Electronic Supplementary Information (ESI)

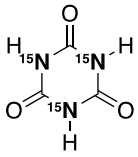
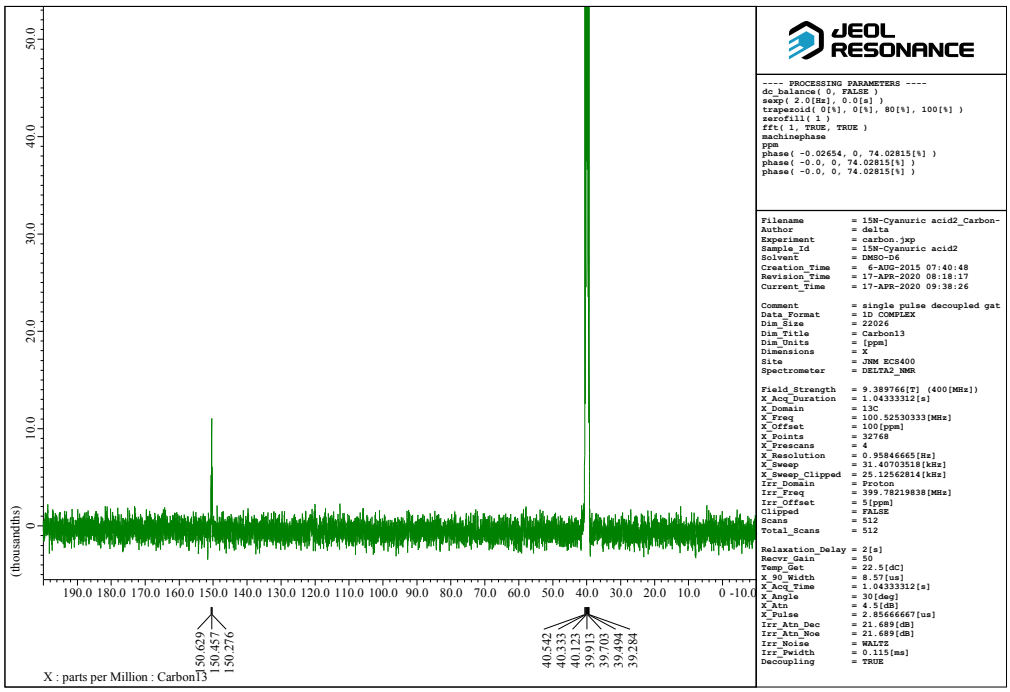
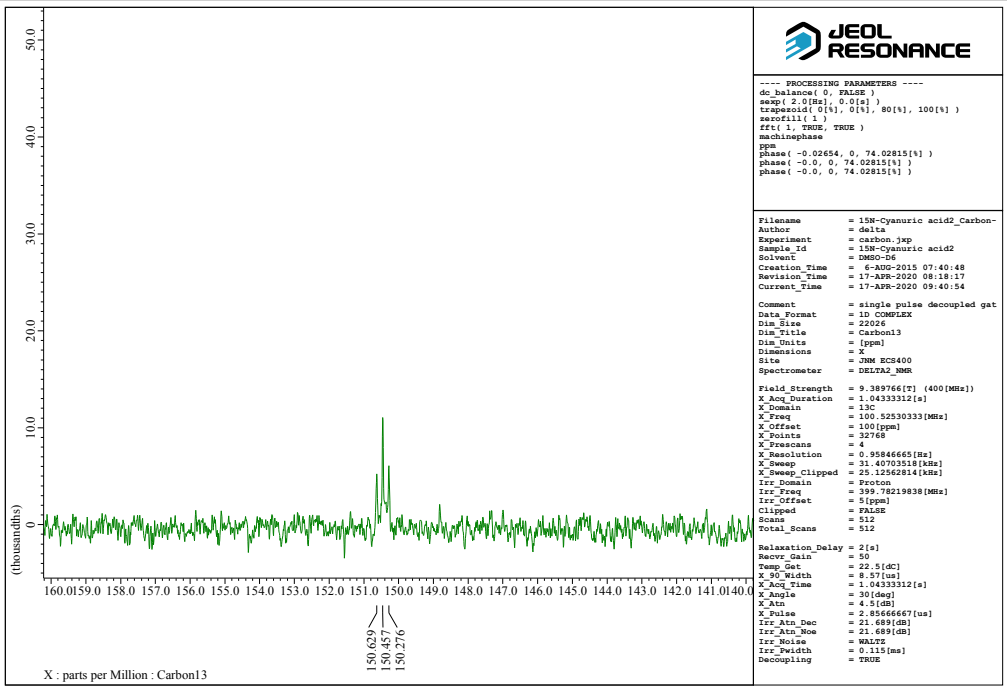
Parallel-motif triplex formation via a new, bi-directional hydrogen bonding pattern incorporating a synthetic cyanuryl nucleoside into the sense chain

Akihiko Hatano,[a]* Kei Shimazaki,[a] Maina Otsu,[b] Gota Kawai [b]

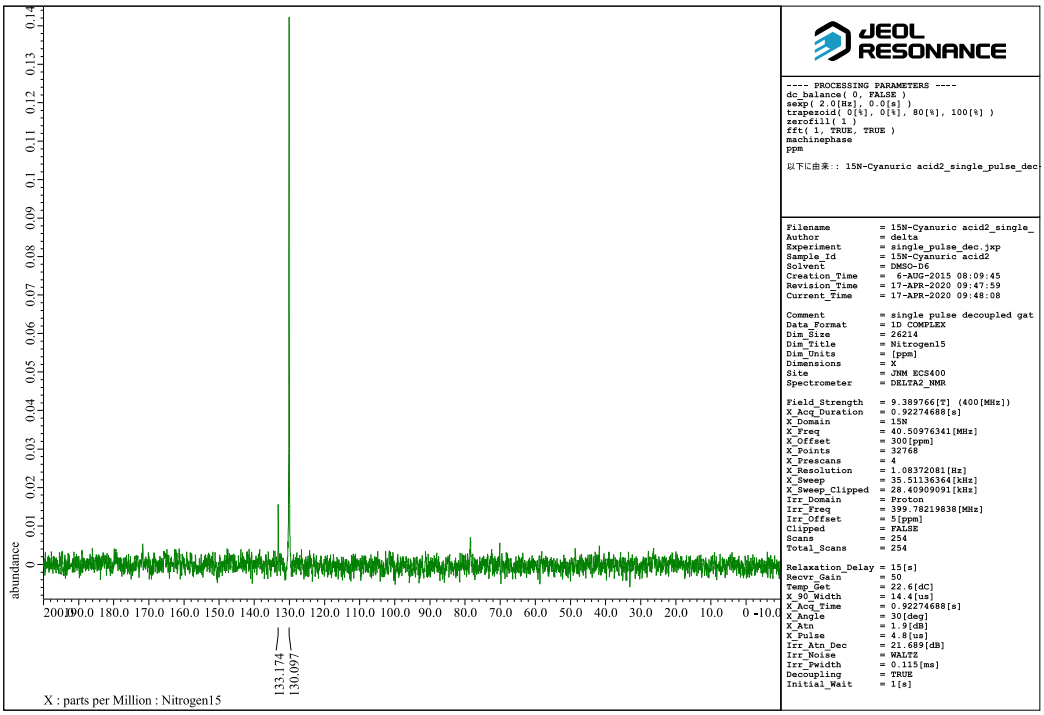
[a]Department of Chemistry, Shibaura Institute of Technology, 307 Fukasaku, Minuma-ku, Saitama, 337-8570, Japan. Tel: +81-48-687-5035, Fax: +81-48-687-5013; Email: a-hatano@sic.shibaura-it.ac.jp

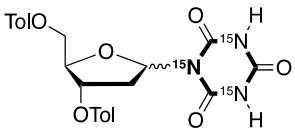
[b]Department of Life and Environmental Sciences, Faculty of Engineering, Chiba Institute of Technology, 2-17-1 Tsudanuma, Narashino, Chiba 275-0016, Japan.

S1. NMR data for the synthetic compounds

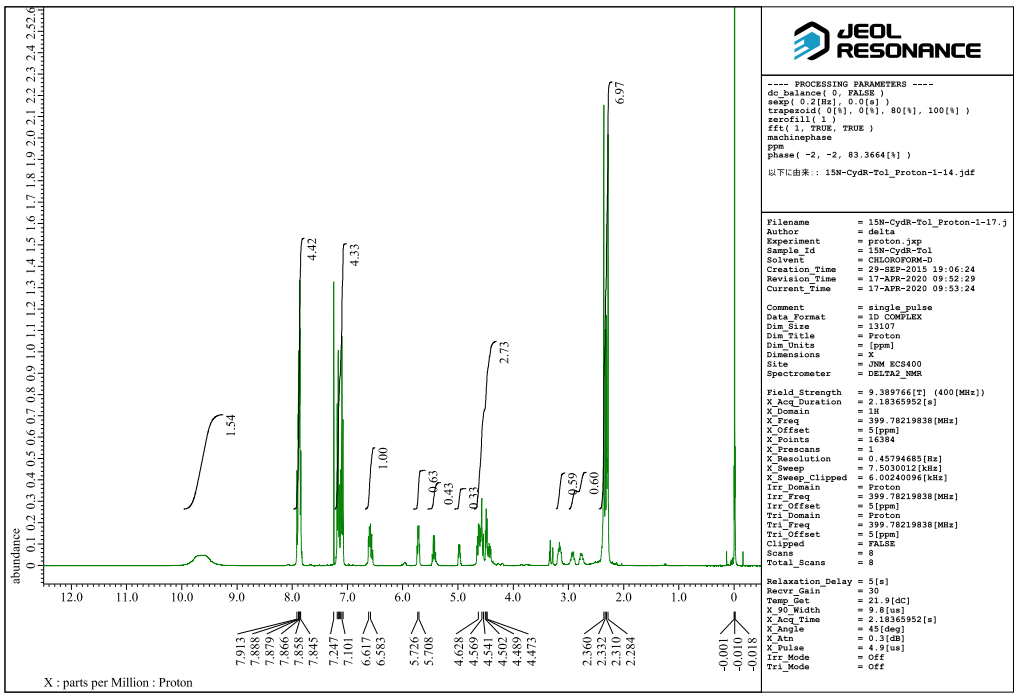
S1-1	Compound **2**	 in DMSO
^{13}C		
^{13}C		

