



Full wwPDB EM Validation Report ⓘ

Sep 8, 2025 – 02:40 PM JST

PDB ID : 6LSR / pdb_00006lsr
EMDB ID : EMD-0963
Title : Cryo-EM structure of a pre-60S ribosomal subunit - state B
Authors : Liang, X.; Zuo, M.; Zhang, Y.; Li, N.; Ma, C.; Dong, M.; Gao, N.
Deposited on : 2020-01-20
Resolution : 3.13 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:

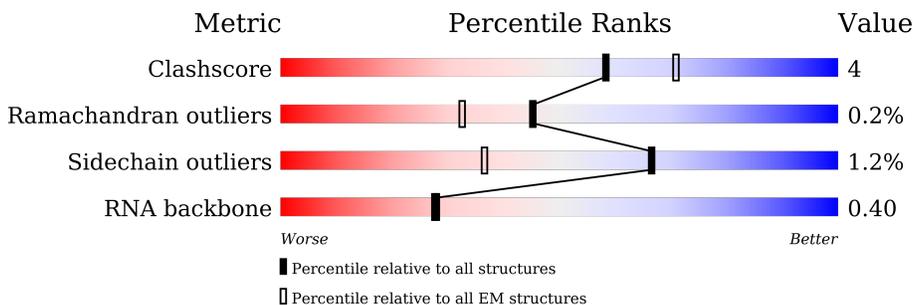
EMDB validation analysis : 0.0.1.dev126
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0rc1
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.45.1

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 3.13 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

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	477	18% (red), 33% (orange), 6% (yellow), 60% (grey)
2	1	658	23% (red), 37% (orange), 62% (grey)
3	2	5070	5% (red), 44% (orange), 20% (yellow), 31% (grey)
4	3	534	39% (orange), 9% (yellow), 52% (grey)
5	5	120	72% (orange), 24% (yellow)
6	6	245	7% (red), 75% (orange), 16% (yellow), 9% (grey)
7	8	156	65% (orange), 33% (yellow)

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Mol	Chain	Length	Quality of chain
8	A	217	55% 71% 24%
9	B	403	83% 16%
10	C	159	50% 8% 42%
11	D	427	75% 9% 16%
12	E	115	65% 17% 18%
13	F	117	78% 15% 7%
14	G	266	7% 73% 14% 13%
15	H	123	89% 10%
16	I	192	84% 14%
17	K	105	85% 12%
18	L	148	86% 13%
19	M	97	74% 14% 11%
20	N	178	12% 69% 22% 9%
21	O	70	71% 26%
22	P	51	86% 12%
23	Q	211	5% 85% 14%
24	S	215	50% 12% 38%
25	T	125	5% 74% 10% 14%
26	U	204	81% 18%
27	V	203	86% 11%
28	W	106	9% 79% 20%
29	X	92	80% 18%
30	Y	184	71% 12% 17%
31	Z	188	81% 18%
32	a	196	67% 7% 26%

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Mol	Chain	Length	Quality of chain
33	b	176	 87% 12% ..
34	c	160	 89% 9% ..
35	d	128	 8% 62% 15% 23%
36	e	140	 73% 19% • 8%
37	f	157	 29% 10% 61%
38	g	156	 67% 8% 25%
39	h	145	 74% 18% 8%
40	i	136	 85% 15% •
41	l	137	 79% 12% • 9%
42	m	257	 84% 12% • •
43	r	297	 6% 77% 15% 7%
44	t	135	 80% 15% 5%
45	u	110	 81% 17% ..
46	v	288	 9% 63% 17% • 18%
47	w	248	 80% 11% 9%
48	z	394	 90% 81% 8% • 10%

2 Entry composition i

There are 50 unique types of molecules in this entry. The entry contains 141172 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 Zinc finger protein 622.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	0	190	1537	968	266	287	16	0	0

- Molecule 2 is a protein called Large subunit GTPase 1 homolog.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
2	1	247	988	494	247	247	0	0

- Molecule 3 is a RNA chain called 28S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
3	2	3482	74786	33362	13689	24254	3481	0	0

- Molecule 4 is a protein called 60S ribosomal export protein NMD3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	3	255	2053	1305	358	373	17	0	0

There are 31 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
3	504	GLY	-	expression tag	UNP Q96D46
3	505	SER	-	expression tag	UNP Q96D46
3	506	GLU	-	expression tag	UNP Q96D46
3	507	ASN	-	expression tag	UNP Q96D46
3	508	LEU	-	expression tag	UNP Q96D46
3	509	TYR	-	expression tag	UNP Q96D46
3	510	PHE	-	expression tag	UNP Q96D46
3	511	GLN	-	expression tag	UNP Q96D46
3	512	GLY	-	expression tag	UNP Q96D46

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Chain	Residue	Modelled	Actual	Comment	Reference
3	513	ASP	-	expression tag	UNP Q96D46
3	514	TYR	-	expression tag	UNP Q96D46
3	515	LYS	-	expression tag	UNP Q96D46
3	516	ASP	-	expression tag	UNP Q96D46
3	517	HIS	-	expression tag	UNP Q96D46
3	518	ASP	-	expression tag	UNP Q96D46
3	519	GLY	-	expression tag	UNP Q96D46
3	520	ASP	-	expression tag	UNP Q96D46
3	521	TYR	-	expression tag	UNP Q96D46
3	522	LYS	-	expression tag	UNP Q96D46
3	523	ASP	-	expression tag	UNP Q96D46
3	524	HIS	-	expression tag	UNP Q96D46
3	525	ASP	-	expression tag	UNP Q96D46
3	526	ILE	-	expression tag	UNP Q96D46
3	527	ASP	-	expression tag	UNP Q96D46
3	528	TYR	-	expression tag	UNP Q96D46
3	529	LYS	-	expression tag	UNP Q96D46
3	530	ASP	-	expression tag	UNP Q96D46
3	531	ASP	-	expression tag	UNP Q96D46
3	532	ASP	-	expression tag	UNP Q96D46
3	533	ASP	-	expression tag	UNP Q96D46
3	534	LYS	-	expression tag	UNP Q96D46

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
5	5	120	2558	1141	456	842	119	0	0

- Molecule 6 is a protein called Eukaryotic translation initiation factor 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	6	224	1704	1060	294	339	11	0	0

- Molecule 7 is a RNA chain called 5.8S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
7	8	155	3294	1471	583	1086	154	0	0

- Molecule 8 is a protein called 60S ribosomal protein L10a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	A	212	1708	1092	308	300	8	0	0

- Molecule 9 is a protein called 60S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	B	402	3238	2060	608	556	14	0	0

- Molecule 10 is a protein called 60S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	C	92	757	471	166	117	3	0	0

- Molecule 11 is a protein called 60S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	D	357	2846	1791	569	472	14	0	0

- Molecule 12 is a protein called 60S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	E	94	732	465	130	131	6	0	0

- Molecule 13 is a protein called 60S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	F	109	868	544	179	139	6	0	0

- Molecule 14 is a protein called 60S ribosomal protein L7a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
14	G	231	1853	1180	359	310	4	0	0

- Molecule 15 is a protein called 60S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
15	H	122	1015	641	205	168	1	0	0

- Molecule 16 is a protein called 60S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
16	I	190	1518	956	284	272	6	0	0

- Molecule 17 is a protein called 60S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
17	K	102	832	521	177	129	5	0	0

- Molecule 18 is a protein called 60S ribosomal protein L27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
18	L	147	1162	736	237	186	3	0	0

- Molecule 19 is a protein called 60S ribosomal protein L37.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
19	M	86	705	434	155	111	5	0	0

- Molecule 20 is a protein called 60S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
20	N	162	1302	823	244	230	5	0	0

- Molecule 21 is a protein called 60S ribosomal protein L38.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
21	O	68	559	360	101	97	1	0	0

- Molecule 22 is a protein called 60S ribosomal protein L39.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	P	50	Total	C	N	O	S	0	0
			444	281	98	64	1		

- Molecule 23 is a protein called 60S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	Q	210	Total	C	N	O	S	0	0
			1701	1064	352	281	4		

- Molecule 24 is a protein called 60S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	S	134	Total	C	N	O	S	0	0
			1103	707	212	177	7		

- Molecule 25 is a protein called 60S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	T	107	Total	C	N	O	S	0	0
			888	560	171	155	2		

- Molecule 26 is a protein called 60S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	U	203	Total	C	N	O	S	0	0
			1701	1072	359	266	4		

- Molecule 27 is a protein called 60S ribosomal protein L13a.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	V	199	Total	C	N	O	S	0	0
			1634	1053	319	257	5		

- Molecule 28 is a protein called 60S ribosomal protein L36a.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	W	105	Total	C	N	O	S	0	0
			862	542	175	139	6		

- Molecule 29 is a protein called 60S ribosomal protein L37a.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	X	91	Total	C	N	O	S	0	0
			708	445	136	120	7		

- Molecule 30 is a protein called 60S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	Y	153	Total	C	N	O	S	0	0
			1242	776	241	216	9		

- Molecule 31 is a protein called 60S ribosomal protein L18.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	Z	187	Total	C	N	O	S	0	0
			1513	944	314	250	5		

- Molecule 32 is a protein called 60S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	a	145	Total	C	N	O	S	0	0
			1217	759	262	187	9		

- Molecule 33 is a protein called 60S ribosomal protein L18a.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	b	175	Total	C	N	O	S	0	0
			1453	925	283	235	10		

- Molecule 34 is a protein called 60S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	c	157	Total	C	N	O	S	0	0
			1284	815	250	214	5		

- Molecule 35 is a protein called 60S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	d	99	Total	C	N	O	S	0	0
			808	518	141	147	2		

- Molecule 36 is a protein called 60S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	e	129	Total	C	N	O	S	0	0
			969	613	182	169	5		

- Molecule 37 is a protein called 60S ribosomal protein L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	f	62	Total	C	N	O	S	0	0
			519	332	101	83	3		

- Molecule 38 is a protein called 60S ribosomal protein L23a.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	g	117	Total	C	N	O	S	0	0
			958	612	179	166	1		

- Molecule 39 is a protein called 60S ribosomal protein L26.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	h	134	Total	C	N	O	S	0	0
			1115	700	226	186	3		

- Molecule 40 is a protein called 60S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	i	135	Total	C	N	O	S	0	0
			1107	714	208	182	3		

- Molecule 41 is a protein called 60S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	l	125	Total	C	N	O	S	0	0
			1002	622	207	168	5		

- Molecule 42 is a protein called 60S ribosomal protein L8.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	m	248	Total	C	N	O	S	0	0
			1898	1189	389	314	6		

- Molecule 43 is a protein called 60S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
43	r	275	2237	1414	405	404	14	0	0

- Molecule 44 is a protein called 60S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
44	t	128	1053	667	216	165	5	0	0

- Molecule 45 is a protein called 60S ribosomal protein L35a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
45	u	109	876	555	174	144	3	0	0

- Molecule 46 is a protein called 60S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
46	v	235	1897	1217	360	316	4	0	0

- Molecule 47 is a protein called 60S ribosomal protein L7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
47	w	225	1878	1207	361	301	9	1	0

- Molecule 48 is a protein called Proliferation-associated protein 2G4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
48	z	354	2837	1792	483	543	19	13	0

- Molecule 49 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
49	2	236	Total	Mg	0
			236	236	
49	5	3	Total	Mg	0
			3	3	
49	8	1	Total	Mg	0
			1	1	

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Mol	Chain	Residues	Atoms		AltConf
49	F	1	Total 1	Mg 1	0
49	a	1	Total 1	Mg 1	0
49	c	1	Total 1	Mg 1	0
49	m	2	Total 2	Mg 2	0
49	w	1	Total 1	Mg 1	0

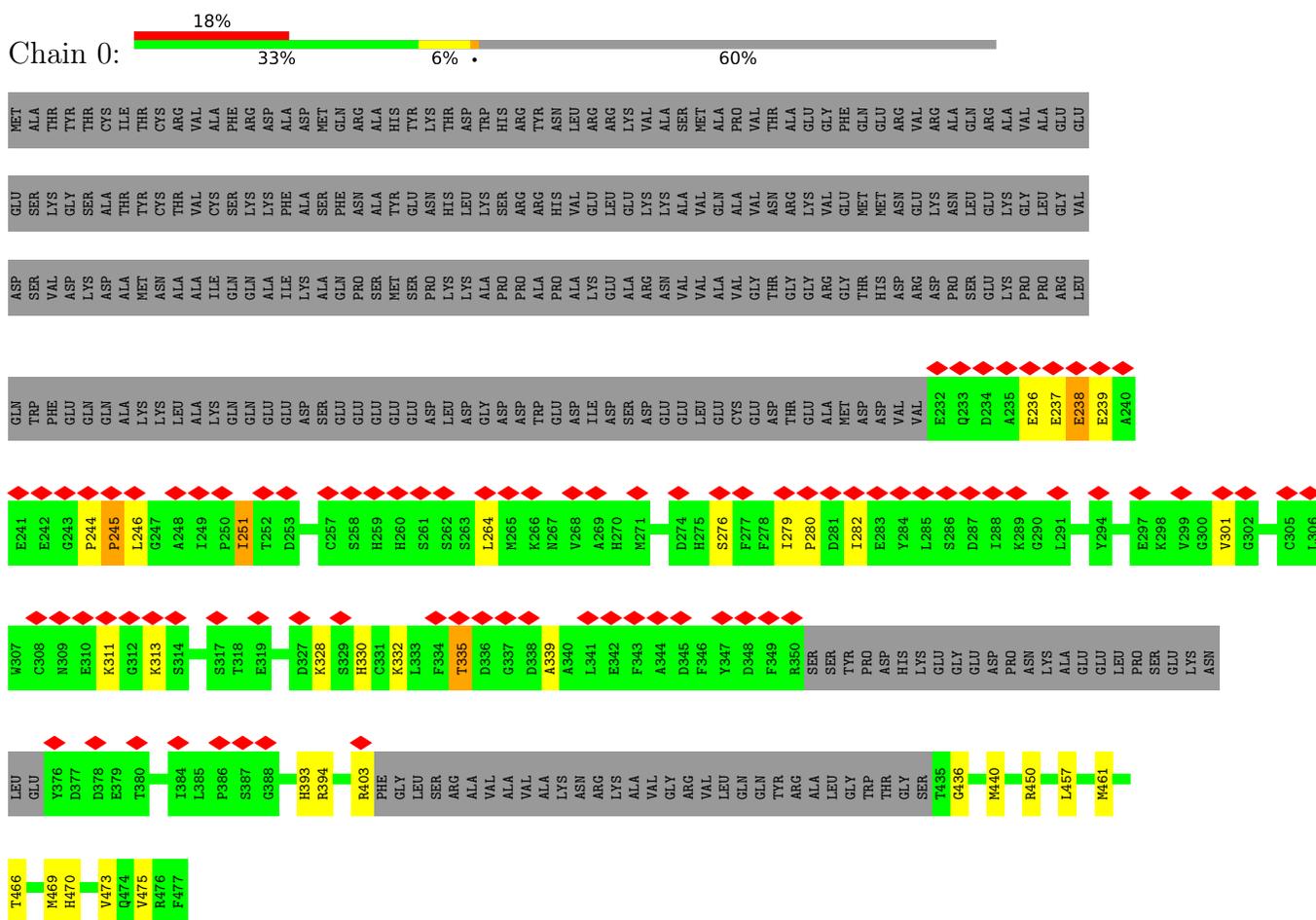
- Molecule 50 is water.

Mol	Chain	Residues	Atoms		AltConf
50	2	7	Total 7	O 7	0

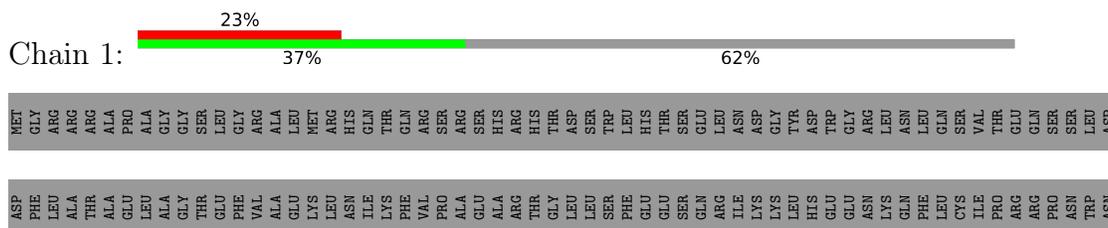
3 Residue-property plots

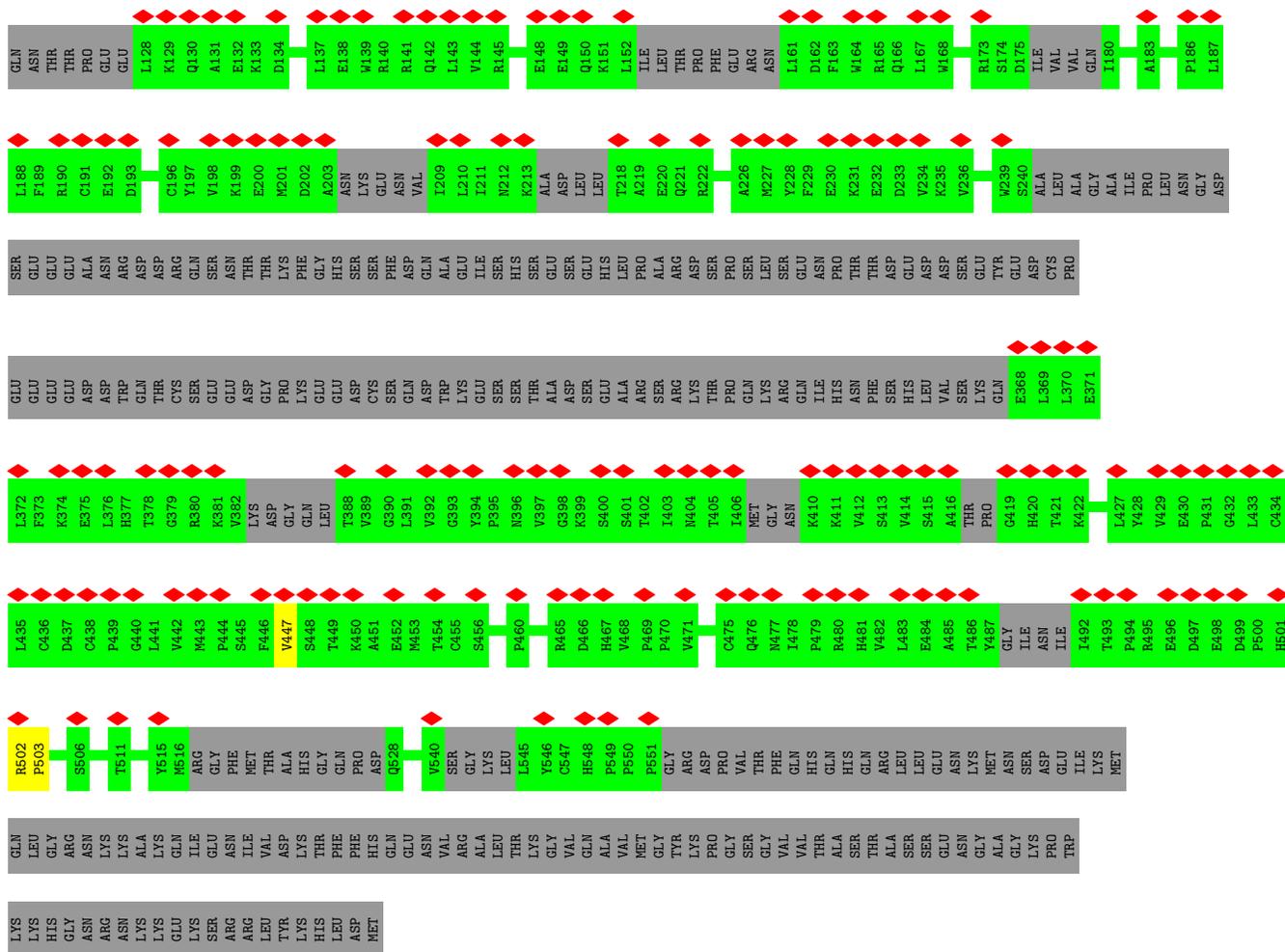
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: Zinc finger protein 622

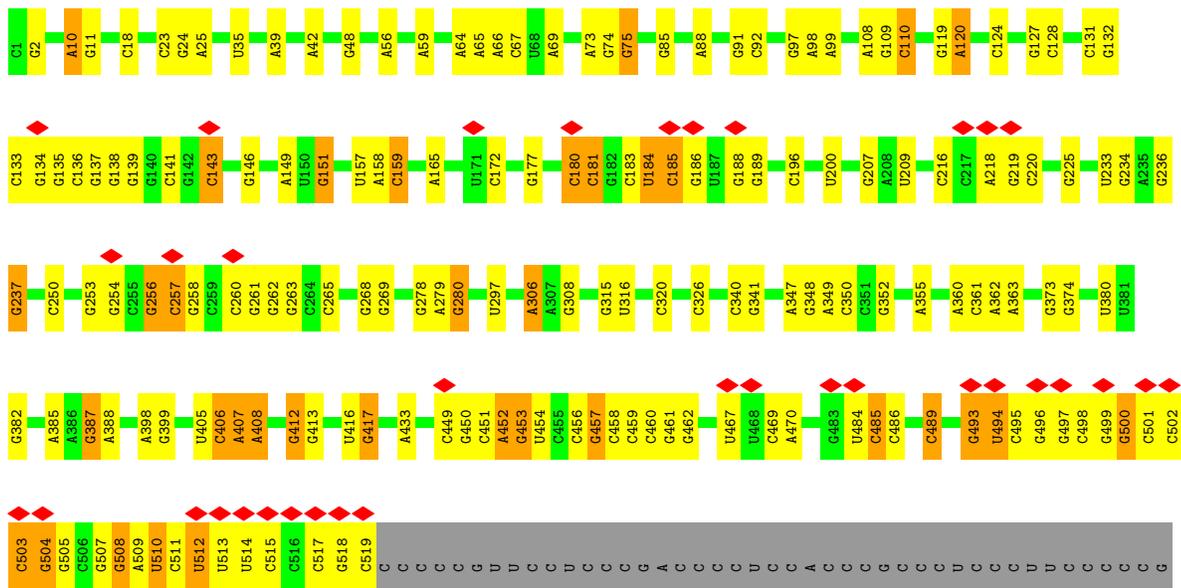


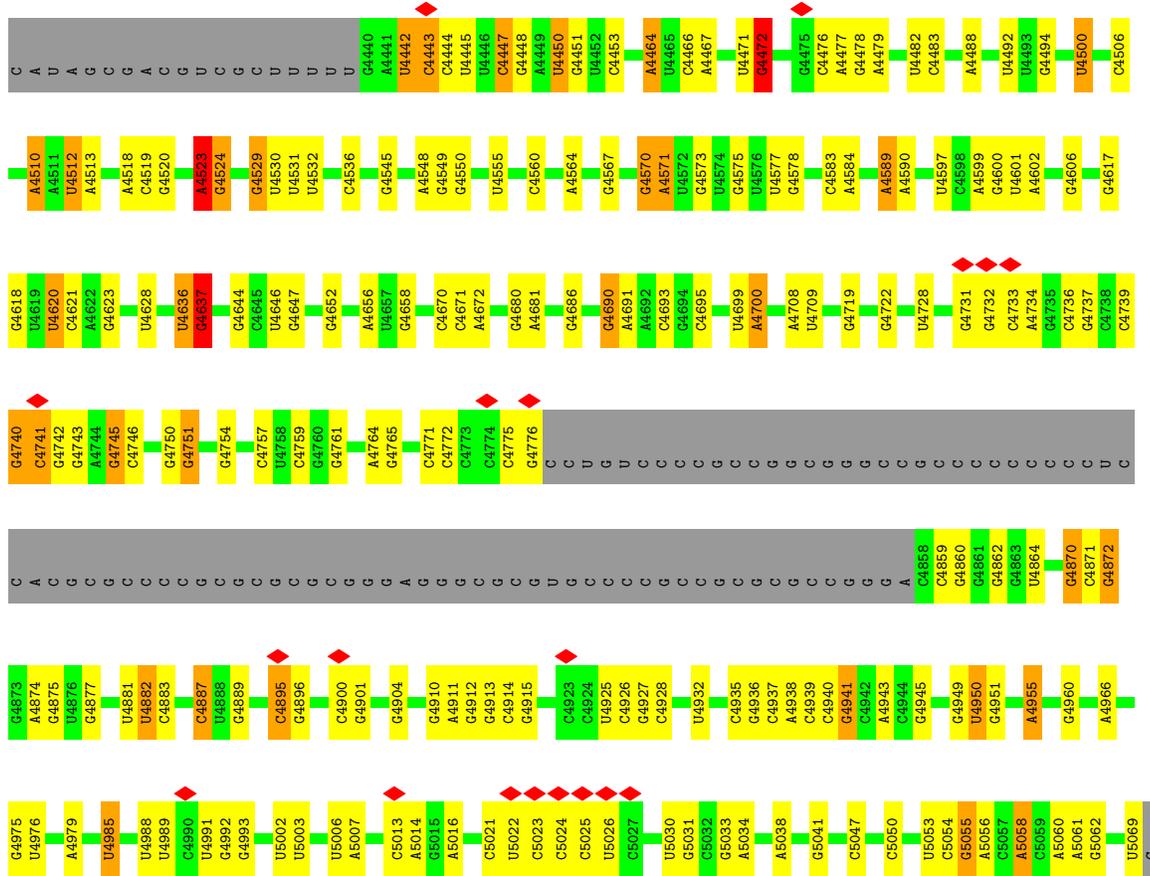
• Molecule 2: Large subunit GTPase 1 homolog



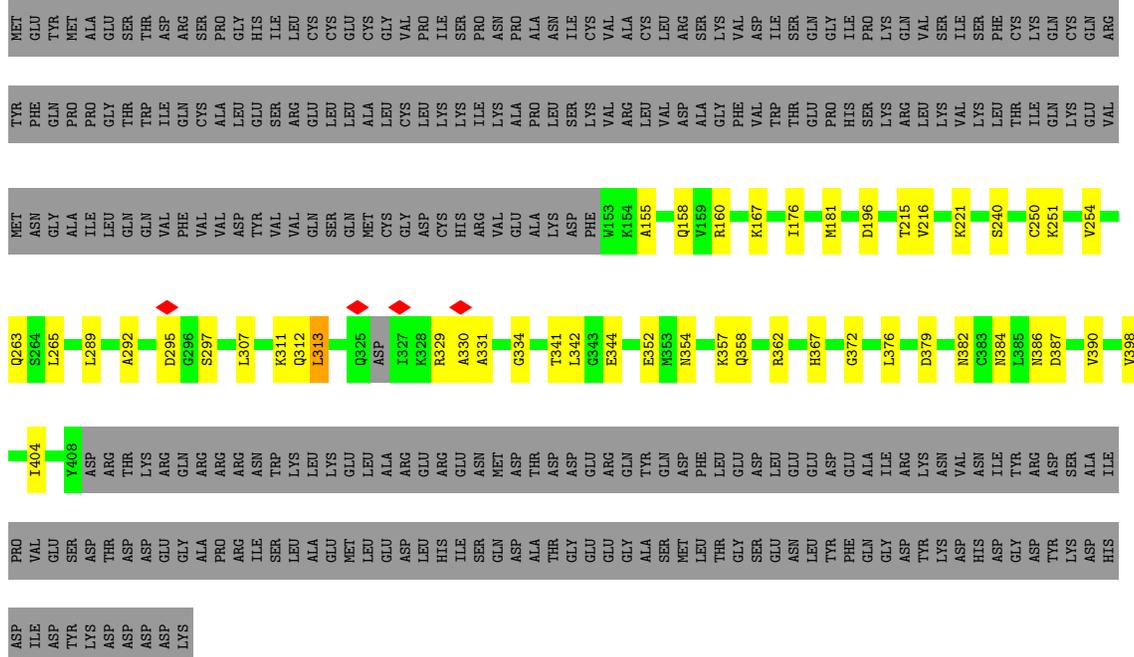
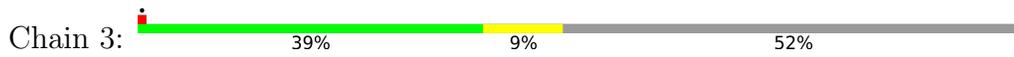


• Molecule 3: 28S rRNA

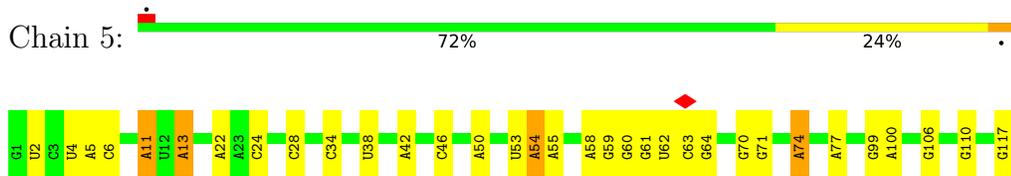




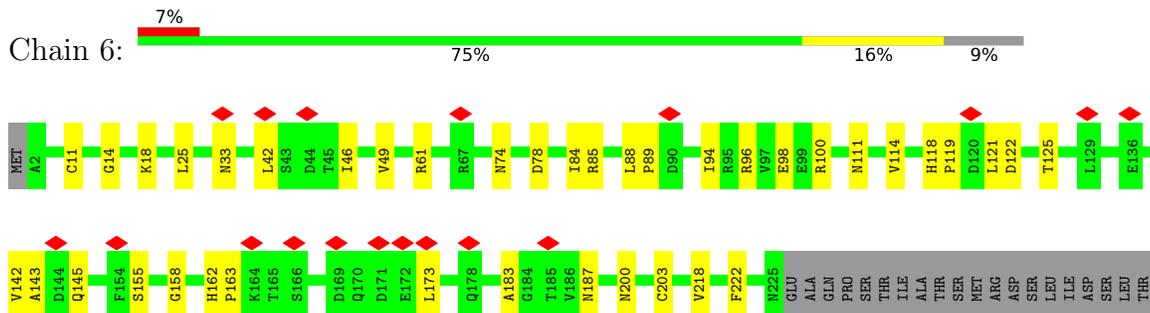
● Molecule 4: 60S ribosomal export protein NMD3



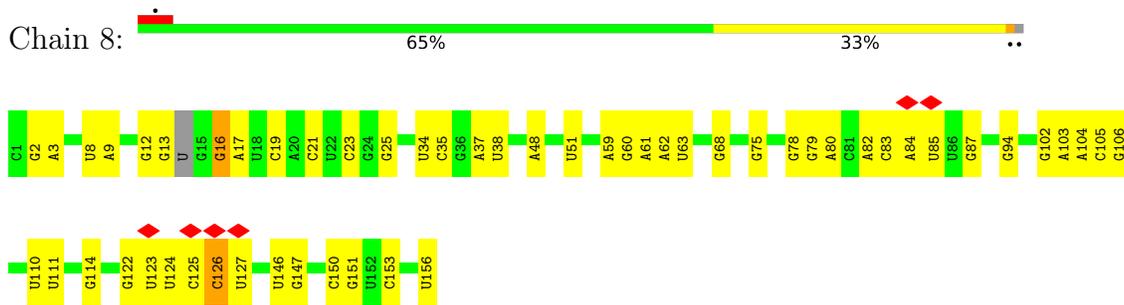
• Molecule 5: 5S rRNA



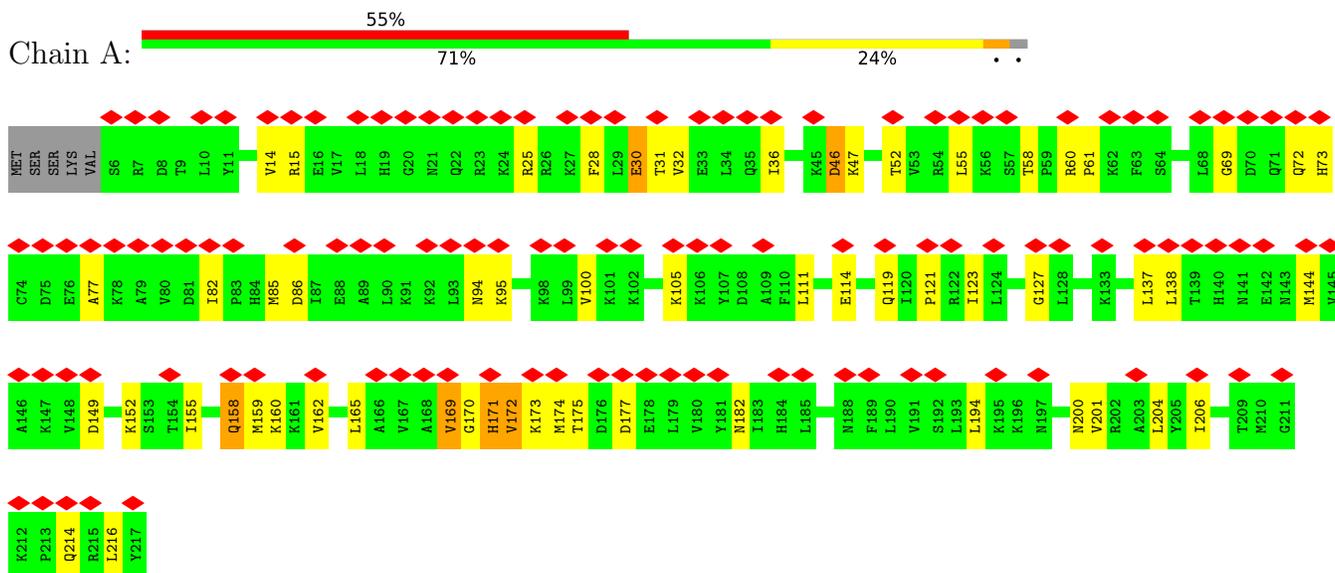
• Molecule 6: Eukaryotic translation initiation factor 6



• Molecule 7: 5.8S rRNA



• Molecule 8: 60S ribosomal protein L10a



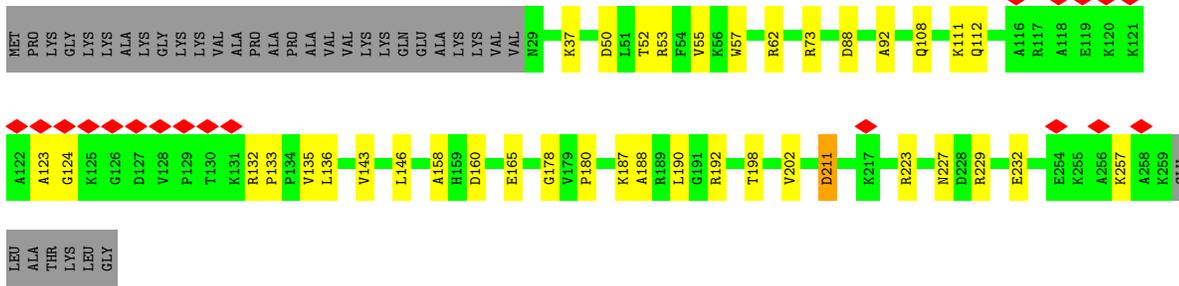
• Molecule 9: 60S ribosomal protein L3

Chain F: 



- Molecule 14: 60S ribosomal protein L7a

Chain G: 



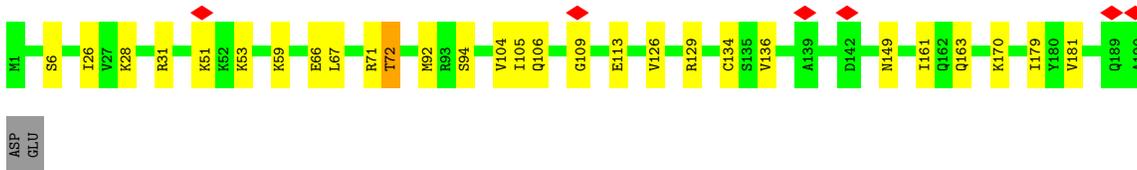
- Molecule 15: 60S ribosomal protein L35

Chain H: 



- Molecule 16: 60S ribosomal protein L9

Chain I: 



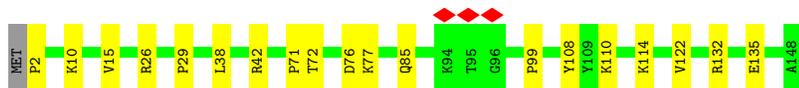
- Molecule 17: 60S ribosomal protein L36

Chain K: 



- Molecule 18: 60S ribosomal protein L27a

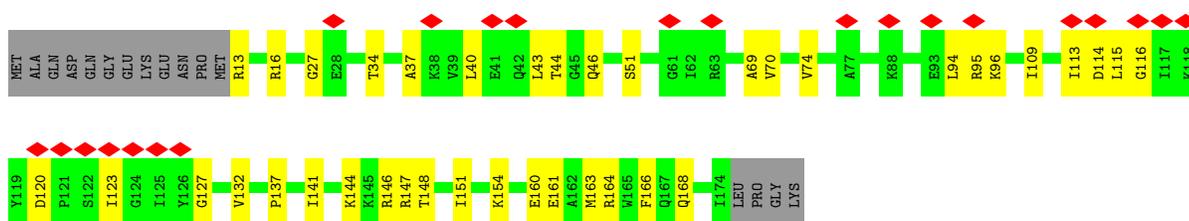
Chain L: 



• Molecule 19: 60S ribosomal protein L37



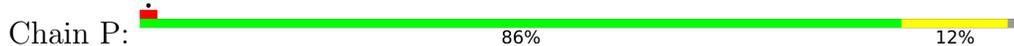
• Molecule 20: 60S ribosomal protein L11



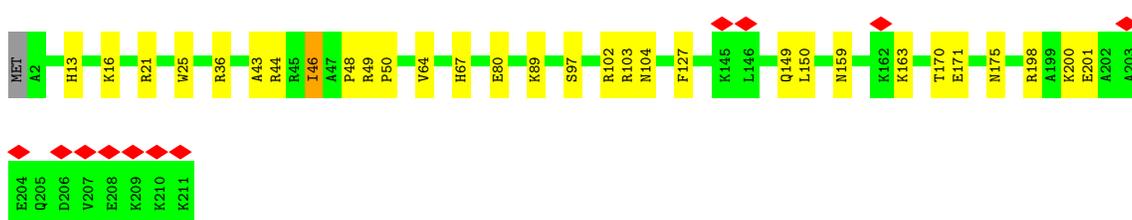
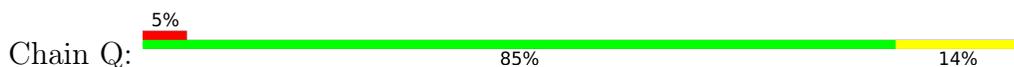
• Molecule 21: 60S ribosomal protein L38



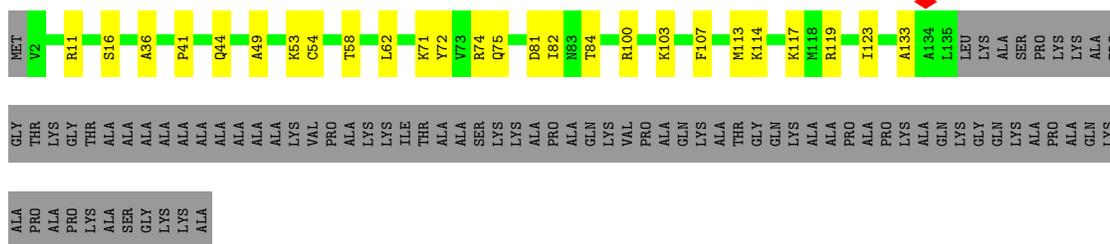
• Molecule 22: 60S ribosomal protein L39



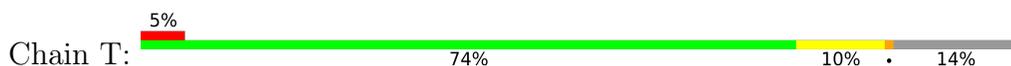
• Molecule 23: 60S ribosomal protein L13



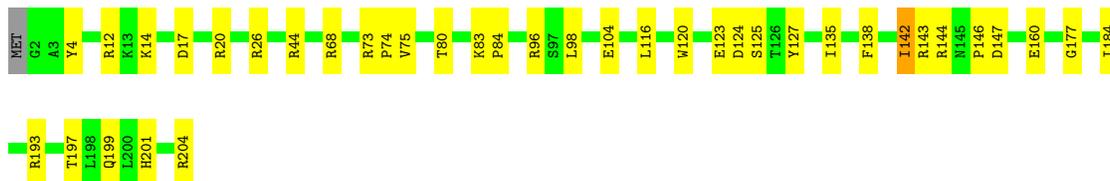
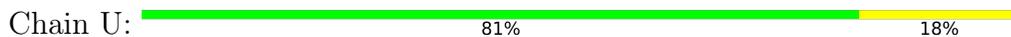
• Molecule 24: 60S ribosomal protein L14



