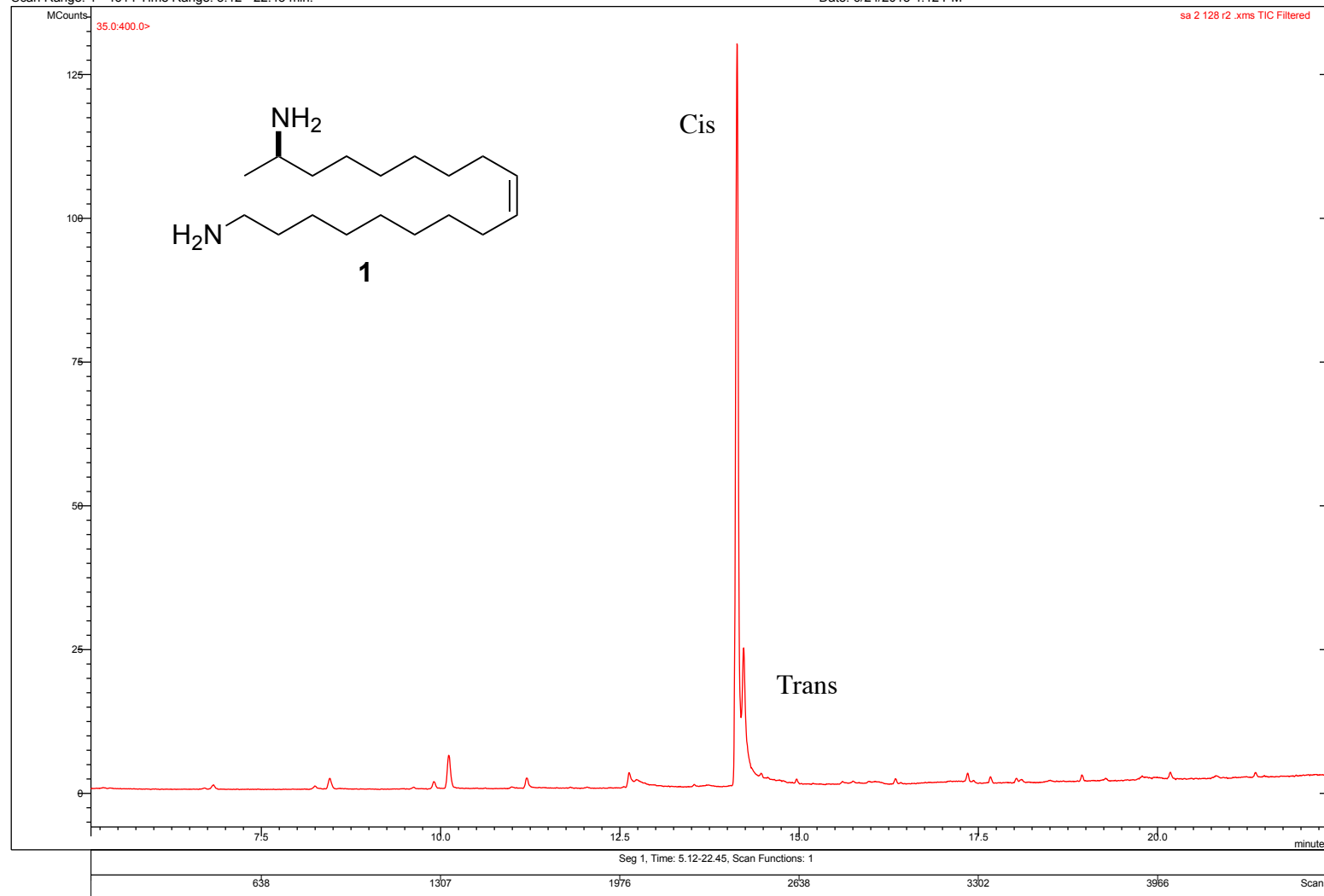
Operator:  
Date: 5/25/2015 12:55 PM



# Chromatogram Plot

File: c:\bruker\sw\data\chemistry\sa 2 128 r2 .xms  
Sample: sa 2 128 r2  
Scan Range: 1 - 4614 Time Range: 5.12 - 22.45 min.

