Electronic Supplementary Material (ESI) for Organic & Biomolecular Chemistry.


# Supporting Information

## Synthesis of tRNA analogues containing a terminal ribose locked in the South conformation to study tRNA-dependent enzyme

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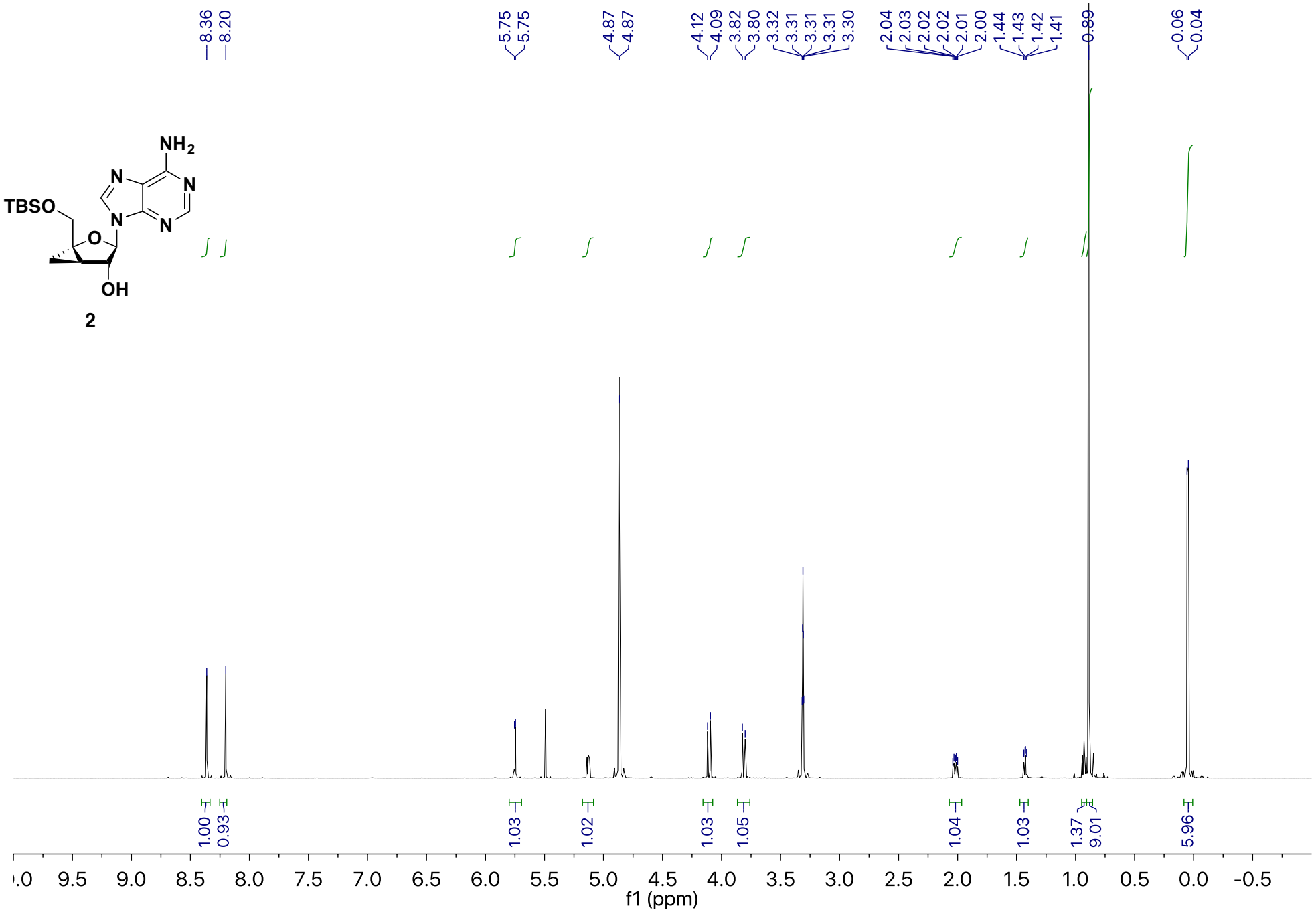
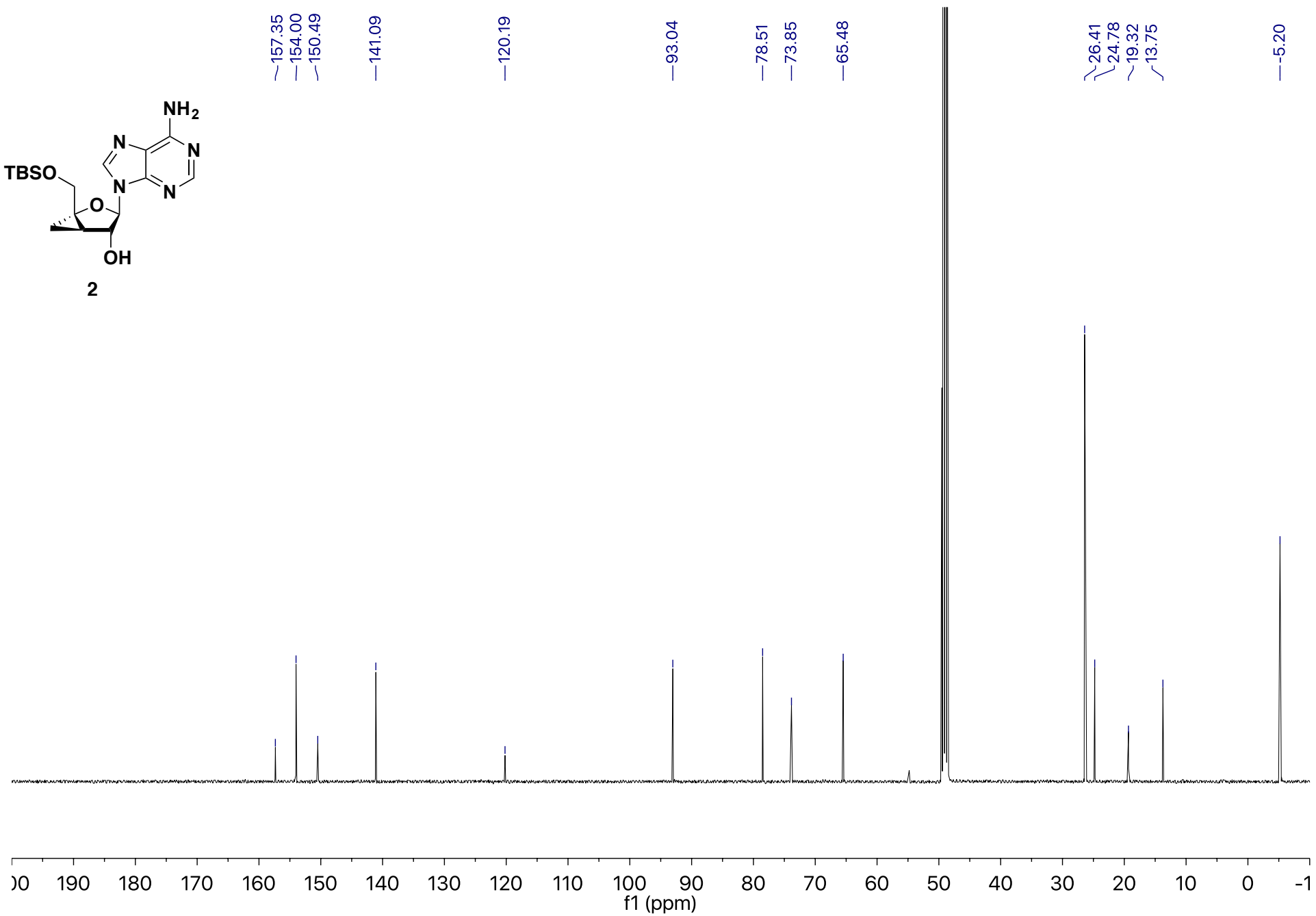
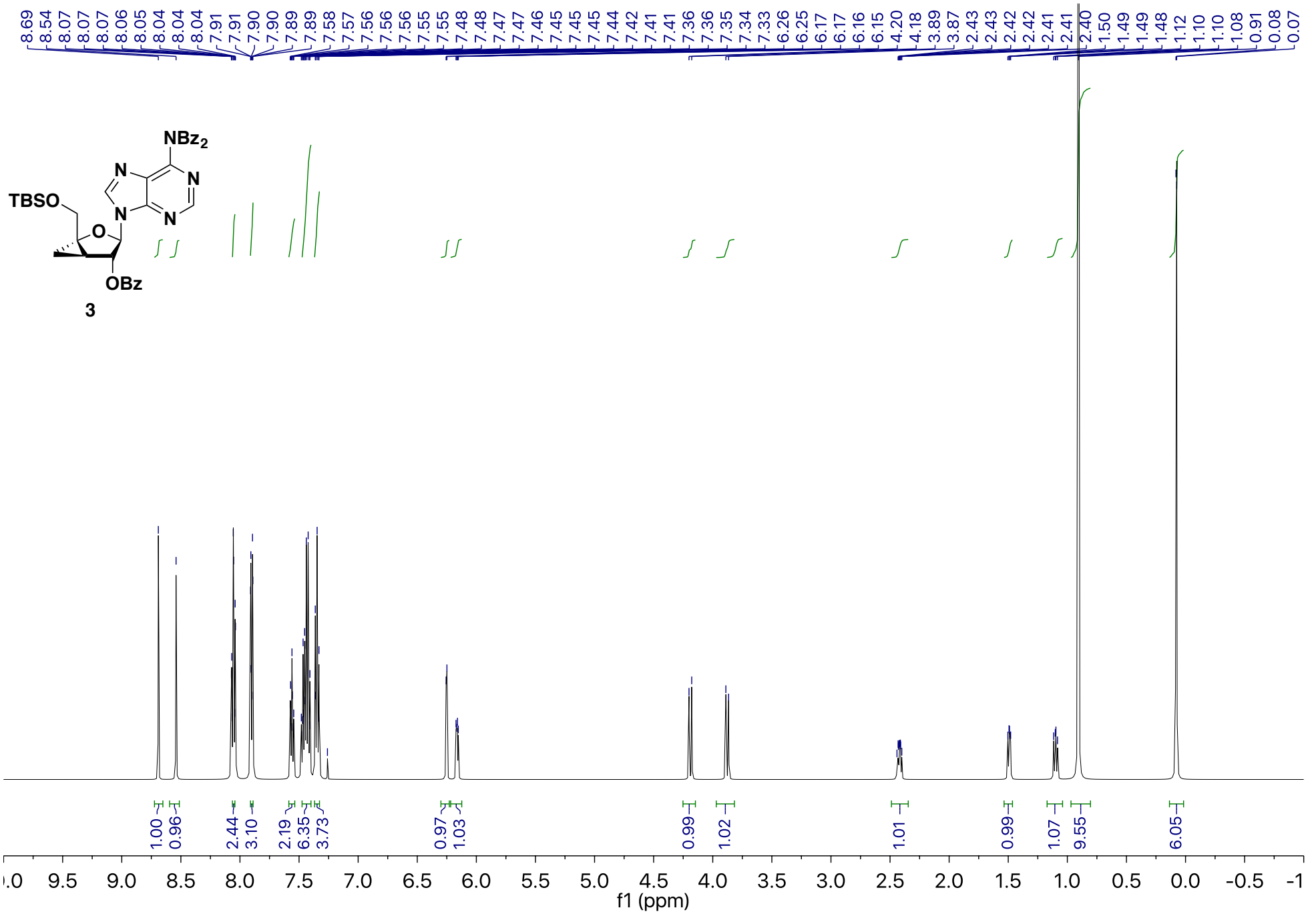
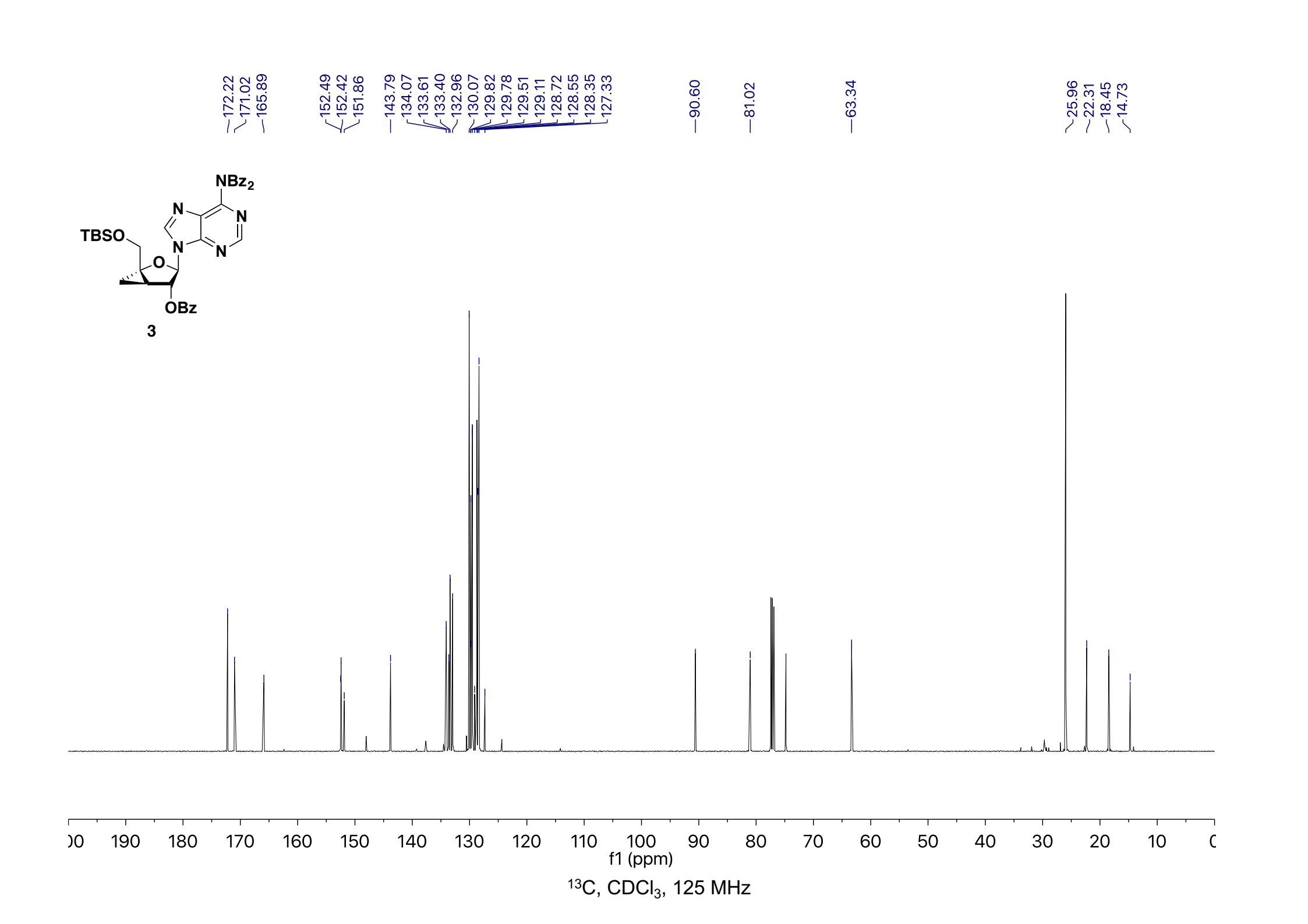


