



Full wwPDB EM Validation Report ⓘ

Jan 26, 2026 – 07:00 pm GMT

PDB ID : 9I3L / pdb_00009i3l
EMDB ID : EMD-52597
Title : Structure of E.coli ribosome with filamin mutant Y719E nascent chain at linker length of 47 amino acids, with tRNA
Authors : Mitropoulou, A.; Wlodarski, T.; Plessa, E.; Cabrita, L.D.; Christodoulou, J.
Deposited on : 2025-01-23
Resolution : 3.10 Å(reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

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

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.dev129
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.47

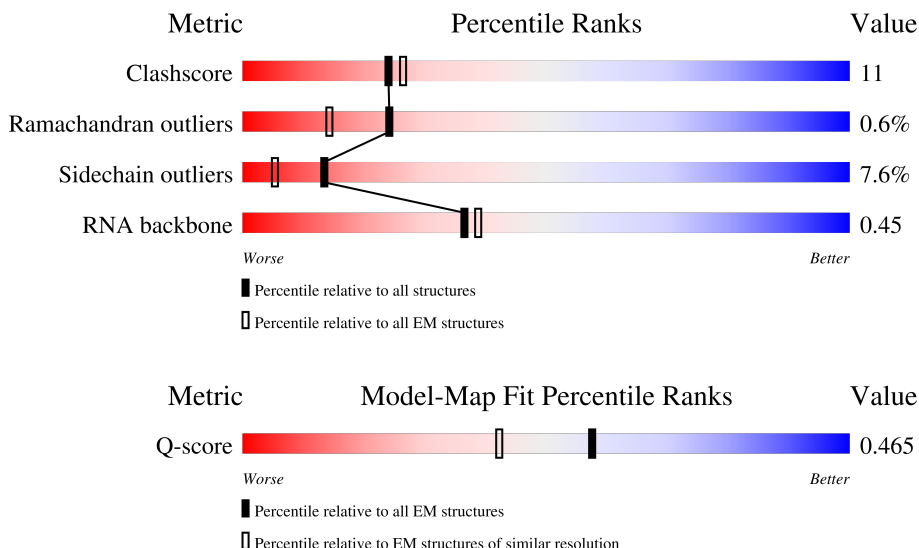
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.10 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.



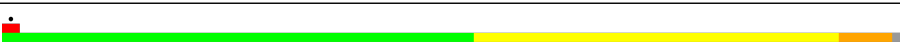
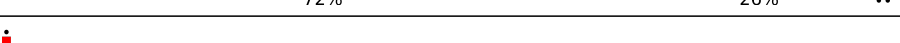
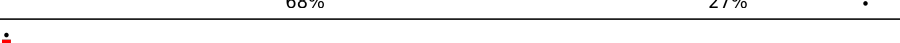
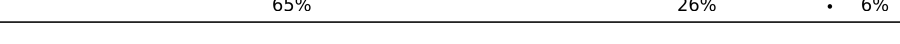
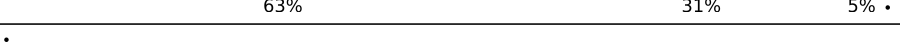
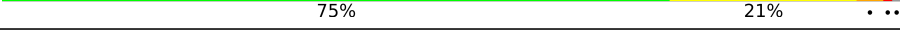
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
RNA backbone	6643	2191	-
Q-score	-	25397	14724 (2.60 - 3.60)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	0	78	81% 15% • •
2	1	63	59% 33% 5% •
3	2	59	66% 27% • •

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Mol	Chain	Length	Quality of chain
4	3	57	
5	4	55	
6	6	46	
7	7	65	
8	8	50	
9	a	120	
10	b	2904	
11	c	273	
12	d	209	
13	e	201	
14	f	179	
15	g	177	
16	h	149	
17	j	142	
18	k	123	
19	l	144	
20	m	136	
21	n	127	
22	o	117	
23	p	115	
24	q	118	
25	r	103	
26	s	110	
27	t	100	
28	u	104	

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Mol	Chain	Length	Quality of chain
29	w	94	
30	y	85	
31	z	160	
32	Z	76	

2 Entry composition

There are 32 unique types of molecules in this entry. The entry contains 90663 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 protein called Large ribosomal subunit protein bL28.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	0	77	Total	C	N	O	S	0	0
			625	388	129	106	2		

- Molecule 2 is a protein called Large ribosomal subunit protein uL29.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	1	61	Total	C	N	O	S	0	0
			495	305	97	92	1		

- Molecule 3 is a protein called Large ribosomal subunit protein uL30.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	2	57	Total	C	N	O	S	0	0
			439	276	86	75	2		

- Molecule 4 is a protein called Large ribosomal subunit protein bL32.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	3	55	Total	C	N	O	S	0	0
			434	263	92	78	1		

- Molecule 5 is a protein called Large ribosomal subunit protein bL33.

Mol	Chain	Residues	Atoms				AltConf	Trace
5	4	50	Total	C	N	O	0	0
			409	263	75	71		

- Molecule 6 is a protein called Large ribosomal subunit protein bL34.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	6	46	Total	C	N	O	S	0	0
			377	228	90	57	2		

- Molecule 7 is a protein called Large ribosomal subunit protein bL35.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	7	64	Total	C	N	O	S	0	0
			504	323	105	74	2		

- Molecule 8 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	8	38	Total	C	N	O	S	0	0
			301	185	65	47	4		

- Molecule 9 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	a	119	Total	C	N	O	P	0	0
			2549	1135	466	829	119		

- Molecule 10 is a RNA chain called 23S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	b	2890	Total	C	N	O	P	0	0
			62050	27680	11424	20056	2890		

- Molecule 11 is a protein called Large ribosomal subunit protein uL2.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	c	271	Total	C	N	O	S	0	0
			2082	1288	423	364	7		

- Molecule 12 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	d	209	Total	C	N	O	S	0	0
			1565	979	288	294	4		

- Molecule 13 is a protein called Large ribosomal subunit protein uL4.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	e	201	Total	C	N	O	S	0	0
			1552	974	283	290	5		

- Molecule 14 is a protein called Large ribosomal subunit protein uL5.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	f	177	Total	C	N	O	S	0	0
			1410	899	249	256	6		

- Molecule 15 is a protein called Large ribosomal subunit protein uL6.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	g	176	Total	C	N	O	S	0	0
			1323	832	243	246	2		

- Molecule 16 is a protein called Large ribosomal subunit protein bL9.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	h	39	Total	C	N	O	S	0	0
			287	184	51	51	1		

- Molecule 17 is a protein called Large ribosomal subunit protein uL13.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	j	142	Total	C	N	O	S	0	0
			1129	714	212	199	4		

- Molecule 18 is a protein called Large ribosomal subunit protein uL14.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	k	122	Total	C	N	O	S	0	0
			938	587	180	165	6		

- Molecule 19 is a protein called Large ribosomal subunit protein uL15.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	l	143	Total	C	N	O	S	0	0
			1043	649	206	186	2		

- Molecule 20 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	m	136	Total	C	N	O	S	0	0
			1074	686	205	177	6		

- Molecule 21 is a protein called Large ribosomal subunit protein bL17.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	n	120	Total	C	N	O	S	0	0
			960	593	196	166	5		

- Molecule 22 is a protein called Large ribosomal subunit protein uL18.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	o	116	Total	C	N	O		0	0
			892	552	178	162			

- Molecule 23 is a protein called Large ribosomal subunit protein bL19.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	p	113	Total	C	N	O	S	0	0
			908	570	177	160	1		

- Molecule 24 is a protein called Large ribosomal subunit protein bL20.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	q	117	Total	C	N	O		0	0
			947	604	192	151			

- Molecule 25 is a protein called Large ribosomal subunit protein bL21.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	r	99	Total	C	N	O	S	0	0
			791	500	149	140	2		

- Molecule 26 is a protein called Large ribosomal subunit protein uL22.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	s	109	Total	C	N	O	S	0	0
			845	526	162	154	3		

- Molecule 27 is a protein called Large ribosomal subunit protein uL23.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	t	93	Total	C	N	O	S	0	0
			738	466	139	131	2		

- Molecule 28 is a protein called Large ribosomal subunit protein uL24.

Mol	Chain	Residues	Atoms				AltConf	Trace
28	u	102	Total	C	N	O	0	0
			779	492	146	141		

- Molecule 29 is a protein called Large ribosomal subunit protein bL25.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	w	94	Total	C	N	O	S	0	0
			753	479	137	134	3		

- Molecule 30 is a protein called Large ribosomal subunit protein bL27.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	y	83	Total	C	N	O	S	0	0
			627	388	128	109	2		

- Molecule 31 is a protein called Gelation factor.

Mol	Chain	Residues	Atoms				AltConf	Trace
31	z	34	Total	C	N	O	0	0
			216	135	40	41		

There are 28 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
z	637	MET	-	initiating methionine	UNP P13466
z	638	HIS	-	expression tag	UNP P13466
z	639	HIS	-	expression tag	UNP P13466
z	640	HIS	-	expression tag	UNP P13466
z	641	HIS	-	expression tag	UNP P13466
z	642	HIS	-	expression tag	UNP P13466
z	643	HIS	-	expression tag	UNP P13466
z	644	ALA	-	expression tag	UNP P13466
z	645	SER	-	expression tag	UNP P13466
z	719	GLU	TYR	conflict	UNP P13466
z	779	GLU	-	expression tag	UNP P13466
z	780	LEU	-	expression tag	UNP P13466
z	781	PHE	-	expression tag	UNP P13466
z	782	SER	-	expression tag	UNP P13466
z	783	THR	-	expression tag	UNP P13466
z	784	PRO	-	expression tag	UNP P13466
z	785	VAL	-	expression tag	UNP P13466
z	786	TRP	-	expression tag	UNP P13466
z	787	ILE	-	expression tag	UNP P13466

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Chain	Residue	Modelled	Actual	Comment	Reference
z	788	SER	-	expression tag	UNP P13466
z	789	GLN	-	expression tag	UNP P13466
z	790	ALA	-	expression tag	UNP P13466
z	791	GLN	-	expression tag	UNP P13466
z	792	GLY	-	expression tag	UNP P13466
z	793	ILE	-	expression tag	UNP P13466
z	794	ARG	-	expression tag	UNP P13466
z	795	ALA	-	expression tag	UNP P13466
z	796	GLY	-	expression tag	UNP P13466

- Molecule 32 is a RNA chain called Peptidyl Gly-tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	Z	76	Total	C	N	O	P	0	0
			1621	722	287	536	76		

3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. 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. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). 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: Large ribosomal subunit protein bL28

Chain 0: 



- Molecule 2: Large ribosomal subunit protein uL29

Chain 1: 



- Molecule 3: Large ribosomal subunit protein uL30

Chain 2: 



- Molecule 4: Large ribosomal subunit protein bL32

Chain 3: 

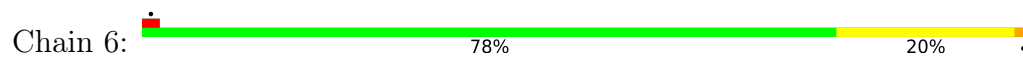


- Molecule 5: Large ribosomal subunit protein bL33

Chain 4: 



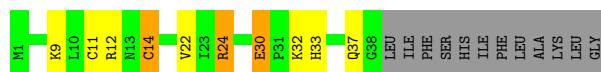
- Molecule 6: Large ribosomal subunit protein bL34



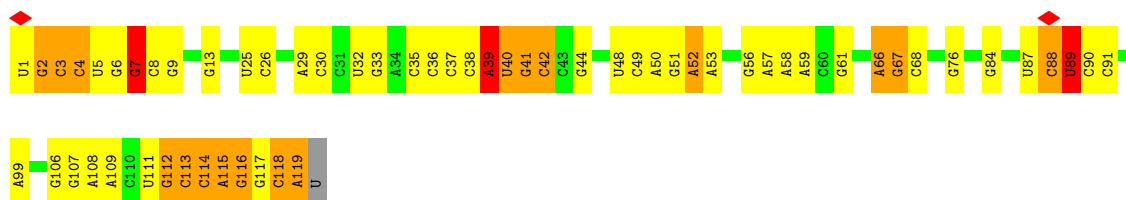
- Molecule 7: Large ribosomal subunit protein bL35



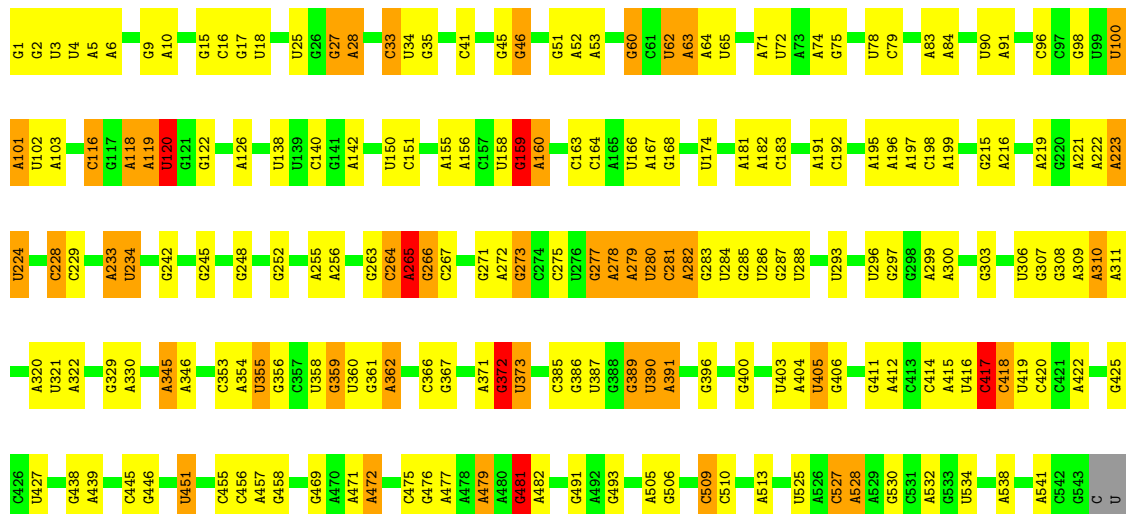
- Molecule 8: 50S ribosomal protein L36

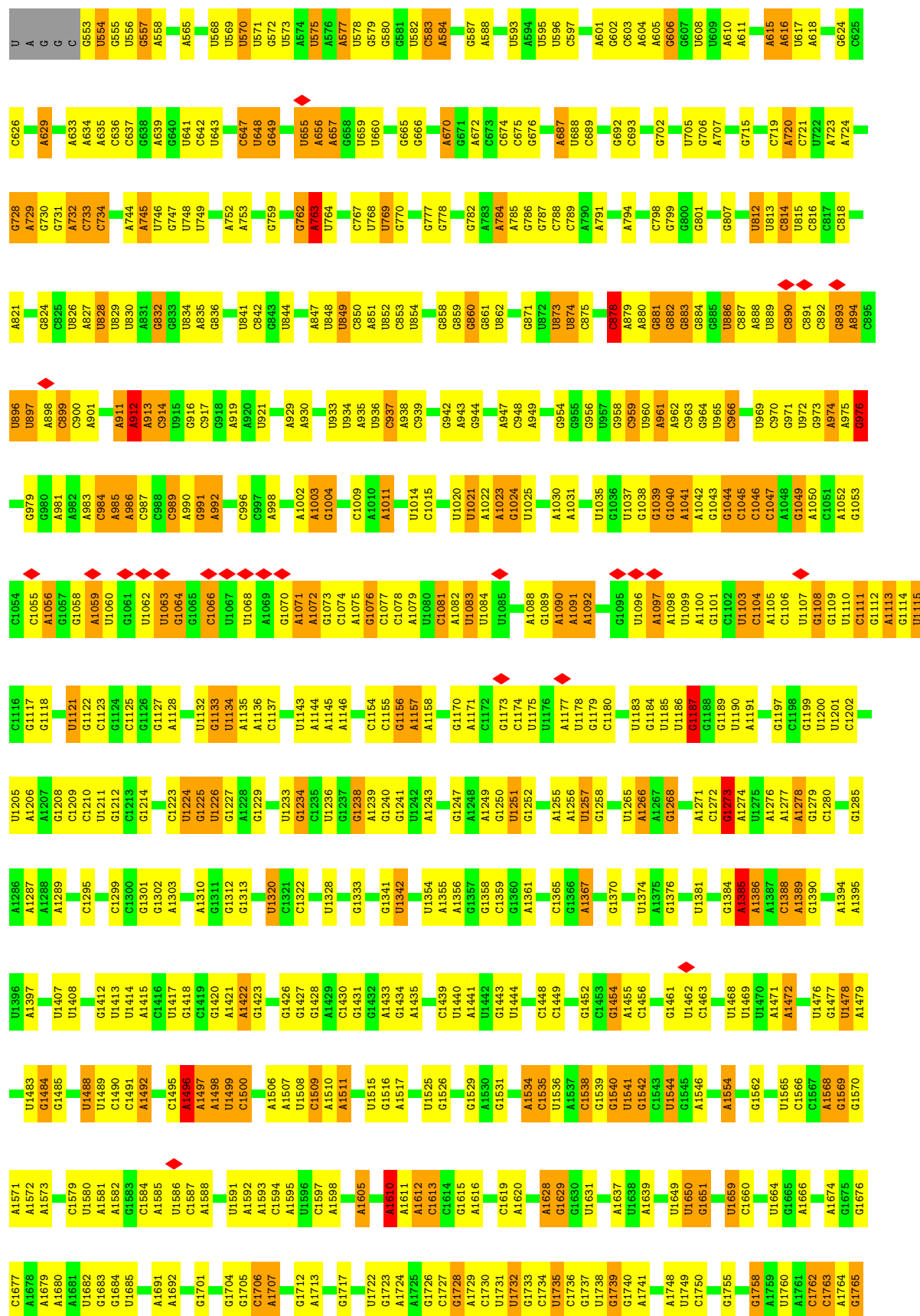


- Molecule 9: 5S rRNA

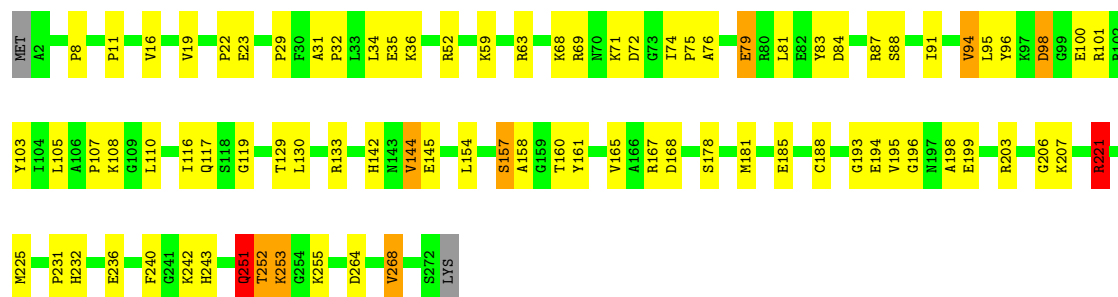


- Molecule 10: 23S rRNA



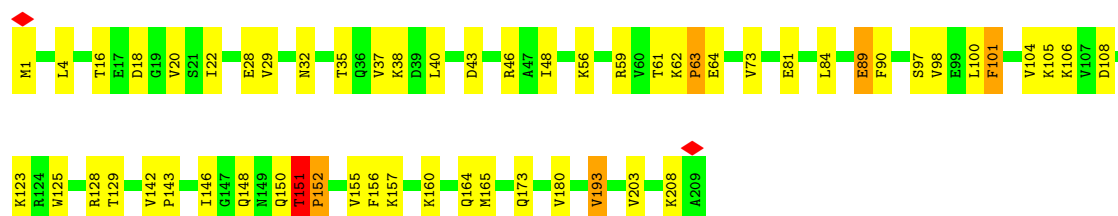






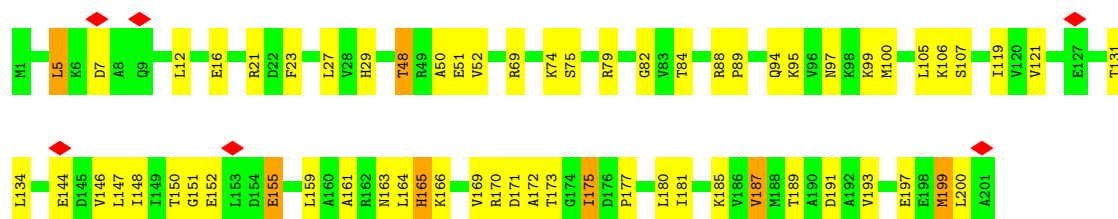
• Molecule 12: 50S ribosomal protein L3

Chain d: 73% 24%



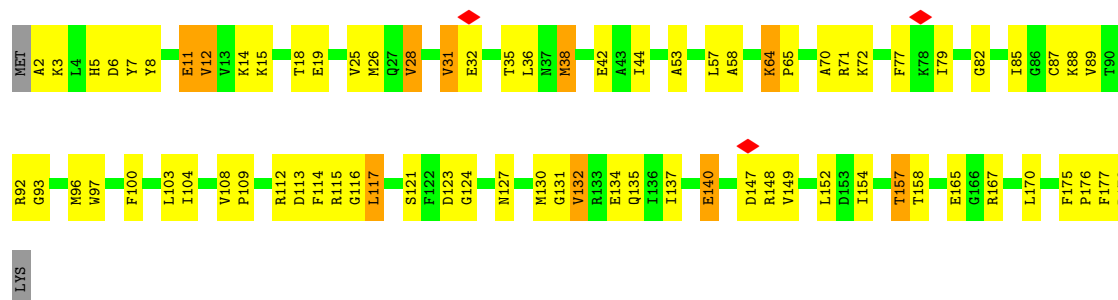
• Molecule 13: Large ribosomal subunit protein uL4

Chain e: 69% 28%



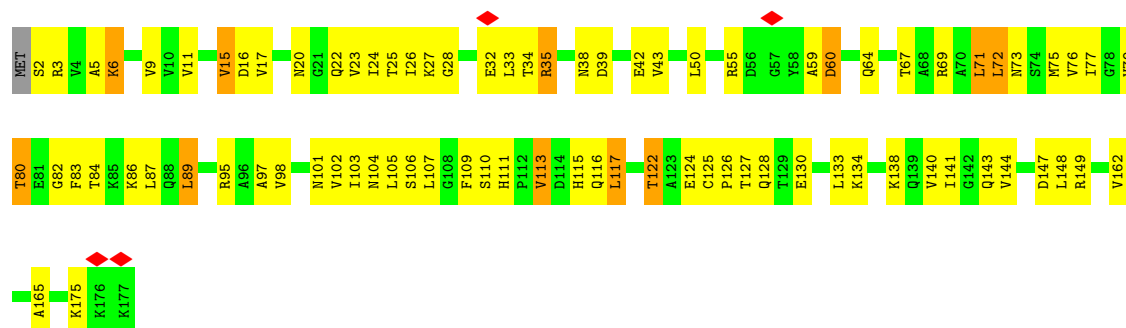
• Molecule 14: Large ribosomal subunit protein uL5

Chain f: 55% 38% 6%

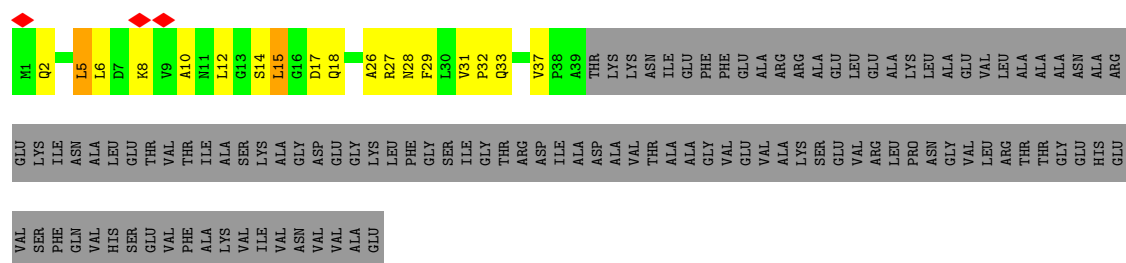


• Molecule 15: Large ribosomal subunit protein uL6

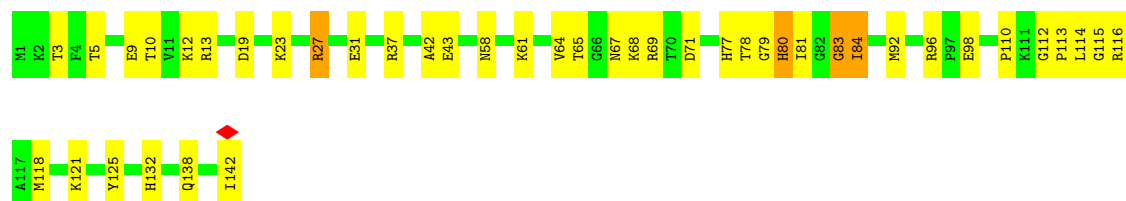
Chain g: 53% 41% 6%



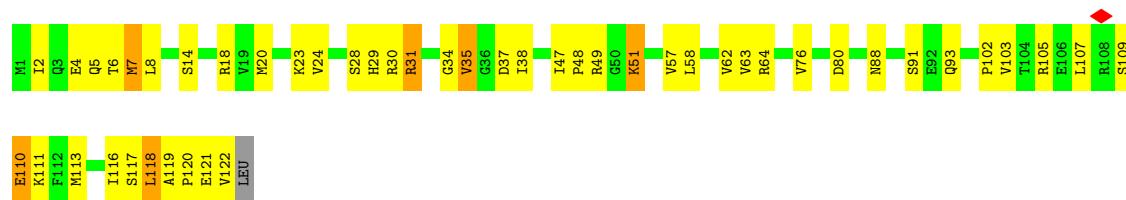
- Molecule 16: Large ribosomal subunit protein bL9



- Molecule 17: Large ribosomal subunit protein uL13

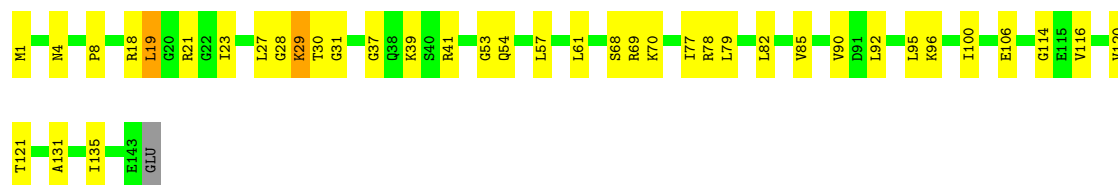


- Molecule 18: Large ribosomal subunit protein uL14

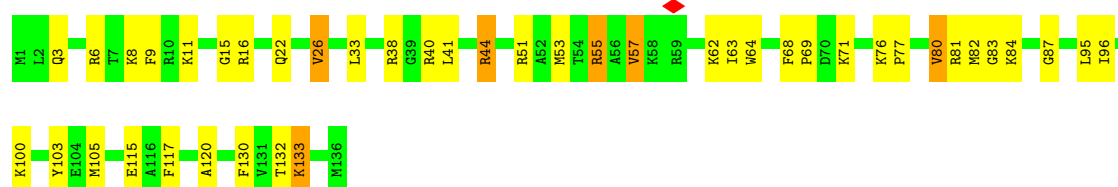


- Molecule 19: Large ribosomal subunit protein uL15

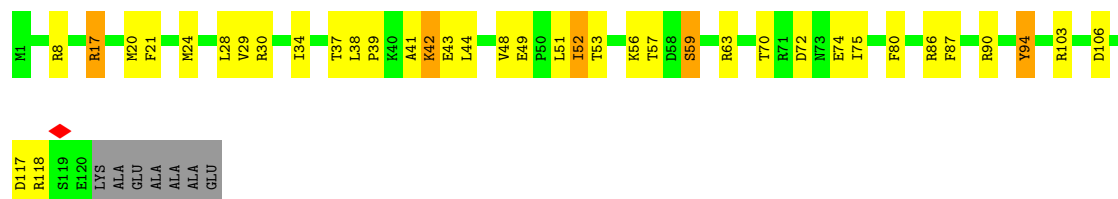




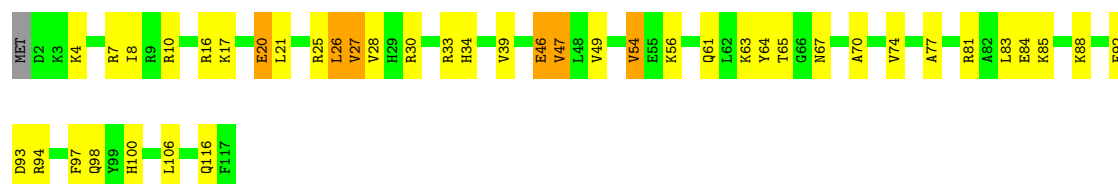
- Molecule 20: 50S ribosomal protein L16



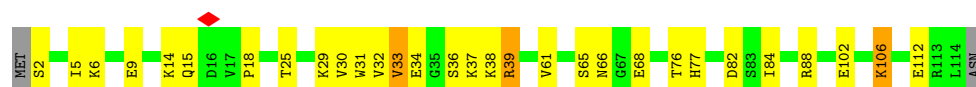
- Molecule 21: Large ribosomal subunit protein bL17



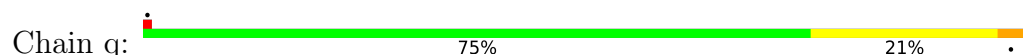
- Molecule 22: Large ribosomal subunit protein uL18



- Molecule 23: Large ribosomal subunit protein bL19

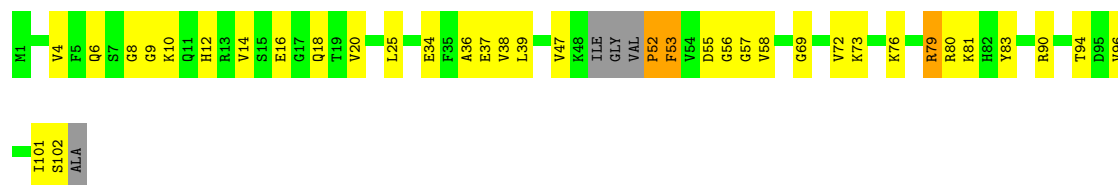


- Molecule 24: Large ribosomal subunit protein bL20





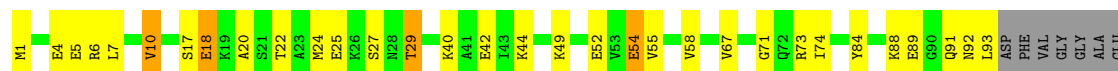
- Molecule 25: Large ribosomal subunit protein bL21



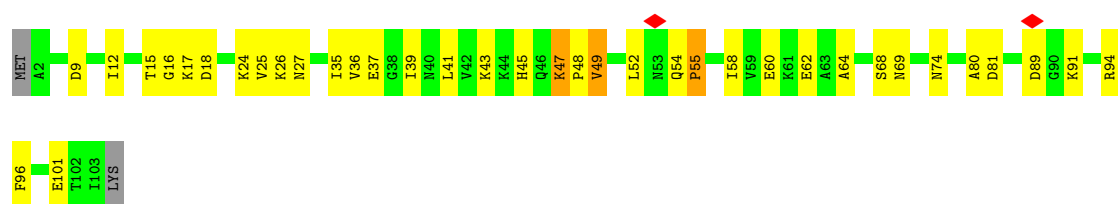
- Molecule 26: Large ribosomal subunit protein uL22



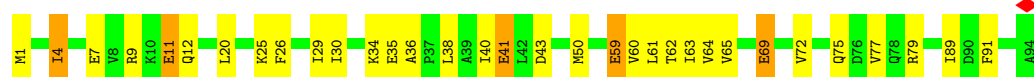
- Molecule 27: Large ribosomal subunit protein uL23



- Molecule 28: Large ribosomal subunit protein uL24



- Molecule 29: Large ribosomal subunit protein bL25



- Molecule 30: Large ribosomal subunit protein bL27



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	143483	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING ONLY	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	37.272	Depositor
Minimum defocus (nm)	600	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.057	Depositor
Minimum map value	-0.019	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.004	Depositor
Recommended contour level	0.011607	Depositor
Map size ($\text{\AA}$)	386.4, 386.4, 386.4	wwPDB
Map dimensions	368, 368, 368	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	1.05, 1.05, 1.05	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 > 5$	RMSZ	# $ Z > 5$
1	0	0.62	0/635	1.19	1/848 (0.1%)
2	1	0.50	0/496	1.10	0/660
3	2	0.64	0/443	1.20	0/593
4	3	0.61	0/440	1.31	1/588 (0.2%)
5	4	0.58	0/416	1.16	2/554 (0.4%)
6	6	0.72	0/380	1.56	4/498 (0.8%)
7	7	0.65	0/513	1.40	1/676 (0.1%)
8	8	0.60	0/302	1.43	2/397 (0.5%)
9	a	0.61	0/2850	0.98	8/4444 (0.2%)
10	b	0.61	0/69496	1.05	285/108412 (0.3%)
11	c	0.65	0/2121	1.33	13/2852 (0.5%)
12	d	0.60	0/1586	1.26	8/2134 (0.4%)
13	e	0.57	0/1571	1.13	3/2113 (0.1%)
14	f	0.53	0/1434	1.09	5/1926 (0.3%)
15	g	0.53	0/1343	1.12	3/1816 (0.2%)
16	h	0.51	0/290	1.07	0/392
17	j	0.61	0/1152	1.23	2/1551 (0.1%)
18	k	0.62	0/947	1.26	1/1268 (0.1%)
19	l	0.61	0/1052	1.34	4/1401 (0.3%)
20	m	0.62	0/1093	1.28	3/1460 (0.2%)
21	n	0.67	0/973	1.30	5/1301 (0.4%)
22	o	0.60	0/902	1.21	0/1209
23	p	0.62	0/920	1.29	1/1231 (0.1%)
24	q	0.66	0/960	1.28	3/1278 (0.2%)
25	r	0.58	0/803	1.24	4/1070 (0.4%)
26	s	0.63	0/852	1.20	2/1142 (0.2%)
27	t	0.53	0/744	1.11	1/994 (0.1%)
28	u	0.52	0/787	1.11	0/1051
29	w	0.57	0/766	1.14	1/1025 (0.1%)
30	y	0.67	0/635	1.44	6/839 (0.7%)
31	z	0.50	0/219	0.92	0/299
32	Z	0.57	0/1810	0.90	1/2820 (0.0%)
All	All	0.61	0/98931	1.09	370/148842 (0.2%)

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
4	3	0	1
7	7	0	1
11	c	0	2
17	j	0	1
20	m	0	1
24	q	0	1
All	All	0	7

There are no bond length outliers.