Operator:  
Date: 6/24/2015 4:12 PM



# Chromatogram Plot

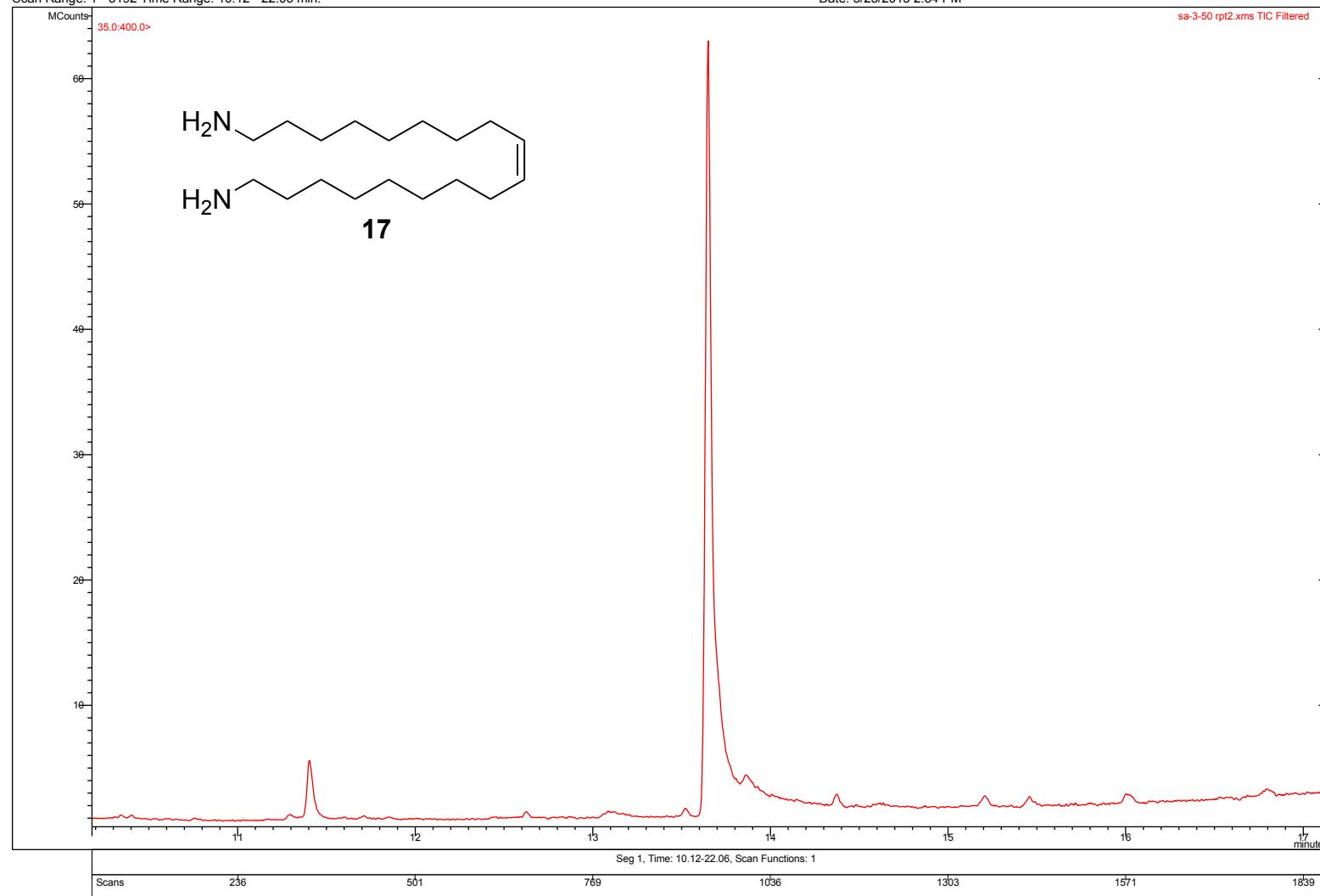
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Sample: Sa-3-50 rpt2

Scan Range: 1 - 3192 Time Range: 10.12 - 22.06 min.

Operator:

Date: 5/25/2015 2:34 PM



## Chromatogram Plots

Plot 1: c:\brukerws\data\chemistry\sa-3-110 rpt2.xmls

Plot 2: c:\brukerws\data\chemistry\sa-3-50 rpt2.xmls

Plot 3: c:\brukerws\data\chemistry\sa3 98 cpd 20 r2.xmls

