

## Supplementary Material

# Betulinic and ursolic carboxamides as potential cytotoxic agents

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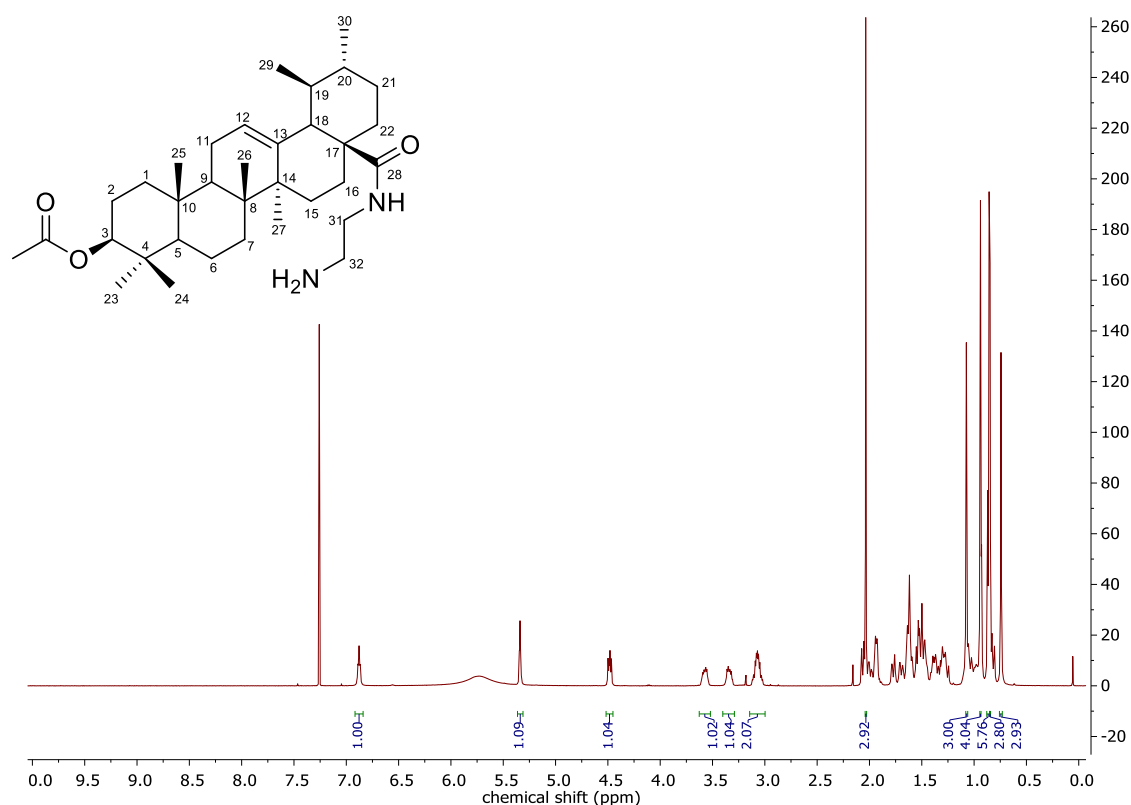
<sup>2</sup> University of Nizwa, Chair of Oman's Medicinal Plants and Marine Natural Products, PO Box 33, Birkat Al-Mauz, Nizwa, Sultanate of Oman; aharrasi@unizwa.edu.om

