SUPPLEMENTARY MATERIAL

Table S1 ^{1}H NMR assignments of $rR_{10}{\cdot}dY^{p}_{10}$ obtained at 303K (non-exchangeable) and 278K (exchangeable) referenced against DSS. 5'/5" assignments non-stereospecific. The chemical shift of some OH protons overlap with certain NH_2 protons. nd not determined. 10mM Phosphate, 200 mM KCl pH 7.0.

	H6/8	**H5/C_3H_3 H2**	**1'**	**2'**	**2"**	**3'**	**4' 5'/5"**	**NH**	**NH_2**	**2'OH**
G1	7.94	-	5.62	4.81	-	4.57	4.32	3.88/3.98	nd	nd
A2	7.99	7.49	6.00	4.75	-	4.53	4.53	nd	-	6.63,7.61 6.81
A3	7.62 7.63	7.53	5.79 6.70	4.63	-	4.51	4.51	4.14	nd	- 6.70
G4	7.03	-	5.47	4.51	-	4.32	4.45	4.02	12.14	nd 6.93
A5	7.57	7.46	5.93	4.69	-	4.47	4.54	nd	-	6.70,7.61 6.81
G6	7.11	-	5.57	4.62	-	4.37	4.47	4.04	12.12	nd 6.96
A7	7.59	7.24	5.93	4.69	-	4.51	4.55	4.09	-	6.72,7.67 6.69
A8	7.56	7.53	5.84	4.63	-	4.51	4.51	nd	-	6.72,7.83 6.74
G9	7.19	-	5.66	4.36	-	4.50	4.42	4.02	13.20	nd 7.05
C10	7.46 nd	5.25	5.76	4.00	-	4.12	4.18	nd		- 7.08,8.15
G11	7.99	-	6.07	2.83	2.95	4.84	4.24	3.83	3.95	nd -
C p12	7.55	1.99	6.28	2.45	2.81	4.85	4.43	4.20	4.27	6.70,9.10 -
Up13	7.73	1.99	6.17	2.37	2.80	4.89	4.37	4.20,4.28		14.38 - -
U p14	7.80	2.04	6.19	2.38	2.79	4.89	4.40	4.21,4.27		13.84 - -
C p15	7.59	2.05	6.03	2.32	2.72	4.78	4.34	nd	-	6.71,8.70 -
U p16	7.70	1.99	6.13	2.34	2.76	4.87	4.34	4.18,4.23		14.00 - -
C p17	7.61	2.03	6.04	2.38	2.72	4.77	4.33	nd	-	6.71,8.73 -
Up18	7.66	1.98	6.01	2.36	2.71	4.87	4.28	nd	14.12	- -
U p19	7.95	2.02	6.18	2.31	2.67	4.89	4.31	nd	14.03	- -
C20	7.58	5.63	6.26	2.16	2.23	4.54	4.06	nd	-	7.03,8.20 -

Table S2 ^{1}H NMR assignments of dR10·rYM10 obtained at 303K (non-exchangeable) and 278K (exchangeable) referenced against DSS. nd not determined. U^{Me} – deoxyuracil.

	H6/8	H5/Me H2		1'	2'	2''	3'	4'	NH	NH_2
G1	7.83	-		5.75	2.47	2.66	4.82	4.17	12.66	6.76
A2	8.15	7.41		6.06	2.77	2.92	5.05	4.40	-	7.9, 6.43
A3	7.95	7.38		6.05	2.66	2.81	5.00	4.44	-	7.8, 6.12
G4	7.33	-		5.73	2.47	2.67	4.88	4.36	12.56	
A5	7.80	7.38		6.13	2.64	2.83	4.95	4.41	-	
G6	7.26	-		5.71	2.41	2.65	4.87	4.33	12.57	7.8, 6.3
A7	7.79	7.19		6.06	2.56	2.84	4.98	4.44	-	7.85, 6.2
A8	7.83	7.38		5.99	2.60	2.74	4.97	4.40	-	7.70, 6.25
G9	7.39	-		5.89	2.42	2.62	4.82	4.36	13.12	8.05, 6.10
C10	7.29	5.05		6.14	2.07	2.24	4.45	4.07	-	8.1, 6.55
G11	7.84	-		5.54	4.73	-	nd	nd	12.73	
C12	7.70	5.21		5.49	4.44	-	nd	nd	-	8.37, 6.77
U^{Me}13		7.81	1.60		5.48	4.47	-	nd	nd	14.24
U^{Me}14		7.91	1.64		5.67	4.58	-	nd	nd	13.88
C15	7.81	5.66		5.41	4.38	-	nd	nd	-	8.45, 7.05
U^{Me}16		7.81	1.57		5.37	4.56	-	nd	nd	14.28
C17	7.79	5.66		5.41	4.40	-	nd	nd	-	8.40, 7.03
U^{Me}18		7.82	1.63		5.40	4.32	-	nd	nd	14.06
U^{Me}19		7.88	1.70		5.80	4.21	-	nd	nd	14.16
C20	7.83	5.81		5.93	4.06	-	nd	nd	-	8.22, 7.10

Table S3 ^{1}H NMR assignments of rR_{10}·dYU_{10} obtained at 303K (non-exchangeable) and 278K (exchangeable) referenced against DSS. nd not determined, nv not visible.