All (370) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	b	1940	A	C4'-C3'-O3'	-11.08	96.38	113.00
10	b	1301	G	C2'-C3'-O3'	10.99	130.18	113.70
10	b	788	C	O3'-P-O5'	-10.76	87.86	104.00
10	b	417	C	C4'-C3'-O3'	9.82	124.12	109.40
10	b	2644	G	O3'-P-O5'	-9.69	89.47	104.00
25	r	52	PRO	N-CA-CB	9.13	113.05	103.00
10	b	2059	C	C2'-C3'-O3'	9.07	127.31	113.70
10	b	2579	C	C2'-C3'-O3'	-8.53	100.91	113.70
10	b	2732	U	C4'-C3'-O3'	-8.37	100.45	113.00
10	b	912	A	C4'-C3'-O3'	8.34	121.90	109.40
10	b	390	U	C2'-C3'-O3'	8.13	121.69	109.50
10	b	752	A	O3'-P-O5'	-8.10	91.85	104.00
10	b	1973	A	O3'-P-O5'	-8.07	91.90	104.00
10	b	1257	U	C4'-C3'-O3'	-7.99	101.02	113.00
10	b	2824	A	C4'-C3'-O3'	-7.96	101.05	113.00
10	b	1934	G	C4'-C3'-O3'	7.93	121.30	109.40
10	b	2888	U	C4'-C3'-O3'	-7.91	101.13	113.00
10	b	1701	G	C3'-C2'-C1'	-7.89	93.61	101.50
7	7	34	THR	CA-CB-OG1	-7.84	97.83	109.60
10	b	2350	A	C2'-C3'-O3'	7.82	121.23	109.50
10	b	1820	U	C2'-C3'-O3'	7.77	121.16	109.50
9	a	39	A	C4'-C3'-O3'	7.75	121.03	109.40
6	6	19	ARG	CD-NE-CZ	-7.72	113.60	124.40
10	b	33	C	C4'-C3'-O3'	-7.66	101.50	113.00
10	b	2852	G	C4'-C3'-O3'	-7.64	101.54	113.00
10	b	1707	A	O3'-P-O5'	-7.62	92.56	104.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	b	1664	U	O3'-P-O5'	-7.59	92.61	104.00
10	b	1867	U	C4'-C3'-O3'	-7.55	101.67	113.00
10	b	1819	G	O3'-P-O5'	-7.55	92.68	104.00
10	b	812	U	C4'-C3'-O3'	-7.55	101.68	113.00
10	b	119	A	O3'-P-O5'	-7.45	92.82	104.00
10	b	1478	U	C4'-C3'-O3'	7.44	120.57	109.40
10	b	1666	A	O3'-P-O5'	-7.39	92.92	104.00
10	b	2066	A	C4'-C3'-O3'	7.37	120.46	109.40
10	b	575	U	O3'-P-O5'	-7.34	92.99	104.00
10	b	687	A	O3'-P-O5'	-7.33	93.00	104.00
10	b	577	A	O3'-P-O5'	-7.29	93.07	104.00
10	b	1706	C	C2'-C3'-O3'	7.27	124.61	113.70
23	p	106	LYS	CB-CG-CD	7.21	127.89	111.30
10	b	914	C	C2'-C3'-O3'	-7.21	102.89	113.70
10	b	844	U	O3'-P-O5'	-7.13	93.30	104.00
10	b	1986	U	O3'-P-O5'	-7.13	93.30	104.00
10	b	2717	U	O3'-P-O5'	-7.13	93.30	104.00
10	b	1975	U	C4'-C3'-O3'	-7.12	102.32	113.00
10	b	1224	U	C4'-C3'-O3'	7.10	123.65	113.00
10	b	1631	U	O3'-P-O5'	-7.06	93.41	104.00
10	b	1774	A	O3'-P-O5'	-7.04	93.43	104.00
10	b	912	A	C2'-C3'-O3'	-7.04	98.95	109.50
5	4	53	LYS	CG-CD-CE	7.03	127.46	111.30
10	b	801	G	O3'-P-O5'	-7.00	93.50	104.00
10	b	9	G	C4'-C3'-O3'	6.96	123.44	113.00
10	b	1224	U	C1'-C2'-O2'	6.96	118.84	108.40
10	b	2739	G	O3'-P-O5'	-6.96	93.56	104.00
10	b	1154	C	O3'-P-O5'	-6.96	93.56	104.00
10	b	1241	G	O3'-P-O5'	-6.91	93.63	104.00
10	b	2027	C	O3'-P-O5'	-6.89	93.66	104.00
10	b	1238	G	O3'-P-O5'	-6.89	93.67	104.00
10	b	2564	A	O3'-P-O5'	-6.87	93.69	104.00
10	b	2736	G	N9-C1'-C2'	6.85	122.28	112.00
10	b	1941	A	P-O5'-C5'	-6.84	110.64	120.90
10	b	2576	A	O3'-P-O5'	-6.80	93.79	104.00
11	c	253	LYS	CB-CA-C	-6.77	102.78	111.86
30	y	55	ARG	CD-NE-CZ	-6.77	114.92	124.40
10	b	2765	A	O3'-P-O5'	-6.74	93.89	104.00
10	b	1156	G	O3'-P-O5'	-6.73	93.90	104.00
9	a	6	G	O3'-P-O5'	-6.73	93.91	104.00
8	8	24	ARG	CD-NE-CZ	-6.70	115.03	124.40
10	b	509	C	C2'-C3'-O3'	-6.66	103.71	113.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	b	2472	A	C4'-C3'-O3'	-6.61	103.09	113.00
10	b	1301	G	C4'-C3'-O3'	-6.60	103.10	113.00
10	b	2685	C	O3'-P-O5'	-6.60	94.10	104.00
10	b	2067	C	O3'-P-O5'	-6.57	94.15	104.00
10	b	2021	U	C2'-C3'-O3'	-6.55	103.87	113.70
10	b	557	G	C4'-C3'-O3'	-6.55	103.18	113.00
10	b	675	C	C2'-C3'-O3'	-6.55	103.88	113.70
10	b	2562	C	O3'-P-O5'	-6.54	94.20	104.00
10	b	528	A	C1'-C2'-O2'	6.53	118.20	108.40
10	b	2684	U	C2'-C3'-O3'	-6.53	103.91	113.70
10	b	2328	U	C4'-C3'-O3'	-6.53	103.21	113.00
13	e	94	GLN	N-CA-CB	-6.48	99.40	111.13
10	b	944	G	O3'-P-O5'	-6.47	94.30	104.00
10	b	228	C	C4'-C3'-O3'	6.46	119.09	109.40
10	b	1358	G	O3'-P-O5'	-6.42	94.36	104.00
21	n	21	PHE	CA-CB-CG	-6.41	107.39	113.80
9	a	58	A	O3'-P-O5'	-6.40	94.40	104.00
10	b	571	U	C2'-C3'-O3'	-6.40	104.10	113.70
10	b	984	C	C4'-C3'-O3'	-6.37	103.44	113.00
17	j	69	ARG	N-CA-CB	6.37	120.97	110.39
10	b	159	G	C4'-C3'-O3'	6.37	122.55	113.00
11	c	59	LYS	CB-CA-C	-6.36	98.78	109.65
10	b	2357	G	O3'-P-O5'	-6.34	94.49	104.00
10	b	1266	A	O3'-P-O5'	-6.32	94.51	104.00
10	b	789	C	C4'-C3'-O3'	-6.31	103.54	113.00
10	b	674	C	C2'-C3'-O3'	-6.30	104.25	113.70
10	b	27	G	C4'-C3'-O3'	-6.30	103.55	113.00
10	b	2732	U	C1'-C2'-O2'	-6.29	98.97	108.40
10	b	2242	G	O3'-P-O5'	-6.28	94.59	104.00
8	8	14	CYS	CB-CA-C	6.27	120.13	109.53
19	l	27	LEU	CA-C-N	-6.27	114.81	122.15
19	l	27	LEU	C-N-CA	-6.27	114.81	122.15
10	b	2693	U	O3'-P-O5'	6.26	113.40	104.00
10	b	1251	U	C4'-C3'-O3'	-6.24	103.64	113.00
10	b	2327	G	O3'-P-O5'	-6.24	94.65	104.00
10	b	702	G	O3'-P-O5'	-6.23	94.65	104.00
10	b	1674	A	C2'-C3'-O3'	-6.23	104.36	113.70
12	d	156	PHE	CB-CA-C	-6.22	98.01	109.46
10	b	479	A	O3'-P-O5'	-6.19	94.71	104.00
10	b	2246	G	O3'-P-O5'	-6.18	94.73	104.00
10	b	2434	A	O3'-P-O5'	-6.17	94.74	104.00
14	f	26	MET	CB-CG-SD	-6.17	94.19	112.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	b	2017	A	O3'-P-O5'	-6.17	94.75	104.00
10	b	372	G	C4'-C3'-O3'	-6.16	103.75	113.00
32	Z	75	C	O3'-P-O5'	-6.16	94.76	104.00
10	b	2505	C	C4'-C3'-O3'	-6.16	103.77	113.00
10	b	976	G	N9-C1'-C2'	6.15	123.23	114.00
10	b	1781	U	O3'-P-O5'	-6.14	94.79	104.00
18	k	7	MET	CG-SD-CE	-6.14	87.40	100.90
10	b	2886	A	C2'-C3'-O3'	-6.13	104.50	113.70
10	b	991	G	O3'-P-O5'	-6.12	94.82	104.00
10	b	728	G	C4'-C3'-O3'	-6.11	103.84	113.00
10	b	2350	A	C4'-C3'-O3'	-6.11	100.24	109.40
10	b	1333	G	O3'-P-O5'	-6.10	94.84	104.00
15	g	60	ASP	CA-CB-CG	6.10	118.70	112.60
10	b	1273	G	O3'-P-O5'	-6.09	94.86	104.00
26	s	11	ARG	CB-CA-C	6.09	121.26	112.12
10	b	911	A	C2'-C3'-O3'	-6.09	104.57	113.70
10	b	873	U	O3'-P-O5'	-6.07	94.90	104.00
10	b	1389	A	O3'-P-O5'	-6.07	94.90	104.00
10	b	2605	C	C2'-C3'-O3'	-6.07	100.40	109.50
11	c	87	ARG	NE-CZ-NH1	-6.06	115.44	121.50
10	b	2591	A	O3'-P-O5'	-6.06	94.91	104.00
10	b	2080	U	C2'-C3'-O3'	-6.06	104.61	113.70
10	b	2308	G	C1'-C2'-O2'	6.06	117.49	108.40
10	b	2611	G	C4'-C3'-C2'	-6.06	96.54	102.60
10	b	1041	A	O3'-P-O5'	-6.06	94.91	104.00
10	b	862	U	C2'-C3'-O3'	-6.05	104.63	113.70
10	b	2588	U	O3'-P-O5'	-6.04	94.93	104.00
10	b	2248	U	O3'-P-O5'	-6.02	94.97	104.00
10	b	1224	U	C2'-C3'-O3'	-6.01	104.68	113.70
10	b	2888	U	N1-C1'-C2'	6.01	121.02	112.00
10	b	827	A	O3'-P-O5'	-6.00	95.00	104.00
10	b	2549	G	O3'-P-O5'	-6.00	95.00	104.00
11	c	11	PRO	N-CA-C	-6.00	100.37	110.21
10	b	2248	U	C2'-C3'-O3'	-5.99	104.72	113.70
10	b	2426	C	O3'-P-O5'	-5.97	95.05	104.00
10	b	2011	U	C2'-C3'-O3'	-5.96	104.76	113.70
10	b	752	A	C2'-C3'-O3'	-5.96	104.77	113.70
13	e	16	GLU	CB-CA-C	5.92	120.18	110.88
10	b	2070	C	C2'-C3'-O3'	-5.92	104.82	113.70
10	b	1659	U	O3'-P-O5'	-5.90	95.15	104.00
12	d	151	THR	N-CA-CB	5.89	115.99	110.39
6	6	19	ARG	CB-CG-CD	-5.87	97.80	111.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	b	1911	G	O3'-P-O5'	-5.87	95.20	104.00
10	b	1829	U	O3'-P-O5'	-5.86	95.21	104.00
10	b	2641	U	C2'-C3'-O3'	-5.86	104.91	113.70
10	b	1883	C	O3'-P-O5'	-5.86	95.21	104.00
10	b	2735	G	C2'-C3'-O3'	-5.86	104.92	113.70
4	3	5	GLN	N-CA-CB	5.85	118.80	110.67
10	b	2374	G	O3'-P-O5'	-5.84	95.24	104.00
10	b	828	U	C4'-C3'-O3'	-5.83	104.25	113.00
27	t	54	GLU	CB-CG-CD	5.83	122.51	112.60
10	b	1385	A	O3'-P-O5'	-5.83	95.26	104.00
10	b	2253	U	O5'-P-OP1	-5.83	90.52	108.00
10	b	310	A	C4'-C3'-O3'	-5.82	104.27	113.00
10	b	2264	C	C2'-C3'-O3'	-5.82	104.97	113.70
10	b	2432	G	O3'-P-O5'	-5.82	95.28	104.00
14	f	112	ARG	CD-NE-CZ	5.81	132.54	124.40
10	b	116	C	C2'-C3'-O3'	-5.81	104.99	113.70
10	b	116	C	C3'-C2'-O2'	-5.81	101.98	110.70
10	b	1615	G	O3'-P-O5'	-5.81	95.28	104.00
10	b	2469	C	C2'-C3'-O3'	-5.80	105.00	113.70
10	b	2082	C	O3'-P-O5'	-5.80	95.30	104.00
10	b	1295	C	O3'-P-O5'	-5.79	95.31	104.00
10	b	1941	A	C2'-C3'-O3'	5.78	118.17	109.50
15	g	143	GLN	CB-CA-C	-5.78	101.19	110.79
12	d	164	GLN	CB-CA-C	-5.77	100.89	109.90
10	b	1020	U	C2'-C3'-O3'	-5.77	105.05	113.70
10	b	2235	U	C2'-C3'-O3'	-5.76	105.06	113.70
10	b	2565	U	O3'-P-O5'	-5.75	95.37	104.00
10	b	1236	U	O3'-P-O5'	-5.71	95.43	104.00
12	d	193	VAL	N-CA-CB	-5.70	107.90	111.83
10	b	2023	A	C2'-C3'-O3'	-5.70	105.15	113.70
14	f	64	LYS	CB-CG-CD	5.70	124.40	111.30
10	b	2393	G	C4'-C3'-O3'	-5.69	104.46	113.00
10	b	746	U	C2'-C3'-O3'	-5.69	105.17	113.70
10	b	1361	A	O3'-P-O5'	-5.69	95.47	104.00
10	b	1492	A	O3'-P-O5'	-5.69	95.47	104.00
10	b	2604	A	C2'-C3'-O3'	-5.68	105.17	113.70
10	b	1133	G	C2'-C3'-O3'	5.68	118.02	109.50
10	b	827	A	C3'-C2'-O2'	-5.67	102.20	110.70
10	b	789	C	O5'-P-OP1	5.66	124.97	108.00
10	b	2777	C	C2'-C3'-O3'	-5.65	105.22	113.70
30	y	17	GLU	N-CA-CB	5.65	118.36	109.83
20	m	76	LYS	CB-CG-CD	5.64	124.28	111.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	b	2067	C	C2'-C3'-O3'	-5.63	105.25	113.70
10	b	2217	U	C4'-C3'-O3'	-5.63	104.56	113.00
24	q	37	GLN	N-CA-CB	5.63	119.00	110.28
10	b	372	G	O3'-P-O5'	-5.62	95.58	104.00
17	j	80	HIS	CA-CB-CG	-5.61	108.19	113.80
10	b	1004	G	O3'-P-O5'	-5.60	95.60	104.00
10	b	2416	A	O3'-P-O5'	-5.60	95.60	104.00
10	b	983	A	O3'-P-O5'	-5.60	95.61	104.00
10	b	1328	U	O3'-P-O5'	-5.59	95.62	104.00
24	q	57	PHE	CA-CB-CG	-5.59	108.21	113.80
9	a	29	A	O3'-P-O5'	-5.58	95.63	104.00
10	b	1814	U	C2'-C3'-O3'	-5.58	105.33	113.70
10	b	1134	U	O3'-P-O5'	-5.56	95.66	104.00
10	b	2379	G	C4'-C3'-C2'	-5.55	97.05	102.60
10	b	1637	A	O3'-P-O5'	-5.55	95.68	104.00
10	b	2611	G	C3'-C2'-O2'	5.55	119.02	110.70
10	b	728	G	P-O3'-C3'	5.54	128.52	120.20
10	b	976	G	C4'-C3'-O3'	-5.54	101.09	109.40
10	b	1569	G	O3'-P-O5'	-5.53	95.70	104.00
10	b	603	C	O3'-P-O5'	-5.53	95.71	104.00
10	b	974	A	C4'-C3'-O3'	-5.52	104.72	113.00
25	r	76	LYS	CB-CG-CD	5.52	124.00	111.30
10	b	1836	U	C2'-C3'-O3'	-5.51	105.43	113.70
11	c	11	PRO	CA-C-N	-5.51	116.91	123.08
11	c	11	PRO	C-N-CA	-5.51	116.91	123.08
30	y	43	THR	CA-CB-OG1	-5.51	101.34	109.60
26	s	83	LYS	CB-CG-CD	5.50	123.94	111.30
10	b	1937	G	O3'-P-O5'	-5.50	95.76	104.00
10	b	265	A	C4'-C3'-C2'	-5.49	97.11	102.60
10	b	481	G	C4'-C3'-O3'	-5.49	104.76	113.00
10	b	583	C	C2'-C3'-O3'	-5.49	105.47	113.70
10	b	827	A	OP1-P-O3'	5.47	124.41	108.00
10	b	1187	G	P-O5'-C5'	-5.47	112.69	120.90
10	b	2004	C	C2'-C3'-O3'	-5.46	105.50	113.70
10	b	1764	A	C2'-C3'-O3'	5.46	121.89	113.70
10	b	2379	G	O4'-C1'-N9	5.46	116.69	108.50
9	a	89	U	C4'-C3'-O3'	5.46	121.19	113.00
10	b	451	U	C2'-C3'-O3'	-5.45	105.52	113.70
10	b	385	C	O3'-P-O5'	-5.45	95.82	104.00
10	b	1483	U	O3'-P-O5'	-5.44	95.84	104.00
10	b	2512	G	P-O5'-C5'	-5.42	112.77	120.90
15	g	71	LEU	N-CA-CB	5.40	118.62	110.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
21	n	80	PHE	CA-CB-CG	-5.40	108.40	113.80
12	d	151	THR	CA-CB-OG1	-5.40	101.50	109.60
10	b	1157	A	O3'-P-O5'	-5.40	95.90	104.00
10	b	1320	U	O3'-P-O5'	-5.40	95.91	104.00
10	b	293	U	O3'-P-O5'	-5.39	95.92	104.00
21	n	42	LYS	CB-CA-C	-5.39	99.69	110.42
10	b	2684	U	C4'-C3'-O3'	-5.39	104.92	113.00
10	b	983	A	C4'-C3'-O3'	-5.38	104.94	113.00
10	b	1125	C	O3'-P-O5'	-5.37	95.94	104.00
19	l	29	LYS	CB-CA-C	-5.37	99.74	110.42
10	b	510	C	O3'-P-O5'	-5.37	95.95	104.00
13	e	95	LYS	CB-CA-C	-5.37	100.46	109.53
10	b	403	U	O3'-P-O5'	-5.36	95.95	104.00
12	d	152	PRO	N-CD-CG	-5.36	95.16	103.20
10	b	1128	A	C2'-C3'-O3'	5.36	117.54	109.50
10	b	1701	G	N9-C1'-C2'	5.36	122.03	114.00
10	b	265	A	C1'-O4'-C4'	-5.36	104.55	109.90
1	0	43	GLU	CB-CA-C	5.35	119.64	110.01
10	b	1440	U	O3'-P-O5'	-5.35	95.97	104.00
10	b	2428	C	O3'-P-O5'	-5.35	95.98	104.00
10	b	525	U	O3'-P-O5'	-5.34	95.98	104.00
10	b	1944	U	O3'-P-O5'	-5.34	95.99	104.00
10	b	2061	G	C2'-C3'-O3'	-5.34	105.70	113.70
10	b	2605	C	C4'-C3'-O3'	5.34	117.41	109.40
10	b	1123	C	O3'-P-O5'	-5.33	96.00	104.00
11	c	221	ARG	N-CA-CB	5.33	117.81	109.97
11	c	221	ARG	CG-CD-NE	-5.33	100.28	112.00
10	b	1021	U	C1'-C2'-O2'	-5.31	100.44	108.40
10	b	818	C	C2'-C3'-O3'	-5.31	105.74	113.70
10	b	2758	U	O3'-P-O5'	-5.31	96.04	104.00
30	y	55	ARG	CG-CD-NE	-5.31	100.33	112.00
10	b	2058	A	O3'-P-O5'	-5.30	96.04	104.00
12	d	101	PHE	CB-CA-C	-5.30	102.84	111.06
10	b	1256	A	C4'-C3'-O3'	-5.29	105.06	113.00
10	b	9	G	C4'-C3'-C2'	-5.29	97.31	102.60
10	b	1385	A	C4'-C3'-O3'	5.29	117.33	109.40
10	b	1279	G	O3'-P-O5'	-5.29	96.07	104.00
10	b	2873	G	O3'-P-O5'	-5.28	96.08	104.00
10	b	1224	U	O3'-P-O5'	-5.28	96.08	104.00
5	4	35	GLU	CB-CA-C	-5.28	102.91	110.62
10	b	2270	A	C4'-C3'-O3'	-5.28	101.48	109.40
14	f	11	GLU	CB-CA-C	5.27	115.95	109.16

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	b	763	A	O3'-P-O5'	-5.26	96.10	104.00
10	b	966	C	C2'-C3'-O3'	-5.26	105.81	113.70
25	r	79	ARG	CB-CG-CD	-5.25	99.22	111.30
10	b	989	C	C2'-C3'-O3'	-5.24	105.84	113.70
10	b	2278	A	C2'-C3'-O3'	-5.24	105.84	113.70
10	b	1247	G	P-O5'-C5'	-5.23	113.06	120.90
10	b	1948	U	O3'-P-O5'	-5.22	96.17	104.00
10	b	2614	C	O3'-P-O5'	-5.22	96.17	104.00
10	b	1628	A	C2'-C3'-O3'	5.21	121.52	113.70
10	b	2648	G	C2'-C3'-O3'	-5.21	105.89	113.70
10	b	1704	G	O3'-P-O5'	-5.21	96.19	104.00
12	d	128	ARG	CA-CB-CG	-5.21	103.69	114.10
10	b	1858	U	C4'-C3'-O3'	-5.20	105.20	113.00
6	6	41	ARG	CD-NE-CZ	5.20	131.68	124.40
11	c	79	GLU	CB-CG-CD	-5.20	103.76	112.60
10	b	2292	A	O3'-P-O5'	-5.20	96.21	104.00
10	b	912	A	N9-C1'-C2'	-5.19	106.21	114.00
10	b	2605	C	N1-C1'-C2'	-5.19	106.21	114.00
10	b	120	U	O5'-P-OP1	-5.19	92.42	108.00
10	b	1492	A	C4'-C3'-O3'	-5.19	105.22	113.00
10	b	584	A	C2'-C3'-O3'	-5.19	105.92	113.70
10	b	2358	C	C5'-C4'-C3'	-5.19	108.22	116.00
11	c	251	GLN	N-CA-CB	-5.19	101.72	109.71
10	b	824	G	C2'-C3'-O3'	-5.18	105.92	113.70
10	b	1913	C	O3'-P-O5'	-5.18	96.22	104.00
10	b	233	A	O3'-P-O5'	-5.18	96.23	104.00
10	b	1003	A	O3'-P-O5'	-5.18	96.23	104.00
10	b	1610	A	C2'-C3'-O3'	5.18	117.27	109.50
9	a	68	C	O3'-P-O5'	-5.18	96.23	104.00
10	b	2433	G	C4'-C3'-O3'	-5.18	105.23	113.00
10	b	72	U	O3'-P-O5'	-5.17	96.24	104.00
10	b	878	C	O3'-P-O5'	-5.17	96.24	104.00
9	a	84	G	O3'-P-O5'	-5.17	96.24	104.00
10	b	2579	C	O3'-P-O5'	-5.17	96.24	104.00
10	b	1133	G	O3'-P-O5'	-5.17	96.25	104.00
11	c	105	LEU	N-CA-CB	5.17	117.64	109.83
11	c	251	GLN	CB-CA-C	5.17	118.01	110.26
21	n	17	ARG	NE-CZ-NH1	-5.17	116.33	121.50
10	b	1712	G	O3'-P-O5'	-5.16	96.26	104.00
10	b	2020	U	C2'-C3'-O3'	-5.16	105.97	113.70
10	b	2049	C	C4'-C3'-O3'	-5.15	105.27	113.00
10	b	2824	A	O3'-P-O5'	-5.15	96.27	104.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
14	f	140	GLU	CB-CG-CD	5.15	121.36	112.60
10	b	981	A	P-O5'-C5'	-5.15	113.18	120.90
10	b	1313	G	C2'-C3'-O3'	5.14	117.21	109.50
10	b	1765	G	C2'-C3'-O3'	-5.14	105.99	113.70
10	b	769	U	C3'-C2'-O2'	5.14	118.41	110.70
10	b	1998	C	C2'-C3'-O3'	-5.13	106.00	113.70
10	b	1650	U	O3'-P-O5'	-5.13	96.30	104.00
30	y	26	PHE	CA-CB-CG	-5.13	108.67	113.80
10	b	2645	G	P-O5'-C5'	-5.13	113.21	120.90
20	m	57	VAL	N-CA-CB	-5.12	106.57	112.21
10	b	2590	U	C2'-C3'-O3'	-5.12	106.02	113.70
10	b	1310	A	C2'-C3'-O3'	-5.12	106.03	113.70
10	b	2857	C	O3'-P-O5'	-5.10	96.34	104.00
10	b	832	G	O3'-P-O5'	-5.10	96.35	104.00
10	b	2407	C	C4'-C3'-C2'	-5.10	97.50	102.60
10	b	745	A	C2'-C3'-O3'	-5.10	106.06	113.70
10	b	2038	U	C2'-C3'-O3'	-5.10	106.06	113.70
9	a	7	G	O3'-P-O5'	-5.09	96.36	104.00
10	b	2599	G	C4'-C3'-C2'	-5.09	97.50	102.60
20	m	55	ARG	CB-CA-C	-5.09	102.34	110.79
6	6	3	ARG	CG-CD-NE	-5.08	100.81	112.00
10	b	541	A	O3'-P-O5'	-5.08	96.38	104.00
10	b	1597	C	C4'-C3'-O3'	5.08	120.62	113.00
10	b	1568	A	O3'-P-O5'	-5.08	96.39	104.00
10	b	2433	G	O3'-P-O5'	-5.07	96.39	104.00
11	c	8	PRO	N-CA-CB	-5.07	98.70	102.25
10	b	992	A	O3'-P-O5'	-5.06	96.41	104.00
10	b	2769	A	O3'-P-O5'	-5.06	96.41	104.00
10	b	1499	U	C2'-C3'-O3'	-5.06	106.11	113.70
10	b	2467	C	C2'-C3'-O3'	-5.05	106.12	113.70
10	b	1666	A	OP2-P-O3'	5.05	123.15	108.00
30	y	55	ARG	NE-CZ-NH1	-5.05	116.45	121.50
10	b	1762	C	O3'-P-O5'	-5.04	96.43	104.00
10	b	2379	G	C1'-O4'-C4'	-5.04	104.86	109.90
25	r	53	PHE	CA-CB-CG	-5.04	108.76	113.80
10	b	826	U	C2'-C3'-O3'	-5.03	106.15	113.70
10	b	2254	G	O3'-P-O5'	5.03	111.55	104.00
29	w	26	PHE	N-CA-CB	5.03	119.33	110.37
10	b	116	C	O3'-P-O5'	-5.03	96.46	104.00
10	b	2824	A	P-O3'-C3'	5.03	127.74	120.20
21	n	94	TYR	N-CA-CB	-5.02	102.57	110.46
10	b	417	C	C1'-C2'-O2'	5.02	119.33	111.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	b	25	U	C2'-C3'-O3'	-5.01	106.18	113.70
10	b	1496	A	C4'-C3'-O3'	5.01	116.92	109.40
10	b	633	A	C2'-C3'-O3'	-5.01	106.18	113.70
10	b	1763	C	C4'-C3'-O3'	-5.01	105.48	113.00
24	q	55	ARG	CG-CD-NE	5.01	123.03	112.00
19	l	54	GLN	N-CA-CB	-5.01	102.67	110.04
10	b	1384	G	C4'-C3'-C2'	-5.01	97.59	102.60
10	b	689	C	C2'-C3'-O3'	-5.00	106.20	113.70

There are no chirality outliers.

All (7) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
4	3	16	ARG	Sidechain
7	7	13	ARG	Sidechain
11	c	221	ARG	Sidechain
11	c	232	HIS	Peptide
17	j	27	ARG	Sidechain
20	m	40	ARG	Sidechain
24	q	28	ARG	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	0	625	0	652	9	0
2	1	495	0	526	21	0
3	2	439	0	482	14	0
4	3	434	0	445	16	0
5	4	409	0	440	11	0
6	6	377	0	418	9	0
7	7	504	0	572	18	0
8	8	301	0	341	12	0
9	a	2549	0	1291	55	0
10	b	62050	0	31208	831	0
11	c	2082	0	2154	63	0
12	d	1565	0	1616	38	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
13	e	1552	0	1619	50	0
14	f	1410	0	1444	56	0
15	g	1323	0	1371	73	0
16	h	287	0	307	15	0
17	j	1129	0	1162	34	0
18	k	938	0	1012	40	0
19	l	1043	0	1123	35	0
20	m	1074	0	1157	33	0
21	n	960	0	1000	30	0
22	o	892	0	923	34	0
23	p	908	0	956	23	0
24	q	947	0	1019	22	0
25	r	791	0	811	26	0
26	s	845	0	909	24	0
27	t	738	0	807	18	0
28	u	779	0	831	31	0
29	w	753	0	780	25	0
30	y	627	0	651	21	0
31	z	216	0	175	8	0
32	Z	1621	0	819	2	0
All	All	90663	0	59021	1559	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 11.