\* Correspondence: rene.csuk@chemie.uni-halle.de; Tel.: +49-345-55-25660

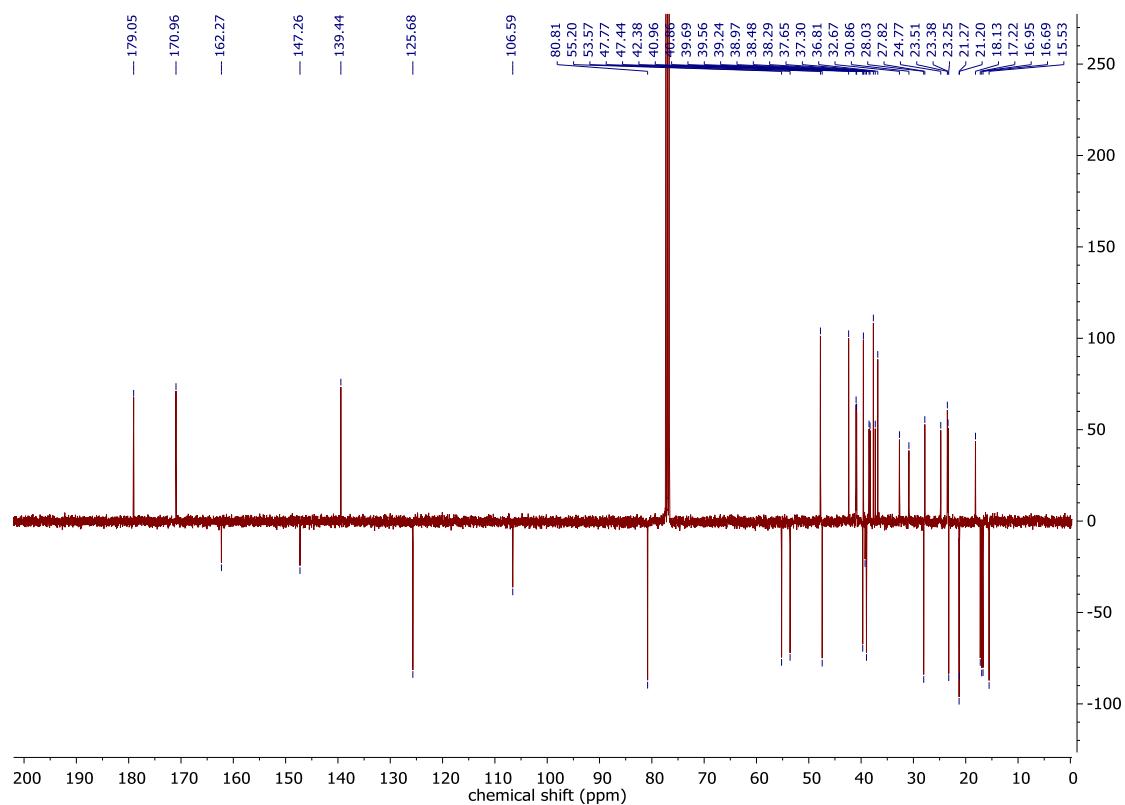
## Representative NMR spectra

### NMR spectra of 3

<sup>1</sup>H NMR

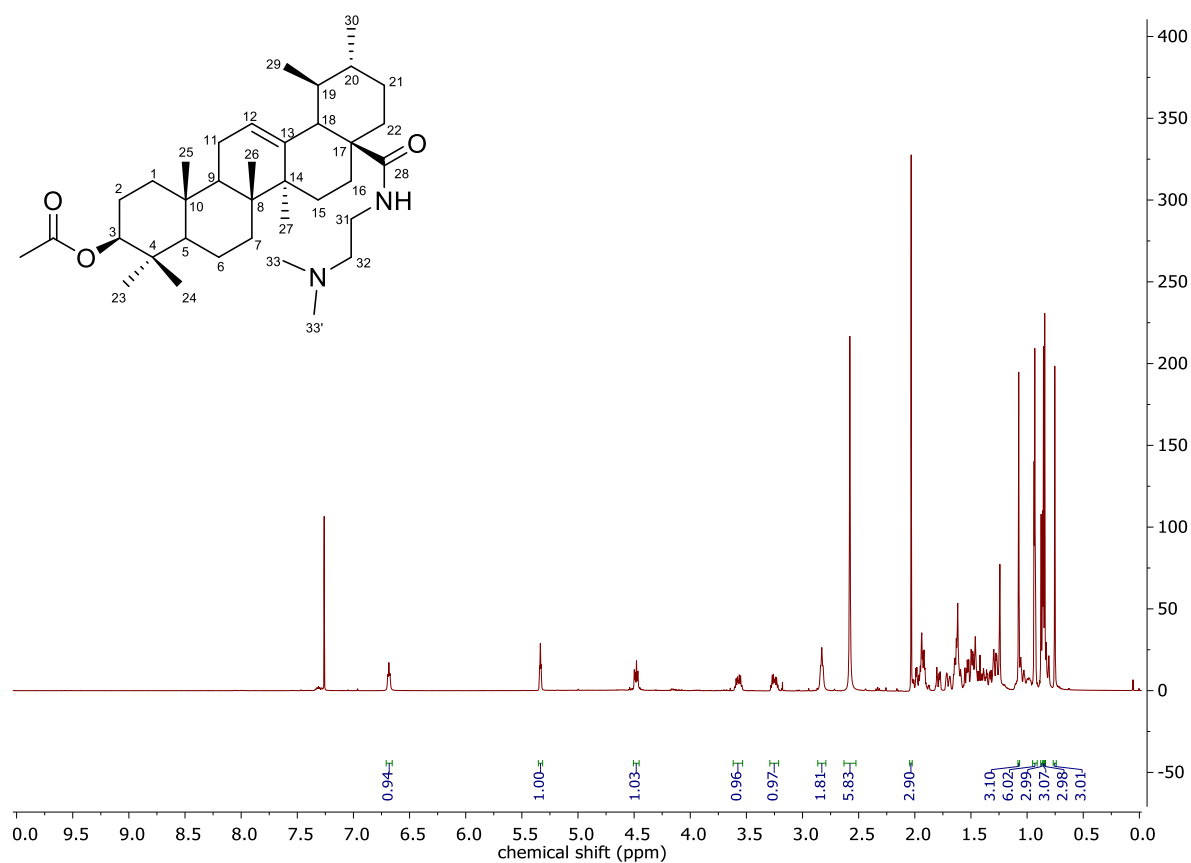


# <sup>13</sup>C NMR (APT)

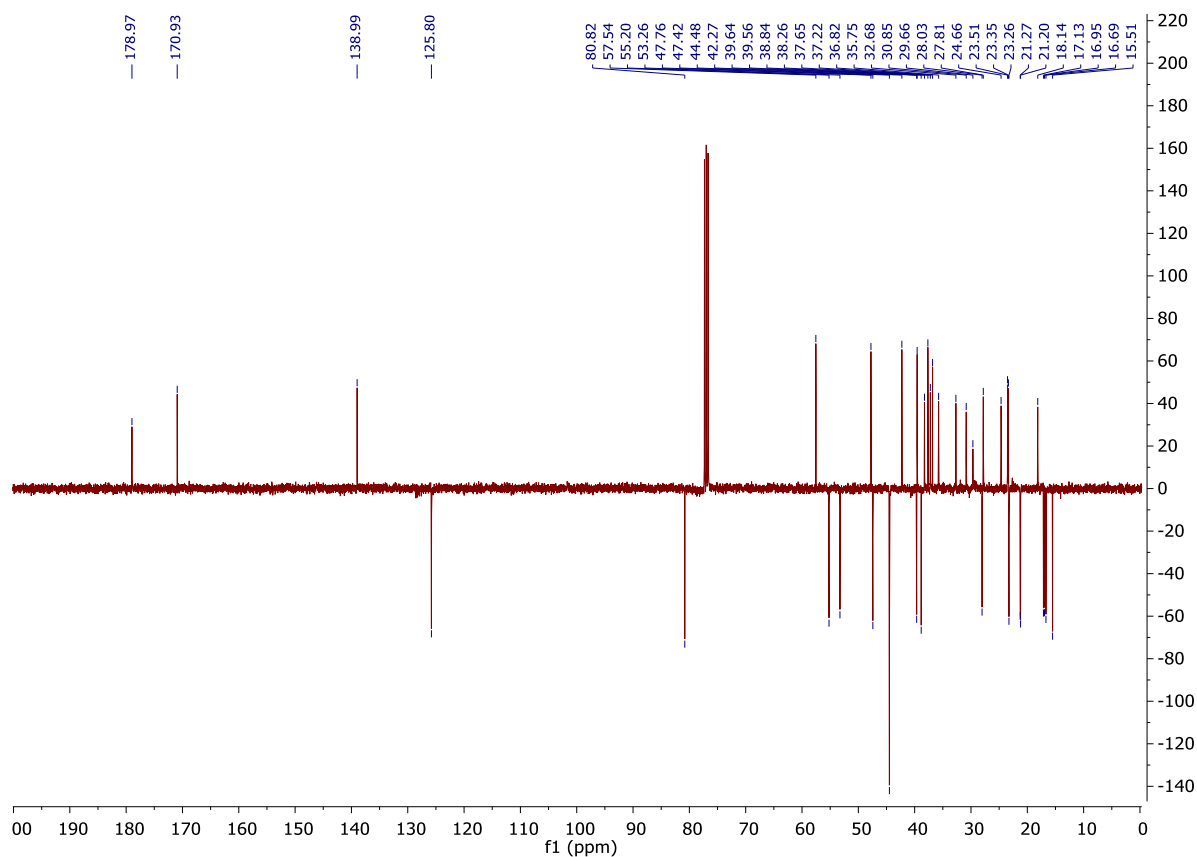


## NMR spectra of 4

### <sup>1</sup>H NMR

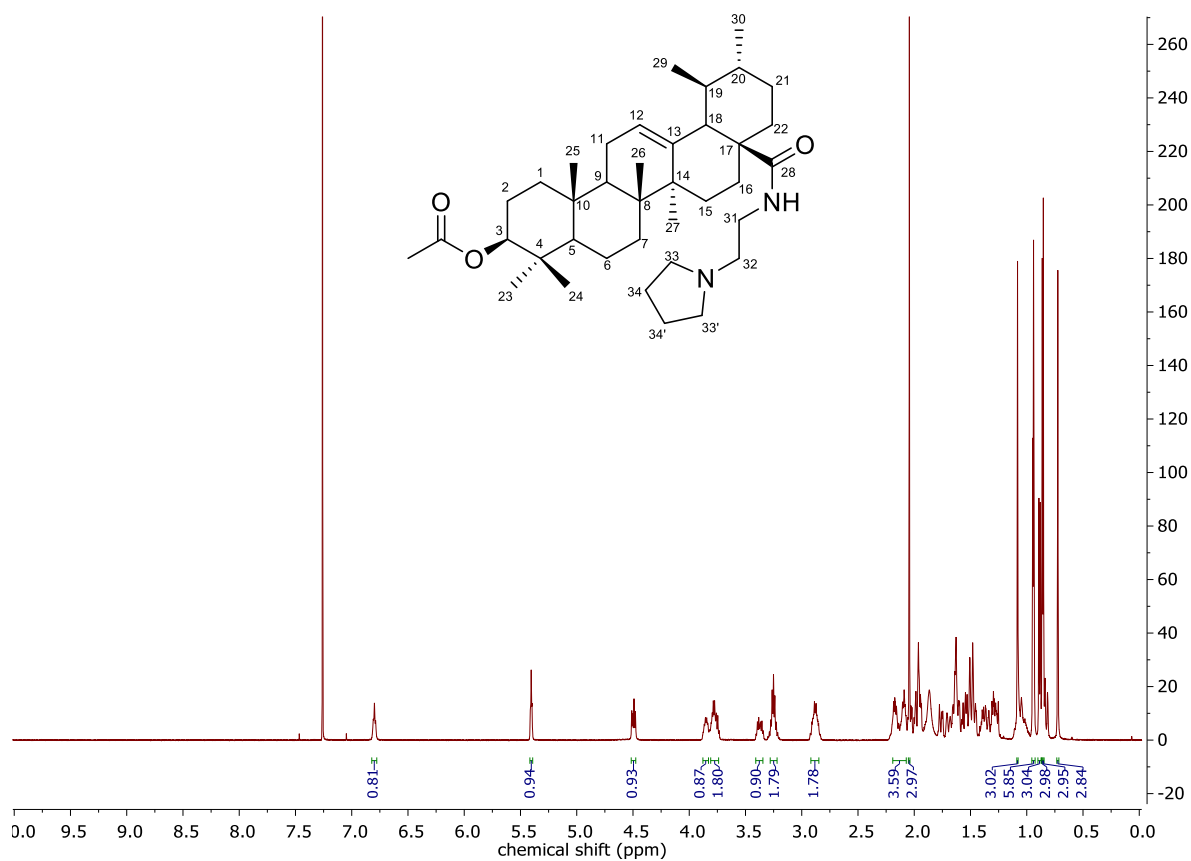


# <sup>13</sup>C NMR (APT)

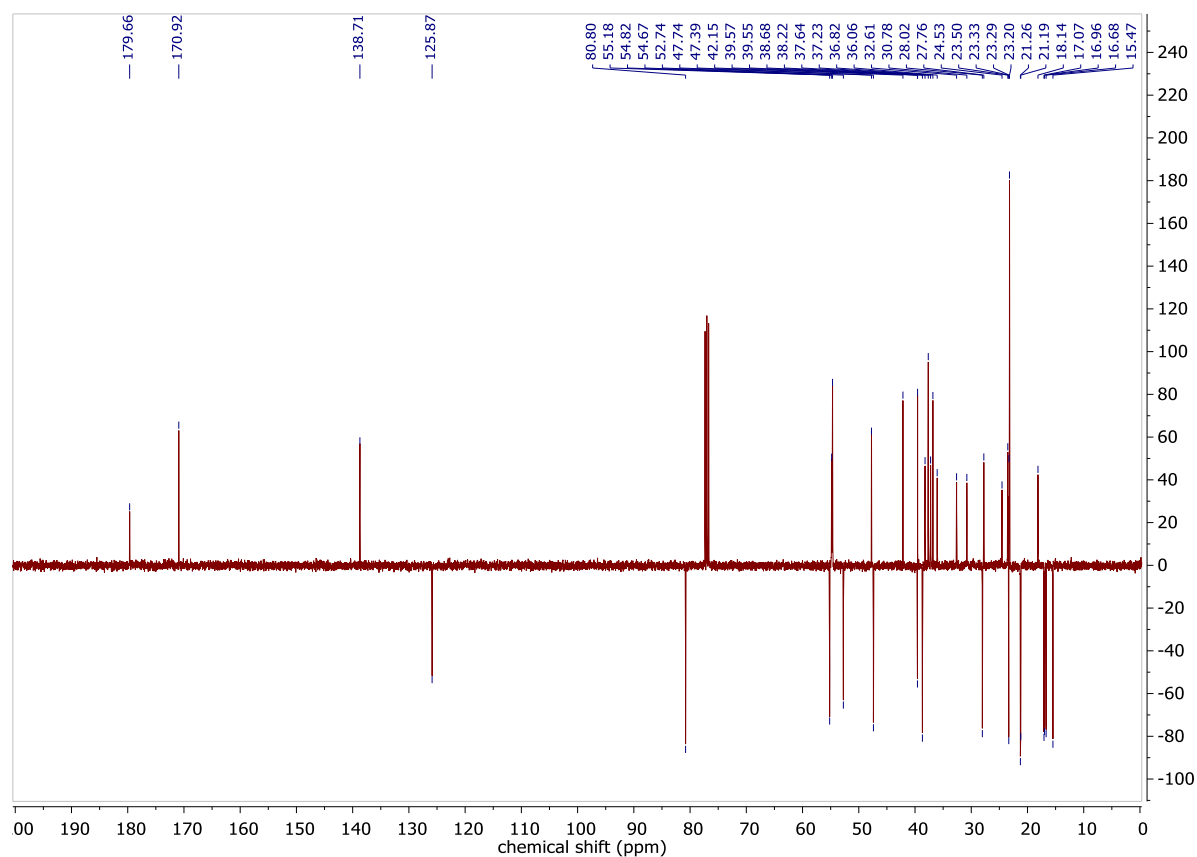


## NMR spectra of 5

### <sup>1</sup>H NMR

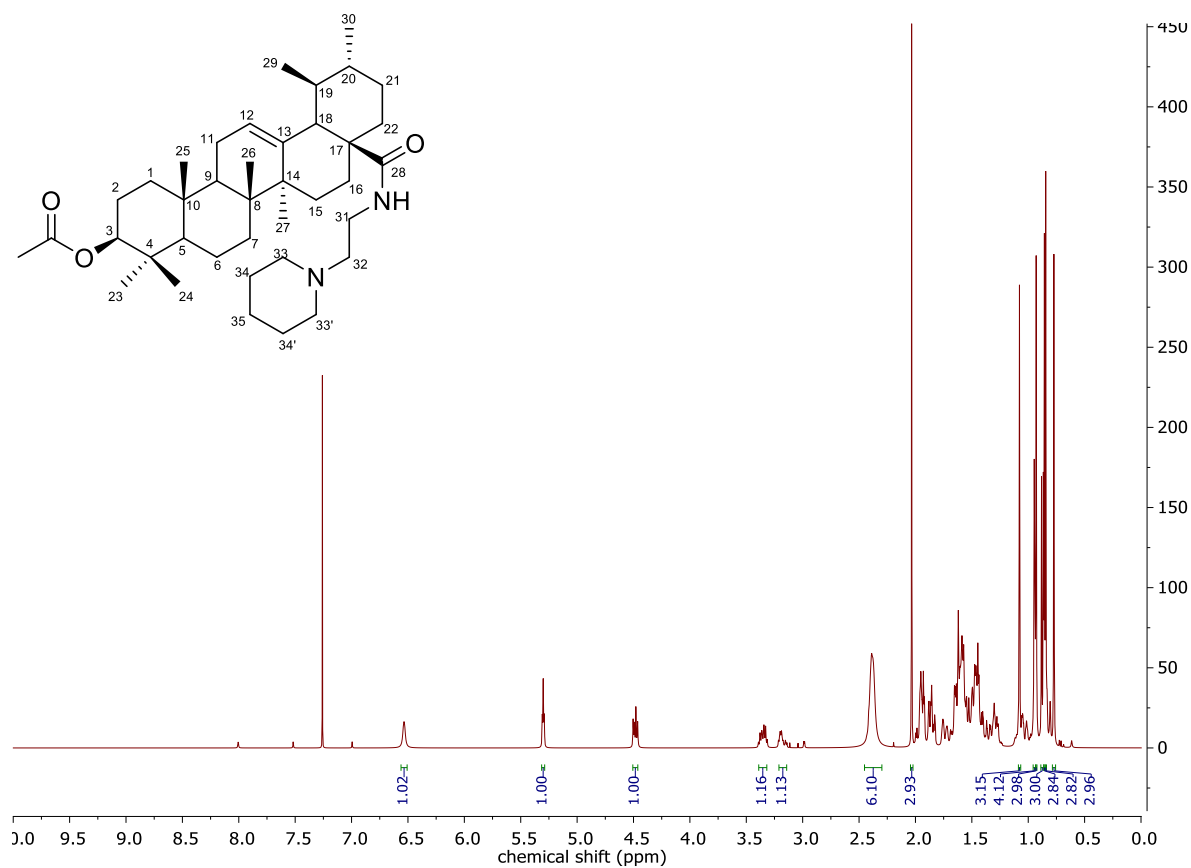


