



# Full wwPDB/EMDatabank EM Map/Model Validation Report ⓘ

Mar 2, 2017 – 11:25 am GMT

PDB ID : 3J0L  
EMDB ID: : EMD-5326  
Title : Core of mammalian 80S pre-ribosome in complex with tRNAs fitted to a 9.8Å cryo-EM map: classic PRE state 1  
Authors : Budkevich, T.; Giesebrecht, J.; Altman, R.; Munro, J.; Mielke, T.; Nierhaus, K.; Blanchard, S.; Spahn, C.M.  
Deposited on : 2011-10-04  
Resolution : 9.80 Å(reported)  
Based on PDB ID : 2XZM, 2WDK, 3O58

This is a Full wwPDB/EMDatabank EM Map/Model Validation Report  
for a publicly released PDB/EMDB entry.

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

<http://wwpdb.org/validation/2016/EMValidationReportHelp>  
with specific help available everywhere you see the ⓘ symbol.

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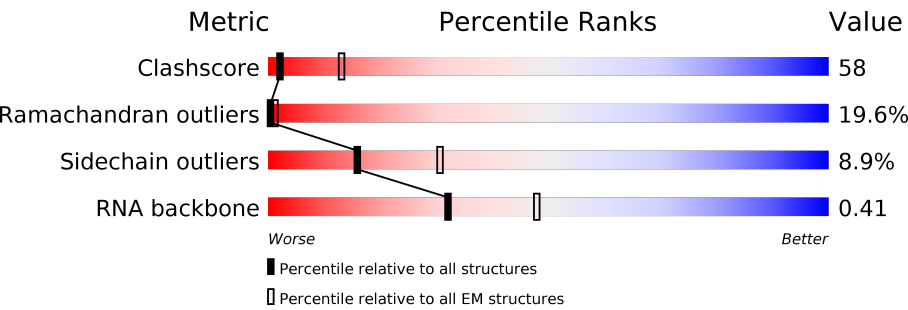
MolProbity : 4.02b-467  
Percentile statistics : 20161228.v01 (using entries in the PDB archive December 28th 2016)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et. al. (1996)  
Validation Pipeline (wwPDB-VP) : recalc29047

# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:  
*ELECTRON MICROSCOPY*

The reported resolution of this entry is 9.80 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.



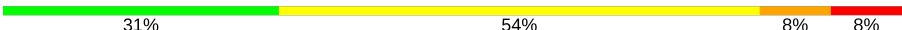


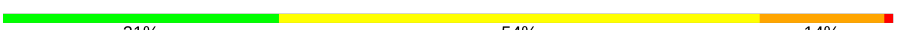
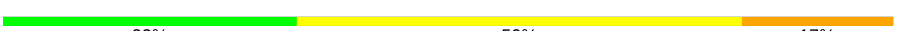
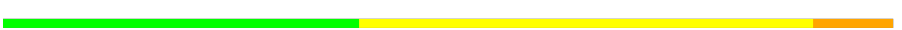






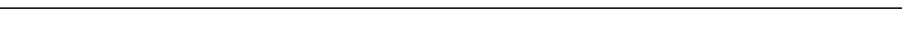


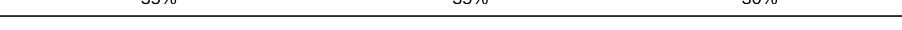

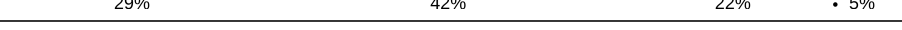


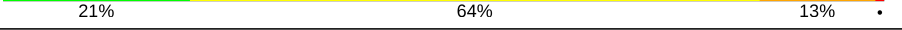
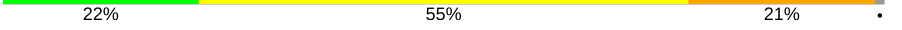
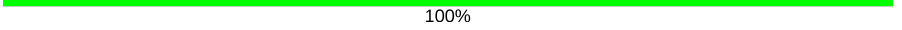
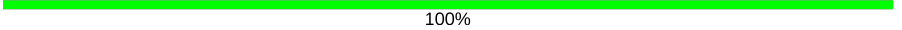
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	125131	1336
Ramachandran outliers	121729	1120
Sidechain outliers	121581	1026
RNA backbone	3398	335

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  $\geq 3$ , 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	<div><div>65%</div><div>23%</div><div>8%</div><div>.</div></div>
2	b	12	<div><div>67%</div><div>33%</div></div>
3	c	17	<div><div>71%</div><div>29%</div></div>
4	d	7	<div><div>71%</div><div>14%</div><div>14%</div></div>
5	e	4	<div><div>100%</div></div>
6	E	5	<div><div>60%</div><div>40%</div></div>
7	f	21	<div><div>76%</div><div>24%</div></div>
8	g	31	<div><div>71%</div><div>23%</div><div>6%</div></div>

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Mol	Chain	Length	Quality of chain
9	G	13	
10	h	111	
11	T	192	
12	K	140	
13	L	141	
14	X	68	
15	S	125	
16	1	50	
17	2	112	
18	3	12	
19	4	14	
20	5	6	
21	6	19	
22	7	50	
23	8	20	
24	B	213	
25	J	219	
26	F	95	
27	V	76	
27	W	76	
27	Y	76	
28	v	3	
28	y	3	
29	w	2	

## 2 Entry composition

There are 29 unique types of molecules in this entry. The entry contains 24541 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	b	12	Total	C	N	O	P	0	0
			260	116	49	83	12		

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

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

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

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
5	e	4	Total	C	N	O	P	0	0
			84	38	16	26	4		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
6	E	5	Total	C	N	O	P	0	0
			100	45	13	37	5		

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

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

- Molecule 8 is a RNA chain called 40S ribosomal RNA fragment.

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

- Molecule 9 is a RNA chain called 40S ribosomal RNA fragment.

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

- Molecule 10 is a RNA chain called 40S ribosomal RNA fragment.

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

- Molecule 11 is a protein called Ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	T	192	Total	C	N	O	S	0	0
			1520	961	281	270	8		

- Molecule 12 is a protein called Ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	K	140	Total	C	N	O	S	0	0
			1063	654	206	197	6		

- Molecule 13 is a protein called Ribosomal protein S23.

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

- Molecule 14 is a protein called Ribosomal protein S30.

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

- Molecule 15 is a protein called Ribosomal protein S15.

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

- Molecule 16 is a RNA chain called 60S ribosomal RNA fragment.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	1	50	Total	C	N	O	P	0	0
			1064	476	188	350	50		

- Molecule 17 is a RNA chain called 60S ribosomal RNA fragment.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	2	112	Total	C	N	O	P	0	0
			2392	1070	435	775	112		

- Molecule 18 is a RNA chain called 60S ribosomal RNA fragment.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	3	12	Total	C	N	O	P	0	0
			259	116	50	81	12		

- Molecule 19 is a RNA chain called 60S ribosomal RNA fragment.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	4	14	Total	C	N	O	P	0	0
			306	135	59	98	14		

- Molecule 20 is a RNA chain called 60S ribosomal RNA fragment.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	5	6	Total	C	N	O	P	0	0
			127	57	23	41	6		

- Molecule 21 is a RNA chain called 60S ribosomal RNA fragment.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	6	19	Total	C	N	O	P	0	0
			417	187	88	123	19		

- Molecule 22 is a RNA chain called 60S ribosomal RNA fragment.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	7	50	Total	C	N	O	P	0	0
			1054	471	173	360	50		

- Molecule 23 is a RNA chain called 60S ribosomal RNA fragment.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	8	20	Total	C	N	O	P	0	0
			431	192	80	139	20		

- Molecule 24 is a protein called Ribosomal protein L10a.

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

- Molecule 25 is a protein called Ribosomal protein L10.

Mol	Chain	Residues	Atoms				AltConf	Trace
25	J	208	Total	C	N	O	0	0
			1027	611	208	208		

- Molecule 26 is a protein called Ribosomal protein L36a.

Mol	Chain	Residues	Atoms				AltConf	Trace
26	F	95	Total	C	N	O	0	0
			467	277	95	95		

- Molecule 27 is a RNA chain called tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	Y	75	Total	C	N	O	P	0	0
			1597	713	285	525	74		
27	V	75	Total	C	N	O	P	0	0
			1597	713	285	525	74		
27	W	76	Total	C	N	O	P	0	0
			1619	723	290	531	75		

- Molecule 28 is a RNA chain called mRNA fragment.

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

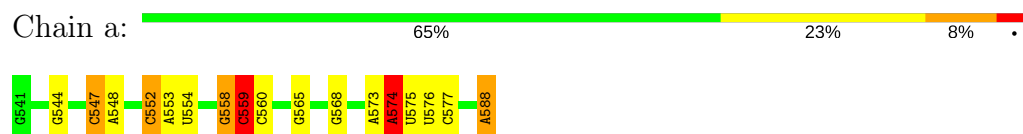
- Molecule 29 is a RNA chain called mRNA fragment.

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

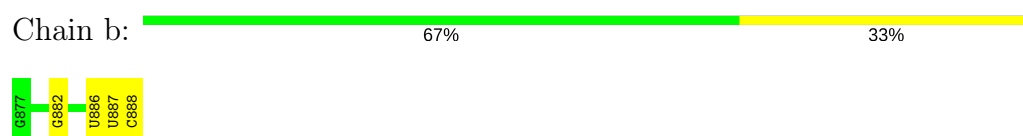
### 3 Residue-property plots [i](#)

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

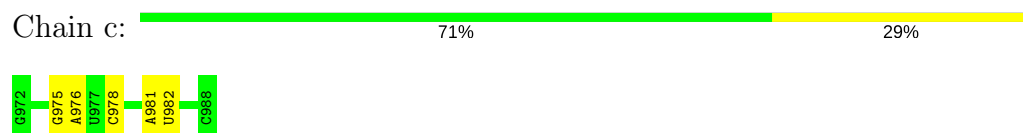
- Molecule 1: 40S ribosomal RNA fragment



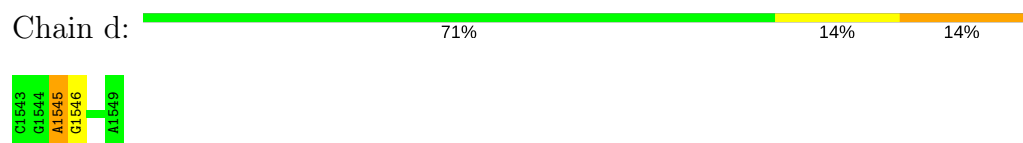
- Molecule 2: 40S ribosomal RNA fragment



- Molecule 3: 40S ribosomal RNA fragment



- Molecule 4: 40S ribosomal RNA fragment



- Molecule 5: 40S ribosomal RNA fragment

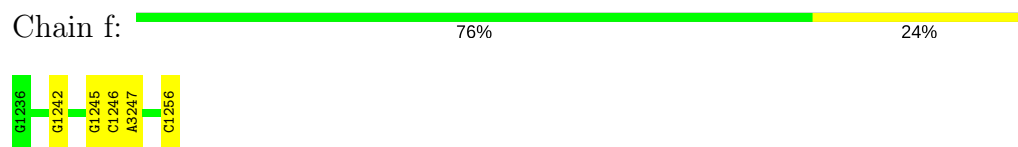


There are no outlier residues recorded for this chain.

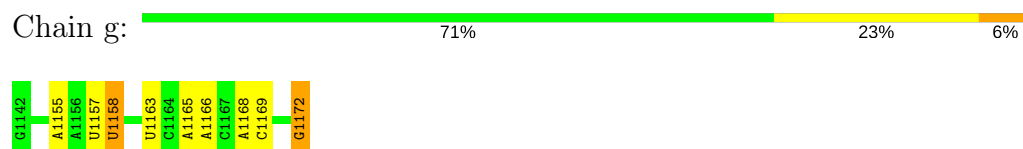
- Molecule 6: 40S ribosomal RNA fragment



- Molecule 7: 40S ribosomal RNA fragment



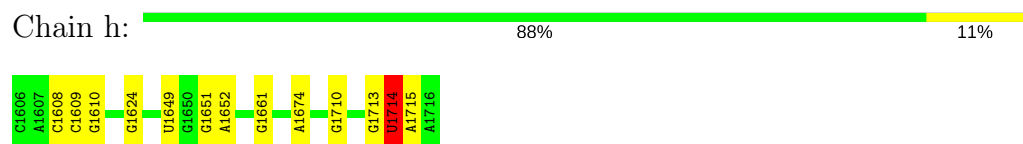
- Molecule 8: 40S ribosomal RNA fragment



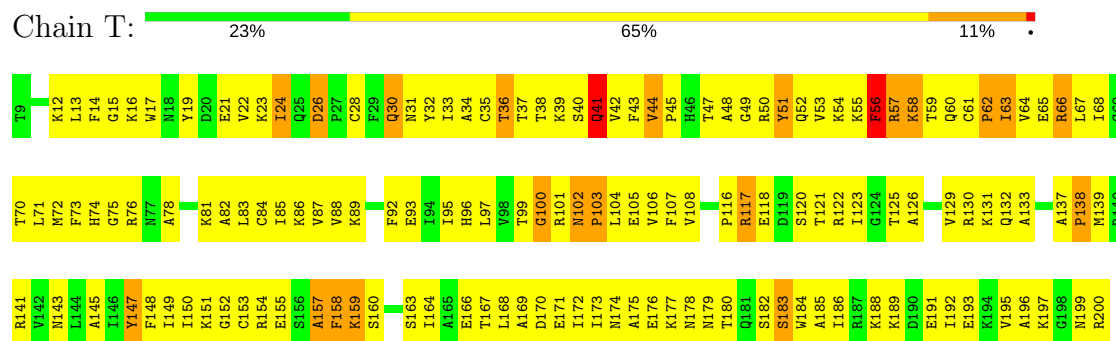
- Molecule 9: 40S ribosomal RNA fragment



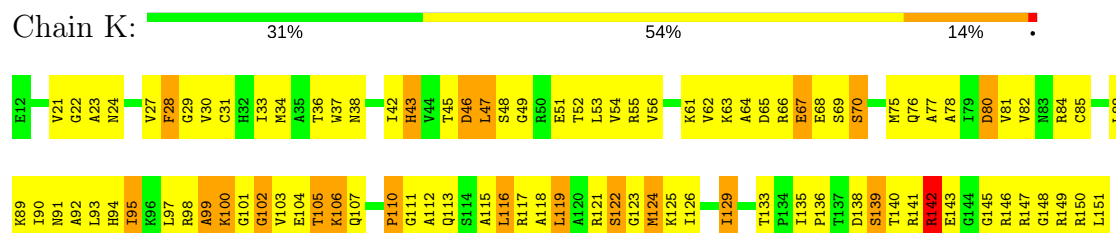
- Molecule 10: 40S ribosomal RNA fragment



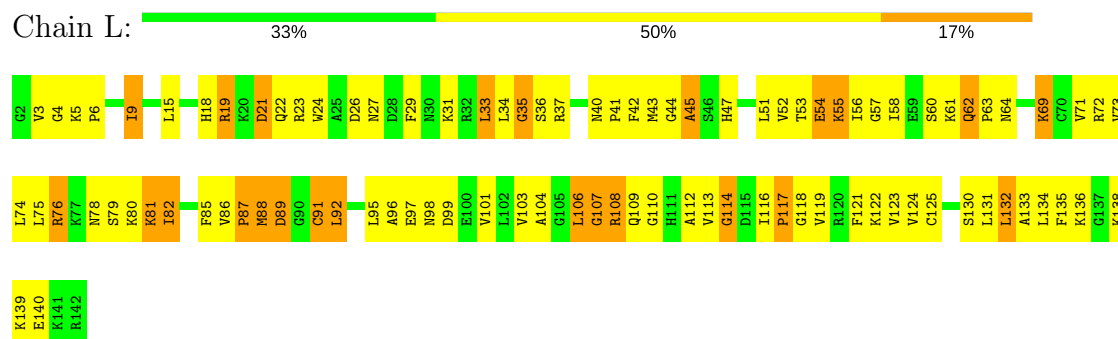
- Molecule 11: Ribosomal protein S5



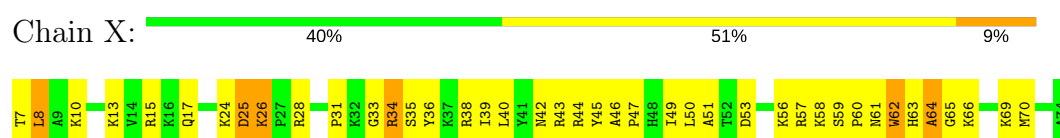
- Molecule 12: Ribosomal protein S14



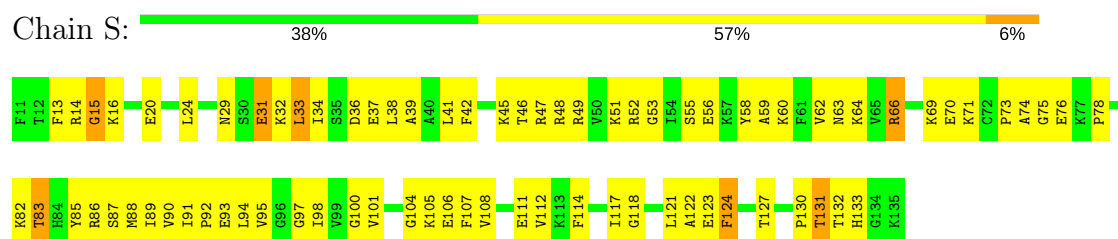
- Molecule 13: Ribosomal protein S23



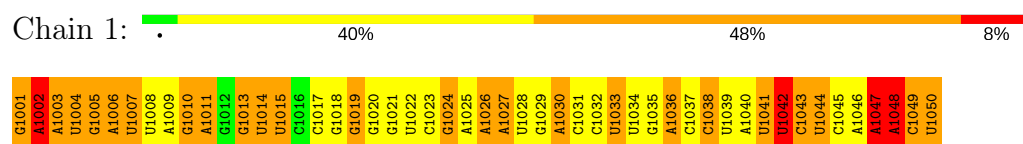
- Molecule 14: Ribosomal protein S30



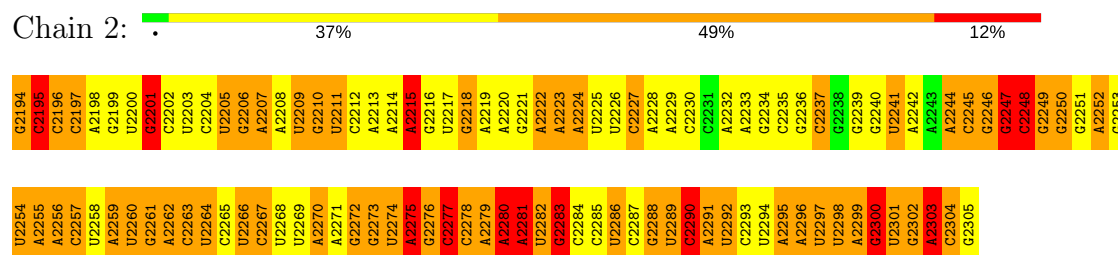
- Molecule 15: Ribosomal protein S15



- Molecule 16: 60S ribosomal RNA fragment



- Molecule 17: 60S ribosomal RNA fragment

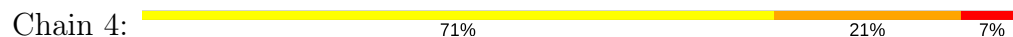


- Molecule 18: 60S ribosomal RNA fragment





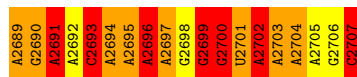
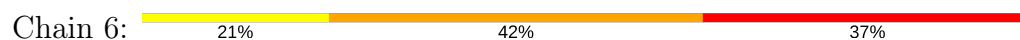
- Molecule 19: 60S ribosomal RNA fragment



- Molecule 20: 60S ribosomal RNA fragment



- Molecule 21: 60S ribosomal RNA fragment



- Molecule 22: 60S ribosomal RNA fragment



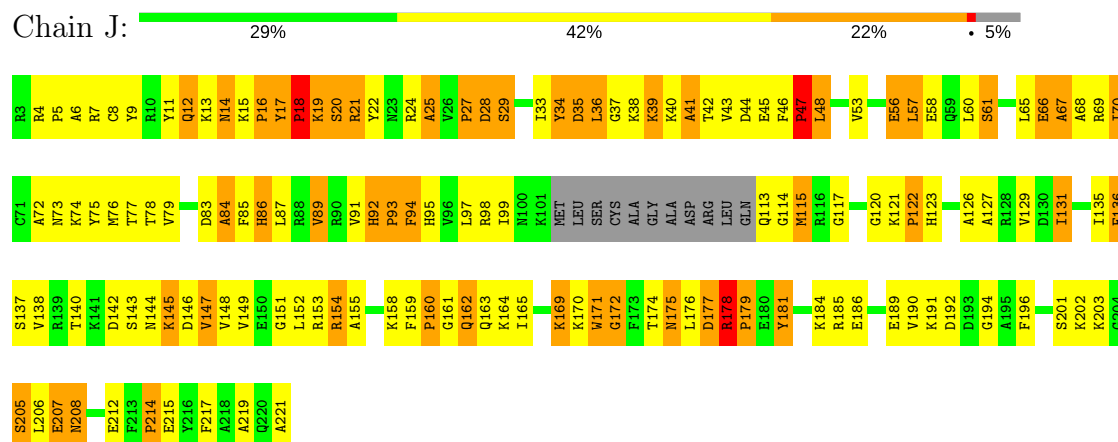
- Molecule 23: 60S ribosomal RNA fragment



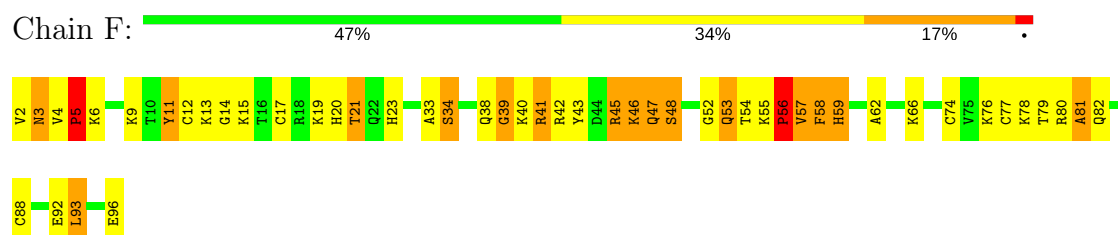
- Molecule 24: Ribosomal protein L10a



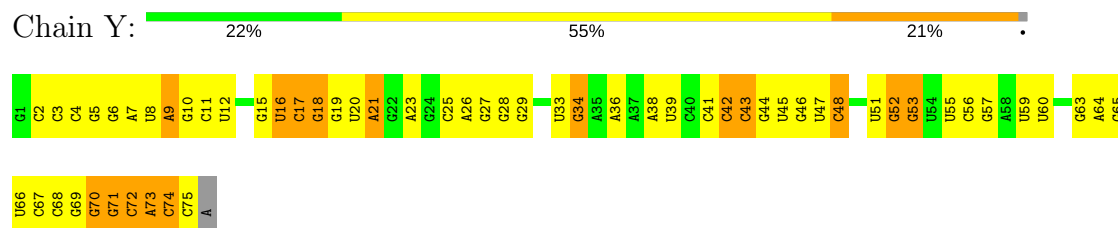
- Molecule 25: Ribosomal protein L10



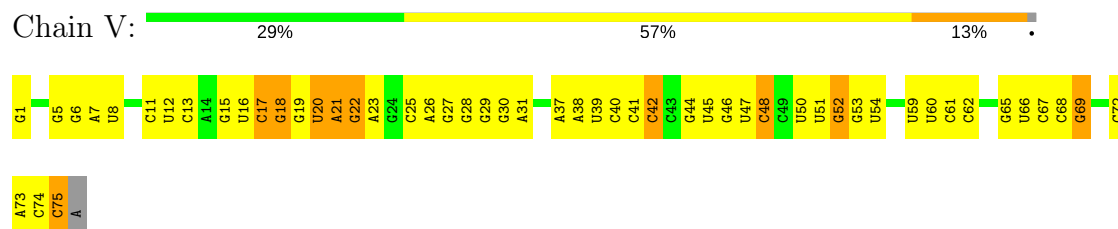
- Molecule 26: Ribosomal protein L36a



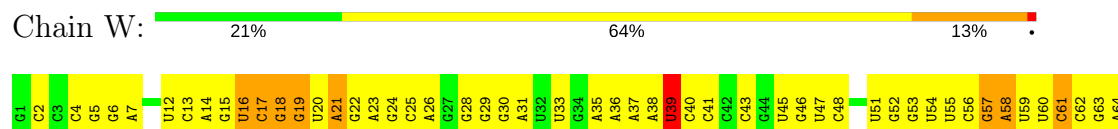
- Molecule 27: tRNA



- Molecule 27: tRNA



- Molecule 27: tRNA





- Molecule 28: mRNA fragment

Chain y:  100%

There are no outlier residues recorded for this chain.

- Molecule 28: mRNA fragment

Chain v:  100%

There are no outlier residues recorded for this chain.