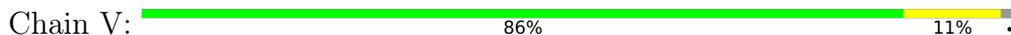
• Molecule 25: 60S ribosomal protein L31



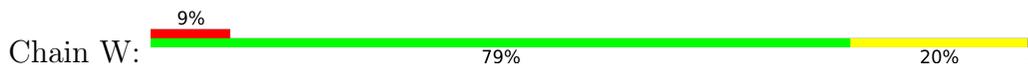
• Molecule 26: 60S ribosomal protein L15



• Molecule 27: 60S ribosomal protein L13a

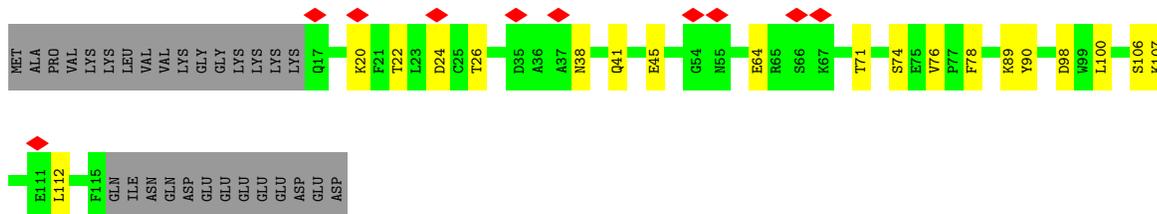


• Molecule 28: 60S ribosomal protein L36a

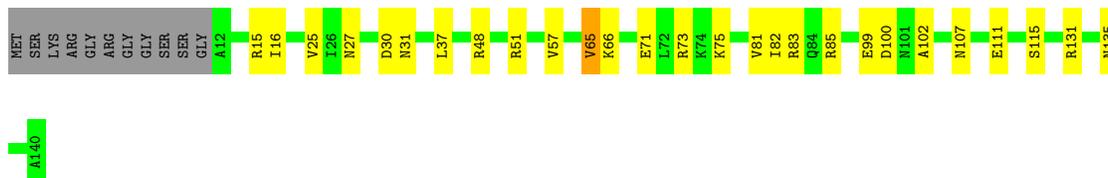


• Molecule 29: 60S ribosomal protein L37a

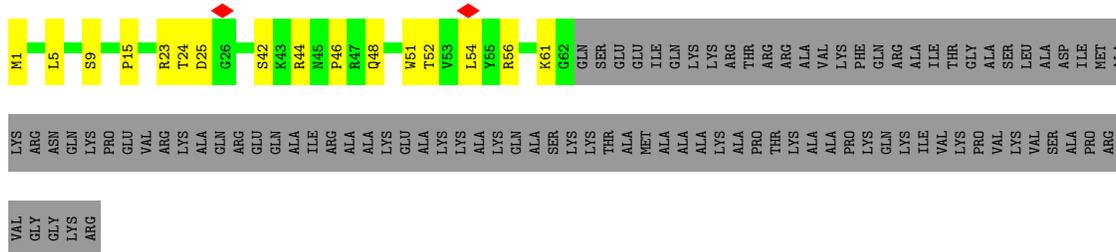




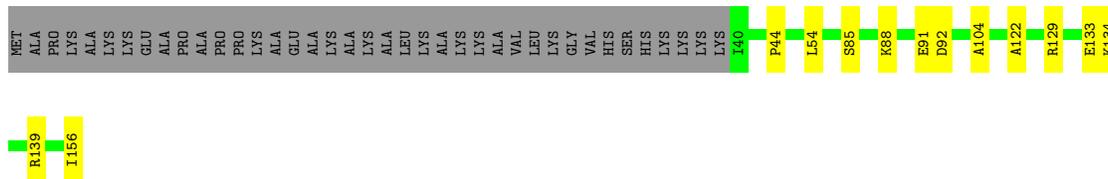
• Molecule 36: 60S ribosomal protein L23



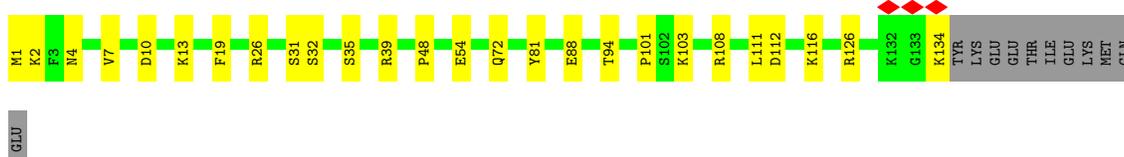
• Molecule 37: 60S ribosomal protein L24



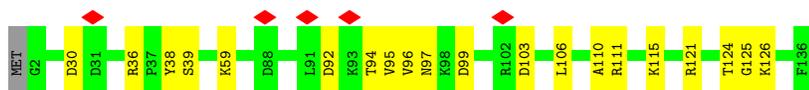
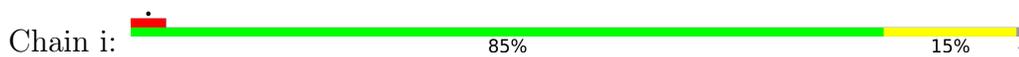
• Molecule 38: 60S ribosomal protein L23a



• Molecule 39: 60S ribosomal protein L26



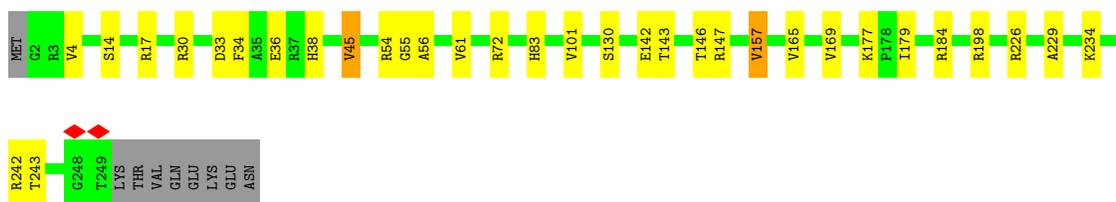
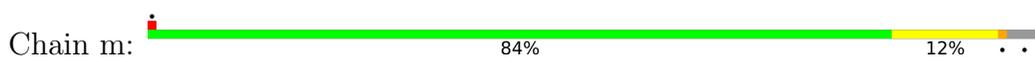
• Molecule 40: 60S ribosomal protein L27



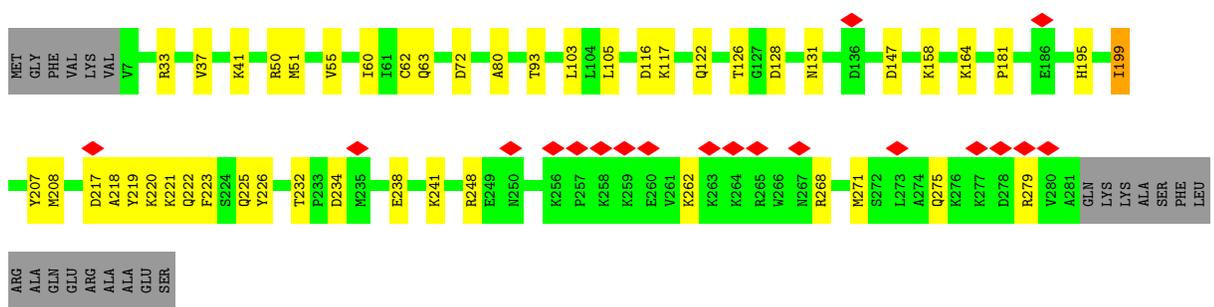
• Molecule 41: 60S ribosomal protein L28



• Molecule 42: 60S ribosomal protein L8



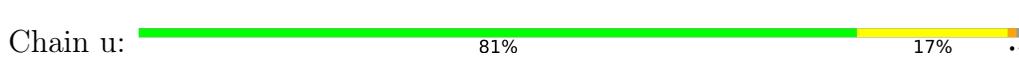
• Molecule 43: 60S ribosomal protein L5



• Molecule 44: 60S ribosomal protein L32



• Molecule 45: 60S ribosomal protein L35a

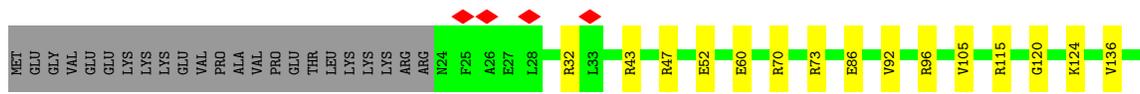
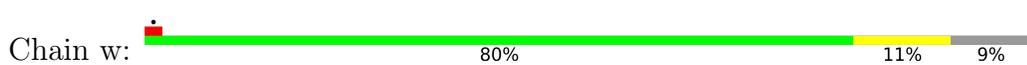




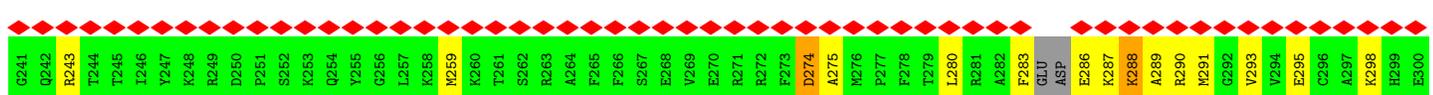
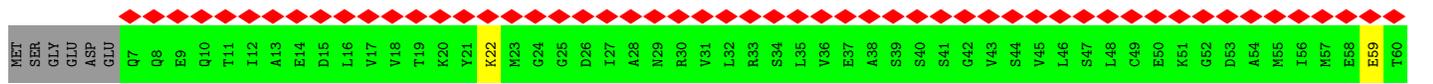
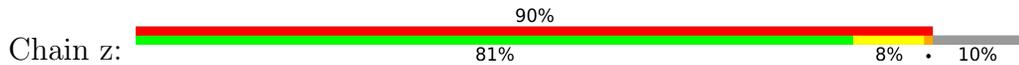
• Molecule 46: 60S ribosomal protein L6



• Molecule 47: 60S ribosomal protein L7



• Molecule 48: Proliferation-associated protein 2G4



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	18819	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	64	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.551	Depositor
Minimum map value	-0.234	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.014	Depositor
Recommended contour level	0.07	Depositor
Map size (Å)	507.84, 507.84, 507.84	wwPDB
Map dimensions	480, 480, 480	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.058, 1.058, 1.058	Depositor

5 Model quality i

5.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: MG, OMG, B8Q, 1MA, B8W, BGH, I4U, 5MU, E7G, P4U, M7A, A2M, MHG, PSU, B9H, UR3, B8T, E6G, B8K, 6MZ, B9B, 2MG, 7MG, OMC, 5MC, OMU, B8H, P7G

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	0.36	0/1569	0.76	3/2098 (0.1%)
2	1	0.49	0/976	1.01	1/1199 (0.1%)
3	2	0.56	2/81127 (0.0%)	0.52	10/126475 (0.0%)
4	3	0.40	0/2096	0.68	2/2832 (0.1%)
5	5	0.44	0/2858	0.47	0/4455
6	6	0.37	0/1728	0.69	0/2352
7	8	1.58	6/3678 (0.2%)	0.55	3/5728 (0.1%)
8	A	0.41	0/1736	0.90	4/2328 (0.2%)
9	B	0.50	0/3306	0.74	0/4424
10	C	0.36	0/769	0.62	0/1014
11	D	0.54	0/2900	0.70	0/3895
12	E	0.46	0/742	0.68	0/996
13	F	0.50	0/878	0.68	0/1170
14	G	0.44	0/1886	0.67	0/2539
15	H	0.45	0/1023	0.66	0/1351
16	I	0.41	0/1537	0.66	0/2066
17	K	0.41	0/843	0.65	0/1115
18	L	0.54	0/1191	0.61	0/1591
19	M	0.57	0/720	0.81	0/952
20	N	0.35	0/1323	0.75	0/1768
21	O	0.38	0/565	0.62	0/750
22	P	0.57	0/454	0.75	0/599
23	Q	0.48	0/1732	0.67	0/2315
24	S	0.46	0/1125	0.65	0/1505
25	T	0.48	0/903	0.66	0/1216
26	U	0.56	0/1746	0.70	2/2338 (0.1%)
27	V	0.52	0/1666	0.65	1/2228 (0.0%)
28	W	0.46	0/876	0.71	0/1156
29	X	0.50	0/718	0.69	0/953
30	Y	0.52	0/1268	0.65	0/1701
31	Z	0.56	0/1537	0.75	2/2052 (0.1%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
32	a	0.46	0/1233	0.62	0/1633
33	b	0.48	0/1493	0.60	0/2003
34	c	0.47	0/1312	0.65	0/1753
35	d	0.41	0/822	0.76	0/1103
36	e	0.46	0/983	0.70	0/1319
37	f	0.40	0/532	0.65	1/708 (0.1%)
38	g	0.47	0/975	0.63	0/1312
39	h	0.49	0/1132	0.69	0/1504
40	i	0.45	0/1130	0.73	0/1507
41	l	0.50	0/1017	0.66	0/1364
42	m	0.55	0/1936	0.77	2/2596 (0.1%)
43	r	0.40	0/2281	0.66	0/3058
44	t	0.55	0/1071	0.70	0/1429
45	u	0.55	0/895	0.72	0/1198
46	v	0.42	0/1935	0.76	2/2596 (0.1%)
47	w	0.51	0/1916	0.69	0/2553
48	z	0.66	0/2911	0.77	0/3913
All	All	0.58	8/149050 (0.0%)	0.60	33/218710 (0.0%)

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
2	1	0	2
8	A	0	3
9	B	0	1
12	E	0	1
20	N	0	1
21	O	0	1
23	Q	0	1
26	U	0	1
30	Y	0	1
34	c	0	1
35	d	0	1
40	i	0	1
41	l	0	1
42	m	0	1
45	u	0	2
46	v	0	2
47	w	0	1
All	All	0	22

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	2	417	G	C2-N2	66.47	2.67	1.34
7	8	16	G	N3-C4	43.38	2.22	1.35
7	8	16	G	C2-N3	42.76	2.18	1.32
7	8	16	G	C6-N1	35.44	2.10	1.39
7	8	16	G	N1-C2	34.78	2.07	1.37
7	8	16	G	C5-C6	32.91	2.08	1.42
7	8	16	G	C5-C4	28.45	1.95	1.38
3	2	3785	A2M	O3'-P	5.07	1.61	1.56

All (33) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	A	170	GLY	N-CA-C	11.45	128.02	110.96
8	A	172	VAL	N-CA-C	8.19	118.25	110.30
8	A	171	HIS	N-CA-C	8.03	120.88	110.53
3	2	417	G	N1-C2-N3	-7.38	101.76	123.90
8	A	14	VAL	N-CA-C	-7.02	105.88	112.83
2	1	447	VAL	N-CA-C	-6.59	107.07	113.53
3	2	417	G	C2-N3-C4	6.43	131.19	111.90
7	8	16	G	C2-N3-C4	6.28	130.75	111.90
7	8	16	G	N1-C2-N3	-6.04	105.76	123.90
1	0	251	ILE	N-CA-C	-5.91	104.98	113.07
26	U	177	GLY	N-CA-C	5.80	118.76	110.46
1	0	238	GLU	CA-C-N	5.77	132.09	121.70
1	0	238	GLU	C-N-CA	5.77	132.09	121.70
4	3	330	ALA	CA-C-N	5.75	132.53	121.54
4	3	330	ALA	C-N-CA	5.75	132.53	121.54
3	2	417	G	N1-C2-N2	5.71	133.32	116.20
46	v	223	ARG	N-CA-C	5.58	117.36	111.28
27	V	110	PRO	N-CA-C	5.47	117.38	110.70
31	Z	158	THR	CA-C-N	5.47	125.12	119.05
31	Z	158	THR	C-N-CA	5.47	125.12	119.05
3	2	1763	C	P-O3'-C3'	5.43	128.35	120.20
42	m	142	GLU	CA-C-N	5.36	131.78	121.54
42	m	142	GLU	C-N-CA	5.36	131.78	121.54
37	f	25	ASP	N-CA-C	-5.35	107.76	114.56
3	2	485	C	C2-N1-C1'	5.34	134.82	118.80
3	2	406	C	C2'-C3'-O3'	5.34	121.71	113.70
3	2	914	U	P-O3'-C3'	5.31	128.16	120.20
26	U	142	ILE	N-CA-C	-5.31	107.66	112.12
46	v	101	ASN	N-CA-C	-5.30	104.46	112.99
3	2	1633	G	P-O3'-C3'	5.18	127.97	120.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	8	16	G	N3-C4-C5	-5.17	113.08	128.60
3	2	2675	G	P-O3'-C3'	5.17	127.95	120.20
3	2	2084	C	P-O3'-C3'	5.03	127.75	120.20

There are no chirality outliers.

All (22) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	1	502	ARG	Peptide
2	1	503	PRO	Peptide
8	A	158	GLN	Peptide
8	A	46	ASP	Peptide
8	A	82	ILE	Peptide
9	B	17	LEU	Peptide
12	E	52	CYS	Peptide
20	N	94	LEU	Peptide
21	O	10	ASP	Peptide
23	Q	46	ILE	Peptide
26	U	147	ASP	Peptide
30	Y	131	ARG	Peptide
34	c	135	PRO	Peptide
35	d	20	LYS	Peptide
40	i	124	THR	Peptide
41	l	20	ARG	Peptide
42	m	54	ARG	Peptide
45	u	103	VAL	Peptide
45	u	106	TYR	Peptide
46	v	129	GLY	Peptide
46	v	203	ILE	Peptide
47	w	221	LYS	Peptide

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	1537	0	1491	21	0
2	1	988	0	236	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	2	74786	0	37567	384	0
4	3	2053	0	2058	41	0
5	5	2558	0	1296	13	0
6	6	1704	0	1677	25	0
7	8	3294	0	1674	38	0
8	A	1708	0	1815	43	0
9	B	3238	0	3376	36	0
10	C	757	0	818	10	0
11	D	2846	0	3017	25	0
12	E	732	0	767	9	0
13	F	868	0	963	12	0
14	G	1853	0	1987	24	0
15	H	1015	0	1148	11	0
16	I	1518	0	1601	19	0
17	K	832	0	917	7	0
18	L	1162	0	1213	13	0
19	M	705	0	739	11	0
20	N	1302	0	1337	20	0
21	O	559	0	624	12	0
22	P	444	0	483	5	0
23	Q	1701	0	1818	24	0
24	S	1103	0	1160	18	0
25	T	888	0	930	8	0
26	U	1701	0	1749	26	0
27	V	1634	0	1778	14	0
28	W	862	0	933	14	0
29	X	708	0	757	13	0
30	Y	1242	0	1268	14	0
31	Z	1513	0	1628	24	0
32	a	1217	0	1339	11	0
33	b	1453	0	1490	14	0
34	c	1284	0	1352	11	0
35	d	808	0	831	13	0
36	e	969	0	1031	18	0
37	f	519	0	533	10	0
38	g	958	0	1027	16	0
39	h	1115	0	1205	18	0
40	i	1107	0	1182	12	0
41	l	1002	0	1068	11	0
42	m	1898	0	1993	17	0
43	r	2237	0	2253	33	0
44	t	1053	0	1147	13	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
45	u	876	0	912	9	0
46	v	1897	0	2046	44	0
47	w	1878	0	2009	19	0
48	z	2837	0	2868	47	0
49	2	236	0	0	0	0
49	5	3	0	0	0	0
49	8	1	0	0	0	0
49	F	1	0	0	0	0
49	a	1	0	0	0	0
49	c	1	0	0	0	0
49	m	2	0	0	0	0
49	w	1	0	0	0	0
50	2	7	0	0	0	0
All	All	141172	0	103111	1031	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 4.

All (1031) 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)
3:2:1860:B8H:C5	3:2:1860:B8H:C4	1.81	1.59
3:2:4296:B8H:C5	3:2:4296:B8H:C4	1.80	1.56
7:8:16:G:C4	7:8:16:G:C5	1.95	1.43
7:8:16:G:C5	7:8:16:G:C6	2.08	1.41
8:A:171:HIS:CD2	8:A:174:MET:HG3	1.53	1.41
4:3:329:ARG:NH1	4:3:334:GLY:HA3	1.43	1.30
3:2:417:G:N2	7:8:16:G:N3	1.81	1.27
4:3:329:ARG:NH1	4:3:334:GLY:CA	1.98	1.25
7:8:16:G:C2	7:8:16:G:N1	2.07	1.23
3:2:4529:B8W:O4'	3:2:4529:B8W:C1'	1.65	1.23
3:2:4185:B8W:O4'	3:2:4185:B8W:C1'	1.65	1.19
3:2:4129:B8W:O4'	3:2:4129:B8W:C1'	1.65	1.19
3:2:2380:B8W:O4'	3:2:2380:B8W:C1'	1.65	1.18
7:8:16:G:C6	7:8:16:G:N1	2.10	1.18
3:2:4472:B8W:O4'	3:2:4472:B8W:C1'	1.65	1.17
3:2:3897:B8K:O4'	3:2:3897:B8K:C4'	1.67	1.15
3:2:4690:B8K:O4'	3:2:4690:B8K:C4'	1.66	1.14
3:2:3899:BGH:O4'	3:2:3899:BGH:C4'	1.65	1.14
7:8:16:G:N3	7:8:16:G:C2	2.18	1.11
38:g:156:ILE:HD12	48:z:291:MET:HE1	1.27	1.11