# $^{13}\text{C}$ NMR (APT)

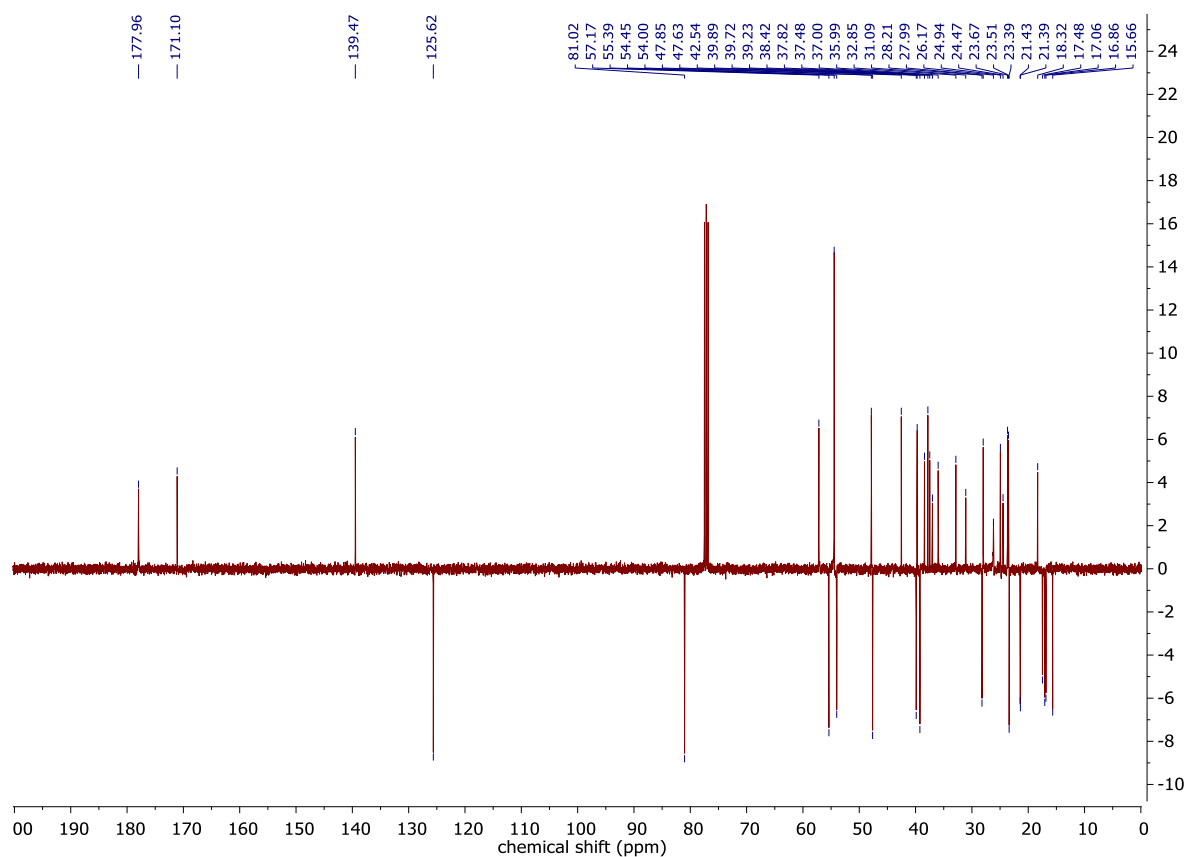


## NMR spectra of 6

### $^1\text{H}$ NMR

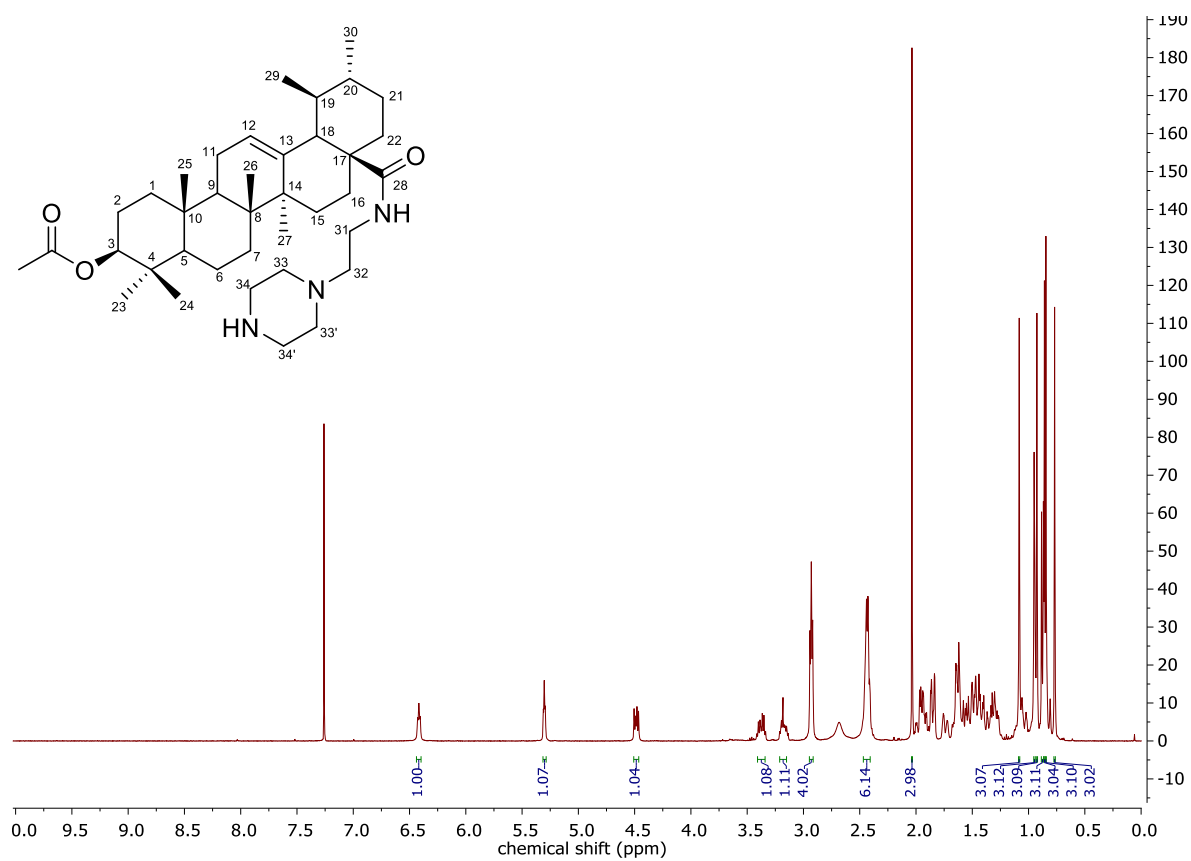


# <sup>13</sup>C NMR (APT)

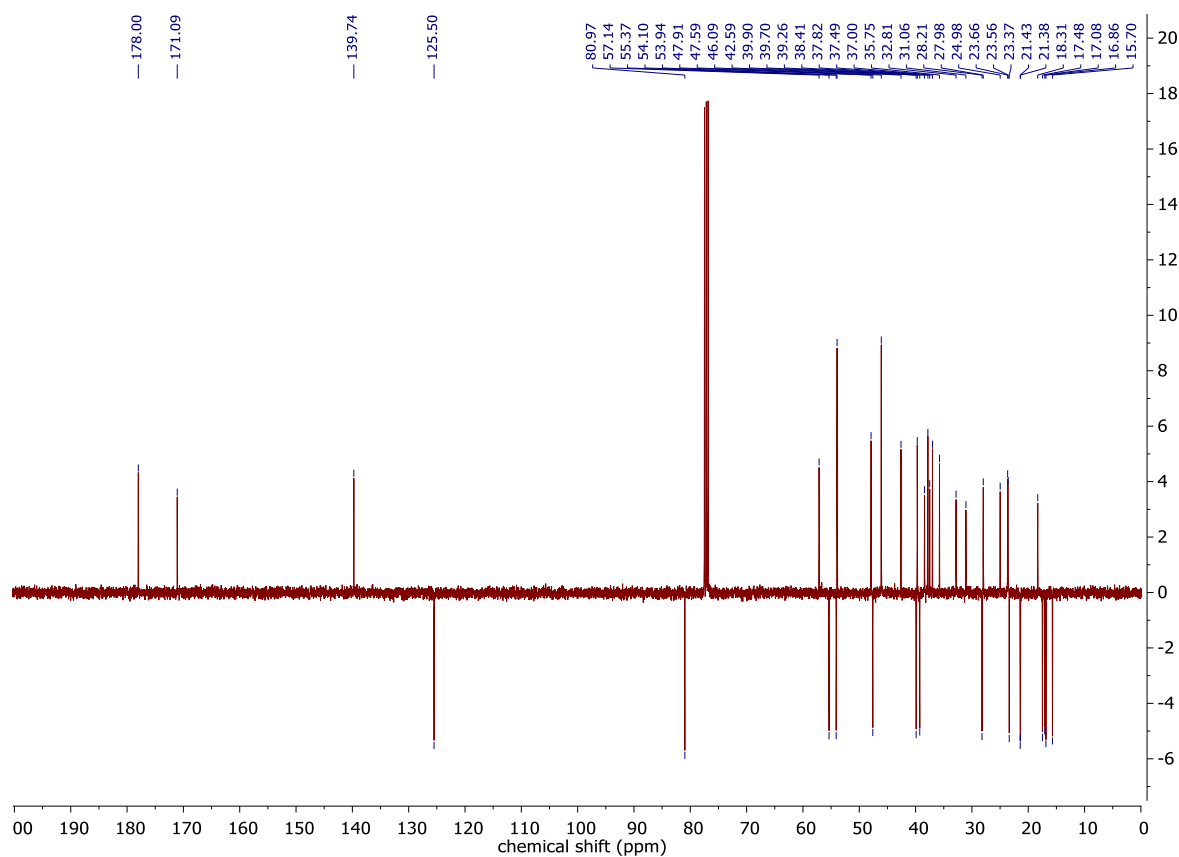


## NMR spectra of 7

### <sup>1</sup>H NMR

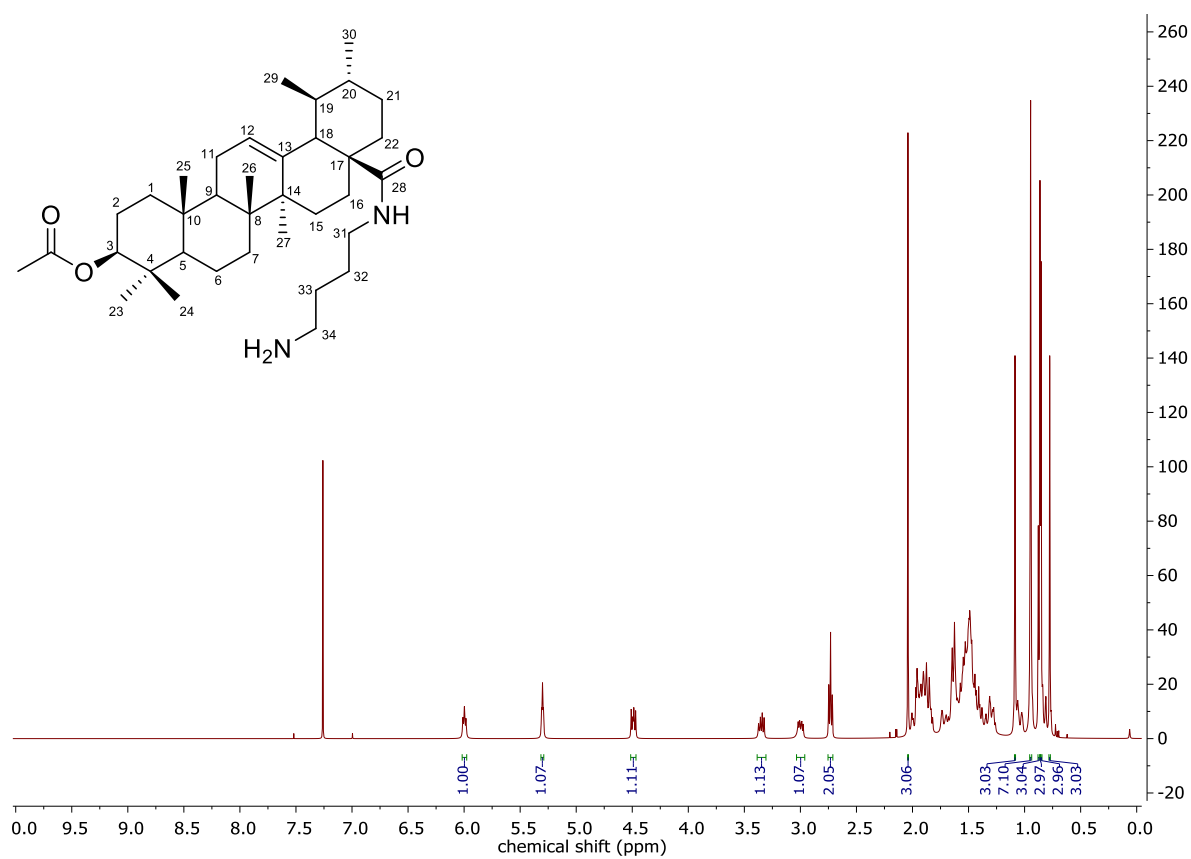


# <sup>13</sup>C NMR (APT)

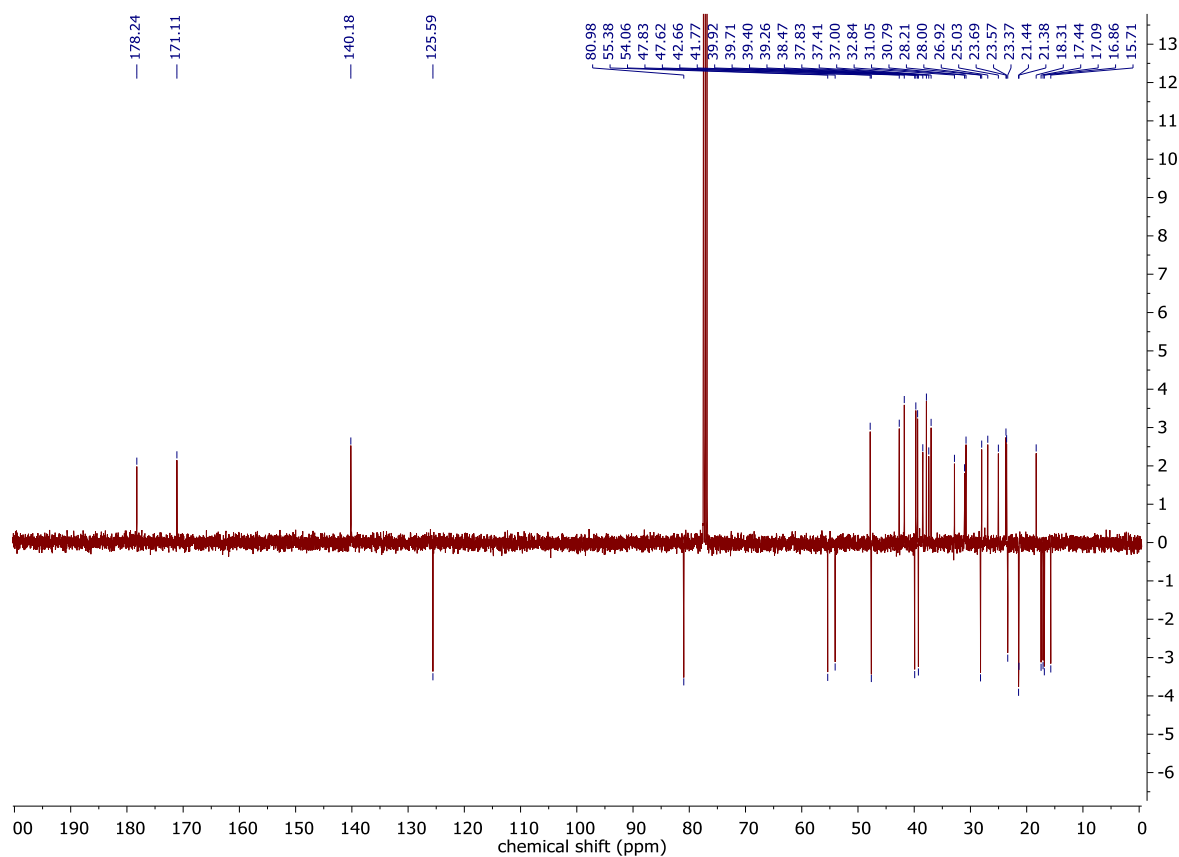


## NMR spectra of 8

### <sup>1</sup>H NMR

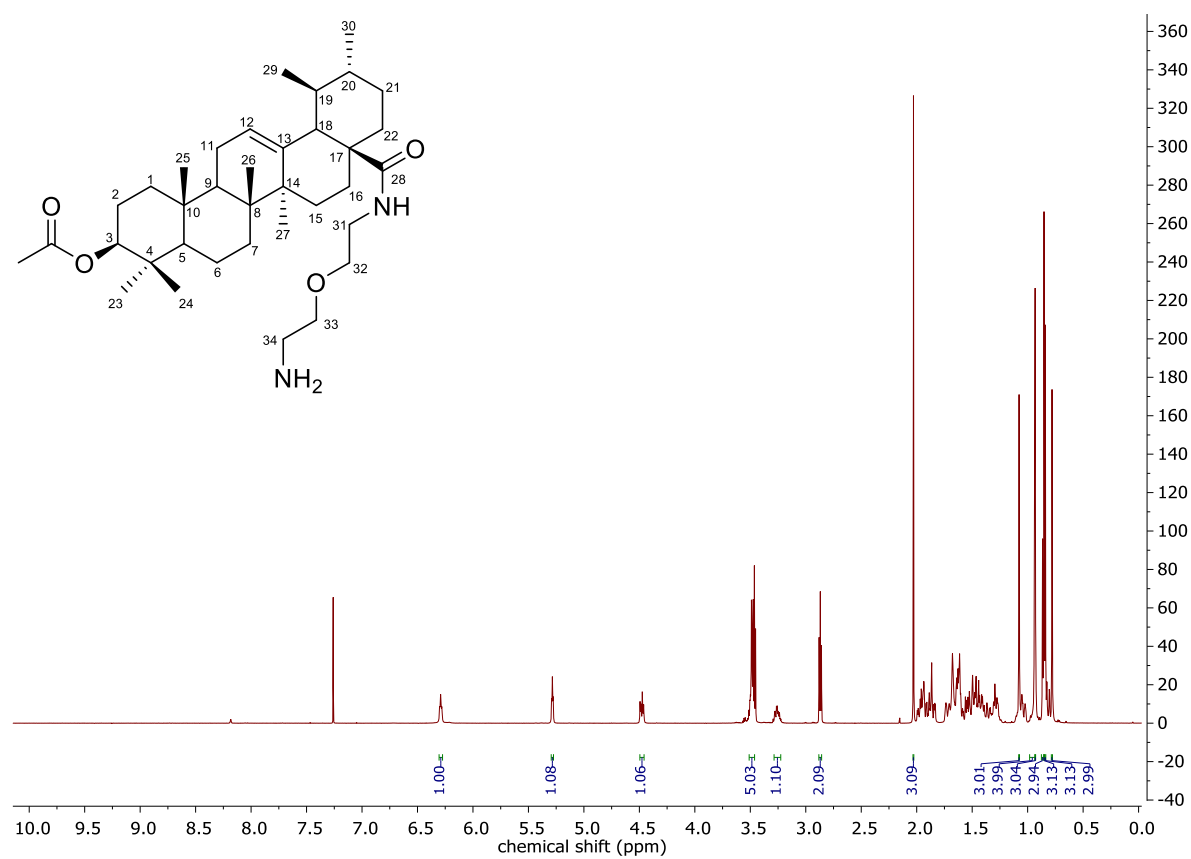


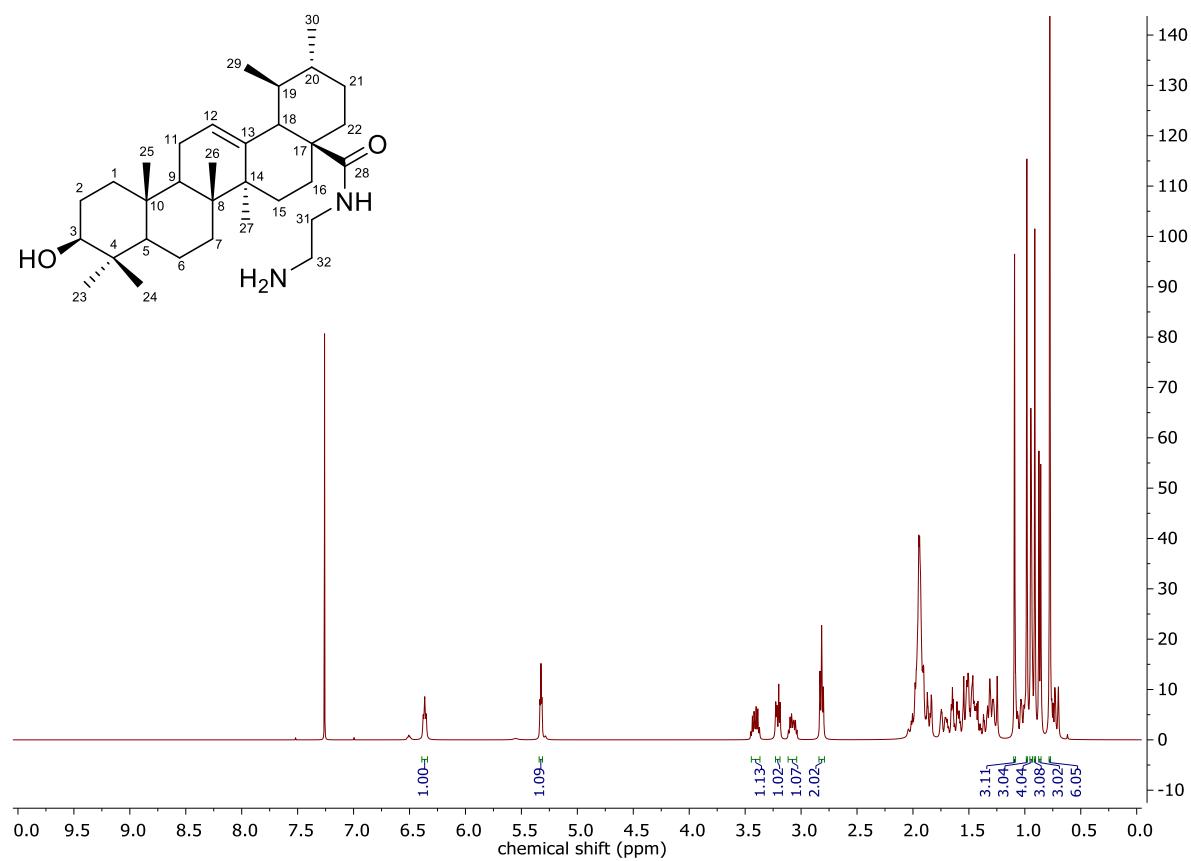
# <sup>13</sup>C NMR (APT)



