



Full wwPDB X-ray Structure Validation Report ⓘ

Jun 12, 2024 – 08:28 AM EDT

PDB ID : 1GRZ
Title : A PREORGANIZED ACTIVE SITE IN THE CRYSTAL STRUCTURE OF THE TETRAHYMENA RIBOZYME
Authors : Golden, B.L.; Gooding, A.R.; Podell, E.R.; Cech, T.R.
Deposited on : 1998-09-14
Resolution : 5.00 Å (reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Xtrriage (Phenix) : **NOT EXECUTED**
EDS : **NOT EXECUTED**
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36.2

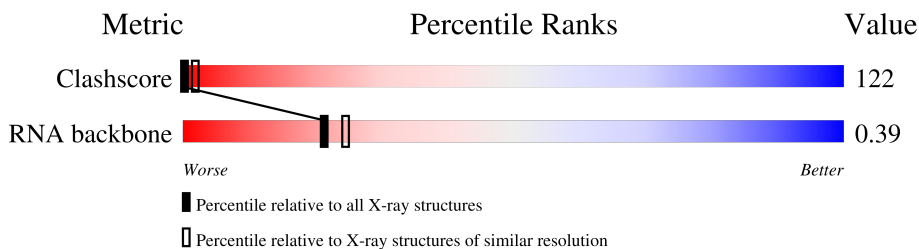
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 5.00 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
Clashscore	141614	1000 (6.16-3.82)
RNA backbone	3102	1068 (7.00-3.00)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	247	 • 56% 36% 5%
1	B	247	 60% 38% •

2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 10578 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a RNA chain called LSU R-RNA GROUP I INTRON.

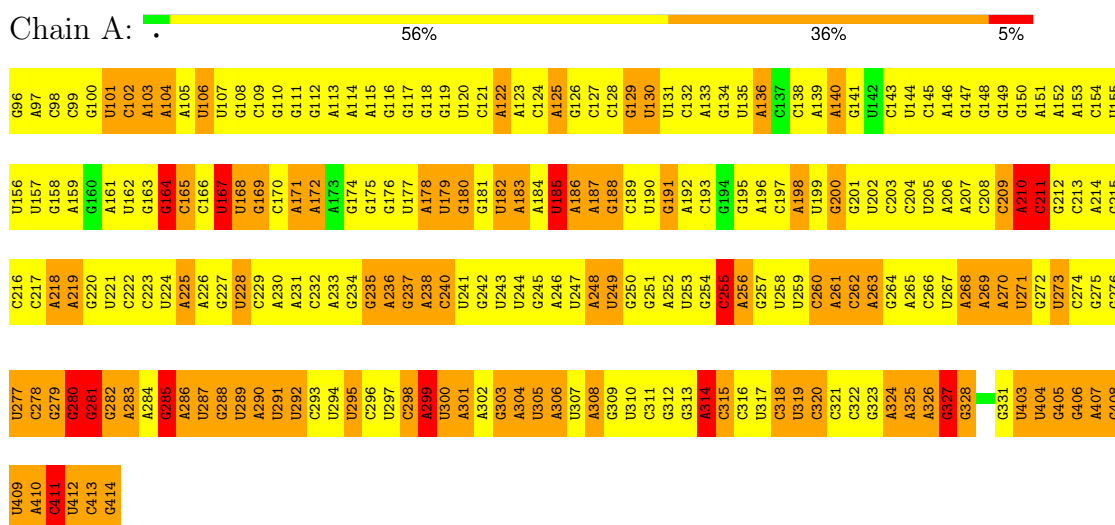
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
1	A	247	Total	C	N	O	P	0	0	0
			5289	2364	968	1711	246			
1	B	247	Total	C	N	O	P	0	0	0
			5289	2364	968	1711	246			

3 Residue-property plots [i](#)

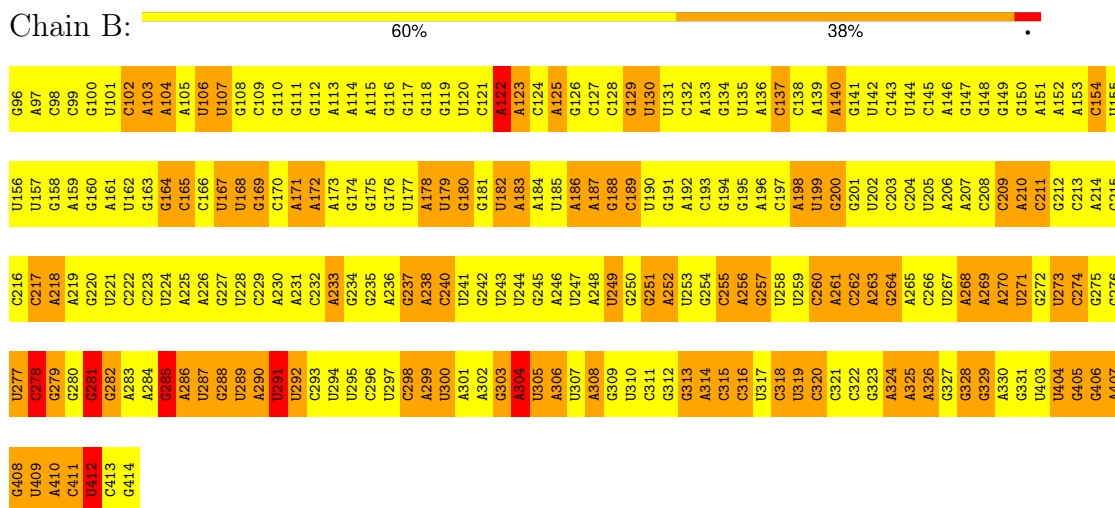
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

Note EDS was not executed.

- Molecule 1: LSU R-RNA GROUP I INTRON



- Molecule 1: LSU R-RNA GROUP I INTRON



4 Data and refinement statistics

Xtrriage (Phenix) and EDS were not executed - this section is therefore incomplete.

Property	Value	Source
Space group	P 42 21 2	Depositor
Cell constants a, b, c, α , β , γ	179.00Å 179.00Å 199.30Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	10.00 – 5.00	Depositor
% Data completeness (in resolution range)	79.4 (10.00-5.00)	Depositor
R_{merge}	0.05	Depositor
R_{sym}	(Not available)	Depositor
Refinement program	CNS	Depositor
R, R_{free}	0.369 , 0.428	Depositor
Estimated twinning fraction	No twinning to report.	Xtrriage
Total number of atoms	10578	wwPDB-VP
Average B, all atoms (Å ²)	168.0	wwPDB-VP

5 Model quality i

5.1 Standard geometry i

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	1.37	7/5923 (0.1%)	0.91	30/9235 (0.3%)
1	B	2.11	6/5923 (0.1%)	0.95	18/9235 (0.2%)
All	All	1.78	13/11846 (0.1%)	0.93	48/18470 (0.3%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	B	0	2

All (13) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	291	U	C5-C6	149.28	2.68	1.34
1	A	210	A	N7-C5	67.62	1.79	1.39
1	A	210	A	N9-C8	43.65	1.72	1.37
1	A	210	A	N9-C4	36.41	1.59	1.37
1	B	291	U	N3-C4	32.41	1.67	1.38
1	A	210	A	C8-N7	32.31	1.54	1.31
1	B	291	U	N1-C2	27.30	1.63	1.38
1	A	210	A	C5-C4	26.59	1.57	1.38
1	B	291	U	C2-N3	22.81	1.53	1.37
1	B	291	U	C4-C5	18.43	1.60	1.43
1	B	291	U	N1-C6	14.64	1.51	1.38
1	A	210	A	C5-C6	7.67	1.48	1.41
1	A	210	A	N1-C2	5.69	1.39	1.34

All (48) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	291	U	C5-C6-N1	-25.68	109.86	122.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	291	U	C4-C5-C6	-18.95	108.33	119.70
1	B	291	U	N1-C2-N3	16.85	125.01	114.90
1	B	291	U	C2-N3-C4	16.84	137.10	127.00
1	A	210	A	N7-C8-N9	-13.82	106.89	113.80
1	B	291	U	N3-C2-O2	-12.68	113.32	122.20
1	A	210	A	C8-N9-C4	12.67	110.87	105.80
1	A	304	A	N9-C1'-C2'	-9.58	101.47	112.00
1	A	210	A	N9-C1'-C2'	8.24	124.71	114.00
1	B	122	A	N9-C1'-C2'	7.37	123.58	114.00
1	B	291	U	O4'-C1'-N1	-7.15	102.48	108.20
1	A	210	A	C6-C5-N7	7.08	137.25	132.30
1	B	304	A	N9-C1'-C2'	-6.97	104.34	112.00
1	A	210	A	C5-C6-N6	6.42	128.84	123.70
1	B	138	C	N1-C1'-C2'	6.41	122.33	114.00
1	A	164	G	N9-C1'-C2'	6.37	122.28	114.00
1	A	314	A	O4'-C1'-N9	6.31	113.25	108.20
1	B	281	G	N9-C1'-C2'	-6.24	105.13	112.00
1	A	167	U	N1-C1'-C2'	6.20	122.06	114.00
1	A	210	A	C4-C5-C6	-6.10	113.95	117.00
1	A	411	C	N1-C1'-C2'	-6.04	105.35	112.00
1	B	140	A	N9-C1'-C2'	-6.00	105.39	112.00
1	A	211	C	N1-C1'-C2'	-5.96	105.45	112.00
1	A	140	A	N9-C1'-C2'	-5.92	105.49	112.00
1	B	257	G	O4'-C1'-N9	5.80	112.84	108.20
1	A	411	C	C2'-C3'-O3'	5.78	122.95	113.70
1	A	281	G	C2'-C3'-O3'	5.74	122.89	113.70
1	A	225	A	N9-C1'-C2'	5.74	121.46	114.00
1	A	327	G	C2'-C3'-O3'	5.73	122.88	113.70
1	A	210	A	N1-C6-N6	-5.68	115.19	118.60
1	B	412	U	N1-C1'-C2'	-5.66	105.78	112.00
1	A	304	A	C4'-C3'-O3'	5.56	124.12	113.00
1	A	255	C	N1-C1'-C2'	5.51	121.17	114.00
1	A	299	A	N9-C1'-C2'	5.51	121.17	114.00
1	A	285	G	C2'-C3'-O3'	5.47	122.45	113.70
1	A	403	U	N1-C1'-C2'	-5.45	106.00	112.00
1	A	298	C	N1-C1'-C2'	-5.44	106.02	112.00
1	B	233	A	N9-C1'-C2'	-5.35	106.11	112.00
1	A	304	A	C3'-C2'-C1'	-5.33	97.24	101.50
1	B	285	G	C2'-C3'-O3'	5.31	122.19	113.70
1	B	405	G	N9-C1'-C2'	-5.28	106.20	112.00
1	A	280	G	N9-C1'-C2'	-5.24	106.23	112.00
1	A	185	U	N1-C1'-C2'	5.21	120.77	114.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	219	A	N9-C1'-C2'	-5.16	106.33	112.00
1	B	264	G	N9-C1'-C2'	-5.15	106.33	112.00
1	A	101	U	O4'-C1'-N1	5.08	112.26	108.20
1	A	219	A	OP2-P-O3'	5.03	116.27	105.20
1	B	278	C	N1-C1'-C2'	-5.01	106.49	112.00

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	122	A	Sidechain
1	B	304	A	Sidechain

5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	5289	0	2664	964	17
1	B	5289	0	2664	972	17
All	All	10578	0	5328	1916	17

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 122.

All (1916) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:291:U:C4	1:B:291:U:N3	1.67	1.60
1:A:210:A:N9	1:A:210:A:C8	1.72	1.57
1:A:210:A:C5	1:A:210:A:N7	1.79	1.47
1:B:310:U:H2'	1:B:311:C:C6	1.61	1.35
1:A:406:G:C2'	1:A:407:A:H5''	1.57	1.32
1:A:305:U:H4'	1:A:306:A:C5'	1.60	1.29
1:B:280:G:C2'	1:B:281:G:H5'	1.67	1.25
1:A:279:G:H2'	1:A:280:G:C8	1.74	1.21

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:276:G:C3'	1:A:277:U:H5''	1.71	1.21
1:A:285:G:C2'	1:A:286:A:H5'	1.74	1.18
1:A:281:G:H2'	1:A:282:G:C8	1.77	1.18
1:B:409:U:H2'	1:B:410:A:C8	1.76	1.18
1:A:406:G:H2'	1:A:407:A:C5'	1.73	1.17
1:A:264:G:C2'	1:A:265:A:H5'	1.74	1.17
1:B:269:A:C3'	1:B:270:A:H5''	1.75	1.17
1:B:158:G:H2'	1:B:159:A:C8	1.78	1.17
1:B:100:G:H2'	1:B:101:U:H5'	1.26	1.16
1:A:96:G:H2'	1:A:97:A:C8	1.79	1.16
1:B:96:G:H2'	1:B:97:A:C8	1.80	1.16
1:A:284:A:H3'	1:A:285:G:C5'	1.75	1.15
1:B:284:A:H3'	1:B:285:G:H5''	1.15	1.15
1:A:413:C:H3'	1:A:414:G:H5''	1.27	1.15
1:A:157:U:H2'	1:A:158:G:C8	1.80	1.14
1:A:276:G:C2'	1:A:277:U:H5''	1.77	1.14
1:B:111:G:H2'	1:B:112:G:C8	1.82	1.14
1:A:254:G:H2'	1:A:255:C:C6	1.83	1.14
1:B:280:G:H2'	1:B:281:G:H5'	1.21	1.14
1:A:204:C:H2'	1:A:205:U:C6	1.81	1.13
1:A:276:G:H3'	1:A:277:U:H5''	1.30	1.12
1:A:257:G:O2'	1:A:258:U:H5'	1.46	1.12
1:B:245:G:H2'	1:B:246:A:C8	1.84	1.12
1:B:257:G:O2'	1:B:258:U:H5'	1.47	1.12
1:A:256:A:H2	1:A:272:G:H1'	1.11	1.12
1:B:408:G:C2'	1:B:409:U:H5'	1.79	1.12
1:A:100:G:H2'	1:A:101:U:H5'	1.28	1.12
1:B:98:C:H2'	1:B:99:C:C6	1.84	1.11
1:A:285:G:H2'	1:A:286:A:H5'	1.16	1.11
1:A:413:C:C3'	1:A:414:G:H5''	1.79	1.10
1:B:254:G:H2'	1:B:255:C:C6	1.86	1.10
1:B:160:G:H2'	1:B:161:A:H8	1.16	1.10
1:A:295:U:H2'	1:A:296:C:H6	1.16	1.10
1:B:285:G:H2'	1:B:286:A:H5'	1.27	1.10
1:A:97:A:C2'	1:A:98:C:H5'	1.81	1.10
1:A:96:G:H2'	1:A:97:A:H8	1.05	1.09
1:A:324:A:H3'	1:A:325:A:C8	1.87	1.09
1:B:269:A:H3'	1:B:270:A:C5'	1.80	1.09
1:B:407:A:H3'	1:B:408:G:H5''	1.27	1.09
1:B:210:A:H5''	1:B:211:C:OP2	1.51	1.08
1:A:270:A:H2'	1:A:271:U:C6	1.89	1.08

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:276:G:H2'	1:B:277:U:H5''	1.32	1.08
1:A:210:A:H5''	1:A:211:C:OP2	1.54	1.07
1:A:244:U:H2'	1:A:245:G:H8	1.19	1.07
1:B:111:G:H2'	1:B:112:G:H8	0.91	1.07
1:B:408:G:H2'	1:B:409:U:H5'	1.30	1.07
1:A:145:C:H2'	1:A:146:A:H8	1.13	1.07
1:B:204:C:H2'	1:B:205:U:H6	0.98	1.06
1:A:100:G:C2'	1:A:101:U:H5'	1.83	1.06
1:B:178:A:H1'	1:B:180:G:C5	1.88	1.06
1:B:278:C:H2'	1:B:279:G:H5'	1.38	1.06
1:A:305:U:H4'	1:A:306:A:H5''	1.29	1.06
1:A:171:A:H4'	1:A:172:A:OP1	1.49	1.06
1:A:284:A:H3'	1:A:285:G:H5''	1.06	1.06
1:B:263:A:H3'	1:B:264:G:C8	1.89	1.06
1:B:264:G:C2'	1:B:265:A:H5'	1.84	1.06
1:B:309:G:H2'	1:B:310:U:H5'	1.38	1.06
1:A:240:C:C2'	1:A:241:U:H5'	1.84	1.05
1:B:272:G:H2'	1:B:273:U:H5'	1.37	1.05
1:B:403:U:H3'	1:B:404:U:C5'	1.85	1.05
1:B:257:G:C2'	1:B:258:U:H5'	1.86	1.05
1:B:282:G:H3'	1:B:283:A:H8	1.15	1.05
1:A:132:C:H2'	1:A:133:A:C8	1.90	1.05
1:B:204:C:H2'	1:B:205:U:C6	1.91	1.04
1:B:220:G:H2'	1:B:221:U:H6	1.19	1.04
1:A:408:G:C2'	1:A:409:U:H5''	1.87	1.04
1:A:408:G:H2'	1:A:409:U:H5''	1.39	1.04
1:A:240:C:H2'	1:A:241:U:H5'	1.34	1.04
1:B:302:A:H2'	1:B:303:G:H5'	1.39	1.04
1:A:264:G:H2'	1:A:265:A:H5'	1.37	1.04
1:B:407:A:C3'	1:B:408:G:H5''	1.85	1.04
1:B:274:C:H2'	1:B:275:G:H8	1.24	1.03
1:B:276:G:C2'	1:B:277:U:H5''	1.88	1.03
1:B:269:A:N6	1:B:306:A:H2	1.54	1.03
1:A:256:A:C2	1:A:272:G:H1'	1.94	1.02
1:B:220:G:H2'	1:B:221:U:C6	1.93	1.02
1:B:403:U:H3'	1:B:404:U:H5''	1.05	1.02
1:B:97:A:O2'	1:B:98:C:H5'	1.59	1.02
1:B:100:G:C2'	1:B:101:U:H5'	1.88	1.02
1:B:308:A:H2'	1:B:309:G:C8	1.95	1.02
1:A:205:U:H5'	1:A:328:G:OP1	1.60	1.02
1:A:305:U:H4'	1:A:306:A:O5'	1.48	1.02

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:145:C:H2'	1:A:146:A:C8	1.93	1.01
1:A:134:G:H2'	1:A:135:U:H6	1.23	1.01
1:B:285:G:C2'	1:B:286:A:H5'	1.90	1.01
1:A:99:C:H2'	1:A:100:G:H8	1.25	1.01
1:B:279:G:H21	1:B:299:A:N6	1.58	1.00
1:A:244:U:H2'	1:A:245:G:C8	1.95	1.00
1:A:119:G:H1'	1:A:326:A:O4'	1.61	1.00
1:A:275:G:H1'	1:B:237:G:H21	1.23	0.99
1:A:295:U:H2'	1:A:296:C:C6	1.96	0.99
1:B:302:A:C2'	1:B:303:G:H5'	1.91	0.99
1:A:245:G:H2'	1:A:246:A:C8	1.97	0.99
1:B:270:A:H2'	1:B:271:U:C6	1.97	0.99
1:A:253:U:O2'	1:A:254:G:H5'	1.61	0.99
1:A:305:U:C4'	1:A:306:A:H5''	1.94	0.98
1:B:273:U:OP2	1:B:273:U:H3'	1.64	0.98
1:B:160:G:H2'	1:B:161:A:C8	1.97	0.98
1:A:408:G:C3'	1:A:409:U:H5''	1.94	0.98
1:B:305:U:H4'	1:B:306:A:C5'	1.94	0.97
1:A:283:A:H2'	1:A:284:A:C8	1.99	0.97
1:A:134:G:H2'	1:A:135:U:C6	1.97	0.97
1:A:280:G:C2'	1:A:281:G:H5'	1.94	0.97
1:B:96:G:H2'	1:B:97:A:H8	1.18	0.97
1:A:264:G:O2'	1:A:265:A:H5'	1.63	0.97
1:B:274:C:H2'	1:B:275:G:C8	1.99	0.97
1:B:284:A:H3'	1:B:285:G:C5'	1.94	0.97
1:B:260:C:H3'	1:B:305:U:O2	1.64	0.97
1:B:253:U:O2'	1:B:254:G:H5'	1.64	0.96
1:A:276:G:H2'	1:A:277:U:H5''	1.47	0.96
1:A:280:G:O2'	1:A:281:G:H5'	1.64	0.96
1:A:256:A:H2'	1:A:271:U:O2'	1.64	0.96
1:A:97:A:H2'	1:A:98:C:H5'	1.45	0.96
1:A:204:C:H2'	1:A:205:U:H6	1.18	0.96
1:A:258:U:H4'	1:A:306:A:N6	1.80	0.96
1:B:293:C:H2'	1:B:294:U:C6	2.00	0.96
1:A:276:G:H3'	1:A:277:U:C5'	1.95	0.96
1:A:284:A:H2'	1:A:285:G:O4'	1.64	0.96
1:A:219:A:H62	1:A:254:G:H21	1.03	0.96
1:A:221:U:H2'	1:A:222:C:C6	2.01	0.96
1:A:273:U:H3'	1:A:273:U:OP2	1.65	0.96
1:A:279:G:H1	1:A:298:C:H42	1.09	0.95
1:A:105:A:N3	1:A:217:C:H1'	1.81	0.94