^{15}N

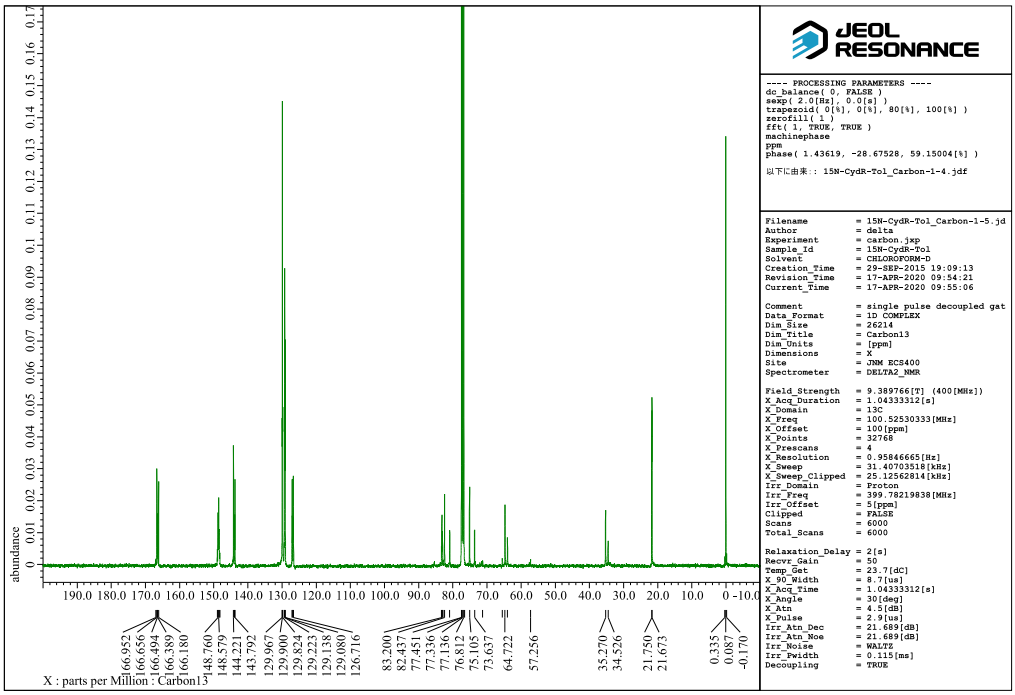


S1-1	Compound 4	 in $CDCl_3$

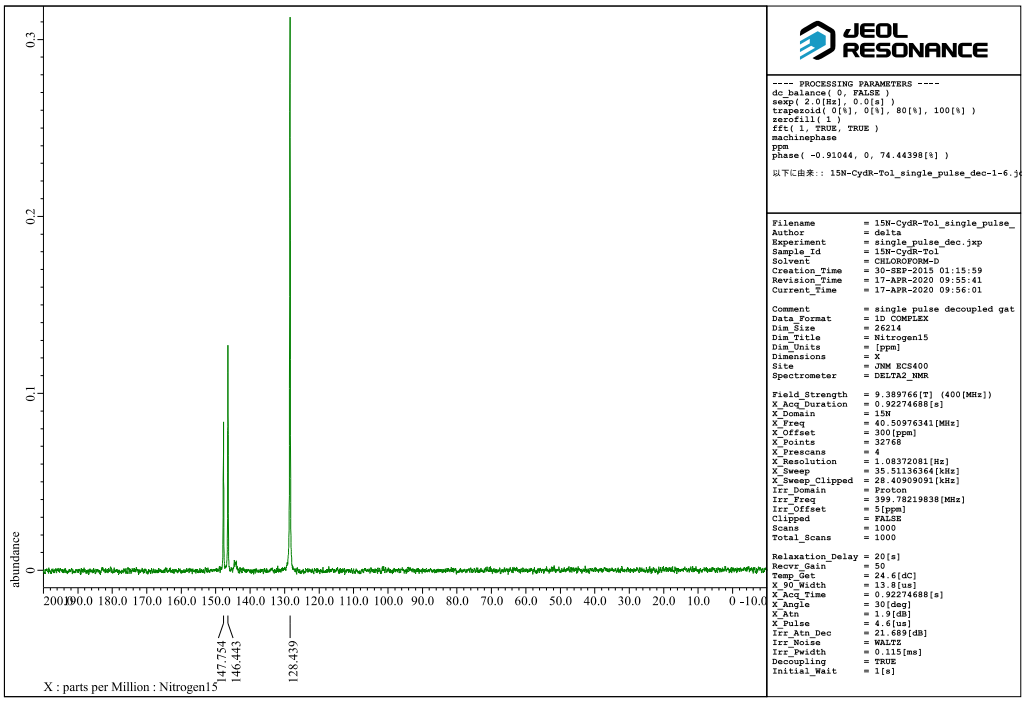
^{1}H

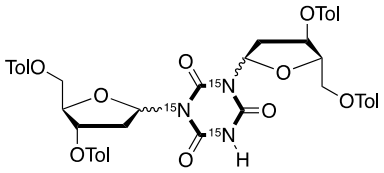


^{13}C

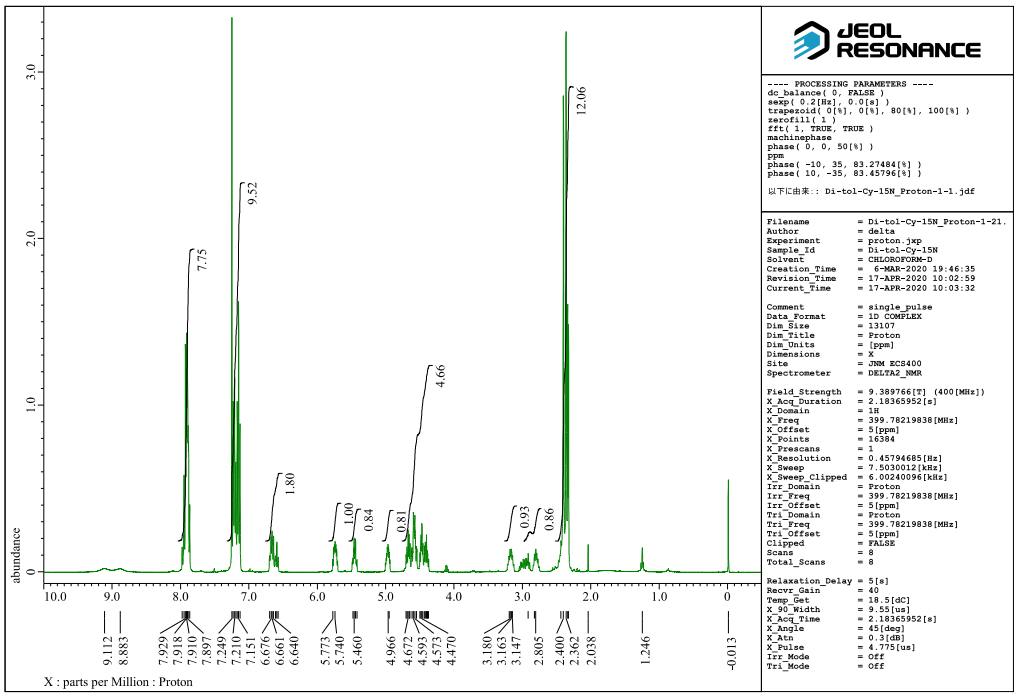

JEOL RESONANCE
---- PROCESSING PARAMETERS ----
dc_balance(0, FALSE)
sexp(2.0[Hz], 0.0[s])
trapezoid(0[%], 0[%], 80[%], 100[%])
zerofill(1)
fft(1, TRUE, TRUE)
machinephase
ppm
phase(1.43619, -28.67528, 59.15004[%])
以下に由来：: 15N-CydR-Tol_Carbon-1-4.jdf
Filename = 15N-CydR-Tol_Carbon-1-5.jd
Author = delta
Experiment = carbon.jxp
Sample_Id = 15N-CydR-Tol
Solvent = CHLOROFORM-D
Creation_Time = 29-SEP-2015 19:09:13
Revision_Time = 17-APR-2020 09:54:21
Current_Time = 17-APR-2020 09:55:06
Comment = single pulse decoupled gat
Data_Format = 1D COMPLEX
Dim_Size = 26214
Dim_Title = Carbon13
Dim_Units = [ppm]
Dimensions = X
Site = JNM ECS400
Spectrometer = DELTA2_NMR
Field_Strength = 9.389766[T] (400[MHz])
X_Acq_Duration = 1.04333312[s]
X_Domain = 13C
X_Freq = 100.52530333[MHz]
X_Offset = 100[ppm]
X_Points = 32768
X_Prescans = 4
X_Resolution = 0.95846665[Hz]
X_Sweep = 31.40703518[kHz]
X_Sweep_Clipped = 25.12562814[kHz]
Irr_Domain = Proton
Irr_Freq = 399.78219838[MHz]
Irr_Offset = 5[ppm]
Clipped = FALSE
Scans = 6000
Total_Scans = 6000
Relaxation_Delay = 2[s]
Recvr_Gain = 50
Temp_Get = 23.7[dC]
X_90_Width = 8.7[us]
X_Acq_Time = 1.04333312[s]
X_Angle = 30[deg]
X_Atn = 4.5[dB]
X_Pulse = 2.9[us]
Irr_Atn_Dec = 21.689[dB]
Irr_Atn_Noe = 21.689[dB]
Irr_Noise = WALTZ
Irr_Pwidth = 0.115[ms]
Decoupling = TRUE
abundance
166.952
166.656
166.494
166.389
166.180
148.760
145.579
144.221
143.792
129.967
129.900
129.824
129.223
129.138
129.080
126.716
83.200
82.437
77.451
77.336
77.136
76.812
75.105
73.637
64.722
57.256
35.270
34.526
21.750
21.673
0.335
0.087
-0.170
X : parts per Million : Carbon13