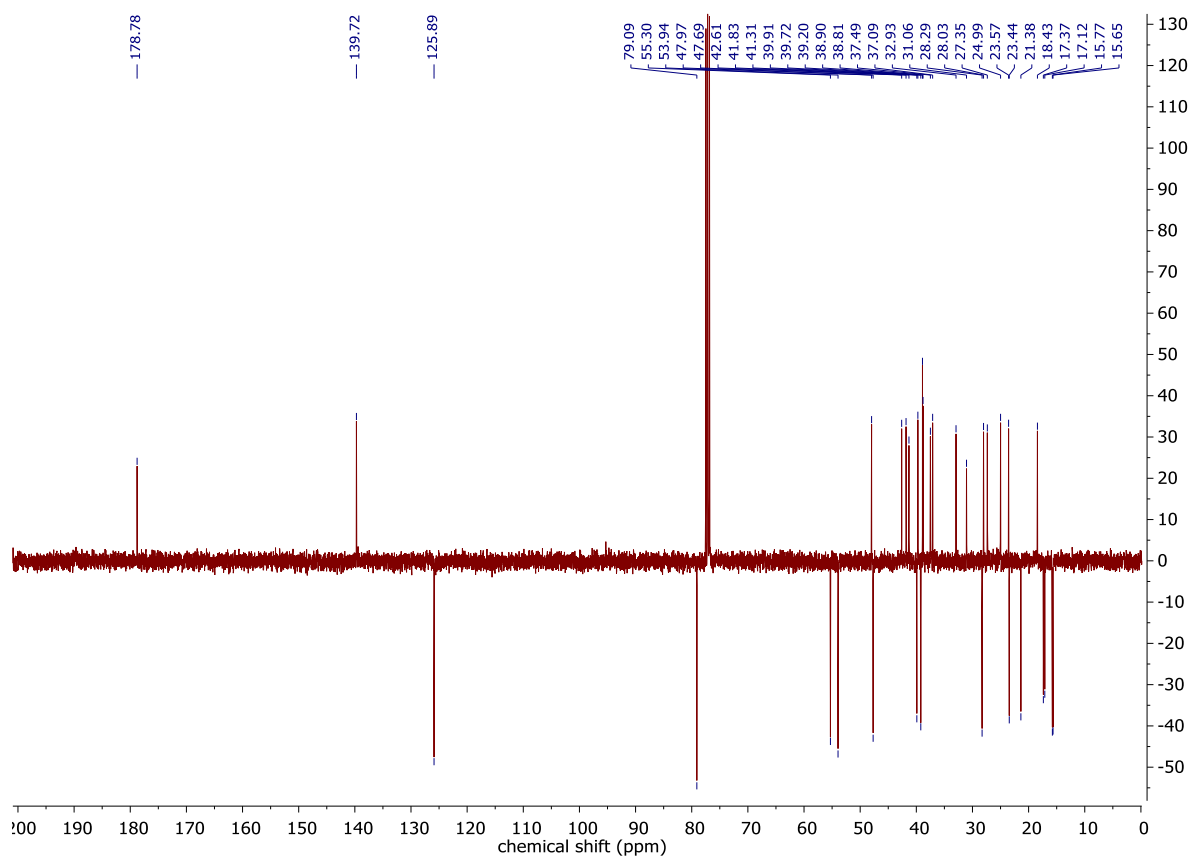
## NMR spectra of 9

### <sup>1</sup>H NMR



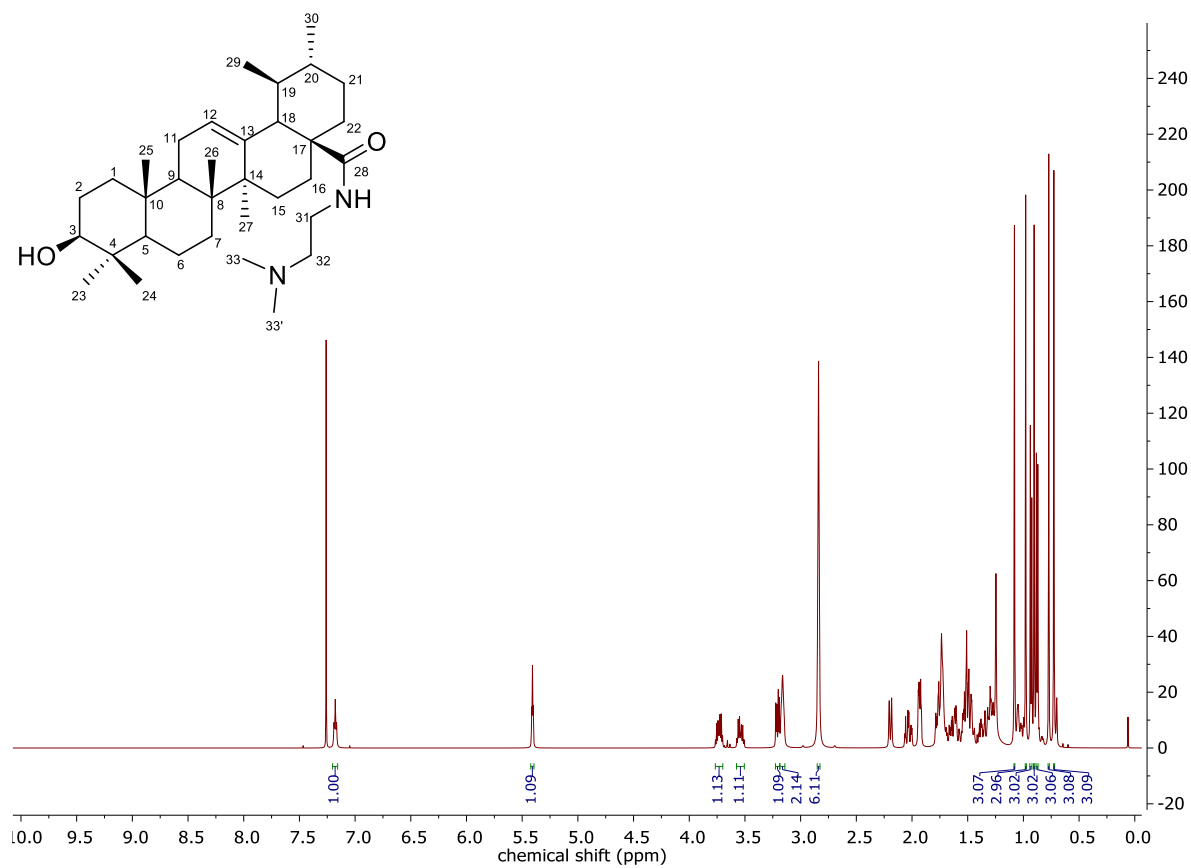
<sup>1</sup>H NMR

# <sup>13</sup>C NMR (APT)

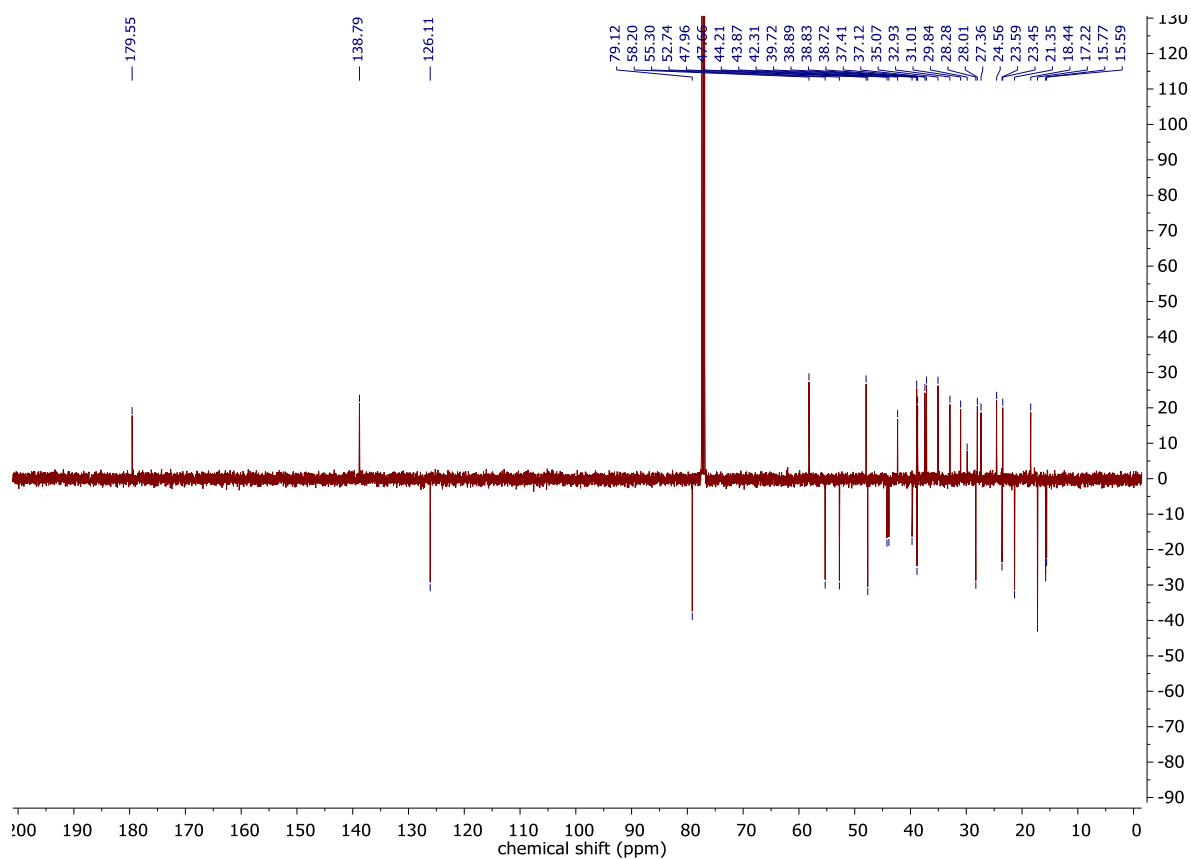


## NMR spectra of 11

### <sup>1</sup>H NMR

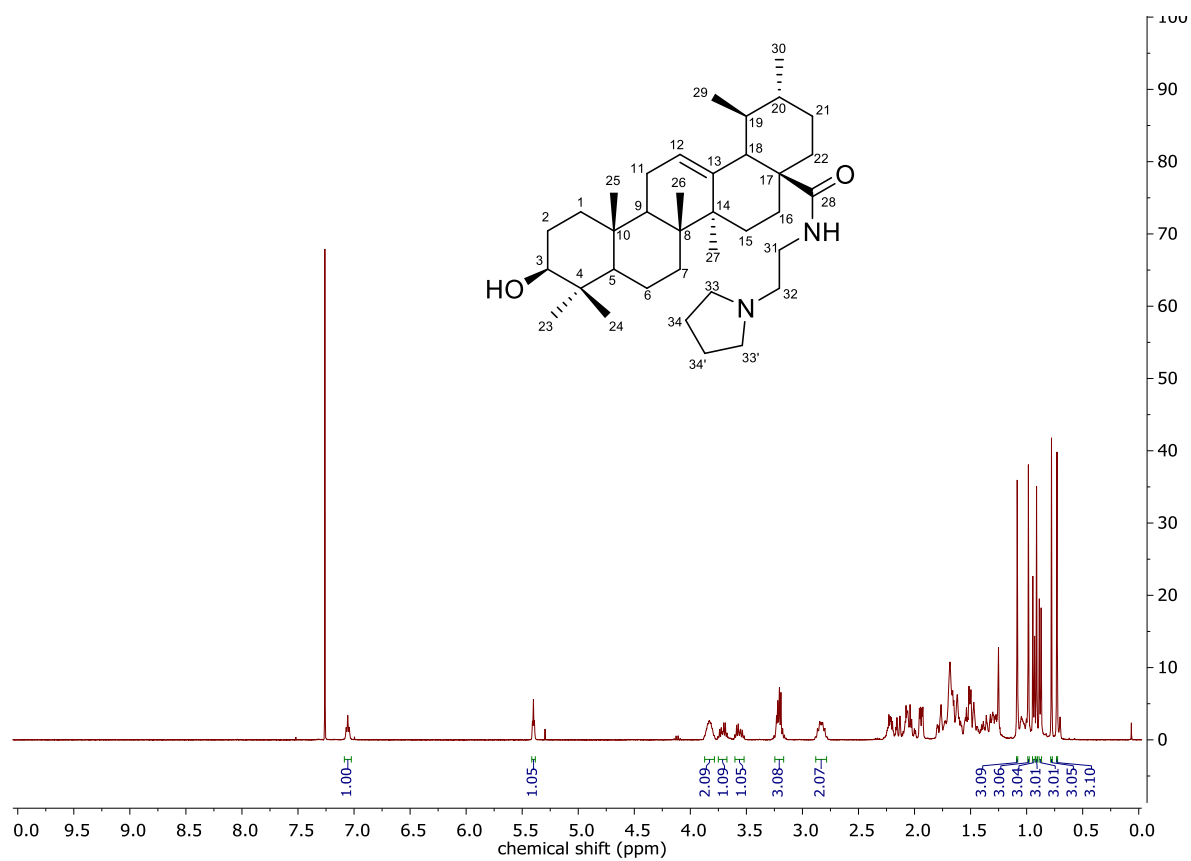


# <sup>13</sup>C NMR (APT)

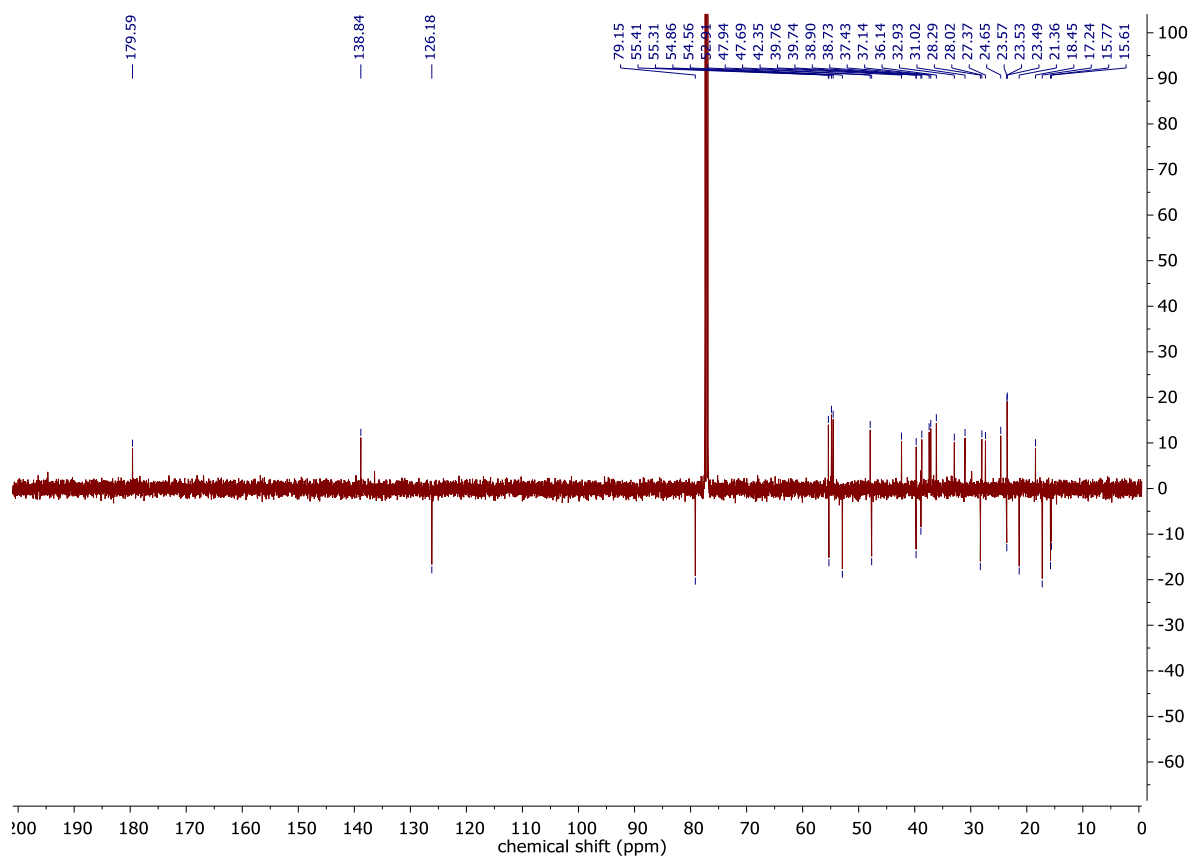


## NMR spectra of 12

### <sup>1</sup>H NMR

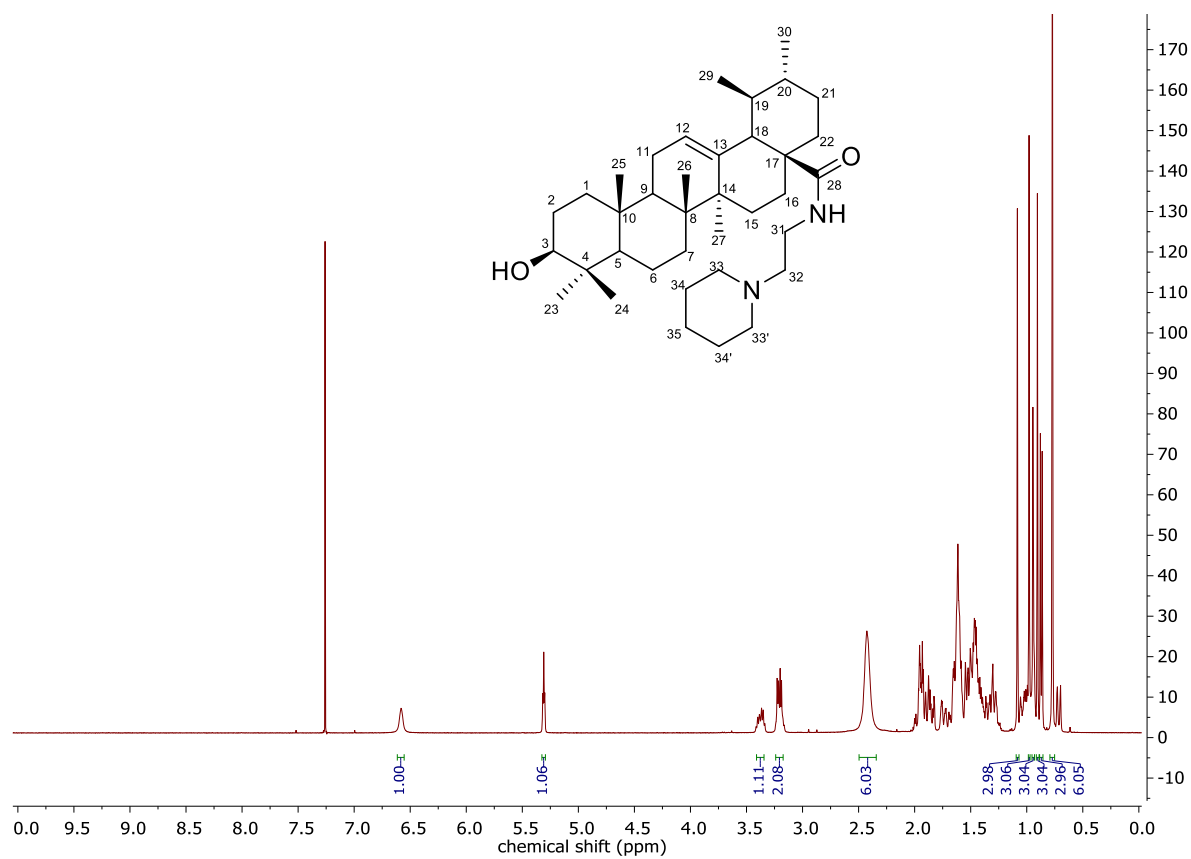


# <sup>13</sup>C NMR (APT)

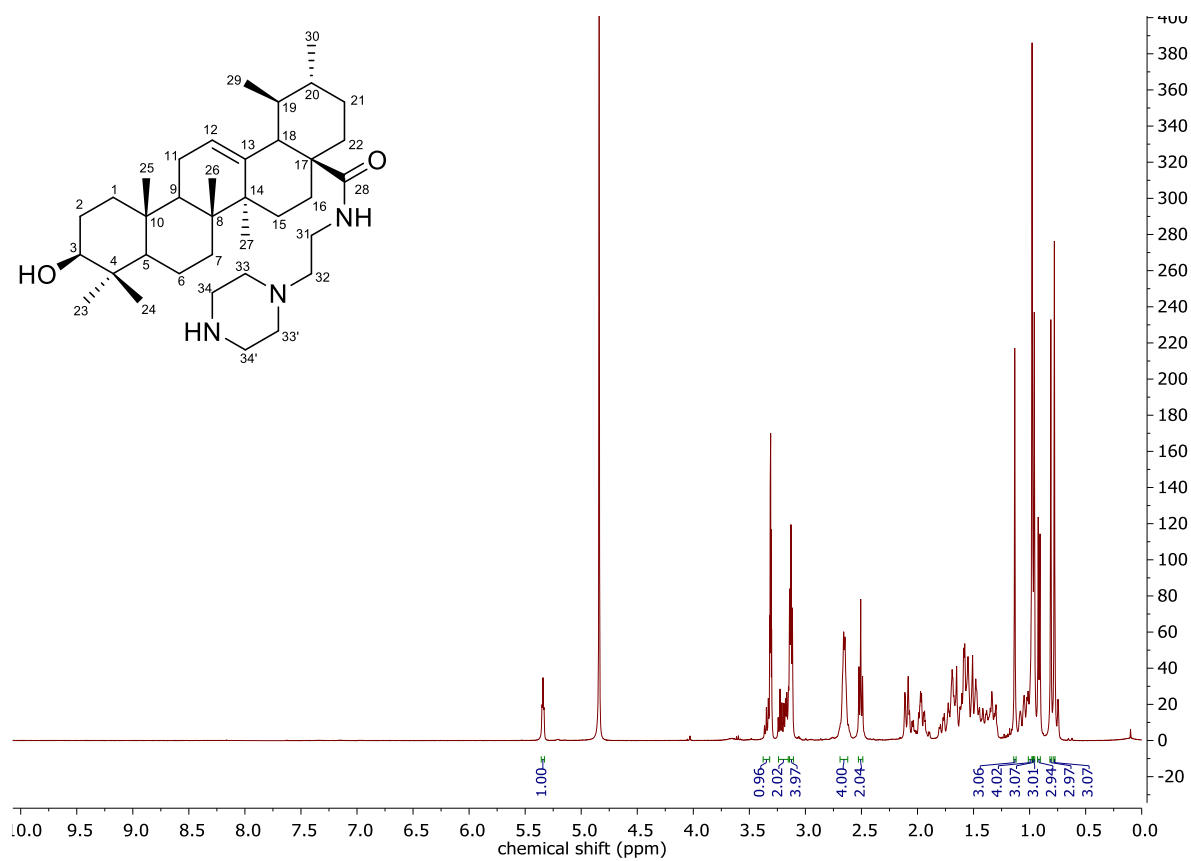


## NMR spectra of 13

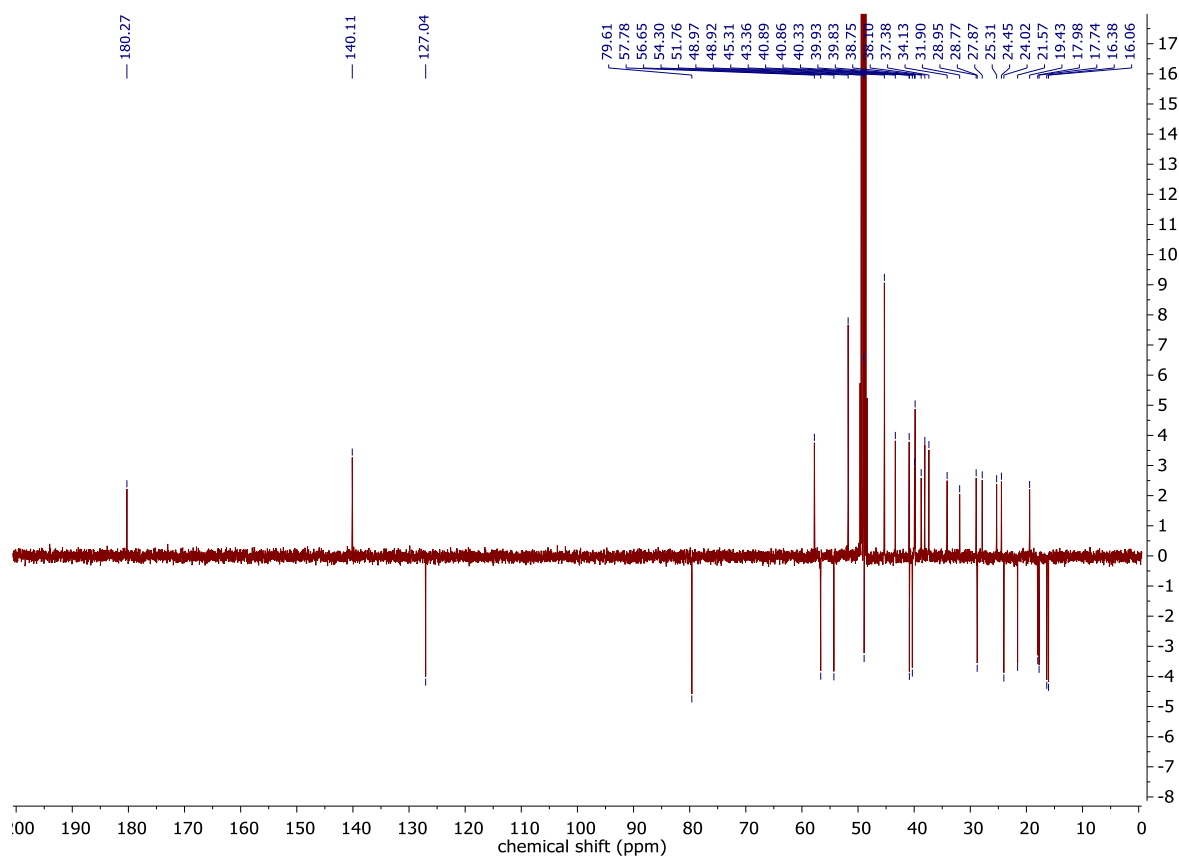
### <sup>1</sup>H NMR



Chemical shift (ppm): 178.04, 139.40, 125.75, 79.10, 57.16, 55.31, 54.44, 53.93, 47.86, 47.70, 42.53, 39.89, 39.71, 39.21, 38.90, 38.75, 37.47, 37.11, 35.91, 32.92, 31.10, 28.29, 28.01, 27.34, 25.97, 24.94, 24.35, 23.51, 23.44, 21.39, 18.44, 17.43, 17.08, 15.76, 15.60.