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:219:A:H62	1:B:254:G:N2	1.65	0.94
1:A:247:U:H4'	1:B:229:C:OP1	1.66	0.94
1:B:279:G:N2	1:B:299:A:H62	1.64	0.94
1:A:158:G:H2'	1:A:159:A:C8	2.01	0.94
1:B:151:A:H2'	1:B:152:A:C8	2.02	0.94
1:B:254:G:H2'	1:B:255:C:C1'	1.97	0.94
1:B:283:A:H2'	1:B:284:A:C8	2.01	0.94
1:A:409:U:H2'	1:A:410:A:O4'	1.68	0.94
1:B:158:G:H2'	1:B:159:A:H8	1.28	0.94
1:B:230:A:H2'	1:B:231:A:C8	2.03	0.94
1:B:105:A:N3	1:B:217:C:H1'	1.83	0.93
1:B:101:U:H2'	1:B:102:C:C6	2.02	0.92
1:B:240:C:C2'	1:B:241:U:H5'	2.00	0.92
1:B:264:G:H2'	1:B:265:A:H5'	1.47	0.92
1:A:127:C:H2'	1:A:128:C:H6	1.35	0.92
1:A:257:G:C2'	1:A:258:U:H5'	1.99	0.92
1:A:317:U:H2'	1:A:318:C:H5''	1.50	0.92
1:B:412:U:O2'	1:B:413:C:H5'	1.69	0.92
1:B:145:C:H2'	1:B:146:A:H8	1.32	0.92
1:B:230:A:H2'	1:B:231:A:H8	1.32	0.92
1:A:269:A:H3'	1:A:270:A:H5''	1.48	0.91
1:B:305:U:H4'	1:B:306:A:O5'	1.68	0.91
1:B:270:A:O2'	1:B:271:U:H5'	1.68	0.91
1:A:249:U:O2	1:B:249:U:H1'	1.70	0.91
1:A:98:C:H2'	1:A:99:C:C6	2.05	0.91
1:B:285:G:H2'	1:B:286:A:C5'	2.00	0.91
1:B:253:U:C2'	1:B:254:G:H5'	2.00	0.91
1:B:309:G:C2'	1:B:310:U:H5'	2.00	0.91
1:B:264:G:O2'	1:B:265:A:H5'	1.71	0.90
1:B:272:G:C2'	1:B:273:U:H5'	2.01	0.90
1:A:122:A:H4'	1:A:123:A:C4	2.07	0.90
1:A:325:A:H2'	1:A:326:A:C8	2.06	0.90
1:A:281:G:H2'	1:A:282:G:H8	1.32	0.89
1:A:302:A:H3'	1:A:303:G:O4'	1.72	0.89
1:A:413:C:H3'	1:A:414:G:C5'	2.01	0.89
1:A:314:A:N6	1:A:410:A:H2	1.69	0.89
1:B:302:A:C3'	1:B:303:G:H5'	2.03	0.89
1:A:407:A:H2'	1:A:408:G:C1'	2.03	0.89
1:B:105:A:H1'	1:B:217:C:O2'	1.71	0.89
1:A:132:C:H2'	1:A:133:A:H8	1.36	0.89
1:B:324:A:H3'	1:B:325:A:C8	2.08	0.89

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:279:G:C2'	1:A:280:G:C8	2.55	0.89
1:B:270:A:C3'	1:B:271:U:C6	2.56	0.89
1:B:288:G:N3	1:B:288:G:H2'	1.85	0.89
1:A:254:G:O2'	1:A:255:C:H1'	1.73	0.89
1:A:270:A:C2'	1:A:271:U:C6	2.56	0.89
1:A:157:U:H2'	1:A:158:G:H8	1.31	0.88
1:B:305:U:O2'	1:B:306:A:H5''	1.74	0.88
1:A:196:A:H2'	1:A:197:C:C6	2.07	0.88
1:A:265:A:O2'	1:A:266:C:H5'	1.72	0.88
1:A:413:C:C2'	1:A:414:G:H5''	2.03	0.88
1:A:211:C:C2'	1:A:212:G:H5'	2.03	0.88
1:B:102:C:C3'	1:B:103:A:H5''	2.04	0.88
1:A:198:A:H1'	1:A:200:G:C4	2.09	0.88
1:A:105:A:H1'	1:A:217:C:O2'	1.73	0.88
1:B:282:G:H3'	1:B:283:A:C8	2.06	0.88
1:A:279:G:H21	1:A:299:A:H62	1.20	0.87
1:A:279:G:H2'	1:A:280:G:N9	1.89	0.87
1:B:192:A:H2'	1:B:193:C:C6	2.10	0.87
1:B:219:A:H62	1:B:254:G:H21	0.93	0.87
1:A:410:A:O2'	1:A:411:C:H5''	1.75	0.87
1:B:219:A:N6	1:B:254:G:H21	1.72	0.87
1:A:276:G:C3'	1:A:277:U:C5'	2.52	0.87
1:B:242:G:H2'	1:B:243:U:H6	1.38	0.87
1:A:252:A:H2'	1:A:253:U:H6	1.39	0.86
1:B:142:U:H2'	1:B:143:C:H6	1.40	0.86
1:A:97:A:C6	1:A:98:C:C5	2.63	0.86
1:B:124:C:H2'	1:B:126:G:N7	1.90	0.86
1:B:260:C:H5'	1:B:261:A:OP1	1.74	0.86
1:A:97:A:O2'	1:A:98:C:H5'	1.74	0.86
1:B:119:G:H1'	1:B:326:A:H1'	1.57	0.86
1:B:254:G:O2'	1:B:255:C:H1'	1.76	0.86
1:B:276:G:C3'	1:B:277:U:H5''	2.05	0.86
1:A:231:A:O2'	1:A:232:C:H5'	1.76	0.86
1:A:303:G:H2'	1:A:304:A:H8	1.41	0.86
1:B:310:U:H2'	1:B:311:C:H6	1.08	0.86
1:A:269:A:H3'	1:A:270:A:C5'	2.06	0.85
1:B:111:G:C2'	1:B:112:G:H8	1.84	0.85
1:B:245:G:H2'	1:B:246:A:N9	1.90	0.85
1:A:242:G:H2'	1:A:243:U:H6	1.40	0.85
1:B:407:A:H3'	1:B:408:G:C5'	2.06	0.85
1:B:209:C:H5'	1:B:210:A:OP2	1.76	0.85

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:252:A:H2'	1:A:253:U:C6	2.12	0.85
1:B:269:A:N6	1:B:306:A:C2	2.43	0.85
1:B:320:C:H42	1:B:329:G:H1	1.22	0.85
1:A:288:G:H2'	1:A:288:G:N3	1.90	0.85
1:B:145:C:H2'	1:B:146:A:C8	2.11	0.85
1:A:285:G:H2'	1:A:286:A:C5'	2.03	0.85
1:A:302:A:C2'	1:A:303:G:H5'	2.07	0.85
1:B:277:U:H4'	1:B:277:U:OP1	1.75	0.85
1:B:313:G:H3'	1:B:314:A:H8	1.42	0.85
1:B:252:A:H2'	1:B:253:U:H6	1.40	0.84
1:A:308:A:H2'	1:A:309:G:C8	2.11	0.84
1:B:263:A:C3'	1:B:264:G:C8	2.59	0.84
1:B:284:A:C3'	1:B:285:G:H5''	2.05	0.84
1:A:254:G:H2'	1:A:255:C:N1	1.92	0.84
1:A:270:A:C3'	1:A:271:U:C6	2.61	0.84
1:A:290:A:O3'	1:A:291:U:H4'	1.77	0.84
1:A:413:C:C4	1:A:414:G:C8	2.66	0.84
1:A:108:G:C6	1:A:214:A:C2	2.66	0.84
1:B:253:U:H2'	1:B:254:G:O4'	1.76	0.84
1:A:278:C:H2'	1:A:279:G:H5'	1.60	0.84
1:A:112:G:O2'	1:A:113:A:H5'	1.78	0.83
1:B:269:A:H61	1:B:306:A:H2	1.26	0.83
1:B:270:A:C2'	1:B:271:U:C6	2.61	0.83
1:A:96:G:C6	1:A:97:A:C6	2.66	0.83
1:B:96:G:C6	1:B:97:A:C6	2.67	0.83
1:A:219:A:H62	1:A:254:G:N2	1.76	0.83
1:A:221:U:H2'	1:A:222:C:H6	1.40	0.83
1:A:116:G:H2'	1:A:117:G:C8	2.14	0.83
1:A:276:G:H2'	1:A:277:U:C5'	2.09	0.83
1:B:240:C:H2'	1:B:241:U:H5'	1.58	0.83
1:B:271:U:H2'	1:B:272:G:O4'	1.78	0.83
1:A:219:A:C2	1:A:273:U:H5''	2.14	0.82
1:A:210:A:C8	1:A:210:A:C5	2.67	0.82
1:A:269:A:N6	1:A:306:A:C2	2.47	0.82
1:A:277:U:H2'	1:A:278:C:C1'	2.09	0.82
1:A:127:C:H2'	1:A:128:C:C6	2.13	0.82
1:A:203:C:H2'	1:A:204:C:H6	1.45	0.82
1:A:231:A:H2'	1:A:232:C:C6	2.14	0.82
1:B:101:U:H2'	1:B:102:C:C5	2.12	0.82
1:B:179:U:O2	1:B:179:U:H2'	1.78	0.82
1:B:270:A:H4'	1:B:271:U:OP1	1.79	0.82