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:8:16:G:C4	7:8:16:G:N3	2.22	1.07
48:z:283:PHE:O	48:z:286:GLU:HA	1.54	1.05
3:2:5016:A:C2	3:2:5033:G:N2	2.26	1.03
48:z:92:LEU:CD1	48:z:290:ARG:HH21	1.73	1.01
3:2:4887:C:N4	3:2:4932:U:H3	1.58	1.00
38:g:91:GLU:OE2	48:z:259:MET:HE2	1.64	0.98
3:2:417:G:N2	7:8:16:G:C2	2.32	0.98
3:2:5016:A:H2	3:2:5033:G:N2	1.59	0.96
3:2:417:G:N2	7:8:16:G:C4	2.33	0.96
8:A:171:HIS:CD2	8:A:174:MET:CG	2.48	0.95
48:z:92:LEU:HD13	48:z:290:ARG:HH21	1.31	0.95
48:z:288:LYS:N	48:z:288:LYS:HE3	1.82	0.94
3:2:1095:A:H2	3:2:1200:G:H1	1.03	0.94
3:2:493:G:N1	3:2:660:A:C2	2.38	0.92
38:g:156:ILE:HD12	48:z:291:MET:CE	2.00	0.91
4:3:329:ARG:HH12	4:3:334:GLY:HA3	1.29	0.90
8:A:171:HIS:HD2	8:A:174:MET:CG	1.82	0.90
3:2:493:G:H1	3:2:660:A:H2	1.08	0.89
3:2:1094:G:H1	3:2:1201:U:H3	0.90	0.89
38:g:156:ILE:CD1	48:z:291:MET:HE1	2.02	0.88
3:2:5016:A:H2	3:2:5033:G:H21	0.96	0.87
3:2:1095:A:C2	3:2:1200:G:N1	2.41	0.87
48:z:147[B]:HIS:HD2	48:z:151:GLU:OE2	1.56	0.87
3:2:4254:G:H1	3:2:4257:A:H62	1.21	0.87
3:2:452:A:N1	46:v:223:ARG:HG2	1.93	0.83
48:z:92:LEU:HD13	48:z:290:ARG:NH2	1.93	0.83
4:3:329:ARG:HH11	4:3:334:GLY:HA3	1.40	0.82
48:z:243:ARG:HE	48:z:290:ARG:HE	1.27	0.80
3:2:3642:A:HO2'	19:M:2:THR:N	1.79	0.80
8:A:171:HIS:O	8:A:174:MET:HB2	1.82	0.79
48:z:243:ARG:NE	48:z:290:ARG:NE	2.28	0.79
4:3:329:ARG:NH2	4:3:334:GLY:O	2.17	0.78
3:2:417:G:N2	7:8:16:G:C5	2.52	0.78
48:z:283:PHE:HB3	48:z:289:ALA:HB2	1.65	0.78
3:2:1095:A:H2	3:2:1200:G:N1	1.81	0.77
48:z:288:LYS:HE3	48:z:288:LYS:H	1.48	0.77
3:2:417:G:C2	7:8:16:G:C6	2.73	0.77
48:z:280:LEU:HD21	48:z:293:VAL:HG21	1.66	0.77
48:z:243:ARG:NE	48:z:290:ARG:HE	1.76	0.77
8:A:25:ARG:CZ	8:A:30:GLU:OE2	2.33	0.77
3:2:684:G:O3'	46:v:101:ASN:HB2	1.85	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:z:147[B]:HIS:CD2	48:z:151:GLU:OE2	2.39	0.76
3:2:417:G:N2	7:8:16:G:C6	2.54	0.76
3:2:4993:G:H1	3:2:5058:A:H61	1.34	0.76
3:2:4887:C:H42	3:2:4932:U:H3	0.81	0.76
3:2:417:G:C2	7:8:16:G:N3	2.54	0.76
3:2:493:G:N1	3:2:660:A:H2	1.76	0.76
48:z:280:LEU:HD21	48:z:293:VAL:CG2	2.17	0.75
48:z:283:PHE:O	48:z:286:GLU:CA	2.33	0.75
3:2:417:G:C2	7:8:16:G:C4	2.75	0.74
38:g:156:ILE:CG2	48:z:291:MET:HE2	2.18	0.74
3:2:4745:G:H1	3:2:4955:A:H61	1.33	0.74
4:3:329:ARG:NH1	4:3:334:GLY:HA2	1.98	0.74
4:3:329:ARG:NH1	4:3:334:GLY:C	2.46	0.73
3:2:417:G:C2	7:8:16:G:C2	2.77	0.73
8:A:25:ARG:NH1	8:A:30:GLU:OE2	2.22	0.72
6:6:18:LYS:HB3	6:6:25:LEU:HB2	1.72	0.72
38:g:156:ILE:HG21	48:z:291:MET:HE2	1.72	0.72
3:2:417:G:N2	7:8:16:G:N1	2.38	0.71
3:2:1100:U:H3	3:2:1194:G:H1	1.39	0.71
8:A:171:HIS:CD2	8:A:174:MET:HE3	2.26	0.70
8:A:171:HIS:HD2	8:A:174:MET:HG3	0.93	0.70
48:z:92:LEU:HD12	48:z:290:ARG:HH21	1.57	0.69
48:z:92:LEU:CD1	48:z:290:ARG:NH2	2.52	0.69
3:2:417:G:C2	7:8:16:G:C5	2.81	0.69
3:2:1521:C:OP1	11:D:100:ARG:NH2	2.26	0.69
3:2:4618:G:H5''	36:e:15:ARG:HB2	1.74	0.68
3:2:417:G:C2	7:8:16:G:N1	2.62	0.67
3:2:1095:A:N1	3:2:1200:G:O6	2.27	0.67
36:e:85:ARG:HE	36:e:100:ASP:HA	1.59	0.67
5:5:2:U:H3	5:5:117:G:H1	1.42	0.67
46:v:223:ARG:HA	46:v:223:ARG:NE	2.09	0.67
9:B:289:GLN:HB3	9:B:301:ASN:HB3	1.75	0.67
3:2:684:G:H4'	46:v:100:LYS:O	1.94	0.67
3:2:374:G:OP2	19:M:56:ARG:NH1	2.27	0.67
25:T:90:ARG:HD3	25:T:102:LEU:HD13	1.76	0.67
3:2:2845:A:H61	3:2:3843:C:H42	1.42	0.66
24:S:62:LEU:HD21	24:S:82:ILE:HD11	1.76	0.66
48:z:280:LEU:CD2	48:z:293:VAL:HG21	2.25	0.66
3:2:493:G:O6	3:2:660:A:N1	2.29	0.66
3:2:2095:A:N7	47:w:32:ARG:NH1	2.44	0.66
3:2:4751:G:N7	45:u:52:LYS:NZ	2.42	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:3:329:ARG:NH1	4:3:334:GLY:O	2.28	0.66
3:2:1656:U:OP2	18:L:26:ARG:NH2	2.29	0.66
46:v:223:ARG:NE	46:v:223:ARG:O	2.29	0.65
8:A:25:ARG:NH2	8:A:30:GLU:OE2	2.28	0.65
4:3:158:GLN:HB3	4:3:160:ARG:HH11	1.61	0.65
44:t:92:ASN:HB3	46:v:118:THR:HG21	1.78	0.65
48:z:182:ILE:HD12	48:z:229:LEU:HB3	1.79	0.65
46:v:226:ARG:O	46:v:226:ARG:HG3	1.96	0.65
8:A:171:HIS:CD2	8:A:174:MET:CE	2.80	0.64
24:S:119:ARG:HE	27:V:193:THR:HG22	1.61	0.64
8:A:171:HIS:NE2	8:A:174:MET:HG3	2.10	0.64
40:i:103:ASP:HB3	40:i:106:LEU:HB2	1.79	0.64
38:g:91:GLU:OE2	48:z:259:MET:CE	2.42	0.64
36:e:16:ILE:HD11	36:e:57:VAL:H	1.62	0.64
3:2:2554:U:O2	3:2:2764:A:N7	2.30	0.64
20:N:37:ALA:HB2	20:N:70:VAL:HG11	1.80	0.64
8:A:194:LEU:HB3	8:A:200:ASN:HD22	1.63	0.64
43:r:232:THR:HG22	43:r:234:ASP:H	1.62	0.63
6:6:118:HIS:HB3	6:6:121:LEU:HD23	1.80	0.63
43:r:50:ARG:NH2	43:r:72:ASP:OD2	2.31	0.63
3:2:1443:A:N1	3:2:2104:G:N2	2.46	0.63
33:b:95:ARG:NH1	33:b:113:MET:SD	2.72	0.63
3:2:500:G:N3	3:2:504:G:N2	2.46	0.63
46:v:190:HIS:HD2	46:v:192:LYS:H	1.46	0.63
5:5:60:G:O2'	43:r:268:ARG:NH1	2.32	0.63
48:z:243:ARG:HE	48:z:290:ARG:NE	1.88	0.63
3:2:1654:G:N2	3:2:1678:C:OP1	2.32	0.63
8:A:72:GLN:HE22	20:N:34:THR:HB	1.63	0.63
3:2:4077:A:N1	3:2:4171:C:N4	2.46	0.62
3:2:417:G:N2	3:2:417:G:C2	2.67	0.62
3:2:4941:G:OP2	46:v:188:ARG:NH1	2.32	0.62
3:2:2583:C:OP2	13:F:76:ARG:NH1	2.32	0.62
3:2:4523:A2M:H5''	3:2:4524:G:H5'	1.80	0.62
7:8:51:U:OP2	22:P:21:ARG:NH2	2.33	0.62
9:B:92:TYR:HB2	9:B:159:VAL:HG13	1.82	0.62
28:W:45:GLN:HE22	28:W:52:THR:H	1.47	0.62
3:2:1176:C:H4'	43:r:279:ARG:HE	1.64	0.61
4:3:329:ARG:HH12	4:3:334:GLY:CA	1.93	0.61
9:B:170:LEU:O	9:B:328:ASN:ND2	2.33	0.61
14:G:180:PRO:HA	14:G:227:ASN:HD21	1.65	0.61
3:2:1100:U:O2	3:2:1194:G:N2	2.33	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:B:108:GLU:OE2	9:B:138:GLN:NE2	2.33	0.61
39:h:112:ASP:O	39:h:116:LYS:HB2	1.99	0.61
3:2:2474:G:N2	3:2:2502:G:O2'	2.33	0.61
3:2:4646:U:OP2	32:a:62:ARG:NH2	2.34	0.61
9:B:10:ARG:NH2	9:B:265:SER:O	2.33	0.61
30:Y:125:MET:HB2	30:Y:141:SER:HB3	1.81	0.61
3:2:1555:G:N7	29:X:4:ARG:NH2	2.44	0.61
3:2:3617:G:OP1	37:f:44:ARG:NH2	2.34	0.61
39:h:19:PHE:O	39:h:26:ARG:NH2	2.34	0.61
3:2:2573:A:O2'	40:i:115:LYS:NZ	2.33	0.61
3:2:1604:G:H2'	3:2:1605:7MG:H82	1.82	0.61
3:2:2300:A:N6	11:D:178:ASN:OD1	2.32	0.61
15:H:120:ALA:HB2	23:Q:48:PRO:HB2	1.83	0.61
5:5:74:A:N3	33:b:53:LYS:NZ	2.49	0.61
9:B:230:GLY:O	9:B:234:ARG:HB2	2.00	0.61
3:2:4097:G:N7	3:2:4099:G:N2	2.49	0.60
4:3:313:LEU:HD21	4:3:376:LEU:HD13	1.83	0.60
3:2:88:A:N7	31:Z:173:LYS:NZ	2.49	0.60
46:v:222:LEU:HD23	46:v:222:LEU:O	2.01	0.60
26:U:68:ARG:NH1	26:U:124:ASP:O	2.32	0.60
3:2:4162:C:H5	14:G:73:ARG:HH12	1.49	0.60
26:U:138:PHE:HA	26:U:143:ARG:HD2	1.84	0.60
48:z:283:PHE:CB	48:z:289:ALA:HB2	2.32	0.60
3:2:4985:U:O2	9:B:174:ARG:NH1	2.35	0.60
8:A:85:MET:HE3	8:A:86:ASP:H	1.66	0.60
12:E:13:SER:N	12:E:16:SER:HG	2.00	0.60
16:I:31:ARG:NH1	16:I:149:ASN:OD1	2.35	0.60
3:2:691:C:OP1	46:v:114:ARG:NH1	2.35	0.60
4:3:329:ARG:CZ	4:3:334:GLY:O	2.50	0.60
3:2:308:G:O6	26:U:12:ARG:NH1	2.35	0.59
3:2:1952:G:H4'	33:b:93:MET:HG3	1.83	0.59
3:2:75:G:O6	23:Q:103:ARG:NH1	2.35	0.59
6:6:200:ASN:ND2	6:6:203:CYS:SG	2.76	0.59
3:2:417:G:O3'	7:8:16:G:N2	2.30	0.59
33:b:95:ARG:NH2	33:b:112:ASP:OD2	2.34	0.59
48:z:59:GLU:HA	48:z:62:LYS:HE3	1.84	0.59
9:B:222:VAL:O	9:B:343:ARG:NH1	2.35	0.59
11:D:204:ARG:NH2	11:D:205:ARG:O	2.36	0.59
3:2:4254:G:N2	3:2:4257:A:N7	2.44	0.59
8:A:204:LEU:HD13	8:A:206:ILE:HG23	1.84	0.59
24:S:81:ASP:OD1	24:S:81:ASP:N	2.35	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:2:1176:C:H5''	43:r:279:ARG:HH21	1.67	0.59
1:0:450:ARG:NH1	30:Y:124:LYS:O	2.36	0.59
3:2:2034:G:O2'	33:b:118:ARG:NH2	2.36	0.59
7:8:12:G:N2	30:Y:120:ASN:OD1	2.31	0.59
33:b:34:ALA:HB1	33:b:39:VAL:HG13	1.84	0.59
3:2:3689:G:O2'	3:2:3818:U:OP2	2.20	0.58
30:Y:94:MET:HE2	30:Y:148:MET:HE3	1.84	0.58
42:m:14:SER:H	42:m:17:ARG:HG3	1.67	0.58
3:2:1380:G:N2	3:2:1381:U:O4	2.35	0.58
21:O:12:LEU:HB3	21:O:16:ARG:HH21	1.68	0.58
3:2:493:G:C6	3:2:660:A:N1	2.71	0.58
9:B:218:ASP:OD2	9:B:348:ARG:NH1	2.36	0.58
45:u:33:VAL:HG23	45:u:38:GLU:HB3	1.84	0.58
3:2:2517:A:O2'	13:F:66:ARG:NH2	2.36	0.58
9:B:220:ILE:HG23	9:B:278:THR:HG22	1.85	0.58
6:6:11:CYS:SG	6:6:187:ASN:ND2	2.75	0.58
3:2:4373:G:N7	28:W:61:LYS:NZ	2.51	0.58
4:3:398:VAL:O	8:A:47:LYS:NZ	2.36	0.58
14:G:178:GLY:O	14:G:223:ARG:NH2	2.37	0.58
6:6:163:PRO:HA	6:6:183:ALA:HB1	1.86	0.58
3:2:1095:A:N1	3:2:1200:G:C6	2.72	0.58
3:2:2667:C:OP2	32:a:103:ARG:NH1	2.37	0.58
41:l:28:GLU:OE2	41:l:31:ASN:ND2	2.37	0.58
43:r:122:GLN:O	43:r:248:ARG:NH2	2.37	0.58
11:D:315:LYS:HD2	47:w:168:ALA:HB1	1.85	0.58
3:2:24:G:N7	19:M:46:LYS:NZ	2.52	0.57
3:2:4993:G:H1	3:2:5058:A:N6	2.02	0.57
4:3:329:ARG:HH11	4:3:334:GLY:CA	2.02	0.57
9:B:312:LYS:NZ	9:B:368:ILE:O	2.37	0.57
3:2:1895:G:OP1	47:w:96:ARG:NH2	2.37	0.57
23:Q:171:GLU:O	23:Q:175:ASN:ND2	2.37	0.57
45:u:14:TYR:OH	45:u:92:LEU:O	2.22	0.57
3:2:280:G:H5''	26:U:14:LYS:HE2	1.87	0.57
3:2:1508:A:OP1	11:D:110:ARG:NH1	2.38	0.57
6:6:88:LEU:HD12	6:6:89:PRO:HD2	1.87	0.57
3:2:137:G:H2'	3:2:138:G:H8	1.68	0.57
6:6:85:ARG:NH2	6:6:94:ILE:O	2.38	0.56
36:e:71:GLU:O	36:e:75:LYS:NZ	2.37	0.56
3:2:3603:G:N2	3:2:3604:A:N7	2.54	0.56
36:e:31:ASN:HD21	36:e:115:SER:HB3	1.70	0.56
47:w:105:VAL:HG13	47:w:136:VAL:HG12	1.86	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:2:4478:G:O2'	3:2:4602:A:N1	2.38	0.56
14:G:211:ASP:OD1	14:G:211:ASP:N	2.38	0.56
14:G:229:ARG:NH2	14:G:232:GLU:OE1	2.39	0.56
24:S:11:ARG:NH1	24:S:58:THR:O	2.37	0.56
42:m:146:THR:O	42:m:157:VAL:HA	2.06	0.56
47:w:92:VAL:O	47:w:120:GLY:HA2	2.06	0.56
3:2:4199:C:H5''	4:3:221:LYS:HD2	1.87	0.56
18:L:38:LEU:O	18:L:42:ARG:NH1	2.39	0.56
22:P:42:ARG:HG3	22:P:47:THR:HG23	1.87	0.56
31:Z:56:THR:OG1	31:Z:146:ARG:NH2	2.38	0.56
43:r:50:ARG:NH1	43:r:147:ASP:OD2	2.39	0.56
3:2:2554:U:H3	3:2:2764:A:H8	1.51	0.56
3:2:4257:A:H2	20:N:27:GLY:HA2	1.70	0.56
3:2:1699:A:O2'	11:D:306:ARG:NH1	2.39	0.56
3:2:4217:G:OP1	34:c:55:LYS:NZ	2.38	0.56
28:W:11:PHE:O	28:W:81:ARG:NH1	2.38	0.56
39:h:4:ASN:HB3	39:h:7:VAL:HG12	1.88	0.56
48:z:283:PHE:CB	48:z:289:ALA:CB	2.84	0.56
3:2:494:U:O2	3:2:659:G:O6	2.24	0.55
3:2:1502:G:OP2	31:Z:65:ARG:NH1	2.38	0.55
3:2:1958:A:O2'	3:2:2025:A:N1	2.36	0.55
16:I:59:LYS:HE2	16:I:66:GLU:HB3	1.87	0.55
16:I:106:GLN:NE2	16:I:113:GLU:OE1	2.39	0.55
43:r:62:CYS:HB3	43:r:105:LEU:HD22	1.88	0.55
47:w:236:ARG:HB2	47:w:239:GLN:HB2	1.88	0.55
48:z:280:LEU:HD11	48:z:293:VAL:HG21	1.88	0.55
1:0:311:LYS:HB3	1:0:313:LYS:HG2	1.88	0.55
3:2:268:G:H2'	3:2:269:G:H8	1.70	0.55
3:2:4097:G:N2	3:2:4113:U:O4'	2.40	0.55
4:3:386:ASN:OD1	28:W:64:LYS:NZ	2.39	0.55
8:A:46:ASP:N	8:A:46:ASP:OD1	2.40	0.55
40:i:36:ARG:NH1	40:i:38:TYR:OH	2.38	0.55
3:2:3697:U:H5''	3:2:3698:G:H5'	1.88	0.55
3:2:2611:A:H5'	3:2:2688:G:H4'	1.86	0.55
3:2:1554:A:H4'	29:X:10:ILE:HG13	1.89	0.55
3:2:2525:U:OP2	32:a:42:ARG:NH1	2.35	0.55
6:6:78:ASP:OD1	6:6:96:ARG:NH1	2.40	0.55
20:N:141:ILE:HG22	20:N:144:LYS:HE2	1.88	0.55
3:2:1241:C:O5'	46:v:72:LYS:NZ	2.38	0.55
3:2:4741:C:H4'	3:2:4742:G:H5'	1.89	0.55
9:B:10:ARG:NH1	9:B:11:HIS:O	2.40	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
47:w:147:LEU:O	47:w:151:ASN:HB2	2.07	0.55
3:2:4479:A:OP1	16:I:170:LYS:NZ	2.39	0.55
12:E:38:ILE:HD11	12:E:46:VAL:HG21	1.89	0.55
23:Q:25:TRP:NE1	26:U:199:GLN:OE1	2.37	0.55
3:2:1930:U:OP2	27:V:49:ARG:NH2	2.39	0.55
31:Z:158:THR:C	31:Z:188:ASN:HD21	2.14	0.55
34:c:100:LYS:HA	34:c:103:ASP:HB2	1.88	0.55
3:2:1922:G:OP1	33:b:160:ARG:NH1	2.40	0.54
3:2:3642:A:O2'	19:M:2:THR:N	2.39	0.54
3:2:5038:A:OP1	37:f:61:LYS:NZ	2.41	0.54
25:T:50:ARG:HG3	25:T:62:VAL:HG22	1.88	0.54
41:l:56:ASP:OD1	41:l:56:ASP:N	2.39	0.54
1:0:394:ARG:NH1	35:d:98:ASP:OD1	2.40	0.54
3:2:417:G:N3	7:8:16:G:C2	2.75	0.54
3:2:500:G:OP1	3:2:503:C:O2'	2.25	0.54
3:2:964:A:H2'	3:2:965:G:H4'	1.89	0.54
3:2:1238:A:O2'	47:w:52:GLU:OE1	2.25	0.54
4:3:329:ARG:CZ	4:3:334:GLY:CA	2.83	0.54
31:Z:155:ALA:HB3	31:Z:158:THR:HG23	1.88	0.54
42:m:34:PHE:O	42:m:38:HIS:HB2	2.07	0.54
45:u:49:TYR:OH	45:u:95:LYS:NZ	2.38	0.54
46:v:46:ARG:HH12	46:v:66:LYS:HG2	1.72	0.54
3:2:2651:C:O2'	3:2:2653:C:OP1	2.24	0.54
7:8:13:G:O2'	30:Y:121:LYS:O	2.26	0.54
32:a:15:LEU:HD22	32:a:52:ARG:HB2	1.89	0.54
6:6:145:GLN:NE2	36:e:115:SER:OG	2.40	0.54
8:A:111:LEU:HB3	8:A:138:LEU:HD11	1.88	0.54
25:T:54:MET:HG2	25:T:60:PRO:HA	1.88	0.54
1:0:276:SER:O	1:0:276:SER:OG	2.24	0.54
3:2:3688:U:OP2	42:m:198:ARG:NH1	2.40	0.54
3:2:3899:BGH:O4'	3:2:3899:BGH:C5'	2.50	0.54
3:2:4570:G:H2'	3:2:4571:A2M:H8	1.88	0.54
16:I:105:ILE:HD11	16:I:134:CYS:HB3	1.90	0.54
3:2:1808:C:OP1	34:c:110:LYS:NZ	2.41	0.54
3:2:2544:G:N2	7:8:126:C:OP1	2.36	0.54
3:2:2658:G:N2	3:2:2676:A:OP2	2.40	0.54
3:2:3699:C:O2'	3:2:3775:A:O2'	2.23	0.54
11:D:57:LEU:HB3	11:D:61:GLN:HE21	1.73	0.54
46:v:245:GLN:HA	46:v:248:ILE:HG12	1.89	0.54
3:2:1596:U:O2'	30:Y:135:ARG:NH2	2.41	0.54
3:2:1524:A2M:H62	3:2:1651:G:H22	1.56	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:6:122:ASP:OD1	6:6:125:THR:OG1	2.26	0.54
23:Q:43:ALA:O	23:Q:149:GLN:NE2	2.41	0.54
1:0:457:LEU:O	1:0:461:MET:HB2	2.08	0.54
4:3:354:ASN:HB3	8:A:137:LEU:HD23	1.90	0.54
9:B:80:GLU:OE1	9:B:323:TYR:OH	2.25	0.54
36:e:99:GLU:HG3	37:f:23:ARG:HA	1.90	0.54
1:0:251:ILE:HG21	1:0:264:LEU:HD13	1.91	0.53
4:3:387:ASP:HB3	4:3:390:VAL:HG22	1.89	0.53
36:e:107:ASN:HD21	36:e:111:GLU:HB3	1.73	0.53
38:g:156:ILE:HG23	48:z:291:MET:HE2	1.88	0.53
3:2:1368:A:H1'	39:h:1:MET:HE2	1.90	0.53
3:2:4895:C:H41	24:S:133:ALA:HB2	1.74	0.53
4:3:160:ARG:NH1	4:3:196:ASP:OD1	2.42	0.53
33:b:173:ASN:ND2	33:b:175:PHE:O	2.41	0.53
3:2:2898:G:H5''	32:a:104:ARG:HH21	1.73	0.53
26:U:44:ARG:NH1	26:U:120:TRP:O	2.40	0.53
23:Q:80:GLU:OE2	23:Q:102:ARG:NH1	2.41	0.53
39:h:31:SER:HA	39:h:48:PRO:HA	1.89	0.53
45:u:47:CYS:HA	45:u:102:ARG:O	2.09	0.53
3:2:3739:C:O2	4:3:263:GLN:NE2	2.42	0.53
10:C:115:GLY:O	46:v:72:LYS:NZ	2.31	0.53
20:N:95:ARG:HG2	20:N:96:LYS:HG2	1.90	0.53
26:U:17:ASP:HA	26:U:20:ARG:HG2	1.91	0.53
3:2:970:G:OP1	46:v:123:ARG:NH1	2.41	0.53
3:2:4736:C:H2'	3:2:4737:G:H8	1.74	0.53
24:S:123:ILE:HD11	27:V:189:ILE:HD13	1.90	0.53
3:2:11:G:N2	7:8:146:U:O2	2.42	0.53
19:M:20:ARG:NH2	19:M:39:TYR:OH	2.42	0.53
20:N:163:MET:HA	20:N:166:PHE:HB3	1.91	0.53
30:Y:5:SER:OG	30:Y:118:GLN:NE2	2.42	0.53
12:E:38:ILE:HG21	12:E:63:TYR:HB3	1.90	0.52
14:G:160:ASP:OD1	14:G:160:ASP:N	2.42	0.52
14:G:188:ALA:O	14:G:192:ARG:HB2	2.09	0.52
46:v:254:ASP:HA	46:v:257:ILE:HB	1.91	0.52
3:2:1094:G:O6	3:2:1201:U:O4	2.28	0.52
6:6:142:VAL:HG22	6:6:173:LEU:HD21	1.90	0.52
35:d:64:GLU:HB3	35:d:71:THR:HG23	1.90	0.52
36:e:115:SER:O	36:e:135:ASN:ND2	2.42	0.52
46:v:155:GLY:O	46:v:158:ARG:NH1	2.42	0.52
3:2:1283:G:N1	3:2:2076:G:OP1	2.38	0.52
14:G:187:LYS:HG2	14:G:198:THR:HB	1.90	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:f:42:SER:OG	37:f:44:ARG:NH1	2.43	0.52
3:2:143:C:OP1	14:G:111:LYS:NZ	2.38	0.52
3:2:387:G:O2'	3:2:412:G:O6	2.21	0.52
26:U:124:ASP:HB3	26:U:127:TYR:H	1.75	0.52
39:h:2:LYS:HD3	39:h:7:VAL:HG13	1.90	0.52
42:m:30:ARG:NH2	42:m:36:GLU:OE2	2.42	0.52
3:2:461:G:H2'	3:2:462:G:H8	1.73	0.52
28:W:2:VAL:N	28:W:90:HIS:O	2.43	0.52
14:G:165:GLU:OE2	26:U:26:ARG:NH1	2.35	0.52
46:v:223:ARG:NE	46:v:223:ARG:CA	2.73	0.52
21:O:24:LYS:HG3	21:O:67:LYS:HB3	1.92	0.52
35:d:24:ASP:HB2	35:d:26:THR:HG23	1.92	0.52
4:3:176:ILE:HG23	4:3:181:MET:HB2	1.91	0.52
8:A:69:GLY:HA3	8:A:73:HIS:HB3	1.92	0.52
18:L:72:THR:HG22	18:L:110:LYS:HB3	1.91	0.52
34:c:135:PRO:HB3	47:w:86:GLU:HB2	1.92	0.52
11:D:84:THR:OG1	11:D:85:HIS:N	2.40	0.52
14:G:57:TRP:O	14:G:62:ARG:NH1	2.43	0.52
3:2:989:U:O2	3:2:1064:G:O6	2.27	0.51
3:2:2469:C:H5	3:2:2471:G:H1	1.58	0.51
1:0:335:THR:HA	1:0:339:ALA:HB3	1.90	0.51
3:2:399:G:OP1	30:Y:18:ARG:NH2	2.44	0.51
3:2:1313:C:O2	3:2:3881:G:O2'	2.26	0.51
3:2:2434:G:O2'	3:2:2527:A:N1	2.42	0.51
34:c:32:ARG:O	43:r:41:LYS:NZ	2.41	0.51
39:h:32:SER:OG	39:h:101:PRO:O	2.27	0.51
3:2:2288:G:O6	18:L:10:LYS:NZ	2.43	0.51
3:2:2380:B8W:N2	3:2:2425:U:OP1	2.44	0.51
31:Z:15:ARG:NH1	31:Z:52:PHE:O	2.41	0.51
20:N:146:ARG:HH21	20:N:147:ARG:HH21	1.57	0.51
1:0:280:PRO:HB3	35:d:41:GLN:HE22	1.75	0.51
3:2:1367:C:O2'	3:2:1369:C:OP2	2.28	0.51
3:2:1447:C:O2	3:2:2099:G:N2	2.44	0.51
3:2:1870:C:H2'	3:2:1871:A2M:H8	1.92	0.51
14:G:88:ASP:O	14:G:92:ALA:HB2	2.10	0.51
48:z:105:LEU:C	48:z:105:LEU:HD23	2.35	0.51
3:2:456:C:H2'	3:2:457:G:H8	1.75	0.51
3:2:753:C:H41	3:2:910:G:H1	1.57	0.51
8:A:160:LYS:HB3	8:A:162:VAL:H	1.75	0.51
3:2:2580:U:OP1	40:i:36:ARG:NH2	2.43	0.51
33:b:24:THR:O	33:b:24:THR:OG1	2.27	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:l:7:TRP:O	41:l:11:ARG:HB2	2.10	0.51
45:u:27:LEU:HB3	45:u:83:MET:HE1	1.92	0.51
3:2:1502:G:N7	18:L:77:LYS:NZ	2.44	0.51
3:2:2630:U:O4	35:d:89:LYS:NZ	2.41	0.51
3:2:4637:OMG:OP1	25:T:30:HIS:NE2	2.40	0.51
3:2:5030:U:H2'	3:2:5031:G:H8	1.75	0.51
4:3:358:GLN:NE2	8:A:158:GLN:OE1	2.44	0.51
9:B:317:LEU:HD22	9:B:382:MET:HE2	1.93	0.51
38:g:129:ARG:NH1	38:g:133:GLU:OE2	2.44	0.51
3:2:355:A:H61	3:2:360:A:H2	1.56	0.51
3:2:678:C:H4'	41:l:96:MET:HE2	1.91	0.51
21:O:31:ASN:HB3	21:O:48:THR:HG22	1.93	0.51
24:S:53:LYS:NZ	24:S:54:CYS:SG	2.84	0.51
31:Z:81:VAL:HG22	31:Z:101:CYS:HB3	1.92	0.51
32:a:105:LEU:HD23	32:a:138:LEU:HD23	1.92	0.51
38:g:122:ALA:N	38:g:139:ARG:O	2.43	0.51
48:z:280:LEU:CD1	48:z:293:VAL:HG21	2.41	0.51
3:2:185:C:H2'	3:2:186:G:H8	1.76	0.51
13:F:46:CYS:SG	13:F:47:GLY:N	2.84	0.51
17:K:3:LEU:HB3	17:K:4:ARG:HD3	1.93	0.51
1:O:279:ILE:HB	1:O:282:ILE:HD11	1.93	0.50
11:D:235:LEU:HG	11:D:240:LEU:HD11	1.93	0.50
31:Z:75:ARG:HA	31:Z:78:LYS:HD2	1.92	0.50
3:2:3723:A2M:OP2	17:K:68:ARG:NH2	2.43	0.50
8:A:32:VAL:HB	8:A:169:VAL:HG23	1.92	0.50
43:r:126:THR:HG22	43:r:128:ASP:H	1.76	0.50
44:t:86:GLU:OE2	44:t:114:ARG:NH2	2.44	0.50
3:2:1870:C:HO2'	3:2:4442:PSU:HO2'	1.58	0.50
3:2:2870:A:OP2	3:2:2879:A:N6	2.44	0.50
5:5:55:A:O2'	20:N:151:ILE:O	2.29	0.50
20:N:160:GLU:HA	20:N:163:MET:HE2	1.94	0.50
42:m:242:ARG:NH1	42:m:243:THR:O	2.44	0.50
43:r:33:ARG:O	43:r:37:VAL:HB	2.11	0.50
3:2:137:G:H2'	3:2:138:G:C8	2.46	0.50
3:2:138:G:H2'	3:2:139:G:H8	1.76	0.50
6:6:14:GLY:O	6:6:61:ARG:NH1	2.45	0.50
38:g:104:ALA:O	38:g:134:LYS:NZ	2.44	0.50
3:2:405:U:N3	3:2:408:A:OP2	2.40	0.50
8:A:114:GLU:HG2	8:A:137:LEU:HD11	1.93	0.50
27:V:15:LEU:HB2	27:V:18:ARG:HB2	1.93	0.50
44:t:89:LEU:HD13	44:t:118:LEU:HD22	1.94	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:z:283:PHE:HB2	48:z:289:ALA:CB	2.41	0.50
3:2:1187:G:N7	43:r:275:GLN:NE2	2.59	0.50
3:2:4589:A:N1	3:2:4621:C:O2'	2.33	0.50
8:A:177:ASP:OD1	8:A:177:ASP:N	2.34	0.50
14:G:143:VAL:HA	14:G:146:LEU:HB2	1.93	0.50
16:I:92:MET:HE3	16:I:181:VAL:HG22	1.93	0.50
42:m:101:VAL:HG22	42:m:165:VAL:HG22	1.92	0.50
45:u:50:VAL:HG22	45:u:69:VAL:HG22	1.93	0.50
3:2:2845:A:H61	3:2:3843:C:N4	2.07	0.50
26:U:193:ARG:O	26:U:197:THR:OG1	2.30	0.50
42:m:33:ASP:N	42:m:33:ASP:OD1	2.42	0.50
43:r:238:GLU:HA	43:r:241:LYS:HB2	1.94	0.50
3:2:10:A:N1	7:8:147:G:N1	2.60	0.50
3:2:158:A:H5''	3:2:159:C:H2'	1.94	0.50
3:2:1562:G:O6	3:2:1566:C:N4	2.45	0.50
7:8:61:A:OP1	15:H:52:LYS:NZ	2.42	0.50
3:2:2521:G:H4'	13:F:26:PRO:HD2	1.94	0.49
3:2:5006:U:H4'	3:2:5007:A:H5'	1.93	0.49
10:C:6:ASN:OD1	10:C:6:ASN:N	2.43	0.49
20:N:13:ARG:NH1	20:N:154:LYS:O	2.40	0.49
1:0:238:GLU:H	1:0:239:GLU:HA	1.78	0.49
3:2:2295:C:OP1	11:D:199:ARG:NE	2.39	0.49
3:2:2864:A:H5''	32:a:84:THR:HG22	1.94	0.49
32:a:134:ASN:N	32:a:134:ASN:OD1	2.43	0.49
3:2:4304:A:OP2	3:2:4305:G:N2	2.43	0.49
15:H:117:ARG:NH2	23:Q:127:PHE:O	2.41	0.49
27:V:152:VAL:HA	27:V:155:THR:HG22	1.93	0.49
3:2:124:C:OP1	26:U:144:ARG:NH1	2.44	0.49
3:2:702:U:H5'	46:v:121:VAL:HG11	1.94	0.49
3:2:1291:G:OP1	46:v:219:LYS:NZ	2.42	0.49
43:r:93:THR:O	43:r:158:LYS:NZ	2.45	0.49
43:r:271:MET:HE2	43:r:275:GLN:HB3	1.93	0.49
48:z:280:LEU:CD2	48:z:293:VAL:CG2	2.87	0.49
3:2:1100:U:N3	3:2:1194:G:N1	2.53	0.49
3:2:1364:U:OP2	23:Q:36:ARG:NH1	2.40	0.49
3:2:2259:G:H2'	3:2:2261:G:H21	1.76	0.49
4:3:352:GLU:OE2	4:3:357:LYS:NZ	2.45	0.49
15:H:55:ALA:O	15:H:59:THR:OG1	2.28	0.49
31:Z:158:THR:HB	31:Z:159:PRO:CD	2.42	0.49
34:c:39:ILE:HG13	34:c:102:ARG:HD3	1.95	0.49
46:v:179:LEU:HD12	46:v:183:ARG:HA	1.95	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:2:4084:G:O6	42:m:72:ARG:NH2	2.46	0.49
3:2:4369:A:H5''	28:W:65:LYS:HD3	1.95	0.49
6:6:100:ARG:HH12	6:6:122:ASP:HB3	1.78	0.49
10:C:8:THR:HG22	10:C:10:HIS:H	1.77	0.49
43:r:131:ASN:OD1	43:r:131:ASN:N	2.44	0.49
47:w:214:SER:OG	47:w:215:SER:N	2.46	0.49
3:2:23:C:OP1	19:M:44:LYS:NZ	2.42	0.48
3:2:667:A:H5''	3:2:668:C:H3'	1.95	0.48
3:2:4163:U:OP2	14:G:53:ARG:NH2	2.46	0.48
8:A:52:THR:OG1	8:A:155:ILE:O	2.26	0.48
20:N:40:LEU:HD23	20:N:43:LEU:HD21	1.95	0.48
37:f:46:PRO:HG2	37:f:54:LEU:HD22	1.94	0.48
3:2:1273:G:N7	10:C:117:ARG:NE	2.61	0.48
3:2:1378:C:H41	23:Q:159:ASN:HB2	1.78	0.48
4:3:295:ASP:OD2	4:3:297:SER:OG	2.31	0.48
4:3:329:ARG:HH12	4:3:334:GLY:C	2.12	0.48
20:N:144:LYS:O	20:N:148:THR:OG1	2.23	0.48
3:2:1509:C:H5''	18:L:2:PRO:HD2	1.94	0.48
36:e:65:VAL:HG22	36:e:73:ARG:HA	1.95	0.48
3:2:508:G:H21	18:L:85:GLN:HE22	1.61	0.48
3:2:2725:A:N6	32:a:88:ARG:O	2.47	0.48
43:r:207:TYR:OH	43:r:222:GLN:NE2	2.46	0.48
3:2:4196:OMG:HM22	3:2:4197:G:H5'	1.95	0.48
6:6:85:ARG:HH21	6:6:94:ILE:HG12	1.77	0.48
23:Q:64:VAL:HA	23:Q:67:HIS:CD2	2.49	0.48
36:e:30:ASP:OD1	36:e:30:ASP:N	2.45	0.48
42:m:56:ALA:HB2	42:m:130:SER:HB3	1.96	0.48
1:0:403:ARG:NH2	3:2:2706:G:O6	2.46	0.48
3:2:1503:A:H4'	3:2:1504:G:H5'	1.95	0.48
3:2:4322:G:N2	3:2:4325:A:OP2	2.37	0.48
48:z:227:ASP:CG	48:z:320[A]:LYS:HE2	2.39	0.48
1:0:466:THR:HG21	11:D:87:SER:HB3	1.96	0.48
3:2:1320:U:O2'	3:2:1891:A:N1	2.41	0.48
3:2:1480:C:O2'	3:2:1482:G:OP2	2.32	0.48
6:6:42:LEU:HD22	6:6:46:ILE:HD11	1.96	0.48
8:A:172:VAL:C	8:A:174:MET:N	2.71	0.48
18:L:26:ARG:HB2	18:L:29:PRO:HG3	1.96	0.48
45:u:37:ASP:OD1	45:u:37:ASP:N	2.45	0.48
3:2:1963:C:H41	3:2:2024:G:H21	1.61	0.48
7:8:94:G:H21	19:M:82:THR:HB	1.78	0.48
8:A:77:ALA:HB2	8:A:144:MET:HE3	1.96	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:C:109:ARG:HA	10:C:112:ILE:HB	1.96	0.48
31:Z:4:ASP:O	47:w:115:ARG:NH1	2.45	0.48
3:2:151:G:OP2	26:U:4:TYR:OH	2.30	0.48
3:2:982:U:O4	3:2:1071:C:N3	2.46	0.48
3:2:1301:C:H2'	44:t:17:THR:HG21	1.96	0.48
3:2:4306:OMU:OP2	31:Z:159:PRO:HG2	2.14	0.48
24:S:100:ARG:HA	24:S:103:LYS:HG2	1.95	0.48
35:d:76:VAL:HG23	35:d:78:PHE:HB2	1.95	0.48
43:r:181:PRO:HD2	43:r:195:HIS:CD2	2.48	0.48
43:r:195:HIS:O	43:r:199:ILE:HB	2.14	0.48
46:v:223:ARG:NH2	46:v:238:GLU:OE2	2.47	0.48
3:2:1174:G:H22	3:2:1188:C:H42	1.62	0.48
3:2:2041:A:O2'	3:2:4464:A:OP1	2.32	0.48
12:E:14:ILE:HD13	12:E:17:ARG:HD2	1.96	0.48
20:N:16:ARG:HH12	20:N:137:PRO:HD3	1.78	0.48
27:V:37:ARG:HA	27:V:107:GLY:H	1.79	0.48
3:2:184:U:O2	3:2:253:G:C6	2.67	0.47
3:2:196:C:H4'	39:h:126:ARG:HG3	1.95	0.47
3:2:512:U:H3	3:2:647:G:H1	1.62	0.47
25:T:36:VAL:HG21	25:T:44:ARG:HG2	1.95	0.47
31:Z:66:MET:HE2	31:Z:98:LEU:HD13	1.97	0.47
40:i:97:ASN:HB3	40:i:99:ASP:H	1.79	0.47
3:2:489:C:H42	3:2:664:G:H22	1.61	0.47
3:2:1078:A:H1'	3:2:1234:G:C2	2.49	0.47
4:3:167:LYS:HB3	4:3:250:CYS:HB3	1.95	0.47
5:5:50:A:OP2	43:r:225:GLN:NE2	2.47	0.47
7:8:21:C:OP1	11:D:195:LYS:NZ	2.37	0.47
11:D:340:ILE:HG21	46:v:50:LEU:HD13	1.96	0.47
13:F:100:GLN:HA	13:F:103:VAL:HG22	1.96	0.47
29:X:42:CYS:SG	29:X:59:SER:OG	2.72	0.47
3:2:2566:G:H2'	3:2:2567:G:H8	1.80	0.47
4:3:329:ARG:CZ	4:3:334:GLY:C	2.88	0.47
11:D:13:GLU:HG3	11:D:14:LYS:HD2	1.96	0.47
11:D:209:ILE:HB	11:D:229:LEU:HD13	1.97	0.47
3:2:453:G:N2	3:2:1293:G:N7	2.46	0.47
3:2:2863:G:O2'	32:a:82:LYS:O	2.33	0.47
7:8:122:G:O6	7:8:126:C:N4	2.46	0.47
26:U:201:HIS:O	26:U:204:ARG:NH1	2.47	0.47
27:V:157:GLU:OE2	27:V:160:ARG:NE	2.40	0.47
33:b:31:ARG:HH11	33:b:129:VAL:HG13	1.80	0.47
3:2:184:U:O2	3:2:253:G:O6	2.33	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:2:1870:C:O2'	3:2:4442:PSU:O2'	2.32	0.47
3:2:3654:G:O2'	3:2:3693:U:OP1	2.31	0.47
8:A:31:THR:HG22	8:A:61:PRO:HG2	1.97	0.47
9:B:224:LYS:HG3	9:B:340:THR:HG22	1.97	0.47
11:D:35:ASP:OD1	11:D:35:ASP:N	2.47	0.47
14:G:108:GLN:O	14:G:112:GLN:HB2	2.15	0.47
27:V:45:GLY:O	27:V:50:ASN:ND2	2.47	0.47
35:d:22:THR:HG22	35:d:71:THR:HB	1.96	0.47
4:3:379:ASP:OD2	4:3:382:ASN:ND2	2.48	0.47
9:B:302:ASN:ND2	9:B:313:SER:OG	2.40	0.47
13:F:23:SER:O	13:F:30:ILE:HA	2.15	0.47
33:b:76:LYS:HB3	33:b:131:GLU:HG3	1.97	0.47
3:2:1760:G:H2'	3:2:1761:G:H8	1.79	0.47
14:G:158:ALA:HB2	14:G:190:LEU:HD22	1.97	0.47
34:c:146:LYS:HA	34:c:146:LYS:HD3	1.78	0.47
39:h:35:SER:O	39:h:39:ARG:HB2	2.14	0.47
3:2:99:A:H5''	26:U:184:ILE:HD13	1.96	0.47
3:2:417:G:HO2'	7:8:16:G:H1	1.61	0.47
39:h:111:LEU:HA	39:h:111:LEU:HD12	1.78	0.47
41:l:49:VAL:HG23	41:l:64:ILE:HG22	1.96	0.47
43:r:217:ASP:HA	43:r:220:LYS:HG2	1.97	0.47
46:v:93:THR:HG23	46:v:104:THR:HG21	1.97	0.47
3:2:1285:U:OP1	46:v:127:SER:OG	2.33	0.46
8:A:171:HIS:NE2	8:A:174:MET:HE2	2.29	0.46
17:K:23:LYS:HE3	17:K:23:LYS:HB2	1.77	0.46
21:O:5:ILE:HD11	21:O:11:PHE:HD1	1.80	0.46
26:U:120:TRP:HE1	26:U:123:GLU:HG3	1.79	0.46
3:2:2072:C:OP1	31:Z:2:GLY:N	2.47	0.46
3:2:2521:G:H2'	3:2:2522:7MG:H82	1.96	0.46
13:F:13:TYR:O	13:F:18:ASN:ND2	2.42	0.46
15:H:19:LYS:NZ	15:H:23:ASP:OD2	2.48	0.46
44:t:114:ARG:HD2	44:t:117:GLN:HE21	1.81	0.46
3:2:4911:A:OP2	9:B:100:ARG:NH1	2.48	0.46
13:F:3:GLN:HE22	13:F:30:ILE:H	1.63	0.46
3:2:1697:G:N2	3:2:2084:C:OP1	2.48	0.46
16:I:51:LYS:HA	16:I:51:LYS:HD2	1.74	0.46
19:M:33:THR:HA	19:M:40:PRO:HD3	1.97	0.46
26:U:75:VAL:HG21	26:U:80:THR:HG22	1.97	0.46
28:W:14:LYS:HG2	28:W:77:CYS:HB2	1.97	0.46
3:2:1396:G:O2'	3:2:1468:C:O2'	2.30	0.46
3:2:2308:A:N3	7:8:19:C:O2'	2.47	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:60:ARG:HH11	8:A:61:PRO:HD2	1.81	0.46
30:Y:46:LYS:HA	30:Y:46:LYS:HD3	1.72	0.46
30:Y:117:ILE:HD12	30:Y:148:MET:HE2	1.96	0.46
39:h:54:GLU:HB2	39:h:108:ARG:HB3	1.96	0.46
42:m:179:ILE:HG23	42:m:184:ARG:HB2	1.98	0.46
44:t:26:ASP:OD1	44:t:26:ASP:N	2.41	0.46
47:w:60:GLU:OE2	47:w:192:HIS:NE2	2.48	0.46
3:2:907:C:H2'	3:2:908:G:H8	1.80	0.46
3:2:931:C:OP1	3:2:934:C:N4	2.37	0.46
3:2:4520:G:H8	9:B:2:SER:HB2	1.81	0.46
23:Q:16:LYS:O	23:Q:21:ARG:NH1	2.42	0.46
30:Y:30:ARG:HD2	30:Y:63:TYR:HE2	1.81	0.46
46:v:167:GLN:HE21	46:v:171:GLY:HA2	1.80	0.46
46:v:223:ARG:HA	46:v:223:ARG:CZ	2.45	0.46
48:z:287:LYS:HB3	48:z:288:LYS:CE	2.46	0.46
3:2:4208:U:OP2	34:c:4:THR:OG1	2.29	0.46
45:u:110:ILE:O	46:v:141:ARG:NH2	2.38	0.46
3:2:1761:G:H5''	4:3:167:LYS:HG3	1.98	0.46
3:2:2674:A:N6	29:X:41:PHE:O	2.49	0.46
3:2:2695:A:H4'	21:O:26:LYS:HE3	1.98	0.46
3:2:4093:G:H2'	3:2:4094:G:H8	1.81	0.46
3:2:4620:OMU:H1'	3:2:4620:OMU:HM23	1.71	0.46
21:O:54:GLU:HA	21:O:57:LYS:HG2	1.97	0.46
31:Z:59:PRO:HG3	31:Z:143:ARG:HA	1.98	0.46
43:r:223:PHE:HB3	43:r:226:TYR:HB2	1.98	0.46
3:2:942:G:OP1	47:w:245:ARG:NH1	2.47	0.46
3:2:977:C:OP2	46:v:59:ARG:NH2	2.48	0.46
3:2:1245:C:H2'	3:2:1246:G:H8	1.80	0.46
3:2:3886:G:H5''	27:V:82:ARG:HH22	1.81	0.46
3:2:4741:C:HO2'	3:2:4950:U:H3	1.63	0.46
9:B:300:LYS:O	9:B:304:SER:OG	2.33	0.46
17:K:99:LYS:O	17:K:103:LYS:NZ	2.42	0.46
43:r:262:LYS:HE2	43:r:262:LYS:HB3	1.82	0.46
44:t:91:CYS:HB3	44:t:95:TYR:HD2	1.80	0.46
3:2:1458:C:H5''	31:Z:69:LYS:HD2	1.97	0.46
4:3:167:LYS:HE2	4:3:251:LYS:HB3	1.97	0.46
7:8:102:G:OP2	7:8:104:A:O2'	2.25	0.46
14:G:132:ARG:HA	14:G:133:PRO:HD3	1.84	0.46
23:Q:170:THR:OG1	23:Q:171:GLU:N	2.49	0.46
44:t:64:LYS:HA	44:t:67:LYS:HB2	1.98	0.46
1:0:332:LYS:HE2	35:d:45:GLU:HA	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:2:644:G:H3'	3:2:645:G:H8	1.80	0.45
3:2:1704:C:OP1	47:w:43:ARG:NH1	2.49	0.45
3:2:4139:G:H21	3:2:4140:C:H41	1.63	0.45
3:2:4691:A:H4'	16:I:71:ARG:HG2	1.98	0.45
3:2:5055:G:H2'	3:2:5056:A:H8	1.81	0.45
3:2:382:G:O2'	3:2:407:A:N6	2.48	0.45
3:2:1174:G:N2	3:2:1188:C:N3	2.64	0.45
5:5:2:U:O4	5:5:117:G:O6	2.34	0.45
35:d:106:SER:OG	35:d:107:LYS:N	2.48	0.45
48:z:354:LEU:HD12	48:z:354:LEU:HA	1.87	0.45
3:2:4363:A:H5''	28:W:36:GLN:HG2	1.99	0.45
3:2:4467:A:O2'	3:2:4510:A:N3	2.41	0.45
10:C:101:HIS:O	10:C:109:ARG:NH1	2.46	0.45
21:O:20:ALA:HA	21:O:38:CYS:HA	1.99	0.45
3:2:1326:A2M:OP2	3:2:4445:U:O2'	2.32	0.45
3:2:2578:G:OP1	40:i:111:ARG:NH2	2.49	0.45
25:T:59:THR:O	25:T:59:THR:OG1	2.32	0.45
25:T:64:ILE:HG23	25:T:68:LEU:HD23	1.99	0.45
26:U:96:ARG:NH2	26:U:104:GLU:OE2	2.45	0.45
3:2:2498:C:H2'	3:2:2499:C:H6	1.82	0.45
3:2:4327:C:OP1	34:c:70:HIS:NE2	2.47	0.45
4:3:254:VAL:HG13	4:3:307:LEU:HB2	1.98	0.45
14:G:55:VAL:HG12	38:g:44:PRO:HA	1.99	0.45
14:G:187:LYS:HB3	14:G:187:LYS:HE2	1.71	0.45
46:v:74:SER:OG	46:v:75:ALA:N	2.49	0.45
3:2:280:G:N2	3:2:306:A:OP2	2.36	0.45
3:2:4101:C:H42	3:2:4107:G:H22	1.65	0.45
9:B:302:ASN:HB2	9:B:313:SER:HA	1.99	0.45
18:L:99:PRO:HG2	18:L:122:VAL:HG23	1.98	0.45
26:U:68:ARG:HA	26:U:98:LEU:HD21	1.99	0.45
43:r:164:LYS:HD3	43:r:195:HIS:HE1	1.82	0.45
8:A:152:LYS:HE2	8:A:152:LYS:HB2	1.79	0.45
22:P:16:LYS:HA	22:P:16:LYS:HD2	1.78	0.45
31:Z:61:LEU:HB3	31:Z:86:ILE:HD13	1.97	0.45
40:i:30:ASP:HA	40:i:39:SER:HB2	1.99	0.45
3:2:510:U:OP1	23:Q:163:LYS:NZ	2.49	0.45
9:B:136:LYS:HG3	9:B:146:LEU:HD11	1.99	0.45
15:H:89:ARG:O	15:H:93:ARG:HG2	2.17	0.45
29:X:64:VAL:HG22	42:m:83:HIS:HB3	1.98	0.45
36:e:131:ARG:H	36:e:131:ARG:HG2	1.56	0.45
48:z:22:LYS:HE3	48:z:331:MET:HE1	1.97	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:2:4306:OMU:H1'	3:2:4306:OMU:HM23	1.71	0.45
3:2:4992:G:H2'	3:2:4993:G:C8	2.52	0.45
6:6:155:SER:OG	6:6:158:GLY:O	2.34	0.45
36:e:99:GLU:HB2	37:f:24:THR:HG23	1.97	0.45
1:0:236:GLU:HA	1:0:237:GLU:HA	1.71	0.45
1:0:436:GLY:O	1:0:440:MET:HB2	2.17	0.45
1:0:469:MET:O	1:0:470:HIS:ND1	2.50	0.45
3:2:1378:C:N4	23:Q:159:ASN:O	2.50	0.45
14:G:123:ALA:HA	14:G:124:GLY:HA2	1.68	0.45
27:V:54:TYR:OH	27:V:73:PHE:O	2.35	0.45
41:l:26:SER:OG	41:l:28:GLU:OE1	2.35	0.45
20:N:40:LEU:O	20:N:44:THR:OG1	2.36	0.44
24:S:16:SER:OG	24:S:54:CYS:O	2.35	0.44
26:U:135:ILE:HG23	26:U:142:ILE:HD13	1.99	0.44
28:W:3:ASN:ND2	28:W:96:ASP:O	2.50	0.44
33:b:74:ARG:O	33:b:76:LYS:NZ	2.43	0.44
3:2:1963:C:H2'	3:2:1964:A:H8	1.82	0.44
3:2:3700:C:O2'	3:2:3774:A:N3	2.43	0.44
3:2:4149:C:OP1	40:i:59:LYS:N	2.49	0.44
12:E:32:LYS:HB3	12:E:32:LYS:HE2	1.87	0.44
18:L:132:ARG:HA	18:L:135:GLU:HG2	1.98	0.44
23:Q:50:PRO:HB3	23:Q:150:LEU:HB3	1.99	0.44
29:X:46:LYS:HE3	29:X:46:LYS:HB3	1.81	0.44
3:2:495:C:H2'	3:2:496:G:C5	2.52	0.44
4:3:265:LEU:HD22	4:3:292:ALA:HB1	1.99	0.44
8:A:94:ASN:HB3	8:A:95:LYS:HD2	1.99	0.44
1:0:473:VAL:HG22	1:0:475:VAL:H	1.82	0.44
3:2:1802:A:H5''	3:2:1803:G:H5'	1.99	0.44
3:2:2112:G:O2'	3:2:2250:C:N4	2.50	0.44
3:2:3799:A:N3	3:2:4506:C:O2'	2.47	0.44
3:2:3861:A:H2'	3:2:3862:A:C8	2.53	0.44
8:A:36:ILE:HG22	8:A:165:LEU:HB2	1.99	0.44
26:U:104:GLU:HA	26:U:160:GLU:HG3	1.99	0.44
31:Z:122:THR:H	31:Z:125:GLN:HE21	1.65	0.44
3:2:382:G:N1	3:2:385:A:OP2	2.43	0.44
3:2:461:G:H2'	3:2:462:G:C8	2.52	0.44
3:2:4093:G:H2'	3:2:4094:G:C8	2.52	0.44
3:2:4940:C:H5''	46:v:219:LYS:HE2	1.98	0.44
8:A:105:LYS:HB3	8:A:105:LYS:HE2	1.75	0.44
3:2:97:G:N7	23:Q:13:HIS:NE2	2.61	0.44
3:2:2809:G:O2'	3:2:4644:G:OP1	2.31	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:O:14:THR:HA	21:O:17:ARG:HD3	1.99	0.44
38:g:85:SER:HA	38:g:88:LYS:HE3	2.00	0.44
41:l:28:GLU:HG2	41:l:31:ASN:HB2	2.00	0.44
3:2:180:C:N3	3:2:181:C:H1'	2.33	0.44
3:2:2558:C:H2'	3:2:2559:G:H8	1.82	0.44
9:B:219:VAL:HG11	9:B:337:VAL:HG13	1.98	0.44
13:F:41:ALA:O	13:F:52:ARG:NH1	2.44	0.44
24:S:36:ALA:O	24:S:49:ALA:HA	2.18	0.44
29:X:80:LYS:HB3	29:X:80:LYS:HE2	1.66	0.44
35:d:74:SER:HB3	35:d:76:VAL:HG22	1.99	0.44
36:e:82:ILE:HG13	36:e:83:ARG:HG3	1.99	0.44
40:i:96:VAL:HG12	40:i:110:ALA:HB1	2.00	0.44
48:z:287:LYS:HB3	48:z:288:LYS:NZ	2.32	0.44
48:z:295:GLU:O	48:z:298:LYS:N	2.49	0.44
1:0:393:HIS:CD2	35:d:98:ASP:HB3	2.52	0.44
3:2:1429:C:H4'	31:Z:136:THR:HG22	2.00	0.44
3:2:2574:G:N7	3:2:2760:G:N2	2.66	0.44
3:2:4686:G:H21	16:I:163:GLN:HE22	1.66	0.44
9:B:92:TYR:OH	9:B:182:GLU:OE1	2.35	0.44
16:I:104:VAL:HB	16:I:113:GLU:HG3	2.00	0.44
28:W:4:VAL:O	28:W:94:GLY:N	2.49	0.44
36:e:25:VAL:HA	36:e:37:LEU:O	2.18	0.44
36:e:66:LYS:HA	36:e:66:LYS:HD3	1.73	0.44
6:6:111:ASN:HD21	6:6:114:VAL:HB	1.82	0.44
20:N:120:ASP:HB2	20:N:123:ILE:HG12	2.00	0.44
39:h:88:GLU:HA	39:h:94:THR:HA	2.00	0.44
3:2:97:G:OP1	23:Q:16:LYS:NZ	2.46	0.43
3:2:417:G:N3	7:8:16:G:N1	2.66	0.43
3:2:1433:A:N6	3:2:1451:G:O2'	2.51	0.43
3:2:2613:C:H4'	13:F:2:VAL:HG23	1.99	0.43
4:3:372:GLY:HA3	8:A:121:PRO:HB2	1.99	0.43
5:5:11:A:O2'	5:5:13:A:OP2	2.27	0.43
29:X:24:LYS:HB3	29:X:24:LYS:HE2	1.83	0.43
40:i:94:THR:HG23	40:i:95:VAL:HG23	2.00	0.43
3:2:2486:G:H3'	3:2:2487:G:C8	2.53	0.43
3:2:4739:C:N4	3:2:4740:G:N7	2.67	0.43
6:6:74:ASN:HB3	6:6:98:GLU:HA	2.00	0.43
9:B:95:THR:HG22	9:B:97:ARG:H	1.83	0.43
10:C:106:LYS:HE2	10:C:106:LYS:HB2	1.90	0.43
44:t:124:ASN:OD1	44:t:124:ASN:N	2.49	0.43
3:2:667:A:H5''	3:2:668:C:H5''	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:2:3893:C:O2'	3:2:4979:A:N1	2.46	0.43
9:B:49:TYR:OH	9:B:168:MET:SD	2.74	0.43
14:G:136:LEU:HD13	14:G:202:VAL:HG11	1.99	0.43
15:H:99:GLU:HG2	26:U:144:ARG:HG3	2.01	0.43
3:2:320:C:OP1	17:K:84:LYS:NZ	2.41	0.43
3:2:3723:A2M:H62	3:2:3730:U:H3	1.66	0.43
3:2:4736:C:H2'	3:2:4737:G:C8	2.52	0.43
6:6:25:LEU:HD23	6:6:49:VAL:HG13	1.99	0.43
6:6:84:ILE:HD12	6:6:84:ILE:HA	1.85	0.43
11:D:353:LYS:HD2	11:D:353:LYS:HA	1.88	0.43
16:I:129:ARG:HA	16:I:129:ARG:HD3	1.75	0.43
23:Q:97:SER:OG	23:Q:97:SER:O	2.32	0.43
35:d:38:ASN:OD1	35:d:90:TYR:OH	2.36	0.43
46:v:201:ILE:HD13	46:v:261:ILE:HG12	2.00	0.43
3:2:469:C:H2'	3:2:470:A:H8	1.83	0.43
3:2:2362:U:H2'	3:2:2363:A2M:H8	2.01	0.43
3:2:4492:U:O2'	3:2:4512:U:O2	2.28	0.43
5:5:6:C:O2'	43:r:50:ARG:NH2	2.51	0.43
9:B:48:GLY:HA3	9:B:81:THR:HG22	2.00	0.43
11:D:186:SER:O	11:D:186:SER:OG	2.28	0.43
16:I:126:VAL:HG11	16:I:161:ILE:HG22	2.00	0.43
48:z:63:ILE:O	48:z:72:LYS:NZ	2.50	0.43
3:2:2714:G:H2'	3:2:2715:G:H8	1.83	0.43
8:A:149:ASP:HA	8:A:152:LYS:HB3	2.00	0.43
14:G:37:LYS:HE2	14:G:37:LYS:HB3	1.85	0.43
26:U:73:ARG:HA	26:U:74:PRO:HD3	1.90	0.43
44:t:91:CYS:O	44:t:93:LYS:N	2.51	0.43
6:6:218:VAL:HG23	6:6:222:PHE:HD2	1.84	0.43
22:P:21:ARG:HH12	22:P:24:PRO:HG3	1.83	0.43
23:Q:80:GLU:OE1	23:Q:104:ASN:ND2	2.45	0.43
23:Q:198:ARG:HA	23:Q:201:GLU:HG2	2.01	0.43
25:T:59:THR:OG1	25:T:104:THR:OG1	2.27	0.43
27:V:12:ARG:HD3	27:V:37:ARG:NH2	2.34	0.43
43:r:208:MET:HG3	43:r:219:TYR:HE1	1.83	0.43
3:2:975:C:O3'	47:w:47:ARG:NH2	2.51	0.43
9:B:36:ASP:OD1	9:B:36:ASP:N	2.51	0.43
20:N:46:GLN:HE22	20:N:74:VAL:HA	1.84	0.43
36:e:48:ARG:NH1	36:e:51:ARG:HH22	2.16	0.43
43:r:60:ILE:HB	43:r:80:ALA:HB2	2.01	0.43
43:r:103:LEU:HD11	43:r:248:ARG:HE	1.84	0.43
47:w:247:MET:HE3	47:w:247:MET:HB2	1.85	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:2:989:U:O2	3:2:1064:G:C6	2.72	0.43
3:2:4088:C:H2'	3:2:4089:G:C8	2.54	0.43
3:2:4881:U:C4	24:S:113:MET:HG3	2.53	0.43
5:5:34:C:N3	5:5:46:C:O2'	2.49	0.43
6:6:143:ALA:HB3	6:6:162:HIS:CE1	2.54	0.43
11:D:156:ASP:OD2	11:D:255:SER:OG	2.32	0.43
21:O:24:LYS:HE2	21:O:24:LYS:HB2	1.81	0.43
29:X:42:CYS:N	29:X:60:CYS:SG	2.91	0.43
37:f:1:MET:HG3	37:f:15:PRO:HG2	2.00	0.43
3:2:352:G:H21	3:2:360:A:H62	1.67	0.43
3:2:1355:G:OP1	31:Z:108:ARG:NH1	2.50	0.43
3:2:4288:C:O2'	3:2:4321:U:OP1	2.26	0.43
15:H:46:LYS:HB2	15:H:46:LYS:HE3	1.79	0.43
20:N:109:ILE:O	20:N:127:GLY:HA3	2.18	0.43
30:Y:69:ARG:HA	30:Y:80:GLN:HA	2.01	0.43
31:Z:97:LYS:HE2	31:Z:97:LYS:HB2	1.83	0.43
1:0:328:LYS:HB3	1:0:330:HIS:HD2	1.84	0.42
19:M:85:LYS:HA	19:M:86:PRO:HD2	1.93	0.42
43:r:218:ALA:HA	43:r:221:LYS:HG2	2.01	0.42
44:t:11:LYS:HA	44:t:11:LYS:HD2	1.77	0.42
3:2:1397:A:C8	18:L:114:LYS:HD2	2.54	0.42
4:3:311:LYS:HG3	4:3:312:GLN:HG3	2.00	0.42
23:Q:46:ILE:HB	23:Q:49:ARG:HD2	2.02	0.42
31:Z:14:ARG:HE	31:Z:14:ARG:HB2	1.60	0.42
32:a:99:MET:HE1	32:a:127:VAL:HG12	2.01	0.42
43:r:116:ASP:OD1	43:r:117:LYS:NZ	2.40	0.42
46:v:128:HIS:O	46:v:128:HIS:ND1	2.51	0.42
3:2:1197:C:H2'	3:2:1198:G:C8	2.54	0.42
3:2:1594:C:O2'	3:2:1597:G:O2'	2.34	0.42
3:2:1914:C:H4'	27:V:89:PRO:HD3	2.01	0.42
3:2:2773:OMG:H5''	21:O:39:SER:HB3	2.01	0.42
3:2:4700:A:N1	16:I:72:THR:HG21	2.34	0.42
11:D:7:LEU:HG	11:D:21:ASN:HB3	2.01	0.42
39:h:2:LYS:HB3	39:h:2:LYS:HE3	1.79	0.42
39:h:103:LYS:HA	39:h:103:LYS:HD3	1.93	0.42
43:r:51:MET:HA	43:r:63:GLN:O	2.19	0.42
3:2:1591:U:N3	3:2:4555:U:OP1	2.43	0.42
3:2:2307:A:N3	3:2:2333:G:O2'	2.49	0.42
3:2:3716:C:H42	3:2:3735:G:H2'	1.85	0.42
30:Y:96:LYS:HA	30:Y:99:GLU:HG2	2.01	0.42
36:e:27:ASN:O	36:e:102:ALA:HA	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
43:r:55:VAL:HG13	43:r:60:ILE:HG12	2.01	0.42
48:z:274:ASP:HB3	48:z:275:ALA:H	1.62	0.42
3:2:110:C:OP1	23:Q:89:LYS:NZ	2.52	0.42
4:3:341:THR:HB	4:3:367:HIS:HB3	2.01	0.42
11:D:166:GLU:H	11:D:166:GLU:HG2	1.69	0.42
16:I:105:ILE:HG13	16:I:109:GLY:HA2	2.02	0.42
22:P:26:TRP:CD1	22:P:26:TRP:H	2.37	0.42
41:l:20:ARG:O	41:l:22:LYS:N	2.52	0.42
3:2:85:G:O2'	3:2:97:G:O6	2.33	0.42
3:2:451:C:H3'	3:2:1294:A:H2	1.85	0.42
3:2:1578:U:H4'	29:X:17:ARG:HH22	1.84	0.42
3:2:4370:OMG:H4'	28:W:64:LYS:HE3	2.00	0.42
3:2:4393:G:O4'	3:2:4447:5MC:HM52	2.20	0.42
4:3:155:ALA:HA	4:3:240:SER:O	2.20	0.42
11:D:320:LYS:HB3	11:D:320:LYS:HE3	1.86	0.42
20:N:51:SER:HB3	20:N:69:ALA:HB3	2.00	0.42
24:S:114:LYS:HA	24:S:114:LYS:HD2	1.89	0.42
3:2:405:U:O2'	3:2:407:A:N7	2.44	0.42
3:2:1197:C:H2'	3:2:1198:G:H8	1.85	0.42
3:2:2516:G:OP1	13:F:60:ARG:NH1	2.53	0.42
3:2:3707:U:O2	3:2:3743:G:O6	2.37	0.42
9:B:128:LYS:HB3	9:B:128:LYS:HE2	1.94	0.42
11:D:60:HIS:HA	11:D:92:PHE:HE1	1.84	0.42
14:G:50:ASP:OD1	14:G:52:THR:OG1	2.28	0.42
16:I:28:LYS:HE2	16:I:28:LYS:HB2	1.75	0.42
41:l:112:ARG:HB2	44:t:90:MET:HE1	2.02	0.42
3:2:1564:A:H2'	3:2:1565:A:C5	2.55	0.42
4:3:289:LEU:HD13	4:3:342:LEU:HB2	2.01	0.42
6:6:118:HIS:HA	6:6:119:PRO:HD3	1.87	0.42
6:6:143:ALA:HB3	6:6:162:HIS:HE1	1.85	0.42
19:M:37:CYS:HB2	19:M:39:TYR:H	1.84	0.42
24:S:72:TYR:HA	24:S:75:GLN:HG2	2.02	0.42
31:Z:158:THR:HB	31:Z:159:PRO:HD2	2.01	0.42
46:v:211:HIS:H	46:v:211:HIS:CD2	2.38	0.42
1:0:246:LEU:H	1:0:301:VAL:HG13	1.84	0.42
3:2:727:C:OP1	47:w:73:ARG:NH2	2.49	0.42
3:2:3615:G:H5'	37:f:48:GLN:HG2	2.02	0.42
3:2:3717:A:H2'	3:2:3718:A2M:C8	2.50	0.42
3:2:3732:A:H2'	3:2:3733:A:C8	2.55	0.42
5:5:58:A:H2'	5:5:59:G:C8	2.55	0.42
12:E:80:GLU:HA	12:E:83:THR:HG22	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:V:58:LEU:HD23	27:V:58:LEU:HA	1.88	0.42
31:Z:158:THR:O	31:Z:188:ASN:ND2	2.39	0.42
39:h:134:LYS:HD3	39:h:134:LYS:HA	1.90	0.42
46:v:157:HIS:HB3	46:v:160:LYS:HD2	2.01	0.42
3:2:35:U:O2'	3:2:1525:A:N1	2.49	0.42
3:2:66:A:O2'	3:2:326:C:O2	2.38	0.42
3:2:3620:G:OP1	3:2:3622:C:N4	2.53	0.42
3:2:4577:U:H2'	3:2:4578:G:C8	2.55	0.42
3:2:5002:U:H4'	9:B:375:GLY:HA3	2.02	0.42
3:2:5055:G:H2'	3:2:5056:A:C8	2.55	0.42
10:C:40:LEU:HD12	10:C:40:LEU:HA	1.83	0.42
14:G:257:LYS:HA	14:G:257:LYS:HD3	1.82	0.42
28:W:66:ILE:HB	28:W:85:ILE:HG13	2.02	0.42
33:b:58:SER:O	33:b:58:SER:OG	2.28	0.42
41:l:122:LYS:HB2	41:l:122:LYS:HE3	1.84	0.42
3:2:3621:A:O2'	3:2:4658:G:O2'	2.36	0.41
3:2:3937:C:H1'	26:U:125:SER:HB3	2.02	0.41
8:A:58:THR:HG21	8:A:182:ASN:HD21	1.84	0.41
24:S:41:PRO:HB2	24:S:74:ARG:HB2	2.02	0.41
46:v:177:GLY:HA3	46:v:184:VAL:HB	2.00	0.41
47:w:124:LYS:HB3	47:w:124:LYS:HE2	1.88	0.41
47:w:161:LYS:HB3	47:w:161:LYS:HE2	1.84	0.41
3:2:256:G:H2'	3:2:257:C:C6	2.55	0.41
3:2:257:C:H2'	3:2:258:G:C8	2.55	0.41
3:2:512:U:O4	3:2:647:G:O6	2.39	0.41
3:2:2382:A:N1	3:2:2829:U:O2'	2.49	0.41
4:3:344:GLU:HG2	4:3:362:ARG:HG2	2.02	0.41
8:A:15:ARG:HH22	8:A:216:LEU:HD11	1.85	0.41
11:D:335:MET:O	11:D:339:THR:HG23	2.20	0.41
15:H:52:LYS:HA	15:H:52:LYS:HD3	1.85	0.41
46:v:72:LYS:HB3	46:v:72:LYS:HE2	1.84	0.41
3:2:2422:OMC:HM21	3:2:3857:G:H1'	2.02	0.41
3:2:4680:G:H2'	3:2:4681:A:C8	2.56	0.41
8:A:100:VAL:HG11	8:A:127:GLY:HA3	2.02	0.41
29:X:14:TYR:OH	29:X:30:GLU:OE2	2.35	0.41
31:Z:172:ARG:HA	31:Z:176:ARG:HG3	2.01	0.41
40:i:121:ARG:HD2	40:i:126:LYS:HB3	2.01	0.41
3:2:268:G:H2'	3:2:269:G:C8	2.54	0.41
3:2:1084:C:H2'	3:2:1085:C:C6	2.55	0.41
3:2:1444:G:N2	3:2:2103:G:H1	2.18	0.41
3:2:4939:C:H3'	46:v:156:ARG:HH21	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:3:329:ARG:CZ	4:3:334:GLY:HA2	2.50	0.41
9:B:386:LYS:HB2	9:B:386:LYS:HE2	1.96	0.41
17:K:52:PRO:HG3	17:K:55:ARG:HH21	1.85	0.41
21:O:67:LYS:HA	21:O:67:LYS:HD2	1.80	0.41
26:U:116:LEU:HD22	26:U:135:ILE:HD11	2.02	0.41
48:z:228:VAL:O	48:z:318:GLN:HA	2.21	0.41
3:2:4271:A:OP1	3:2:4272:G:N2	2.53	0.41
3:2:4577:U:H2'	3:2:4578:G:H8	1.86	0.41
3:2:4882:U:OP1	24:S:117:LYS:NZ	2.53	0.41
5:5:28:C:O2'	5:5:54:A:N1	2.44	0.41
9:B:28:LYS:HB2	9:B:28:LYS:HE3	1.81	0.41
10:C:12:GLN:HB3	10:C:16:TRP:CZ3	2.56	0.41
23:Q:200:LYS:HE2	23:Q:200:LYS:HB3	1.86	0.41
29:X:11:VAL:HG11	29:X:26:VAL:HG23	2.03	0.41
3:2:4238:G:H2'	3:2:4239:A:C8	2.56	0.41
3:2:4690:B8K:O4'	3:2:4690:B8K:C5'	2.55	0.41
3:2:4940:C:H5'	3:2:4941:G:H5''	2.01	0.41
3:2:5030:U:H2'	3:2:5031:G:C8	2.55	0.41
6:6:33:ASN:OD1	6:6:33:ASN:N	2.53	0.41
9:B:107:ALA:HB2	9:B:201:LEU:HD22	2.01	0.41
12:E:48:LEU:HD13	12:E:57:LYS:HG3	2.02	0.41
18:L:76:ASP:OD1	18:L:76:ASP:N	2.53	0.41
38:g:88:LYS:O	38:g:92:ASP:HB2	2.21	0.41
39:h:72:GLN:HB3	39:h:81:TYR:HB2	2.03	0.41
3:2:737:C:C4	3:2:739:G:H5''	2.56	0.41
3:2:2693:G:H2'	3:2:2694:G:N2	2.35	0.41
3:2:4393:G:H22	3:2:4397:A:H62	1.69	0.41
3:2:4396:A:H5''	3:2:4443:C:C4	2.56	0.41
5:5:58:A:H2'	5:5:59:G:H8	1.85	0.41
15:H:104:THR:HG23	26:U:146:PRO:HB2	2.02	0.41
16:I:6:SER:HB3	16:I:67:LEU:HD22	2.02	0.41
16:I:94:SER:HA	16:I:179:ILE:HA	2.02	0.41
16:I:105:ILE:HD12	16:I:105:ILE:HA	1.93	0.41
28:W:33:LEU:HA	28:W:38:LYS:HG2	2.02	0.41
46:v:149:ILE:O	46:v:197:THR:OG1	2.27	0.41
46:v:264:ILE:HA	46:v:265:PRO:HD3	1.86	0.41
3:2:416:U:O2	7:8:17:A:N6	2.53	0.41
3:2:1259:G:N2	3:2:1260:G:O6	2.54	0.41
3:2:1589:C:O2'	3:2:2857:A:OP1	2.39	0.41
4:3:384:ASN:N	4:3:384:ASN:OD1	2.46	0.41
7:8:37:A:OP2	15:H:89:ARG:NH1	2.44	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:B:57:VAL:HB	9:B:367:PHE:HB3	2.02	0.41
33:b:51:LEU:HD12	34:c:151:LEU:HD13	2.03	0.41
34:c:27:LEU:HD23	43:r:33:ARG:HH21	1.85	0.41
42:m:229:ALA:HB3	42:m:234:LYS:HB3	2.03	0.41
46:v:190:HIS:CD2	46:v:192:LYS:HB2	2.56	0.41
3:2:120:A:H2'	3:2:149:A:N6	2.36	0.41
3:2:138:G:H2'	3:2:139:G:C8	2.54	0.41
3:2:459:C:H2'	3:2:460:C:H6	1.85	0.41
3:2:1261:G:H2'	3:2:1262:G:C8	2.56	0.41
3:2:3641:U:H5	3:2:3646:A:N7	2.19	0.41
3:2:4741:C:C4	3:2:4950:U:H1'	2.56	0.41
3:2:5016:A:N1	3:2:5033:G:N3	2.68	0.41
7:8:8:U:H2'	7:8:9:A:C8	2.56	0.41
10:C:32:LEU:HD13	10:C:40:LEU:HD11	2.02	0.41
20:N:115:LEU:HA	20:N:116:GLY:HA2	1.74	0.41
24:S:71:LYS:HE3	24:S:71:LYS:HB2	1.91	0.41
29:X:30:GLU:HA	29:X:33:GLN:HG2	2.03	0.41
39:h:54:GLU:OE2	39:h:108:ARG:NH1	2.54	0.41
42:m:45:VAL:HB	42:m:61:VAL:HG22	2.03	0.41
42:m:147:ARG:HD2	42:m:147:ARG:HA	1.85	0.41
44:t:37:LYS:HA	44:t:38:PRO:HD3	1.93	0.41
48:z:155:ARG:O	48:z:158[B]:LYS:HD2	2.20	0.41
3:2:1302:U:H3'	3:2:1303:A:C8	2.56	0.41
3:2:3857:G:H5''	30:Y:86:LYS:HB2	2.03	0.41
3:2:4122:G:N7	13:F:97:ILE:HD11	2.35	0.41
8:A:36:ILE:HD12	8:A:204:LEU:HB3	2.02	0.41
8:A:119:GLN:O	8:A:123:ILE:HG12	2.21	0.41
9:B:141:ASP:OD1	9:B:144:LYS:NZ	2.51	0.41
11:D:140:LYS:HD3	11:D:245:HIS:HB2	2.03	0.41
16:I:53:LYS:HE3	16:I:53:LYS:HB3	1.95	0.41
37:f:9:SER:HB3	37:f:51:TRP:HZ3	1.86	0.41
37:f:52:THR:O	37:f:56:ARG:HG2	2.20	0.41
40:i:92:ASP:HB2	40:i:94:THR:HG22	2.03	0.41
3:2:1933:G:H2'	3:2:1934:A:C8	2.56	0.40
3:2:2029:A:H2'	3:2:2030:A:C8	2.56	0.40
19:M:67:LEU:HD23	19:M:67:LEU:HA	1.85	0.40
27:V:202:LEU:HD23	27:V:202:LEU:HA	1.92	0.40
28:W:30:LYS:HB3	28:W:30:LYS:HE2	1.86	0.40
41:l:96:MET:HE3	41:l:96:MET:HB2	1.88	0.40
46:v:207:LYS:O	46:v:256:GLN:NE2	2.53	0.40
3:2:92:C:OP2	3:2:4341:C:O2'	2.33	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:2:935:A:O2'	24:S:44:GLN:O	2.33	0.40
3:2:2870:A:H2'	3:2:2871:A:C8	2.56	0.40
3:2:5002:U:H2'	3:2:5003:U:C6	2.56	0.40
3:2:185:C:C5	23:Q:44:ARG:HD3	2.56	0.40
3:2:2536:A:H5'	21:O:42:LEU:HD22	2.02	0.40
8:A:36:ILE:HD12	8:A:36:ILE:HA	1.99	0.40
18:L:71:PRO:HG2	18:L:108:TYR:HA	2.02	0.40
24:S:107:PHE:HB2	46:v:199:THR:HG21	2.02	0.40
38:g:156:ILE:HG23	48:z:291:MET:CE	2.51	0.40
1:0:244:PRO:HA	1:0:245:PRO:HA	1.91	0.40
3:2:1244:G:H2'	3:2:1245:C:C6	2.57	0.40
3:2:2102:G:O2'	3:2:2103:G:N7	2.51	0.40
3:2:2739:C:N4	42:m:177:LYS:O	2.39	0.40
7:8:78:G:H2'	7:8:79:G:O4'	2.22	0.40
9:B:229:LYS:HA	9:B:229:LYS:HD2	1.84	0.40
38:g:54:LEU:HD23	38:g:54:LEU:HA	1.91	0.40
39:h:10:ASP:HB3	39:h:13:LYS:HB2	2.03	0.40
42:m:226:ARG:H	42:m:226:ARG:HG2	1.66	0.40
3:2:1548:G:O2'	3:2:2812:A:N3	2.43	0.40
3:2:2460:A:O2'	26:U:96:ARG:NH1	2.53	0.40
5:5:77:A:H62	5:5:99:G:H21	1.69	0.40
9:B:139:ASP:OD2	9:B:142:GLY:N	2.54	0.40
12:E:30:GLY:O	12:E:34:THR:OG1	2.28	0.40
12:E:49:ALA:O	12:E:57:LYS:NZ	2.48	0.40
17:K:87:ARG:O	17:K:91:SER:OG	2.35	0.40
20:N:161:GLU:HA	20:N:164:ARG:HB2	2.02	0.40
35:d:100:LEU:HD23	35:d:112:LEU:HD22	2.04	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	184/477 (39%)	158 (86%)	25 (14%)	1 (0%)	25	55
2	1	223/658 (34%)	183 (82%)	40 (18%)	0	100	100
4	3	251/534 (47%)	227 (90%)	23 (9%)	1 (0%)	30	60
6	6	222/245 (91%)	208 (94%)	14 (6%)	0	100	100
8	A	210/217 (97%)	184 (88%)	22 (10%)	4 (2%)	6	25
9	B	400/403 (99%)	372 (93%)	28 (7%)	0	100	100
10	C	88/159 (55%)	84 (96%)	4 (4%)	0	100	100
11	D	355/427 (83%)	326 (92%)	28 (8%)	1 (0%)	37	65
12	E	92/115 (80%)	82 (89%)	10 (11%)	0	100	100
13	F	107/117 (92%)	104 (97%)	3 (3%)	0	100	100
14	G	229/266 (86%)	212 (93%)	17 (7%)	0	100	100
15	H	120/123 (98%)	114 (95%)	6 (5%)	0	100	100
16	I	188/192 (98%)	169 (90%)	19 (10%)	0	100	100
17	K	100/105 (95%)	92 (92%)	7 (7%)	1 (1%)	13	40
18	L	145/148 (98%)	131 (90%)	14 (10%)	0	100	100
19	M	84/97 (87%)	79 (94%)	5 (6%)	0	100	100
20	N	160/178 (90%)	146 (91%)	14 (9%)	0	100	100
21	O	66/70 (94%)	64 (97%)	2 (3%)	0	100	100
22	P	48/51 (94%)	45 (94%)	3 (6%)	0	100	100
23	Q	208/211 (99%)	188 (90%)	20 (10%)	0	100	100
24	S	132/215 (61%)	125 (95%)	7 (5%)	0	100	100
25	T	105/125 (84%)	96 (91%)	9 (9%)	0	100	100
26	U	201/204 (98%)	190 (94%)	9 (4%)	2 (1%)	13	40
27	V	197/203 (97%)	189 (96%)	8 (4%)	0	100	100
28	W	103/106 (97%)	95 (92%)	8 (8%)	0	100	100
29	X	89/92 (97%)	85 (96%)	4 (4%)	0	100	100
30	Y	151/184 (82%)	140 (93%)	11 (7%)	0	100	100
31	Z	185/188 (98%)	174 (94%)	11 (6%)	0	100	100
32	a	143/196 (73%)	136 (95%)	7 (5%)	0	100	100
33	b	173/176 (98%)	163 (94%)	10 (6%)	0	100	100
34	c	155/160 (97%)	145 (94%)	9 (6%)	1 (1%)	22	51
35	d	97/128 (76%)	87 (90%)	10 (10%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
36	e	127/140 (91%)	119 (94%)	8 (6%)	0	100	100
37	f	60/157 (38%)	57 (95%)	3 (5%)	0	100	100
38	g	115/156 (74%)	104 (90%)	11 (10%)	0	100	100
39	h	132/145 (91%)	123 (93%)	9 (7%)	0	100	100
40	i	133/136 (98%)	125 (94%)	7 (5%)	1 (1%)	16	45
41	l	123/137 (90%)	116 (94%)	6 (5%)	1 (1%)	16	45
42	m	246/257 (96%)	221 (90%)	24 (10%)	1 (0%)	30	60
43	r	273/297 (92%)	252 (92%)	21 (8%)	0	100	100
44	t	126/135 (93%)	115 (91%)	11 (9%)	0	100	100
45	u	107/110 (97%)	97 (91%)	8 (8%)	2 (2%)	6	25
46	v	231/288 (80%)	206 (89%)	24 (10%)	1 (0%)	30	60
47	w	224/248 (90%)	211 (94%)	13 (6%)	0	100	100
48	z	363/394 (92%)	354 (98%)	9 (2%)	0	100	100
All	All	7471/9370 (80%)	6893 (92%)	561 (8%)	17 (0%)	45	72