- Molecule 29: 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 particles used	30448	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	65520	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	0.75	1/1151 (0.1%)	1.00	7/1793 (0.4%)
10	h	0.48	0/2650	0.75	1/4127 (0.0%)
11	T	0.45	0/1546	0.71	0/2079
12	K	0.42	0/1078	0.73	0/1452
13	L	0.41	0/1114	0.73	0/1485
14	X	0.36	0/566	0.70	0/753
15	S	0.37	0/1003	0.65	1/1342 (0.1%)
16	1	0.72	1/1189 (0.1%)	1.28	21/1850 (1.1%)
17	2	1.10	3/2677 (0.1%)	1.68	69/4170 (1.7%)
18	3	0.19	0/290	0.43	0/450
19	4	0.67	0/342	1.30	5/533 (0.9%)
2	b	0.55	0/291	0.79	0/452
20	5	0.69	0/141	1.32	1/217 (0.5%)
21	6	1.25	0/470	2.07	30/732 (4.1%)
22	7	1.06	2/1174 (0.2%)	2.34	33/1825 (1.8%)
23	8	1.45	4/482 (0.8%)	1.89	22/750 (2.9%)
24	B	0.34	0/1054	0.63	9/1468 (0.6%)
25	J	0.66	0/1025	0.89	8/1424 (0.6%)
26	F	0.47	0/466	0.68	2/646 (0.3%)
27	V	0.44	0/1784	0.75	0/2780
27	W	0.43	0/1809	0.71	0/2819
27	Y	0.47	0/1784	0.74	0/2780
28	v	0.51	0/65	0.65	0/98
28	y	0.39	0/65	0.68	0/98
29	w	0.40	0/49	0.79	0/74
3	c	0.66	0/404	0.92	1/627 (0.2%)
4	d	0.51	0/174	0.86	0/270
5	e	0.46	0/93	0.62	0/142
6	E	0.54	0/109	0.86	0/166
7	f	0.65	0/504	0.89	0/785
8	g	0.66	0/737	0.88	2/1146 (0.2%)
9	G	0.54	0/307	0.82	0/476
All	All	0.67	11/26593 (0.0%)	1.11	212/39809 (0.5%)

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	4
10	h	0	2
27	W	0	2
4	d	0	1
6	E	0	1
8	g	0	2
9	G	0	1
All	All	0	13

All (11) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
22	7	2845	A	C6-N1	-11.05	1.27	1.35
23	8	2969	A	N9-C4	-7.32	1.33	1.37
17	2	2283	G	N9-C8	6.16	1.42	1.37
23	8	2961	G	N9-C4	6.14	1.42	1.38
23	8	2958	A	N9-C4	-5.64	1.34	1.37
1	a	565	G	C2-N3	5.42	1.37	1.32
23	8	2968	G	C6-N1	-5.32	1.35	1.39
17	2	2302	G	C6-N1	-5.20	1.35	1.39
17	2	2279	A	N7-C5	-5.16	1.36	1.39
22	7	2830	G	N3-C4	-5.05	1.31	1.35
16	1	1048	A	N9-C4	-5.01	1.34	1.37

All (212) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
22	7	2845	A	N1-C6-N6	39.32	142.19	118.60
22	7	2845	A	C6-N1-C2	38.63	141.78	118.60
22	7	2845	A	C5-C6-N1	-34.02	100.69	117.70
22	7	2845	A	N1-C2-N3	-22.80	117.90	129.30
21	6	2689	A	C8-N9-C4	-13.78	100.29	105.80
22	7	2845	A	C5-C6-N6	-12.64	113.58	123.70
23	8	2958	A	C8-N9-C4	12.04	110.61	105.80
17	2	2195	C	N3-C4-C5	10.23	125.99	121.90
17	2	2289	U	C2-N3-C4	-9.98	121.01	127.00
17	2	2245	C	C6-N1-C2	-9.97	116.31	120.30
21	6	2689	A	N7-C8-N9	9.97	118.78	113.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
17	2	2283	G	C8-N9-C4	-9.74	102.50	106.40
16	1	1047	A	N1-C6-N6	-9.65	112.81	118.60
17	2	2278	C	N1-C2-O2	9.40	124.54	118.90
23	8	2961	G	N3-C4-C5	-9.24	123.98	128.60
17	2	2277	C	C5-C6-N1	-9.02	116.49	121.00
10	h	1714	U	N1-C1'-C2'	8.95	125.63	114.00
22	7	2835	U	C2-N1-C1'	8.86	128.34	117.70
17	2	2247	G	C5-C6-O6	-8.77	123.34	128.60
23	8	2961	G	N3-C4-N9	8.76	131.26	126.00
21	6	2701	U	C5-C4-O4	-8.76	120.65	125.90
17	2	2302	G	N1-C6-O6	-8.63	114.72	119.90
22	7	2828	G	C5-C6-O6	-8.45	123.53	128.60
22	7	2828	G	N1-C6-O6	8.43	124.96	119.90
22	7	2867	C	N1-C2-O2	-8.41	113.85	118.90
17	2	2247	G	C4-C5-N7	8.40	114.16	110.80
21	6	2689	A	N9-C4-C5	8.33	109.13	105.80
17	2	2283	G	N3-C2-N2	-8.32	114.08	119.90
23	8	2958	A	N7-C8-N9	-8.30	109.65	113.80
17	2	2303	A	C8-N9-C4	8.25	109.10	105.80
22	7	2837	A	N1-C6-N6	-8.13	113.72	118.60
16	1	1003	A	C8-N9-C4	-8.03	102.59	105.80
17	2	2290	C	N1-C2-O2	-7.83	114.20	118.90
17	2	2283	G	N1-C6-O6	7.75	124.55	119.90
22	7	2851	A	N1-C6-N6	-7.71	113.97	118.60
22	7	2835	U	C5-C4-O4	-7.65	121.31	125.90
17	2	2247	G	C6-C5-N7	-7.60	125.84	130.40
17	2	2277	C	C2-N3-C4	-7.54	116.13	119.90
17	2	2201	G	N1-C6-O6	7.53	124.42	119.90
22	7	2835	U	N3-C4-O4	7.50	124.65	119.40
23	8	2957	G	N3-C4-N9	-7.50	121.50	126.00
19	4	2618	G	C5-C6-O6	7.44	133.06	128.60
17	2	2283	G	N3-C4-N9	-7.44	121.53	126.00
17	2	2241	U	C5-C4-O4	7.41	130.35	125.90
1	a	588	A	N9-C1'-C2'	7.34	123.54	114.00
23	8	2960	C	C6-N1-C2	7.30	123.22	120.30
17	2	2302	G	C6-C5-N7	7.25	134.75	130.40
21	6	2689	A	N1-C2-N3	7.21	132.90	129.30
21	6	2700	G	C5-C6-O6	-7.07	124.36	128.60
17	2	2247	G	N1-C6-O6	7.06	124.14	119.90
17	2	2267	C	N1-C2-O2	-7.05	114.67	118.90
23	8	2957	G	N3-C4-C5	7.05	132.13	128.60
23	8	2969	A	C2-N3-C4	-6.95	107.12	110.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
17	2	2248	C	N1-C2-O2	-6.94	114.73	118.90
1	a	559	C	N1-C1'-C2'	6.94	123.02	114.00
26	F	5	PRO	N-CA-CB	6.90	111.58	103.30
3	c	981	A	N9-C1'-C2'	6.87	122.93	114.00
17	2	2277	C	N1-C2-O2	-6.86	114.78	118.90
16	1	1003	A	N7-C8-N9	6.82	117.21	113.80
22	7	2824	G	C6-N1-C2	6.77	129.16	125.10
17	2	2283	G	N7-C8-N9	6.75	116.47	113.10
22	7	2830	G	C5-C6-N1	-6.71	108.15	111.50
17	2	2304	C	C6-N1-C2	-6.62	117.65	120.30
17	2	2278	C	N1-C2-N3	-6.58	114.59	119.20
21	6	2689	A	C4-N9-C1'	6.58	138.14	126.30
22	7	2845	A	C2-N3-C4	-6.52	107.34	110.60
1	a	565	G	N3-C2-N2	6.50	124.45	119.90
17	2	2277	C	C6-N1-C2	6.49	122.89	120.30
21	6	2700	G	C8-N9-C1'	-6.47	118.58	127.00
17	2	2289	U	N3-C4-C5	6.46	118.47	114.60
22	7	2847	A	C8-N9-C4	-6.40	103.24	105.80
16	1	1048	A	C4-C5-N7	6.39	113.90	110.70
21	6	2700	G	N3-C4-N9	6.39	129.83	126.00
16	1	1048	A	C5-N7-C8	-6.39	100.71	103.90
24	B	56	PRO	N-CA-CB	6.39	110.97	103.30
8	g	1172	G	C2'-C3'-O3'	6.38	123.91	113.70
21	6	2689	A	N1-C6-N6	-6.35	114.79	118.60
16	1	1048	A	C4-C5-C6	-6.35	113.83	117.00
22	7	2865	U	N1-C2-O2	-6.32	118.38	122.80
22	7	2857	C	N3-C4-C5	6.30	124.42	121.90
17	2	2248	C	C6-N1-C2	6.23	122.79	120.30
17	2	2218	G	C5-C6-N1	6.23	114.61	111.50
25	J	179	PRO	N-CA-CB	6.22	110.76	103.30
16	1	1005	G	C4-C5-N7	-6.20	108.32	110.80
16	1	1050	U	C5-C6-N1	-6.20	119.60	122.70
21	6	2689	A	C4-C5-C6	6.18	120.09	117.00
25	J	47	PRO	N-CA-CB	6.17	110.71	103.30
23	8	2968	G	N1-C6-O6	-6.17	116.20	119.90
17	2	2278	C	C2-N1-C1'	6.17	125.58	118.80
17	2	2280	A	C8-N9-C4	-6.15	103.34	105.80
17	2	2278	C	C6-N1-C1'	-6.15	113.42	120.80
16	1	1047	A	N9-C4-C5	6.14	108.25	105.80
21	6	2700	G	C4-N9-C1'	6.13	134.46	126.50
22	7	2837	A	C8-N9-C4	6.12	108.25	105.80
17	2	2289	U	C5-C6-N1	-6.11	119.64	122.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	a	574	A	N9-C1'-C2'	6.06	121.87	114.00
24	B	61	PRO	N-CA-CB	6.05	110.56	103.30
16	1	1044	U	C5-C6-N1	-6.05	119.67	122.70
23	8	2972	G	C8-N9-C1'	-6.05	119.14	127.00
24	B	135	PRO	N-CA-CB	6.04	110.55	103.30
22	7	2837	A	N7-C8-N9	-6.02	110.79	113.80
17	2	2278	C	C2-N3-C4	6.02	122.91	119.90
8	g	1172	G	N9-C1'-C2'	6.02	121.83	114.00
22	7	2869	U	N3-C2-O2	-6.02	117.99	122.20
22	7	2835	U	C6-N1-C1'	-6.01	112.78	121.20
16	1	1050	U	N1-C2-O2	-6.00	118.60	122.80
21	6	2700	G	C6-C5-N7	-5.99	126.81	130.40
24	B	121	PRO	N-CA-CB	5.99	110.49	103.30
16	1	1005	G	N3-C4-N9	-5.98	122.41	126.00
21	6	2693	C	C6-N1-C1'	-5.98	113.62	120.80
17	2	2194	G	C8-N9-C4	5.95	108.78	106.40
24	B	126	PRO	N-CA-CB	5.94	110.42	103.30
17	2	2196	C	C6-N1-C2	-5.92	117.93	120.30
17	2	2283	G	C5-N7-C8	-5.92	101.34	104.30
22	7	2868	U	N3-C2-O2	5.91	126.34	122.20
26	F	56	PRO	N-CA-CB	5.91	110.39	103.30
24	B	43	PRO	N-CA-CB	5.89	110.36	103.30
17	2	2302	G	C5-C6-N1	5.86	114.43	111.50
24	B	137	PRO	N-CA-CB	5.86	110.33	103.30
21	6	2701	U	N3-C4-O4	5.85	123.49	119.40
24	B	59	PRO	N-CA-CB	5.84	110.30	103.30
21	6	2693	C	C2-N1-C1'	5.83	125.21	118.80
17	2	2303	A	N9-C4-C5	-5.82	103.47	105.80
16	1	1005	G	N9-C4-C5	5.81	107.72	105.40
21	6	2707	C	N3-C2-O2	5.81	125.97	121.90
24	B	212	PRO	N-CA-CB	5.81	110.27	103.30
16	1	1048	A	C5-C6-N1	5.81	120.61	117.70
17	2	2201	G	C5-C6-O6	-5.79	125.12	128.60
17	2	2302	G	N3-C4-N9	-5.79	122.53	126.00
21	6	2702	A	C8-N9-C4	-5.79	103.48	105.80
23	8	2970	C	C2-N1-C1'	5.79	125.16	118.80
22	7	2867	C	N3-C2-O2	5.78	125.95	121.90
17	2	2241	U	C6-N1-C1'	5.78	129.29	121.20
25	J	18	PRO	N-CA-CB	5.76	110.21	103.30
21	6	2700	G	C4-C5-N7	5.74	113.10	110.80
21	6	2689	A	N3-C4-C5	-5.72	122.79	126.80
25	J	122	PRO	N-CA-CB	5.71	110.16	103.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
21	6	2696	A	C8-N9-C4	-5.71	103.52	105.80
25	J	214	PRO	N-CA-CB	5.70	110.14	103.30
17	2	2283	G	N1-C2-N2	5.70	121.33	116.20
17	2	2290	C	N3-C4-C5	5.69	124.17	121.90
17	2	2283	G	C2-N3-C4	-5.68	109.06	111.90
17	2	2248	C	N3-C2-O2	5.66	125.86	121.90
22	7	2837	A	C4-C5-N7	-5.66	107.87	110.70
19	4	2618	G	C5-C6-N1	-5.65	108.67	111.50
17	2	2290	C	C2-N3-C4	-5.65	117.08	119.90
21	6	2707	C	C6-N1-C2	5.63	122.55	120.30
25	J	16	PRO	N-CA-CB	5.63	110.06	103.30
16	1	1002	A	C5-C6-N1	5.63	120.51	117.70
19	4	2618	G	N9-C4-C5	5.61	107.64	105.40
17	2	2300	G	C8-N9-C1'	-5.59	119.73	127.00
19	4	2618	G	C4-C5-N7	-5.58	108.57	110.80
17	2	2197	C	N3-C2-O2	5.58	125.81	121.90
17	2	2246	G	C5-C6-N1	5.58	114.29	111.50
23	8	2959	C	N1-C2-O2	-5.57	115.56	118.90
1	a	565	G	N1-C2-N2	-5.56	111.19	116.20
1	a	558	G	N9-C1'-C2'	5.55	121.22	114.00
16	1	1042	U	C6-N1-C2	5.54	124.33	121.00
17	2	2301	U	N3-C2-O2	5.53	126.07	122.20
17	2	2301	U	C6-N1-C2	5.52	124.31	121.00
22	7	2853	A	N1-C6-N6	5.52	121.91	118.60
17	2	2241	U	N1-C2-N3	5.50	118.20	114.90
17	2	2196	C	N3-C4-C5	5.50	124.10	121.90
17	2	2274	U	N3-C2-O2	-5.49	118.36	122.20
21	6	2707	C	N1-C2-O2	-5.49	115.61	118.90
1	a	552	C	N1-C1'-C2'	5.46	121.10	114.00
23	8	2969	A	N3-C4-C5	5.46	130.62	126.80
17	2	2289	U	C5-C4-O4	-5.44	122.64	125.90
22	7	2830	G	C2-N3-C4	-5.44	109.18	111.90
17	2	2301	U	N1-C2-O2	-5.43	119.00	122.80
17	2	2283	G	N3-C4-C5	5.41	131.31	128.60
16	1	1048	A	C5-C6-N6	-5.40	119.38	123.70
23	8	2972	G	C4-N9-C1'	5.39	133.51	126.50
22	7	2869	U	C2-N1-C1'	5.38	124.16	117.70
17	2	2195	C	C5-C4-N4	-5.38	116.44	120.20
17	2	2247	G	C5-N7-C8	-5.36	101.62	104.30
16	1	1047	A	C5-C6-N6	5.35	127.98	123.70
17	2	2303	A	C5-C6-N1	5.34	120.37	117.70
21	6	2700	G	N9-C4-C5	-5.33	103.27	105.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
21	6	2689	A	C5-C6-N6	5.33	127.96	123.70
21	6	2700	G	N1-C6-O6	5.33	123.10	119.90
21	6	2702	A	N7-C8-N9	5.32	116.46	113.80
17	2	2275	A	C5-C6-N1	-5.31	115.04	117.70
17	2	2194	G	N7-C8-N9	-5.31	110.44	113.10
21	6	2699	G	N3-C4-C5	5.31	131.25	128.60
17	2	2246	G	N3-C4-N9	5.28	129.17	126.00
16	1	1004	U	N3-C4-O4	5.28	123.10	119.40
15	S	131	THR	N-CA-C	5.28	125.25	111.00
22	7	2859	U	N3-C2-O2	5.27	125.89	122.20
23	8	2972	G	N1-C2-N3	5.24	127.05	123.90
23	8	2963	C	C2-N3-C4	-5.22	117.29	119.90
16	1	1001	G	N7-C8-N9	5.22	115.71	113.10
23	8	2973	G	N7-C8-N9	-5.21	110.50	113.10
23	8	2960	C	C5-C6-N1	-5.20	118.40	121.00
23	8	2968	G	C5-C6-N1	5.19	114.09	111.50
23	8	2962	U	C6-N1-C1'	5.13	128.39	121.20
21	6	2691	A	C2-N3-C4	5.13	113.17	110.60
17	2	2215	A	C2-N3-C4	-5.11	108.04	110.60
25	J	27	PRO	N-CA-CB	5.10	109.42	103.30
16	1	1002	A	N1-C6-N6	-5.10	115.54	118.60
21	6	2707	C	C3'-C2'-C1'	5.10	105.58	101.50
23	8	2961	G	C4-N9-C1'	5.08	133.11	126.50
17	2	2281	A	C4-C5-C6	5.06	119.53	117.00
23	8	2973	G	C8-N9-C4	5.06	108.42	106.40
25	J	178	ARG	N-CA-C	5.05	124.64	111.00
22	7	2828	G	C8-N9-C1'	-5.04	120.44	127.00
17	2	2201	G	C4-C5-N7	5.04	112.81	110.80
22	7	2869	U	C6-N1-C2	-5.03	117.98	121.00
19	4	2618	G	N3-C4-N9	-5.02	122.99	126.00
17	2	2267	C	N3-C2-O2	5.01	125.41	121.90
22	7	2851	A	C5-C6-N6	5.01	127.71	123.70
20	5	2653	C	C5-C4-N4	-5.01	116.69	120.20

There are no chirality outliers.

All (13) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
6	E	1590	C	Sidechain
9	G	1430	C	Sidechain
27	W	39	U	Sidechain
27	W	5	G	Sidechain

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Mol	Chain	Res	Type	Group
1	a	547	C	Sidechain
1	a	558	G	Sidechain
1	a	559	C	Sidechain
1	a	574	A	Sidechain
4	d	1545	A	Sidechain
8	g	1157	U	Sidechain
8	g	1158	U	Sidechain
10	h	1610	G	Sidechain
10	h	1714	U	Sidechain

## 5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	a	1029	0	521	0	0
2	b	260	0	130	0	0
3	c	362	0	185	0	0
4	d	155	0	78	0	0
5	e	84	0	45	0	0
6	E	100	0	54	5	0
7	f	452	0	224	0	0
8	g	660	0	335	0	0
9	G	276	0	141	16	0
10	h	2368	0	1196	0	0
11	T	1520	0	1570	200	0
12	K	1063	0	1088	111	0
13	L	1097	0	1169	106	0
14	X	554	0	604	45	0
15	S	985	0	1026	94	0
16	1	1064	0	536	165	0
17	2	2392	0	1208	408	0
18	3	259	0	131	13	0
19	4	306	0	150	41	0
20	5	127	0	66	17	0
21	6	417	0	209	73	0
22	7	1054	0	532	148	0
23	8	431	0	217	43	0
24	B	1055	0	453	31	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
25	J	1027	0	467	164	0
26	F	467	0	208	32	0
27	V	1597	0	807	68	0
27	W	1619	0	821	116	0
27	Y	1597	0	811	66	0
28	v	60	0	31	0	0
28	y	60	0	31	0	0
29	w	44	0	23	0	0
All	All	24541	0	15067	1854	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 58.

All (1854) 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)
16:1:1010:G:H2'	25:J:40:LYS:CB	1.41	1.47
16:1:1048:A:C8	25:J:21:ARG:CB	2.01	1.41
25:J:177:ASP:HA	25:J:179:PRO:N	1.35	1.37
16:1:1010:G:N3	25:J:40:LYS:N	1.74	1.35
16:1:1048:A:N7	25:J:21:ARG:CB	1.91	1.33
19:4:2618:G:H8	25:J:114:GLY:CA	1.30	1.32
16:1:1010:G:H2'	25:J:40:LYS:CA	1.47	1.30
19:4:2618:G:C8	25:J:114:GLY:CA	2.17	1.28
27:V:40:C:H5''	27:W:35:A:O3'	1.37	1.21
19:4:2618:G:C8	25:J:114:GLY:HA2	1.72	1.20
11:T:126:ALA:HA	27:W:14:A:OP2	45.24	1.20
16:1:1010:G:C2'	25:J:40:LYS:CB	2.19	1.20
13:L:9:ILE:H	13:L:9:ILE:HD12	1.02	1.19
11:T:57:ARG:HH11	11:T:57:ARG:HA	1.02	1.13
17:2:2235:C:O2	27:W:72:C:OP1	1.63	1.13
17:2:2250:G:N2	17:2:2267:C:O2	1.82	1.12
16:1:1011:A:C1'	25:J:40:LYS:O	1.99	1.11
17:2:2213:A:H2'	17:2:2214:A:H8	1.16	1.09
17:2:2270:A:C8	17:2:2270:A:H5''	1.87	1.09
21:6:2690:G:N3	21:6:2690:G:H2'	1.62	1.09
16:1:1011:A:O4'	25:J:40:LYS:O	1.71	1.09
17:2:2262:A:H3'	17:2:2263:C:H5''	1.31	1.08
27:V:20:U:H3'	27:V:21:A:H5'	1.34	1.08
17:2:2271:A:C2'	17:2:2272:G:H5''	1.84	1.07
19:4:2618:G:H8	25:J:114:GLY:HA2	0.96	1.07

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:2:2271:A:H2'	17:2:2272:G:H5''	1.30	1.06
17:2:2213:A:H2'	17:2:2214:A:C8	1.89	1.06
18:3:2484:A:H1'	27:W:19:G:N2	1.71	1.06
16:1:1011:A:O5'	25:J:40:LYS:CB	2.02	1.06
16:1:1047:A:C5	25:J:21:ARG:O	2.09	1.05
16:1:1011:A:C1'	25:J:40:LYS:C	2.22	1.05
16:1:1043:C:O2'	25:J:34:TYR:CB	2.05	1.04
16:1:1010:G:N3	25:J:40:LYS:CA	2.22	1.03
13:L:19:ARG:HH11	13:L:19:ARG:HA	1.20	1.03
25:J:161:GLY:HA2	25:J:162:GLN:CB	1.89	1.03
11:T:126:ALA:CA	27:W:14:A:OP2	44.53	1.02
12:K:21:VAL:HG12	12:K:22:GLY:H	1.24	1.02
11:T:126:ALA:HB1	27:W:14:A:H5'	44.55	1.02
13:L:19:ARG:NH1	13:L:19:ARG:HA	1.73	1.02
21:6:2698:G:H2'	21:6:2699:G:H5''	1.40	1.00
16:1:1011:A:H61	16:1:1039:U:H3	1.04	1.00
13:L:116:ILE:HG21	13:L:119:VAL:HB	1.41	1.00
20:5:2656:A:H4'	20:5:2657:A:OP1	1.55	1.00
27:V:20:U:C3'	27:V:21:A:H5'	1.91	0.99
11:T:54:LYS:HG2	11:T:55:LYS:H	1.28	0.99
17:2:2304:C:O2'	17:2:2305:G:H5'	1.64	0.98
17:2:2223:A:O2'	17:2:2224:A:H8	1.45	0.98
27:W:38:A:H3'	27:W:39:U:H5''	1.43	0.98
21:6:2703:A:H5''	21:6:2704:A:H5'	1.46	0.97
17:2:2285:C:H5	17:2:2286:U:C2	1.83	0.97
11:T:37:THR:HG22	11:T:39:LYS:H	1.30	0.96
16:1:1046:A:H4'	25:J:20:SER:CB	1.94	0.96
27:V:68:C:H2'	27:V:69:G:H5''	1.46	0.96
16:1:1011:A:H1'	25:J:40:LYS:C	1.85	0.96
21:6:2699:G:C8	21:6:2699:G:H5'	2.02	0.95
12:K:65:ASP:O	12:K:68:GLU:HG2	1.64	0.95
17:2:2276:G:C5	17:2:2277:C:C5	2.55	0.94
17:2:2270:A:H8	17:2:2270:A:H5''	1.25	0.94
19:4:2616:C:H2'	19:4:2617:U:H5'	1.46	0.94
25:J:93:PRO:HA	25:J:127:ALA:HB2	1.50	0.94
16:1:1048:A:H8	25:J:21:ARG:CB	1.76	0.94
17:2:2252:A:H2'	17:2:2253:G:H8	1.33	0.94
27:W:69:G:H2'	27:W:70:G:H5''	1.49	0.94
27:V:17:C:H3'	27:V:18:G:H5''	1.50	0.93
27:Y:28:G:H1	27:Y:42:C:H42	1.03	0.93
17:2:2251:G:H1'	17:2:2252:A:OP1	1.68	0.93

