Full wwPDB EM Validation Report

Nov 17, 2025 – 07:03 PM JST

PDB ID	:	9KMY / pdb_00009kmy
EMDB ID	:	EMD-62449
Title	:	Bat MERSr-CoV NeoCoV Nsp1 bound to the Human 40S Ribosomal subunit-State2
Authors	:	Yuan, S.; Yan, R.; Wu, M.
Deposited on	:	2024-11-18
Resolution	:	2.70 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

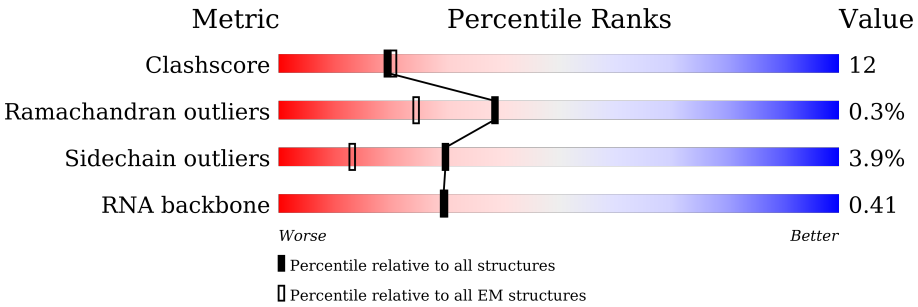
EMDB validation analysis	:	0.0.1.dev129
MolProbity	:	4-5-2 with Phenix2.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.46

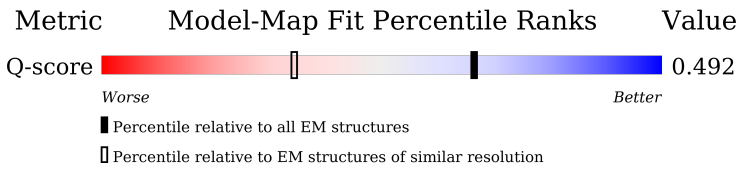
1 Overall quality at a glance

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

The reported resolution of this entry is 2.70 Å.

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





Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
RNA backbone	6643	2191	-
Q-score	-	25397	10327 (2.20 - 3.20)

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 <=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	2	1869	6% 35% 40% 13% 11%
2	A	295	54% 18% 28%
3	B	264	61% 18% 19%

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Mol	Chain	Length	Quality of chain
4	C	293	58% 15% 26%
5	D	243	25% 60% 31% 7%
6	E	263	78% 21%
7	F	204	36% 52% 35% 5% 7%
8	G	249	65% 25% 8%
9	H	194	10% 67% 27%
10	I	208	6% 65% 33%
11	J	194	72% 20% 7%
12	K	165	32% 34% 24% 41%
13	L	158	7% 71% 22%
14	M	132	85% 59% 32% 8%
15	N	151	78% 18%
16	O	151	58% 30% 11%
17	P	145	50% 54% 30% 13%
18	Q	146	24% 52% 40% 5%
19	R	135	10% 61% 34%
20	S	152	63% 61% 31% 6%
21	T	145	35% 68% 31%
22	U	119	25% 57% 27% 15%
23	V	83	84% 14%
24	W	130	86% 12%
25	X	143	78% 20%
26	Y	130	76% 18% 5%
27	Z	125	38% 40% 18% 42%
28	a	100	72% 26%

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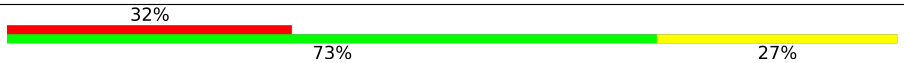
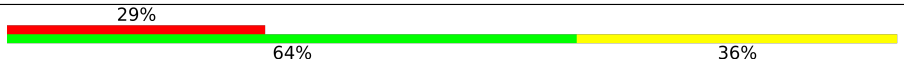
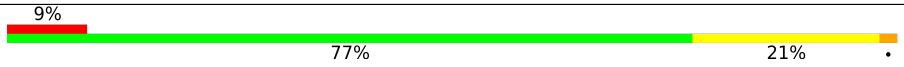
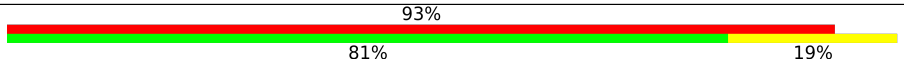
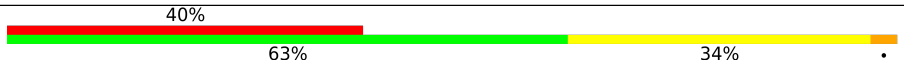
Mol	Chain	Length	Quality of chain
29	b	82	
30	c	62	
31	d	55	
32	e	56	
33	f	74	
34	g	315	
35	h	25	
36	n	193	

2 Entry composition

There are 36 unique types of molecules in this entry. The entry contains 74514 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a RNA chain called 18S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	2	1659	35392	15811	6360	11571	1650	0	0

- Molecule 2 is a protein called Small ribosomal subunit protein uS2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	A	213	1686	1072	295	311	8	0	0

- Molecule 3 is a protein called Small ribosomal subunit protein eS1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	B	213	1729	1098	309	308	14	0	0

- Molecule 4 is a protein called Small ribosomal subunit protein uS5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	C	218	1690	1094	289	297	10	0	0

- Molecule 5 is a protein called Small ribosomal subunit protein uS3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	D	225	1752	1117	315	313	7	0	0

- Molecule 6 is a protein called Small ribosomal subunit protein eS4, X isoform.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	E	262	2076	1324	386	358	8	0	0

- Molecule 7 is a protein called Small ribosomal subunit protein uS7.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	F	189	Total	C	N	O	S	0	0
			1495	934	284	270	7		

- Molecule 8 is a protein called Small ribosomal subunit protein eS6.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	G	230	Total	C	N	O	S	0	0
			1864	1164	373	320	7		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
G	221	ARG	LYS	variant	UNP P62753

- Molecule 9 is a protein called Small ribosomal subunit protein eS7.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	H	186	Total	C	N	O	S	0	0
			1501	957	276	267	1		

- Molecule 10 is a protein called Small ribosomal subunit protein eS8.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	I	205	Total	C	N	O	S	0	0
			1682	1056	331	290	5		

- Molecule 11 is a protein called Small ribosomal subunit protein uS4.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	J	180	Total	C	N	O	S	0	0
			1499	955	300	242	2		

- Molecule 12 is a protein called Small ribosomal subunit protein eS10.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	K	97	Total	C	N	O	S	0	0
			816	533	144	133	6		

- Molecule 13 is a protein called Small ribosomal subunit protein uS17.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	L	151	Total	C	N	O	S	0	0
			1229	782	230	211	6		

- Molecule 14 is a protein called Small ribosomal subunit protein eS12.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	M	121	Total	C	N	O	S	0	0
			935	586	165	175	9		

- Molecule 15 is a protein called Small ribosomal subunit protein uS15.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	N	149	Total	C	N	O	S	0	0
			1202	770	228	203	1		

- Molecule 16 is a protein called Small ribosomal subunit protein uS11.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	O	135	Total	C	N	O	S	0	0
			1010	618	198	188	6		

- Molecule 17 is a protein called Small ribosomal subunit protein uS19.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	P	126	Total	C	N	O	S	0	0
			1037	659	196	175	7		

- Molecule 18 is a protein called Small ribosomal subunit protein uS9.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	Q	138	Total	C	N	O	S	0	0
			1097	698	206	190	3		

- Molecule 19 is a protein called Small ribosomal subunit protein eS17.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	R	132	Total	C	N	O	S	0	0
			1068	670	199	195	4		

- Molecule 20 is a protein called Small ribosomal subunit protein uS13.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	S	143	Total	C	N	O	S	0	0
			1184	743	240	200	1		

- Molecule 21 is a protein called Small ribosomal subunit protein eS19.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	T	144	Total	C	N	O	S	0	0
			1123	703	217	200	3		

- Molecule 22 is a protein called Small ribosomal subunit protein uS10.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	U	101	Total	C	N	O	S	0	0
			803	504	153	142	4		

- Molecule 23 is a protein called Small ribosomal subunit protein eS21.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	V	82	Total	C	N	O	S	0	0
			625	384	116	120	5		

- Molecule 24 is a protein called Small ribosomal subunit protein uS8.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	W	129	Total	C	N	O	S	0	0
			1034	659	193	176	6		

- Molecule 25 is a protein called Small ribosomal subunit protein uS12.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	X	141	Total	C	N	O	S	0	0
			1098	693	219	183	3		

- Molecule 26 is a protein called Small ribosomal subunit protein eS24.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	Y	124	Total	C	N	O	S	0	0
			1014	641	198	170	5		

- Molecule 27 is a protein called Small ribosomal subunit protein eS25.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	Z	72	Total	C	N	O	S	0	0
			574	368	104	101	1		

- Molecule 28 is a protein called Small ribosomal subunit protein eS26.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	a	99	Total	C	N	O	S	0	0
			794	494	165	130	5		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
a	78	VAL	ALA	conflict	UNP P62854

- Molecule 29 is a protein called Small ribosomal subunit protein eS27.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	b	82	Total	C	N	O	S	0	0
			641	402	118	114	7		

- Molecule 30 is a protein called Small ribosomal subunit protein eS28.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	c	62	Total	C	N	O	S	0	0
			489	297	97	93	2		

- Molecule 31 is a protein called Small ribosomal subunit protein uS14.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	d	55	Total	C	N	O	S	0	0
			459	286	94	74	5		

- Molecule 32 is a protein called Small ribosomal subunit protein eS30.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	e	56	Total	C	N	O	S	0	0
			442	273	96	72	1		

- Molecule 33 is a protein called Small ribosomal subunit protein eS31.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	f	74	Total	C	N	O	S	0	0
			611	385	117	102	7		

- Molecule 34 is a protein called Small ribosomal subunit protein RACK1.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	g	314	Total	C	N	O	S	0	0
			2441	1537	425	467	12		

- Molecule 35 is a protein called Small ribosomal subunit protein eS32.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	h	22	Total	C	N	O	S	0	0
			213	130	57	23	3		

- Molecule 36 is a protein called ORF1ab polyprotein.