All (1559) 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)
9:a:2:G:OP2	9:a:2:G:C3'	1.85	1.24
9:a:2:G:H3'	9:a:2:G:P	1.78	1.21
28:u:36:VAL:HG23	28:u:39:ILE:HG13	1.32	1.11
9:a:2:G:OP2	9:a:2:G:H3'	0.90	1.06
9:a:1:U:H3'	9:a:1:U:O2	1.57	1.04
10:b:2800:U:H3	10:b:2804:A:N6	1.58	1.02
18:k:102:PRO:HD2	23:p:68:GLU:OE2	1.58	1.01
10:b:2309:U:H5''	14:f:131:GLY:HA3	1.43	0.99
10:b:884:G:H22	10:b:896:U:H3	0.99	0.99
9:a:2:G:C3'	9:a:2:G:P	2.45	0.98
6:6:31:LEU:HD22	6:6:42:LEU:HD21	1.43	0.98
10:b:285:G:H1	10:b:355:U:H3	1.01	0.97
10:b:629:A:OP1	19:l:78:ARG:NH1	2.00	0.95

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:e:48:THR:HG22	13:e:50:ALA:H	1.34	0.92
20:m:82:MET:HA	20:m:82:MET:HE2	1.50	0.91
10:b:2103:U:H3	10:b:2194:G:H1	1.11	0.90
10:b:849:U:O4	10:b:935:A:N6	2.04	0.90
8:8:11:CYS:HB3	8:8:14:CYS:SG	2.10	0.90
10:b:1422:A:H3'	10:b:2215:A:H62	1.37	0.88
10:b:587:G:N7	24:q:6:ARG:NH1	2.22	0.88
10:b:2761:A:N1	15:g:67:THR:HG21	1.88	0.87
19:l:77:ILE:HD11	19:l:95:LEU:HD13	1.56	0.87
19:l:77:ILE:CD1	19:l:95:LEU:HD13	2.04	0.86
10:b:715:G:H21	10:b:720:A:H2	1.19	0.86
18:k:31:ARG:HG3	18:k:31:ARG:HH11	1.40	0.85
10:b:1097:A:H5'	10:b:1098:A:H5''	1.59	0.85
10:b:647:C:H5''	10:b:648:U:H5	1.40	0.85
30:y:40:GLN:HE22	30:y:45:PHE:HB2	1.41	0.83
10:b:1042:A:N1	10:b:1117:G:O6	2.12	0.83
30:y:40:GLN:NE2	30:y:43:THR:O	2.13	0.82
10:b:1905:A:OP2	11:c:253:LYS:HE2	1.80	0.82
19:l:82:LEU:HD22	19:l:90:VAL:HG21	1.62	0.82
10:b:647:C:H5''	10:b:648:U:C5	2.16	0.81
10:b:2535:A:OP1	15:g:175:LYS:NZ	2.13	0.81
6:6:31:LEU:HD22	6:6:42:LEU:CD2	2.08	0.81
10:b:1021:U:HO2'	10:b:1023:A:H2	1.28	0.81
10:b:1042:A:H2	10:b:1117:G:N1	1.78	0.81
10:b:1042:A:H2	10:b:1117:G:H1	1.28	0.81
10:b:2171:U:O4	10:b:2175:A:N6	2.11	0.81
10:b:1042:A:C2	10:b:1117:G:N1	2.49	0.81
19:l:77:ILE:CD1	19:l:95:LEU:CD1	2.59	0.81
10:b:1496:A:O2'	10:b:1497:A:O5'	1.99	0.80
14:f:31:VAL:HG22	14:f:96:MET:HE1	1.62	0.80
10:b:615:A:N6	10:b:618:A:N1	2.30	0.80
10:b:1539:G:H5''	10:b:1540:G:C8	2.18	0.79
28:u:36:VAL:CG2	28:u:39:ILE:HG13	2.10	0.79
10:b:1422:A:H3'	10:b:2215:A:N6	1.97	0.79
10:b:1170:G:H1	10:b:1183:U:H3	1.31	0.78
13:e:12:LEU:HD23	13:e:12:LEU:H	1.49	0.78
10:b:1042:A:C2	10:b:1117:G:O6	2.37	0.77
19:l:77:ILE:HD13	19:l:95:LEU:CD1	2.14	0.77
10:b:2649:G:H4'	10:b:2736:G:H2'	1.66	0.77
9:a:1:U:O2	9:a:1:U:C3'	2.32	0.77
2:1:31:GLN:HG2	2:1:37:LEU:HB2	1.65	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:n:37:THR:HG22	21:n:39:PRO:HD2	1.67	0.77
27:t:17:SER:O	27:t:18:GLU:HB3	1.83	0.77
10:b:883:G:N2	10:b:897:U:O2	2.16	0.77
30:y:43:THR:C	30:y:45:PHE:H	1.93	0.77
15:g:28:GLY:HA3	15:g:79:VAL:HB	1.67	0.76
15:g:9:VAL:HG12	15:g:50:LEU:HB2	1.67	0.76
10:b:2335:G:H21	10:b:2340:A:H8	1.31	0.76
27:t:17:SER:HB3	27:t:20:ALA:H	1.49	0.76
10:b:878:C:H3'	10:b:879:A:H5''	1.66	0.75
10:b:158:U:HO2'	10:b:159:G:H8	1.34	0.75
10:b:2308:G:O2'	10:b:2309:U:O5'	2.03	0.75
10:b:1049:G:HO2'	10:b:1112:G:H1	1.27	0.74
28:u:26:LYS:NZ	28:u:37:GLU:HB3	2.01	0.74
15:g:38:ASN:HD21	15:g:64:GLN:HB3	1.53	0.74
10:b:534:U:O2'	24:q:49:ASP:OD2	2.05	0.74
18:k:7:MET:HB3	18:k:18:ARG:NH2	2.03	0.74
23:p:38:LYS:HA	23:p:38:LYS:HE2	1.70	0.74
5:4:9:ILE:HD13	5:4:25:LYS:HG2	1.71	0.73
10:b:1047:C:N4	10:b:1112:G:O2'	2.21	0.73
9:a:5:U:H3	9:a:114:C:H42	1.36	0.72
10:b:1441:A:H62	10:b:1554:A:H8	1.34	0.72
18:k:7:MET:HB3	18:k:18:ARG:HH21	1.54	0.72
10:b:1781:U:H5	10:b:1786:A:N7	1.87	0.72
20:m:44:ARG:CG	20:m:44:ARG:HH21	2.03	0.72
30:y:59:LEU:HD12	30:y:80:ILE:HD12	1.72	0.72
22:o:30:ARG:HG2	22:o:30:ARG:HH11	1.55	0.72
23:p:14:LYS:HG3	23:p:77:HIS:HA	1.72	0.72
10:b:1471:A:H2'	10:b:1472:A:C8	2.25	0.72
20:m:77:PRO:HG2	20:m:80:VAL:HG11	1.72	0.71
10:b:1736:C:H2'	10:b:1737:G:C8	2.25	0.71
10:b:762:G:H3'	10:b:763:A:H8	1.56	0.71
15:g:133:LEU:HB3	15:g:141:ILE:HD11	1.70	0.71
10:b:1042:A:C2	10:b:1117:G:C6	2.78	0.71
12:d:46:ARG:HG2	12:d:46:ARG:HH11	1.55	0.71
9:a:4:C:H42	9:a:115:A:H61	1.36	0.71
10:b:1186:U:H2'	10:b:1187:G:H5''	1.73	0.71
20:m:15:GLY:C	20:m:16:ARG:HG2	2.15	0.71
30:y:25:ARG:HG2	30:y:25:ARG:HH11	1.55	0.71
10:b:887:C:H2'	10:b:888:A:C8	2.26	0.71
16:h:10:ALA:HB1	16:h:12:LEU:HD12	1.71	0.71
28:u:36:VAL:HG23	28:u:39:ILE:CG1	2.16	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:b:1584:C:O2'	10:b:1587:C:N3	2.24	0.70
29:w:1:MET:N	29:w:59:GLU:OE1	2.23	0.70
11:c:79:GLU:OE2	11:c:95:LEU:HB2	1.90	0.70
15:g:26:ILE:HD11	15:g:76:VAL:HG12	1.73	0.70
15:g:89:LEU:HD22	15:g:162:VAL:HG22	1.72	0.70
25:r:37:GLU:HG2	25:r:53:PHE:CE1	2.26	0.70
10:b:1049:G:H4'	10:b:1050:A:H5'	1.74	0.70
10:b:2462:G:H8	10:b:2463:A:H62	1.39	0.70
17:j:31:GLU:HG2	17:j:142:ILE:HD12	1.73	0.70
17:j:114:LEU:HG	17:j:118:MET:HE3	1.73	0.70
23:p:37:LYS:HE2	23:p:37:LYS:H	1.55	0.70
10:b:285:G:N2	10:b:355:U:O2	2.22	0.70
18:k:107:LEU:HB2	18:k:116:ILE:HD11	1.73	0.70
10:b:2121:A:N1	10:b:2123:A:N6	2.39	0.69
15:g:124:GLU:HG3	15:g:134:LYS:NZ	2.07	0.69
22:o:33:ARG:HG3	22:o:34:HIS:ND1	2.06	0.69
10:b:1224:U:O2'	10:b:1225:G:OP2	2.10	0.69
2:l:2:LYS:HG3	2:l:6:LEU:HD11	1.75	0.69
28:u:12:ILE:HG21	28:u:80:ALA:HB2	1.74	0.69
10:b:1049:G:N2	10:b:1112:G:O2'	2.25	0.69
10:b:2119:G:N2	10:b:2123:A:N7	2.40	0.69
20:m:51:ARG:NH1	20:m:55:ARG:HH22	1.91	0.68
10:b:1860:A:N6	10:b:1888:G:O2'	2.26	0.68
10:b:2664:A:O2'	10:b:2665:G:O4'	2.11	0.68
10:b:1755:G:N2	10:b:1758:G:OP2	2.24	0.68
10:b:310:A:O2'	10:b:311:A:H2'	1.93	0.68
10:b:2619:U:H2'	10:b:2620:C:C6	2.29	0.67
10:b:2139:A:H2	10:b:2162:A:H5'	1.59	0.67
11:c:107:PRO:HD2	11:c:110:LEU:HD22	1.76	0.67
10:b:1041:A:H2	10:b:1118:G:H1	1.42	0.67
21:n:41:ALA:O	21:n:42:LYS:HB2	1.93	0.67
9:a:1:U:C4	9:a:119:A:N1	2.62	0.67
28:u:26:LYS:HZ1	28:u:37:GLU:HB3	1.58	0.67
5:4:51:GLU:OE2	5:4:53:LYS:HB2	1.95	0.67
10:b:883:G:H1	10:b:897:U:H3	0.69	0.67
11:c:181:MET:HB2	11:c:268:VAL:HG22	1.76	0.67
8:8:11:CYS:SG	8:8:12:ARG:N	2.67	0.67
10:b:27:G:HO2'	10:b:28:A:H8	1.43	0.66
10:b:847:A:H62	10:b:934:U:H3	1.40	0.66
10:b:2103:U:O2	10:b:2194:G:N2	2.27	0.66
10:b:1740:G:HO2'	10:b:1741:A:H8	1.42	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:3:22:LEU:HD21	26:s:41:LYS:HE2	1.75	0.66
19:l:77:ILE:HD13	19:l:95:LEU:HD11	1.76	0.66
9:a:116:G:H2'	9:a:117:G:C8	2.31	0.66
22:o:16:ARG:O	22:o:17:LYS:HB3	1.94	0.66
10:b:1175:U:O2'	10:b:1179:G:O6	2.11	0.66
11:c:142:HIS:ND1	11:c:193:GLY:O	2.28	0.66
22:o:17:LYS:HA	22:o:20:GLU:HG2	1.77	0.66
10:b:1056:A:H1'	10:b:1108:G:H1	1.62	0.65
10:b:1091:A:H2	10:b:1092:A:H62	1.42	0.65
10:b:1096:U:N3	10:b:1098:A:OP2	2.29	0.65
10:b:1856:A:H62	10:b:1892:G:H8	1.44	0.65
10:b:1940:A:H2	10:b:1947:U:C5	2.15	0.65
10:b:1038:G:H1	10:b:1121:U:H3	1.45	0.65
26:s:83:LYS:HG3	26:s:95:ARG:HD2	1.79	0.65
16:h:8:LYS:HE3	16:h:8:LYS:HA	1.77	0.65
20:m:63:ILE:HD13	20:m:105:MET:HG3	1.77	0.65
3:2:41:THR:HG22	3:2:43:ALA:H	1.60	0.65
10:b:475:C:O2	10:b:479:A:N6	2.30	0.65
13:e:79:ARG:HH11	13:e:79:ARG:HG2	1.62	0.65
15:g:133:LEU:CB	15:g:141:ILE:HD11	2.27	0.65
10:b:1471:A:H2'	10:b:1472:A:H8	1.60	0.65
13:e:119:ILE:HD11	13:e:187:VAL:HG12	1.78	0.65
10:b:2308:G:HO2'	10:b:2309:U:P	2.19	0.65
15:g:105:LEU:HB2	15:g:113:VAL:HG13	1.79	0.65
17:j:77:HIS:HD2	17:j:79:GLY:H	1.44	0.65
10:b:1374:U:HO2'	10:b:2216:A:H8	1.43	0.65
4:3:2:ALA:HB3	10:b:2060:G:N2	2.12	0.65
10:b:2056:A:H4'	12:d:148:GLN:O	1.96	0.65
12:d:105:LYS:O	12:d:106:LYS:HG2	1.97	0.65
10:b:63:A:N6	10:b:91:A:H62	1.95	0.64
10:b:2144:G:H3'	10:b:2145:G:C8	2.31	0.64
10:b:892:C:H2'	10:b:893:G:H5'	1.78	0.64
11:c:161:TYR:HB3	11:c:194:GLU:HB3	1.80	0.64
10:b:265:A:N6	10:b:427:U:O2'	2.29	0.64
10:b:887:C:H42	10:b:893:G:H21	1.45	0.64
10:b:996:C:O2	25:r:10:LYS:HE3	1.98	0.64
10:b:264:C:C2'	10:b:265:A:H5''	2.27	0.64
2:1:31:GLN:HG3	2:1:36:GLN:HB2	1.80	0.64
21:n:41:ALA:C	21:n:43:GLU:H	2.05	0.64
10:b:1233:U:O2'	10:b:1234:G:O5'	2.15	0.64
15:g:101:ASN:HD21	15:g:116:GLN:HE22	1.46	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:b:1059:A:N6	10:b:1084:U:O2'	2.30	0.63
10:b:2135:U:H4'	10:b:2161:G:H1'	1.80	0.63
10:b:2209:A:H61	10:b:2223:U:H3	1.43	0.63
11:c:88:SER:HB2	11:c:158:ALA:HB2	1.79	0.63
15:g:33:LEU:HB3	15:g:75:MET:HE1	1.79	0.63
10:b:1071:A:O2'	10:b:1076:G:O6	2.15	0.63
10:b:1628:A:O2'	10:b:1629:G:OP2	2.13	0.63
17:j:114:LEU:O	17:j:118:MET:HG3	1.97	0.63
10:b:158:U:O2'	10:b:159:G:H8	1.81	0.63
10:b:1341:G:N2	10:b:1605:A:H1'	2.14	0.63
10:b:2751:G:O2'	15:g:67:THR:HG22	1.99	0.63
15:g:11:VAL:HB	15:g:15:VAL:HG21	1.80	0.63
10:b:2678:G:H2'	10:b:2679:A:C8	2.34	0.62
12:d:125:TRP:CE3	12:d:160:LYS:HD3	2.34	0.62
20:m:63:ILE:CD1	20:m:105:MET:HG3	2.29	0.62
10:b:1497:A:O2'	10:b:1498:A:OP2	2.15	0.62
10:b:1798:U:H2'	10:b:1799:G:H8	1.63	0.62
14:f:14:LYS:O	14:f:18:THR:HG23	1.98	0.62
17:j:12:LYS:HE3	17:j:12:LYS:HA	1.81	0.62
10:b:2606:A:OP2	32:Z:75:C:H5''	1.99	0.62
15:g:16:ASP:HB3	15:g:27:LYS:HB3	1.79	0.62
23:p:25:THR:HB	23:p:88:ARG:HG2	1.80	0.62
29:w:25:LYS:HE2	29:w:25:LYS:HA	1.80	0.62
10:b:345:A:H1'	10:b:346:A:H2	1.63	0.62
18:k:34:GLY:N	18:k:37:ASP:OD2	2.29	0.62
10:b:2041:A:H2'	10:b:2042:G:C8	2.34	0.62
10:b:954:G:H21	10:b:2271:A:H2	1.46	0.62
6:6:31:LEU:CD2	6:6:42:LEU:CD2	2.77	0.62
10:b:2135:U:OP2	10:b:2137:G:N2	2.22	0.62
10:b:2331:A:H2'	10:b:2332:A:C8	2.34	0.61
10:b:2619:U:H2'	10:b:2620:C:H6	1.63	0.61
10:b:1534:A:H61	10:b:1542:G:H1'	1.65	0.61
10:b:2110:U:H2'	10:b:2111:G:C8	2.34	0.61
18:k:88:ASN:ND2	18:k:91:SER:O	2.33	0.61
10:b:1592:A:H2'	10:b:1593:A:H8	1.64	0.61
10:b:2671:C:N3	15:g:110:SER:OG	2.30	0.61
15:g:67:THR:O	15:g:71:LEU:HG	2.00	0.61
18:k:31:ARG:HH11	18:k:31:ARG:CG	2.13	0.61
10:b:1043:G:H3'	10:b:1044:G:H8	1.65	0.61
10:b:1804:A:H2'	10:b:1805:A:C8	2.35	0.61
10:b:641:U:H2'	10:b:642:C:C6	2.36	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
29:w:77:VAL:HG22	29:w:89:ILE:HG12	1.83	0.61
10:b:2551:G:H2'	10:b:2552:A:C8	2.36	0.61
20:m:44:ARG:HH21	20:m:44:ARG:HG3	1.65	0.61
10:b:2717:U:H3'	10:b:2718:G:H5''	1.83	0.61
26:s:48:LYS:O	26:s:52:GLU:HG3	2.00	0.61
10:b:1496:A:O2'	10:b:1497:A:C8	2.54	0.60
12:d:4:LEU:HD12	12:d:101:PHE:HE2	1.65	0.60
2:1:10:SER:OG	2:1:11:VAL:N	2.31	0.60
10:b:2380:A:C2	10:b:2381:A:C6	2.89	0.60
9:a:111:U:H2'	9:a:112:G:H8	1.65	0.60
10:b:676:G:O2'	13:e:69:ARG:HD2	2.01	0.60
10:b:2250:G:H2'	10:b:2251:A:H8	1.66	0.60
12:d:142:VAL:HB	12:d:143:PRO:HD2	1.83	0.60
10:b:84:A:N1	10:b:98:G:O2'	2.31	0.60
10:b:1531:G:H1	10:b:1544:U:H3	1.48	0.60
10:b:2702:U:H2'	10:b:2703:C:C6	2.36	0.60
10:b:345:A:H1'	10:b:346:A:C2	2.37	0.60
10:b:1073:G:O2'	10:b:1074:C:O4'	2.16	0.60
10:b:1206:A:N1	10:b:1243:A:N1	2.48	0.60
17:j:77:HIS:CD2	17:j:79:GLY:H	2.20	0.60
25:r:55:ASP:OD1	25:r:56:GLY:N	2.33	0.60
6:6:31:LEU:CD2	6:6:42:LEU:HD21	2.25	0.60
10:b:181:A:H2'	10:b:182:A:C8	2.37	0.60
10:b:1727:C:H2'	10:b:1728:G:C8	2.36	0.60
28:u:16:GLY:O	28:u:17:LYS:HG3	2.02	0.60
10:b:2134:U:N3	10:b:2137:G:OP2	2.34	0.60
4:3:17:ARG:NE	10:b:1268:G:OP2	2.33	0.60
18:k:7:MET:HE1	18:k:20:MET:HB2	1.84	0.60
20:m:26:VAL:HG13	20:m:133:LYS:HA	1.83	0.60
10:b:100:U:H5''	10:b:101:A:C4	2.36	0.60
14:f:32:GLU:N	14:f:32:GLU:OE1	2.35	0.60
30:y:43:THR:OG1	30:y:44:LYS:N	2.35	0.60
15:g:86:LYS:HB2	15:g:165:ALA:HB2	1.84	0.59
9:a:1:U:O4	9:a:119:A:N1	2.35	0.59
10:b:1144:A:H4'	17:j:27:ARG:HH22	1.67	0.59
8:8:14:CYS:SG	8:8:33:HIS:ND1	2.73	0.59
9:a:41:G:H3'	9:a:42:C:H5'	1.84	0.59
11:c:108:LYS:HA	11:c:196:GLY:HA2	1.83	0.59
14:f:5:HIS:O	14:f:8:TYR:HB3	2.03	0.59
10:b:2295:U:OP1	10:b:2384:C:O2'	2.21	0.59
20:m:38:ARG:NH1	20:m:38:ARG:HG3	2.18	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:b:2686:A:H61	10:b:2732:U:H1'	1.67	0.59
14:f:170:LEU:O	14:f:175:PHE:HB2	2.01	0.59
1:0:39:TRP:CD1	16:h:32:PRO:HA	2.38	0.59
10:b:90:U:H2'	10:b:91:A:C2	2.38	0.59
10:b:2350:A:H3'	10:b:2351:C:H5''	1.85	0.59
10:b:762:G:H3'	10:b:763:A:C8	2.38	0.59
14:f:11:GLU:O	14:f:15:LYS:NZ	2.36	0.59
10:b:5:A:H2'	10:b:6:A:C8	2.38	0.59
10:b:1044:G:H1	10:b:1115:U:H3	1.50	0.59
10:b:2237:U:H2'	10:b:2238:G:C8	2.37	0.59
31:z:779:GLU:O	31:z:780:LEU:C	2.46	0.59
14:f:103:LEU:O	14:f:108:VAL:HG12	2.03	0.59
21:n:30:ARG:NH1	21:n:74:GLU:OE2	2.36	0.59
29:w:20:LEU:HD11	29:w:41:GLU:HG2	1.85	0.59
30:y:43:THR:C	30:y:45:PHE:N	2.61	0.59
10:b:2804:A:H2'	10:b:2805:G:O4'	2.03	0.58
20:m:71:LYS:HD2	20:m:95:LEU:HD21	1.85	0.58
10:b:1826:G:O2'	11:c:252:THR:HG21	2.04	0.58
10:b:2535:A:OP1	15:g:175:LYS:HG2	2.03	0.58
13:e:5:LEU:CD2	13:e:12:LEU:HD22	2.32	0.58
15:g:97:ALA:HB3	15:g:104:ASN:HD21	1.69	0.58
4:3:33:THR:HG23	4:3:51:GLY:HA2	1.85	0.58
20:m:38:ARG:HG3	20:m:38:ARG:HH11	1.68	0.58
10:b:419:U:H2'	10:b:420:C:C6	2.39	0.58
10:b:1021:U:H2'	10:b:1022:A:H8	1.67	0.58
14:f:132:VAL:HG22	14:f:152:LEU:HG	1.85	0.58
18:k:4:GLU:O	18:k:5:GLN:HB2	2.02	0.58
19:l:77:ILE:CD1	19:l:95:LEU:HD11	2.32	0.58
2:1:13:GLU:CD	2:1:13:GLU:H	2.11	0.58
10:b:707:A:N6	10:b:728:G:H1'	2.18	0.58
10:b:2139:A:C2	10:b:2162:A:H5'	2.37	0.58
11:c:16:VAL:HG22	11:c:206:GLY:HA3	1.85	0.58
16:h:18:GLN:H	16:h:18:GLN:CD	2.11	0.58
19:l:19:LEU:HG	19:l:31:GLY:HA3	1.86	0.58
10:b:417:C:O2'	10:b:418:C:OP2	2.17	0.58
10:b:834:U:H2'	10:b:835:A:C8	2.39	0.58
14:f:58:ALA:HB2	14:f:65:PRO:HD3	1.85	0.58
15:g:115:HIS:CD2	15:g:148:LEU:HD22	2.39	0.58
10:b:1859:G:N2	10:b:1888:G:H2'	2.17	0.58
23:p:36:SER:H	23:p:37:LYS:HE2	1.69	0.58
10:b:414:C:H2'	10:b:415:A:C8	2.39	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:b:1042:A:H2	10:b:1117:G:C6	2.17	0.58
10:b:2552:A:H2	10:b:2564:A:H61	1.51	0.58
10:b:912:A:O2'	10:b:913:A:C8	2.54	0.57
10:b:1592:A:H2'	10:b:1593:A:C8	2.39	0.57
27:t:24:MET:HE3	27:t:24:MET:O	2.04	0.57
10:b:285:G:O6	10:b:355:U:O4	2.22	0.57
10:b:985:A:H3'	10:b:986:A:C8	2.38	0.57
10:b:1341:G:H21	10:b:1605:A:H1'	1.68	0.57
10:b:1616:A:N1	26:s:93:ALA:HB2	2.19	0.57
10:b:1916:A:H4'	10:b:1917:A:N7	2.19	0.57
10:b:27:G:H1'	10:b:513:A:N6	2.20	0.57
10:b:528:A:C2	10:b:2046:A:H2'	2.40	0.57
10:b:2247:U:H2'	10:b:2248:U:C6	2.40	0.57
14:f:91:LEU:HB3	14:f:96:MET:HB3	1.87	0.57
21:n:49:GLU:HG2	21:n:94:TYR:HD2	1.69	0.57
22:o:61:GLN:N	22:o:61:GLN:OE1	2.38	0.57
2:l:41:HIS:CE1	10:b:96:C:H4'	2.40	0.57
10:b:1066:C:O2	10:b:1076:G:N2	2.37	0.57
11:c:71:LYS:HD2	11:c:96:TYR:CD1	2.40	0.57
12:d:38:LYS:NZ	12:d:81:GLU:OE2	2.35	0.57
12:d:62:LYS:HB2	12:d:62:LYS:NZ	2.19	0.57
12:d:173:GLN:HE22	12:d:208:LYS:HE3	1.69	0.57
14:f:135:GLN:OE1	14:f:135:GLN:N	2.31	0.57
25:r:69:GLY:O	25:r:90:ARG:HD2	2.04	0.57
10:b:1940:A:H2	10:b:1947:U:H5	1.51	0.57
15:g:27:LYS:NZ	15:g:28:GLY:O	2.29	0.57
10:b:481:G:H1'	10:b:506:G:N2	2.20	0.57
16:h:17:ASP:OD1	16:h:18:GLN:N	2.38	0.57
28:u:15:THR:OG1	28:u:69:ASN:ND2	2.38	0.57
29:w:9:ARG:HA	29:w:41:GLU:OE1	2.04	0.57
9:a:2:G:P	9:a:2:G:O3'	2.63	0.57
10:b:919:A:H5''	10:b:2272:A:H61	1.70	0.57
10:b:2066:A:N6	31:z:787:ILE:HG22	2.20	0.57
10:b:2295:U:H2'	10:b:2296:U:C6	2.40	0.57
10:b:2808:U:H2'	10:b:2809:C:C6	2.40	0.57
4:3:2:ALA:HB3	10:b:2060:G:H21	1.69	0.56
10:b:264:C:H2'	10:b:265:A:H5''	1.87	0.56
10:b:2137:G:N2	10:b:2137:G:OP1	2.38	0.56
10:b:2115:U:H3	10:b:2147:C:H4'	1.70	0.56
3:2:28:GLY:HA3	3:2:38:ARG:HH21	1.69	0.56
7:7:2:PRO:N	10:b:593:U:HO2'	2.02	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:b:2111:G:H22	10:b:2187:A:H1'	1.71	0.56
10:b:2309:U:H2'	10:b:2310:C:C6	2.39	0.56
10:b:284:U:H2'	10:b:285:G:H8	1.70	0.56
10:b:1199:G:H2'	10:b:1200:U:H6	1.70	0.56
21:n:38:LEU:HB3	21:n:39:PRO:HD3	1.88	0.56
10:b:851:A:H2'	10:b:852:U:C6	2.41	0.56
10:b:886:U:O2'	10:b:894:A:N6	2.39	0.56
10:b:965:U:H2'	10:b:966:C:C6	2.40	0.56
10:b:1021:U:H3	10:b:1144:A:H62	1.53	0.56
10:b:1407:U:H2'	10:b:1408:U:C6	2.40	0.56
10:b:2196:U:H2'	10:b:2197:G:C8	2.40	0.56
2:1:42:LEU:O	2:1:46:VAL:HG23	2.05	0.56
10:b:296:U:H2'	10:b:297:G:H8	1.71	0.56
10:b:404:A:H4'	10:b:405:U:H5''	1.87	0.56
10:b:1055:C:N4	10:b:1109:G:H21	2.04	0.56
10:b:1205:U:O2'	19:l:4:ASN:OD1	2.20	0.56
10:b:1484:G:H2'	10:b:1485:G:H8	1.70	0.56
9:a:2:G:O2'	9:a:3:C:O5'	2.17	0.56
10:b:358:U:H2'	10:b:359:G:C8	2.41	0.56
10:b:2156:G:H3'	10:b:2157:C:C6	2.41	0.56
14:f:92:ARG:HA	14:f:96:MET:HG2	1.87	0.56
2:1:36:GLN:HA	2:1:36:GLN:HE21	1.71	0.56
7:7:45:ARG:N	7:7:46:PRO:HD2	2.21	0.56
4:3:30:VAL:HG12	4:3:37:LYS:HG3	1.88	0.55
10:b:959:C:H41	10:b:2498:G:N2	2.04	0.55
10:b:1072:A:H5'	10:b:1073:G:H5''	1.87	0.55
10:b:2271:A:H62	10:b:2276:U:H3	1.55	0.55
14:f:12:VAL:HA	14:f:15:LYS:HZ3	1.72	0.55
30:y:17:GLU:O	30:y:19:LYS:NZ	2.39	0.55
4:3:11:SER:HB2	10:b:16:C:O3'	2.06	0.55
10:b:1794:G:H1	10:b:1829:U:H3	1.54	0.55
10:b:2659:G:O2'	10:b:2660:U:P	2.65	0.55
7:7:27:ALA:O	7:7:28:ASN:HB2	2.06	0.55
10:b:1735:U:H2'	10:b:1736:C:C6	2.42	0.55
28:u:26:LYS:CE	28:u:37:GLU:HB3	2.36	0.55
10:b:1748:A:H2'	10:b:1749:U:C6	2.41	0.55
13:e:119:ILE:HD12	13:e:119:ILE:O	2.06	0.55
10:b:285:G:N1	10:b:355:U:N3	2.24	0.55
10:b:834:U:OP1	19:l:39:LYS:HG3	2.06	0.55
10:b:1829:U:OP2	11:c:221:ARG:HD2	2.06	0.55
10:b:2107:C:OP2	10:b:2108:C:N4	2.39	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:a:2:G:O3'	9:a:2:G:OP1	2.25	0.55
10:b:2156:G:H3'	10:b:2157:C:H6	1.72	0.55
11:c:181:MET:HB2	11:c:268:VAL:CG2	2.37	0.55
15:g:25:THR:HG23	15:g:34:THR:HG22	1.88	0.55
8:8:24:ARG:NH1	10:b:2746:G:OP1	2.40	0.55
9:a:113:C:OP1	9:a:113:C:H6	1.89	0.55
10:b:1143:U:H2'	17:j:65:THR:HG21	1.89	0.55
11:c:165:VAL:HG21	11:c:181:MET:HE1	1.88	0.55
15:g:103:ILE:HG12	15:g:117:LEU:HD21	1.89	0.55
27:t:17:SER:O	27:t:18:GLU:CB	2.53	0.55
27:t:54:GLU:CD	27:t:54:GLU:H	2.14	0.55
10:b:159:G:O2'	10:b:160:A:O5'	2.22	0.55
10:b:354:A:H2'	10:b:355:U:O4'	2.06	0.55
10:b:2190:G:H2'	10:b:2191:U:O4'	2.07	0.55