^{15}N

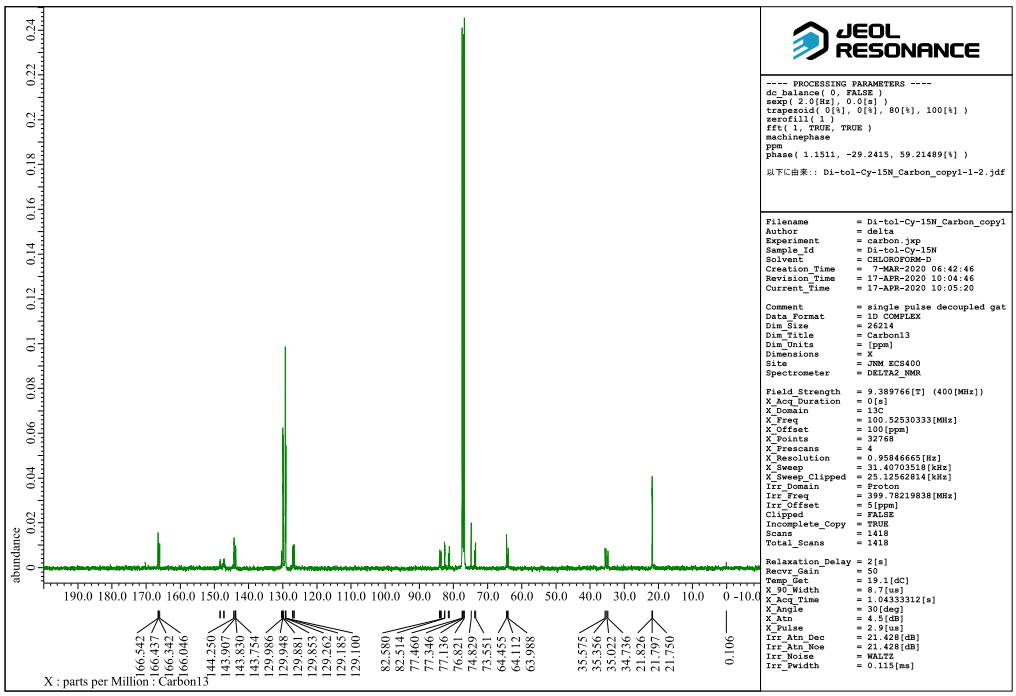

JEOL RESONANCE
---- PROCESSING PARAMETERS ----
dc_balance(0, FALSE)
sexp(2.0[Hz], 0.0[s])
trapezoid(0[%], 0[%], 80[%], 100[%])
zerofill(1)
fft(1, TRUE, TRUE)
machinephase
ppm
phase(-0.91044, 0, 74.44398[%])
以下に由来：: 15N-CydR-Tol_single_pulse_dec-1-6.j
Filename = 15N-CydR-Tol_single_pulse_
Author = delta
Experiment = single_pulse_dec.jxp
Sample_Id = 15N-CydR-Tol
Solvent = CHLOROFORM-D
Creation_Time = 30-SEP-2015 01:15:59
Revision_Time = 17-APR-2020 09:55:41
Current_Time = 17-APR-2020 09:56:01
Comment = single pulse decoupled gat
Data_Format = 1D COMPLEX
Dim_Size = 26214
Dim_Title = Nitrogen15
Dim_Units = [ppm]
Dimensions = X
Site = JNM ECS400
Spectrometer = DELTA2_NMR
Field_Strength = 9.389766[T] (400[MHz])
X_Acq_Duration = 0.92274688[s]
X_Domain = 15N
X_Freq = 40.50976341[MHz]
X_Offset = 300[ppm]
X_Points = 32768
X_Prescans = 4
X_Resolution = 1.08372081[Hz]
X_Sweep = 35.51136364[kHz]
X_Sweep_Clipped = 28.40909091[kHz]
Irr_Domain = Proton
Irr_Freq = 399.78219838[MHz]
Irr_Offset = 5[ppm]
Clipped = FALSE
Scans = 1000
Total_Scans = 1000
Relaxation_Delay = 20[s]
Recvr_Gain = 50
Temp_Get = 24.6[dC]
X_90_Width = 13.8[us]
X_Acq_Time = 0.92274688[s]
X_Angle = 30[deg]
X_Atn = 1.9[dB]
X_Pulse = 4.6[us]
Irr_Atn_Dec = 21.689[dB]
Irr_Noise = WALTZ
Irr_Pwidth = 0.115[ms]
Decoupling = TRUE
Initial_Wait = 1[s]
abundance
147.754
146.443
128.439
X : parts per Million : Nitrogen15

S1-3	Compound 5	 in $CDCl_3$

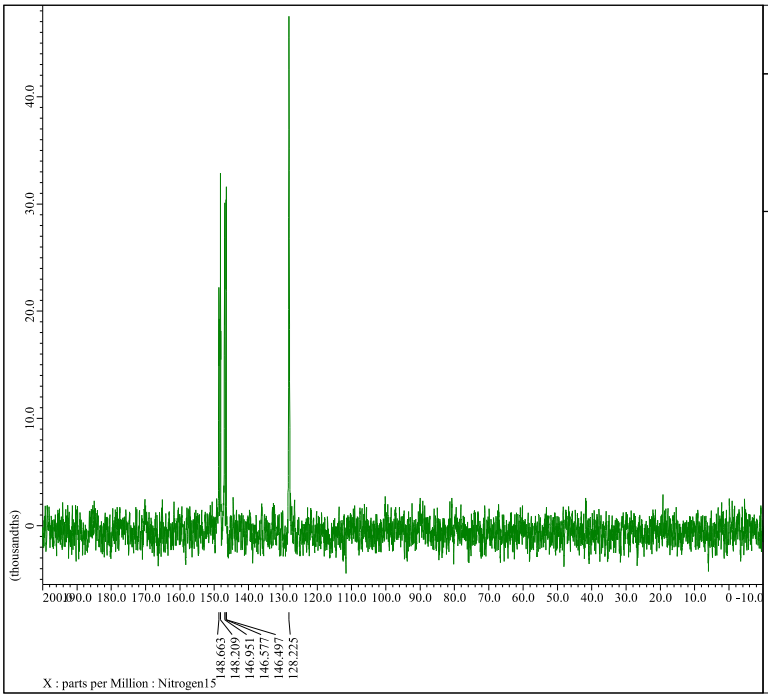
^{1}H



^{13}C



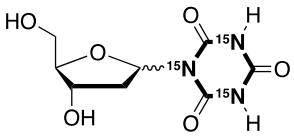
^{15}N



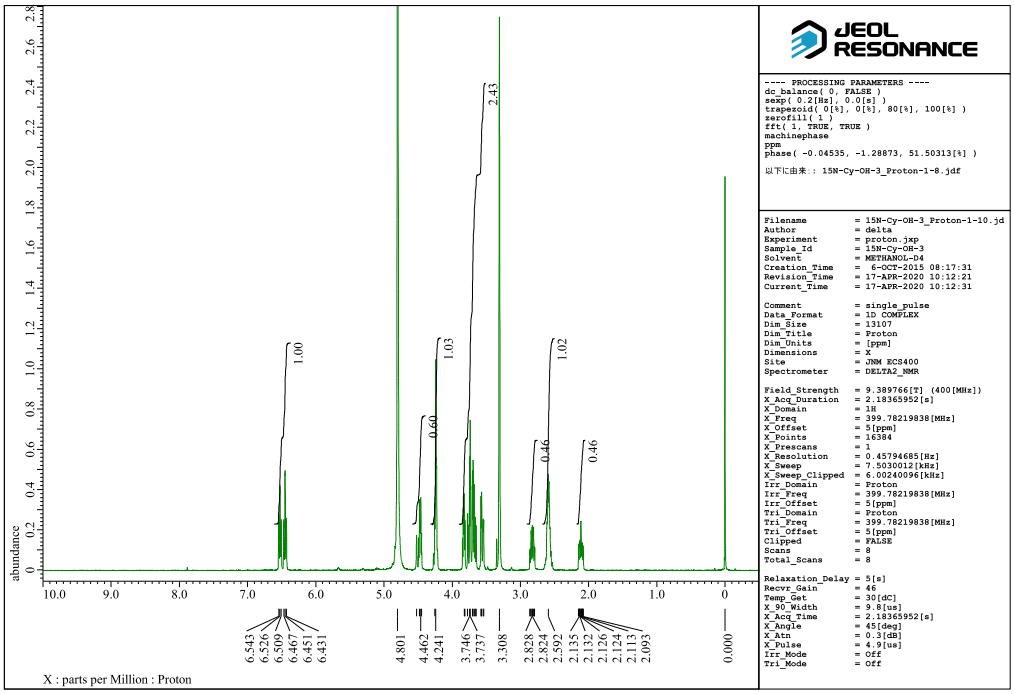
JEOL RESONANCE

```
---- PROCESSING PARAMETERS ----
dc_balance( 0, FALSE )
sexp( 2.0[Hz], 0.0[s] )
trapezoid( 0[%], 0[%], 80[%], 100[%] )
zerofill( 1 )
fft( 1, TRUE, TRUE )
machinephase
ppm
phase( 359.37302, -279.14263, 74.50883[%] )

以下に由来： Di-tol-Cy-15N_single_pulse_dec-1-5.jx
```