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:302:A:H2'	1:A:303:G:H5'	1.58	0.82
1:B:405:G:H2'	1:B:405:G:N3	1.93	0.82
1:B:99:C:H2'	1:B:100:G:H8	1.42	0.82
1:A:263:A:H3'	1:A:264:G:C8	2.15	0.81
1:B:291:U:C5	1:B:291:U:C6	2.68	0.81
1:A:198:A:O4'	1:A:200:G:H1'	1.79	0.81
1:A:302:A:C3'	1:A:303:G:H5'	2.09	0.81
1:B:215:G:H2'	1:B:216:C:H6	1.43	0.81
1:A:242:G:O2'	1:A:243:U:H5'	1.81	0.81
1:A:245:G:H2'	1:A:246:A:N9	1.94	0.81
1:A:324:A:H3'	1:A:325:A:H8	1.43	0.81
1:A:324:A:C2	1:A:325:A:H1'	2.15	0.81
1:A:254:G:H2'	1:A:255:C:C1'	2.09	0.81
1:A:281:G:C2'	1:A:282:G:C8	2.63	0.81
1:A:317:U:H2'	1:A:318:C:C5'	2.09	0.81
1:A:253:U:H2'	1:A:254:G:O4'	1.80	0.81
1:B:276:G:H2'	1:B:277:U:C5'	2.10	0.81
1:A:270:A:H4'	1:A:271:U:OP1	1.78	0.81
1:A:406:G:H2'	1:A:407:A:H5''	0.85	0.81
1:A:409:U:H3'	1:A:409:U:H6	1.46	0.81
1:B:293:C:H2'	1:B:294:U:H6	1.42	0.81
1:A:110:G:O2'	1:A:111:G:H5'	1.81	0.80
1:A:285:G:C2'	1:A:286:A:C5'	2.58	0.80
1:B:167:U:H4'	1:B:168:U:O5'	1.79	0.80
1:A:100:G:H2'	1:A:101:U:C5'	2.11	0.80
1:A:269:A:C8	1:A:270:A:C8	2.69	0.80
1:B:263:A:H3'	1:B:264:G:H8	1.45	0.80
1:B:100:G:H2'	1:B:101:U:C5'	2.11	0.80
1:B:194:G:O2'	1:B:195:G:H5'	1.82	0.80
1:B:277:U:C4	1:B:278:C:C4	2.69	0.80
1:A:284:A:C3'	1:A:285:G:C5'	2.57	0.80
1:A:264:G:H2'	1:A:265:A:C5'	2.12	0.80
1:A:284:A:H2'	1:A:285:G:C4'	2.12	0.80
1:B:254:G:H2'	1:B:255:C:N1	1.95	0.80
1:A:171:A:C4'	1:A:172:A:OP1	2.30	0.80
1:A:99:C:H2'	1:A:100:G:C8	2.15	0.79
1:B:103:A:C2	1:B:272:G:C2	2.69	0.79
1:B:198:A:H1'	1:B:200:G:C4	2.18	0.79
1:B:282:G:C3'	1:B:283:A:H8	1.95	0.79
1:A:227:G:C2	1:A:228:U:H1'	2.17	0.79
1:B:236:A:C4	1:B:237:G:C8	2.71	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:260:C:H5'	1:B:305:U:H2'	1.65	0.79
1:B:178:A:H1'	1:B:180:G:N7	1.98	0.79
1:B:242:G:H2'	1:B:243:U:C6	2.18	0.79
1:A:187:A:H5'	1:A:188:G:OP2	1.83	0.79
1:B:148:G:O2'	1:B:149:G:H5'	1.83	0.79
1:A:106:U:H3'	1:A:106:U:C6	2.17	0.78
1:B:99:C:C2	1:B:276:G:N2	2.51	0.78
1:B:243:U:O2'	1:B:244:U:H5'	1.83	0.78
1:A:275:G:H2'	1:A:276:G:O4'	1.83	0.78
1:A:212:G:O2'	1:A:213:C:H5'	1.83	0.78
1:B:103:A:C2	1:B:272:G:N2	2.52	0.78
1:B:243:U:H2'	1:B:244:U:H6	1.48	0.78
1:A:277:U:C4	1:A:278:C:C4	2.71	0.78
1:A:284:A:C3'	1:A:285:G:H5''	2.02	0.78
1:B:181:G:H2'	1:B:182:U:H6	1.49	0.78
1:B:256:A:H2'	1:B:271:U:O2'	1.83	0.78
1:A:229:C:OP1	1:B:247:U:H4'	1.84	0.78
1:B:111:G:H1	1:B:209:C:H42	1.31	0.78
1:A:260:C:C6	1:A:305:U:O2	2.37	0.78
1:B:254:G:C2'	1:B:255:C:C1'	2.61	0.78
1:A:220:G:H2'	1:A:221:U:H6	1.47	0.77
1:B:259:U:H2'	1:B:260:C:H1'	1.66	0.77
1:B:98:C:C2'	1:B:99:C:C6	2.66	0.77
1:B:263:A:H61	1:B:311:C:H42	1.32	0.77
1:A:305:U:C4'	1:A:306:A:C5'	2.51	0.77
1:A:314:A:H4'	1:A:315:C:OP1	1.84	0.77
1:B:220:G:C5	1:B:221:U:C4	2.72	0.77
1:B:238:A:C6	1:B:240:C:C2	2.72	0.77
1:A:237:G:H3'	1:A:238:A:C8	2.20	0.77
1:A:289:U:H5''	1:A:290:A:OP2	1.84	0.77
1:B:109:C:O2'	1:B:110:G:H5'	1.84	0.77
1:B:279:G:H21	1:B:299:A:H62	0.82	0.77
1:A:276:G:H2'	1:A:277:U:C4'	2.15	0.77
1:B:96:G:H5'	1:B:300:U:O2	1.85	0.77
1:B:305:U:O2'	1:B:306:A:C5'	2.32	0.77
1:A:215:G:O2'	1:A:216:C:H5'	1.85	0.77
1:B:217:C:O2'	1:B:218:A:H5'	1.85	0.77
1:A:210:A:C8	1:A:210:A:C4	2.73	0.77
1:A:279:G:H21	1:A:299:A:N6	1.82	0.77
1:B:213:C:O2'	1:B:214:A:H5'	1.84	0.77
1:B:270:A:C3'	1:B:271:U:H6	1.96	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:182:U:H5''	1:A:183:A:OP2	1.85	0.76
1:A:265:A:C2'	1:A:266:C:H5'	2.14	0.76
1:B:176:G:C2'	1:B:177:U:H5'	2.16	0.76
1:A:258:U:H5''	1:A:306:A:C6	2.20	0.76
1:A:184:A:C6	1:A:213:C:H4'	2.20	0.76
1:A:309:G:C2'	1:A:310:U:H5'	2.15	0.76
1:B:209:C:H3'	1:B:211:C:OP2	1.86	0.76
1:B:305:U:C4'	1:B:306:A:H5''	2.15	0.76
1:B:257:G:C5	1:B:258:U:C5	2.74	0.76
1:A:253:U:C2'	1:A:254:G:H5'	2.16	0.76
1:B:324:A:C2	1:B:325:A:H1'	2.19	0.76
1:A:154:C:O2'	1:A:155:U:H5'	1.86	0.76
1:A:219:A:N6	1:A:254:G:H21	1.81	0.76
1:A:260:C:H6	1:A:305:U:O2	1.69	0.76
1:A:146:A:H2'	1:A:147:G:H8	1.51	0.76
1:A:412:U:H2'	1:A:413:C:O4'	1.85	0.76
1:A:249:U:H1'	1:B:249:U:O2	1.85	0.76
1:B:242:G:O2'	1:B:243:U:H5'	1.85	0.76
1:B:302:A:H3'	1:B:303:G:O4'	1.86	0.76
1:A:242:G:H2'	1:A:243:U:C6	2.21	0.76
1:B:264:G:H2'	1:B:265:A:C5'	2.14	0.76
1:A:151:A:H2'	1:A:152:A:C8	2.22	0.75
1:B:182:U:H4'	1:B:183:A:OP2	1.86	0.75
1:B:196:A:H2'	1:B:197:C:C6	2.21	0.75
1:B:302:A:C3'	1:B:303:G:C5'	2.65	0.75
1:A:245:G:C2'	1:A:246:A:C8	2.68	0.75
1:B:199:U:O2	1:B:199:U:H2'	1.87	0.75
1:B:237:G:N2	1:B:238:A:H1'	2.01	0.75
1:A:118:G:C6	1:A:119:G:N7	2.55	0.75
1:B:155:U:H2'	1:B:156:U:H6	1.51	0.75
1:B:215:G:H2'	1:B:216:C:C6	2.21	0.75
1:A:114:A:H61	1:A:206:A:H1'	1.52	0.75
1:A:409:U:C2	1:A:411:C:C5	2.74	0.75
1:B:119:G:H1'	1:B:326:A:C1'	2.16	0.75
1:B:313:G:H2'	1:B:314:A:C8	2.22	0.75
1:A:258:U:H4'	1:A:306:A:H61	1.49	0.75
1:B:245:G:C2'	1:B:246:A:C8	2.68	0.75
1:A:129:G:H4'	1:A:130:U:OP1	1.85	0.75
1:B:271:U:C6	1:B:272:G:C8	2.74	0.75
1:A:264:G:C2'	1:A:265:A:C5'	2.62	0.74
1:A:209:C:H4'	1:A:210:A:OP2	1.87	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:211:C:O2'	1:A:212:G:H5'	1.87	0.74
1:A:256:A:H4'	1:A:256:A:OP1	1.87	0.74
1:B:155:U:H2'	1:B:156:U:C6	2.22	0.74
1:B:205:U:H4'	1:B:328:G:OP2	1.87	0.74
1:A:204:C:C2'	1:A:205:U:H6	1.98	0.74
1:A:406:G:C3'	1:A:407:A:H5''	2.18	0.74
1:B:284:A:H2'	1:B:285:G:C4'	2.18	0.74
1:A:281:G:C2'	1:A:282:G:H8	1.99	0.74
1:B:210:A:C5'	1:B:211:C:OP2	2.35	0.73
1:B:269:A:H3'	1:B:270:A:H5''	0.86	0.73
1:B:314:A:H4'	1:B:315:C:OP1	1.86	0.73
1:B:203:C:O2'	1:B:204:C:H5'	1.89	0.73
1:B:97:A:C2'	1:B:98:C:H5'	2.18	0.73
1:B:150:G:N2	1:B:152:A:H3'	2.03	0.73
1:A:96:G:C2	1:A:279:G:H1'	2.24	0.73
1:A:198:A:C4'	1:A:200:G:H1'	2.18	0.73
1:A:269:A:H5''	1:A:270:A:H8	1.53	0.73
1:A:317:U:C2'	1:A:318:C:H5''	2.18	0.73
1:A:214:A:H2'	1:A:215:G:C8	2.23	0.73
1:A:309:G:H2'	1:A:310:U:H5'	1.70	0.73
1:B:152:A:H2'	1:B:153:A:C8	2.24	0.73
1:A:114:A:N6	1:A:206:A:H1'	2.03	0.73
1:A:207:A:H2'	1:A:208:C:H5'	1.71	0.73
1:A:214:A:H2'	1:A:215:G:H8	1.53	0.73
1:B:305:U:C4'	1:B:306:A:C5'	2.67	0.73
1:A:97:A:H2'	1:A:98:C:C5'	2.17	0.73
1:A:280:G:H8	1:A:280:G:OP2	1.72	0.73
1:A:314:A:N6	1:A:410:A:C2	2.56	0.73
1:A:210:A:C5'	1:A:211:C:OP2	2.35	0.73
1:A:309:G:O2'	1:A:310:U:H5'	1.88	0.73
1:B:133:A:H2'	1:B:134:G:H8	1.53	0.73
1:A:313:G:H5'	1:A:314:A:OP2	1.88	0.73
1:A:267:U:H2'	1:A:268:A:O4'	1.89	0.72
1:A:125:A:H2'	1:A:125:A:N3	2.02	0.72
1:A:254:G:C2'	1:A:255:C:C1'	2.66	0.72
1:B:142:U:H2'	1:B:143:C:C6	2.24	0.72
1:B:280:G:N1	1:B:281:G:C5	2.57	0.72
1:A:182:U:H3'	1:A:188:G:C8	2.24	0.72
1:B:110:G:C2	1:B:212:G:C2	2.77	0.72
1:A:186:A:H8	1:A:186:A:O5'	1.72	0.72
1:A:306:A:C4	1:A:307:U:H5	2.07	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:261:A:N1	1:B:314:A:H1'	2.05	0.72
1:A:96:G:C2'	1:A:97:A:C8	2.68	0.72
1:A:238:A:C6	1:A:240:C:C2	2.78	0.72
1:B:96:G:C6	1:B:97:A:N6	2.58	0.72
1:B:104:A:H2'	1:B:105:A:H8	1.54	0.72
1:B:310:U:H2'	1:B:311:C:C5	2.23	0.72
1:A:261:A:N3	1:A:261:A:H2'	2.04	0.71
1:B:263:A:H5'	1:B:264:G:OP2	1.89	0.71
1:A:220:G:H2'	1:A:221:U:C6	2.24	0.71
1:A:257:G:H2'	1:A:258:U:H6	1.55	0.71
1:B:96:G:H5''	1:B:299:A:C4	2.25	0.71
1:B:99:C:H2'	1:B:100:G:C8	2.25	0.71
1:B:310:U:C2'	1:B:311:C:H6	1.94	0.71
1:A:218:A:C2	1:A:219:A:H1'	2.25	0.71
1:B:309:G:H2'	1:B:310:U:C5'	2.19	0.71
1:B:314:A:O3'	1:B:315:C:C6	2.43	0.71
1:B:107:U:H2'	1:B:108:G:C8	2.26	0.71
1:B:186:A:H8	1:B:186:A:O5'	1.73	0.71
1:B:276:G:H3'	1:B:277:U:H5''	1.73	0.71
1:B:278:C:C2'	1:B:279:G:H5'	2.19	0.71
1:A:96:G:O2'	1:A:97:A:H5'	1.89	0.71
1:A:119:G:H4'	1:A:326:A:H5'	1.71	0.71
1:A:143:C:H2'	1:A:144:U:H6	1.56	0.71
1:A:277:U:C4	1:A:278:C:N4	2.58	0.71
1:A:410:A:O2'	1:A:411:C:C5'	2.37	0.71
1:B:102:C:C2'	1:B:103:A:H5''	2.20	0.71
1:B:256:A:OP1	1:B:256:A:H4'	1.89	0.71
1:B:272:G:C5	1:B:273:U:C5	2.79	0.71
1:B:252:A:O2'	1:B:253:U:H5'	1.91	0.71
1:A:269:A:N7	1:A:270:A:H1'	2.05	0.71
1:B:116:G:H2'	1:B:117:G:C8	2.26	0.71
1:B:271:U:C5	1:B:272:G:N7	2.59	0.71
1:A:257:G:O2'	1:A:258:U:C5'	2.34	0.71
1:A:409:U:H3	1:A:411:C:H41	1.37	0.71
1:A:256:A:C2	1:A:272:G:C1'	2.74	0.70
1:A:270:A:O3'	1:A:271:U:H6	1.74	0.70
1:B:238:A:C2	1:B:240:C:H1'	2.26	0.70
1:A:203:C:O2'	1:A:204:C:H5'	1.91	0.70
1:A:313:G:H3'	1:A:314:A:H8	1.55	0.70
1:B:209:C:C5'	1:B:210:A:OP2	2.39	0.70
1:B:256:A:C8	1:B:257:G:C8	2.79	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:229:C:O2'	1:A:230:A:H5'	1.91	0.70
1:A:290:A:O3'	1:A:291:U:C4'	2.38	0.70
1:A:407:A:H2'	1:A:408:G:H1'	1.72	0.70
1:B:96:G:C2	1:B:279:G:H1'	2.25	0.70
1:B:252:A:H2'	1:B:253:U:C6	2.25	0.70
1:A:167:U:H1'	1:A:171:A:N7	2.07	0.70
1:B:263:A:C6	1:B:312:G:C6	2.79	0.70
1:A:299:A:H8	1:A:299:A:OP2	1.74	0.70
1:A:409:U:H2'	1:A:410:A:C4'	2.22	0.70
1:B:170:C:O2	1:B:170:C:H2'	1.92	0.70
1:A:111:G:O2'	1:A:112:G:H5'	1.92	0.70
1:A:269:A:C5	1:A:270:A:H1'	2.26	0.70
1:B:151:A:H2'	1:B:152:A:H8	1.55	0.70
1:B:243:U:H2'	1:B:244:U:C6	2.26	0.70
1:B:160:G:C2'	1:B:161:A:H8	2.01	0.70
1:B:270:A:H3'	1:B:271:U:C6	2.26	0.70
1:A:138:C:N3	1:A:178:A:C2	2.59	0.70
1:A:176:G:H2'	1:A:177:U:C6	2.26	0.70
1:B:278:C:H2'	1:B:279:G:C5'	2.20	0.70
1:B:288:G:N1	1:B:289:U:C2	2.60	0.70
1:A:282:G:H3'	1:A:283:A:H8	1.55	0.69
1:B:110:G:H1'	1:B:184:A:H1'	1.72	0.69
1:B:140:A:C6	1:B:141:G:C8	2.80	0.69
1:B:275:G:H2'	1:B:276:G:O4'	1.92	0.69
1:B:282:G:H5'	1:B:283:A:OP2	1.91	0.69
1:A:209:C:H5'	1:A:210:A:OP2	1.92	0.69
1:A:255:C:H3'	1:A:256:A:O4'	1.92	0.69
1:B:184:A:H2'	1:B:213:C:H1'	1.72	0.69
1:B:302:A:H3'	1:B:303:G:C5'	2.22	0.69
1:B:181:G:H2'	1:B:182:U:C6	2.27	0.69
1:B:207:A:H2'	1:B:208:C:H5'	1.72	0.69
1:B:224:U:H2'	1:B:225:A:O4'	1.92	0.69
1:B:257:G:H2'	1:B:258:U:H5'	1.74	0.69
1:B:278:C:C4	1:B:279:G:N7	2.60	0.69
1:B:105:A:C2	1:B:217:C:H1'	2.26	0.69
1:B:125:A:H2'	1:B:125:A:N3	2.08	0.69
1:B:129:G:H4'	1:B:130:U:OP1	1.91	0.69
1:B:198:A:H1'	1:B:200:G:N9	2.06	0.69
1:B:302:A:H2'	1:B:303:G:C5'	2.18	0.69
1:B:320:C:N4	1:B:329:G:H1	1.89	0.69
1:B:411:C:N3	1:B:412:U:H5	1.91	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:260:C:C5'	1:A:305:U:O2'	2.40	0.69
1:B:255:C:C3'	1:B:256:A:O4'	2.41	0.69
1:A:218:A:C4	1:A:219:A:C8	2.81	0.69
1:B:132:C:H2'	1:B:133:A:C8	2.28	0.69
1:B:305:U:C2'	1:B:306:A:H5''	2.23	0.69
1:B:313:G:H3'	1:B:314:A:C8	2.27	0.69
1:A:99:C:C2	1:A:100:G:N7	2.61	0.69
1:A:106:U:H3'	1:A:106:U:H6	1.58	0.69
1:A:270:A:C3'	1:A:271:U:H6	2.04	0.69
1:A:306:A:H2'	1:A:307:U:H6	1.57	0.69
1:A:325:A:C6	1:A:326:A:C6	2.80	0.69
1:B:167:U:H4'	1:B:168:U:C5'	2.23	0.68
1:B:178:A:H1'	1:B:180:G:C4	2.27	0.68
1:A:280:G:C8	1:A:280:G:OP2	2.46	0.68
1:B:169:G:C4	1:B:170:C:C5	2.81	0.68
1:A:211:C:H2'	1:A:212:G:H5'	1.73	0.68
1:A:257:G:C2'	1:A:258:U:C5'	2.70	0.68
1:A:263:A:H5'	1:A:264:G:OP2	1.93	0.68
1:A:277:U:C5	1:A:278:C:C4	2.81	0.68
1:A:282:G:H3'	1:A:283:A:C8	2.28	0.68
1:B:280:G:O2'	1:B:281:G:H5'	1.94	0.68
1:A:156:U:H2'	1:A:157:U:C6	2.27	0.68
1:A:408:G:C3'	1:A:409:U:C5'	2.71	0.68
1:B:152:A:H2'	1:B:153:A:H8	1.57	0.68
1:B:192:A:H2'	1:B:193:C:H6	1.57	0.68
1:B:240:C:H2'	1:B:241:U:C5'	2.24	0.68
1:B:277:U:C4	1:B:278:C:N3	2.62	0.68
1:A:204:C:C2'	1:A:205:U:C6	2.70	0.68
1:B:98:C:H2'	1:B:99:C:H6	1.56	0.68
1:B:176:G:H2'	1:B:177:U:H5'	1.76	0.68
1:B:413:C:O5'	1:B:413:C:H6	1.76	0.68
1:B:98:C:C4	1:B:99:C:N4	2.61	0.68
1:B:218:A:C2	1:B:219:A:H1'	2.28	0.68
1:B:123:A:O2'	1:B:124:C:H6	1.77	0.68
1:A:284:A:C3'	1:A:285:G:C4'	2.71	0.68
1:B:167:U:H1'	1:B:171:A:N6	2.09	0.68
1:A:265:A:N1	1:A:266:C:C4	2.61	0.68
1:A:270:A:H2'	1:A:271:U:C5	2.28	0.68
1:B:140:A:H2'	1:B:140:A:N3	2.09	0.68
1:B:254:G:C2'	1:B:255:C:H1'	2.23	0.68
1:B:284:A:H2'	1:B:285:G:O4'	1.94	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:101:U:H2'	1:A:102:C:C6	2.28	0.67
1:A:146:A:H2'	1:A:147:G:C8	2.29	0.67
1:A:305:U:C4'	1:A:306:A:O5'	2.37	0.67
1:A:325:A:H8	1:A:325:A:OP2	1.77	0.67
1:B:129:G:H2'	1:B:131:U:C5	2.29	0.67
1:B:285:G:C3'	1:B:286:A:H5'	2.24	0.67
1:A:302:A:C3'	1:A:303:G:C5'	2.72	0.67
1:A:413:C:C3'	1:A:414:G:C5'	2.62	0.67
1:B:285:G:C2'	1:B:286:A:C5'	2.64	0.67
1:A:272:G:H2'	1:A:273:U:H5'	1.75	0.67
1:A:276:G:C2'	1:A:277:U:C5'	2.64	0.67
1:A:413:C:H2'	1:A:414:G:H5''	1.75	0.67
1:B:324:A:C2	1:B:325:A:C1'	2.77	0.67
1:A:116:G:H2'	1:A:117:G:H8	1.58	0.67
1:A:255:C:C3'	1:A:256:A:O4'	2.42	0.67
1:A:240:C:H2'	1:A:241:U:C5'	2.18	0.67
1:A:207:A:C2'	1:A:208:C:H5'	2.24	0.67
1:A:306:A:O2'	1:A:307:U:H5'	1.95	0.67
1:B:321:C:O5'	1:B:321:C:H6	1.76	0.67
1:A:184:A:O5'	1:A:185:U:H5''	1.95	0.67
1:B:257:G:C2'	1:B:258:U:C5'	2.69	0.67
1:B:269:A:C8	1:B:270:A:C8	2.82	0.67
1:B:313:G:C3'	1:B:314:A:H8	2.06	0.67
1:A:245:G:C3'	1:A:246:A:C8	2.78	0.67
1:B:102:C:H2'	1:B:103:A:H5''	1.77	0.67
1:B:240:C:O2'	1:B:241:U:H5'	1.95	0.67
1:A:271:U:H2'	1:A:272:G:O4'	1.95	0.66
1:A:288:G:H2'	1:A:289:U:OP1	1.95	0.66
1:A:301:A:H2'	1:A:302:A:O4'	1.94	0.66
1:A:403:U:H3'	1:A:403:U:C6	2.30	0.66
1:B:152:A:C2	1:B:153:A:C4	2.84	0.66
1:A:96:G:C8	1:A:299:A:N6	2.63	0.66
1:A:118:G:H21	1:A:326:A:H1'	1.59	0.66
1:A:203:C:H2'	1:A:204:C:C6	2.28	0.66
1:B:105:A:C4	1:B:217:C:H1'	2.29	0.66
1:B:261:A:H2'	1:B:261:A:N3	2.10	0.66
1:B:409:U:H2'	1:B:410:A:H8	1.49	0.66
1:A:97:A:C6	1:A:98:C:C4	2.83	0.66
1:A:106:U:C6	1:A:106:U:C3'	2.78	0.66
1:A:179:U:O2	1:A:179:U:H2'	1.92	0.66
1:A:280:G:H2'	1:A:281:G:H5'	1.73	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:169:G:C5	1:B:170:C:C5	2.82	0.66
1:A:203:C:HO2'	1:A:326:A:H2	1.42	0.66
1:A:325:A:C8	1:A:325:A:OP2	2.49	0.66
1:A:413:C:C2	1:A:414:G:O4'	2.49	0.66
1:B:97:A:P	1:B:300:U:H3	2.19	0.66
1:B:103:A:H1'	1:B:218:A:O2'	1.94	0.66
1:B:414:G:H2'	1:B:414:G:N3	2.11	0.66
1:A:174:G:H2'	1:A:175:G:C8	2.31	0.66
1:A:209:C:C4'	1:A:210:A:OP2	2.43	0.66
1:B:256:A:C2	1:B:271:U:O2	2.48	0.66
1:B:280:G:C2'	1:B:281:G:C5'	2.60	0.66
1:A:237:G:H1	1:B:100:G:H1'	1.60	0.66
1:A:413:C:C4	1:A:414:G:H8	2.13	0.66
1:B:256:A:H5'	1:B:257:G:OP2	1.96	0.66
1:B:283:A:C2	1:B:284:A:C6	2.83	0.66
1:B:284:A:C3'	1:B:285:G:C5'	2.68	0.66
1:A:229:C:H2'	1:A:230:A:O4'	1.96	0.66
1:B:131:U:H2'	1:B:131:U:O2	1.96	0.66
1:B:270:A:C2	1:B:271:U:N3	2.64	0.66
1:A:260:C:H3'	1:A:305:U:O2	1.95	0.65
1:B:116:G:H1	1:B:205:U:H3	1.41	0.65
1:B:119:G:C2	1:B:120:U:H1'	2.31	0.65
1:B:324:A:H3'	1:B:325:A:H8	1.58	0.65
1:B:411:C:C2	1:B:412:U:C5	2.85	0.65
1:A:203:C:O2'	1:A:326:A:H2	1.78	0.65
1:B:308:A:C2'	1:B:309:G:C8	2.76	0.65
1:A:99:C:C2	1:A:100:G:C8	2.84	0.65
1:A:275:G:H8	1:A:275:G:O5'	1.80	0.65
1:B:279:G:H2'	1:B:280:G:C8	2.31	0.65
1:A:269:A:N7	1:A:270:A:C1'	2.60	0.65
1:A:211:C:H2'	1:A:212:G:C5'	2.26	0.65
1:A:250:G:C6	1:A:251:G:N7	2.65	0.65
1:B:182:U:O2'	1:B:186:A:H2'	1.97	0.65
1:A:284:A:C3'	1:A:285:G:H4'	2.26	0.65
1:A:212:G:HO2'	1:A:213:C:H5'	1.61	0.65
1:A:263:A:C6	1:A:264:G:O6	2.50	0.65
1:B:117:G:O2'	1:B:118:G:H5'	1.97	0.65
1:B:215:G:O2'	1:B:216:C:H5'	1.96	0.65
1:B:266:C:C4	1:B:267:U:C4	2.84	0.65
1:B:411:C:N3	1:B:412:U:C5	2.65	0.65
1:A:226:A:H3'	1:A:227:G:H8	1.61	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:96:G:C2'	1:B:97:A:C8	2.71	0.64
1:B:164:G:H1'	1:B:186:A:N1	2.11	0.64
1:B:166:C:C4	1:B:167:U:N3	2.65	0.64
1:B:271:U:C5	1:B:272:G:C8	2.85	0.64
1:A:269:A:C8	1:A:270:A:N9	2.65	0.64
1:A:274:C:H2'	1:A:275:G:C8	2.32	0.64
1:A:275:G:N3	1:B:237:G:N2	2.44	0.64
1:B:165:C:C4	1:B:176:G:C2	2.86	0.64
1:B:201:G:H2'	1:B:202:U:C6	2.33	0.64
1:A:230:A:C2	1:A:245:G:N1	2.65	0.64
1:B:270:A:O3'	1:B:271:U:H6	1.81	0.64
1:A:306:A:C4	1:A:307:U:C5	2.84	0.64
1:B:96:G:C6	1:B:279:G:C2	2.86	0.64
1:A:218:A:H2'	1:A:219:A:H8	1.61	0.64
1:A:284:A:C2'	1:A:285:G:C4'	2.76	0.64
1:B:96:G:H5'	1:B:300:U:C2	2.33	0.64
1:B:178:A:H1'	1:B:180:G:C8	2.32	0.64
1:A:409:U:H3	1:A:411:C:N4	1.95	0.64
1:B:264:G:C2'	1:B:265:A:C5'	2.70	0.64
1:B:405:G:H2'	1:B:406:G:H5''	1.78	0.64
1:A:118:G:N1	1:A:119:G:N7	2.46	0.64
1:A:167:U:H1'	1:A:171:A:C5	2.33	0.64
1:A:249:U:C2	1:B:249:U:H1'	2.33	0.64
1:A:411:C:H3'	1:A:412:U:C5	2.32	0.64
1:A:103:A:H5'	1:A:104:A:OP2	1.98	0.64
1:A:178:A:H1'	1:A:180:G:C5	2.33	0.64
1:A:97:A:N6	1:A:98:C:C4	2.65	0.64
1:B:96:G:C5'	1:B:300:U:O2	2.46	0.64
1:A:96:G:C6	1:A:279:G:N3	2.66	0.63
1:A:96:G:H5''	1:A:299:A:C5	2.33	0.63
1:B:165:C:N4	1:B:176:G:C6	2.66	0.63
1:B:263:A:N6	1:B:312:G:C6	2.66	0.63
1:A:105:A:H1'	1:A:217:C:HO2'	1.62	0.63
1:B:212:G:C2	1:B:213:C:C6	2.86	0.63
1:A:151:A:C2	1:A:152:A:C4	2.86	0.63
1:A:410:A:H5''	1:A:411:C:OP1	1.97	0.63
1:B:258:U:H4'	1:B:306:A:N6	2.13	0.63
1:A:153:A:H2'	1:A:154:C:H5'	1.81	0.63
1:A:279:G:C2	1:A:280:G:C6	2.87	0.63
1:A:285:G:C3'	1:A:286:A:H5'	2.29	0.63
1:B:213:C:C2	1:B:214:A:C8	2.86	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:97:A:C2'	1:A:98:C:C5'	2.71	0.63