15:g:26:ILE:CD1	15:g:76:VAL:HG12	2.37	0.55
15:g:55:ARG:HB3	15:g:55:ARG:HH11	1.71	0.55
26:s:83:LYS:CG	26:s:95:ARG:HD2	2.36	0.55
30:y:43:THR:O	30:y:45:PHE:N	2.40	0.55
10:b:1045:C:H1'	10:b:1046:C:H3'	1.89	0.54
10:b:2310:C:H5''	10:b:2311:G:H5''	1.89	0.54
17:j:19:ASP:OD1	17:j:58:ASN:ND2	2.38	0.54
26:s:4:ILE:HD12	26:s:106:VAL:HG22	1.88	0.54
10:b:2595:C:H2'	10:b:2596:G:C8	2.41	0.54
10:b:2680:C:H2'	10:b:2681:G:C8	2.42	0.54
10:b:615:A:H3'	10:b:616:A:C5'	2.37	0.54
10:b:853:C:H2'	10:b:854:U:C6	2.42	0.54
12:d:123:LYS:HD3	12:d:165:MET:HE3	1.88	0.54
20:m:133:LYS:NZ	20:m:133:LYS:HB2	2.21	0.54
10:b:975:A:OP2	25:r:81:LYS:HE3	2.08	0.54
10:b:1798:U:H2'	10:b:1799:G:C8	2.42	0.54
22:o:88:LYS:HB2	22:o:116:GLN:OE1	2.07	0.54
9:a:87:U:O2'	9:a:88:C:O5'	2.23	0.54
10:b:731:G:C8	11:c:207:LYS:HE3	2.43	0.54
10:b:655:U:O2'	10:b:657:A:OP2	2.15	0.54
10:b:1801:G:H21	11:c:154:LEU:HD23	1.71	0.54
10:b:2332:A:H2'	10:b:2333:U:C6	2.43	0.54
10:b:2463:A:H2'	10:b:2464:U:O4'	2.07	0.54
11:c:71:LYS:HD3	11:c:74:ILE:HD12	1.90	0.54
11:c:157:SER:OG	11:c:158:ALA:N	2.37	0.54
14:f:115:ARG:HH21	14:f:115:ARG:HG3	1.72	0.54
10:b:858:G:H2'	10:b:859:G:C8	2.43	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:f:44:ILE:HG21	14:f:79:ILE:HG22	1.90	0.54
29:w:4:ILE:HG13	29:w:63:ILE:HG12	1.89	0.54
10:b:1859:G:H22	10:b:1888:G:H2'	1.73	0.54
11:c:157:SER:O	11:c:195:VAL:HG11	2.07	0.54
22:o:26:LEU:HD21	22:o:92:PHE:HD1	1.73	0.54
27:t:89:GLU:HA	27:t:89:GLU:OE1	2.07	0.54
7:7:15:LYS:HB2	7:7:23:LYS:HE3	1.90	0.54
13:e:106:LYS:NZ	13:e:200:LEU:HB3	2.23	0.54
3:2:39:GLU:OE1	3:2:39:GLU:N	2.35	0.53
10:b:2027:C:H2'	10:b:2028:G:H8	1.73	0.53
11:c:29:PRO:HG2	11:c:34:LEU:HD11	1.89	0.53
27:t:5:GLU:N	27:t:5:GLU:OE2	2.40	0.53
10:b:63:A:H62	10:b:91:A:N6	2.06	0.53
10:b:604:A:O2'	10:b:606:G:O2'	2.17	0.53
16:h:29:PHE:CE1	16:h:33:GLN:NE2	2.76	0.53
20:m:44:ARG:CG	20:m:44:ARG:NH2	2.64	0.53
21:n:70:THR:O	21:n:70:THR:OG1	2.22	0.53
10:b:971:G:H2'	10:b:972:U:C6	2.43	0.53
10:b:2250:G:H2'	10:b:2251:A:C8	2.43	0.53
11:c:72:ASP:OD1	11:c:119:GLY:HA2	2.08	0.53
18:k:2:ILE:HD12	18:k:6:THR:HG21	1.91	0.53
21:n:8:ARG:NH2	21:n:43:GLU:OE2	2.35	0.53
27:t:4:GLU:HA	27:t:4:GLU:OE1	2.08	0.53
8:8:32:LYS:HE3	10:b:2482:A:H5'	1.89	0.53
10:b:438:G:H2'	10:b:439:A:C8	2.43	0.53
10:b:1374:U:O2'	10:b:2216:A:H8	1.90	0.53
14:f:93:GLY:O	14:f:96:MET:HG3	2.09	0.53
4:3:9:THR:HG23	10:b:2024:A:H5'	1.90	0.53
7:7:45:ARG:HD3	10:b:2422:A:OP1	2.08	0.53
10:b:1155:C:H2'	10:b:1156:G:O4'	2.09	0.53
10:b:2308:G:H22	10:b:2316:U:H3	1.53	0.53
12:d:35:THR:HG22	12:d:73:VAL:HG21	1.91	0.53
10:b:223:A:H5'	10:b:422:A:H5'	1.91	0.53
10:b:358:U:H2'	10:b:359:G:H8	1.73	0.53
10:b:1801:G:N2	10:b:1820:U:O2'	2.42	0.53
10:b:2800:U:H3	10:b:2804:A:H61	0.73	0.53
11:c:199:GLU:N	11:c:199:GLU:OE1	2.40	0.53
23:p:102:GLU:HA	23:p:102:GLU:OE1	2.09	0.53
10:b:296:U:H2'	10:b:297:G:C8	2.44	0.53
18:k:58:LEU:N	18:k:58:LEU:HD23	2.24	0.53
10:b:118:A:OP2	10:b:119:A:H2'	2.09	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:b:1041:A:H2'	10:b:1042:A:H8	1.73	0.53
10:b:1540:G:H2'	10:b:1541:U:H6	1.73	0.53
10:b:1940:A:C2	10:b:1947:U:H5	2.26	0.53
10:b:2033:G:N1	10:b:2037:A:OP2	2.30	0.53
10:b:2237:U:H2'	10:b:2238:G:H8	1.72	0.53
12:d:4:LEU:HD12	12:d:101:PHE:CE2	2.43	0.53
13:e:150:THR:OG1	13:e:152:GLU:O	2.26	0.53
15:g:24:ILE:HD11	15:g:43:VAL:HG11	1.90	0.53
15:g:69:ARG:NH1	15:g:73:ASN:HB2	2.24	0.53
18:k:7:MET:HE2	18:k:7:MET:HA	1.90	0.53
29:w:72:VAL:HG21	29:w:91:PHE:HB3	1.90	0.53
10:b:481:G:H1'	10:b:506:G:H21	1.73	0.53
12:d:151:THR:HB	12:d:152:PRO:HD3	1.91	0.53
14:f:104:ILE:HD11	14:f:176:PRO:HD3	1.90	0.53
16:h:14:SER:O	16:h:17:ASP:HB3	2.08	0.53
10:b:976:G:H8	10:b:992:A:H62	1.57	0.53
10:b:1591:U:H2'	10:b:1592:A:H8	1.74	0.53
13:e:79:ARG:HG2	13:e:79:ARG:NH1	2.24	0.53
25:r:102:SER:O	25:r:102:SER:OG	2.21	0.53
10:b:118:A:OP2	10:b:119:A:H5''	2.09	0.52
10:b:1529:G:N1	10:b:1546:A:OP2	2.36	0.52
10:b:2805:G:H2'	10:b:2806:G:H8	1.74	0.52
9:a:41:G:H3'	9:a:42:C:C5'	2.39	0.52
10:b:913:A:H2'	20:m:9:PHE:CZ	2.44	0.52
10:b:1995:U:H2'	10:b:1996:G:H5'	1.89	0.52
10:b:2282:A:H8	30:y:12:ASN:OD1	1.92	0.52
10:b:2471:C:H2'	10:b:2472:A:O4'	2.09	0.52
14:f:2:ALA:HB3	14:f:97:TRP:HB3	1.91	0.52
21:n:29:VAL:HG11	21:n:75:ILE:HG23	1.90	0.52
23:p:15:GLN:N	23:p:15:GLN:OE1	2.42	0.52
2:1:18:LEU:HB2	2:1:53:VAL:HG11	1.91	0.52
10:b:720:A:H5''	10:b:721:C:C5	2.44	0.52
10:b:1276:A:N3	10:b:1299:C:H1'	2.24	0.52
10:b:1727:C:H42	10:b:1737:G:H1	1.58	0.52
10:b:2283:G:O6	30:y:14:ARG:HG3	2.10	0.52
10:b:2381:A:N7	10:b:2382:A:N1	2.56	0.52
11:c:133:ARG:O	11:c:167:ARG:NH2	2.42	0.52
6:6:41:ARG:HB2	6:6:41:ARG:CZ	2.39	0.52
10:b:2678:G:H2'	10:b:2679:A:H8	1.73	0.52
13:e:12:LEU:H	13:e:12:LEU:CD2	2.21	0.52
15:g:115:HIS:ND1	15:g:116:GLN:O	2.41	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:3:4:GLN:HA	10:b:2619:U:C2	2.45	0.52
15:g:105:LEU:HB3	15:g:107:LEU:HG	1.91	0.52
24:q:83:LEU:CD1	24:q:113:ALA:HB2	2.40	0.52
10:b:45:G:H5'	10:b:46:G:OP1	2.09	0.52
10:b:1273:G:C2	10:b:1619:C:H4'	2.45	0.52
10:b:1452:G:N2	10:b:1454:G:O6	2.35	0.52
24:q:107:THR:O	24:q:111:GLU:HG2	2.09	0.52
28:u:25:VAL:HA	28:u:36:VAL:HG12	1.92	0.52
10:b:2692:G:H1'	10:b:2725:A:N6	2.25	0.52
1:0:57:ARG:NH1	10:b:400:G:N7	2.58	0.52
3:2:3:LYS:HE2	3:2:3:LYS:N	2.24	0.52
9:a:117:G:H2'	9:a:118:C:C1'	2.39	0.52
10:b:2805:G:H2'	10:b:2806:G:C8	2.44	0.52
17:j:78:THR:H	17:j:83:GLY:CA	2.23	0.52
10:b:1023:A:C8	10:b:1023:A:H3'	2.44	0.52
10:b:1224:U:O2'	10:b:1225:G:P	2.68	0.52
17:j:112:GLY:O	17:j:116:ARG:HG3	2.09	0.52
21:n:44:LEU:O	21:n:48:VAL:HG12	2.09	0.52
9:a:115:A:H2'	9:a:116:G:C8	2.45	0.52
10:b:596:U:H3	10:b:665:G:H1	1.56	0.52
10:b:1485:G:H1	10:b:1508:U:H3	1.57	0.52
14:f:70:ALA:HB3	14:f:82:GLY:H	1.75	0.52
10:b:1312:G:H21	10:b:1612:A:H8	1.56	0.51
15:g:9:VAL:HG21	15:g:73:ASN:HA	1.91	0.51
22:o:56:LYS:HE3	22:o:56:LYS:HA	1.91	0.51
28:u:9:ASP:OD2	28:u:94:ARG:NH1	2.41	0.51
10:b:1223:C:C2'	10:b:1224:U:H5'	2.40	0.51
11:c:240:PHE:O	11:c:242:LYS:HE3	2.09	0.51
13:e:21:ARG:HH21	13:e:21:ARG:HG3	1.75	0.51
14:f:127:ASN:HD22	14:f:157:THR:HB	1.75	0.51
23:p:33:VAL:HG12	23:p:38:LYS:HE3	1.91	0.51
8:8:30:GLU:OE1	8:8:30:GLU:N	2.43	0.51
10:b:2197:G:H2'	10:b:2198:U:C6	2.46	0.51
19:l:77:ILE:HD13	19:l:95:LEU:HD13	1.82	0.51
21:n:41:ALA:C	21:n:43:GLU:N	2.68	0.51
23:p:76:THR:O	23:p:77:HIS:HB2	2.10	0.51
9:a:41:G:N2	10:b:2344:A:C5'	2.74	0.51
10:b:62:U:H2'	10:b:63:A:H2	1.75	0.51
10:b:2380:A:C2	10:b:2381:A:N6	2.79	0.51
15:g:95:ARG:HB3	15:g:106:SER:HB2	1.92	0.51
19:l:68:SER:O	19:l:69:ARG:HB3	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:o:70:ALA:O	22:o:74:VAL:HG23	2.10	0.51
7:7:16:LYS:HE2	7:7:20:GLY:HA2	1.92	0.51
10:b:1510:A:H5'	10:b:1511:A:C4	2.46	0.51
12:d:97:SER:OG	12:d:98:VAL:N	2.43	0.51
14:f:15:LYS:O	14:f:19:GLU:HG2	2.11	0.51
10:b:285:G:H2'	10:b:286:U:C6	2.46	0.51
10:b:287:G:H2'	10:b:288:U:C6	2.45	0.51
10:b:568:U:OP1	19:l:29:LYS:HE3	2.10	0.51
10:b:2142:G:H1	10:b:2158:A:N6	2.08	0.51
23:p:31:TRP:NE1	23:p:82:ASP:OD2	2.43	0.51
10:b:389:G:C8	10:b:2417:G:H4'	2.45	0.51
10:b:572:G:H2'	10:b:2034:A:N7	2.26	0.51
10:b:1133:G:C8	10:b:2029:C:H4'	2.45	0.51
11:c:251:GLN:NE2	11:c:255:LYS:HB2	2.26	0.51
13:e:12:LEU:HD23	13:e:12:LEU:N	2.23	0.51
25:r:16:GLU:OE1	25:r:101:ILE:N	2.44	0.51
9:a:116:G:O5'	9:a:116:G:H8	1.94	0.51
10:b:583:C:H2'	10:b:584:A:C8	2.45	0.51
10:b:1735:U:H2'	10:b:1736:C:H6	1.76	0.51
27:t:6:ARG:NE	27:t:42:GLU:OE1	2.43	0.51
28:u:26:LYS:NZ	28:u:37:GLU:OE2	2.36	0.51
9:a:88:C:H3'	9:a:89:U:H6	1.76	0.51
10:b:835:A:H2'	10:b:836:G:C8	2.45	0.51
10:b:896:U:O2'	10:b:897:U:H6	1.94	0.51
28:u:12:ILE:CG2	28:u:80:ALA:HB2	2.38	0.51
10:b:601:A:N3	13:e:100:MET:HE1	2.26	0.51
10:b:1497:A:O2'	10:b:1498:A:P	2.68	0.51
10:b:2096:U:H5	10:b:2230:C:OP2	1.94	0.51
10:b:813:U:H2'	19:l:21:ARG:HA	1.94	0.50
10:b:834:U:H2'	10:b:835:A:H8	1.74	0.50
10:b:850:C:H2'	10:b:851:A:H8	1.75	0.50
10:b:975:A:H5''	25:r:81:LYS:HE3	1.92	0.50
10:b:1063:U:H3	10:b:1072:A:N6	2.08	0.50
16:h:26:ALA:O	16:h:27:ARG:HG3	2.11	0.50
10:b:596:U:H2'	10:b:597:C:C6	2.46	0.50
10:b:936:U:H2'	10:b:937:C:C6	2.46	0.50
10:b:1038:G:H2'	10:b:1039:G:O4'	2.11	0.50
10:b:1199:G:H2'	10:b:1200:U:C6	2.46	0.50
10:b:2127:G:N1	10:b:2180:A:N3	2.47	0.50
10:b:2137:G:N1	10:b:2163:G:H4'	2.26	0.50
15:g:98:VAL:HG21	15:g:124:GLU:HA	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:k:121:GLU:HB3	18:k:122:VAL:HG23	1.93	0.50
5:4:29:THR:HG22	5:4:30:LYS:HG2	1.93	0.50
10:b:219:A:N3	10:b:234:U:O2'	2.44	0.50
10:b:415:A:H2'	10:b:416:U:C6	2.46	0.50
10:b:2172:G:N1	10:b:2175:A:N7	2.59	0.50
23:p:37:LYS:HE2	23:p:37:LYS:N	2.22	0.50
27:t:6:ARG:O	27:t:10:VAL:HG13	2.12	0.50
3:2:37:GLU:O	3:2:38:ARG:HD3	2.12	0.50
9:a:48:U:H2'	9:a:49:C:C6	2.47	0.50
10:b:965:U:H2'	10:b:966:C:H6	1.75	0.50
11:c:98:ASP:OD1	11:c:98:ASP:N	2.43	0.50
17:j:78:THR:H	17:j:83:GLY:HA2	1.75	0.50
10:b:282:A:N6	10:b:283:G:O6	2.44	0.50
10:b:1210:C:C4	10:b:1211:U:C4	3.00	0.50
10:b:2307:G:H2'	10:b:2308:G:H5'	1.94	0.50
13:e:172:ALA:O	13:e:199:MET:HE1	2.10	0.50
18:k:120:PRO:HB2	23:p:66:ASN:ND2	2.27	0.50
23:p:5:ILE:O	23:p:9:GLU:HG3	2.11	0.50
10:b:1200:U:H2'	10:b:1201:U:C6	2.47	0.50
14:f:88:LYS:HG2	14:f:89:VAL:N	2.25	0.50
9:a:38:C:C2'	9:a:39:A:H5'	2.42	0.50
9:a:41:G:N2	10:b:2344:A:H5''	2.27	0.50
10:b:705:U:H2'	10:b:706:G:O4'	2.12	0.50
10:b:2043:U:H2'	10:b:2044:G:C8	2.47	0.50
11:c:145:GLU:HB2	11:c:188:CYS:HB3	1.93	0.50
12:d:32:ASN:N	12:d:32:ASN:HD22	2.09	0.50
12:d:123:LYS:HD3	12:d:165:MET:CE	2.42	0.50
10:b:1:G:H2'	10:b:2:G:C8	2.47	0.50
10:b:155:A:H2'	10:b:156:A:C8	2.47	0.50
10:b:417:C:O2'	10:b:418:C:P	2.70	0.50
10:b:883:G:H2'	10:b:884:G:C8	2.47	0.50
10:b:913:A:H2'	20:m:9:PHE:HZ	1.77	0.50
10:b:1024:G:N2	10:b:1144:A:C2	2.80	0.50
13:e:148:ILE:HB	13:e:169:VAL:HG22	1.93	0.50
13:e:165:HIS:CD2	13:e:166:LYS:HG3	2.46	0.50
15:g:133:LEU:HB3	15:g:141:ILE:CD1	2.41	0.50
23:p:34:GLU:OE2	23:p:39:ARG:HG3	2.11	0.50
10:b:150:U:H2'	10:b:151:C:C6	2.46	0.49
10:b:1173:G:O2'	10:b:1175:U:OP2	2.29	0.49
10:b:1185:U:H2'	10:b:1186:U:C6	2.46	0.49
10:b:2143:U:H5'	10:b:2146:A:N1	2.27	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:u:16:GLY:C	28:u:18:ASP:H	2.20	0.49
5:4:32:GLU:CD	5:4:32:GLU:H	2.20	0.49
10:b:182:A:H2'	10:b:183:C:H6	1.77	0.49
10:b:647:C:H3'	10:b:648:U:H6	1.76	0.49
10:b:1040:G:H2'	10:b:1041:A:C8	2.47	0.49
10:b:2680:C:H2'	10:b:2681:G:H8	1.77	0.49
20:m:83:GLY:O	20:m:84:LYS:HB2	2.11	0.49
5:4:10:LYS:HD2	5:4:20:PHE:CD2	2.47	0.49
10:b:579:G:H2'	10:b:580:G:C8	2.46	0.49
10:b:1030:A:N6	10:b:1127:G:H2'	2.27	0.49
10:b:1038:G:C6	10:b:1122:G:C6	3.01	0.49
10:b:1793:A:C8	10:b:1794:G:C8	3.00	0.49
12:d:146:ILE:HD12	12:d:155:VAL:HG21	1.94	0.49
17:j:125:TYR:OH	17:j:132:HIS:NE2	2.43	0.49
29:w:29:ILE:HD12	29:w:38:LEU:O	2.11	0.49
10:b:1272:C:H5''	10:b:1273:G:O5'	2.12	0.49
10:b:1535:C:H2'	10:b:1536:U:C2	2.47	0.49
10:b:2561:G:H2'	10:b:2562:C:C6	2.48	0.49
11:c:199:GLU:CD	11:c:199:GLU:H	2.20	0.49
14:f:123:ASP:OD1	14:f:124:GLY:N	2.45	0.49
22:o:116:GLN:OE1	22:o:116:GLN:N	2.46	0.49
27:t:1:MET:SD	27:t:1:MET:C	2.96	0.49
10:b:853:C:H2'	10:b:854:U:H6	1.77	0.49
14:f:104:ILE:CD1	14:f:176:PRO:HD3	2.42	0.49
27:t:54:GLU:HG2	27:t:88:LYS:HB2	1.93	0.49
10:b:263:G:H2'	10:b:264:C:O4'	2.13	0.49
10:b:1023:A:H3'	10:b:1023:A:H8	1.76	0.49
10:b:2317:C:H5''	14:f:88:LYS:HE3	1.95	0.49
10:b:2791:C:H1'	12:d:63:PRO:HG3	1.94	0.49
27:t:44:LYS:HG3	27:t:55:VAL:CG2	2.43	0.49
10:b:641:U:H2'	10:b:642:C:H6	1.77	0.49
10:b:720:A:H5''	10:b:721:C:H5	1.78	0.49
10:b:1422:A:C3'	10:b:2215:A:H62	2.18	0.49
10:b:1484:G:C2	10:b:1510:A:H1'	2.47	0.49
10:b:2090:U:H2'	10:b:2091:G:C8	2.48	0.49
12:d:108:ASP:OD1	12:d:173:GLN:HA	2.12	0.49
22:o:93:ASP:OD1	22:o:93:ASP:C	2.56	0.49
10:b:900:C:H2'	10:b:901:A:O4'	2.12	0.49
10:b:2117:U:OP2	10:b:2149:C:N4	2.45	0.49
11:c:157:SER:OG	11:c:160:THR:HG23	2.13	0.49
15:g:127:THR:OG1	15:g:128:GLN:N	2.46	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:k:29:HIS:CE1	18:k:31:ARG:HH12	2.31	0.49
29:w:11:GLU:N	29:w:11:GLU:OE1	2.45	0.49
29:w:59:GLU:OE2	29:w:61:LEU:HD13	2.12	0.49
10:b:265:A:H2'	10:b:266:G:O4'	2.13	0.49
10:b:553:G:C2'	10:b:554:U:H5'	2.43	0.49
10:b:1038:G:C5	10:b:1122:G:C6	3.00	0.49
10:b:1312:G:H1'	10:b:1613:C:H5''	1.94	0.49
10:b:2117:U:H2'	10:b:2118:A:C8	2.48	0.49
10:b:2349:G:N3	10:b:2385:A:H2'	2.28	0.49
15:g:34:THR:O	15:g:35:ARG:HB3	2.13	0.49
20:m:53:MET:HG3	20:m:120:ALA:HB2	1.93	0.49
29:w:20:LEU:HG	29:w:25:LYS:HB2	1.93	0.49
2:1:12:GLU:O	2:1:16:THR:HG23	2.12	0.49
8:8:24:ARG:HH21	8:8:24:ARG:HD2	1.42	0.49
10:b:2170:U:H2'	10:b:2171:U:C6	2.47	0.49
14:f:77:PHE:O	14:f:79:ILE:N	2.44	0.49
22:o:106:LEU:C	22:o:106:LEU:HD23	2.38	0.49
10:b:899:C:H2'	10:b:900:C:C6	2.48	0.48
10:b:949:A:O2'	10:b:986:A:H2	1.96	0.48
13:e:177:PRO:O	13:e:181:ILE:HG13	2.12	0.48
25:r:36:ALA:HA	25:r:58:VAL:HG23	1.95	0.48
9:a:66:A:H4'	9:a:67:G:OP1	2.13	0.48
10:b:588:A:H5'	13:e:84:THR:HG21	1.96	0.48
10:b:1540:G:H2'	10:b:1541:U:C6	2.48	0.48
10:b:1927:U:H2'	10:b:1928:C:C6	2.48	0.48
10:b:2552:A:H2	10:b:2564:A:N1	2.10	0.48
11:c:76:ALA:HB1	11:c:94:VAL:HG13	1.95	0.48
14:f:108:VAL:N	14:f:109:PRO:CD	2.76	0.48
19:l:19:LEU:HG	19:l:31:GLY:CA	2.43	0.48
9:a:3:C:O2'	9:a:4:C:O5'	2.26	0.48
10:b:79:C:O2'	10:b:346:A:H8	1.96	0.48
10:b:100:U:C4	28:u:91:LYS:HD2	2.48	0.48
10:b:195:A:H61	10:b:198:C:H3'	1.79	0.48
10:b:1508:U:H2'	10:b:1509:C:C6	2.48	0.48
10:b:2518:U:H2'	10:b:2519:C:C6	2.48	0.48
12:d:37:VAL:HG22	12:d:48:ILE:HG22	1.95	0.48
18:k:63:VAL:HG23	18:k:64:ARG:HG3	1.95	0.48
21:n:49:GLU:HG2	21:n:94:TYR:CD2	2.48	0.48
26:s:2:GLU:OE1	26:s:73:LYS:NZ	2.46	0.48
5:4:9:ILE:HB	5:4:53:LYS:H	1.78	0.48
10:b:729:A:OP1	10:b:1433:A:O2'	2.29	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:b:1739:G:H8	10:b:1739:G:OP2	1.96	0.48
10:b:2121:A:H61	10:b:2175:A:H61	1.61	0.48
11:c:23:GLU:N	11:c:23:GLU:OE1	2.46	0.48
14:f:38:MET:HE3	14:f:53:ALA:HB1	1.93	0.48
17:j:9:GLU:HG2	17:j:10:THR:HG23	1.95	0.48
20:m:115:GLU:HA	20:m:115:GLU:OE1	2.13	0.48
10:b:52:A:H2'	10:b:53:A:C8	2.48	0.48
10:b:1367:A:H8	10:b:1810:A:H61	1.59	0.48
10:b:1722:U:H2'	10:b:1723:G:O4'	2.13	0.48
10:b:2115:U:O2	10:b:2147:C:O2'	2.19	0.48
21:n:37:THR:CG2	21:n:39:PRO:HD2	2.42	0.48
22:o:7:ARG:HG3	22:o:10:ARG:HH11	1.78	0.48
10:b:595:U:H3	10:b:666:G:H1	1.60	0.48
10:b:610:A:H2'	10:b:611:A:C8	2.49	0.48
10:b:1385:A:O2'	10:b:1386:A:OP2	2.32	0.48
11:c:168:ASP:OD1	11:c:168:ASP:N	2.46	0.48
16:h:26:ALA:C	16:h:28:ASN:H	2.22	0.48
17:j:61:LYS:HA	17:j:61:LYS:HD3	1.67	0.48
22:o:16:ARG:O	22:o:17:LYS:CB	2.62	0.48
8:8:11:CYS:HB2	8:8:33:HIS:HE1	1.79	0.48
9:a:50:A:OP1	22:o:67:ASN:HB2	2.14	0.48
10:b:769:U:H2'	10:b:770:G:H8	1.78	0.48
10:b:1434:G:H2'	10:b:1435:A:C8	2.49	0.48
10:b:2041:A:H2'	10:b:2042:G:H8	1.77	0.48
15:g:86:LYS:C	15:g:87:LEU:HD12	2.39	0.48
19:l:95:LEU:HD22	19:l:100:ILE:HG21	1.94	0.48
23:p:88:ARG:NH2	23:p:112:GLU:HB2	2.28	0.48
28:u:81:ASP:C	28:u:81:ASP:OD1	2.56	0.48
10:b:2137:G:H1'	10:b:2139:A:C5	2.48	0.48
10:b:2146:A:O3'	10:b:2147:C:H6	1.97	0.48
10:b:2644:G:OP1	17:j:96:ARG:HD3	2.14	0.48
10:b:2727:C:H2'	10:b:2728:U:O4'	2.14	0.48
13:e:151:GLY:HA3	13:e:191:ASP:OD2	2.14	0.48
21:n:59:SER:O	21:n:63:ARG:HG2	2.13	0.48
9:a:8:C:H42	9:a:112:G:H1	1.61	0.48
10:b:747:G:H2'	10:b:748:U:H5'	1.94	0.48
10:b:1422:A:C8	10:b:2215:A:N6	2.82	0.48
10:b:1507:A:H2'	10:b:1508:U:C6	2.49	0.48
10:b:1936:A:H2'	10:b:1937:G:O4'	2.14	0.48
10:b:2074:A:H2'	10:b:2075:A:C8	2.49	0.48
13:e:52:VAL:O	13:e:74:LYS:HE2	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:e:119:ILE:HD12	13:e:119:ILE:C	2.39	0.48
20:m:33:LEU:HD13	20:m:117:PHE:HB3	1.96	0.48
23:p:2:SER:O	23:p:6:LYS:HG3	2.14	0.48
27:t:27:SER:HB2	27:t:29:THR:HG22	1.96	0.48
9:a:116:G:C6	9:a:117:G:C6	3.02	0.48
10:b:17:G:H2'	10:b:18:U:C6	2.49	0.48
10:b:321:U:C2	13:e:159:LEU:HD13	2.49	0.48
10:b:608:U:OP2	13:e:99:LYS:HE3	2.13	0.48
10:b:1434:G:O2'	10:b:1435:A:H5'	2.14	0.48
10:b:2541:U:H2'	10:b:2542:C:C6	2.49	0.48
10:b:2808:U:H2'	10:b:2809:C:H6	1.77	0.48
25:r:25:LEU:HD12	25:r:94:THR:HG21	1.94	0.48
27:t:4:GLU:OE1	27:t:49:LYS:HD3	2.14	0.48
3:2:3:LYS:HE2	3:2:3:LYS:H	1.79	0.47
10:b:415:A:H2'	10:b:416:U:H6	1.79	0.47
10:b:570:U:H5'	10:b:947:A:N6	2.29	0.47
10:b:744:A:H2'	10:b:745:A:C8	2.49	0.47
12:d:157:LYS:HG2	17:j:80:HIS:NE2	2.29	0.47
15:g:140:VAL:O	15:g:144:VAL:HG23	2.14	0.47
10:b:191:A:H2'	10:b:192:C:C6	2.48	0.47
10:b:1206:A:H61	10:b:1243:A:H2	1.62	0.47
10:b:1822:U:HO2'	11:c:158:ALA:H	1.61	0.47
10:b:2068:C:H2'	10:b:2069:C:C6	2.49	0.47
14:f:6:ASP:OD1	14:f:6:ASP:N	2.45	0.47
21:n:52:ILE:HD11	21:n:94:TYR:CZ	2.49	0.47
25:r:16:GLU:N	25:r:16:GLU:OE2	2.48	0.47
25:r:57:GLY:HA2	25:r:102:SER:OG	2.14	0.47
5:4:23:THR:OG1	5:4:24:THR:N	2.41	0.47
9:a:88:C:H3'	9:a:89:U:C6	2.49	0.47
10:b:1214:G:H1'	10:b:1239:A:N6	2.29	0.47
10:b:2140:G:H4'	10:b:2162:A:N6	2.30	0.47
14:f:108:VAL:HG22	14:f:114:PHE:CE2	2.48	0.47
21:n:70:THR:O	21:n:72:ASP:N	2.45	0.47
23:p:18:PRO:HG2	23:p:84:ILE:O	2.15	0.47
10:b:1205:U:OP2	10:b:1206:A:O2'	2.27	0.47
10:b:2756:C:H6	10:b:2756:C:O5'	1.98	0.47
17:j:78:THR:HG23	17:j:83:GLY:HA2	1.96	0.47
30:y:40:GLN:HG3	30:y:42:GLY:O	2.14	0.47
2:1:7:ARG:HG2	2:1:7:ARG:HH11	1.79	0.47
10:b:815:U:H2'	10:b:816:C:C6	2.49	0.47
10:b:958:G:H2'	10:b:959:C:H2'	1.95	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:b:961:A:H2'	10:b:962:A:C8	2.50	0.47
10:b:1388:C:H2'	10:b:1389:A:C8	2.50	0.47