All (17) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
46	v	226	ARG
4	3	331	ALA
8	A	28	PHE
8	A	159	MET
8	A	169	VAL
8	A	173	LYS
17	K	24	PRO
41	l	21	ASN
34	c	136	ARG
40	i	125	GLY
45	u	80	ASN
11	D	232	VAL
45	u	107	PRO
26	U	84	PRO
26	U	83	LYS
42	m	55	GLY
1	0	245	PRO

5.3.2 Protein sidechains [i](#)

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	165/404 (41%)	164 (99%)	1 (1%)	84	91
4	3	235/485 (48%)	231 (98%)	4 (2%)	56	75
6	6	194/213 (91%)	194 (100%)	0	100	100
8	A	191/196 (97%)	186 (97%)	5 (3%)	41	65
9	B	348/349 (100%)	340 (98%)	8 (2%)	45	67
10	C	77/126 (61%)	77 (100%)	0	100	100
11	D	298/348 (86%)	297 (100%)	1 (0%)	91	95
12	E	79/97 (81%)	76 (96%)	3 (4%)	28	55
13	F	94/100 (94%)	93 (99%)	1 (1%)	70	83
14	G	195/223 (87%)	193 (99%)	2 (1%)	73	85
15	H	109/110 (99%)	109 (100%)	0	100	100
16	I	169/171 (99%)	166 (98%)	3 (2%)	54	74
17	K	86/89 (97%)	85 (99%)	1 (1%)	67	81
18	L	120/121 (99%)	119 (99%)	1 (1%)	79	88
19	M	73/80 (91%)	72 (99%)	1 (1%)	62	79
20	N	136/149 (91%)	132 (97%)	4 (3%)	37	62
21	O	63/65 (97%)	63 (100%)	0	100	100
22	P	47/48 (98%)	47 (100%)	0	100	100
23	Q	176/177 (99%)	176 (100%)	0	100	100
24	S	114/161 (71%)	113 (99%)	1 (1%)	75	86
25	T	98/110 (89%)	96 (98%)	2 (2%)	50	71
26	U	171/172 (99%)	171 (100%)	0	100	100
27	V	171/174 (98%)	167 (98%)	4 (2%)	45	67
28	W	93/94 (99%)	93 (100%)	0	100	100
29	X	74/75 (99%)	73 (99%)	1 (1%)	62	79
30	Y	134/163 (82%)	133 (99%)	1 (1%)	81	89

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
31	Z	164/165 (99%)	161 (98%)	3 (2%)	54	74
32	a	131/175 (75%)	131 (100%)	0	100	100
33	b	156/157 (99%)	152 (97%)	4 (3%)	41	65
34	c	138/140 (99%)	137 (99%)	1 (1%)	81	89
35	d	89/115 (77%)	89 (100%)	0	100	100
36	e	100/107 (94%)	98 (98%)	2 (2%)	50	71
37	f	54/126 (43%)	53 (98%)	1 (2%)	52	72
38	g	105/133 (79%)	105 (100%)	0	100	100
39	h	124/135 (92%)	124 (100%)	0	100	100
40	i	117/118 (99%)	117 (100%)	0	100	100
41	l	109/121 (90%)	106 (97%)	3 (3%)	38	63
42	m	190/199 (96%)	185 (97%)	5 (3%)	41	65
43	r	232/250 (93%)	231 (100%)	1 (0%)	89	94
44	t	114/121 (94%)	112 (98%)	2 (2%)	54	74
45	u	88/89 (99%)	86 (98%)	2 (2%)	45	67
46	v	208/252 (82%)	205 (99%)	3 (1%)	62	79
47	w	195/215 (91%)	193 (99%)	2 (1%)	73	85
48	z	316/336 (94%)	314 (99%)	2 (1%)	84	91
All	All	6340/7454 (85%)	6265 (99%)	75 (1%)	66	81

All (75) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	0	335	THR
4	3	215	THR
4	3	216	VAL
4	3	313	LEU
4	3	404	ILE
8	A	30	GLU
8	A	55	LEU
8	A	175	THR
8	A	201	VAL
8	A	214	GLN
9	B	54	THR
9	B	159	VAL
9	B	160	ILE

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Mol	Chain	Res	Type
9	B	184	GLN
9	B	205	VAL
9	B	251	VAL
9	B	351	LEU
9	B	370	THR
11	D	171	LEU
12	E	28	VAL
12	E	69	THR
12	E	91	VAL
13	F	63	VAL
14	G	135	VAL
14	G	211	ASP
16	I	26	ILE
16	I	72	THR
16	I	136	VAL
17	K	18	THR
18	L	15	VAL
19	M	17	THR
20	N	113	ILE
20	N	114	ASP
20	N	132	VAL
20	N	168	GLN
24	S	84	THR
25	T	62	VAL
25	T	100	ASN
27	V	34	VAL
27	V	49	ARG
27	V	64	THR
27	V	92	THR
29	X	63	THR
30	Y	24	VAL
31	Z	13	VAL
31	Z	72	LEU
31	Z	83	VAL
33	b	38	VAL
33	b	80	ILE
33	b	90	THR
33	b	129	VAL
34	c	72	VAL
36	e	65	VAL
36	e	81	VAL
37	f	5	LEU

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Mol	Chain	Res	Type
41	l	27	THR
41	l	63	VAL
41	l	78	VAL
42	m	4	VAL
42	m	45	VAL
42	m	143	THR
42	m	157	VAL
42	m	169	VAL
43	r	199	ILE
44	t	13	VAL
44	t	45	VAL
45	u	25	THR
45	u	33	VAL
46	v	50	LEU
46	v	137	VAL
46	v	223	ARG
47	w	70[A]	ARG
47	w	70[B]	ARG
48	z	274	ASP
48	z	288	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (117) such sidechains are listed below:

Mol	Chain	Res	Type
1	0	233	GLN
1	0	324	HIS
1	0	393	HIS
1	0	402	GLN
4	3	270	GLN
4	3	290	GLN
4	3	348	GLN
4	3	358	GLN
4	3	364	HIS
4	3	382	ASN
4	3	391	ASN
6	6	9	ASN
6	6	68	HIS
6	6	106	ASN
6	6	145	GLN
6	6	162	HIS
8	A	73	HIS
8	A	171	HIS

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Mol	Chain	Res	Type
8	A	197	ASN
8	A	200	ASN
9	B	167	GLN
9	B	204	GLN
9	B	209	GLN
9	B	236	HIS
9	B	258	HIS
10	C	19	ASN
10	C	27	GLN
10	C	49	HIS
10	C	60	ASN
11	D	50	GLN
11	D	60	HIS
11	D	61	GLN
11	D	212	ASN
11	D	231	ASN
11	D	310	HIS
11	D	346	ASN
12	E	50	ASN
13	F	3	GLN
14	G	159	HIS
14	G	195	HIS
14	G	208	ASN
14	G	227	ASN
15	H	101	ASN
15	H	108	GLN
16	I	42	ASN
16	I	102	ASN
16	I	163	GLN
18	L	44	ASN
18	L	60	HIS
18	L	93	ASN
19	M	13	ASN
19	M	48	ASN
20	N	46	GLN
20	N	65	ASN
20	N	104	ASN
21	O	28	ASN
21	O	58	GLN
22	P	25	GLN
23	Q	40	GLN
24	S	34	ASN

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Mol	Chain	Res	Type
24	S	48	GLN
24	S	66	HIS
24	S	75	GLN
24	S	125	ASN
25	T	28	ASN
25	T	93	ASN
26	U	15	GLN
26	U	32	GLN
26	U	149	GLN
26	U	156	HIS
26	U	158	HIS
28	W	18	HIS
28	W	45	GLN
28	W	51	GLN
30	Y	34	GLN
30	Y	40	HIS
30	Y	80	GLN
30	Y	116	HIS
30	Y	118	GLN
31	Z	7	HIS
31	Z	188	ASN
33	b	23	HIS
33	b	125	GLN
33	b	173	ASN
34	c	66	ASN
35	d	41	GLN
35	d	55	ASN
35	d	94	ASN
36	e	27	ASN
36	e	77	HIS
37	f	59	HIS
38	g	73	HIS
38	g	151	ASN
39	h	20	ASN
40	i	78	ASN
41	l	6	GLN
41	l	31	ASN
42	m	132	ASN
42	m	194	ASN
43	r	57	ASN
43	r	195	HIS
43	r	225	GLN

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Mol	Chain	Res	Type
44	t	23	HIS
44	t	63	ASN
44	t	92	ASN
44	t	107	ASN
45	u	20	ASN
46	v	190	HIS
46	v	211	HIS
47	w	24	ASN
47	w	63	GLN
47	w	235	ASN
48	z	8	GLN
48	z	162	GLN
48	z	193	HIS
48	z	242	GLN
48	z	299	HIS

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
3	2	3464/5070 (68%)	917 (26%)	23 (0%)
5	5	119/120 (99%)	20 (16%)	0
7	8	153/156 (98%)	35 (22%)	0
All	All	3736/5346 (69%)	972 (26%)	23 (0%)

All (972) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
3	2	2	G
3	2	10	A
3	2	18	C
3	2	25	A
3	2	39	A
3	2	42	A
3	2	48	G
3	2	56	A
3	2	59	A
3	2	64	A
3	2	65	A
3	2	67	C
3	2	69	A
3	2	73	A

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Mol	Chain	Res	Type
3	2	74	G
3	2	75	G
3	2	91	G
3	2	98	A
3	2	108	A
3	2	109	G
3	2	110	C
3	2	119	G
3	2	120	A
3	2	127	G
3	2	128	C
3	2	131	C
3	2	132	G
3	2	133	C
3	2	134	G
3	2	135	G
3	2	136	C
3	2	141	C
3	2	143	C
3	2	146	G
3	2	151	G
3	2	157	U
3	2	159	C
3	2	165	A
3	2	172	C
3	2	177	G
3	2	180	C
3	2	181	C
3	2	183	C
3	2	184	U
3	2	185	C
3	2	188	G
3	2	189	G
3	2	200	U
3	2	207	G
3	2	209	U
3	2	216	C
3	2	218	A
3	2	219	G
3	2	220	C
3	2	225	G
3	2	233	U

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Mol	Chain	Res	Type
3	2	234	G
3	2	236	G
3	2	237	B9B
3	2	250	C
3	2	254	G
3	2	256	G
3	2	257	C
3	2	260	C
3	2	261	G
3	2	262	G
3	2	263	G
3	2	265	C
3	2	278	G
3	2	279	A
3	2	280	G
3	2	297	U
3	2	306	A
3	2	315	G
3	2	316	U
3	2	340	C
3	2	341	G
3	2	347	A
3	2	348	G
3	2	349	A
3	2	350	C
3	2	361	C
3	2	362	A
3	2	363	A
3	2	380	U
3	2	387	G
3	2	388	A
3	2	406	C
3	2	407	A
3	2	408	A
3	2	412	G
3	2	413	G
3	2	433	A
3	2	449	C
3	2	450	G
3	2	452	A
3	2	453	G
3	2	454	U

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Mol	Chain	Res	Type
3	2	457	G
3	2	458	C
3	2	467	U
3	2	484	U
3	2	485	C
3	2	486	C
3	2	489	C
3	2	493	G
3	2	494	U
3	2	497	G
3	2	498	C
3	2	499	G
3	2	500	G
3	2	501	C
3	2	502	C
3	2	503	C
3	2	504	G
3	2	505	G
3	2	507	G
3	2	508	G
3	2	509	A
3	2	510	U
3	2	511	C
3	2	512	U
3	2	513	U
3	2	514	U
3	2	515	C
3	2	517	C
3	2	518	G
3	2	519	C
3	2	643	C
3	2	644	G
3	2	645	G
3	2	646	G
3	2	653	U
3	2	656	C
3	2	657	C
3	2	659	G
3	2	660	A
3	2	665	C
3	2	667	A
3	2	668	C

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Mol	Chain	Res	Type
3	2	670	G
3	2	673	C
3	2	685	C
3	2	686	A
3	2	687	U
3	2	696	C
3	2	697	G
3	2	703	G
3	2	704	C
3	2	705	G
3	2	708	G
3	2	731	G
3	2	738	C
3	2	739	G
3	2	746	A
3	2	749	G
3	2	753	C
3	2	756	G
3	2	757	G
3	2	760	G
3	2	904	C
3	2	905	C
3	2	906	C
3	2	907	C
3	2	912	G
3	2	913	U
3	2	914	U
3	2	915	A
3	2	916	C
3	2	917	A
3	2	918	G
3	2	923	C
3	2	924	C
3	2	925	C
3	2	932	A
3	2	933	G
3	2	934	C
3	2	935	A
3	2	936	C
3	2	937	U
3	2	941	C
3	2	943	A

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Mol	Chain	Res	Type
3	2	944	A
3	2	945	U
3	2	955	G
3	2	956	A
3	2	959	G
3	2	960	A
3	2	961	G
3	2	962	C
3	2	965	G
3	2	966	A
3	2	967	C
3	2	971	U
3	2	977	C
3	2	978	2MG
3	2	982	U
3	2	985	C
3	2	989	U
3	2	990	C
3	2	991	C
3	2	992	C
3	2	993	G
3	2	995	C
3	2	1048	G
3	2	1049	C
3	2	1051	G
3	2	1065	G
3	2	1068	G
3	2	1070	G
3	2	1071	C
3	2	1072	C
3	2	1075	G
3	2	1078	A
3	2	1080	C
3	2	1083	U
3	2	1084	C
3	2	1095	A
3	2	1098	G
3	2	1171	G
3	2	1172	C
3	2	1173	G
3	2	1174	G
3	2	1176	C

