



wwPDB EM Map/Model Validation Report ⓘ

Apr 10, 2016 – 01:46 PM BST

PDB ID : 3J0P
EMDB ID: : EMD-5328
Title : Core of mammalian 80S pre-ribosome in complex with tRNAs fitted to a 10.6A cryo-em map: rotated PRE state 1
Authors : Budkevich, T.; Giesebrecht, J.; Altman, R.; Munro, J.; Mielke, T.; Nierhaus, K.; Blanchard, S.; Spahn, C.M.
Deposited on : 2011-10-06
Resolution : 10.60 Å(reported)
Based on PDB ID : 2XZM, 3O58

This is a wwPDB EM Map/Model Validation Report for a publicly released PDB/EMDB entry.
For rigid body fitted models, validation errors reported here could stem from errors in the original structure(s) used in the fitting.

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

A user guide is available at

<http://wwpdb.org/validation/2016/EMValidationReportHelp>

MolProbity : 4.02b-467
Mogul : unknown
Percentile statistics : 20151230.v01 (using entries in the PDB archive December 30th 2015)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et. al. (1996)
Validation Pipeline (wwPDB-VP) : trunk27241

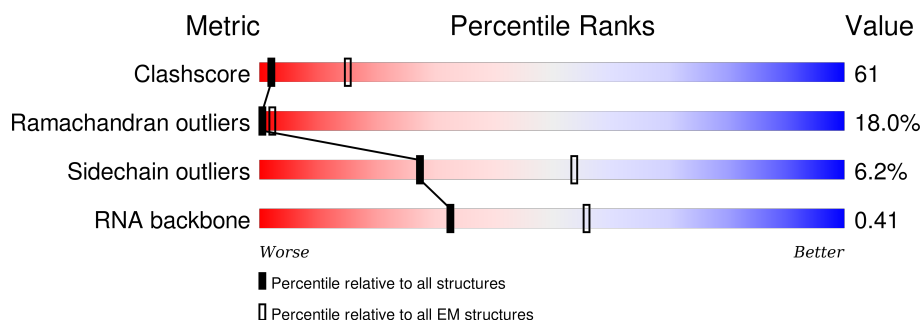
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 10.60 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.









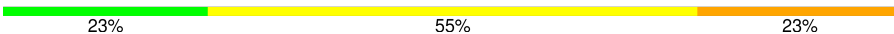
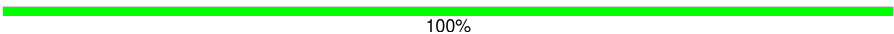


Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	114402	924
Ramachandran outliers	111179	726
Sidechain outliers	111093	686
RNA backbone	3027	244

The table below summarises the geometric issues observed across the polymeric chains. The red, orange, yellow and green segments on the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. 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 $\leq 5\%$

Mol	Chain	Length	Quality of chain
1	a	48	65% 25% 6% .
2	c	17	71% 29%
3	d	7	71% 14% 14%
4	g	31	71% 23% 6%
5	G	13	31% 54% 15%
6	f	21	76% 24%
7	h	111	88% 11% .
8	S	125	32% 62% 5% .

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Mol	Chain	Length	Quality of chain
9	L	141	
10	X	68	
11	2	112	
12	3	12	
13	7	50	
14	B	213	
15	Y	75	
16	y	3	
17	W	77	
18	w	2	

2 Entry composition [i](#)

There are 18 unique types of molecules in this entry. The entry contains 16039 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, 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 40S ribosomal RNA fragment.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	a	48	Total	C	N	O	P	0	0
			1029	459	190	332	48		

- Molecule 2 is a RNA chain called 40S ribosomal RNA fragment.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	c	17	Total	C	N	O	P	0	0
			362	162	66	117	17		

- Molecule 3 is a RNA chain called 40S ribosomal RNA fragment.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	d	7	Total	C	N	O	P	0	0
			155	69	33	46	7		

- Molecule 4 is a RNA chain called 40S ribosomal RNA fragment.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	g	31	Total	C	N	O	P	0	0
			660	295	118	216	31		

- Molecule 5 is a RNA chain called 40S ribosomal RNA fragment.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	G	13	Total	C	N	O	P	0	0
			276	123	49	91	13		

- Molecule 6 is a RNA chain called 40S ribosomal RNA fragment.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	f	21	Total	C	N	O	P	0	0
			452	200	79	152	21		

- Molecule 7 is a RNA chain called 40S ribosomal RNA fragment.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	h	111	Total	C	N	O	P	0	0
			2368	1060	431	766	111		

- Molecule 8 is a protein called Ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	S	125	Total	C	N	O	S	0	0
			985	632	173	176	4		

- Molecule 9 is a protein called Ribosomal protein S23.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	L	141	Total	C	N	O	S	0	0
			1097	691	221	180	5		

- Molecule 10 is a protein called Ribosomal protein S30.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	X	68	Total	C	N	O	S	0	0
			554	350	113	90	1		

- Molecule 11 is a RNA chain called 60S ribosomal RNA fragment.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	2	112	Total	C	N	O	P	0	0
			2392	1070	435	775	112		

- Molecule 12 is a RNA chain called 60S ribosomal RNA fragment.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	3	12	Total	C	N	O	P	0	0
			259	116	50	81	12		

- Molecule 13 is a RNA chain called 60S ribosomal RNA fragment.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	7	50	Total	C	N	O	P	0	0
			1054	471	173	360	50		

- Molecule 14 is a protein called Ribosomal protein L10a.

Mol	Chain	Residues	Atoms				AltConf	Trace
14	B	213	Total	C	N	O	0	0
			1055	629	213	213		

- Molecule 15 is a RNA chain called tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	Y	75	Total	C	N	O	P	0	0
			1597	713	285	525	74		

- Molecule 16 is a RNA chain called mRNA fragment.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	y	3	Total	C	N	O	P	0	0
			60	27	7	23	3		

- Molecule 17 is a RNA chain called tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	W	77	Total	C	N	O	P	0	0
			1640	732	297	535	76		

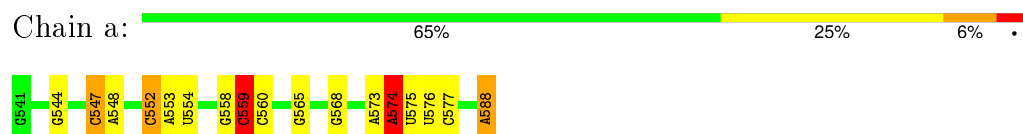
- Molecule 18 is a RNA chain called mRNA fragment.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	w	2	Total	C	N	O	P	0	0
			44	20	10	12	2		

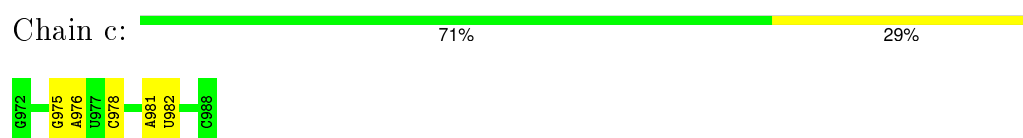
3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors 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.

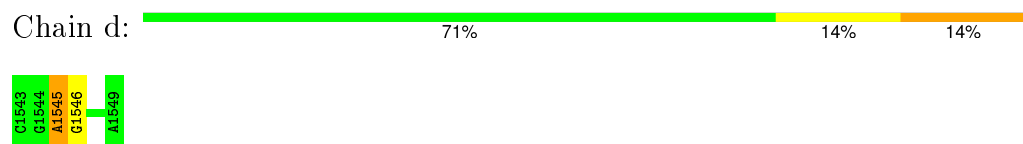
- Molecule 1: 40S ribosomal RNA fragment



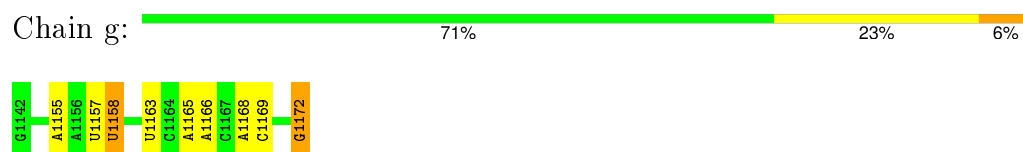
- Molecule 2: 40S ribosomal RNA fragment



- Molecule 3: 40S ribosomal RNA fragment



- Molecule 4: 40S ribosomal RNA fragment

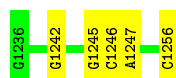


- Molecule 5: 40S ribosomal RNA fragment



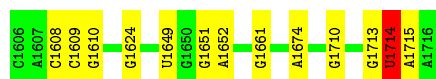
- Molecule 6: 40S ribosomal RNA fragment





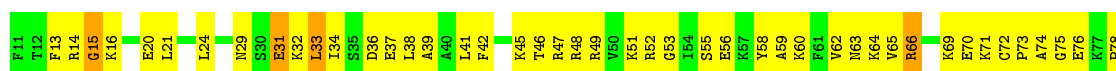
- Molecule 7: 40S ribosomal RNA fragment

Chain h: 88% 11%



- Molecule 8: Ribosomal protein S15

Chain S: 32% 62% 5%



- Molecule 9: Ribosomal protein S23

Chain L: 33% 51% 16%



- Molecule 10: Ribosomal protein S30

Chain X: 41% 51% 7%



- Molecule 11: 60S ribosomal RNA fragment

Chain 2: 36% 49% 13%



- Molecule 12: 60S ribosomal RNA fragment

Chain 3: 

G2477
C2478
C2479
A2480
G2481
U2482
G2483
A2484
A2485
U2486
U2487
A2488

- Molecule 13: 60S ribosomal RNA fragment

Chain 7: 

C2824
C2825
U2826
U2827
G2828
G2829
G2830
C2831
G2832
A2833
R2834
U2835
U2836
A2837
A2838
G2839
G2840
C2841
U2842
U2843
C2844
A2845
U2846
A2847
G2848
C2849
G2850
A2851
C2852
A2853
U2854
U2855
G2856
C2857
U2858
U2859
U2860
U2861
U2862
G2863
A2864
U2865
U2866
C2867
U2868
C2869
C2870
G2871
A2872
U2873

- Molecule 14: Ribosomal protein L10a

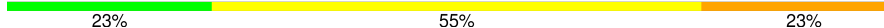
Chain B: 

L4
L5
H12
E22
E23
K24
K25
R26
N107
N108
N109
V32
V36
V115
L116
L117
K118
Q119
V120
P121
R122
L123
L124
K125
P126
F49
L53
K54
L55
P56
P57
C58
P59
R60
P61
L65
G66
L67
P68
G69
D73
A77
R85
S86
D89
L90
R91
R92
L93
R94
R95
R96
D177

K98
L99
K100
K101
L102
K103
S104
K105
K106
F189
F190
N108
A109
A112
V115
L116
L117
K118
Q119
V120
P121
R122
L123
L124
K125
P126
F49
L53
K54
L55
P56
P57
C58
P59
R60
P61
L65
G66
L67
P68
G69
D73
A77
R85
S86
D89
L90
R91
R92
L93
R94
R95
R96
D177

V178
M181
Q182
S186
V187
N188
F189
F190
N191
S192
L193
L194
K195
N196
N197
V201
G202
S203
L204
V205
V206
K207
S208
S209
N210
G211
P212
A213
L216

- Molecule 15: tRNA

Chain Y: 

G1
C2
C3
G4
G5
G6
A7
U8
A9
C10
C11
U12
G15
U16
C17
G18
G19
U20
A21
G22
A23
G24
C25
A26
G27
G28
G29
U33
G34
A35
A36
A37
A38
U39
C40
C41
C42
C43
G44
U45
G46
U47
C48
U51
G52
G53
U54
U55
C56
G57
A58
U59
U60
G63
A64
G65

U66
C67
C68
G69
G70
G71
C72
A73
C74
C75

- Molecule 16: mRNA fragment

Chain y: 

There are no outlier residues recorded for this chain.

- Molecule 17: tRNA

Chain W: 

C1
G2
C3
G4
G5
G6
C7
U8
G9
G10
G11
G12
C13
A14
G15
C16
U17A
G18
G19
U20
A21
G22
C23
U24
C25
G26
U27
C28
G29
G30
G31
C32
C33
U34
A35
U36
A37
A38
C39
C40
C41
G42
A43
A44
G45
G46
U47
C48
G49
U50
C51
G52
G53
U54
U55
C56
A57
A58
A59

U60
C61
C62
G63
G64
C65
C66
C67
C68
C69
G70
G71
A72
A73
C74
C75
A76

- Molecule 18: mRNA fragment

Chain w:  100%

There are no outlier residues recorded for this chain.

4 Experimental information

Property	Value	Source
Reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	Depositor
Number of images	22212	Depositor
Resolution determination method	Not provided	Depositor
CTF correction method	CTF CORRECTION OF EACH DEFOCUS GROUP VOLUME PRIOR TO BACK PROJECTION	Depositor
Microscope	FEI POLARA	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	20	Depositor
Minimum defocus (nm)	2000	Depositor
Maximum defocus (nm)	4000	Depositor
Magnification	39000	Depositor
Image detector	KODAK SO163 FILM	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

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 >2	RMSZ	# Z >2
1	a	0.69	2/1151 (0.2%)	0.99	8/1793 (0.4%)
10	X	0.35	0/566	0.71	0/753
11	2	1.10	4/2677 (0.1%)	1.68	69/4170 (1.7%)
12	3	0.18	0/290	0.43	0/450
13	7	1.07	2/1174 (0.2%)	2.34	33/1825 (1.8%)
14	B	0.34	0/1054	0.63	9/1468 (0.6%)
15	Y	0.47	0/1784	0.74	0/2780
16	y	0.39	0/65	0.69	0/98
17	W	2.74	133/1832 (7.3%)	2.53	181/2855 (6.3%)
18	w	0.40	0/49	0.79	0/74
2	c	0.64	0/404	0.91	1/627 (0.2%)
3	d	0.49	0/174	0.84	0/270
4	g	0.60	0/737	0.87	2/1146 (0.2%)
5	G	0.52	0/307	0.82	0/476
6	f	0.58	0/504	0.87	0/785
7	h	0.45	0/2650	0.74	1/4127 (0.0%)
8	S	0.39	0/1003	0.66	1/1342 (0.1%)
9	L	0.43	0/1114	0.74	0/1485
All	All	1.10	141/17535 (0.8%)	1.38	305/26524 (1.1%)

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	a	0	3
17	W	0	5
3	d	0	1
4	g	0	2
7	h	0	2
All	All	0	13

All (141) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
17	W	59	A	N9-C4	-13.33	1.29	1.37
17	W	2	G	C8-N7	-13.19	1.23	1.30
17	W	40	C	N1-C6	-12.02	1.29	1.37
13	7	2845	A	C6-N1	-10.99	1.27	1.35
17	W	22	G	N7-C5	-10.51	1.32	1.39
17	W	72	A	N9-C4	-10.01	1.31	1.37
17	W	49	G	N9-C8	-9.55	1.31	1.37
17	W	24	U	C4-O4	-9.29	1.16	1.23
17	W	49	G	N7-C5	-9.12	1.33	1.39
17	W	16	C	N1-C6	-9.12	1.31	1.37
17	W	57	A	N7-C5	-8.89	1.33	1.39
17	W	10	G	C5-C6	-8.69	1.33	1.42
17	W	30	G	C2'-C1'	-8.65	1.43	1.53
17	W	48	C	C2-N3	-8.59	1.28	1.35
17	W	9	G	N7-C5	-8.52	1.34	1.39
17	W	51	C	C2-N3	-8.24	1.29	1.35
17	W	21	A	N9-C4	-8.23	1.32	1.37
17	W	27	U	C2-N3	-8.12	1.32	1.37
17	W	61	C	C5-C6	-7.96	1.27	1.34
17	W	3	C	N3-C4	-7.91	1.28	1.33
17	W	31	G	C8-N7	-7.74	1.26	1.30
17	W	15	G	C6-N1	-7.74	1.34	1.39
17	W	62	C	C4-C5	-7.59	1.36	1.43
17	W	33	U	C2-N3	-7.58	1.32	1.37
17	W	39	C	C4-N4	-7.57	1.27	1.33
17	W	65	C	C4-C5	-7.49	1.36	1.43
17	W	57	A	N9-C4	-7.45	1.33	1.37
17	W	58	A	N3-C4	-7.45	1.30	1.34
17	W	69	C	C2-N3	-7.42	1.29	1.35
17	W	35	A	N7-C5	-7.41	1.34	1.39
17	W	36	U	C3'-C2'	-7.40	1.44	1.52
17	W	73	A	C5-C4	-7.30	1.33	1.38
17	W	67	C	P-O5'	-7.23	1.52	1.59
17	W	71	C	N1-C2	-7.22	1.32	1.40
17	W	53	G	N7-C5	-7.15	1.34	1.39
17	W	39	C	N1-C6	-7.13	1.32	1.37
17	W	69	C	N3-C4	7.10	1.39	1.33
17	W	38	A	C8-N7	-7.09	1.26	1.31
17	W	22	G	C4'-C3'	-7.04	1.45	1.53
17	W	43	A	N3-C4	-6.99	1.30	1.34
17	W	30	G	C6-O6	-6.97	1.17	1.24
17	W	19	G	C2-N3	-6.96	1.27	1.32