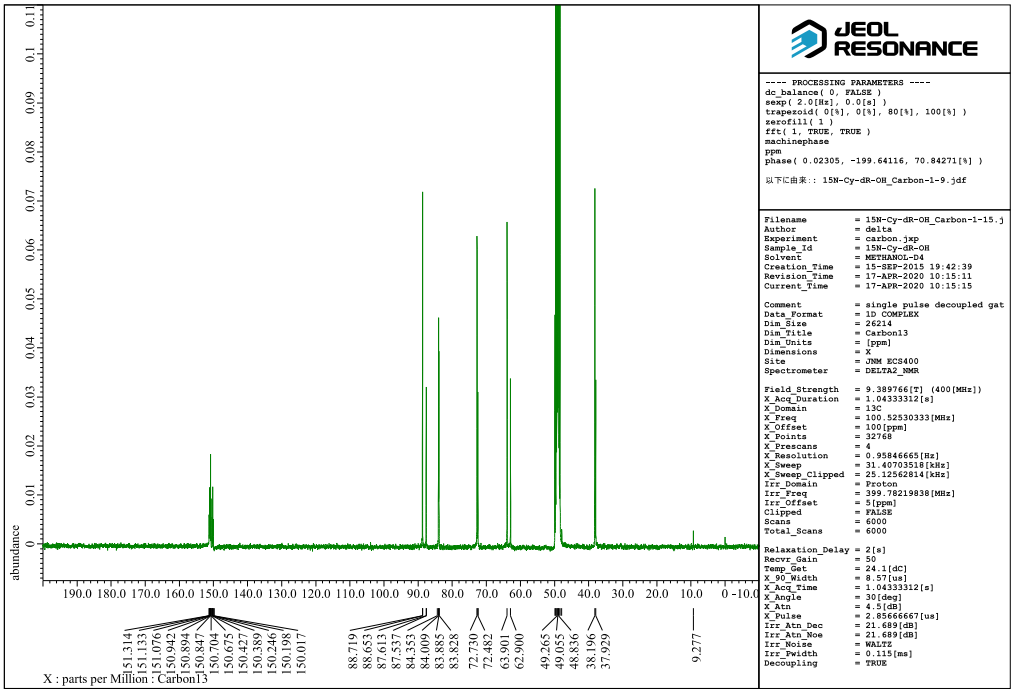
Filename	= Di-tol-Cy-15N_single_pulse
Author	= delta
Experiment	= single_pulse_dec.jxp
Sample_Id	= Di-tol-Cy-15N
Solvent	= CHLOROFORM-D
Creation_Time	= 7-MAR-2020 08:27:23
Revision_Time	= 17-APR-2020 10:05:58
Current_Time	= 17-APR-2020 10:06:18
Comment	= single pulse decoupled gat
Data_Format	= 1D COMPLEX
Dim_Size	= 26214
Dim_Title	= Nitrogen15
Dim_Units	= [ppm]
Dimensions	= X
Site	= JNM ECS400
Spectrometer	= DELTA2_NMR
Field_Strength	= 9.389766[T] (400[MHz])
X_Acq_Duration	= 0.92274688[s]
X_Domain	= 15N
X_Freq	= 40.50976341[MHz]
X_Offset	= 300[ppm]
X_Points	= 32768
X_Prescans	= 4
X_Resolution	= 1.08372081[Hz]
X_Sweep	= 35.51136364[kHz]
X_Sweep_Clipped	= 28.40909091[kHz]
Irr_Domain	= Proton
Irr_Freq	= 399.78219838[MHz]
Irr_Offset	= 5[ppm]
Clipped	= FALSE
Scans	= 400
Total_Scans	= 400
Relaxation_Delay	= 15[s]
Recvr_Gain	= 50
Temp_Get	= 18.9[dC]
X_90_Width	= 13.8[us]
X_Acq_Time	= 0.92274688[s]
X_Angle	= 30[deg]
X_Atn	= 1.9[dB]
X_Pulse	= 4.6[us]
Irr_Atn_Dec	= 21.428[dB]
Irr_Noise	= WALTZ
Irr_Pwidth	= 0.115[ms]
Decoupling	= TRUE
Initial_Wait	= 1[s]