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:6:2689:A:N3	21:6:2702:A:C2	2.36	0.93
11:T:117:ARG:HD2	11:T:193:GLU:OE2	1.68	0.93
27:Y:41:C:H3'	27:Y:42:C:H5''	1.46	0.93
22:7:2862:U:O2'	22:7:2863:G:H5'	1.69	0.93
25:J:89:VAL:O	25:J:136:PHE:HA	1.67	0.93
22:7:2850:G:OP1	22:7:2850:G:H4'	1.69	0.93
19:4:2618:G:C4	25:J:113:GLN:CB	2.52	0.93
21:6:2698:G:C2'	21:6:2699:G:H5''	1.98	0.92
17:2:2268:U:H2'	17:2:2269:U:H5	1.33	0.92
13:L:9:ILE:N	13:L:9:ILE:HD12	1.84	0.92
16:1:1011:A:O2'	25:J:41:ALA:O	1.87	0.92
16:1:1011:A:C4'	25:J:40:LYS:O	2.18	0.91
24:B:67:ILE:HA	24:B:112:ALA:HB2	1.52	0.91
12:K:54:VAL:HG11	12:K:81:VAL:HG13	1.50	0.91
27:W:16:U:H3'	27:W:17:C:H5'	1.52	0.90
17:2:2251:G:O2'	17:2:2252:A:H5''	1.72	0.90
22:7:2826:U:O2'	22:7:2827:U:H5'	1.72	0.90
14:X:7:THR:HG21	14:X:10:LYS:HB2	1.53	0.90
17:2:2299:A:C5	17:2:2300:G:C8	2.60	0.90
16:1:1011:A:O2'	25:J:40:LYS:O	1.88	0.90
16:1:1019:G:H1	16:1:1033:U:H3	0.90	0.90
27:V:40:C:C5'	27:W:35:A:O3'	2.19	0.90
21:6:2699:G:H8	21:6:2699:G:H5'	1.35	0.89
11:T:123:ILE:HD12	11:T:132:GLN:OE1	1.72	0.89
17:2:2270:A:H2'	17:2:2271:A:C8	2.07	0.89
22:7:2869:U:H5''	22:7:2870:C:OP2	1.71	0.89
12:K:95:ILE:HD12	12:K:129:ILE:HG23	1.54	0.89
11:T:57:ARG:HA	11:T:57:ARG:NH1	1.86	0.89
16:1:1010:G:C1'	25:J:40:LYS:N	2.05	0.89
17:2:2254:U:O2	17:2:2261:G:N2	2.05	0.89
21:6:2703:A:H5''	21:6:2704:A:C5'	2.03	0.89
17:2:2253:G:O6	17:2:2263:C:N4	2.04	0.89
11:T:34:ALA:HB3	11:T:63:ILE:HG13	1.55	0.89
22:7:2847:A:H5'	22:7:2848:G:OP2	1.72	0.88
23:8:2966:G:O2'	23:8:2967:A:H5'	1.73	0.88
25:J:177:ASP:CA	25:J:179:PRO:N	2.32	0.88
16:1:1023:C:H3'	16:1:1024:G:H4'	1.56	0.88
22:7:2833:A:H2'	22:7:2834:G:H5'	1.55	0.87
17:2:2215:A:H2'	17:2:2215:A:N3	1.87	0.87
16:1:1010:G:C4	25:J:40:LYS:N	2.22	0.87
17:2:2252:A:H2'	17:2:2253:G:C8	2.08	0.87

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:4:2618:G:N3	25:J:113:GLN:CB	2.38	0.87
24:B:178:VAL:O	24:B:182:GLN:CB	2.23	0.87
16:1:1048:A:N7	25:J:21:ARG:CA	2.37	0.87
20:5:2655:U:H4'	20:5:2656:A:C5'	2.04	0.87
16:1:1009:A:O2'	25:J:39:LYS:CB	2.23	0.87
27:Y:25:C:H2'	27:Y:26:A:H8	1.40	0.87
16:1:1047:A:N7	25:J:21:ARG:O	1.75	0.86
13:L:58:ILE:HG21	13:L:117:PRO:HG3	1.57	0.86
27:W:57:G:H2'	27:W:58:A:H5'	1.54	0.86
21:6:2702:A:C8	21:6:2704:A:N6	2.43	0.86
22:7:2834:G:O2'	22:7:2835:U:H6	1.56	0.86
19:4:2619:G:OP2	25:J:113:GLN:N	2.08	0.86
17:2:2262:A:H3'	17:2:2263:C:C5'	2.03	0.86
11:T:92:PHE:HD1	11:T:103:PRO:HB2	1.38	0.86
17:2:2293:C:H5	17:2:2294:U:H5	1.20	0.86
24:B:154:THR:HA	24:B:155:ILE:O	1.76	0.86
21:6:2689:A:H4'	21:6:2690:G:H5'	1.56	0.85
16:1:1011:A:C2'	25:J:40:LYS:O	2.24	0.85
17:2:2205:U:H2'	17:2:2206:G:H5'	1.58	0.85
17:2:2287:C:O2	17:2:2298:U:O4'	1.95	0.85
27:W:20:U:H2'	27:W:21:A:H4'	1.58	0.85
27:W:69:G:C2'	27:W:70:G:H5''	2.06	0.85
17:2:2259:A:H3'	17:2:2260:U:C6	2.11	0.85
17:2:2272:G:N3	17:2:2272:G:H5'	1.91	0.85
13:L:71:VAL:HG21	13:L:95:LEU:HD13	1.57	0.84
11:T:95:ILE:CG2	11:T:103:PRO:HB3	2.06	0.84
19:4:2618:G:O4'	25:J:113:GLN:CB	2.23	0.84
19:4:2618:G:O4'	25:J:113:GLN:N	2.05	0.84
16:1:1045:C:OP1	25:J:92:HIS:O	1.95	0.84
12:K:28:PHE:O	12:K:47:LEU:HD21	1.76	0.84
17:2:2222:A:HO2'	17:2:2223:A:H8	1.25	0.84
18:3:2484:A:H1'	27:W:19:G:C2	2.12	0.84
18:3:2485:A:OP1	27:W:56:C:O2	1.96	0.84
21:6:2689:A:N3	21:6:2702:A:H2	1.74	0.84
22:7:2851:A:H2'	22:7:2852:C:O4'	1.77	0.83
11:T:197:LYS:HD3	11:T:200:ARG:NH2	1.92	0.83
22:7:2865:U:O3'	25:J:115:MET:CB	2.26	0.83
27:V:40:C:H5'	27:W:35:A:H4'	1.58	0.83
17:2:2232:A:H2'	17:2:2233:A:O4'	1.79	0.83
25:J:65:LEU:O	25:J:68:ALA:HB3	1.78	0.83
23:8:2971:A:OP1	23:8:2971:A:H3'	1.79	0.83