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
17	W	10	G	P-O5'	-6.88	1.52	1.59
17	W	45	G	N9-C4	-6.82	1.32	1.38
17	W	18	G	N9-C4	-6.81	1.32	1.38
17	W	30	G	N3-C4	-6.79	1.30	1.35
17	W	63	G	C5-C6	-6.75	1.35	1.42
17	W	7	G	P-O5'	-6.64	1.53	1.59
17	W	32	C	N3-C4	-6.64	1.29	1.33
17	W	34	C	N1-C6	-6.61	1.33	1.37
17	W	58	A	P-O5'	-6.60	1.53	1.59
17	W	17	C	C2'-C1'	-6.56	1.46	1.53
17	W	17(A)	U	C2-N3	-6.55	1.33	1.37
17	W	25	C	C2-O2	-6.53	1.18	1.24
17	W	59	A	C8-N7	-6.50	1.27	1.31
17	W	12	G	N7-C5	-6.49	1.35	1.39
17	W	72	A	N9-C8	-6.47	1.32	1.37
17	W	16	C	C4-C5	6.45	1.48	1.43
17	W	12	G	C8-N7	-6.43	1.27	1.30
17	W	41	C	C2-O2	-6.42	1.18	1.24
17	W	8	U	C4-C5	-6.42	1.37	1.43
17	W	18	G	C3'-C2'	-6.42	1.45	1.52
17	W	64	G	C6-N1	-6.41	1.35	1.39
17	W	5	G	C8-N7	-6.36	1.27	1.30
17	W	56	C	C4'-C3'	-6.36	1.46	1.53
17	W	8	U	C2-O2	-6.33	1.16	1.22
17	W	12	G	N3-C4	-6.29	1.31	1.35
17	W	18	G	C5-C4	-6.29	1.33	1.38
17	W	32	C	C3'-C2'	-6.26	1.45	1.52
17	W	41	C	C4-N4	-6.23	1.28	1.33
17	W	44	A	C5-C4	-6.18	1.34	1.38
11	2	2283	G	N9-C8	6.17	1.42	1.37
17	W	33	U	C4'-C3'	-6.16	1.46	1.53
17	W	3	C	C4-C5	-6.16	1.38	1.43
17	W	34	C	C4-C5	-6.10	1.38	1.43
17	W	72	A	N7-C5	-6.02	1.35	1.39
17	W	14	A	C6-N1	-6.01	1.31	1.35
17	W	73	A	C8-N7	-5.95	1.27	1.31
17	W	63	G	P-O5'	-5.92	1.53	1.59
17	W	44	A	C8-N7	-5.92	1.27	1.31
17	W	11	A	N1-C2	-5.91	1.29	1.34
17	W	3	C	C3'-C2'	-5.90	1.46	1.52
17	W	14	A	P-O5'	-5.89	1.53	1.59
17	W	42	G	C8-N7	-5.89	1.27	1.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
17	W	36	U	C2-O2	-5.88	1.17	1.22
17	W	63	G	C8-N7	-5.87	1.27	1.30
17	W	76	A	C8-N7	-5.85	1.27	1.31
17	W	9	G	C8-N7	-5.84	1.27	1.30
17	W	11	A	P-O5'	-5.82	1.53	1.59
17	W	71	C	C4-C5	-5.79	1.38	1.43
17	W	46	G	N1-C2	-5.79	1.33	1.37
17	W	11	A	O4'-C1'	-5.78	1.34	1.41
17	W	36	U	P-O5'	-5.76	1.53	1.59
17	W	58	A	N9-C8	-5.75	1.33	1.37
17	W	43	A	N7-C5	-5.74	1.35	1.39
17	W	21	A	C2-N3	-5.72	1.28	1.33
17	W	58	A	N1-C2	-5.68	1.29	1.34
17	W	25	C	C4'-C3'	-5.67	1.46	1.52
17	W	21	A	C5-C6	-5.65	1.35	1.41
17	W	30	G	C4'-C3'	-5.59	1.47	1.52
17	W	45	G	C6-N1	-5.55	1.35	1.39
17	W	45	G	C1'-N9	-5.52	1.39	1.46
17	W	70	G	C8-N7	-5.50	1.27	1.30
17	W	9	G	N9-C8	-5.48	1.34	1.37
17	W	55	U	C5-C6	-5.44	1.29	1.34
17	W	28	C	C4'-C3'	-5.43	1.47	1.52
1	a	565	G	N9-C4	5.41	1.42	1.38
17	W	17(A)	U	C2-O2	-5.39	1.17	1.22
17	W	27	U	C4'-C3'	5.38	1.59	1.53
17	W	56	C	N3-C4	-5.36	1.30	1.33
17	W	57	A	N9-C8	-5.35	1.33	1.37
17	W	56	C	C5-C6	-5.34	1.30	1.34
17	W	62	C	C4'-C3'	-5.34	1.47	1.52
17	W	64	G	C8-N7	-5.34	1.27	1.30
17	W	61	C	C4'-C3'	-5.34	1.47	1.52
17	W	43	A	C5-C6	-5.31	1.36	1.41
17	W	11	A	C8-N7	-5.29	1.27	1.31
17	W	45	G	N3-C4	-5.28	1.31	1.35
17	W	46	G	C3'-C2'	-5.28	1.47	1.52
17	W	32	C	N1-C2	-5.24	1.34	1.40
17	W	74	C	C4'-O4'	-5.24	1.38	1.45
17	W	14	A	C1'-N9	-5.21	1.39	1.46
17	W	73	A	N1-C2	-5.21	1.29	1.34
17	W	22	G	C3'-C2'	-5.21	1.47	1.52
17	W	50	U	N3-C4	-5.18	1.33	1.38
11	2	2302	G	C6-N1	-5.17	1.35	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
17	W	23	C	C4'-C3'	-5.17	1.47	1.52
17	W	53	G	C2-N3	-5.13	1.28	1.32
17	W	59	A	C6-N6	-5.12	1.29	1.33
11	2	2279	A	N7-C5	-5.12	1.36	1.39
17	W	46	G	N9-C4	-5.10	1.33	1.38
17	W	19	G	C6-O6	-5.09	1.19	1.24
17	W	18	G	N9-C8	5.06	1.41	1.37
17	W	22	G	N9-C8	-5.05	1.34	1.37
17	W	37	A	C2-N3	-5.05	1.29	1.33
13	7	2830	G	N3-C4	-5.02	1.31	1.35
17	W	49	G	N3-C4	-5.02	1.31	1.35
17	W	11	A	C5-C4	-5.01	1.35	1.38
17	W	40	C	P-O5'	-5.01	1.54	1.59
1	a	565	G	C2-N3	5.01	1.36	1.32
11	2	2283	G	C8-N7	5.00	1.33	1.30

All (305) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
13	7	2845	A	N1-C6-N6	39.32	142.19	118.60
13	7	2845	A	C6-N1-C2	38.58	141.75	118.60
13	7	2845	A	C5-C6-N1	-33.94	100.73	117.70
13	7	2845	A	N1-C2-N3	-22.70	117.95	129.30
17	W	54	U	C5-C6-N1	13.53	129.47	122.70
13	7	2845	A	C5-C6-N6	-12.67	113.56	123.70
17	W	43	A	C8-N9-C4	-12.66	100.74	105.80
17	W	43	A	N1-C2-N3	-11.48	123.56	129.30
17	W	43	A	C2-N3-C4	10.85	116.02	110.60
17	W	37	A	C5-N7-C8	10.82	109.31	103.90
17	W	74	C	N3-C4-C5	-10.49	117.70	121.90
11	2	2195	C	N3-C4-C5	10.38	126.05	121.90
11	2	2289	U	C2-N3-C4	-10.07	120.96	127.00
17	W	37	A	N7-C8-N9	-10.04	108.78	113.80
17	W	31	G	C5-C6-O6	-9.92	122.65	128.60
11	2	2245	C	C6-N1-C2	-9.86	116.36	120.30
11	2	2283	G	C8-N9-C4	-9.85	102.46	106.40
17	W	18	G	C5-C6-N1	9.55	116.28	111.50
17	W	12	G	C2-N3-C4	9.52	116.66	111.90
11	2	2278	C	N1-C2-O2	9.47	124.58	118.90
17	W	72	A	C5-C6-N1	9.38	122.39	117.70
17	W	61	C	N3-C4-C5	-9.22	118.21	121.90
17	W	1	C	C6-N1-C2	-9.11	116.66	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
17	W	18	G	C5-C6-O6	-8.98	123.21	128.60
11	2	2277	C	C5-C6-N1	-8.95	116.53	121.00
17	W	66	C	C6-N1-C2	8.95	123.88	120.30
17	W	31	G	C2-N3-C4	8.91	116.35	111.90
13	7	2835	U	C2-N1-C1'	8.88	128.35	117.70
7	h	1714	U	N1-C1'-C2'	8.79	125.42	114.00
17	W	76	A	N1-C6-N6	8.73	123.84	118.60
11	2	2247	G	C5-C6-O6	-8.71	123.37	128.60
17	W	43	A	N9-C4-C5	8.66	109.27	105.80
11	2	2302	G	N1-C6-O6	-8.64	114.72	119.90
17	W	6	G	C4-C5-N7	8.61	114.25	110.80
13	7	2828	G	N1-C6-O6	8.47	124.98	119.90
13	7	2867	C	N1-C2-O2	-8.46	113.82	118.90
13	7	2828	G	C5-C6-O6	-8.40	123.56	128.60
11	2	2283	G	N3-C2-N2	-8.38	114.03	119.90
17	W	68	C	C6-N1-C2	-8.38	116.95	120.30
17	W	49	G	N7-C8-N9	8.37	117.29	113.10
17	W	18	G	C5-N7-C8	-8.33	100.13	104.30
17	W	51	C	C2-N3-C4	8.32	124.06	119.90
17	W	16	C	C6-N1-C2	8.31	123.63	120.30
11	2	2247	G	C4-C5-N7	8.28	114.11	110.80
13	7	2837	A	N1-C6-N6	-8.28	113.63	118.60
11	2	2303	A	C8-N9-C4	8.23	109.09	105.80
17	W	2	G	N9-C4-C5	-8.04	102.19	105.40
17	W	9	G	C5-N7-C8	7.92	108.26	104.30
17	W	59	A	C8-N9-C4	7.92	108.97	105.80
17	W	9	G	C4-C5-N7	-7.89	107.64	110.80
17	W	63	G	N3-C4-N9	7.85	130.71	126.00
17	W	15	G	N1-C6-O6	-7.84	115.20	119.90
17	W	70	G	C4-C5-N7	-7.82	107.67	110.80
17	W	6	G	C5-C6-O6	-7.78	123.93	128.60
11	2	2283	G	N1-C6-O6	7.76	124.56	119.90
11	2	2290	C	N1-C2-O2	-7.75	114.25	118.90
17	W	76	A	C5-C6-N1	-7.75	113.82	117.70
17	W	18	G	C4-C5-N7	7.74	113.90	110.80
17	W	21	A	C2-N3-C4	7.74	114.47	110.60
13	7	2851	A	N1-C6-N6	-7.70	113.98	118.60
17	W	54	U	C4-C5-C6	-7.68	115.09	119.70
13	7	2835	U	C5-C4-O4	-7.67	121.30	125.90
17	W	17	C	C5-C6-N1	7.65	124.82	121.00
17	W	52	G	C5-C6-N1	7.63	115.32	111.50
17	W	73	A	N7-C8-N9	-7.60	110.00	113.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
11	2	2247	G	C6-C5-N7	-7.59	125.84	130.40
11	2	2277	C	C2-N3-C4	-7.58	116.11	119.90
17	W	62	C	C6-N1-C2	7.57	123.33	120.30
13	7	2835	U	N3-C4-O4	7.55	124.68	119.40
17	W	62	C	C4-C5-C6	7.54	121.17	117.40
17	W	38	A	N9-C4-C5	-7.53	102.79	105.80
17	W	72	A	N1-C6-N6	-7.53	114.08	118.60
11	2	2283	G	N3-C4-N9	-7.50	121.50	126.00
11	2	2201	G	N1-C6-O6	7.47	124.38	119.90
17	W	4	G	O4'-C1'-N9	7.38	114.11	108.20
17	W	5	G	N9-C4-C5	-7.38	102.45	105.40
11	2	2241	U	C5-C4-O4	7.37	130.32	125.90
17	W	62	C	C5-C6-N1	-7.35	117.33	121.00
17	W	24	U	C5-C4-O4	7.30	130.28	125.90
17	W	17	C	C3'-C2'-C1'	7.27	107.32	101.50
11	2	2302	G	C6-C5-N7	7.24	134.75	130.40
17	W	8	U	C6-N1-C2	-7.24	116.66	121.00
17	W	5	G	C8-N9-C4	7.23	109.29	106.40
17	W	53	G	C6-N1-C2	7.23	129.44	125.10
17	W	49	G	C8-N9-C4	-7.20	103.52	106.40
17	W	55	U	C5-C6-N1	7.17	126.29	122.70
11	2	2267	C	N1-C2-O2	-7.12	114.63	118.90
11	2	2247	G	N1-C6-O6	7.03	124.12	119.90
17	W	6	G	N9-C4-C5	-7.00	102.60	105.40
17	W	31	G	N1-C2-N3	-6.93	119.74	123.90
17	W	12	G	C5-C6-N1	6.91	114.95	111.50
4	g	1172	G	N9-C1'-C2'	6.91	122.98	114.00
11	2	2248	C	N1-C2-O2	-6.87	114.78	118.90
11	2	2283	G	N7-C8-N9	6.83	116.52	113.10
11	2	2277	C	N1-C2-O2	-6.81	114.82	118.90
2	c	981	A	N9-C1'-C2'	6.80	122.84	114.00
17	W	31	G	N3-C4-N9	6.78	130.07	126.00
13	7	2824	G	C6-N1-C2	6.76	129.16	125.10
13	7	2830	G	C5-C6-N1	-6.74	108.13	111.50
1	a	588	A	N9-C1'-C2'	6.71	122.72	114.00
17	W	61	C	C4-C5-C6	6.70	120.75	117.40
11	2	2304	C	C6-N1-C2	-6.70	117.62	120.30
17	W	23	C	O4'-C1'-N1	6.62	113.50	108.20
17	W	75	C	C4-C5-C6	6.62	120.71	117.40
1	a	559	C	N1-C1'-C2'	6.60	122.58	114.00
11	2	2289	U	N3-C4-C5	6.54	118.52	114.60
11	2	2278	C	N1-C2-N3	-6.53	114.63	119.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
17	W	28	C	O4'-C1'-N1	6.53	113.43	108.20
17	W	22	G	O4'-C1'-N9	6.52	113.41	108.20
17	W	61	C	N3-C4-N4	6.51	122.56	118.00
11	2	2277	C	C6-N1-C2	6.50	122.90	120.30
17	W	55	U	N1-C2-N3	-6.45	111.03	114.90
13	7	2845	A	C2-N3-C4	-6.45	107.38	110.60
17	W	1	C	C5-C6-N1	6.43	124.22	121.00
17	W	66	C	C2-N3-C4	6.42	123.11	119.90
17	W	15	G	N3-C4-C5	-6.41	125.39	128.60
14	B	56	PRO	N-CA-CB	6.40	110.98	103.30
13	7	2847	A	C8-N9-C4	-6.40	103.24	105.80
1	a	565	G	N3-C2-N2	6.40	124.38	119.90
17	W	68	C	C5-C6-N1	6.37	124.19	121.00
13	7	2865	U	N1-C2-O2	-6.32	118.38	122.80
11	2	2218	G	C5-C6-N1	6.31	114.66	111.50
17	W	1	C	C5-C4-N4	6.31	124.62	120.20
17	W	37	A	C5-C6-N1	-6.30	114.55	117.70
17	W	52	G	C4-C5-C6	-6.30	115.02	118.80
17	W	15	G	C5-C6-O6	6.28	132.37	128.60
17	W	75	C	O5'-P-OP1	-6.28	100.04	105.70
11	2	2248	C	C6-N1-C2	6.27	122.81	120.30
13	7	2857	C	N3-C4-C5	6.25	124.40	121.90
4	g	1172	G	C2'-C3'-O3'	6.25	123.70	113.70
17	W	64	G	N3-C2-N2	-6.25	115.53	119.90
17	W	4	G	N9-C4-C5	6.21	107.88	105.40
17	W	26	G	C2-N3-C4	-6.20	108.80	111.90
11	2	2278	C	C6-N1-C1'	-6.20	113.37	120.80
17	W	71	C	N1-C2-N3	-6.18	114.87	119.20
11	2	2278	C	C2-N1-C1'	6.18	125.60	118.80
17	W	76	A	C4-C5-C6	6.14	120.07	117.00
17	W	65	C	N1-C2-O2	-6.14	115.22	118.90
13	7	2837	A	C8-N9-C4	6.12	108.25	105.80
1	a	574	A	N9-C1'-C2'	6.12	121.96	114.00
11	2	2280	A	C8-N9-C4	-6.12	103.35	105.80
13	7	2837	A	N7-C8-N9	-6.11	110.75	113.80
17	W	71	C	C2-N3-C4	6.11	122.95	119.90
17	W	13	C	C5-C4-N4	-6.08	115.94	120.20
17	W	72	A	C4-C5-C6	-6.07	113.97	117.00
17	W	69	C	N1-C1'-C2'	-6.06	105.33	112.00
14	B	61	PRO	N-CA-CB	6.05	110.56	103.30
17	W	76	A	C4-C5-N7	-6.05	107.68	110.70
11	2	2289	U	C5-C6-N1	-6.04	119.68	122.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
17	W	20	U	N1-C2-O2	6.04	127.03	122.80
14	B	135	PRO	N-CA-CB	6.04	110.54	103.30
11	2	2278	C	C2-N3-C4	6.03	122.91	119.90
13	7	2869	U	N3-C2-O2	-6.02	117.98	122.20
11	2	2196	C	C6-N1-C2	-6.01	117.89	120.30
14	B	121	PRO	N-CA-CB	6.01	110.51	103.30
11	2	2194	G	C8-N9-C4	6.01	108.80	106.40
11	2	2283	G	C5-N7-C8	-6.01	101.30	104.30
17	W	56	C	C5-C4-N4	-6.00	116.00	120.20
13	7	2835	U	C6-N1-C1'	-6.00	112.81	121.20
17	W	74	C	C3'-C2'-C1'	5.99	106.29	101.50
17	W	19	G	C8-N9-C4	5.97	108.79	106.40
17	W	10	G	C8-N9-C4	5.97	108.79	106.40
17	W	37	A	C8-N9-C4	5.97	108.19	105.80
17	W	12	G	C5-C6-O6	-5.96	125.02	128.60
17	W	18	G	O4'-C1'-N9	-5.95	103.44	108.20
14	B	126	PRO	N-CA-CB	5.94	110.43	103.30
17	W	57	A	C5-C6-N1	5.92	120.66	117.70
13	7	2868	U	N3-C2-O2	5.92	126.35	122.20
17	W	21	A	N3-C4-N9	5.92	132.14	127.40
17	W	8	U	C2-N3-C4	5.91	130.54	127.00
17	W	61	C	C2-N3-C4	5.90	122.85	119.90
17	W	63	G	C6-C5-N7	-5.90	126.86	130.40
11	2	2303	A	N9-C4-C5	-5.88	103.45	105.80
14	B	43	PRO	N-CA-CB	5.88	110.36	103.30
14	B	137	PRO	N-CA-CB	5.86	110.33	103.30
13	7	2867	C	N3-C2-O2	5.85	125.99	121.90
17	W	59	A	N1-C2-N3	-5.85	126.38	129.30
11	2	2201	G	C5-C6-O6	-5.84	125.09	128.60
14	B	212	PRO	N-CA-CB	5.84	110.31	103.30
17	W	22	G	N3-C4-C5	5.83	131.52	128.60
14	B	59	PRO	N-CA-CB	5.82	110.28	103.30
17	W	44	A	N9-C4-C5	-5.82	103.47	105.80
17	W	44	A	O4'-C1'-N9	-5.81	103.55	108.20
11	2	2241	U	C6-N1-C1'	5.80	129.32	121.20
11	2	2302	G	C5-C6-N1	5.80	114.40	111.50
17	W	66	C	N1-C2-N3	-5.79	115.14	119.20
17	W	71	C	C6-N1-C2	5.78	122.61	120.30
17	W	48	C	N1-C2-O2	-5.77	115.44	118.90
17	W	18	G	C2-N3-C4	5.76	114.78	111.90
17	W	51	C	C4'-C3'-C2'	5.76	108.36	102.60
17	W	70	G	C5-N7-C8	5.75	107.17	104.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
11	2	2283	G	N1-C2-N2	5.75	121.37	116.20
11	2	2290	C	C2-N3-C4	-5.75	117.03	119.90
17	W	10	G	N9-C4-C5	-5.74	103.10	105.40
11	2	2302	G	N3-C4-N9	-5.73	122.56	126.00
17	W	12	G	N9-C4-C5	-5.73	103.11	105.40
1	a	558	G	N9-C1'-C2'	5.73	121.45	114.00
17	W	55	U	O4'-C1'-N1	5.72	112.78	108.20
17	W	50	U	N3-C4-O4	-5.71	115.40	119.40
11	2	2283	G	C2-N3-C4	-5.71	109.05	111.90
17	W	64	G	N1-C2-N3	5.70	127.32	123.90
13	7	2837	A	C4-C5-N7	-5.70	107.85	110.70
17	W	50	U	C4-C5-C6	-5.70	116.28	119.70
11	2	2290	C	N3-C4-C5	5.68	124.17	121.90
17	W	58	A	N9-C4-C5	-5.68	103.53	105.80
11	2	2248	C	N3-C2-O2	5.67	125.87	121.90
17	W	18	G	C4-C5-C6	-5.67	115.40	118.80
1	a	552	C	N1-C1'-C2'	5.66	121.36	114.00
17	W	6	G	C5-N7-C8	-5.65	101.47	104.30
1	a	565	G	N1-C2-N2	-5.64	111.12	116.20
11	2	2301	U	C6-N1-C2	5.64	124.38	121.00
17	W	10	G	C4-C5-N7	5.64	113.05	110.80
17	W	73	A	C8-N9-C4	5.63	108.05	105.80
17	W	13	C	O4'-C1'-N1	-5.60	103.72	108.20
11	2	2196	C	N3-C4-C5	5.59	124.14	121.90
17	W	44	A	C4-C5-N7	5.59	113.50	110.70
17	W	8	U	N3-C4-C5	-5.59	111.25	114.60
11	2	2197	C	N3-C2-O2	5.58	125.81	121.90
11	2	2300	G	C8-N9-C1'	-5.56	119.77	127.00
11	2	2246	G	C5-C6-N1	5.56	114.28	111.50
13	7	2853	A	N1-C6-N6	5.56	121.93	118.60
17	W	63	G	N7-C8-N9	5.53	115.87	113.10
17	W	44	A	C2-N3-C4	-5.53	107.83	110.60
17	W	13	C	N3-C4-N4	5.53	121.87	118.00
11	2	2241	U	N1-C2-N3	5.52	118.21	114.90
11	2	2301	U	N3-C2-O2	5.52	126.06	122.20
17	W	64	G	C6-N1-C2	-5.51	121.79	125.10
17	W	75	C	N1-C2-O2	-5.51	115.59	118.90
17	W	17(A)	U	C2-N3-C4	5.50	130.30	127.00
17	W	64	G	C8-N9-C4	-5.49	104.20	106.40
17	W	6	G	C4-C5-C6	-5.49	115.51	118.80
17	W	23	C	N3-C4-C5	-5.49	119.71	121.90
17	W	21	A	C1'-O4'-C4'	-5.48	105.51	109.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
17	W	63	G	N3-C4-C5	-5.48	125.86	128.60
17	W	4	G	N9-C1'-C2'	-5.48	105.97	112.00
17	W	42	G	N1-C6-O6	-5.47	116.62	119.90
13	7	2830	G	C2-N3-C4	-5.47	109.17	111.90
17	W	50	U	N3-C4-C5	5.47	117.88	114.60
17	W	53	G	C5-C6-N1	-5.46	108.77	111.50
11	2	2274	U	N3-C2-O2	-5.45	118.38	122.20
11	2	2195	C	C5-C4-N4	-5.45	116.39	120.20
17	W	65	C	N3-C2-O2	5.43	125.70	121.90
17	W	31	G	C5-N7-C8	5.43	107.01	104.30
17	W	74	C	C4-C5-C6	5.43	120.11	117.40
11	2	2289	U	C5-C4-O4	-5.42	122.65	125.90
11	2	2301	U	N1-C2-O2	-5.41	119.01	122.80
17	W	17	C	C4-C5-C6	-5.41	114.70	117.40
17	W	18	G	C3'-C2'-C1'	5.41	105.83	101.50
17	W	12	G	N3-C4-N9	5.41	129.24	126.00
11	2	2283	G	N3-C4-C5	5.41	131.30	128.60
17	W	20	U	N3-C4-O4	-5.41	115.62	119.40
17	W	72	A	C6-C5-N7	5.40	136.08	132.30
11	2	2194	G	N7-C8-N9	-5.39	110.41	113.10
17	W	68	C	N1-C2-N3	5.38	122.96	119.20
13	7	2869	U	C2-N1-C1'	5.37	124.15	117.70
17	W	31	G	C5-C6-N1	5.37	114.18	111.50
17	W	74	C	N3-C4-N4	5.33	121.73	118.00
17	W	67	C	C6-N1-C2	-5.33	118.17	120.30
11	2	2275	A	C5-C6-N1	-5.31	115.05	117.70
11	2	2303	A	C5-C6-N1	5.31	120.36	117.70
11	2	2247	G	C5-N7-C8	-5.30	101.65	104.30
17	W	71	C	C4-C5-C6	-5.30	114.75	117.40
13	7	2859	U	N3-C2-O2	5.29	125.91	122.20
17	W	3	C	C5-C6-N1	-5.29	118.36	121.00
17	W	5	G	N7-C8-N9	-5.29	110.46	113.10
17	W	59	A	N1-C6-N6	-5.28	115.43	118.60
17	W	38	A	N7-C8-N9	5.28	116.44	113.80
17	W	43	A	N7-C8-N9	5.28	116.44	113.80
17	W	65	C	C4-C5-C6	5.28	120.04	117.40
17	W	15	G	C6-N1-C2	-5.28	121.94	125.10
17	W	70	G	C6-C5-N7	5.27	133.56	130.40
17	W	21	A	N3-C4-C5	-5.27	123.11	126.80
17	W	71	C	C5'-C4'-C3'	-5.27	107.57	116.00
11	2	2246	G	N3-C4-N9	5.25	129.15	126.00
17	W	37	A	C4-C5-C6	5.24	119.62	117.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
17	W	4	G	C3'-C2'-C1'	5.22	105.68	101.50
17	W	24	U	P-O5'-C5'	-5.21	112.56	120.90
17	W	44	A	C5-N7-C8	-5.21	101.29	103.90
17	W	21	A	N1-C6-N6	-5.20	115.48	118.60
17	W	4	G	C5'-C4'-C3'	-5.20	107.68	116.00
17	W	20	U	O4'-C1'-N1	5.20	112.36	108.20
17	W	24	U	N3-C2-O2	-5.18	118.57	122.20
17	W	14	A	C6-N1-C2	5.18	121.71	118.60
17	W	32	C	N1-C2-O2	-5.14	115.81	118.90
17	W	74	C	C2-N3-C4	5.14	122.47	119.90
17	W	31	G	N1-C6-O6	5.14	122.98	119.90
11	2	2215	A	C2-N3-C4	-5.14	108.03	110.60
17	W	17(A)	U	N1-C2-O2	5.13	126.39	122.80
17	W	71	C	C4'-C3'-C2'	-5.12	97.48	102.60
17	W	31	G	N3-C4-C5	-5.10	126.05	128.60
17	W	53	G	C4-C5-N7	5.08	112.83	110.80
11	2	2281	A	C4-C5-C6	5.07	119.53	117.00
17	W	56	C	N3-C4-C5	5.07	123.93	121.90
1	a	559	C	O4'-C1'-N1	5.06	112.25	108.20
13	7	2828	G	C8-N9-C1'	-5.05	120.44	127.00
8	S	131	THR	N-CA-C	5.04	124.61	111.00
13	7	2869	U	C6-N1-C2	-5.04	117.97	121.00
17	W	69	C	C2-N3-C4	5.04	122.42	119.90
17	W	59	A	N9-C4-C5	-5.04	103.78	105.80
17	W	2	G	N3-C4-N9	5.02	129.01	126.00
11	2	2261	G	N1-C6-O6	5.02	122.91	119.90
13	7	2824	G	C5-C6-N1	-5.01	109.00	111.50
17	W	10	G	C5-C6-O6	-5.01	125.60	128.60
17	W	11	A	N1-C6-N6	5.00	121.60	118.60
11	2	2290	C	C5-C6-N1	-5.00	118.50	121.00