	H6/8	H5 H2	1'	2'	2''	3'	4'	NH	NH_2
G1	7.92	-	5.58	4.78	-	4.59	4.32	nv	-
A2	8.03	7.39	5.93	4.67	-	4.58	4.52	-	-
A3	7.81	7.55	5.84	4.61	-	4.60	4.50	-	-
G4	7.12	-	5.45	4.46	-	4.42	4.42	12.39	-
A5	7.66	7.56	5.85	4.63	-	4.57	4.45	-	-
G6	7.11	-	5.48	4.51	-	4.43	4.43	12.42	-
A7	7.70	7.30	5.83	4.60	-	4.50	4.485	-	-
A8	7.75	7.60	5.80	4.51	-	4.49	4.59	-	-
G9	7.39	-	5.67	4.17	-	4.51	4.39	13.47	-
C10	7.54	5.35	5.81	3.98	-	4.16	4.16	-	7.06, 8.28
G11	8.05	-	6.03	2.77	2.77	4.83	nd	nv	-
C12	7.65	5.43	6.17	2.42	2.62	4.83	nd	-	6.93, 8.68
U13	7.71	5.44	6.15	2.35	2.67	4.89	nd	14.44	-
U14	7.73	5.55	6.10	2.35	2.67	4.89	nd	13.86	-
C15	7.56	5.64	6.06	2.28	2.56	4.78	nd	-	7.05, 8.28
U16	7.59	5.28	6.05	2.29	2.63	4.86	nd	14.05	-
C17	7.57	5.62	6.03	2.28	2.56	4.86	nd	-	7.06, 8.32
U18	7.59	5.29	6.08	2.25	2.61	4.86	nd	13.96	-
U19	7.68	5.51	6.17	2.25	2.61	4.87	nd	13.91	-
C20	7.55	5.64	6.24	2.14	2.22	4.53	nd	-	7.04, 8.20

Table S4. deoxyribose conformational parameters in DNA.RNA hybrids.

Data refer to the italicised strand. Σ3' includes $^{3}J_{H3'-P}$ (4-6Hz). Values of Ps and fs calculated as described previously (10)˙ Standard deviations were estimated as ±0.5 Hz (Σ1'), ±1 (Σ2') and ±2 (Σ2", Σ3'). Errors on Ps and fs estimated at ±20° and 0.1 respectively.

	dR10·rYM10							rR10·*dYU10*		
Base	Σ1'	Σ2'	Σ2"	Σ3'	$r_{1'-4'}$	fs/ Ps (˚)	Base	Σ1'	Σ3'	fs
	Hz				Å			Hz		
G1	nd	nd	nd	nd	nd	nd	**G11**	14.84	10.99	0.84
A2	15.38	26.37	20.33	9.62	2.99	1/ 162	**C12**	nd	12.64	nd
A3	nd	26.37	nd	10.44	2.56	nd	**U13**	15.38	nd	1.0
G4	nd	nd	nd	nd	2.91	nd	**U14**	nd	nd	nd
A5	14.29	26.37	23.08	nd	3.32	0.79/ 160	**C15**	nd	nd	nd
G6	nd	26.37	nd	9.89	2.73	nd	**U16**	nd	nd	nd
A7	13.19[b]	nd	nd	9.89	2.56	1/ 162	**C17**	nd	nd	nd
A8	13.74	27.47	23.08	nd	3.04	0.74/ 179	**U18**	13.74	nd	0.69

G9	13.55	26.37	23.63	nd	3.01	0.70/179	**U19**	13.19	nd	0.601
C10	13.74	26.69	24.32	9.89	3.11	1.0/200	**C20**	13.19	10.99	0.6
Mean	13.98	26.58	22.89	9.94	2.91	0.87/173	14.07	11.54	0.746	
s.d.	0.77	0.412	1.52	0.3	0.26	0.14/15.7	0.998	0.952	0.172	

Table S5. Electrophoretic mobility

Duplex	μrel
dR10·dY10 [a]	1.0
dR10·rY10 [a]	0.92
dR10·rY(T)10	0.87
rR10·dY(U)10 [a]	0.87
rR10·dY(10)[a]	0.84
rR10·d^{P}Y(10)	0.79
rR10·rY(10) [a]	0.77

[a] from [8]