S1-4	Compound 6	 in $CDCl_3$

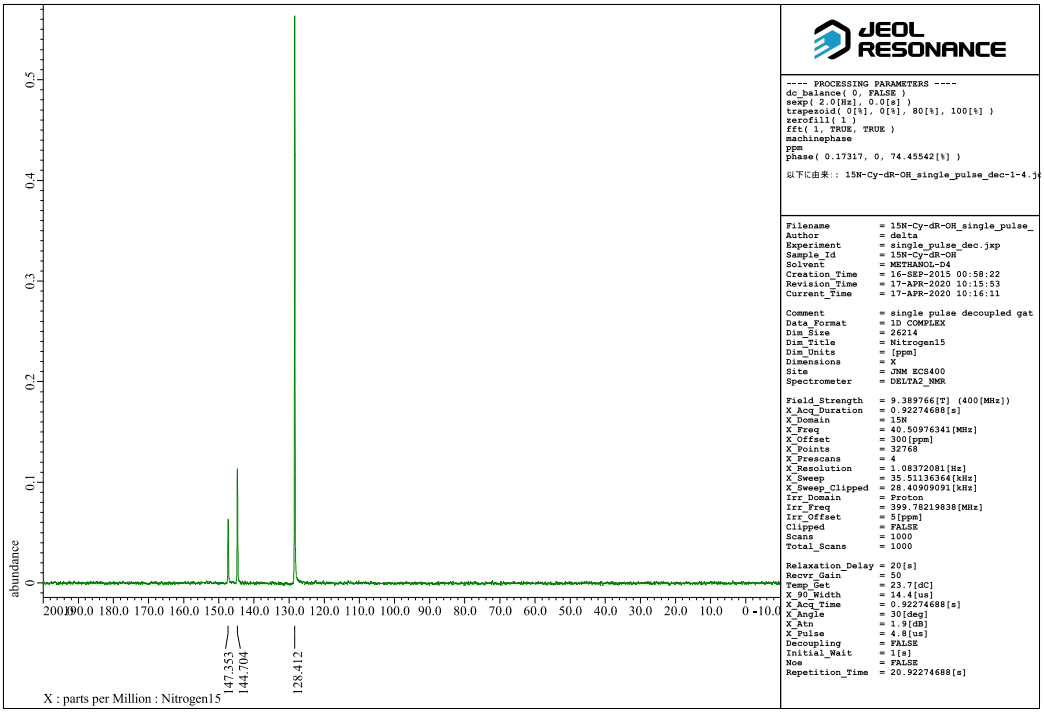
^{1}H

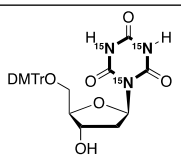


^{13}C

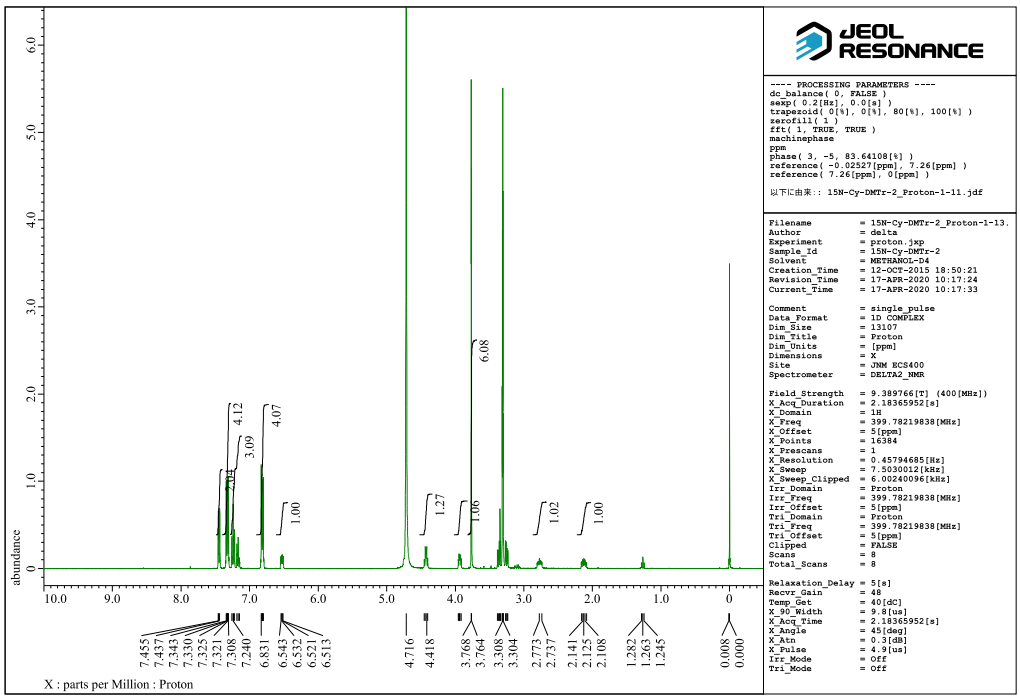


^{15}N

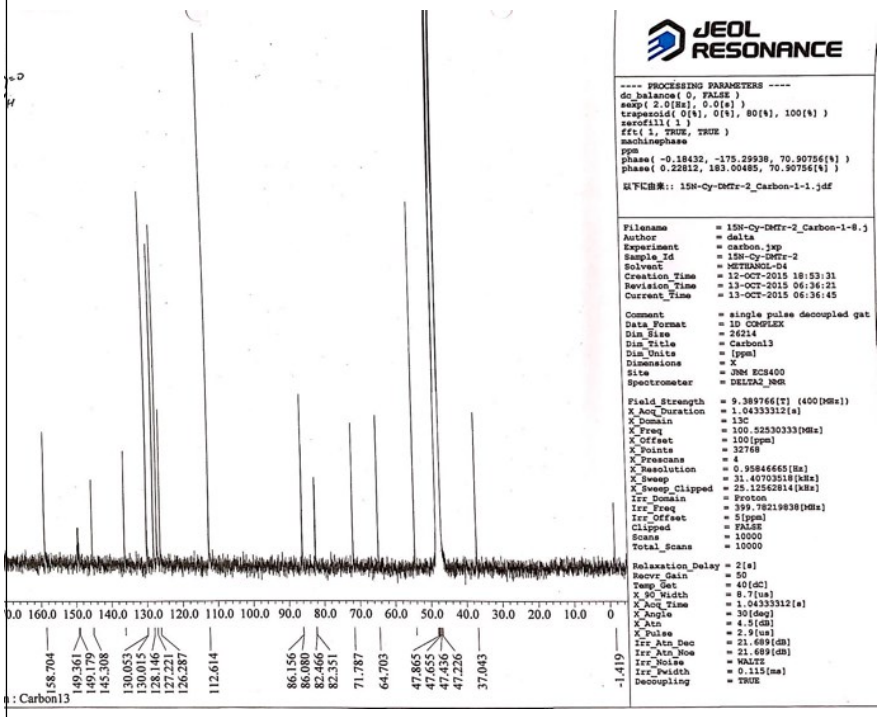


S1-5	Compound 7b (β-form)	 in $CDCl_3$

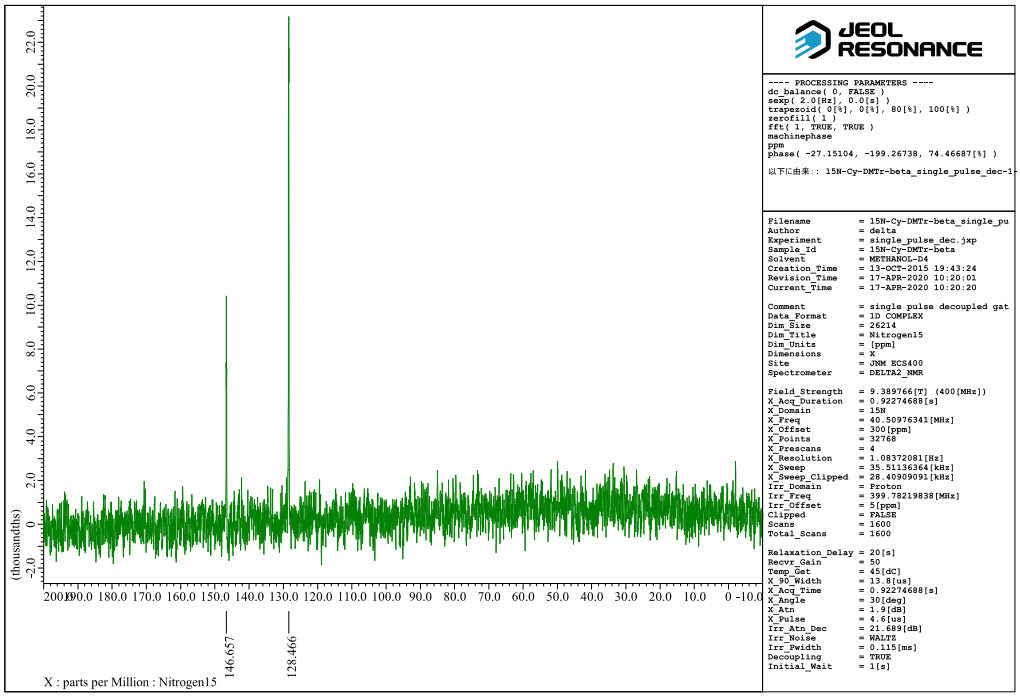
^{1}H

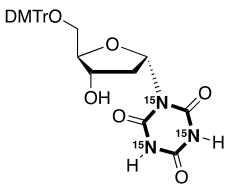


^{13}C

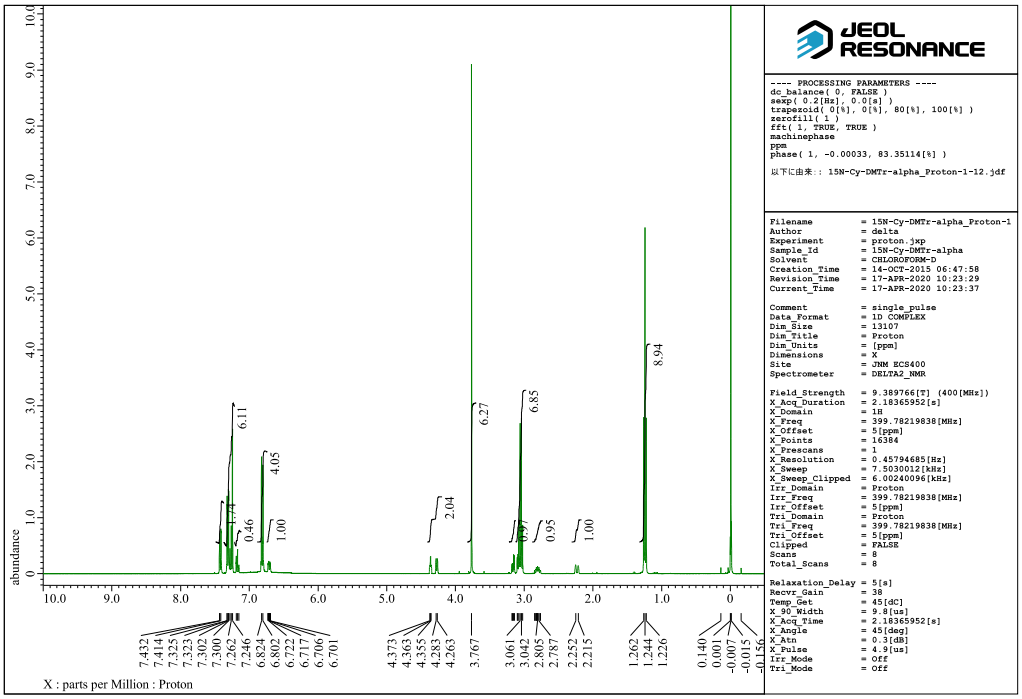

JEOL RESONANCE
---- PROCESSING PARAMETERS ----
dc_balance(0, FALSE)
expo(2.0[Hz], 0.0[s])
trapezoid(0[%], 0[%], 80[%], 100[%])
zerofill(1)
fft(1, TRUE, TRUE)
machinephase
ppm
phase(-0.18432, -175.29938, 70.90756[%])
phase(0.22812, 183.00485, 70.90756[%])
以下広由来:: 15N-Cy-DMTr-2_Carbon-1-1.jdf
Filename = 15N-Cy-DMTr-2_Carbon-1-8.j
Author = delta
Experiment = carbon.jxp
Sample_Id = 15N-Cy-DMTr-2
Solvent = METHANOL-D4
Creation_Time = 12-OCT-2015 18:53:31
Revision_Time = 13-OCT-2015 06:36:21
Current_Time = 13-OCT-2015 06:36:45
Comment = single pulse decoupled gat
Data_Format = 1D COMPLEX
Dim_Size = 26214
Dim_Title = Carbon13
Dim_Units = [ppm]
Dimensions = X
Site = JNM ECS400
Spectrometer = DELTA2_NMR
Field_Strength = 9.389766[T] (400[MHz])
X_Acq_Duration = 1.04333312[s]
X_Domain = 13C
X_Freq = 100.52530333[MHz]
X_Offset = 100[ppm]
X_Points = 32768
X_Prescans = 4
X_Resolution = 0.95846665[Hz]
X_Sweep = 31.40703518[kHz]
X_Sweep_Clipped = 25.12562814[kHz]
Irr_Domain = Proton
Irr_Freq = 399.78219838[MHz]
Irr_Offset = 5[ppm]
Clipped = FALSE
Scans = 10000
Total_Scans = 10000
Relaxation_Delay = 2[s]
Recvr_Gain = 50
Temp_Get = 40[dC]
X_90_Width = 8.7[us]
X_Acq_Time = 1.04333312[s]
X_Angle = 30[deg]
X_Atn = 4.5[dB]
X_Pulse = 2.9[us]
Irr_Atn_Dec = 21.689[dB]
Irr_Atn_Noe = 21.689[dB]
Irr_Noise = WALTZ
Irr_Pwidth = 0.115[ms]
Decoupling = TRUE
0.0 160.0 150.0 140.0 130.0 120.0 110.0 100.0 90.0 80.0 70.0 60.0 50.0 40.0 30.0 20.0 10.0 0
158.704
149.361
149.179
145.308
130.053
130.015
128.146
127.221
126.287
112.614
86.156
86.080
82.466
82.351
71.787
64.703
47.865
47.655
47.436
47.226
37.043
-1.419
: Carbon13