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Mol	Chain	Res	Type
3	2	1178	G
3	2	1179	U
3	2	1180	C
3	2	1181	C
3	2	1182	C
3	2	1183	C
3	2	1185	G
3	2	1187	G
3	2	1189	G
3	2	1191	C
3	2	1199	G
3	2	1202	C
3	2	1203	G
3	2	1204	C
3	2	1210	C
3	2	1211	G
3	2	1214	C
3	2	1215	C
3	2	1217	G
3	2	1218	G
3	2	1222	A
3	2	1241	C
3	2	1242	G
3	2	1253	G
3	2	1254	A
3	2	1255	A
3	2	1259	G
3	2	1260	G
3	2	1261	G
3	2	1262	G
3	2	1263	A
3	2	1264	C
3	2	1265	G
3	2	1266	G
3	2	1267	C
3	2	1269	G
3	2	1270	A
3	2	1271	G
3	2	1272	C
3	2	1273	G
3	2	1274	A
3	2	1275	G

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Mol	Chain	Res	Type
3	2	1280	C
3	2	1281	G
3	2	1284	G
3	2	1287	G
3	2	1289	C
3	2	1293	G
3	2	1294	A
3	2	1295	C
3	2	1296	G
3	2	1301	C
3	2	1302	U
3	2	1303	A
3	2	1314	C
3	2	1324	A
3	2	1326	A2M
3	2	1337	A
3	2	1354	A
3	2	1358	G
3	2	1359	G
3	2	1365	C
3	2	1366	G
3	2	1367	C
3	2	1370	G
3	2	1377	G
3	2	1378	C
3	2	1379	C
3	2	1387	A
3	2	1394	G
3	2	1397	A
3	2	1399	G
3	2	1403	G
3	2	1404	G
3	2	1405	C
3	2	1407	C
3	2	1408	G
3	2	1409	C
3	2	1410	U
3	2	1411	C
3	2	1412	G
3	2	1420	A
3	2	1425	G
3	2	1435	G

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Mol	Chain	Res	Type
3	2	1437	C
3	2	1438	U
3	2	1439	C
3	2	1441	C
3	2	1443	A
3	2	1446	C
3	2	1447	C
3	2	1458	C
3	2	1459	A
3	2	1482	G
3	2	1483	C
3	2	1493	G
3	2	1497	A
3	2	1498	G
3	2	1502	G
3	2	1514	U
3	2	1515	A
3	2	1517	2MG
3	2	1518	A
3	2	1522	OMG
3	2	1525	A
3	2	1534	A2M
3	2	1547	A
3	2	1566	C
3	2	1574	B9B
3	2	1578	U
3	2	1586	G
3	2	1591	U
3	2	1596	U
3	2	1597	G
3	2	1621	A
3	2	1624	G
3	2	1625	OMG
3	2	1626	G
3	2	1627	G
3	2	1631	A
3	2	1632	A
3	2	1633	G
3	2	1634	A
3	2	1638	A
3	2	1640	C
3	2	1641	G

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Mol	Chain	Res	Type
3	2	1642	A
3	2	1651	G
3	2	1654	G
3	2	1655	C
3	2	1661	C
3	2	1676	C
3	2	1677	PSU
3	2	1678	C
3	2	1679	A
3	2	1681	G
3	2	1686	C
3	2	1694	C
3	2	1697	G
3	2	1699	A
3	2	1700	G
3	2	1701	A
3	2	1703	C
3	2	1704	C
3	2	1705	G
3	2	1706	A
3	2	1707	C
3	2	1708	G
3	2	1709	C
3	2	1715	C
3	2	1716	G
3	2	1719	A
3	2	1734	G
3	2	1763	C
3	2	1764	G
3	2	1765	A
3	2	1766	A
3	2	1768	C
3	2	1769	G
3	2	1772	C
3	2	1773	U
3	2	1774	C
3	2	1790	U
3	2	1797	E7G
3	2	1804	A
3	2	1806	G
3	2	1809	C
3	2	1810	G

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Mol	Chain	Res	Type
3	2	1815	G
3	2	1820	C
3	2	1821	G
3	2	1822	U
3	2	1829	G
3	2	1836	G
3	2	1837	A
3	2	1842	G
3	2	1855	G
3	2	1862	U
3	2	1863	U
3	2	1866	UR3
3	2	1867	A
3	2	1869	G
3	2	1872	G
3	2	1873	A
3	2	1881	C
3	2	1883	OMG
3	2	1891	A
3	2	1892	A
3	2	1893	C
3	2	1897	A
3	2	1918	U
3	2	1919	G
3	2	1920	C
3	2	1922	G
3	2	1925	G
3	2	1931	C
3	2	1932	A
3	2	1935	C
3	2	1940	G
3	2	1943	A
3	2	1948	G
3	2	1951	G
3	2	1952	G
3	2	1959	U
3	2	1960	A
3	2	1961	G
3	2	1962	A
3	2	1963	C
3	2	2024	G
3	2	2025	A

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Mol	Chain	Res	Type
3	2	2026	A
3	2	2033	A
3	2	2034	G
3	2	2046	G
3	2	2048	U
3	2	2055	G
3	2	2056	G
3	2	2069	A
3	2	2070	U
3	2	2071	A
3	2	2084	C
3	2	2085	G
3	2	2089	G
3	2	2090	U
3	2	2091	C
3	2	2092	G
3	2	2093	A
3	2	2094	G
3	2	2095	A
3	2	2096	G
3	2	2097	U
3	2	2098	G
3	2	2100	A
3	2	2101	C
3	2	2103	G
3	2	2104	G
3	2	2106	G
3	2	2108	G
3	2	2111	G
3	2	2112	G
3	2	2251	G
3	2	2252	G
3	2	2253	A
3	2	2256	C
3	2	2259	G
3	2	2262	G
3	2	2263	A
3	2	2280	G
3	2	2289	C
3	2	2297	E7G
3	2	2300	A
3	2	2301	G

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Mol	Chain	Res	Type
3	2	2305	U
3	2	2313	A
3	2	2316	G
3	2	2331	G
3	2	2332	A
3	2	2333	G
3	2	2345	G
3	2	2348	G
3	2	2351	C
3	2	2357	G
3	2	2360	A
3	2	2364	OMG
3	2	2380	B8W
3	2	2381	A
3	2	2382	A
3	2	2395	A
3	2	2396	A
3	2	2397	G
3	2	2398	U
3	2	2402	G
3	2	2408	U
3	2	2417	A
3	2	2422	OMC
3	2	2424	OMG
3	2	2425	U
3	2	2437	C
3	2	2441	C
3	2	2447	U
3	2	2450	G
3	2	2453	A
3	2	2460	A
3	2	2465	C
3	2	2467	U
3	2	2471	G
3	2	2474	G
3	2	2475	G
3	2	2478	C
3	2	2480	G
3	2	2481	G
3	2	2483	G
3	2	2484	A
3	2	2485	U

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Mol	Chain	Res	Type
3	2	2486	G
3	2	2487	G
3	2	2488	C
3	2	2489	C
3	2	2490	U
3	2	2491	C
3	2	2492	C
3	2	2494	U
3	2	2503	G
3	2	2504	C
3	2	2505	C
3	2	2506	G
3	2	2511	A
3	2	2512	A
3	2	2513	A
3	2	2514	G
3	2	2519	U
3	2	2520	C
3	2	2532	C
3	2	2537	A
3	2	2544	G
3	2	2546	G
3	2	2547	G
3	2	2553	A
3	2	2554	U
3	2	2555	G
3	2	2562	G
3	2	2566	G
3	2	2569	G
3	2	2573	A
3	2	2583	C
3	2	2587	A
3	2	2589	C
3	2	2596	G
3	2	2618	G
3	2	2627	C
3	2	2638	G
3	2	2652	G
3	2	2653	C
3	2	2659	A
3	2	2661	U
3	2	2662	G

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Mol	Chain	Res	Type
3	2	2663	G
3	2	2664	G
3	2	2669	C
3	2	2670	C
3	2	2673	G
3	2	2675	G
3	2	2676	A
3	2	2687	U
3	2	2694	G
3	2	2695	A
3	2	2696	A
3	2	2697	A
3	2	2705	G
3	2	2724	G
3	2	2726	G
3	2	2732	G
3	2	2739	C
3	2	2742	G
3	2	2743	A
3	2	2746	A
3	2	2754	B9B
3	2	2756	G
3	2	2761	U
3	2	2763	U
3	2	2764	A
3	2	2769	U
3	2	2770	C
3	2	2773	OMG
3	2	2787	A
3	2	2788	U
3	2	2790	U
3	2	2793	G
3	2	2794	C
3	2	2800	G
3	2	2814	C
3	2	2815	A
3	2	2822	G
3	2	2825	A
3	2	2826	U
3	2	2827	G
3	2	2829	U
3	2	2835	A

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Mol	Chain	Res	Type
3	2	2838	G
3	2	2848	G
3	2	2850	A
3	2	2855	G
3	2	2870	A
3	2	2876	G
3	2	2877	G
3	2	2879	A
3	2	2886	U
3	2	2900	U
3	2	3604	A
3	2	3605	C
3	2	3615	G
3	2	3619	G
3	2	3626	G
3	2	3630	A
3	2	3635	A
3	2	3644	U
3	2	3662	A
3	2	3664	G
3	2	3670	C
3	2	3673	C
3	2	3674	G
3	2	3680	U
3	2	3691	G
3	2	3692	A
3	2	3706	C
3	2	3711	A
3	2	3713	U
3	2	3714	G
3	2	3728	A
3	2	3729	PSU
3	2	3735	G
3	2	3736	A
3	2	3748	A
3	2	3750	G
3	2	3776	G
3	2	3777	G
3	2	3784	A
3	2	3785	A2M
3	2	3789	C
3	2	3799	A

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Mol	Chain	Res	Type
3	2	3802	U
3	2	3811	G
3	2	3812	C
3	2	3813	A
3	2	3814	U
3	2	3817	A
3	2	3818	U
3	2	3819	G
3	2	3823	G
3	2	3838	U
3	2	3839	G
3	2	3840	U
3	2	3851	U
3	2	3867	A2M
3	2	3876	A
3	2	3877	A
3	2	3878	C
3	2	3879	G
3	2	3880	P7G
3	2	3881	G
3	2	3892	U
3	2	3897	B8K
3	2	3901	A
3	2	3902	A
3	2	3906	A
3	2	3907	G
3	2	3908	A
3	2	3910	C
3	2	3915	U
3	2	3922	G
3	2	3923	A
3	2	3925	U
3	2	3926	C
3	2	3938	G
3	2	3939	G
3	2	3941	G
3	2	3944	G
3	2	3946	G
3	2	4076	G
3	2	4084	G
3	2	4086	G
3	2	4088	C

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Mol	Chain	Res	Type
3	2	4097	G
3	2	4098	A
3	2	4099	G
3	2	4101	C
3	2	4102	C
3	2	4103	C
3	2	4104	G
3	2	4105	A
3	2	4106	G
3	2	4107	G
3	2	4108	G
3	2	4111	U
3	2	4112	C
3	2	4113	U
3	2	4114	C
3	2	4115	G
3	2	4116	C
3	2	4117	U
3	2	4118	U
3	2	4119	C
3	2	4127	A
3	2	4133	C
3	2	4138	C
3	2	4139	G
3	2	4140	C
3	2	4141	G
3	2	4142	C
3	2	4143	G
3	2	4145	C
3	2	4146	G
3	2	4148	C
3	2	4157	A
3	2	4162	C
3	2	4163	U
3	2	4170	A
3	2	4177	C
3	2	4183	G
3	2	4184	G
3	2	4191	G
3	2	4195	G
3	2	4196	OMG
3	2	4206	C

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Mol	Chain	Res	Type
3	2	4212	A
3	2	4220	6MZ
3	2	4224	A
3	2	4228	G
3	2	4229	U
3	2	4233	A
3	2	4234	A
3	2	4251	A
3	2	4254	G
3	2	4256	A
3	2	4257	A
3	2	4265	U
3	2	4268	A
3	2	4271	A
3	2	4272	G
3	2	4273	A
3	2	4281	A
3	2	4282	A
3	2	4291	G
3	2	4296	B8H
3	2	4304	A
3	2	4305	G
3	2	4312	U
3	2	4313	A
3	2	4314	C
3	2	4319	C
3	2	4326	G
3	2	4329	G
3	2	4330	G
3	2	4332	C
3	2	4349	C
3	2	4354	U
3	2	4355	E6G
3	2	4364	G
3	2	4371	MHG
3	2	4373	G
3	2	4374	U
3	2	4376	A
3	2	4377	G
3	2	4378	A
3	2	4379	A
3	2	4380	A

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Mol	Chain	Res	Type
3	2	4387	C
3	2	4394	A
3	2	4398	C
3	2	4400	G
3	2	4403	PSU
3	2	4443	C
3	2	4444	C
3	2	4448	G
3	2	4450	PSU
3	2	4451	G
3	2	4453	C
3	2	4464	A
3	2	4466	C
3	2	4471	U
3	2	4472	B8W
3	2	4476	C
3	2	4477	A
3	2	4482	U
3	2	4488	A
3	2	4500	PSU
3	2	4510	A
3	2	4512	U
3	2	4513	A
3	2	4518	A
3	2	4519	C
3	2	4523	A2M
3	2	4524	G
3	2	4532	U
3	2	4545	G
3	2	4548	A
3	2	4549	G
3	2	4560	C
3	2	4567	G
3	2	4570	G
3	2	4573	G
3	2	4575	G
3	2	4583	C
3	2	4584	A
3	2	4589	A
3	2	4590	A
3	2	4599	A
3	2	4600	G

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Mol	Chain	Res	Type
3	2	4601	U
3	2	4606	G
3	2	4617	G
3	2	4636	PSU
3	2	4637	OMG
3	2	4647	G
3	2	4652	G
3	2	4656	A
3	2	4670	C
3	2	4672	A
3	2	4693	C
3	2	4695	C
3	2	4700	A
3	2	4708	A
3	2	4709	U
3	2	4719	G
3	2	4722	G
3	2	4728	U
3	2	4731	G
3	2	4732	G
3	2	4733	C
3	2	4734	A
3	2	4740	G
3	2	4741	C
3	2	4743	G
3	2	4745	G
3	2	4746	C
3	2	4750	G
3	2	4751	G
3	2	4754	G
3	2	4757	C
3	2	4759	C
3	2	4761	G
3	2	4764	A
3	2	4765	G
3	2	4771	C
3	2	4772	C
3	2	4775	C
3	2	4776	G
3	2	4859	C
3	2	4860	G
3	2	4862	G

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Mol	Chain	Res	Type
3	2	4864	U
3	2	4870	OMG
3	2	4871	C
3	2	4872	2MG
3	2	4874	A
3	2	4875	G
3	2	4877	G
3	2	4882	U
3	2	4883	C
3	2	4887	C
3	2	4889	G
3	2	4895	C
3	2	4896	G
3	2	4900	C
3	2	4901	G
3	2	4904	G
3	2	4910	G
3	2	4912	G
3	2	4914	C
3	2	4915	G
3	2	4925	U
3	2	4926	C
3	2	4927	G
3	2	4928	C
3	2	4935	C
3	2	4936	G
3	2	4937	C
3	2	4938	A
3	2	4941	G
3	2	4943	A
3	2	4945	G
3	2	4949	G
3	2	4950	U
3	2	4951	G
3	2	4955	A
3	2	4960	G
3	2	4966	A
3	2	4975	G
3	2	4976	U
3	2	4985	U
3	2	4988	U
3	2	4989	U

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Mol	Chain	Res	Type
3	2	4991	U
3	2	5013	C
3	2	5014	A
3	2	5021	C
3	2	5022	U
3	2	5023	C
3	2	5024	C
3	2	5025	C
3	2	5026	U
3	2	5034	A
3	2	5041	G
3	2	5047	C
3	2	5050	C
3	2	5053	U
3	2	5054	C
3	2	5055	G
3	2	5058	A
3	2	5060	A
3	2	5061	A
3	2	5062	G
3	2	5069	U
5	5	4	U
5	5	5	A
5	5	11	A
5	5	13	A
5	5	22	A
5	5	24	C
5	5	38	U
5	5	42	A
5	5	53	U
5	5	54	A
5	5	61	G
5	5	62	U
5	5	63	C
5	5	64	G
5	5	70	G
5	5	71	G
5	5	74	A
5	5	100	A
5	5	106	G
5	5	110	G
7	8	2	G

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Mol	Chain	Res	Type
7	8	3	A
7	8	23	C
7	8	25	G
7	8	34	U
7	8	35	C
7	8	38	U
7	8	48	A
7	8	59	A
7	8	60	G
7	8	62	A
7	8	63	U
7	8	68	G
7	8	75	G
7	8	80	A
7	8	82	A
7	8	83	C
7	8	84	A
7	8	85	U
7	8	87	G
7	8	103	A
7	8	105	C
7	8	106	G
7	8	110	U
7	8	111	U
7	8	114	G
7	8	123	U
7	8	124	U
7	8	125	C
7	8	126	C
7	8	127	U
7	8	150	C
7	8	151	G
7	8	153	C
7	8	156	U

All (23) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
3	2	406	C
3	2	504	G
3	2	914	U
3	2	955	G

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Mol	Chain	Res	Type
3	2	1082	C
3	2	1517	2MG
3	2	1633	G
3	2	1763	C
3	2	1773	U
3	2	2033	A
3	2	2084	C
3	2	2416	G
3	2	2675	G
3	2	2760	G
3	2	3614	G
3	2	3673	C
3	2	3788	C
3	2	4378	A
3	2	4600	G
3	2	4699	U
3	2	4913	G
3	2	5022	U
3	2	5060	A

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

98 non-standard protein/DNA/RNA residues are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# $ Z > 2$	Counts	RMSZ	# $ Z > 2$
3	B8T	2	4483	3	19,22,23	3.47	8 (42%)	26,31,34	0.84	1 (3%)
3	7MG	2	2522	3	22,26,27	3.14	10 (45%)	29,39,42	2.01	7 (24%)
3	OMG	2	1316	49,3	18,26,27	2.35	8 (44%)	19,38,41	1.78	5 (26%)
3	OMG	2	373	3	18,26,27	2.25	7 (38%)	19,38,41	1.53	4 (21%)
3	B9B	2	1574	3	21,28,29	5.73	8 (38%)	23,40,43	2.17	5 (21%)
3	5MC	2	4335	3	18,22,23	3.29	7 (38%)	26,32,35	1.16	2 (7%)
3	OMC	2	2861	3	19,22,23	2.76	7 (36%)	26,31,34	0.66	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	A2M	2	4523	3	18,25,26	4.17	7 (38%)	18,36,39	3.19	5 (27%)
3	OMG	2	2050	3	18,26,27	2.26	7 (38%)	19,38,41	1.57	3 (15%)
3	B8K	2	4690	3	24,28,29	4.33	16 (66%)	30,42,45	2.55	12 (40%)
3	OMC	2	2365	49,3	19,22,23	2.69	7 (36%)	26,31,34	0.72	0
3	7MG	2	1605	3	22,26,27	2.99	10 (45%)	29,39,42	2.04	9 (31%)
3	PSU	2	3715	3	18,21,22	1.04	1 (5%)	22,30,33	1.49	3 (13%)
3	OMC	2	3869	3	19,22,23	2.74	7 (36%)	26,31,34	0.75	0
3	OMU	2	4306	3	19,22,23	2.75	7 (36%)	26,31,34	1.74	5 (19%)
3	A2M	2	4571	3	18,25,26	4.20	7 (38%)	18,36,39	3.02	4 (22%)
3	E7G	2	1797	3	24,27,28	3.54	11 (45%)	30,40,43	2.21	9 (30%)
3	E7G	2	2297	3	24,27,28	3.43	11 (45%)	30,40,43	2.17	9 (30%)
3	OMC	2	3909	3	19,22,23	2.96	8 (42%)	26,31,34	1.44	4 (15%)
3	B8W	2	4129	3	18,26,27	6.18	7 (38%)	21,38,41	2.70	9 (42%)
3	B8W	2	4529	3	18,26,27	6.22	9 (50%)	21,38,41	3.04	9 (42%)
3	PSU	2	4293	3	18,21,22	1.12	2 (11%)	22,30,33	1.76	4 (18%)
3	E6G	2	4355	3	20,27,28	5.90	9 (45%)	22,39,42	2.70	9 (40%)
3	B8T	2	4671	3	19,22,23	3.27	8 (42%)	26,31,34	1.12	1 (3%)
3	A2M	2	2363	49,3	18,25,26	4.13	7 (38%)	18,36,39	3.41	3 (16%)
3	A2M	2	3718	3	18,25,26	4.22	6 (33%)	18,36,39	3.18	3 (16%)
3	A2M	2	398	3	18,25,26	4.17	6 (33%)	18,36,39	3.19	3 (16%)
3	B8H	2	1860	3	19,22,23	6.84	7 (36%)	22,32,35	2.50	5 (22%)
3	A2M	2	3785	3	18,25,26	4.00	7 (38%)	18,36,39	3.09	3 (16%)
3	2MG	2	4872	3	18,26,27	2.24	7 (38%)	16,38,41	1.45	3 (18%)
3	A2M	2	1871	3	18,25,26	4.31	6 (33%)	18,36,39	2.91	3 (16%)
3	2MG	2	729	3	18,26,27	2.26	7 (38%)	16,38,41	1.44	3 (18%)
3	A2M	2	3723	3	18,25,26	4.25	7 (38%)	18,36,39	3.00	4 (22%)
3	2MG	2	1517	3	18,26,27	2.36	7 (38%)	16,38,41	1.77	5 (31%)
3	B9B	2	2754	3	21,28,29	5.58	8 (38%)	23,40,43	2.13	5 (21%)
3	OMG	2	4196	3	18,26,27	2.48	8 (44%)	19,38,41	1.51	4 (21%)
3	B8K	2	3897	3	24,28,29	4.32	16 (66%)	30,42,45	2.51	12 (40%)
3	PSU	2	1683	3	18,21,22	1.13	1 (5%)	22,30,33	1.84	3 (13%)
3	PSU	2	4636	3	18,21,22	1.17	3 (16%)	22,30,33	1.95	4 (18%)
3	OMG	2	1883	3	18,26,27	2.24	6 (33%)	19,38,41	1.53	5 (26%)
3	OMG	2	4870	3	18,26,27	2.50	8 (44%)	19,38,41	1.47	6 (31%)
3	A2M	2	1326	49,3	18,25,26	4.11	6 (33%)	18,36,39	3.00	3 (16%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	OMG	2	2364	3	18,26,27	2.20	7 (38%)	19,38,41	1.61	3 (15%)
3	PSU	2	4500	3	18,21,22	1.09	3 (16%)	22,30,33	1.99	5 (22%)
3	7MG	2	4550	3	22,26,27	3.11	10 (45%)	29,39,42	2.05	10 (34%)
3	I4U	2	1659	49,3	21,24,25	4.57	15 (71%)	27,34,37	1.31	3 (11%)
3	A2M	2	1524	3	18,25,26	4.14	7 (38%)	18,36,39	3.15	4 (22%)
3	PSU	2	4450	3	18,21,22	1.07	2 (11%)	22,30,33	2.02	5 (22%)
3	OMG	2	1625	49,3	18,26,27	2.27	7 (38%)	19,38,41	1.53	4 (21%)
3	OMG	2	4370	3	18,26,27	2.27	8 (44%)	19,38,41	1.46	4 (21%)
3	OMG	2	4494	3	18,26,27	2.31	7 (38%)	19,38,41	1.57	4 (21%)
3	I4U	2	4194	3	21,24,25	4.84	16 (76%)	27,34,37	1.60	6 (22%)
3	PSU	2	4531	3	18,21,22	1.04	1 (5%)	22,30,33	1.83	4 (18%)
3	B9H	2	2786	3	20,25,26	2.69	5 (25%)	22,35,38	2.62	7 (31%)
3	OMC	2	2804	3	19,22,23	2.64	7 (36%)	26,31,34	0.81	0
3	5MU	2	4083	3	19,22,23	4.68	7 (36%)	28,32,35	3.85	10 (35%)
3	OMG	2	1522	3	18,26,27	2.31	7 (38%)	19,38,41	1.61	4 (21%)
3	OMC	2	3887	3	19,22,23	2.84	7 (36%)	26,31,34	1.00	1 (3%)
3	A2M	2	3867	3	18,25,26	4.11	6 (33%)	18,36,39	2.81	3 (16%)
3	UR3	2	1866	3	19,22,23	3.01	6 (31%)	26,32,35	1.65	4 (15%)
3	PSU	2	3729	3	18,21,22	1.03	2 (11%)	22,30,33	1.74	4 (18%)
3	PSU	2	4442	3	18,21,22	1.20	1 (5%)	22,30,33	1.65	4 (18%)
3	B8Q	2	1456	3	17,22,23	2.85	4 (23%)	22,32,35	2.24	6 (27%)
3	OMG	2	4623	3	18,26,27	2.31	8 (44%)	19,38,41	1.61	3 (15%)
3	PSU	2	4628	3	18,21,22	0.99	1 (5%)	22,30,33	1.87	4 (18%)
3	M7A	2	4564	3	20,25,26	1.90	4 (20%)	28,37,40	3.91	7 (25%)
3	B8W	2	4472	3	18,26,27	6.10	7 (38%)	21,38,41	2.18	5 (23%)
3	B8W	2	2380	3	18,26,27	6.11	7 (38%)	21,38,41	2.28	6 (28%)
3	OMC	2	2422	49,3	19,22,23	2.76	7 (36%)	26,31,34	1.43	3 (11%)
3	6MZ	2	4220	3	18,25,26	1.84	3 (16%)	16,36,39	3.88	3 (18%)
3	OMG	2	2424	49,3	18,26,27	2.39	7 (38%)	19,38,41	1.64	4 (21%)
3	PSU	2	1582	3	18,21,22	1.07	1 (5%)	22,30,33	1.76	4 (18%)
3	BGH	2	3899	3	25,29,30	4.17	16 (64%)	31,43,46	2.53	12 (38%)
3	A2M	2	2401	3	18,25,26	4.11	8 (44%)	18,36,39	3.06	3 (16%)
3	P7G	2	1909	3	24,28,29	4.26	11 (45%)	27,41,44	1.76	3 (11%)
3	1MA	2	1322	49,3	16,25,26	3.69	4 (25%)	18,37,40	1.77	3 (16%)
3	P4U	2	1348	3	21,24,25	3.50	8 (38%)	27,33,36	1.14	2 (7%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	OMG	2	3792	3	18,26,27	2.32	7 (38%)	19,38,41	1.38	4 (21%)
3	B8W	2	4185	3	18,26,27	6.19	7 (38%)	21,38,41	2.45	7 (33%)
3	OMC	2	3701	49,3	19,22,23	2.61	8 (42%)	26,31,34	0.95	1 (3%)
3	PSU	2	2508	3	18,21,22	1.03	1 (5%)	22,30,33	1.58	3 (13%)
3	MHG	2	4371	3	29,32,33	3.68	12 (41%)	34,46,49	2.20	10 (29%)
3	A2M	2	3825	3	18,25,26	4.21	7 (38%)	18,36,39	3.15	3 (16%)
3	PSU	2	4403	3	18,21,22	1.07	1 (5%)	22,30,33	1.57	5 (22%)
3	2MG	2	978	3	18,26,27	2.33	7 (38%)	16,38,41	1.61	4 (25%)
3	PSU	2	1677	3	18,21,22	1.31	3 (16%)	22,30,33	2.08	5 (22%)
3	OMG	2	4637	3	18,26,27	2.33	7 (38%)	19,38,41	1.70	4 (21%)
3	P7G	2	3880	3	24,28,29	4.22	11 (45%)	27,41,44	1.71	5 (18%)
3	B9B	2	237	3	21,28,29	5.59	9 (42%)	23,40,43	2.51	6 (26%)
3	OMC	2	4536	3	19,22,23	2.73	7 (36%)	26,31,34	0.75	0
3	A2M	2	1534	49,3	18,25,26	4.18	7 (38%)	18,36,39	2.86	4 (22%)
3	OMU	2	4620	3	19,22,23	2.82	8 (42%)	26,31,34	2.02	8 (30%)
3	UR3	2	4597	3	19,22,23	2.78	6 (31%)	26,32,35	1.24	2 (7%)
3	UR3	2	4530	3	19,22,23	2.75	7 (36%)	26,32,35	1.45	5 (19%)
3	5MC	2	3782	49,3	18,22,23	3.31	7 (38%)	26,32,35	1.15	3 (11%)
3	OMG	2	2773	3	18,26,27	2.44	8 (44%)	19,38,41	1.65	5 (26%)
3	B8H	2	4296	3	19,22,23	6.83	7 (36%)	22,32,35	2.40	5 (22%)
3	5MC	2	4447	49,3	18,22,23	3.17	7 (38%)	26,32,35	1.67	2 (7%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	B8T	2	4483	3	-	0/7/27/28	0/2/2/2
3	7MG	2	2522	3	-	0/7/37/38	0/3/3/3
3	OMG	2	1316	49,3	-	0/5/27/28	0/3/3/3
3	OMG	2	373	3	-	1/5/27/28	0/3/3/3
3	B9B	2	1574	3	-	3/7/29/30	0/3/3/3
3	5MC	2	4335	3	-	0/7/25/26	0/2/2/2
3	OMC	2	2861	3	-	0/9/27/28	0/2/2/2
3	A2M	2	4523	3	-	2/5/27/28	0/3/3/3
3	OMG	2	2050	3	-	0/5/27/28	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	B8K	2	4690	3	-	0/11/41/42	0/3/3/3
3	OMC	2	2365	49,3	-	0/9/27/28	0/2/2/2
3	7MG	2	1605	3	-	0/7/37/38	0/3/3/3
3	PSU	2	3715	3	-	0/7/25/26	0/2/2/2
3	OMC	2	3869	3	-	0/9/27/28	0/2/2/2
3	OMU	2	4306	3	-	1/9/27/28	0/2/2/2
3	A2M	2	4571	3	-	0/5/27/28	0/3/3/3
3	E7G	2	1797	3	-	2/9/39/40	0/3/3/3
3	E7G	2	2297	3	-	3/9/39/40	0/3/3/3
3	OMC	2	3909	3	-	2/9/27/28	0/2/2/2
3	B8W	2	4129	3	-	2/5/27/28	0/3/3/3
3	B8W	2	4529	3	-	2/5/27/28	0/3/3/3
3	PSU	2	4293	3	-	0/7/25/26	0/2/2/2
3	E6G	2	4355	3	-	5/6/28/29	0/3/3/3
3	B8T	2	4671	3	-	0/7/27/28	0/2/2/2
3	A2M	2	2363	49,3	-	0/5/27/28	0/3/3/3
3	A2M	2	3718	3	-	0/5/27/28	0/3/3/3
3	A2M	2	398	3	-	2/5/27/28	0/3/3/3
3	B8H	2	1860	3	-	2/7/25/26	0/2/2/2
3	A2M	2	3785	3	-	3/5/27/28	0/3/3/3
3	2MG	2	4872	3	-	2/5/27/28	0/3/3/3
3	A2M	2	1871	3	-	2/5/27/28	0/3/3/3
3	2MG	2	729	3	-	2/5/27/28	0/3/3/3
3	A2M	2	3723	3	-	0/5/27/28	0/3/3/3
3	2MG	2	1517	3	-	1/5/27/28	0/3/3/3
3	B9B	2	2754	3	-	5/7/29/30	0/3/3/3
3	OMG	2	4196	3	-	2/5/27/28	0/3/3/3
3	B8K	2	3897	3	-	3/11/41/42	0/3/3/3
3	PSU	2	1683	3	-	0/7/25/26	0/2/2/2
3	PSU	2	4636	3	-	4/7/25/26	0/2/2/2
3	OMG	2	1883	3	-	2/5/27/28	0/3/3/3
3	OMG	2	4870	3	-	3/5/27/28	0/3/3/3
3	A2M	2	1326	49,3	-	1/5/27/28	0/3/3/3
3	OMG	2	2364	3	-	2/5/27/28	0/3/3/3
3	PSU	2	4500	3	-	3/7/25/26	0/2/2/2
3	7MG	2	4550	3	-	2/7/37/38	0/3/3/3
3	I4U	2	1659	49,3	-	3/9/29/30	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	A2M	2	1524	3	-	2/5/27/28	0/3/3/3
3	PSU	2	4450	3	-	5/7/25/26	0/2/2/2
3	OMG	2	1625	49,3	-	2/5/27/28	0/3/3/3
3	OMG	2	4370	3	-	1/5/27/28	0/3/3/3
3	OMG	2	4494	3	-	1/5/27/28	0/3/3/3
3	I4U	2	4194	3	-	0/9/29/30	0/2/2/2
3	PSU	2	4531	3	-	1/7/25/26	0/2/2/2
3	B9H	2	2786	3	-	2/12/47/48	0/2/2/2
3	OMC	2	2804	3	-	0/9/27/28	0/2/2/2
3	5MU	2	4083	3	-	0/7/25/26	0/2/2/2
3	OMG	2	1522	3	-	0/5/27/28	0/3/3/3
3	OMC	2	3887	3	-	1/9/27/28	0/2/2/2
3	A2M	2	3867	3	-	2/5/27/28	0/3/3/3
3	UR3	2	1866	3	-	2/7/25/26	0/2/2/2
3	PSU	2	3729	3	-	2/7/25/26	0/2/2/2
3	PSU	2	4442	3	-	0/7/25/26	0/2/2/2
3	B8Q	2	1456	3	-	0/7/42/43	0/2/2/2
3	OMG	2	4623	3	-	0/5/27/28	0/3/3/3
3	PSU	2	4628	3	-	0/7/25/26	0/2/2/2
3	M7A	2	4564	3	-	0/7/37/38	0/3/3/3
3	B8W	2	4472	3	-	4/5/27/28	0/3/3/3
3	B8W	2	2380	3	-	4/5/27/28	0/3/3/3
3	OMC	2	2422	49,3	-	2/9/27/28	0/2/2/2
3	6MZ	2	4220	3	-	2/5/27/28	0/3/3/3
3	OMG	2	2424	49,3	-	2/5/27/28	0/3/3/3
3	PSU	2	1582	3	-	0/7/25/26	0/2/2/2
3	BGH	2	3899	3	-	0/13/43/44	0/3/3/3
3	A2M	2	2401	3	-	2/5/27/28	0/3/3/3
3	P7G	2	1909	3	-	3/10/40/41	0/3/3/3
3	1MA	2	1322	49,3	-	1/3/25/26	0/3/3/3
3	P4U	2	1348	3	-	1/10/29/30	0/2/2/2
3	OMG	2	3792	3	-	0/5/27/28	0/3/3/3
3	B8W	2	4185	3	-	2/5/27/28	0/3/3/3
3	OMC	2	3701	49,3	-	4/9/27/28	0/2/2/2
3	PSU	2	2508	3	-	0/7/25/26	0/2/2/2
3	MHG	2	4371	3	-	8/16/46/47	0/3/3/3
3	A2M	2	3825	3	-	1/5/27/28	0/3/3/3
3	PSU	2	4403	3	-	5/7/25/26	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	2MG	2	978	3	-	2/5/27/28	0/3/3/3
3	PSU	2	1677	3	-	4/7/25/26	0/2/2/2
3	OMG	2	4637	3	-	2/5/27/28	0/3/3/3
3	P7G	2	3880	3	-	4/10/40/41	0/3/3/3
3	B9B	2	237	3	-	5/7/29/30	0/3/3/3
3	OMC	2	4536	3	-	0/9/27/28	0/2/2/2
3	A2M	2	1534	49,3	-	2/5/27/28	0/3/3/3
3	OMU	2	4620	3	-	1/9/27/28	0/2/2/2
3	UR3	2	4597	3	-	0/7/25/26	0/2/2/2
3	UR3	2	4530	3	-	1/7/25/26	0/2/2/2
3	5MC	2	3782	49,3	-	0/7/25/26	0/2/2/2
3	OMG	2	2773	3	-	2/5/27/28	0/3/3/3
3	B8H	2	4296	3	-	2/7/25/26	0/2/2/2
3	5MC	2	4447	49,3	-	4/7/25/26	0/2/2/2

All (683) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	2	4472	B8W	O4'-C1'	17.68	1.65	1.41
3	2	4129	B8W	O4'-C1'	17.62	1.65	1.41
3	2	2380	B8W	O4'-C1'	17.50	1.65	1.41
3	2	4529	B8W	O4'-C1'	17.37	1.65	1.41
3	2	4185	B8W	O4'-C1'	17.34	1.65	1.41
3	2	1860	B8H	C6-C5	-16.87	1.11	1.34
3	2	4296	B8H	C6-C5	-16.85	1.11	1.34
3	2	237	B9B	C2'-C1'	-16.77	1.28	1.53
3	2	1574	B9B	C2'-C1'	-16.70	1.28	1.53
3	2	4296	B8H	C4-N3	-16.48	1.08	1.38
3	2	4355	E6G	C2'-C1'	-16.37	1.28	1.53
3	2	1860	B8H	C4-N3	-16.25	1.08	1.38
3	2	4185	B8W	C2'-C1'	-15.89	1.29	1.53
3	2	2754	B9B	C2'-C1'	-15.72	1.29	1.53
3	2	4129	B8W	C2'-C1'	-15.43	1.30	1.53
3	2	4355	E6G	O4'-C1'	15.43	1.62	1.41
3	2	2380	B8W	C2'-C1'	-15.39	1.30	1.53
3	2	1871	A2M	O4'-C1'	15.34	1.62	1.41
3	2	1574	B9B	O4'-C1'	15.18	1.62	1.41
3	2	2754	B9B	O4'-C1'	15.16	1.62	1.41
3	2	4529	B8W	C2'-C1'	-15.02	1.31	1.53
3	2	3723	A2M	O4'-C1'	14.97	1.62	1.41