There are no chirality outliers.

All (13) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
17	W	15	G	Sidechain
17	W	29	G	Sidechain
17	W	33	U	Sidechain
17	W	4	G	Sidechain
17	W	8	U	Sidechain
1	a	547	C	Sidechain
1	a	559	C	Sidechain

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Mol	Chain	Res	Type	Group
1	a	574	A	Sidechain
3	d	1545	A	Sidechain
4	g	1157	U	Sidechain
4	g	1158	U	Sidechain
7	h	1610	G	Sidechain
7	h	1714	U	Sidechain

5.2 Too-close contacts

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	1029	0	521	0	0
2	c	362	0	185	0	0
3	d	155	0	78	0	0
4	g	660	0	335	0	0
5	G	276	0	142	11	0
6	f	452	0	226	0	0
7	h	2368	0	1194	0	0
8	S	985	0	1026	98	0
9	L	1097	0	1169	102	0
10	X	554	0	604	42	0
11	2	2392	0	1207	403	0
12	3	259	0	121	226	0
13	7	1054	0	532	145	0
14	B	1055	0	447	168	0
15	Y	1597	0	811	76	0
16	y	60	0	30	0	0
17	W	1640	0	824	217	0
18	w	44	0	23	0	0
All	All	16039	0	9475	1234	0

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 61.

All (1234) 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)
12:3:2484:A:C6	17:W:60:U:N3	1.69	1.60
12:3:2485:A:C2	17:W:18:G:H2'	1.27	1.59
14:B:121:PRO:CB	17:W:57:A:H5'	1.27	1.58
12:3:2477:G:C8	14:B:99:LEU:CA	1.83	1.47
12:3:2484:A:C4	17:W:60:U:C4	2.04	1.45
12:3:2477:G:C8	14:B:99:LEU:HA	1.25	1.42
12:3:2484:A:C5	17:W:60:U:N3	1.89	1.40
12:3:2480:A:N7	14:B:95:LYS:N	1.69	1.39
14:B:126:PRO:CB	17:W:56:C:C4'	1.98	1.39
14:B:121:PRO:CB	17:W:57:A:C5'	1.99	1.38
14:B:126:PRO:CA	17:W:56:C:H5'	1.55	1.36
14:B:126:PRO:CB	17:W:56:C:H5'	1.56	1.36
12:3:2484:A:C4	17:W:60:U:O4	1.77	1.36
12:3:2483:G:O6	14:B:121:PRO:CB	1.74	1.36
14:B:126:PRO:CB	17:W:56:C:C5'	2.02	1.35
12:3:2478:C:OP2	14:B:96:ASN:N	1.58	1.35
12:3:2484:A:N1	17:W:60:U:C2	1.95	1.34
17:W:14:A:C2	17:W:37:A:N6	33.36	1.33
12:3:2480:A:C1'	14:B:89:ASP:O	1.78	1.31
12:3:2483:G:H1	17:W:56:C:C2'	1.45	1.30
12:3:2484:A:N6	17:W:19:G:OP1	1.62	1.29
12:3:2483:G:O6	17:W:57:A:H5'	1.14	1.28
12:3:2484:A:C8	17:W:19:G:H4'	1.68	1.28
11:2:2286:U:H5'	15:Y:73:A:N6	1.47	1.28
12:3:2485:A:C2	17:W:18:G:C2'	2.16	1.27
12:3:2483:G:N1	17:W:56:C:H2'	1.45	1.27
12:3:2486:A:N7	14:B:122:ARG:C	1.88	1.26
12:3:2484:A:C5	17:W:60:U:C4	2.23	1.26
12:3:2478:C:OP2	14:B:96:ASN:C	1.74	1.25
12:3:2484:A:C8	17:W:60:U:O4	1.89	1.24
12:3:2479:C:OP2	14:B:124:LEU:HA	1.34	1.24
12:3:2483:G:O6	17:W:57:A:C5'	1.87	1.22
11:2:2285:C:H4'	15:Y:71:G:C3'	1.63	1.22
11:2:2286:U:C5'	15:Y:73:A:H61	1.53	1.21
12:3:2484:A:C5	17:W:60:U:O4	1.94	1.21
12:3:2484:A:N1	17:W:60:U:N3	1.86	1.20
12:3:2480:A:H1'	14:B:89:ASP:O	1.40	1.20
12:3:2484:A:N9	17:W:60:U:O4	1.75	1.19
14:B:126:PRO:CB	17:W:56:C:O4'	1.87	1.18
12:3:2483:G:C6	17:W:57:A:O4'	1.95	1.18
12:3:2479:C:OP2	14:B:95:LYS:CB	1.94	1.15
12:3:2477:G:OP1	14:B:97:LYS:CB	1.93	1.15

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:3:2477:G:N7	14:B:99:LEU:HA	1.59	1.15
12:3:2478:C:OP2	14:B:96:ASN:CA	1.96	1.14
12:3:2484:A:C2	17:W:60:U:N3	2.16	1.12
17:W:17:C:H5''	17:W:17(A):U:H6	1.12	1.12
12:3:2484:A:C6	17:W:19:G:OP1	2.01	1.11
17:W:17:C:H5''	17:W:17(A):U:C6	1.85	1.11
12:3:2485:A:H2	17:W:18:G:C2'	1.56	1.11
11:2:2286:U:C5'	15:Y:73:A:N6	2.11	1.11
11:2:2262:A:H3'	11:2:2263:C:H5''	1.31	1.11
12:3:2480:A:C5	14:B:94:ASN:N	2.18	1.11
11:2:2250:G:N2	11:2:2267:C:O2	1.82	1.10
14:B:126:PRO:HA	17:W:56:C:H5'	1.16	1.10
11:2:2270:A:C8	11:2:2270:A:H5''	1.87	1.09
12:3:2480:A:C4	14:B:94:ASN:N	2.02	1.09
12:3:2484:A:C2	17:W:60:U:C2	2.40	1.09
11:2:2213:A:H2'	11:2:2214:A:H8	1.16	1.08
9:L:9:ILE:H	9:L:9:ILE:HD12	0.97	1.08
11:2:2271:A:C2'	11:2:2272:G:H5''	1.84	1.07
12:3:2478:C:H5'	14:B:101:LYS:N	1.59	1.07
11:2:2271:A:H2'	11:2:2272:G:H5''	1.30	1.07
17:W:14:A:C2	17:W:37:A:C6	33.43	1.07
9:L:116:ILE:HG21	9:L:119:VAL:HB	1.33	1.05
11:2:2213:A:H2'	11:2:2214:A:C8	1.89	1.05
12:3:2478:C:OP2	14:B:97:LYS:N	1.89	1.05
12:3:2478:C:C5'	14:B:101:LYS:N	2.08	1.05
17:W:14:A:N3	17:W:37:A:N6	33.01	1.04
12:3:2480:A:H1'	14:B:92:LYS:H	1.20	1.04
12:3:2483:G:N1	14:B:121:PRO:O	1.75	1.04
17:W:21:A:H61	17:W:46:G:H2'	1.17	1.03
11:2:2285:C:C4'	15:Y:71:G:C3'	2.34	1.03
11:2:2286:U:H5'	15:Y:73:A:H61	0.96	1.02
17:W:46:G:H4'	17:W:47:U:H5	1.20	1.02
12:3:2479:C:H1'	14:B:85:MET:CB	1.89	1.02
12:3:2484:A:C4	17:W:60:U:N3	2.20	1.02
12:3:2484:A:C6	17:W:19:G:P	2.53	1.01
12:3:2477:G:C3'	14:B:99:LEU:N	2.14	1.01
12:3:2486:A:N7	14:B:122:ARG:CA	2.23	1.01
12:3:2486:A:N7	14:B:122:ARG:O	1.93	1.01
12:3:2484:A:N1	17:W:18:G:O3'	1.92	1.01
12:3:2486:A:C8	14:B:122:ARG:HA	1.95	1.01
9:L:19:ARG:HH11	9:L:19:ARG:HA	1.26	1.00

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:3:2484:A:C6	17:W:60:U:C2	2.42	1.00
9:L:9:ILE:CD1	9:L:9:ILE:H	1.71	1.00
11:2:2223:A:O2'	11:2:2224:A:H8	1.45	0.99
11:2:2285:C:H4'	15:Y:71:G:H3'	1.03	0.99
17:W:17:C:H6	17:W:17(A):U:H5	1.11	0.98
12:3:2477:G:H3'	14:B:99:LEU:N	1.75	0.98
11:2:2285:C:C4'	15:Y:71:G:H3'	1.93	0.98
9:L:19:ARG:NH1	9:L:19:ARG:HA	1.78	0.98
12:3:2477:G:H5'	14:B:97:LYS:N	1.52	0.98
12:3:2483:G:C6	17:W:56:C:H2'	1.98	0.98
11:2:2304:C:O2'	11:2:2305:G:H5'	1.64	0.98
12:3:2484:A:N1	17:W:60:U:O2	1.95	0.97
9:L:9:ILE:N	9:L:9:ILE:HD12	1.79	0.97
12:3:2479:C:C1'	14:B:85:MET:CB	2.42	0.97
12:3:2480:A:N7	14:B:95:LYS:CA	2.28	0.97
14:B:120:VAL:O	17:W:56:C:H4'	1.64	0.97
11:2:2285:C:H5	11:2:2286:U:C2	1.83	0.96
12:3:2477:G:C5'	14:B:97:LYS:H	1.76	0.96
12:3:2483:G:H1	17:W:56:C:H2'	0.83	0.96
15:Y:41:C:H3'	15:Y:42:C:H5''	1.46	0.96
11:2:2276:G:C5	11:2:2277:C:C5	2.55	0.95
12:3:2477:G:H5''	14:B:99:LEU:H	1.28	0.95
11:2:2270:A:H8	11:2:2270:A:H5''	1.25	0.95
15:Y:28:G:H1	15:Y:42:C:H42	1.03	0.94
11:2:2252:A:H2'	11:2:2253:G:H8	1.33	0.94
12:3:2484:A:N3	17:W:18:G:O2'	2.01	0.94
17:W:14:A:N1	17:W:36:U:O4	37.74	0.94
11:2:2268:U:H2'	11:2:2269:U:H5	1.33	0.94
10:X:7:THR:HG21	10:X:10:LYS:HB2	1.51	0.92
13:7:2850:G:OP1	13:7:2850:G:H4'	1.68	0.92
11:2:2251:G:H1'	11:2:2252:A:OP1	1.68	0.92
12:3:2477:G:C3'	14:B:99:LEU:H	1.81	0.91
14:B:67:ILE:HA	14:B:112:ALA:HB2	1.52	0.91
13:7:2862:U:O2'	13:7:2863:G:H5'	1.69	0.91
12:3:2486:A:O2'	14:B:127:GLN:HA	1.71	0.91
12:3:2486:A:O2'	14:B:127:GLN:CB	2.18	0.91
12:3:2480:A:N7	14:B:95:LYS:O	2.03	0.91
12:3:2483:G:O6	17:W:56:C:O2'	1.89	0.91
12:3:2483:G:N1	17:W:56:C:C2'	2.14	0.91
13:7:2869:U:H5''	13:7:2870:C:OP2	1.71	0.91
11:2:2253:G:O6	11:2:2263:C:N4	2.04	0.90