Mol	Chain	Residues	Atoms				AltConf	Trace
36	n	26	Total	C	N	O	0	0
			209	136	33	40		

There are 3 discrepancies between the modelled and reference sequences:

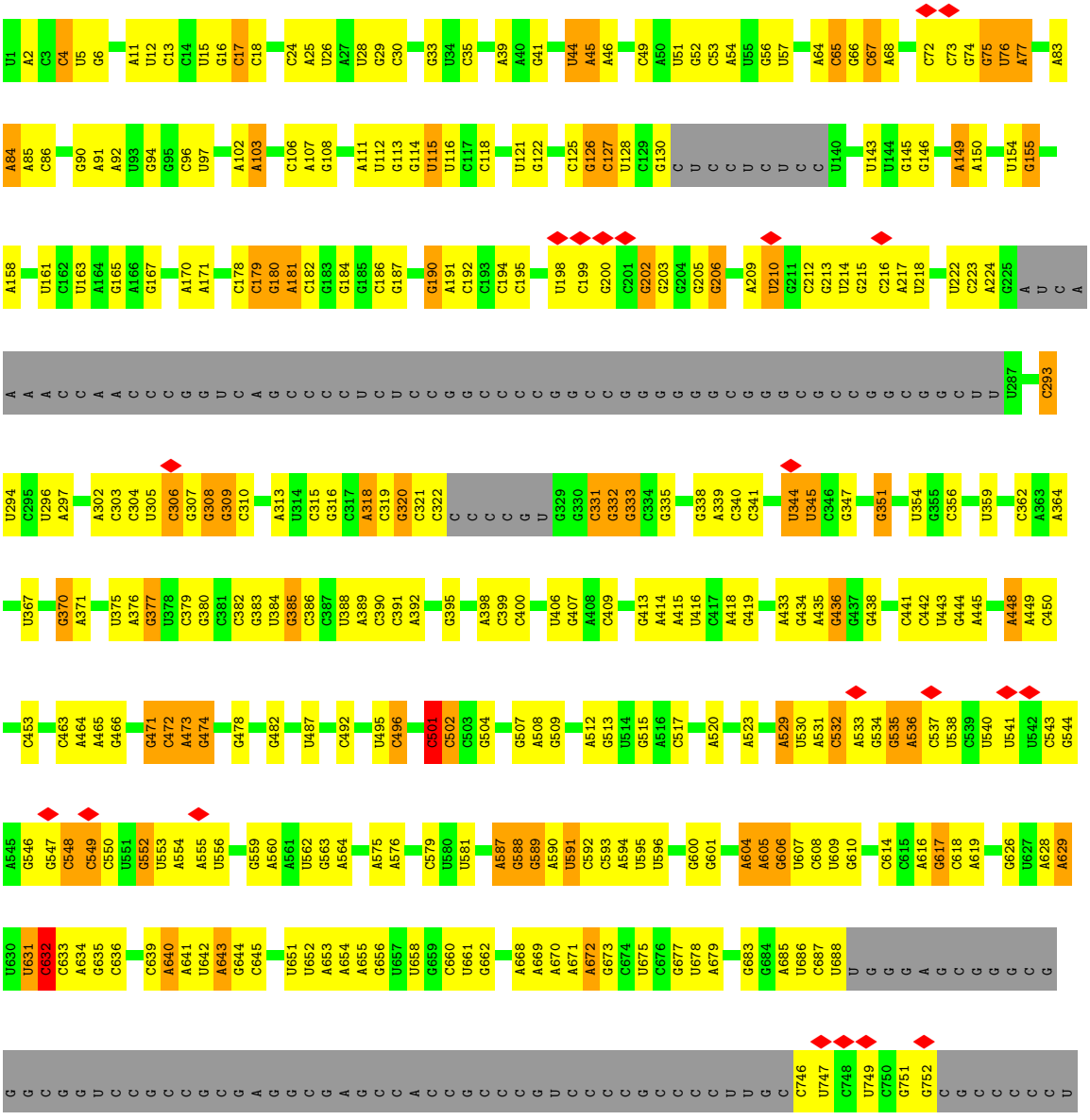
Chain	Residue	Modelled	Actual	Comment	Reference
n	77	VAL	ALA	conflict	UNP A0A2R2YRH0
n	168	SER	PRO	conflict	UNP A0A2R2YRH0
n	182	PHE	TYR	conflict	UNP A0A2R2YRH0

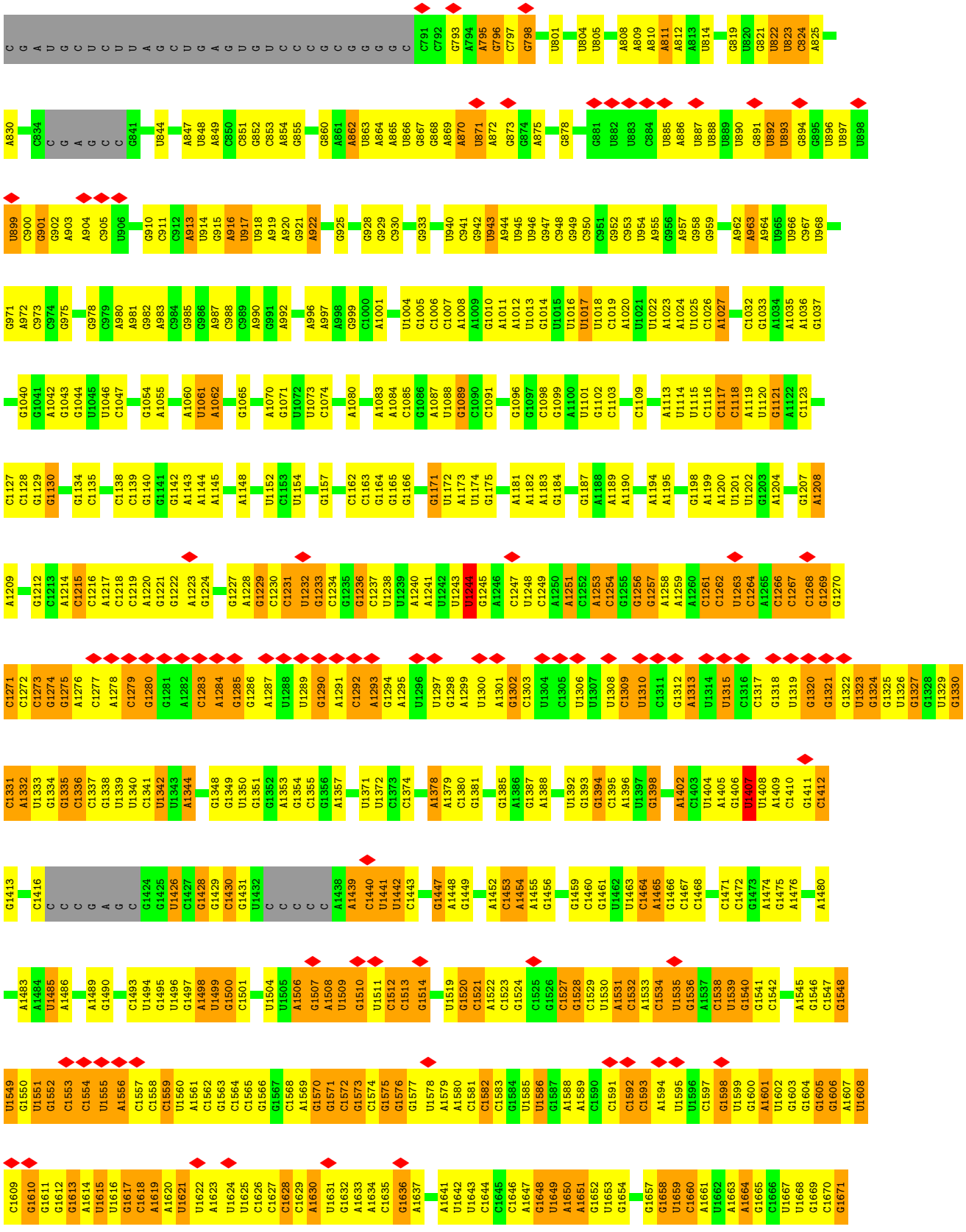
3 Residue-property plots (i)

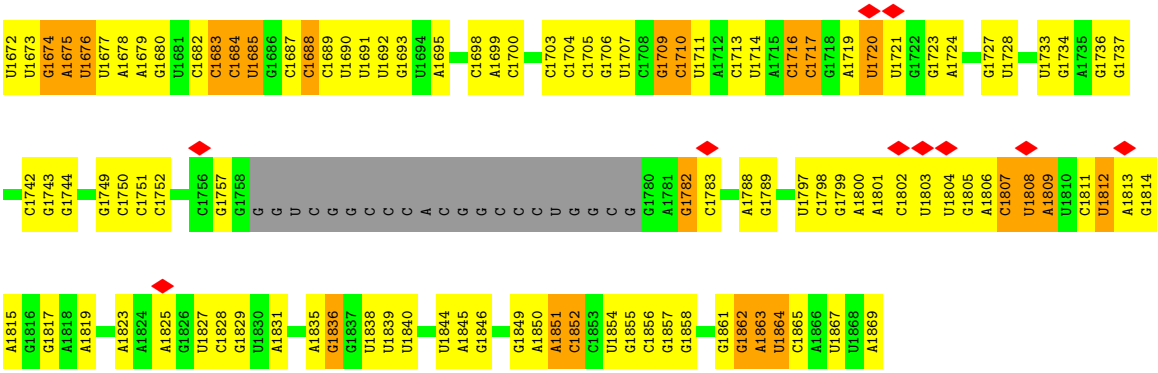
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: 18S ribosomal RNA