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:W:16:U:C5	27:W:18:G:H3'	2.14	0.83
17:2:2211:U:O2'	27:W:72:C:H4'	1.79	0.83
23:8:2960:C:H5''	23:8:2961:G:OP2	1.78	0.83
12:K:62:VAL:HG12	12:K:63:LYS:H	1.43	0.83
27:W:38:A:C3'	27:W:39:U:H5''	2.08	0.83
17:2:2268:U:H2'	17:2:2269:U:C5	2.14	0.83
17:2:2293:C:C5	17:2:2294:U:H5	1.97	0.83
11:T:92:PHE:CD1	11:T:103:PRO:HB2	2.13	0.83
18:3:2484:A:N6	27:W:19:G:H2'	1.92	0.83
17:2:2278:C:N4	17:2:2305:G:N7	2.27	0.82
15:S:105:LYS:HG3	15:S:106:GLU:HG2	1.61	0.82
27:W:56:C:H2'	27:W:57:G:O4'	1.79	0.82
17:2:2253:G:N7	17:2:2254:U:C4	2.47	0.82
16:1:1010:G:C1'	25:J:40:LYS:H	1.82	0.82
11:T:126:ALA:CB	27:W:14:A:H5'	44.64	0.82
27:Y:16:U:H3'	27:Y:17:C:H5'	1.62	0.82
16:1:1010:G:C3'	25:J:40:LYS:CB	2.56	0.82
13:L:62:GLN:HB3	13:L:63:PRO:HD3	1.62	0.82
13:L:40:ASN:HB2	13:L:41:PRO:HD2	1.61	0.82
27:Y:28:G:H1	27:Y:42:C:N4	1.77	0.82
16:1:1010:G:N3	25:J:40:LYS:HA	1.91	0.81
15:S:101:VAL:HG21	15:S:121:LEU:HD11	1.62	0.81
13:L:9:ILE:CD1	13:L:9:ILE:H	1.76	0.81
11:T:13:LEU:HD23	11:T:104:LEU:HD21	1.61	0.81
17:2:2211:U:O2'	27:W:72:C:C4'	2.29	0.81
11:T:121:THR:HG22	11:T:123:ILE:HG13	1.62	0.81
27:V:41:C:C3'	27:V:42:C:H5''	2.09	0.81
17:2:2271:A:H2'	17:2:2272:G:C5'	2.11	0.81
17:2:2224:A:H2'	17:2:2225:U:O4'	1.79	0.81
17:2:2285:C:C5	17:2:2286:U:C2	2.68	0.80
16:1:1001:G:H4'	16:1:1001:G:OP2	1.79	0.80
17:2:2253:G:H3'	17:2:2254:U:C5	2.16	0.80
17:2:2272:G:H4'	17:2:2273:G:OP1	1.81	0.80
21:6:2702:A:H8	21:6:2704:A:C6	2.00	0.80
13:L:24:TRP:CH2	13:L:33:LEU:HD13	2.16	0.80
17:2:2223:A:O2'	17:2:2224:A:C8	2.29	0.80
13:L:62:GLN:HB3	13:L:63:PRO:CD	2.12	0.79
14:X:34:ARG:NH1	14:X:34:ARG:HB3	1.97	0.79
27:W:2:C:H42	27:W:71:G:H1	1.30	0.79
22:7:2825:C:H5'	22:7:2826:U:OP2	1.83	0.79
24:B:177:ASP:O	24:B:181:ASN:CB	2.31	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:T:37:THR:HG22	11:T:39:LYS:N	1.97	0.79
22:7:2842:U:O2	22:7:2842:U:H2'	1.82	0.78
26:F:47:GLN:N	26:F:48:SER:HA	1.98	0.78
21:6:2696:A:C8	21:6:2697:A:N7	2.51	0.78
13:L:69:LYS:HZ2	13:L:69:LYS:HB3	1.48	0.78
17:2:2286:U:C4	17:2:2288:G:H1'	2.18	0.78
22:7:2837:A:H2'	22:7:2845:A:N1	1.98	0.78
17:2:2293:C:C5	17:2:2294:U:C5	2.72	0.78
11:T:14:PHE:CE2	11:T:89:LYS:HA	2.19	0.78
17:2:2245:C:H2'	17:2:2246:G:O4'	1.83	0.78
16:1:1044:U:O3'	25:J:92:HIS:C	2.18	0.77
17:2:2269:U:O2	17:2:2269:U:H2'	1.84	0.77
11:T:152:GLY:O	11:T:155:GLU:HB2	1.85	0.77
27:Y:51:U:H3	27:Y:63:G:H1	1.30	0.77
25:J:181:TYR:O	25:J:184:LYS:N	2.16	0.77
13:L:92:LEU:O	13:L:92:LEU:HD12	1.84	0.77
27:V:68:C:C2'	27:V:69:G:H5''	2.14	0.77
13:L:75:LEU:HD21	13:L:82:ILE:HD12	1.65	0.77
17:2:2215:A:C2	17:2:2216:G:C8	2.73	0.77
22:7:2838:A:C2	22:7:2851:A:C4	2.72	0.77
26:F:59:HIS:CB	27:W:76:A:N7	2.47	0.77
17:2:2253:G:C6	17:2:2254:U:C2	2.73	0.76
27:V:51:U:H2'	27:V:52:G:C8	2.19	0.76
11:T:126:ALA:CB	27:W:14:A:OP2	44.60	0.76
17:2:2251:G:C1'	17:2:2252:A:OP1	2.32	0.76
22:7:2858:U:H2'	22:7:2859:U:C5	2.20	0.76
13:L:96:ALA:HB3	13:L:99:ASP:OD2	1.85	0.76
11:T:122:ARG:HE	11:T:129:VAL:HG13	1.50	0.76
17:2:2280:A:C5	17:2:2282:U:H5	2.02	0.76
12:K:103:VAL:O	12:K:142:ARG:HD2	1.86	0.76
22:7:2834:G:C4	22:7:2835:U:C5	2.74	0.76
13:L:3:VAL:HG12	13:L:4:GLY:H	1.48	0.76
27:V:41:C:H3'	27:V:42:C:H5''	1.67	0.76
27:W:56:C:H3'	27:W:57:G:H5''	1.68	0.76
27:Y:63:G:H2'	27:Y:64:A:C8	2.21	0.76
12:K:103:VAL:HG12	12:K:142:ARG:HG2	1.68	0.76
11:T:67:LEU:HD12	11:T:150:ILE:HD11	1.66	0.76
27:W:18:G:N1	27:W:55:U:H1'	1.99	0.76
17:2:2253:G:H3'	17:2:2254:U:C6	2.20	0.76
15:S:55:SER:HB2	15:S:58:TYR:CD2	2.20	0.76
27:Y:5:G:H2'	27:Y:6:G:C8	2.20	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
20:5:2656:A:OP1	26:F:96:GLU:O	2.04	0.75
21:6:2699:G:C5'	21:6:2699:G:H8	1.98	0.75
12:K:62:VAL:HG12	12:K:63:LYS:N	2.01	0.75
16:1:1046:A:H5''	25:J:18:PRO:CB	2.16	0.75
17:2:2279:A:H4'	17:2:2280:A:H5'	1.68	0.75
23:8:2970:C:H3'	23:8:2971:A:H5''	1.69	0.75
15:S:38:LEU:HB3	15:S:42:PHE:HE1	1.52	0.75
27:V:20:U:H3'	27:V:21:A:C5'	2.14	0.75
27:W:18:G:H1	27:W:55:U:H1'	1.48	0.75
17:2:2278:C:N4	17:2:2305:G:C8	2.55	0.75
12:K:36:THR:HG22	12:K:37:TRP:N	2.02	0.75
15:S:46:THR:HG23	15:S:89:ILE:HD13	1.68	0.75
17:2:2260:U:H2'	17:2:2261:G:N7	2.02	0.75
11:T:34:ALA:HB3	11:T:63:ILE:H	1.51	0.75
22:7:2829:U:H2'	22:7:2830:G:H5'	1.67	0.75
27:W:69:G:C3'	27:W:70:G:H5''	2.16	0.75
23:8:2970:C:H3'	23:8:2971:A:C5'	2.17	0.74
16:1:1042:U:H2'	16:1:1043:C:H6	1.51	0.74
22:7:2872:A:C4'	22:7:2873:U:OP1	2.35	0.74
17:2:2270:A:C2	17:2:2271:A:C4	2.76	0.74
17:2:2280:A:C5	17:2:2282:U:C5	2.76	0.74
21:6:2702:A:H8	21:6:2704:A:N6	1.83	0.74
22:7:2834:G:HO2'	22:7:2835:U:H6	0.76	0.74
27:Y:41:C:C3'	27:Y:42:C:H5''	2.18	0.74
17:2:2287:C:C2	17:2:2298:U:O2	2.40	0.74
11:T:54:LYS:HG2	11:T:55:LYS:N	2.01	0.74
21:6:2690:G:N3	21:6:2690:G:C2'	2.45	0.74
27:Y:27:G:H21	27:Y:43:C:H5	1.36	0.74
21:6:2702:A:C8	21:6:2704:A:C6	2.76	0.73
23:8:2961:G:C6	23:8:2962:U:C4	2.76	0.73
11:T:99:THR:HG22	11:T:101:ARG:HG3	1.70	0.73
17:2:2296:A:O2'	17:2:2297:U:H5'	1.87	0.73
15:S:16:LYS:O	15:S:16:LYS:HG3	1.88	0.73
16:1:1042:U:OP2	16:1:1042:U:H6	1.71	0.73
17:2:2249:G:H2'	17:2:2250:G:C1'	2.17	0.73
17:2:2266:U:N3	17:2:2267:C:N4	2.36	0.73
20:5:2655:U:OP2	26:F:2:VAL:O	2.06	0.73
17:2:2278:C:H2'	17:2:2279:A:H5''	1.70	0.73
13:L:19:ARG:HH12	13:L:22:GLN:HB2	1.53	0.73
15:S:100:GLY:HA2	15:S:108:VAL:O	1.87	0.73
18:3:2485:A:OP1	27:W:56:C:C2	2.42	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:K:47:LEU:HD23	12:K:47:LEU:N	2.02	0.73
27:W:61:C:H2'	27:W:62:C:C6	2.24	0.73
21:6:2697:A:H2'	21:6:2698:G:H8	1.53	0.73
14:X:63:HIS:O	14:X:65:GLY:N	2.22	0.73
17:2:2257:C:H3'	17:2:2258:U:H6	1.52	0.73
12:K:55:ARG:O	12:K:55:ARG:HG2	1.88	0.73
12:K:64:ALA:HB3	12:K:67:GLU:HG2	1.70	0.72
27:W:30:G:H2'	27:W:31:A:H8	1.54	0.72
16:1:1013:G:H3'	16:1:1014:U:H4'	1.70	0.72
16:1:1011:A:P	25:J:40:LYS:CB	2.77	0.72
27:W:16:U:C3'	27:W:17:C:H5'	2.18	0.72
17:2:2281:A:O2'	17:2:2282:U:H5''	1.90	0.72
12:K:119:LEU:O	12:K:124:MET:HB2	1.89	0.72
12:K:75:MET:HG2	12:K:121:ARG:NH2	2.04	0.72
13:L:69:LYS:NZ	13:L:69:LYS:HB3	2.04	0.72
14:X:50:LEU:HD23	14:X:57:ARG:HH12	1.52	0.72
17:2:2294:U:H5'	17:2:2295:A:OP2	1.89	0.72
27:Y:16:U:C3'	27:Y:17:C:H5'	2.19	0.72
17:2:2289:U:O2'	17:2:2290:C:H5'	1.88	0.72
21:6:2701:U:O2'	21:6:2705:A:C8	2.42	0.72
17:2:2288:G:C4	17:2:2289:U:C5	2.78	0.72
9:G:1430:C:O2'	9:G:1431:A:H5'	1.89	0.72
11:T:158:PHE:HD2	11:T:159:LYS:HG3	1.54	0.72
17:2:2279:A:O5'	17:2:2280:A:H5''	1.88	0.72
21:6:2702:A:O4'	21:6:2704:A:C8	2.43	0.72
25:J:69:ARG:O	25:J:72:ALA:HB3	1.88	0.72
17:2:2267:C:H2'	17:2:2268:U:O4'	1.90	0.72
17:2:2271:A:C3'	17:2:2272:G:H5''	2.20	0.72
13:L:19:ARG:O	13:L:23:ARG:HB2	1.90	0.72
22:7:2847:A:H3'	22:7:2848:G:H8	1.55	0.72
22:7:2852:C:C5	22:7:2853:A:C4	2.78	0.72
25:J:155:ALA:O	25:J:158:LYS:N	2.21	0.72
21:6:2696:A:H62	21:6:2697:A:N6	1.88	0.71
21:6:2699:G:H2'	21:6:2700:G:O4'	1.90	0.71
22:7:2854:U:O2'	22:7:2855:U:H5'	1.89	0.71
17:2:2293:C:H5	17:2:2294:U:C5	2.05	0.71
16:1:1037:C:HO2'	16:1:1038:C:H6	1.38	0.71
16:1:1041:U:H2'	16:1:1042:U:H5'	1.72	0.71
16:1:1042:U:C6	16:1:1042:U:OP2	2.41	0.71
21:6:2703:A:C3'	21:6:2704:A:H5'	2.21	0.71
15:S:98:ILE:O	15:S:98:ILE:HG13	1.89	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:W:45:U:O2'	27:W:46:G:H5'	1.89	0.71
21:6:2697:A:H2'	21:6:2698:G:C8	2.26	0.71
15:S:46:THR:HG23	15:S:89:ILE:CD1	2.21	0.71
16:1:1010:G:C4	25:J:40:LYS:CA	2.71	0.71
12:K:121:ARG:HG3	12:K:122:SER:N	2.04	0.71
17:2:2269:U:C6	17:2:2272:G:O6	2.44	0.71
15:S:55:SER:HB2	15:S:58:TYR:HD2	1.53	0.71
11:T:12:LYS:HB3	11:T:17:TRP:H	1.54	0.71
22:7:2834:G:O2'	22:7:2835:U:O5'	2.08	0.71
22:7:2853:A:C6	22:7:2854:U:N3	2.58	0.71
20:5:2655:U:H4'	20:5:2656:A:O5'	1.90	0.70
17:2:2284:C:H2'	17:2:2285:C:O2	1.90	0.70
17:2:2294:U:O2	17:2:2296:A:H2'	1.90	0.70
12:K:148:GLY:O	12:K:150:ARG:HG3	1.91	0.70
27:W:6:G:O2'	27:W:7:A:H5'	1.91	0.70
22:7:2834:G:N3	22:7:2835:U:C6	2.59	0.70
11:T:35:CYS:H	11:T:63:ILE:HD11	1.56	0.70
27:Y:43:C:H2'	27:Y:44:G:O4'	1.91	0.70
17:2:2218:G:O2'	17:2:2219:A:H5'	1.92	0.70
17:2:2287:C:N3	17:2:2298:U:O2	2.25	0.70
23:8:2963:C:C2'	23:8:2964:G:H5'	2.21	0.70
22:7:2872:A:H4'	22:7:2873:U:OP1	1.91	0.70
15:S:83:THR:HG23	15:S:85:TYR:H	1.55	0.70
11:T:158:PHE:CD2	11:T:159:LYS:HG3	2.27	0.70
11:T:45:PRO:CG	11:T:85:ILE:HG23	2.22	0.70
13:L:101:VAL:CG1	13:L:123:VAL:HG13	2.21	0.70
16:1:1038:C:H2'	16:1:1039:U:C6	2.27	0.70
22:7:2846:U:O2	22:7:2850:G:O6	2.09	0.69
16:1:1023:C:H3'	16:1:1024:G:C4'	2.21	0.69
17:2:2301:U:H2'	17:2:2302:G:H8	1.55	0.69
21:6:2703:A:H3'	21:6:2704:A:C5'	2.21	0.69
12:K:138:ASP:OD1	12:K:139:SER:N	2.25	0.69
15:S:97:GLY:O	15:S:112:VAL:HG23	1.93	0.69
27:Y:67:C:H2'	27:Y:68:C:C6	2.27	0.69
17:2:2253:G:C8	17:2:2254:U:C5	2.81	0.69
17:2:2207:A:H8	17:2:2237:C:O2	1.76	0.69
17:2:2252:A:C2	17:2:2253:G:C5	2.81	0.69
27:W:16:U:H3'	27:W:17:C:C5'	2.21	0.69
17:2:2295:A:N6	17:2:2296:A:N6	2.40	0.69
25:J:37:GLY:HA3	25:J:86:HIS:H	1.57	0.69
17:2:2256:A:O2'	17:2:2257:C:P	2.49	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:6:2696:A:N7	21:6:2697:A:C5	2.61	0.69
26:F:39:GLY:O	26:F:43:TYR:CB	2.41	0.69
15:S:91:ILE:HG23	15:S:92:PRO:HD2	1.74	0.69
14:X:63:HIS:C	14:X:65:GLY:H	1.93	0.69
17:2:2221:G:N2	17:2:2225:U:N3	2.41	0.69
13:L:69:LYS:NZ	13:L:92:LEU:HD23	2.06	0.69
15:S:14:ARG:HB3	15:S:114:PHE:CD2	2.28	0.69
22:7:2826:U:C2'	22:7:2827:U:H5'	2.22	0.69
17:2:2196:C:N4	17:2:2242:A:N7	2.40	0.69
17:2:2294:U:O2	17:2:2294:U:H2'	1.92	0.69
22:7:2837:A:C8	22:7:2845:A:C2	2.81	0.69
25:J:177:ASP:HA	25:J:178:ARG:C	2.09	0.68
17:2:2285:C:H5	17:2:2286:U:N3	1.90	0.68
13:L:116:ILE:CG2	13:L:119:VAL:HB	2.20	0.68
27:Y:63:G:H2'	27:Y:64:A:H8	1.57	0.68
27:Y:41:C:H2'	27:Y:42:C:O4'	1.92	0.68
17:2:2239:G:O2'	17:2:2240:G:H5'	1.93	0.68
22:7:2841:G:C6	22:7:2844:C:C4	2.82	0.68
16:1:1010:G:N9	25:J:40:LYS:N	2.32	0.68
9:G:1434:C:OP1	27:V:30:G:H4'	1.94	0.68
11:T:24:ILE:HD11	11:T:36:THR:OG1	1.92	0.68
27:Y:8:U:H4'	27:Y:48:C:H4'	1.76	0.68
19:4:2616:C:C2'	19:4:2617:U:H5'	2.23	0.68
19:4:2619:G:P	19:4:2619:G:H8	2.17	0.68
23:8:2968:G:H2'	23:8:2969:A:O5'	1.94	0.68
17:2:2222:A:O2'	17:2:2223:A:C8	2.46	0.68
12:K:21:VAL:HG12	12:K:22:GLY:N	2.04	0.68
13:L:58:ILE:HG21	13:L:117:PRO:CG	2.24	0.68
15:S:33:LEU:HD11	15:S:59:ALA:HA	1.76	0.68
27:W:67:C:H2'	27:W:68:C:C6	2.29	0.68
12:K:46:ASP:OD2	12:K:48:SER:OG	2.10	0.67
12:K:56:VAL:HG11	12:K:77:ALA:HA	1.77	0.67
14:X:50:LEU:HD23	14:X:57:ARG:NH1	2.08	0.67
16:1:1047:A:O2'	16:1:1048:A:H5'	1.95	0.67
12:K:103:VAL:CG1	12:K:142:ARG:HG2	2.23	0.67
27:W:38:A:H3'	27:W:39:U:C5'	2.20	0.67
13:L:52:VAL:HG13	13:L:71:VAL:CG1	2.25	0.67
11:T:72:MET:HE1	11:T:81:LYS:HB2	1.76	0.67
27:V:27:G:H2'	27:V:28:G:C8	2.29	0.67
17:2:2251:G:N3	17:2:2252:A:C8	2.63	0.67
11:T:70:THR:HB	11:T:150:ILE:HD12	1.76	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:1:1002:A:O2'	16:1:1003:A:H5'	1.93	0.67
17:2:2280:A:C6	17:2:2282:U:C5	2.83	0.67
17:2:2295:A:C5	17:2:2296:A:N6	2.63	0.67
26:F:47:GLN:H	26:F:48:SER:HA	1.57	0.67
13:L:97:GLU:O	13:L:98:ASN:HB2	1.95	0.67
11:T:44:VAL:HG12	11:T:45:PRO:HD2	1.74	0.67
11:T:72:MET:O	11:T:78:ALA:HB1	1.94	0.67
27:W:6:G:C2'	27:W:7:A:H5'	2.24	0.67
17:2:2295:A:C6	17:2:2296:A:N6	2.62	0.67
22:7:2861:U:H2'	22:7:2862:U:H6	1.58	0.67
13:L:34:LEU:O	13:L:36:SER:N	2.28	0.67
17:2:2249:G:O4'	17:2:2272:G:C8	2.48	0.67
17:2:2249:G:O4'	17:2:2272:G:H8	1.76	0.67
21:6:2689:A:C2	21:6:2702:A:H2	2.13	0.67
21:6:2703:A:C5'	21:6:2704:A:H5'	2.21	0.67
11:T:137:ALA:O	11:T:141:ARG:HB2	1.95	0.67
11:T:45:PRO:HG3	11:T:85:ILE:HG23	1.77	0.67
27:V:16:U:O3'	27:V:17:C:H6	1.77	0.67
16:1:1018:G:H2'	16:1:1019:G:H8	1.59	0.67
21:6:2699:G:C8	21:6:2699:G:C5'	2.73	0.67
27:Y:66:U:H2'	27:Y:67:C:C6	2.30	0.67
16:1:1035:G:C4	16:1:1036:A:C8	2.82	0.67
17:2:2222:A:O2'	17:2:2223:A:H8	1.78	0.67
25:J:75:TYR:O	25:J:76:MET:C	2.32	0.67
11:T:55:LYS:O	11:T:56:PHE:HD1	1.78	0.67
17:2:2259:A:H3'	17:2:2260:U:H6	1.57	0.66
22:7:2836:C:H5	22:7:2853:A:N1	1.93	0.66
27:W:30:G:H2'	27:W:31:A:C8	2.29	0.66
17:2:2279:A:C8	17:2:2288:G:C6	2.83	0.66
21:6:2702:A:C4'	21:6:2704:A:C8	2.79	0.66
22:7:2862:U:HO2'	22:7:2863:G:H5'	1.61	0.66
13:L:86:VAL:HG12	13:L:91:CYS:HB3	1.77	0.66
16:1:1039:U:H2'	16:1:1040:A:C8	2.31	0.66
12:K:95:ILE:HD11	12:K:126:ILE:CG2	2.25	0.66
12:K:45:THR:CG2	12:K:49:GLY:HA2	2.25	0.66
13:L:112:ALA:HB2	13:L:119:VAL:O	1.96	0.66
17:2:2221:G:H3'	17:2:2221:G:C8	2.31	0.66
17:2:2262:A:H5''	17:2:2263:C:H5'	1.76	0.66
17:2:2299:A:C4	17:2:2300:G:C8	2.84	0.66
17:2:2276:G:C6	17:2:2277:C:C4	2.84	0.66
17:2:2225:U:O2'	17:2:2226:U:H5'	1.95	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:2:2282:U:H5'	17:2:2282:U:C6	2.30	0.66
24:B:53:LEU:CB	24:B:54:LYS:HA	2.26	0.66
13:L:117:PRO:HG2	13:L:118:GLY:H	1.60	0.66
11:T:57:ARG:HH11	11:T:57:ARG:CA	1.94	0.66
26:F:14:GLY:N	26:F:15:LYS:HA	2.10	0.66
13:L:19:ARG:HH11	13:L:19:ARG:CA	2.02	0.66
11:T:13:LEU:HD12	11:T:14:PHE:H	1.61	0.66
20:5:2655:U:H4'	20:5:2656:A:H5'	1.78	0.66
25:J:146:ASP:O	25:J:147:VAL:O	2.14	0.66
27:W:33:U:H2'	27:W:35:A:OP2	1.95	0.66
22:7:2858:U:H2'	22:7:2859:U:C6	2.30	0.65
11:T:32:TYR:CE2	11:T:138:PRO:HG2	2.31	0.65
25:J:161:GLY:CA	25:J:162:GLN:CB	2.69	0.65
11:T:22:VAL:HG22	11:T:105:GLU:HB2	1.78	0.65
17:2:2269:U:C4	17:2:2272:G:N1	2.61	0.65
23:8:2971:A:H4'	23:8:2972:G:O5'	1.95	0.65
25:J:184:LYS:C	25:J:186:GLU:H	2.00	0.65
11:T:83:LEU:HD23	11:T:84:CYS:N	2.11	0.65
22:7:2868:U:H2'	22:7:2869:U:H6	1.61	0.65
12:K:82:VAL:HG21	12:K:122:SER:OG	1.95	0.65
11:T:95:ILE:HG21	11:T:103:PRO:HB3	1.78	0.65
17:2:2223:A:C2	17:2:2224:A:C4	2.84	0.65
21:6:2694:A:H2'	21:6:2695:A:H1'	1.77	0.65
15:S:132:THR:HG22	15:S:133:HIS:H	1.60	0.65
14:X:66:LYS:HD2	14:X:69:LYS:HD2	1.77	0.65
17:2:2254:U:H2'	17:2:2261:G:H1	1.60	0.65
17:2:2194:G:C2'	17:2:2195:C:H5'	2.27	0.65
17:2:2288:G:C6	17:2:2289:U:O4	2.50	0.65
22:7:2826:U:HO2'	22:7:2827:U:H5'	1.61	0.65
16:1:1018:G:H2'	16:1:1019:G:C8	2.32	0.65
17:2:2226:U:HO2'	17:2:2227:C:H6	1.43	0.65
27:V:68:C:H2'	27:V:69:G:C5'	2.24	0.65
19:4:2619:G:OP1	19:4:2619:G:H8	1.79	0.65
23:8:2961:G:H5''	23:8:2962:U:OP2	1.97	0.65
27:Y:55:U:H2'	27:Y:56:C:H3'	1.79	0.65
16:1:1024:G:H2'	16:1:1025:A:H5'	1.78	0.65
25:J:191:LYS:HA	25:J:192:ASP:CB	2.27	0.65
13:L:53:THR:O	13:L:54:GLU:HB3	1.96	0.65
16:1:1036:A:H2'	16:1:1037:C:C5	2.32	0.64
17:2:2254:U:O2	17:2:2261:G:C2	2.50	0.64
9:G:1429:G:OP2	9:G:1430:C:H5	1.80	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:K:84:ARG:HD2	12:K:84:ARG:O	1.97	0.64
15:S:83:THR:HG23	15:S:85:TYR:N	2.12	0.64
16:1:1043:C:H1'	25:J:34:TYR:CB	2.27	0.64
22:7:2864:A:C5	22:7:2865:U:C5	2.86	0.64
17:2:2211:U:H1'	27:W:72:C:H5'	1.80	0.64
27:W:40:C:H2'	27:W:41:C:C6	2.32	0.64
11:T:13:LEU:HD12	11:T:14:PHE:N	2.12	0.64
16:1:1013:G:C3'	16:1:1014:U:H4'	2.27	0.64
13:L:54:GLU:OE2	13:L:56:ILE:HD11	1.96	0.64
17:2:2251:G:N2	17:2:2252:A:C4	2.66	0.64
27:V:20:U:C3'	27:V:21:A:C5'	2.73	0.64
17:2:2197:C:N4	17:2:2241:U:H2'	2.13	0.64
21:6:2690:G:O2'	21:6:2691:A:OP1	2.14	0.64
11:T:177:LYS:O	11:T:178:ASN:HB2	1.98	0.64
17:2:2276:G:C6	17:2:2277:C:C5	2.86	0.64
24:B:101:LYS:O	24:B:105:LYS:N	2.31	0.64
11:T:95:ILE:HG22	11:T:103:PRO:HB3	1.80	0.64
11:T:163:SER:N	11:T:166:GLU:OE1	2.28	0.64
27:W:40:C:H2'	27:W:41:C:H6	1.63	0.64
16:1:1010:G:C2	25:J:40:LYS:HA	2.32	0.64
11:T:122:ARG:HE	11:T:129:VAL:CG1	2.10	0.64
27:Y:72:C:C2	27:Y:73:A:H2	2.16	0.64
17:2:2278:C:C2'	17:2:2279:A:H5''	2.27	0.63
17:2:2285:C:C5	17:2:2286:U:N3	2.66	0.63
25:J:87:LEU:HA	25:J:138:VAL:CB	2.29	0.63
27:V:30:G:H2'	27:V:31:A:H5'	1.80	0.63
17:2:2277:C:O2'	17:2:2278:C:O5'	2.13	0.63
17:2:2289:U:C2	17:2:2290:C:C5	2.86	0.63
19:4:2618:G:H8	25:J:114:GLY:C	1.98	0.63
23:8:2966:G:C2'	23:8:2967:A:H5'	2.28	0.63
11:T:133:ALA:HB2	11:T:200:ARG:HB2	1.80	0.63
16:1:1038:C:H4'	16:1:1038:C:OP1	1.99	0.63
16:1:1049:C:C2	16:1:1050:U:C5	2.86	0.63
17:2:2211:U:H2'	17:2:2212:C:O4'	1.99	0.63
17:2:2255:A:C2	17:2:2260:U:O4	2.51	0.63
17:2:2294:U:C5'	17:2:2295:A:OP2	2.47	0.63
22:7:2830:G:O2'	22:7:2831:G:H5'	1.98	0.63
11:T:71:LEU:O	11:T:71:LEU:HD12	1.98	0.63
27:V:20:U:C2'	27:V:21:A:H5'	2.29	0.63
16:1:1001:G:C8	16:1:1042:U:OP1	2.52	0.63
16:1:1047:A:O4'	25:J:22:TYR:CB	2.46	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:W:12:U:H3	27:W:23:A:H61	1.44	0.63
17:2:2253:G:C5	17:2:2254:U:C4	2.86	0.63
17:2:2279:A:N1	17:2:2283:G:N2	2.46	0.63
17:2:2301:U:H2'	17:2:2302:G:C8	2.32	0.63
25:J:144:ASN:O	25:J:147:VAL:CB	2.47	0.63
17:2:2279:A:H2	17:2:2285:C:H41	1.46	0.63
22:7:2830:G:C4	22:7:2831:G:C8	2.86	0.63
14:X:44:ARG:HG3	14:X:45:TYR:N	2.14	0.63
27:Y:5:G:H2'	27:Y:6:G:H8	1.64	0.63
12:K:38:ASN:O	12:K:68:GLU:HG3	1.99	0.63
15:S:31:GLU:HG3	15:S:32:LYS:H	1.64	0.63
16:1:1010:G:C4	25:J:40:LYS:HA	2.33	0.63
16:1:1018:G:N1	16:1:1019:G:O6	2.31	0.63
13:L:6:PRO:HG2	13:L:15:LEU:HD21	1.79	0.63
17:2:2259:A:H5''	17:2:2260:U:H5	1.63	0.63
17:2:2246:G:C2	17:2:2247:G:C8	2.86	0.62
17:2:2262:A:N3	17:2:2263:C:H5''	2.13	0.62
21:6:2702:A:O4'	21:6:2704:A:N7	2.32	0.62
25:J:175:ASN:CB	25:J:176:LEU:HA	2.27	0.62
11:T:99:THR:O	11:T:99:THR:HG22	1.99	0.62
17:2:2209:U:OP2	17:2:2209:U:C6	2.52	0.62
17:2:2279:A:H2	17:2:2285:C:N4	1.98	0.62
19:4:2621:G:H2'	19:4:2622:C:C6	2.33	0.62
22:7:2839:G:C5	22:7:2850:G:N2	2.67	0.62
25:J:20:SER:O	25:J:22:TYR:N	2.32	0.62
13:L:62:GLN:CB	13:L:63:PRO:CD	2.77	0.62
25:J:97:LEU:O	25:J:123:HIS:N	2.32	0.62
13:L:133:ALA:O	13:L:139:LYS:HB2	1.99	0.62
11:T:137:ALA:HB1	11:T:138:PRO:HD2	1.80	0.62
27:Y:27:G:H2'	27:Y:28:G:C8	2.34	0.62
27:Y:9:A:H2	27:Y:45:U:H3	1.42	0.62
17:2:2249:G:C4	17:2:2272:G:N7	2.67	0.62
13:L:78:ASN:HD21	13:L:80:LYS:HG3	1.64	0.62
24:B:95:LYS:HA	24:B:100:ILE:N	2.15	0.62
17:2:2251:G:C6	17:2:2266:U:O2	2.52	0.62
11:T:21:GLU:HG2	11:T:102:ASN:HB2	1.81	0.62
12:K:145:GLY:O	12:K:147:ARG:N	2.33	0.62
15:S:58:TYR:O	15:S:62:VAL:HG23	1.99	0.62
15:S:66:ARG:NH1	15:S:93:GLU:HB3	2.15	0.62
17:2:2214:A:H2'	17:2:2215:A:H8	1.64	0.62
13:L:47:HIS:ND1	13:L:104:ALA:HB2	2.15	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:T:106:VAL:HA	11:T:176:GLU:OE1	1.99	0.62
22:7:2847:A:C4	22:7:2848:G:C8	2.88	0.62
13:L:101:VAL:HA	13:L:125:CYS:O	2.00	0.62
11:T:72:MET:HG3	11:T:72:MET:O	1.99	0.62
17:2:2289:U:C2'	17:2:2290:C:H5'	2.29	0.61
18:3:2484:A:N6	27:W:19:G:C2'	2.62	0.61
21:6:2694:A:H2'	21:6:2695:A:C1'	2.30	0.61
22:7:2857:C:H2'	22:7:2858:U:H6	1.64	0.61
6:E:1591:C:O2	6:E:1591:C:H2'	1.99	0.61
16:1:1010:G:H3'	25:J:40:LYS:CB	2.29	0.61
11:T:13:LEU:CD2	11:T:104:LEU:HD21	2.28	0.61
11:T:169:ALA:O	11:T:173:ILE:HG13	2.00	0.61
17:2:2197:C:H4'	17:2:2198:A:C8	2.35	0.61
25:J:77:THR:O	25:J:79:VAL:N	2.32	0.61
