

NMR Data on RNA and DNA Oligonucleotides

Chemical shifts (ppm)

C-13:

	DNA	RNA
C1'	86	87-92
C2'	40	74-76
C3'	80	70-75
C4'	88	80-84
C5'	65	63-69

C-13/N-15:

DNA Bases

	G	A	C	T
N1	160	213	151	142
C2	157	155	159	154
N3	146	222	196	160
C4	162	158	168	170
C5	117	120	99	114
C6	154	150	143	140
N7	233	230		
C8	138	142		135
N9	170	170		168
NH2				

RNA Bases

G	A	C	U
146	222	151	142
157	151	158	154
160	213	196	160
153	150	169	169
117	120	95	100
162	157	138	139
233	230		
138			
169			
75	81	98	

	G	A	C	T
H1'	5.8	5.8	5.5	6.0
H2'	2.6	2.6	2.0	2.1
H2''	2.7	2.8	2.3	2.6
H3'	4.9	5.0	4.8	4.9
H4'	4.4	4.4	4.1	4.2
H5'	4.0	4.2	4.1	-
H5''	4.1	4.2	4.3	-

G	A	C	U
5.6	6.0	5.6	5.6
4.6	4.7	4.5	4.3
-	-	-	-
4.5	4.7	4.5	4.6
4.4	4.5	4.4	4.3
4.3	4.5	4.4	4.3
4.1	4.2	4.0	4.0

RNA Coupling Constant Ranges (Hz):

Imino (N-H)	90
Ribose (C-H)	140-180
Base (C-H)	180-225
C8-N9	4-8
C8-N7	10
C6-N1	13
C1'-N1	11-13
C1'-N9	11-13
Ribose (C-C)	33-45
C1'-H1'	170-180
C2'-H2'	155-160
C3'-H3'	140-150
C4'-H4'	145-155
C5'-H5'	145-150
C5'-H5''	145-150