Chain 2:

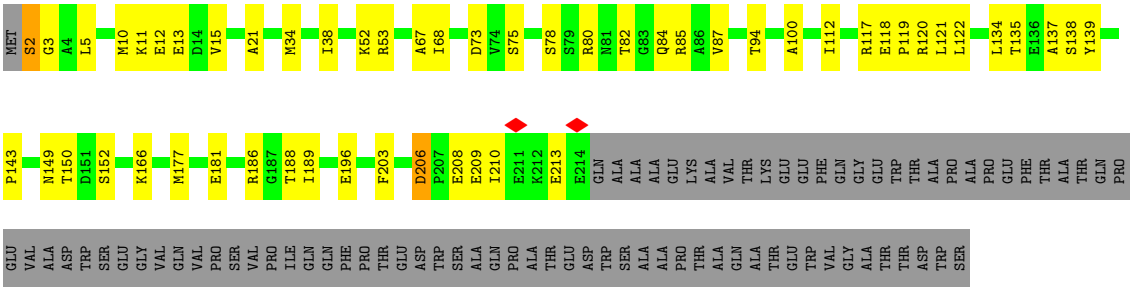






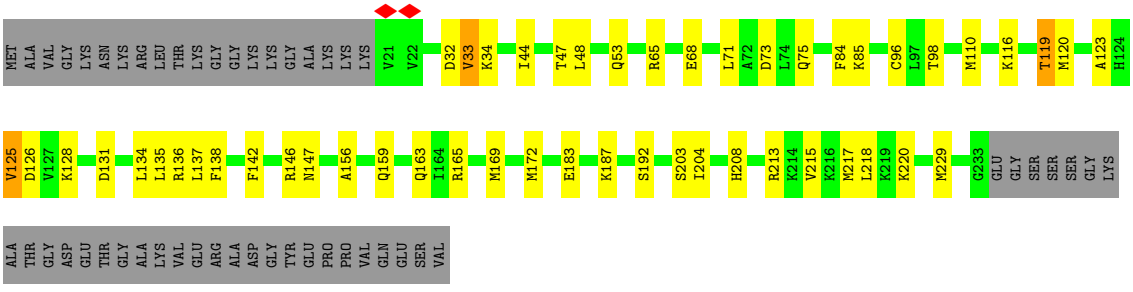
• Molecule 2: Small ribosomal subunit protein uS2

Chain A:



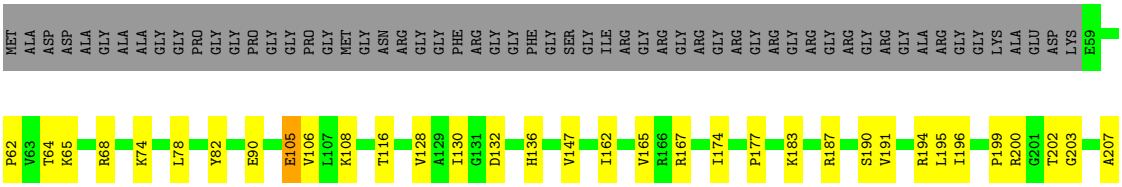
• Molecule 3: Small ribosomal subunit protein eS1

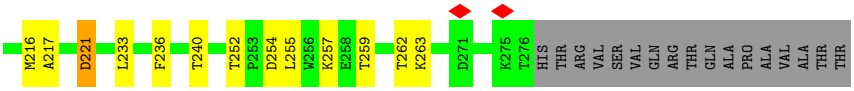
Chain B:



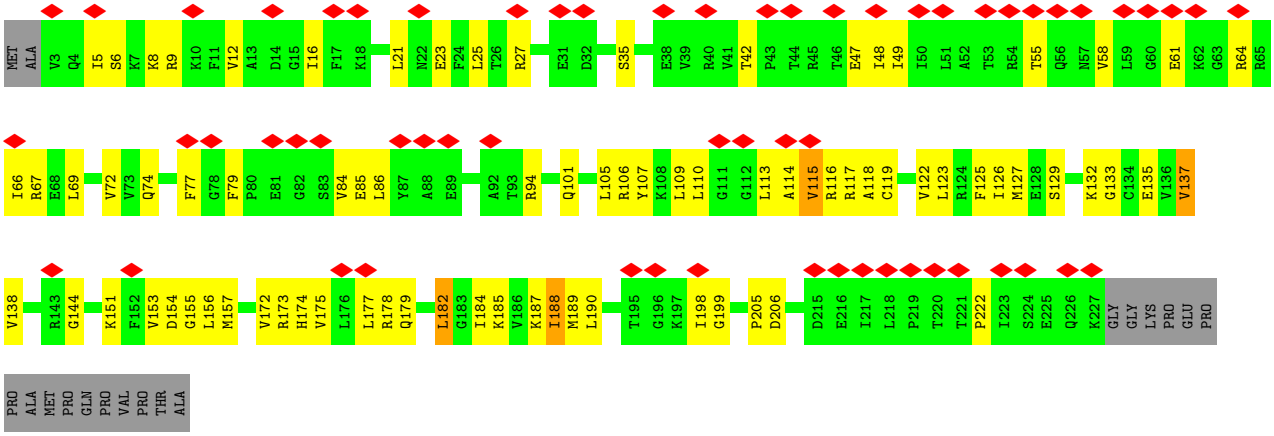
• Molecule 4: Small ribosomal subunit protein uS5

Chain C:

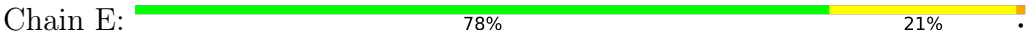


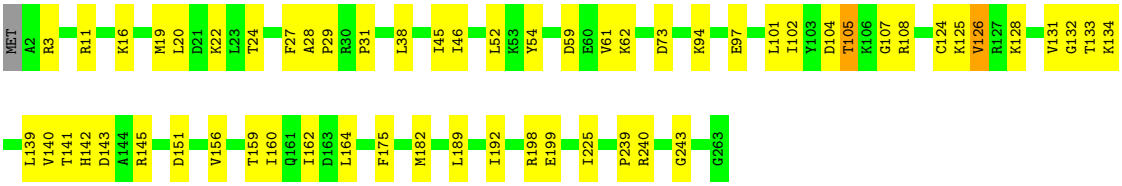


• Molecule 5: Small ribosomal subunit protein uS3

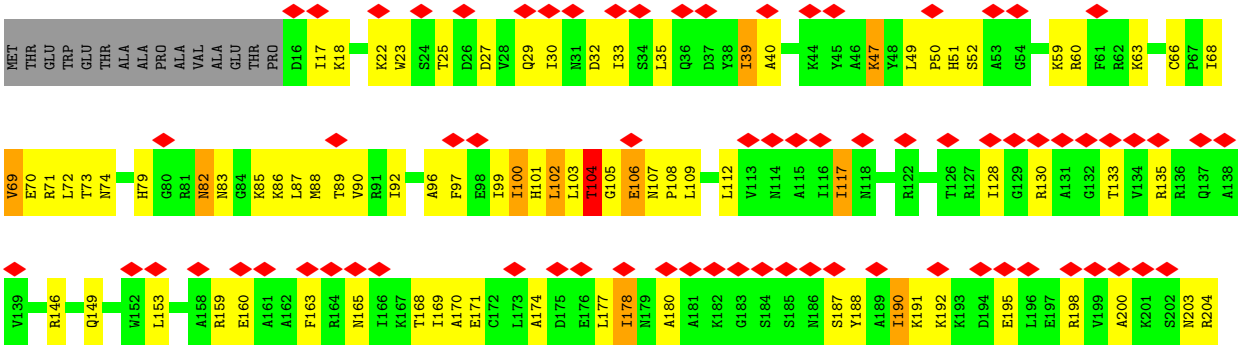


• Molecule 6: Small ribosomal subunit protein eS4, X isoform

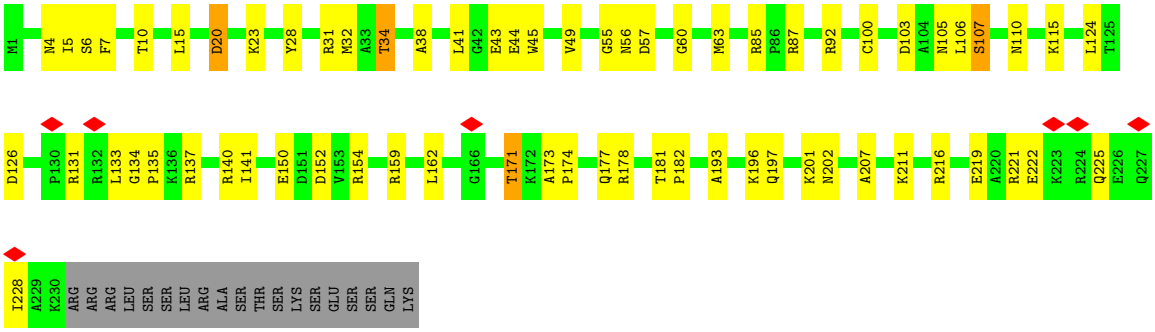




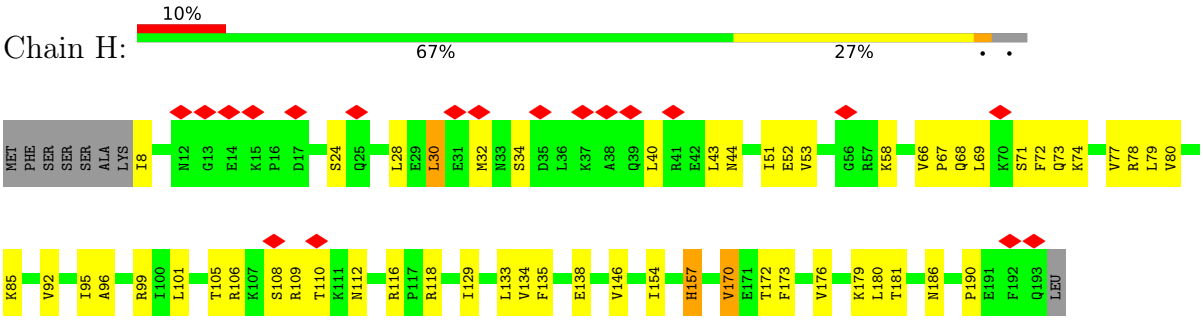
• Molecule 7: Small ribosomal subunit protein uS7