13:L:58:ILE:CG2	13:L:117:PRO:HG3	2.27	0.61
15:S:42:PHE:CE2	15:S:118:GLY:HA2	2.34	0.61
27:Y:20:U:H2'	27:Y:21:A:H4'	1.81	0.61
17:2:2270:A:C5'	17:2:2270:A:C8	2.76	0.61
22:7:2869:U:H2'	22:7:2869:U:O2	2.00	0.61
21:6:2703:A:C3'	21:6:2704:A:C5'	2.78	0.61
9:G:1430:C:O2'	9:G:1431:A:C5'	2.48	0.61
25:J:61:SER:HA	25:J:126:ALA:CB	2.31	0.61
14:X:34:ARG:HB3	14:X:34:ARG:HH11	1.64	0.61
17:2:2215:A:N3	17:2:2216:G:C8	2.68	0.61
21:6:2702:A:H8	21:6:2704:A:C5	2.18	0.61
15:S:78:PRO:HB2	15:S:98:ILE:HG12	1.80	0.61
15:S:69:LYS:HZ1	15:S:94:LEU:C	2.03	0.61
16:1:1040:A:C6	16:1:1041:U:C6	2.89	0.61
22:7:2859:U:H4'	22:7:2860:U:OP1	2.01	0.61
11:T:61:CYS:SG	11:T:66:ARG:HG2	2.41	0.61
16:1:1042:U:H2'	16:1:1043:C:C6	2.34	0.61
16:1:1046:A:O2'	25:J:20:SER:CB	2.48	0.61
17:2:2219:A:H2'	17:2:2220:A:H5'	1.83	0.61
17:2:2258:U:H3'	17:2:2259:A:H8	1.66	0.61
21:6:2702:A:H4'	21:6:2704:A:C8	2.36	0.61
22:7:2851:A:H3'	22:7:2852:C:H5''	1.82	0.61
16:1:1021:G:H2'	16:1:1022:U:H6	1.66	0.61
22:7:2842:U:O2	22:7:2842:U:C2'	2.49	0.61
24:B:54:LYS:HA	24:B:55:LEU:CB	2.31	0.61
15:S:124:PHE:N	15:S:124:PHE:CD1	2.68	0.61
17:2:2270:A:C2	17:2:2271:A:N3	2.69	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:8:2960:C:H3'	23:8:2961:G:H8	1.65	0.60
12:K:36:THR:HG22	12:K:37:TRP:H	1.65	0.60
17:2:2235:C:C4	17:2:2236:G:C6	2.89	0.60
21:6:2696:A:N7	21:6:2697:A:N7	2.49	0.60
23:8:2973:G:O2'	23:8:2974:U:H5'	2.00	0.60
16:1:1023:C:H3'	16:1:1024:G:C5'	2.32	0.60
23:8:2970:C:C3'	23:8:2971:A:H5''	2.31	0.60
25:J:12:GLN:O	25:J:14:ASN:N	2.34	0.60
11:T:16:LYS:O	11:T:17:TRP:CG	2.54	0.60
11:T:26:ASP:OD1	11:T:28:CYS:HB3	2.01	0.60
11:T:40:SER:O	11:T:42:VAL:HG23	2.01	0.60
27:V:27:G:H2'	27:V:28:G:H8	1.67	0.60
25:J:159:PHE:O	25:J:161:GLY:N	2.34	0.60
13:L:54:GLU:HG3	13:L:56:ILE:HG13	1.83	0.60
15:S:24:LEU:HG	15:S:37:GLU:HB3	1.82	0.60
23:8:2961:G:C5	23:8:2962:U:C5	2.90	0.60
24:B:55:LEU:N	24:B:186:SER:HA	2.17	0.60
11:T:37:THR:HG22	11:T:38:THR:N	2.15	0.60
17:2:2219:A:C2'	17:2:2220:A:H5'	2.31	0.60
22:7:2831:G:C6	22:7:2832:C:C4	2.90	0.60
11:T:193:GLU:O	11:T:197:LYS:HG3	1.99	0.60
23:8:2963:C:H2'	23:8:2964:G:H5'	1.82	0.60
9:G:1429:G:N3	9:G:1429:G:H2'	2.17	0.60
15:S:73:PRO:C	15:S:75:GLY:H	2.04	0.60
27:W:56:C:C3'	27:W:57:G:H5''	2.32	0.60
17:2:2204:C:H6	17:2:2204:C:O5'	1.85	0.60
17:2:2211:U:O2'	27:W:72:C:O4'	2.18	0.60
14:X:31:PRO:HG3	14:X:39:ILE:HD11	1.83	0.60
27:Y:42:C:H3'	27:Y:43:C:H5''	1.84	0.60
16:1:1007:U:H2'	16:1:1007:U:O2	2.01	0.60
14:X:38:ARG:HG2	14:X:42:ASN:HD21	1.67	0.60
17:2:2202:C:O2	17:2:2202:C:H2'	2.02	0.60
21:6:2689:A:O2'	21:6:2702:A:C6	2.54	0.60
24:B:95:LYS:CB	24:B:124:LEU:HA	2.31	0.60
13:L:60:SER:OG	13:L:64:ASN:HB2	2.01	0.60
15:S:66:ARG:HH12	15:S:93:GLU:CB	2.15	0.60
11:T:101:ARG:O	11:T:103:PRO:HD3	2.02	0.60
22:7:2830:G:H1	22:7:2858:U:H3	1.48	0.59
22:7:2861:U:H2'	22:7:2862:U:O4'	2.02	0.59
22:7:2853:A:H4'	25:J:67:ALA:HB2	1.83	0.59
13:L:78:ASN:ND2	13:L:80:LYS:CG	2.65	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:V:68:C:C3'	27:V:69:G:H5''	2.33	0.59
16:1:1040:A:C6	16:1:1041:U:C5	2.90	0.59
17:2:2258:U:O2	17:2:2258:U:H2'	2.01	0.59
17:2:2269:U:O2	17:2:2269:U:C2'	2.51	0.59
22:7:2834:G:O2'	22:7:2835:U:C6	2.41	0.59
23:8:2966:G:C6	23:8:2967:A:N6	2.70	0.59
25:J:38:LYS:O	25:J:39:LYS:O	2.20	0.59
17:2:2280:A:H4'	17:2:2281:A:OP1	2.02	0.59
12:K:27:VAL:HG21	12:K:89:LYS:O	2.02	0.59
27:W:58:A:H1'	27:W:60:U:C5	2.37	0.59
19:4:2618:G:C4'	19:4:2619:G:OP2	2.50	0.59
22:7:2836:C:O2	22:7:2836:C:C2'	2.51	0.59
22:7:2853:A:N6	22:7:2854:U:H3	2.00	0.59
27:Y:18:G:N1	27:Y:57:G:N7	2.50	0.59
17:2:2253:G:C8	17:2:2254:U:C4	2.91	0.59
12:K:121:ARG:HG3	12:K:122:SER:H	1.66	0.59
11:T:183:SER:OG	11:T:186:ILE:HB	2.03	0.59
24:B:95:LYS:HA	24:B:100:ILE:H	1.68	0.59
11:T:55:LYS:O	11:T:56:PHE:CD1	2.56	0.59
27:V:67:C:H2'	27:V:68:C:C6	2.38	0.59
17:2:2210:G:N2	27:W:71:G:O3'	2.31	0.59
17:2:2290:C:C2	17:2:2303:A:C2	2.90	0.59
12:K:62:VAL:CG1	12:K:63:LYS:H	2.14	0.59
11:T:34:ALA:CB	11:T:62:PRO:HA	2.33	0.59
17:2:2269:U:N3	17:2:2272:G:N1	2.45	0.59
12:K:27:VAL:O	12:K:92:ALA:HB3	2.03	0.59
15:S:86:ARG:NH1	15:S:122:ALA:HB1	2.17	0.59
27:W:38:A:C2'	27:W:39:U:H5''	2.32	0.59
24:B:188:ASN:C	24:B:190:PHE:H	2.05	0.58
26:F:47:GLN:N	26:F:48:SER:CA	2.66	0.58
17:2:2226:U:O2'	17:2:2227:C:H6	1.86	0.58
17:2:2294:U:C6	17:2:2297:U:H5	2.20	0.58
17:2:2299:A:C5	17:2:2300:G:N7	2.71	0.58
20:5:2655:U:C2	20:5:2656:A:N1	2.71	0.58
25:J:53:VAL:H	25:J:164:LYS:CB	2.17	0.58
13:L:52:VAL:HG13	13:L:71:VAL:HG13	1.84	0.58
15:S:69:LYS:HE2	15:S:97:GLY:N	2.18	0.58
16:1:1013:G:H2'	16:1:1015:U:OP2	2.02	0.58
15:S:132:THR:HG22	15:S:133:HIS:N	2.19	0.58
27:W:37:A:H2'	27:W:38:A:O4'	2.03	0.58
22:7:2836:C:O2	22:7:2837:A:C8	2.57	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:8:2968:G:C2'	23:8:2969:A:O5'	2.49	0.58
15:S:36:ASP:O	15:S:39:ALA:HB3	2.03	0.58
15:S:91:ILE:O	15:S:94:LEU:HB2	2.03	0.58
27:Y:6:G:O2'	27:Y:7:A:H5'	2.03	0.58
17:2:2244:A:O2'	17:2:2245:C:H5'	2.04	0.58
17:2:2285:C:C5	17:2:2286:U:C4	2.91	0.58
12:K:36:THR:CG2	12:K:37:TRP:N	2.65	0.58
13:L:56:ILE:HG22	13:L:57:GLY:N	2.18	0.58
15:S:82:LYS:HB3	15:S:107:PHE:CE2	2.39	0.58
27:V:25:C:O2'	27:V:26:A:H5'	2.03	0.58
27:Y:68:C:H2'	27:Y:69:G:H8	1.68	0.58
17:2:2260:U:C2'	17:2:2261:G:N7	2.65	0.58
19:4:2621:G:H2'	19:4:2622:C:H6	1.69	0.58
12:K:45:THR:HG22	12:K:49:GLY:HA2	1.85	0.58
27:W:14:A:H3'	27:W:15:G:H8	1.69	0.58
17:2:2196:C:O2'	17:2:2271:A:O4'	2.22	0.58
22:7:2849:C:H2'	22:7:2849:C:O2	2.03	0.58
12:K:95:ILE:HD12	12:K:129:ILE:CG2	2.32	0.58
13:L:37:ARG:HG2	13:L:44:GLY:HA2	1.84	0.58
17:2:2199:G:C6	17:2:2200:U:C4	2.92	0.58
21:6:2704:A:C2	21:6:2706:G:C8	2.92	0.58
14:X:63:HIS:C	14:X:65:GLY:N	2.56	0.58
17:2:2287:C:O2	17:2:2298:U:O2	2.22	0.58
25:J:7:ARG:C	25:J:9:TYR:H	2.07	0.58
14:X:58:LYS:HD3	14:X:62:TRP:CH2	2.39	0.58
16:1:1021:G:H2'	16:1:1022:U:C6	2.39	0.57
27:Y:9:A:C8	27:Y:46:G:N2	2.71	0.57
17:2:2285:C:H5	17:2:2286:U:N1	2.03	0.57
17:2:2288:G:N3	17:2:2289:U:C5	2.72	0.57
22:7:2855:U:OP1	25:J:6:ALA:HB3	2.04	0.57
25:J:68:ALA:O	25:J:72:ALA:HB2	2.04	0.57
11:T:116:PRO:HG3	11:T:189:LYS:HA	1.86	0.57
11:T:14:PHE:HE2	11:T:89:LYS:HA	1.64	0.57
11:T:51:TYR:CE2	11:T:61:CYS:HA	2.39	0.57
17:2:2248:C:C4'	17:2:2271:A:H2	2.17	0.57
17:2:2253:G:C5	17:2:2254:U:N3	2.72	0.57
17:2:2261:G:N2	17:2:2263:C:C4	2.72	0.57
15:S:74:ALA:C	15:S:76:GLU:H	2.07	0.57
16:1:1001:G:C8	16:1:1041:U:H5'	2.39	0.57
11:T:163:SER:HB3	11:T:166:GLU:HG3	1.85	0.57
27:V:40:C:C5'	27:W:35:A:H4'	2.32	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:W:68:C:O2'	27:W:69:G:H5'	2.05	0.57
17:2:2210:G:C6	17:2:2211:U:C4	2.92	0.57
22:7:2827:U:O2	22:7:2827:U:H2'	2.02	0.57
22:7:2856:G:H2'	22:7:2857:C:C6	2.39	0.57
12:K:99:ALA:O	12:K:100:LYS:C	2.43	0.57
16:1:1026:A:H4'	16:1:1027:A:OP2	2.01	0.57
25:J:146:ASP:O	25:J:147:VAL:C	2.43	0.57
11:T:24:ILE:HD12	11:T:30:GLN:HA	1.87	0.57
17:2:2202:C:H5''	17:2:2203:U:OP2	2.04	0.57
17:2:2204:C:H2'	17:2:2205:U:H5''	1.86	0.57
17:2:2260:U:H3'	17:2:2261:G:C8	2.39	0.57
21:6:2698:G:C3'	21:6:2699:G:H5''	2.33	0.57
26:F:38:GLN:O	26:F:39:GLY:C	2.43	0.57
17:2:2299:A:C6	17:2:2300:G:C8	2.93	0.57
16:1:1003:A:C2	16:1:1004:U:H1'	2.40	0.57
17:2:2194:G:H1'	17:2:2274:U:O2	2.04	0.57
25:J:121:LYS:O	25:J:122:PRO:C	2.43	0.57
25:J:174:THR:O	25:J:175:ASN:C	2.42	0.57
12:K:36:THR:CG2	12:K:37:TRP:H	2.18	0.57
11:T:170:ASP:HA	11:T:173:ILE:HD12	1.85	0.57
17:2:2265:C:N4	17:2:2266:U:N3	2.53	0.57
25:J:135:ILE:O	25:J:137:SER:N	2.38	0.57
16:1:1009:A:C2'	25:J:39:LYS:CB	2.82	0.57
12:K:98:ARG:NH2	12:K:100:LYS:HA	2.20	0.57
13:L:132:LEU:HD21	13:L:136:LYS:HE3	1.87	0.57
17:2:2260:U:C3'	17:2:2261:G:C8	2.88	0.56
17:2:2266:U:C4	17:2:2267:C:N4	2.72	0.56
18:3:2482:U:H2'	18:3:2483:G:O4'	2.05	0.56
12:K:101:GLY:O	12:K:102:GLY:C	2.43	0.56
17:2:2290:C:H2'	17:2:2291:A:H8	1.70	0.56
11:T:26:ASP:OD1	11:T:28:CYS:CB	2.53	0.56
27:V:17:C:H3'	27:V:18:G:C5'	2.29	0.56
16:1:1047:A:C2'	16:1:1048:A:H5'	2.35	0.56
17:2:2288:G:C2	17:2:2289:U:C4	2.93	0.56
17:2:2288:G:H2'	17:2:2289:U:C6	2.40	0.56
13:L:51:LEU:HD21	13:L:76:ARG:HE	1.70	0.56
15:S:95:VAL:HG21	15:S:117:ILE:HD11	1.86	0.56
11:T:153:CYS:O	11:T:167:THR:HG21	2.05	0.56
11:T:96:HIS:O	11:T:100:GLY:N	2.38	0.56
16:1:1049:C:O2'	16:1:1050:U:H5'	2.05	0.56
17:2:2210:G:C6	17:2:2236:G:N2	2.73	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:2:2221:G:C3'	17:2:2221:G:C8	2.88	0.56
17:2:2283:G:H1'	17:2:2284:C:H5	1.70	0.56
17:2:2304:C:C4	17:2:2305:G:N2	2.72	0.56
21:6:2689:A:O2'	21:6:2702:A:N6	2.38	0.56
22:7:2833:A:N1	22:7:2834:G:C8	2.74	0.56
16:1:1004:U:N3	16:1:1005:G:N7	2.53	0.56
16:1:1011:A:H2'	16:1:1011:A:N3	2.21	0.56
17:2:2246:G:N3	17:2:2247:G:C8	2.73	0.56
21:6:2690:G:HO2'	21:6:2691:A:P	2.28	0.56
21:6:2689:A:C4	21:6:2702:A:C2	2.94	0.56
15:S:86:ARG:O	15:S:122:ALA:HB2	2.06	0.56
17:2:2253:G:H3'	17:2:2254:U:H5	1.69	0.56
17:2:2254:U:OP2	17:2:2254:U:C6	2.58	0.56
16:1:1035:G:C4	16:1:1036:A:H8	2.24	0.56
17:2:2286:U:C4	17:2:2288:G:C1'	2.88	0.56
19:4:2626:A:H3'	19:4:2626:A:N3	2.21	0.56
22:7:2833:A:C6	22:7:2834:G:N7	2.74	0.56
22:7:2842:U:C6	22:7:2842:U:O5'	2.58	0.56
22:7:2855:U:OP1	25:J:6:ALA:CB	2.54	0.56
12:K:78:ALA:HB1	12:K:119:LEU:HD13	1.87	0.56
13:L:101:VAL:HG13	13:L:123:VAL:HG13	1.86	0.56
13:L:116:ILE:HG23	13:L:117:PRO:HD2	1.88	0.56
27:W:2:C:N4	27:W:71:G:H1	2.02	0.56
11:T:189:LYS:O	11:T:193:GLU:HG3	2.06	0.56
17:2:2194:G:C1'	17:2:2274:U:O2	2.54	0.56
15:S:31:GLU:HG3	15:S:32:LYS:HG2	1.88	0.56
15:S:88:MET:SD	15:S:89:ILE:N	2.79	0.56
11:T:180:THR:O	11:T:180:THR:HG22	2.05	0.56
27:W:52:G:H2'	27:W:53:G:H8	1.71	0.56
16:1:1029:G:H2'	16:1:1030:A:C5'	2.36	0.55
17:2:2215:A:C4	17:2:2216:G:C8	2.94	0.55
11:T:189:LYS:HD3	11:T:189:LYS:O	2.06	0.55
16:1:1018:G:C4	16:1:1019:G:N7	2.74	0.55
17:2:2260:U:C2'	17:2:2261:G:C8	2.89	0.55
22:7:2868:U:C5	22:7:2869:U:H5	2.24	0.55
12:K:66:ARG:HG3	12:K:67:GLU:OE1	2.05	0.55
13:L:71:VAL:HG23	13:L:86:VAL:CG2	2.36	0.55
27:W:12:U:H3	27:W:23:A:N6	2.03	0.55
27:W:38:A:H2'	27:W:39:U:C4'	2.35	0.55
27:Y:25:C:H2'	27:Y:26:A:C8	2.31	0.55
11:T:120:SER:OG	11:T:196:ALA:HA	2.06	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:1:1035:G:C2'	16:1:1036:A:H5'	2.35	0.55
17:2:2223:A:O2'	17:2:2224:A:O5'	2.25	0.55
17:2:2196:C:C4	17:2:2242:A:N7	2.75	0.55
22:7:2862:U:C2'	22:7:2863:G:H5'	2.36	0.55
25:J:61:SER:HA	25:J:126:ALA:HB1	1.88	0.55
12:K:106:LYS:HZ3	12:K:135:ILE:HG23	1.70	0.55
11:T:122:ARG:HH21	11:T:129:VAL:HG21	1.70	0.55
11:T:158:PHE:O	11:T:160:SER:N	2.36	0.55
11:T:68:ILE:HG23	11:T:84:CYS:HB3	1.87	0.55
27:W:38:A:C3'	27:W:39:U:C5'	2.83	0.55
27:W:68:C:H2'	27:W:69:G:H8	1.71	0.55
16:1:1011:A:N6	16:1:1039:U:H3	1.88	0.55
17:2:2223:A:C2'	17:2:2224:A:C8	2.89	0.55
24:B:155:ILE:HA	24:B:156:LYS:CB	2.37	0.55
12:K:77:ALA:O	12:K:81:VAL:HG23	2.06	0.55
13:L:34:LEU:O	13:L:35:GLY:C	2.45	0.55
13:L:81:LYS:HD2	13:L:81:LYS:O	2.06	0.55
11:T:34:ALA:H	11:T:63:ILE:CG1	2.20	0.55
27:W:39:U:OP1	27:W:39:U:H4'	2.07	0.55
17:2:2275:A:H3'	17:2:2276:G:O4'	2.06	0.55
17:2:2282:U:O2'	17:2:2283:G:C5'	2.54	0.55
26:F:40:LYS:O	26:F:42:ARG:N	2.40	0.55
11:T:37:THR:CG2	11:T:38:THR:N	2.69	0.55
11:T:68:ILE:HD13	11:T:85:ILE:HA	1.88	0.55
16:1:1033:U:H2'	16:1:1034:U:O2	2.07	0.55
17:2:2265:C:N4	17:2:2266:U:C4	2.75	0.55
17:2:2280:A:C4	17:2:2282:U:H5	2.25	0.55
17:2:2290:C:O2'	17:2:2291:A:O4'	2.20	0.55
15:S:101:VAL:CG2	15:S:121:LEU:HD11	2.36	0.55
11:T:13:LEU:HB2	11:T:19:TYR:CE1	2.41	0.55
17:2:2260:U:H4'	17:2:2261:G:OP2	2.06	0.55
21:6:2699:G:H2'	21:6:2700:G:C8	2.42	0.55
22:7:2833:A:C6	22:7:2834:G:C8	2.95	0.55
17:2:2247:G:C6	17:2:2248:C:C4	2.95	0.55
17:2:2270:A:N1	17:2:2271:A:C2	2.75	0.55
22:7:2837:A:C8	22:7:2845:A:N1	2.75	0.55
22:7:2847:A:C2	22:7:2848:G:H1'	2.42	0.55
24:B:192:SER:HA	24:B:197:ASN:O	2.06	0.55
12:K:118:ALA:HA	12:K:121:ARG:HG2	1.88	0.55
15:S:56:GLU:N	15:S:56:GLU:CD	2.60	0.55
27:Y:16:U:H3'	27:Y:17:C:C5'	2.35	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:2:2304:C:O2'	17:2:2305:G:C5'	2.48	0.55
25:J:34:TYR:O	25:J:35:ASP:CB	2.54	0.55
11:T:66:ARG:HH22	11:T:143:ASN:HD21	1.54	0.55
27:V:53:G:H2'	27:V:54:U:C6	2.41	0.55
17:2:2217:U:O2'	17:2:2218:G:H5'	2.07	0.54
19:4:2615:G:C6	19:4:2616:C:N4	2.75	0.54
15:S:86:ARG:HB3	15:S:122:ALA:HB2	1.89	0.54
21:6:2700:G:H5''	21:6:2701:U:OP2	2.07	0.54
11:T:189:LYS:HD3	11:T:189:LYS:C	2.28	0.54
11:T:200:ARG:OXT	11:T:200:ARG:HG3	2.07	0.54
27:Y:64:A:H2'	27:Y:65:G:H8	1.72	0.54
16:1:1008:U:C2	16:1:1043:C:C2	2.94	0.54
22:7:2872:A:H1'	22:7:2873:U:H5'	1.90	0.54
13:L:42:PHE:CZ	13:L:103:VAL:HG23	2.42	0.54
11:T:66:ARG:NH2	11:T:143:ASN:HD21	2.05	0.54
11:T:22:VAL:HG12	11:T:23:LYS:N	2.22	0.54
27:V:65:G:O2'	27:V:66:U:H5'	2.07	0.54
27:W:57:G:H2'	27:W:57:G:N3	2.21	0.54
16:1:1021:G:C6	16:1:1022:U:C4	2.95	0.54
17:2:2259:A:H3'	17:2:2260:U:C5	2.42	0.54
17:2:2290:C:C2	17:2:2291:A:C8	2.96	0.54
19:4:2622:C:H2'	19:4:2623:G:O4'	2.07	0.54
22:7:2838:A:N1	22:7:2851:A:C8	2.75	0.54
12:K:103:VAL:HG12	12:K:142:ARG:CG	2.37	0.54
12:K:95:ILE:HD11	12:K:126:ILE:HG21	1.89	0.54
16:1:1035:G:C5	16:1:1036:A:N7	2.76	0.54
16:1:1048:A:N7	25:J:21:ARG:HA	2.22	0.54
17:2:2221:G:N2	17:2:2225:U:C2	2.75	0.54
17:2:2240:G:H2'	17:2:2241:U:O5'	2.07	0.54
21:6:2689:A:C2	21:6:2702:A:C2	2.93	0.54
22:7:2836:C:O2	22:7:2836:C:H3'	2.08	0.54
16:1:1036:A:H2'	16:1:1037:C:C6	2.42	0.54
17:2:2261:G:N2	17:2:2263:C:N3	2.56	0.54
20:5:2656:A:C8	20:5:2658:G:C8	2.96	0.54
25:J:7:ARG:C	25:J:9:TYR:N	2.61	0.54
11:T:99:THR:O	11:T:101:ARG:N	2.40	0.54
11:T:157:ALA:O	11:T:158:PHE:O	2.25	0.54
27:V:30:G:C2'	27:V:31:A:H5'	2.37	0.54
17:2:2290:C:N3	17:2:2303:A:N1	2.56	0.54
22:7:2853:A:N6	22:7:2854:U:N3	2.56	0.54
27:V:41:C:H2'	27:V:41:C:O2	2.06	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:Y:15:G:H22	27:Y:59:U:H3	1.54	0.54
17:2:2257:C:H5'	17:2:2258:U:H5	1.73	0.54
21:6:2689:A:H4'	21:6:2690:G:C5'	2.33	0.54
22:7:2838:A:C2	22:7:2851:A:N9	2.76	0.54
16:1:1045:C:P	25:J:92:HIS:O	2.65	0.54
25:J:99:ILE:O	25:J:120:GLY:HA2	2.08	0.54
15:S:70:GLU:HG3	15:S:71:LYS:H	1.71	0.54
17:2:2271:A:C3'	17:2:2272:G:C5'	2.86	0.54
19:4:2619:G:OP1	19:4:2619:G:C8	2.60	0.54
11:T:64:VAL:O	11:T:68:ILE:HG13	2.08	0.54
17:2:2269:U:C5	17:2:2272:G:O6	2.60	0.54
13:L:6:PRO:HG2	13:L:15:LEU:CD2	2.38	0.53
27:Y:64:A:H2'	27:Y:65:G:C8	2.44	0.53
17:2:2214:A:H2'	17:2:2215:A:C8	2.41	0.53
17:2:2254:U:C5	17:2:2254:U:OP2	2.61	0.53
21:6:2692:A:C6	21:6:2693:C:C4	2.96	0.53
22:7:2861:U:C2	22:7:2862:U:C6	2.96	0.53
15:S:49:ARG:HH22	15:S:87:SER:HB2	1.73	0.53
11:T:50:ARG:HG2	11:T:53:VAL:HG21	1.90	0.53
27:V:74:C:H2'	27:V:75:C:H5'	1.89	0.53
14:X:42:ASN:HA	14:X:46:ALA:HB2	1.90	0.53
27:Y:74:C:H2'	27:Y:75:C:H5'	1.89	0.53
26:F:3:ASN:HA	26:F:93:LEU:O	2.09	0.53
15:S:15:GLY:N	15:S:114:PHE:HE2	2.06	0.53
27:W:16:U:C4	27:W:18:G:H3'	2.43	0.53
16:1:1004:U:C4	16:1:1005:G:N7	2.76	0.53
22:7:2868:U:H5''	22:7:2869:U:OP2	2.08	0.53
25:J:184:LYS:C	25:J:186:GLU:N	2.62	0.53
25:J:56:GLU:O	25:J:57:LEU:C	2.47	0.53
12:K:43:HIS:HE1	12:K:52:THR:HG23	1.73	0.53
12:K:62:VAL:CG1	12:K:63:LYS:N	2.71	0.53
27:W:39:U:H5'	27:W:39:U:O2	2.07	0.53
14:X:50:LEU:CD2	14:X:57:ARG:HH12	2.19	0.53
27:Y:33:U:C3'	27:Y:34:G:H5''	2.38	0.53
17:2:2252:A:C2	17:2:2253:G:C4	2.97	0.53
25:J:170:LYS:H	25:J:177:ASP:C	2.11	0.53
25:J:66:GLU:O	25:J:69:ARG:N	2.42	0.53
13:L:107:GLY:O	13:L:108:ARG:O	2.27	0.53
17:2:2269:U:H2'	17:2:2270:A:H5'	1.89	0.53
21:6:2702:A:N7	21:6:2704:A:N6	2.57	0.53
22:7:2834:G:N3	22:7:2835:U:C5	2.76	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:7:2841:G:C4	22:7:2844:C:N4	2.77	0.53
12:K:42:ILE:HD11	12:K:115:ALA:HB1	1.91	0.53
17:2:2299:A:C6	17:2:2300:G:N7	2.76	0.53
19:4:2617:U:C5	19:4:2620:G:OP1	2.61	0.53
21:6:2701:U:H1'	21:6:2705:A:C4	2.44	0.53
22:7:2833:A:C2	22:7:2834:G:C8	2.97	0.53
22:7:2852:C:H5	22:7:2853:A:C5	2.27	0.53
26:F:11:TYR:HA	26:F:20:HIS:HA	1.90	0.53
26:F:4:VAL:O	26:F:5:PRO:CB	2.56	0.53
12:K:110:PRO:C	12:K:112:ALA:H	2.12	0.53
12:K:34:MET:HA	12:K:98:ARG:HG3	1.90	0.53
15:S:59:ALA:O	15:S:62:VAL:HB	2.08	0.53
11:T:122:ARG:HH21	11:T:129:VAL:CG2	2.21	0.53
11:T:17:TRP:CD1	11:T:103:PRO:HD2	2.44	0.53
27:V:53:G:H2'	27:V:54:U:H6	1.73	0.53
27:W:21:A:H8	27:W:21:A:H5'	1.73	0.53
14:X:36:TYR:CE2	14:X:40:LEU:HD11	2.44	0.53
16:1:1035:G:C5	16:1:1036:A:C8	2.97	0.53
17:2:2291:A:C2	17:2:2292:U:C2	2.97	0.53
23:8:2959:C:C5'	23:8:2960:C:OP2	2.57	0.53
17:2:2270:A:O2'	17:2:2271:A:H5'	2.08	0.53
22:7:2833:A:H2'	22:7:2833:A:N3	2.23	0.53
22:7:2861:U:H2'	22:7:2862:U:C6	2.41	0.53
6:E:1590:C:O2'	6:E:1591:C:H5''	2.08	0.53
13:L:112:ALA:CB	13:L:119:VAL:O	2.57	0.53
15:S:38:LEU:O	15:S:42:PHE:HD1	1.92	0.53
16:1:1024:G:C5	16:1:1025:A:N7	2.77	0.53
22:7:2829:U:C2'	22:7:2830:G:H5'	2.36	0.53
23:8:2967:A:C2'	23:8:2968:G:OP1	2.57	0.53
25:J:207:GLU:O	25:J:208:ASN:C	2.46	0.53
15:S:56:GLU:CD	15:S:56:GLU:H	2.13	0.53
21:6:2704:A:C4	21:6:2706:G:N7	2.76	0.52
22:7:2866:U:H1'	22:7:2867:C:H5	1.74	0.52
25:J:155:ALA:O	25:J:158:LYS:O	2.27	0.52
25:J:17:TYR:O	25:J:19:LYS:N	2.41	0.52
13:L:47:HIS:CE1	13:L:104:ALA:HB2	2.44	0.52
9:G:1430:C:O4'	15:S:131:THR:OG1	2.26	0.52
27:W:18:G:H1	27:W:55:U:C1'	2.20	0.52
16:1:1040:A:N6	16:1:1041:U:C5	2.77	0.52
17:2:2302:G:C6	17:2:2303:A:C5	2.98	0.52
25:J:42:THR:C	25:J:44:ASP:H	2.11	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:J:73:ASN:O	25:J:74:LYS:C	2.48	0.52
15:S:48:ARG:O	15:S:52:ARG:HB2	2.08	0.52
15:S:92:PRO:O	15:S:95:VAL:HG23	2.09	0.52
11:T:125:THR:HB	11:T:130:ARG:NH2	2.25	0.52
11:T:133:ALA:HB2	11:T:200:ARG:CB	2.39	0.52
17:2:2233:A:C8	17:2:2234:G:C8	2.97	0.52
17:2:2300:G:C6	17:2:2301:U:C4	2.97	0.52
26:F:57:VAL:HA	26:F:58:PHE:CB	2.39	0.52
12:K:116:LEU:C	12:K:116:LEU:HD23	2.29	0.52
12:K:45:THR:HG23	12:K:51:GLU:O	2.09	0.52
15:S:127:THR:O	15:S:127:THR:HG22	2.09	0.52
11:T:96:HIS:O	11:T:100:GLY:HA2	2.10	0.52
14:X:53:ASP:OD2	14:X:56:LYS:HD2	2.09	0.52
16:1:1008:U:O2	25:J:34:TYR:O	2.26	0.52
21:6:2698:G:H2'	21:6:2699:G:C5'	2.27	0.52
22:7:2836:C:O2	22:7:2836:C:H2'	2.09	0.52
27:Y:59:U:O2'	27:Y:60:U:H5'	2.10	0.52
17:2:2215:A:N3	17:2:2215:A:C2'	2.65	0.52
12:K:105:THR:C	12:K:107:GLN:H	2.13	0.52
15:S:38:LEU:O	15:S:42:PHE:CD1	2.62	0.52
16:1:1029:G:H2'	16:1:1030:A:H5'	1.90	0.52
17:2:2252:A:C4	17:2:2253:G:C8	2.98	0.52
17:2:2259:A:C5	17:2:2260:U:C2	2.98	0.52
17:2:2295:A:H62	17:2:2296:A:N6	2.05	0.52
12:K:30:VAL:HG22	12:K:94:HIS:HB2	1.92	0.52
27:V:41:C:H3'	27:V:42:C:C5'	2.38	0.52
27:V:5:G:H1'	27:V:69:G:N2	2.25	0.52
27:V:72:C:H2'	27:V:73:A:H5'	1.91	0.52
27:W:38:A:H2'	27:W:39:U:H5''	1.90	0.52
22:7:2841:G:H3'	22:7:2842:U:H5'	1.91	0.52