1:A:129:G:C4'	1:A:130:U:OP1	2.47	0.63
1:A:220:G:O2'	1:A:221:U:H5'	1.99	0.63
1:A:235:G:C2	1:A:237:G:C5'	2.82	0.63
1:A:278:C:N4	1:A:279:G:C5	2.67	0.63
1:B:231:A:H2'	1:B:232:C:C6	2.34	0.63
1:B:105:A:N3	1:B:217:C:C1'	2.60	0.63
1:B:197:C:H5''	1:B:198:A:OP1	1.98	0.63
1:B:255:C:H3'	1:B:256:A:O4'	1.98	0.63
1:A:143:C:H2'	1:A:144:U:C6	2.34	0.63
1:A:217:C:O2'	1:A:218:A:H5'	1.99	0.63
1:B:126:G:H21	1:B:202:U:H4'	1.64	0.63
1:B:211:C:H2'	1:B:212:G:H8	1.63	0.63
1:B:283:A:C2'	1:B:284:A:C8	2.81	0.63
1:A:114:A:H61	1:A:206:A:C2'	2.12	0.62
1:A:158:G:H2'	1:A:159:A:H8	1.57	0.62
1:A:302:A:H3'	1:A:303:G:C5'	2.29	0.62
1:B:153:A:H2	1:B:251:G:H1'	1.63	0.62
1:B:167:U:H1'	1:B:171:A:C6	2.34	0.62
1:B:323:G:H3'	1:B:324:A:C5'	2.29	0.62
1:B:96:G:C5	1:B:279:G:C2	2.87	0.62
1:B:220:G:O2'	1:B:221:U:H5'	1.98	0.62
1:B:280:G:C6	1:B:281:G:C5	2.87	0.62
1:A:207:A:H2'	1:A:208:C:C5'	2.29	0.62
1:B:187:A:H5'	1:B:188:G:OP2	1.99	0.62
1:B:231:A:O2'	1:B:232:C:H5'	1.99	0.62
1:B:280:G:C3'	1:B:281:G:H5'	2.28	0.62
1:A:238:A:C2	1:A:240:C:H1'	2.35	0.62
1:B:151:A:C2	1:B:225:A:H4'	2.35	0.62
1:B:195:G:C2	1:B:196:A:C5	2.87	0.62
1:B:301:A:H2'	1:B:302:A:O4'	1.98	0.62
1:A:102:C:H2'	1:A:103:A:O4'	2.00	0.62
1:A:169:G:C2	1:A:170:C:C6	2.87	0.62
1:A:284:A:H3'	1:A:285:G:C4'	2.30	0.62
1:B:102:C:H3'	1:B:103:A:H5''	1.78	0.62
1:B:317:U:O5'	1:B:317:U:H6	1.82	0.62
1:A:111:G:H2'	1:A:112:G:H8	1.64	0.62
1:B:110:G:H1'	1:B:184:A:C1'	2.30	0.62
1:B:254:G:C4	1:B:255:C:C5	2.88	0.62
1:A:276:G:O2'	1:B:236:A:C2	2.51	0.62
1:B:96:G:H5''	1:B:299:A:C5	2.35	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:113:A:C6	1:B:206:A:C6	2.88	0.62
1:B:299:A:H8	1:B:299:A:OP2	1.83	0.62
1:A:308:A:C2'	1:A:309:G:C8	2.83	0.62
1:B:244:U:H2'	1:B:245:G:C8	2.34	0.62
1:A:409:U:C3'	1:A:409:U:C6	2.82	0.62
1:B:160:G:C4	1:B:161:A:C8	2.87	0.62
1:B:176:G:O2'	1:B:177:U:H5'	1.99	0.61
1:B:209:C:C2	1:B:211:C:C5	2.88	0.61
1:A:100:G:O2'	1:A:101:U:H5'	1.99	0.61
1:A:104:A:C2	1:A:105:A:N7	2.68	0.61
1:A:150:G:N2	1:A:154:C:C4	2.68	0.61
1:A:270:A:H3'	1:A:271:U:C5	2.35	0.61
1:B:325:A:C8	1:B:325:A:OP2	2.54	0.61
1:A:118:G:N1	1:A:119:G:C5	2.68	0.61
1:A:252:A:C6	1:A:253:U:C4	2.88	0.61
1:A:295:U:C3'	1:A:295:U:C6	2.84	0.61
1:B:173:A:C4	1:B:174:G:C8	2.88	0.61
1:B:253:U:C2'	1:B:254:G:C5'	2.75	0.61
1:B:257:G:C6	1:B:258:U:C5	2.88	0.61
1:A:295:U:C6	1:A:295:U:H3'	2.34	0.61
1:B:97:A:C5	1:B:98:C:C5	2.87	0.61
1:B:205:U:H5'	1:B:328:G:OP1	2.00	0.61
1:A:257:G:C5	1:A:258:U:C5	2.88	0.61
1:B:119:G:N2	1:B:120:U:H1'	2.16	0.61
1:B:229:C:H2'	1:B:230:A:C8	2.35	0.61
1:A:283:A:H8	1:A:283:A:OP2	1.84	0.61
1:A:409:U:H6	1:A:409:U:C3'	2.12	0.61
1:B:118:G:N2	1:B:204:C:C2	2.69	0.61
1:B:260:C:H5'	1:B:305:U:C2'	2.30	0.61
1:B:272:G:C4	1:B:273:U:C5	2.89	0.61
1:A:207:A:H2'	1:A:208:C:O4'	2.00	0.61
1:A:257:G:C4	1:A:258:U:C6	2.88	0.61
1:A:262:C:H2'	1:A:263:A:O5'	2.00	0.61
1:A:265:A:C6	1:A:266:C:C4	2.89	0.61
1:A:273:U:H2'	1:A:274:C:C6	2.36	0.61
1:B:168:U:H5''	1:B:169:G:OP1	2.01	0.61
1:A:103:A:H62	1:A:270:A:N6	1.99	0.61
1:A:245:G:H3'	1:A:246:A:C8	2.35	0.61
1:A:288:G:N3	1:A:288:G:C2'	2.64	0.61
1:B:202:U:H2'	1:B:203:C:C6	2.36	0.61
1:B:256:A:N7	1:B:257:G:C5	2.69	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:295:U:C2	1:A:296:C:C5	2.88	0.60
1:B:96:G:C6	1:B:279:G:N3	2.69	0.60
1:B:263:A:C3'	1:B:264:G:H8	2.09	0.60
1:B:408:G:C2'	1:B:409:U:C5'	2.69	0.60
1:A:113:A:H2	1:A:207:A:N7	1.99	0.60
1:A:270:A:C4'	1:A:271:U:OP1	2.47	0.60
1:A:280:G:C6	1:A:281:G:C5	2.89	0.60
1:A:314:A:O3'	1:A:315:C:C6	2.54	0.60
1:B:230:A:C2	1:B:231:A:C5	2.89	0.60
1:B:230:A:C6	1:B:231:A:N6	2.70	0.60
1:B:288:G:N3	1:B:288:G:C2'	2.61	0.60
1:A:123:A:O2'	1:A:124:C:H6	1.84	0.60
1:A:182:U:H4'	1:A:186:A:C6	2.36	0.60
1:B:252:A:C5	1:B:253:U:C5	2.88	0.60
1:B:276:G:C3'	1:B:277:U:C5'	2.77	0.60
1:B:282:G:C4	1:B:283:A:C8	2.90	0.60
1:B:291:U:H6	1:B:291:U:H5''	1.66	0.60
1:A:235:G:H2'	1:A:236:A:H3'	1.82	0.60
1:A:278:C:OP2	1:A:278:C:H6	1.84	0.60
1:B:197:C:O2'	1:B:198:A:H8	1.85	0.60
1:B:212:G:C2	1:B:213:C:C5	2.90	0.60
1:B:220:G:C2	1:B:221:U:C2	2.90	0.60
1:B:288:G:H2'	1:B:289:U:OP1	2.01	0.60
1:B:97:A:C6	1:B:98:C:C5	2.89	0.60
1:B:97:A:HO2'	1:B:98:C:H5'	1.64	0.60
1:A:105:A:C2	1:A:217:C:H1'	2.37	0.60
1:B:168:U:H4'	1:B:170:C:OP2	2.01	0.60
1:A:269:A:H8	1:A:270:A:C8	2.18	0.60
1:B:209:C:C4'	1:B:210:A:OP2	2.48	0.60
1:B:276:G:H3'	1:B:277:U:C5'	2.31	0.60
1:A:249:U:C2	1:B:249:U:C2	2.90	0.60
1:B:123:A:N6	1:B:197:C:C6	2.69	0.60
1:B:129:G:C4'	1:B:130:U:OP1	2.49	0.60
1:A:279:G:H1	1:A:298:C:N4	1.91	0.60
1:B:144:U:C2	1:B:160:G:N2	2.70	0.60
1:B:209:C:C4	1:B:211:C:N4	2.69	0.60
1:B:229:C:O2'	1:B:230:A:H5'	2.02	0.60
1:A:103:A:N6	1:A:270:A:N6	2.50	0.59
1:A:306:A:C5	1:A:307:U:H5	2.19	0.59
1:A:100:G:N2	1:A:101:U:H1'	2.17	0.59
1:A:209:C:C5'	1:A:210:A:OP2	2.50	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:235:G:N2	1:A:240:C:N4	2.50	0.59
1:B:97:A:C6	1:B:98:C:C4	2.90	0.59
1:B:248:A:N7	1:B:250:G:C6	2.70	0.59
1:A:114:A:H61	1:A:206:A:C1'	2.15	0.59
1:B:197:C:HO2'	1:B:198:A:H8	1.50	0.59
1:B:217:C:O2'	1:B:218:A:C5'	2.49	0.59
1:B:260:C:C3'	1:B:305:U:O2	2.46	0.59
1:B:410:A:H2'	1:B:411:C:O4'	2.03	0.59
1:B:238:A:H2'	1:B:240:C:O5'	2.01	0.59
1:A:115:A:C6	1:A:116:G:C6	2.89	0.59
1:A:118:G:C2	1:A:119:G:C8	2.91	0.59
1:A:269:A:C2	1:A:307:U:H1'	2.38	0.59
1:B:189:C:O2'	1:B:190:U:H5'	2.01	0.59
1:A:112:G:N2	1:A:113:A:H1'	2.18	0.59
1:A:119:G:H1'	1:A:326:A:C4'	2.33	0.59
1:A:277:U:H2'	1:A:278:C:H1'	1.84	0.59
1:B:133:A:H2'	1:B:134:G:C8	2.36	0.59
1:B:231:A:C2	1:B:232:C:C2	2.90	0.59
1:A:97:A:C5	1:A:98:C:C5	2.91	0.59
1:A:108:G:O6	1:A:214:A:C6	2.55	0.59
1:A:148:G:O2'	1:A:149:G:H5'	2.02	0.59
1:B:218:A:C4	1:B:219:A:C8	2.90	0.59
1:A:96:G:C5	1:A:97:A:C5	2.91	0.59
1:A:112:G:C2'	1:A:113:A:H5'	2.33	0.59
1:B:324:A:C4	1:B:325:A:C8	2.90	0.59
1:A:192:A:H2'	1:A:193:C:C6	2.38	0.59
1:A:236:A:H2'	1:A:237:G:O4'	2.03	0.59
1:A:242:G:C4	1:A:243:U:C5	2.91	0.59
1:A:314:A:C4'	1:A:315:C:OP1	2.51	0.59
1:A:315:C:C5'	1:A:316:C:OP2	2.50	0.59
1:B:127:C:H2'	1:B:128:C:H6	1.67	0.59
1:B:248:A:N7	1:B:250:G:C5	2.71	0.59
1:A:182:U:H4'	1:A:186:A:C5	2.38	0.58
1:A:409:U:H3'	1:A:409:U:C6	2.32	0.58
1:B:220:G:C4	1:B:221:U:C5	2.91	0.58
1:B:220:G:C2'	1:B:221:U:C6	2.79	0.58
1:B:226:A:C4	1:B:227:G:C8	2.91	0.58
1:A:260:C:H5'	1:A:305:U:O2'	2.02	0.58
1:B:233:A:H2'	1:B:234:G:O4'	2.02	0.58
1:A:101:U:O4	1:A:272:G:O6	2.22	0.58
1:A:317:U:C2'	1:A:318:C:C5'	2.78	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:120:U:H2'	1:B:121:C:C6	2.38	0.58
1:B:123:A:C6	1:B:197:C:C2	2.92	0.58
1:B:218:A:H2'	1:B:219:A:H8	1.68	0.58
1:B:250:G:C4	1:B:251:G:C8	2.91	0.58
1:B:324:A:C2	1:B:325:A:N9	2.72	0.58
1:B:408:G:O2'	1:B:409:U:H5'	2.02	0.58
1:A:273:U:H2'	1:A:274:C:O4'	2.03	0.58
1:A:410:A:C5'	1:A:411:C:OP1	2.52	0.58
1:B:281:G:H2'	1:B:282:G:C8	2.39	0.58
1:B:310:U:C2	1:B:311:C:C5	2.91	0.58
1:B:319:U:C2	1:B:331:G:N2	2.72	0.58
1:A:186:A:O5'	1:A:186:A:C8	2.55	0.58
1:B:212:G:O2'	1:B:213:C:H5'	2.02	0.58
1:B:288:G:C2	1:B:289:U:C2	2.91	0.58
1:A:184:A:H5''	1:A:185:U:H5'	1.84	0.58
1:A:243:U:H2'	1:A:244:U:C6	2.39	0.58
1:A:272:G:C2'	1:A:273:U:H5'	2.34	0.58
1:A:273:U:N3	1:A:274:C:C4	2.72	0.58
1:B:257:G:HO2'	1:B:258:U:H5'	1.65	0.58
1:B:284:A:H2'	1:B:285:G:H4'	1.85	0.58
1:A:266:C:O2'	1:A:267:U:H5'	2.03	0.58
1:A:287:U:H2'	1:A:288:G:H5''	1.85	0.58
1:A:407:A:H2'	1:A:408:G:O4'	2.04	0.58
1:B:209:C:H4'	1:B:210:A:OP2	2.04	0.58
1:B:221:U:H2'	1:B:222:C:C6	2.39	0.58
1:B:324:A:C3'	1:B:325:A:H8	2.16	0.58
1:A:230:A:C2	1:A:245:G:C2	2.91	0.58
1:B:96:G:C2	1:B:279:G:C1'	2.87	0.58
1:B:233:A:O2'	1:B:234:G:H5'	2.04	0.58
1:B:270:A:H3'	1:B:271:U:C5	2.39	0.58
1:A:99:C:C2	1:A:276:G:N2	2.72	0.57
1:A:109:C:O2'	1:A:110:G:H5'	2.03	0.57
1:A:119:G:C6	1:A:120:U:C2	2.92	0.57
1:A:219:A:H2	1:A:273:U:H5''	1.67	0.57
1:A:223:C:H2'	1:A:224:U:H6	1.66	0.57
1:B:207:A:C2'	1:B:208:C:H5'	2.34	0.57
1:B:253:U:H2'	1:B:254:G:C5'	2.34	0.57
1:B:283:A:C6	1:B:284:A:N6	2.72	0.57
1:A:294:U:H2'	1:A:295:U:H5'	1.86	0.57
1:A:406:G:C2'	1:A:407:A:C5'	2.53	0.57
1:B:220:G:C4	1:B:221:U:C6	2.92	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:407:A:C2'	1:B:408:G:H5''	2.33	0.57
1:A:153:A:H2'	1:A:154:C:C5'	2.34	0.57
1:A:205:U:H5'	1:A:328:G:P	2.44	0.57
1:A:218:A:H2'	1:A:219:A:C8	2.39	0.57
1:A:249:U:C4	1:B:249:U:C5	2.93	0.57
1:B:96:G:N1	1:B:97:A:C6	2.73	0.57
1:B:100:G:O2'	1:B:101:U:H5'	2.05	0.57
1:B:151:A:H2	1:B:224:U:HO2'	1.52	0.57
1:A:148:G:C2'	1:A:149:G:H5'	2.34	0.57
1:A:283:A:C8	1:A:283:A:OP2	2.57	0.57
1:B:230:A:C2	1:B:245:G:C2	2.92	0.57
1:B:256:A:C2'	1:B:271:U:O2'	2.52	0.57
1:B:261:A:N6	1:B:313:G:C2	2.72	0.57
1:A:96:G:C6	1:A:279:G:C2	2.92	0.57
1:A:235:G:C2	1:A:237:G:H5'	2.39	0.57
1:B:105:A:H61	1:B:257:G:N2	2.03	0.57
1:B:263:A:C2	1:B:312:G:C4	2.93	0.57
1:B:313:G:C2'	1:B:314:A:C8	2.86	0.57
1:B:99:C:C2	1:B:100:G:N7	2.72	0.57
1:B:217:C:C2'	1:B:218:A:O5'	2.53	0.57
1:B:270:A:C4'	1:B:271:U:OP1	2.53	0.57
1:A:96:G:C6	1:A:97:A:N6	2.73	0.57
1:A:123:A:O2'	1:A:124:C:C6	2.54	0.57
1:A:263:A:C3'	1:A:264:G:C8	2.86	0.57
1:A:278:C:N4	1:A:279:G:C6	2.73	0.57
1:A:170:C:O2	1:A:170:C:H2'	2.03	0.57
1:A:278:C:C4	1:A:279:G:N7	2.73	0.57
1:B:96:G:C6	1:B:279:G:C4	2.93	0.57
1:B:133:A:C2	1:B:134:G:C5	2.92	0.57
1:B:133:A:C2	1:B:134:G:N7	2.73	0.57
1:B:260:C:C5'	1:B:261:A:OP1	2.51	0.57
1:B:278:C:N4	1:B:279:G:C5	2.73	0.57
1:A:134:G:C4	1:A:135:U:C5	2.93	0.57
1:A:288:G:C2'	1:A:289:U:OP1	2.52	0.57
1:B:96:G:N2	1:B:279:G:C1'	2.68	0.57
1:B:165:C:N4	1:B:176:G:N1	2.53	0.57
1:B:251:G:C2	1:B:252:A:C5	2.93	0.57
1:B:254:G:C2'	1:B:255:C:O4'	2.53	0.57
1:A:231:A:H61	1:A:243:U:H3	1.53	0.57
1:B:186:A:O5'	1:B:186:A:C8	2.55	0.57
1:B:211:C:C2	1:B:212:G:C8	2.93	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:281:G:H2'	1:B:282:G:C1'	2.35	0.57
1:A:302:A:H3'	1:A:303:G:C4'	2.35	0.56
1:B:228:U:H3'	1:B:229:C:C5	2.40	0.56
1:B:254:G:H2'	1:B:255:C:O4'	2.05	0.56
1:B:280:G:C6	1:B:281:G:N7	2.73	0.56
1:B:280:G:C2	1:B:281:G:C4	2.93	0.56
1:A:218:A:N3	1:A:219:A:H1'	2.20	0.56
1:A:253:U:C2'	1:A:254:G:C5'	2.82	0.56
1:A:408:G:H3'	1:A:409:U:C5'	2.34	0.56
1:B:257:G:H2'	1:B:258:U:C5'	2.33	0.56
1:A:126:G:C6	1:A:127:C:C4	2.93	0.56
1:A:130:U:O2	1:A:130:U:H2'	2.03	0.56
1:A:168:U:H5''	1:A:169:G:OP1	2.04	0.56
1:A:198:A:C1'	1:A:200:G:C4	2.87	0.56
1:A:260:C:H5''	1:A:305:U:O2'	2.04	0.56
1:B:100:G:C2'	1:B:101:U:C5'	2.76	0.56
1:B:114:A:N6	1:B:115:A:C6	2.74	0.56
1:B:204:C:C2	1:B:205:U:C6	2.93	0.56
1:B:248:A:O2'	1:B:249:U:C6	2.59	0.56
1:B:274:C:C2	1:B:275:G:N7	2.73	0.56
1:B:151:A:H2	1:B:224:U:O2'	1.89	0.56
1:A:133:A:C2	1:A:191:G:C2	2.94	0.56
1:A:309:G:H2'	1:A:310:U:C5'	2.34	0.56
1:B:142:U:O2'	1:B:143:C:H5'	2.04	0.56
1:B:242:G:C5	1:B:243:U:C5	2.94	0.56
1:B:290:A:C5	1:B:292:U:C5	2.93	0.56
1:B:407:A:C3'	1:B:408:G:C5'	2.73	0.56
1:A:96:G:C2	1:A:97:A:C4	2.93	0.56
1:A:279:G:C3'	1:A:280:G:C8	2.89	0.56
1:A:403:U:C6	1:A:403:U:C3'	2.86	0.56
1:B:324:A:H3'	1:B:325:A:N7	2.20	0.56
1:B:106:U:H3'	1:B:106:U:C6	2.41	0.56
1:B:305:U:O2	1:B:305:U:H2'	2.06	0.56
1:B:408:G:O2'	1:B:409:U:C5'	2.53	0.56
1:A:161:A:C4	1:A:162:U:C6	2.94	0.56
1:A:252:A:C5	1:A:253:U:C5	2.94	0.56
1:B:114:A:C6	1:B:115:A:C6	2.94	0.56
1:B:166:C:C4	1:B:167:U:C4	2.94	0.56
1:A:299:A:OP2	1:A:299:A:C8	2.57	0.56
1:B:129:G:H2'	1:B:131:U:H5	1.69	0.56
1:B:164:G:HO2'	1:B:165:C:P	2.29	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:204:C:C2'	1:B:205:U:H6	1.93	0.56
1:B:271:U:C2'	1:B:272:G:O4'	2.53	0.56
1:B:280:G:C4	1:B:281:G:C8	2.94	0.56
1:A:213:C:N3	1:A:214:A:C8	2.74	0.56
1:A:263:A:H61	1:A:311:C:N4	2.04	0.56
1:A:271:U:C6	1:A:272:G:C8	2.93	0.56
1:B:256:A:C2	1:B:272:G:H1'	2.41	0.56
1:B:298:C:H2'	1:B:299:A:C8	2.41	0.56
1:A:119:G:C4'	1:A:326:A:H5'	2.35	0.55
1:A:214:A:C4	1:A:215:G:N7	2.74	0.55
1:A:231:A:H2'	1:A:232:C:H6	1.68	0.55
1:A:270:A:H3'	1:A:271:U:C6	2.41	0.55
1:A:283:A:C2'	1:A:284:A:C8	2.83	0.55
1:B:184:A:H5''	1:B:185:U:H5''	1.88	0.55
1:B:269:A:H62	1:B:306:A:H2	1.46	0.55
1:A:281:G:C5	1:A:282:G:N7	2.74	0.55
1:A:305:U:O4'	1:A:305:U:OP2	2.23	0.55
1:A:403:U:H3'	1:A:403:U:H6	1.67	0.55
1:A:409:U:C2	1:A:411:C:H5	2.24	0.55
1:A:412:U:H4'	1:A:413:C:OP1	2.06	0.55
1:B:164:G:N3	1:B:186:A:C2	2.74	0.55
1:B:204:C:C2	1:B:205:U:C5	2.94	0.55
1:B:406:G:H4'	1:B:406:G:OP1	2.05	0.55
1:A:258:U:C4'	1:A:306:A:N6	2.63	0.55
1:A:277:U:C5	1:A:278:C:C5	2.94	0.55
1:A:413:C:H2'	1:A:414:G:C5'	2.37	0.55
1:B:231:A:H2'	1:B:232:C:H6	1.69	0.55
1:B:295:U:O5'	1:B:295:U:H6	1.89	0.55
1:A:187:A:H2'	1:A:189:C:O4'	2.06	0.55
1:A:238:A:H2'	1:A:240:C:O5'	2.07	0.55
1:A:252:A:C5	1:A:253:U:C4	2.94	0.55
1:B:209:C:C3'	1:B:211:C:OP2	2.53	0.55
1:A:198:A:H1'	1:A:200:G:C5	2.42	0.55
1:A:212:G:C2	1:A:213:C:C6	2.94	0.55
1:A:252:A:C4	1:A:253:U:C5	2.94	0.55
1:A:315:C:H5''	1:A:316:C:OP2	2.06	0.55
1:B:145:C:H42	1:B:158:G:H1	1.55	0.55
1:B:207:A:C6	1:B:208:C:C2	2.94	0.55
1:B:218:A:H2'	1:B:219:A:C8	2.42	0.55
1:A:96:G:C4	1:A:97:A:C8	2.95	0.55
1:A:237:G:H3'	1:A:238:A:N7	2.21	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:321:C:O5'	1:A:321:C:H6	1.89	0.55
1:B:105:A:H61	1:B:257:G:H21	1.55	0.55
1:B:114:A:N6	1:B:206:A:H1'	2.20	0.55
1:B:154:C:H2'	1:B:155:U:O4'	2.05	0.55
1:B:251:G:C2	1:B:252:A:C4	2.95	0.55
1:B:257:G:C4	1:B:258:U:C6	2.95	0.55
1:A:227:G:N2	1:A:228:U:H1'	2.21	0.55
1:A:269:A:N7	1:A:270:A:N9	2.54	0.55
1:A:284:A:C2'	1:A:285:G:H4'	2.36	0.55
1:A:287:U:H2'	1:A:288:G:C5'	2.36	0.55
1:B:257:G:C6	1:B:258:U:C4	2.95	0.55
1:B:407:A:N6	1:B:408:G:N7	2.54	0.55
1:A:112:G:C2	1:A:113:A:H1'	2.41	0.55
1:A:184:A:H5''	1:A:185:U:C5'	2.37	0.55
1:A:256:A:C2'	1:A:271:U:O2'	2.46	0.55
1:A:263:A:N6	1:A:312:G:C6	2.75	0.55
1:A:279:G:C6	1:A:280:G:O6	2.60	0.55
1:A:310:U:H2'	1:A:311:C:C6	2.42	0.55
1:B:264:G:HO2'	1:B:265:A:H5'	1.70	0.55
1:B:290:A:O3'	1:B:291:U:O4'	2.25	0.55
1:A:119:G:O4'	1:A:326:A:H4'	2.07	0.55
1:A:268:A:C2	1:A:308:A:C2	2.94	0.55
1:B:107:U:OP2	1:B:107:U:C6	2.60	0.55
1:B:142:U:C2	1:B:143:C:C5	2.95	0.55
1:B:171:A:H5''	1:B:172:A:OP1	2.07	0.55
1:B:259:U:H2'	1:B:260:C:C1'	2.37	0.55
1:B:280:G:O2'	1:B:281:G:C5'	2.55	0.55
1:A:169:G:C4	1:A:170:C:C5	2.94	0.55
1:A:198:A:H1'	1:A:200:G:N9	2.22	0.55
1:A:230:A:C2	1:A:245:G:C6	2.95	0.55
1:A:263:A:N1	1:A:312:G:C4	2.75	0.55
1:A:276:G:C6	1:A:277:U:C5	2.95	0.55
1:A:300:U:C3'	1:A:301:A:C8	2.90	0.55
1:B:263:A:C6	1:B:312:G:C5	2.95	0.55
1:A:196:A:H2'	1:A:197:C:C5	2.42	0.54
1:A:237:G:C6	1:A:238:A:C2	2.95	0.54
1:B:104:A:H2'	1:B:105:A:C8	2.40	0.54
1:B:110:G:N2	1:B:212:G:N3	2.55	0.54
1:B:168:U:OP2	1:B:168:U:H6	1.90	0.54
1:B:263:A:C6	1:B:264:G:O6	2.60	0.54
1:A:101:U:H2'	1:A:102:C:C5	2.42	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:249:U:O2	1:A:249:U:H2'	2.07	0.54
1:A:269:A:C3'	1:A:270:A:H5''	2.31	0.54
1:A:314:A:H61	1:A:410:A:H2	1.51	0.54
1:B:236:A:H2'	1:B:237:G:H8	1.73	0.54
1:A:180:G:C2	1:A:181:G:C4	2.95	0.54
1:A:208:C:N3	1:A:209:C:C5	2.76	0.54
1:B:130:U:O2	1:B:130:U:H2'	2.06	0.54
1:B:179:U:O2	1:B:179:U:C2'	2.52	0.54
1:B:237:G:C2	1:B:238:A:H1'	2.42	0.54
1:B:251:G:N1	1:B:252:A:C5	2.76	0.54
1:B:252:A:C4	1:B:253:U:C6	2.96	0.54
1:B:277:U:N3	1:B:278:C:C2	2.76	0.54
1:A:139:A:C4	1:A:140:A:C8	2.96	0.54
1:A:408:G:H2'	1:A:409:U:C5'	2.23	0.54
1:B:115:A:N6	1:B:116:G:C6	2.76	0.54
1:B:183:A:O4'	1:B:188:G:C2	2.61	0.54
1:A:256:A:H5'	1:A:257:G:OP2	2.07	0.54
1:A:269:A:N6	1:A:307:U:C4	2.76	0.54
1:B:150:G:H22	1:B:152:A:H3'	1.69	0.54
1:A:166:C:H2'	1:A:167:U:C5	2.43	0.54
1:A:169:G:C5	1:A:170:C:C5	2.95	0.54
1:A:327:G:O2'	1:A:328:G:OP1	2.19	0.54
1:A:408:G:H3'	1:A:409:U:H5''	1.84	0.54
1:B:96:G:N1	1:B:279:G:C4	2.76	0.54
1:B:140:A:C5	1:B:141:G:C8	2.96	0.54
1:B:299:A:O3'	1:B:300:U:O4'	2.26	0.54
1:A:97:A:N6	1:A:98:C:N4	2.55	0.54
1:A:308:A:H2'	1:A:309:G:N9	2.21	0.54
1:A:312:G:H2'	1:A:312:G:N3	2.23	0.54
1:B:228:U:H3	1:B:246:A:H61	1.54	0.54
1:B:324:A:C3'	1:B:325:A:C8	2.86	0.54
1:A:230:A:C6	1:A:231:A:N6	2.76	0.54
1:A:249:U:C5	1:B:249:U:C4	2.95	0.54
1:A:257:G:C6	1:A:258:U:C4	2.95	0.54
1:A:263:A:H3'	1:A:264:G:H8	1.68	0.54
1:B:101:U:C2'	1:B:102:C:C6	2.85	0.54
1:B:116:G:H2'	1:B:117:G:H8	1.69	0.54
1:B:126:G:H21	1:B:202:U:C4'	2.19	0.54
1:A:152:A:C2	1:A:153:A:C4	2.95	0.54
1:A:169:G:N3	1:A:170:C:C6	2.76	0.54
1:A:269:A:N6	1:A:307:U:C5	2.76	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:325:A:H2'	1:A:326:A:H8	1.64	0.54
1:B:136:A:C2	1:B:187:A:C8	2.96	0.54
1:B:263:A:N1	1:B:312:G:C4	2.76	0.54
1:B:308:A:P	1:B:308:A:H8	2.31	0.54
1:B:313:G:C3'	1:B:314:A:C8	2.90	0.54
1:A:178:A:H1'	1:A:180:G:N7	2.24	0.53
1:A:225:A:O2'	1:A:226:A:C8	2.62	0.53