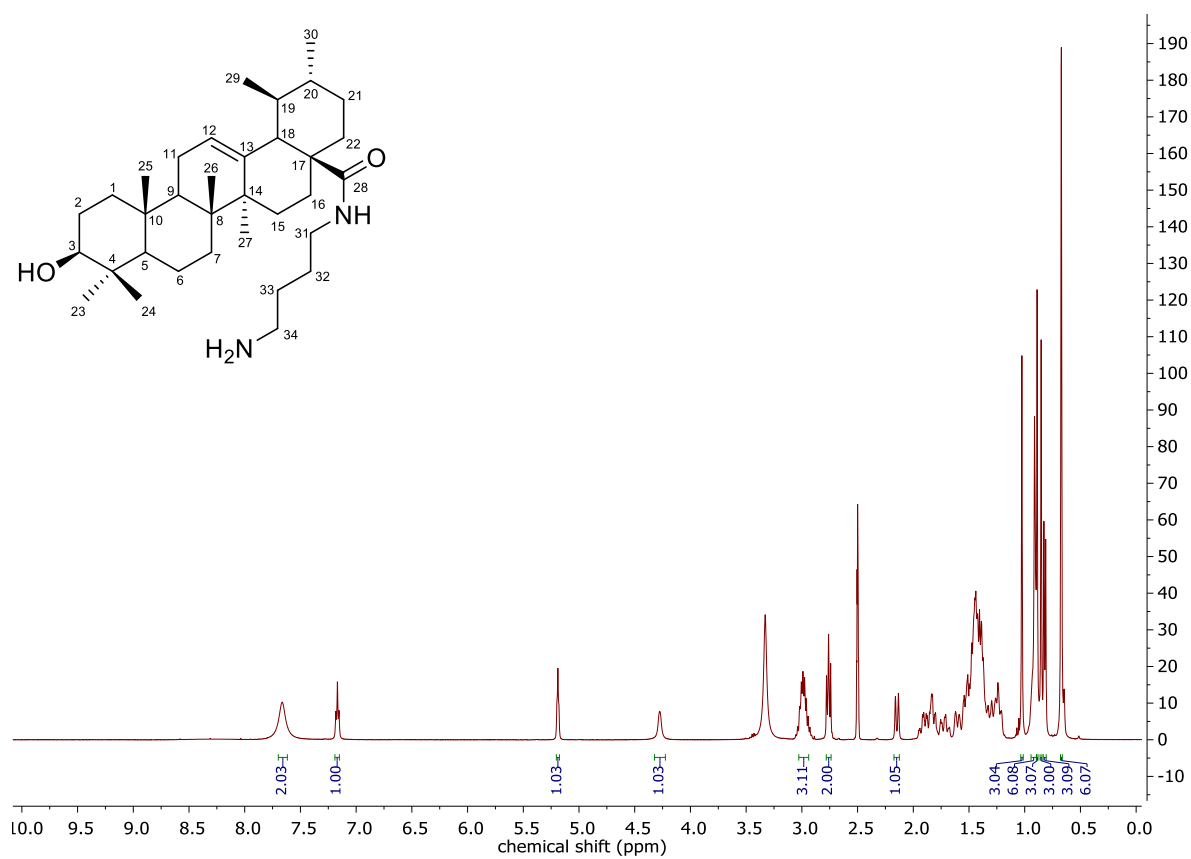
<sup>1</sup>H NMR

# $^{13}\text{C}$ NMR (APT)

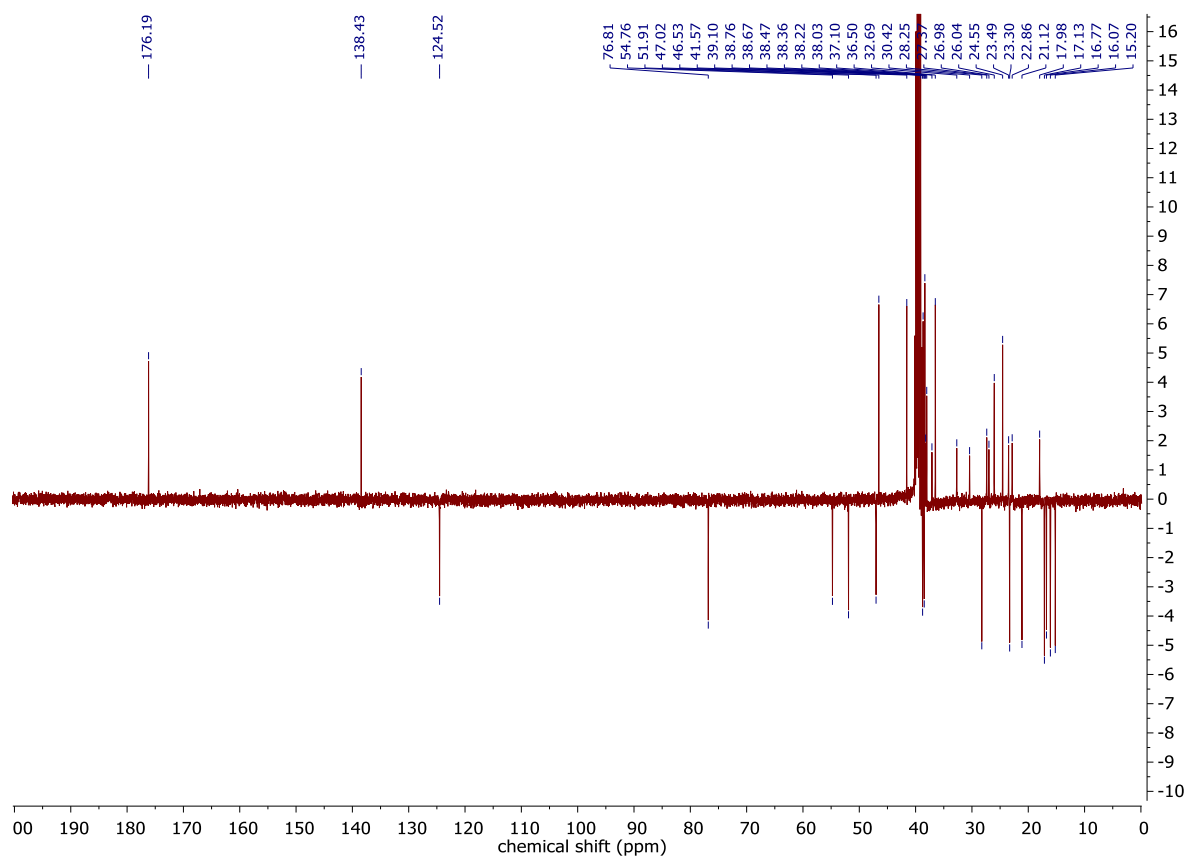


## NMR spectra of 15

### $^1\text{H}$ NMR

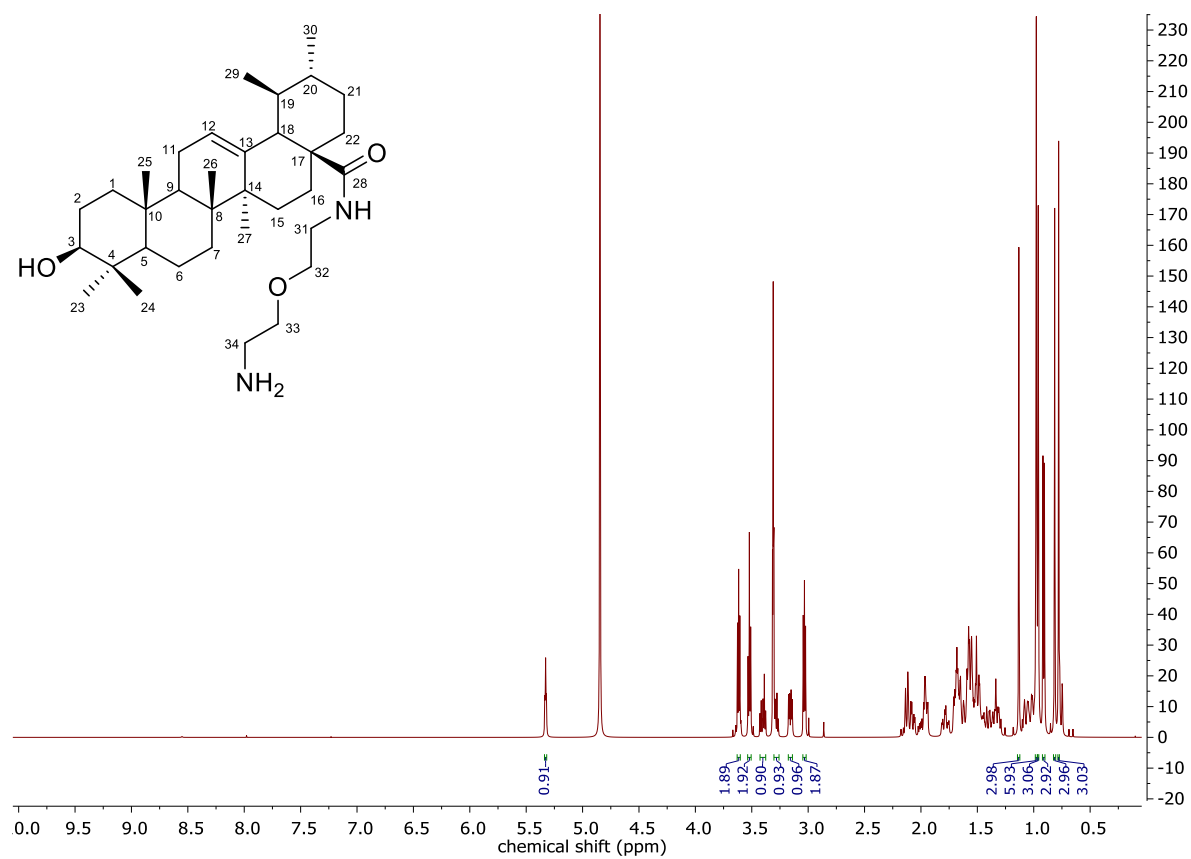


# <sup>13</sup>C NMR (APT)



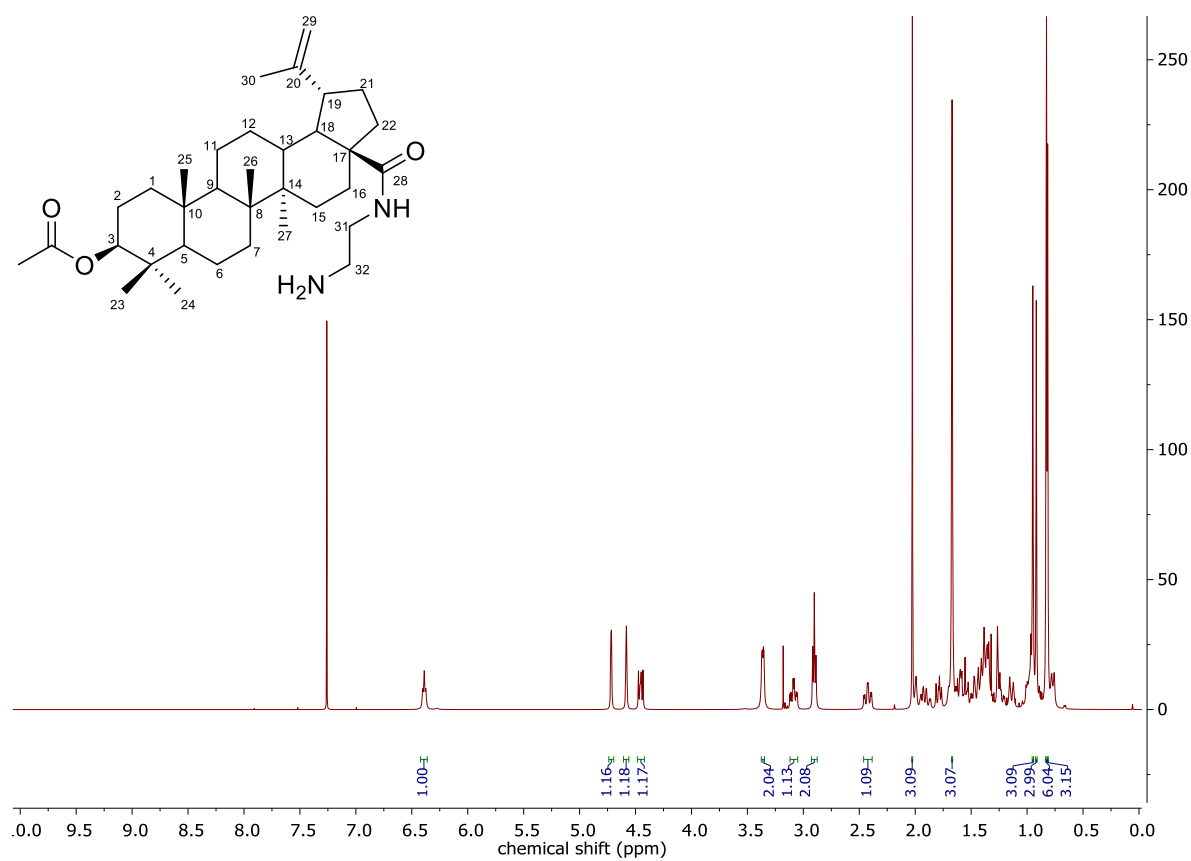
## NMR spectra of 16

### <sup>1</sup>H NMR

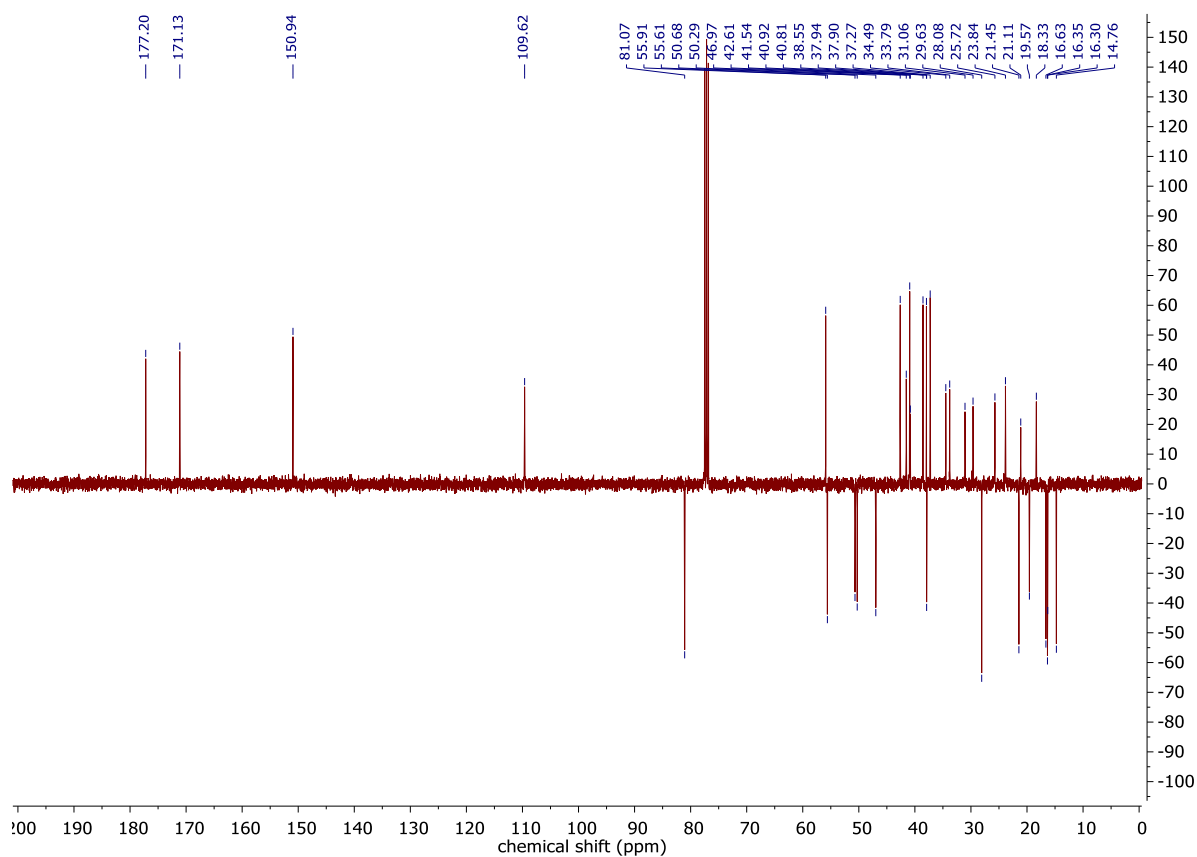


Chemical shifts (ppm) labeled on the right side of the spectrum:

- 79.62
- 70.76
- 68.92
- 56.67
- 54.23
- 49.17
- 48.93
- 43.34
- 40.94
- 40.89
- 40.83
- 40.34
- 40.17
- 39.96
- 39.83
- 36.76
- 38.10
- 34.17
- 31.90
- 28.96
- 28.77
- 27.88
- 25.27
- 24.42
- 24.03
- 21.56
- 19.44
- 17.93
- 17.72
- 16.38
- 16.05