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:2:2251:G:O2'	11:2:2252:A:H5''	1.72	0.90
12:3:2484:A:C2	17:W:18:G:O3'	2.24	0.89
11:2:2299:A:C5	11:2:2300:G:C8	2.60	0.89
9:L:71:VAL:HG21	9:L:95:LEU:HD13	1.53	0.89
11:2:2254:U:O2	11:2:2261:G:N2	2.05	0.89
13:7:2833:A:H2'	13:7:2834:G:H5'	1.55	0.89
12:3:2488:A:H62	14:B:131:ALA:HB1	1.37	0.88
13:7:2847:A:H5'	13:7:2848:G:OP2	1.73	0.88
11:2:2270:A:H2'	11:2:2271:A:C8	2.07	0.88
12:3:2484:A:N7	17:W:60:U:O4	2.07	0.88
11:2:2252:A:H2'	11:2:2253:G:C8	2.08	0.88
12:3:2483:G:C6	17:W:57:A:C4'	2.56	0.87
13:7:2826:U:O2'	13:7:2827:U:H5'	1.72	0.87
15:Y:25:C:H2'	15:Y:26:A:H8	1.40	0.87
9:L:58:ILE:HG21	9:L:117:PRO:HG3	1.54	0.87
12:3:2486:A:C8	14:B:122:ARG:CA	2.57	0.86
11:2:2215:A:H2'	11:2:2215:A:N3	1.87	0.86
11:2:2262:A:H3'	11:2:2263:C:C5'	2.03	0.86
11:2:2293:C:H5	11:2:2294:U:H5	1.20	0.86
9:L:69:LYS:HZ2	9:L:69:LYS:HB3	1.40	0.86
17:W:17:C:H6	17:W:17(A):U:C5	1.93	0.86
13:7:2834:G:O2'	13:7:2835:U:H6	1.56	0.86
14:B:178:VAL:O	14:B:182:GLN:CB	2.23	0.86
11:2:2287:C:O2	11:2:2298:U:O4'	1.94	0.85
17:W:71:C:O2	17:W:71:C:H2'	1.75	0.85
11:2:2259:A:H3'	11:2:2260:U:C6	2.11	0.85
12:3:2479:C:O4'	14:B:85:MET:CB	2.25	0.84
17:W:46:G:H4'	17:W:47:U:C5	2.12	0.84
17:W:75:C:C6	17:W:76:A:C8	2.65	0.84
11:2:2205:U:H2'	11:2:2206:G:H5'	1.58	0.84
14:B:154:THR:HA	14:B:155:ILE:O	1.76	0.84
12:3:2477:G:C5'	14:B:99:LEU:N	2.39	0.84
11:2:2272:G:N3	11:2:2272:G:H5'	1.91	0.83
8:S:105:LYS:HG3	8:S:106:GLU:HG2	1.60	0.83
14:B:126:PRO:CB	17:W:56:C:H4'	2.04	0.83
13:7:2851:A:H2'	13:7:2852:C:O4'	1.77	0.83
12:3:2477:G:H8	14:B:99:LEU:CA	1.61	0.83
11:2:2232:A:H2'	11:2:2233:A:O4'	1.79	0.83
11:2:2278:C:N4	11:2:2305:G:N7	2.27	0.83
12:3:2483:G:H1	17:W:56:C:C1'	1.91	0.82
12:3:2484:A:C2	17:W:18:G:H1'	2.13	0.82