1:A:285:G:O2'	1:A:286:A:C5'	2.56	0.53
1:B:207:A:H2'	1:B:208:C:C5'	2.37	0.53
1:B:223:C:H2'	1:B:224:U:H6	1.73	0.53
1:A:217:C:C2'	1:A:218:A:O5'	2.56	0.53
1:A:249:U:C2	1:B:249:U:N1	2.76	0.53
1:A:308:A:H8	1:A:308:A:OP2	1.90	0.53
1:B:280:G:C5	1:B:281:G:N7	2.76	0.53
1:B:410:A:H2'	1:B:411:C:C6	2.42	0.53
1:A:108:G:C5	1:A:214:A:C2	2.96	0.53
1:A:153:A:C2'	1:A:154:C:H5'	2.37	0.53
1:A:324:A:C2	1:A:325:A:C1'	2.88	0.53
1:A:325:A:C5	1:A:326:A:C6	2.97	0.53
1:B:98:C:C4	1:B:99:C:C4	2.95	0.53
1:B:161:A:C6	1:B:162:U:C5	2.97	0.53
1:B:259:U:OP1	1:B:306:A:C8	2.61	0.53
1:B:164:G:O2'	1:B:165:C:P	2.67	0.53
1:B:242:G:C5	1:B:243:U:C4	2.97	0.53
1:B:302:A:H3'	1:B:303:G:C4'	2.38	0.53
1:B:324:A:H2'	1:B:324:A:N3	2.22	0.53
1:A:215:G:N2	1:A:216:C:H1'	2.24	0.53
1:A:233:A:H2'	1:A:234:G:O4'	2.09	0.53
1:A:263:A:C6	1:A:312:G:C5	2.96	0.53
1:B:123:A:C6	1:B:197:C:N3	2.76	0.53
1:B:230:A:N1	1:B:231:A:C6	2.76	0.53
1:B:308:A:H8	1:B:308:A:OP2	1.91	0.53
1:A:238:A:C2	1:B:100:G:O2'	2.62	0.53
1:B:315:C:C5'	1:B:316:C:OP2	2.57	0.53
1:A:263:A:C6	1:A:264:G:C6	2.97	0.53
1:B:169:G:C5	1:B:170:C:H5	2.27	0.53
1:B:324:A:N3	1:B:325:A:C8	2.77	0.53
1:A:308:A:C3'	1:A:309:G:C8	2.92	0.53
1:B:156:U:H2'	1:B:157:U:C6	2.44	0.53
1:B:163:G:N7	1:B:164:G:O6	2.41	0.53
1:A:139:A:P	1:A:139:A:H8	2.32	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:269:A:C8	1:A:270:A:C1'	2.92	0.53
1:A:290:A:C3'	1:A:291:U:H4'	2.39	0.53
1:B:98:C:N4	1:B:99:C:N4	2.56	0.53
1:B:260:C:C5'	1:B:305:U:O2'	2.57	0.53
1:B:412:U:C2'	1:B:413:C:H5'	2.38	0.53
1:A:174:G:H2'	1:A:175:G:H8	1.74	0.53
1:A:189:C:O2'	1:A:190:U:H5'	2.08	0.53
1:A:221:U:H2'	1:A:222:C:O4'	2.09	0.53
1:B:96:G:C4	1:B:97:A:N7	2.75	0.53
1:B:204:C:HO2'	1:B:327:G:HO2'	1.50	0.53
1:B:256:A:C8	1:B:257:G:N7	2.77	0.53
1:A:271:U:C2'	1:A:272:G:O5'	2.57	0.52
1:B:287:U:H3'	1:B:288:G:C5'	2.39	0.52
1:A:182:U:C4'	1:A:186:A:C6	2.92	0.52
1:A:196:A:H2'	1:A:197:C:H6	1.69	0.52
1:A:227:G:H2'	1:A:228:U:O5'	2.09	0.52
1:B:110:G:C6	1:B:111:G:C6	2.97	0.52
1:A:280:G:H8	1:A:280:G:P	2.31	0.52
1:B:242:G:C4	1:B:243:U:C5	2.98	0.52
1:B:254:G:C5'	1:B:255:C:OP2	2.58	0.52
1:B:281:G:H2'	1:B:282:G:O4'	2.09	0.52
1:A:163:G:C6	1:A:164:G:N1	2.78	0.52
1:A:277:U:H2'	1:A:278:C:N1	2.24	0.52
1:A:324:A:H3'	1:A:325:A:N7	2.20	0.52
1:B:299:A:O3'	1:B:300:U:C6	2.62	0.52
1:B:312:G:H2'	1:B:312:G:N3	2.25	0.52
1:A:303:G:C2'	1:A:304:A:H8	2.18	0.52
1:B:96:G:C4	1:B:97:A:C5	2.96	0.52
1:A:119:G:C6	1:A:120:U:N3	2.77	0.52
1:A:265:A:C6	1:A:266:C:N4	2.78	0.52
1:B:105:A:C1'	1:B:217:C:O2'	2.52	0.52
1:B:406:G:O6	1:B:407:A:C5	2.62	0.52
1:A:218:A:C6	1:A:219:A:C4	2.98	0.52
1:A:281:G:C4	1:A:282:G:N7	2.78	0.52
1:B:281:G:H3'	1:B:282:G:H8	1.75	0.52
1:B:302:A:OP2	1:B:303:G:N3	2.43	0.52
1:B:305:U:C1'	1:B:306:A:H5''	2.39	0.52
1:B:309:G:O2'	1:B:310:U:H5'	2.09	0.52
1:A:122:A:H4'	1:A:123:A:C5	2.45	0.52
1:A:323:G:N1	1:A:325:A:OP2	2.43	0.52
1:B:218:A:C2	1:B:219:A:C1'	2.93	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:245:G:C5	1:B:246:A:C6	2.98	0.52
1:B:263:A:H5'	1:B:264:G:P	2.50	0.52
1:B:282:G:H2'	1:B:282:G:N3	2.24	0.52
1:B:298:C:H2'	1:B:298:C:O2	2.09	0.52
1:A:96:G:C4	1:A:97:A:C5	2.98	0.52
1:A:114:A:N6	1:A:206:A:C1'	2.70	0.52
1:A:118:G:N2	1:A:326:A:H1'	2.25	0.52
1:A:317:U:C4	1:A:318:C:C5	2.98	0.52
1:B:97:A:C4	1:B:98:C:C6	2.98	0.52
1:B:182:U:O2	1:B:182:U:H2'	2.09	0.52
1:B:238:A:C2'	1:B:240:C:O5'	2.58	0.52
1:B:292:U:O2'	1:B:293:C:H5'	2.10	0.52
1:A:243:U:H2'	1:A:244:U:H6	1.75	0.52
1:A:277:U:H4'	1:A:277:U:OP1	2.10	0.52
1:A:331:G:N2	1:A:403:U:C2	2.78	0.52
1:B:199:U:O2	1:B:199:U:C2'	2.56	0.52
1:B:255:C:O3'	1:B:256:A:O4'	2.28	0.52
1:A:111:G:C4	1:A:112:G:C8	2.98	0.51
1:A:240:C:O2'	1:A:241:U:H5'	2.10	0.51
1:A:270:A:C3'	1:A:271:U:C5	2.91	0.51
1:A:284:A:O3'	1:A:285:G:H4'	2.10	0.51
1:B:96:G:C5	1:B:279:G:N3	2.77	0.51
1:B:98:C:N3	1:B:99:C:C4	2.78	0.51
1:B:150:G:C4	1:B:152:A:OP2	2.62	0.51
1:B:292:U:H2'	1:B:293:C:C6	2.45	0.51
1:B:314:A:C4'	1:B:315:C:OP1	2.56	0.51
1:A:218:A:N3	1:A:219:A:C1'	2.73	0.51
1:A:308:A:OP2	1:A:308:A:C8	2.64	0.51
1:B:171:A:H4'	1:B:172:A:OP1	2.11	0.51
1:B:277:U:H2'	1:B:278:C:C1'	2.41	0.51
1:A:264:G:HO2'	1:A:265:A:H5'	1.68	0.51
1:A:279:G:N1	1:A:280:G:C6	2.78	0.51
1:A:284:A:C2'	1:A:285:G:O4'	2.50	0.51
1:A:302:A:H2'	1:A:303:G:C5'	2.35	0.51
1:B:176:G:H2'	1:B:177:U:C5'	2.40	0.51
1:B:197:C:C2'	1:B:198:A:H8	2.23	0.51
1:B:201:G:H2'	1:B:202:U:H6	1.73	0.51
1:B:252:A:C6	1:B:253:U:C4	2.98	0.51
1:A:99:C:C2'	1:A:100:G:H8	2.11	0.51
1:A:289:U:OP1	1:A:289:U:O4'	2.29	0.51
1:B:103:A:C8	1:B:103:A:C3'	2.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:151:A:C2'	1:B:152:A:C8	2.86	0.51
1:B:163:G:N7	1:B:164:G:C6	2.78	0.51
1:B:273:U:H2'	1:B:274:C:C6	2.45	0.51
1:A:126:G:C5	1:A:127:C:C5	2.98	0.51
1:B:96:G:C5	1:B:97:A:C5	2.99	0.51
1:B:98:C:C2'	1:B:99:C:H6	2.18	0.51
1:B:254:G:C3'	1:B:255:C:O4'	2.59	0.51
1:B:284:A:C2'	1:B:285:G:H4'	2.41	0.51
1:A:218:A:C2	1:A:219:A:C1'	2.93	0.51
1:A:219:A:C6	1:A:220:G:C5	2.98	0.51
1:A:308:A:H3'	1:A:309:G:C8	2.45	0.51
1:A:325:A:C5	1:A:326:A:N6	2.79	0.51
1:B:166:C:N3	1:B:167:U:C4	2.79	0.51
1:B:194:G:C2'	1:B:195:G:H5'	2.41	0.51
1:B:204:C:O2'	1:B:205:U:H5'	2.10	0.51
1:B:282:G:C2	1:B:283:A:C4	2.98	0.51
1:B:330:A:C2	1:B:331:G:C4	2.98	0.51
1:B:406:G:C6	1:B:407:A:C5	2.99	0.51
1:A:96:G:C4	1:A:97:A:N7	2.79	0.51
1:A:151:A:C2	1:A:152:A:C5	2.98	0.51
1:A:162:U:H2'	1:A:162:U:O2	2.10	0.51
1:A:280:G:H2'	1:A:281:G:C5'	2.40	0.51
1:B:129:G:C5'	1:B:130:U:OP1	2.57	0.51
1:B:169:G:C4	1:B:170:C:H5	2.27	0.51
1:B:171:A:C4'	1:B:172:A:OP1	2.58	0.51
1:B:280:G:C2	1:B:281:G:C5	2.99	0.51
1:A:304:A:N3	1:A:304:A:H2'	2.25	0.51
1:B:164:G:O2'	1:B:165:C:OP1	2.21	0.51
1:B:165:C:C5	1:B:176:G:N2	2.79	0.51
1:B:213:C:H2'	1:B:214:A:H8	1.75	0.51
1:B:269:A:C5	1:B:270:A:H1'	2.46	0.51
1:A:254:G:O3'	1:A:255:C:O4'	2.29	0.51
1:A:256:A:C8	1:A:257:G:C8	2.99	0.51
1:A:257:G:C4	1:A:258:U:C5	2.98	0.51
1:A:289:U:C5'	1:A:290:A:OP2	2.57	0.51
1:A:313:G:C5'	1:A:314:A:OP2	2.58	0.51
1:B:99:C:N3	1:B:276:G:N2	2.59	0.51
1:B:134:G:C2	1:B:190:U:O2	2.64	0.51
1:B:255:C:H5'	1:B:256:A:OP2	2.11	0.51
1:B:262:C:P	1:B:262:C:O4'	2.68	0.51
1:A:122:A:O5'	1:A:123:A:O4'	2.29	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:282:G:C3'	1:A:283:A:H8	2.22	0.51
1:A:305:U:O4'	1:A:306:A:H5''	2.11	0.51
1:A:317:U:H2'	1:A:318:C:H5'	1.92	0.51
1:B:96:G:N2	1:B:279:G:O4'	2.44	0.51
1:B:257:G:C4	1:B:258:U:C5	2.98	0.51
1:A:113:A:C6	1:A:206:A:C6	2.99	0.50
1:A:283:A:H2'	1:A:284:A:H8	1.68	0.50
1:B:96:G:O6	1:B:97:A:N6	2.44	0.50
1:B:113:A:H2	1:B:207:A:N7	2.09	0.50
1:B:231:A:C6	1:B:232:C:C4	2.99	0.50
1:A:219:A:N6	1:A:220:G:C5	2.79	0.50
1:A:306:A:H2'	1:A:307:U:C6	2.41	0.50
1:B:407:A:H5'	1:B:408:G:OP2	2.12	0.50
1:A:119:G:C1'	1:A:326:A:C4'	2.90	0.50
1:A:231:A:N6	1:A:243:U:H3	2.08	0.50
1:B:182:U:C4'	1:B:183:A:OP2	2.58	0.50
1:B:219:A:C6	1:B:220:G:C8	3.00	0.50
1:B:266:C:O2'	1:B:267:U:H5'	2.11	0.50
1:B:282:G:C6	1:B:283:A:C6	2.99	0.50
1:A:249:U:N1	1:B:249:U:C2	2.80	0.50
1:A:277:U:C6	1:A:278:C:C5	2.99	0.50
1:A:324:A:H2'	1:A:324:A:N3	2.26	0.50
1:B:110:G:C5	1:B:111:G:N7	2.79	0.50
1:B:146:A:C2	1:B:158:G:C2	2.99	0.50
1:B:173:A:H2'	1:B:174:G:H8	1.76	0.50
1:A:205:U:H4'	1:A:328:G:OP2	2.12	0.50
1:A:209:C:P	1:A:304:A:N1	2.85	0.50
1:A:277:U:H3'	1:A:278:C:C6	2.47	0.50
1:A:413:C:N4	1:A:414:G:C8	2.79	0.50
1:B:103:A:C8	1:B:103:A:H3'	2.46	0.50
1:B:106:U:C6	1:B:106:U:C3'	2.94	0.50
1:B:229:C:H2'	1:B:230:A:H8	1.76	0.50
1:B:303:G:H2'	1:B:304:A:O4'	2.12	0.50
1:A:243:U:O2'	1:A:244:U:H5'	2.11	0.50
1:A:411:C:H2'	1:A:412:U:C6	2.46	0.50
1:B:98:C:C3'	1:B:99:C:H6	2.25	0.50
1:B:133:A:N3	1:B:134:G:C8	2.79	0.50
1:B:162:U:H2'	1:B:163:G:O4'	2.11	0.50
1:B:309:G:C2'	1:B:310:U:C5'	2.83	0.50
1:A:112:G:C2	1:A:209:C:C2	2.99	0.50
1:A:234:G:H2'	1:A:234:G:N3	2.26	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:266:C:C2'	1:A:267:U:H5'	2.41	0.50
1:B:108:G:N2	1:B:109:C:C2	2.79	0.50
1:B:174:G:C2	1:B:175:G:C4	3.00	0.50
1:B:281:G:O2'	1:B:282:G:OP1	2.27	0.50
1:A:217:C:H2'	1:A:218:A:O5'	2.12	0.50
1:A:244:U:O2'	1:A:245:G:H5'	2.12	0.50
1:A:248:A:O2'	1:A:249:U:C6	2.62	0.50
1:A:265:A:C2	1:A:266:C:C4	2.99	0.50
1:B:319:U:N3	1:B:331:G:N2	2.60	0.50
1:A:243:U:C2	1:A:244:U:C5	3.00	0.50
1:A:252:A:C4	1:A:253:U:C6	3.00	0.50
1:B:133:A:C2	1:B:191:G:C2	2.99	0.50
1:B:180:G:N1	1:B:181:G:C5	2.79	0.50
1:A:279:G:N2	1:A:299:A:H62	2.01	0.49
1:B:141:G:C6	1:B:142:U:C4	3.00	0.49
1:B:218:A:C2	1:B:219:A:C4	2.99	0.49
1:B:224:U:N3	1:B:225:A:C5	2.80	0.49
1:A:149:G:C6	1:A:150:G:C6	3.00	0.49
1:A:211:C:C2'	1:A:212:G:C5'	2.82	0.49
1:A:242:G:C5	1:A:243:U:C5	3.00	0.49
1:A:279:G:N1	1:A:280:G:O6	2.45	0.49
1:B:280:G:N1	1:B:281:G:C6	2.81	0.49
1:A:258:U:H5''	1:A:306:A:N1	2.27	0.49
1:A:260:C:H3'	1:A:305:U:C2	2.47	0.49
1:A:270:A:C2'	1:A:271:U:C5	2.93	0.49
1:B:220:G:C5	1:B:221:U:C5	3.00	0.49
1:B:263:A:N1	1:B:312:G:C5	2.81	0.49
1:A:182:U:C5'	1:A:183:A:OP2	2.58	0.49
1:B:171:A:C5'	1:B:172:A:OP1	2.60	0.49
1:B:183:A:OP1	1:B:186:A:OP1	2.30	0.49
1:B:408:G:C3'	1:B:409:U:H5'	2.41	0.49
1:A:218:A:C6	1:A:219:A:C5	3.00	0.49
1:A:238:A:H2	1:B:100:G:O2'	1.94	0.49
1:B:96:G:N7	1:B:279:G:N2	2.60	0.49
1:B:103:A:N1	1:B:272:G:C2	2.80	0.49
1:B:110:G:C6	1:B:111:G:C5	3.01	0.49
1:B:254:G:H5''	1:B:255:C:OP2	2.11	0.49
1:A:128:C:C2	1:A:195:G:C2	3.00	0.49
1:A:201:G:C6	1:A:202:U:N3	2.80	0.49
1:A:211:C:H2'	1:A:212:G:O4'	2.11	0.49
1:A:221:U:C2'	1:A:222:C:H6	2.17	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:236:A:C4	1:A:237:G:C8	3.01	0.49
1:B:143:C:H2'	1:B:144:U:C6	2.47	0.49
1:B:145:C:N4	1:B:158:G:H1	2.10	0.49
1:B:158:G:C6	1:B:159:A:C6	3.00	0.49
1:B:249:U:O2	1:B:249:U:H2'	2.13	0.49
1:A:146:A:C2	1:A:147:G:C5	3.00	0.49
1:A:167:U:C1'	1:A:171:A:N6	2.76	0.49
1:A:219:A:H2	1:A:273:U:C5'	2.26	0.49
1:A:245:G:C2	1:A:246:A:C2	3.00	0.49
1:A:254:G:HO2'	1:A:255:C:H1'	1.77	0.49
1:B:142:U:C2	1:B:143:C:C6	3.01	0.49
1:B:204:C:O2'	1:B:327:G:O2'	2.21	0.49
1:B:253:U:H2'	1:B:254:G:H5'	1.89	0.49
1:A:192:A:C2	1:A:193:C:C2	3.00	0.49
1:A:262:C:C2'	1:A:263:A:O5'	2.60	0.49
1:A:269:A:C6	1:A:307:U:C2	3.00	0.49
1:A:276:G:H2'	1:A:277:U:O4'	2.12	0.49
1:A:277:U:O4	1:A:278:C:N4	2.46	0.49
1:B:223:C:O2'	1:B:224:U:H5'	2.13	0.49
1:B:252:A:C4	1:B:253:U:C5	3.00	0.49
1:B:315:C:O5'	1:B:316:C:OP2	2.30	0.49
1:A:96:G:C6	1:A:97:A:C5	3.00	0.49
1:A:143:C:C2	1:A:144:U:C5	3.00	0.49
1:A:262:C:P	1:A:262:C:O4'	2.71	0.49
1:A:265:A:C2	1:A:266:C:C2	3.00	0.49
1:B:103:A:H3'	1:B:103:A:H8	1.78	0.49
1:B:126:G:C6	1:B:127:C:C4	3.00	0.49
1:B:280:G:OP1	1:B:291:U:N3	2.45	0.49
1:A:201:G:H2'	1:A:202:U:O4'	2.12	0.49
1:A:260:C:C3'	1:A:305:U:O2	2.61	0.49
1:A:407:A:C2'	1:A:408:G:O4'	2.61	0.49
1:B:218:A:H2	1:B:272:G:H21	1.61	0.49
1:B:220:G:C8	1:B:221:U:C5	3.00	0.49
1:A:280:G:HO2'	1:A:281:G:H5'	1.75	0.48
1:A:300:U:H2'	1:A:301:A:C8	2.48	0.48
1:B:207:A:H1'	1:B:414:G:H22	1.78	0.48
1:B:326:A:C8	1:B:326:A:OP2	2.66	0.48
1:A:114:A:N6	1:A:206:A:C2'	2.74	0.48
1:A:148:G:H2'	1:A:149:G:H5'	1.95	0.48
1:A:215:G:H21	1:A:216:C:H1'	1.78	0.48
1:A:309:G:C2'	1:A:310:U:C5'	2.87	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:220:G:C2'	1:B:221:U:H6	2.08	0.48
1:B:220:G:C6	1:B:221:U:C4	3.01	0.48
1:B:263:A:C5	1:B:312:G:C2	3.01	0.48
1:A:96:G:H5''	1:A:299:A:C4	2.47	0.48
1:A:261:A:OP1	1:A:305:U:H2'	2.14	0.48
1:A:293:C:H2'	1:A:294:U:O4'	2.13	0.48
1:B:164:G:O2'	1:B:186:A:N6	2.38	0.48
1:B:284:A:C2'	1:B:285:G:C4'	2.89	0.48
1:B:317:U:H2'	1:B:318:C:H5'	1.95	0.48
1:A:167:U:H4'	1:A:168:U:C5'	2.42	0.48
1:A:218:A:C2	1:A:219:A:C4	3.01	0.48
1:A:226:A:H3'	1:A:227:G:C8	2.45	0.48
1:A:280:G:C2'	1:A:281:G:C5'	2.81	0.48
1:A:302:A:OP2	1:A:303:G:N3	2.46	0.48
1:B:170:C:O2	1:B:170:C:C2'	2.57	0.48
1:B:255:C:O2	1:B:255:C:H2'	2.11	0.48
1:A:164:G:O2'	1:A:186:A:N6	2.46	0.48
1:A:229:C:H3'	1:A:229:C:H6	1.79	0.48
1:B:111:G:N3	1:B:112:G:C8	2.82	0.48
1:B:161:A:C5	1:B:162:U:C5	3.02	0.48
1:B:204:C:C4	1:B:205:U:C5	3.01	0.48
1:B:256:A:H2	1:B:272:G:H1'	1.77	0.48
1:B:279:G:N2	1:B:299:A:N6	2.37	0.48
1:A:201:G:C6	1:A:202:U:C2	3.02	0.48
1:A:230:A:H2'	1:A:231:A:C8	2.49	0.48
1:A:235:G:C5	1:A:237:G:OP2	2.66	0.48
1:A:281:G:H1	1:A:297:U:H3	1.61	0.48
1:A:282:G:C2	1:A:297:U:O2	2.67	0.48
1:B:244:U:O2'	1:B:245:G:H5'	2.13	0.48
1:A:96:G:C2'	1:A:97:A:H8	1.98	0.48
1:A:129:G:C5'	1:A:130:U:OP1	2.62	0.48
1:A:218:A:H2'	1:A:219:A:O4'	2.14	0.48
1:A:254:G:C2'	1:A:255:C:O4'	2.61	0.48
1:A:273:U:H3'	1:A:273:U:P	2.52	0.48
1:A:297:U:O5'	1:A:297:U:H6	1.95	0.48
1:A:317:U:C3'	1:A:318:C:C5'	2.92	0.48
1:A:323:G:H3'	1:A:324:A:C5'	2.44	0.48
1:B:120:U:H2'	1:B:121:C:H6	1.79	0.48
1:B:202:U:H2'	1:B:203:C:H6	1.77	0.48
1:B:217:C:H2'	1:B:218:A:O5'	2.14	0.48
1:B:259:U:C3'	1:B:260:C:O4'	2.61	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:290:A:O3'	1:B:291:U:C4'	2.62	0.48
1:A:96:G:N1	1:A:97:A:C6	2.82	0.48
1:A:261:A:N3	1:A:261:A:C2'	2.74	0.48
1:B:157:U:H2'	1:B:158:G:C8	2.48	0.48
1:B:280:G:H2'	1:B:281:G:C5'	2.15	0.48
1:A:99:C:N3	1:A:100:G:N7	2.62	0.48
1:A:132:C:C2'	1:A:133:A:H8	2.18	0.48
1:A:148:G:C6	1:A:149:G:N7	2.82	0.48
1:A:153:A:H2'	1:A:154:C:O4'	2.13	0.48
1:A:174:G:C6	1:A:175:G:C6	3.02	0.48
1:A:254:G:O2'	1:A:255:C:C1'	2.53	0.48
1:A:409:U:N3	1:A:411:C:N4	2.59	0.48
1:B:119:G:C2	1:B:120:U:C1'	2.97	0.48
1:B:212:G:H2'	1:B:213:C:O5'	2.14	0.48
1:B:271:U:P	1:B:271:U:H3'	2.54	0.48
1:A:100:G:C2'	1:A:101:U:C5'	2.74	0.48
1:A:231:A:N1	1:A:244:U:C2	2.82	0.48
1:B:97:A:H2'	1:B:98:C:H6	1.78	0.48
1:B:215:G:C4	1:B:216:C:C5	3.02	0.48
1:B:270:A:H2'	1:B:271:U:N1	2.25	0.48
1:B:276:G:H2'	1:B:277:U:C4'	2.43	0.48
1:A:96:G:C5	1:A:97:A:N7	2.82	0.47
1:B:97:A:C2'	1:B:98:C:C5'	2.90	0.47
1:B:99:C:O2	1:B:100:G:C8	2.67	0.47
1:B:107:U:C2'	1:B:108:G:C8	2.94	0.47
1:B:123:A:C6	1:B:197:C:C4	3.01	0.47
1:B:209:C:N3	1:B:211:C:C4	2.82	0.47
1:B:269:A:N7	1:B:270:A:C8	2.81	0.47
1:A:125:A:OP2	1:A:126:G:N7	2.47	0.47
1:A:287:U:H2'	1:A:288:G:O5'	2.13	0.47
1:B:218:A:C2	1:B:219:A:N9	2.82	0.47
1:B:218:A:N1	1:B:219:A:C4	2.81	0.47
1:B:251:G:N2	1:B:252:A:C4	2.82	0.47
1:B:266:C:N3	1:B:267:U:N3	2.61	0.47
1:A:162:U:N3	1:A:163:G:C5	2.81	0.47
1:A:180:G:C4	1:A:181:G:C8	3.02	0.47
1:A:230:A:N1	1:A:231:A:N6	2.62	0.47
1:B:96:G:C2	1:B:97:A:C4	3.02	0.47
1:B:123:A:N1	1:B:197:C:C2	2.83	0.47
1:B:269:A:C6	1:B:270:A:H1'	2.48	0.47
1:A:165:C:C4	1:A:176:G:C2	3.03	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:102:C:C3'	1:B:103:A:C5'	2.87	0.47
1:B:167:U:H4'	1:B:168:U:H5''	1.95	0.47
1:B:238:A:N6	1:B:240:C:N3	2.62	0.47
1:B:240:C:C2'	1:B:241:U:C5'	2.82	0.47
1:B:263:A:C4	1:B:312:G:C2	3.02	0.47
1:A:96:G:O2'	1:A:97:A:C5'	2.61	0.47
1:A:252:A:C2	1:A:253:U:C2	3.03	0.47
1:B:133:A:C2	1:B:134:G:C8	3.03	0.47
1:B:152:A:C4	1:B:153:A:C8	3.03	0.47
1:B:277:U:N3	1:B:278:C:N3	2.63	0.47
1:B:412:U:O2'	1:B:413:C:C5'	2.53	0.47
1:A:271:U:C5	1:A:272:G:N7	2.83	0.47
1:A:279:G:C3'	1:A:280:G:H8	2.27	0.47
1:A:282:G:C3'	1:A:283:A:C8	2.96	0.47
1:B:253:U:HO2'	1:B:254:G:H5'	1.73	0.47
1:B:304:A:C8	1:B:304:A:H3'	2.50	0.47
1:B:324:A:H2	1:B:325:A:H1'	1.72	0.47
1:A:184:A:C5'	1:A:185:U:H5''	2.44	0.47
1:A:215:G:C2	1:A:216:C:N1	2.83	0.47
1:A:221:U:C2'	1:A:222:C:C6	2.86	0.47
1:A:281:G:O2'	1:A:282:G:OP1	2.31	0.47
1:B:107:U:H2'	1:B:108:G:N7	2.29	0.47
1:B:283:A:N1	1:B:284:A:C6	2.82	0.47
1:B:300:U:C6	1:B:300:U:P	3.08	0.47
1:B:403:U:C3'	1:B:404:U:C5'	2.76	0.47
1:B:406:G:OP1	1:B:406:G:O3'	2.33	0.47
1:B:407:A:C6	1:B:408:G:C8	3.03	0.47
1:A:310:U:C4	1:A:311:C:N4	2.82	0.47
1:B:132:C:H2'	1:B:133:A:O4'	2.15	0.47
1:B:326:A:OP2	1:B:326:A:H8	1.98	0.47
1:B:411:C:O2	1:B:412:U:C5	2.68	0.47
1:A:219:A:N6	1:A:220:G:C6	2.83	0.47
1:A:227:G:C2	1:A:228:U:C1'	2.92	0.47
1:A:230:A:N1	1:A:245:G:C6	2.83	0.47
1:A:272:G:C6	1:A:273:U:O4	2.68	0.47
1:A:278:C:C2'	1:A:279:G:H5'	2.41	0.47
1:A:290:A:C5	1:A:292:U:C4	3.03	0.47
1:B:167:U:C1'	1:B:171:A:N6	2.75	0.47
1:B:263:A:H61	1:B:311:C:N4	2.08	0.47
1:A:139:A:C5	1:A:140:A:N7	2.83	0.47
1:B:97:A:N1	1:B:277:U:C4	2.83	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:234:G:H2'	1:B:234:G:N3	2.29	0.47
1:B:403:U:O4	1:B:404:U:C2	2.68	0.47
1:A:167:U:H1'	1:A:171:A:C6	2.51	0.46
1:A:217:C:O2'	1:A:218:A:C5'	2.62	0.46
1:A:236:A:C2	1:A:237:G:H1'	2.49	0.46
1:A:240:C:C4	1:A:241:U:C5	3.03	0.46
1:A:263:A:C6	1:A:312:G:C6	3.03	0.46
1:B:111:G:C4	1:B:112:G:C8	3.03	0.46
1:B:274:C:C2	1:B:275:G:C8	3.03	0.46
1:A:409:U:C5	1:A:410:A:C4	3.02	0.46
1:B:219:A:H2	1:B:273:U:H4'	1.80	0.46
1:B:236:A:N3	1:B:237:G:C8	2.83	0.46
1:B:254:G:O3'	1:B:255:C:C4'	2.62	0.46
1:B:302:A:C8	1:B:303:G:O4'	2.69	0.46