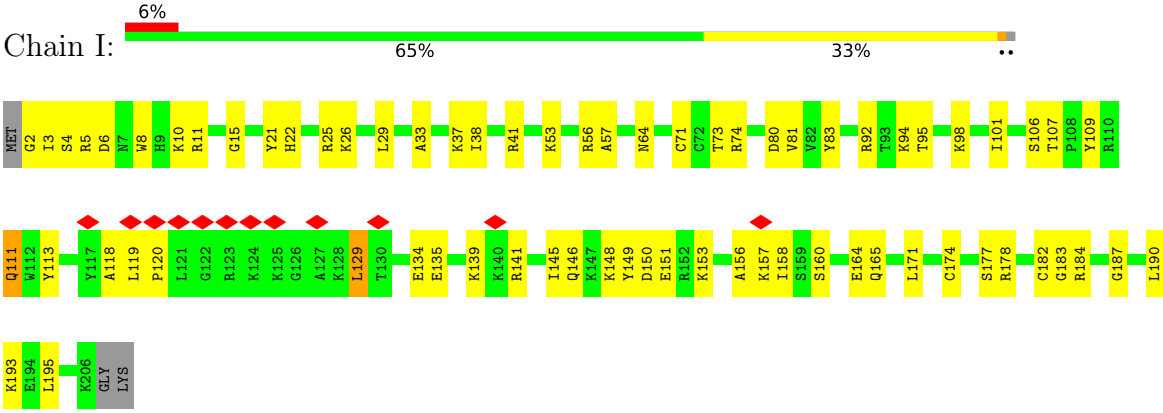
• Molecule 8: Small ribosomal subunit protein eS6



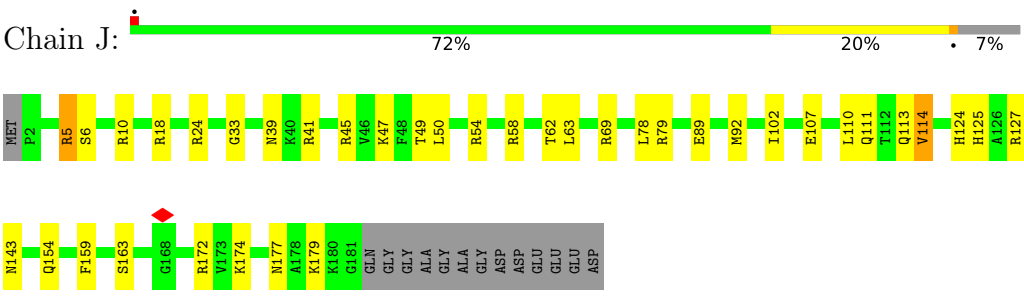
• Molecule 9: Small ribosomal subunit protein eS7



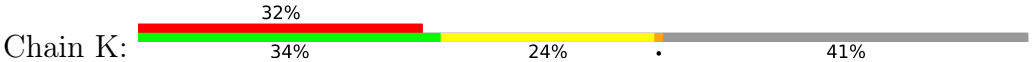
• Molecule 10: Small ribosomal subunit protein eS8

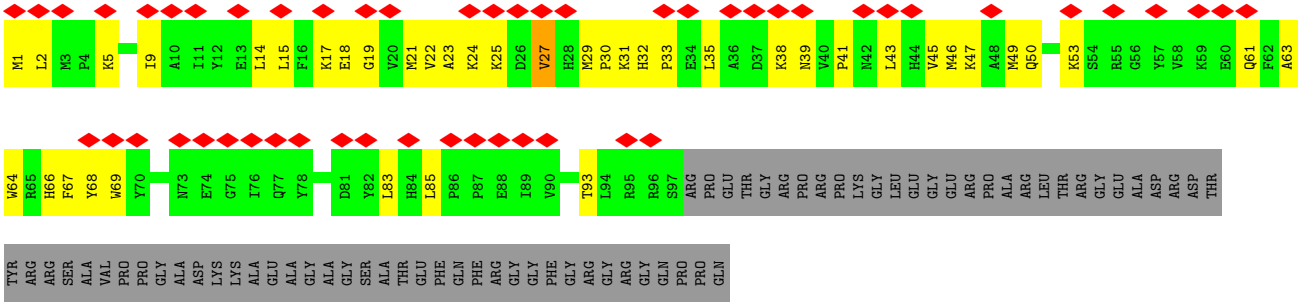


• Molecule 11: Small ribosomal subunit protein uS4

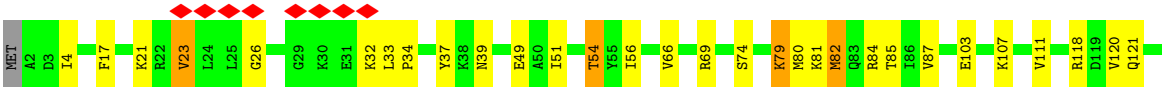


• Molecule 12: Small ribosomal subunit protein eS10

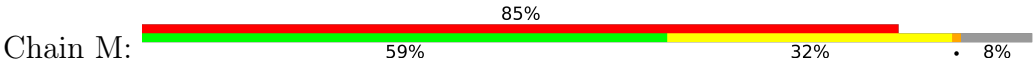


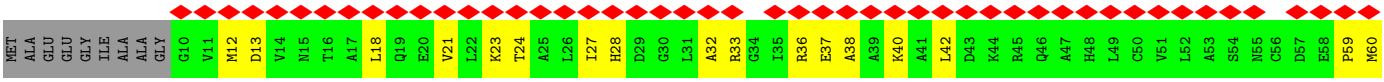


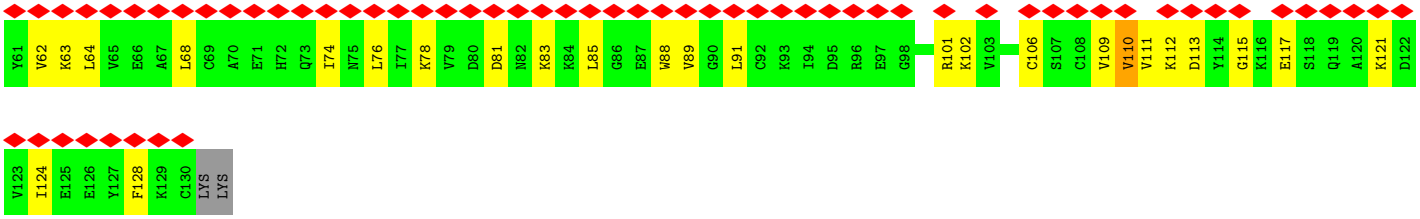
• Molecule 13: Small ribosomal subunit protein uS17



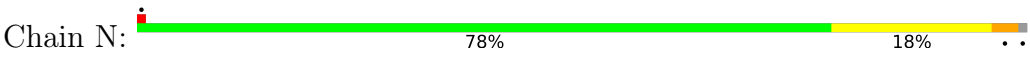
• Molecule 14: Small ribosomal subunit protein eS12