10:b:2290:G:H4'	10:b:2291:A:O4'	2.14	0.47
10:b:2898:G:H5''	10:b:2899:G:OP1	2.14	0.47
12:d:62:LYS:N	12:d:63:PRO:CD	2.78	0.47
20:m:8:LYS:HG3	20:m:9:PHE:CD2	2.49	0.47
10:b:878:C:N3	10:b:901:A:C6	2.83	0.47
10:b:1144:A:C4	10:b:1146:A:C8	3.02	0.47
10:b:2055:A:H4'	12:d:146:ILE:HG12	1.95	0.47
10:b:2352:U:C2'	10:b:2353:G:H5'	2.45	0.47
21:n:72:ASP:OD1	21:n:75:ILE:HG12	2.15	0.47
9:a:112:G:N3	9:a:112:G:H2'	2.30	0.47
10:b:1916:A:H8	10:b:1921:U:H3	1.61	0.47
10:b:2028:G:OP2	10:b:2038:U:H4'	2.15	0.47
10:b:2137:G:O2'	10:b:2139:A:N6	2.48	0.47
10:b:2399:C:H2'	10:b:2400:G:O4'	2.15	0.47
10:b:2497:U:H2'	10:b:2498:G:O4'	2.15	0.47
12:d:18:ASP:C	12:d:18:ASP:OD1	2.57	0.47
14:f:108:VAL:HG13	14:f:109:PRO:HD3	1.95	0.47
15:g:22:GLN:HA	15:g:22:GLN:OE1	2.13	0.47
16:h:2:GLN:HA	16:h:2:GLN:OE1	2.15	0.47
19:l:68:SER:O	19:l:69:ARG:CB	2.59	0.47
25:r:8:GLY:O	25:r:10:LYS:NZ	2.46	0.47
26:s:85:ILE:C	26:s:85:ILE:HD12	2.40	0.47
5:4:5:ILE:HD13	5:4:28:ARG:HE	1.80	0.47
7:7:55:LEU:O	7:7:59:ILE:HG12	2.15	0.47
10:b:527:C:N4	10:b:2781:G:O2'	2.47	0.47
10:b:570:U:H5'	10:b:947:A:H62	1.80	0.47
10:b:582:U:H2'	10:b:583:C:C6	2.50	0.47
10:b:2076:C:H2'	10:b:2077:C:H6	1.80	0.47
10:b:2270:A:H5'	10:b:2271:A:C4	2.50	0.47
11:c:19:VAL:HG23	11:c:203:ARG:HB3	1.97	0.47
17:j:42:ALA:O	24:q:64:ARG:HG2	2.15	0.47
18:k:109:SER:O	18:k:111:LYS:N	2.48	0.47
4:3:28:LEU:HD11	26:s:38:TYR:CD2	2.50	0.47
10:b:155:A:H2'	10:b:156:A:H8	1.79	0.47
10:b:850:C:H2'	10:b:851:A:C8	2.49	0.47
10:b:1044:G:N3	10:b:1044:G:H2'	2.30	0.47
10:b:1515:U:C2'	10:b:1516:G:H5'	2.45	0.47
10:b:1679:A:H2'	10:b:1680:A:C8	2.50	0.47
10:b:1818:C:N4	11:c:35:GLU:OE2	2.36	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:b:2459:G:H2'	10:b:2460:C:C6	2.50	0.47
11:c:84:ASP:HB2	11:c:91:ILE:HG12	1.97	0.47
11:c:91:ILE:HD12	11:c:103:TYR:CD1	2.50	0.47
12:d:46:ARG:HH11	12:d:46:ARG:CG	2.26	0.47
15:g:2:SER:O	15:g:6:LYS:HE2	2.15	0.47
19:l:1:MET:HE2	19:l:1:MET:HB3	1.76	0.47
29:w:35:GLU:OE1	29:w:35:GLU:HA	2.15	0.47
10:b:158:U:O2'	10:b:159:G:C8	2.62	0.47
10:b:828:U:O2'	19:l:53:GLY:HA3	2.15	0.47
10:b:883:G:N1	10:b:897:U:C2	2.74	0.47
10:b:1684:G:H2'	10:b:1685:U:C6	2.50	0.47
10:b:1780:U:H2'	10:b:1786:A:N6	2.29	0.47
10:b:1992:G:H2'	10:b:1993:G:O4'	2.15	0.47
10:b:2282:A:C8	30:y:12:ASN:OD1	2.68	0.47
10:b:2792:C:H2'	10:b:2793:C:C6	2.50	0.47
11:c:251:GLN:HE21	11:c:255:LYS:HB2	1.80	0.47
12:d:28:GLU:O	12:d:28:GLU:HG3	2.14	0.47
14:f:165:GLU:CD	14:f:165:GLU:H	2.23	0.47
15:g:122:THR:HG23	15:g:134:LYS:HE3	1.96	0.47
25:r:6:GLN:HB3	25:r:37:GLU:OE1	2.15	0.47
2:1:50:VAL:O	2:1:54:LYS:HG3	2.15	0.46
4:3:54:VAL:HG23	4:3:55:ILE:HG12	1.97	0.46
9:a:49:C:H2'	9:a:50:A:C8	2.50	0.46
10:b:1271:A:H2'	10:b:1272:C:C6	2.49	0.46
10:b:1538:C:O4'	10:b:1539:G:N2	2.33	0.46
10:b:1651:G:O2'	21:n:106:ASP:OD2	2.29	0.46
10:b:2277:A:H2'	10:b:2278:A:C8	2.50	0.46
18:k:91:SER:O	18:k:91:SER:OG	2.24	0.46
18:k:113:MET:O	18:k:117:SER:OG	2.32	0.46
20:m:41:LEU:HG	20:m:96:ILE:HG13	1.97	0.46
2:1:41:HIS:ND1	10:b:96:C:H4'	2.30	0.46
10:b:655:U:O2'	10:b:656:A:H5''	2.15	0.46
10:b:666:G:H4'	10:b:942:G:H5''	1.97	0.46
10:b:929:A:H2'	10:b:930:A:C8	2.50	0.46
10:b:962:A:C2	10:b:964:G:H1'	2.49	0.46
10:b:1170:G:O6	10:b:1183:U:O4	2.33	0.46
10:b:2761:A:N1	15:g:67:THR:CG2	2.70	0.46
10:b:1143:U:H4'	10:b:1144:A:O4'	2.16	0.46
10:b:2018:A:H2'	10:b:2019:A:C8	2.50	0.46
10:b:2137:G:H1'	10:b:2139:A:N7	2.30	0.46
10:b:2270:A:H8	10:b:2270:A:OP1	1.99	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:b:2463:A:C2	10:b:2498:G:H1'	2.50	0.46
13:e:7:ASP:OD1	13:e:7:ASP:N	2.40	0.46
15:g:73:ASN:O	15:g:77:ILE:HG12	2.14	0.46
27:t:92:ASN:OD1	27:t:93:LEU:N	2.49	0.46
28:u:24:LYS:HE3	28:u:24:LYS:HB3	1.79	0.46
2:1:36:GLN:CA	2:1:36:GLN:NE2	2.78	0.46
6:6:37:LYS:HE2	10:b:469:G:O6	2.15	0.46
7:7:55:LEU:HD23	7:7:55:LEU:HA	1.62	0.46
10:b:1885:C:H2'	10:b:1886:U:O4'	2.16	0.46
10:b:2066:A:O2'	10:b:2067:C:O5'	2.33	0.46
10:b:2688:U:H4'	18:k:76:VAL:HG21	1.97	0.46
10:b:2744:A:H2'	10:b:2745:A:C8	2.50	0.46
15:g:71:LEU:O	15:g:75:MET:HB2	2.15	0.46
20:m:15:GLY:O	20:m:16:ARG:HG2	2.14	0.46
28:u:26:LYS:HE2	28:u:37:GLU:HB3	1.96	0.46
28:u:101:GLU:OE1	28:u:101:GLU:HA	2.16	0.46
7:7:64:TYR:CE2	10:b:242:G:H5''	2.51	0.46
8:8:9:LYS:HD2	8:8:14:CYS:O	2.15	0.46
10:b:372:G:O2'	10:b:373:U:P	2.73	0.46
10:b:1498:A:H2'	10:b:1500:C:C5	2.51	0.46
10:b:1591:U:H2'	10:b:1592:A:C8	2.50	0.46
10:b:1728:G:H3'	10:b:1729:A:C8	2.50	0.46
10:b:2813:A:H2'	10:b:2814:A:C8	2.50	0.46
29:w:79:ARG:CG	29:w:79:ARG:HH11	2.29	0.46
4:3:19:HIS:CE1	10:b:2050:G:H1'	2.51	0.46
5:4:37:LYS:HG3	5:4:48:ILE:HD13	1.97	0.46
10:b:728:G:O2'	10:b:729:A:H8	1.99	0.46
10:b:974:A:H3'	10:b:975:A:H2'	1.97	0.46
10:b:1079:A:N6	10:b:1090:A:O2'	2.48	0.46
10:b:1355:A:H2'	10:b:1356:A:C8	2.51	0.46
10:b:1659:U:H2'	10:b:1660:C:H6	1.81	0.46
10:b:1934:G:N2	10:b:1972:G:H2'	2.30	0.46
10:b:2363:C:H2'	10:b:2364:G:C8	2.51	0.46
10:b:2388:U:OP2	30:y:55:ARG:NH1	2.49	0.46
14:f:108:VAL:CG1	14:f:109:PRO:HD3	2.46	0.46
15:g:42:GLU:OE2	15:g:55:ARG:HD2	2.15	0.46
18:k:105:ARG:CZ	18:k:105:ARG:HB2	2.46	0.46
10:b:728:G:O2'	10:b:729:A:O5'	2.33	0.46
10:b:1342:U:OP1	27:t:84:TYR:OH	2.28	0.46
10:b:1496:A:O2'	10:b:1497:A:P	2.73	0.46
10:b:2119:G:O6	10:b:2121:A:H2'	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:b:2384:C:OP1	22:o:17:LYS:NZ	2.48	0.46
10:b:2692:G:H1'	10:b:2725:A:H61	1.81	0.46
22:o:26:LEU:HD21	22:o:92:PHE:CD1	2.50	0.46
28:u:60:GLU:HA	28:u:60:GLU:OE1	2.14	0.46
3:2:4:THR:HA	3:2:38:ARG:O	2.16	0.46
4:3:22:LEU:CD2	26:s:41:LYS:HE2	2.45	0.46
9:a:3:C:HO2'	9:a:4:C:P	2.39	0.46
10:b:3:U:H2'	10:b:4:U:H6	1.81	0.46
10:b:731:G:C6	11:c:207:LYS:HB2	2.51	0.46
10:b:1189:G:H5''	25:r:83:TYR:CE1	2.51	0.46
10:b:2149:C:O2	10:b:2150:C:N4	2.33	0.46
18:k:110:GLU:HA	18:k:113:MET:HG2	1.97	0.46
24:q:109:LEU:HD23	24:q:109:LEU:HA	1.82	0.46
10:b:308:G:H2'	10:b:309:A:C8	2.51	0.46
10:b:659:U:H2'	10:b:660:U:C6	2.51	0.46
10:b:883:G:O6	10:b:897:U:O4	2.34	0.46
10:b:966:C:O2'	10:b:2277:A:N3	2.45	0.46
10:b:1096:U:H6	10:b:1096:U:O5'	1.99	0.46
10:b:1170:G:H2'	10:b:1171:A:C8	2.51	0.46
10:b:2149:C:H1'	10:b:2150:C:H5	1.80	0.46
10:b:2684:U:O2'	10:b:2685:C:H5'	2.16	0.46
17:j:121:LYS:HB2	17:j:121:LYS:HE3	1.57	0.46
22:o:39:VAL:HB	22:o:49:VAL:HG22	1.98	0.46
24:q:3:ARG:HH21	24:q:3:ARG:HD3	1.61	0.46
26:s:83:LYS:HB3	26:s:95:ARG:CZ	2.46	0.46
10:b:602:G:H1'	13:e:100:MET:HE3	1.98	0.46
10:b:888:A:H2'	10:b:890:C:OP1	2.15	0.46
10:b:911:A:H2'	10:b:914:C:H5	1.81	0.46
10:b:1610:A:H1'	10:b:1612:A:OP2	2.16	0.46
10:b:2121:A:N6	10:b:2171:U:H3	2.13	0.46
10:b:2761:A:H2	15:g:64:GLN:HE21	1.64	0.46
26:s:17:VAL:HG12	26:s:76:VAL:HG21	1.98	0.46
10:b:2509:G:O5'	31:z:794:ARG:NH2	2.49	0.45
15:g:11:VAL:HB	15:g:15:VAL:CG2	2.46	0.45
28:u:43:LYS:HD3	28:u:60:GLU:OE1	2.16	0.45
10:b:1950:U:H2'	10:b:1951:C:C6	2.51	0.45
10:b:2270:A:H5'	10:b:2271:A:N3	2.32	0.45
13:e:52:VAL:HG21	13:e:82:GLY:H	1.82	0.45
10:b:1021:U:H2'	10:b:1022:A:C8	2.51	0.45
10:b:1484:G:H2'	10:b:1485:G:C8	2.50	0.45
10:b:2552:A:O5'	10:b:2552:A:H8	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:q:72:ASN:HB3	24:q:110:VAL:HG11	1.98	0.45
10:b:1:G:H2'	10:b:2:G:H8	1.80	0.45
10:b:284:U:H3	10:b:356:G:H1	1.63	0.45
10:b:731:G:C5	11:c:207:LYS:HB2	2.52	0.45
10:b:1078:C:H2'	10:b:1079:A:C8	2.51	0.45
10:b:2042:G:H2'	10:b:2043:U:O4'	2.17	0.45
10:b:2119:G:N2	10:b:2173:A:H61	2.15	0.45
10:b:2850:G:H2'	10:b:2851:U:C6	2.51	0.45
18:k:4:GLU:O	18:k:5:GLN:CB	2.64	0.45
28:u:81:ASP:OD1	28:u:96:PHE:HD1	1.99	0.45
10:b:27:G:O2'	10:b:28:A:H8	1.96	0.45
10:b:784:A:C2	11:c:225:MET:HG2	2.52	0.45
10:b:974:A:O5'	10:b:974:A:H8	1.99	0.45
10:b:1111:C:H3'	10:b:1112:G:H8	1.82	0.45
10:b:2103:U:N3	10:b:2194:G:N1	2.35	0.45
10:b:2503:C:H2'	10:b:2504:U:C6	2.51	0.45
12:d:61:THR:OG1	12:d:64:GLU:HG2	2.16	0.45
17:j:3:THR:HG21	24:q:57:PHE:CE1	2.50	0.45
22:o:33:ARG:HG3	22:o:34:HIS:CE1	2.51	0.45
26:s:108:SER:OG	26:s:109:ASP:N	2.48	0.45
31:z:782:SER:HB2	31:z:784:PRO:HD2	1.98	0.45
9:a:76:G:OP1	29:w:9:ARG:NH2	2.49	0.45
10:b:2:G:H1	10:b:2904:A:H2	1.61	0.45
10:b:372:G:O2'	10:b:373:U:OP2	2.34	0.45
10:b:404:A:H5''	10:b:405:U:H5	1.82	0.45
10:b:860:G:O2'	10:b:2272:A:H1'	2.17	0.45
10:b:1011:A:N3	10:b:1155:C:O2'	2.49	0.45
10:b:1788:A:H1'	10:b:1942:A:N6	2.31	0.45
10:b:2186:U:H2'	10:b:2187:A:C8	2.51	0.45
10:b:2764:C:H2'	10:b:2765:A:H5''	1.98	0.45
11:c:22:PRO:HG2	11:c:23:GLU:OE1	2.16	0.45
19:l:92:LEU:HD11	19:l:106:GLU:O	2.17	0.45
7:7:38:THR:HG21	10:b:2352:U:OP2	2.17	0.45
10:b:116:C:HO2'	10:b:126:A:H8	1.60	0.45
10:b:138:U:H2'	10:b:140:C:C5	2.52	0.45
10:b:1201:U:H2'	10:b:1202:C:C6	2.52	0.45
10:b:1251:U:H2'	19:l:18:ARG:HH22	1.82	0.45
10:b:1581:A:H2'	10:b:1582:A:C8	2.52	0.45
10:b:2027:C:H2'	10:b:2028:G:C8	2.52	0.45
10:b:2240:U:H2'	10:b:2241:G:O4'	2.17	0.45
10:b:2307:G:O2'	14:f:121:SER:O	2.35	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:b:2558:U:C2	10:b:2559:U:C5	3.04	0.45
10:b:2756:C:H2'	10:b:2757:A:O4'	2.17	0.45
11:c:196:GLY:O	11:c:198:ALA:N	2.50	0.45
16:h:5:LEU:C	16:h:6:LEU:HD23	2.42	0.45
19:l:77:ILE:HG22	19:l:78:ARG:O	2.17	0.45
22:o:46:GLU:OE2	22:o:47:VAL:N	2.50	0.45
9:a:116:G:H2'	9:a:117:G:O4'	2.17	0.45
10:b:306:U:H2'	10:b:307:G:O4'	2.16	0.45
10:b:692:G:H2'	10:b:693:C:C6	2.51	0.45
10:b:1420:G:H1'	10:b:1582:A:H61	1.82	0.45
10:b:1490:C:O2'	10:b:1491:C:H5'	2.16	0.45
14:f:12:VAL:HA	14:f:15:LYS:NZ	2.32	0.45
14:f:100:PHE:O	14:f:104:ILE:HG22	2.16	0.45
26:s:4:ILE:HG13	26:s:5:ALA:N	2.32	0.45
29:w:25:LYS:NZ	29:w:41:GLU:HB3	2.31	0.45
9:a:113:C:H2'	9:a:113:C:O2	2.17	0.45
10:b:284:U:H2'	10:b:285:G:C8	2.51	0.45
10:b:1082:A:C6	10:b:1083:U:H1'	2.51	0.45
10:b:1572:A:H2'	10:b:1573:A:C8	2.52	0.45
10:b:2120:G:O2'	10:b:2121:A:O5'	2.33	0.45
10:b:2138:A:OP2	10:b:2160:G:N1	2.49	0.45
13:e:189:THR:O	13:e:193:VAL:HG23	2.17	0.45
14:f:14:LYS:H	14:f:14:LYS:NZ	2.15	0.45
15:g:2:SER:O	15:g:5:ALA:N	2.50	0.45
27:t:40:LYS:HG2	27:t:58:VAL:HG12	1.98	0.45
1:0:42:SER:OG	1:0:43:GLU:N	2.49	0.45
3:2:4:THR:OG1	3:2:37:GLU:OE1	2.32	0.45
10:b:2:G:H22	10:b:2904:A:H2	1.64	0.45
10:b:158:U:O2'	10:b:159:G:O5'	2.33	0.45
10:b:1030:A:N3	10:b:2490:C:O2'	2.44	0.45
10:b:1109:G:H2'	10:b:1110:U:C6	2.52	0.45
10:b:1365:C:O2'	10:b:1811:A:N3	2.48	0.45
10:b:2736:G:N3	10:b:2736:G:O4'	2.49	0.45
20:m:11:LYS:HE2	20:m:87:GLY:O	2.17	0.45
2:1:17:GLU:OE1	2:1:17:GLU:HA	2.17	0.44
10:b:1063:U:N3	10:b:1072:A:N6	2.63	0.44
10:b:1682:U:H2'	10:b:1683:G:O4'	2.17	0.44
10:b:2472:A:HO2'	10:b:2473:A:P	2.40	0.44
10:b:2552:A:H2	10:b:2564:A:N6	2.14	0.44
10:b:2752:A:H1'	15:g:67:THR:HG23	1.99	0.44
12:d:38:LYS:HG2	12:d:43:ASP:CG	2.42	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:l:131:ALA:O	19:l:135:ILE:HG12	2.16	0.44
26:s:4:ILE:HG13	26:s:5:ALA:H	1.82	0.44
2:1:41:HIS:CD2	2:1:41:HIS:C	2.95	0.44
9:a:39:A:O2'	9:a:40:U:OP2	2.28	0.44
9:a:49:C:H2'	9:a:50:A:H8	1.82	0.44
10:b:723:A:H2'	10:b:724:A:C8	2.52	0.44
10:b:969:U:H2'	10:b:970:C:C6	2.52	0.44
10:b:1865:G:H2'	10:b:1866:U:O4'	2.18	0.44
10:b:2611:G:H2'	10:b:2612:G:O4'	2.17	0.44
10:b:2654:U:H2'	10:b:2655:C:H6	1.81	0.44
13:e:155:GLU:N	13:e:155:GLU:OE1	2.51	0.44
14:f:57:LEU:HD23	14:f:65:PRO:HB3	1.99	0.44
14:f:132:VAL:CG2	14:f:152:LEU:HG	2.46	0.44
6:6:22:MET:HE3	6:6:22:MET:HB3	1.68	0.44
10:b:881:G:H2'	10:b:882:G:O4'	2.16	0.44
20:m:6:ARG:HG3	20:m:6:ARG:HH11	1.81	0.44
22:o:83:LEU:HD23	22:o:83:LEU:HA	1.76	0.44
4:3:44:THR:HG23	4:3:48:TYR:O	2.18	0.44
10:b:320:A:C4	13:e:131:THR:HG21	2.53	0.44
10:b:642:C:H2'	10:b:643:U:C6	2.52	0.44
10:b:878:C:O2'	10:b:880:A:OP2	2.35	0.44
10:b:1200:U:H4'	24:q:9:ILE:HD11	2.00	0.44
10:b:1797:C:H2'	10:b:1798:U:O4'	2.18	0.44
10:b:2100:C:H2'	10:b:2101:A:C8	2.52	0.44
10:b:2213:G:C2	10:b:2220:G:C2	3.05	0.44
10:b:2535:A:OP1	15:g:175:LYS:CD	2.66	0.44
12:d:104:VAL:O	12:d:105:LYS:HD2	2.17	0.44
18:k:57:VAL:O	18:k:57:VAL:HG23	2.17	0.44
19:l:79:LEU:HD12	19:l:114:GLY:H	1.82	0.44
25:r:4:VAL:HA	25:r:12:HIS:O	2.17	0.44
9:a:4:C:O2	9:a:116:G:N2	2.51	0.44
10:b:768:U:H2'	10:b:769:U:C6	2.52	0.44
10:b:2172:G:N3	10:b:2173:A:H2	2.15	0.44
10:b:2790:U:H2'	10:b:2791:C:H6	1.83	0.44
12:d:125:TRP:CD2	12:d:160:LYS:HD3	2.53	0.44
14:f:70:ALA:O	14:f:72:LYS:N	2.50	0.44
15:g:109:PHE:HB3	15:g:111:HIS:CD2	2.53	0.44
22:o:63:LYS:HD2	22:o:64:TYR:HB2	1.98	0.44
1:0:43:GLU:OE2	1:0:45:ARG:HG2	2.18	0.44
3:2:12:SER:HB3	10:b:990:A:P	2.57	0.44
9:a:2:G:H2'	9:a:3:C:C6	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:a:106:G:H2'	9:a:107:G:O4'	2.18	0.44
10:b:1133:G:O2'	10:b:2030:U:H5'	2.18	0.44
10:b:1184:G:H2'	10:b:1185:U:O4'	2.18	0.44
10:b:1224:U:O2'	10:b:1225:G:H8	2.00	0.44
10:b:1268:G:N7	26:s:16:LYS:HE3	2.31	0.44
10:b:1420:G:O5'	10:b:1420:G:H8	2.00	0.44
15:g:101:ASN:ND2	15:g:116:GLN:HE22	2.14	0.44
18:k:35:VAL:O	18:k:62:VAL:O	2.36	0.44
24:q:15:LYS:HB3	24:q:15:LYS:HE2	1.79	0.44
28:u:37:GLU:O	28:u:39:ILE:HG12	2.18	0.44
30:y:25:ARG:HG2	30:y:25:ARG:NH1	2.26	0.44
9:a:41:G:N2	10:b:2344:A:H5'	2.33	0.44
10:b:167:A:H2'	10:b:168:G:O4'	2.17	0.44
10:b:648:U:H2'	10:b:649:G:O4'	2.18	0.44
10:b:730:G:C4	10:b:732:A:C8	3.06	0.44
10:b:896:U:HO2'	10:b:897:U:H6	1.61	0.44
10:b:1081:C:N4	10:b:1090:A:H61	2.16	0.44
10:b:1639:A:H5'	10:b:1762:C:O2'	2.17	0.44
10:b:1724:A:H62	10:b:1740:G:H1'	1.83	0.44
12:d:173:GLN:NE2	12:d:208:LYS:HE3	2.30	0.44
13:e:147:LEU:HD11	13:e:170:ARG:HG2	2.00	0.44
13:e:171:ASP:C	13:e:173:THR:H	2.25	0.44
15:g:84:THR:HA	15:g:133:LEU:O	2.18	0.44
16:h:31:VAL:N	16:h:32:PRO:HD2	2.33	0.44
17:j:113:PRO:HG3	17:j:116:ARG:NH2	2.33	0.44
20:m:62:LYS:HD3	20:m:64:TRP:CZ2	2.52	0.44
9:a:38:C:H2'	9:a:39:A:H5'	2.00	0.44
10:b:814:C:H5''	10:b:1252:G:O2'	2.18	0.44
10:b:989:C:O2'	10:b:1002:A:N3	2.48	0.44
10:b:1510:A:H3'	10:b:1511:A:H5'	1.99	0.44
10:b:2245:A:H2'	10:b:2246:G:C8	2.52	0.44
21:n:117:ASP:O	21:n:118:ARG:HB2	2.16	0.44
22:o:25:ARG:HD2	22:o:27:VAL:HG12	1.99	0.44
22:o:77:ALA:O	22:o:81:ARG:HD3	2.18	0.44
24:q:91:ASP:OD1	24:q:91:ASP:C	2.60	0.44
9:a:87:U:HO2'	9:a:88:C:P	2.41	0.44
10:b:3:U:H2'	10:b:4:U:C6	2.52	0.44
10:b:634:A:H2'	10:b:635:A:C8	2.53	0.44
10:b:733:C:H2'	10:b:734:C:C6	2.53	0.44
10:b:878:C:N3	10:b:901:A:C5	2.86	0.44
10:b:979:G:OP1	24:q:55:ARG:NH2	2.50	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:b:1047:C:H5	10:b:1113:A:N7	2.16	0.44
10:b:1726:G:H1	10:b:1738:U:H3	1.64	0.44
10:b:2147:C:H3'	10:b:2148:G:H5''	2.00	0.44
10:b:2653:C:H2'	10:b:2654:U:H6	1.83	0.44
10:b:2803:A:H4'	10:b:2804:A:OP1	2.16	0.44
11:c:74:ILE:HG21	11:c:98:ASP:OD1	2.18	0.44
13:e:105:LEU:HA	13:e:105:LEU:HD23	1.79	0.44
15:g:42:GLU:CD	15:g:55:ARG:HD2	2.43	0.44
15:g:104:ASN:HD22	15:g:104:ASN:H	1.65	0.44
18:k:109:SER:C	18:k:111:LYS:N	2.76	0.44
10:b:458:G:O2'	10:b:469:G:O6	2.34	0.43
10:b:1108:G:C2	10:b:1109:G:C5	3.06	0.43
10:b:1312:G:N2	10:b:1612:A:C8	2.85	0.43
10:b:1427:G:H2'	10:b:1428:G:C8	2.53	0.43
10:b:1594:C:H2'	10:b:1595:A:C8	2.54	0.43
10:b:1740:G:O2'	10:b:1741:A:H8	1.99	0.43
10:b:2063:A:H1'	31:z:784:PRO:HB3	2.00	0.43
11:c:75:PRO:HA	11:c:117:GLN:HG3	2.00	0.43
13:e:21:ARG:HG3	13:e:21:ARG:NH2	2.32	0.43
14:f:36:LEU:O	14:f:88:LYS:HA	2.18	0.43
17:j:84:ILE:HD12	17:j:84:ILE:HA	1.70	0.43
19:l:68:SER:C	19:l:70:LYS:H	2.25	0.43
1:0:56:MET:HB3	1:0:56:MET:HE2	1.70	0.43
10:b:277:G:O2'	10:b:278:A:H3'	2.18	0.43
10:b:887:C:N4	10:b:893:G:H21	2.14	0.43
10:b:1030:A:H2'	10:b:1031:A:C8	2.53	0.43
10:b:1044:G:C2	10:b:1046:C:N4	2.86	0.43
10:b:1052:A:O2'	10:b:1053:G:H5'	2.18	0.43
10:b:1250:G:O2'	24:q:3:ARG:HA	2.18	0.43
11:c:236:GLU:OE1	11:c:236:GLU:HA	2.18	0.43
22:o:81:ARG:HH21	22:o:81:ARG:HD2	1.63	0.43
8:8:32:LYS:HE2	10:b:2482:A:OP1	2.18	0.43
10:b:60:G:C8	10:b:62:U:H5	2.36	0.43
10:b:578:U:H2'	10:b:579:G:C8	2.54	0.43
10:b:1023:A:C8	10:b:1023:A:C3'	3.01	0.43
10:b:2269:U:H2'	10:b:2270:A:C8	2.53	0.43
10:b:2381:A:C5	10:b:2382:A:C2	3.07	0.43
10:b:2462:G:H1'	10:b:2463:A:N7	2.33	0.43
17:j:31:GLU:HG2	17:j:142:ILE:CD1	2.45	0.43
17:j:78:THR:HG23	17:j:83:GLY:O	2.18	0.43
19:l:92:LEU:HD22	19:l:96:LYS:HE3	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:q:37:GLN:H	24:q:37:GLN:HG2	1.72	0.43
28:u:47:LYS:HA	28:u:47:LYS:HD3	1.64	0.43
29:w:75:GLN:OE1	29:w:75:GLN:HA	2.19	0.43
10:b:197:A:N6	10:b:2434:A:H2'	2.33	0.43
10:b:223:A:O2'	10:b:224:U:OP1	2.31	0.43
10:b:707:A:H62	10:b:728:G:H1'	1.82	0.43
10:b:798:C:H2'	10:b:799:G:C8	2.53	0.43
10:b:1046:C:H1'	10:b:1050:A:C1'	2.49	0.43
10:b:2254:G:O5'	10:b:2254:G:H8	2.01	0.43
10:b:2291:A:C8	10:b:2293:G:C8	3.07	0.43
10:b:2659:G:HO2'	10:b:2660:U:P	2.41	0.43
11:c:144:VAL:HG22	11:c:154:LEU:HB2	2.00	0.43
17:j:9:GLU:OE1	17:j:9:GLU:N	2.50	0.43
2:1:56:LEU:HD13	2:1:56:LEU:HA	1.84	0.43
10:b:287:G:H2'	10:b:288:U:H6	1.82	0.43
10:b:882:G:H2'	10:b:883:G:H8	1.84	0.43
10:b:1021:U:H3	10:b:1144:A:N6	2.17	0.43
10:b:1289:A:O5'	21:n:103:ARG:HD2	2.19	0.43
10:b:2650:C:O5'	10:b:2650:C:H6	2.01	0.43
10:b:2654:U:H2'	10:b:2655:C:C6	2.53	0.43
21:n:28:LEU:HD23	21:n:48:VAL:HG21	2.00	0.43
28:u:9:ASP:O	28:u:24:LYS:HA	2.19	0.43
1:0:22:LEU:HD13	1:0:22:LEU:HA	1.82	0.43
10:b:27:G:H1'	10:b:513:A:H62	1.83	0.43
10:b:62:U:H2'	10:b:63:A:C2	2.52	0.43
10:b:890:C:O5'	10:b:890:C:H6	2.02	0.43
10:b:973:G:N3	10:b:985:A:H2	2.16	0.43
10:b:1045:C:O3'	10:b:1046:C:H3'	2.19	0.43
10:b:1096:U:C2	10:b:1098:A:H5'	2.54	0.43
10:b:1190:U:O2'	10:b:1191:A:H5'	2.17	0.43
10:b:1498:A:H1'	10:b:1579:C:O2'	2.18	0.43
10:b:1993:G:H3'	10:b:1994:C:C6	2.53	0.43
12:d:148:GLN:OE1	12:d:152:PRO:HG2	2.19	0.43