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	2	3718	A2M	O4'-C1'	14.97	1.62	1.41
3	2	398	A2M	O4'-C1'	14.78	1.61	1.41
3	2	4472	B8W	C2'-C1'	-14.76	1.31	1.53
3	2	3825	A2M	O4'-C1'	14.74	1.61	1.41
3	2	4523	A2M	O4'-C1'	14.62	1.61	1.41
3	2	1534	A2M	O4'-C1'	14.48	1.61	1.41
3	2	1524	A2M	O4'-C1'	14.48	1.61	1.41
3	2	1326	A2M	O4'-C1'	14.47	1.61	1.41
3	2	3867	A2M	O4'-C1'	14.43	1.61	1.41
3	2	4571	A2M	O4'-C1'	14.42	1.61	1.41
3	2	2401	A2M	O4'-C1'	14.40	1.61	1.41
3	2	237	B9B	O4'-C1'	14.24	1.60	1.41
3	2	2363	A2M	O4'-C1'	14.09	1.60	1.41
3	2	3785	A2M	O4'-C1'	13.64	1.60	1.41
3	2	1322	1MA	C2-N3	13.31	1.45	1.29
3	2	1860	B8H	C4-C5	12.98	1.81	1.44
3	2	4296	B8H	C4-C5	12.75	1.80	1.44
3	2	3880	P7G	C8-N9	12.14	1.52	1.46
3	2	1860	B8H	C6-N1	11.84	1.65	1.36
3	2	4296	B8H	C6-N1	11.72	1.65	1.36
3	2	1909	P7G	C8-N9	11.71	1.52	1.46
3	2	1659	I4U	C3'-C2'	-10.57	1.24	1.53
3	2	4194	I4U	C3'-C2'	-10.57	1.24	1.53
3	2	4083	5MU	C6-N1	10.49	1.55	1.38
3	2	4690	B8K	C3'-C4'	-10.47	1.26	1.53
3	2	3897	B8K	C3'-C4'	-10.10	1.27	1.53
3	2	1909	P7G	C5-N7	10.07	1.46	1.35
3	2	4083	5MU	C2-N1	10.05	1.54	1.38
3	2	4194	I4U	C4-N3	9.96	1.44	1.31
3	2	3899	BGH	C3'-C4'	-9.92	1.27	1.53
3	2	3897	B8K	O4'-C4'	9.87	1.67	1.45
3	2	1348	P4U	C4-N3	9.66	1.43	1.31
3	2	4690	B8K	O4'-C4'	9.48	1.66	1.45
3	2	4529	B8W	C2-N2	9.20	1.52	1.33
3	2	3899	BGH	O4'-C4'	9.11	1.65	1.45
3	2	3880	P7G	C5-N7	9.01	1.45	1.35
3	2	1659	I4U	C4-N3	8.92	1.42	1.31
3	2	4335	5MC	C6-C5	8.75	1.49	1.34
3	2	2297	E7G	C5-N7	8.70	1.45	1.35
3	2	4083	5MU	C4-C5	8.70	1.59	1.44
3	2	3782	5MC	C6-C5	8.63	1.48	1.34
3	2	4083	5MU	C4-N3	-8.46	1.23	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	2	1797	E7G	C8-N9	8.44	1.50	1.46
3	2	4371	MHG	C5-N7	8.36	1.45	1.35
3	2	4355	E6G	O4'-C4'	-8.36	1.26	1.45
3	2	1797	E7G	C5-N7	8.35	1.45	1.35
3	2	1456	B8Q	C6-C5	8.30	1.52	1.33
3	2	237	B9B	O4'-C4'	-8.29	1.26	1.45
3	2	2786	B9H	C2-N3	8.28	1.47	1.37
3	2	4447	5MC	C6-C5	8.23	1.48	1.34
3	2	1574	B9B	O4'-C4'	-8.21	1.26	1.45
3	2	4371	MHG	C8-N9	8.07	1.50	1.46
3	2	4129	B8W	C2-N2	8.07	1.50	1.33
3	2	2297	E7G	C8-N9	8.05	1.50	1.46
3	2	4472	B8W	C2-N2	8.03	1.50	1.33
3	2	2754	B9B	O4'-C4'	-7.72	1.27	1.45
3	2	1866	UR3	C2-N1	7.70	1.49	1.38
3	2	1659	I4U	O4'-C4'	-7.69	1.27	1.45
3	2	4185	B8W	C2-N2	7.60	1.49	1.33
3	2	2522	7MG	C5-N7	7.42	1.44	1.35
3	2	4571	A2M	O4'-C4'	-7.27	1.28	1.45
3	2	4194	I4U	O4'-C4'	-7.27	1.28	1.45
3	2	4550	7MG	C5-N7	7.25	1.44	1.35
3	2	2363	A2M	O4'-C4'	-7.23	1.28	1.45
3	2	2380	B8W	C2-N2	7.23	1.48	1.33
3	2	1605	7MG	C5-N7	7.14	1.43	1.35
3	2	4483	B8T	C2-N3	7.10	1.50	1.36
3	2	1524	A2M	O4'-C4'	-7.00	1.29	1.45
3	2	4371	MHG	C2-N3	7.00	1.45	1.31
3	2	4483	B8T	C4-N3	6.92	1.44	1.32
3	2	4530	UR3	C2-N1	6.82	1.48	1.38
3	2	1534	A2M	O4'-C4'	-6.80	1.29	1.45
3	2	1866	UR3	C6-C5	6.80	1.50	1.35
3	2	4523	A2M	O4'-C4'	-6.79	1.29	1.45
3	2	3723	A2M	O4'-C4'	-6.78	1.29	1.45
3	2	3825	A2M	O4'-C4'	-6.74	1.29	1.45
3	2	4483	B8T	C6-C5	6.73	1.50	1.35
3	2	4550	7MG	C8-N9	6.72	1.49	1.46
3	2	3718	A2M	O4'-C4'	-6.70	1.30	1.45
3	2	3880	P7G	C4-N3	6.69	1.49	1.37
3	2	4355	E6G	O6-C6	6.68	1.40	1.35
3	2	1456	B8Q	C2-N3	6.66	1.46	1.35
3	2	1348	P4U	C2-N3	6.63	1.49	1.36
3	2	4371	MHG	C8-N7	6.62	1.52	1.45

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	2	3785	A2M	O4'-C4'	-6.60	1.30	1.45
3	2	4671	B8T	C6-C5	6.59	1.50	1.35
3	2	2754	B9B	O6-C6	6.57	1.40	1.35
3	2	4597	UR3	C2-N1	6.57	1.48	1.38
3	2	398	A2M	O4'-C4'	-6.55	1.30	1.45
3	2	1326	A2M	O4'-C4'	-6.51	1.30	1.45
3	2	4597	UR3	C6-C5	6.48	1.50	1.35
3	2	4671	B8T	C2-N3	6.44	1.49	1.36
3	2	2401	A2M	O4'-C4'	-6.44	1.30	1.45
3	2	4194	I4U	C6-C5	6.40	1.49	1.35
3	2	3867	A2M	O4'-C4'	-6.40	1.30	1.45
3	2	1871	A2M	O4'-C4'	-6.37	1.30	1.45
3	2	4530	UR3	C6-C5	6.34	1.49	1.35
3	2	4620	OMU	C2-N3	6.30	1.49	1.38
3	2	2522	7MG	C8-N9	6.28	1.49	1.46
3	2	1909	P7G	C4-N3	6.16	1.48	1.37
3	2	4306	OMU	C2-N3	6.16	1.48	1.38
3	2	4220	6MZ	C6-N6	6.15	1.45	1.35
3	2	4620	OMU	C2-N1	6.13	1.48	1.38
3	2	3909	OMC	C2-N3	6.11	1.48	1.36
3	2	1866	UR3	C2-N3	6.08	1.50	1.39
3	2	4194	I4U	C2-N3	6.07	1.48	1.36
3	2	4483	B8T	C4-N4	6.06	1.48	1.35
3	2	3887	OMC	C2-N3	6.04	1.48	1.36
3	2	3897	B8K	O4'-C1'	-6.01	1.27	1.42
3	2	4671	B8T	C4-N3	6.00	1.43	1.32
3	2	2861	OMC	C2-N3	5.99	1.48	1.36
3	2	1348	P4U	C6-C5	5.94	1.48	1.35
3	2	1574	B9B	O6-C6	5.94	1.40	1.35
3	2	4371	MHG	C2-N1	5.88	1.46	1.36
3	2	3887	OMC	C6-C5	5.85	1.48	1.35
3	2	2786	B9H	C6-C5	5.82	1.46	1.33
3	2	4536	OMC	C2-N3	5.79	1.48	1.36
3	2	4371	MHG	C2-N2	5.79	1.46	1.33
3	2	4671	B8T	C4-N4	5.77	1.47	1.35
3	2	2422	OMC	C6-C5	5.76	1.48	1.35
3	2	2365	OMC	C2-N3	5.76	1.48	1.36
3	2	3782	5MC	C4-N3	5.75	1.43	1.34
3	2	1659	I4U	C6-C5	5.74	1.48	1.35
3	2	4690	B8K	O4'-C1'	-5.73	1.28	1.42
3	2	2804	OMC	C2-N3	5.69	1.47	1.36
3	2	3701	OMC	C6-C5	5.69	1.48	1.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	2	3782	5MC	C2-N3	5.68	1.47	1.36
3	2	3869	OMC	C2-N3	5.67	1.47	1.36
3	2	2861	OMC	C6-C5	5.66	1.48	1.35
3	2	4690	B8K	C2-N3	5.65	1.46	1.33
3	2	3909	OMC	C6-C5	5.65	1.48	1.35
3	2	4529	B8W	O4'-C4'	-5.65	1.32	1.45
3	2	4536	OMC	C6-C5	5.64	1.48	1.35
3	2	3869	OMC	C6-C5	5.61	1.48	1.35
3	2	4690	B8K	C8-N9	5.60	1.49	1.46
3	2	4196	OMG	C2-N3	5.59	1.46	1.33
3	2	1909	P7G	C2-N2	5.58	1.47	1.34
3	2	4335	5MC	C4-N3	5.55	1.43	1.34
3	2	2365	OMC	C6-C5	5.54	1.47	1.35
3	2	4185	B8W	O4'-C4'	-5.54	1.32	1.45
3	2	4306	OMU	C2-N1	5.52	1.47	1.38
3	2	4083	5MU	C6-C5	5.51	1.43	1.34
3	2	4129	B8W	O4'-C4'	-5.48	1.32	1.45
3	2	1659	I4U	C2-N3	5.48	1.47	1.36
3	2	4870	OMG	C2-N3	5.48	1.46	1.33
3	2	1797	E7G	C2-N3	5.47	1.46	1.33
3	2	3897	B8K	C2-N3	5.47	1.46	1.33
3	2	2380	B8W	O4'-C4'	-5.46	1.32	1.45
3	2	2754	B9B	C2-N2	5.41	1.44	1.33
3	2	4597	UR3	C2-N3	5.40	1.49	1.39
3	2	4371	MHG	C4-N3	5.40	1.47	1.34
3	2	237	B9B	O6-C6	5.40	1.39	1.35
3	2	2804	OMC	C6-C5	5.39	1.47	1.35
3	2	1797	E7G	C4-N3	5.38	1.47	1.34
3	2	2422	OMC	C2-N3	5.38	1.47	1.36
3	2	1909	P7G	C2-N1	5.34	1.46	1.33
3	2	3701	OMC	C2-N3	5.34	1.47	1.36
3	2	237	B9B	C2-N2	5.33	1.44	1.33
3	2	4306	OMU	C6-C5	5.32	1.47	1.35
3	2	4447	5MC	C2-N3	5.32	1.47	1.36
3	2	4335	5MC	C2-N3	5.28	1.47	1.36
3	2	3880	P7G	C2-N2	5.28	1.46	1.34
3	2	3899	BGH	C4-N3	5.27	1.46	1.34
3	2	4472	B8W	O4'-C4'	-5.26	1.33	1.45
3	2	2522	7MG	C2-N3	5.25	1.45	1.33
3	2	4355	E6G	C2-N2	5.25	1.44	1.33
3	2	1605	7MG	C2-N3	5.24	1.45	1.33
3	2	4447	5MC	C4-N3	5.24	1.43	1.34

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	2	2424	OMG	C2-N3	5.23	1.45	1.33
3	2	2773	OMG	C2-N3	5.21	1.45	1.33
3	2	1574	B9B	C2-N2	5.20	1.44	1.33
3	2	4194	I4U	C3'-C4'	5.13	1.66	1.53
3	2	4620	OMU	C6-C5	5.12	1.47	1.35
3	2	4185	B8W	O3'-C3'	-5.11	1.30	1.43
3	2	1517	2MG	C2-N2	5.11	1.44	1.33
3	2	3909	OMC	C2-N1	5.08	1.51	1.40
3	2	2297	E7G	C2-N3	5.06	1.45	1.33
3	2	4530	UR3	C2-N3	5.05	1.48	1.39
3	2	3792	OMG	C2-N3	5.05	1.45	1.33
3	2	3899	BGH	O4'-C1'	-5.03	1.30	1.42
3	2	4637	OMG	C2-N3	5.01	1.45	1.33
3	2	1348	P4U	O4-C4	5.01	1.40	1.35
3	2	4494	OMG	C2-N3	5.00	1.45	1.33
3	2	3899	BGH	C8-N9	4.99	1.48	1.46
3	2	3899	BGH	C2-N3	4.98	1.45	1.33
3	2	1605	7MG	C4-N3	4.98	1.46	1.34
3	2	4370	OMG	C2-N3	4.96	1.45	1.33
3	2	2050	OMG	C2-N3	4.96	1.45	1.33
3	2	729	2MG	C2-N2	4.96	1.44	1.33
3	2	2297	E7G	C4-N3	4.95	1.46	1.34
3	2	4472	B8W	O3'-C3'	-4.94	1.31	1.43
3	2	3897	B8K	C8-N9	4.93	1.48	1.46
3	2	1625	OMG	C2-N3	4.93	1.45	1.33
3	2	4550	7MG	C4-N3	4.87	1.45	1.34
3	2	4690	B8K	C4-N3	4.85	1.45	1.34
3	2	4550	7MG	C2-N3	4.85	1.44	1.33
3	2	3880	P7G	C2-N1	4.84	1.44	1.33
3	2	2522	7MG	C4-N3	4.84	1.45	1.34
3	2	3909	OMC	C4-N4	4.82	1.45	1.33
3	2	4623	OMG	C2-N3	4.82	1.44	1.33
3	2	1348	P4U	C5-C4	4.80	1.49	1.43
3	2	978	2MG	C2-N2	4.79	1.44	1.33
3	2	1316	OMG	C2-N3	4.79	1.44	1.33
3	2	4564	M7A	C6-N6	4.76	1.46	1.34
3	2	4196	OMG	C4-N3	4.76	1.48	1.37
3	2	729	2MG	C4-N3	4.75	1.48	1.37
3	2	3897	B8K	C4-N3	4.74	1.45	1.34
3	2	1797	E7G	C2-N2	4.74	1.45	1.34
3	2	4194	I4U	C1'-N1	-4.73	1.33	1.47
3	2	4371	MHG	C4-N9	4.72	1.43	1.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	2	2364	OMG	C2-N3	4.72	1.44	1.33
3	2	3909	OMC	C4-N3	4.71	1.44	1.34
3	2	4529	B8W	O3'-C3'	-4.70	1.31	1.43
3	2	1522	OMG	C2-N3	4.70	1.44	1.33
3	2	4872	2MG	C2-N2	4.69	1.43	1.33
3	2	2422	OMC	C4-N4	4.65	1.44	1.33
3	2	4129	B8W	O3'-C3'	-4.64	1.32	1.43
3	2	2422	OMC	C2-N1	4.64	1.50	1.40
3	2	3897	B8K	O2'-C2'	-4.63	1.32	1.43
3	2	3792	OMG	C4-N3	4.63	1.48	1.37
3	2	4870	OMG	C4-N3	4.63	1.48	1.37
3	2	3880	P7G	C4-N9	4.60	1.42	1.35
3	2	3887	OMC	C4-N4	4.60	1.44	1.33
3	2	1517	2MG	C4-N3	4.59	1.48	1.37
3	2	1659	I4U	C1'-N1	-4.59	1.34	1.47
3	2	2297	E7G	C2-N2	4.58	1.45	1.34
3	2	978	2MG	C4-N3	4.56	1.48	1.37
3	2	2773	OMG	C4-N3	4.55	1.48	1.37
3	2	3887	OMC	C4-N3	4.55	1.43	1.34
3	2	1909	P7G	C6-N1	4.54	1.46	1.38
3	2	2861	OMC	C4-N4	4.54	1.44	1.33
3	2	1883	OMG	C2-N3	4.54	1.44	1.33
3	2	4690	B8K	O2'-C2'	-4.53	1.32	1.43
3	2	3869	OMC	C4-N4	4.53	1.44	1.33
3	2	3899	BGH	C2-N2	4.52	1.44	1.34
3	2	1605	7MG	C8-N9	4.50	1.48	1.46
3	2	373	OMG	C2-N3	4.50	1.44	1.33
3	2	1605	7MG	C2-N2	4.48	1.44	1.34
3	2	2050	OMG	C4-N3	4.46	1.48	1.37
3	2	2365	OMC	C4-N4	4.45	1.44	1.33
3	2	4370	OMG	C4-N3	4.43	1.48	1.37
3	2	2861	OMC	C4-N3	4.42	1.43	1.34
3	2	2380	B8W	O3'-C3'	-4.41	1.32	1.43
3	2	4494	OMG	C4-N3	4.40	1.48	1.37
3	2	2786	B9H	C2-N1	4.40	1.44	1.38
3	2	1797	E7G	C4-N9	4.39	1.42	1.37
3	2	2522	7MG	C2-N2	4.38	1.44	1.34
3	2	3869	OMC	C4-N3	4.38	1.43	1.34
3	2	4442	PSU	C6-C5	4.38	1.40	1.35
3	2	4550	7MG	C2-N2	4.37	1.44	1.34
3	2	4536	OMC	C4-N4	4.37	1.44	1.33
3	2	3899	BGH	C71-N7	4.34	1.49	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	2	4623	OMG	C4-N3	4.34	1.47	1.37
3	2	4637	OMG	C4-N3	4.33	1.47	1.37
3	2	2804	OMC	C4-N4	4.33	1.44	1.33
3	2	3897	B8K	C4-N9	4.32	1.42	1.37
3	2	978	2MG	C2-N1	4.32	1.43	1.36
3	2	1625	OMG	C4-N3	4.30	1.47	1.37
3	2	3899	BGH	O2'-C2'	-4.29	1.31	1.42
3	2	2804	OMC	C4-N3	4.29	1.43	1.34
3	2	1522	OMG	C4-N3	4.27	1.47	1.37
3	2	2365	OMC	C4-N3	4.26	1.43	1.34
3	2	4872	2MG	C4-N3	4.25	1.47	1.37
3	2	4536	OMC	C4-N3	4.25	1.43	1.34
3	2	1909	P7G	C4-N9	4.23	1.41	1.35
3	2	4483	B8T	C2-N1	4.21	1.49	1.40
3	2	1659	I4U	C3'-C4'	4.21	1.63	1.53
3	2	1797	E7G	C8-N7	4.19	1.49	1.45
3	2	1316	OMG	C4-N3	4.19	1.47	1.37
3	2	1883	OMG	C4-N3	4.19	1.47	1.37
3	2	2424	OMG	C4-N3	4.19	1.47	1.37
3	2	373	OMG	C4-N3	4.19	1.47	1.37
3	2	3701	OMC	C4-N4	4.18	1.43	1.33
3	2	4564	M7A	C4-N9	4.17	1.46	1.38
3	2	4194	I4U	O4'-C1'	4.17	1.51	1.42
3	2	4690	B8K	C5-N7	4.13	1.46	1.39
3	2	4690	B8K	C4-N9	4.13	1.42	1.37
3	2	3880	P7G	O6-C6	-4.11	1.17	1.23
3	2	3880	P7G	C8-N7	4.11	1.49	1.45
3	2	4335	5MC	C6-N1	4.10	1.45	1.38
3	2	3897	B8K	C5-N7	4.08	1.46	1.39
3	2	3782	5MC	C4-N4	4.07	1.44	1.34
3	2	4447	5MC	C4-N4	4.06	1.44	1.34
3	2	3887	OMC	C2-N1	4.06	1.48	1.40
3	2	1605	7MG	C4-N9	4.06	1.42	1.37
3	2	2364	OMG	C4-N3	4.05	1.47	1.37
3	2	1659	I4U	O4'-C1'	4.03	1.51	1.42
3	2	3701	OMC	C4-N3	4.01	1.42	1.34
3	2	3880	P7G	C6-N1	3.97	1.45	1.38
3	2	4870	OMG	C6-N1	3.95	1.43	1.37
3	2	4564	M7A	C5-N7	3.94	1.48	1.39
3	2	2297	E7G	C8-N7	3.94	1.49	1.45
3	2	4196	OMG	C2-N2	3.93	1.43	1.34
3	2	1517	2MG	C2-N1	3.93	1.43	1.36

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	2	3899	BGH	C5-N7	3.92	1.46	1.39
3	2	4335	5MC	C4-N4	3.92	1.44	1.34
3	2	4671	B8T	C2-N1	3.91	1.48	1.40
3	2	2861	OMC	C2-N1	3.91	1.48	1.40
3	2	2422	OMC	C4-N3	3.89	1.42	1.34
3	2	2773	OMG	C6-N1	3.89	1.43	1.37
3	2	1659	I4U	C2-N1	3.89	1.48	1.40
3	2	1909	P7G	C5-C4	3.88	1.45	1.37
3	2	1909	P7G	O6-C6	-3.87	1.17	1.23
3	2	4194	I4U	C2-N1	3.86	1.48	1.40
3	2	729	2MG	C2-N1	3.84	1.42	1.36
3	2	4194	I4U	C5-C4	3.84	1.48	1.43
3	2	1348	P4U	C2-N1	3.84	1.48	1.40
3	2	2773	OMG	C2-N2	3.83	1.43	1.34
3	2	3782	5MC	C6-N1	3.82	1.44	1.38
3	2	3897	B8K	C2-N2	3.80	1.43	1.34
3	2	2424	OMG	C2-N2	3.79	1.43	1.34
3	2	4296	B8H	C2-N3	3.79	1.44	1.38
3	2	4447	5MC	C6-N1	3.77	1.44	1.38
3	2	1322	1MA	C2-N1	3.76	1.42	1.35
3	2	4196	OMG	C6-N1	3.76	1.43	1.37
3	2	4870	OMG	C2-N2	3.75	1.43	1.34
3	2	4637	OMG	C2-N2	3.74	1.43	1.34
3	2	4872	2MG	C2-N1	3.74	1.42	1.36
3	2	1860	B8H	C2-N3	3.73	1.44	1.38
3	2	1522	OMG	C2-N2	3.73	1.43	1.34
3	2	373	OMG	C2-N2	3.73	1.43	1.34
3	2	3782	5MC	C2-N1	3.72	1.48	1.40
3	2	2804	OMC	C2-N1	3.72	1.48	1.40
3	2	3899	BGH	C2-N1	3.70	1.46	1.37
3	2	1883	OMG	C2-N2	3.69	1.43	1.34
3	2	4403	PSU	C6-C5	3.69	1.39	1.35
3	2	4550	7MG	C4-N9	3.67	1.42	1.37
3	2	1348	P4U	C6-N1	3.67	1.46	1.38
3	2	4690	B8K	C2-N2	3.66	1.42	1.34
3	2	4494	OMG	C2-N2	3.66	1.42	1.34
3	2	4083	5MU	O4-C4	-3.64	1.16	1.23
3	2	4335	5MC	C2-N1	3.63	1.47	1.40
3	2	1625	OMG	C2-N2	3.63	1.42	1.34
3	2	2522	7MG	C4-N9	3.62	1.41	1.37
3	2	4690	B8K	C5-C6	3.62	1.52	1.43
3	2	3880	P7G	C2-N3	3.61	1.46	1.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	2	1522	OMG	C5-C4	-3.61	1.33	1.43
3	2	1797	E7G	C2-N1	3.61	1.46	1.37
3	2	2297	E7G	C4-N9	3.60	1.41	1.37
3	2	3792	OMG	C2-N2	3.60	1.42	1.34
3	2	4447	5MC	O2-C2	-3.59	1.17	1.23
3	2	4623	OMG	C2-N2	3.59	1.42	1.34
3	2	3701	OMC	C2-N1	3.59	1.47	1.40
3	2	1659	I4U	O2-C2	-3.59	1.17	1.23
3	2	4671	B8T	C5-C4	3.58	1.48	1.40
3	2	2365	OMC	C2-N1	3.58	1.47	1.40
3	2	3869	OMC	C2-N1	3.57	1.47	1.40
3	2	3880	P7G	C5-C4	3.56	1.44	1.37
3	2	4355	E6G	O3'-C3'	-3.55	1.34	1.43
3	2	3899	BGH	C6-N1	3.55	1.45	1.38
3	2	4620	OMU	C4-N3	3.54	1.44	1.38
3	2	4306	OMU	C4-N3	3.53	1.44	1.38
3	2	4371	MHG	C5-C6	3.52	1.52	1.43
3	2	4690	B8K	O6-C6	-3.51	1.16	1.23
3	2	3899	BGH	O6-C6	-3.50	1.16	1.23
3	2	4306	OMU	O4-C4	-3.50	1.17	1.24
3	2	1316	OMG	C2-N2	3.49	1.42	1.34
3	2	1909	P7G	C2-N3	3.49	1.46	1.37
3	2	4483	B8T	C5-C4	3.48	1.48	1.40
3	2	4536	OMC	O2-C2	-3.47	1.17	1.23
3	2	2364	OMG	C2-N2	3.46	1.42	1.34
3	2	1316	OMG	C5-C4	-3.46	1.34	1.43
3	2	1574	B9B	O2'-C2'	3.45	1.51	1.43
3	2	2297	E7G	C2-N1	3.45	1.46	1.37
3	2	4083	5MU	O2-C2	-3.44	1.16	1.23
3	2	3785	A2M	C5-C4	-3.44	1.31	1.40
3	2	4370	OMG	C2-N2	3.43	1.42	1.34
3	2	4447	5MC	C2-N1	3.43	1.47	1.40
3	2	4571	A2M	O3'-C3'	-3.43	1.34	1.43
3	2	2424	OMG	C6-N1	3.43	1.43	1.37
3	2	1322	1MA	C4-N3	3.43	1.48	1.37
3	2	1909	P7G	C8-N7	3.43	1.49	1.45
3	2	2364	OMG	C5-C4	-3.43	1.34	1.43
3	2	4597	UR3	C6-N1	3.41	1.46	1.38
3	2	3825	A2M	O3'-C3'	-3.40	1.35	1.43
3	2	3897	B8K	C2-N1	3.40	1.46	1.37
3	2	4194	I4U	O2-C2	-3.38	1.17	1.23
3	2	2754	B9B	O2'-C2'	3.38	1.50	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	2	373	OMG	C5-C4	-3.38	1.34	1.43
3	2	3897	B8K	C5-C6	3.38	1.52	1.43
3	2	1866	UR3	C6-N1	3.36	1.46	1.38
3	2	1574	B9B	C5-C4	-3.36	1.32	1.40
3	2	4536	OMC	C2-N1	3.35	1.47	1.40
3	2	1677	PSU	C6-C5	3.34	1.39	1.35
3	2	1574	B9B	O3'-C3'	-3.34	1.35	1.43
3	2	1517	2MG	C6-N1	3.33	1.42	1.37
3	2	2401	A2M	O3'-C3'	-3.33	1.35	1.43
3	2	4371	MHG	C6-N1	3.32	1.45	1.38
3	2	1883	OMG	C5-C4	-3.32	1.34	1.43
3	2	2050	OMG	C2-N2	3.32	1.42	1.34
3	2	237	B9B	O3'-C3'	-3.30	1.35	1.43
3	2	4620	OMU	O4-C4	-3.29	1.18	1.24
3	2	1871	A2M	O3'-C3'	-3.29	1.35	1.43
3	2	1625	OMG	C5-C4	-3.29	1.34	1.43
3	2	1534	A2M	C5-C4	-3.28	1.32	1.40
3	2	2363	A2M	C5-C4	-3.28	1.32	1.40
3	2	4637	OMG	C5-C4	-3.27	1.34	1.43
3	2	4636	PSU	C6-C5	3.27	1.39	1.35
3	2	4531	PSU	C6-C5	3.27	1.39	1.35
3	2	4623	OMG	C5-C4	-3.26	1.34	1.43
3	2	3869	OMC	O2-C2	-3.24	1.17	1.23
3	2	1524	A2M	O3'-C3'	-3.24	1.35	1.43
3	2	2050	OMG	C5-C4	-3.23	1.34	1.43
3	2	398	A2M	O3'-C3'	-3.22	1.35	1.43
3	2	3897	B8K	O6-C6	-3.22	1.17	1.23
3	2	4671	B8T	O2-C2	-3.21	1.17	1.23
3	2	2422	OMC	O2-C2	-3.21	1.17	1.23
3	2	4530	UR3	C6-N1	3.21	1.45	1.38
3	2	1326	A2M	O3'-C3'	-3.20	1.35	1.43
3	2	1871	A2M	C6-N6	3.20	1.45	1.34
3	2	2363	A2M	O3'-C3'	-3.19	1.35	1.43
3	2	3867	A2M	O3'-C3'	-3.19	1.35	1.43
3	2	4306	OMU	O2-C2	-3.18	1.17	1.23
3	2	3899	BGH	C4-N9	3.18	1.41	1.37
3	2	978	2MG	C6-N1	3.18	1.42	1.37
3	2	3909	OMC	O2-C2	-3.18	1.17	1.23
3	2	4494	OMG	C6-N1	3.18	1.42	1.37
3	2	3715	PSU	C6-C5	3.17	1.39	1.35
3	2	1316	OMG	C6-N1	3.17	1.42	1.37
3	2	2424	OMG	C5-C4	-3.17	1.35	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	2	1517	2MG	C5-C4	-3.16	1.35	1.43
3	2	2522	7MG	C5-C6	3.16	1.51	1.43
3	2	4194	I4U	O4-C4	3.16	1.41	1.35
3	2	4550	7MG	O6-C6	-3.15	1.17	1.23
3	2	3718	A2M	C5-C4	-3.14	1.32	1.40
3	2	4450	PSU	C6-C5	3.14	1.39	1.35
3	2	2522	7MG	C2-N1	3.14	1.45	1.37
3	2	237	B9B	C5-C4	-3.14	1.32	1.40
3	2	4355	E6G	O2'-C2'	3.14	1.50	1.43
3	2	4335	5MC	O2-C2	-3.14	1.17	1.23
3	2	4872	2MG	C5-C6	3.12	1.53	1.47
3	2	3909	OMC	C6-N1	3.11	1.45	1.38
3	2	3792	OMG	C6-N1	3.11	1.42	1.37
3	2	4523	A2M	O3'-C3'	-3.11	1.35	1.43
3	2	2401	A2M	C5-C4	-3.10	1.32	1.40
3	2	1316	OMG	O6-C6	-3.09	1.17	1.23
3	2	1522	OMG	O6-C6	-3.09	1.17	1.23
3	2	2754	B9B	C5-C4	-3.09	1.32	1.40
3	2	3782	5MC	O2-C2	-3.08	1.18	1.23
3	2	3867	A2M	C5-C4	-3.08	1.32	1.40
3	2	3897	B8K	O3'-C3'	3.07	1.50	1.43
3	2	4571	A2M	C5-C4	-3.07	1.32	1.40
3	2	1871	A2M	C5-C4	-3.07	1.32	1.40
3	2	1605	7MG	C2-N1	3.07	1.45	1.37
3	2	1326	A2M	C5-C4	-3.07	1.32	1.40
3	2	3723	A2M	C6-N6	3.06	1.45	1.34
3	2	4194	I4U	O2'-C2'	3.06	1.50	1.43
3	2	237	B9B	O2'-C2'	3.06	1.50	1.43
3	2	2773	OMG	C5-C4	-3.06	1.35	1.43
3	2	3869	OMC	C6-N1	3.05	1.45	1.38
3	2	4494	OMG	C5-C4	-3.05	1.35	1.43
3	2	2365	OMC	O2-C2	-3.04	1.18	1.23
3	2	3723	A2M	O3'-C3'	-3.04	1.35	1.43
3	2	1605	7MG	C5-C6	3.04	1.51	1.43
3	2	4637	OMG	C6-N1	3.04	1.42	1.37
3	2	1524	A2M	C5-C4	-3.03	1.32	1.40
3	2	4220	6MZ	C5-C4	-3.03	1.32	1.40
3	2	398	A2M	C5-C4	-3.02	1.32	1.40
3	2	1582	PSU	C6-C5	3.02	1.38	1.35
3	2	4536	OMC	C6-N1	3.02	1.45	1.38
3	2	1524	A2M	C6-N6	3.01	1.45	1.34
3	2	3899	BGH	C5-C6	3.01	1.51	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	2	4523	A2M	C5-C4	-3.00	1.33	1.40
3	2	4483	B8T	C6-N1	2.99	1.45	1.38
3	2	3825	A2M	C5-C4	-2.99	1.33	1.40
3	2	4371	MHG	C72-C71	2.99	1.58	1.52
3	2	4872	2MG	C6-N1	2.99	1.42	1.37
3	2	1456	B8Q	C2-N1	2.99	1.42	1.38
3	2	3718	A2M	O3'-C3'	-2.98	1.35	1.43
3	2	4620	OMU	O2-C2	-2.98	1.17	1.23
3	2	1625	OMG	C6-N1	2.98	1.42	1.37
3	2	2424	OMG	O6-C6	-2.98	1.17	1.23
3	2	4637	OMG	O6-C6	-2.98	1.17	1.23
3	2	4870	OMG	C5-C4	-2.98	1.35	1.43
3	2	4523	A2M	C6-N6	2.97	1.44	1.34
3	2	4370	OMG	C6-N1	2.97	1.42	1.37
3	2	373	OMG	C6-N1	2.97	1.42	1.37
3	2	3887	OMC	C6-N1	2.96	1.45	1.38
3	2	3825	A2M	C6-N6	2.96	1.44	1.34
3	2	1659	I4U	O4-C4	2.96	1.41	1.35
3	2	1534	A2M	O3'-C3'	-2.96	1.36	1.43
3	2	3723	A2M	C5-C4	-2.96	1.33	1.40
3	2	2804	OMC	O2-C2	-2.94	1.18	1.23
3	2	4355	E6G	C5-C4	-2.94	1.33	1.40
3	2	1871	A2M	O2'-C2'	2.94	1.50	1.42
3	2	4370	OMG	C5-C4	-2.94	1.35	1.43
3	2	978	2MG	C5-C6	2.93	1.53	1.47
3	2	2050	OMG	O6-C6	-2.93	1.17	1.23
3	2	3785	A2M	O3'-C3'	-2.93	1.36	1.43
3	2	1797	E7G	C5-C6	2.92	1.51	1.43
3	2	4623	OMG	O6-C6	-2.92	1.17	1.23
3	2	1883	OMG	O6-C6	-2.91	1.17	1.23
3	2	2754	B9B	O3'-C3'	-2.91	1.36	1.43
3	2	3785	A2M	O2'-C2'	2.90	1.50	1.42
3	2	2861	OMC	C6-N1	2.90	1.45	1.38
3	2	4690	B8K	C2-N1	2.89	1.44	1.37
3	2	3887	OMC	O2-C2	-2.89	1.18	1.23
3	2	2297	E7G	O6-C6	-2.89	1.18	1.23
3	2	4872	2MG	C5-C4	-2.89	1.35	1.43
3	2	3718	A2M	C6-N6	2.88	1.44	1.34
3	2	3897	B8K	C6-N1	2.88	1.44	1.38
3	2	1322	1MA	C5-C4	-2.88	1.35	1.43
3	2	2522	7MG	O6-C6	-2.86	1.18	1.23
3	2	2297	E7G	C5-C6	2.86	1.50	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	2	978	2MG	C5-C4	-2.86	1.35	1.43
3	2	2365	OMC	C6-N1	2.85	1.44	1.38
3	2	2422	OMC	C6-N1	2.85	1.44	1.38
3	2	3867	A2M	C6-N6	2.84	1.44	1.34
3	2	1883	OMG	C6-N1	2.84	1.42	1.37
3	2	1605	7MG	O6-C6	-2.84	1.18	1.23
3	2	1797	E7G	O6-C6	-2.83	1.18	1.23
3	2	4571	A2M	C6-N6	2.82	1.44	1.34
3	2	1522	OMG	C6-N1	2.82	1.42	1.37
3	2	1534	A2M	C6-N6	2.81	1.44	1.34
3	2	2401	A2M	C6-N6	2.81	1.44	1.34
3	2	4483	B8T	O2-C2	-2.81	1.18	1.23
3	2	4293	PSU	C6-C5	2.81	1.38	1.35
3	2	2363	A2M	C6-N6	2.81	1.44	1.34
3	2	3723	A2M	O2'-C2'	2.80	1.49	1.42
3	2	3792	OMG	C5-C4	-2.80	1.35	1.43
3	2	3701	OMC	O2-C2	-2.79	1.18	1.23
3	2	2364	OMG	O6-C6	-2.78	1.17	1.23
3	2	4623	OMG	C6-N1	2.77	1.42	1.37
3	2	398	A2M	C6-N6	2.77	1.44	1.34
3	2	3701	OMC	C6-N1	2.76	1.44	1.38
3	2	3785	A2M	C6-N6	2.76	1.44	1.34
3	2	2861	OMC	O2-C2	-2.76	1.18	1.23
3	2	4185	B8W	C5-C4	-2.75	1.33	1.40
3	2	2786	B9H	C6-N1	2.73	1.44	1.38
3	2	729	2MG	C5-C4	-2.73	1.36	1.43
3	2	2522	7MG	C6-N1	2.72	1.43	1.38
3	2	4870	OMG	C2-N1	2.71	1.44	1.37
3	2	373	OMG	O6-C6	-2.70	1.17	1.23
3	2	4196	OMG	O6-C6	-2.69	1.17	1.23
3	2	1659	I4U	C5-C4	2.69	1.46	1.43
3	2	4550	7MG	C5-C6	2.68	1.50	1.43
3	2	4529	B8W	O2'-C2'	2.67	1.49	1.43
3	2	4370	OMG	O6-C6	-2.67	1.17	1.23
3	2	1517	2MG	O6-C6	-2.67	1.17	1.23
3	2	4550	7MG	C2-N1	2.67	1.44	1.37
3	2	3825	A2M	O2'-C2'	2.67	1.49	1.42
3	2	4623	OMG	C5-C6	2.65	1.52	1.47
3	2	4129	B8W	O2'-C2'	2.65	1.49	1.43
3	2	1659	I4U	O2'-C2'	2.65	1.49	1.43
3	2	2380	B8W	C5-C4	-2.65	1.33	1.40
3	2	2297	E7G	C6-N1	2.64	1.43	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	2	1797	E7G	C6-N1	2.64	1.43	1.38
3	2	2380	B8W	O2'-C2'	2.64	1.49	1.43
3	2	4690	B8K	C71-N7	2.62	1.45	1.39
3	2	4671	B8T	C6-N1	2.62	1.44	1.38
3	2	2786	B9H	O2-C2	-2.62	1.17	1.22
3	2	1326	A2M	C6-N6	2.60	1.43	1.34
3	2	4494	OMG	C5-C6	2.60	1.52	1.47
3	2	729	2MG	C5-C6	2.60	1.52	1.47
3	2	3718	A2M	O2'-C2'	2.59	1.49	1.42
3	2	2363	A2M	O2'-C2'	2.59	1.49	1.42
3	2	3792	OMG	O6-C6	-2.59	1.18	1.23
3	2	1659	I4U	C6-N1	2.58	1.44	1.38
3	2	3897	B8K	C71-N7	2.57	1.45	1.39
3	2	1326	A2M	O2'-C2'	2.56	1.49	1.42
3	2	2804	OMC	C6-N1	2.56	1.44	1.38
3	2	4870	OMG	O6-C6	-2.55	1.18	1.23
3	2	4196	OMG	C2-N1	2.55	1.44	1.37
3	2	4494	OMG	O6-C6	-2.54	1.18	1.23
3	2	1456	B8Q	C6-N1	2.54	1.44	1.38
3	2	4196	OMG	C5-C4	-2.53	1.36	1.43
3	2	4529	B8W	C5-C4	-2.53	1.34	1.40
3	2	4194	I4U	C6-N1	2.53	1.44	1.38
3	2	1625	OMG	O6-C6	-2.52	1.18	1.23
3	2	4296	B8H	O4-C4	-2.52	1.18	1.23
3	2	398	A2M	O2'-C2'	2.52	1.49	1.42
3	2	4690	B8K	C6-N1	2.52	1.43	1.38
3	2	4550	7MG	C6-N1	2.52	1.43	1.38
3	2	2773	OMG	O6-C6	-2.51	1.18	1.23
3	2	4371	MHG	O6-C6	-2.50	1.18	1.23
3	2	4472	B8W	O2'-C2'	2.48	1.48	1.43
3	2	4690	B8K	O3'-C3'	2.48	1.48	1.43
3	2	2050	OMG	C6-N1	2.47	1.41	1.37
3	2	2364	OMG	C6-N1	2.47	1.41	1.37
3	2	3867	A2M	O2'-C2'	2.47	1.48	1.42
3	2	3825	A2M	O5'-C5'	-2.46	1.38	1.44
3	2	729	2MG	O6-C6	-2.46	1.18	1.23
3	2	2508	PSU	C6-C5	2.45	1.38	1.35
3	2	1860	B8H	O4-C4	-2.44	1.18	1.23
3	2	1534	A2M	O2'-C2'	2.43	1.48	1.42
3	2	4571	A2M	O2'-C2'	2.43	1.48	1.42
3	2	3792	OMG	C5-C6	2.42	1.52	1.47
3	2	1605	7MG	C6-N1	2.42	1.43	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	2	4370	OMG	C5-C6	2.41	1.52	1.47
3	2	978	2MG	O6-C6	-2.41	1.18	1.23
3	2	237	B9B	O5'-C5'	-2.40	1.38	1.44
3	2	1534	A2M	O5'-C5'	-2.40	1.38	1.44
3	2	4529	B8W	C6-N1	2.40	1.35	1.31
3	2	3785	A2M	O5'-C5'	-2.40	1.38	1.44
3	2	4306	OMU	C6-N1	2.40	1.43	1.38
3	2	4355	E6G	O5'-C5'	-2.40	1.38	1.44
3	2	2050	OMG	C5-C6	2.40	1.52	1.47
3	2	4196	OMG	C5-C6	2.40	1.52	1.47
3	2	3899	BGH	O5'-C5'	-2.39	1.38	1.44
3	2	4870	OMG	C5-C6	2.38	1.52	1.47
3	2	2773	OMG	C2-N1	2.38	1.43	1.37
3	2	4872	2MG	O6-C6	-2.38	1.18	1.23
3	2	4185	B8W	O2'-C2'	2.36	1.48	1.43
3	2	2364	OMG	C5-C6	2.36	1.52	1.47
3	2	2401	A2M	O2'-C2'	2.36	1.48	1.42
3	2	373	OMG	C5-C6	2.35	1.52	1.47
3	2	3723	A2M	O5'-C5'	-2.34	1.39	1.44
3	2	2424	OMG	C2-N1	2.32	1.43	1.37
3	2	4194	I4U	O5'-C5'	-2.31	1.39	1.44
3	2	1316	OMG	C5-C6	2.31	1.52	1.47
3	2	729	2MG	C6-N1	2.30	1.41	1.37
3	2	1866	UR3	C4-N3	2.30	1.45	1.40
3	2	4620	OMU	C6-N1	2.28	1.43	1.38
3	2	4472	B8W	C5-C4	-2.27	1.34	1.40
3	2	1625	OMG	C5-C6	2.26	1.52	1.47
3	2	4500	PSU	C6-C5	2.26	1.38	1.35
3	2	2363	A2M	O5'-C5'	-2.25	1.39	1.44
3	2	2773	OMG	C5-C6	2.23	1.51	1.47
3	2	4529	B8W	C8-N7	-2.23	1.30	1.34
3	2	1683	PSU	C4-C5	-2.22	1.37	1.44
3	2	4523	A2M	O2'-C2'	2.22	1.48	1.42
3	2	4523	A2M	O5'-C5'	-2.21	1.39	1.44
3	2	3729	PSU	C6-C5	2.21	1.37	1.35
3	2	4571	A2M	O5'-C5'	-2.21	1.39	1.44
3	2	1677	PSU	C4-C5	-2.20	1.37	1.44
3	2	3729	PSU	C4-C5	-2.20	1.37	1.44
3	2	1860	B8H	C2-N1	-2.19	1.34	1.38
3	2	1348	P4U	O2-C2	-2.19	1.19	1.23
3	2	2401	A2M	O5'-C5'	-2.19	1.39	1.44
3	2	4194	I4U	O3'-C3'	2.19	1.48	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	2	1677	PSU	O4'-C1'	-2.18	1.40	1.43
3	2	4597	UR3	C5-C4	2.17	1.49	1.43
3	2	4500	PSU	C4-C5	-2.17	1.38	1.44
3	2	1522	OMG	C5-C6	2.16	1.51	1.47
3	2	1517	2MG	C5-C6	2.15	1.51	1.47
3	2	4500	PSU	O4'-C1'	-2.15	1.40	1.43
3	2	1524	A2M	O5'-C5'	-2.15	1.39	1.44
3	2	4636	PSU	C4-C5	-2.14	1.38	1.44
3	2	4530	UR3	O2-C2	-2.14	1.18	1.22
3	2	4129	B8W	C5-C4	-2.13	1.35	1.40
3	2	1659	I4U	O5'-C5'	-2.12	1.39	1.44
3	2	4530	UR3	C4-N3	2.12	1.45	1.40
3	2	4564	M7A	C5-C6	-2.12	1.35	1.40
3	2	4450	PSU	C4-C5	-2.11	1.38	1.44
3	2	4220	6MZ	C2-N3	2.09	1.35	1.32
3	2	3701	OMC	C5-C4	2.08	1.47	1.42
3	2	4637	OMG	C5-C6	2.08	1.51	1.47
3	2	4628	PSU	O4'-C1'	-2.07	1.41	1.43
3	2	4636	PSU	O4'-C1'	-2.07	1.41	1.43
3	2	1316	OMG	C2-N1	2.07	1.42	1.37
3	2	1866	UR3	C5-C4	2.06	1.49	1.43
3	2	3909	OMC	C5-C4	2.06	1.47	1.42
3	2	4530	UR3	C5-C4	2.05	1.49	1.43
3	2	4597	UR3	O2-C2	-2.05	1.18	1.22
3	2	4370	OMG	C2-N1	2.04	1.42	1.37
3	2	4620	OMU	O3'-C3'	2.03	1.47	1.43
3	2	2401	A2M	C6-C5	-2.02	1.35	1.43
3	2	4296	B8H	C2-N1	-2.01	1.34	1.38
3	2	4293	PSU	C4-C5	-2.01	1.38	1.44
3	2	1524	A2M	O2'-C2'	2.01	1.47	1.42
3	2	4623	OMG	C2-N1	2.00	1.42	1.37