^{15}N

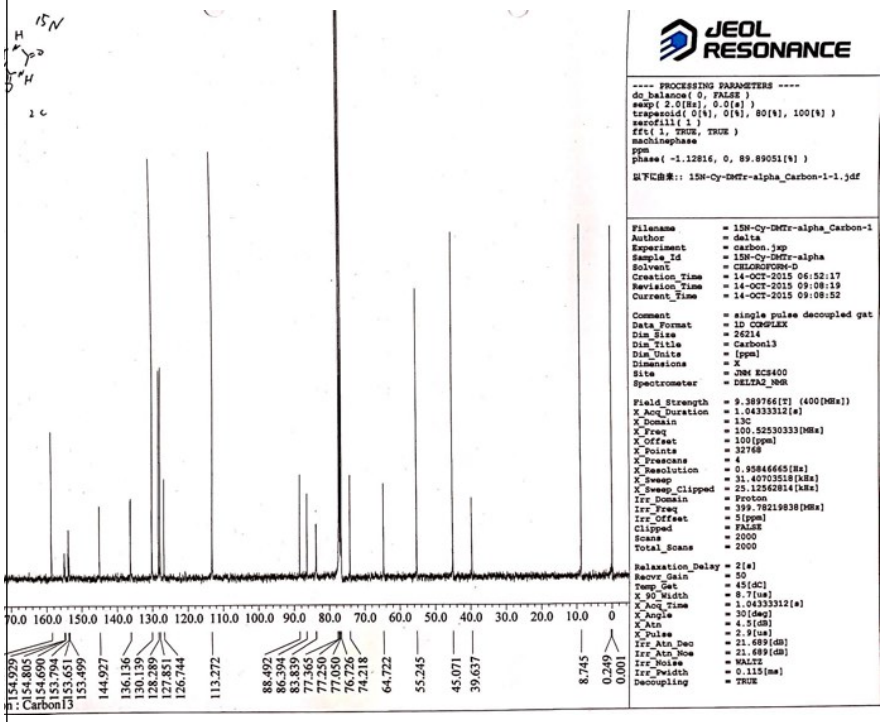


S1-6	Compound 7a (α-form)	 in $CDCl_3$

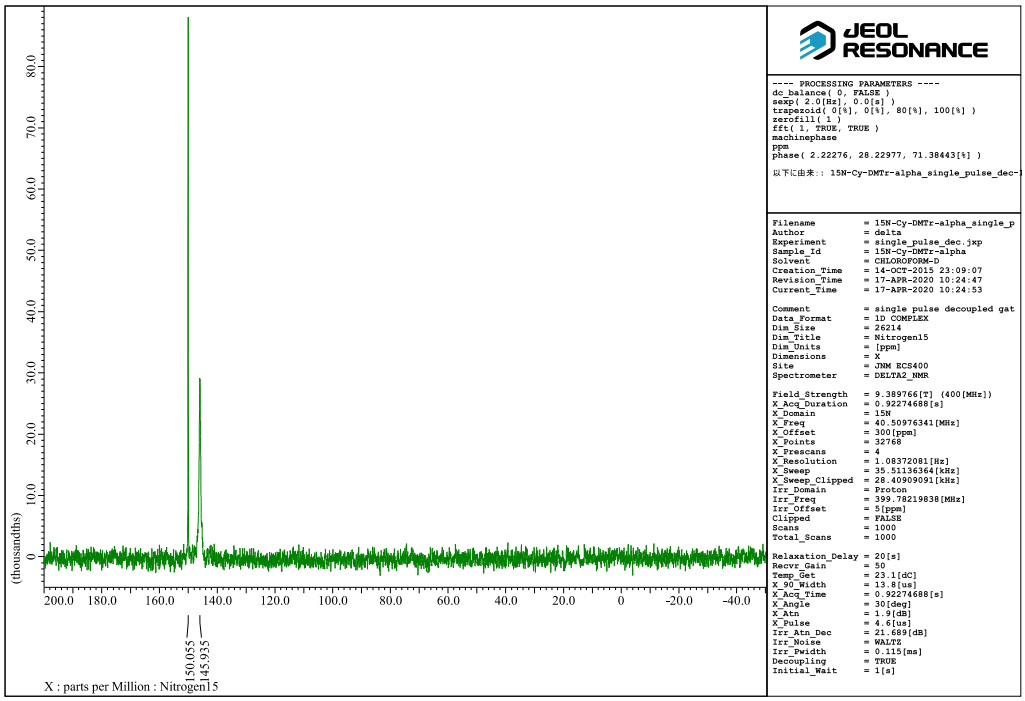
^{1}H


abundance
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0
6.11
4.05
1.44
0.46
1.00
2.04
6.27
6.85
1.07
0.95
1.00
8.94
7.432
7.414
7.325
7.323
7.302
7.300
7.262
7.246
6.824
6.802
6.722
6.717
6.706
6.701
4.373
4.363
4.355
4.283
4.263
3.767
3.061
3.042
2.805
2.787
2.252
2.215
1.262
1.244
1.226
0.140
0.001
-0.007
-0.015
-0.156
X : parts per Million : Proton
JEOL RESONANCE
---- PROCESSING PARAMETERS ----
dc_balance(0, FALSE)
sexp(0.2[Hz], 0.0[s])
trapezoid(0[%], 0[%], 80[%], 100[%])
zerofill(1)
fft(1, TRUE, TRUE)
machinephase
ppm
phase(1, -0.00033, 83.35114[%])
以下に由来：: 15N-Cy-DMTr-alpha_Proton-1-12.jdf
Filename = 15N-Cy-DMTr-alpha_Proton-1
Author = delta
Experiment = proton.jxp
Sample_Id = 15N-Cy-DMTr-alpha
Solvent = CHLOROFORM-D
Creation_Time = 14-OCT-2015 06:47:58
Revision_Time = 17-APR-2020 10:23:29
Current_Time = 17-APR-2020 10:23:37
Comment = single_pulse
Data_Format = 1D COMPLEX
Dim_Size = 13107
Dim_Title = Proton
Dim_Units = [ppm]
Dimensions = X
Site = JNM ECS400
Spectrometer = DELTA2_NMR
Field_Strength = 9.389766[T] (400[MHz])
X_Acq_Duration = 2.18365952[s]
X_Domain = 1H
X_Freq = 399.78219838[MHz]
X_Offset = 5[ppm]
X_Points = 16384
X_Prescans = 1
X_Resolution = 0.45794685[Hz]
X_Sweep = 7.5030012[kHz]
X_Sweep_Clipped = 6.00240096[kHz]
Irr_Domain = Proton
Irr_Freq = 399.78219838[MHz]
Irr_Offset = 5[ppm]
Tri_Domain = Proton
Tri_Freq = 399.78219838[MHz]
Tri_Offset = 5[ppm]
Clipped = FALSE
Scans = 8
Total_Scans = 8
Relaxation_Delay = 5[s]
Recvr_Gain = 38
Temp_Get = 45[dC]
X_90_Width = 9.8[us]
X_Acq_Time = 2.18365952[s]
X_Angle = 45[deg]
X_Atn = 0.3[dB]
X_Pulse = 4.9[us]
Irr_Mode = Off
Tri_Mode = Off

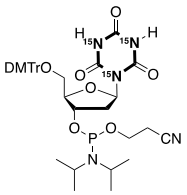
^{13}C


JEOL RESONANCE
---- PROCESSING PARAMETERS ----
do_balance(0, FALSE)
expo(2.0[Hz], 0.0[s])
trapezoid(0[%], 0[%], 80[%], 100[%])
zerofill(1)
fft(1, TRUE, TRUE)
machinephase
ppm
phase(-1.12816, 0, 89.89051[%])
以下に由来:: 15N-Cy-DMTr-alpha_Carbon-1-1.jdf
Filename = 15N-Cy-DMTr-alpha_Carbon-1
Author = delta
Experiment = carbon.jxp
Sample_Id = 15N-Cy-DMTr-alpha
Solvent = CHLOROFORM-D
Creation_Time = 14-OCT-2015 06:52:17
Revision_Time = 14-OCT-2015 09:08:19
Current_Time = 14-OCT-2015 09:08:52
Comment = single pulse decoupled gat
Data_Format = 1D COMPLEX
Dim_Size = 26214
Dim_Title = Carbon13
Dim_Units = [ppm]
Dimensions = X
Site = JNM ECS400
Spectrometer = DELTA2 NMR
Field_Strength = 9.389766[T] (400[MHz])
X_Acq_Duration = 1.04333312[s]
X_Domain = 13C
X_Freq = 100.52530333[MHz]
X_Offset = 100[ppm]
X_Points = 32768
X_Prescans = 4
X_Resolution = 0.95846665[Hz]
X_Sweep = 31.40703518[kHz]
X_Sweep_Clipped = 25.12562814[kHz]
Irr_Domain = Proton
Irr_Freq = 399.78219838[MHz]
Irr_Offset = 5[ppm]
Clipped = FALSE
Scans = 2000
Total_Scans = 2000
Relaxation_Delay = 2[s]
Recvr_Gain = 50
Temp_Get = 45[dC]
X_90_Width = 8.7[us]
X_Acq_Time = 1.04333312[s]
X_Angle = 30[deg]
X_Atn = 4.5[dB]
X_Pulse = 2.9[us]
Irr_Atn_Dec = 21.689[dB]
Irr_Atn_Noe = 21.689[dB]
Irr_Noise = WALTZ
Irr_Pwidth = 0.115[ms]
Decoupling = TRUE
70.0 160.0 150.0 140.0 130.0 120.0 110.0 100.0 90.0 80.0 70.0 60.0 50.0 40.0 30.0 20.0 10.0 0
154.929
154.805
154.690
153.794
153.651
153.499
144.927
136.136
130.139
128.289
127.851
126.744
113.272
88.492
86.394
83.839
77.365
77.250
77.050
76.726
74.218
64.722
55.245
45.071
39.637
8.745
0.249
0.001
n1: Carbon13