13:e:134:LEU:CD2	13:e:161:ALA:HB2	2.48	0.43
20:m:82:MET:HA	20:m:82:MET:CE	2.34	0.43
23:p:6:LYS:HE2	23:p:6:LYS:HB3	1.67	0.43
2:1:2:LYS:HA	2:1:5:GLU:OE1	2.19	0.43
10:b:278:A:H2	10:b:361:G:H2'	1.84	0.43
10:b:283:G:H2'	10:b:284:U:C6	2.54	0.43
10:b:307:G:N1	10:b:310:A:OP2	2.46	0.43
10:b:873:U:H2'	10:b:874:U:C6	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:b:1059:A:N6	10:b:1084:U:HO2'	2.16	0.43
10:b:2377:G:H2'	10:b:2378:C:C6	2.53	0.43
10:b:2645:G:H8	10:b:2645:G:H5''	1.84	0.43
10:b:2702:U:H2'	10:b:2703:C:H6	1.82	0.43
13:e:146:VAL:CG2	13:e:187:VAL:HG13	2.49	0.43
19:l:69:ARG:NH1	19:l:69:ARG:HG3	2.34	0.43
22:o:61:GLN:N	22:o:61:GLN:CD	2.76	0.43
2:l:7:ARG:HE	2:l:56:LEU:HD11	1.84	0.43
9:a:7:G:N1	9:a:113:C:C2	2.87	0.43
9:a:50:A:H2'	9:a:51:G:H5'	1.99	0.43
10:b:279:A:O2'	10:b:280:U:H5'	2.19	0.43
10:b:391:A:H1'	10:b:411:G:O4'	2.19	0.43
10:b:1021:U:O2'	10:b:1023:A:H2	1.93	0.43
10:b:1569:G:OP2	11:c:83:TYR:OH	2.33	0.43
10:b:1724:A:N6	10:b:1740:G:H1'	2.34	0.43
10:b:2641:U:H2'	10:b:2642:G:O4'	2.19	0.43
10:b:2755:G:N9	15:g:3:ARG:HD2	2.34	0.43
10:b:2888:U:O2	10:b:2888:U:O4'	2.37	0.43
12:d:56:LYS:HD2	12:d:59:ARG:HG3	2.01	0.43
21:n:24:MET:HB3	21:n:44:LEU:CD1	2.48	0.43
23:p:2:SER:O	23:p:2:SER:OG	2.31	0.43
25:r:37:GLU:HG2	25:r:53:PHE:HE1	1.80	0.43
25:r:52:PRO:HB2	25:r:53:PHE:H	1.58	0.43
31:z:778:GLY:O	31:z:779:GLU:C	2.61	0.43
10:b:471:A:H2'	10:b:472:A:O4'	2.19	0.43
10:b:573:U:H3'	25:r:80:ARG:NH2	2.34	0.43
10:b:583:C:H2'	10:b:584:A:H8	1.82	0.43
10:b:1111:C:H3'	10:b:1112:G:C8	2.54	0.43
10:b:1731:U:H5''	10:b:1732:U:C5	2.53	0.43
10:b:1821:A:C2	11:c:178:SER:HB3	2.54	0.43
10:b:2299:C:O2'	10:b:2300:U:H5'	2.18	0.43
10:b:2536:G:N2	10:b:2667:G:O2'	2.52	0.43
10:b:2752:A:H1'	15:g:67:THR:CG2	2.48	0.43
10:b:2787:U:H2'	10:b:2788:U:C6	2.54	0.43
13:e:148:ILE:HD12	13:e:187:VAL:CG2	2.49	0.43
22:o:4:LYS:O	22:o:8:ILE:HG12	2.18	0.43
23:p:29:LYS:HB3	23:p:29:LYS:HE3	1.80	0.43
29:w:7:GLU:N	29:w:7:GLU:CD	2.77	0.43
30:y:40:GLN:CD	30:y:43:THR:O	2.61	0.43
30:y:47:ALA:HB1	30:y:51:VAL:HG23	1.99	0.43
3:2:23:THR:HG23	3:2:47:MET:HG3	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:7:33:LEU:HD12	10:b:2423:U:H3'	2.01	0.43
10:b:602:G:C1'	13:e:100:MET:HE3	2.48	0.43
10:b:841:U:H2'	10:b:842:C:C6	2.54	0.43
10:b:1002:A:H2'	10:b:1003:A:C8	2.53	0.43
10:b:1023:A:C2	10:b:1025:U:C2	3.07	0.43
10:b:1993:G:H3'	10:b:1994:C:H6	1.84	0.43
10:b:2103:U:O4	10:b:2194:G:O6	2.37	0.43
10:b:2234:G:H2'	10:b:2235:U:C6	2.54	0.43
11:c:94:VAL:O	11:c:101:ARG:HA	2.19	0.43
18:k:120:PRO:CB	23:p:66:ASN:ND2	2.82	0.43
21:n:17:ARG:HH21	21:n:17:ARG:HG3	1.84	0.43
24:q:83:LEU:HD13	24:q:113:ALA:HB2	2.00	0.43
6:6:45:SER:HB2	10:b:126:A:H2	1.84	0.42
9:a:51:G:O2'	9:a:52:A:C8	2.69	0.42
10:b:197:A:H62	10:b:2434:A:H2'	1.84	0.42
10:b:322:A:OP2	13:e:163:ASN:HB2	2.19	0.42
10:b:1414:U:H2'	10:b:1415:A:C8	2.54	0.42
10:b:1488:U:H2'	10:b:1489:U:H6	1.84	0.42
10:b:1792:C:H2'	10:b:1793:A:C5	2.54	0.42
10:b:2181:C:H2'	10:b:2182:C:H5''	2.01	0.42
14:f:167:ARG:HH11	14:f:167:ARG:HB3	1.83	0.42
18:k:24:VAL:HG12	18:k:30:ARG:HD2	2.01	0.42
22:o:34:HIS:CD2	22:o:54:VAL:HG23	2.53	0.42
28:u:48:PRO:O	28:u:49:VAL:C	2.62	0.42
4:3:43:ILE:HG22	4:3:49:TYR:HB2	2.01	0.42
10:b:62:U:C2'	10:b:63:A:H2	2.32	0.42
10:b:1009:C:OP1	17:j:37:ARG:NH2	2.51	0.42
10:b:1187:G:H5''	10:b:1187:G:H8	1.84	0.42
11:c:71:LYS:HD2	11:c:96:TYR:CE1	2.54	0.42
13:e:200:LEU:HD23	13:e:200:LEU:HA	1.74	0.42
15:g:33:LEU:N	15:g:33:LEU:HD12	2.34	0.42
9:a:37:C:O2	22:o:100:HIS:NE2	2.48	0.42
10:b:64:A:H2'	10:b:65:U:C6	2.54	0.42
10:b:896:U:O2'	10:b:897:U:O5'	2.37	0.42
10:b:959:C:O2'	10:b:961:A:H5''	2.19	0.42
10:b:1047:C:C4	10:b:1049:G:N2	2.87	0.42
10:b:1497:A:O2'	10:b:1498:A:C8	2.73	0.42
10:b:1855:A:H2'	10:b:1856:A:C8	2.54	0.42
10:b:1855:A:H1'	10:b:2237:U:O2'	2.19	0.42
10:b:2117:U:O4	10:b:2118:A:N6	2.53	0.42
10:b:2381:A:N7	10:b:2382:A:C2	2.88	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:c:16:VAL:CG2	11:c:206:GLY:HA3	2.50	0.42
13:e:27:LEU:HD11	13:e:100:MET:HG2	1.99	0.42
14:f:64:LYS:HA	14:f:65:PRO:HD3	1.86	0.42
18:k:120:PRO:HB2	23:p:66:ASN:HD22	1.84	0.42
25:r:73:LYS:HB2	25:r:73:LYS:HE3	1.71	0.42
29:w:4:ILE:CG2	29:w:50:MET:HE1	2.48	0.42
10:b:278:A:H1'	10:b:362:A:N3	2.34	0.42
10:b:692:G:H2'	10:b:693:C:H6	1.84	0.42
10:b:1201:U:H1'	24:q:4:VAL:HG22	2.02	0.42
10:b:1385:A:O2'	10:b:1386:A:P	2.77	0.42
10:b:2076:C:H2'	10:b:2077:C:C6	2.54	0.42
10:b:2121:A:H61	10:b:2171:U:H3	1.68	0.42
13:e:121:VAL:O	13:e:189:THR:HA	2.18	0.42
21:n:52:ILE:HD11	21:n:94:TYR:CE1	2.54	0.42
3:2:24:LEU:HD11	3:2:54:MET:HE2	2.01	0.42
7:7:42:ARG:HH21	7:7:42:ARG:HD3	1.53	0.42
9:a:48:U:H2'	9:a:49:C:H6	1.84	0.42
10:b:414:C:H2'	10:b:415:A:H8	1.81	0.42
10:b:476:G:N1	10:b:479:A:OP2	2.50	0.42
10:b:938:A:H2'	10:b:939:C:C6	2.53	0.42
10:b:1565:U:H2'	10:b:1566:C:C6	2.55	0.42
10:b:2066:A:N1	31:z:792:GLY:HA2	2.35	0.42
10:b:2070:C:O2'	10:b:2071:G:H5'	2.19	0.42
10:b:2643:A:H2'	10:b:2644:G:O4'	2.19	0.42
10:b:2799:C:H2'	10:b:2800:U:O4'	2.20	0.42
15:g:55:ARG:HB3	15:g:55:ARG:NH1	2.33	0.42
15:g:147:ASP:OD1	15:g:147:ASP:N	2.49	0.42
29:w:62:THR:HB	29:w:69:GLU:OE2	2.20	0.42
6:6:46:LYS:HA	6:6:46:LYS:HD2	1.88	0.42
10:b:768:U:H2'	10:b:769:U:H6	1.85	0.42
10:b:1077:C:H2'	10:b:1078:C:C6	2.53	0.42
10:b:1212:G:H8	10:b:1212:G:H5'	1.84	0.42
10:b:1233:U:O2'	10:b:1234:G:H8	2.01	0.42
10:b:1285:G:N2	10:b:1287:A:H3'	2.35	0.42
13:e:27:LEU:CD1	13:e:100:MET:HG2	2.49	0.42
14:f:85:ILE:HD13	14:f:85:ILE:HA	1.82	0.42
14:f:147:ASP:CG	14:f:148:ARG:HG2	2.45	0.42
15:g:9:VAL:CG1	15:g:50:LEU:HB2	2.44	0.42
15:g:149:ARG:HH11	15:g:149:ARG:HD2	1.57	0.42
22:o:26:LEU:HD23	22:o:92:PHE:HA	2.01	0.42
3:2:36:VAL:HG12	3:2:38:ARG:HG2	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:b:1050:A:N7	10:b:1113:A:N6	2.68	0.42
10:b:1133:G:OP1	17:j:77:HIS:HE1	2.03	0.42
10:b:1214:G:O2'	10:b:1238:G:N2	2.48	0.42
10:b:2075:A:H2'	10:b:2076:C:C6	2.54	0.42
10:b:2456:C:OP1	30:y:2:MET:SD	2.78	0.42
10:b:2653:C:H2'	10:b:2654:U:C6	2.54	0.42
15:g:25:THR:HG23	15:g:34:THR:CG2	2.50	0.42
16:h:12:LEU:HD12	16:h:12:LEU:O	2.20	0.42
17:j:65:THR:O	17:j:68:LYS:HD3	2.20	0.42
21:n:87:PHE:HB3	21:n:90:ARG:HB3	2.02	0.42
10:b:438:G:H2'	10:b:439:A:H8	1.84	0.42
10:b:985:A:H3'	10:b:986:A:N7	2.34	0.42
10:b:1277:A:H4'	10:b:1278:A:OP1	2.20	0.42
10:b:2333:U:H2'	10:b:2334:G:C8	2.55	0.42
11:c:34:LEU:HD22	11:c:63:ARG:HD3	2.02	0.42
14:f:14:LYS:HE2	14:f:14:LYS:HB2	1.82	0.42
14:f:117:LEU:O	14:f:177:PHE:HA	2.20	0.42
15:g:126:PRO:HD2	15:g:130:GLU:OE1	2.20	0.42
10:b:181:A:H2'	10:b:182:A:H8	1.81	0.42
10:b:265:A:O2'	10:b:266:G:H4'	2.20	0.42
10:b:1047:C:C2	10:b:1049:G:N1	2.88	0.42
10:b:1443:G:H2'	10:b:1444:U:C6	2.54	0.42
10:b:2571:G:H2'	10:b:2572:U:C6	2.55	0.42
10:b:2594:A:H2'	10:b:2595:C:H6	1.85	0.42
14:f:116:GLY:O	14:f:178:ARG:NH2	2.32	0.42
17:j:110:PRO:O	17:j:115:GLY:HA3	2.19	0.42
20:m:68:PHE:HA	20:m:69:PRO:HD3	1.78	0.42
28:u:74:ASN:HA	28:u:96:PHE:CE1	2.55	0.42
29:w:20:LEU:HG	29:w:25:LYS:CB	2.49	0.42
10:b:636:C:H2'	10:b:637:C:C6	2.54	0.42
10:b:1179:G:H8	10:b:1179:G:P	2.42	0.42
10:b:1265:U:H2'	10:b:1266:A:C8	2.54	0.42
11:c:71:LYS:HB2	11:c:71:LYS:HE2	1.94	0.42
13:e:88:ARG:HB3	13:e:89:PRO:HD2	2.02	0.42
13:e:175:ILE:HD12	13:e:180:LEU:HD11	2.01	0.42
15:g:72:LEU:O	15:g:75:MET:HB3	2.19	0.42
18:k:118:LEU:HA	18:k:118:LEU:HD13	1.77	0.42
21:n:20:MET:HB3	21:n:20:MET:HE2	1.63	0.42
24:q:74:ILE:HD12	24:q:114:LYS:HG3	2.02	0.42
7:7:54:ASP:HB3	19:l:57:LEU:HD22	2.02	0.41
10:b:159:G:HO2'	10:b:160:A:P	2.43	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:b:555:G:H2'	10:b:556:U:O4'	2.20	0.41
10:b:1023:A:C6	10:b:1025:U:C4	3.08	0.41
10:b:1103:U:H3'	10:b:1104:C:H5''	2.01	0.41
10:b:1587:C:H3'	10:b:1588:A:H8	1.85	0.41
10:b:1934:G:H1'	10:b:1935:U:OP2	2.20	0.41
12:d:16:THR:CG2	12:d:22:ILE:HD11	2.50	0.41
17:j:23:LYS:HE2	17:j:142:ILE:OXT	2.19	0.41
24:q:58:ARG:HA	24:q:61:TRP:CE3	2.55	0.41
10:b:33:C:HO2'	10:b:34:U:P	2.42	0.41
10:b:285:G:H2'	10:b:286:U:H6	1.84	0.41
10:b:595:U:H2'	10:b:596:U:C6	2.55	0.41
10:b:1096:U:O2	10:b:1098:A:H5'	2.19	0.41
10:b:2014:G:H5''	26:s:42:LYS:HB2	2.02	0.41
19:l:69:ARG:HG3	19:l:69:ARG:HH11	1.84	0.41
21:n:56:LYS:HE2	21:n:87:PHE:O	2.20	0.41
25:r:79:ARG:O	25:r:80:ARG:HB2	2.19	0.41
9:a:2:G:OP1	9:a:3:C:P	2.78	0.41
9:a:39:A:O2'	9:a:40:U:P	2.79	0.41
10:b:419:U:H2'	10:b:420:C:H6	1.85	0.41
10:b:528:A:H2	10:b:2046:A:H2'	1.83	0.41
10:b:911:A:H2'	10:b:914:C:C5	2.55	0.41
10:b:2100:C:H2'	10:b:2101:A:H8	1.86	0.41
10:b:2496:U:H2'	10:b:2497:U:O4'	2.21	0.41
10:b:2788:U:H2'	10:b:2789:C:C6	2.55	0.41
13:e:144:GLU:OE1	13:e:144:GLU:N	2.53	0.41
14:f:25:VAL:O	14:f:28:VAL:HB	2.20	0.41
14:f:36:LEU:HB3	14:f:57:LEU:HD11	2.02	0.41
18:k:47:ILE:O	18:k:47:ILE:HG13	2.20	0.41
29:w:35:GLU:CD	29:w:36:ALA:H	2.28	0.41
2:1:38:GLN:HA	2:1:38:GLN:OE1	2.21	0.41
7:7:36:LYS:HG2	7:7:40:ARG:NH2	2.35	0.41
10:b:120:U:H5''	10:b:122:G:OP2	2.20	0.41
10:b:1039:G:C2	10:b:1040:G:C4	3.09	0.41
10:b:1422:A:H2'	10:b:2215:A:N7	2.35	0.41
10:b:1448:C:H2'	10:b:1449:C:C6	2.55	0.41
10:b:1476:U:C4	10:b:1477:G:C6	3.09	0.41
10:b:2171:U:H2'	10:b:2172:G:O4'	2.21	0.41
10:b:2380:A:H2	10:b:2381:A:C6	2.36	0.41
10:b:2576:A:N7	12:d:150:GLN:HB2	2.35	0.41
13:e:97:ASN:HB2	13:e:100:MET:HB2	2.03	0.41
15:g:20:ASN:HB2	15:g:23:VAL:HG13	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:q:113:ALA:O	24:q:117:LEU:HB2	2.20	0.41
28:u:54:GLN:O	28:u:55:PRO:C	2.63	0.41
10:b:1250:G:C5	24:q:3:ARG:HB2	2.56	0.41
10:b:2059:C:H4'	10:b:2060:G:H5''	2.02	0.41
10:b:2570:A:N1	18:k:28:SER:OG	2.44	0.41
13:e:29:HIS:CE1	19:l:8:PRO:HB3	2.56	0.41
18:k:91:SER:O	18:k:93:GLN:HG2	2.21	0.41
10:b:182:A:H2'	10:b:183:C:C6	2.56	0.41
10:b:272:A:H2'	10:b:273:G:H8	1.85	0.41
10:b:835:A:H2'	10:b:836:G:H8	1.83	0.41
10:b:1226:U:H2'	10:b:1227:G:C8	2.55	0.41
10:b:1691:A:H2'	10:b:1692:A:C8	2.56	0.41
10:b:2121:A:O5'	10:b:2152:G:N2	2.53	0.41
11:c:129:THR:C	11:c:130:LEU:HD12	2.46	0.41
13:e:164:LEU:HD13	13:e:164:LEU:HA	1.94	0.41
15:g:98:VAL:HG23	15:g:125:CYS:SG	2.61	0.41
28:u:35:ILE:HD13	28:u:64:ALA:HA	2.02	0.41
28:u:37:GLU:OE2	28:u:37:GLU:N	2.46	0.41
29:w:30:ILE:HA	29:w:91:PHE:O	2.21	0.41
30:y:17:GLU:HA	30:y:17:GLU:OE1	2.21	0.41
9:a:117:G:C5	9:a:118:C:C4	3.09	0.41
10:b:78:U:H2'	10:b:79:C:C6	2.55	0.41
10:b:361:G:O5'	10:b:361:G:H8	2.03	0.41
10:b:418:C:H2'	10:b:419:U:O4'	2.21	0.41
10:b:812:U:C4	19:l:29:LYS:O	2.73	0.41
10:b:1040:G:C6	10:b:1041:A:C6	3.09	0.41
10:b:1170:G:H2'	10:b:1171:A:H8	1.84	0.41
11:c:110:LEU:HA	11:c:110:LEU:HD12	1.80	0.41
15:g:59:ALA:O	15:g:60:ASP:OD1	2.39	0.41
16:h:8:LYS:NZ	16:h:15:LEU:H	2.18	0.41
21:n:48:VAL:O	21:n:51:LEU:HB2	2.21	0.41
21:n:86:ARG:NE	21:n:117:ASP:OD2	2.50	0.41
22:o:84:GLU:OE1	22:o:85:LYS:N	2.53	0.41
25:r:38:VAL:HG21	25:r:57:GLY:O	2.20	0.41
28:u:18:ASP:OD2	28:u:39:ILE:O	2.39	0.41
1:0:64:ILE:CD1	1:0:68:LEU:HD13	2.50	0.41
4:3:22:LEU:HD11	26:s:19:LEU:HB3	2.03	0.41
10:b:373:U:O2	10:b:373:U:H2'	2.21	0.41
10:b:569:U:H2'	10:b:570:U:O4'	2.21	0.41
10:b:1844:G:H1'	11:c:243:HIS:CE1	2.56	0.41
10:b:2308:G:N2	10:b:2316:U:H3	2.17	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:f:38:MET:HE1	14:f:53:ALA:O	2.20	0.41
17:j:77:HIS:CD2	17:j:83:GLY:HA3	2.56	0.41
18:k:57:VAL:O	18:k:57:VAL:CG2	2.69	0.41
18:k:103:VAL:O	18:k:122:VAL:HB	2.20	0.41
19:l:28:GLY:O	19:l:29:LYS:CB	2.68	0.41
19:l:37:GLY:O	19:l:41:ARG:HG2	2.20	0.41
22:o:85:LYS:HE2	22:o:85:LYS:HB2	1.76	0.41
1:0:21:ALA:O	1:0:22:LEU:HB2	2.19	0.41
2:1:42:LEU:N	2:1:42:LEU:HD22	2.36	0.41
5:4:9:ILE:HB	5:4:53:LYS:N	2.35	0.41
7:7:22:PHE:HE2	7:7:59:ILE:HD13	1.85	0.41
10:b:27:G:O2'	10:b:28:A:O5'	2.39	0.41
10:b:445:C:H2'	10:b:446:G:O4'	2.21	0.41
10:b:527:C:H1'	10:b:528:A:C5	2.56	0.41
10:b:753:A:N3	31:z:780:LEU:HG	2.36	0.41
10:b:782:G:H2'	10:b:784:A:C5	2.56	0.41
10:b:782:G:H2'	10:b:784:A:N7	2.36	0.41
10:b:1074:C:H5'	10:b:1075:A:H5''	2.02	0.41
10:b:1206:A:N1	10:b:1243:A:C2	2.89	0.41
10:b:1223:C:O2'	10:b:1224:U:H5'	2.21	0.41
10:b:1616:A:C6	26:s:87:PRO:HB3	2.55	0.41
10:b:2136:A:O4'	10:b:2161:G:N2	2.50	0.41
10:b:2175:A:C2	10:b:2176:U:C2	3.09	0.41
10:b:2189:U:H2'	10:b:2190:G:C8	2.56	0.41
10:b:2196:U:H2'	10:b:2197:G:H8	1.86	0.41
10:b:2291:A:C5	10:b:2293:G:C8	3.08	0.41
11:c:76:ALA:HB2	11:c:96:TYR:CD1	2.56	0.41
14:f:134:GLU:O	14:f:137:ILE:HG12	2.21	0.41
18:k:119:ALA:HA	18:k:120:PRO:HD3	1.95	0.41
22:o:94:ARG:NH2	22:o:97:PHE:O	2.54	0.41
25:r:6:GLN:HE21	25:r:9:GLY:HA2	1.86	0.41
25:r:14:VAL:HA	25:r:18:GLN:OE1	2.21	0.41
25:r:34:GLU:HG3	25:r:58:VAL:HG21	2.03	0.41
26:s:82:MET:HB2	26:s:98:LYS:HB2	2.01	0.41
30:y:43:THR:O	30:y:44:LYS:HB3	2.21	0.41
7:7:45:ARG:N	7:7:46:PRO:CD	2.84	0.41
10:b:849:U:O2	10:b:849:U:O4'	2.39	0.41
10:b:1041:A:H2'	10:b:1042:A:C8	2.55	0.41
10:b:1064:G:H1	10:b:1079:A:H2	1.68	0.41
10:b:1616:A:C2	26:s:93:ALA:HB2	2.56	0.41
10:b:2316:U:OP1	14:f:71:ARG:HB3	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:d:18:ASP:OD1	12:d:20:VAL:HG23	2.20	0.41
15:g:80:THR:O	15:g:82:GLY:N	2.54	0.41
26:s:83:LYS:HB3	26:s:95:ARG:NH2	2.36	0.41
29:w:25:LYS:HE2	29:w:43:ASP:HA	2.02	0.41
5:4:22:THR:CG2	7:7:34:THR:OG1	2.69	0.40
10:b:360:U:H3'	10:b:361:G:C8	2.56	0.40
10:b:557:G:O2'	10:b:558:A:H8	2.04	0.40
10:b:747:G:C2'	10:b:748:U:H5'	2.52	0.40
10:b:1185:U:H2'	10:b:1186:U:H6	1.85	0.40
10:b:2551:G:C8	10:b:2570:A:C5	3.09	0.40
10:b:2840:U:H2'	10:b:2841:A:C8	2.56	0.40
12:d:84:LEU:HD23	12:d:84:LEU:HA	1.82	0.40
12:d:89:GLU:OE1	12:d:90:PHE:N	2.55	0.40
15:g:149:ARG:HA	15:g:162:VAL:CG1	2.52	0.40
16:h:8:LYS:HZ2	16:h:15:LEU:H	1.69	0.40
17:j:67:ASN:HB3	17:j:71:ASP:OD2	2.21	0.40
18:k:14:SER:O	18:k:51:LYS:HB3	2.22	0.40
20:m:53:MET:HE1	20:m:103:TYR:CD1	2.56	0.40
3:2:14:ILE:HD11	10:b:991:G:C8	2.56	0.40
10:b:647:C:C5'	10:b:648:U:H5	2.22	0.40
10:b:670:A:H2'	10:b:672:A:H62	1.86	0.40
10:b:1075:A:H3'	10:b:1076:G:C8	2.56	0.40
11:c:130:LEU:HD12	11:c:130:LEU:N	2.37	0.40
20:m:81:ARG:NH2	30:y:4:LYS:HG2	2.36	0.40
21:n:51:LEU:HD23	21:n:51:LEU:HA	1.95	0.40
22:o:17:LYS:O	22:o:21:LEU:HG	2.21	0.40
24:q:26:GLY:O	24:q:30:ARG:HD2	2.22	0.40
8:8:24:ARG:HH12	10:b:2746:G:P	2.44	0.40
10:b:912:A:O2'	10:b:913:A:H8	2.03	0.40
10:b:2234:G:C4	10:b:2235:U:C5	3.09	0.40
11:c:69:ARG:NH2	11:c:116:ILE:HD12	2.37	0.40
13:e:23:PHE:HA	13:e:107:SER:OG	2.21	0.40
14:f:70:ALA:C	14:f:72:LYS:H	2.29	0.40
15:g:83:PHE:CE2	15:g:138:LYS:HD3	2.57	0.40
17:j:98:GLU:H	17:j:98:GLU:CD	2.29	0.40
18:k:51:LYS:HB2	18:k:51:LYS:HE3	1.91	0.40
29:w:7:GLU:O	29:w:40:ILE:HA	2.21	0.40
29:w:72:VAL:CG2	29:w:91:PHE:HB3	2.51	0.40
1:0:60:ASP:OD1	1:0:60:ASP:C	2.64	0.40
3:2:28:GLY:HA3	3:2:38:ARG:NH2	2.34	0.40
7:7:8:ARG:HD2	7:7:8:ARG:HA	1.83	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:8:11:CYS:HB2	8:8:33:HIS:CE1	2.57	0.40
10:b:404:A:H5''	10:b:405:U:C5	2.56	0.40
10:b:626:C:O2'	10:b:659:U:OP1	2.39	0.40
10:b:859:G:H2'	10:b:860:G:O4'	2.21	0.40
10:b:936:U:H2'	10:b:937:C:H6	1.86	0.40
10:b:964:G:C6	10:b:965:U:C4	3.10	0.40
10:b:1849:A:H1'	10:b:1850:A:N7	2.36	0.40
10:b:2383:G:H2'	10:b:2384:C:C6	2.57	0.40
10:b:2454:A:O2'	32:Z:77:A:N1	2.48	0.40
10:b:2551:G:H2'	10:b:2552:A:H8	1.82	0.40
11:c:81:LEU:HD12	11:c:81:LEU:N	2.37	0.40
18:k:23:LYS:HB2	18:k:23:LYS:HE2	1.83	0.40
19:l:79:LEU:HD22	19:l:116:VAL:HB	2.03	0.40
20:m:95:LEU:HD13	20:m:95:LEU:HA	1.84	0.40
20:m:130:PHE:CD1	20:m:130:PHE:C	2.99	0.40
26:s:25:ARG:HH11	26:s:25:ARG:HD2	1.67	0.40
10:b:280:U:H3'	10:b:281:C:H5''	2.04	0.40
10:b:582:U:H2'	10:b:583:C:H6	1.87	0.40
10:b:596:U:H2'	10:b:597:C:H6	1.87	0.40
10:b:956:G:OP2	20:m:16:ARG:NH1	2.35	0.40
10:b:959:C:O2'	10:b:961:A:H8	2.04	0.40
10:b:2252:C:H3'	10:b:2253:U:C6	2.57	0.40
10:b:2678:G:C6	10:b:2679:A:C6	3.10	0.40
11:c:31:ALA:N	11:c:32:PRO:CD	2.84	0.40
11:c:144:VAL:CG2	11:c:154:LEU:HD12	2.51	0.40
14:f:154:ILE:HD13	14:f:154:ILE:HA	1.87	0.40
15:g:27:LYS:HB2	15:g:32:GLU:OE1	2.21	0.40
25:r:37:GLU:HG2	25:r:53:PHE:CZ	2.55	0.40
26:s:20:VAL:HG11	26:s:44:ALA:HA	2.03	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	
1	0	75/78 (96%)	73 (97%)	2 (3%)	0	100	100
2	1	59/63 (94%)	55 (93%)	4 (7%)	0	100	100
3	2	55/59 (93%)	53 (96%)	2 (4%)	0	100	100
4	3	53/57 (93%)	50 (94%)	3 (6%)	0	100	100
5	4	48/55 (87%)	44 (92%)	3 (6%)	1 (2%)	5	25
6	6	44/46 (96%)	43 (98%)	1 (2%)	0	100	100
7	7	62/65 (95%)	58 (94%)	3 (5%)	1 (2%)	8	31
8	8	36/50 (72%)	36 (100%)	0	0	100	100
11	c	269/273 (98%)	257 (96%)	11 (4%)	1 (0%)	30	63
12	d	207/209 (99%)	198 (96%)	9 (4%)	0	100	100
13	e	199/201 (99%)	191 (96%)	8 (4%)	0	100	100
14	f	175/179 (98%)	163 (93%)	12 (7%)	0	100	100
15	g	174/177 (98%)	162 (93%)	12 (7%)	0	100	100
16	h	37/149 (25%)	32 (86%)	5 (14%)	0	100	100
17	j	140/142 (99%)	134 (96%)	5 (4%)	1 (1%)	19	51
18	k	120/123 (98%)	108 (90%)	9 (8%)	3 (2%)	4	22
19	l	141/144 (98%)	129 (92%)	12 (8%)	0	100	100
20	m	134/136 (98%)	126 (94%)	8 (6%)	0	100	100
21	n	118/127 (93%)	106 (90%)	12 (10%)	0	100	100
22	o	114/117 (97%)	105 (92%)	9 (8%)	0	100	100
23	p	111/115 (96%)	102 (92%)	9 (8%)	0	100	100
24	q	115/118 (98%)	115 (100%)	0	0	100	100
25	r	95/103 (92%)	90 (95%)	5 (5%)	0	100	100
26	s	107/110 (97%)	101 (94%)	6 (6%)	0	100	100
27	t	91/100 (91%)	81 (89%)	8 (9%)	2 (2%)	5	24
28	u	100/104 (96%)	83 (83%)	14 (14%)	3 (3%)	3	19
29	w	92/94 (98%)	87 (95%)	5 (5%)	0	100	100
30	y	81/85 (95%)	73 (90%)	5 (6%)	3 (4%)	2	16
31	z	32/160 (20%)	18 (56%)	10 (31%)	4 (12%)	0	1
All	All	3084/3439 (90%)	2873 (93%)	192 (6%)	19 (1%)	24	53