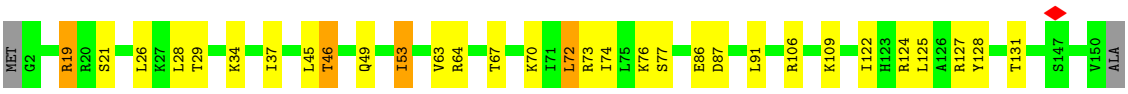




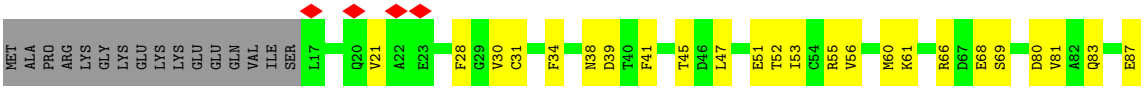


• Molecule 15: Small ribosomal subunit protein uS15



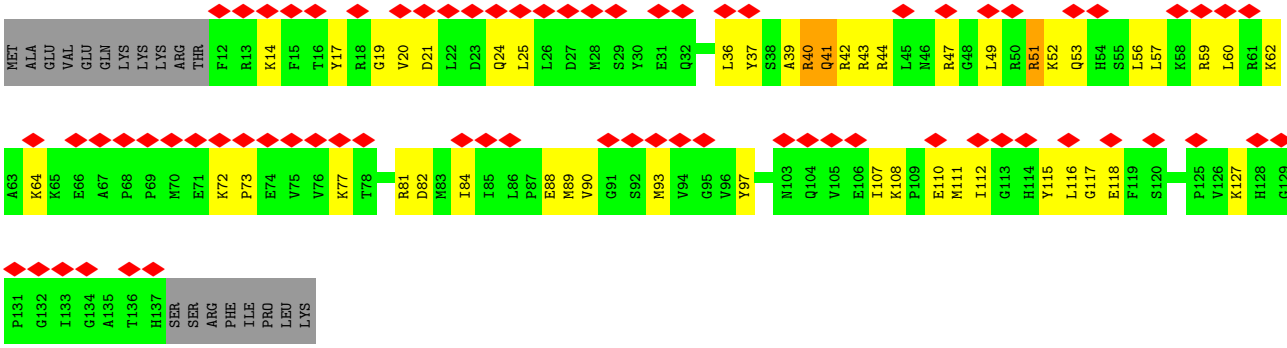


• Molecule 16: Small ribosomal subunit protein uS11



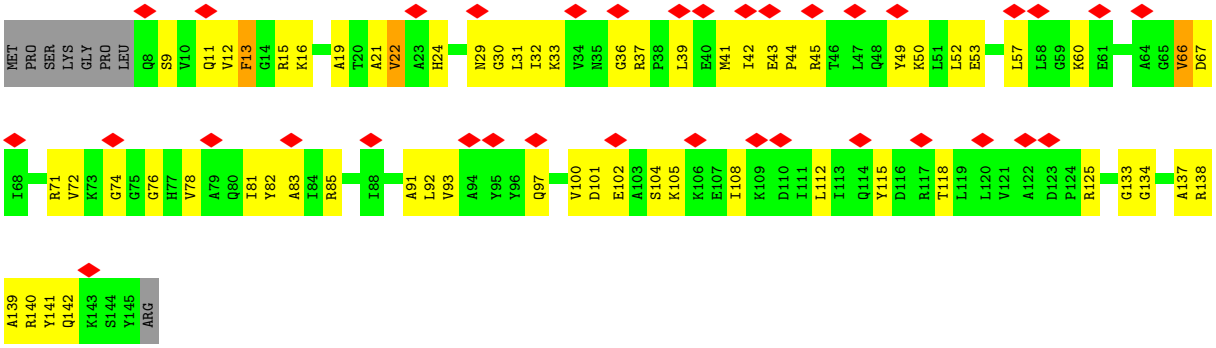
• Molecule 17: Small ribosomal subunit protein uS19

Chain P:



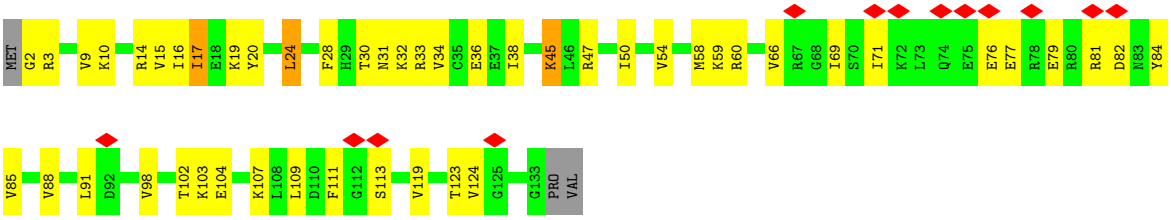
• Molecule 18: Small ribosomal subunit protein uS9

Chain Q:



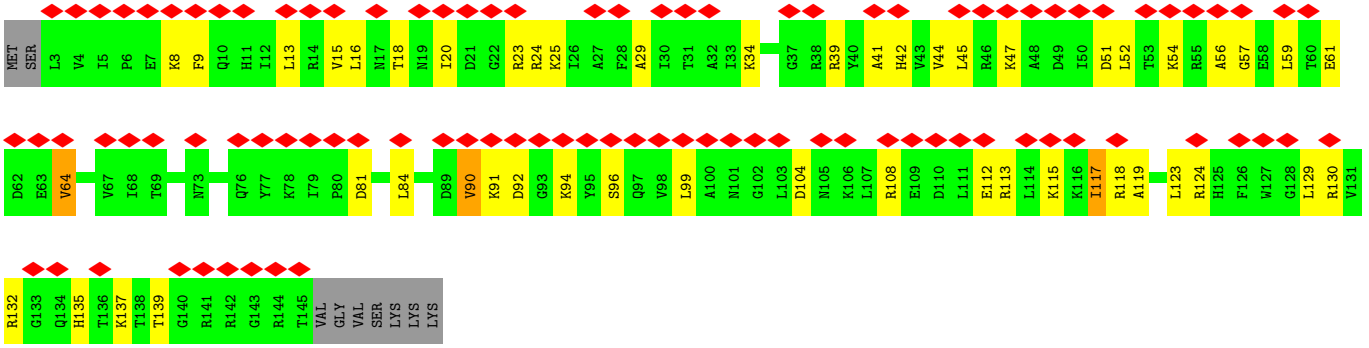
• Molecule 19: Small ribosomal subunit protein eS17

Chain R:



• Molecule 20: Small ribosomal subunit protein uS13

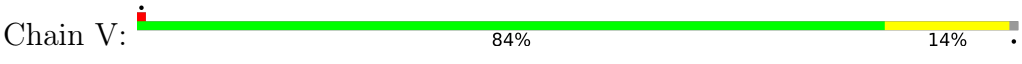
Chain S:



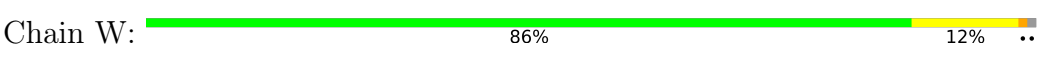
• Molecule 21: Small ribosomal subunit protein eS19

• Molecule 22: Small ribosomal subunit protein uS10

• Molecule 23: Small ribosomal subunit protein eS21

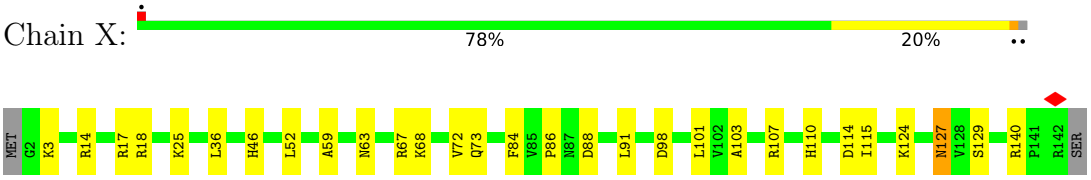


• Molecule 24: Small ribosomal subunit protein uS8



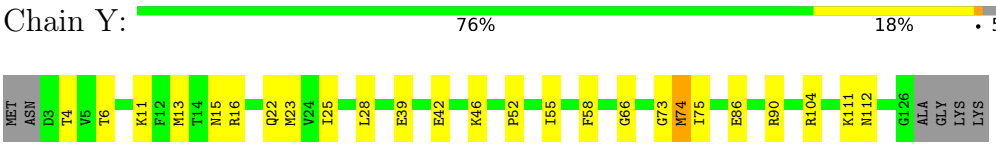
• Molecule 25: Small ribosomal subunit protein uS12

Chain X:



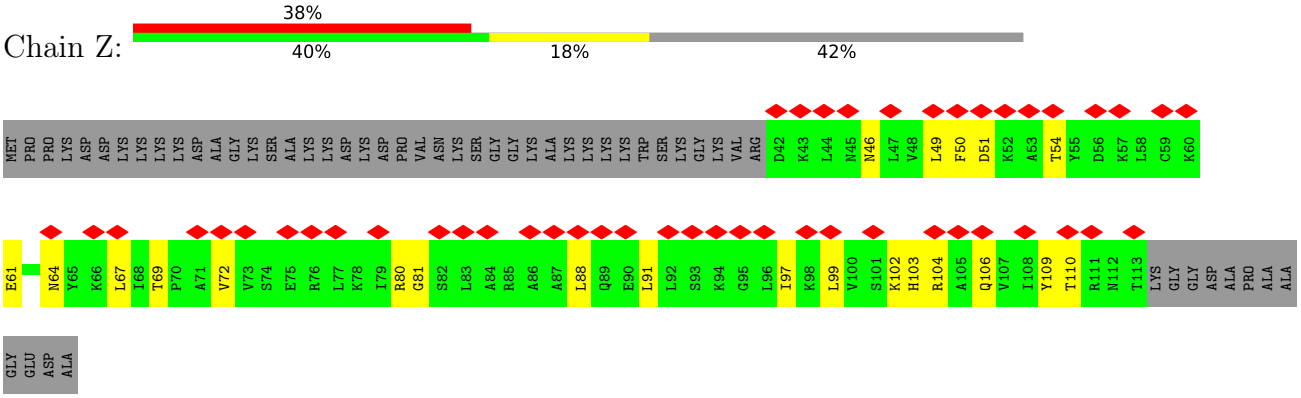
• Molecule 26: Small ribosomal subunit protein eS24

Chain Y:



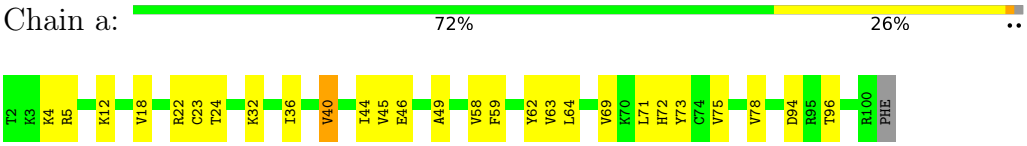
• Molecule 27: Small ribosomal subunit protein eS25