22:7:2868:U:C4	22:7:2869:U:H5	2.28	0.52
25:J:17:TYR:C	25:J:19:LYS:H	2.12	0.52
12:K:75:MET:HE2	12:K:121:ARG:HH22	1.74	0.52
12:K:45:THR:HG22	12:K:46:ASP:N	2.24	0.52
15:S:45:LYS:O	15:S:48:ARG:HB3	2.10	0.52
11:T:107:PHE:HA	11:T:172:ILE:CG2	2.40	0.52
27:W:20:U:H2'	27:W:21:A:C4'	2.36	0.52
16:1:1013:G:N2	16:1:1038:C:C2	2.78	0.52
16:1:1037:C:O2'	16:1:1038:C:O4'	2.25	0.52
17:2:2255:A:C4'	17:2:2256:A:OP1	2.56	0.52
18:3:2487:U:H4'	18:3:2488:A:OP2	2.08	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:J:98:ARG:CB	25:J:120:GLY:HA3	2.40	0.52
11:T:33:ILE:HG23	11:T:34:ALA:N	2.24	0.52
27:V:41:C:C2'	27:V:42:C:H5''	2.40	0.52
14:X:34:ARG:HG2	14:X:34:ARG:O	2.06	0.52
17:2:2254:U:HO2'	17:2:2255:A:P	2.33	0.52
26:F:38:GLN:O	26:F:40:LYS:N	2.42	0.52
16:1:1045:C:H5'	25:J:94:PHE:CB	2.40	0.52
15:S:33:LEU:HD22	15:S:62:VAL:HG21	1.92	0.52
16:1:1034:U:O4'	16:1:1034:U:O2	2.25	0.52
17:2:2262:A:C5'	17:2:2263:C:OP2	2.58	0.52
13:L:42:PHE:HZ	13:L:103:VAL:HG23	1.74	0.52
15:S:47:ARG:O	15:S:51:LYS:HB2	2.10	0.52
11:T:197:LYS:HD3	11:T:200:ARG:CZ	2.39	0.52
16:1:1029:G:O5'	16:1:1029:G:H8	1.92	0.51
17:2:2253:G:C6	17:2:2254:U:N3	2.78	0.51
25:J:94:PHE:O	25:J:126:ALA:O	2.27	0.51
12:K:116:LEU:C	12:K:116:LEU:CD2	2.79	0.51
15:S:33:LEU:CD2	15:S:62:VAL:HG21	2.40	0.51
27:V:52:G:H1	27:V:62:C:H42	1.57	0.51
17:2:2290:C:C2'	17:2:2291:A:O5'	2.58	0.51
17:2:2297:U:C2	17:2:2299:A:C6	2.99	0.51
23:8:2967:A:O2'	23:8:2968:G:OP1	2.24	0.51
25:J:47:PRO:O	25:J:140:THR:O	2.28	0.51
12:K:46:ASP:OD1	12:K:51:GLU:HB2	2.11	0.51
14:X:59:SER:O	14:X:61:ASN:N	2.43	0.51
27:Y:28:G:H2'	27:Y:29:G:H8	1.75	0.51
17:2:2207:A:H8	17:2:2237:C:C2	2.28	0.51
17:2:2289:U:H2'	17:2:2290:C:H5'	1.93	0.51
21:6:2696:A:N7	21:6:2697:A:C6	2.79	0.51
22:7:2850:G:C8	22:7:2850:G:H5''	2.44	0.51
25:J:17:TYR:C	25:J:19:LYS:N	2.63	0.51
12:K:22:GLY:C	12:K:24:ASN:H	2.11	0.51
13:L:106:LEU:HD21	13:L:121:PHE:C	2.31	0.51
27:W:25:C:O2'	27:W:26:A:H5'	2.10	0.51
17:2:2251:G:C2	17:2:2252:A:C8	2.98	0.51
17:2:2304:C:HO2'	17:2:2305:G:H5'	1.72	0.51
21:6:2689:A:C4	21:6:2702:A:H2	2.29	0.51
25:J:121:LYS:O	25:J:122:PRO:O	2.26	0.51
12:K:123:GLY:O	12:K:124:MET:O	2.29	0.51
12:K:150:ARG:O	12:K:151:LEU:CB	2.58	0.51
12:K:31:CYS:HA	12:K:43:HIS:O	2.09	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:S:91:ILE:CG2	15:S:92:PRO:HD2	2.40	0.51
17:2:2198:A:C4	17:2:2199:G:C8	2.99	0.51
17:2:2223:A:C2'	17:2:2224:A:H8	2.20	0.51
17:2:2253:G:H3'	17:2:2254:U:H6	1.74	0.51
17:2:2253:G:C5	17:2:2254:U:C2	2.97	0.51
24:B:59:PRO:O	24:B:60:ARG:CB	2.59	0.51
16:1:1011:A:C8	25:J:40:LYS:HA	2.46	0.51
12:K:101:GLY:CA	12:K:133:THR:HG22	2.41	0.51
17:2:2279:A:N7	17:2:2288:G:C6	2.79	0.51
22:7:2857:C:H2'	22:7:2858:U:C6	2.45	0.51
11:T:183:SER:C	11:T:185:ALA:N	2.63	0.51
11:T:62:PRO:O	11:T:64:VAL:N	2.42	0.51
27:V:20:U:H2'	27:V:21:A:H5'	1.93	0.51
16:1:1001:G:H8	16:1:1041:U:O3'	1.94	0.51
17:2:2200:U:C2	17:2:2201:G:C8	2.98	0.51
22:7:2864:A:C6	22:7:2865:U:C4	2.99	0.51
27:W:38:A:H2'	27:W:39:U:O4'	2.10	0.51
14:X:40:LEU:HA	14:X:43:ARG:HG2	1.92	0.51
17:2:2270:A:H2'	17:2:2271:A:H8	1.71	0.51
17:2:2299:A:H2'	17:2:2300:G:O5'	2.11	0.51
23:8:2974:U:H2'	23:8:2975:U:C6	2.45	0.51
12:K:45:THR:HG21	12:K:49:GLY:HA2	1.92	0.51
13:L:69:LYS:HZ2	13:L:92:LEU:HD23	1.76	0.51
15:S:58:TYR:HB3	15:S:88:MET:CE	2.41	0.51
27:W:14:A:H1'	27:W:22:G:N2	2.26	0.51
16:1:1025:A:C5'	16:1:1028:U:H3	2.24	0.51
17:2:2280:A:O2'	17:2:2281:A:P	2.68	0.51
17:2:2297:U:N3	17:2:2299:A:C6	2.79	0.51
19:4:2617:U:C6	19:4:2620:G:OP1	2.63	0.51
22:7:2836:C:C5	22:7:2853:A:C2	2.99	0.51
24:B:4:ILE:O	24:B:5:THR:C	2.48	0.51
25:J:24:ARG:O	25:J:25:ALA:HB2	2.10	0.51
12:K:54:VAL:CG1	12:K:81:VAL:HG13	2.32	0.51
13:L:101:VAL:HG11	13:L:123:VAL:HG13	1.91	0.51
13:L:78:ASN:O	13:L:79:SER:HB2	2.10	0.51
11:T:197:LYS:O	11:T:200:ARG:HG2	2.11	0.51
27:Y:55:U:H3'	27:Y:55:U:O2	2.11	0.51
17:2:2206:G:H2'	17:2:2207:A:H5'	1.92	0.50
17:2:2270:A:C2'	17:2:2271:A:C8	2.89	0.50
22:7:2837:A:H2'	22:7:2845:A:C2	2.46	0.50
22:7:2858:U:C2'	22:7:2859:U:C5	2.94	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:K:53:LEU:HD13	12:K:88:LEU:HD13	1.94	0.50
18:3:2484:A:C6	27:W:19:G:C2'	2.93	0.50
17:2:2279:A:C2	17:2:2283:G:C2	2.99	0.50
22:7:2841:G:N1	22:7:2844:C:N3	2.59	0.50
24:B:155:ILE:HA	24:B:156:LYS:C	2.32	0.50
25:J:66:GLU:O	25:J:67:ALA:C	2.49	0.50
13:L:73:VAL:HG12	13:L:74:LEU:N	2.26	0.50
11:T:32:TYR:O	11:T:33:ILE:HD12	2.10	0.50
27:V:15:G:O2'	27:V:16:U:H5'	2.11	0.50
27:W:65:G:H2'	27:W:66:U:C6	2.46	0.50
22:7:2827:U:O2	22:7:2827:U:C2'	2.60	0.50
22:7:2841:G:C5	22:7:2844:C:C4	2.99	0.50
11:T:101:ARG:O	11:T:103:PRO:CD	2.58	0.50
11:T:47:THR:C	11:T:49:GLY:N	2.60	0.50
14:X:7:THR:CG2	14:X:10:LYS:HB2	2.34	0.50
17:2:2209:U:H6	17:2:2209:U:H3'	1.76	0.50
19:4:2618:G:H4'	19:4:2619:G:OP2	2.09	0.50
19:4:2627:C:H4'	19:4:2627:C:OP2	2.11	0.50
20:5:2655:U:O4'	20:5:2656:A:C4	2.64	0.50
22:7:2847:A:N3	22:7:2847:A:H2'	2.25	0.50
27:Y:26:A:H2'	27:Y:27:G:H5'	1.92	0.50
17:2:2204:C:C2'	17:2:2205:U:H5''	2.41	0.50
17:2:2221:G:H8	17:2:2221:G:H5''	1.76	0.50
25:J:170:LYS:CB	25:J:172:GLY:N	2.74	0.50
25:J:170:LYS:CB	25:J:171:TRP:C	2.80	0.50
11:T:191:GLU:O	11:T:195:VAL:HG23	2.11	0.50
17:2:2285:C:H5	17:2:2286:U:C4	2.27	0.50
22:7:2852:C:H5	22:7:2853:A:C4	2.29	0.50
23:8:2963:C:H2'	23:8:2964:G:C5'	2.40	0.50
24:B:54:LYS:CA	24:B:55:LEU:CB	2.89	0.50
13:L:55:LYS:H	13:L:55:LYS:HD3	1.76	0.50
11:T:22:VAL:HG12	11:T:23:LYS:H	1.76	0.50
16:1:1014:U:OP2	16:1:1014:U:H4'	2.08	0.50
22:7:2851:A:H5''	22:7:2851:A:C8	2.47	0.50
23:8:2963:C:O2'	23:8:2964:G:H5'	2.11	0.50
26:F:77:CYS:C	26:F:79:THR:H	2.14	0.50
14:X:59:SER:C	14:X:61:ASN:H	2.15	0.50
22:7:2847:A:N3	22:7:2848:G:C8	2.79	0.50
26:F:52:GLY:O	26:F:53:GLN:CB	2.60	0.50
12:K:76:GLN:O	12:K:80:ASP:HB2	2.11	0.50
18:3:2484:A:C1'	27:W:19:G:C2	2.89	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:4:2616:C:H2'	19:4:2617:U:C5'	2.31	0.50
19:4:2618:G:C8	25:J:115:MET:N	2.80	0.50
13:L:85:PHE:HE1	13:L:87:PRO:HA	1.77	0.50
16:1:1024:G:C2'	16:1:1025:A:H5'	2.42	0.49
17:2:2249:G:N9	17:2:2272:G:C8	2.79	0.49
12:K:106:LYS:NZ	12:K:136:PRO:HD2	2.27	0.49
12:K:45:THR:CG2	12:K:46:ASP:N	2.74	0.49
13:L:78:ASN:HD21	13:L:80:LYS:CG	2.25	0.49
15:S:121:LEU:HD12	15:S:121:LEU:O	2.12	0.49
16:1:1003:A:C2	16:1:1004:U:C1'	2.95	0.49
17:2:2207:A:C8	17:2:2237:C:C2	3.00	0.49
20:5:2654:C:H5'	20:5:2657:A:C6	2.46	0.49
23:8:2976:A:O5'	23:8:2976:A:H8	1.96	0.49
13:L:42:PHE:HB3	13:L:45:ALA:HB3	1.93	0.49
19:4:2620:G:N2	27:V:75:C:C1'	2.74	0.49
27:Y:53:G:N3	27:Y:53:G:H2'	2.27	0.49
17:2:2264:U:O2'	17:2:2265:C:H5'	2.13	0.49
17:2:2280:A:HO2'	17:2:2281:A:P	2.36	0.49
17:2:2198:A:O2'	17:2:2199:G:H5'	2.13	0.49
17:2:2294:U:H3'	17:2:2295:A:H5''	1.94	0.49
22:7:2856:G:C2	22:7:2857:C:C4	3.00	0.49
23:8:2957:G:H5'	23:8:2957:G:H8	1.76	0.49
23:8:2964:G:C5	23:8:2966:G:OP2	2.66	0.49
11:T:14:PHE:CD2	11:T:89:LYS:HG3	2.46	0.49
27:W:70:G:H2'	27:W:71:G:O4'	2.12	0.49
17:2:2222:A:O5'	17:2:2222:A:H8	1.95	0.49
17:2:2299:A:C4	17:2:2300:G:H8	2.31	0.49
19:4:2618:G:P	19:4:2618:G:H21	2.35	0.49
15:S:13:PHE:O	15:S:14:ARG:HD3	2.12	0.49
27:V:5:G:H2'	27:V:6:G:O4'	2.13	0.49
17:2:2247:G:N3	17:2:2247:G:H2'	2.27	0.49
9:G:1434:C:O2	9:G:1434:C:H2'	2.11	0.49
15:S:60:LYS:NZ	15:S:64:LYS:HE3	2.28	0.49
27:Y:74:C:H2'	27:Y:75:C:C5'	2.43	0.49
17:2:2249:G:H2'	17:2:2250:G:H1'	1.93	0.49
17:2:2255:A:N1	17:2:2258:U:H5''	2.28	0.49
25:J:35:ASP:O	25:J:36:LEU:C	2.50	0.49
15:S:42:PHE:HE2	15:S:118:GLY:HA2	1.77	0.49
15:S:49:ARG:NH1	15:S:87:SER:O	2.46	0.49
11:T:125:THR:HB	11:T:130:ARG:CZ	2.42	0.49
11:T:54:LYS:HB3	11:T:57:ARG:HG2	1.95	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:V:50:U:H2'	27:V:51:U:O4'	2.12	0.49
17:2:2252:A:N3	17:2:2253:G:C8	2.80	0.49
22:7:2860:U:O2	22:7:2860:U:H2'	2.13	0.49
9:G:1433:G:H4'	27:V:29:G:O3'	2.13	0.49
27:Y:16:U:C2'	27:Y:17:C:H5'	2.43	0.49
16:1:1013:G:H4'	16:1:1014:U:OP2	2.12	0.49
24:B:53:LEU:CB	24:B:54:LYS:CA	2.91	0.49
19:4:2614:G:C6	19:4:2615:G:C5	3.01	0.49
25:J:205:SER:N	25:J:206:LEU:HA	2.26	0.49
13:L:131:LEU:O	13:L:132:LEU:C	2.51	0.49
13:L:56:ILE:CG2	13:L:57:GLY:N	2.76	0.49
15:S:73:PRO:C	15:S:75:GLY:N	2.66	0.49
11:T:19:TYR:CE2	11:T:41:GLN:HA	2.48	0.49
27:V:40:C:H2'	27:V:41:C:H6	1.76	0.49
17:2:2206:G:N3	17:2:2206:G:H2'	2.28	0.48
17:2:2250:G:N2	17:2:2267:C:C2	2.60	0.48
17:2:2206:G:N2	17:2:2207:A:C8	2.80	0.48
17:2:2276:G:N7	17:2:2277:C:C5	2.80	0.48
26:F:80:ARG:O	26:F:81:ALA:C	2.51	0.48
13:L:87:PRO:O	13:L:88:MET:O	2.31	0.48
11:T:178:ASN:HA	11:T:186:ILE:HD13	1.95	0.48
27:W:53:G:O2'	27:W:54:U:H5'	2.13	0.48
14:X:7:THR:HG22	14:X:8:LEU:H	1.78	0.48
27:Y:16:U:H2'	27:Y:17:C:H5'	1.94	0.48
17:2:2264:U:H6	17:2:2264:U:O5'	1.96	0.48
17:2:2279:A:C8	17:2:2288:G:C5	3.01	0.48
19:4:2625:C:O2	19:4:2627:C:C5	2.66	0.48
22:7:2847:A:C2	22:7:2848:G:C1'	2.97	0.48
22:7:2834:G:C6	22:7:2855:U:C4	3.01	0.48
27:V:28:G:O2'	27:V:29:G:H5'	2.14	0.48
22:7:2841:G:C5	22:7:2844:C:N4	2.81	0.48
22:7:2847:A:C5'	22:7:2848:G:OP2	2.55	0.48
13:L:29:PHE:O	13:L:33:LEU:HB2	2.14	0.48
13:L:52:VAL:HG22	13:L:71:VAL:HG11	1.96	0.48
11:T:99:THR:HG21	11:T:101:ARG:HE	1.78	0.48
27:W:63:G:H2'	27:W:64:A:C8	2.48	0.48
26:F:76:LYS:C	26:F:78:LYS:N	2.66	0.48
11:T:105:GLU:O	11:T:105:GLU:HG2	2.12	0.48
16:1:1023:C:H3'	16:1:1024:G:H5''	1.95	0.48
25:J:219:ALA:C	25:J:221:ALA:H	2.17	0.48
13:L:29:PHE:CZ	13:L:33:LEU:HD12	2.49	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:S:60:LYS:HD3	15:S:64:LYS:HE3	1.94	0.48
11:T:63:ILE:O	11:T:66:ARG:HB2	2.14	0.48
27:W:52:G:H2'	27:W:53:G:C8	2.49	0.48
17:2:2276:G:O6	17:2:2277:C:C4	2.67	0.48
14:X:66:LYS:O	14:X:70:MET:HB2	2.13	0.48
16:1:1038:C:C4'	16:1:1038:C:OP1	2.62	0.48
17:2:2253:G:C4	17:2:2254:U:C6	3.01	0.48
17:2:2254:U:O2'	17:2:2255:A:P	2.71	0.48
13:L:26:ASP:HB3	13:L:29:PHE:HB3	1.95	0.48
27:W:76:A:H3'	27:W:76:A:OP2	2.14	0.48
27:W:6:G:H2'	27:W:7:A:H5'	1.93	0.48
16:1:1005:G:H2'	16:1:1006:A:O5'	2.14	0.48
22:7:2850:G:H8	22:7:2850:G:H5''	1.79	0.48
6:E:1590:C:O2'	6:E:1591:C:OP2	2.28	0.48
25:J:61:SER:HA	25:J:126:ALA:HB2	1.96	0.48
25:J:170:LYS:O	25:J:178:ARG:N	2.47	0.48
25:J:184:LYS:O	25:J:186:GLU:N	2.47	0.48
25:J:37:GLY:HA3	25:J:86:HIS:N	2.25	0.48
12:K:88:LEU:O	12:K:89:LYS:HB2	2.13	0.48
13:L:61:LYS:HD2	13:L:117:PRO:HA	1.96	0.48
11:T:152:GLY:HA2	11:T:184:TRP:HD1	1.78	0.48
11:T:71:LEU:HG	11:T:84:CYS:SG	2.54	0.48
17:2:2254:U:C2'	17:2:2255:A:OP1	2.62	0.48
19:4:2615:G:C4	19:4:2616:C:C5	3.01	0.48
15:S:42:PHE:CD2	15:S:46:THR:HG21	2.49	0.48
11:T:83:LEU:C	11:T:83:LEU:HD23	2.33	0.48
27:W:21:A:C8	27:W:21:A:H5'	2.49	0.48
14:X:47:PRO:O	14:X:51:ALA:HB2	2.14	0.48
14:X:62:TRP:CH2	14:X:63:HIS:NE2	2.81	0.48
16:1:1004:U:N3	16:1:1005:G:C5	2.82	0.47
16:1:1035:G:H2'	16:1:1036:A:H5'	1.95	0.47
16:1:1047:A:N1	16:1:1048:A:C2	2.82	0.47
17:2:2261:G:N2	17:2:2263:C:C2	2.82	0.47
22:7:2826:U:N3	22:7:2827:U:C5	2.81	0.47
11:T:102:ASN:O	11:T:105:GLU:N	2.46	0.47
27:V:40:C:H5''	27:W:36:A:P	2.51	0.47
22:7:2825:C:H42	22:7:2864:A:N6	2.12	0.47
23:8:2960:C:C3'	23:8:2961:G:H8	2.28	0.47
23:8:2957:G:C6	23:8:2976:A:C2	3.02	0.47
24:B:55:LEU:HA	24:B:167:VAL:HA	1.96	0.47
25:J:153:ARG:O	25:J:154:ARG:C	2.52	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:J:45:GLU:O	25:J:47:PRO:N	2.47	0.47
12:K:29:GLY:O	12:K:93:LEU:HA	2.14	0.47
13:L:3:VAL:HG12	13:L:4:GLY:N	2.24	0.47
17:2:2194:G:H2'	17:2:2195:C:H5'	1.97	0.47
17:2:2248:C:C4'	17:2:2271:A:C2	2.96	0.47
13:L:75:LEU:HD12	13:L:78:ASN:HD22	1.80	0.47
27:Y:51:U:H3'	27:Y:52:G:H8	1.79	0.47
16:1:1013:G:H3'	16:1:1014:U:O3'	2.15	0.47
17:2:2290:C:C4	17:2:2303:A:N1	2.82	0.47
21:6:2693:C:H5''	21:6:2694:A:H5'	1.96	0.47
23:8:2969:A:C6	23:8:2970:C:N4	2.83	0.47
25:J:205:SER:CB	25:J:206:LEU:HA	2.43	0.47
12:K:103:VAL:HG12	12:K:142:ARG:CD	2.45	0.47
12:K:99:ALA:O	12:K:101:GLY:N	2.48	0.47
15:S:85:TYR:HD1	15:S:85:TYR:H	1.63	0.47
27:W:59:U:H2'	27:W:60:U:H5'	1.96	0.47
27:Y:38:A:H2'	27:Y:39:U:O4'	2.14	0.47
16:1:1040:A:O5'	16:1:1040:A:H8	1.97	0.47
17:2:2248:C:H4'	17:2:2271:A:C2	2.49	0.47
13:L:69:LYS:NZ	13:L:92:LEU:HB3	2.29	0.47
15:S:60:LYS:HZ3	15:S:64:LYS:CE	2.27	0.47
27:Y:11:C:H2'	27:Y:12:U:C6	2.49	0.47
27:Y:42:C:C3'	27:Y:43:C:H5''	2.45	0.47
17:2:2279:A:H4'	17:2:2280:A:C5'	2.40	0.47
25:J:57:LEU:HA	25:J:129:VAL:O	2.14	0.47
25:J:69:ARG:O	25:J:70:ILE:O	2.33	0.47
13:L:55:LYS:HB2	13:L:92:LEU:HD21	1.97	0.47
11:T:193:GLU:O	11:T:197:LYS:N	2.46	0.47
11:T:45:PRO:HB2	11:T:68:ILE:HD12	1.97	0.47
17:2:2295:A:C6	17:2:2296:A:C6	3.03	0.47
21:6:2701:U:O4'	21:6:2705:A:C6	2.67	0.47
12:K:69:SER:O	12:K:70:SER:O	2.33	0.47
11:T:81:LYS:O	11:T:82:ALA:C	2.52	0.47
27:V:74:C:C2'	27:V:75:C:H5'	2.44	0.47
27:W:31:A:N1	27:W:39:U:O4	2.47	0.47
16:1:1004:U:H6	16:1:1004:U:O5'	1.98	0.47
21:6:2702:A:O4'	21:6:2704:A:C5	2.67	0.47
22:7:2869:U:C2'	22:7:2869:U:O2	2.62	0.47
24:B:101:LYS:O	24:B:102:LYS:C	2.53	0.47
25:J:33:ILE:O	25:J:34:TYR:CB	2.61	0.47
12:K:78:ALA:HB1	12:K:119:LEU:CD1	2.45	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:2:2215:A:C2	17:2:2216:G:N9	2.83	0.47
17:2:2249:G:C2	17:2:2272:G:O6	2.68	0.47
19:4:2617:U:O4'	19:4:2617:U:O2	2.32	0.47
15:S:66:ARG:HH12	15:S:93:GLU:HB3	1.77	0.47
11:T:152:GLY:O	11:T:155:GLU:N	2.48	0.47
18:3:2484:A:C4	27:W:19:G:C2	2.47	0.47
20:5:2655:U:H1'	20:5:2656:A:C2	2.49	0.47
25:J:206:LEU:O	25:J:207:GLU:C	2.53	0.47
13:L:75:LEU:HD11	13:L:82:ILE:CD1	2.45	0.47
15:S:90:VAL:HB	15:S:117:ILE:HA	1.96	0.47
27:V:20:U:OP1	27:V:20:U:H4'	2.15	0.47
17:2:2196:C:N4	17:2:2242:A:C8	2.83	0.47
17:2:2215:A:C2	17:2:2216:G:C1'	2.98	0.47
20:5:2656:A:C4'	20:5:2657:A:OP1	2.45	0.47
21:6:2706:G:C4	21:6:2707:C:C5	3.03	0.47
12:K:121:ARG:C	12:K:123:GLY:H	2.18	0.47
12:K:46:ASP:C	12:K:48:SER:H	2.18	0.47
13:L:106:LEU:CD2	13:L:122:LYS:HB2	2.45	0.47
15:S:69:LYS:NZ	15:S:93:GLU:O	2.45	0.47
11:T:57:ARG:O	11:T:59:THR:N	2.48	0.47
27:W:39:U:O2	27:W:39:U:C5'	2.63	0.47
17:2:2199:G:C4	17:2:2200:U:C5	3.03	0.46
17:2:2223:A:N3	17:2:2224:A:C4	2.83	0.46
17:2:2249:G:C1'	17:2:2272:G:C8	2.97	0.46
19:4:2618:G:C8	25:J:114:GLY:C	2.82	0.46
15:S:32:LYS:O	15:S:34:ILE:N	2.48	0.46
15:S:42:PHE:CD2	15:S:118:GLY:HA2	2.49	0.46
14:X:7:THR:CG2	14:X:8:LEU:H	2.28	0.46
17:2:2225:U:C2	17:2:2226:U:C5	3.03	0.46
17:2:2250:G:H2'	17:2:2250:G:N3	2.31	0.46
23:8:2966:G:C6	23:8:2967:A:C6	3.03	0.46
6:E:1590:C:O2'	6:E:1591:C:P	2.74	0.46
9:G:1440:A:H2'	9:G:1441:C:C6	2.50	0.46
13:L:131:LEU:O	13:L:134:LEU:N	2.48	0.46
13:L:40:ASN:CB	13:L:41:PRO:HD2	2.38	0.46
11:T:107:PHE:HA	11:T:172:ILE:HG23	1.96	0.46
17:2:2266:U:H5''	17:2:2267:C:OP2	2.14	0.46
17:2:2294:U:C2	17:2:2296:A:OP2	2.69	0.46
22:7:2833:A:C2'	22:7:2834:G:H5'	2.35	0.46
16:1:1046:A:OP1	25:J:18:PRO:CB	2.63	0.46
16:1:1011:A:H4'	25:J:40:LYS:O	2.10	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:S:86:ARG:CZ	15:S:122:ALA:HB1	2.45	0.46
11:T:13:LEU:C	11:T:15:GLY:N	2.68	0.46
27:Y:15:G:O2'	27:Y:16:U:OP1	2.25	0.46
16:1:1032:C:H2'	16:1:1033:U:C6	2.50	0.46
17:2:2289:U:N3	17:2:2290:C:C5	2.84	0.46
20:5:2655:U:C1'	20:5:2656:A:C2	2.98	0.46
22:7:2834:G:O2'	22:7:2835:U:O4'	2.34	0.46
22:7:2852:C:C5	22:7:2853:A:C5	3.03	0.46
11:T:16:LYS:HE3	11:T:93:GLU:OE1	2.15	0.46
11:T:174:ASN:CB	11:T:182:SER:O	2.63	0.46
14:X:28:ARG:HD3	14:X:28:ARG:HA	1.57	0.46
16:1:1007:U:OP1	16:1:1007:U:H4'	2.15	0.46
16:1:1019:G:N2	16:1:1033:U:O2	2.31	0.46
16:1:1042:U:C2'	16:1:1043:C:O5'	2.64	0.46
17:2:2234:G:C5	17:2:2235:C:C5	3.04	0.46
17:2:2240:G:C2'	17:2:2241:U:O5'	2.64	0.46
17:2:2289:U:C2'	17:2:2290:C:C5'	2.94	0.46
17:2:2290:C:N3	17:2:2303:A:C2	2.84	0.46
24:B:128:LEU:O	24:B:131:ALA:HB3	2.15	0.46
11:T:13:LEU:HB2	11:T:19:TYR:HE1	1.80	0.46
11:T:95:ILE:HG21	11:T:103:PRO:CB	2.43	0.46
27:V:16:U:H4'	27:V:17:C:H5	1.81	0.46
17:2:2252:A:C4	17:2:2253:G:N7	2.83	0.46
17:2:2291:A:N1	17:2:2292:U:C2	2.84	0.46
25:J:89:VAL:O	25:J:136:PHE:CA	2.54	0.46
11:T:14:PHE:HD2	11:T:17:TRP:HZ3	1.63	0.46
11:T:153:CYS:HA	11:T:167:THR:CG2	2.46	0.46
27:V:66:U:O2'	27:V:67:C:H5'	2.16	0.46
16:1:1020:G:C6	16:1:1021:G:N7	2.84	0.46
17:2:2257:C:C2	17:2:2258:U:C6	3.04	0.46
17:2:2259:A:H5''	17:2:2260:U:C5	2.47	0.46
17:2:2288:G:C2	17:2:2289:U:C5	3.03	0.46
23:8:2959:C:H5'	23:8:2960:C:OP2	2.16	0.46
11:T:197:LYS:C	11:T:200:ARG:HG2	2.36	0.46
16:1:1019:G:O6	16:1:1033:U:O4	2.32	0.46
17:2:2197:C:H4'	17:2:2198:A:H8	1.79	0.46
23:8:2960:C:H2'	23:8:2961:G:C8	2.50	0.46
12:K:110:PRO:HG2	12:K:111:GLY:N	2.31	0.46
15:S:114:PHE:O	15:S:117:ILE:HG13	2.15	0.46
27:W:4:C:C2	27:W:70:G:C2	3.04	0.46
14:X:35:SER:O	14:X:39:ILE:HG13	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:Y:52:G:N3	27:Y:52:G:H2'	2.30	0.46
16:1:1009:A:H2'	25:J:39:LYS:CB	2.46	0.46
23:8:2960:C:H3'	23:8:2961:G:C8	2.49	0.46
12:K:36:THR:HG22	12:K:38:ASN:H	1.81	0.46
11:T:34:ALA:HB1	11:T:62:PRO:HA	1.97	0.46
14:X:44:ARG:HA	14:X:49:ILE:HD12	1.98	0.46
17:2:2301:U:O2'	17:2:2302:G:H5'	2.16	0.46
27:Y:20:U:N3	27:Y:36:A:C2	40.68	0.46
16:1:1020:G:C6	16:1:1021:G:C5	3.04	0.45
17:2:2257:C:H3'	17:2:2258:U:C6	2.40	0.45
17:2:2300:G:C2	17:2:2301:U:C2	3.04	0.45
21:6:2690:G:O2'	21:6:2691:A:P	2.74	0.45
27:V:16:U:H4'	27:V:17:C:C5	2.50	0.45
27:W:59:U:C2'	27:W:60:U:H5'	2.46	0.45
16:1:1003:A:C6	16:1:1004:U:C2	3.04	0.45
17:2:2235:C:H2'	17:2:2236:G:C8	2.52	0.45
17:2:2249:G:H2'	17:2:2250:G:O4'	2.16	0.45
17:2:2255:A:H4'	17:2:2256:A:OP1	2.12	0.45
22:7:2852:C:N4	22:7:2853:A:N3	2.64	0.45
9:G:1435:G:C2	9:G:1436:C:C5	3.03	0.45
12:K:142:ARG:NH2	12:K:143:GLU:CD	2.70	0.45
13:L:27:ASN:O	13:L:31:LYS:HB2	2.16	0.45
13:L:69:LYS:HZ2	13:L:92:LEU:CB	2.29	0.45
11:T:70:THR:HB	11:T:150:ILE:CD1	2.44	0.45
27:V:37:A:H3'	27:V:38:A:H8	1.80	0.45
27:V:41:C:H2'	27:V:42:C:H5''	1.99	0.45
16:1:1038:C:O2'	16:1:1039:U:H5'	2.16	0.45
17:2:2205:U:C2'	17:2:2206:G:H5'	2.37	0.45
23:8:2965:U:H2'	23:8:2966:G:H5'	1.99	0.45
12:K:54:VAL:HG22	12:K:84:ARG:HG3	1.98	0.45
15:S:95:VAL:CG2	15:S:117:ILE:HD11	2.46	0.45
27:W:18:G:O2'	27:W:57:G:O6	2.30	0.45
14:X:34:ARG:HB3	14:X:34:ARG:CZ	2.44	0.45
17:2:2285:C:H5	17:2:2286:U:C6	2.33	0.45
17:2:2295:A:H2'	17:2:2296:A:C8	2.52	0.45
26:F:38:GLN:C	26:F:40:LYS:N	2.68	0.45
11:T:72:MET:HE2	11:T:81:LYS:HA	1.98	0.45
16:1:1029:G:H2'	16:1:1030:A:H5''	1.99	0.45
17:2:2302:G:H2'	17:2:2303:A:O4'	2.16	0.45
22:7:2836:C:H5	22:7:2853:A:C2	2.33	0.45
22:7:2840:C:N4	22:7:2841:G:C5	2.85	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:W:38:A:H2'	27:W:39:U:C5'	2.47	0.45
27:Y:74:C:C2'	27:Y:75:C:H5'	2.46	0.45
17:2:2222:A:O2'	17:2:2223:A:H5''	2.17	0.45
17:2:2232:A:H3'	17:2:2232:A:C8	2.51	0.45
17:2:2278:C:O2'	17:2:2279:A:H5''	2.17	0.45
24:B:68:PHE:HA	24:B:73:ASP:CB	2.46	0.45
25:J:159:PHE:O	25:J:160:PRO:C	2.54	0.45