All (19) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
7	7	32	ILE
31	z	780	LEU
5	4	52	ALA
11	c	157	SER
18	k	48	PRO
18	k	51	LYS
18	k	110	GLU
30	y	6	ALA
28	u	52	LEU
28	u	55	PRO
31	z	774	VAL
27	t	71	GLY
30	y	5	LYS
30	y	44	LYS
27	t	18	GLU
28	u	45	HIS
31	z	779	GLU
31	z	795	ALA
17	j	83	GLY

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	0	67/68 (98%)	63 (94%)	4 (6%)	16	44
2	1	54/55 (98%)	49 (91%)	5 (9%)	7	27
3	2	47/49 (96%)	42 (89%)	5 (11%)	5	21
4	3	46/48 (96%)	44 (96%)	2 (4%)	25	55
5	4	45/49 (92%)	43 (96%)	2 (4%)	24	54
6	6	38/38 (100%)	37 (97%)	1 (3%)	41	68
7	7	51/52 (98%)	48 (94%)	3 (6%)	16	44
8	8	34/44 (77%)	31 (91%)	3 (9%)	8	30
11	c	216/218 (99%)	203 (94%)	13 (6%)	16	44
12	d	164/164 (100%)	153 (93%)	11 (7%)	13	40

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
13	e	165/165 (100%)	154 (93%)	11 (7%)	13	40
14	f	148/150 (99%)	131 (88%)	17 (12%)	4	19
15	g	137/138 (99%)	125 (91%)	12 (9%)	8	30
16	h	30/114 (26%)	27 (90%)	3 (10%)	6	24
17	j	116/116 (100%)	108 (93%)	8 (7%)	13	39
18	k	103/104 (99%)	96 (93%)	7 (7%)	13	40
19	l	102/103 (99%)	95 (93%)	7 (7%)	13	39
20	m	109/109 (100%)	100 (92%)	9 (8%)	9	33
21	n	100/103 (97%)	95 (95%)	5 (5%)	20	50
22	o	86/87 (99%)	77 (90%)	9 (10%)	5	22
23	p	98/100 (98%)	91 (93%)	7 (7%)	12	39
24	q	89/90 (99%)	84 (94%)	5 (6%)	17	46
25	r	82/84 (98%)	77 (94%)	5 (6%)	15	43
26	s	92/93 (99%)	84 (91%)	8 (9%)	8	31
27	t	80/84 (95%)	70 (88%)	10 (12%)	3	15
28	u	83/85 (98%)	75 (90%)	8 (10%)	7	26
29	w	78/78 (100%)	68 (87%)	10 (13%)	3	15
30	y	62/63 (98%)	60 (97%)	2 (3%)	34	63
31	z	14/126 (11%)	14 (100%)	0	100	100
All	All	2536/2777 (91%)	2344 (92%)	192 (8%)	13	36

All (192) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	0	22	LEU
1	0	25	THR
1	0	51	VAL
1	0	66	THR
2	1	13	GLU
2	1	22	LEU
2	1	36	GLN
2	1	37	LEU
2	1	57	LEU
3	2	5	ILE
3	2	14	ILE

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Mol	Chain	Res	Type
3	2	36	VAL
3	2	45	ARG
3	2	48	ILE
4	3	9	THR
4	3	27	SER
5	4	29	THR
5	4	53	LYS
6	6	9	VAL
7	7	4	ILE
7	7	32	ILE
7	7	44	LEU
8	8	22	VAL
8	8	30	GLU
8	8	37	GLN
11	c	36	LYS
11	c	52	ARG
11	c	68	LYS
11	c	94	VAL
11	c	98	ASP
11	c	100	GLU
11	c	144	VAL
11	c	185	GLU
11	c	231	PRO
11	c	251	GLN
11	c	252	THR
11	c	264	ASP
11	c	268	VAL
12	d	1	MET
12	d	29	VAL
12	d	40	LEU
12	d	63	PRO
12	d	89	GLU
12	d	100	LEU
12	d	129	THR
12	d	151	THR
12	d	180	VAL
12	d	193	VAL
12	d	203	VAL
13	e	5	LEU
13	e	48	THR
13	e	51	GLU
13	e	75	SER

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Mol	Chain	Res	Type
13	e	155	GLU
13	e	165	HIS
13	e	175	ILE
13	e	185	LYS
13	e	187	VAL
13	e	197	GLU
13	e	199	MET
14	f	3	LYS
14	f	7	TYR
14	f	12	VAL
14	f	28	VAL
14	f	31	VAL
14	f	35	THR
14	f	38	MET
14	f	42	GLU
14	f	87	CYS
14	f	113	ASP
14	f	117	LEU
14	f	130	MET
14	f	132	VAL
14	f	140	GLU
14	f	149	VAL
14	f	157	THR
14	f	158	THR
15	g	6	LYS
15	g	15	VAL
15	g	17	VAL
15	g	35	ARG
15	g	39	ASP
15	g	72	LEU
15	g	80	THR
15	g	89	LEU
15	g	102	VAL
15	g	113	VAL
15	g	117	LEU
15	g	122	THR
16	h	5	LEU
16	h	15	LEU
16	h	37	VAL
17	j	5	THR
17	j	13	ARG
17	j	43	GLU

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Mol	Chain	Res	Type
17	j	64	VAL
17	j	81	ILE
17	j	84	ILE
17	j	92	MET
17	j	138	GLN
18	k	8	LEU
18	k	31	ARG
18	k	35	VAL
18	k	38	ILE
18	k	49	ARG
18	k	80	ASP
18	k	118	LEU
19	l	19	LEU
19	l	23	ILE
19	l	30	THR
19	l	61	LEU
19	l	85	VAL
19	l	120	VAL
19	l	121	THR
20	m	3	GLN
20	m	22	GLN
20	m	26	VAL
20	m	44	ARG
20	m	57	VAL
20	m	80	VAL
20	m	100	LYS
20	m	132	THR
20	m	133	LYS
21	n	34	ILE
21	n	52	ILE
21	n	53	THR
21	n	57	THR
21	n	59	SER
22	o	20	GLU
22	o	26	LEU
22	o	27	VAL
22	o	28	VAL
22	o	46	GLU
22	o	47	VAL
22	o	54	VAL
22	o	65	THR
22	o	98	GLN

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Mol	Chain	Res	Type
23	p	30	VAL
23	p	32	VAL
23	p	33	VAL
23	p	39	ARG
23	p	61	VAL
23	p	65	SER
23	p	106	LYS
24	q	19	LYS
24	q	37	GLN
24	q	41	LYS
24	q	83	LEU
24	q	95	LEU
25	r	20	VAL
25	r	39	LEU
25	r	47	VAL
25	r	72	VAL
25	r	96	VAL
26	s	4	ILE
26	s	29	VAL
26	s	45	VAL
26	s	66	ILE
26	s	67	ASP
26	s	83	LYS
26	s	95	ARG
26	s	108	SER
27	t	7	LEU
27	t	10	VAL
27	t	22	THR
27	t	25	GLU
27	t	29	THR
27	t	52	GLU
27	t	67	VAL
27	t	73	ARG
27	t	74	ILE
27	t	91	GLN
28	u	27	ASN
28	u	41	LEU
28	u	47	LYS
28	u	49	VAL
28	u	58	ILE
28	u	62	GLU
28	u	68	SER

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Mol	Chain	Res	Type
28	u	89	ASP
29	w	4	ILE
29	w	11	GLU
29	w	12	GLN
29	w	34	LYS
29	w	41	GLU
29	w	59	GLU
29	w	60	VAL
29	w	64	VAL
29	w	65	VAL
29	w	69	GLU
30	y	4	LYS
30	y	10	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (34) such sidechains are listed below:

Mol	Chain	Res	Type
1	0	32	ASN
2	1	15	ASN
2	1	25	GLN
2	1	36	GLN
4	3	19	HIS
11	c	25	HIS
11	c	53	HIS
11	c	90	ASN
11	c	243	HIS
11	c	251	GLN
12	d	126	ASN
12	d	173	GLN
13	e	41	GLN
13	e	136	GLN
14	f	5	HIS
14	f	63	GLN
15	g	101	ASN
15	g	104	ASN
17	j	77	HIS
20	m	97	GLN
21	n	18	GLN
23	p	7	GLN
25	r	6	GLN
25	r	87	GLN
25	r	89	HIS

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Mol	Chain	Res	Type
26	s	9	HIS
26	s	40	ASN
26	s	102	HIS
27	t	48	GLN
28	u	69	ASN
30	y	40	GLN
30	y	50	ASN
31	z	789	GLN
31	z	791	GLN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
10	b	2886/2904 (99%)	626 (21%)	0
32	Z	75/76 (98%)	15 (20%)	4 (5%)
9	a	118/120 (98%)	40 (33%)	0
All	All	3079/3100 (99%)	681 (22%)	4 (0%)

All (681) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
9	a	2	G
9	a	3	C
9	a	4	C
9	a	7	G
9	a	9	G
9	a	13	G
9	a	25	U
9	a	26	C
9	a	30	C
9	a	32	U
9	a	33	G
9	a	35	C
9	a	36	C
9	a	39	A
9	a	40	U
9	a	41	G
9	a	42	C
9	a	44	G
9	a	52	A
9	a	53	A

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Mol	Chain	Res	Type
9	a	56	G
9	a	57	A
9	a	59	A
9	a	61	G
9	a	66	A
9	a	67	G
9	a	88	C
9	a	89	U
9	a	90	C
9	a	91	C
9	a	99	A
9	a	108	A
9	a	109	A
9	a	112	G
9	a	113	C
9	a	114	C
9	a	115	A
9	a	116	G
9	a	118	C
9	a	119	A
10	b	10	A
10	b	15	G
10	b	28	A
10	b	35	G
10	b	41	C
10	b	46	G
10	b	51	G
10	b	60	G
10	b	62	U
10	b	63	A
10	b	71	A
10	b	74	A
10	b	75	G
10	b	83	A
10	b	100	U
10	b	101	A
10	b	102	U
10	b	103	A
10	b	118	A
10	b	120	U
10	b	142	A
10	b	159	G

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Mol	Chain	Res	Type
10	b	160	A
10	b	163	C
10	b	164	C
10	b	166	U
10	b	174	U
10	b	196	A
10	b	199	A
10	b	215	G
10	b	216	A
10	b	221	A
10	b	222	A
10	b	223	A
10	b	224	U
10	b	228	C
10	b	229	C
10	b	233	A
10	b	234	U
10	b	245	G
10	b	248	G
10	b	252	G
10	b	255	A
10	b	256	A
10	b	264	C
10	b	265	A
10	b	266	G
10	b	267	C
10	b	271	G
10	b	273	G
10	b	275	C
10	b	277	G
10	b	278	A
10	b	279	A
10	b	280	U
10	b	281	C
10	b	282	A
10	b	299	A
10	b	300	A
10	b	303	G
10	b	329	G
10	b	330	A
10	b	345	A
10	b	353	C

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Mol	Chain	Res	Type
10	b	355	U
10	b	359	G
10	b	362	A
10	b	366	C
10	b	367	G
10	b	371	A
10	b	372	G
10	b	373	U
10	b	386	G
10	b	387	U
10	b	389	G
10	b	390	U
10	b	391	A
10	b	396	G
10	b	405	U
10	b	406	G
10	b	412	A
10	b	417	C
10	b	418	C
10	b	425	G
10	b	451	U
10	b	455	C
10	b	456	C
10	b	457	A
10	b	472	A
10	b	477	A
10	b	481	G
10	b	482	A
10	b	491	G
10	b	493	G
10	b	505	A
10	b	509	C
10	b	527	C
10	b	530	G
10	b	532	A
10	b	538	A
10	b	554	U
10	b	565	A
10	b	570	U
10	b	575	U
10	b	577	A
10	b	605	A

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Mol	Chain	Res	Type
10	b	606	G
10	b	615	A
10	b	616	A
10	b	617	U
10	b	624	G
10	b	629	A
10	b	639	A
10	b	647	C
10	b	648	U
10	b	649	G
10	b	655	U
10	b	656	A
10	b	657	A
10	b	670	A
10	b	687	A
10	b	688	U
10	b	719	C
10	b	720	A
10	b	729	A
10	b	732	A
10	b	733	C
10	b	734	C
10	b	749	U
10	b	759	G
10	b	762	G
10	b	763	A
10	b	764	U
10	b	767	C
10	b	777	G
10	b	778	G
10	b	784	A
10	b	785	A
10	b	786	G
10	b	787	G
10	b	791	A
10	b	794	A
10	b	807	G
10	b	814	C
10	b	821	A
10	b	829	U
10	b	830	U
10	b	832	G

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Mol	Chain	Res	Type
10	b	848	U
10	b	849	U
10	b	860	G
10	b	861	G
10	b	871	G
10	b	874	U
10	b	875	C
10	b	878	C
10	b	881	G
10	b	882	G
10	b	883	G
10	b	886	U
10	b	889	U
10	b	890	C
10	b	891	C
10	b	893	G
10	b	894	A
10	b	896	U
10	b	897	U
10	b	898	A
10	b	899	C
10	b	912	A
10	b	913	A
10	b	916	G
10	b	917	C
10	b	921	U
10	b	933	U
10	b	937	C
10	b	943	A
10	b	948	C
10	b	959	C
10	b	960	U
10	b	961	A
10	b	963	C
10	b	976	G
10	b	984	C
10	b	985	A
10	b	986	A
10	b	987	C
10	b	998	A
10	b	1004	G
10	b	1011	A

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Mol	Chain	Res	Type
10	b	1014	U
10	b	1015	C
10	b	1023	A
10	b	1024	G
10	b	1035	U
10	b	1037	U
10	b	1039	G
10	b	1040	G
10	b	1044	G
10	b	1045	C
10	b	1046	C
10	b	1047	C
10	b	1049	G
10	b	1056	A
10	b	1058	G
10	b	1059	A
10	b	1060	U
10	b	1062	U
10	b	1063	U
10	b	1064	G
10	b	1066	C
10	b	1068	U
10	b	1070	G
10	b	1071	A
10	b	1072	A
10	b	1076	G
10	b	1081	C
10	b	1083	U
10	b	1088	A
10	b	1089	G
10	b	1090	A
10	b	1091	A
10	b	1092	A
10	b	1097	A
10	b	1099	U
10	b	1100	A
10	b	1101	G
10	b	1103	U
10	b	1104	C
10	b	1105	A
10	b	1106	C
10	b	1107	U

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Mol	Chain	Res	Type
10	b	1108	G
10	b	1111	C
10	b	1113	A
10	b	1114	G
10	b	1115	U
10	b	1121	U
10	b	1132	U
10	b	1134	U
10	b	1135	A
10	b	1136	A
10	b	1137	C
10	b	1145	A
10	b	1157	A
10	b	1158	A
10	b	1174	C
10	b	1177	A
10	b	1178	U
10	b	1180	C
10	b	1187	G
10	b	1197	G
10	b	1208	G
10	b	1209	C
10	b	1225	G
10	b	1226	U
10	b	1229	G
10	b	1234	G
10	b	1240	G
10	b	1249	A
10	b	1255	A
10	b	1257	U
10	b	1258	G
10	b	1268	G
10	b	1273	G
10	b	1274	A
10	b	1278	A
10	b	1280	C
10	b	1302	G
10	b	1303	A
10	b	1320	U
10	b	1322	C
10	b	1342	U
10	b	1354	U

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Mol	Chain	Res	Type
10	b	1359	C
10	b	1367	A
10	b	1370	G
10	b	1376	G
10	b	1381	U
10	b	1385	A
10	b	1386	A
10	b	1388	C
10	b	1390	G
10	b	1394	A
10	b	1395	A
10	b	1397	A
10	b	1412	G
10	b	1413	U
10	b	1417	U
10	b	1418	G
10	b	1421	A
10	b	1422	A
10	b	1423	G
10	b	1426	G
10	b	1430	C
10	b	1431	G
10	b	1439	C
10	b	1454	G
10	b	1455	A
10	b	1456	C
10	b	1461	G
10	b	1462	U
10	b	1463	C
10	b	1468	U
10	b	1469	U
10	b	1472	A
10	b	1478	U
10	b	1479	A
10	b	1484	G
10	b	1488	U
10	b	1492	A
10	b	1495	C
10	b	1496	A
10	b	1497	A
10	b	1498	A
10	b	1499	U

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Mol	Chain	Res	Type
10	b	1500	C
10	b	1506	A
10	b	1509	C
10	b	1511	A
10	b	1517	A
10	b	1525	U
10	b	1526	G
10	b	1534	A
10	b	1535	C
10	b	1538	C
10	b	1540	G
10	b	1541	U
10	b	1542	G
10	b	1544	U
10	b	1554	A
10	b	1562	G
10	b	1568	A
10	b	1570	G
10	b	1571	A
10	b	1580	U
10	b	1585	A
10	b	1586	U
10	b	1598	A
10	b	1605	A
10	b	1610	A
10	b	1611	A
10	b	1612	A
10	b	1613	C
10	b	1620	A
10	b	1629	G
10	b	1649	U
10	b	1650	U
10	b	1651	G
10	b	1676	G
10	b	1677	C
10	b	1705	G
10	b	1706	C
10	b	1707	A
10	b	1713	A
10	b	1717	G
10	b	1728	G
10	b	1730	C

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Mol	Chain	Res	Type
10	b	1732	U
10	b	1733	G
10	b	1734	C
10	b	1735	U
10	b	1739	G
10	b	1750	C
10	b	1758	G
10	b	1760	U
10	b	1763	C
10	b	1765	G
10	b	1766	C
10	b	1771	U
10	b	1775	A
10	b	1778	G
10	b	1784	U
10	b	1786	A
10	b	1788	A
10	b	1801	G
10	b	1802	C
10	b	1810	A
10	b	1811	A
10	b	1813	G
10	b	1818	C
10	b	1820	U
10	b	1831	A
10	b	1837	G
10	b	1849	A
10	b	1859	G
10	b	1888	G
10	b	1910	G
10	b	1913	C
10	b	1916	A
10	b	1917	A
10	b	1918	C
10	b	1921	U
10	b	1933	G
10	b	1934	G
10	b	1935	U
10	b	1938	C
10	b	1940	A
10	b	1941	A
10	b	1942	A

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Mol	Chain	Res	Type
10	b	1944	U
10	b	1959	U
10	b	1969	C
10	b	1971	C
10	b	1974	A
10	b	1975	U
10	b	1976	G
10	b	1993	G
10	b	1994	C
10	b	1995	U
10	b	1996	G
10	b	1997	U
10	b	2001	C
10	b	2027	C
10	b	2035	A
10	b	2036	G
10	b	2037	A
10	b	2047	C
10	b	2059	C
10	b	2060	G
10	b	2064	A
10	b	2065	G
10	b	2066	A
10	b	2067	C
10	b	2073	G
10	b	2081	A
10	b	2097	G
10	b	2106	G
10	b	2109	U
10	b	2111	G
10	b	2113	U
10	b	2114	G
10	b	2115	U
10	b	2116	G
10	b	2119	G
10	b	2120	G
10	b	2121	A
10	b	2122	U
10	b	2124	G
10	b	2127	G
10	b	2128	G
10	b	2129	G

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Mol	Chain	Res	Type
10	b	2130	A
10	b	2131	G
10	b	2133	C
10	b	2134	U
10	b	2136	A
10	b	2137	G
10	b	2139	A
10	b	2140	G
10	b	2142	G
10	b	2143	U
10	b	2144	G
10	b	2145	G
10	b	2147	C
10	b	2148	G
10	b	2149	C
10	b	2151	A
10	b	2153	U
10	b	2155	U
10	b	2156	G
10	b	2158	A
10	b	2160	G
10	b	2161	G
10	b	2162	A
10	b	2163	G
10	b	2164	C
10	b	2166	G
10	b	2167	A
10	b	2168	C
10	b	2169	C
10	b	2171	U
10	b	2173	A
10	b	2175	A
10	b	2176	U
10	b	2177	A
10	b	2178	C
10	b	2179	C
10	b	2180	A
10	b	2181	C
10	b	2182	C
10	b	2183	C
10	b	2185	U
10	b	2186	U

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Mol	Chain	Res	Type
10	b	2188	A
10	b	2192	U
10	b	2195	A
10	b	2202	A
10	b	2207	U
10	b	2208	G
10	b	2215	A
10	b	2216	A
10	b	2217	U
10	b	2218	C
10	b	2229	A
10	b	2242	G
10	b	2243	G
10	b	2244	U
10	b	2252	C
10	b	2254	G
10	b	2272	A
10	b	2282	A
10	b	2284	G
10	b	2287	C
10	b	2290	G
10	b	2291	A
10	b	2292	A
10	b	2301	A
10	b	2309	U
10	b	2310	C
10	b	2311	G
10	b	2315	A
10	b	2326	A
10	b	2328	U
10	b	2329	G
10	b	2335	G
10	b	2338	U
10	b	2339	A
10	b	2340	A
10	b	2341	G
10	b	2349	G
10	b	2351	C
10	b	2365	G
10	b	2380	A
10	b	2381	A
10	b	2383	G

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Mol	Chain	Res	Type
10	b	2387	G
10	b	2389	C
10	b	2395	G
10	b	2400	G
10	b	2406	U
10	b	2407	C
10	b	2410	A
10	b	2427	U
10	b	2429	A
10	b	2432	G
10	b	2433	G
10	b	2434	A
10	b	2438	A
10	b	2445	U
10	b	2452	A
10	b	2462	G
10	b	2463	A
10	b	2480	A
10	b	2488	G
10	b	2498	G
10	b	2506	G
10	b	2509	G
10	b	2522	A
10	b	2524	C
10	b	2529	G
10	b	2533	G
10	b	2539	G
10	b	2551	G
10	b	2553	U
10	b	2558	U
10	b	2564	A
10	b	2566	U
10	b	2570	A
10	b	2571	G
10	b	2577	C
10	b	2590	U
10	b	2606	A
10	b	2613	U
10	b	2617	U
10	b	2619	U
10	b	2621	U
10	b	2633	U

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Mol	Chain	Res	Type
10	b	2634	G
10	b	2645	G
10	b	2659	G
10	b	2660	U
10	b	2665	G
10	b	2666	A
10	b	2676	U
10	b	2677	G
10	b	2686	A
10	b	2687	C
10	b	2689	G
10	b	2693	U
10	b	2694	U
10	b	2730	A
10	b	2736	G
10	b	2737	A
10	b	2741	G
10	b	2742	A
10	b	2748	G
10	b	2752	A
10	b	2754	A
10	b	2755	G
10	b	2756	C
10	b	2757	A
10	b	2762	A
10	b	2765	A
10	b	2769	A
10	b	2782	A
10	b	2783	U
10	b	2795	G
10	b	2801	U
10	b	2802	U
10	b	2803	A
10	b	2804	A
10	b	2812	G
10	b	2822	U
10	b	2824	A
10	b	2825	A
10	b	2837	U
10	b	2838	G
10	b	2840	U
10	b	2851	U

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Mol	Chain	Res	Type
10	b	2853	U
10	b	2865	U
10	b	2868	G
10	b	2869	U
10	b	2871	G
10	b	2874	C
10	b	2876	A
10	b	2877	A
10	b	2878	C
10	b	2881	G
10	b	2887	A
10	b	2888	U
10	b	2890	A
10	b	2895	U
10	b	2898	G
10	b	2903	A
32	Z	7	A
32	Z	10	A
32	Z	15	A
32	Z	18	U
32	Z	19	G
32	Z	21	U
32	Z	22	A
32	Z	47	G
32	Z	48	U
32	Z	49	C
32	Z	50	G
32	Z	52	G
32	Z	53	A
32	Z	59	A
32	Z	77	A

All (4) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
32	Z	19	G
32	Z	48	U
32	Z	49	C
32	Z	52	G

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

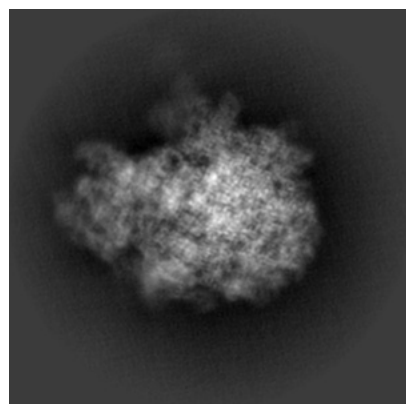
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-52597. These allow visual inspection of the internal detail of the map and identification of artifacts.

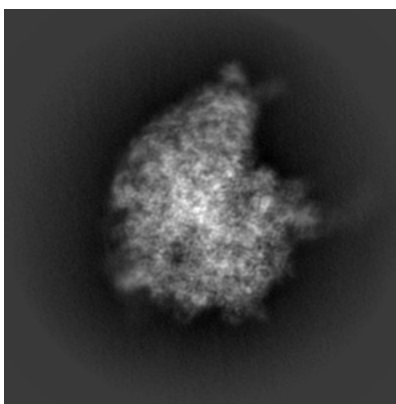
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

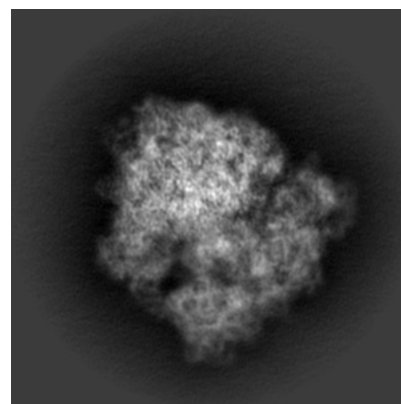
6.1.1 Primary map



X

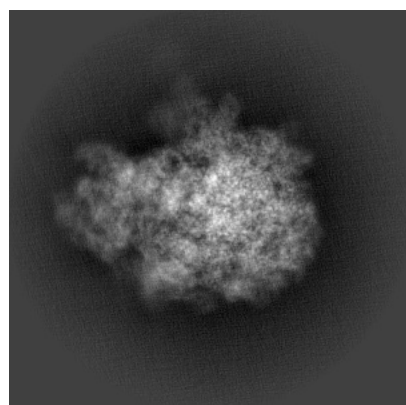


Y

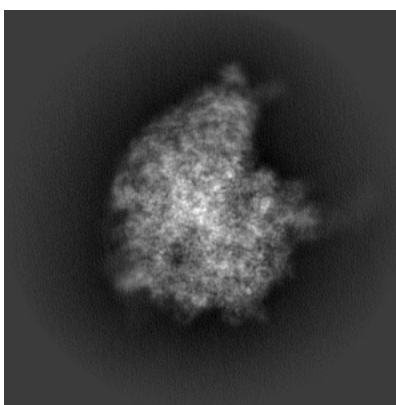


Z

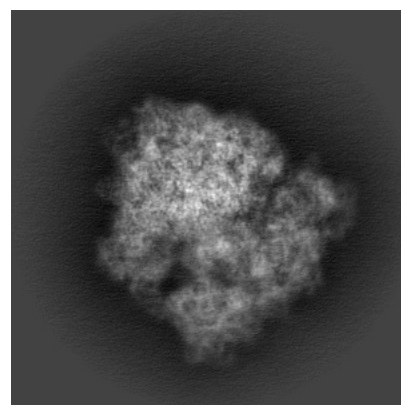
6.1.2 Raw map



X



Y

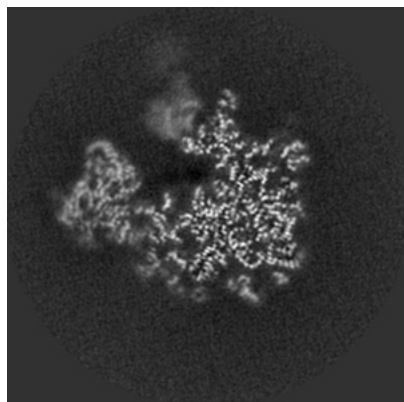


Z

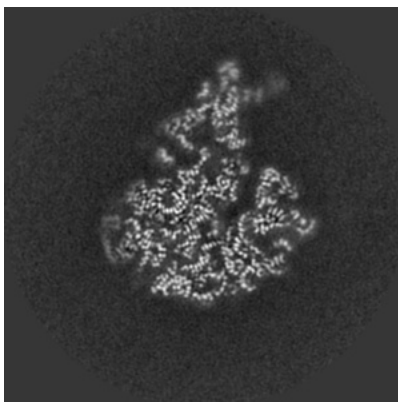
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

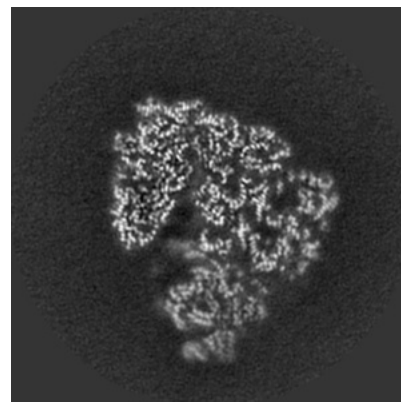
6.2.1 Primary map



X Index: 184

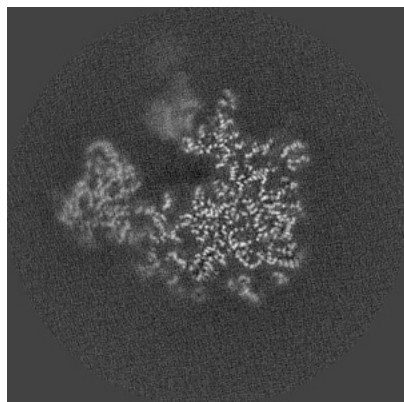


Y Index: 184

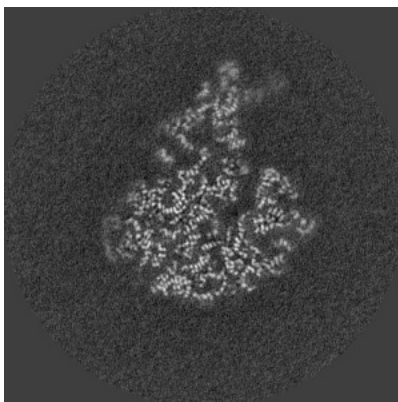


Z Index: 184

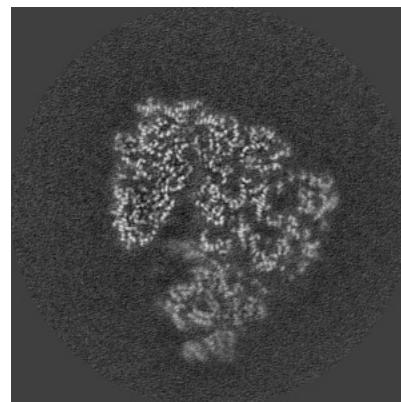
6.2.2 Raw map



X Index: 184



Y Index: 184

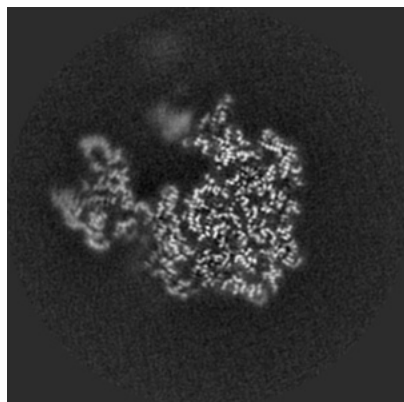


Z Index: 184

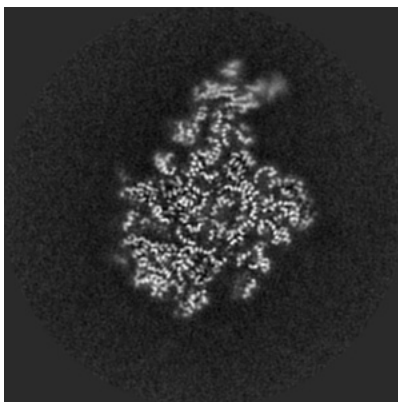
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