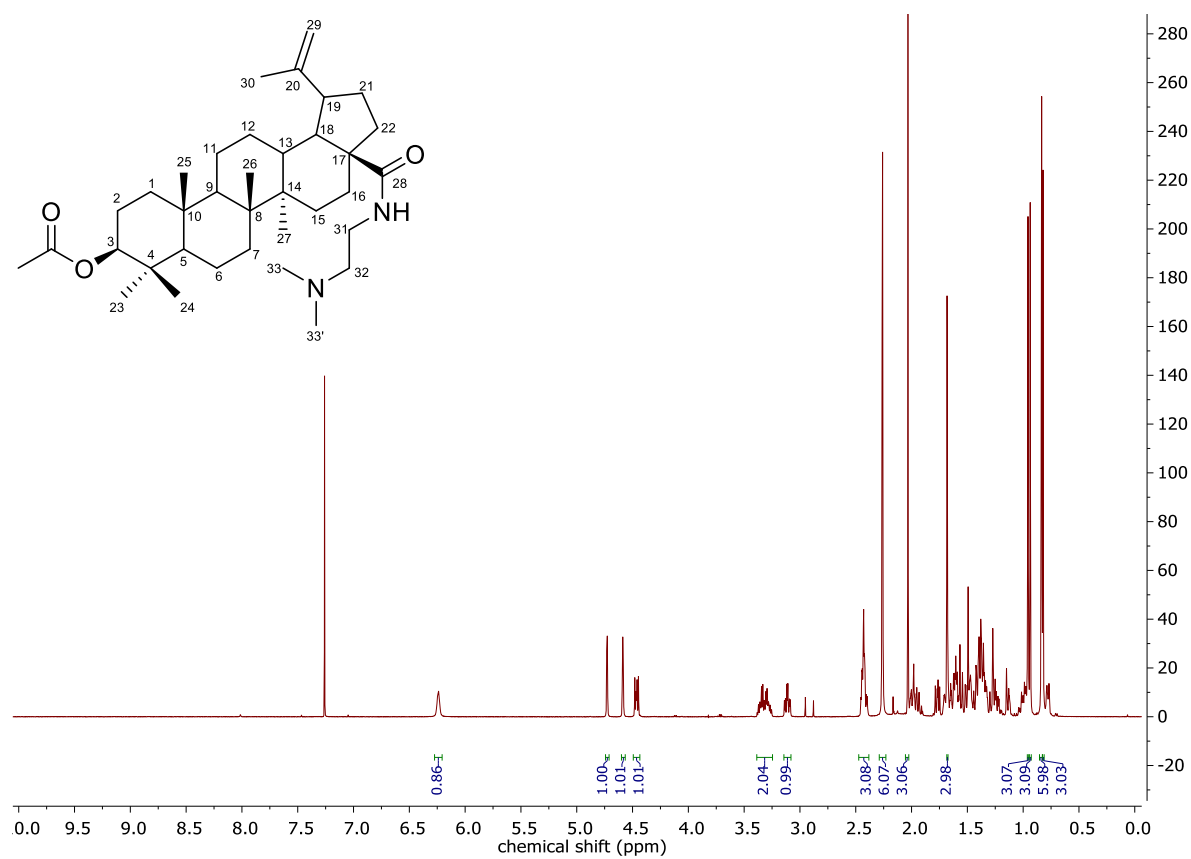
<sup>1</sup>H NMR

# <sup>13</sup>C NMR (APT)

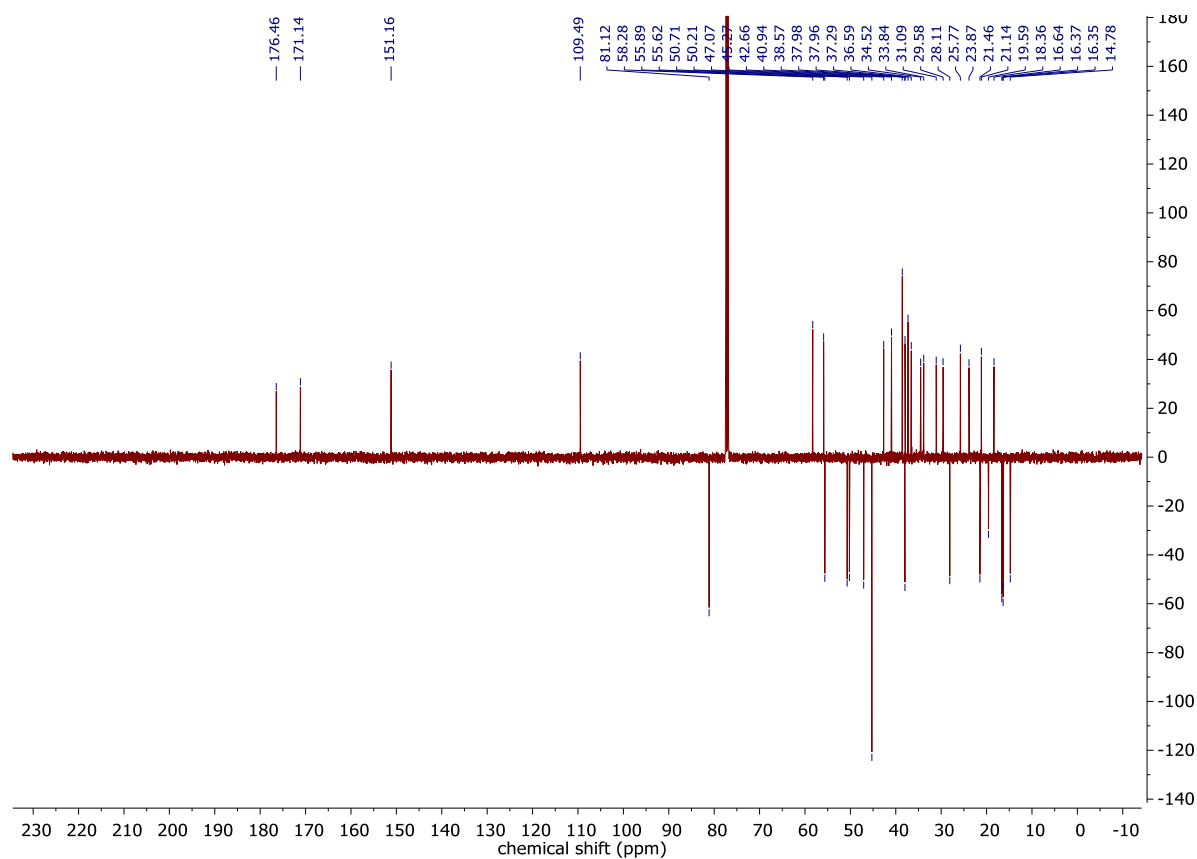


## NMR spectra of 18

### <sup>1</sup>H NMR

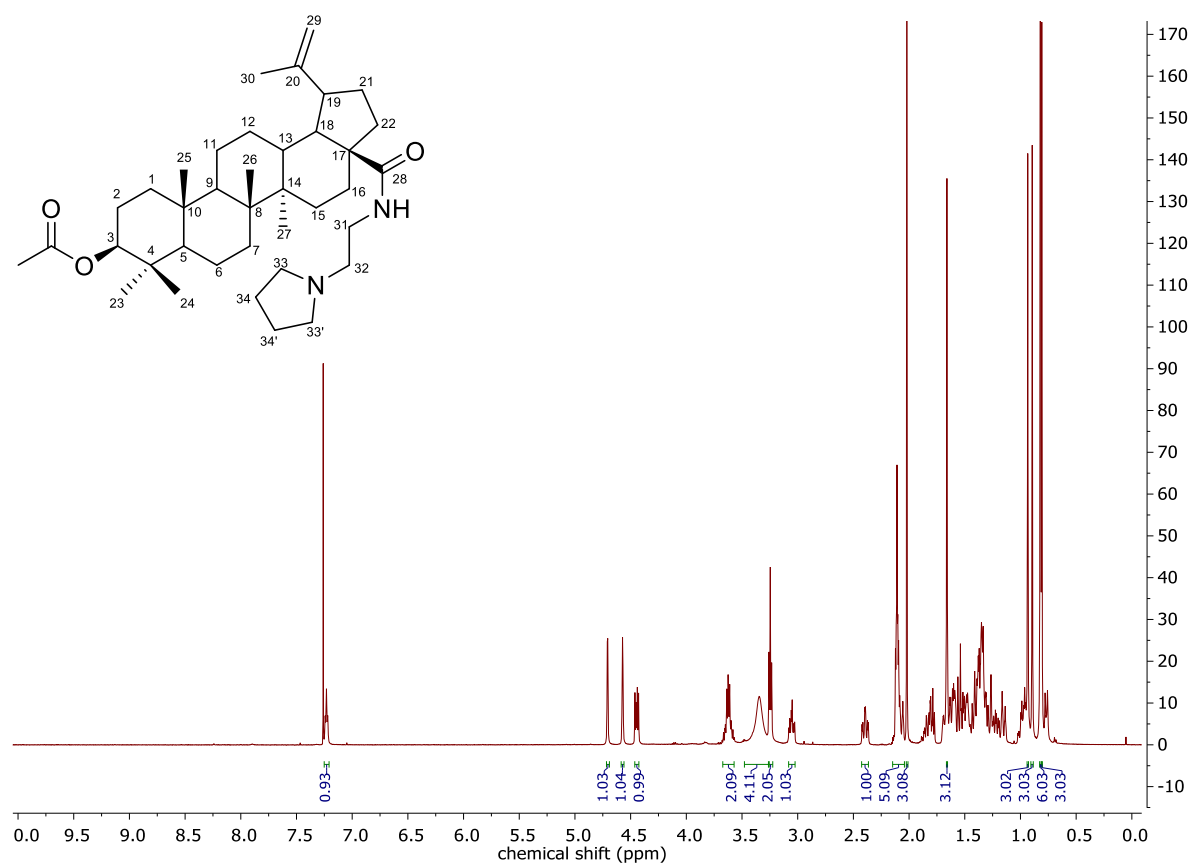


# <sup>13</sup>C NMR (APT)

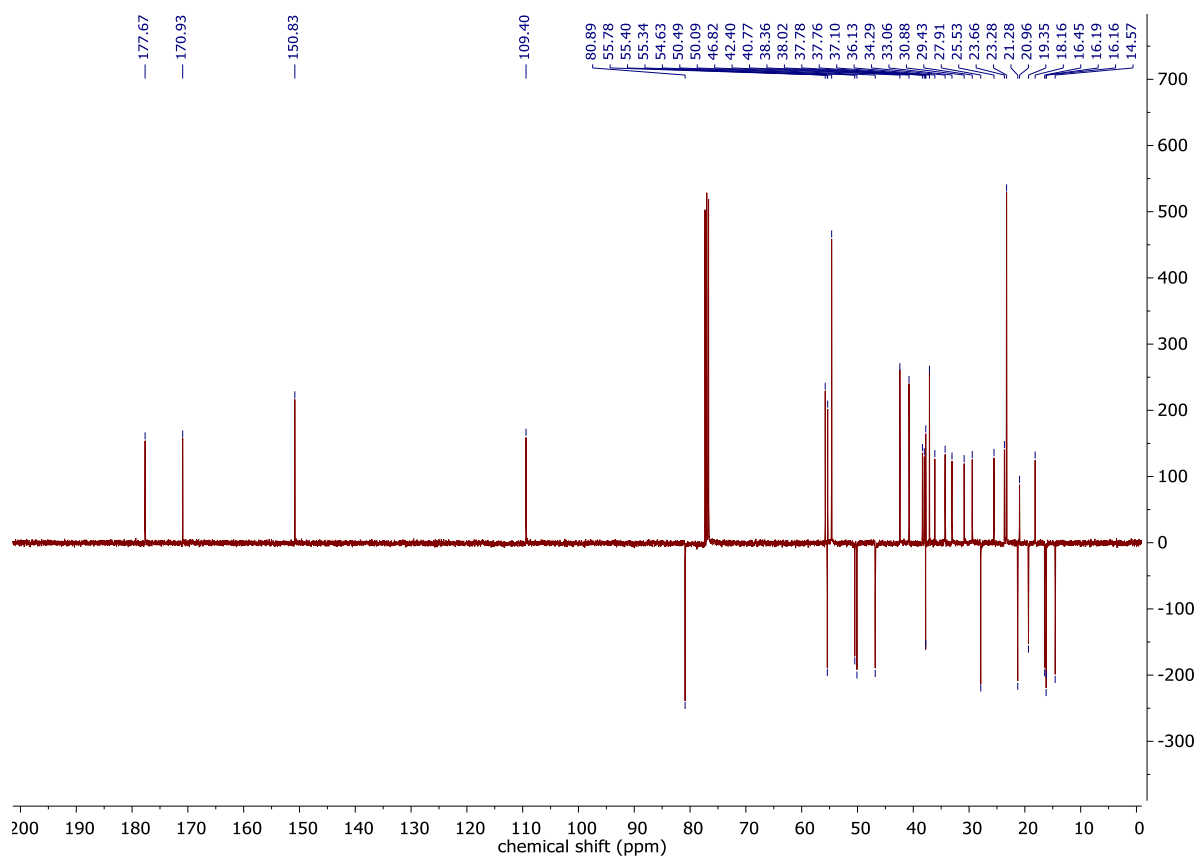


## NMR spectra of 19

### <sup>1</sup>H NMR

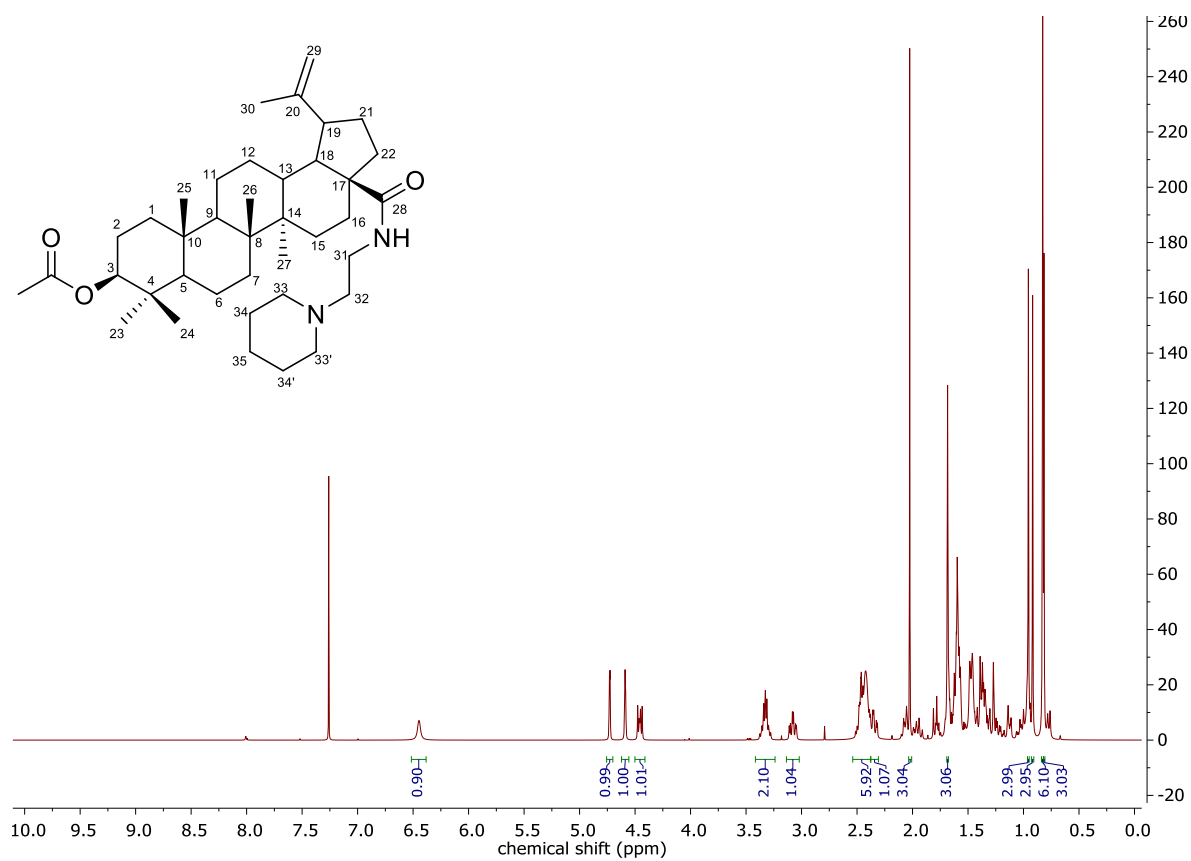


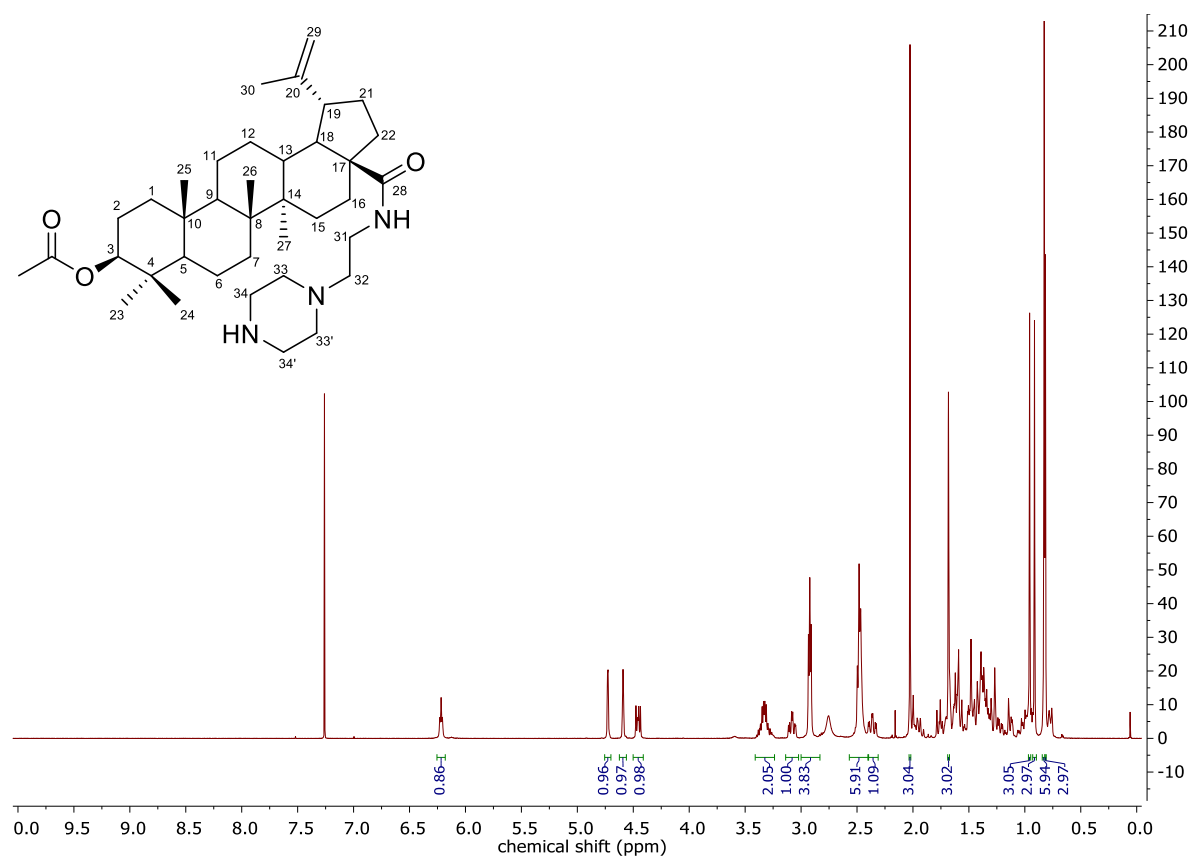
# <sup>13</sup>C NMR (APT)