1:A:108:G:C6	1:A:214:A:N1	2.83	0.46
1:A:120:U:H2'	1:A:121:C:C6	2.50	0.46
1:A:253:U:H2'	1:A:254:G:C5'	2.46	0.46
1:A:254:G:C2	1:A:255:C:N4	2.84	0.46
1:A:257:G:H2'	1:A:258:U:C5'	2.44	0.46
1:B:96:G:C2'	1:B:97:A:H8	2.08	0.46
1:B:104:A:C2'	1:B:105:A:H8	2.26	0.46
1:B:123:A:N6	1:B:197:C:C5	2.83	0.46
1:B:151:A:C2'	1:B:152:A:H8	2.24	0.46
1:B:198:A:C8	1:B:200:G:C2	3.04	0.46
1:B:252:A:C2'	1:B:253:U:H5'	2.46	0.46
1:B:260:C:C5'	1:B:305:U:O2	2.63	0.46
1:B:403:U:C4	1:B:404:U:O4'	2.69	0.46
1:A:209:C:OP1	1:A:304:A:N1	2.48	0.46
1:B:104:A:C2	1:B:105:A:N7	2.83	0.46
1:B:260:C:C5'	1:B:305:U:C2'	2.92	0.46
1:B:406:G:O6	1:B:407:A:C6	2.68	0.46
1:A:167:U:H4'	1:A:168:U:O5'	2.15	0.46
1:B:139:A:N6	1:B:186:A:C6	2.84	0.46
1:B:203:C:C2	1:B:204:C:C5	3.04	0.46
1:B:211:C:H2'	1:B:212:G:C8	2.48	0.46
1:B:228:U:H3	1:B:246:A:N6	2.12	0.46
1:A:240:C:C3'	1:A:241:U:H5'	2.44	0.46
1:A:301:A:C2'	1:A:302:A:O4'	2.61	0.46
1:A:405:G:O2'	1:A:406:G:P	2.72	0.46
1:B:166:C:N4	1:B:167:U:N3	2.63	0.46
1:B:198:A:C8	1:B:200:G:N3	2.84	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:254:G:H2'	1:A:255:C:O4'	2.15	0.46
1:A:268:A:C2	1:A:308:A:N1	2.83	0.46
1:A:269:A:H5''	1:A:270:A:C8	2.43	0.46
1:A:300:U:C5	1:A:300:U:OP2	2.68	0.46
1:B:111:G:H1	1:B:209:C:N4	2.08	0.46
1:B:125:A:C6	1:B:324:A:N6	2.84	0.46
1:B:183:A:OP1	1:B:186:A:C8	2.69	0.46
1:A:136:A:C2	1:A:187:A:C8	3.04	0.46
1:A:249:U:H1'	1:B:249:U:C2	2.50	0.46
1:A:268:A:N7	1:A:270:A:N6	2.63	0.46
1:A:300:U:OP2	1:A:300:U:C6	2.69	0.46
1:B:168:U:OP2	1:B:168:U:C6	2.69	0.46
1:B:308:A:OP2	1:B:308:A:C8	2.69	0.46
1:A:262:C:O4'	1:A:262:C:OP1	2.33	0.46
1:B:102:C:H3'	1:B:103:A:C5'	2.46	0.46
1:B:218:A:C6	1:B:219:A:C5	3.03	0.46
1:B:230:A:C4	1:B:231:A:N7	2.84	0.46
1:B:254:G:O3'	1:B:255:C:O4'	2.33	0.46
1:B:274:C:O2	1:B:275:G:C8	2.69	0.46
1:A:98:C:C4	1:A:99:C:N4	2.83	0.46
1:A:165:C:C5	1:A:176:G:N2	2.84	0.46
1:A:273:U:C2'	1:A:274:C:O4'	2.64	0.46
1:A:285:G:O2'	1:A:286:A:OP1	2.28	0.46
1:A:412:U:C2'	1:A:413:C:O4'	2.61	0.46
1:B:259:U:H3'	1:B:260:C:O4'	2.16	0.46
1:B:261:A:C6	1:B:313:G:N2	2.84	0.46
1:B:272:G:C5	1:B:273:U:H5	2.28	0.46
1:B:280:G:C6	1:B:281:G:C6	3.03	0.46
1:A:238:A:C2'	1:A:240:C:O5'	2.64	0.45
1:A:254:G:O5'	1:A:255:C:OP2	2.34	0.45
1:A:236:A:C6	1:A:237:G:C5	3.04	0.45
1:B:136:A:C2	1:B:137:C:C2	3.04	0.45
1:B:158:G:C6	1:B:159:A:N6	2.84	0.45
1:B:243:U:C2	1:B:244:U:C5	3.04	0.45
1:A:96:G:H5''	1:A:299:A:C6	2.52	0.45
1:A:218:A:N1	1:A:219:A:C4	2.85	0.45
1:A:290:A:C2	1:A:292:U:C6	3.04	0.45
1:B:107:U:O2'	1:B:108:G:H8	1.99	0.45
1:B:162:U:O2'	1:B:163:G:H5'	2.16	0.45
1:B:207:A:C1'	1:B:414:G:H22	2.30	0.45
1:B:220:G:C6	1:B:221:U:N3	2.85	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:256:A:H2'	1:B:271:U:HO2'	1.77	0.45
1:A:281:G:C3'	1:A:282:G:H8	2.28	0.45
1:A:299:A:H5''	1:A:300:U:P	2.56	0.45
1:A:290:A:C4	1:A:292:U:C5	3.05	0.45
1:B:98:C:C2	1:B:99:C:C5	3.03	0.45
1:B:168:U:C5	1:B:183:A:C6	3.04	0.45
1:B:233:A:C2'	1:B:234:G:H5'	2.47	0.45
1:B:237:G:H3'	1:B:238:A:C8	2.52	0.45
1:B:265:A:N1	1:B:266:C:C4	2.84	0.45
1:B:278:C:H6	1:B:278:C:OP2	1.99	0.45
1:B:282:G:C6	1:B:283:A:C5	3.04	0.45
1:A:100:G:C2	1:A:101:U:O4'	2.70	0.45
1:A:230:A:H2'	1:A:231:A:H8	1.82	0.45
1:A:242:G:C4	1:A:243:U:C6	3.04	0.45
1:B:131:U:O2	1:B:131:U:C2'	2.63	0.45
1:A:184:A:C5'	1:A:185:U:C5'	2.94	0.45
1:B:97:A:P	1:B:300:U:N3	2.87	0.45
1:B:104:A:N3	1:B:105:A:N7	2.65	0.45
1:B:134:G:N2	1:B:135:U:C2	2.85	0.45
1:B:154:C:O2'	1:B:155:U:H5'	2.16	0.45
1:B:404:U:OP1	1:B:404:U:H4'	2.16	0.45
1:A:103:A:N6	1:A:270:A:C6	2.85	0.45
1:A:147:G:N1	1:A:157:U:C2	2.85	0.45
1:B:114:A:N7	1:B:206:A:H2	2.15	0.45
1:B:135:U:H2'	1:B:136:A:O4'	2.17	0.45
1:A:98:C:N3	1:A:99:C:C4	2.85	0.45
1:A:156:U:H2'	1:A:157:U:H6	1.76	0.45
1:A:165:C:N4	1:A:166:C:N4	2.64	0.45
1:A:181:G:O2'	1:A:186:A:N1	2.46	0.45
1:A:272:G:C4	1:A:273:U:C5	3.04	0.45
1:A:299:A:O3'	1:A:300:U:O4'	2.35	0.45
1:A:409:U:O2	1:A:411:C:C5	2.70	0.45
1:A:112:G:H2'	1:A:113:A:O4'	2.17	0.45
1:A:215:G:C2	1:A:216:C:C2	3.05	0.45
1:A:227:G:C2'	1:A:228:U:O5'	2.64	0.45
1:A:249:U:N3	1:B:249:U:C6	2.84	0.45
1:A:260:C:C6	1:A:305:U:C2	3.05	0.45
1:A:285:G:C6	1:A:286:A:C6	3.05	0.45
1:B:96:G:C5'	1:B:299:A:C4	2.99	0.45
1:B:96:G:N2	1:B:279:G:H1'	2.32	0.45
1:B:135:U:H2'	1:B:136:A:C8	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:169:G:H2'	1:B:170:C:H6	1.83	0.45
1:B:174:G:C6	1:B:175:G:C6	3.05	0.45
1:A:119:G:C1'	1:A:326:A:O4'	2.50	0.44
1:A:170:C:O2	1:A:170:C:C2'	2.65	0.44
1:A:176:G:H2'	1:A:177:U:H6	1.79	0.44
1:A:211:C:N3	1:A:212:G:C8	2.86	0.44
1:A:313:G:N2	1:A:414:G:H1'	2.32	0.44
1:A:319:U:O2'	1:A:320:C:P	2.75	0.44
1:B:108:G:O6	1:B:214:A:C2	2.70	0.44
1:B:159:A:H2'	1:B:160:G:C8	2.52	0.44
1:B:278:C:N4	1:B:279:G:C6	2.85	0.44
1:B:321:C:C4	1:B:322:C:N4	2.85	0.44
1:A:231:A:C2	1:A:232:C:C2	3.06	0.44
1:A:242:G:H2'	1:A:243:U:O4'	2.17	0.44
1:A:250:G:C6	1:A:251:G:C8	3.04	0.44
1:A:274:C:H2'	1:A:275:G:H8	1.78	0.44
1:A:323:G:C2	1:A:325:A:OP2	2.70	0.44
1:B:245:G:H2'	1:B:246:A:C1'	2.47	0.44
1:B:277:U:C2	1:B:278:C:C2	3.06	0.44
1:B:277:U:C5	1:B:278:C:C4	3.06	0.44
1:A:204:C:C2	1:A:205:U:C5	3.04	0.44
1:A:214:A:C5	1:A:215:G:N7	2.85	0.44
1:A:254:G:C4	1:A:255:C:C5	3.06	0.44
1:A:268:A:C8	1:A:270:A:N6	2.85	0.44
1:B:152:A:N3	1:B:153:A:C8	2.86	0.44
1:B:219:A:C6	1:B:220:G:N7	2.85	0.44
1:B:278:C:N4	1:B:279:G:N7	2.66	0.44
1:B:319:U:O2'	1:B:320:C:OP1	2.35	0.44
1:A:103:A:C5'	1:A:104:A:OP2	2.66	0.44
1:A:104:A:N3	1:A:105:A:N7	2.65	0.44
1:B:135:U:H2'	1:B:136:A:H8	1.82	0.44
1:B:178:A:H5'	1:B:179:U:OP1	2.17	0.44
1:B:253:U:H2'	1:B:254:G:C4'	2.47	0.44
1:B:265:A:C6	1:B:266:C:N4	2.86	0.44
1:B:270:A:C2	1:B:271:U:C2	3.04	0.44
1:A:254:G:O3'	1:A:255:C:C4'	2.65	0.44
1:A:280:G:OP1	1:A:291:U:N3	2.48	0.44
1:A:403:U:H2'	1:A:404:U:OP1	2.18	0.44
1:B:114:A:N7	1:B:206:A:C2	2.86	0.44
1:B:178:A:C1'	1:B:180:G:C8	2.98	0.44
1:B:269:A:C8	1:B:270:A:H8	2.31	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:277:U:H2'	1:B:278:C:H1'	2.00	0.44
1:A:225:A:O2'	1:A:226:A:H8	1.99	0.44
1:A:226:A:N6	1:A:248:A:C2	2.86	0.44
1:A:243:U:N3	1:A:244:U:C4	2.86	0.44
1:A:287:U:H3'	1:A:288:G:C5'	2.47	0.44
1:B:236:A:C2	1:B:237:G:H1'	2.53	0.44
1:B:254:G:O5'	1:B:254:G:H8	2.00	0.44
1:B:255:C:O2	1:B:255:C:C2'	2.66	0.44
1:A:271:U:C5	1:A:272:G:C8	3.05	0.44
1:A:323:G:C2	1:A:327:G:O6	2.70	0.44
1:B:289:U:OP1	1:B:289:U:O4'	2.36	0.44
1:A:122:A:OP1	1:A:123:A:H5'	2.18	0.44
1:A:325:A:C6	1:A:326:A:N6	2.85	0.44
1:B:96:G:C4	1:B:97:A:C8	3.06	0.44
1:B:126:G:C5	1:B:127:C:C5	3.05	0.44
1:B:411:C:C2	1:B:412:U:H5	2.30	0.44
1:A:118:G:H21	1:A:326:A:C1'	2.28	0.44
1:A:138:C:N3	1:A:178:A:H2	2.13	0.44
1:A:157:U:C2'	1:A:158:G:H8	2.17	0.44
1:A:277:U:C5	1:A:278:C:N4	2.85	0.44
1:A:283:A:C3'	1:A:284:A:H8	2.31	0.44
1:B:119:G:C6	1:B:120:U:C2	3.05	0.44
1:A:161:A:C5	1:A:162:U:C6	3.06	0.43
1:A:411:C:C3'	1:A:412:U:C6	3.01	0.43
1:B:110:G:N1	1:B:212:G:C2	2.85	0.43
1:B:212:G:C2'	1:B:213:C:O5'	2.66	0.43
1:B:273:U:H2'	1:B:274:C:O4'	2.18	0.43
1:A:148:G:C2	1:A:149:G:C8	3.06	0.43
1:A:212:G:C2	1:A:213:C:C5	3.07	0.43
1:A:235:G:N2	1:A:237:G:H5''	2.34	0.43
1:A:242:G:C6	1:A:243:U:C4	3.06	0.43
1:A:282:G:N3	1:A:282:G:H2'	2.33	0.43
1:B:220:G:H2'	1:B:221:U:O4'	2.18	0.43
1:B:282:G:C4	1:B:283:A:N7	2.86	0.43
1:A:125:A:N1	1:A:324:A:N6	2.63	0.43
1:A:161:A:C5	1:A:162:U:C5	3.06	0.43
1:A:256:A:C2	1:A:272:G:O2'	2.69	0.43
1:A:317:U:C3'	1:A:318:C:H5'	2.48	0.43
1:B:168:U:O2'	1:B:169:G:H5''	2.18	0.43
1:B:219:A:C2	1:B:220:G:O4'	2.70	0.43
1:A:96:G:O6	1:A:97:A:N6	2.50	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:113:A:N6	1:A:206:A:C6	2.86	0.43
1:A:198:A:H4'	1:A:200:G:C1'	2.48	0.43
1:A:257:G:N3	1:A:258:U:C6	2.86	0.43
1:B:219:A:N3	1:B:219:A:H2'	2.33	0.43
1:B:242:G:C6	1:B:243:U:C4	3.06	0.43
1:B:284:A:C3'	1:B:285:G:C4'	2.96	0.43
1:A:215:G:N2	1:A:216:C:C2	2.87	0.43
1:A:255:C:O3'	1:A:256:A:O4'	2.37	0.43
1:B:230:A:C2	1:B:231:A:C6	3.06	0.43
1:B:319:U:O2'	1:B:320:C:P	2.77	0.43
1:A:108:G:O6	1:A:214:A:N1	2.52	0.43
1:A:115:A:H2'	1:A:116:G:C8	2.53	0.43
1:A:146:A:C2	1:A:147:G:N7	2.86	0.43
1:A:146:A:N1	1:A:158:G:C6	2.87	0.43
1:A:198:A:H4'	1:A:200:G:H1'	1.99	0.43
1:B:201:G:H2'	1:B:202:U:O4'	2.18	0.43
1:B:236:A:C2	1:B:237:G:N9	2.87	0.43
1:B:405:G:N3	1:B:405:G:C2'	2.70	0.43
1:A:112:G:C2	1:A:113:A:C1'	3.02	0.43
1:A:167:U:H1'	1:A:171:A:N6	2.33	0.43
1:A:207:A:C8	1:A:208:C:C6	3.06	0.43
1:A:236:A:N3	1:A:237:G:H1'	2.34	0.43
1:A:260:C:H5'	1:A:261:A:OP1	2.18	0.43
1:A:306:A:C5	1:A:307:U:C5	3.05	0.43
1:A:413:C:H2'	1:A:414:G:C4'	2.49	0.43
1:B:107:U:O2	1:B:108:G:N7	2.52	0.43
1:B:248:A:C8	1:B:250:G:C5	3.07	0.43
1:A:162:U:H2'	1:A:163:G:O4'	2.19	0.43
1:A:213:C:H2'	1:A:214:A:O5'	2.18	0.43
1:A:281:G:H2'	1:A:282:G:N9	2.26	0.43
1:B:187:A:H3'	1:B:187:A:N3	2.33	0.43
1:B:281:G:C2'	1:B:282:G:O4'	2.67	0.43
1:A:100:G:C4	1:A:275:G:N2	2.86	0.43
1:A:219:A:H2	1:A:273:U:H4'	1.84	0.43
1:A:276:G:C6	1:A:277:U:C4	3.07	0.43
1:B:260:C:H5'	1:B:305:U:O2	2.19	0.43
1:A:255:C:H5'	1:A:256:A:OP2	2.19	0.43
1:A:293:C:O5'	1:A:293:C:H6	2.02	0.43
1:A:110:G:N2	1:A:212:G:H1'	2.34	0.42
1:A:204:C:H4'	1:A:327:G:O2'	2.19	0.42
1:A:235:G:N2	1:A:237:G:C5'	2.82	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:187:A:H2'	1:B:189:C:O4'	2.18	0.42
1:B:230:A:N1	1:B:231:A:N6	2.67	0.42
1:B:263:A:C2'	1:B:264:G:C8	3.02	0.42
1:B:315:C:H5''	1:B:316:C:OP2	2.19	0.42
1:A:180:G:C2	1:A:181:G:N9	2.87	0.42
1:B:282:G:C2'	1:B:283:A:C8	3.02	0.42
1:A:99:C:O2	1:A:276:G:N2	2.52	0.42
1:A:119:G:H2'	1:A:120:U:O4'	2.20	0.42
1:A:231:A:O2'	1:A:232:C:C5'	2.57	0.42
1:A:283:A:C2'	1:A:284:A:H8	2.29	0.42
1:B:215:G:C5	1:B:216:C:C4	3.07	0.42
1:B:285:G:O2'	1:B:286:A:OP1	2.27	0.42
1:A:140:A:C6	1:A:141:G:C8	3.07	0.42
1:A:183:A:O4'	1:A:188:G:C2	2.72	0.42
1:A:198:A:C4'	1:A:200:G:C1'	2.92	0.42
1:A:269:A:C5	1:A:307:U:C2	3.07	0.42
1:B:153:A:H2	1:B:251:G:HO2'	1.60	0.42
1:B:170:C:C2	1:B:171:A:C8	3.08	0.42
1:B:215:G:C2	1:B:216:C:C2	3.08	0.42
1:B:282:G:H5'	1:B:283:A:P	2.59	0.42
1:B:408:G:H2'	1:B:409:U:H6	1.83	0.42
1:A:169:G:C6	1:A:170:C:C5	3.08	0.42
1:A:213:C:C4	1:A:214:A:C8	3.07	0.42
1:B:132:C:N3	1:B:192:A:C2	2.87	0.42
1:B:145:C:N3	1:B:159:A:C2	2.88	0.42
1:B:150:G:C2	1:B:152:A:O5'	2.73	0.42
1:B:284:A:C3'	1:B:285:G:H4'	2.49	0.42
1:A:254:G:C3'	1:A:255:C:O4'	2.68	0.42
1:A:263:A:H2'	1:A:264:G:C8	2.54	0.42
1:B:209:C:N4	1:B:211:C:N4	2.66	0.42
1:B:277:U:O4	1:B:278:C:N4	2.52	0.42
1:B:409:U:HO2'	1:B:410:A:P	2.43	0.42
1:A:140:A:N3	1:A:140:A:H2'	2.33	0.42
1:B:136:A:C6	1:B:187:A:N7	2.87	0.42
1:B:146:A:C6	1:B:158:G:N1	2.88	0.42
1:A:127:C:C2	1:A:128:C:C5	3.08	0.42
1:A:176:G:C5	1:A:177:U:C4	3.08	0.42
1:A:201:G:N1	1:A:202:U:C2	2.88	0.42
1:A:257:G:H2'	1:A:258:U:C6	2.45	0.42
1:A:315:C:O5'	1:A:316:C:OP2	2.38	0.42
1:B:96:G:C5	1:B:97:A:N7	2.88	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:165:C:C5	1:B:176:G:C2	3.07	0.42
1:B:270:A:O3'	1:B:271:U:H3'	2.20	0.42
1:B:279:G:H1	1:B:298:C:H42	1.66	0.42
1:B:302:A:C8	1:B:303:G:C1'	3.02	0.42
1:A:96:G:C2	1:A:279:G:C1'	2.99	0.42
1:A:97:A:C5	1:A:98:C:C6	3.07	0.42
1:A:184:A:C2	1:A:213:C:O4'	2.73	0.42
1:B:105:A:N3	1:B:105:A:H2'	2.35	0.42
1:B:105:A:C2	1:B:217:C:C1'	2.99	0.42
1:B:110:G:N2	1:B:212:G:C4	2.88	0.42
1:B:166:C:C2	1:B:175:G:N2	2.88	0.42
1:B:211:C:O5'	1:B:211:C:H6	2.02	0.42
1:B:216:C:O2'	1:B:217:C:H5'	2.20	0.42
1:B:251:G:N1	1:B:252:A:C6	2.88	0.42
1:B:308:A:H2'	1:B:309:G:N7	2.27	0.42
1:B:180:G:C2	1:B:181:G:C4	3.08	0.42
1:A:178:A:H1'	1:A:180:G:C8	2.55	0.41
1:A:210:A:C8	1:A:210:A:C1'	2.87	0.41
1:A:306:A:C2'	1:A:307:U:H5'	2.50	0.41
1:A:327:G:H2'	1:A:328:G:C8	2.54	0.41
1:B:101:U:C2	1:B:102:C:N4	2.89	0.41
1:B:134:G:C2	1:B:190:U:C2	3.08	0.41
1:B:269:A:C5	1:B:270:A:C1'	3.02	0.41
1:B:288:G:N1	1:B:289:U:O2	2.53	0.41
1:B:408:G:C5	1:B:409:U:C5	3.08	0.41
1:A:284:A:H5''	1:A:285:G:OP2	2.20	0.41
1:A:288:G:C2	1:A:289:U:C2	3.08	0.41
1:A:293:C:H3'	1:A:293:C:C6	2.55	0.41
1:A:323:G:N2	1:A:326:A:H62	2.18	0.41
1:B:111:G:C4	1:B:112:G:N7	2.88	0.41
1:B:126:G:C2	1:B:127:C:C6	3.08	0.41
1:B:174:G:H2'	1:B:175:G:C8	2.55	0.41
1:B:263:A:C5	1:B:312:G:N1	2.88	0.41
1:B:268:A:HO2'	1:B:269:A:P	2.44	0.41
1:B:321:C:N4	1:B:322:C:N4	2.68	0.41
1:A:97:A:N6	1:A:98:C:C5	2.85	0.41
1:A:218:A:C5	1:A:219:A:C5	3.08	0.41
1:A:252:A:H2'	1:A:253:U:O4'	2.20	0.41
1:B:213:C:HO2'	1:B:214:A:H5'	1.80	0.41
1:B:248:A:O2'	1:B:249:U:O5'	2.39	0.41
1:B:259:U:C5	1:B:260:C:N3	2.88	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:297:U:H2'	1:B:298:C:C6	2.55	0.41
1:A:112:G:C2'	1:A:113:A:C5'	2.99	0.41
1:A:167:U:H4'	1:A:168:U:H5''	2.02	0.41
1:A:207:A:O2'	1:A:208:C:H5'	2.20	0.41
1:A:249:U:O2	1:A:249:U:C2'	2.69	0.41
1:B:117:G:H2'	1:B:118:G:C8	2.55	0.41
1:B:191:G:C4	1:B:192:A:C8	3.09	0.41
1:B:326:A:H8	1:B:326:A:P	2.43	0.41
1:A:96:G:N2	1:A:279:G:C1'	2.84	0.41
1:A:231:A:C2'	1:A:232:C:H5'	2.51	0.41
1:A:270:A:O2'	1:A:271:U:H5'	2.20	0.41
1:A:287:U:C3'	1:A:288:G:C5'	2.98	0.41
1:A:295:U:H5'	1:A:295:U:H6	1.85	0.41
1:B:107:U:H2'	1:B:108:G:H8	1.81	0.41
1:B:120:U:C2	1:B:121:C:C5	3.09	0.41
1:B:282:G:H2'	1:B:283:A:C8	2.55	0.41
1:B:403:U:C5	1:B:404:U:O4'	2.74	0.41
1:A:97:A:C6	1:A:98:C:C6	3.07	0.41
1:A:209:C:OP2	1:A:304:A:N1	2.53	0.41
1:A:219:A:C6	1:A:220:G:N7	2.88	0.41
1:A:261:A:C6	1:A:313:G:N2	2.89	0.41
1:A:295:U:C6	1:A:295:U:C4'	3.04	0.41
1:B:172:A:C2	1:B:173:A:C8	3.09	0.41
1:B:261:A:N6	1:B:313:G:N2	2.68	0.41
1:B:296:C:H3'	1:B:297:U:H6	1.85	0.41
1:A:96:G:N2	1:A:279:G:H1'	2.36	0.41
1:A:98:C:H2'	1:A:99:C:H6	1.73	0.41
1:A:111:G:N3	1:A:112:G:C8	2.89	0.41
1:A:134:G:N3	1:A:135:U:C6	2.89	0.41
1:A:168:U:C5	1:A:183:A:C5	3.09	0.41
1:A:208:C:C2	1:A:209:C:C5	3.09	0.41
1:A:273:U:OP2	1:A:273:U:C3'	2.53	0.41
1:B:141:G:C6	1:B:142:U:C5	3.09	0.41
1:B:215:G:C6	1:B:216:C:C4	3.09	0.41
1:B:236:A:C5	1:B:237:G:N7	2.88	0.41
1:B:266:C:H2'	1:B:267:U:O4'	2.21	0.41
1:B:326:A:H8	1:B:326:A:O5'	2.03	0.41
1:A:226:A:C8	1:A:227:G:N7	2.88	0.41
1:A:229:C:H5'	1:B:247:U:H4'	2.03	0.41
1:A:245:G:C3'	1:A:246:A:H8	2.33	0.41
1:A:263:A:N6	1:A:312:G:C5	2.88	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:293:C:O2'	1:A:294:U:H5'	2.21	0.41
1:A:319:U:O2'	1:A:320:C:OP1	2.30	0.41
1:A:411:C:H3'	1:A:412:U:C6	2.56	0.41
1:B:167:U:H5''	1:B:168:U:OP1	2.21	0.41
1:B:290:A:O2'	1:B:291:U:P	2.79	0.41
1:B:321:C:C4	1:B:322:C:C4	3.09	0.41
1:A:151:A:N1	1:A:152:A:C6	2.89	0.41
1:A:152:A:C2	1:A:153:A:N3	2.89	0.41
1:A:154:C:H2'	1:A:155:U:O4'	2.21	0.41
1:A:182:U:C4'	1:A:183:A:OP2	2.68	0.41
1:A:235:G:C2'	1:A:236:A:H3'	2.48	0.41
1:A:238:A:N6	1:A:240:C:C2	2.89	0.41
1:A:253:U:C2'	1:A:254:G:O4'	2.61	0.41
1:B:119:G:H1'	1:B:326:A:O4'	2.20	0.41
1:B:219:A:N6	1:B:220:G:C5	2.89	0.41
1:B:271:U:O2'	1:B:272:G:O5'	2.39	0.41
1:B:281:G:C5	1:B:282:G:N7	2.89	0.41
1:B:405:G:C2'	1:B:406:G:H5''	2.46	0.41
1:A:214:A:C6	1:A:215:G:C6	3.09	0.41
1:A:259:U:C4	1:A:260:C:C4	3.09	0.41
1:A:272:G:C6	1:A:273:U:C4	3.08	0.41
1:B:127:C:H2'	1:B:128:C:C6	2.52	0.41
1:B:248:A:C8	1:B:250:G:C6	3.09	0.41
1:B:251:G:N3	1:B:252:A:C8	2.89	0.41
1:B:408:G:O2'	1:B:409:U:H5''	2.20	0.41
1:A:235:G:C2	1:A:237:G:H5''	2.55	0.40
1:A:257:G:C2	1:A:258:U:C2	3.09	0.40
1:A:259:U:H2'	1:A:260:C:O4'	2.22	0.40
1:A:293:C:C6	1:A:293:C:C3'	3.03	0.40
1:B:133:A:N1	1:B:191:G:C6	2.88	0.40
1:B:146:A:H2'	1:B:147:G:H8	1.85	0.40
1:B:184:A:H5''	1:B:185:U:C5'	2.49	0.40
1:B:257:G:C2	1:B:258:U:C6	3.09	0.40
1:B:270:A:O2'	1:B:271:U:O4'	2.35	0.40
1:A:119:G:N1	1:A:120:U:C2	2.89	0.40
1:A:201:G:C4	1:A:202:U:C6	3.09	0.40
1:A:201:G:C5	1:A:202:U:C4	3.09	0.40
1:A:226:A:C8	1:A:227:G:C8	3.09	0.40
1:A:322:C:C2	1:A:328:G:N2	2.89	0.40
1:B:263:A:C5'	1:B:264:G:OP2	2.64	0.40
1:A:115:A:N6	1:A:116:G:C6	2.89	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:132:C:N3	1:A:192:A:C2	2.89	0.40
1:A:218:A:C2	1:A:219:A:N9	2.89	0.40
1:A:295:U:H3'	1:A:295:U:H6	1.85	0.40
1:A:312:G:C2	1:A:313:G:H1'	2.57	0.40
1:B:276:G:C6	1:B:277:U:C5	3.09	0.40
1:A:96:G:O2'	1:A:97:A:O4'	2.37	0.40
1:A:112:G:H2'	1:A:113:A:C5'	2.51	0.40
1:A:228:U:H3	1:A:246:A:H61	1.68	0.40
1:A:232:C:H6	1:A:232:C:O5'	2.04	0.40
1:A:273:U:C4	1:A:274:C:N4	2.90	0.40
1:B:180:G:N2	1:B:181:G:C4	2.89	0.40
1:B:183:A:O4'	1:B:188:G:N1	2.55	0.40
1:B:245:G:C3'	1:B:246:A:C8	3.04	0.40
1:B:412:U:C2'	1:B:413:C:C5'	2.99	0.40
1:A:218:A:C4	1:A:219:A:N9	2.90	0.40
1:A:249:U:C2	1:B:249:U:C1'	3.03	0.40
1:A:410:A:C4'	1:A:411:C:OP1	2.70	0.40
1:B:99:C:O2	1:B:276:G:N2	2.54	0.40
1:B:107:U:C2'	1:B:108:G:H8	2.34	0.40
1:B:160:G:C4	1:B:161:A:N7	2.90	0.40
1:B:250:G:C5	1:B:251:G:N7	2.90	0.40
1:B:293:C:H2'	1:B:294:U:O4'	2.22	0.40