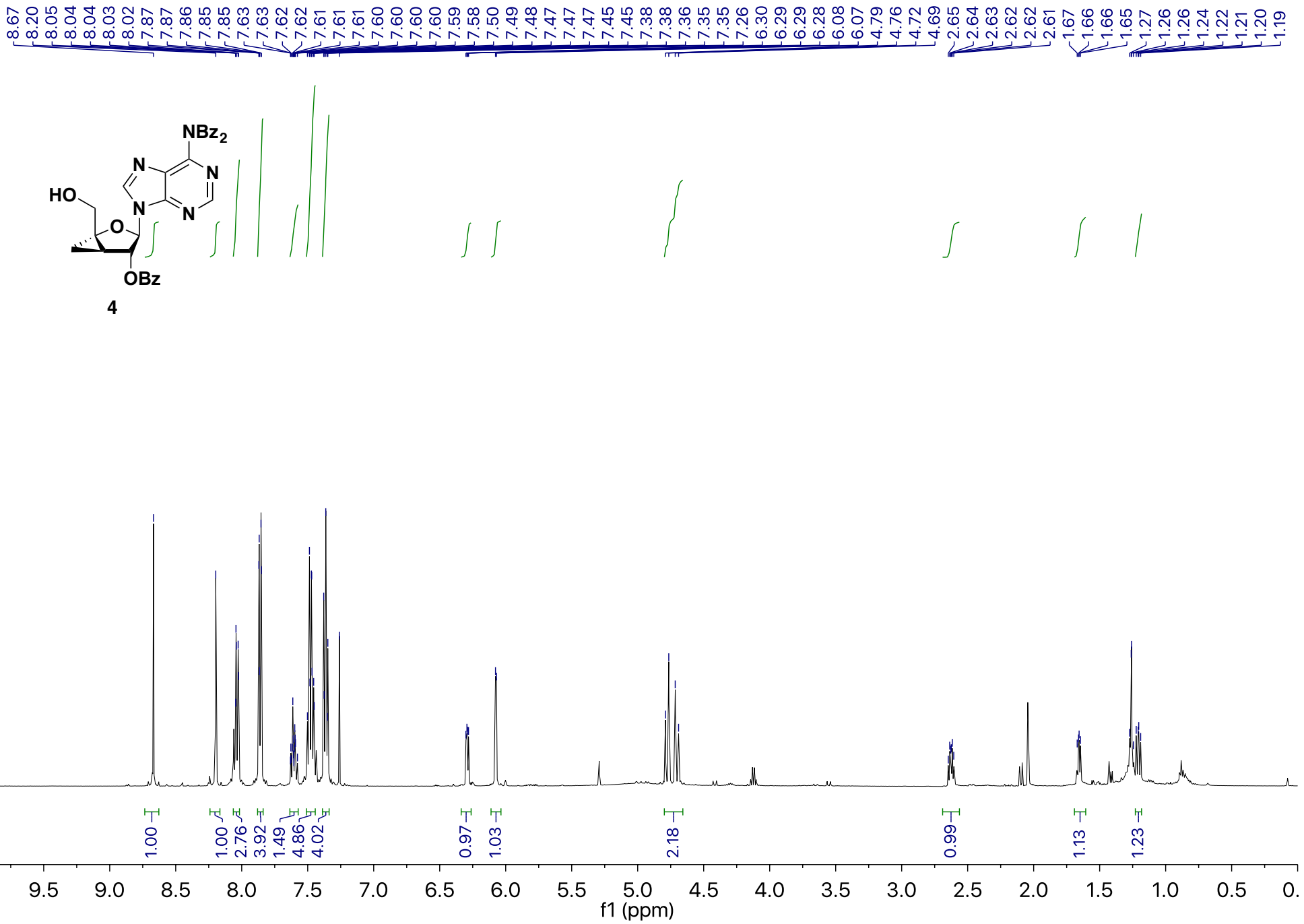

$^{1}$H, MeOD, 500 MHz


157.35
154.00
150.49
141.09
120.19
93.04
78.51
73.85
65.48
26.41
24.78
19.32
13.75
-5.20
NH2
N
N
N
N
TBSO
O
OH
2
f1 (ppm)
13C, MeOD, 125 MHz