12:K:27:VAL:HG11	12:K:90:ILE:HG12	1.98	0.45
12:K:30:VAL:O	12:K:30:VAL:HG12	2.14	0.45
11:T:52:GLN:HE22	11:T:58:LYS:HE2	1.82	0.45
27:Y:8:U:C4'	27:Y:48:C:H4'	2.44	0.45
17:2:2279:A:C3'	17:2:2280:A:C5'	2.94	0.45
26:F:23:HIS:HA	26:F:74:CYS:HA	1.98	0.45
26:F:92:GLU:O	26:F:93:LEU:O	2.35	0.45
25:J:142:ASP:C	25:J:144:ASN:H	2.20	0.45
25:J:152:LEU:O	25:J:153:ARG:C	2.54	0.45
25:J:83:ASP:O	25:J:84:ALA:HB2	2.17	0.45
13:L:75:LEU:HD11	13:L:82:ILE:HD11	1.99	0.45
27:W:23:A:H2'	27:W:24:G:C8	2.52	0.45
16:1:1042:U:C5	16:1:1042:U:OP2	2.69	0.45
17:2:2240:G:H2'	17:2:2241:U:C5'	2.47	0.45
17:2:2298:U:O4'	17:2:2298:U:O2	2.35	0.45
17:2:2297:U:O2	17:2:2299:A:C5	2.70	0.45
21:6:2694:A:C5'	21:6:2695:A:OP2	2.65	0.45
22:7:2839:G:C6	22:7:2850:G:C2	3.04	0.45
11:T:47:THR:O	11:T:47:THR:HG22	2.17	0.45
17:2:2247:G:H5''	17:2:2248:C:OP2	2.17	0.45
17:2:2270:A:C6	17:2:2271:A:C6	3.05	0.45
12:K:21:VAL:CG1	12:K:22:GLY:H	2.08	0.45
17:2:2209:U:OP2	17:2:2209:U:N1	2.51	0.45
17:2:2211:U:O2'	17:2:2212:C:H5'	2.17	0.45
21:6:2690:G:OP2	21:6:2691:A:N7	2.50	0.45
26:F:76:LYS:C	26:F:78:LYS:H	2.20	0.45
25:J:56:GLU:N	25:J:131:ILE:HA	2.31	0.45
12:K:104:GLU:O	12:K:106:LYS:N	2.50	0.45
13:L:78:ASN:ND2	13:L:80:LYS:HG2	2.32	0.45
16:1:1029:G:C3'	16:1:1030:A:H5'	2.48	0.44
17:2:2287:C:O2	17:2:2298:U:H5''	2.17	0.44
9:G:1430:C:O2'	9:G:1431:A:P	2.75	0.44
12:K:138:ASP:O	12:K:139:SER:OG	2.23	0.44
13:L:139:LYS:O	13:L:140:GLU:HG3	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:S:85:TYR:N	15:S:85:TYR:CD1	2.85	0.44
16:1:1021:G:C5	16:1:1022:U:C5	3.04	0.44
22:7:2835:U:O2	22:7:2835:U:H2'	2.17	0.44
22:7:2866:U:P	25:J:115:MET:CB	3.05	0.44
26:F:45:ARG:O	26:F:46:LYS:CB	2.65	0.44
12:K:47:LEU:N	12:K:47:LEU:CD2	2.71	0.44
17:2:2252:A:N1	17:2:2253:G:C6	2.86	0.44
21:6:2703:A:C4'	21:6:2704:A:H5'	2.47	0.44
12:K:43:HIS:CE1	12:K:52:THR:HG23	2.51	0.44
12:K:95:ILE:HD11	12:K:126:ILE:HG23	1.99	0.44
11:T:150:ILE:O	11:T:151:LYS:C	2.55	0.44
11:T:126:ALA:HB2	27:W:14:A:OP2	45.49	0.44
16:1:1028:U:H2'	16:1:1029:G:C5	2.52	0.44
17:2:2300:G:N3	17:2:2300:G:H2'	2.32	0.44
22:7:2831:G:C2	22:7:2832:C:C2	3.06	0.44
24:B:32:VAL:HA	24:B:208:SER:HA	2.00	0.44
26:F:47:GLN:H	26:F:48:SER:CA	2.26	0.44
11:T:171:GLU:OE2	11:T:183:SER:HB2	2.17	0.44
27:W:16:U:N3	27:W:19:G:OP2	2.51	0.44
27:Y:33:U:H3'	27:Y:34:G:H5''	1.99	0.44
17:2:2217:U:H2'	17:2:2218:G:H8	1.83	0.44
12:K:91:ASN:HD22	12:K:125:LYS:HD2	1.83	0.44
17:2:2285:C:H41	17:2:2286:U:H3	1.65	0.44
23:8:2961:G:H5''	23:8:2962:U:P	2.58	0.44
23:8:2966:G:O5'	23:8:2966:G:H8	2.00	0.44
24:B:68:PHE:H	24:B:112:ALA:HB2	1.83	0.44
13:L:52:VAL:HB	13:L:98:ASN:H	1.82	0.44
15:S:46:THR:CG2	15:S:89:ILE:HD13	2.42	0.44
11:T:34:ALA:H	11:T:63:ILE:HG12	1.82	0.44
11:T:96:HIS:O	11:T:100:GLY:CA	2.65	0.44
27:W:19:G:H5'	27:W:20:U:H5	1.82	0.44
16:1:1031:C:C4	16:1:1032:C:C5	3.05	0.44
17:2:2197:C:N3	17:2:2242:A:C2	2.86	0.44
17:2:2246:G:C4	17:2:2247:G:C8	3.06	0.44
17:2:2279:A:C2	17:2:2283:G:N2	2.86	0.44
19:4:2615:G:H2'	19:4:2616:C:C6	2.52	0.44
22:7:2836:C:C3'	22:7:2836:C:O2	2.65	0.44
23:8:2968:G:O2'	23:8:2969:A:H5'	2.18	0.44
12:K:150:ARG:O	12:K:151:LEU:HB3	2.17	0.44
12:K:61:LYS:HE3	12:K:76:GLN:HB3	1.99	0.44
11:T:47:THR:O	11:T:48:ALA:C	2.56	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:1:1013:G:O3'	16:1:1014:U:H4'	2.11	0.44
17:2:2218:G:C4	17:2:2228:A:C2	3.06	0.44
22:7:2857:C:C2	22:7:2858:U:C6	3.06	0.44
22:7:2868:U:C4	22:7:2869:U:C5	3.06	0.44
15:S:46:THR:HG23	15:S:89:ILE:HD12	1.99	0.44
15:S:55:SER:HB2	15:S:58:TYR:CE2	2.52	0.44
11:T:153:CYS:HA	11:T:167:THR:HG22	1.99	0.44
11:T:63:ILE:H	11:T:63:ILE:HG13	1.60	0.44
27:W:12:U:H2'	27:W:13:C:O4'	2.18	0.44
27:Y:27:G:N2	27:Y:43:C:H5	2.10	0.44
18:3:2484:A:N7	27:W:19:G:O2'	2.43	0.44
22:7:2837:A:H2'	22:7:2845:A:C6	2.52	0.44
6:E:1591:C:C2'	6:E:1591:C:O2	2.64	0.44
25:J:24:ARG:O	25:J:25:ALA:CB	2.66	0.44
27:V:68:C:H2'	27:V:69:G:O4'	2.17	0.44
17:2:2223:A:C2	17:2:2224:A:C5	3.06	0.43
17:2:2255:A:C2	17:2:2258:U:OP2	2.71	0.43
17:2:2278:C:C4	17:2:2305:G:C5	3.06	0.43
16:1:1036:A:C6	16:1:1037:C:N4	2.86	0.43
22:7:2830:G:H2'	22:7:2831:G:O5'	2.18	0.43
15:S:38:LEU:HA	15:S:41:LEU:HD12	2.00	0.43
27:V:22:G:H2'	27:V:23:A:C8	2.54	0.43
14:X:7:THR:O	14:X:8:LEU:HB2	2.17	0.43
17:2:2224:A:H3'	17:2:2225:U:H6	1.83	0.43
17:2:2281:A:H1'	17:2:2282:U:OP1	2.18	0.43
17:2:2289:U:O2'	17:2:2290:C:C5'	2.62	0.43
18:3:2488:A:N3	18:3:2488:A:H2'	2.33	0.43
22:7:2872:A:O4'	22:7:2873:U:OP1	2.35	0.43
13:L:124:VAL:O	13:L:124:VAL:HG12	2.18	0.43
15:S:31:GLU:HG2	15:S:31:GLU:H	1.57	0.43
15:S:98:ILE:HG22	15:S:111:GLU:HG2	1.99	0.43
11:T:154:ARG:HA	11:T:157:ALA:HB3	2.00	0.43
16:1:1049:C:N3	16:1:1050:U:C5	2.86	0.43
17:2:2249:G:N9	17:2:2272:G:N7	2.66	0.43
17:2:2276:G:C4	17:2:2277:C:C5	3.05	0.43
20:5:2655:U:O4'	20:5:2656:A:N3	2.51	0.43
25:J:164:LYS:O	25:J:165:ILE:C	2.57	0.43
12:K:43:HIS:HE1	12:K:52:THR:CG2	2.30	0.43
13:L:75:LEU:CD2	13:L:82:ILE:HD12	2.42	0.43
11:T:72:MET:CE	11:T:81:LYS:HB2	2.44	0.43
17:2:2209:U:C3'	17:2:2209:U:C6	3.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:2:2218:G:C5	17:2:2228:A:C2	3.06	0.43
15:S:15:GLY:CA	15:S:114:PHE:HE2	2.31	0.43
15:S:60:LYS:HZ3	15:S:64:LYS:HE3	1.83	0.43
11:T:183:SER:O	11:T:183:SER:OG	2.33	0.43
11:T:24:ILE:CD1	11:T:30:GLN:HA	2.48	0.43
11:T:62:PRO:O	11:T:65:GLU:N	2.44	0.43
14:X:31:PRO:CG	14:X:39:ILE:HD11	2.46	0.43
27:Y:45:U:H6	27:Y:45:U:O5'	2.02	0.43
17:2:2257:C:O2	17:2:2257:C:O4'	2.36	0.43
22:7:2864:A:C5	22:7:2865:U:C4	3.07	0.43
11:T:148:PHE:O	11:T:151:LYS:HB3	2.19	0.43
27:V:42:C:H6	27:V:42:C:H5'	1.84	0.43
27:V:72:C:C2'	27:V:73:A:H5'	2.47	0.43
14:X:13:LYS:O	14:X:17:GLN:HG3	2.18	0.43
17:2:2199:G:C2	17:2:2200:U:C6	3.06	0.43
17:2:2284:C:C5'	17:2:2285:C:OP2	2.66	0.43
9:G:1430:C:O2'	9:G:1431:A:O5'	2.36	0.43
25:J:202:LYS:O	25:J:203:LYS:CB	2.65	0.43
25:J:66:GLU:O	25:J:68:ALA:N	2.51	0.43
11:T:104:LEU:C	11:T:106:VAL:H	2.21	0.43
11:T:59:THR:C	11:T:61:CYS:H	2.22	0.43
14:X:33:GLY:C	14:X:35:SER:N	2.72	0.43
17:2:2212:C:O2'	17:2:2233:A:N6	2.51	0.43
17:2:2249:G:C4	17:2:2272:G:C5	3.07	0.43
17:2:2253:G:C3'	17:2:2254:U:C6	2.97	0.43
17:2:2255:A:N1	17:2:2260:U:O4	2.52	0.43
19:4:2619:G:N3	19:4:2619:G:H2'	2.34	0.43
25:J:69:ARG:O	25:J:70:ILE:C	2.56	0.43
12:K:110:PRO:HG2	12:K:111:GLY:H	1.83	0.43
12:K:75:MET:HE3	12:K:121:ARG:HH12	1.83	0.43
13:L:42:PHE:O	13:L:43:MET:HB2	2.19	0.43
15:S:60:LYS:NZ	15:S:64:LYS:CE	2.82	0.43
11:T:68:ILE:CG2	11:T:84:CYS:HB3	2.49	0.43
11:T:83:LEU:O	11:T:86:LYS:N	2.49	0.43
27:W:62:C:H2'	27:W:63:G:C8	2.53	0.43
17:2:2197:C:C2	17:2:2242:A:C2	3.06	0.43
17:2:2201:G:C4	17:2:2202:C:C6	3.07	0.43
17:2:2254:U:H2'	17:2:2255:A:OP1	2.18	0.43
22:7:2856:G:N2	22:7:2857:C:C2	2.87	0.43
23:8:2971:A:P	23:8:2971:A:H3'	2.59	0.43
24:B:101:LYS:O	24:B:104:SER:N	2.52	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:B:167:VAL:O	24:B:168:ALA:HB2	2.19	0.43
12:K:53:LEU:HB2	12:K:54:VAL:H	1.70	0.43
13:L:135:PHE:CE1	14:X:15:ARG:NH1	2.86	0.43
11:T:76:ARG:HG2	11:T:76:ARG:H	1.68	0.43
27:V:6:G:C6	27:V:7:A:C6	3.07	0.43
27:W:58:A:H1'	27:W:60:U:H5	1.80	0.43
16:1:1008:U:C6	16:1:1008:U:H5''	2.54	0.43
17:2:2229:A:H2'	17:2:2230:C:N1	2.34	0.43
22:7:2834:G:C2	22:7:2835:U:C5	3.07	0.43
11:T:175:ALA:O	11:T:186:ILE:HD11	2.19	0.43
27:V:28:G:H1	27:V:42:C:H42	1.67	0.43
27:W:28:G:H2'	27:W:29:G:H8	1.84	0.43
14:X:39:ILE:HA	14:X:42:ASN:HD22	1.83	0.43
17:2:2282:U:H5'	17:2:2282:U:H6	1.80	0.42
22:7:2843:U:P	22:7:2843:U:H3'	2.59	0.42
22:7:2851:A:H3'	22:7:2852:C:C5'	2.48	0.42
22:7:2853:A:C6	22:7:2854:U:C2	3.07	0.42
23:8:2969:A:C4	23:8:2970:C:C5	3.07	0.42
24:B:126:PRO:O	24:B:128:LEU:N	2.52	0.42
11:T:102:ASN:O	11:T:104:LEU:N	2.52	0.42
11:T:45:PRO:HG2	11:T:85:ILE:HG23	2.00	0.42
27:V:67:C:H2'	27:V:68:C:H6	1.81	0.42
16:1:1005:G:H2'	16:1:1006:A:O4'	2.19	0.42
23:8:2972:G:C2'	23:8:2973:G:O5'	2.67	0.42
26:F:40:LYS:O	26:F:41:ARG:C	2.57	0.42
25:J:174:THR:C	25:J:176:LEU:CB	2.87	0.42
25:J:56:GLU:O	25:J:58:GLU:N	2.52	0.42
12:K:110:PRO:CG	12:K:111:GLY:N	2.82	0.42
11:T:61:CYS:SG	11:T:65:GLU:HB3	2.59	0.42
11:T:95:ILE:CG2	11:T:96:HIS:N	2.82	0.42
27:W:23:A:C8	27:W:24:G:N7	2.87	0.42
16:1:1024:G:N7	16:1:1025:A:N7	2.67	0.42
17:2:2218:G:C6	17:2:2228:A:C6	3.07	0.42
17:2:2260:U:O2'	17:2:2261:G:C8	2.71	0.42
17:2:2252:A:C2	17:2:2265:C:O2	2.72	0.42
17:2:2276:G:H2'	17:2:2277:C:H5'	2.02	0.42
17:2:2285:C:C6	17:2:2285:C:C3'	3.02	0.42
19:4:2620:G:H2'	19:4:2621:G:H5'	2.00	0.42
20:5:2654:C:H4'	20:5:2657:A:C5	2.54	0.42
22:7:2834:G:C4	22:7:2835:U:H5	2.35	0.42
22:7:2834:G:C2	22:7:2835:U:C6	3.07	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:B:188:ASN:C	24:B:190:PHE:N	2.72	0.42
25:J:147:VAL:O	25:J:148:VAL:C	2.58	0.42
15:S:29:ASN:O	15:S:31:GLU:HG2	2.19	0.42
11:T:13:LEU:C	11:T:15:GLY:H	2.22	0.42
11:T:117:ARG:HE	11:T:189:LYS:NZ	2.17	0.42
27:V:12:U:H2'	27:V:13:C:O4'	2.19	0.42
17:2:2211:U:H2'	17:2:2212:C:C6	2.54	0.42
21:6:2696:A:H62	21:6:2697:A:H61	1.67	0.42
22:7:2846:U:H2'	22:7:2847:A:OP2	2.19	0.42
25:J:215:GLU:C	25:J:217:PHE:N	2.72	0.42
15:S:60:LYS:CD	15:S:64:LYS:HE3	2.49	0.42
11:T:87:VAL:HG11	11:T:164:ILE:CG2	2.49	0.42
27:V:11:C:H2'	27:V:12:U:C6	2.54	0.42
17:2:2250:G:N1	17:2:2267:C:N3	2.55	0.42
17:2:2273:G:H1'	17:2:2274:U:H5	1.84	0.42
17:2:2290:C:O2'	17:2:2291:A:O5'	2.38	0.42
25:J:56:GLU:H	25:J:131:ILE:HA	1.84	0.42
25:J:144:ASN:O	25:J:145:LYS:C	2.58	0.42
25:J:151:GLY:O	25:J:152:LEU:C	2.58	0.42
12:K:104:GLU:O	12:K:105:THR:C	2.58	0.42
27:Y:3:C:H2'	27:Y:4:C:H6	1.85	0.42
27:Y:9:A:O2'	27:Y:10:G:C8	2.72	0.42
16:1:1029:G:C2'	16:1:1030:A:H5'	2.49	0.42
17:2:2211:U:HO2'	27:W:72:C:C1'	2.29	0.42
17:2:2213:A:N6	17:2:2232:A:C4	2.88	0.42
17:2:2247:G:C6	17:2:2248:C:N4	2.87	0.42
17:2:2256:A:O2'	17:2:2257:C:OP2	2.36	0.42
17:2:2262:A:C2	17:2:2263:C:O4'	2.72	0.42
17:2:2288:G:C6	17:2:2289:U:C4	3.08	0.42
21:6:2706:G:C6	21:6:2707:C:N4	2.88	0.42
22:7:2828:G:H2'	22:7:2829:U:O5'	2.18	0.42
16:1:1046:A:C4'	25:J:20:SER:CB	2.80	0.42
12:K:27:VAL:CG1	12:K:90:ILE:HG12	2.49	0.42
11:T:182:SER:O	11:T:183:SER:HB3	2.19	0.42
17:2:2285:C:C5	17:2:2286:U:C6	3.07	0.42
17:2:2286:U:O4	17:2:2288:G:H1'	2.18	0.42
21:6:2689:A:H1'	21:6:2702:A:H61	1.84	0.42
22:7:2830:G:H2'	22:7:2831:G:H8	1.83	0.42
12:K:67:GLU:C	12:K:69:SER:H	2.23	0.42
11:T:26:ASP:OD1	11:T:28:CYS:N	2.53	0.42
11:T:35:CYS:H	11:T:63:ILE:CD1	2.29	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:W:66:U:H2'	27:W:67:C:C6	2.55	0.42
14:X:35:SER:O	14:X:38:ARG:HB3	2.20	0.42
17:2:2222:A:C2	17:2:2223:A:C6	3.08	0.42
17:2:2196:C:C2	17:2:2242:A:N6	2.87	0.42
22:7:2840:C:C4	22:7:2841:G:C5	3.08	0.42
24:B:145:TYR:HA	24:B:148:VAL:CB	2.50	0.42
12:K:78:ALA:CB	12:K:118:ALA:HB3	2.49	0.42
11:T:52:GLN:HE22	11:T:58:LYS:CE	2.33	0.42
11:T:59:THR:O	11:T:61:CYS:N	2.53	0.42
16:1:1003:A:N6	16:1:1046:A:H61	2.18	0.42
17:2:2300:G:N2	17:2:2301:U:H1'	2.34	0.42
21:6:2702:A:C8	21:6:2704:A:C5	3.03	0.42
22:7:2824:G:H5''	22:7:2825:C:P	2.59	0.42
12:K:33:ILE:O	12:K:97:LEU:HD12	2.19	0.42
13:L:44:GLY:O	13:L:45:ALA:O	2.38	0.42
15:S:101:VAL:O	15:S:108:VAL:N	2.46	0.42
11:T:118:GLU:OE1	11:T:197:LYS:HE2	2.20	0.42
11:T:184:TRP:CE2	11:T:188:LYS:HE3	2.55	0.42
27:V:21:A:C3'	27:V:22:G:H5''	2.50	0.42
27:V:15:G:N2	27:V:21:A:H1'	2.35	0.42
14:X:8:LEU:C	14:X:10:LYS:N	2.73	0.42
27:Y:43:C:C2'	27:Y:44:G:H5'	2.50	0.42
17:2:2259:A:C6	17:2:2260:U:C2	3.08	0.42
17:2:2279:A:C4'	17:2:2280:A:C5'	2.97	0.42
26:F:33:ALA:O	26:F:34:SER:C	2.58	0.42
15:S:20:GLU:O	15:S:24:LEU:HB2	2.20	0.42
11:T:177:LYS:O	11:T:178:ASN:CB	2.67	0.42
11:T:45:PRO:HB2	11:T:68:ILE:CD1	2.50	0.42
27:Y:48:C:N3	27:Y:59:U:C2	2.87	0.42
16:1:1006:A:C5	16:1:1007:U:C5	3.08	0.41
16:1:1041:U:C2'	16:1:1042:U:H5'	2.46	0.41
17:2:2258:U:H3'	17:2:2259:A:C8	2.50	0.41
22:7:2831:G:C5	22:7:2832:C:C5	3.08	0.41
12:K:84:ARG:CZ	12:K:88:LEU:HD21	2.50	0.41
11:T:192:ILE:O	11:T:196:ALA:CB	2.68	0.41
11:T:96:HIS:HD2	11:T:97:LEU:HD23	1.85	0.41
16:1:1021:G:N1	16:1:1032:C:C2	2.88	0.41
17:2:2214:A:C2'	17:2:2215:A:H8	2.32	0.41
17:2:2273:G:O2'	17:2:2274:U:P	2.78	0.41
19:4:2625:C:C2	19:4:2627:C:C5	3.08	0.41
21:6:2704:A:O2'	21:6:2705:A:H2'	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:F:79:THR:HA	26:F:80:ARG:HA	1.79	0.41
9:G:1433:G:C2	9:G:1434:C:C6	3.08	0.41
9:G:1436:C:O2	9:G:1436:C:H2'	2.19	0.41
16:1:1009:A:H1'	25:J:35:ASP:CB	2.50	0.41
27:V:44:G:O2'	27:V:45:U:H5'	2.20	0.41
27:W:20:U:O4	27:W:59:U:O4	2.38	0.41
16:1:1007:U:O2	16:1:1007:U:C2'	2.68	0.41
17:2:2262:A:H5''	17:2:2263:C:OP2	2.20	0.41
17:2:2279:A:C4'	17:2:2280:A:H5'	2.43	0.41
21:6:2696:A:N6	21:6:2697:A:N6	2.64	0.41
22:7:2828:G:C2'	22:7:2829:U:O5'	2.68	0.41
22:7:2856:G:N1	22:7:2857:C:C4	2.89	0.41
22:7:2872:A:H1'	22:7:2873:U:C5'	2.50	0.41
26:F:80:ARG:O	26:F:82:GLN:N	2.54	0.41
12:K:61:LYS:HD3	12:K:61:LYS:HA	1.80	0.41
27:W:56:C:C2	27:W:57:G:H8	2.39	0.41
16:1:1009:A:O3'	16:1:1010:G:O4'	2.38	0.41
16:1:1021:G:N2	16:1:1032:C:H1'	2.35	0.41
17:2:2295:A:H62	17:2:2296:A:H61	1.68	0.41
21:6:2694:A:H5'	21:6:2695:A:OP2	2.21	0.41
25:J:169:LYS:CB	25:J:177:ASP:O	2.69	0.41
25:J:28:ASP:O	25:J:29:SER:O	2.38	0.41
13:L:97:GLU:O	13:L:98:ASN:CB	2.67	0.41
27:W:66:U:O2'	27:W:67:C:H5'	2.20	0.41
27:Y:4:C:H42	27:Y:69:G:H1	1.68	0.41
16:1:1008:U:O2'	25:J:34:TYR:N	2.54	0.41
16:1:1031:C:N4	16:1:1032:C:C4	2.87	0.41
16:1:1021:G:N1	16:1:1032:C:O2	2.53	0.41
17:2:2196:C:C5'	17:2:2197:C:OP2	2.69	0.41
17:2:2213:A:C2'	17:2:2214:A:C8	2.81	0.41
17:2:2249:G:C8	17:2:2272:G:C8	3.09	0.41
17:2:2280:A:O2'	17:2:2281:A:O5'	2.26	0.41
17:2:2285:C:C5	17:2:2286:U:N1	2.87	0.41
17:2:2299:A:C2'	17:2:2300:G:O5'	2.68	0.41
21:6:2700:G:C6	21:6:2701:U:C4	3.08	0.41
23:8:2973:G:C2'	23:8:2974:U:H5'	2.51	0.41
27:V:39:U:O2'	27:V:40:C:H5'	2.20	0.41
14:X:62:TRP:C	14:X:64:ALA:H	2.23	0.41
27:Y:71:G:H2'	27:Y:71:G:N3	2.36	0.41
17:2:2210:G:C5	17:2:2211:U:C5	3.08	0.41
20:5:2654:C:H5'	20:5:2657:A:N6	2.34	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:8:2971:A:H4'	23:8:2972:G:C5'	2.50	0.41
12:K:142:ARG:HB3	12:K:143:GLU:H	1.67	0.41
15:S:101:VAL:HG21	15:S:121:LEU:CD1	2.40	0.41
27:W:57:G:H21	27:W:58:A:H4'	1.85	0.41
17:2:2213:A:C6	17:2:2214:A:N6	2.89	0.41
17:2:2294:U:C6	17:2:2297:U:C5	3.07	0.41
22:7:2843:U:OP2	22:7:2843:U:H3'	2.21	0.41
12:K:61:LYS:CE	12:K:76:GLN:HB3	2.51	0.41
13:L:113:VAL:O	13:L:114:GLY:C	2.58	0.41
13:L:53:THR:HB	13:L:72:ARG:O	2.21	0.41
11:T:164:ILE:O	11:T:168:LEU:HB3	2.20	0.41
27:V:1:G:O6	27:V:72:C:N4	2.52	0.41
16:1:1029:G:H8	16:1:1029:G:P	2.44	0.41
16:1:1001:G:C8	16:1:1041:U:O3'	2.73	0.41
17:2:2194:G:N9	17:2:2274:U:O2	2.53	0.41
22:7:2868:U:C6	22:7:2869:U:H5	2.38	0.41
13:L:116:ILE:N	13:L:116:ILE:HD12	2.35	0.41
27:V:48:C:H2'	27:V:59:U:C1'	2.51	0.41
27:Y:43:C:O2'	27:Y:44:G:H5'	2.21	0.41
17:2:2236:G:H2'	17:2:2237:C:O5'	2.21	0.41
17:2:2276:G:N7	17:2:2277:C:H5	2.19	0.41
22:7:2864:A:C6	22:7:2865:U:N3	2.89	0.41
24:B:12:HIS:CB	24:B:213:ALA:HB1	2.50	0.41
25:J:148:VAL:O	25:J:149:VAL:C	2.59	0.41
13:L:21:ASP:C	13:L:23:ARG:N	2.74	0.41
9:G:1429:G:H21	15:S:131:THR:HG21	1.85	0.41
11:T:147:TYR:CD1	11:T:147:TYR:C	2.94	0.41
27:Y:28:G:N2	27:Y:43:C:C6	2.89	0.41
17:2:2260:U:C4'	17:2:2260:U:OP1	2.68	0.41
17:2:2280:A:H8	17:2:2280:A:H3'	1.85	0.41
21:6:2696:A:C8	21:6:2697:A:C8	3.08	0.41
21:6:2696:A:H2'	21:6:2697:A:O5'	2.21	0.41
26:F:11:TYR:O	26:F:20:HIS:HA	2.20	0.41
26:F:54:THR:O	26:F:56:PRO:N	2.54	0.41
12:K:42:ILE:HD11	12:K:115:ALA:CB	2.51	0.41
13:L:21:ASP:C	13:L:23:ARG:H	2.23	0.41
13:L:29:PHE:CZ	13:L:33:LEU:CD1	3.04	0.41
11:T:99:THR:O	11:T:99:THR:CG2	2.65	0.41
27:W:51:U:H3	27:W:63:G:H1	1.69	0.41
27:W:67:C:C4	27:W:68:C:N4	2.89	0.41
17:2:2211:U:O2	27:W:72:C:C5'	2.69	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:2:2270:A:H2'	17:2:2271:A:O4'	2.20	0.41
19:4:2625:C:H6	19:4:2625:C:O5'	2.04	0.41
22:7:2840:C:H5''	22:7:2840:C:H6	1.86	0.41
22:7:2856:G:C6	22:7:2857:C:N4	2.89	0.41
26:F:20:HIS:O	26:F:21:THR:CB	2.68	0.41
12:K:116:LEU:HD23	12:K:116:LEU:O	2.21	0.41
11:T:62:PRO:O	11:T:63:ILE:C	2.59	0.41
11:T:70:THR:HG21	11:T:147:TYR:HA	2.03	0.41
11:T:72:MET:HB3	11:T:84:CYS:SG	2.61	0.41
27:Y:69:G:N2	27:Y:70:G:C6	2.89	0.41
16:1:1004:U:C2	16:1:1005:G:C8	3.09	0.40
16:1:1019:G:C6	16:1:1020:G:N7	2.89	0.40
16:1:1023:C:O5'	16:1:1024:G:H5''	2.21	0.40
16:1:1045:C:P	25:J:92:HIS:C	2.99	0.40
17:2:2213:A:C6	17:2:2214:A:C6	3.09	0.40
17:2:2249:G:C8	17:2:2250:G:C8	3.09	0.40
22:7:2826:U:C4	22:7:2827:U:C4	3.08	0.40
25:J:215:GLU:O	25:J:217:PHE:N	2.54	0.40
13:L:5:LYS:NZ	13:L:18:HIS:NE2	2.67	0.40
13:L:81:LYS:C	13:L:81:LYS:HD2	2.41	0.40
15:S:63:ASN:HA	15:S:66:ARG:HB2	2.02	0.40
11:T:54:LYS:CG	11:T:55:LYS:N	2.76	0.40
11:T:61:CYS:HA	11:T:62:PRO:HD2	1.91	0.40
14:X:25:ASP:O	14:X:26:LYS:C	2.59	0.40
17:2:2256:A:O2'	17:2:2257:C:OP1	2.39	0.40
17:2:2267:C:N3	17:2:2268:U:O2	2.55	0.40
19:4:2626:A:H5'	19:4:2627:C:O5'	2.21	0.40
22:7:2830:G:H8	22:7:2830:G:H5'	1.87	0.40
12:K:110:PRO:CG	12:K:111:GLY:H	2.34	0.40
11:T:99:THR:CG2	11:T:101:ARG:HE	2.34	0.40
11:T:41:GLN:H	11:T:41:GLN:HG2	1.56	0.40
27:W:14:A:H2'	27:W:14:A:N3	2.37	0.40
27:W:14:A:H3'	27:W:15:G:C8	2.54	0.40
27:W:57:G:H2'	27:W:58:A:C5'	2.38	0.40
14:X:31:PRO:O	14:X:36:TYR:HB2	2.22	0.40
14:X:7:THR:HG22	14:X:8:LEU:N	2.36	0.40
16:1:1029:G:N7	16:1:1030:A:N7	2.69	0.40
19:4:2626:A:H5'	19:4:2627:C:C5'	2.51	0.40
20:5:2655:U:C4'	20:5:2656:A:H5'	2.49	0.40
22:7:2858:U:C2'	22:7:2859:U:C6	3.03	0.40
11:T:145:ALA:O	11:T:149:ILE:HG13	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:V:59:U:O2'	27:V:60:U:H5'	2.21	0.40
14:X:8:LEU:C	14:X:10:LYS:H	2.25	0.40
27:Y:28:G:N2	27:Y:43:C:C5	2.90	0.40
17:2:2223:A:O2'	17:2:2224:A:C5'	2.70	0.40
17:2:2229:A:H2'	17:2:2230:C:C1'	2.52	0.40
17:2:2291:A:C6	17:2:2292:U:N3	2.90	0.40
9:G:1429:G:OP2	9:G:1430:C:C5	2.68	0.40
25:J:142:ASP:O	25:J:144:ASN:N	2.54	0.40
25:J:47:PRO:O	25:J:48:LEU:C	2.60	0.40
13:L:117:PRO:HG2	13:L:118:GLY:N	2.32	0.40
13:L:130:SER:O	13:L:133:ALA:HB3	2.21	0.40
11:T:104:LEU:O	11:T:108:VAL:HB	2.21	0.40
11:T:42:VAL:HG12	11:T:43:PHE:N	2.36	0.40
11:T:67:LEU:HD22	11:T:107:PHE:CE1	2.56	0.40
27:Y:42:C:H3'	27:Y:43:C:C5'	2.50	0.40
16:1:1033:U:H2'	16:1:1033:U:O2	2.21	0.40
17:2:2273:G:O2'	17:2:2274:U:OP2	2.37	0.40
17:2:2285:C:C6	17:2:2285:C:H3'	2.56	0.40
15:S:14:ARG:HD3	15:S:14:ARG:HA	1.89	0.40
11:T:131:LYS:HB2	11:T:199:ASN:HB3	2.03	0.40
11:T:152:GLY:O	11:T:153:CYS:C	2.59	0.40
11:T:71:LEU:HD23	11:T:88:VAL:HG23	2.03	0.40
27:W:15:G:N2	27:W:48:C:C2	2.88	0.40
27:W:69:G:H3'	27:W:70:G:H5''	2.01	0.40
14:X:44:ARG:CG	14:X:45:TYR:N	2.83	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles