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:2:2293:C:C5	11:2:2294:U:H5	1.97	0.82
11:2:2253:G:N7	11:2:2254:U:C4	2.47	0.82
12:3:2486:A:O2'	14:B:127:GLN:CA	2.27	0.82
11:2:2223:A:O2'	11:2:2224:A:C8	2.29	0.82
8:S:101:VAL:HG21	8:S:121:LEU:HD11	1.60	0.82
12:3:2483:G:C6	17:W:56:C:C2'	2.60	0.82
15:Y:16:U:H3'	15:Y:17:C:H5'	1.61	0.82
12:3:2478:C:H1'	14:B:103:LEU:H	1.41	0.82
11:2:2224:A:H2'	11:2:2225:U:O4'	1.79	0.82
12:3:2477:G:H5''	14:B:99:LEU:N	1.92	0.82
12:3:2477:G:H3'	14:B:99:LEU:H	1.39	0.81
11:2:2268:U:H2'	11:2:2269:U:C5	2.14	0.81
15:Y:28:G:H1	15:Y:42:C:N4	1.76	0.81
9:L:3:VAL:HG12	9:L:4:GLY:H	1.45	0.81
11:2:2285:C:C5	11:2:2286:U:C2	2.68	0.81
9:L:62:GLN:HB3	9:L:63:PRO:HD3	1.63	0.81
9:L:75:LEU:HD21	9:L:82:ILE:HD12	1.63	0.81
9:L:24:TRP:CH2	9:L:33:LEU:HD13	2.16	0.81
12:3:2479:C:OP2	14:B:124:LEU:CA	2.24	0.80
11:2:2271:A:H2'	11:2:2272:G:C5'	2.11	0.80
12:3:2478:C:OP1	14:B:127:GLN:O	2.00	0.80
11:2:2253:G:H3'	11:2:2254:U:C5	2.16	0.80
14:B:120:VAL:C	17:W:56:C:H4'	2.00	0.80
11:2:2272:G:H4'	11:2:2273:G:OP1	1.81	0.79
9:L:40:ASN:HB2	9:L:41:PRO:HD2	1.62	0.79
13:7:2842:U:O2	13:7:2842:U:H2'	1.82	0.79
12:3:2485:A:H1'	17:W:18:G:C6	2.18	0.79
12:3:2484:A:C5	17:W:19:G:O5'	2.36	0.79
12:3:2481:G:OP1	14:B:119:GLN:CB	2.30	0.79
12:3:2483:G:O6	17:W:57:A:C4'	2.30	0.79
12:3:2485:A:O3'	17:W:55:U:O2'	1.99	0.79
12:3:2484:A:N3	17:W:60:U:C4	2.49	0.78
11:2:2245:C:H2'	11:2:2246:G:O4'	1.83	0.78
8:S:55:SER:HB2	8:S:58:TYR:CD2	2.18	0.78
13:7:2837:A:H2'	13:7:2845:A:N1	1.98	0.78
9:L:62:GLN:HB3	9:L:63:PRO:CD	2.14	0.78
14:B:177:ASP:O	14:B:181:ASN:CB	2.31	0.78
11:2:2293:C:C5	11:2:2294:U:C5	2.72	0.78
13:7:2825:C:H5'	13:7:2826:U:OP2	1.83	0.78
12:3:2486:A:H8	14:B:122:ARG:HA	1.46	0.78
14:B:126:PRO:HA	17:W:56:C:C5'	2.08	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:W:14:A:N3	17:W:37:A:C6	33.05	0.78
12:3:2479:C:OP1	14:B:124:LEU:C	2.22	0.78
17:W:46:G:O3'	17:W:47:U:H6	1.66	0.78
11:2:2286:U:C4	11:2:2288:G:H1'	2.18	0.78
11:2:2269:U:O2	11:2:2269:U:H2'	1.84	0.78
12:3:2484:A:N1	17:W:19:G:P	2.57	0.78
11:2:2251:G:C1'	11:2:2252:A:OP1	2.32	0.77
9:L:92:LEU:O	9:L:92:LEU:HD12	1.84	0.77
12:3:2486:A:O4'	17:W:56:C:C4	2.35	0.77
15:Y:51:U:H3	15:Y:63:G:H1	1.30	0.77
13:7:2838:A:C2	13:7:2851:A:C4	2.72	0.77
10:X:50:LEU:HD23	10:X:57:ARG:HH12	1.47	0.77
9:L:96:ALA:HB3	9:L:99:ASP:OD2	1.85	0.77
12:3:2484:A:H2	17:W:18:G:H1'	1.47	0.77
17:W:53:G:O2'	17:W:54:U:H5'	1.84	0.77
12:3:2484:A:C2	17:W:18:G:C2'	2.68	0.77
11:2:2215:A:C2	11:2:2216:G:C8	2.73	0.77
13:7:2858:U:H2'	13:7:2859:U:C5	2.20	0.76
11:2:2253:G:H3'	11:2:2254:U:C6	2.20	0.76
12:3:2484:A:C2	17:W:18:G:O2'	2.38	0.76
15:Y:63:G:H2'	15:Y:64:A:C8	2.21	0.76
11:2:2253:G:C6	11:2:2254:U:C2	2.73	0.76
11:2:2280:A:C5	11:2:2282:U:H5	2.02	0.76
10:X:34:ARG:NH1	10:X:34:ARG:HB3	2.00	0.76
12:3:2482:U:C4	14:B:122:ARG:O	2.36	0.75
13:7:2834:G:C4	13:7:2835:U:C5	2.74	0.75
12:3:2480:A:C8	14:B:95:LYS:N	2.54	0.75
12:3:2484:A:N7	17:W:19:G:H4'	2.02	0.75
8:S:46:THR:HG23	8:S:89:ILE:HD13	1.67	0.75
13:7:2829:U:H2'	13:7:2830:G:H5'	1.67	0.75
15:Y:5:G:H2'	15:Y:6:G:C8	2.20	0.75
8:S:97:GLY:O	8:S:112:VAL:HG23	1.86	0.75
12:3:2479:C:C1'	14:B:85:MET:CA	2.64	0.75
11:2:2278:C:N4	11:2:2305:G:C8	2.55	0.75
11:2:2260:U:H2'	11:2:2261:G:N7	2.02	0.75
9:L:52:VAL:HG13	9:L:71:VAL:CG1	2.17	0.75
11:2:2287:C:C2	11:2:2298:U:O2	2.40	0.75
8:S:38:LEU:HB3	8:S:42:PHE:HE1	1.52	0.75
11:2:2279:A:H4'	11:2:2280:A:H5'	1.69	0.74
11:2:2249:G:H2'	11:2:2250:G:C1'	2.17	0.74
12:3:2480:A:C5	14:B:95:LYS:N	2.35	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:3:2484:A:C2	17:W:18:G:C1'	2.70	0.74
12:3:2483:G:C6	17:W:56:C:O2'	2.39	0.74
11:2:2280:A:C5	11:2:2282:U:C5	2.76	0.74
9:L:116:ILE:CG2	9:L:119:VAL:HB	2.13	0.74
11:2:2257:C:H3'	11:2:2258:U:H6	1.52	0.74
15:Y:41:C:C3'	15:Y:42:C:H5''	2.18	0.74
8:S:55:SER:HB2	8:S:58:TYR:HD2	1.50	0.74
11:2:2270:A:C2	11:2:2271:A:C4	2.76	0.74
15:Y:27:G:H21	15:Y:43:C:H5	1.36	0.74
17:W:21:A:N6	17:W:46:G:H2'	1.99	0.74
17:W:14:A:H2	17:W:37:A:C6	33.40	0.73
11:2:2296:A:O2'	11:2:2297:U:H5'	1.87	0.73
10:X:50:LEU:HD23	10:X:57:ARG:NH1	2.03	0.73
12:3:2480:A:O4'	14:B:89:ASP:O	1.93	0.73
10:X:63:HIS:O	10:X:65:GLY:N	2.21	0.73
13:7:2872:A:C4'	13:7:2873:U:OP1	2.35	0.73
17:W:6:G:H1	17:W:67:C:H42	1.36	0.73
13:7:2854:U:O2'	13:7:2855:U:H5'	1.89	0.73
11:2:2279:A:O5'	11:2:2280:A:H5''	1.88	0.73
17:W:5:G:N2	17:W:69:C:C2	2.57	0.73
15:Y:16:U:C3'	15:Y:17:C:H5'	2.19	0.73
12:3:2478:C:C6	14:B:95:LYS:HA	2.24	0.73
11:2:2293:C:H5	11:2:2294:U:C5	2.05	0.72
5:G:1430:C:O2'	5:G:1431:A:H5'	1.87	0.72
11:2:2294:U:H5'	11:2:2295:A:OP2	1.90	0.72
11:2:2266:U:N3	11:2:2267:C:N4	2.36	0.72
17:W:68:C:H2'	17:W:69:C:C6	2.25	0.72
9:L:101:VAL:CG1	9:L:123:VAL:HG13	2.18	0.72
11:2:2281:A:O2'	11:2:2282:U:H5''	1.90	0.72
11:2:2289:U:O2'	11:2:2290:C:H5'	1.88	0.72
12:3:2478:C:OP1	14:B:127:GLN:CB	2.38	0.72
12:3:2484:A:H2	17:W:18:G:C1'	2.01	0.72
12:3:2477:G:O5'	14:B:98:LYS:CB	2.37	0.72
12:3:2477:G:C8	14:B:99:LEU:C	2.63	0.72
12:3:2485:A:H5''	17:W:57:A:O5'	1.90	0.72
11:2:2278:C:H2'	11:2:2279:A:H5''	1.70	0.72
11:2:2222:A:HO2'	11:2:2223:A:H8	1.31	0.72
10:X:63:HIS:C	10:X:65:GLY:H	1.93	0.72
12:3:2479:C:P	14:B:124:LEU:HA	2.28	0.72
12:3:2477:G:O2'	14:B:97:LYS:O	2.05	0.72
11:2:2288:G:C4	11:2:2289:U:C5	2.78	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:L:69:LYS:NZ	9:L:69:LYS:HB3	2.04	0.72
17:W:17:C:C6	17:W:17(A):U:H5	2.02	0.71
8:S:46:THR:HG23	8:S:89:ILE:CD1	2.19	0.71
11:2:2286:U:H5''	15:Y:73:A:N6	2.05	0.71
11:2:2271:A:C3'	11:2:2272:G:H5''	2.20	0.71
9:L:19:ARG:HH12	9:L:22:GLN:HB2	1.54	0.71
13:7:2852:C:C5	13:7:2853:A:C4	2.78	0.71
12:3:2481:G:H1	14:B:127:GLN:CB	2.03	0.71
13:7:2853:A:C6	13:7:2854:U:N3	2.58	0.71
12:3:2483:G:O6	17:W:56:C:C2'	2.38	0.71
17:W:14:A:C2	17:W:36:U:O4	37.27	0.71
12:3:2477:G:H5'	14:B:97:LYS:H	1.31	0.71
11:2:2267:C:H2'	11:2:2268:U:O4'	1.90	0.71
11:2:2269:U:C6	11:2:2272:G:O6	2.44	0.71
15:Y:43:C:H2'	15:Y:44:G:O4'	1.91	0.71
11:2:2294:U:O2	11:2:2296:A:H2'	1.90	0.71
8:S:16:LYS:O	8:S:16:LYS:HG3	1.90	0.71
8:S:98:ILE:O	8:S:98:ILE:HG13	1.90	0.70
11:2:2301:U:H2'	11:2:2302:G:H8	1.55	0.70
13:7:2834:G:N3	13:7:2835:U:C6	2.59	0.70
17:W:20:U:H3'	17:W:21:A:H5'	1.72	0.70
13:7:2834:G:O2'	13:7:2835:U:O5'	2.08	0.70
11:2:2295:A:N6	11:2:2296:A:N6	2.40	0.70
11:2:2286:U:H5''	15:Y:73:A:H61	1.50	0.70
13:7:2847:A:H3'	13:7:2848:G:H8	1.55	0.70
17:W:3:C:H2'	17:W:4:G:H5'	1.73	0.70
15:Y:67:C:H2'	15:Y:68:C:C6	2.27	0.70
11:2:2284:C:H2'	11:2:2285:C:O2	1.90	0.70
11:2:2218:G:O2'	11:2:2219:A:H5'	1.92	0.70
11:2:2256:A:O2'	11:2:2257:C:P	2.49	0.69
9:L:58:ILE:HG21	9:L:117:PRO:CG	2.22	0.69
13:7:2846:U:O2	13:7:2850:G:O6	2.09	0.69
8:S:100:GLY:HA2	8:S:108:VAL:O	1.92	0.69
11:2:2252:A:C2	11:2:2253:G:C5	2.81	0.69
11:2:2253:G:C8	11:2:2254:U:C5	2.81	0.69
13:7:2872:A:H4'	13:7:2873:U:OP1	1.91	0.69
12:3:2486:A:N7	14:B:122:ARG:CB	2.55	0.69
13:7:2837:A:C8	13:7:2845:A:C2	2.81	0.69
11:2:2287:C:N3	11:2:2298:U:O2	2.25	0.69
8:S:33:LEU:HD11	8:S:59:ALA:HA	1.74	0.69
12:3:2480:A:N7	14:B:95:LYS:C	2.45	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:2:2285:C:H5	11:2:2286:U:N3	1.90	0.69
11:2:2222:A:O2'	11:2:2223:A:C8	2.46	0.69
11:2:2221:G:N2	11:2:2225:U:N3	2.41	0.69
13:7:2861:U:H2'	13:7:2862:U:H6	1.58	0.69
11:2:2207:A:H8	11:2:2237:C:O2	1.75	0.68
9:L:19:ARG:O	9:L:23:ARG:HB2	1.92	0.68
15:Y:8:U:H4'	15:Y:48:C:H4'	1.76	0.68
15:Y:41:C:H2'	15:Y:42:C:O4'	1.92	0.68
11:2:2259:A:H3'	11:2:2260:U:H6	1.57	0.68
9:L:112:ALA:HB2	9:L:119:VAL:O	1.92	0.68
15:Y:63:G:H2'	15:Y:64:A:H8	1.57	0.68
12:3:2479:C:OP1	14:B:124:LEU:O	2.11	0.68
11:2:2196:C:N4	11:2:2242:A:N7	2.40	0.68
11:2:2249:G:O4'	11:2:2272:G:H8	1.76	0.68
17:W:20:U:C3'	17:W:21:A:H5'	2.23	0.68
11:2:2239:G:O2'	11:2:2240:G:H5'	1.93	0.68
13:7:2826:U:C2'	13:7:2827:U:H5'	2.22	0.68
13:7:2841:G:C6	13:7:2844:C:C4	2.82	0.68
12:3:2484:A:C5	17:W:19:G:C5'	2.77	0.68
12:3:2477:G:O3'	14:B:97:LYS:O	1.90	0.67
12:3:2481:G:N1	14:B:127:GLN:CB	2.57	0.67
11:2:2294:U:O2	11:2:2294:U:H2'	1.92	0.67
5:G:1429:G:OP2	5:G:1430:C:H5	1.78	0.67
11:2:2251:G:N3	11:2:2252:A:C8	2.63	0.67
11:2:2249:G:O4'	11:2:2272:G:C8	2.48	0.67
11:2:2226:U:HO2'	11:2:2227:C:H6	1.41	0.67
12:3:2478:C:O2'	14:B:103:LEU:CB	2.43	0.67
15:Y:66:U:H2'	15:Y:67:C:C6	2.30	0.67
12:3:2480:A:N6	14:B:99:LEU:CB	2.57	0.67
9:L:58:ILE:CG2	9:L:117:PRO:HG3	2.24	0.67
11:2:2295:A:C5	11:2:2296:A:N6	2.63	0.67
17:W:68:C:H2'	17:W:69:C:H6	1.58	0.67
13:7:2858:U:H2'	13:7:2859:U:C6	2.30	0.67
17:W:17:C:C5'	17:W:17(A):U:H6	2.01	0.67
17:W:75:C:C6	17:W:76:A:N7	2.63	0.67
12:3:2484:A:C2	17:W:18:G:C3'	2.78	0.67
12:3:2477:G:C5'	14:B:97:LYS:N	2.28	0.67
11:2:2269:U:C4	11:2:2272:G:N1	2.61	0.67
11:2:2222:A:O2'	11:2:2223:A:H8	1.78	0.67
14:B:120:VAL:O	17:W:56:C:C4'	2.40	0.66
12:3:2477:G:P	14:B:97:LYS:CB	2.83	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:2:2279:A:C8	11:2:2288:G:C6	2.83	0.66
11:2:2295:A:C6	11:2:2296:A:N6	2.62	0.66
12:3:2485:A:H2'	17:W:56:C:C4	2.30	0.66
14:B:126:PRO:CA	17:W:56:C:C5'	2.49	0.66
11:2:2282:U:H5'	11:2:2282:U:C6	2.30	0.66
11:2:2299:A:C4	11:2:2300:G:C8	2.84	0.66
12:3:2484:A:C8	17:W:19:G:C4'	2.63	0.66
11:2:2280:A:C6	11:2:2282:U:C5	2.83	0.66
13:7:2836:C:H5	13:7:2853:A:N1	1.93	0.66
9:L:34:LEU:O	9:L:36:SER:N	2.29	0.66
11:2:2221:G:H3'	11:2:2221:G:C8	2.31	0.66
17:W:46:G:O3'	17:W:47:U:C6	2.47	0.66
11:2:2276:G:C6	11:2:2277:C:C4	2.84	0.66
9:L:52:VAL:HG13	9:L:71:VAL:HG13	1.77	0.66
11:2:2254:U:H2'	11:2:2261:G:H1	1.60	0.66
13:7:2868:U:H2'	13:7:2869:U:H6	1.61	0.66
17:W:75:C:C5	17:W:76:A:N7	2.64	0.66
8:S:132:THR:HG22	8:S:133:HIS:H	1.61	0.66
12:3:2483:G:N1	17:W:57:A:O4'	2.29	0.65
11:2:2262:A:H5''	11:2:2263:C:H5'	1.76	0.65
11:2:2223:A:C2	11:2:2224:A:C4	2.84	0.65
11:2:2225:U:O2'	11:2:2226:U:H5'	1.95	0.65
12:3:2485:A:O2'	17:W:57:A:N6	2.02	0.65
11:2:2288:G:C6	11:2:2289:U:O4	2.50	0.65
17:W:75:C:C6	17:W:76:A:H8	2.14	0.65
12:3:2484:A:N3	17:W:60:U:N3	2.44	0.65
11:2:2194:G:C2'	11:2:2195:C:H5'	2.27	0.65
17:W:61:C:O2'	17:W:62:C:H5'	1.96	0.65
9:L:53:THR:O	9:L:54:GLU:HB3	1.96	0.65
11:2:2254:U:O2	11:2:2261:G:C2	2.50	0.65
9:L:69:LYS:NZ	9:L:92:LEU:HD23	2.12	0.65
15:Y:55:U:H2'	15:Y:56:C:H3'	1.79	0.64
8:S:42:PHE:CE2	8:S:118:GLY:HA2	2.32	0.64
14:B:53:LEU:CB	14:B:54:LYS:HA	2.26	0.64
8:S:14:ARG:HB3	8:S:114:PHE:CD2	2.31	0.64
9:L:54:GLU:OE2	9:L:56:ILE:HD11	1.97	0.64
9:L:133:ALA:O	9:L:139:LYS:HB2	1.98	0.64
5:G:1429:G:N3	5:G:1429:G:H2'	2.11	0.64
8:S:91:ILE:HG23	8:S:92:PRO:HD2	1.80	0.64
12:3:2477:G:H5''	14:B:97:LYS:H	1.62	0.64
11:2:2251:G:N2	11:2:2252:A:C4	2.66	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:L:19:ARG:HH11	9:L:19:ARG:CA	2.08	0.64
11:2:2276:G:C6	11:2:2277:C:C5	2.86	0.64
11:2:2285:C:C5	11:2:2286:U:N3	2.66	0.64
11:2:2253:G:C5	11:2:2254:U:C4	2.86	0.64
13:7:2864:A:C5	13:7:2865:U:C5	2.86	0.64
11:2:2197:C:N4	11:2:2241:U:H2'	2.13	0.64
17:W:3:C:H42	17:W:70:G:H1	1.45	0.64
10:X:66:LYS:HD2	10:X:69:LYS:HD2	1.79	0.64
17:W:47:U:H3'	17:W:48:C:H5'	1.80	0.64
11:2:2278:C:C2'	11:2:2279:A:H5''	2.27	0.64
11:2:2255:A:C2	11:2:2260:U:O4	2.51	0.64
5:G:1434:C:OP1	17:W:30:G:H4'	1.97	0.64
12:3:2478:C:H5''	14:B:127:GLN:O	1.98	0.63
11:2:2289:U:C2	11:2:2290:C:C5	2.86	0.63
11:2:2259:A:H5''	11:2:2260:U:H5	1.63	0.63
15:Y:72:C:C2	15:Y:73:A:H2	2.16	0.63
11:2:2262:A:N3	11:2:2263:C:H5''	2.13	0.63
12:3:2480:A:N9	14:B:89:ASP:O	2.31	0.63
11:2:2246:G:C2	11:2:2247:G:C8	2.86	0.63
14:B:101:LYS:O	14:B:105:LYS:N	2.31	0.63
11:2:2211:U:H2'	11:2:2212:C:O4'	1.99	0.63
12:3:2484:A:C6	17:W:19:G:O5'	2.50	0.63
9:L:86:VAL:HG12	9:L:91:CYS:HB3	1.80	0.63
5:G:1430:C:O2'	5:G:1431:A:C5'	2.47	0.63
13:7:2830:G:O2'	13:7:2831:G:H5'	1.98	0.63
13:7:2830:G:C4	13:7:2831:G:C8	2.86	0.63
11:2:2294:U:C5'	11:2:2295:A:OP2	2.47	0.63
11:2:2277:C:O2'	11:2:2278:C:O5'	2.13	0.63
11:2:2279:A:N1	11:2:2283:G:N2	2.46	0.63
9:L:117:PRO:HG2	9:L:118:GLY:H	1.61	0.63
8:S:58:TYR:O	8:S:62:VAL:HG23	1.99	0.63
11:2:2279:A:H2	11:2:2285:C:H41	1.46	0.62
9:L:60:SER:OG	9:L:64:ASN:HB2	1.99	0.62
9:L:78:ASN:HD21	9:L:80:LYS:HG3	1.64	0.62
15:Y:20:U:H2'	15:Y:21:A:H4'	1.81	0.62
11:2:2251:G:C6	11:2:2266:U:O2	2.52	0.62
8:S:83:THR:HG23	8:S:85:TYR:H	1.64	0.62
11:2:2289:U:C2'	11:2:2290:C:H5'	2.29	0.62
11:2:2301:U:H2'	11:2:2302:G:C8	2.32	0.62
15:Y:5:G:H2'	15:Y:6:G:H8	1.64	0.62
14:B:95:LYS:HA	14:B:100:ILE:N	2.15	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:3:2480:A:H62	14:B:95:LYS:C	2.03	0.62
13:7:2839:G:C5	13:7:2850:G:N2	2.68	0.62
11:2:2209:U:C6	11:2:2209:U:OP2	2.52	0.62
8:S:31:GLU:HG3	8:S:32:LYS:H	1.63	0.62
11:2:2249:G:C4	11:2:2272:G:N7	2.67	0.62
9:L:101:VAL:HG13	9:L:123:VAL:HG13	1.81	0.62
9:L:97:GLU:O	9:L:98:ASN:HB2	1.99	0.62
9:L:6:PRO:HG2	9:L:15:LEU:HD21	1.81	0.62
11:2:2279:A:H2	11:2:2285:C:N4	1.98	0.62
15:Y:27:G:H2'	15:Y:28:G:C8	2.34	0.62
13:7:2857:C:H2'	13:7:2858:U:H6	1.65	0.62
8:S:78:PRO:HB2	8:S:98:ILE:HG12	1.82	0.62
11:2:2286:U:H5'	15:Y:73:A:H62	1.59	0.62
8:S:86:ARG:NH1	8:S:122:ALA:HB1	2.15	0.62
8:S:24:LEU:HG	8:S:37:GLU:HB3	1.81	0.62
12:3:2485:A:C2	17:W:18:G:O2'	2.52	0.62
13:7:2830:G:H1	13:7:2858:U:H3	1.48	0.61
12:3:2479:C:N4	14:B:93:LEU:O	2.31	0.61
12:3:2478:C:P	14:B:97:LYS:N	2.73	0.61
11:2:2214:A:H2'	11:2:2215:A:H8	1.64	0.61
8:S:124:PHE:N	8:S:124:PHE:CD1	2.68	0.61
12:3:2480:A:C5	14:B:95:LYS:O	2.53	0.61
12:3:2488:A:N6	14:B:131:ALA:HB1	2.14	0.61
11:2:2235:C:C4	11:2:2236:G:C6	2.89	0.61
10:X:44:ARG:HG3	10:X:45:TYR:N	2.14	0.61
11:2:2215:A:N3	11:2:2216:G:C8	2.68	0.61
12:3:2479:C:C2	14:B:86:SER:CB	2.83	0.61
9:L:62:GLN:CB	9:L:63:PRO:CD	2.78	0.61
14:B:95:LYS:CB	14:B:124:LEU:HA	2.31	0.61
11:2:2197:C:H4'	11:2:2198:A:C8	2.35	0.61
11:2:2270:A:C2	11:2:2271:A:N3	2.69	0.61
10:X:50:LEU:CD2	10:X:57:ARG:HH12	2.13	0.61
13:7:2847:A:C4	13:7:2848:G:C8	2.88	0.61
12:3:2485:A:H2'	17:W:56:C:N4	2.16	0.60
11:2:2258:U:O2	11:2:2258:U:H2'	2.01	0.60
13:7:2831:G:C6	13:7:2832:C:C4	2.90	0.60
13:7:2851:A:H3'	13:7:2852:C:H5''	1.82	0.60
12:3:2477:G:C5	14:B:99:LEU:O	2.54	0.60
11:2:2258:U:H3'	11:2:2259:A:H8	1.66	0.60
11:2:2219:A:C2'	11:2:2220:A:H5'	2.31	0.60
17:W:52:G:C2	17:W:53:G:C8	2.90	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:2:2219:A:H2'	11:2:2220:A:H5'	1.83	0.60
14:B:54:LYS:HA	14:B:55:LEU:CB	2.31	0.60
12:3:2483:G:C5	17:W:57:A:O4'	2.51	0.60
13:7:2859:U:H4'	13:7:2860:U:OP1	2.01	0.60
17:W:14:A:H1'	17:W:22:G:N2	2.17	0.60
8:S:69:LYS:HZ1	8:S:94:LEU:C	2.05	0.60
13:7:2869:U:H2'	13:7:2869:U:O2	2.00	0.60
14:B:55:LEU:N	14:B:186:SER:HA	2.17	0.60
15:Y:9:A:H2	15:Y:45:U:H3	1.42	0.60
14:B:121:PRO:CB	17:W:57:A:O5'	2.38	0.59
12:3:2484:A:H8	17:W:20:U:OP2	1.85	0.59
11:2:2280:A:H4'	11:2:2281:A:OP1	2.02	0.59
11:2:2290:C:C2	11:2:2303:A:C2	2.90	0.59
9:L:116:ILE:HG23	9:L:117:PRO:HD2	1.84	0.59
15:Y:42:C:H3'	15:Y:43:C:H5''	1.84	0.59
13:7:2834:G:O2'	13:7:2835:U:C6	2.41	0.59
8:S:73:PRO:C	8:S:75:GLY:H	2.05	0.59
9:L:47:HIS:ND1	9:L:104:ALA:HB2	2.17	0.59
11:2:2204:C:H6	11:2:2204:C:O5'	1.85	0.59
13:7:2861:U:H2'	13:7:2862:U:O4'	2.02	0.59
10:X:63:HIS:C	10:X:65:GLY:N	2.56	0.59
8:S:83:THR:HG23	8:S:85:TYR:N	2.18	0.59
14:B:188:ASN:C	14:B:190:PHE:H	2.05	0.59
12:3:2479:C:P	14:B:124:LEU:CA	2.90	0.59
11:2:2269:U:O2	11:2:2269:U:C2'	2.50	0.59
13:7:2836:C:O2	13:7:2836:C:C2'	2.51	0.59
8:S:69:LYS:HE2	8:S:97:GLY:N	2.17	0.59
11:2:2253:G:C8	11:2:2254:U:C4	2.91	0.59
12:3:2477:G:O3'	14:B:97:LYS:CA	2.44	0.59
17:W:17:C:C6	17:W:17(A):U:C5	2.83	0.59
11:2:2202:C:O2	11:2:2202:C:H2'	2.02	0.59
9:L:78:ASN:ND2	9:L:80:LYS:CG	2.66	0.59
8:S:66:ARG:NH1	8:S:93:GLU:HB3	2.17	0.59
15:Y:68:C:H2'	15:Y:69:G:H8	1.68	0.59
13:7:2842:U:O2	13:7:2842:U:C2'	2.49	0.59
12:3:2483:G:O6	17:W:56:C:H2'	2.00	0.58
11:2:2260:U:C2'	11:2:2261:G:N7	2.65	0.58
11:2:2226:U:O2'	11:2:2227:C:H6	1.86	0.58
10:X:31:PRO:HG3	10:X:39:ILE:HD11	1.83	0.58
13:7:2853:A:N6	13:7:2854:U:H3	2.00	0.58
17:W:75:C:H2'	17:W:76:A:H8	1.66	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:2:2299:A:C5	11:2:2300:G:N7	2.71	0.58
15:Y:6:G:O2'	15:Y:7:A:H5'	2.03	0.58
11:2:2244:A:O2'	11:2:2245:C:H5'	2.04	0.58
17:W:75:C:H2'	17:W:76:A:C8	2.38	0.58
15:Y:18:G:N1	15:Y:57:G:N7	2.50	0.58
8:S:36:ASP:O	8:S:39:ALA:HB3	2.03	0.58
12:3:2484:A:H2'	17:W:19:G:O4'	2.02	0.58
8:S:132:THR:HG22	8:S:133:HIS:N	2.18	0.58
12:3:2480:A:C6	14:B:93:LEU:C	2.77	0.58
11:2:2285:C:C5	11:2:2286:U:C4	2.91	0.58
9:L:54:GLU:HG3	9:L:56:ILE:HG13	1.84	0.58
15:Y:9:A:C8	15:Y:46:G:N2	2.71	0.58
11:2:2288:G:N3	11:2:2289:U:C5	2.72	0.58
17:W:74:C:O2'	17:W:75:C:H4'	2.03	0.58
11:2:2196:C:O2'	11:2:2271:A:O4'	2.22	0.58
13:7:2836:C:O2	13:7:2837:A:C8	2.57	0.58
17:W:3:C:C2'	17:W:4:G:H5'	2.34	0.58
12:3:2484:A:O3'	17:W:58:A:H5'	2.02	0.58
10:X:34:ARG:HB3	10:X:34:ARG:HH11	1.66	0.58
13:7:2849:C:H2'	13:7:2849:C:O2	2.03	0.58
11:2:2199:G:C6	11:2:2200:U:C4	2.92	0.58
11:2:2248:C:C4'	11:2:2271:A:H2	2.17	0.58
8:S:95:VAL:HG21	8:S:117:ILE:HD11	1.85	0.58
17:W:30:G:N2	17:W:31:G:H1'	2.18	0.58
11:2:2294:U:C6	11:2:2297:U:H5	2.20	0.57
11:2:2260:U:H3'	11:2:2261:G:C8	2.39	0.57
13:7:2827:U:O2	13:7:2827:U:H2'	2.02	0.57
11:2:2253:G:H3'	11:2:2254:U:H5	1.69	0.57
11:2:2285:C:H5	11:2:2286:U:N1	2.02	0.57
11:2:2269:U:N3	11:2:2272:G:N1	2.45	0.57
9:L:71:VAL:HG23	9:L:86:VAL:CG2	2.34	0.57
17:W:4:G:O2'	17:W:5:G:C8	2.56	0.57
9:L:37:ARG:HG2	9:L:44:GLY:HA2	1.86	0.57
11:2:2290:C:H2'	11:2:2291:A:H8	1.70	0.57
11:2:2194:G:H1'	11:2:2274:U:O2	2.04	0.57
12:3:2486:A:C5	14:B:122:ARG:O	2.57	0.57
11:2:2202:C:H5''	11:2:2203:U:OP2	2.04	0.57
11:2:2261:G:N2	11:2:2263:C:C4	2.72	0.57
9:L:101:VAL:HA	9:L:125:CYS:O	2.04	0.57
9:L:51:LEU:HD21	9:L:76:ARG:HE	1.70	0.57
11:2:2287:C:O2	11:2:2298:U:O2	2.22	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:X:42:ASN:HA	10:X:46:ALA:HB2	1.87	0.57
11:2:2253:G:C5	11:2:2254:U:N3	2.72	0.57
11:2:2270:A:C8	11:2:2270:A:C5'	2.76	0.57
12:3:2477:G:H3'	14:B:100:ILE:N	2.20	0.57
11:2:2288:G:C2	11:2:2289:U:C4	2.93	0.57
11:2:2210:G:C6	11:2:2211:U:C4	2.92	0.57
9:L:81:LYS:HD2	9:L:81:LYS:O	2.05	0.57
12:3:2485:A:H4'	17:W:55:U:O2	2.04	0.56
11:2:2299:A:C6	11:2:2300:G:C8	2.93	0.56
17:W:71:C:C2'	17:W:71:C:O2	2.41	0.56
10:X:38:ARG:HG2	10:X:42:ASN:HD21	1.69	0.56
11:2:2265:C:N4	11:2:2266:U:N3	2.53	0.56
11:2:2204:C:H2'	11:2:2205:U:H5''	1.86	0.56
11:2:2210:G:C6	11:2:2236:G:N2	2.73	0.56
8:S:74:ALA:C	8:S:76:GLU:H	2.07	0.56
12:3:2482:U:H2'	12:3:2483:G:O4'	2.05	0.56
11:2:2288:G:H2'	11:2:2289:U:C6	2.40	0.56
11:2:2246:G:N3	11:2:2247:G:C8	2.73	0.56
13:7:2833:A:C6	13:7:2834:G:N7	2.74	0.56
10:X:58:LYS:HD3	10:X:62:TRP:CH2	2.40	0.56
13:7:2856:G:H2'	13:7:2857:C:C6	2.39	0.56
9:L:34:LEU:O	9:L:35:GLY:C	2.44	0.56
11:2:2304:C:C4	11:2:2305:G:N2	2.72	0.56
15:Y:16:U:H3'	15:Y:17:C:C5'	2.35	0.56
15:Y:25:C:H2'	15:Y:26:A:C8	2.31	0.56
13:7:2842:U:C6	13:7:2842:U:O5'	2.58	0.56
11:2:2286:U:C4	11:2:2288:G:C1'	2.88	0.56
10:X:34:ARG:HG2	10:X:34:ARG:O	2.04	0.56
11:2:2283:G:H1'	11:2:2284:C:H5	1.70	0.56
11:2:2254:U:OP2	11:2:2254:U:C6	2.58	0.56
13:7:2868:U:C5	13:7:2869:U:H5	2.24	0.56
13:7:2829:U:C2'	13:7:2830:G:H5'	2.36	0.56
13:7:2833:A:N1	13:7:2834:G:C8	2.74	0.56
9:L:56:ILE:HG22	9:L:57:GLY:N	2.20	0.56
11:2:2260:U:C3'	11:2:2261:G:C8	2.88	0.56
11:2:2266:U:C4	11:2:2267:C:N4	2.73	0.56
9:L:112:ALA:CB	9:L:119:VAL:O	2.53	0.56
11:2:2221:G:C3'	11:2:2221:G:C8	2.88	0.56
11:2:2260:U:H4'	11:2:2261:G:OP2	2.06	0.55
11:2:2223:A:O2'	11:2:2224:A:O5'	2.25	0.55
15:Y:15:G:H22	15:Y:59:U:H3	1.54	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:S:92:PRO:O	8:S:95:VAL:HG23	2.07	0.55
8:S:86:ARG:HB3	8:S:122:ALA:HB2	1.88	0.55
8:S:70:GLU:HG3	8:S:71:LYS:H	1.71	0.55
11:2:2275:A:H3'	11:2:2276:G:O4'	2.06	0.55
13:7:2862:U:C2'	13:7:2863:G:H5'	2.36	0.55
8:S:31:GLU:HG3	8:S:32:LYS:HG2	1.88	0.55
11:2:2194:G:C1'	11:2:2274:U:O2	2.54	0.55
11:2:2215:A:C4	11:2:2216:G:C8	2.94	0.55
11:2:2247:G:C6	11:2:2248:C:C4	2.95	0.55
11:2:2260:U:C2'	11:2:2261:G:C8	2.89	0.55
17:W:29:G:O2'	17:W:30:G:H5'	2.05	0.55
8:S:49:ARG:HH22	8:S:87:SER:HB2	1.70	0.55
11:2:2295:A:H62	11:2:2296:A:N6	2.05	0.55
8:S:91:ILE:O	8:S:94:LEU:HB2	2.06	0.55
11:2:2270:A:N1	11:2:2271:A:C2	2.75	0.55
17:W:49:G:H1	17:W:65:C:H42	1.55	0.55
11:2:2282:U:O2'	11:2:2283:G:C5'	2.54	0.55
11:2:2240:G:H2'	11:2:2241:U:O5'	2.07	0.55
11:2:2221:G:N2	11:2:2225:U:C2	2.75	0.55
8:S:66:ARG:HH12	8:S:93:GLU:CB	2.19	0.55
11:2:2280:A:C4	11:2:2282:U:H5	2.25	0.55
11:2:2290:C:O2'	11:2:2291:A:O4'	2.20	0.55
11:2:2265:C:N4	11:2:2266:U:C4	2.75	0.55
11:2:2214:A:H2'	11:2:2215:A:C8	2.41	0.55
15:Y:64:A:H2'	15:Y:65:G:H8	1.72	0.55
11:2:2217:U:O2'	11:2:2218:G:H5'	2.07	0.55
11:2:2290:C:C2	11:2:2291:A:C8	2.96	0.54
14:B:155:ILE:HA	14:B:156:LYS:CB	2.37	0.54
11:2:2196:C:C4	11:2:2242:A:N7	2.75	0.54
13:7:2847:A:C2	13:7:2848:G:H1'	2.42	0.54
17:W:62:C:H2'	17:W:63:G:O4'	2.07	0.54
13:7:2837:A:C8	13:7:2845:A:N1	2.75	0.54
12:3:2479:C:P	14:B:124:LEU:C	2.86	0.54
11:2:2269:U:H2'	11:2:2270:A:H5'	1.89	0.54
10:X:7:THR:CG2	10:X:10:LYS:HB2	2.34	0.54
13:7:2833:A:C6	13:7:2834:G:C8	2.95	0.54
9:L:75:LEU:HD11	9:L:82:ILE:CD1	2.38	0.54
8:S:33:LEU:HD22	8:S:62:VAL:HG21	1.89	0.54
15:Y:74:C:H2'	15:Y:75:C:H5'	1.89	0.54
12:3:2486:A:C8	14:B:122:ARG:C	2.74	0.54
11:2:2269:U:C5	11:2:2272:G:O6	2.60	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:3:2477:G:C4	14:B:99:LEU:O	2.60	0.54
11:2:2290:C:N3	11:2:2303:A:N1	2.56	0.54
13:7:2836:C:O2	13:7:2836:C:H3'	2.08	0.54
13:7:2838:A:C2	13:7:2851:A:N9	2.76	0.54
11:2:2223:A:C2'	11:2:2224:A:C8	2.89	0.54
13:7:2853:A:N6	13:7:2854:U:N3	2.56	0.54
8:S:101:VAL:CG2	8:S:121:LEU:HD11	2.34	0.54
8:S:90:VAL:HB	8:S:117:ILE:HA	1.90	0.54
10:X:40:LEU:HA	10:X:43:ARG:HG2	1.90	0.54
8:S:82:LYS:HB3	8:S:107:PHE:CE2	2.43	0.54
14:B:192:SER:HA	14:B:197:ASN:O	2.06	0.54
9:L:132:LEU:HD21	9:L:136:LYS:HE3	1.89	0.54
17:W:23:C:O2'	17:W:24:U:H5'	2.07	0.54
12:3:2484:A:C2	17:W:60:U:C4	2.87	0.54
11:2:2254:U:C5	11:2:2254:U:OP2	2.61	0.54
13:7:2834:G:HO2'	13:7:2835:U:H6	0.73	0.54
12:3:2479:C:P	14:B:124:LEU:O	2.65	0.54
11:2:2261:G:N2	11:2:2263:C:N3	2.56	0.54
13:7:2838:A:N1	13:7:2851:A:C8	2.75	0.54
15:Y:33:U:C3'	15:Y:34:G:H5''	2.38	0.54
17:W:47:U:H3'	17:W:48:C:C5'	2.36	0.53
11:2:2259:A:H3'	11:2:2260:U:C5	2.42	0.53
13:7:2833:A:H2'	13:7:2833:A:N3	2.23	0.53
12:3:2479:C:N3	14:B:86:SER:CB	2.71	0.53
13:7:2834:G:N3	13:7:2835:U:C5	2.76	0.53
13:7:2861:U:C2	13:7:2862:U:C6	2.96	0.53
9:L:6:PRO:HG2	9:L:15:LEU:CD2	2.38	0.53
11:2:2270:A:H2'	11:2:2271:A:H8	1.71	0.53
11:2:2270:A:O2'	11:2:2271:A:H5'	2.08	0.53
15:Y:64:A:H2'	15:Y:65:G:C8	2.43	0.53
12:3:2480:A:C5	14:B:93:LEU:C	2.63	0.53
11:2:2257:C:H3'	11:2:2258:U:C6	2.40	0.53
11:2:2257:C:H5'	11:2:2258:U:H5	1.72	0.53
11:2:2252:A:C2	11:2:2253:G:C4	2.97	0.53
13:7:2850:G:C8	13:7:2850:G:H5''	2.44	0.53
8:S:88:MET:SD	8:S:89:ILE:N	2.81	0.53
13:7:2868:U:H5''	13:7:2869:U:OP2	2.08	0.53
13:7:2841:G:H3'	13:7:2842:U:H5'	1.91	0.53
10:X:53:ASP:OD2	10:X:56:LYS:HD2	2.09	0.53
12:3:2483:G:N1	17:W:56:C:C1'	2.61	0.53
13:7:2833:A:C2'	13:7:2834:G:H5'	2.35	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:7:2872:A:H1'	13:7:2873:U:H5'	1.90	0.53
8:S:86:ARG:O	8:S:122:ALA:HB2	2.08	0.53
13:7:2866:U:H1'	13:7:2867:C:H5	1.74	0.53