^{15}N

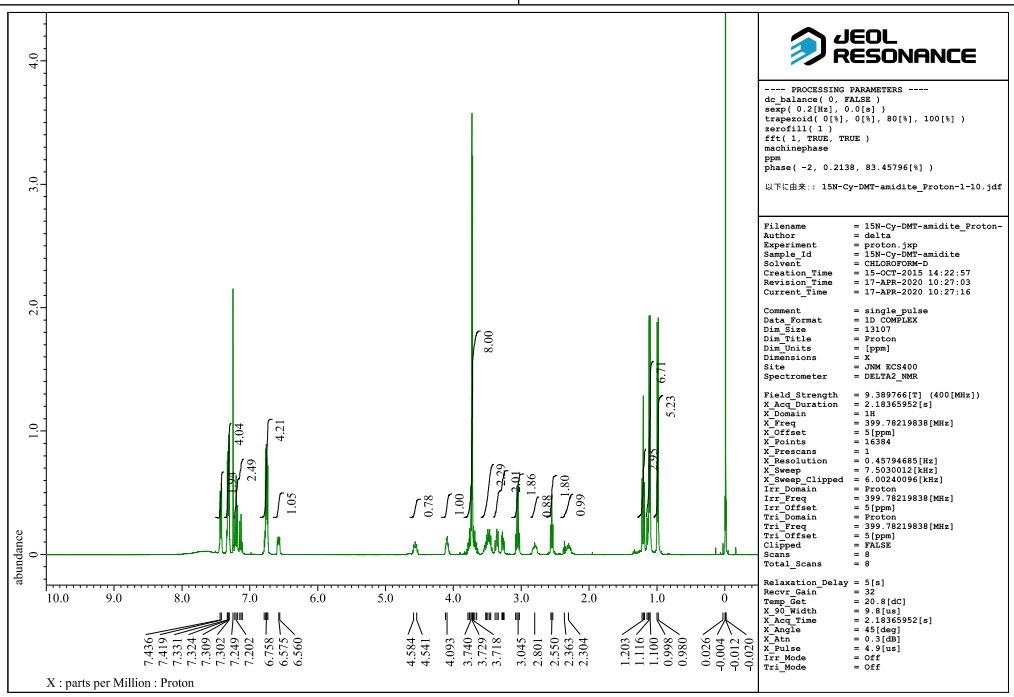


S1-7 Compound 8

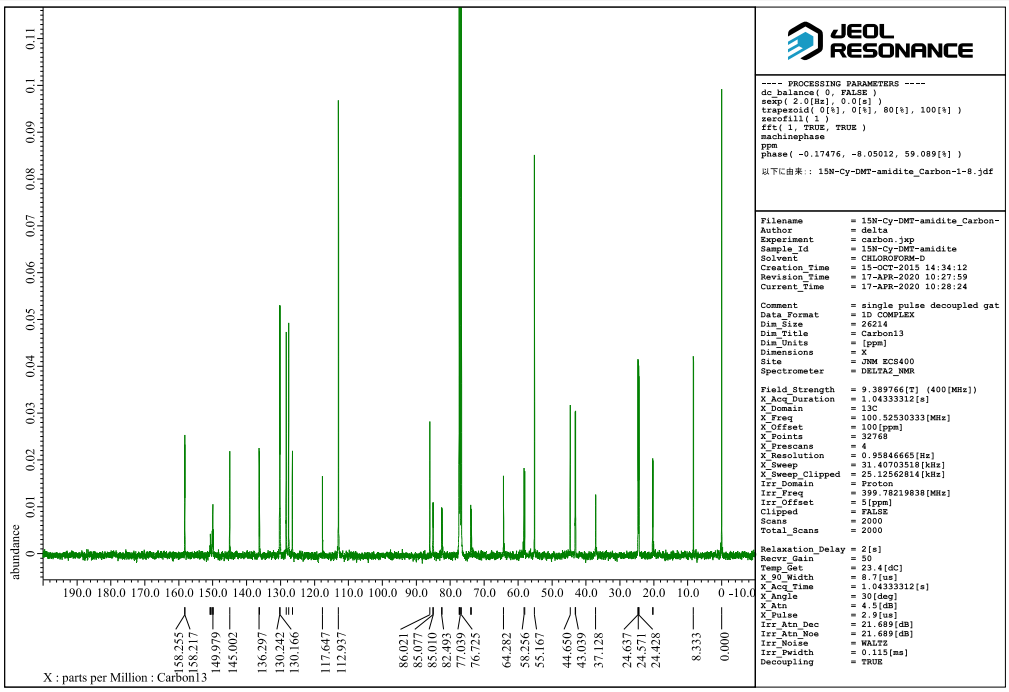


in $CDCl_3$

^{1}H



^{13}C

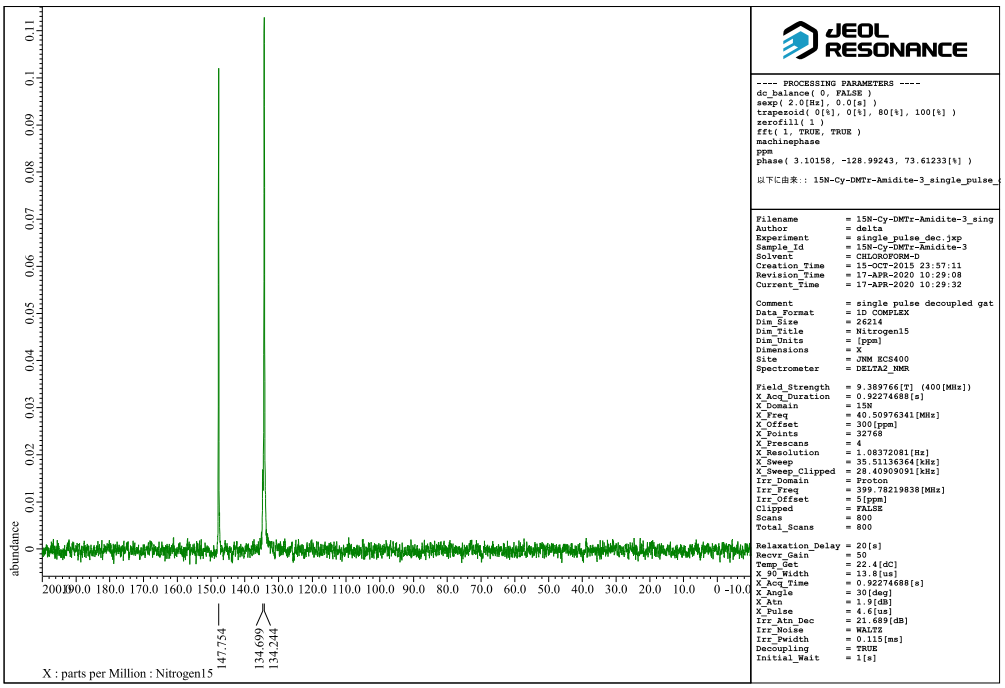


JEOL RESONANCE

```
---- PROCESSING PARAMETERS ----
dc_balance( 0, FALSE )
sexp( 2.0[Hz], 0.0[s] )
trapezoid( 0[%], 0[%], 80[%], 100[%] )
zerofill( 1 )
fft( 1, TRUE, TRUE )
machinephase
ppm
phase( -0.17476, -8.05012, 59.089[%] )

以下に由来： 15N-Cy-DMT-amidite_Carbon-1-8.jdf
```

```
Filename          = 15N-Cy-DMT-amidite_Carbon-
Author            = delta
Experiment        = carbon.jxp
Sample_Id         = 15N-Cy-DMT-amidite
Solvent           = CHLOROFORM-D
Creation_Time     = 15-OCT-2015 14:34:12
Revision_Time     = 17-APR-2020 10:27:59
Current_Time      = 17-APR-2020 10:28:24

Comment           = single pulse decoupled gat
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Carbon13
Dim_Units         = [ppm]
Dimensions        = X
Site              = JNM ECS400
Spectrometer      = DELTA2_NMR

Field_Strength    = 9.389766[T] (400[MHz])
X_Acq_Duration    = 1.04333312[s]
X_Domain          = 13C
X_Freq            = 100.52530333[MHz]
X_Offset          = 100[ppm]
X_Points          = 32768
X_Prescans        = 4
X_Resolution      = 0.95846665[Hz]
X_Sweep           = 31.40703518[kHz]
X_Sweep_Clipped   = 25.12562814[kHz]
Irr_Domain        = Proton
Irr_Freq          = 399.78219838[MHz]
Irr_Offset        = 5[ppm]
Clipped           = FALSE
Scans             = 2000
Total_Scans       = 2000

Relaxation_Delay = 2[s]
Recvr_Gain        = 50
Temp_Get          = 23.4[dC]
X_90_Width        = 8.7[us]
X_Acq_Time        = 1.04333312[s]
X_Angle           = 30[deg]
X_Atn             = 4.5[dB]
X_Pulse           = 2.9[us]
Irr_Atn_Dec       = 21.689[dB]
Irr_Atn_Noe       = 21.689[dB]
Irr_Noise         = WALTZ
Irr_Pwidth        = 0.115[ms]
Decoupling        = TRUE
```