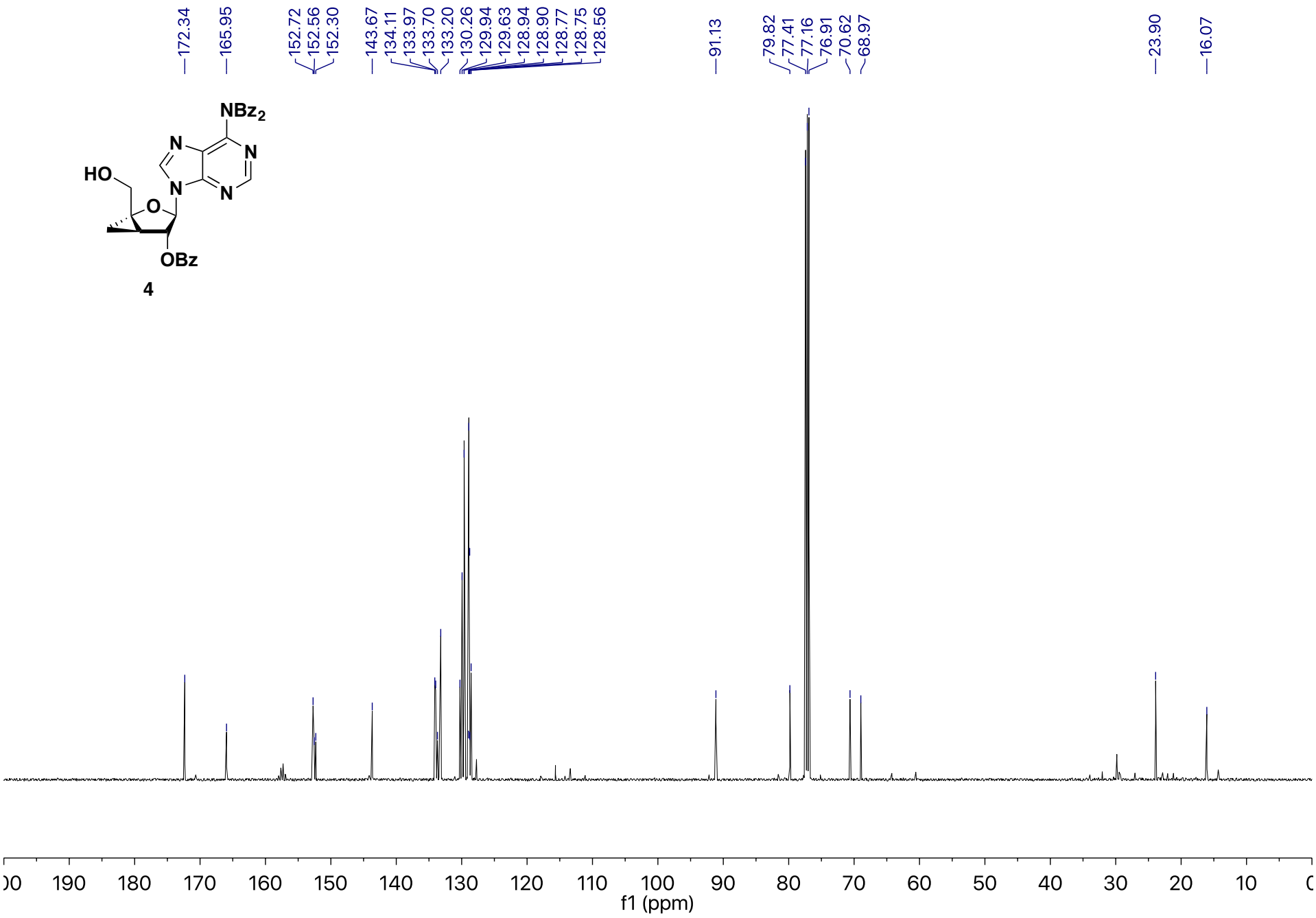


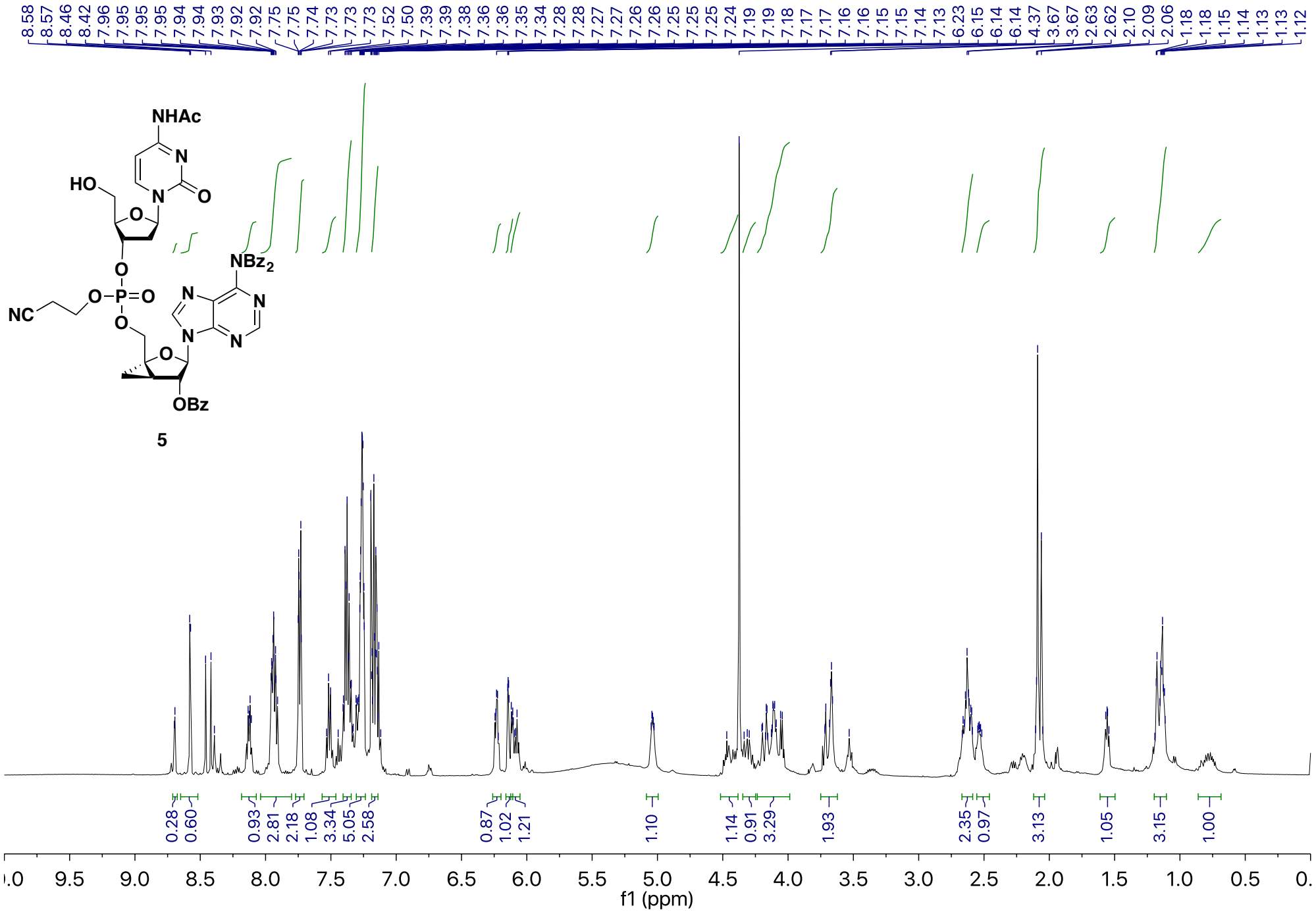

$^{1}H$, $CDCl_3$, 500 MHz


172.22
171.02
165.89
152.49
152.42
151.86
143.79
134.07
133.61
133.40
132.96
130.07
129.82
129.78
129.51
129.11
128.72
128.55
128.35
127.33
90.60
81.02
63.34
25.96
22.31
18.45
14.73
NBz2
N
N
N
N
TBSO
O
OBz
3
f1 (ppm)
13C, CDCl3, 125 MHz



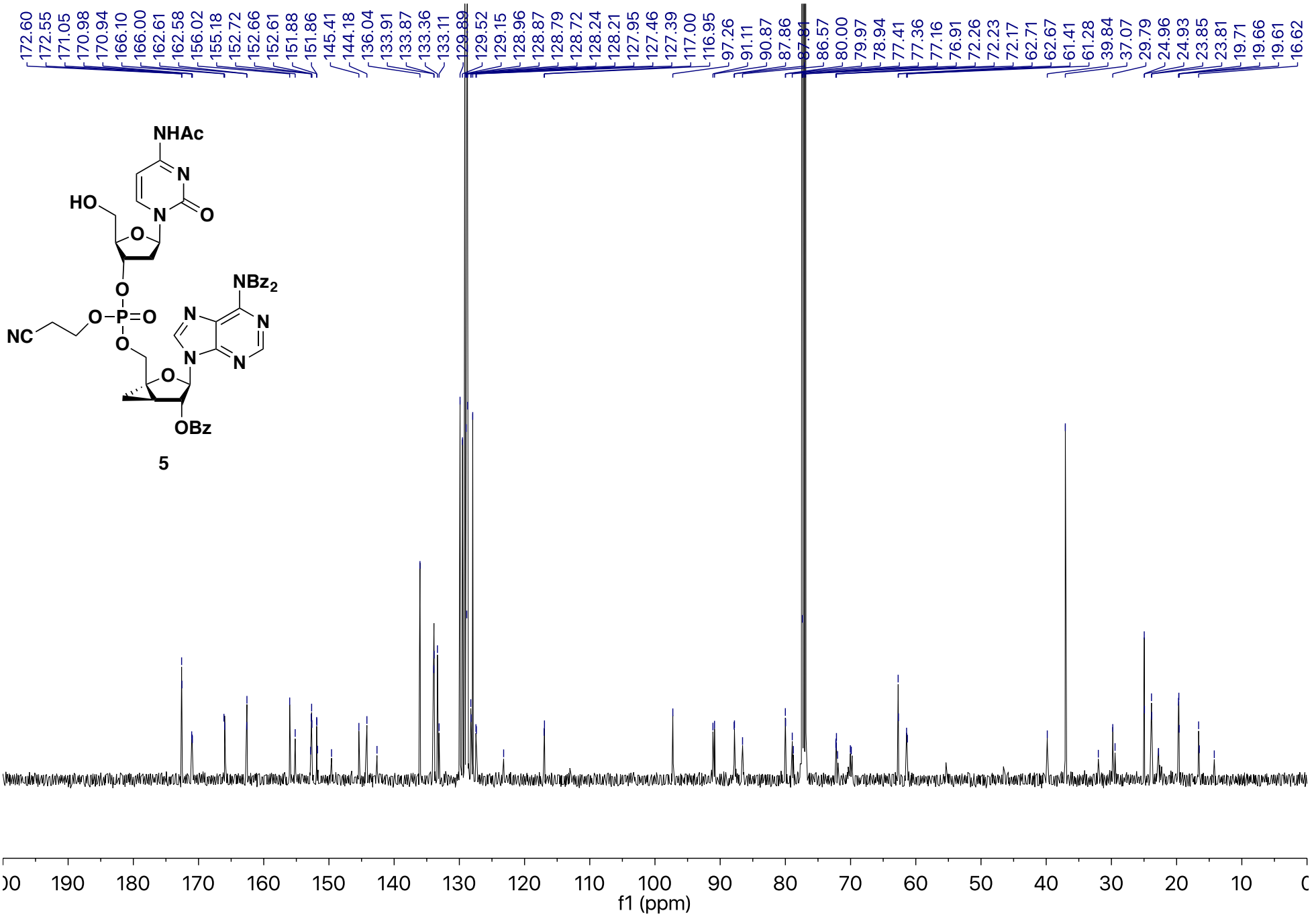

$^1$H, $CDCl_3$, 500 MHz


172.34
165.95
152.72
152.56
152.30
143.67
134.11
133.97
133.70
133.20
130.26
129.94
129.63
128.94
128.90
128.77
128.75
128.56
91.13
79.82
77.41
77.16
76.91
70.62
68.97
23.90
16.07
NBz2
HO
O
OBz
4
f1 (ppm)
13C, CDCl3, 125 MHz