Chain Z:



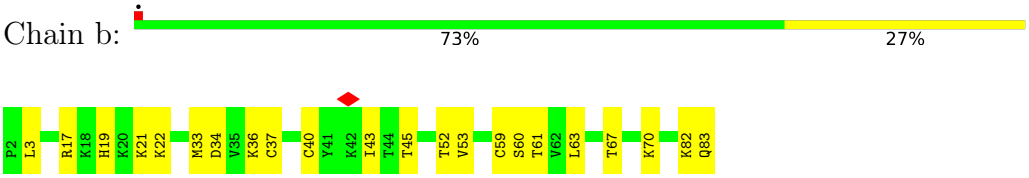
• Molecule 28: Small ribosomal subunit protein eS26

Chain a:



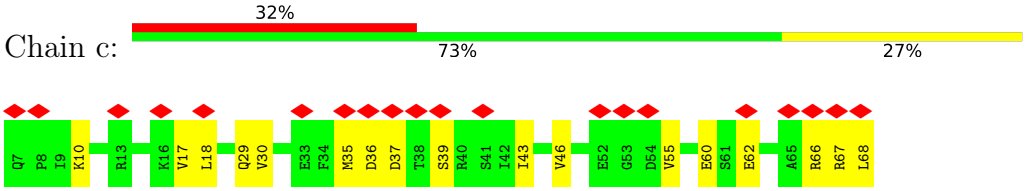
• Molecule 29: Small ribosomal subunit protein eS27

Chain b:



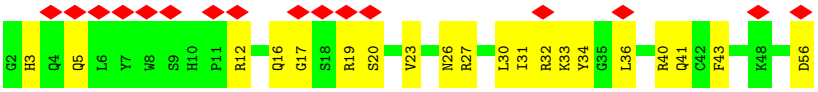
• Molecule 30: Small ribosomal subunit protein eS28

Chain c:



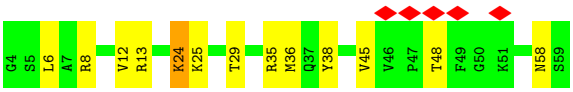
• Molecule 31: Small ribosomal subunit protein uS14

Chain d:



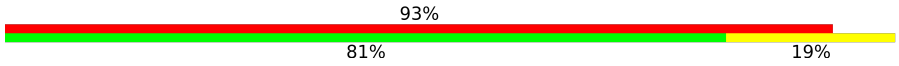
• Molecule 32: Small ribosomal subunit protein eS30

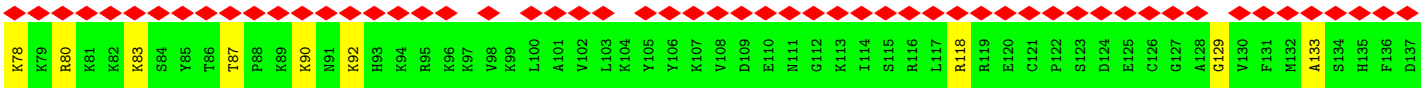
Chain e:

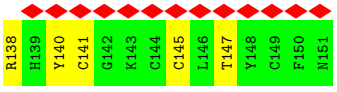


• Molecule 33: Small ribosomal subunit protein eS31

Chain f:

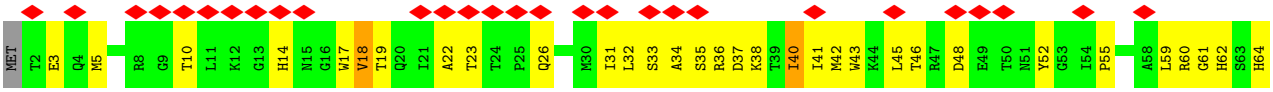


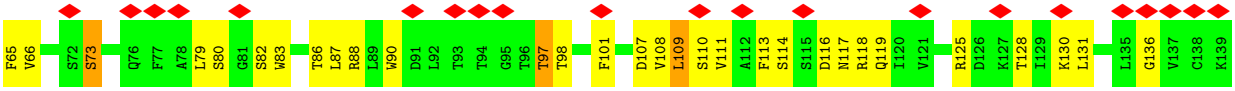


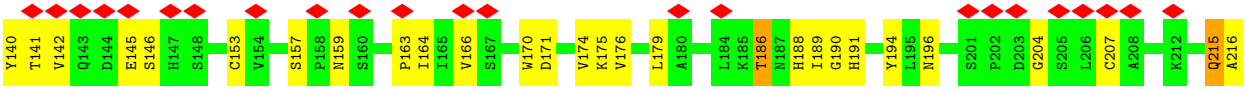


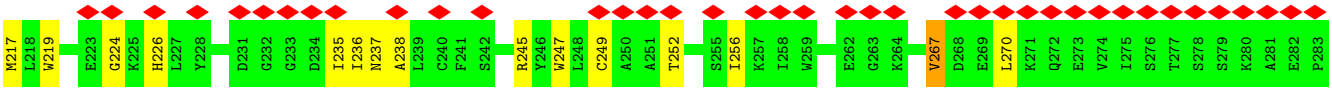
• Molecule 34: Small ribosomal subunit protein RACK1

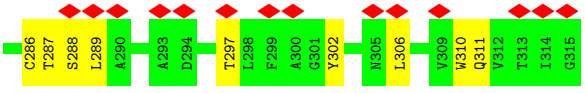
Chain g:





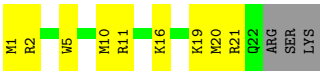




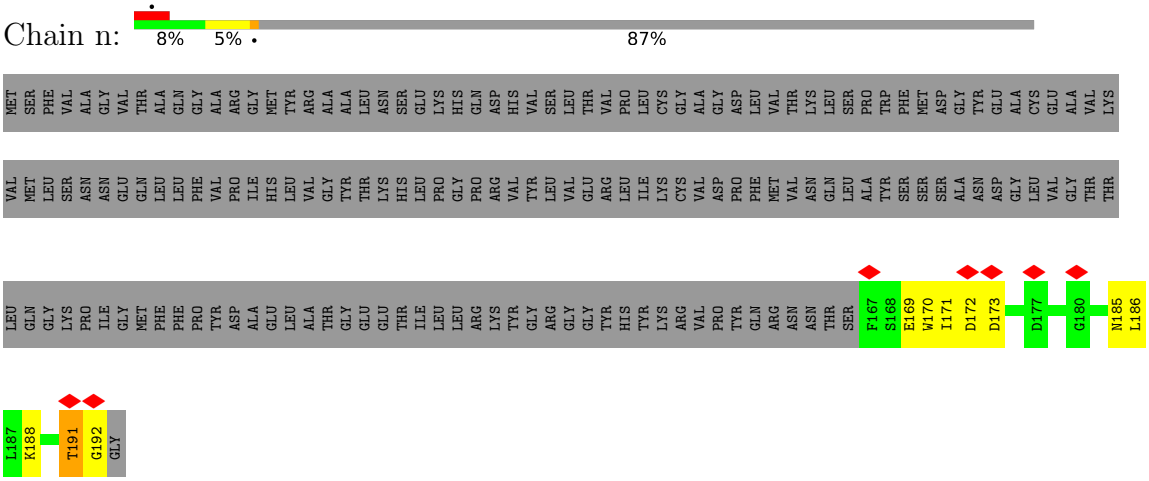


• Molecule 35: Small ribosomal subunit protein eS32

Chain h:



• Molecule 36: ORF1ab polyprotein



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	104004	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	JEOL CRYO ARM 300	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	2.834	Depositor
Minimum map value	-1.311	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.063	Depositor
Recommended contour level	0.181	Depositor
Map size (Å)	486.4, 486.4, 486.4	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.95, 0.95, 0.95	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#\|Z\| > 5$	RMSZ	$\#\|Z\| > 5$
1	2	0.26	0/39580	0.31	7/61688 (0.0%)
2	A	0.21	0/1723	0.31	0/2341
3	B	0.21	0/1756	0.31	0/2350
4	C	0.23	0/1726	0.34	0/2332
5	D	0.25	0/1780	0.43	0/2397
6	E	0.29	0/2118	0.39	0/2849
7	F	0.30	0/1516	0.54	0/2037
8	G	0.17	0/1887	0.29	0/2513
9	H	0.16	0/1524	0.35	0/2042
10	I	0.22	0/1711	0.36	0/2282
11	J	0.25	0/1524	0.35	0/2035
12	K	0.51	0/840	0.67	1/1133 (0.1%)
13	L	0.29	0/1250	0.35	0/1673
14	M	0.14	0/945	0.35	0/1269
15	N	0.20	0/1226	0.27	0/1649
16	O	0.22	0/1023	0.36	0/1372
17	P	0.15	0/1058	0.43	0/1414
18	Q	0.19	0/1114	0.40	0/1492
19	R	0.18	0/1082	0.31	0/1452
20	S	0.14	0/1202	0.37	0/1610
21	T	0.17	0/1143	0.35	0/1530
22	U	0.30	0/813	0.54	0/1092
23	V	0.20	0/631	0.29	0/844
24	W	0.26	0/1051	0.34	0/1406
25	X	0.23	0/1116	0.29	0/1490
26	Y	0.22	0/1031	0.30	0/1370
27	Z	0.10	0/580	0.30	0/780
28	a	0.25	0/807	0.34	0/1082
29	b	0.22	0/654	0.34	0/876
30	c	0.13	0/491	0.35	0/656
31	d	0.11	0/470	0.33	0/623
32	e	0.19	0/447	0.32	0/587
33	f	0.11	0/623	0.37	0/822
34	g	0.13	0/2498	0.36	0/3399

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
35	h	0.27	0/214	0.31	0/272
36	n	0.12	0/213	0.23	0/285
All	All	0.24	0/79367	0.34	8/115044 (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
11	J	0	1
17	P	0	1
All	All	0	2

There are no bond length outliers.