All (444) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	2	4564	M7A	C5-C6-N6	13.91	147.49	123.74
3	2	4220	6MZ	C1'-N9-C4	-13.75	102.49	126.64
3	2	4083	5MU	C5-C4-N3	12.98	126.39	115.31
3	2	4564	M7A	N6-C6-N1	-11.44	93.29	118.35
3	2	2363	A2M	C5-C6-N6	10.30	136.01	120.35
3	2	3718	A2M	C5-C6-N6	9.86	135.34	120.35
3	2	4523	A2M	C5-C6-N6	9.60	134.94	120.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	2	398	A2M	C5-C6-N6	9.59	134.92	120.35
3	2	4083	5MU	C5-C6-N1	-9.58	113.48	123.34
3	2	1524	A2M	C5-C6-N6	9.54	134.85	120.35
3	2	3825	A2M	C5-C6-N6	9.33	134.53	120.35
3	2	2401	A2M	C5-C6-N6	9.26	134.42	120.35
3	2	3785	A2M	C5-C6-N6	9.10	134.18	120.35
3	2	1326	A2M	C5-C6-N6	8.87	133.84	120.35
3	2	4571	A2M	C5-C6-N6	8.86	133.82	120.35
3	2	3723	A2M	C5-C6-N6	8.84	133.79	120.35
3	2	1871	A2M	C5-C6-N6	8.42	133.15	120.35
3	2	1534	A2M	C5-C6-N6	8.36	133.06	120.35
3	2	3867	A2M	C5-C6-N6	8.25	132.89	120.35
3	2	2786	B9H	C31-N3-C2	7.69	126.82	117.21
3	2	4529	B8W	N3-C2-N1	-7.41	117.33	127.22
3	2	2363	A2M	N6-C6-N1	-7.36	103.29	118.57
3	2	4529	B8W	C2-N3-C4	7.23	123.62	115.36
3	2	237	B9B	O6-C6-N1	-7.15	113.95	120.12
3	2	1860	B8H	C4-N3-C2	-6.99	118.30	127.35
3	2	3718	A2M	N6-C6-N1	-6.89	104.26	118.57
3	2	4296	B8H	C4-N3-C2	-6.89	118.43	127.35
3	2	398	A2M	N6-C6-N1	-6.73	104.60	118.57
3	2	3880	P7G	C4-C5-N7	6.72	110.22	106.67
3	2	3825	A2M	N6-C6-N1	-6.68	104.72	118.57
3	2	3785	A2M	N6-C6-N1	-6.64	104.79	118.57
3	2	1524	A2M	N6-C6-N1	-6.63	104.82	118.57
3	2	4523	A2M	N6-C6-N1	-6.55	104.98	118.57
3	2	1871	A2M	N3-C2-N1	-6.52	118.49	128.68
3	2	1860	B8H	N3-C2-N1	6.44	122.10	115.14
3	2	1326	A2M	N6-C6-N1	-6.38	105.34	118.57
3	2	4564	M7A	N3-C2-N1	-6.37	118.63	128.60
3	2	2401	A2M	N6-C6-N1	-6.26	105.57	118.57
3	2	4447	5MC	C5-C6-N1	-6.25	116.91	123.34
3	2	4355	E6G	N2-C2-N3	6.16	127.82	117.79
3	2	3867	A2M	N6-C6-N1	-6.14	105.83	118.57
3	2	2401	A2M	N3-C2-N1	-6.12	119.12	128.68
3	2	4220	6MZ	N3-C2-N1	-6.11	119.13	128.68
3	2	398	A2M	N3-C2-N1	-6.08	119.17	128.68
3	2	3723	A2M	N3-C2-N1	-6.08	119.18	128.68
3	2	2363	A2M	N3-C2-N1	-6.04	119.23	128.68
3	2	4690	B8K	C5-C6-N1	6.03	121.62	110.99
3	2	4371	MHG	C2-N3-C4	6.03	119.51	112.04
3	2	1456	B8Q	C31-N3-C4	6.01	123.31	114.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	2	4571	A2M	N6-C6-N1	-5.99	106.13	118.57
3	2	1326	A2M	N3-C2-N1	-5.99	119.31	128.68
3	2	3897	B8K	C72-C71-N7	5.99	127.87	118.86
3	2	4571	A2M	N3-C2-N1	-5.92	119.42	128.68
3	2	3723	A2M	N6-C6-N1	-5.87	106.39	118.57
3	2	1534	A2M	N6-C6-N1	-5.85	106.42	118.57
3	2	3825	A2M	N3-C2-N1	-5.80	119.61	128.68
3	2	3785	A2M	N3-C2-N1	-5.77	119.66	128.68
3	2	4564	M7A	N3-C4-N9	5.74	134.12	126.87
3	2	4690	B8K	C72-C71-N7	5.71	127.44	118.86
3	2	1322	1MA	N1-C2-N3	-5.69	119.38	126.02
3	2	4083	5MU	O4-C4-C5	-5.68	118.31	124.90
3	2	4296	B8H	N3-C2-N1	5.68	121.28	115.14
3	2	237	B9B	N3-C2-N1	-5.65	119.68	127.22
3	2	1871	A2M	N6-C6-N1	-5.63	106.89	118.57
3	2	4129	B8W	N2-C2-N3	5.62	126.96	117.79
3	2	1524	A2M	N3-C2-N1	-5.62	119.90	128.68
3	2	2786	B9H	C6-N1-C2	-5.55	116.82	121.79
3	2	1534	A2M	N3-C2-N1	-5.54	120.02	128.68
3	2	4129	B8W	N3-C2-N1	-5.54	119.83	127.22
3	2	3899	BGH	C5-C6-N1	5.50	120.69	110.99
3	2	1797	E7G	C4-C5-N7	5.49	109.80	104.91
3	2	4083	5MU	C4-N3-C2	-5.48	120.25	127.35
3	2	1574	B9B	O6-C6-N1	-5.48	115.40	120.12
3	2	4083	5MU	N3-C2-N1	5.43	122.10	114.89
3	2	2297	E7G	C5-C6-N1	5.41	120.53	110.99
3	2	4620	OMU	C4-N3-C2	-5.41	119.44	126.58
3	2	4523	A2M	N3-C2-N1	-5.40	120.23	128.68
3	2	2297	E7G	C4-C5-N7	5.39	109.70	104.91
3	2	1456	B8Q	N3-C2-N1	5.38	123.46	117.13
3	2	2754	B9B	N3-C2-N1	-5.35	120.09	127.22
3	2	3718	A2M	N3-C2-N1	-5.33	120.35	128.68
3	2	1677	PSU	N1-C2-N3	5.33	121.17	115.13
3	2	3899	BGH	C4-C5-N7	5.30	109.63	104.91
3	2	4306	OMU	C4-N3-C2	-5.29	119.60	126.58
3	2	4450	PSU	N1-C2-N3	5.27	121.10	115.13
3	2	1574	B9B	N3-C2-N1	-5.26	120.21	127.22
3	2	4185	B8W	N3-C2-N1	-5.25	120.21	127.22
3	2	4355	E6G	N3-C2-N1	-5.25	120.22	127.22
3	2	2522	7MG	C5-C6-N1	5.25	120.24	110.99
3	2	4636	PSU	C4-N3-C2	-5.21	118.84	126.34
3	2	3867	A2M	N3-C2-N1	-5.20	120.55	128.68

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	2	4355	E6G	O6-C6-N1	5.18	124.60	120.12
3	2	1909	P7G	C4-C5-N7	5.16	109.39	106.67
3	2	4690	B8K	C4-C5-N7	5.16	109.50	104.91
3	2	4550	7MG	C5-C6-N1	5.16	120.09	110.99
3	2	3897	B8K	C5-C6-N1	5.13	120.03	110.99
3	2	1677	PSU	C4-N3-C2	-5.11	118.97	126.34
3	2	4185	B8W	C2-N3-C4	5.11	121.19	115.36
3	2	4529	B8W	C4-C5-N7	-5.11	104.08	109.40
3	2	1797	E7G	C5-C6-N1	5.10	119.97	110.99
3	2	2754	B9B	O6-C6-N1	-5.09	115.73	120.12
3	2	4472	B8W	N3-C2-N1	-5.09	120.43	127.22
3	2	4531	PSU	N1-C2-N3	5.04	120.84	115.13
3	2	4500	PSU	N1-C2-N3	5.03	120.83	115.13
3	2	4628	PSU	N1-C2-N3	4.98	120.78	115.13
3	2	4500	PSU	C4-N3-C2	-4.96	119.20	126.34
3	2	4450	PSU	C4-N3-C2	-4.93	119.24	126.34
3	2	1605	7MG	C5-C6-N1	4.93	119.67	110.99
3	2	4371	MHG	C5-C6-N1	4.91	119.65	110.99
3	2	4371	MHG	C4-C5-N7	4.90	109.27	104.91
3	2	1582	PSU	N1-C2-N3	4.88	120.66	115.13
3	2	3899	BGH	C72-C71-N7	4.88	126.19	118.86
3	2	4129	B8W	O6-C6-C5	4.84	122.92	116.01
3	2	4636	PSU	N1-C2-N3	4.83	120.61	115.13
3	2	237	B9B	C2-N3-C4	4.83	120.87	115.36
3	2	3897	B8K	C4-C5-N7	4.82	109.20	104.91
3	2	1683	PSU	C4-N3-C2	-4.77	119.47	126.34
3	2	1866	UR3	C1'-N1-C2	4.67	124.88	116.99
3	2	4550	7MG	C2-N3-C4	4.66	120.60	112.30
3	2	4628	PSU	C4-N3-C2	-4.62	119.69	126.34
3	2	1683	PSU	N1-C2-N3	4.59	120.33	115.13
3	2	4293	PSU	N1-C2-N3	4.59	120.33	115.13
3	2	2754	B9B	C2-N3-C4	4.58	120.58	115.36
3	2	4442	PSU	N1-C2-N3	4.58	120.31	115.13
3	2	2422	OMC	O2-C2-N3	-4.53	114.97	122.33
3	2	4530	UR3	C4-N3-C2	-4.50	120.32	124.56
3	2	1909	P7G	N9-C8-N7	4.49	109.79	103.38
3	2	4597	UR3	C4-N3-C2	-4.48	120.34	124.56
3	2	4690	B8K	C2-N3-C4	4.46	120.25	112.30
3	2	4531	PSU	C4-N3-C2	-4.46	119.91	126.34
3	2	4355	E6G	C2-N3-C4	4.46	120.45	115.36
3	2	2380	B8W	C3'-C2'-C1'	4.45	107.69	100.98
3	2	3729	PSU	N1-C2-N3	4.45	120.17	115.13

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	2	4529	B8W	O6-C6-C5	4.44	122.36	116.01
3	2	2522	7MG	C2-N3-C4	4.44	120.21	112.30
3	2	2297	E7G	C2-N3-C4	4.43	120.20	112.30
3	2	3899	BGH	C2-N3-C4	4.41	120.15	112.30
3	2	4185	B8W	N2-C2-N3	4.41	124.97	117.79
3	2	1582	PSU	C4-N3-C2	-4.40	119.99	126.34
3	2	4620	OMU	N3-C2-N1	4.40	120.73	114.89
3	2	1797	E7G	C2-N3-C4	4.39	120.13	112.30
3	2	3897	B8K	C2-N3-C4	4.37	120.08	112.30
3	2	4472	B8W	C2-N3-C4	4.34	120.32	115.36
3	2	1517	2MG	C5-C6-N1	4.32	121.59	113.95
3	2	1456	B8Q	O2-C2-N3	-4.30	116.64	122.95
3	2	3899	BGH	N9-C8-N7	4.28	109.08	103.33
3	2	4293	PSU	C4-N3-C2	-4.27	120.19	126.34
3	2	1909	P7G	C71-N7-C5	4.26	134.62	124.52
3	2	4194	I4U	C5-C4-N3	-4.24	118.45	124.91
3	2	2380	B8W	N3-C2-N1	-4.17	121.66	127.22
3	2	1574	B9B	C2-N3-C4	4.12	120.07	115.36
3	2	4306	OMU	N3-C2-N1	4.11	120.34	114.89
3	2	4335	5MC	C5-C6-N1	-4.10	119.12	123.34
3	2	2380	B8W	O6-C6-N1	4.09	124.71	119.03
3	2	1605	7MG	C2-N3-C4	4.09	119.58	112.30
3	2	3729	PSU	C4-N3-C2	-4.08	120.46	126.34
3	2	4637	OMG	C5-C6-N1	4.07	121.13	113.95
3	2	4083	5MU	C5M-C5-C4	4.03	123.21	118.77
3	2	4442	PSU	C4-N3-C2	-4.03	120.54	126.34
3	2	1797	E7G	C5-C4-N3	-4.03	120.46	128.13
3	2	1866	UR3	C6-N1-C2	-4.03	118.18	121.79
3	2	2508	PSU	C4-N3-C2	-4.02	120.55	126.34
3	2	4129	B8W	C2-N3-C4	3.99	119.92	115.36
3	2	3909	OMC	O2-C2-N3	-3.99	115.83	122.33
3	2	2508	PSU	N1-C2-N3	3.93	119.59	115.13
3	2	4472	B8W	N2-C2-N3	3.93	124.19	117.79
3	2	4472	B8W	O6-C6-N1	3.90	124.44	119.03
3	2	4083	5MU	C5M-C5-C6	-3.90	117.64	122.85
3	2	4403	PSU	N1-C2-N3	3.88	119.53	115.13
3	2	1522	OMG	C5-C6-N1	3.87	120.79	113.95
3	2	3715	PSU	N1-C2-N3	3.83	119.46	115.13
3	2	2380	B8W	N2-C2-N3	3.82	124.02	117.79
3	2	1866	UR3	C4-N3-C2	-3.79	121.00	124.56
3	2	1316	OMG	C5-C6-N1	3.78	120.63	113.95
3	2	2050	OMG	C5-C6-N1	3.78	120.63	113.95

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	2	2364	OMG	C5-C6-N1	3.76	120.60	113.95
3	2	4129	B8W	C2-N1-C6	3.75	122.11	116.08
3	2	3897	B8K	N9-C8-N7	3.75	108.36	103.33
3	2	1605	7MG	C5-C4-N3	-3.73	121.02	128.13
3	2	1860	B8H	C5-C4-N3	3.68	124.91	116.58
3	2	4494	OMG	C5-C6-N1	3.68	120.45	113.95
3	2	2424	OMG	C5-C6-N1	3.68	120.44	113.95
3	2	2522	7MG	C5-C4-N9	3.66	111.10	106.35
3	2	1348	P4U	C5-C4-N3	-3.66	119.34	124.91
3	2	1659	I4U	C5-C4-N3	-3.66	119.35	124.91
3	2	1322	1MA	C5-C6-N1	3.65	119.34	113.90
3	2	4296	B8H	C5-C4-N3	3.65	124.84	116.58
3	2	2522	7MG	C5-C4-N3	-3.64	121.19	128.13
3	2	4185	B8W	O6-C6-N1	3.63	124.07	119.03
3	2	2773	OMG	C5-C6-N1	3.63	120.36	113.95
3	2	4690	B8K	C5-C4-N9	3.63	111.05	106.35
3	2	4371	MHG	C2-N1-C6	-3.62	120.32	124.48
3	2	1625	OMG	C5-C6-N1	3.62	120.34	113.95
3	2	1605	7MG	N9-C8-N7	3.61	108.55	103.38
3	2	2786	B9H	O3'-C3'-C2'	3.60	121.38	111.17
3	2	4371	MHG	C5-C4-N9	3.59	111.01	106.35
3	2	2786	B9H	C32-C31-N3	3.57	119.93	112.47
3	2	2786	B9H	O2-C2-N1	-3.57	114.37	122.72
3	2	978	2MG	C5-C6-N1	3.57	120.25	113.95
3	2	4623	OMG	C5-C6-N1	3.57	120.25	113.95
3	2	3715	PSU	C4-N3-C2	-3.56	121.20	126.34
3	2	4403	PSU	C4-N3-C2	-3.56	121.21	126.34
3	2	978	2MG	CM2-N2-C2	-3.56	116.00	123.86
3	2	4220	6MZ	C2-N1-C6	3.55	119.63	116.59
3	2	4872	2MG	C5-C6-N1	3.52	120.17	113.95
3	2	2297	E7G	C5-C4-N3	-3.52	121.42	128.13
3	2	3909	OMC	C1'-N1-C2	3.51	126.25	118.42
3	2	4447	5MC	CM5-C5-C6	-3.50	118.17	122.85
3	2	4550	7MG	C5-C4-N3	-3.50	121.46	128.13
3	2	1517	2MG	O6-C6-C5	-3.49	117.55	124.37
3	2	729	2MG	C5-C6-N1	3.48	120.09	113.95
3	2	2380	B8W	C2-N3-C4	3.47	119.32	115.36
3	2	3897	B8K	C5-C4-N9	3.46	110.83	106.35
3	2	4690	B8K	N9-C8-N7	3.43	107.93	103.33
3	2	1883	OMG	C5-C6-N1	3.42	119.99	113.95
3	2	1860	B8H	O2-C2-N1	-3.41	119.03	122.87
3	2	4355	E6G	N2-C2-N1	-3.41	111.95	117.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	2	373	OMG	C5-C6-N1	3.39	119.95	113.95
3	2	4296	B8H	O2-C2-N1	-3.36	119.08	122.87
3	2	4370	OMG	C5-C6-N1	3.36	119.88	113.95
3	2	4637	OMG	C2-N1-C6	-3.34	118.94	125.10
3	2	1316	OMG	C2-N1-C6	-3.33	118.96	125.10
3	2	4196	OMG	C5-C6-N1	3.33	119.83	113.95
3	2	4306	OMU	C5-C4-N3	3.32	119.81	114.84
3	2	237	B9B	C3'-C2'-C1'	3.32	105.98	100.98
3	2	2364	OMG	C2-N1-C6	-3.28	119.05	125.10
3	2	4690	B8K	C6-C5-C4	-3.28	115.85	122.62
3	2	2424	OMG	C2-N1-C6	-3.28	119.05	125.10
3	2	3899	BGH	C6-C5-C4	-3.27	115.88	122.62
3	2	4620	OMU	C5-C4-N3	3.26	119.72	114.84
3	2	2754	B9B	C3'-C2'-C1'	3.26	105.88	100.98
3	2	4371	MHG	C72-C71-N7	3.26	115.61	112.41
3	2	4529	B8W	C2-N1-C6	3.25	121.30	116.08
3	2	4450	PSU	C6-C5-C4	3.22	120.45	118.20
3	2	1625	OMG	C2-N1-C6	-3.21	119.19	125.10
3	2	2050	OMG	C2-N1-C6	-3.21	119.19	125.10
3	2	4371	MHG	C5-C4-N3	-3.17	122.09	128.13
3	2	1605	7MG	C4-C5-N7	3.17	109.93	105.53
3	2	3792	OMG	C5-C6-N1	3.17	119.54	113.95
3	2	3729	PSU	C6-N1-C2	-3.13	119.48	122.68
3	2	4531	PSU	C6-N1-C2	-3.13	119.48	122.68
3	2	1605	7MG	C5-C4-N9	3.13	110.41	106.35
3	2	4620	OMU	O4-C4-C5	-3.11	119.69	125.16
3	2	4196	OMG	C2-N1-C6	-3.11	119.37	125.10
3	2	1574	B9B	C1'-N9-C4	-3.09	121.21	126.64
3	2	4620	OMU	O3'-C3'-C4'	3.09	119.99	111.05
3	2	4564	M7A	C2-N3-C4	3.08	119.04	111.75
3	2	3899	BGH	C5-C4-N9	3.07	110.33	106.35
3	2	4494	OMG	C2-N1-C6	-3.07	119.44	125.10
3	2	4550	7MG	C4-C5-N7	3.07	109.79	105.53
3	2	2773	OMG	C2-N1-C6	-3.07	119.45	125.10
3	2	4083	5MU	O2-C2-N1	-3.06	118.71	122.79
3	2	1883	OMG	C2-N1-C6	-3.06	119.47	125.10
3	2	4623	OMG	C2-N1-C6	-3.06	119.47	125.10
3	2	4550	7MG	C5-C4-N9	3.05	110.31	106.35
3	2	4500	PSU	C6-C5-C4	3.04	120.32	118.20
3	2	3729	PSU	O2-C2-N1	-3.04	119.45	122.79
3	2	4370	OMG	C2-N1-C6	-3.01	119.55	125.10
3	2	4628	PSU	O2-C2-N1	-3.01	119.48	122.79

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	2	4531	PSU	O2-C2-N1	-2.99	119.50	122.79
3	2	2773	OMG	O6-C6-C5	-2.97	118.58	124.37
3	2	1316	OMG	C8-N7-C5	2.97	108.64	102.99
3	2	1797	E7G	C5-C4-N9	2.96	110.19	106.35
3	2	2424	OMG	O6-C6-C5	-2.96	118.59	124.37
3	2	4671	B8T	C6-C5-C4	2.95	120.57	116.96
3	2	2297	E7G	C5-C4-N9	2.95	110.18	106.35
3	2	4293	PSU	O2-C2-N1	-2.94	119.55	122.79
3	2	4355	E6G	O4'-C4'-C3'	-2.92	99.34	105.11
3	2	4623	OMG	C8-N7-C5	2.91	108.53	102.99
3	2	2522	7MG	C2-N1-C6	-2.90	119.80	125.10
3	2	1683	PSU	O2-C2-N1	-2.89	119.61	122.79
3	2	1677	PSU	O2-C2-N1	-2.89	119.61	122.79
3	2	4194	I4U	C3'-C2'-C1'	2.88	106.91	101.43
3	2	4129	B8W	C4-C5-N7	-2.88	106.40	109.40
3	2	373	OMG	C2-N1-C6	-2.87	119.82	125.10
3	2	4870	OMG	N1-C2-N3	-2.86	117.97	123.32
3	2	4530	UR3	C1'-N1-C2	2.85	121.81	116.99
3	2	1860	B8H	O4-C4-N3	-2.85	114.65	120.12
3	2	2297	E7G	C2-N1-C6	-2.85	119.91	125.10
3	2	4690	B8K	C5-C4-N3	-2.84	122.72	128.13
3	2	3897	B8K	C6-C5-C4	-2.84	116.77	122.62
3	2	4870	OMG	C5-C6-N1	2.82	118.94	113.95
3	2	2364	OMG	C8-N7-C5	2.82	108.36	102.99
3	2	1522	OMG	C2-N1-C6	-2.80	119.94	125.10
3	2	2297	E7G	O6-C6-C5	-2.77	120.73	127.54
3	2	1582	PSU	C6-N1-C2	-2.77	119.85	122.68
3	2	4293	PSU	C6-N1-C2	-2.77	119.85	122.68
3	2	4628	PSU	C6-N1-C2	-2.77	119.85	122.68
3	2	373	OMG	C8-N7-C5	2.76	108.25	102.99
3	2	4637	OMG	O6-C6-C5	-2.74	119.02	124.37
3	2	1677	PSU	C6-N1-C2	-2.74	119.88	122.68
3	2	2786	B9H	O3'-C3'-C4'	2.74	118.96	111.05
3	2	1316	OMG	O6-C6-C5	-2.74	119.03	124.37
3	2	4355	E6G	C2-N1-C6	2.73	120.46	116.08
3	2	3897	B8K	C5-C4-N3	-2.71	122.96	128.13
3	2	1797	E7G	N9-C8-N7	2.69	107.23	103.38
3	2	2050	OMG	C8-N7-C5	2.68	108.10	102.99
3	2	3899	BGH	N1-C2-N3	-2.68	118.32	123.32
3	2	1456	B8Q	C31-N3-C2	2.68	121.68	117.79
3	2	1456	B8Q	C1'-N1-C2	2.67	121.50	116.99
3	2	1677	PSU	C6-C5-C4	2.67	120.06	118.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	2	1456	B8Q	C6-N1-C2	-2.67	119.40	121.79
3	2	4306	OMU	O2-C2-N1	-2.66	119.26	122.79
3	2	3792	OMG	C2-N1-C6	-2.65	120.21	125.10
3	2	2773	OMG	C8-N7-C5	2.65	108.04	102.99
3	2	1522	OMG	C8-N7-C5	2.65	108.03	102.99
3	2	1883	OMG	O6-C6-C5	-2.64	119.21	124.37
3	2	4083	5MU	C6-N1-C2	-2.64	118.62	121.30
3	2	4129	B8W	C5-C6-N1	-2.64	118.23	123.26
3	2	4530	UR3	O2-C2-N3	-2.63	117.63	121.34
3	2	4196	OMG	O6-C6-C5	-2.63	119.23	124.37
3	2	3899	BGH	O6-C6-C5	-2.62	121.11	127.54
3	2	4370	OMG	C8-N7-C5	2.62	107.98	102.99
3	2	1797	E7G	C2-N1-C6	-2.61	120.33	125.10
3	2	4872	2MG	C8-N7-C5	2.61	107.97	102.99
3	2	1605	7MG	C2-N1-C6	-2.61	120.33	125.10
3	2	4129	B8W	N2-C2-N1	-2.60	113.21	117.25
3	2	1866	UR3	O2-C2-N3	-2.60	117.68	121.34
3	2	1797	E7G	N9-C4-N3	2.60	129.35	125.47
3	2	2522	7MG	C4-C5-N7	2.59	109.13	105.53
3	2	4450	PSU	C6-N1-C2	-2.58	120.05	122.68
3	2	2422	OMC	O2-C2-N1	2.58	124.21	118.89
3	2	3899	BGH	N2-C2-N1	2.57	122.19	116.71
3	2	4442	PSU	C6-N1-C2	-2.57	120.05	122.68
3	2	4403	PSU	C6-N1-C2	-2.57	120.06	122.68
3	2	4494	OMG	C8-N7-C5	2.57	107.88	102.99
3	2	3897	B8K	N1-C2-N3	-2.56	118.54	123.32
3	2	4296	B8H	O4-C4-N3	-2.54	115.24	120.12
3	2	978	2MG	C8-N7-C5	2.54	107.83	102.99
3	2	4690	B8K	C2-N1-C6	-2.53	120.49	125.10
3	2	3792	OMG	C8-N7-C5	2.53	107.80	102.99
3	2	1797	E7G	O6-C6-C5	-2.53	121.35	127.54
3	2	1524	A2M	O4'-C4'-C3'	-2.52	100.12	105.11
3	2	4450	PSU	O2-C2-N1	-2.52	120.02	122.79
3	2	3887	OMC	O2-C2-N3	-2.52	118.23	122.33
3	2	4083	5MU	O4-C4-N3	-2.52	115.29	120.12
3	2	4637	OMG	C8-N7-C5	2.51	107.77	102.99
3	2	4550	7MG	O6-C6-C5	-2.49	121.44	127.54
3	2	3897	B8K	O6-C6-C5	-2.49	121.44	127.54
3	2	2422	OMC	C1'-N1-C2	2.48	123.95	118.42
3	2	4306	OMU	O4-C4-C5	-2.47	120.81	125.16
3	2	1574	B9B	C3'-C2'-C1'	2.47	104.69	100.98
3	2	2786	B9H	C1'-N1-C6	2.46	126.20	120.84

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	2	4529	B8W	C3'-C2'-C1'	2.45	104.67	100.98
3	2	4529	B8W	N2-C2-N1	2.45	121.07	117.25
3	2	3897	B8K	N2-C2-N1	2.45	121.93	116.71
3	2	4620	OMU	O2-C2-N1	-2.45	119.53	122.79
3	2	3899	BGH	C5-C4-N3	-2.44	123.49	128.13
3	2	4196	OMG	C8-N7-C5	2.42	107.60	102.99
3	2	4870	OMG	C8-N7-C5	2.41	107.59	102.99
3	2	4185	B8W	C1'-N9-C4	-2.41	122.40	126.64
3	2	4371	MHG	O6-C6-C5	-2.41	121.63	127.54
3	2	2424	OMG	C8-N7-C5	2.41	107.58	102.99
3	2	1625	OMG	O6-C6-C5	-2.41	119.67	124.37
3	2	1625	OMG	C8-N7-C5	2.40	107.57	102.99
3	2	4550	7MG	N1-C2-N3	-2.40	118.84	123.32
3	2	2380	B8W	C1'-N9-C4	-2.40	122.42	126.64
3	2	1517	2MG	CM2-N2-C2	-2.40	118.57	123.86
3	2	4472	B8W	C2-N1-C6	2.40	119.93	116.08
3	2	2522	7MG	O6-C6-C5	-2.39	121.67	127.54
3	2	4194	I4U	C5'-C4'-C3'	-2.39	106.22	115.18
3	2	1883	OMG	C8-N7-C5	2.39	107.54	102.99
3	2	4403	PSU	O2-C2-N1	-2.39	120.16	122.79
3	2	3880	P7G	N2-C2-N3	2.38	121.78	116.71
3	2	3715	PSU	C6-N1-C2	-2.38	120.25	122.68
3	2	3880	P7G	N9-C8-N7	2.38	106.78	103.38
3	2	4636	PSU	C6-C5-C4	2.37	119.86	118.20
3	2	729	2MG	C8-N7-C5	2.37	107.50	102.99
3	2	4371	MHG	N1-C2-N3	-2.36	120.30	123.95
3	2	4530	UR3	C6-N1-C2	-2.36	119.67	121.79
3	2	3897	B8K	O4'-C1'-C2'	-2.36	101.50	106.64
3	2	4597	UR3	C6-N1-C2	-2.35	119.69	121.79
3	2	3909	OMC	O2-C2-N1	2.33	123.71	118.89
3	2	1605	7MG	O6-C6-C5	-2.33	121.82	127.54
3	2	4529	B8W	N2-C2-N3	2.33	121.59	117.79
3	2	3880	P7G	C71-N7-C5	2.32	130.01	124.52
3	2	1522	OMG	N1-C2-N3	-2.31	119.00	123.32
3	2	4530	UR3	C3U-N3-C4	2.31	121.18	117.89
3	2	4550	7MG	C6-C5-C4	-2.30	117.88	122.62
3	2	1316	OMG	N2-C2-N1	2.30	121.61	116.71
3	2	4690	B8K	N1-C2-N3	-2.28	119.06	123.32
3	2	4500	PSU	O2-C2-N1	-2.28	120.28	122.79
3	2	3782	5MC	C5-C4-N3	-2.27	119.22	121.67
3	2	4870	OMG	C2-N1-C6	-2.26	120.93	125.10
3	2	4500	PSU	C6-N1-C2	-2.26	120.38	122.68

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	2	1348	P4U	O2-C2-N3	-2.25	118.67	122.33
3	2	4194	I4U	C2'-C3'-C4'	2.25	107.01	102.64
3	2	3899	BGH	O4'-C4'-C3'	-2.25	100.67	105.11
3	2	4194	I4U	O4-C41-C43	2.23	113.08	107.14
3	2	3782	5MC	O2-C2-N3	-2.23	118.71	122.33
3	2	1322	1MA	C8-N7-C5	2.23	107.23	102.99
3	2	3782	5MC	C5-C6-N1	-2.21	121.06	123.34
3	2	4872	2MG	CM2-N2-C2	-2.20	119.00	123.86
3	2	1582	PSU	O2-C2-N1	-2.20	120.37	122.79
3	2	4494	OMG	O6-C6-C5	-2.20	120.08	124.37
3	2	1517	2MG	C3'-C2'-C1'	2.19	104.27	100.98
3	2	1517	2MG	C8-N7-C5	2.19	107.16	102.99
3	2	4185	B8W	C2-N1-C6	2.19	119.59	116.08
3	2	3909	OMC	C1'-N1-C6	-2.18	116.08	120.84
3	2	4550	7MG	C2-N1-C6	-2.18	121.13	125.10
3	2	1534	A2M	O3'-C3'-C4'	-2.18	104.76	111.05
3	2	4371	MHG	C6-C5-C4	-2.18	118.14	122.62
3	2	237	B9B	C1'-N9-C4	-2.17	122.82	126.64
3	2	978	2MG	O6-C6-C5	-2.17	120.13	124.37
3	2	237	B9B	C2-N1-C6	2.16	119.55	116.08
3	2	4355	E6G	C2'-C3'-C4'	-2.15	98.46	102.64
3	2	4523	A2M	O4'-C4'-C3'	-2.15	100.85	105.11
3	2	4690	B8K	O6-C6-C5	-2.15	122.27	127.54
3	2	4403	PSU	O4-C4-N3	-2.15	116.00	120.12
3	2	4335	5MC	O2-C2-N3	-2.14	118.85	122.33
3	2	1659	I4U	O2-C2-N3	-2.14	118.86	122.33
3	2	4194	I4U	O4'-C4'-C3'	2.14	109.34	105.11
3	2	373	OMG	O6-C6-C5	-2.13	120.22	124.37
3	2	2297	E7G	C6-C5-C4	-2.13	118.24	122.62
3	2	4355	E6G	C5-C6-N1	-2.13	119.21	123.26
3	2	3792	OMG	O6-C6-C5	-2.13	120.22	124.37
3	2	4129	B8W	C3'-C2'-C1'	2.12	104.17	100.98
3	2	4529	B8W	C5-C6-N1	-2.11	119.24	123.26
3	2	2297	E7G	N9-C8-N7	2.11	106.40	103.38
3	2	4564	M7A	C2-N1-C6	2.11	122.39	118.77
3	2	4620	OMU	O3'-C3'-C2'	2.11	117.16	111.17
3	2	4690	B8K	O6-C6-N1	-2.09	116.11	120.12
3	2	4620	OMU	C6-N1-C2	-2.09	118.32	120.99
3	2	1883	OMG	N2-C2-N1	2.08	121.14	116.71
3	2	4564	M7A	C5-C4-N3	-2.08	121.74	126.62
3	2	4442	PSU	O2-C2-N1	-2.08	120.50	122.79
3	2	1605	7MG	N9-C4-N3	2.08	128.57	125.47

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	2	4370	OMG	O6-C6-C5	-2.07	120.32	124.37
3	2	4550	7MG	N9-C8-N7	2.07	106.34	103.38
3	2	2754	B9B	N2-C2-N3	2.05	121.13	117.79
3	2	4870	OMG	N2-C2-N1	2.05	121.08	116.71
3	2	4185	B8W	C3'-C2'-C1'	2.04	104.06	100.98
3	2	4571	A2M	C5'-C4'-C3'	-2.04	107.53	115.18
3	2	3701	OMC	C5-C6-N1	-2.04	118.39	121.81
3	2	1659	I4U	O4'-C4'-C3'	-2.04	101.08	105.11
3	2	4870	OMG	O6-C6-C5	-2.03	120.40	124.37
3	2	4483	B8T	C6-C5-C4	2.03	119.45	116.96
3	2	2773	OMG	N2-C2-N1	2.03	121.04	116.71
3	2	2508	PSU	O2-C2-N1	-2.02	120.56	122.79
3	2	3723	A2M	O4'-C4'-C3'	-2.02	101.12	105.11
3	2	4523	A2M	C1'-N9-C4	-2.02	123.09	126.64
3	2	3880	P7G	N3-C2-N1	-2.02	119.56	123.32
3	2	4636	PSU	O4'-C1'-C2'	2.02	107.99	105.14
3	2	729	2MG	CM2-N2-C2	-2.01	119.43	123.86

There are no chirality outliers.