12:3:2478:C:H5'	14:B:101:LYS:H	1.60	0.53
12:3:2486:A:N6	14:B:122:ARG:O	2.41	0.53
17:W:35:A:O2'	17:W:36:U:H5'	2.09	0.53
11:2:2233:A:C8	11:2:2234:G:C8	2.97	0.53
9:L:47:HIS:CE1	9:L:104:ALA:HB2	2.43	0.53
9:L:107:GLY:O	9:L:108:ARG:O	2.26	0.53
17:W:7:G:H5''	17:W:7:G:H8	1.74	0.53
9:L:29:PHE:CZ	9:L:33:LEU:HD12	2.44	0.53
11:2:2299:A:C6	11:2:2300:G:N7	2.76	0.53
8:S:49:ARG:NH1	8:S:87:SER:O	2.42	0.53
9:L:42:PHE:HB3	9:L:45:ALA:HB3	1.92	0.52
12:3:2487:U:H4'	12:3:2488:A:OP2	2.08	0.52
11:2:2300:G:C6	11:2:2301:U:C4	2.97	0.52
11:2:2250:G:N2	11:2:2267:C:C2	2.60	0.52
13:7:2847:A:N3	13:7:2847:A:H2'	2.25	0.52
13:7:2841:G:C4	13:7:2844:C:N4	2.77	0.52
10:X:36:TYR:CE2	10:X:40:LEU:HD11	2.44	0.52
12:3:2477:G:H3'	14:B:99:LEU:CA	2.39	0.52
12:3:2488:A:H62	14:B:131:ALA:CB	2.17	0.52
11:2:2259:A:C5	11:2:2260:U:C2	2.98	0.52
9:L:55:LYS:H	9:L:55:LYS:HD3	1.74	0.52
13:7:2852:C:H5	13:7:2853:A:C5	2.27	0.52
12:3:2480:A:C1'	14:B:89:ASP:C	2.62	0.52
8:S:56:GLU:N	8:S:56:GLU:CD	2.63	0.52
11:2:2302:G:C6	11:2:2303:A:C5	2.98	0.52
11:2:2252:A:C4	11:2:2253:G:C8	2.98	0.52
15:Y:26:A:H2'	15:Y:27:G:H5'	1.92	0.52
9:L:26:ASP:HB3	9:L:29:PHE:HB3	1.92	0.52
12:3:2478:C:P	14:B:96:ASN:C	2.85	0.52
12:3:2484:A:C8	17:W:20:U:OP2	2.62	0.52
11:2:2271:A:C3'	11:2:2272:G:C5'	2.86	0.52
8:S:47:ARG:O	8:S:51:LYS:HB2	2.09	0.52
12:3:2478:C:C5'	14:B:101:LYS:H	2.12	0.52
12:3:2481:G:P	14:B:119:GLN:CB	2.97	0.52
13:7:2836:C:O2	13:7:2836:C:H2'	2.10	0.52
17:W:73:A:H8	17:W:73:A:O5'	1.93	0.52
12:3:2481:G:C6	14:B:127:GLN:CB	2.92	0.52
11:2:2291:A:C2	11:2:2292:U:C2	2.97	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:2:2290:C:C2'	11:2:2291:A:O5'	2.58	0.52
11:2:2304:C:O2'	11:2:2305:G:C5'	2.48	0.52
13:7:2833:A:C2	13:7:2834:G:C8	2.97	0.52
17:W:39:C:H2'	17:W:40:C:H6	1.74	0.52
11:2:2207:A:H8	11:2:2237:C:C2	2.28	0.52
9:L:101:VAL:HG11	9:L:123:VAL:HG13	1.90	0.52
8:S:86:ARG:CZ	8:S:122:ALA:HB1	2.40	0.52
10:X:47:PRO:O	10:X:51:ALA:HB2	2.10	0.52
12:3:2479:C:C6	14:B:94:ASN:O	2.57	0.51
11:2:2215:A:N3	11:2:2215:A:C2'	2.65	0.51
17:W:70:G:H2'	17:W:71:C:H6	1.75	0.51
12:3:2477:G:H5'	14:B:97:LYS:CB	2.04	0.51
11:2:2285:C:O4'	15:Y:71:G:C3'	2.58	0.51
8:S:42:PHE:HE2	8:S:118:GLY:HA2	1.75	0.51
8:S:15:GLY:N	8:S:114:PHE:HE2	2.09	0.51
14:B:4:ILE:O	14:B:5:THR:C	2.48	0.51
12:3:2480:A:C1'	14:B:92:LYS:H	2.07	0.51
11:2:2279:A:H4'	11:2:2280:A:C5'	2.40	0.51
11:2:2200:U:C2	11:2:2201:G:C8	2.98	0.51
11:2:2255:A:C4'	11:2:2256:A:OP1	2.56	0.51
11:2:2262:A:C5'	11:2:2263:C:OP2	2.58	0.51
9:L:106:LEU:HD21	9:L:121:PHE:C	2.31	0.51
12:3:2478:C:H2'	14:B:94:ASN:O	2.10	0.51
11:2:2299:A:H2'	11:2:2300:G:O5'	2.11	0.51
11:2:2304:C:HO2'	11:2:2305:G:H5'	1.72	0.51
11:2:2253:G:C6	11:2:2254:U:N3	2.78	0.51
11:2:2253:G:C5	11:2:2254:U:C2	2.97	0.51
9:L:55:LYS:HB2	9:L:92:LEU:HD21	1.91	0.51
13:7:2861:U:H2'	13:7:2862:U:C6	2.41	0.51
8:S:33:LEU:CD2	8:S:62:VAL:HG21	2.41	0.51
8:S:38:LEU:O	8:S:42:PHE:CD1	2.64	0.51
11:2:2297:U:C2	11:2:2299:A:C6	2.99	0.51
11:2:2279:A:N7	11:2:2288:G:C6	2.79	0.51
11:2:2251:G:C2	11:2:2252:A:C8	2.98	0.51
15:Y:59:U:O2'	15:Y:60:U:H5'	2.10	0.51
9:L:75:LEU:HD11	9:L:82:ILE:HD11	1.91	0.51
10:X:59:SER:O	10:X:61:ASN:N	2.44	0.51
11:2:2279:A:C2	11:2:2283:G:C2	2.99	0.51
9:L:52:VAL:HG22	9:L:71:VAL:HG11	1.91	0.51
13:7:2841:G:C5	13:7:2844:C:C4	2.99	0.51
8:S:38:LEU:O	8:S:42:PHE:HD1	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:Y:55:U:H3'	15:Y:55:U:O2	2.11	0.51
11:2:2280:A:O2'	11:2:2281:A:P	2.68	0.51
11:2:2289:U:H2'	11:2:2290:C:H5'	1.92	0.51
11:2:2206:G:H2'	11:2:2207:A:H5'	1.93	0.51
13:7:2836:C:C5	13:7:2853:A:C2	2.99	0.51
8:S:60:LYS:HD3	8:S:64:LYS:HE3	1.93	0.51
13:7:2837:A:H2'	13:7:2845:A:C2	2.46	0.51
13:7:2864:A:C6	13:7:2865:U:C4	2.99	0.51
12:3:2478:C:C5	14:B:95:LYS:N	2.79	0.51
8:S:48:ARG:O	8:S:52:ARG:HB2	2.10	0.51
13:7:2847:A:N3	13:7:2848:G:C8	2.79	0.50
13:7:2868:U:C4	13:7:2869:U:H5	2.27	0.50
13:7:2857:C:H2'	13:7:2858:U:C6	2.45	0.50
12:3:2477:G:N9	14:B:99:LEU:CA	2.60	0.50
15:Y:28:G:H2'	15:Y:29:G:H8	1.75	0.50
17:W:76:A:OP1	17:W:76:A:H4'	2.11	0.50
9:L:75:LEU:CD2	9:L:82:ILE:HD12	2.39	0.50
14:B:59:PRO:O	14:B:60:ARG:CB	2.59	0.50
8:S:127:THR:HG22	8:S:127:THR:O	2.11	0.50
8:S:58:TYR:HB3	8:S:88:MET:CE	2.41	0.50
11:2:2209:U:H6	11:2:2209:U:H3'	1.76	0.50
11:2:2198:A:C4	11:2:2199:G:C8	2.99	0.50
11:2:2249:G:N9	11:2:2272:G:C8	2.79	0.50
11:2:2204:C:C2'	11:2:2205:U:H5"	2.41	0.50
9:L:40:ASN:CB	9:L:41:PRO:HD2	2.38	0.50
10:X:59:SER:C	10:X:61:ASN:H	2.15	0.50
12:3:2477:G:C2'	14:B:97:LYS:O	2.34	0.50
15:Y:16:U:H2'	15:Y:17:C:H5'	1.94	0.50
15:Y:53:G:N3	15:Y:53:G:H2'	2.27	0.50
11:2:2297:U:N3	11:2:2299:A:C6	2.79	0.50
11:2:2249:G:H2'	11:2:2250:G:H1'	1.92	0.50
13:7:2827:U:O2	13:7:2827:U:C2'	2.60	0.50
17:W:7:G:H5"	17:W:7:G:C8	2.46	0.50
8:S:60:LYS:HZ3	8:S:64:LYS:CE	2.25	0.50
12:3:2477:G:C5'	14:B:99:LEU:H	1.78	0.50
10:X:7:THR:HG22	10:X:8:LEU:H	1.75	0.50
8:S:60:LYS:NZ	8:S:64:LYS:HE3	2.27	0.50
11:2:2253:G:H3'	11:2:2254:U:H6	1.74	0.50
13:7:2852:C:H5	13:7:2853:A:C4	2.29	0.50
14:B:54:LYS:CA	14:B:55:LEU:CB	2.89	0.50
12:3:2482:U:N3	14:B:122:ARG:O	2.45	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:2:2222:A:O5'	11:2:2222:A:H8	1.95	0.49
8:S:56:GLU:CD	8:S:56:GLU:H	2.14	0.49
12:3:2483:G:C2'	17:W:19:G:N3	2.75	0.49
12:3:2484:A:O2'	17:W:57:A:N3	2.35	0.49
11:2:2264:U:O2'	11:2:2265:C:H5'	2.13	0.49
9:L:61:LYS:HD2	9:L:117:PRO:HA	1.93	0.49
13:7:2841:G:N1	13:7:2844:C:N3	2.60	0.49
17:W:39:C:O5'	17:W:39:C:H6	1.94	0.49
11:2:2294:U:H3'	11:2:2295:A:H5''	1.94	0.49
12:3:2480:A:C1'	14:B:91:LYS:N	2.59	0.49
12:3:2480:A:C4	14:B:89:ASP:O	2.66	0.49
11:2:2207:A:C8	11:2:2237:C:C2	3.00	0.49
11:2:2223:A:C2'	11:2:2224:A:H8	2.20	0.49
13:7:2856:G:C2	13:7:2857:C:C4	3.00	0.49
15:Y:74:C:H2'	15:Y:75:C:C5'	2.43	0.49
12:3:2480:A:H1'	14:B:92:LYS:N	2.05	0.49
13:7:2851:A:H5''	13:7:2851:A:C8	2.47	0.49
12:3:2487:U:C5	14:B:97:LYS:HA	2.47	0.49
11:2:2252:A:N3	11:2:2253:G:C8	2.80	0.49
9:L:69:LYS:NZ	9:L:92:LEU:HB3	2.28	0.49
11:2:2285:C:H5	11:2:2286:U:C4	2.27	0.49
11:2:2221:G:H8	11:2:2221:G:H5''	1.76	0.49
15:Y:16:U:C2'	15:Y:17:C:H5'	2.43	0.49
11:2:2276:G:N7	11:2:2277:C:C5	2.80	0.49
11:2:2280:A:O2'	11:2:2281:A:O5'	2.26	0.49
11:2:2247:G:N3	11:2:2247:G:H2'	2.27	0.49
13:7:2858:U:C2'	13:7:2859:U:C5	2.94	0.49
11:2:2198:A:O2'	11:2:2199:G:H5'	2.13	0.49
11:2:2264:U:H6	11:2:2264:U:O5'	1.96	0.49
9:L:71:VAL:CG2	9:L:95:LEU:HD13	2.36	0.49
17:W:61:C:H2'	17:W:62:C:H6	1.78	0.49
12:3:2480:A:C8	14:B:94:ASN:N	2.72	0.48
12:3:2484:A:N7	17:W:19:G:C5'	2.76	0.48
10:X:66:LYS:O	10:X:70:MET:HB2	2.13	0.48
14:B:155:ILE:HA	14:B:156:LYS:C	2.32	0.48
12:3:2485:A:C5	17:W:19:G:C4	2.12	0.48
12:3:2486:A:C4'	17:W:56:C:N4	2.66	0.48
11:2:2206:G:N3	11:2:2206:G:H2'	2.28	0.48
11:2:2206:G:N2	11:2:2207:A:C8	2.81	0.48
8:S:101:VAL:HG21	8:S:121:LEU:CD1	2.38	0.48
9:L:42:PHE:CZ	9:L:103:VAL:HG23	2.47	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:W:32:C:C4	17:W:33:U:C5	3.01	0.48
5:G:1440:A:H2'	5:G:1441:C:C6	2.48	0.48
9:L:3:VAL:HG12	9:L:4:GLY:N	2.21	0.48
9:L:87:PRO:O	9:L:88:MET:O	2.30	0.48
12:3:2485:A:C5'	17:W:57:A:O5'	2.58	0.48
13:7:2841:G:C5	13:7:2844:C:N4	2.81	0.48
11:2:2253:G:C4	11:2:2254:U:C6	3.01	0.48
13:7:2847:A:C2	13:7:2848:G:C1'	2.97	0.48
13:7:2847:A:C5'	13:7:2848:G:OP2	2.55	0.48
8:S:46:THR:CG2	8:S:89:ILE:HD13	2.41	0.48
9:L:73:VAL:HG12	9:L:74:LEU:N	2.28	0.48
15:Y:11:C:H2'	15:Y:12:U:C6	2.49	0.48
15:Y:38:A:H2'	15:Y:39:U:O4'	2.14	0.48
8:S:85:TYR:HD1	8:S:85:TYR:H	1.61	0.48
12:3:2484:A:C4	17:W:19:G:O5'	2.66	0.48
11:2:2255:A:N1	11:2:2258:U:H5''	2.28	0.48
8:S:45:LYS:O	8:S:48:ARG:HB3	2.13	0.48
11:2:2276:G:O6	11:2:2277:C:C4	2.67	0.48
11:2:2279:A:C8	11:2:2288:G:C5	3.01	0.48
11:2:2299:A:C4	11:2:2300:G:H8	2.31	0.48
11:2:2270:A:C2'	11:2:2271:A:C8	2.89	0.48
13:7:2834:G:C6	13:7:2855:U:C4	3.01	0.48
13:7:2869:U:C2'	13:7:2869:U:O2	2.62	0.48
8:S:73:PRO:C	8:S:75:GLY:N	2.67	0.48
11:2:2290:C:C4	11:2:2303:A:N1	2.82	0.48
11:2:2213:A:C2'	11:2:2214:A:C8	2.81	0.48
8:S:42:PHE:CD2	8:S:118:GLY:HA2	2.49	0.48
13:7:2860:U:O2	13:7:2860:U:H2'	2.13	0.48
17:W:30:G:H21	17:W:31:G:H1'	1.77	0.48
11:2:2254:U:C2'	11:2:2255:A:OP1	2.62	0.48
11:2:2254:U:O2'	11:2:2255:A:P	2.71	0.48
11:2:2261:G:N2	11:2:2263:C:C2	2.82	0.48
8:S:32:LYS:O	8:S:34:ILE:N	2.47	0.48
13:7:2826:U:N3	13:7:2827:U:C5	2.81	0.47
12:3:2485:A:H1'	17:W:18:G:C5	2.48	0.47
15:Y:51:U:H3'	15:Y:52:G:H8	1.79	0.47
17:W:38:A:O2'	17:W:39:C:H5'	2.13	0.47
13:7:2854:U:HO2'	13:7:2855:U:H5'	1.79	0.47
12:3:2485:A:C1'	17:W:18:G:C6	2.95	0.47
11:2:2205:U:C2'	11:2:2206:G:H5'	2.37	0.47
13:7:2852:C:C5	13:7:2853:A:C5	3.03	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:S:13:PHE:O	8:S:14:ARG:HD3	2.14	0.47
17:W:54:U:C2'	17:W:55:U:H5'	2.45	0.47
17:W:57:A:H2'	17:W:58:A:H5'	1.96	0.47
11:2:2194:G:H2'	11:2:2195:C:H5'	1.97	0.47
11:2:2199:G:C4	11:2:2200:U:C5	3.03	0.47
11:2:2215:A:C2	11:2:2216:G:N9	2.83	0.47
9:L:42:PHE:HZ	9:L:103:VAL:HG23	1.79	0.47
12:3:2485:A:O3'	17:W:55:U:C2'	2.63	0.47
5:G:1434:C:H2'	5:G:1434:C:O2	2.15	0.47
9:L:85:PHE:HE1	9:L:87:PRO:HA	1.78	0.47
14:B:101:LYS:O	14:B:102:LYS:C	2.53	0.47
12:3:2486:A:P	17:W:55:U:HO2'	2.36	0.47
11:2:2295:A:C6	11:2:2296:A:C6	3.02	0.47
11:2:2197:C:H4'	11:2:2198:A:H8	1.79	0.47
11:2:2248:C:C4'	11:2:2271:A:C2	2.96	0.47
11:2:2266:U:H5''	11:2:2267:C:OP2	2.14	0.47
17:W:71:C:N4	17:W:72:A:C6	2.83	0.47
14:B:53:LEU:CB	14:B:54:LYS:CA	2.91	0.47
17:W:20:U:C3'	17:W:21:A:C5'	2.93	0.47
11:2:2249:G:C1'	11:2:2272:G:C8	2.97	0.47
9:L:29:PHE:O	9:L:33:LEU:HB2	2.14	0.47
8:S:59:ALA:O	8:S:62:VAL:HB	2.15	0.47
11:2:2288:G:C2	11:2:2289:U:C5	3.03	0.47
11:2:2248:C:H4'	11:2:2271:A:C2	2.49	0.47
15:Y:42:C:C3'	15:Y:43:C:H5''	2.45	0.47
8:S:69:LYS:NZ	8:S:93:GLU:O	2.45	0.47
14:B:55:LEU:HA	14:B:167:VAL:HA	1.96	0.47
11:2:2249:G:C2	11:2:2272:G:O6	2.68	0.47
10:X:7:THR:CG2	10:X:8:LEU:H	2.25	0.47
11:2:2215:A:C2	11:2:2216:G:C1'	2.98	0.46
13:7:2836:C:H5	13:7:2853:A:C2	2.33	0.46
10:X:13:LYS:O	10:X:17:GLN:HG3	2.15	0.46
13:7:2834:G:O2'	13:7:2835:U:O4'	2.34	0.46
8:S:55:SER:HB2	8:S:58:TYR:CE2	2.50	0.46
17:W:50:U:O2'	17:W:51:C:H5'	2.16	0.46
11:2:2250:G:H2'	11:2:2250:G:N3	2.31	0.46
11:2:2223:A:N3	11:2:2224:A:C4	2.83	0.46
8:S:38:LEU:HA	8:S:41:LEU:HD12	1.97	0.46
8:S:65:VAL:HG21	8:S:94:LEU:HD21	1.96	0.46
11:2:2294:U:C2	11:2:2296:A:OP2	2.69	0.46
17:W:17:C:H5	17:W:17(A):U:O4	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:2:2252:A:C4	11:2:2253:G:N7	2.84	0.46
11:2:2225:U:C2	11:2:2226:U:C5	3.03	0.46
17:W:4:G:O2'	17:W:5:G:P	2.74	0.46
9:L:106:LEU:CD2	9:L:122:LYS:HB2	2.45	0.46
11:2:2289:U:C2'	11:2:2290:C:C5'	2.94	0.46
11:2:2196:C:N4	11:2:2242:A:C8	2.83	0.46
10:X:62:TRP:CH2	10:X:63:HIS:NE2	2.83	0.46
8:S:95:VAL:CG2	8:S:117:ILE:HD11	2.45	0.46
11:2:2300:G:C2	11:2:2301:U:C2	3.04	0.46
11:2:2257:C:C2	11:2:2258:U:C6	3.04	0.46
9:L:29:PHE:CZ	9:L:33:LEU:CD1	2.98	0.46
11:2:2234:G:C5	11:2:2235:C:C5	3.04	0.46
10:X:7:THR:O	10:X:8:LEU:HB2	2.16	0.46
9:L:27:ASN:O	9:L:31:LYS:HB2	2.15	0.46
14:B:128:LEU:O	14:B:131:ALA:HB3	2.15	0.46
11:2:2285:C:H5	11:2:2286:U:C6	2.33	0.46
11:2:2289:U:N3	11:2:2290:C:C5	2.84	0.46
11:2:2290:C:N3	11:2:2303:A:C2	2.84	0.46
11:2:2240:G:C2'	11:2:2241:U:O5'	2.64	0.46
11:2:2259:A:H5''	11:2:2260:U:C5	2.47	0.46
15:Y:52:G:N3	15:Y:52:G:H2'	2.30	0.46
11:2:2291:A:N1	11:2:2292:U:C2	2.84	0.46
8:S:42:PHE:CD2	8:S:46:THR:HG21	2.51	0.46
8:S:98:ILE:HG22	8:S:111:GLU:HG2	1.97	0.46
10:X:35:SER:O	10:X:38:ARG:HB3	2.16	0.46
12:3:2481:G:H2'	14:B:122:ARG:O	2.16	0.46
11:2:2232:A:H3'	11:2:2232:A:C8	2.51	0.46
8:S:66:ARG:HH12	8:S:93:GLU:HB3	1.78	0.46
10:X:44:ARG:HA	10:X:49:ILE:HD12	1.98	0.46
9:L:56:ILE:CG2	9:L:57:GLY:N	2.78	0.46
15:Y:20:U:N3	15:Y:36:A:C2	40.68	0.45
13:7:2825:C:H42	13:7:2864:A:N6	2.12	0.45
10:X:35:SER:O	10:X:39:ILE:HG13	2.16	0.45
11:2:2301:U:O2'	11:2:2302:G:H5'	2.16	0.45
12:3:2480:A:H1'	14:B:91:LYS:N	2.32	0.45
11:2:2235:C:H2'	11:2:2236:G:C8	2.52	0.45
11:2:2222:A:O2'	11:2:2223:A:H5''	2.16	0.45
13:7:2840:C:N4	13:7:2841:G:C5	2.85	0.45
10:X:34:ARG:CZ	10:X:34:ARG:HB3	2.46	0.45
15:Y:74:C:C2'	15:Y:75:C:H5'	2.47	0.45
12:3:2486:A:C8	17:W:56:C:C2	3.05	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:2:2255:A:H4'	11:2:2256:A:OP1	2.11	0.45
11:2:2250:G:N1	11:2:2267:C:N3	2.55	0.45
17:W:28:C:O2	17:W:43:A:C2	2.69	0.45
17:W:59:A:H2'	17:W:60:U:H5'	1.98	0.45
11:2:2295:A:H2'	11:2:2296:A:C8	2.52	0.45
13:7:2862:U:HO2'	13:7:2863:G:H5'	1.77	0.45
8:S:33:LEU:HD11	8:S:59:ALA:CA	2.46	0.45
13:7:2872:A:O4'	13:7:2873:U:OP1	2.35	0.45
11:2:2297:U:O2	11:2:2299:A:C5	2.70	0.45
11:2:2302:G:H2'	11:2:2303:A:O4'	2.16	0.45
13:7:2852:C:N4	13:7:2853:A:N3	2.64	0.45
15:Y:8:U:C4'	15:Y:48:C:H4'	2.44	0.45
10:X:31:PRO:O	10:X:36:TYR:HB2	2.16	0.45
11:2:2247:G:H5''	11:2:2248:C:OP2	2.17	0.45
17:W:17:C:C5	17:W:17(A):U:O4	2.70	0.45
9:L:29:PHE:CE1	9:L:33:LEU:HD12	2.52	0.45
8:S:60:LYS:NZ	8:S:64:LYS:CE	2.80	0.45
12:3:2485:A:O4'	17:W:18:G:C2	2.70	0.45
11:2:2240:G:H2'	11:2:2241:U:C5'	2.47	0.45
17:W:41:C:O2'	17:W:42:G:H5'	2.17	0.45
13:7:2837:A:H2'	13:7:2845:A:C6	2.52	0.45
11:2:2287:C:O2	11:2:2298:U:H5''	2.17	0.45
11:2:2279:A:C3'	11:2:2280:A:C5'	2.94	0.44
11:2:2249:G:H2'	11:2:2250:G:O4'	2.16	0.44
14:B:68:PHE:HA	14:B:73:ASP:CB	2.46	0.44
17:W:4:G:O2'	17:W:5:G:H8	2.00	0.44
17:W:11:A:O2'	17:W:12:G:H5'	2.18	0.44
12:3:2480:A:N7	14:B:95:LYS:CB	2.80	0.44
12:3:2484:A:N7	17:W:19:G:H5'	2.31	0.44
11:2:2211:U:O2'	11:2:2212:C:H5'	2.17	0.44
13:7:2850:G:H5''	13:7:2850:G:H8	1.79	0.44
8:S:91:ILE:CG2	8:S:92:PRO:HD2	2.45	0.44
15:Y:33:U:H3'	15:Y:34:G:H5''	1.99	0.44
8:S:60:LYS:HZ3	8:S:64:LYS:HE3	1.81	0.44
17:W:15:G:H8	17:W:15:G:O5'	2.00	0.44
11:2:2253:G:C3'	11:2:2254:U:C6	2.97	0.44
9:L:135:PHE:CE1	10:X:15:ARG:NH1	2.85	0.44
12:3:2477:G:C5'	14:B:97:LYS:CB	2.84	0.44
17:W:5:G:N2	17:W:69:C:N3	2.65	0.44
11:2:2209:U:N1	11:2:2209:U:OP2	2.50	0.44
11:2:2278:C:C4	11:2:2305:G:C5	3.06	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:2:2280:A:HO2'	11:2:2281:A:H3'	1.82	0.44
11:2:2279:A:C2	11:2:2283:G:N2	2.86	0.44
11:2:2270:A:C6	11:2:2271:A:C6	3.05	0.44
12:3:2485:A:O4'	17:W:18:G:N1	2.50	0.44
11:2:2285:C:H41	11:2:2286:U:H3	1.65	0.44
11:2:2252:A:N1	11:2:2253:G:C6	2.86	0.44
10:X:7:THR:HG22	10:X:8:LEU:N	2.33	0.44
11:2:2298:U:O2	11:2:2298:U:O4'	2.35	0.44
8:S:85:TYR:N	8:S:85:TYR:CD1	2.85	0.44
17:W:38:A:H2'	17:W:39:C:O4'	2.18	0.44
17:W:14:A:N3	17:W:37:A:N1	32.98	0.44
11:2:2278:C:O2'	11:2:2279:A:H5''	2.17	0.44
11:2:2300:G:N3	11:2:2300:G:H2'	2.32	0.44
13:7:2836:C:C3'	13:7:2836:C:O2	2.65	0.44
13:7:2839:G:C6	13:7:2850:G:C2	3.04	0.44
13:7:2851:A:H3'	13:7:2852:C:C5'	2.48	0.44
9:L:95:LEU:HD23	9:L:126:VAL:HG22	2.00	0.44
9:L:78:ASN:O	9:L:79:SER:HB2	2.16	0.44
8:S:86:ARG:HD2	8:S:102:TYR:O	2.17	0.44
11:2:2197:C:N3	11:2:2242:A:C2	2.86	0.44
11:2:2255:A:C2	11:2:2258:U:OP2	2.71	0.44
11:2:2223:A:C2	11:2:2224:A:C5	3.06	0.44
8:S:121:LEU:HD12	8:S:121:LEU:O	2.17	0.44
15:Y:15:G:O2'	15:Y:16:U:OP1	2.25	0.44
9:L:124:VAL:HG12	9:L:124:VAL:O	2.18	0.44
11:2:2289:U:O2'	11:2:2290:C:C5'	2.62	0.44
5:G:1430:C:O2'	5:G:1431:A:O5'	2.36	0.44
13:7:2830:G:H2'	13:7:2831:G:H8	1.83	0.44
11:2:2218:G:C4	11:2:2228:A:C2	3.06	0.44
17:W:35:A:C4	17:W:36:U:C5	3.06	0.43
17:W:7:G:H3'	17:W:8:U:C5'	2.47	0.43
12:3:2485:A:N3	17:W:18:G:C4	2.85	0.43
12:3:2485:A:C2'	17:W:56:C:C5	3.01	0.43
13:7:2835:U:O2	13:7:2835:U:H2'	2.17	0.43
11:2:2257:C:O4'	11:2:2257:C:O2	2.36	0.43
5:G:1430:C:O2'	5:G:1431:A:P	2.77	0.43
13:7:2856:G:N2	13:7:2857:C:C2	2.87	0.43
11:2:2217:U:H2'	11:2:2218:G:H8	1.83	0.43
15:Y:45:U:H6	15:Y:45:U:O5'	2.02	0.43
11:2:2281:A:H1'	11:2:2282:U:OP1	2.18	0.43
13:7:2850:G:OP1	13:7:2850:G:C4'	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:2:2201:G:C4	11:2:2202:C:C6	3.07	0.43
11:2:2246:G:C4	11:2:2247:G:C8	3.06	0.43
15:Y:27:G:N2	15:Y:43:C:H5	2.10	0.43
9:L:69:LYS:HZ2	9:L:92:LEU:HD23	1.84	0.43
13:7:2846:U:H2'	13:7:2847:A:OP2	2.19	0.43
8:S:101:VAL:O	8:S:108:VAL:N	2.44	0.43
11:2:2218:G:C5	11:2:2228:A:C2	3.06	0.43
9:L:44:GLY:O	9:L:45:ALA:O	2.36	0.43
9:L:131:LEU:O	9:L:132:LEU:C	2.57	0.43
12:3:2484:A:N7	17:W:19:G:C4'	2.77	0.43
11:2:2284:C:C5'	11:2:2285:C:OP2	2.66	0.43
9:L:75:LEU:HD12	9:L:78:ASN:HD22	1.83	0.43
11:2:2276:G:C4	11:2:2277:C:C5	3.05	0.43
11:2:2197:C:C2	11:2:2242:A:C2	3.06	0.43
13:7:2828:G:H2'	13:7:2829:U:O5'	2.18	0.43
13:7:2831:G:C2	13:7:2832:C:C2	3.06	0.43
11:2:2209:U:C3'	11:2:2209:U:C6	3.01	0.43
14:B:126:PRO:O	14:B:128:LEU:N	2.52	0.43
11:2:2249:G:N9	11:2:2272:G:N7	2.66	0.43
9:L:95:LEU:CD2	9:L:126:VAL:HG22	2.48	0.43
13:7:2857:C:C2	13:7:2858:U:C6	3.06	0.43
8:S:29:ASN:O	8:S:31:GLU:HG2	2.19	0.43
8:S:60:LYS:CD	8:S:64:LYS:HE3	2.49	0.43
13:7:2843:U:P	13:7:2843:U:H3'	2.59	0.43
11:2:2249:G:C4	11:2:2272:G:C5	3.07	0.43
11:2:2256:A:O2'	11:2:2257:C:OP2	2.36	0.43
11:2:2255:A:N1	11:2:2260:U:O4	2.52	0.43
13:7:2830:G:H2'	13:7:2831:G:O5'	2.19	0.43
15:Y:9:A:O2'	15:Y:10:G:C8	2.72	0.43
10:X:31:PRO:CG	10:X:39:ILE:HD11	2.47	0.43
5:G:1435:G:C2	5:G:1436:C:C5	3.07	0.43
11:2:2247:G:C6	11:2:2248:C:N4	2.87	0.43
13:7:2868:U:C4	13:7:2869:U:C5	3.06	0.43
10:X:28:ARG:HD3	10:X:28:ARG:HA	1.58	0.43
12:3:2485:A:H2'	17:W:56:C:C5	2.54	0.42
12:3:2485:A:OP1	17:W:58:A:C5'	2.67	0.42
11:2:2300:G:N2	11:2:2301:U:H1'	2.34	0.42
11:2:2199:G:C2	11:2:2200:U:C6	3.06	0.42
11:2:2260:U:O2'	11:2:2261:G:C8	2.71	0.42
11:2:2214:A:C2'	11:2:2215:A:H8	2.32	0.42
14:B:68:PHE:H	14:B:112:ALA:HB2	1.83	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:B:188:ASN:C	14:B:190:PHE:N	2.72	0.42
9:L:5:LYS:NZ	9:L:18:HIS:NE2	2.66	0.42
14:B:101:LYS:O	14:B:104:SER:N	2.52	0.42
11:2:2212:C:O2'	11:2:2233:A:N6	2.51	0.42
13:7:2834:G:C4	13:7:2835:U:H5	2.35	0.42
13:7:2853:A:C6	13:7:2854:U:C2	3.07	0.42
11:2:2218:G:C6	11:2:2228:A:C6	3.07	0.42
14:B:32:VAL:HA	14:B:208:SER:HA	2.00	0.42
11:2:2279:A:C4'	11:2:2280:A:C5'	2.97	0.42
11:2:2273:G:H1'	11:2:2274:U:H5	1.85	0.42
11:2:2224:A:H3'	11:2:2225:U:H6	1.83	0.42
17:W:24:U:H2'	17:W:25:C:H6	1.84	0.42
11:2:2196:C:C2	11:2:2242:A:N6	2.88	0.42
11:2:2262:A:C2	11:2:2263:C:O4'	2.72	0.42
15:Y:48:C:N3	15:Y:59:U:C2	2.87	0.42
9:L:139:LYS:O	9:L:140:GLU:HG3	2.19	0.42
17:W:49:G:H1	17:W:65:C:N4	2.18	0.42
17:W:9:G:N3	17:W:45:G:H2'	2.34	0.42
14:B:145:TYR:HA	14:B:148:VAL:CB	2.50	0.42
11:2:2229:A:H2'	11:2:2230:C:N1	2.35	0.42
8:S:81:VAL:O	8:S:99:VAL:HG13	2.19	0.42
17:W:59:A:C2'	17:W:60:U:H5'	2.49	0.42
11:2:2279:A:C4'	11:2:2280:A:H5'	2.43	0.42
11:2:2252:A:C2	11:2:2265:C:O2	2.72	0.42
11:2:2254:U:H2'	11:2:2255:A:OP1	2.18	0.42
11:2:2213:A:N6	11:2:2232:A:C4	2.88	0.42
11:2:2222:A:C2	11:2:2223:A:C6	3.08	0.42
13:7:2834:G:C2	13:7:2835:U:C5	3.08	0.42
9:L:17:ARG:NH2	9:L:20:LYS:HB3	2.34	0.42
12:3:2488:A:N3	12:3:2488:A:H2'	2.33	0.42
12:3:2484:A:N3	17:W:18:G:H1'	2.34	0.42
13:7:2864:A:C5	13:7:2865:U:C4	3.07	0.42
12:3:2486:A:H5'	17:W:56:C:H41	1.54	0.42
13:7:2834:G:C4	13:7:2835:U:C6	3.07	0.42
13:7:2872:A:H1'	13:7:2873:U:C5'	2.50	0.42
8:S:15:GLY:CA	8:S:114:PHE:HE2	2.33	0.42
5:G:1433:G:H4'	17:W:30:G:OP1	2.20	0.42
11:2:2276:G:H2'	11:2:2277:C:H5'	2.02	0.42
11:2:2285:C:C5	11:2:2286:U:C6	3.07	0.42
11:2:2286:U:O4	11:2:2288:G:H1'	2.18	0.42
11:2:2259:A:C6	11:2:2260:U:C2	3.08	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:2:2211:U:H2'	11:2:2212:C:C6	2.54	0.42
13:7:2828:G:C2'	13:7:2829:U:O5'	2.68	0.42
17:W:35:A:C6	17:W:36:U:C4	3.08	0.42
11:2:2262:A:H5''	11:2:2263:C:OP2	2.20	0.42
14:B:167:VAL:O	14:B:168:ALA:HB2	2.19	0.42
12:3:2485:A:H5'	17:W:57:A:H3'	1.14	0.42
11:2:2288:G:C6	11:2:2289:U:C4	3.08	0.42
11:2:2273:G:O2'	11:2:2274:U:P	2.78	0.42
13:7:2868:U:C6	13:7:2869:U:H5	2.38	0.42
9:L:90:GLY:O	9:L:91:CYS:C	2.59	0.42
11:2:2290:C:O2'	11:2:2291:A:O5'	2.38	0.41
13:7:2834:G:C2	13:7:2835:U:C6	3.07	0.41
13:7:2837:A:C8	13:7:2845:A:H2	2.36	0.41
13:7:2840:C:C4	13:7:2841:G:C5	3.08	0.41
8:S:21:LEU:HA	8:S:24:LEU:CB	2.50	0.41
10:X:25:ASP:O	10:X:26:LYS:C	2.58	0.41
12:3:2483:G:H2'	17:W:19:G:N3	2.36	0.41
8:S:46:THR:HG23	8:S:89:ILE:HD12	1.98	0.41
9:L:87:PRO:HB2	9:L:88:MET:H	1.66	0.41
11:2:2196:C:C5'	11:2:2197:C:OP2	2.69	0.41
15:Y:43:C:C2'	15:Y:44:G:H5'	2.50	0.41
17:W:70:G:C5	17:W:71:C:C5	3.08	0.41
9:L:78:ASN:ND2	9:L:80:LYS:HG2	2.34	0.41
13:7:2831:G:C5	13:7:2832:C:C5	3.08	0.41
15:Y:3:C:H2'	15:Y:4:C:H6	1.85	0.41
12:3:2487:U:C4	14:B:97:LYS:HA	2.56	0.41
17:W:14:A:C4	17:W:37:A:N6	33.25	0.41
15:Y:71:G:H2'	15:Y:71:G:N3	2.36	0.41
13:7:2856:G:N1	13:7:2857:C:C4	2.88	0.41
8:S:51:LYS:HD3	8:S:51:LYS:HA	1.87	0.41
12:3:2486:A:C8	17:W:56:C:N1	2.89	0.41
17:W:64:G:C6	17:W:65:C:C4	3.08	0.41
8:S:72:CYS:SG	8:S:79:VAL:HG23	2.60	0.41
14:B:12:HIS:CB	14:B:213:ALA:HB1	2.50	0.41
11:2:2249:G:C8	11:2:2272:G:C8	3.09	0.41
11:2:2194:G:N9	11:2:2274:U:O2	2.53	0.41
11:2:2210:G:C5	11:2:2211:U:C5	3.08	0.41
13:7:2856:G:C6	13:7:2857:C:N4	2.89	0.41
11:2:2273:G:O2'	11:2:2274:U:OP2	2.37	0.41
11:2:2213:A:C6	11:2:2214:A:C6	3.09	0.41
13:7:2824:G:H5''	13:7:2825:C:P	2.59	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:Y:4:C:H42	15:Y:69:G:H1	1.68	0.41
9:L:6:PRO:HG3	9:L:14:LYS:HG2	2.03	0.41
11:2:2270:A:H2'	11:2:2271:A:O4'	2.20	0.41
11:2:2213:A:C6	11:2:2214:A:N6	2.89	0.41
10:X:39:ILE:HA	10:X:42:ASN:HD22	1.85	0.41
9:L:81:LYS:C	9:L:81:LYS:HD2	2.41	0.41
11:2:2280:A:H8	11:2:2280:A:H3'	1.85	0.41
11:2:2276:G:N7	11:2:2277:C:H5	2.19	0.41
11:2:2285:C:C5	11:2:2286:U:N1	2.87	0.41
11:2:2258:U:H3'	11:2:2259:A:C8	2.50	0.41
11:2:2236:G:H2'	11:2:2237:C:O5'	2.21	0.41
15:Y:28:G:N2	15:Y:43:C:C6	2.89	0.41
15:Y:43:C:O2'	15:Y:44:G:H5'	2.21	0.41
10:X:8:LEU:C	10:X:10:LYS:N	2.73	0.41
17:W:3:C:N4	17:W:70:G:H1	2.16	0.41
8:S:63:ASN:HA	8:S:66:ARG:HB2	2.02	0.41
8:S:92:PRO:HA	8:S:117:ILE:HD13	2.03	0.41
15:Y:69:G:N2	15:Y:70:G:C6	2.89	0.41
17:W:29:G:H8	17:W:29:G:O5'	2.04	0.41
11:2:2253:G:N1	11:2:2263:C:N3	2.57	0.41
17:W:41:C:H2'	17:W:42:G:O4'	2.21	0.41
13:7:2826:U:C4	13:7:2827:U:C4	3.08	0.41
9:L:131:LEU:O	9:L:134:LEU:N	2.53	0.41
17:W:39:C:H2'	17:W:40:C:C6	2.54	0.41
12:3:2486:A:O4'	17:W:56:C:N4	2.54	0.40
11:2:2299:A:C2'	11:2:2300:G:O5'	2.68	0.40
11:2:2201:G:C5	11:2:2202:C:C5	3.09	0.40
11:2:2260:U:C4'	11:2:2260:U:OP1	2.68	0.40
17:W:70:G:H2'	17:W:71:C:O4'	2.21	0.40
17:W:46:G:C8	17:W:46:G:H3'	2.55	0.40
17:W:71:C:H5'	17:W:72:A:OP2	2.21	0.40
13:7:2857:C:H2'	13:7:2858:U:O4'	2.21	0.40
8:S:16:LYS:HG3	8:S:20:GLU:OE1	2.21	0.40
8:S:21:LEU:HA	8:S:24:LEU:HB3	2.03	0.40
12:3:2484:A:O2'	17:W:57:A:C2	2.69	0.40
17:W:36:U:C2'	17:W:37:A:O5'	2.69	0.40
11:2:2291:A:C6	11:2:2292:U:N3	2.90	0.40
10:X:65:GLY:HA2	10:X:70:MET:HE1	2.03	0.40
13:7:2843:U:OP2	13:7:2843:U:H3'	2.21	0.40
13:7:2830:G:H8	13:7:2830:G:H5'	1.87	0.40
12:3:2481:G:O6	14:B:127:GLN:CB	2.70	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:B:121:PRO:N	17:W:56:C:H4'	2.27	0.40
13:7:2849:C:O2	13:7:2849:C:C2'	2.68	0.40
17:W:38:A:C6	17:W:39:C:C2	3.09	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
8	S	123/125 (98%)	90 (73%)	25 (20%)	8 (6%)	1	25
9	L	139/141 (99%)	106 (76%)	18 (13%)	15 (11%)	0	11
10	X	66/68 (97%)	48 (73%)	12 (18%)	6 (9%)	1	17
14	B	211/213 (99%)	76 (36%)	67 (32%)	68 (32%)	0	0
All	All	539/547 (98%)	320 (59%)	122 (23%)	97 (18%)	0	4