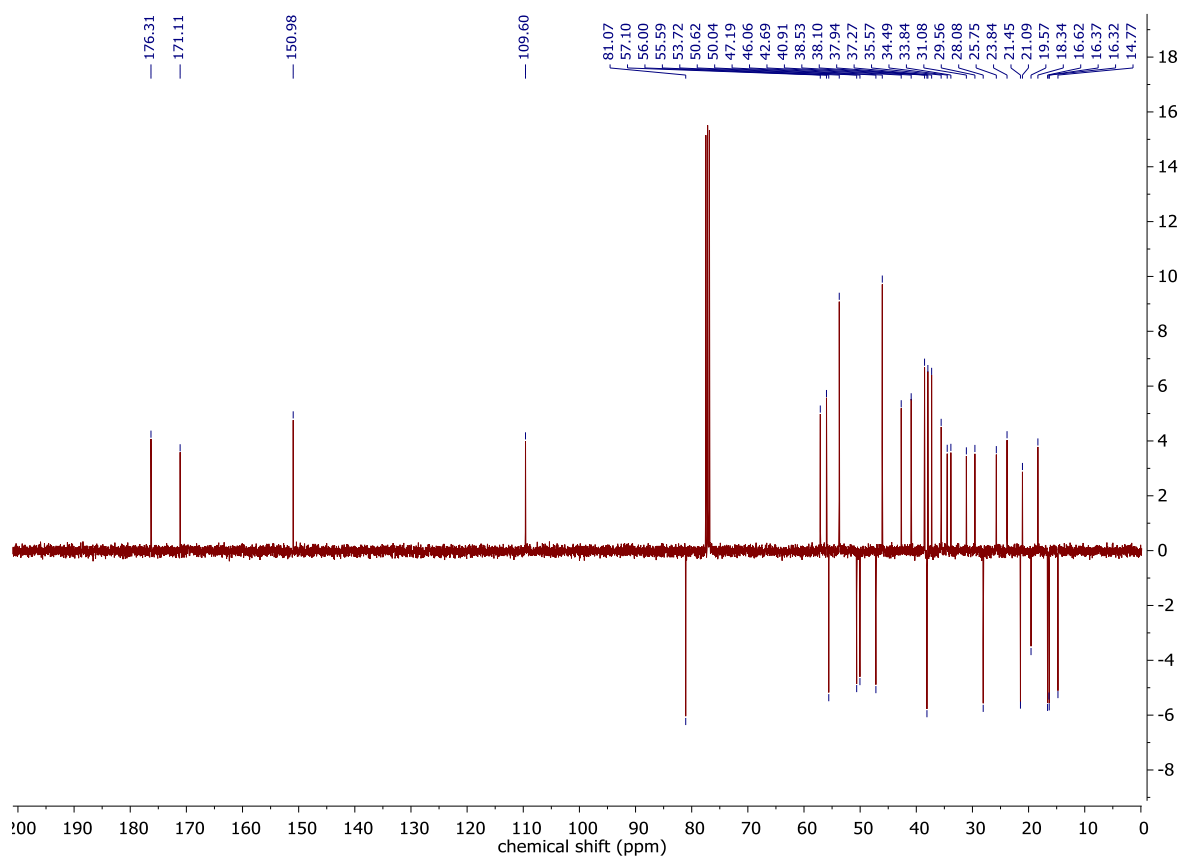
## NMR spectra of 20

### <sup>1</sup>H NMR



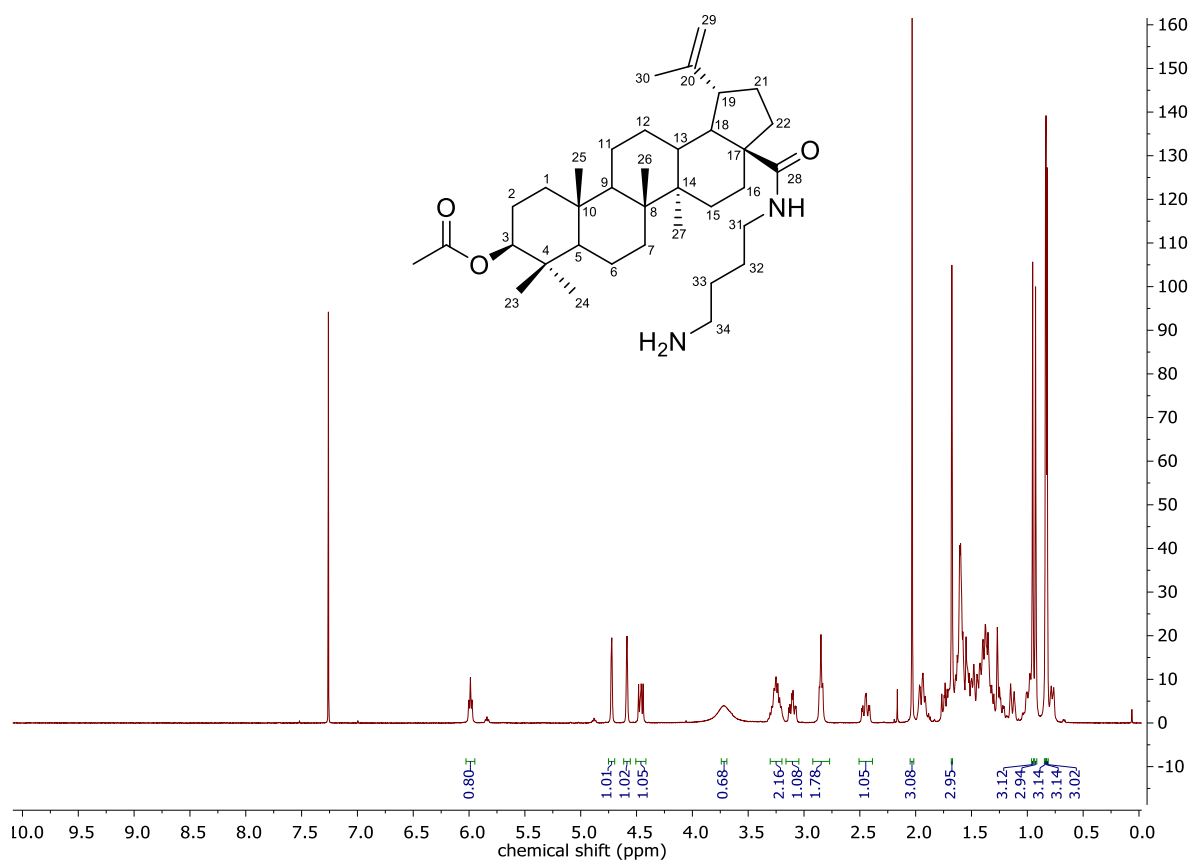
<sup>1</sup>H NMR

# <sup>13</sup>C NMR (APT)

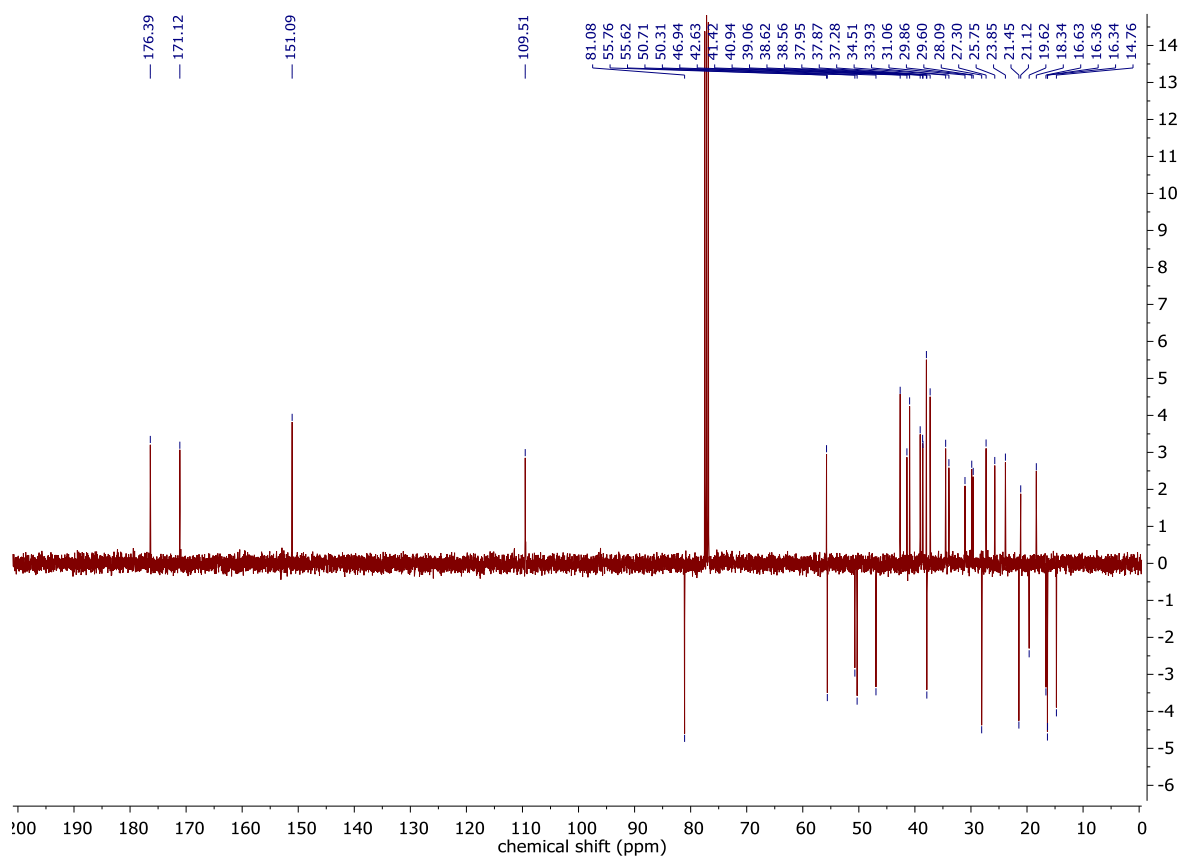


## NMR spectra of 22

### <sup>1</sup>H NMR

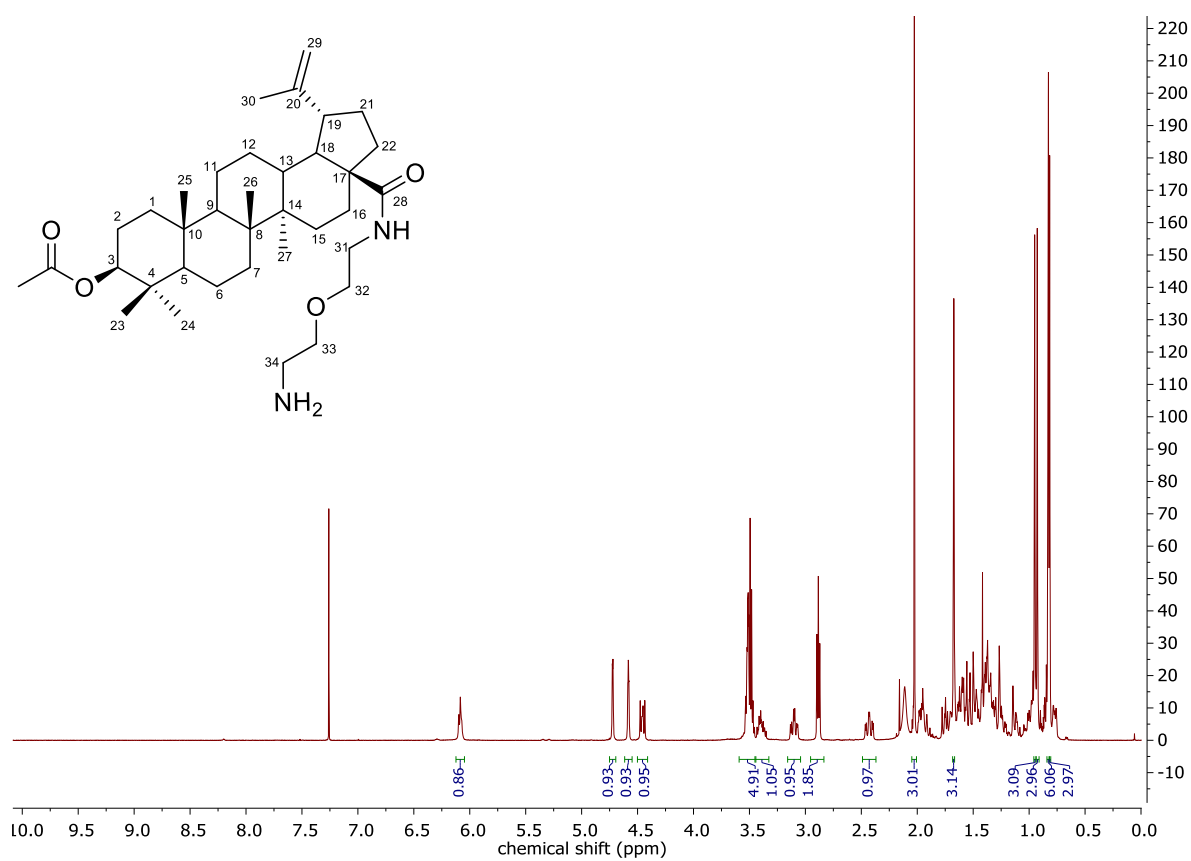


# <sup>13</sup>C NMR (APT)

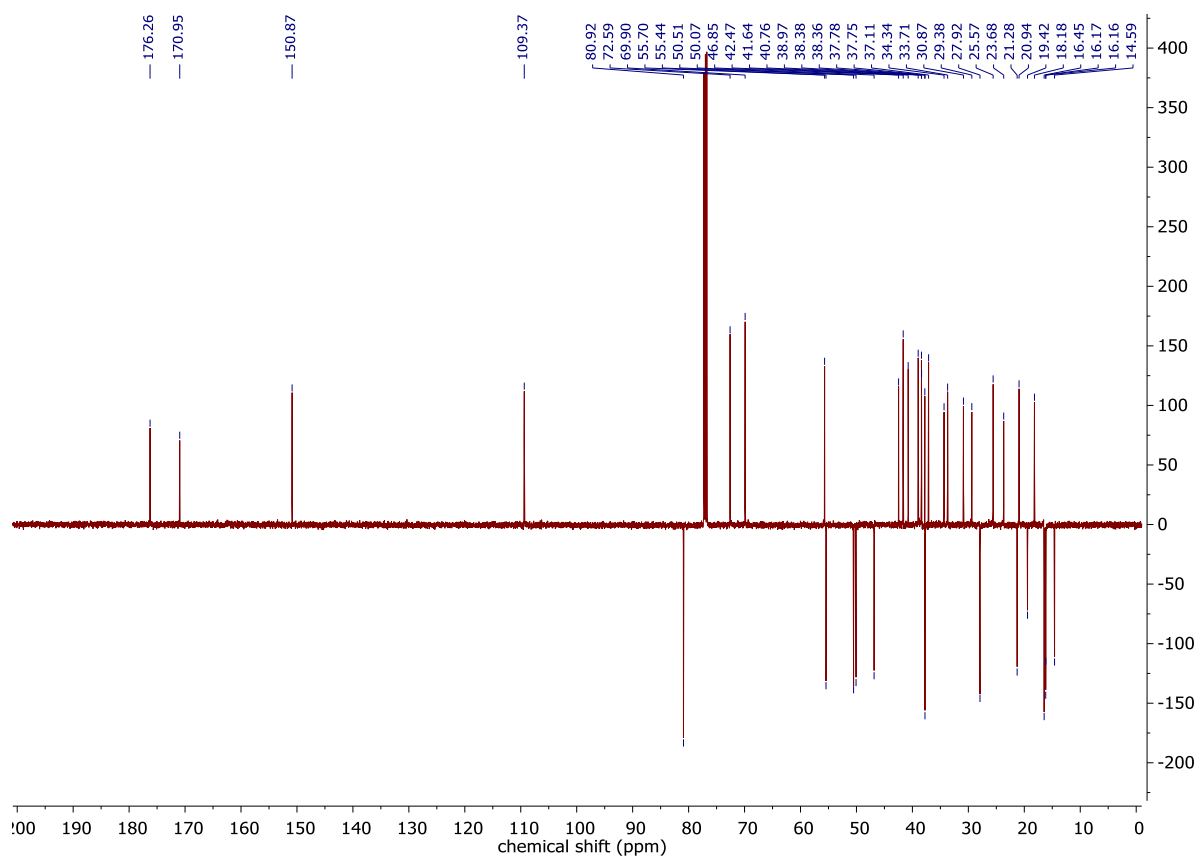


## NMR spectra of 23

### <sup>1</sup>H NMR

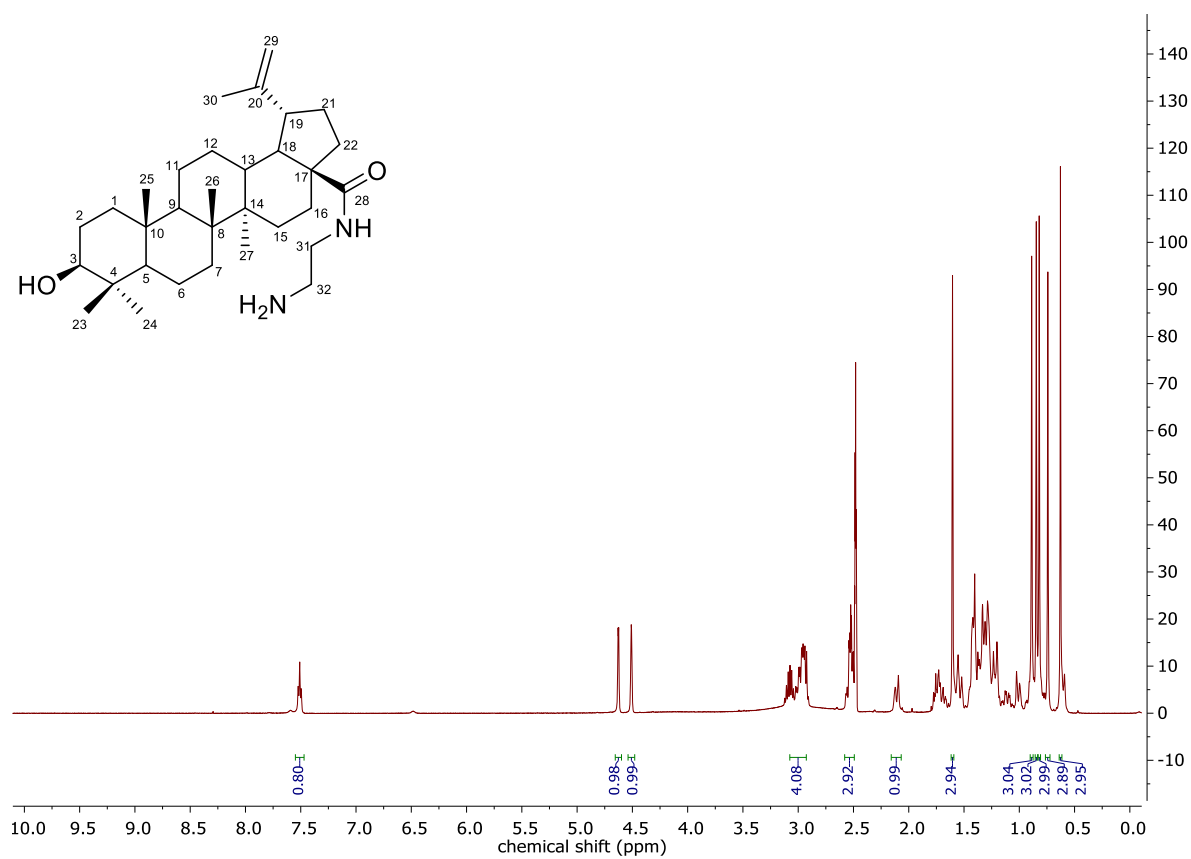


# <sup>13</sup>C NMR (APT)

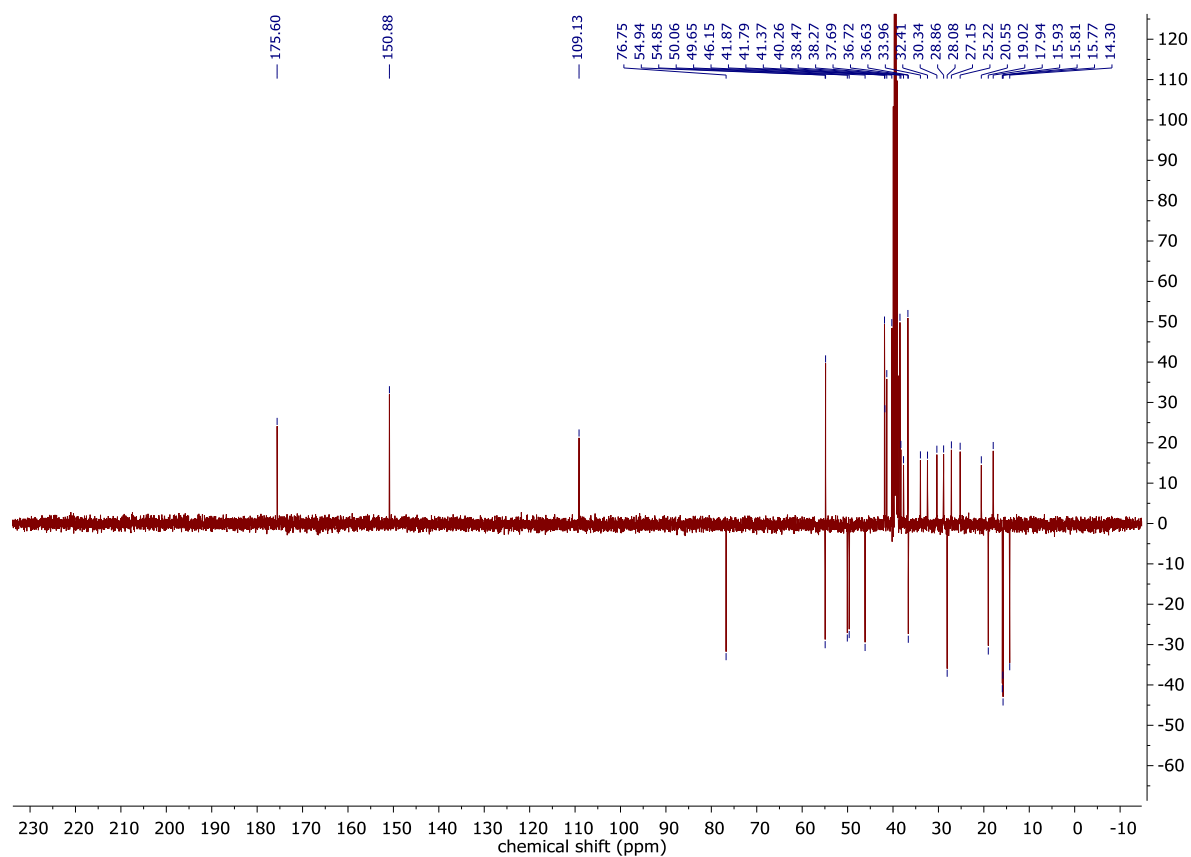


## NMR spectra of 24

### <sup>1</sup>H NMR

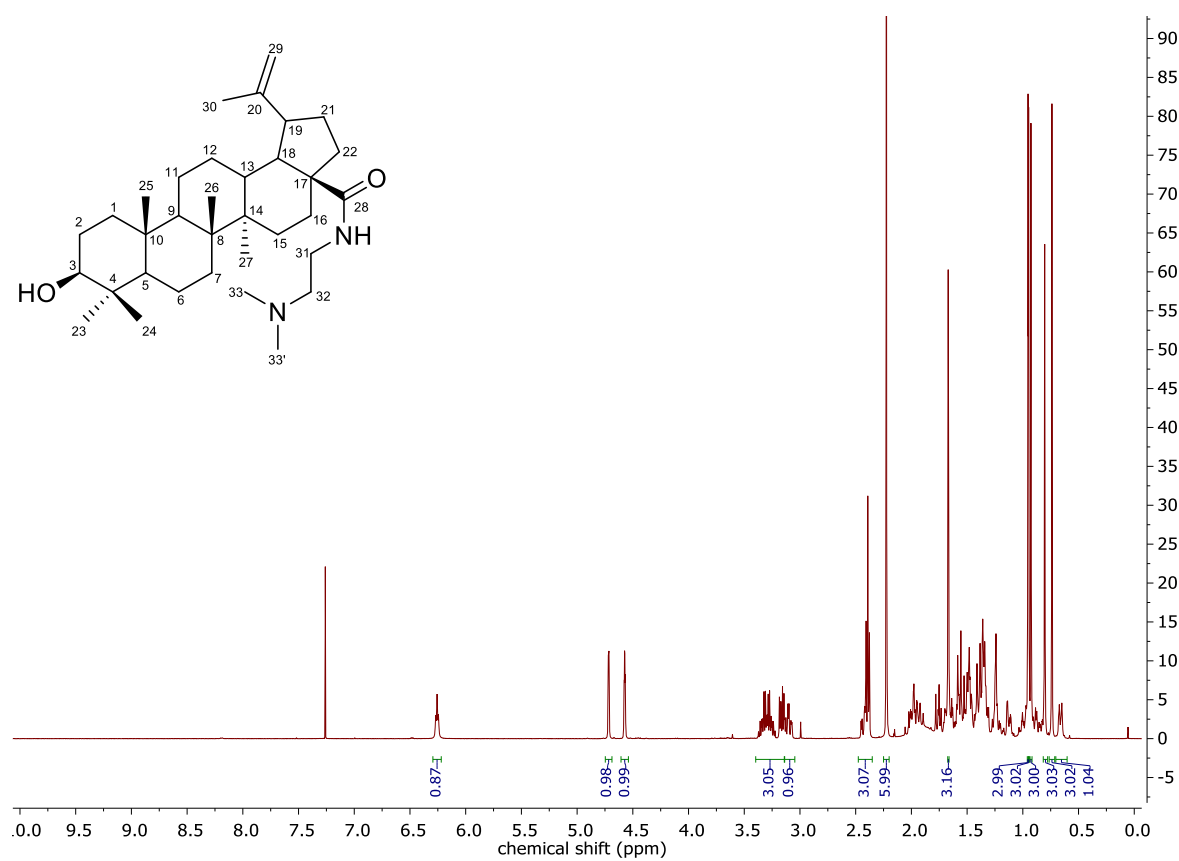


# <sup>13</sup>C NMR (APT)

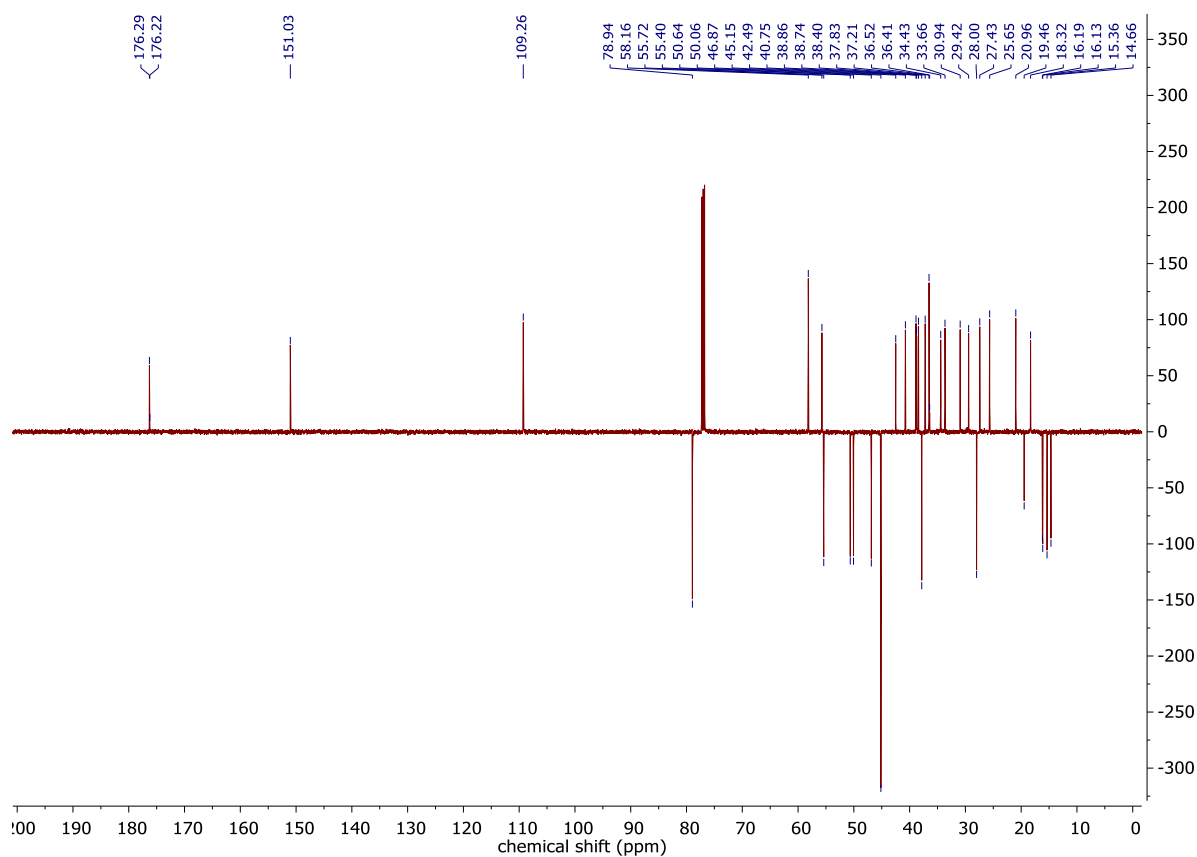


## NMR spectra of 25

### <sup>1</sup>H NMR

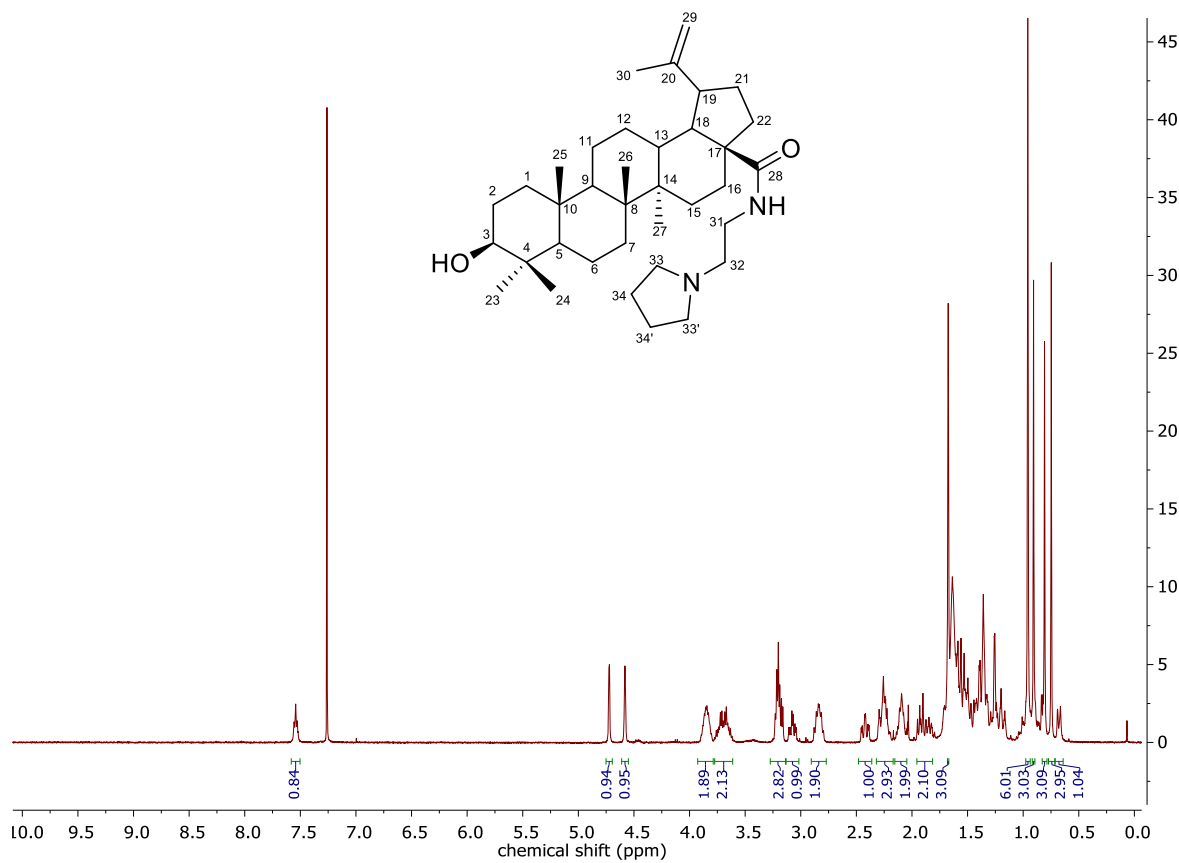