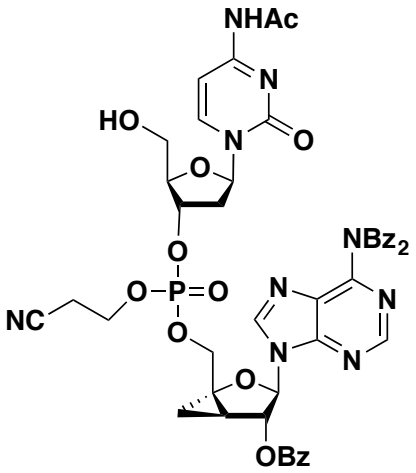



5

$^1$H, $CDCl_3$, 500 MHz



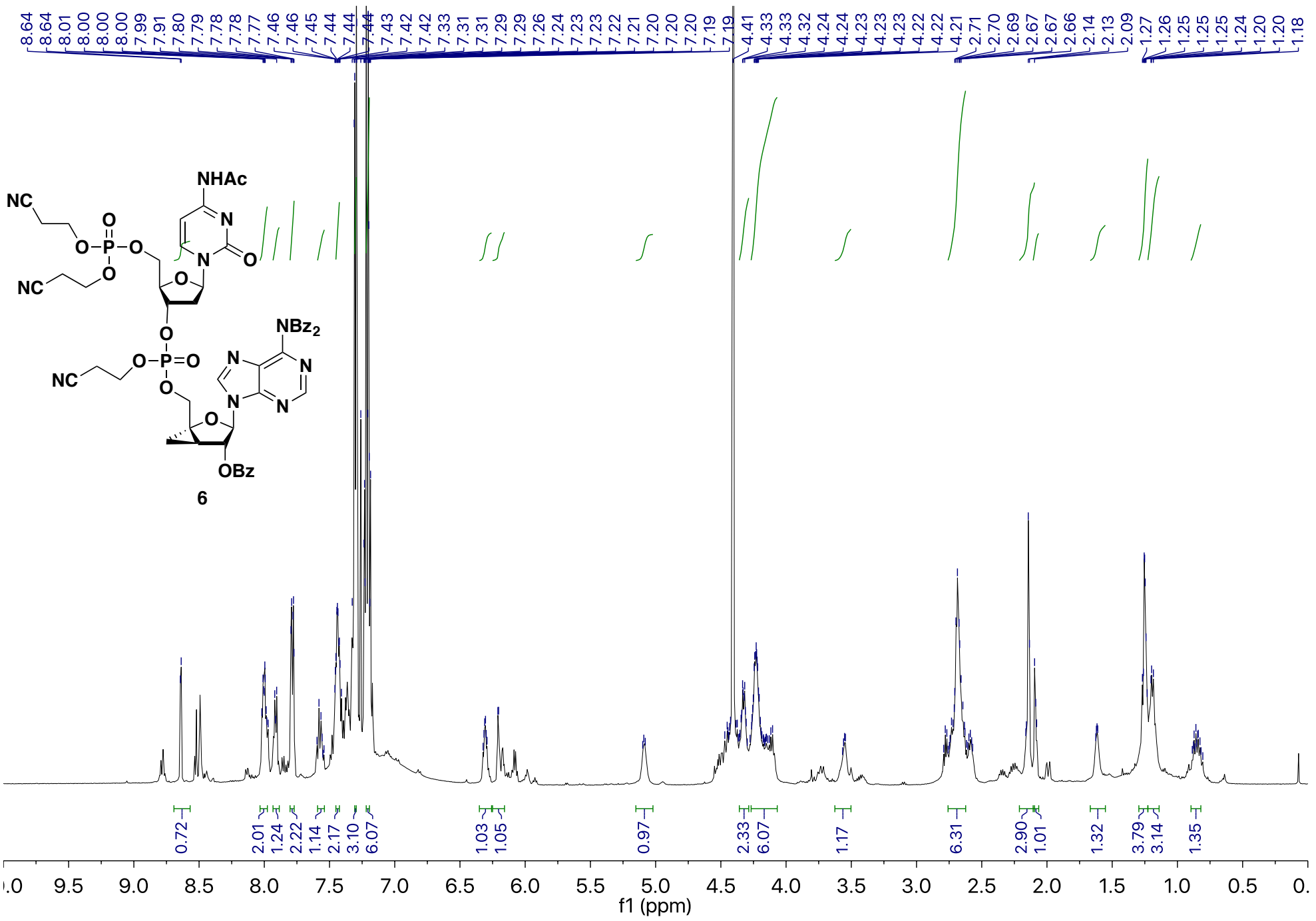

$^{13}C$, $CDCl_3$, 125 MHz



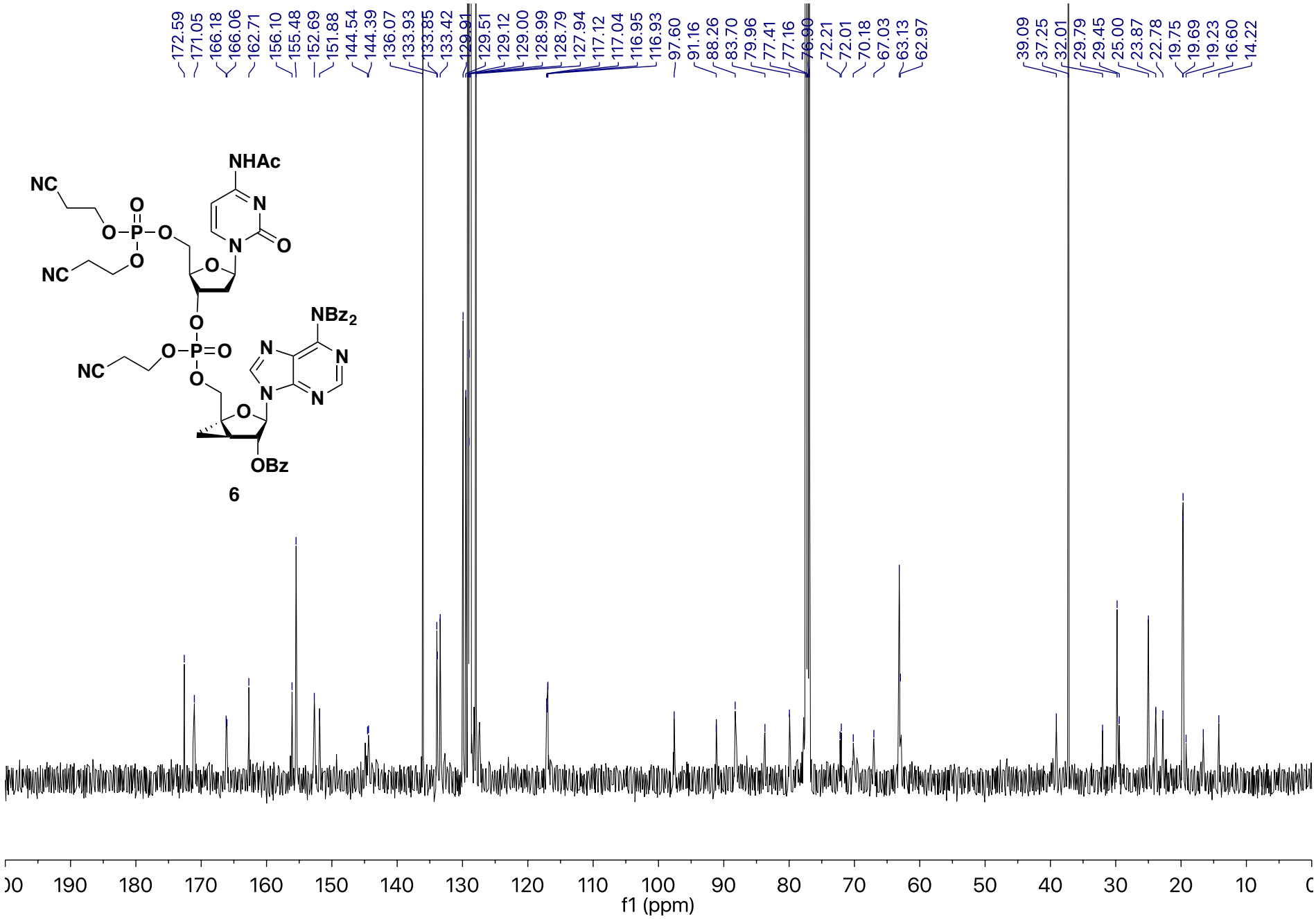

**5**



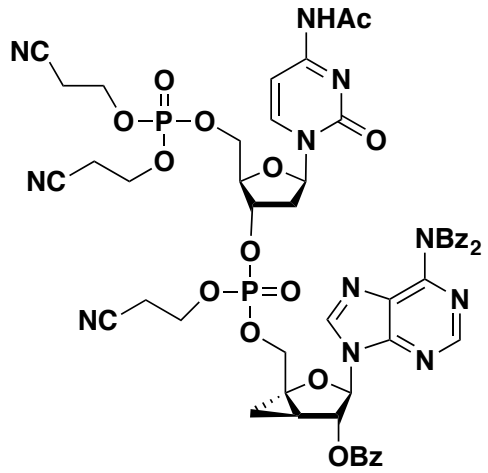

$^{31}P$, $CDCl_3$, 203 MHz




$^1$H, $CDCl_3$, 500 MHz




$^{13}C$, $CDCl_3$, 125 MHz

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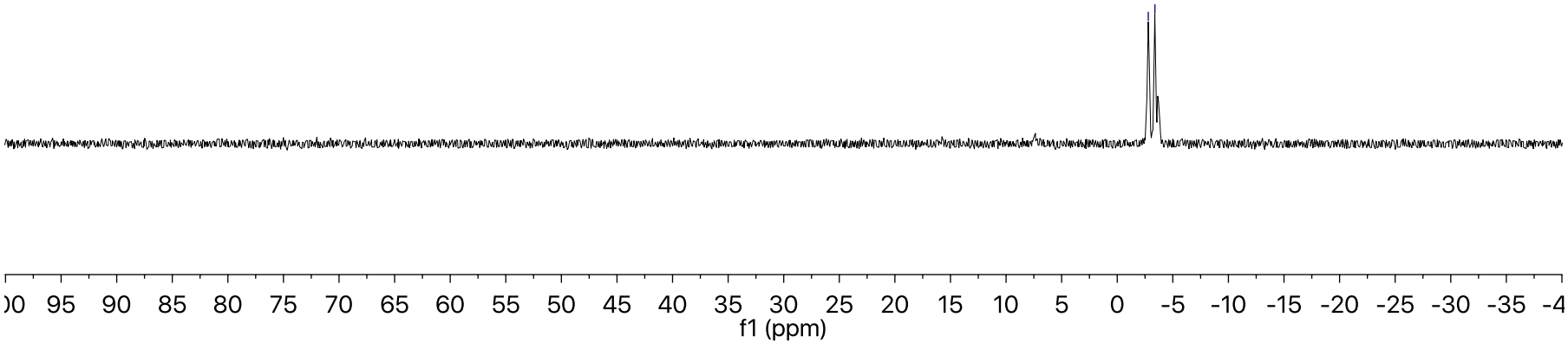
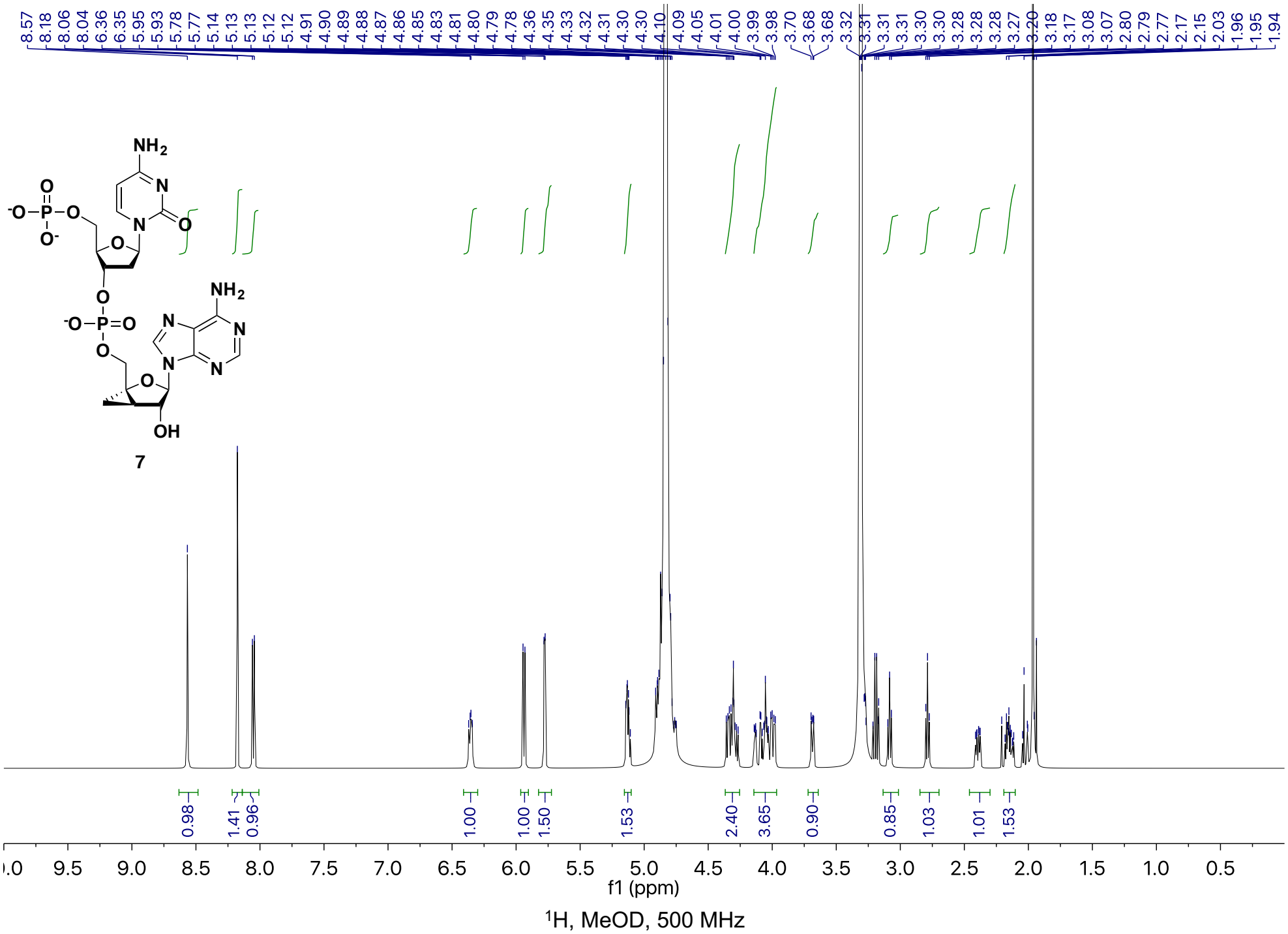
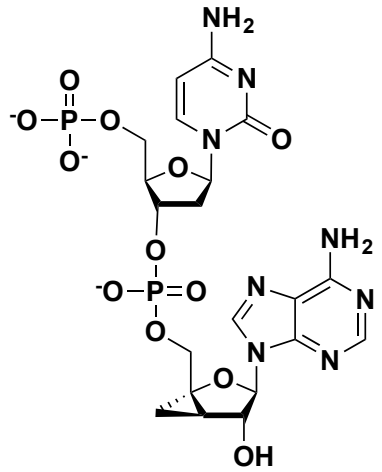