All (97) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
8	S	15	GLY
9	L	45	ALA
9	L	62	GLN
9	L	87	PRO
9	L	88	MET
9	L	89	ASP
9	L	107	GLY
9	L	108	ARG
9	L	117	PRO
10	X	8	LEU
10	X	64	ALA
14	B	24	LYS

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Mol	Chain	Res	Type
14	B	36	VAL
14	B	39	LYS
14	B	42	ASP
14	B	43	PRO
14	B	55	LEU
14	B	56	PRO
14	B	58	CYS
14	B	59	PRO
14	B	60	ARG
14	B	61	PRO
14	B	109	ALA
14	B	115	VAL
14	B	120	VAL
14	B	122	ARG
14	B	124	LEU
14	B	126	PRO
14	B	127	GLN
14	B	128	LEU
14	B	129	SER
14	B	135	PRO
14	B	143	ASP
14	B	151	VAL
14	B	174	MET
14	B	201	VAL
14	B	207	LYS
14	B	208	SER
14	B	209	SER
14	B	210	MET
14	B	212	PRO
8	S	31	GLU
8	S	33	LEU
9	L	35	GLY
9	L	54	GLU
9	L	76	ARG
9	L	138	LYS
10	X	24	LYS
14	B	25	LYS
14	B	26	ARG
14	B	41	TYR
14	B	44	GLN
14	B	47	LYS
14	B	67	ILE