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	2	501	C	O3'-P-O5'	-8.10	91.85	104.00
1	2	1684	C	O3'-P-O5'	5.73	112.59	104.00
1	2	1244	U	O3'-P-O5'	5.67	112.50	104.00
1	2	632	C	O3'-P-O5'	-5.60	95.60	104.00
12	K	27	VAL	N-CA-C	-5.51	108.12	113.53
1	2	1453	C	O3'-P-O5'	-5.30	96.04	104.00
1	2	1244	U	C2'-C3'-O3'	-5.12	106.03	113.70
1	2	1407	U	OP1-P-O3'	5.04	123.12	108.00

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
11	J	5	ARG	Sidechain
17	P	40	ARG	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	2	35392	0	17891	716	0
2	A	1686	0	1688	36	0
3	B	1729	0	1803	35	0
4	C	1690	0	1777	35	0
5	D	1752	0	1848	74	0
6	E	2076	0	2177	44	0
7	F	1495	0	1549	83	0
8	G	1864	0	2018	51	0
9	H	1501	0	1593	43	0
10	I	1682	0	1769	57	0
11	J	1499	0	1618	33	0
12	K	816	0	841	42	0
13	L	1229	0	1302	34	0
14	M	935	0	964	30	0
15	N	1202	0	1289	24	0
16	O	1010	0	1034	39	0
17	P	1037	0	1082	43	0
18	Q	1097	0	1161	59	0
19	R	1068	0	1121	43	0
20	S	1184	0	1244	45	0
21	T	1123	0	1153	46	0
22	U	803	0	873	23	0
23	V	625	0	628	9	0
24	W	1034	0	1080	12	0
25	X	1098	0	1167	21	0
26	Y	1014	0	1082	17	0
27	Z	574	0	627	20	0
28	a	794	0	849	23	0
29	b	641	0	665	16	0
30	c	489	0	514	12	0
31	d	459	0	452	20	0
32	e	442	0	487	9	0
33	f	611	0	638	12	0
34	g	2441	0	2396	73	0
35	h	213	0	258	11	0
36	n	209	0	207	8	0
All	All	74514	0	58845	1606	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 12.