$^{31}P$, $CDCl_3$, 203 MHz



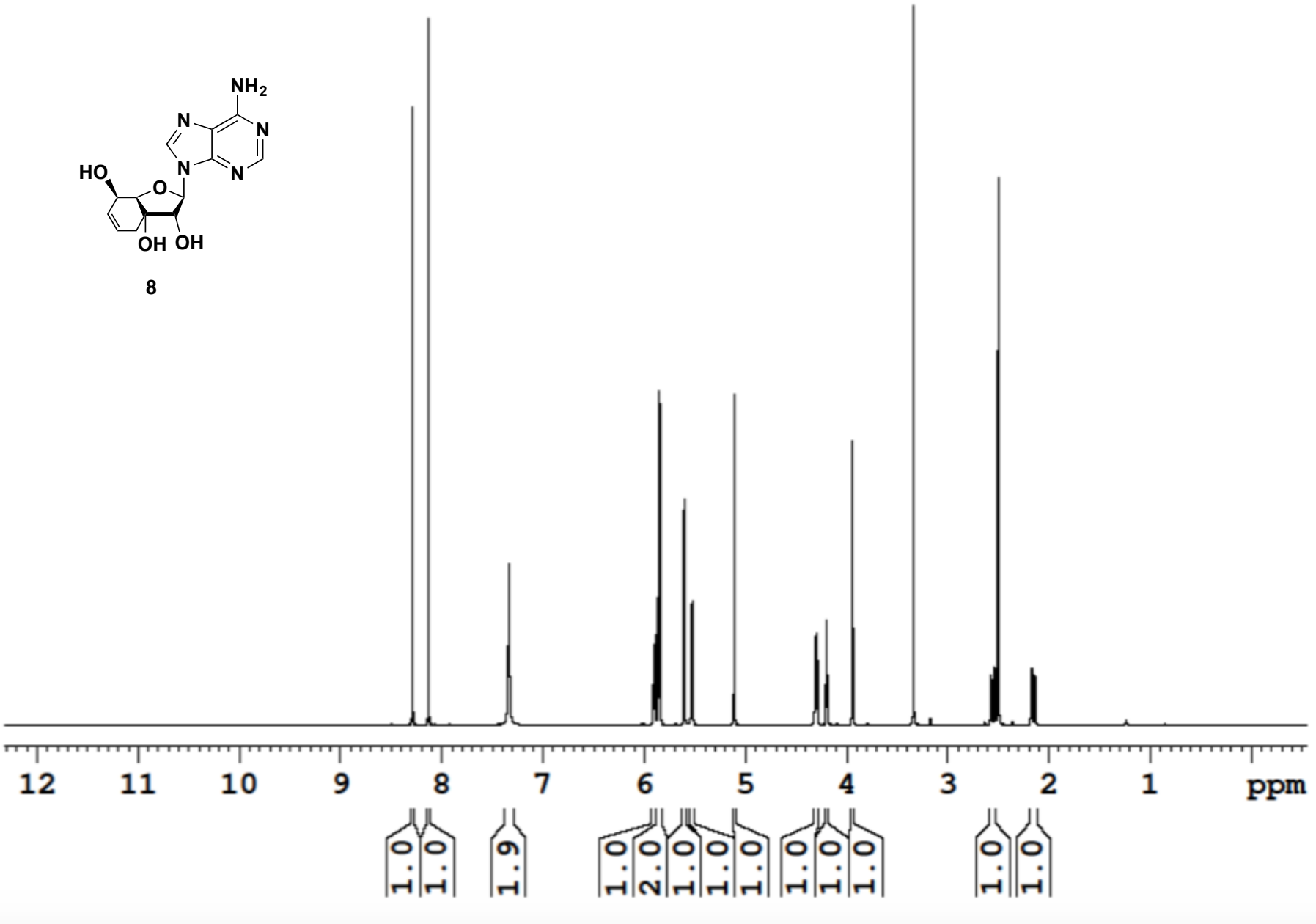

$^{1}$H, MeOD, 500 MHz




7

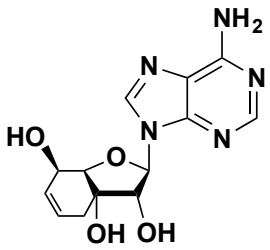



$^{31}$P, MeOD, 203 MHz

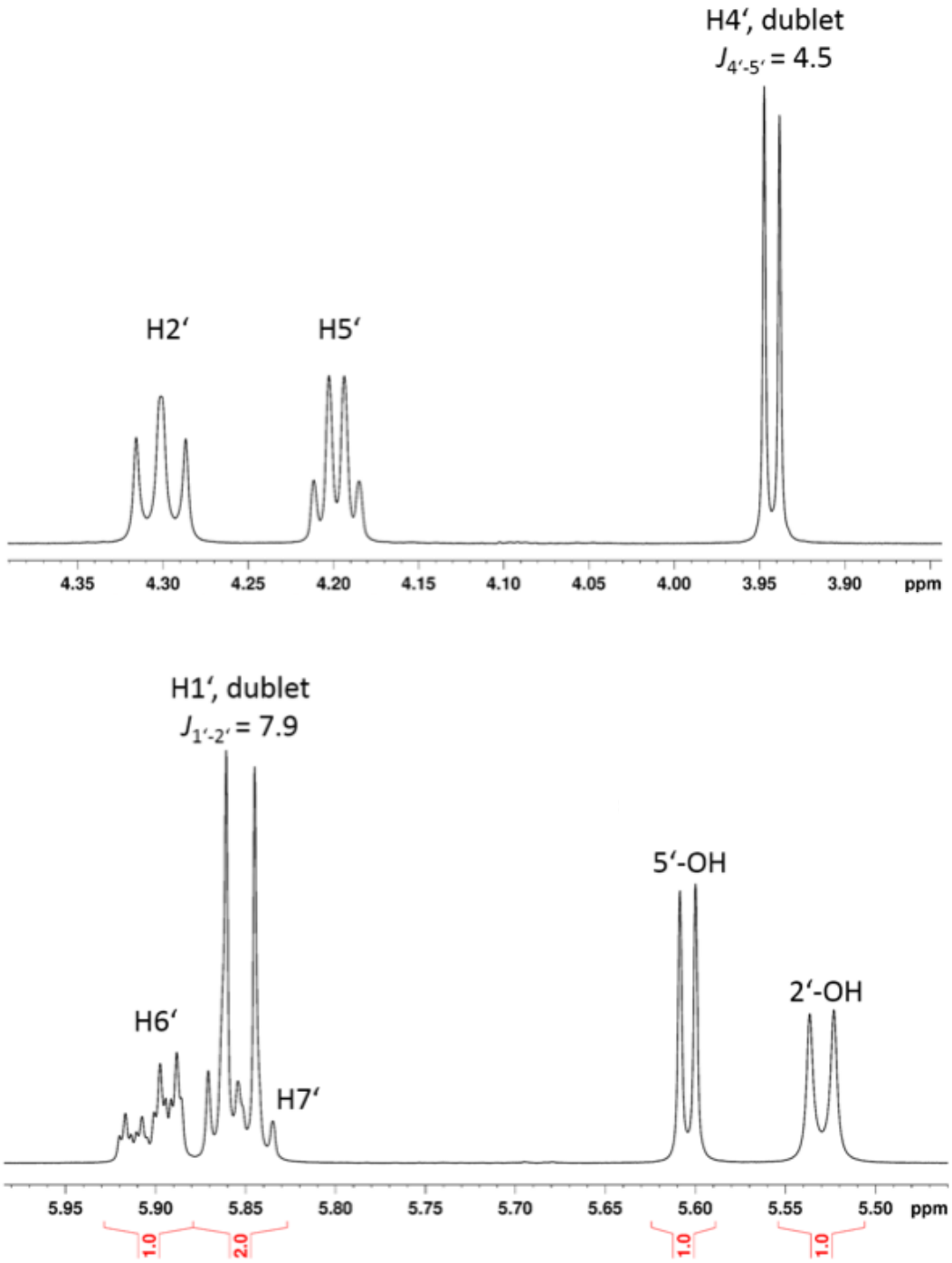



8

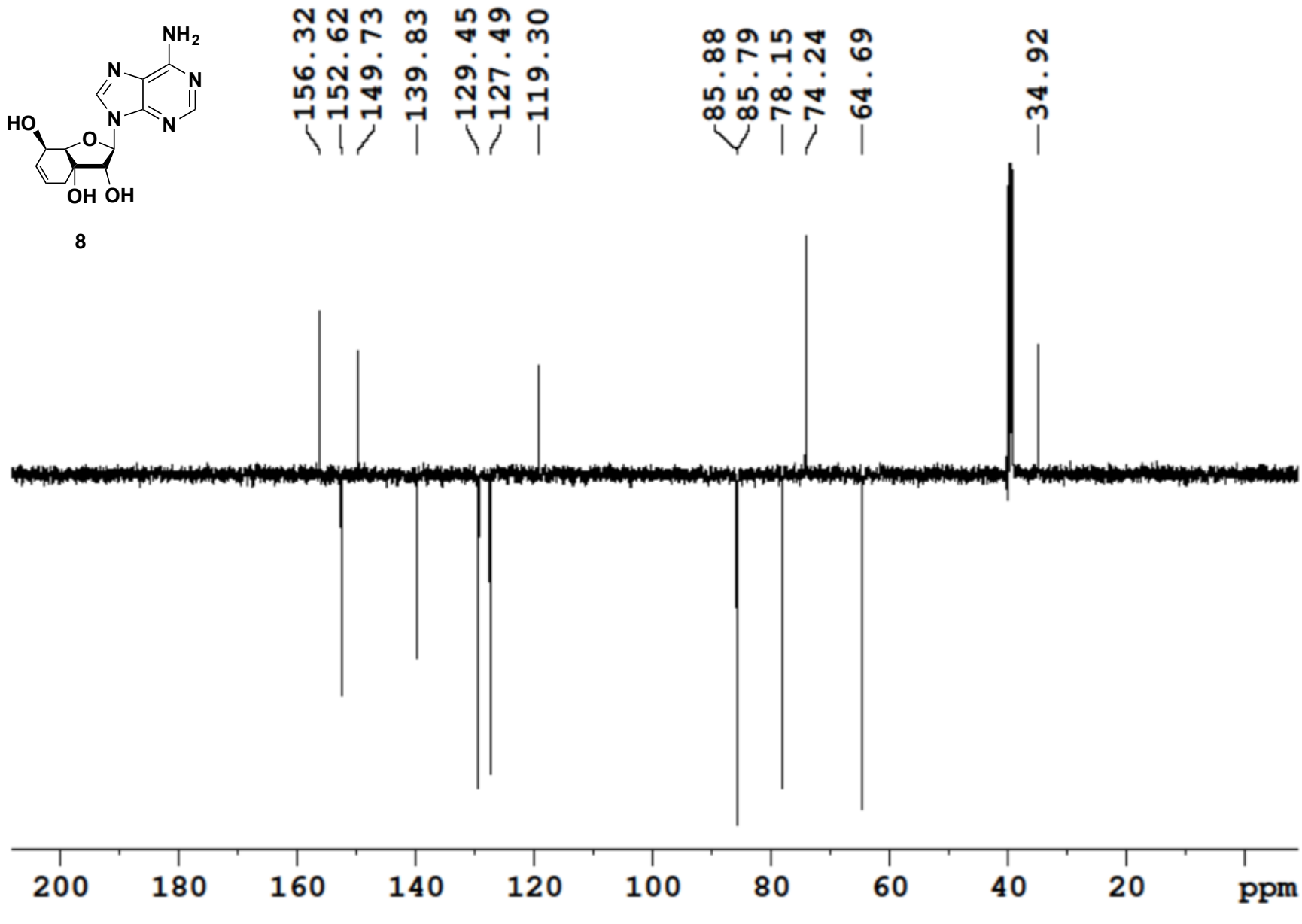
$^{1}$H, DMSO-d6, 500 MHz




**8**

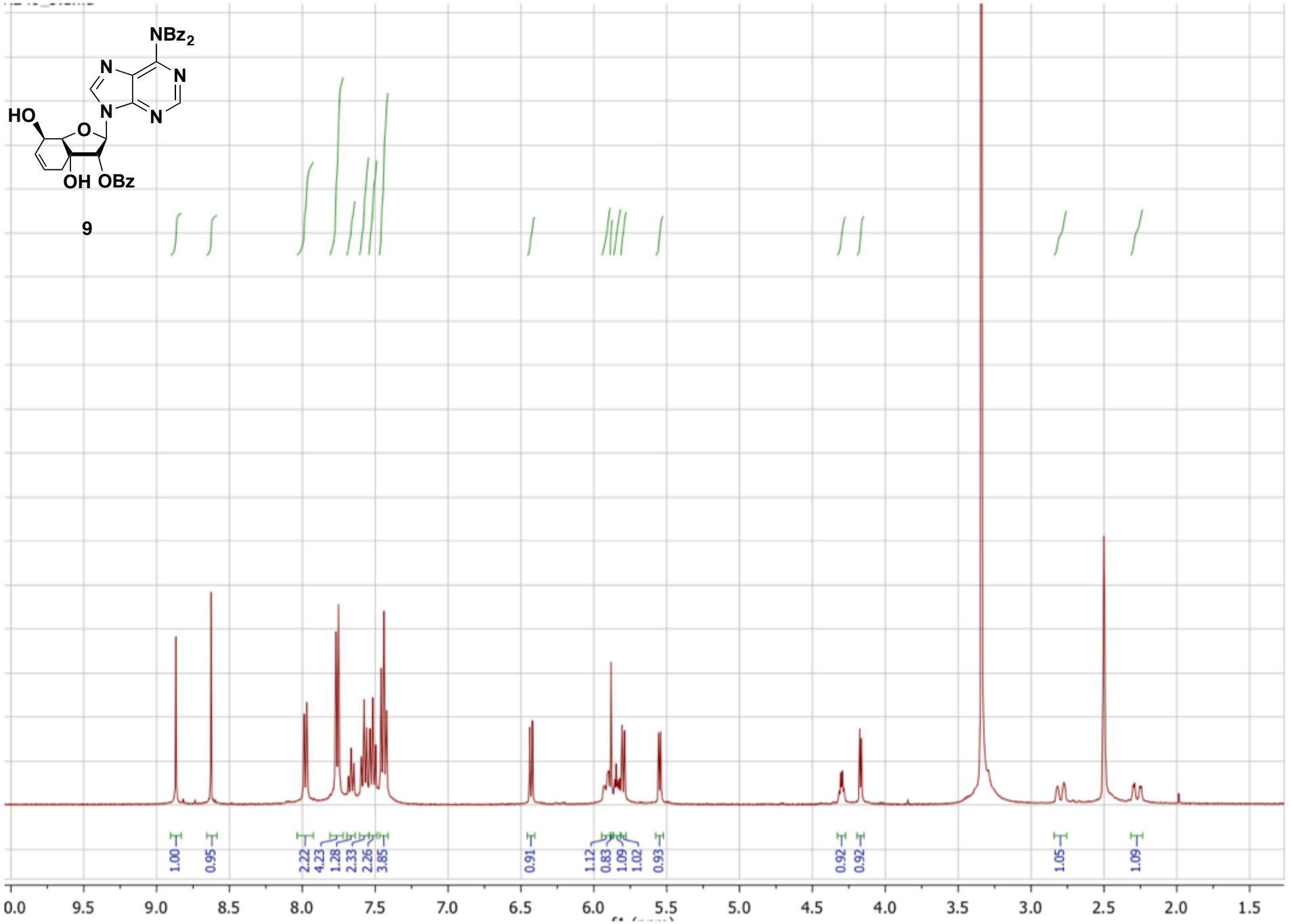



$^{1}$H, DMSO-d6, 500 MHz

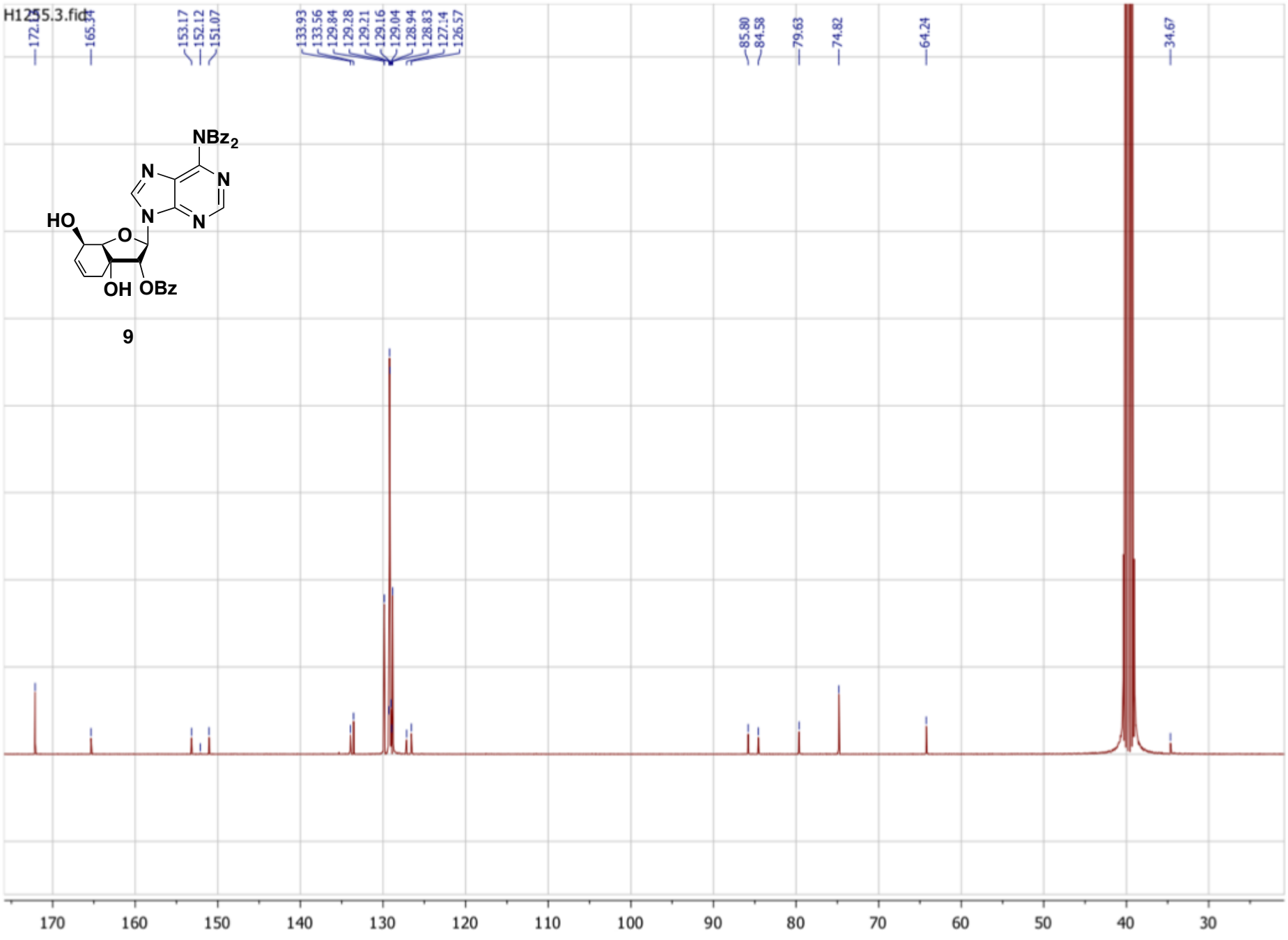



8

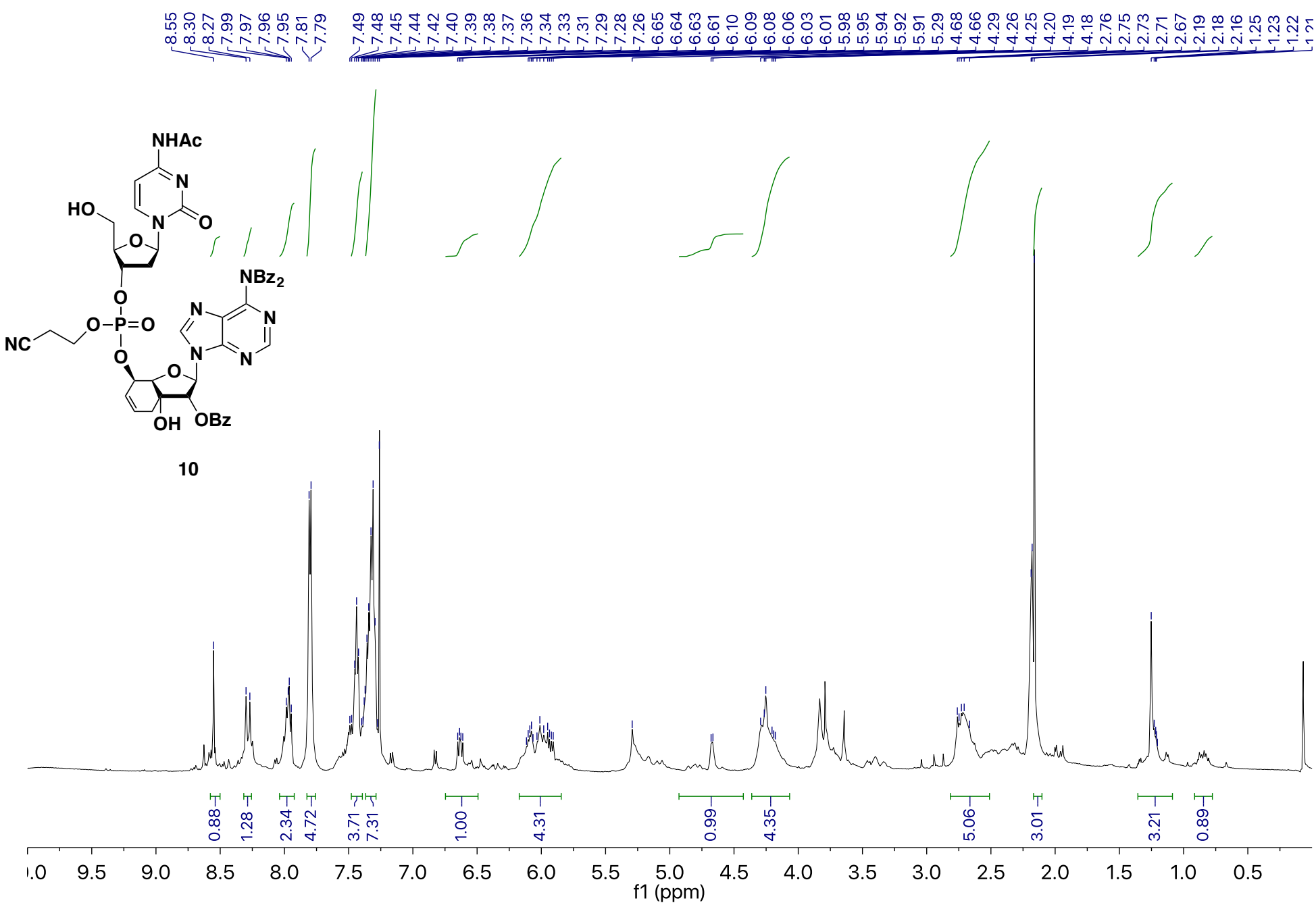
$^{13}$C, DMSO-d6, 125 MHz

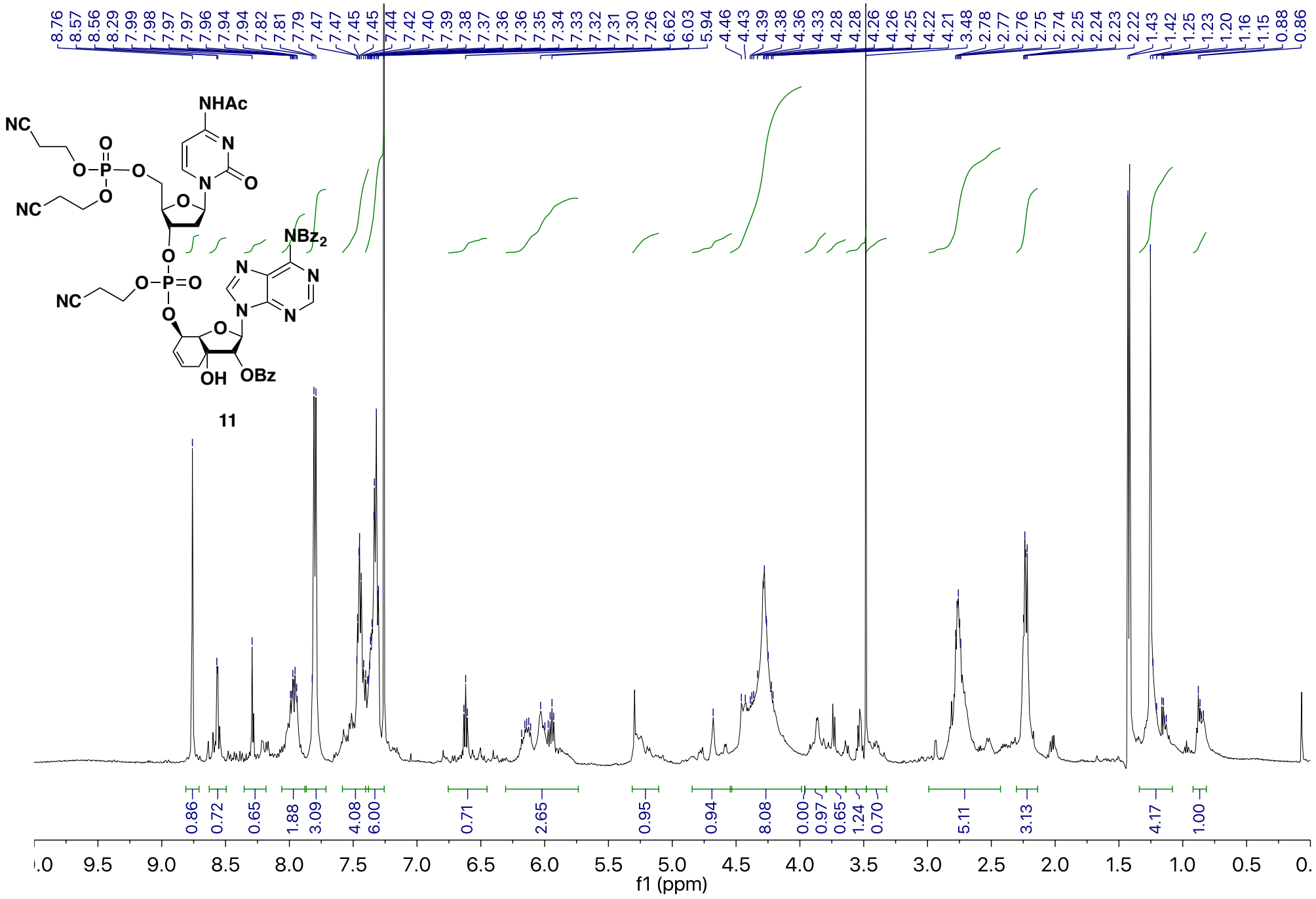


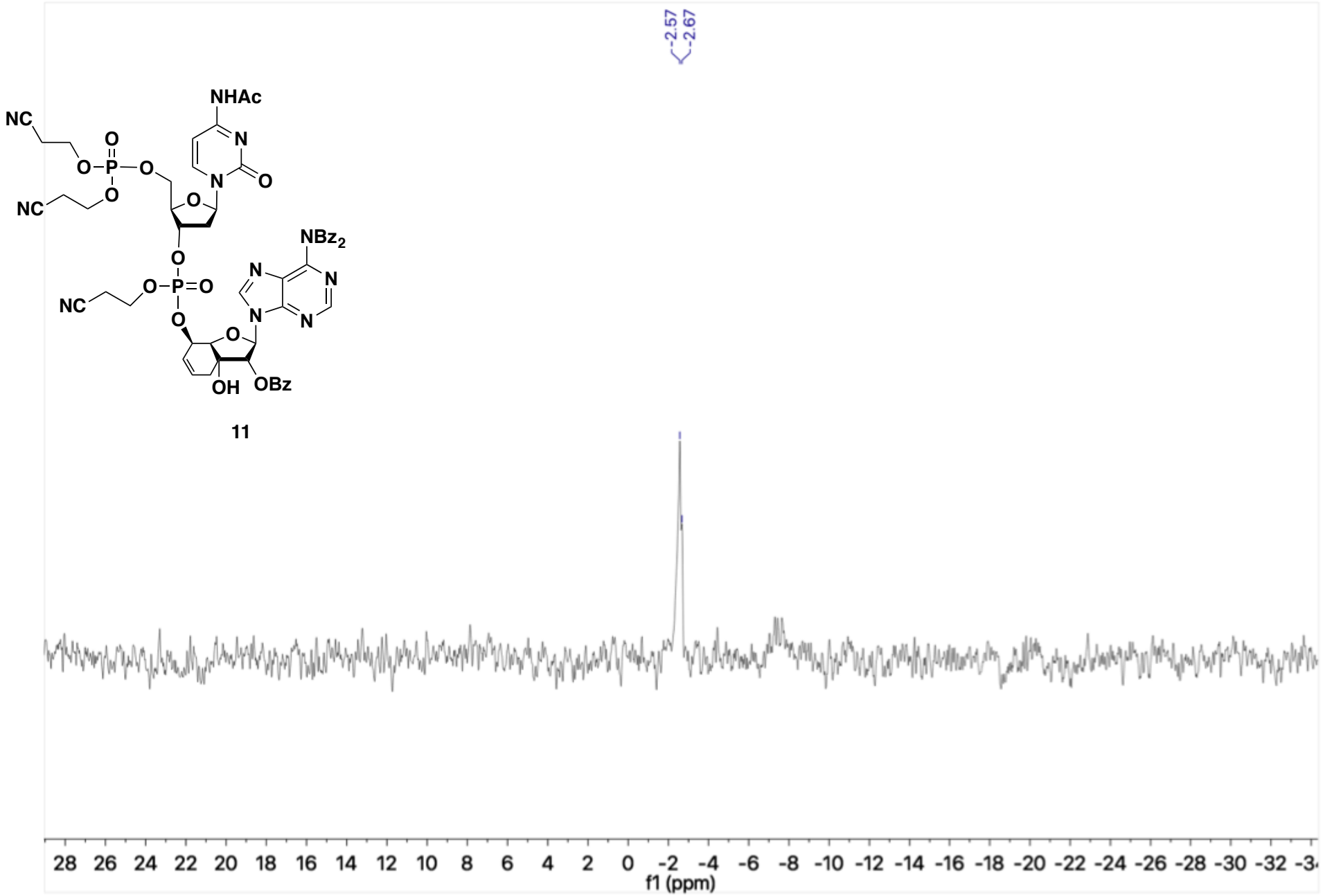

$^{1}$H, DMSO, 400 MHz