All (17) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:210:A:N7	1:B:291:U:C6[5_545]	1.86	0.34
1:A:210:A:N7	1:B:291:U:C5[5_545]	1.88	0.32
1:A:210:A:C5	1:B:291:U:C6[5_545]	1.88	0.32
1:A:210:A:C5	1:B:291:U:C5[5_545]	1.90	0.30
1:A:210:A:C8	1:B:291:U:C6[5_545]	1.93	0.27
1:A:210:A:C8	1:B:291:U:C5[5_545]	1.95	0.25
1:A:210:A:N9	1:B:291:U:C5[5_545]	1.95	0.25
1:A:210:A:N7	1:B:291:U:N3[5_545]	1.95	0.25
1:A:210:A:N9	1:B:291:U:C6[5_545]	2.01	0.19
1:A:210:A:C4	1:B:291:U:C6[5_545]	2.02	0.18
1:A:210:A:C4	1:B:291:U:C5[5_545]	2.02	0.18
1:A:210:A:N7	1:B:291:U:N1[5_545]	2.05	0.15
1:A:210:A:N7	1:B:291:U:C2[5_545]	2.06	0.14

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:210:A:N7	1:B:291:U:C4[5_545]	2.08	0.12
1:A:210:A:C5	1:B:291:U:N1[5_545]	2.15	0.05
1:A:210:A:C5	1:B:291:U:N3[5_545]	2.15	0.05
1:A:210:A:C5	1:B:291:U:C4[5_545]	2.19	0.01