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Mol	Chain	Res	Type
14	B	77	ALA
14	B	96	ASN
14	B	117	ILE
14	B	123	LEU
14	B	169	VAL
14	B	193	LEU
14	B	194	LEU
14	B	196	LYS
14	B	197	ASN
14	B	204	LEU
14	B	206	VAL
8	S	130	PRO
9	L	91	CYS
9	L	109	GLN
10	X	60	PRO
14	B	22	GLU
14	B	49	PHE
14	B	57	ASN
14	B	101	LYS
14	B	102	LYS
14	B	152	ARG
14	B	202	GLY
10	X	25	ASP
14	B	27	ASN
14	B	107	TYR
14	B	132	GLY
14	B	155	ILE
14	B	165	LEU
14	B	189	PHE
14	B	213	ALA
8	S	123	GLU
10	X	26	LYS
14	B	5	THR
14	B	45	ARG
14	B	92	LYS
14	B	108	ASN
14	B	154	THR
8	S	85	TYR
8	S	104	GLY
14	B	69	GLY
9	L	110	GLY
14	B	65	ILE

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Mol	Chain	Res	Type
8	S	53	GLY

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
8	S	105/105 (100%)	101 (96%)	4 (4%)	40	73
9	L	113/113 (100%)	102 (90%)	11 (10%)	10	40
10	X	57/57 (100%)	55 (96%)	2 (4%)	43	74
All	All	275/275 (100%)	258 (94%)	17 (6%)	27	60

All (17) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
8	S	66	ARG
8	S	83	THR
8	S	85	TYR
8	S	124	PHE
9	L	9	ILE
9	L	19	ARG
9	L	33	LEU
9	L	55	LYS
9	L	69	LYS
9	L	81	LYS
9	L	82	ILE
9	L	89	ASP
9	L	92	LEU
9	L	106	LEU
9	L	132	LEU
10	X	34	ARG
10	X	62	TRP

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
8	S	29	ASN
8	S	84	HIS
8	S	133	HIS
9	L	78	ASN
9	L	98	ASN
10	X	42	ASN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	a	47/48 (97%)	15 (31%)	0
11	2	111/112 (99%)	54 (48%)	9 (8%)
12	3	11/12 (91%)	6 (54%)	1 (9%)
13	7	49/50 (98%)	29 (59%)	5 (10%)
15	Y	74/75 (98%)	20 (27%)	1 (1%)
16	y	2/3 (66%)	0	0
17	W	76/77 (98%)	17 (22%)	0
18	w	1/2 (50%)	0	0
2	c	16/17 (94%)	4 (25%)	0
3	d	6/7 (85%)	2 (33%)	0
4	g	30/31 (96%)	8 (26%)	0
5	G	12/13 (92%)	2 (16%)	1 (8%)
6	f	20/21 (95%)	5 (25%)	0
7	h	110/111 (99%)	12 (10%)	0
All	All	565/579 (97%)	174 (30%)	17 (3%)

All (174) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	a	544	G
1	a	547	C
1	a	548	A
1	a	552	C
1	a	553	A
1	a	554	U
1	a	559	C
1	a	560	C
1	a	568	G
1	a	573	A
1	a	574	A
1	a	575	U
1	a	576	U

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Mol	Chain	Res	Type
1	a	577	C
1	a	588	A
2	c	975	G
2	c	976	A
2	c	978	C
2	c	982	U
3	d	1545	A
3	d	1546	G
4	g	1155	A
4	g	1158	U
4	g	1163	U
4	g	1165	A
4	g	1166	A
4	g	1168	A
4	g	1169	C
4	g	1172	G
5	G	1430	C
5	G	1431	A
6	f	1242	G
6	f	1245	G
6	f	1246	C
6	f	1247	A
6	f	1256	C
7	h	1608	C
7	h	1609	C
7	h	1624	G
7	h	1649	U
7	h	1651	G
7	h	1652	A
7	h	1661	G
7	h	1674	A
7	h	1710	G
7	h	1713	G
7	h	1714	U
7	h	1715	A
11	2	2195	C
11	2	2201	G
11	2	2205	U
11	2	2206	G
11	2	2207	A
11	2	2208	A
11	2	2209	U

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Mol	Chain	Res	Type
11	2	2210	G
11	2	2211	U
11	2	2215	A
11	2	2222	A
11	2	2223	A
11	2	2224	A
11	2	2227	C
11	2	2237	C
11	2	2244	A
11	2	2247	G
11	2	2248	C
11	2	2249	G
11	2	2250	G
11	2	2252	A
11	2	2254	U
11	2	2255	A
11	2	2256	A
11	2	2257	C
11	2	2259	A
11	2	2260	U
11	2	2261	G
11	2	2262	A
11	2	2263	C
11	2	2264	U
11	2	2266	U
11	2	2270	A
11	2	2272	G
11	2	2273	G
11	2	2275	A
11	2	2276	G
11	2	2277	C
11	2	2280	A
11	2	2281	A
11	2	2282	U
11	2	2283	G
11	2	2286	U
11	2	2288	G
11	2	2290	C
11	2	2291	A
11	2	2292	U
11	2	2295	A
11	2	2296	A

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Mol	Chain	Res	Type
11	2	2297	U
11	2	2298	U
11	2	2299	A
11	2	2300	G
11	2	2303	A
12	3	2479	C
12	3	2484	A
12	3	2485	A
12	3	2486	A
12	3	2487	U
12	3	2488	A
13	7	2825	C
13	7	2826	U
13	7	2828	G
13	7	2829	U
13	7	2830	G
13	7	2833	A
13	7	2834	G
13	7	2835	U
13	7	2836	C
13	7	2838	A
13	7	2839	G
13	7	2840	C
13	7	2842	U
13	7	2843	U
13	7	2844	C
13	7	2845	A
13	7	2846	U
13	7	2847	A
13	7	2849	C
13	7	2850	G
13	7	2851	A
13	7	2852	C
13	7	2859	U
13	7	2860	U
13	7	2867	C
13	7	2870	C
13	7	2871	G
13	7	2872	A
13	7	2873	U
15	Y	2	C
15	Y	9	A

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Mol	Chain	Res	Type
15	Y	16	U
15	Y	17	C
15	Y	18	G
15	Y	19	G
15	Y	21	A
15	Y	23	A
15	Y	34	G
15	Y	42	C
15	Y	43	C
15	Y	47	U
15	Y	48	C
15	Y	52	G
15	Y	53	G
15	Y	70	G
15	Y	71	G
15	Y	72	C
15	Y	73	A
15	Y	74	C
17	W	4	G
17	W	5	G
17	W	8	U
17	W	17	C
17	W	17(A)	U
17	W	18	G
17	W	19	G
17	W	20	U
17	W	21	A
17	W	36	U
17	W	47	U
17	W	48	C
17	W	63	G
17	W	71	C
17	W	74	C
17	W	75	C
17	W	76	A

All (17) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
5	G	1430	C
11	2	2211	U
11	2	2251	G

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Mol	Chain	Res	Type
11	2	2254	U
11	2	2255	A
11	2	2270	A
11	2	2280	A
11	2	2281	A
11	2	2290	C
11	2	2297	U
12	3	2487	U
13	7	2834	G
13	7	2850	G
13	7	2851	A
13	7	2859	U
13	7	2872	A
15	Y	15	G

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 carbohydrates 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.