^{15}N

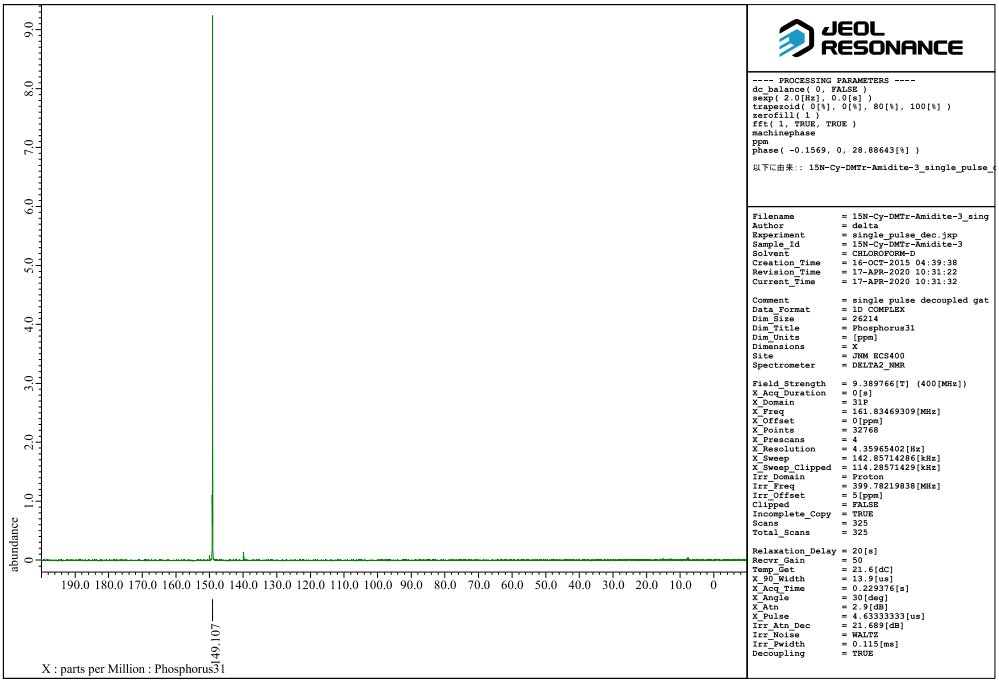


JEOL RESONANCE

```
---- PROCESSING PARAMETERS ----
dc_balance( 0, FALSE )
sexp( 2.0[Hz], 0.0[s] )
trapezoid( 0[%], 0[%], 80[%], 100[%] )
zerofill( 1 )
fft( 1, TRUE, TRUE )
machinephase
ppm
phase( 3.10158, -128.99243, 73.61233[%] )

以下に由来： 15N-Cy-DMTr-Amidite-3_single_pulse_
```

```
Filename          = 15N-Cy-DMTr-Amidite-3_sing
Author            = delta
Experiment        = single_pulse_dec.jxp
Sample_Id         = 15N-Cy-DMTr-Amidite-3
Solvent           = CHLOROFORM-D
Creation_Time     = 15-OCT-2015 23:57:11
Revision_Time     = 17-APR-2020 10:29:08
Current_Time      = 17-APR-2020 10:29:32

Comment           = single pulse decoupled gat
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Nitrogen15
Dim_Units         = [ppm]
Dimensions        = X
Site              = JNM ECS400
Spectrometer      = DELTA2_NMR

Field_Strength    = 9.389766[T] (400[MHz])
X_Acq_Duration    = 0.92274688[s]
X_Domain          = 15N
X_Freq            = 40.50976341[MHz]
X_Offset          = 300[ppm]
X_Points          = 32768
X_Prescans        = 4
X_Resolution      = 1.08372081[Hz]
X_Sweep           = 35.51136364[kHz]
X_Sweep_Clipped   = 28.40909091[kHz]
Irr_Domain        = Proton
Irr_Freq          = 399.78219838[MHz]
Irr_Offset        = 5[ppm]
Clipped           = FALSE
Scans             = 800
Total_Scans       = 800

Relaxation_Delay = 20[s]
Recvr_Gain        = 50
Temp_Get          = 22.4[dC]
X_90_Width        = 13.8[us]
X_Acq_Time        = 0.92274688[s]
X_Angle           = 30[deg]
X_Atn             = 1.9[dB]
X_Pulse           = 4.6[us]
Irr_Atn_Dec       = 21.689[dB]
Irr_Noise         = WALTZ
Irr_Pwidth        = 0.115[ms]
Decoupling        = TRUE
Initial_Wait      = 1[s]
```

^{31}P



JEOL RESONANCE

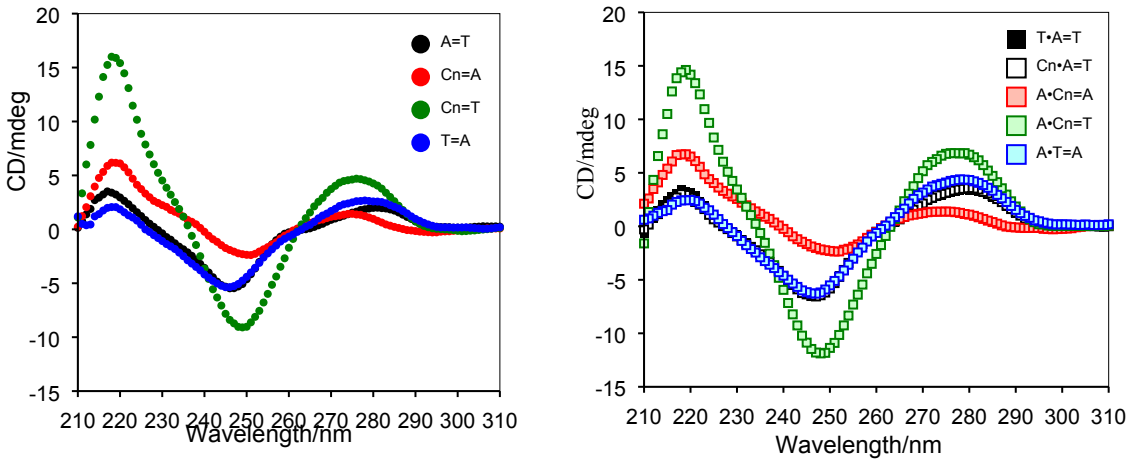
```
---- PROCESSING PARAMETERS ----
dc_balance( 0, FALSE )
exp( 2.0[Hz], 0.0[s] )
trapezoid( 0[%], 0[%], 80[%], 100[%] )
zerofill( 1 )
fft( 1, TRUE, TRUE )
machinephase
ppm
phase( -0.1569, 0, 28.88643[%] )

以下に由来：: 15N-Cy-DMTr-Amidite-3_single_pulse_
```

```
Filename          = 15N-Cy-DMTr-Amidite-3_sing
Author            = delta
Experiment        = single_pulse_dec.jxp
Sample_Id         = 15N-Cy-DMTr-Amidite-3
Solvent           = CHLOROFORM-D
Creation_Time     = 16-OCT-2015 04:39:38
Revision_Time     = 17-APR-2020 10:31:22
Current_Time      = 17-APR-2020 10:31:32

Comment           = single pulse decoupled gat
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Phosphorus31
Dim_Units         = [ppm]
Dimensions        = X
Site              = JNM ECS400
Spectrometer      = DELTA2_NMR

Field_Strength    = 9.389766[T] (400[MHz])
X_Acq_Duration    = 0[s]
X_Domain          = 31P
X_Freq            = 161.83469309[MHz]
X_Offset          = 0[ppm]
X_Points          = 32768
X_Prescans        = 4
X_Resolution      = 4.35965402[Hz]
X_Sweep           = 142.85714286[kHz]
X_Sweep_Clipped   = 114.28571429[kHz]
Irr_Domain        = Proton
Irr_Freq          = 399.78219838[MHz]
Irr_Offset        = 5[ppm]
Clipped           = FALSE
Incomplete_Copy   = TRUE
Scans             = 325
Total_Scans       = 325

Relaxation_Delay = 20[s]
Recvr_Gain        = 50
Temp_Get          = 21.6[dC]
X_90_Width        = 13.9[us]
X_Acq_Time        = 0.229376[s]
X_Angle           = 30[deg]
X_Atn             = 2.9[dB]
X_Pulse           = 4.63333333[us]
Irr_Atn_Dec       = 21.689[dB]
Irr_Noise         = WALTZ
Irr_Pwidth        = 0.115[ms]
Decoupling        = TRUE
```

S2. Circular Dichroism of duplex and triplex

Circular dichroism spectra were measured on a JASCO J-710 spectropolarimeter between 350 nm and 200 nm in standard buffer containing 1.0 M NaCl, 10 mM of Macllvaine buffer (phosphate-citric acid, pH 5.8), at 15 °C. The duplexes and triplexes concentrations were 0.8 µM (15 µM/base pair). Spectra were acquired every 1 nm with a bandwidth setting of 1 nm at a speed of 50 nm/min, averaging over 5 scans.

Circular dicroism spectroscopy was used to study the macroscopic helical geometry of the duplex DNA. All CD spectra for DNAs indicated by table 2 were analyzed at 15 ˚C. The CD spectra of triplex were indicated the same trend for each CD of duplex.



Circular dichroism of the sequences shown in Table 2 (in 10 mM Mcllvaine buffer pH 5.8 and 1000 mM NaCl).