5.3 Torsion angles [\(i\)](#)

5.3.1 Protein backbone [\(i\)](#)

There are no protein molecules in this entry.

5.3.2 Protein sidechains [\(i\)](#)

There are no protein molecules in this entry.

5.3.3 RNA [\(i\)](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	A	246/247 (99%)	88 (35%)	25 (10%)
1	B	246/247 (99%)	89 (36%)	22 (8%)
All	All	492/494 (99%)	177 (35%)	47 (9%)

All (177) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	A	102	C
1	A	103	A
1	A	104	A
1	A	106	U
1	A	107	U
1	A	122	A
1	A	125	A
1	A	129	G
1	A	130	U
1	A	131	U
1	A	136	A
1	A	164	G
1	A	165	C
1	A	167	U

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Mol	Chain	Res	Type
1	A	168	U
1	A	169	G
1	A	172	A
1	A	178	A
1	A	179	U
1	A	180	G
1	A	183	A
1	A	185	U
1	A	186	A
1	A	187	A
1	A	188	G
1	A	191	G
1	A	198	A
1	A	199	U
1	A	200	G
1	A	210	A
1	A	211	C
1	A	218	A
1	A	228	U
1	A	235	G
1	A	236	A
1	A	237	G
1	A	238	A
1	A	240	C
1	A	248	A
1	A	249	U
1	A	255	C
1	A	256	A
1	A	260	C
1	A	261	A
1	A	262	C
1	A	263	A
1	A	269	A
1	A	270	A
1	A	271	U
1	A	273	U
1	A	277	U
1	A	278	C
1	A	279	G
1	A	280	G
1	A	282	G
1	A	283	A

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Mol	Chain	Res	Type
1	A	285	G
1	A	286	A
1	A	287	U
1	A	288	G
1	A	289	U
1	A	290	A
1	A	291	U
1	A	292	U
1	A	295	U
1	A	299	A
1	A	300	U
1	A	301	A
1	A	303	G
1	A	305	U
1	A	306	A
1	A	308	A
1	A	315	C
1	A	318	C
1	A	320	C
1	A	324	A
1	A	325	A
1	A	326	A
1	A	328	G
1	A	404	U
1	A	406	G
1	A	407	A
1	A	408	G
1	A	409	U
1	A	411	C
1	A	412	U
1	A	413	C
1	A	414	G
1	B	102	C
1	B	103	A
1	B	104	A
1	B	106	U
1	B	107	U
1	B	122	A
1	B	123	A
1	B	125	A
1	B	129	G
1	B	130	U

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Mol	Chain	Res	Type
1	B	137	C
1	B	154	C
1	B	165	C
1	B	167	U
1	B	168	U
1	B	169	G
1	B	172	A
1	B	178	A
1	B	179	U
1	B	180	G
1	B	183	A
1	B	186	A
1	B	187	A
1	B	188	G
1	B	189	C
1	B	198	A
1	B	199	U
1	B	200	G
1	B	210	A
1	B	211	C
1	B	218	A
1	B	235	G
1	B	237	G
1	B	238	A
1	B	240	C
1	B	249	U
1	B	251	G
1	B	252	A
1	B	255	C
1	B	256	A
1	B	260	C
1	B	261	A
1	B	262	C
1	B	263	A
1	B	269	A
1	B	270	A
1	B	271	U
1	B	273	U
1	B	274	C
1	B	277	U
1	B	278	C
1	B	279	G

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Mol	Chain	Res	Type
1	B	281	G
1	B	282	G
1	B	285	G
1	B	286	A
1	B	287	U
1	B	288	G
1	B	289	U
1	B	290	A
1	B	291	U
1	B	292	U
1	B	298	C
1	B	299	A
1	B	300	U
1	B	303	G
1	B	305	U
1	B	306	A
1	B	307	U
1	B	308	A
1	B	313	G
1	B	315	C
1	B	316	C
1	B	318	C
1	B	319	U
1	B	320	C
1	B	324	A
1	B	325	A
1	B	326	A
1	B	328	G
1	B	329	G
1	B	404	U
1	B	406	G
1	B	407	A
1	B	408	G
1	B	409	U
1	B	410	A
1	B	411	C
1	B	412	U

All (47) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	A	129	G

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Mol	Chain	Res	Type
1	A	164	G
1	A	167	U
1	A	168	U
1	A	171	A
1	A	178	A
1	A	182	U
1	A	185	U
1	A	188	G
1	A	209	C
1	A	210	A
1	A	268	A
1	A	270	A
1	A	281	G
1	A	285	G
1	A	288	G
1	A	290	A
1	A	305	U
1	A	314	A
1	A	319	U
1	A	327	G
1	A	405	G
1	A	410	A
1	A	411	C
1	A	412	U
1	B	129	G
1	B	164	G
1	B	167	U
1	B	168	U
1	B	171	A
1	B	178	A
1	B	182	U
1	B	188	G
1	B	209	C
1	B	217	C
1	B	268	A
1	B	270	A
1	B	281	G
1	B	285	G
1	B	288	G
1	B	289	U
1	B	290	A
1	B	299	A

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Mol	Chain	Res	Type
1	B	305	U
1	B	314	A
1	B	319	U
1	B	409	U

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

EDS was not executed - this section is therefore empty.

6.2 Non-standard residues in protein, DNA, RNA chains

EDS was not executed - this section is therefore empty.

6.3 Carbohydrates

EDS was not executed - this section is therefore empty.

6.4 Ligands

EDS was not executed - this section is therefore empty.

6.5 Other polymers

EDS was not executed - this section is therefore empty.