$^{13}$C, DMSO, 100 MHz

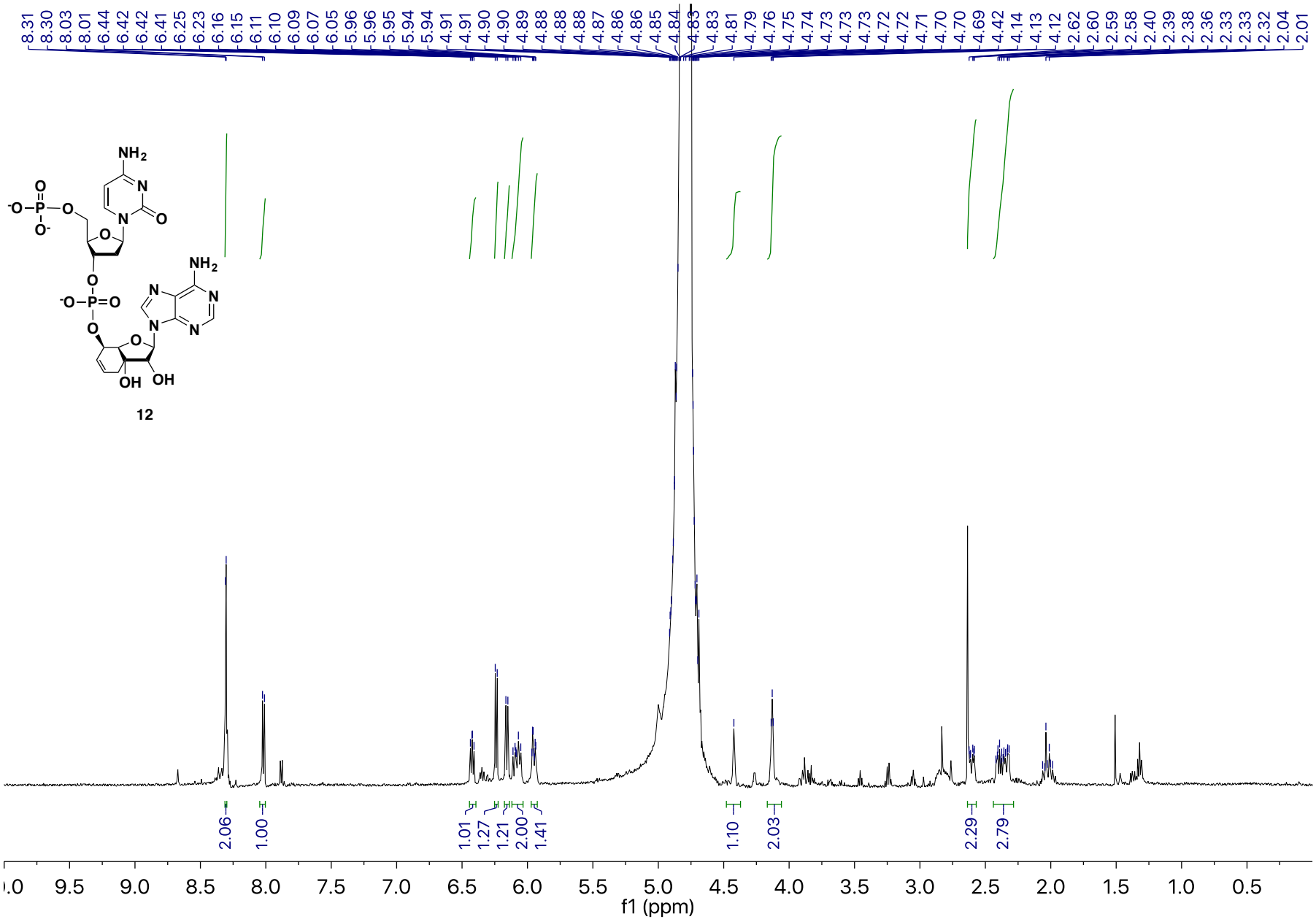

8.55 8.30 8.27 7.99 7.97 7.96 7.95 7.81 7.79 7.49 7.48 7.45 7.44 7.42 7.40 7.39 7.38 7.37 7.36 7.34 7.33 7.31 7.29 7.28 7.26 6.65 6.64 6.63 6.61 6.10 6.09 6.08 6.06 6.03 6.01 5.98 5.95 5.94 5.92 5.91 5.29 4.68 4.66 4.29 4.26 4.25 4.20 4.19 4.18 2.76 2.75 2.73 2.71 2.67 2.19 2.18 2.16 1.25 1.23 1.22
NHAc
HO
NBz2
NC
OH
OBz
10
0.88 1.28 2.34 4.72 3.71 7.31 1.00 4.31 0.99 4.35 5.06 3.01 3.21 0.89
f1 (ppm)
1H, CDCl3, 500 MHz


NHAc
NC
NC
NC
NBz2
OH
OBz
11
f1 (ppm)
1H, CDCl3, 500 MHz



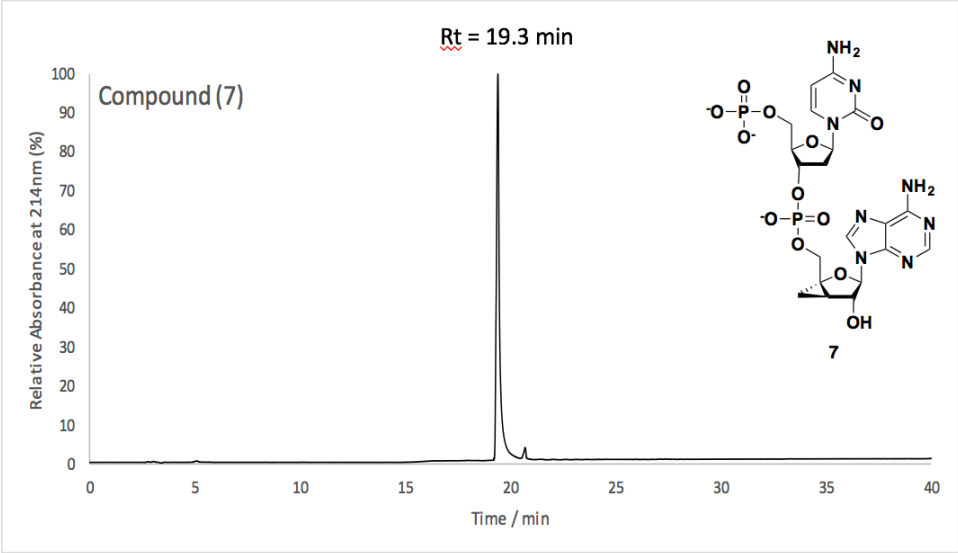

**11**

$^{31}P$, $CDCl_3$, 101 MHz