### 5.3.1 Protein backbone

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
11	T	190/192 (99%)	141 (74%)	33 (17%)	16 (8%)	<b>1</b> <b>15</b>

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
12	K	138/140 (99%)	96 (70%)	28 (20%)	14 (10%)	1	12
13	L	139/141 (99%)	106 (76%)	17 (12%)	16 (12%)	0	8
14	X	66/68 (97%)	48 (73%)	12 (18%)	6 (9%)	1	15
15	S	123/125 (98%)	91 (74%)	25 (20%)	7 (6%)	2	24
24	B	211/213 (99%)	76 (36%)	67 (32%)	68 (32%)	0	0
25	J	204/219 (93%)	80 (39%)	51 (25%)	73 (36%)	0	0
26	F	93/95 (98%)	37 (40%)	28 (30%)	28 (30%)	0	0
All	All	1164/1193 (98%)	675 (58%)	261 (22%)	228 (20%)	0	3

All (228) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
11	T	56	PHE
11	T	60	GLN
11	T	63	ILE
11	T	75	GLY
11	T	158	PHE
12	K	70	SER
12	K	100	LYS
12	K	124	MET
12	K	142	ARG
13	L	45	ALA
13	L	62	GLN
13	L	87	PRO
13	L	88	MET
13	L	89	ASP
13	L	107	GLY
13	L	108	ARG
13	L	117	PRO
14	X	8	LEU
14	X	64	ALA
15	S	15	GLY
24	B	24	LYS
24	B	36	VAL
24	B	39	LYS
24	B	42	ASP
24	B	43	PRO
24	B	55	LEU
24	B	56	PRO
24	B	58	CYS

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Mol	Chain	Res	Type
24	B	59	PRO
24	B	60	ARG
24	B	61	PRO
24	B	109	ALA
24	B	115	VAL
24	B	120	VAL
24	B	122	ARG
24	B	124	LEU
24	B	126	PRO
24	B	127	GLN
24	B	128	LEU
24	B	129	SER
24	B	135	PRO
24	B	143	ASP
24	B	151	VAL
24	B	174	MET
24	B	201	VAL
24	B	207	LYS
24	B	208	SER
24	B	209	SER
24	B	210	MET
24	B	212	PRO
25	J	5	PRO
25	J	11	TYR
25	J	13	LYS
25	J	14	ASN
25	J	16	PRO
25	J	17	TYR
25	J	25	ALA
25	J	29	SER
25	J	34	TYR
25	J	39	LYS
25	J	43	VAL
25	J	46	PHE
25	J	48	LEU
25	J	57	LEU
25	J	61	SER
25	J	70	ILE
25	J	92	HIS
25	J	115	MET
25	J	136	PHE
25	J	145	LYS

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Mol	Chain	Res	Type
25	J	147	VAL
25	J	160	PRO
25	J	162	GLN
25	J	169	LYS
25	J	178	ARG
25	J	190	VAL
25	J	201	SER
25	J	208	ASN
26	F	5	PRO
26	F	13	LYS
26	F	34	SER
26	F	47	GLN
26	F	53	GLN
26	F	66	LYS
26	F	93	LEU
11	T	58	LYS
11	T	100	GLY
11	T	157	ALA
11	T	159	LYS
11	T	183	SER
12	K	102	GLY
12	K	105	THR
12	K	110	PRO
12	K	139	SER
13	L	35	GLY
13	L	54	GLU
13	L	76	ARG
13	L	138	LYS
14	X	24	LYS
15	S	31	GLU
15	S	33	LEU
24	B	25	LYS
24	B	26	ARG
24	B	41	TYR
24	B	44	GLN
24	B	47	LYS
24	B	67	ILE
24	B	77	ALA
24	B	96	ASN
24	B	117	ILE
24	B	123	LEU
24	B	169	VAL

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Mol	Chain	Res	Type
24	B	193	LEU
24	B	194	LEU
24	B	196	LYS
24	B	197	ASN
24	B	204	LEU
24	B	206	VAL
25	J	12	GLN
25	J	21	ARG
25	J	28	ASP
25	J	35	ASP
25	J	36	LEU
25	J	78	THR
25	J	84	ALA
25	J	86	HIS
25	J	93	PRO
25	J	95	HIS
25	J	143	SER
25	J	175	ASN
25	J	177	ASP
25	J	185	ARG
25	J	189	GLU
25	J	196	PHE
25	J	207	GLU
26	F	6	LYS
26	F	9	LYS
26	F	11	TYR
26	F	21	THR
26	F	41	ARG
26	F	46	LYS
26	F	57	VAL
26	F	58	PHE
26	F	81	ALA
26	F	88	CYS
11	T	41	GLN
11	T	103	PRO
11	T	179	ASN
12	K	23	ALA
12	K	99	ALA
12	K	106	LYS
12	K	122	SER
12	K	141	ARG
13	L	109	GLN

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Mol	Chain	Res	Type
14	X	60	PRO
15	S	130	PRO
24	B	22	GLU
24	B	49	PHE
24	B	57	ASN
24	B	101	LYS
24	B	102	LYS
24	B	152	ARG
24	B	202	GLY
25	J	15	LYS
25	J	47	PRO
25	J	56	GLU
25	J	85	PHE
25	J	94	PHE
25	J	181	TYR
25	J	205	SER
25	J	214	PRO
26	F	17	CYS
26	F	19	LYS
26	F	56	PRO
12	K	146	ARG
13	L	91	CYS
14	X	25	ASP
24	B	27	ASN
24	B	107	TYR
24	B	132	GLY
24	B	155	ILE
24	B	165	LEU
24	B	189	PHE
24	B	213	ALA
25	J	20	SER
25	J	60	LEU
25	J	66	GLU
25	J	67	ALA
25	J	91	VAL
25	J	154	ARG
25	J	163	GLN
26	F	12	CYS
26	F	59	HIS
11	T	62	PRO
14	X	26	LYS
15	S	123	GLU

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Mol	Chain	Res	Type
24	B	5	THR
24	B	45	ARG
24	B	92	LYS
24	B	108	ASN
24	B	154	THR
25	J	8	CYS
25	J	19	LYS
25	J	41	ALA
25	J	171	TRP
25	J	212	GLU
26	F	3	ASN
26	F	39	GLY
26	F	45	ARG
26	F	55	LYS
26	F	62	ALA
26	F	48	SER
11	T	102	ASN
11	T	138	PRO
15	S	104	GLY
25	J	4	ARG
25	J	172	GLY
25	J	194	GLY
24	B	69	GLY
13	L	110	GLY
24	B	65	ILE
25	J	18	PRO
13	L	114	GLY
25	J	117	GLY
25	J	131	ILE
15	S	53	GLY
25	J	27	PRO
25	J	89	VAL

### 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	
11	T	163/163 (100%)	147 (90%)	16 (10%)	9	34
12	K	112/112 (100%)	96 (86%)	16 (14%)	4	22
13	L	113/113 (100%)	101 (89%)	12 (11%)	8	31
14	X	57/57 (100%)	55 (96%)	2 (4%)	41	69
15	S	105/105 (100%)	102 (97%)	3 (3%)	48	73
All	All	550/550 (100%)	501 (91%)	49 (9%)	16	39

All (49) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
11	T	24	ILE
11	T	26	ASP
11	T	30	GLN
11	T	31	ASN
11	T	36	THR
11	T	41	GLN
11	T	44	VAL
11	T	51	TYR
11	T	56	PHE
11	T	57	ARG
11	T	66	ARG
11	T	73	PHE
11	T	74	HIS
11	T	117	ARG
11	T	139	MET
11	T	147	TYR
12	K	28	PHE
12	K	43	HIS
12	K	46	ASP
12	K	47	LEU
12	K	67	GLU
12	K	80	ASP
12	K	85	CYS
12	K	95	ILE
12	K	113	GLN
12	K	116	LEU
12	K	117	ARG
12	K	119	LEU
12	K	129	ILE
12	K	140	THR
12	K	142	ARG

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Mol	Chain	Res	Type
12	K	149	ARG
13	L	9	ILE
13	L	19	ARG
13	L	21	ASP
13	L	33	LEU
13	L	55	LYS
13	L	69	LYS
13	L	81	LYS
13	L	82	ILE
13	L	89	ASP
13	L	92	LEU
13	L	106	LEU
13	L	132	LEU
14	X	34	ARG
14	X	62	TRP
15	S	66	ARG
15	S	83	THR
15	S	124	PHE

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (14) such sidechains are listed below:

Mol	Chain	Res	Type
11	T	10	GLN
11	T	46	HIS
11	T	52	GLN
11	T	96	HIS
11	T	102	ASN
11	T	143	ASN
11	T	199	ASN
12	K	38	ASN
12	K	43	HIS
13	L	78	ASN
13	L	98	ASN
14	X	42	ASN
15	S	29	ASN
15	S	84	HIS

### 5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	a	47/48 (97%)	15 (31%)	0
10	h	110/111 (99%)	12 (10%)	0
16	1	49/50 (98%)	23 (46%)	0
17	2	111/112 (99%)	54 (48%)	0
18	3	11/12 (91%)	6 (54%)	0
19	4	13/14 (92%)	5 (38%)	0
2	b	11/12 (91%)	4 (36%)	0
20	5	5/6 (83%)	4 (80%)	0
21	6	18/19 (94%)	13 (72%)	0
22	7	49/50 (98%)	29 (59%)	0
23	8	19/20 (95%)	8 (42%)	0
27	V	74/76 (97%)	15 (20%)	0
27	W	75/76 (98%)	13 (17%)	0
27	Y	74/76 (97%)	20 (27%)	0
28	v	2/3 (66%)	0	0
28	y	2/3 (66%)	0	0
29	w	1/2 (50%)	0	0
3	c	16/17 (94%)	4 (25%)	0
4	d	6/7 (85%)	2 (33%)	0
5	e	3/4 (75%)	0	0
6	E	4/5 (80%)	1 (25%)	0
7	f	20/21 (95%)	5 (25%)	0
8	g	30/31 (96%)	8 (26%)	0
9	G	12/13 (92%)	2 (16%)	0
All	All	762/788 (96%)	243 (31%)	0

All (243) 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
1	a	577	C

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Mol	Chain	Res	Type
1	a	588	A
2	b	882	G
2	b	886	U
2	b	887	U
2	b	888	C
3	c	975	G
3	c	976	A
3	c	978	C
3	c	982	U
4	d	1545	A
4	d	1546	G
6	E	1591	C
7	f	1242	G
7	f	1245	G
7	f	1246	C
7	f	3247	A
7	f	1256	C
8	g	1155	A
8	g	1158	U
8	g	1163	U
8	g	1165	A
8	g	1166	A
8	g	1168	A
8	g	1169	C
8	g	1172	G
9	G	1430	C
9	G	1431	A
10	h	1608	C
10	h	1609	C
10	h	1624	G
10	h	1649	U
10	h	1651	G
10	h	1652	A
10	h	1661	G
10	h	1674	A
10	h	1710	G
10	h	1713	G
10	h	1714	U
10	h	1715	A
16	1	1002	A
16	1	1006	A
16	1	1007	U

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Mol	Chain	Res	Type
16	1	1010	G
16	1	1011	A
16	1	1013	G
16	1	1014	U
16	1	1015	U
16	1	1017	C
16	1	1019	G
16	1	1024	G
16	1	1026	A
16	1	1027	A
16	1	1030	A
16	1	1033	U
16	1	1036	A
16	1	1038	C
16	1	1041	U
16	1	1042	U
16	1	1043	C
16	1	1047	A
16	1	1048	A
16	1	1049	C
17	2	2195	C
17	2	2201	G
17	2	2205	U
17	2	2206	G
17	2	2207	A
17	2	2208	A
17	2	2209	U
17	2	2210	G
17	2	2211	U
17	2	2215	A
17	2	2222	A
17	2	2223	A
17	2	2224	A
17	2	2227	C
17	2	2237	C
17	2	2244	A
17	2	2247	G
17	2	2248	C
17	2	2249	G
17	2	2250	G
17	2	2252	A
17	2	2254	U

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Mol	Chain	Res	Type
17	2	2255	A
17	2	2256	A
17	2	2257	C
17	2	2259	A
17	2	2260	U
17	2	2261	G
17	2	2262	A
17	2	2263	C
17	2	2264	U
17	2	2266	U
17	2	2270	A
17	2	2272	G
17	2	2273	G
17	2	2275	A
17	2	2276	G
17	2	2277	C
17	2	2280	A
17	2	2281	A
17	2	2282	U
17	2	2283	G
17	2	2286	U
17	2	2288	G
17	2	2290	C
17	2	2291	A
17	2	2292	U
17	2	2295	A
17	2	2296	A
17	2	2297	U
17	2	2298	U
17	2	2299	A
17	2	2300	G
17	2	2303	A
18	3	2479	C
18	3	2484	A
18	3	2485	A
18	3	2486	A
18	3	2487	U
18	3	2488	A
19	4	2618	G
19	4	2619	G
19	4	2624	G
19	4	2626	A

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Mol	Chain	Res	Type
19	4	2627	C
20	5	2655	U
20	5	2656	A
20	5	2657	A
20	5	2658	G
21	6	2690	G
21	6	2691	A
21	6	2693	C
21	6	2694	A
21	6	2695	A
21	6	2696	A
21	6	2697	A
21	6	2699	G
21	6	2700	G
21	6	2702	A
21	6	2703	A
21	6	2704	A
21	6	2707	C
22	7	2825	C
22	7	2826	U
22	7	2828	G
22	7	2829	U
22	7	2830	G
22	7	2833	A
22	7	2834	G
22	7	2835	U
22	7	2836	C
22	7	2838	A
22	7	2839	G
22	7	2840	C
22	7	2842	U
22	7	2843	U
22	7	2844	C
22	7	2845	A
22	7	2846	U
22	7	2847	A
22	7	2849	C
22	7	2850	G
22	7	2851	A
22	7	2852	C
22	7	2859	U
22	7	2860	U

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Mol	Chain	Res	Type
22	7	2867	C
22	7	2870	C
22	7	2871	G
22	7	2872	A
22	7	2873	U
23	8	2960	C
23	8	2961	G
23	8	2962	U
23	8	2965	U
23	8	2968	G
23	8	2971	A
23	8	2972	G
23	8	2973	G
27	Y	2	C
27	Y	9	A
27	Y	16	U
27	Y	17	C
27	Y	18	G
27	Y	19	G
27	Y	21	A
27	Y	23	A
27	Y	34	G
27	Y	42	C
27	Y	43	C
27	Y	47	U
27	Y	48	C
27	Y	52	G
27	Y	53	G
27	Y	70	G
27	Y	71	G
27	Y	72	C
27	Y	73	A
27	Y	74	C
27	V	8	U
27	V	17	C
27	V	18	G
27	V	19	G
27	V	20	U
27	V	21	A
27	V	22	G
27	V	42	C
27	V	46	G

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Mol	Chain	Res	Type
27	V	47	U
27	V	48	C
27	V	52	G
27	V	61	C
27	V	69	G
27	V	75	C
27	W	16	U
27	W	17	C
27	W	18	G
27	W	19	G
27	W	21	A
27	W	39	U
27	W	43	C
27	W	47	U
27	W	57	G
27	W	58	A
27	W	61	C
27	W	70	G
27	W	76	A

There are no RNA pucker outliers to report.

#### 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 ⓘ

There are no chain breaks in this entry.