# <sup>13</sup>C NMR (APT)

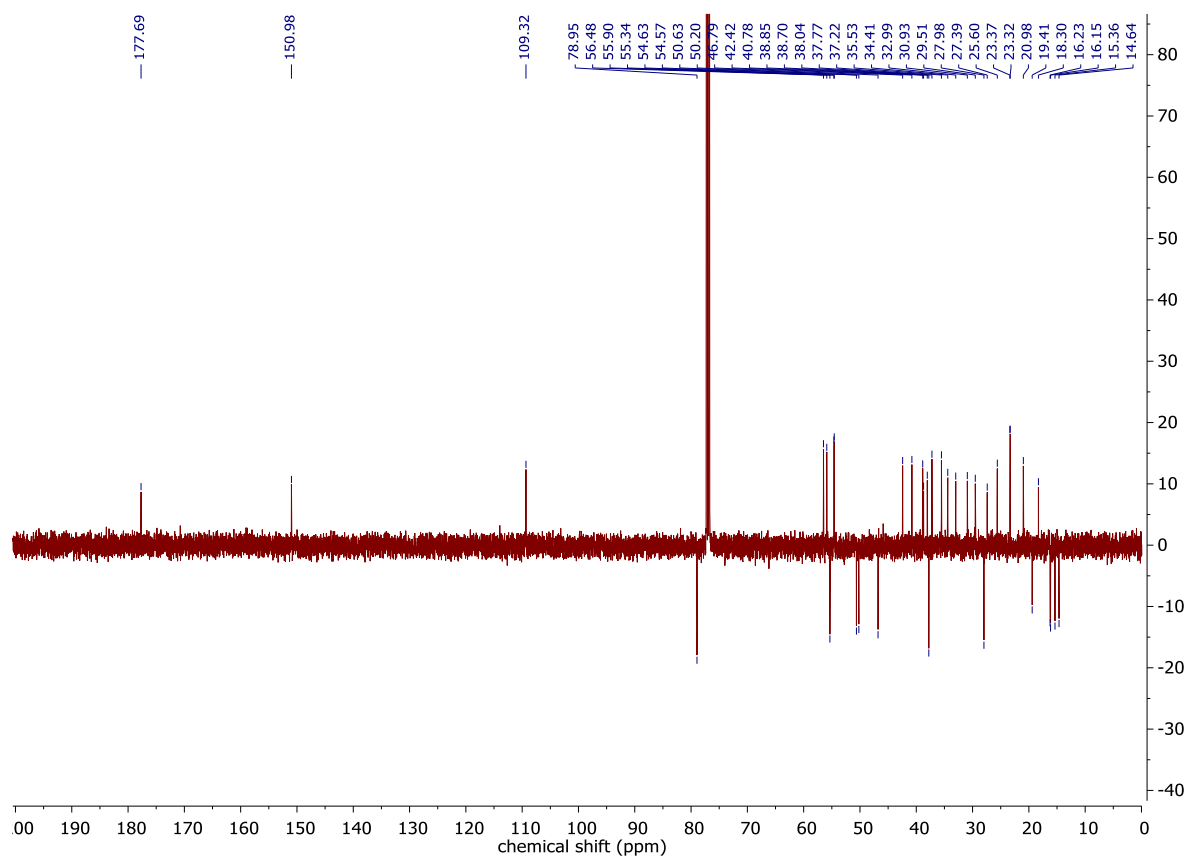


## NMR spectra of 26

### <sup>1</sup>H NMR

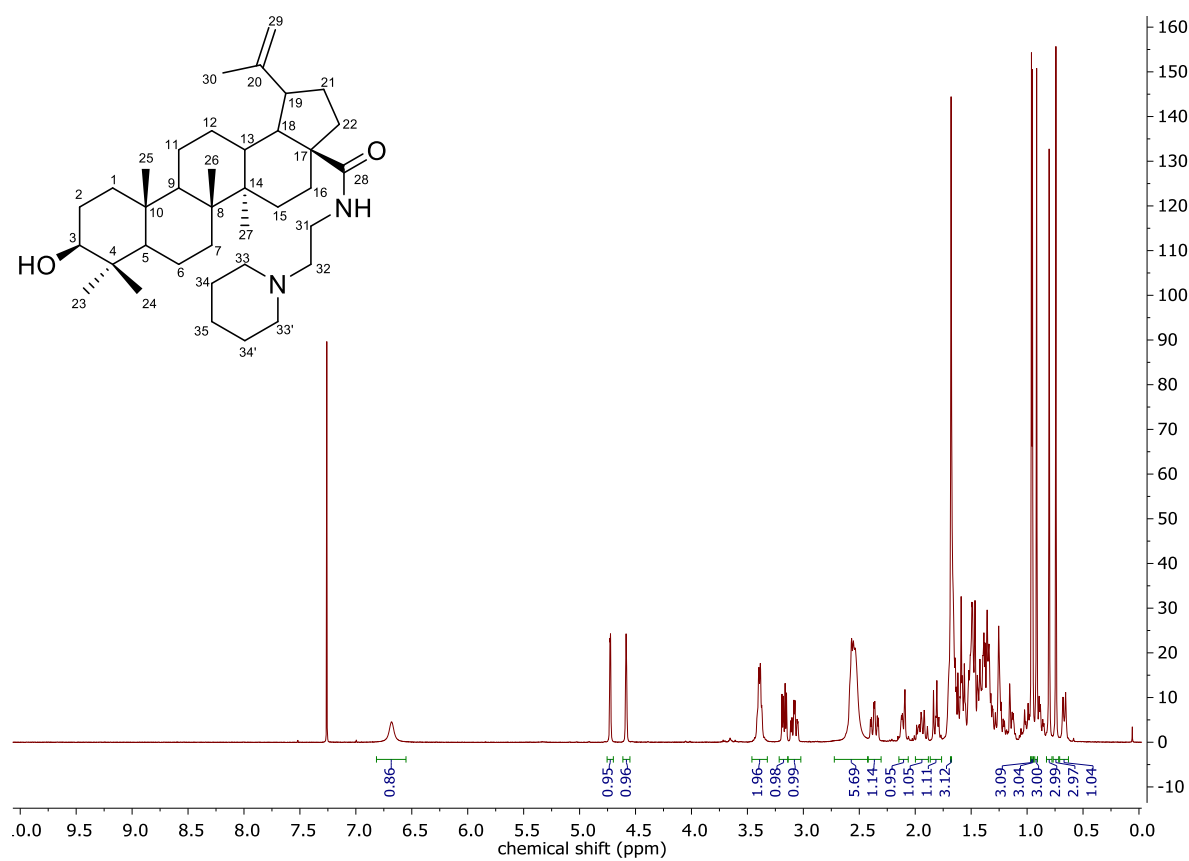


# <sup>13</sup>C NMR (APT)

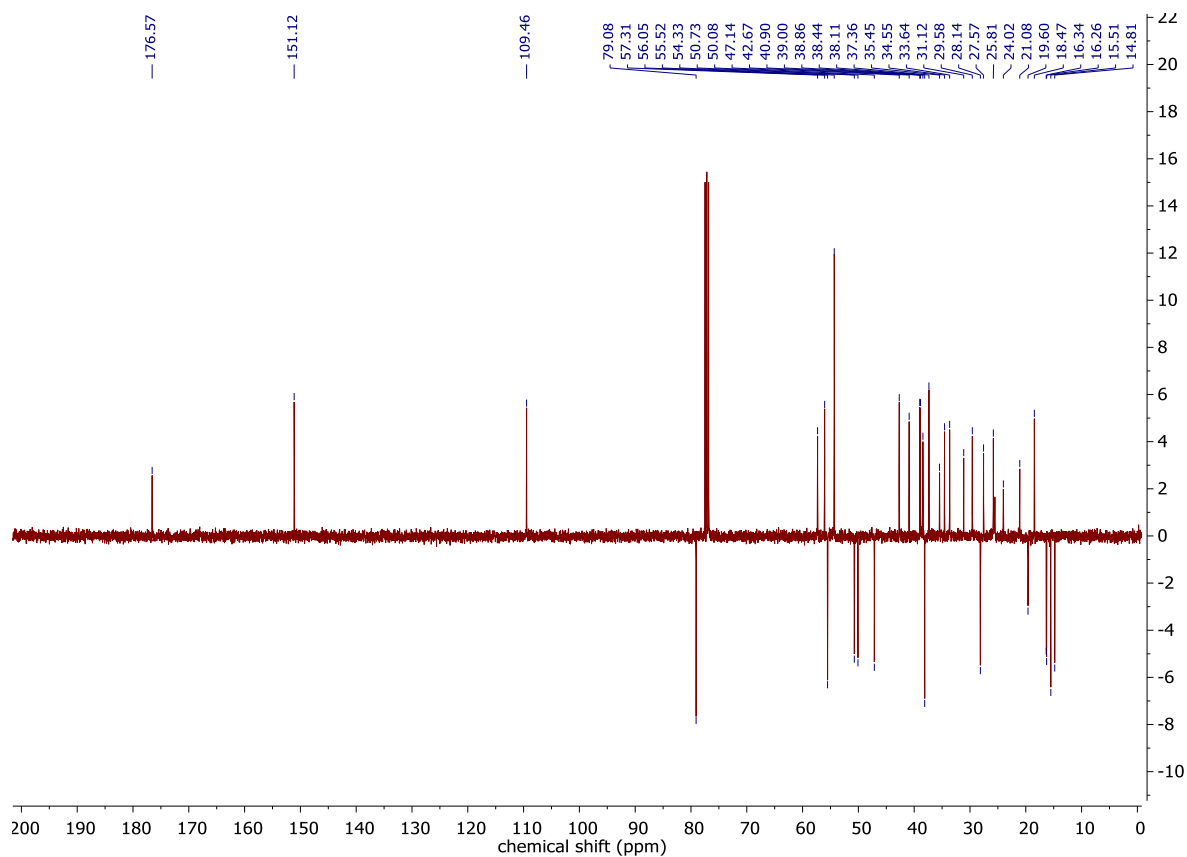


## NMR spectra of 27

### <sup>1</sup>H NMR

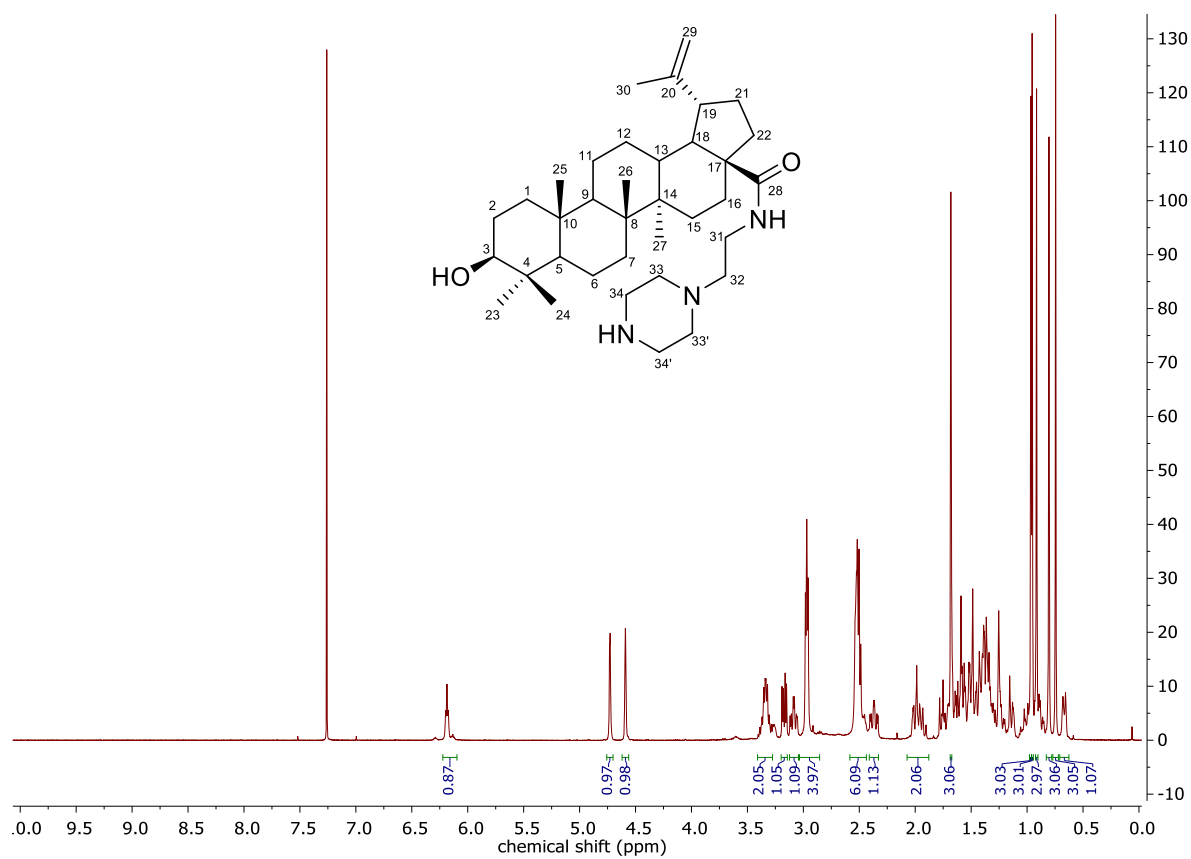


# <sup>13</sup>C NMR (APT)

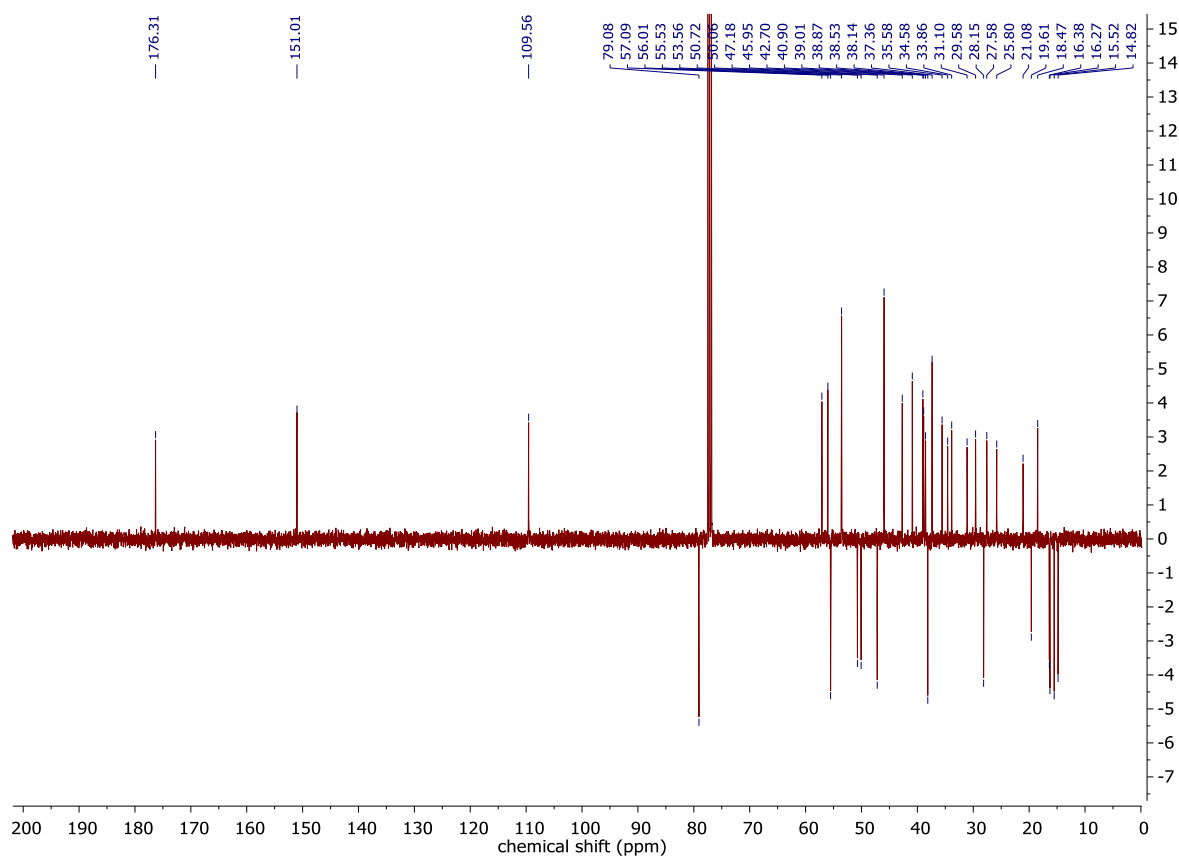


## NMR spectra of 28

### <sup>1</sup>H NMR

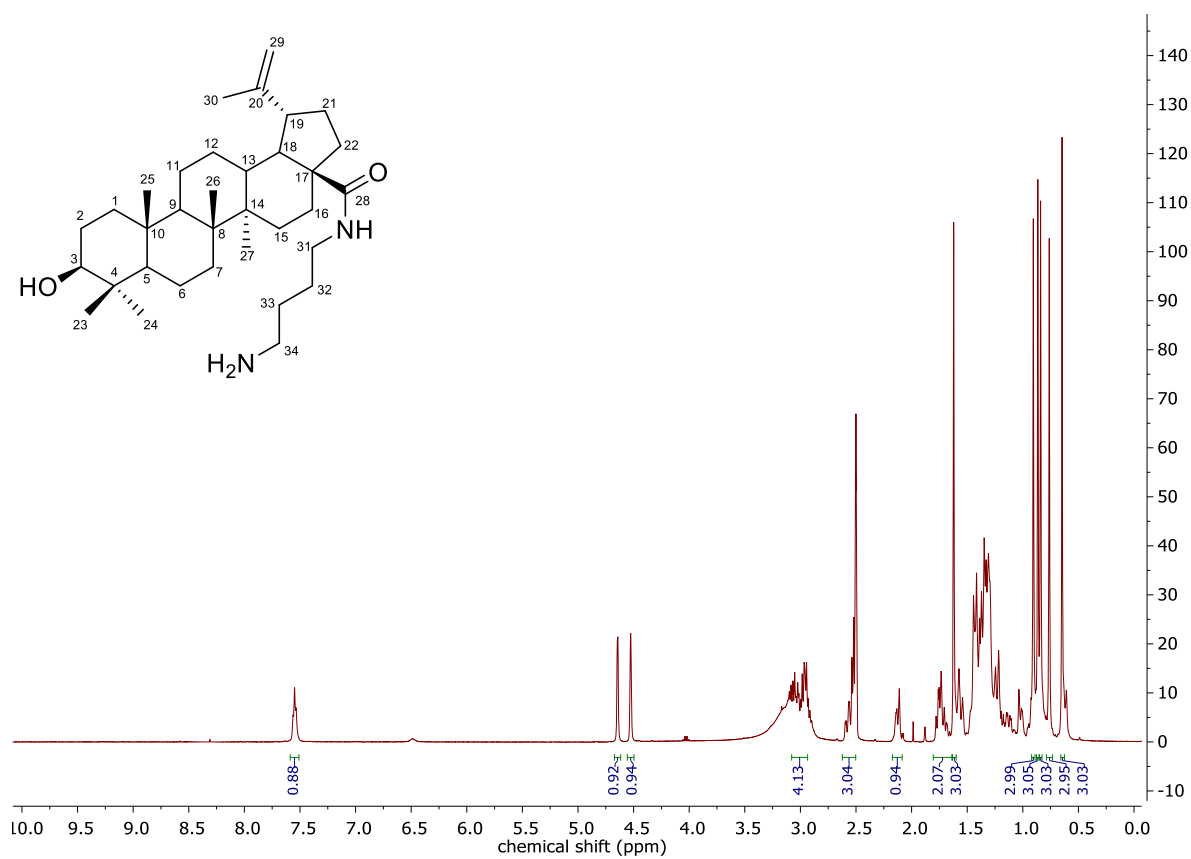


# <sup>13</sup>C NMR (APT)

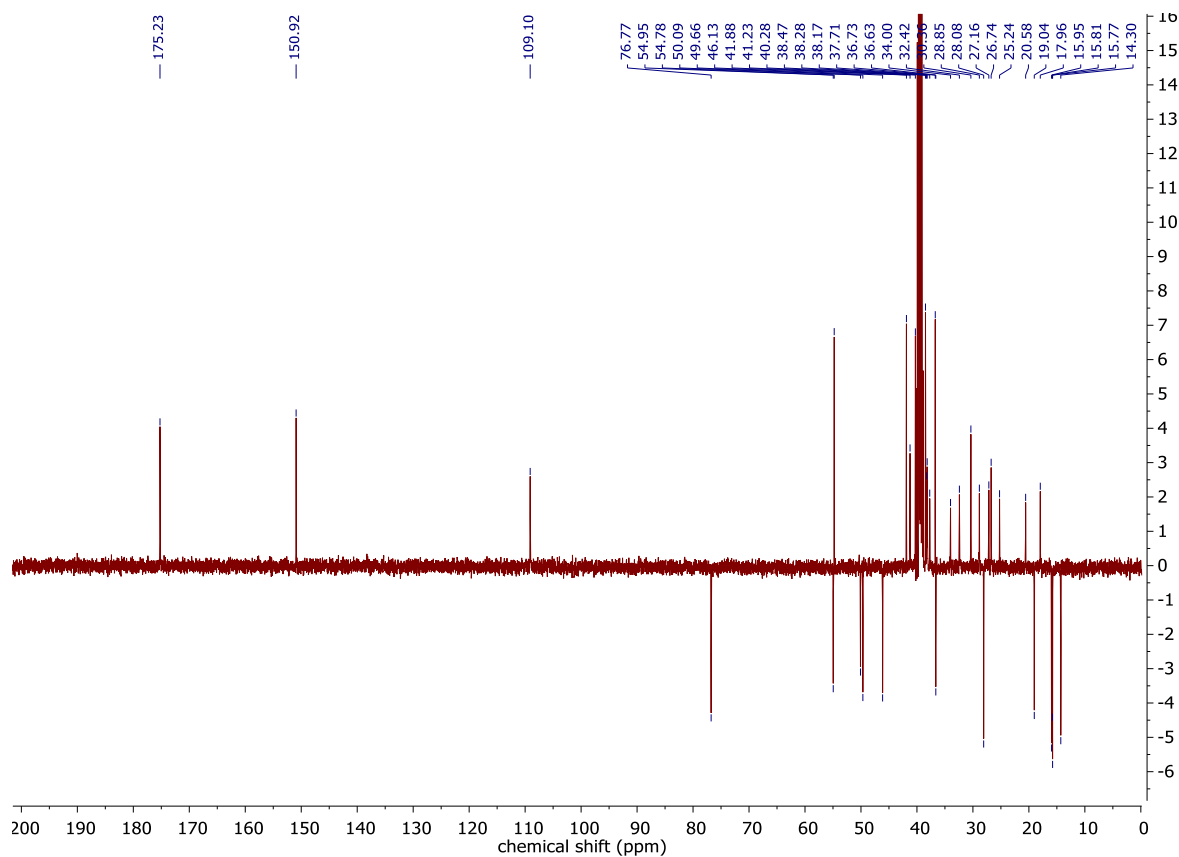


## NMR spectra of 29

### <sup>1</sup>H NMR

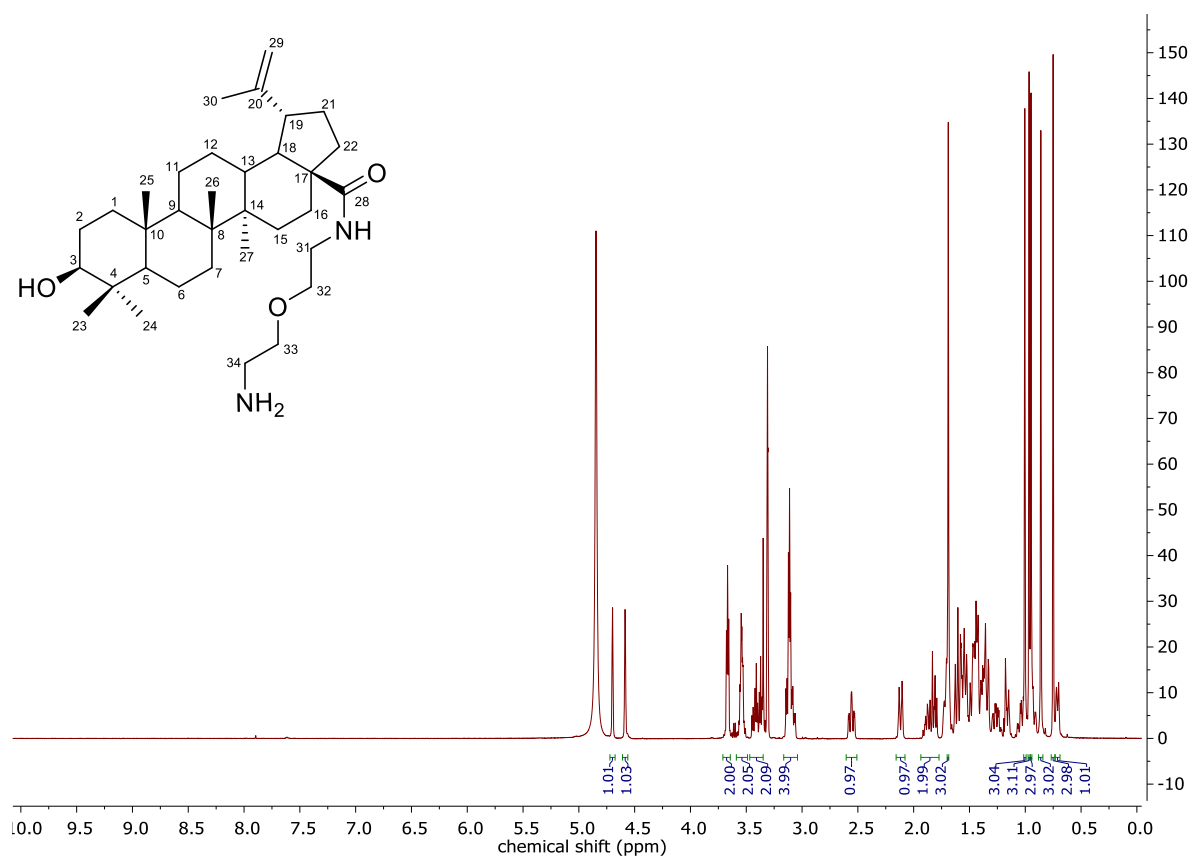


# <sup>13</sup>C NMR (APT)



## NMR spectra of 30

### <sup>1</sup>H NMR



$^{13}\text{C}$  NMR (APT)