$^1$H, $D_2O$, 500 MHz

## 2- *rp*HPLC analysis of dinucleotides 7 and 12

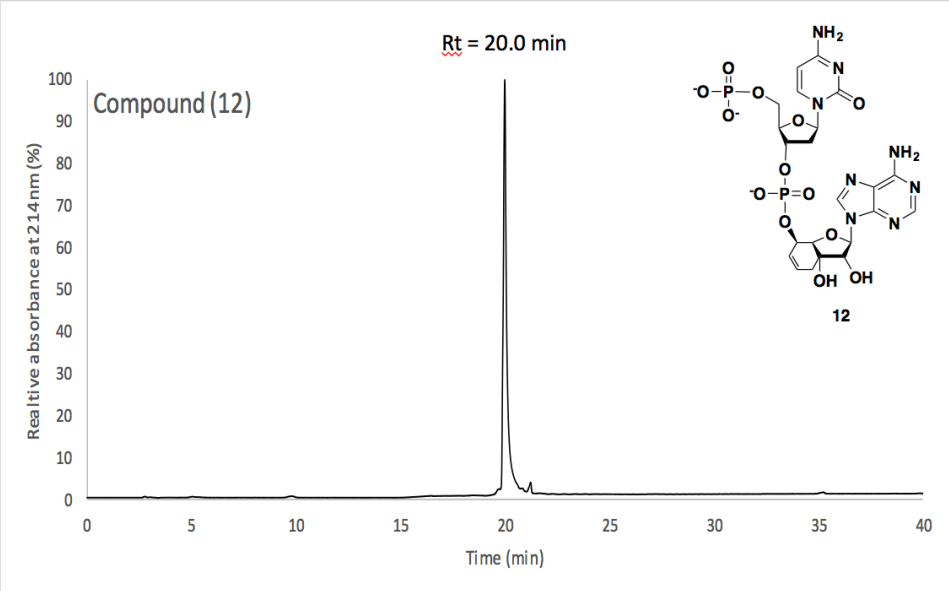



C18 nucleosil 3um; 4.5x250cm (Macherey Nagel)

Gradient: 10.5min A; 0 to 100% B in 30min

A: 0.1%TFA

B:ACN/0.1%TFA



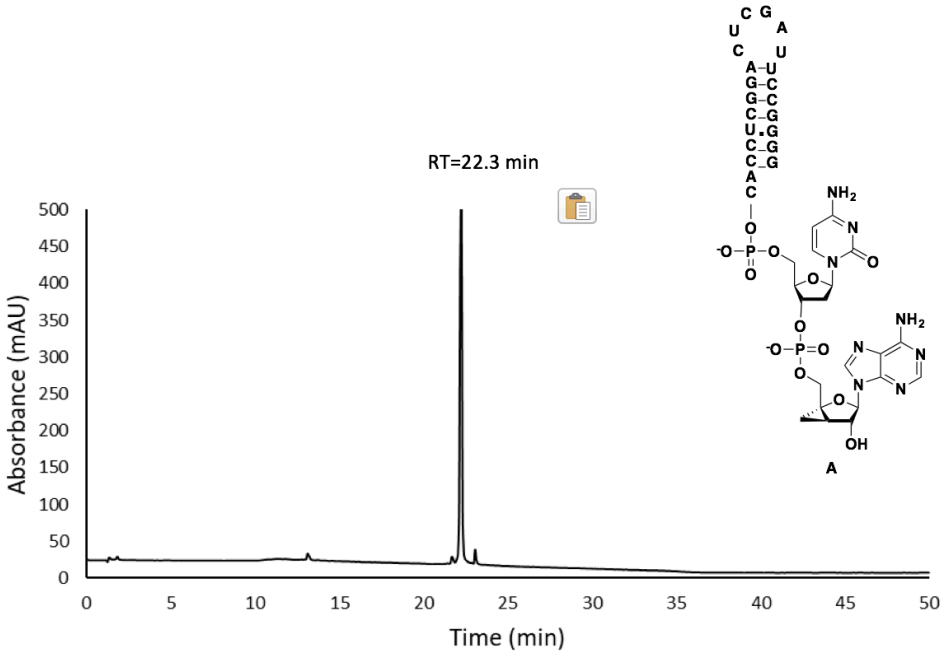

C18 nucleosil 3um; 4.5x250cm (Macherey Nagel)

Gradient: 10.5min A; 0 to 100% B in 30min

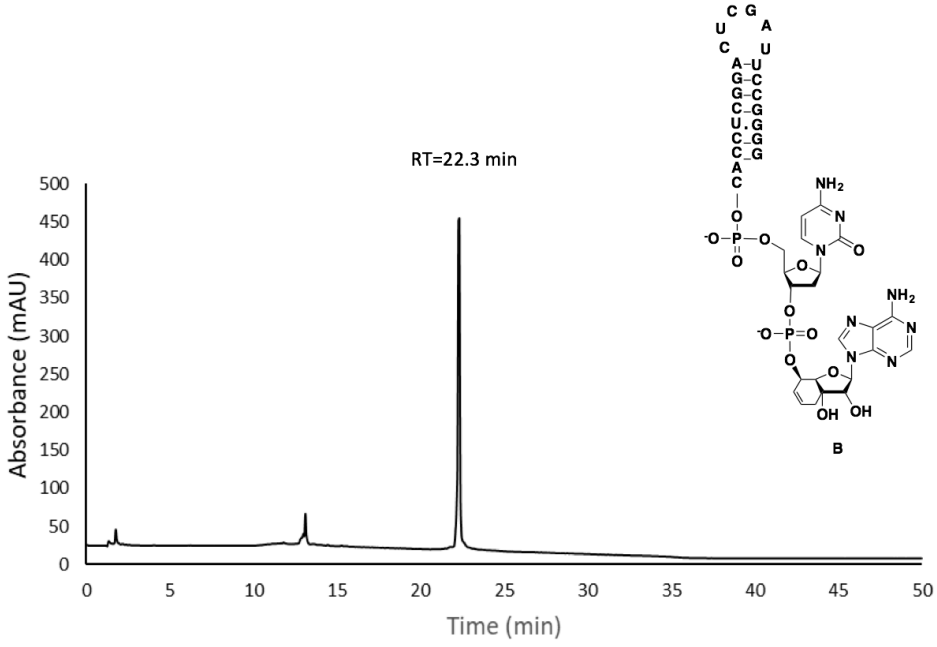
A: 0.1%TFA

B: ACN/0.1%TFA

## 3- *rp*HPLC analysis of tRNAs A and B




Anionic exchange rpHPLC chromatography on a DNAPac PA100 (Thermo Scientific) column. Flow: 1mL.min$^{-1}$ ; UV detection at 260nm
500pmol of each product injected
Buffer A: Ammonium acetate 25 mM pH 8,0 ; 0,5% ACN
Buffer B: Ammonium acetate 2500 mM pH 8,0 ; 0,5% ACN
8,4min at 0%A then a linear 30min gradient from 0 to 100% buffer B.




Anionic exchange rpHPLC chromatography on a DNAPac PA100 (Thermo Scientific) column. Flow: 1mL.min$^{-1}$ ; UV detection at 260nm
500pmol of each product injected
Buffer A: Ammonium acetate 25 mM pH 8,0 ; 0,5% ACN
Buffer B: Ammonium acetate 2500 mM pH 8,0 ; 0,5% ACN
8,4min at 0%A then a linear 30min gradient from 0 to 100% buffer B.

## 4- FemX$_{WV}$ inhibition experiments