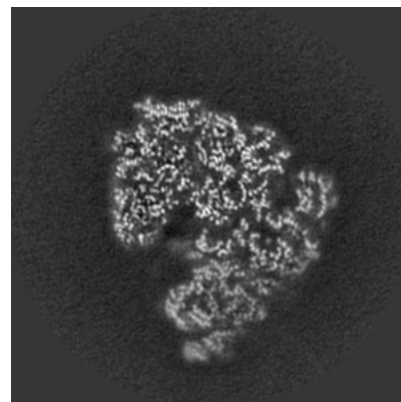
6.3.1 Primary map



X Index: 192

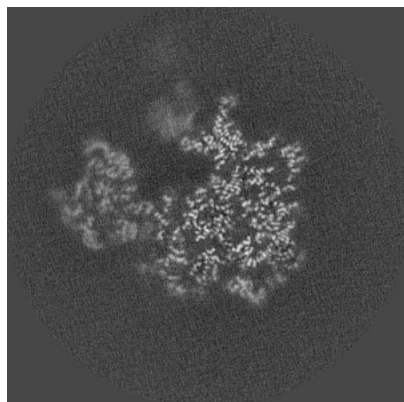


Y Index: 194

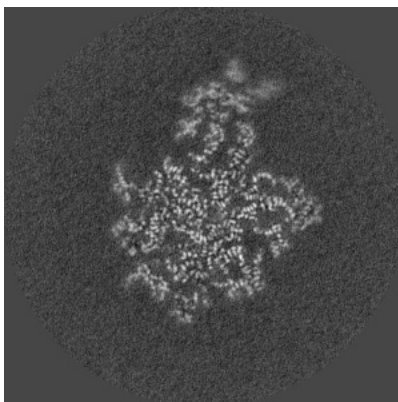


Z Index: 182

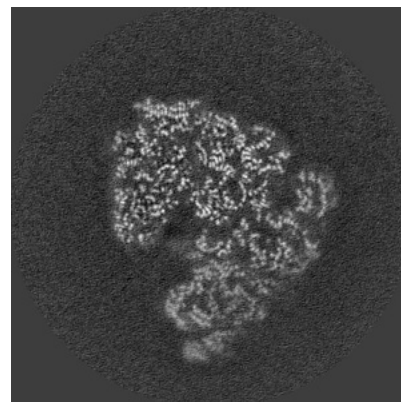
6.3.2 Raw map



X Index: 187



Y Index: 201

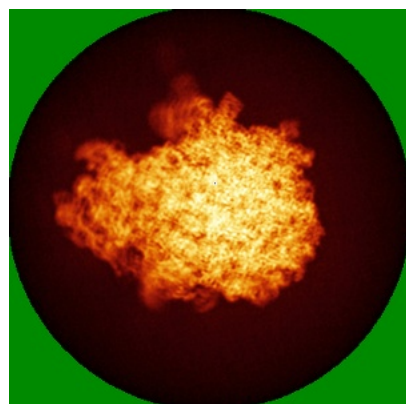


Z Index: 182

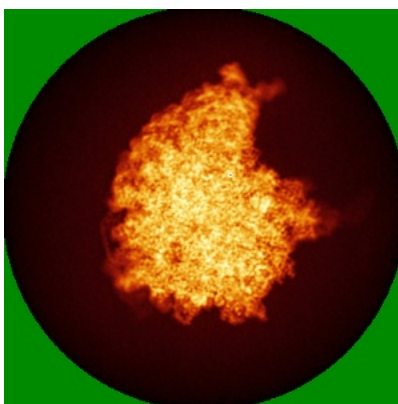
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

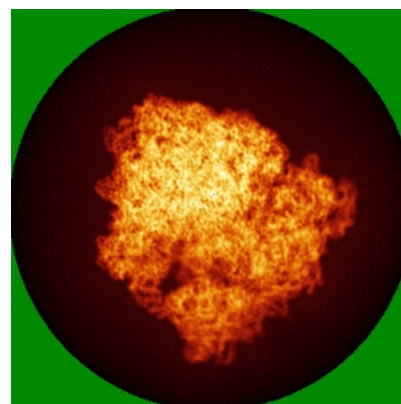
6.4.1 Primary map



X

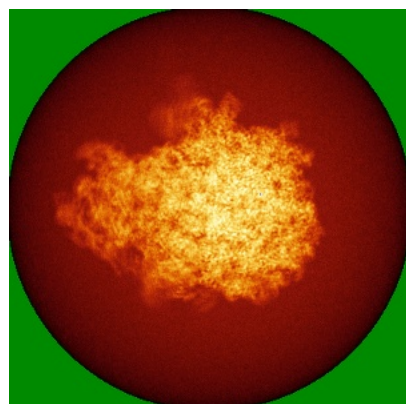


Y

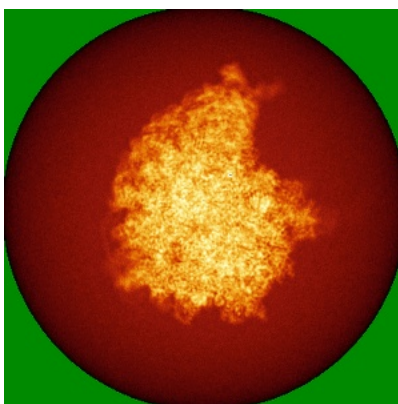


Z

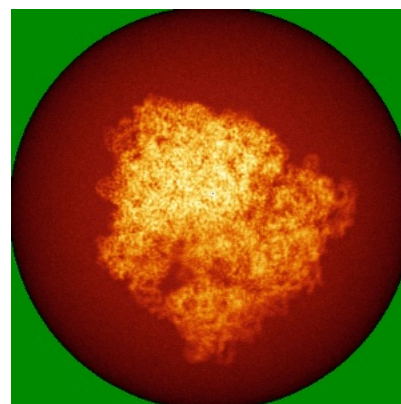
6.4.2 Raw map



X



Y



Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

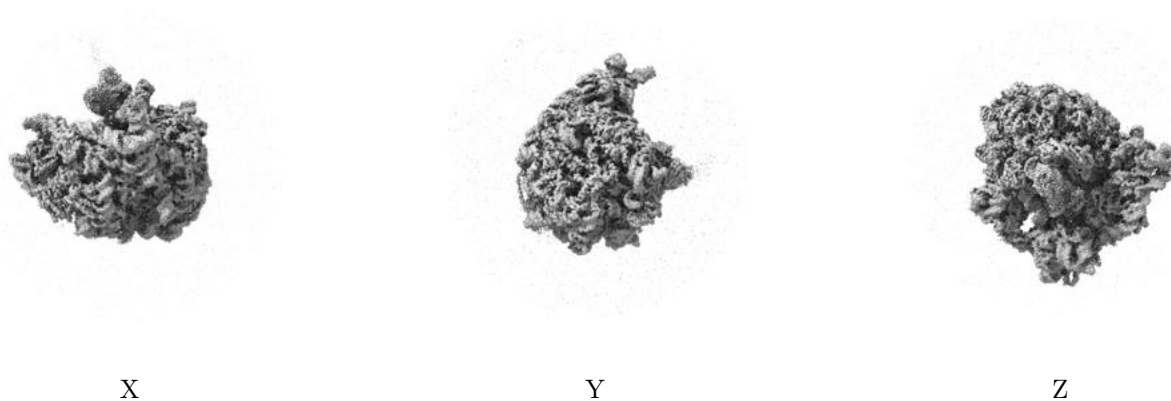
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.011607. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

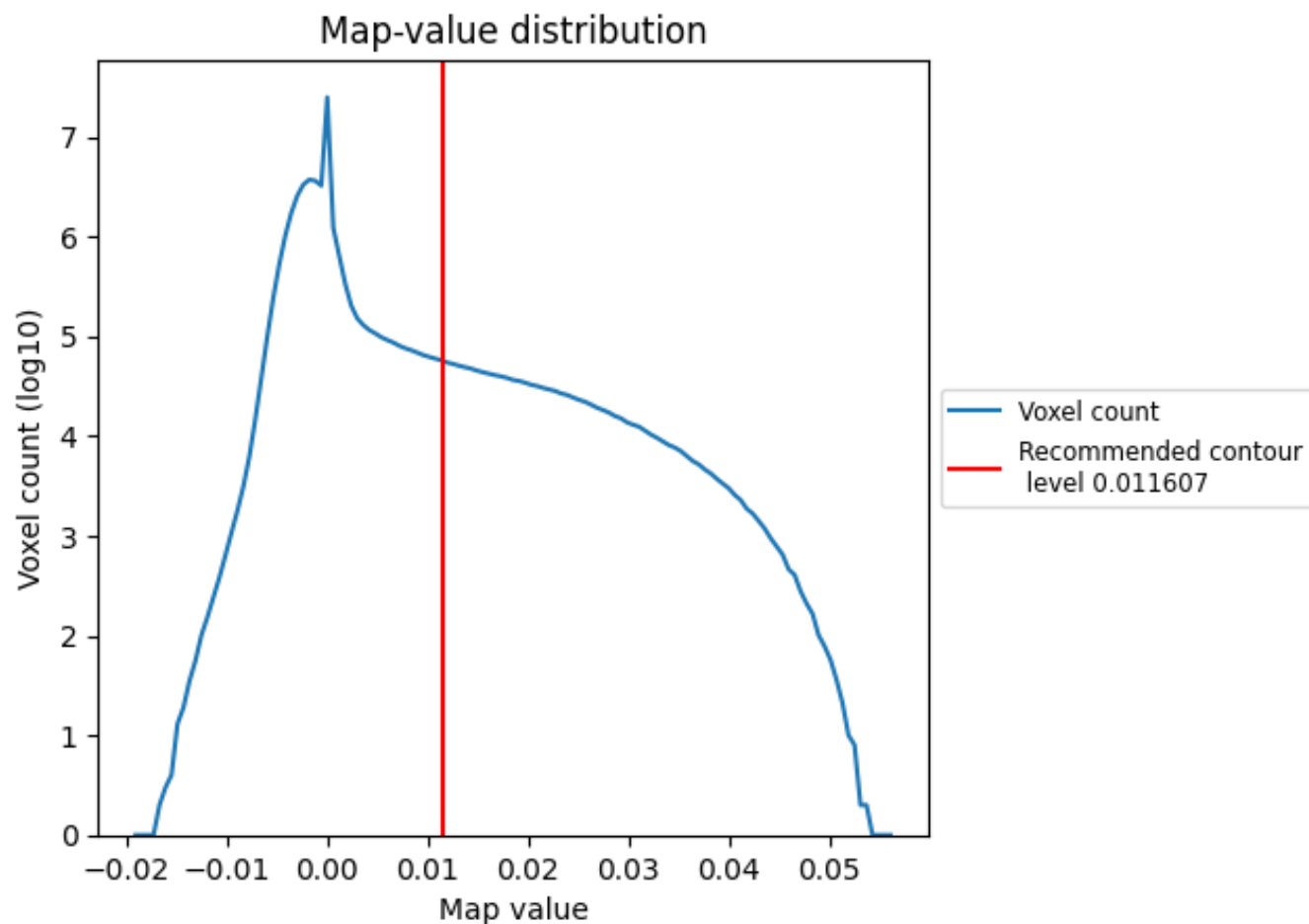
6.6 Mask visualisation [i](#)

This section was not generated. No masks/segmentation were deposited.

7 Map analysis [i](#)

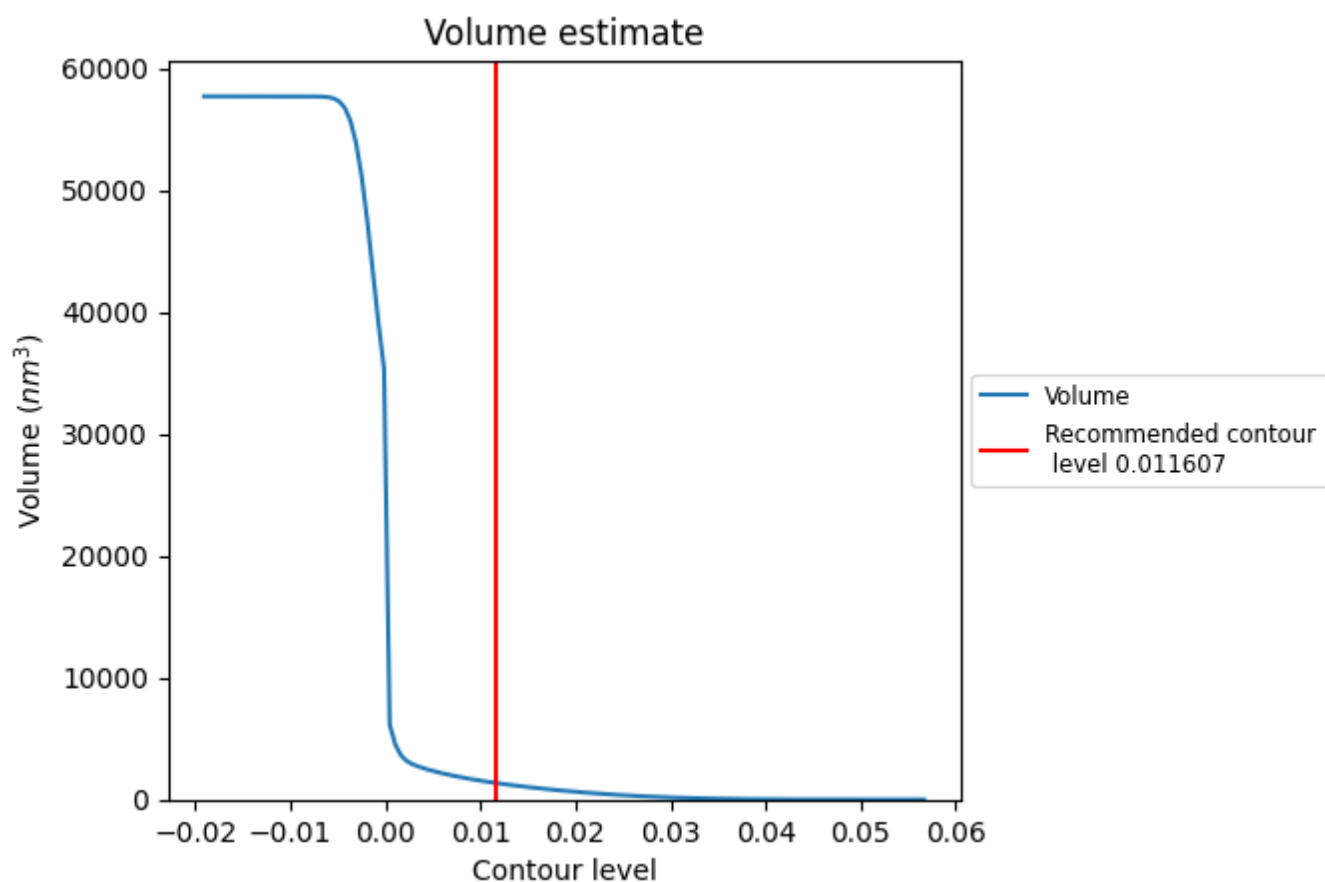
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

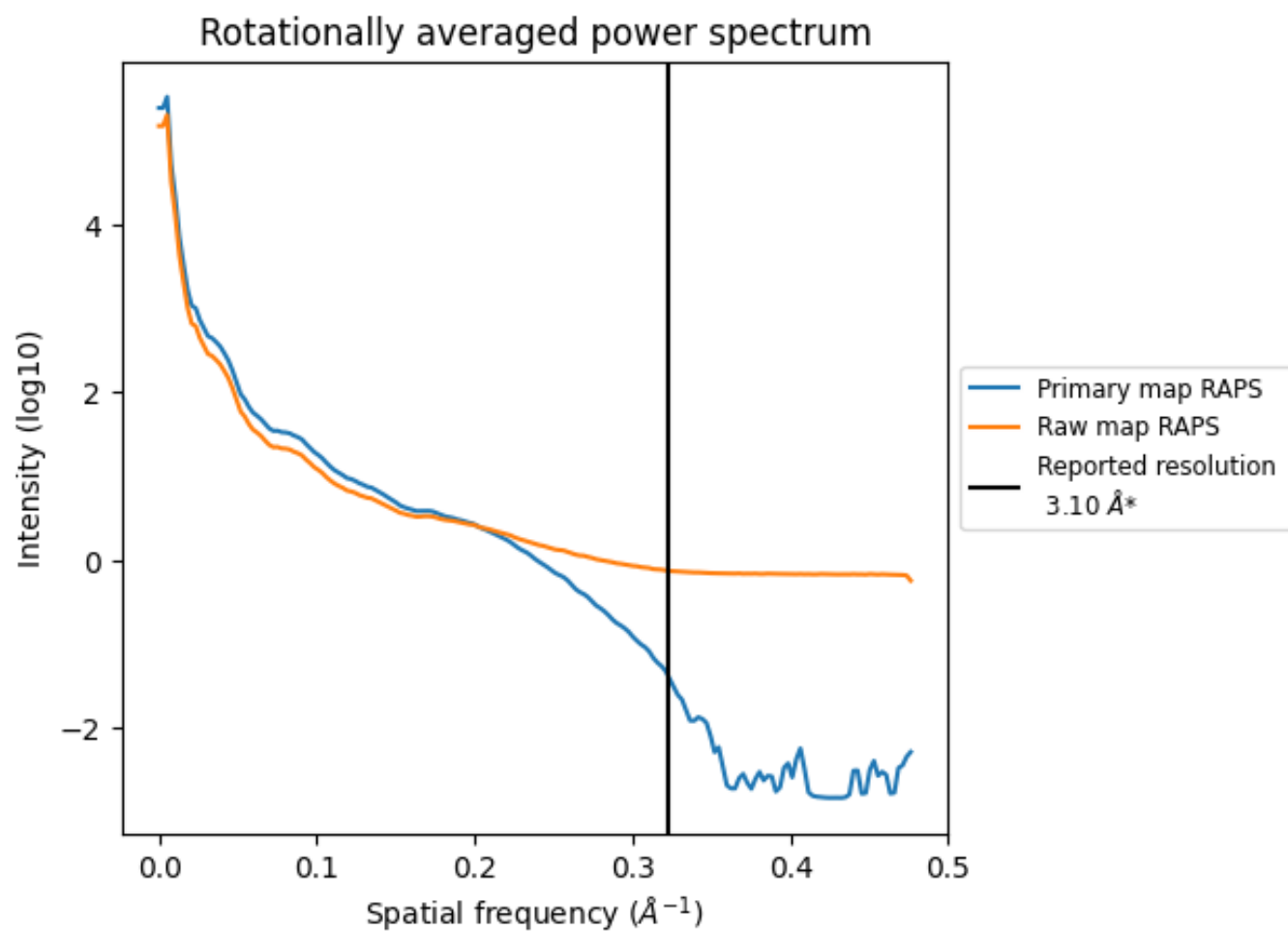
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1360 nm³; this corresponds to an approximate mass of 1228 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum ⓘ

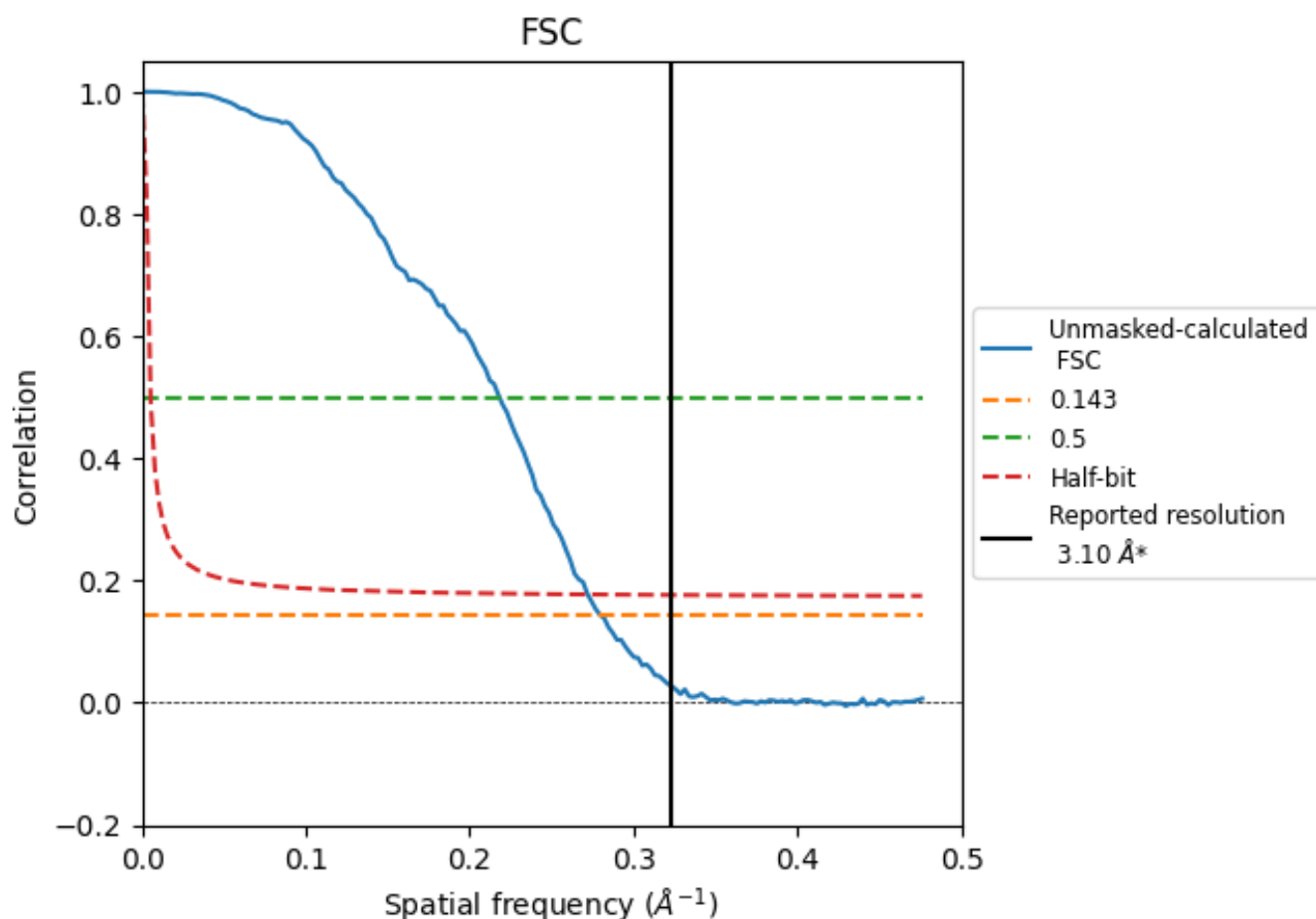


*Reported resolution corresponds to spatial frequency of 0.323 Å⁻¹

8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.323 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

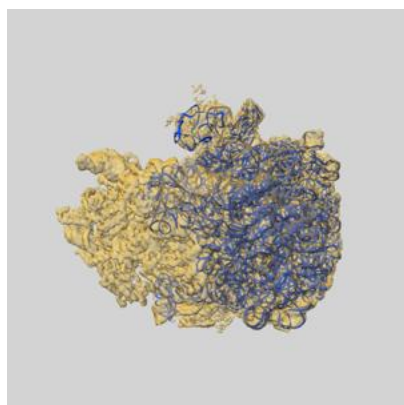
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.10	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.57	4.59	3.68

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.57 differs from the reported value 3.1 by more than 10 %

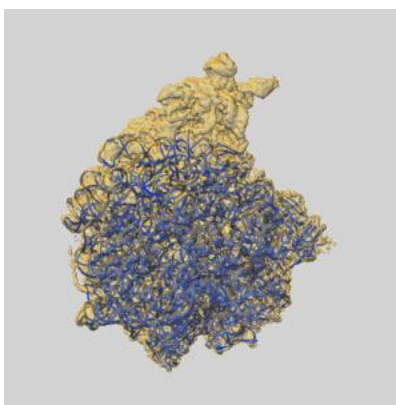
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-52597 and PDB model 9I3L. Per-residue inclusion information can be found in section [3](#) on page [11](#).

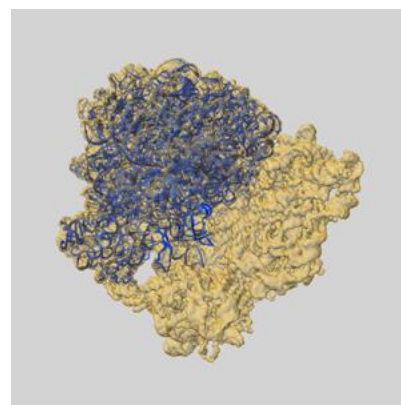
9.1 Map-model overlay [i](#)



X



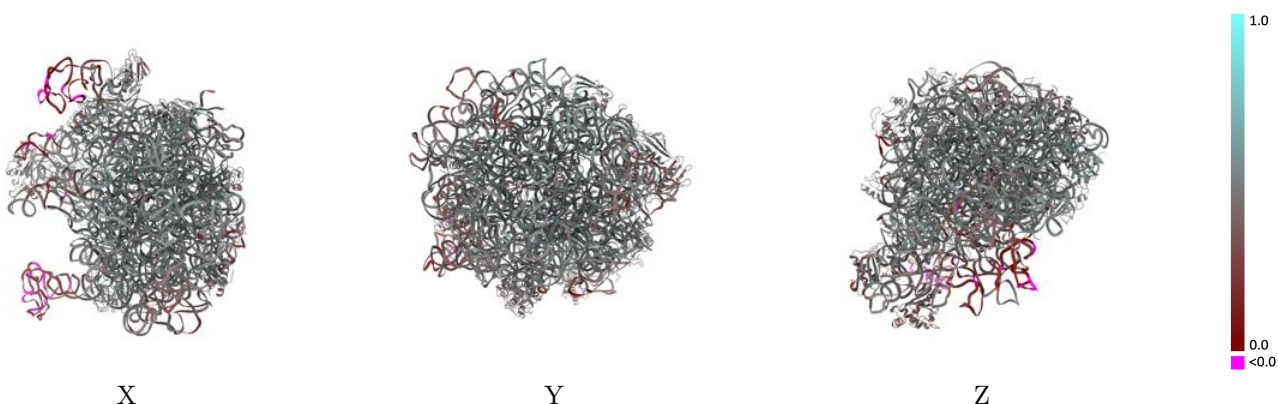
Y



Z

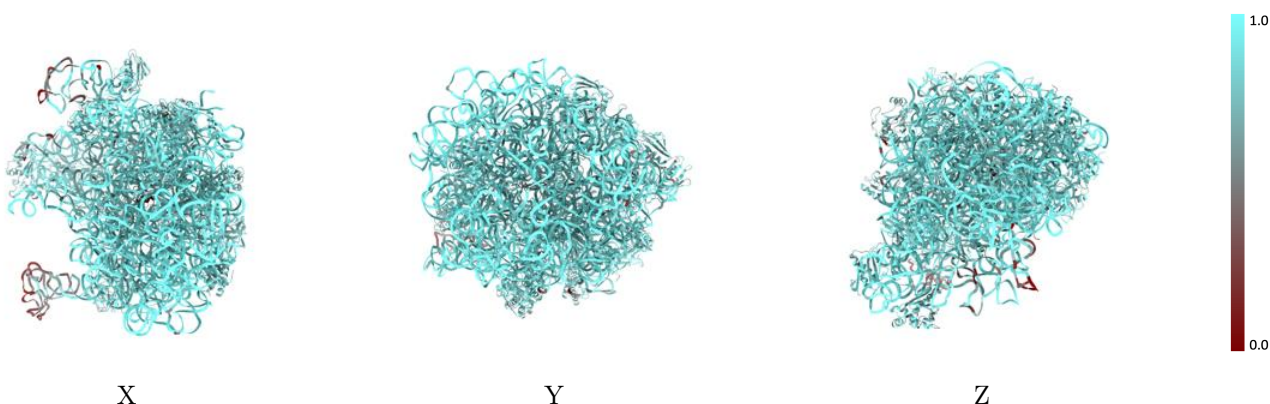
The images above show the 3D surface view of the map at the recommended contour level 0.011607 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [i](#)



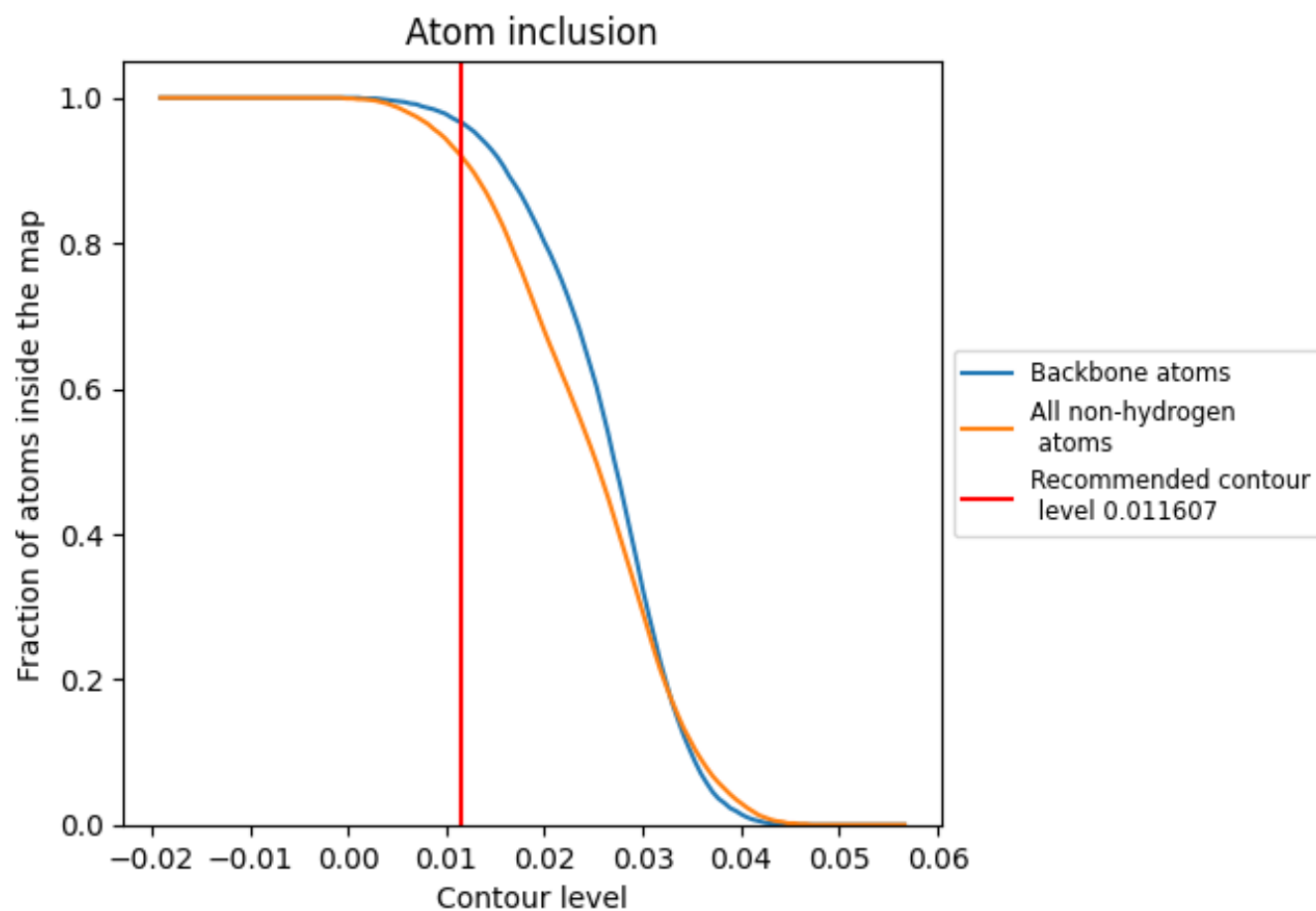
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.011607).

9.4 Atom inclusion [i](#)



At the recommended contour level, 96% of all backbone atoms, 92% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.011607) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9190	 0.4650
0	 0.8640	 0.4920
1	 0.7850	 0.4210
2	 0.8620	 0.4890
3	 0.8640	 0.5030
4	 0.7830	 0.4670
6	 0.8760	 0.5090
7	 0.8490	 0.5200
8	 0.8490	 0.5070
Z	 0.8640	 0.3760
a	 0.9660	 0.4540
b	 0.9550	 0.4630
c	 0.8750	 0.5160
d	 0.8510	 0.5120
e	 0.7830	 0.4640
f	 0.7800	 0.4020
g	 0.8000	 0.4390
h	 0.6830	 0.4300
j	 0.8590	 0.4970
k	 0.8160	 0.5030
l	 0.8450	 0.4930
m	 0.8490	 0.5020
n	 0.8810	 0.5060
o	 0.8360	 0.4490
p	 0.8410	 0.5060
q	 0.8620	 0.4980
r	 0.8410	 0.5020
s	 0.8290	 0.4990
t	 0.8190	 0.4780
u	 0.8020	 0.4530
w	 0.8250	 0.4720
y	 0.7840	 0.4770
z	 0.0660	 0.1670