All (158) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	2	237	B9B	C5-C6-O6-C61
3	2	237	B9B	N1-C6-O6-C61
3	2	237	B9B	O4'-C4'-C5'-O5'
3	2	1348	P4U	N3-C4-O4-C41
3	2	1574	B9B	C5-C6-O6-C61
3	2	1574	B9B	N1-C6-O6-C61
3	2	1625	OMG	C3'-C4'-C5'-O5'
3	2	1677	PSU	C3'-C4'-C5'-O5'
3	2	1797	E7G	O4'-C4'-C5'-O5'
3	2	1883	OMG	O4'-C4'-C5'-O5'
3	2	1883	OMG	C3'-C4'-C5'-O5'
3	2	1909	P7G	C72-C71-N7-C5
3	2	2297	E7G	C3'-C4'-C5'-O5'
3	2	2297	E7G	O4'-C4'-C5'-O5'
3	2	2364	OMG	O4'-C4'-C5'-O5'
3	2	2380	B8W	C5-C6-O6-C61
3	2	2424	OMG	C3'-C4'-C5'-O5'
3	2	2754	B9B	C5-C6-O6-C61
3	2	2754	B9B	N1-C6-O6-C61
3	2	2786	B9H	C32-C31-N3-C2

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Mol	Chain	Res	Type	Atoms
3	2	2786	B9H	C32-C31-N3-C4
3	2	3701	OMC	C2'-C1'-N1-C2
3	2	3701	OMC	C2'-C1'-N1-C6
3	2	3867	A2M	O4'-C4'-C5'-O5'
3	2	3867	A2M	C3'-C4'-C5'-O5'
3	2	3880	P7G	O4'-C4'-C5'-O5'
3	2	3897	B8K	O4'-C4'-C5'-O5'
3	2	4129	B8W	C5-C6-O6-C61
3	2	4129	B8W	N1-C6-O6-C61
3	2	4185	B8W	C5-C6-O6-C61
3	2	4185	B8W	N1-C6-O6-C61
3	2	4196	OMG	O4'-C4'-C5'-O5'
3	2	4196	OMG	C3'-C4'-C5'-O5'
3	2	4306	OMU	C1'-C2'-O2'-CM2
3	2	4355	E6G	C3'-C4'-C5'-O5'
3	2	4355	E6G	O4'-C4'-C5'-O5'
3	2	4355	E6G	C5-C6-O6-C61
3	2	4355	E6G	N1-C6-O6-C61
3	2	4371	MHG	O4'-C4'-C5'-O5'
3	2	4371	MHG	C71-C72-C73-C75
3	2	4403	PSU	C2'-C1'-C5-C4
3	2	4403	PSU	O4'-C1'-C5-C4
3	2	4403	PSU	O4'-C1'-C5-C6
3	2	4403	PSU	C3'-C4'-C5'-O5'
3	2	4403	PSU	O4'-C4'-C5'-O5'
3	2	4450	PSU	C2'-C1'-C5-C4
3	2	4472	B8W	C5-C6-O6-C61
3	2	4472	B8W	N1-C6-O6-C61
3	2	4472	B8W	C3'-C4'-C5'-O5'
3	2	4472	B8W	O4'-C4'-C5'-O5'
3	2	4500	PSU	C3'-C4'-C5'-O5'
3	2	4523	A2M	O4'-C4'-C5'-O5'
3	2	4529	B8W	C5-C6-O6-C61
3	2	4529	B8W	N1-C6-O6-C61
3	2	4620	OMU	C1'-C2'-O2'-CM2
3	2	4636	PSU	C2'-C1'-C5-C6
3	2	4636	PSU	O4'-C1'-C5-C6
3	2	4636	PSU	C3'-C4'-C5'-O5'
3	2	4636	PSU	O4'-C4'-C5'-O5'
3	2	4637	OMG	O4'-C4'-C5'-O5'
3	2	4870	OMG	C3'-C4'-C5'-O5'
3	2	237	B9B	C3'-C4'-C5'-O5'

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Mol	Chain	Res	Type	Atoms
3	2	398	A2M	O4'-C4'-C5'-O5'
3	2	1677	PSU	O4'-C4'-C5'-O5'
3	2	1797	E7G	C3'-C4'-C5'-O5'
3	2	1866	UR3	O4'-C4'-C5'-O5'
3	2	2364	OMG	C3'-C4'-C5'-O5'
3	2	2424	OMG	O4'-C4'-C5'-O5'
3	2	2773	OMG	O4'-C4'-C5'-O5'
3	2	3729	PSU	O4'-C4'-C5'-O5'
3	2	3785	A2M	O4'-C4'-C5'-O5'
3	2	3785	A2M	C3'-C4'-C5'-O5'
3	2	3897	B8K	C3'-C4'-C5'-O5'
3	2	4450	PSU	O4'-C4'-C5'-O5'
3	2	4500	PSU	O4'-C4'-C5'-O5'
3	2	4523	A2M	C3'-C4'-C5'-O5'
3	2	4637	OMG	C3'-C4'-C5'-O5'
3	2	4870	OMG	O4'-C4'-C5'-O5'
3	2	4872	2MG	O4'-C4'-C5'-O5'
3	2	978	2MG	C3'-C4'-C5'-O5'
3	2	1860	B8H	O4'-C4'-C5'-O5'
3	2	1866	UR3	C3'-C4'-C5'-O5'
3	2	2773	OMG	C3'-C4'-C5'-O5'
3	2	3880	P7G	C3'-C4'-C5'-O5'
3	2	4450	PSU	C3'-C4'-C5'-O5'
3	2	4872	2MG	C3'-C4'-C5'-O5'
3	2	3880	P7G	N7-C71-C72-C73
3	2	1909	P7G	C72-C71-N7-C8
3	2	4355	E6G	C62-C61-O6-C6
3	2	3729	PSU	C3'-C4'-C5'-O5'
3	2	4371	MHG	C71-C72-C73-C74
3	2	237	B9B	O6-C61-C62-C63
3	2	729	2MG	O4'-C4'-C5'-O5'
3	2	4220	6MZ	C3'-C4'-C5'-O5'
3	2	398	A2M	C3'-C4'-C5'-O5'
3	2	978	2MG	O4'-C4'-C5'-O5'
3	2	1625	OMG	O4'-C4'-C5'-O5'
3	2	1659	I4U	O4'-C4'-C5'-O5'
3	2	1871	A2M	O4'-C4'-C5'-O5'
3	2	4220	6MZ	O4'-C4'-C5'-O5'
3	2	4296	B8H	O4'-C4'-C5'-O5'
3	2	1909	P7G	N7-C71-C72-C73
3	2	4371	MHG	C75-C73-C74-C76
3	2	729	2MG	C3'-C4'-C5'-O5'

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Mol	Chain	Res	Type	Atoms
3	2	4296	B8H	C3'-C4'-C5'-O5'
3	2	4371	MHG	C2'-C1'-N9-C8
3	2	1574	B9B	O6-C61-C62-C63
3	2	1860	B8H	C3'-C4'-C5'-O5'
3	2	4447	5MC	C2'-C1'-N1-C6
3	2	2754	B9B	O4'-C4'-C5'-O5'
3	2	2297	E7G	C72-C71-N7-C8
3	2	2401	A2M	C3'-C2'-O2'-CM'
3	2	3897	B8K	C4'-C5'-O5'-P
3	2	2754	B9B	C3'-C4'-C5'-O5'
3	2	2754	B9B	O6-C61-C62-C63
3	2	4447	5MC	O4'-C1'-N1-C6
3	2	4371	MHG	C72-C71-N7-C5
3	2	2380	B8W	N1-C6-O6-C61
3	2	373	OMG	C4'-C5'-O5'-P
3	2	2380	B8W	O4'-C4'-C5'-O5'
3	2	4530	UR3	O4'-C4'-C5'-O5'
3	2	4550	7MG	O4'-C4'-C5'-O5'
3	2	4447	5MC	C2'-C1'-N1-C2
3	2	1517	2MG	C4'-C5'-O5'-P
3	2	4500	PSU	C4'-C5'-O5'-P
3	2	4870	OMG	C4'-C5'-O5'-P
3	2	3701	OMC	O4'-C1'-N1-C6
3	2	1524	A2M	C3'-C2'-O2'-CM'
3	2	3825	A2M	C3'-C2'-O2'-CM'
3	2	3701	OMC	O4'-C1'-N1-C2
3	2	4447	5MC	O4'-C1'-N1-C2
3	2	1534	A2M	C4'-C5'-O5'-P
3	2	2422	OMC	O4'-C4'-C5'-O5'
3	2	3880	P7G	C72-C71-N7-C8
3	2	4371	MHG	C72-C71-N7-C8
3	2	1677	PSU	O4'-C1'-C5-C4
3	2	4450	PSU	O4'-C1'-C5-C4
3	2	4531	PSU	O4'-C1'-C5-C4
3	2	4370	OMG	C3'-C2'-O2'-CM2
3	2	4494	OMG	C3'-C2'-O2'-CM2
3	2	1326	A2M	C4'-C5'-O5'-P
3	2	3887	OMC	C4'-C5'-O5'-P
3	2	1534	A2M	O4'-C4'-C5'-O5'
3	2	4371	MHG	O4'-C1'-N9-C8
3	2	3909	OMC	C2'-C1'-N1-C6
3	2	1871	A2M	C3'-C4'-C5'-O5'

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Mol	Chain	Res	Type	Atoms
3	2	1524	A2M	C1'-C2'-O2'-CM'
3	2	2401	A2M	C1'-C2'-O2'-CM'
3	2	1322	1MA	O4'-C4'-C5'-O5'
3	2	1677	PSU	O4'-C1'-C5-C6
3	2	4450	PSU	O4'-C1'-C5-C6
3	2	3909	OMC	C2'-C1'-N1-C2
3	2	1659	I4U	C42-C41-O4-C4
3	2	1659	I4U	C43-C41-O4-C4
3	2	3785	A2M	C3'-C2'-O2'-CM'
3	2	2380	B8W	C3'-C4'-C5'-O5'
3	2	4550	7MG	C3'-C4'-C5'-O5'
3	2	2422	OMC	C2'-C1'-N1-C2

There are no ring outliers.

29 monomers are involved in 35 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	2	2522	7MG	1	0
3	2	4523	A2M	1	0
3	2	4690	B8K	2	0
3	2	1605	7MG	1	0
3	2	4306	OMU	2	0
3	2	4571	A2M	1	0
3	2	4129	B8W	1	0
3	2	4529	B8W	1	0
3	2	2363	A2M	1	0
3	2	3718	A2M	1	0
3	2	1860	B8H	1	0
3	2	1871	A2M	1	0
3	2	3723	A2M	2	0
3	2	4196	OMG	1	0
3	2	3897	B8K	1	0
3	2	1326	A2M	1	0
3	2	1524	A2M	1	0
3	2	4370	OMG	1	0
3	2	4442	PSU	2	0
3	2	4472	B8W	1	0
3	2	2380	B8W	2	0
3	2	2422	OMC	1	0
3	2	3899	BGH	2	0
3	2	4185	B8W	1	0
3	2	4637	OMG	1	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	2	4620	OMU	1	0
3	2	2773	OMG	1	0
3	2	4296	B8H	1	0
3	2	4447	5MC	1	0

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 246 ligands modelled in this entry, 246 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

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.

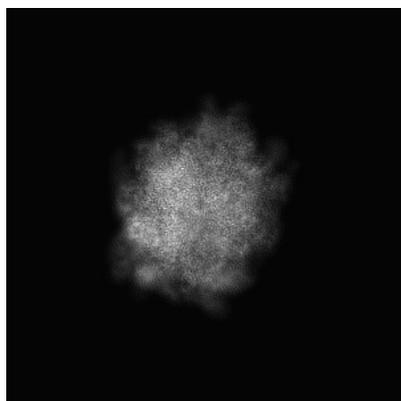
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-0963. These allow visual inspection of the internal detail of the map and identification of artifacts.

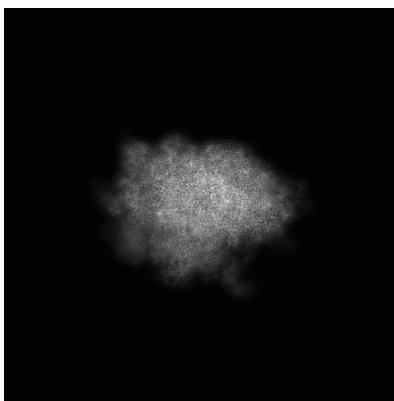
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

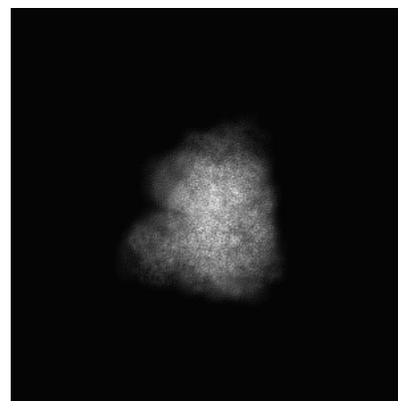
6.1.1 Primary map



X



Y

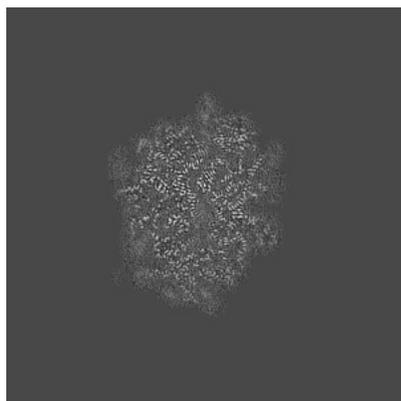


Z

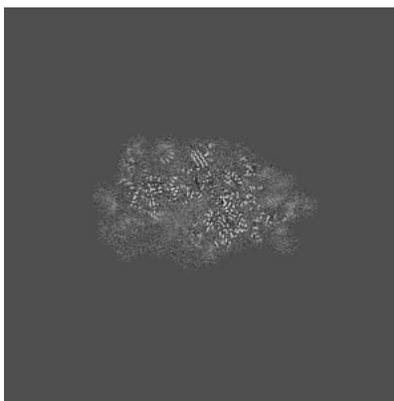
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

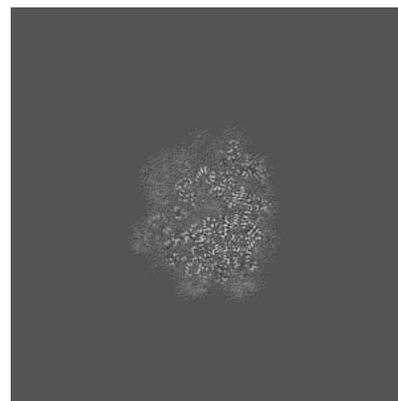
6.2.1 Primary map



X Index: 240



Y Index: 240

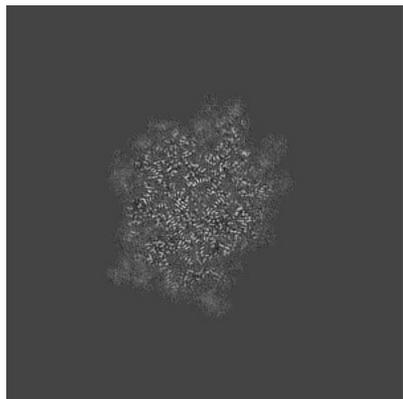


Z Index: 240

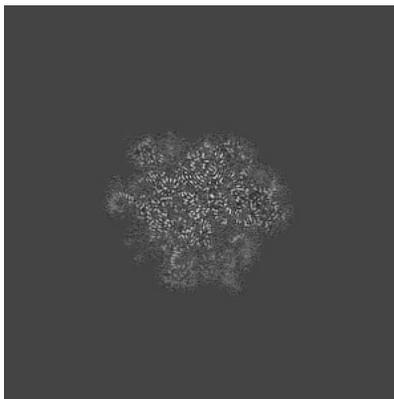
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

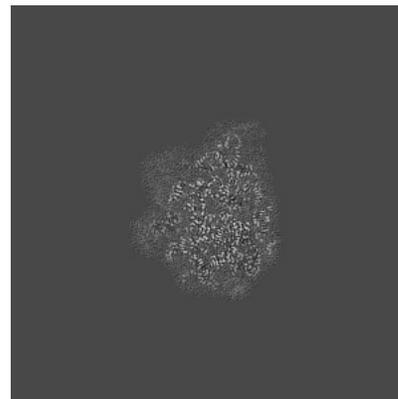
6.3.1 Primary map



X Index: 253



Y Index: 201

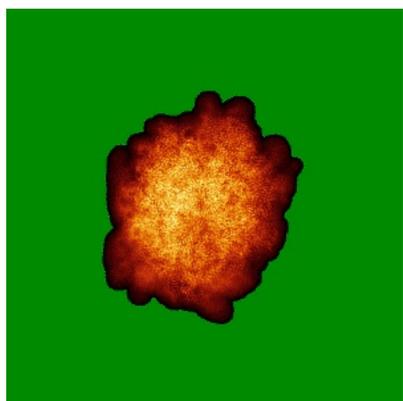


Z Index: 251

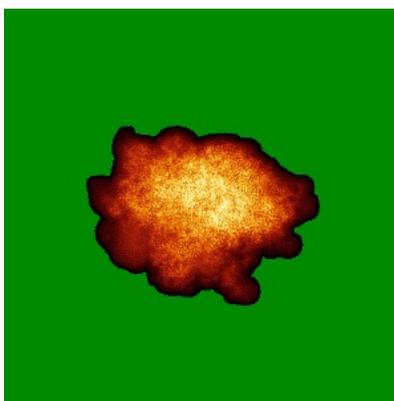
The images above show the largest variance slices of the map in three orthogonal directions.

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

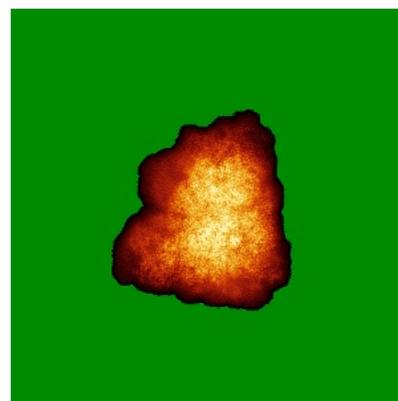
6.4.1 Primary map



X



Y

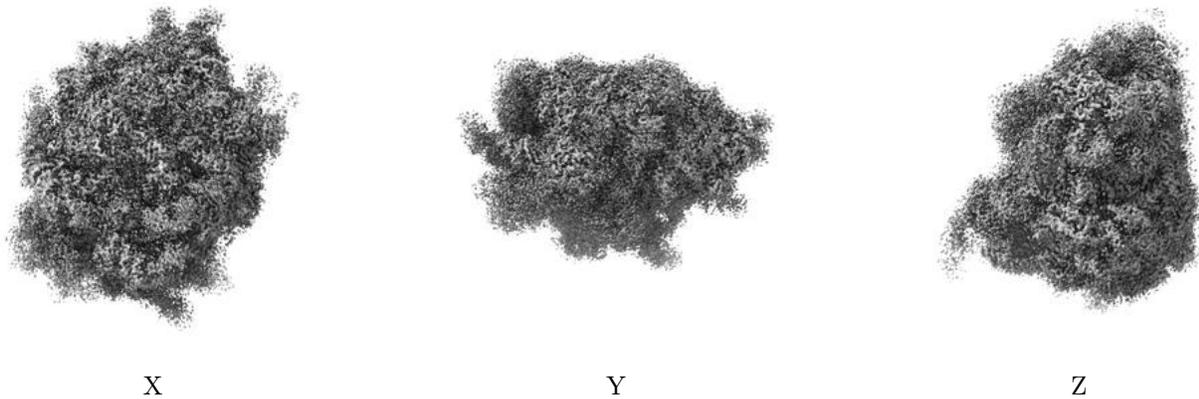


Z

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 0.07. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

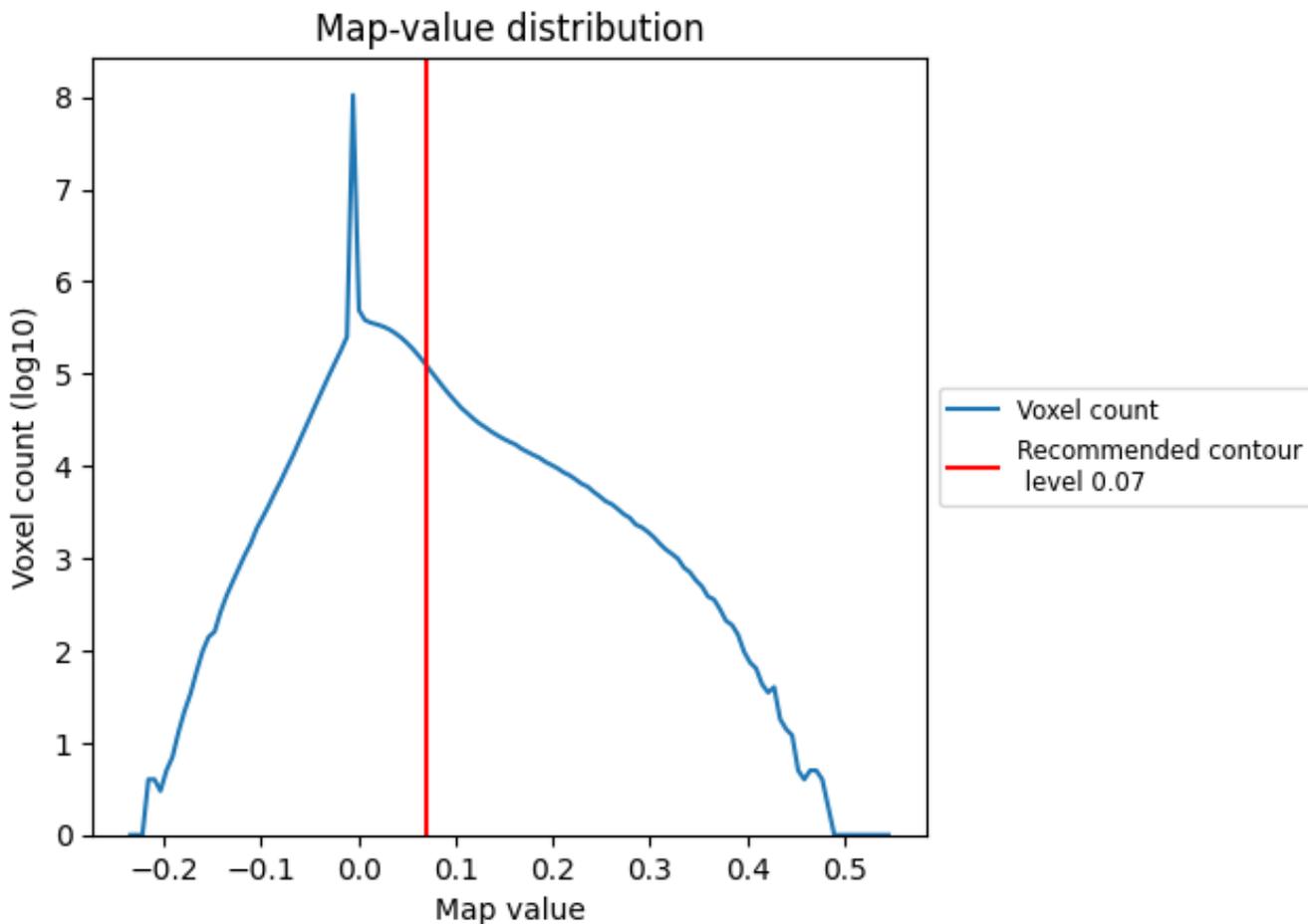
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

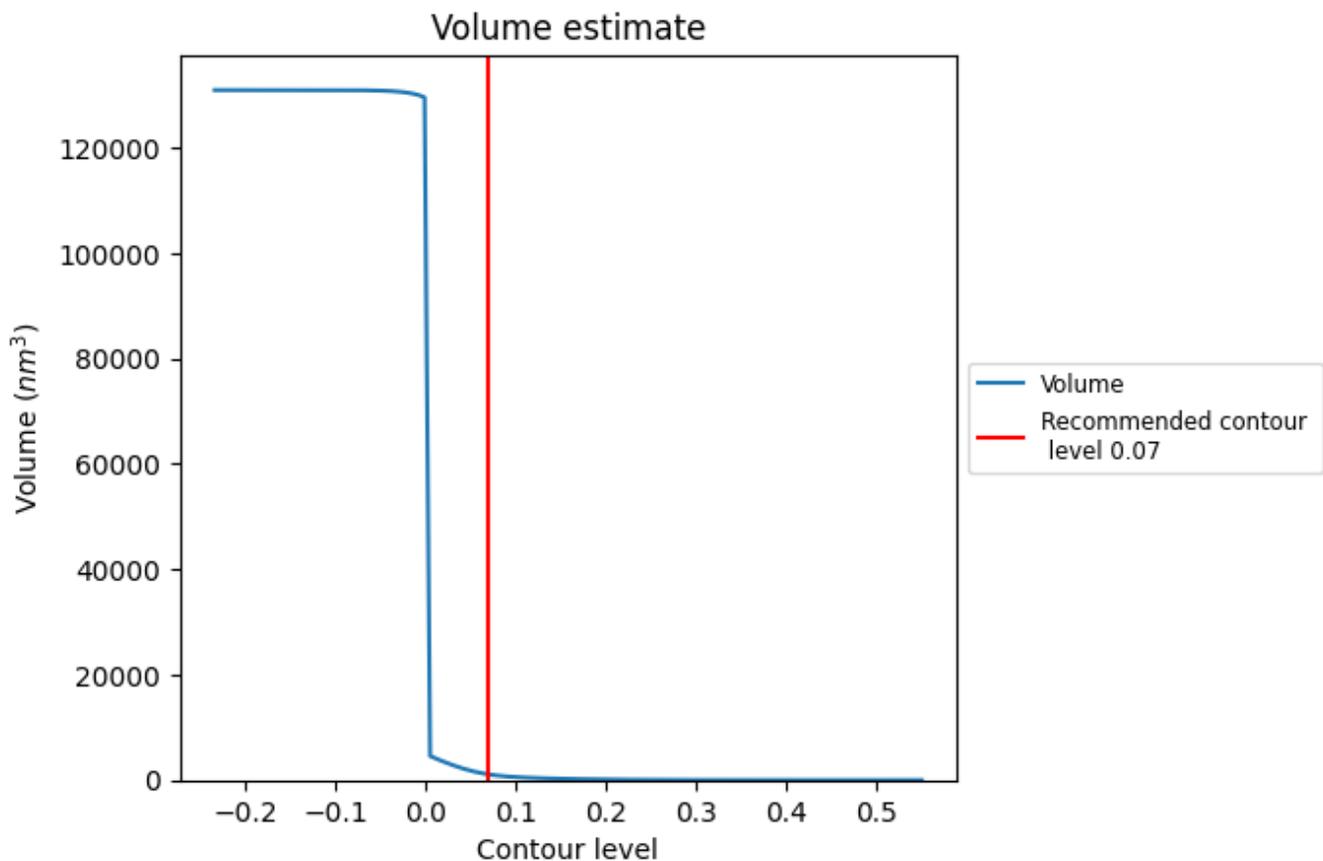
This section contains the results of statistical analysis of the map.

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.

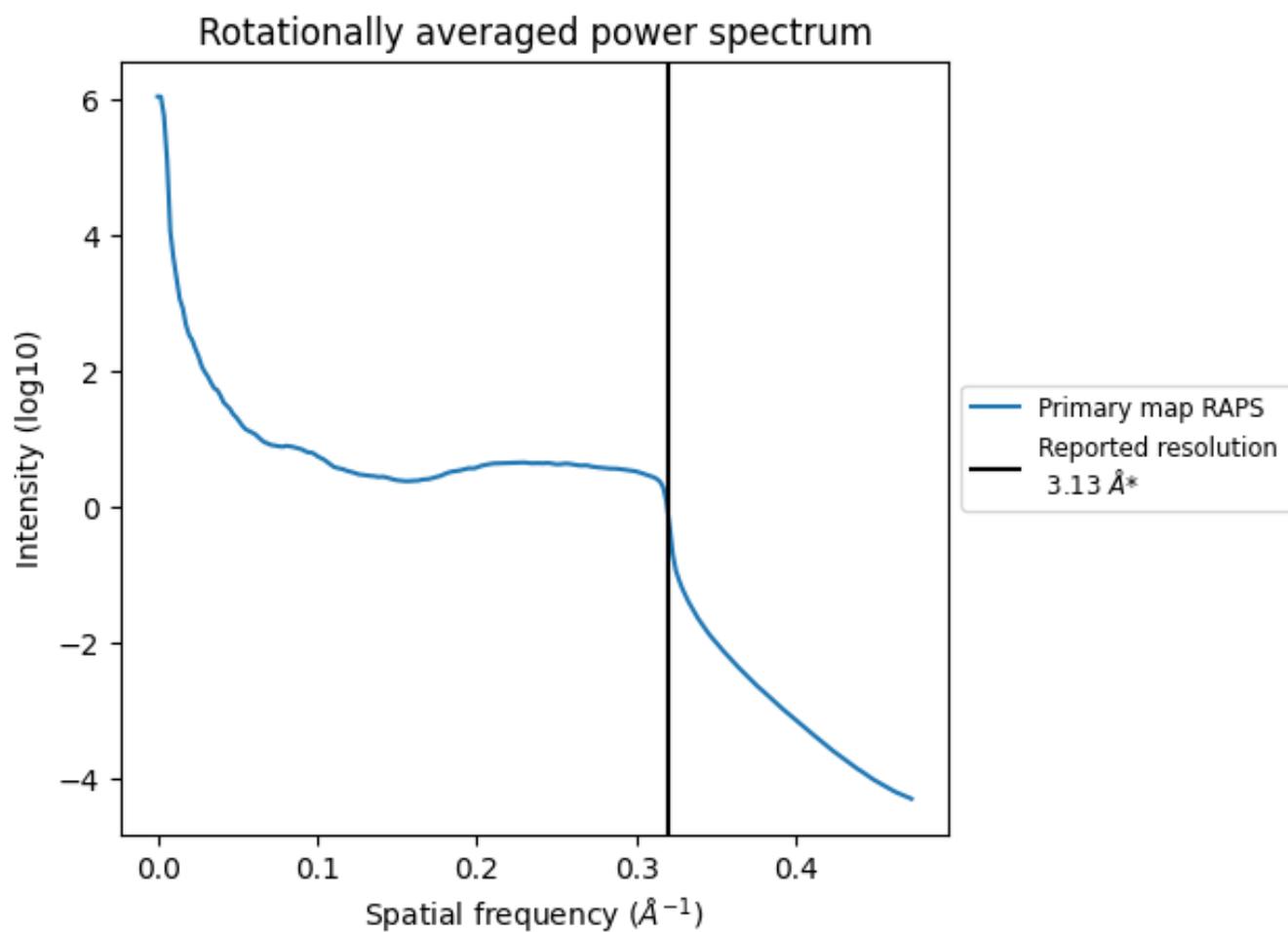
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 1084 nm^3 ; this corresponds to an approximate mass of 979 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 [i](#)



*Reported resolution corresponds to spatial frequency of 0.319\AA^{-1}

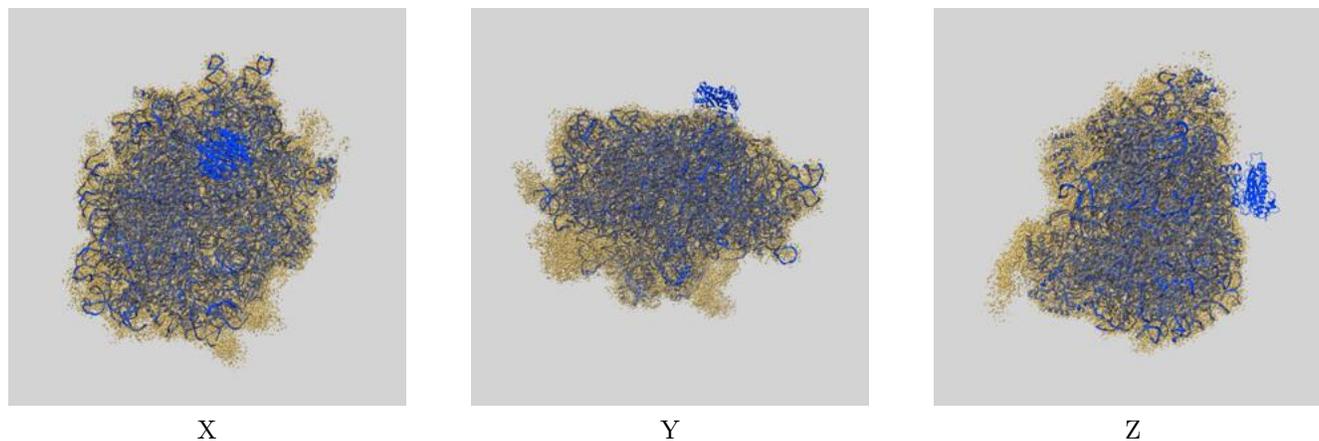
8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

9 Map-model fit [i](#)

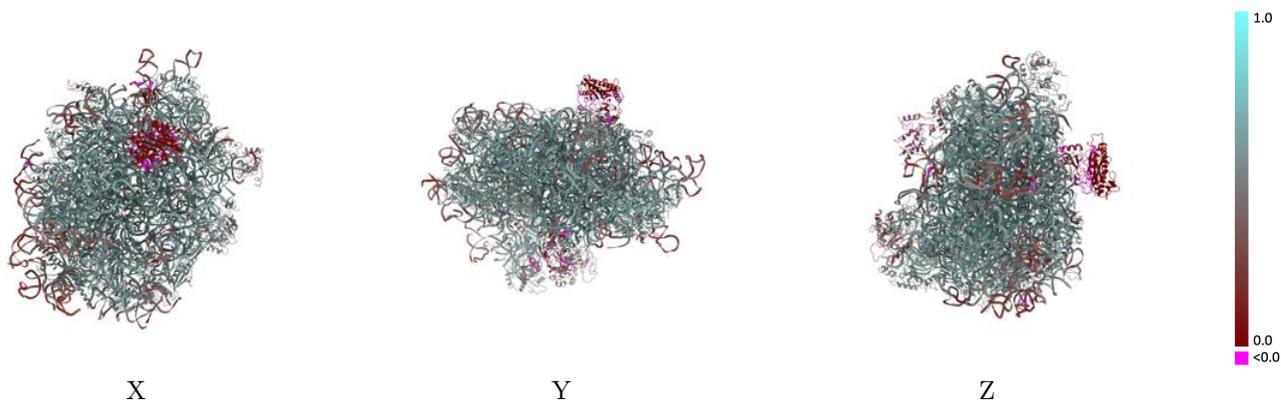
This section contains information regarding the fit between EMDB map EMD-0963 and PDB model 6LSR. Per-residue inclusion information can be found in section 3 on page 14.

9.1 Map-model overlay [i](#)



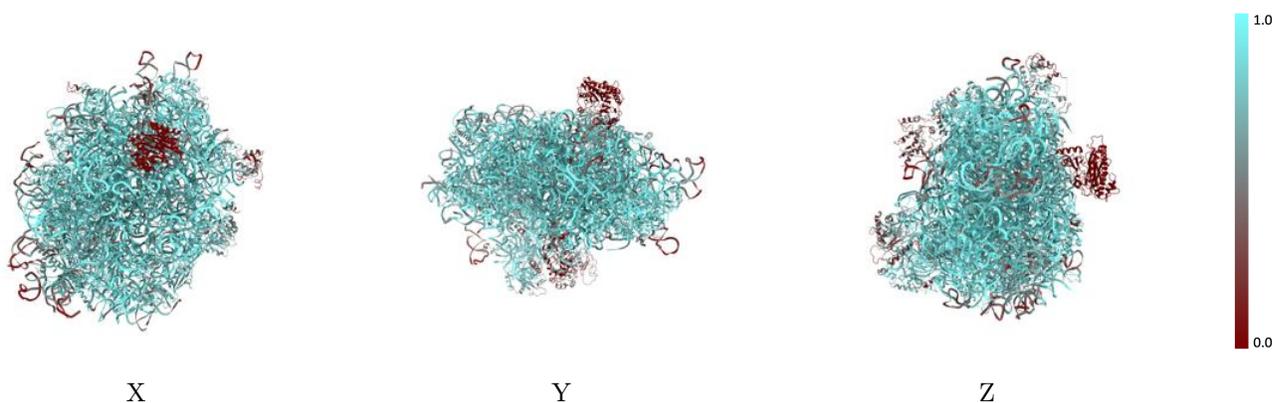
The images above show the 3D surface view of the map at the recommended contour level 0.07 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



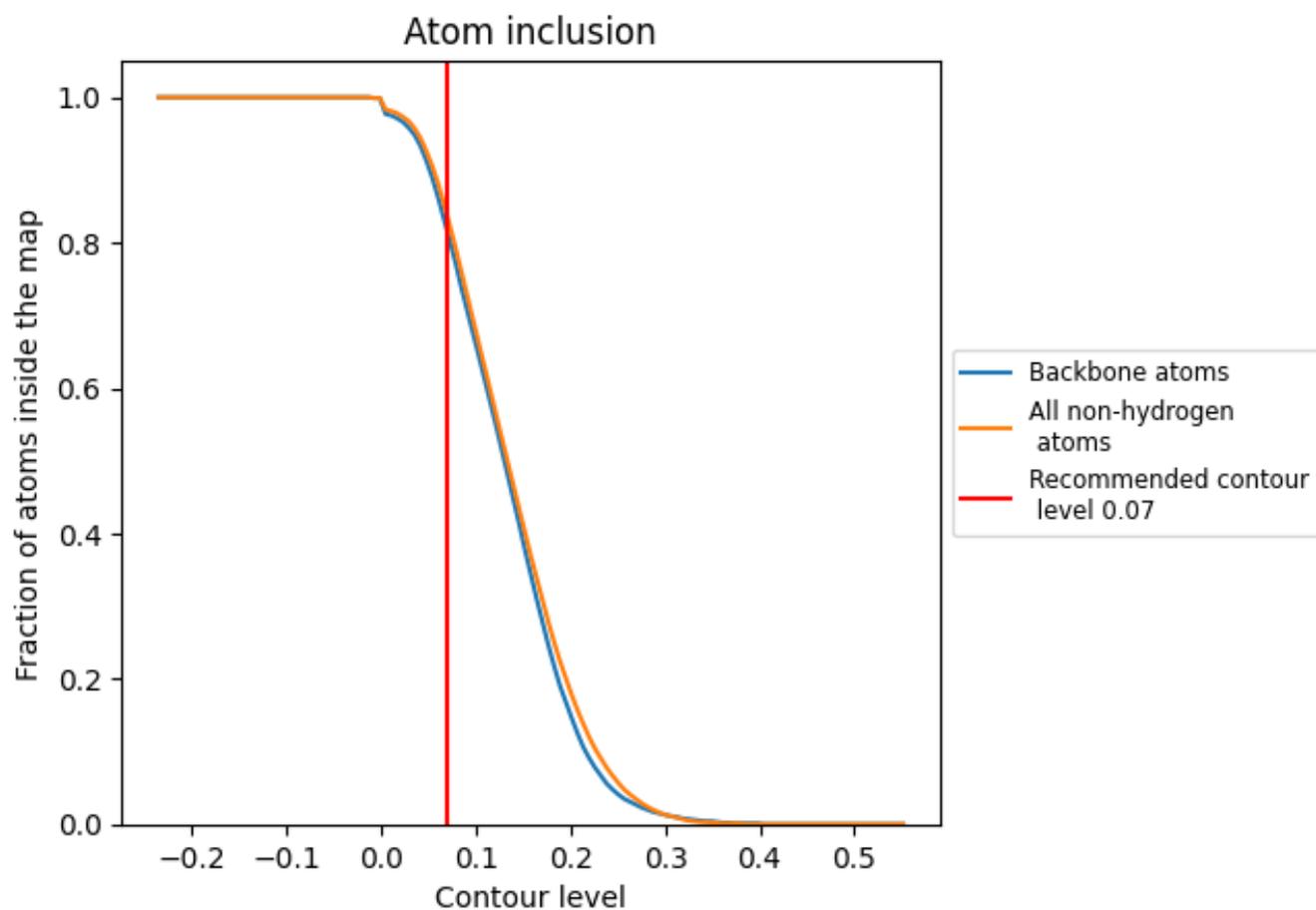
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.07).

9.4 Atom inclusion [i](#)

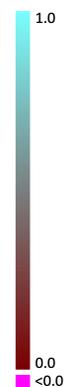


At the recommended contour level, 82% of all backbone atoms, 84% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.07) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8380	 0.5320
0	 0.5020	 0.4460
1	 0.3130	 0.2480
2	 0.8730	 0.5340
3	 0.8300	 0.5350
5	 0.9430	 0.5660
6	 0.6740	 0.4860
8	 0.9210	 0.5590
A	 0.3870	 0.3470
B	 0.8710	 0.5770
C	 0.8140	 0.5190
D	 0.9140	 0.5890
E	 0.8010	 0.5350
F	 0.8950	 0.5820
G	 0.8060	 0.5430
H	 0.8470	 0.5710
I	 0.8080	 0.5500
K	 0.8300	 0.5470
L	 0.9340	 0.6080
M	 0.9520	 0.6010
N	 0.6780	 0.4610
O	 0.7510	 0.5350
P	 0.9290	 0.5950
Q	 0.8430	 0.5670
S	 0.8770	 0.5680
T	 0.8440	 0.5730
U	 0.9590	 0.6120
V	 0.9130	 0.5880
W	 0.8450	 0.5550
X	 0.8470	 0.5610
Y	 0.9100	 0.5940
Z	 0.9320	 0.5970
a	 0.8980	 0.5770
b	 0.9210	 0.5870
c	 0.8710	 0.5710



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Chain	Atom inclusion	Q-score
d	 0.7220	 0.4980
e	 0.8810	 0.5780
f	 0.8120	 0.5590
g	 0.8690	 0.5640
h	 0.8770	 0.5760
i	 0.8160	 0.5560
l	 0.8990	 0.5810
m	 0.9320	 0.5970
r	 0.7870	 0.5330
t	 0.9350	 0.5980
u	 0.9530	 0.6020
v	 0.7760	 0.5240
w	 0.9040	 0.5830
z	 0.0120	 0.0200