All (1606) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:K:31:LYS:HA	12:K:41:PRO:HA	1.15	1.07
2:A:10:MET:HE2	2:A:15:VAL:HG22	1.36	1.05
1:2:1513:C:O2	1:2:1513:C:OP1	1.75	1.04
12:K:43:LEU:HA	12:K:46:MET:HE3	1.41	1.03
12:K:32:HIS:HB3	12:K:35:LEU:HB2	1.45	0.97
5:D:116:ARG:HB3	36:n:172:ASP:HB3	1.48	0.94
5:D:116:ARG:NH1	5:D:119:CYS:SG	2.42	0.93
13:L:49:GLU:HG2	13:L:118:ARG:HH21	1.34	0.93
1:2:1091:C:HO2'	24:W:2:VAL:N	1.69	0.89
20:S:41:ALA:O	20:S:45:LEU:HD12	1.72	0.89
10:I:107:THR:HG22	10:I:111:GLN:HE22	1.37	0.89
1:2:1659:U:O2	1:2:1664:A:N7	2.07	0.87
1:2:1560:U:H3	1:2:1575:G:H1	1.22	0.85
5:D:127:MET:HE3	5:D:154:ASP:HB3	1.56	0.84
21:T:11:GLN:HB3	21:T:62:ARG:HH12	1.41	0.84
13:L:124:ASP:OD2	13:L:147:LYS:HE2	1.78	0.84
18:Q:41:MET:O	18:Q:41:MET:HG3	1.75	0.83
5:D:117:ARG:HD2	36:n:169:GLU:HB2	1.60	0.83
1:2:1719:A:H3'	1:2:1720:U:H5"	1.60	0.82
7:F:103:LEU:HD11	27:Z:67:LEU:HB2	1.61	0.82
1:2:928:G:H1	1:2:1013:U:H3	1.30	0.80
1:2:1648:G:N2	1:2:1675:A:OP2	2.15	0.80
1:2:1650:A:H5"	18:Q:139:ALA:HB2	1.64	0.79
11:J:89:GLU:OE1	11:J:89:GLU:N	2.15	0.79
1:2:922:A:N1	1:2:1022:U:H5	1.79	0.79
1:2:1649:U:O2	1:2:1675:A:N7	2.16	0.79
1:2:1610:G:H5'	1:2:1610:G:C8	2.18	0.79
2:A:206:ASP:OD1	2:A:208:GLU:HG3	1.83	0.78
34:g:297:THR:OG1	34:g:311:GLN:OE1	2.00	0.78
10:I:107:THR:HG22	10:I:111:GLN:NE2	1.97	0.78
29:b:34:ASP:OD2	29:b:82:LYS:HD3	1.84	0.77
16:O:83:GLN:O	16:O:87:GLU:HG3	1.84	0.77
18:Q:15:ARG:O	18:Q:16:LYS:HE2	1.84	0.77
5:D:135:GLU:OE1	5:D:187:LYS:HG3	1.85	0.77
7:F:153:LEU:HD22	7:F:192:LYS:HD3	1.66	0.77
12:K:31:LYS:HA	12:K:41:PRO:CA	2.08	0.77
1:2:749:U:H3	1:2:793:G:H22	1.31	0.77
18:Q:32:ILE:HB	18:Q:39:LEU:HD21	1.66	0.77
1:2:1024:A:OP2	15:N:124:ARG:NH2	2.17	0.76
1:2:77:A:C8	8:G:154:ARG:HD2	2.21	0.76
1:2:1407:U:H2'	1:2:1408:U:O4'	1.86	0.76
21:T:75:MET:HE2	21:T:79:TYR:CE2	2.20	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
20:S:90:VAL:HG21	20:S:113:ARG:HH12	1.51	0.75
1:2:981:A:H2'	1:2:982:G:C8	2.22	0.75
11:J:78:LEU:HB3	11:J:92:MET:HE3	1.69	0.75
14:M:78:LYS:HE3	14:M:78:LYS:HA	1.68	0.75
1:2:925:G:H1	1:2:1017:U:H3	1.34	0.74
12:K:14:LEU:HA	12:K:17:LYS:HG2	1.69	0.74
6:E:124:CYS:HB3	6:E:141:THR:OG1	1.86	0.74
1:2:531:A:H61	1:2:552:G:H1	1.36	0.74
1:2:587:A:H5'	1:2:592:C:H41	1.50	0.74
1:2:1547:C:N4	1:2:1586:U:O4	2.19	0.74
34:g:189:ILE:HG22	34:g:190:GLY:H	1.52	0.74
1:2:1215:C:H42	1:2:1220:A:H61	1.36	0.74
22:U:18:HIS:HB3	22:U:92:HIS:HB3	1.70	0.74
2:A:94:THR:HG22	2:A:186:ARG:HH22	1.51	0.73
16:O:56:VAL:HA	16:O:60:MET:HE1	1.70	0.73
21:T:75:MET:HE3	21:T:75:MET:O	1.88	0.73
1:2:1290:G:H22	1:2:1302:G:H2'	1.53	0.73
20:S:25:LYS:HZ2	20:S:56:ALA:H	1.37	0.73
10:I:120:PRO:HG2	10:I:158:ILE:H	1.54	0.73
16:O:56:VAL:HG22	16:O:81:VAL:HG23	1.71	0.73
1:2:632:C:H5"	1:2:632:C:C6	2.24	0.72
1:2:1653:U:H3	1:2:1671:G:H1	1.36	0.72
21:T:40:ALA:HB3	21:T:43:LYS:HB2	1.70	0.72
1:2:532:C:N3	1:2:533:A:N6	2.37	0.72
3:B:125:VAL:HG22	3:B:172:MET:HE3	1.72	0.72
7:F:160:GLU:O	7:F:165:ASN:ND2	2.22	0.72
1:2:1269:G:N2	1:2:1513:C:H5	1.88	0.72
1:2:1172:U:H5'	35:h:10:MET:HE3	1.70	0.72
1:2:1143:A:H5'	4:C:190:SER:HB3	1.71	0.71
6:E:54:TYR:O	26:Y:15:ASN:ND2	2.23	0.71
13:L:103:GLU:OE1	25:X:14:ARG:NH2	2.23	0.71
1:2:1337:C:H2'	1:2:1338:G:H8	1.54	0.71
34:g:88:ARG:HB3	34:g:97:THR:HG21	1.72	0.71
1:2:1605:G:N7	1:2:1606:G:N2	2.37	0.71
13:L:49:GLU:HG2	13:L:118:ARG:NH2	2.05	0.71
1:2:560:A:OP2	11:J:177:ASN:ND2	2.23	0.71
1:2:1456:G:P	19:R:59:LYS:NZ	2.64	0.71
1:2:1472:C:O2	1:2:1476:A:N6	2.24	0.71
10:I:118:ALA:HB3	10:I:153:LYS:HE2	1.73	0.71
35:h:16:LYS:NZ	35:h:20:MET:HG3	2.05	0.71
6:E:104:ASP:OD1	6:E:105:THR:N	2.24	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:640:A:H2'	1:2:641:A:C8	2.26	0.70
4:C:257:LYS:O	23:V:16:LYS:NZ	2.24	0.70
1:2:796:G:N3	9:H:109:ARG:NH1	2.39	0.70
7:F:52:SER:OG	7:F:70:GLU:OE2	2.10	0.70
1:2:1858:G:OP2	16:O:146:ARG:NH2	2.25	0.70
20:S:15:VAL:HG12	20:S:16:LEU:HD22	1.75	0.69
7:F:47:LYS:NZ	7:F:49:LEU:O	2.26	0.69
7:F:82:ASN:OD1	7:F:82:ASN:N	2.26	0.69
34:g:60:ARG:HD2	34:g:60:ARG:O	1.92	0.69
1:2:296:U:O2'	6:E:131:VAL:O	2.11	0.69
1:2:875:A:H61	1:2:911:C:H42	1.41	0.69
1:2:1320:G:O2'	1:2:1321:G:OP1	2.10	0.68
5:D:137:VAL:HG23	5:D:185:LYS:HB2	1.74	0.68
1:2:1716:C:H42	1:2:1817:G:H1	1.38	0.68
6:E:52:LEU:HD13	6:E:54:TYR:HE2	1.56	0.68
2:A:84:GLN:HG2	2:A:100:ALA:HB1	1.76	0.68
12:K:32:HIS:ND1	12:K:33:PRO:HD2	2.08	0.68
1:2:532:C:O2	1:2:552:G:N2	2.26	0.68
1:2:1398:G:H22	1:2:1448:A:H2	1.40	0.68
1:2:125:C:OP1	8:G:202:ASN:ND2	2.25	0.68
1:2:1407:U:H1'	18:Q:11:GLN:NE2	2.08	0.68
1:2:1609:C:H5'	20:S:132:ARG:HE	1.59	0.68
4:C:252:THR:OG1	4:C:254:ASP:OD1	2.12	0.68
2:A:21:ALA:HB2	19:R:91:LEU:HD11	1.76	0.68
1:2:1129:G:H3'	1:2:1130:G:H21	1.58	0.67
7:F:85:LYS:HB3	7:F:88:MET:SD	2.34	0.67
19:R:109:LEU:HG	19:R:111:PHE:HD2	1.60	0.67
30:c:29:GLN:HE22	30:c:67:ARG:HA	1.59	0.67
18:Q:13:PHE:HA	18:Q:22:VAL:HA	1.76	0.67
1:2:1218:C:H1'	1:2:1683:C:H42	1.59	0.67
13:L:23:VAL:HG22	13:L:26:GLY:H	1.59	0.67
1:2:1564:C:OP2	21:T:101:ARG:NH1	2.21	0.67
7:F:112:LEU:HA	7:F:177:LEU:HD11	1.77	0.67
34:g:176:VAL:HB	34:g:186:THR:HG23	1.76	0.67
14:M:38:ALA:O	14:M:42:LEU:HD12	1.94	0.67
1:2:1498:A:OP2	5:D:27:ARG:NH2	2.28	0.67
1:2:1863:A:OP2	28:a:4:LYS:NZ	2.27	0.67
2:A:94:THR:O	2:A:186:ARG:NH2	2.28	0.67
1:2:126:G:O6	8:G:196:LYS:NZ	2.28	0.67
1:2:1531:A:O2'	1:2:1604:G:N2	2.28	0.66
17:P:112:ILE:HD12	17:P:112:ILE:H	1.60	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1274:G:O5'	12:K:1:MET:HE3	1.95	0.66
1:2:1705:C:H2'	1:2:1706:G:C8	2.31	0.66
7:F:104:THR:HG22	7:F:178:ILE:HD11	1.75	0.66
7:F:92:ILE:HD11	7:F:169:ILE:HD12	1.77	0.66
19:R:17:ILE:HD11	19:R:58:MET:SD	2.36	0.66
4:C:200:ARG:O	11:J:54:ARG:NH2	2.28	0.66
1:2:1797:U:H2'	1:2:1798:C:C6	2.31	0.66
1:2:594:A:H61	1:2:643:A:H5"	1.60	0.66
1:2:1262:C:O2	31:d:17:GLY:N	2.29	0.66
1:2:1798:C:H5'	10:I:3:ILE:HG22	1.79	0.65
11:J:134:HIS:ND1	11:J:163:SER:OG	2.23	0.65
13:L:80:MET:HE3	13:L:120:VAL:HG12	1.78	0.65
1:2:643:A:OP1	11:J:39:ASN:ND2	2.29	0.65
6:E:24:THR:HG22	6:E:24:THR:O	1.96	0.65
26:Y:52:PRO:HA	26:Y:55:ILE:HD12	1.76	0.65
18:Q:43:GLU:OE1	21:T:12:GLN:NE2	2.29	0.65
1:2:1412:C:N3	1:2:1429:G:N2	2.44	0.65
11:J:107:GLU:O	11:J:113:GLN:NE2	2.29	0.65
29:b:59:CYS:SG	29:b:60:SER:N	2.69	0.65
7:F:97:PHE:HA	7:F:100:ILE:HG12	1.78	0.65
22:U:38:ASP:OD1	22:U:41:ARG:NH2	2.28	0.65
21:T:10:ASN:HB3	21:T:13:GLU:HG2	1.79	0.65
1:2:1152:U:H2'	24:W:12:LYS:HE3	1.78	0.65
1:2:636:C:OP1	32:e:24:LYS:NZ	2.29	0.65
18:Q:42:ILE:HG22	18:Q:44:PRO:HD2	1.77	0.65
22:U:43:ALA:HB1	22:U:50:VAL:HG11	1.77	0.64
1:2:320:G:N2	1:2:331:C:N3	2.45	0.64
1:2:1546:G:H21	1:2:1670:C:H1'	1.60	0.64
20:S:47:LYS:NZ	21:T:35:ASP:OD1	2.29	0.64
1:2:309:G:OP2	10:I:53:LYS:NZ	2.27	0.64
7:F:187:SER:HB3	7:F:190:ILE:HD12	1.80	0.64
4:C:174:ILE:HD12	4:C:174:ILE:H	1.63	0.64
15:N:67:THR:HG21	15:N:74:ILE:HD11	1.78	0.64
1:2:987:A:OP1	28:a:32:LYS:NZ	2.30	0.64
14:M:91:LEU:HD21	14:M:101:ARG:HA	1.78	0.64
15:N:49:GLN:O	15:N:53:ILE:HG12	1.98	0.64
1:2:1589:A:N7	1:2:1672:U:O2'	2.31	0.64
36:n:188:LYS:HD2	36:n:192:GLY:HA2	1.79	0.64
1:2:864:A:H2'	1:2:865:A:H8	1.63	0.64
1:2:1447:G:H2'	1:2:1448:A:H8	1.63	0.64
1:2:1560:U:O4	1:2:1575:G:O6	2.15	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1576:G:N3	1:2:1582:C:O2'	2.25	0.64
25:X:63:ASN:HD22	25:X:114:ASP:CG	2.06	0.64
34:g:26:GLN:NE2	34:g:73:SER:O	2.31	0.64
1:2:194:C:H2'	1:2:195:C:H6	1.62	0.64
1:2:1139:C:H2'	1:2:1140:G:O4'	1.98	0.64
1:2:1608:U:H4'	20:S:130:ARG:HE	1.63	0.64
17:P:41:GLN:H	17:P:44:ARG:HG3	1.61	0.64
28:a:46:GLU:HG3	28:a:49:ALA:H	1.63	0.63
35:h:16:LYS:HZ1	35:h:20:MET:CG	2.11	0.63
1:2:145:G:H2'	1:2:146:G:C8	2.32	0.63
1:2:562:U:H2'	1:2:563:G:C8	2.33	0.63
1:2:746:C:H1'	9:H:108:SER:HA	1.80	0.63
21:T:27:LYS:HG3	21:T:110:LEU:HD23	1.80	0.63
2:A:34:MET:HE2	2:A:149:ASN:O	1.99	0.63
7:F:63:LYS:O	7:F:71:ARG:NH2	2.31	0.63
35:h:16:LYS:HZ1	35:h:20:MET:HG3	1.63	0.63
1:2:1354:G:N2	1:2:1357:A:OP2	2.30	0.63
1:2:1617:G:H1	17:P:40:ARG:HH22	1.46	0.63
7:F:100:ILE:HG13	7:F:101:HIS:H	1.64	0.63
7:F:195:GLU:HG2	7:F:198:ARG:HH21	1.64	0.63
21:T:63:HIS:HA	21:T:66:LEU:HD12	1.81	0.63
26:Y:39:GLU:HA	26:Y:42:GLU:HG2	1.79	0.63
34:g:131:LEU:HD13	34:g:140:TYR:HB3	1.80	0.63
9:H:80:VAL:HG23	9:H:92:VAL:HB	1.81	0.63
26:Y:55:ILE:HG12	26:Y:75:ILE:HG12	1.81	0.63
29:b:82:LYS:HE2	29:b:82:LYS:HA	1.80	0.63
12:K:32:HIS:HD2	12:K:35:LEU:HG	1.63	0.63
1:2:1464:C:O2'	1:2:1465:A:OP1	2.17	0.62
12:K:32:HIS:CG	12:K:33:PRO:HD2	2.34	0.62
1:2:209:A:H2'	1:2:210:U:H5"	1.80	0.62
1:2:1562:C:N4	1:2:1563:G:O6	2.32	0.62
13:L:120:VAL:HG22	13:L:145:VAL:HG11	1.81	0.62
29:b:36:LYS:HB2	29:b:43:ILE:HG22	1.81	0.62
1:2:28:U:H2'	1:2:29:G:H8	1.62	0.62
1:2:922:A:N1	1:2:1022:U:C5	2.65	0.62
5:D:48:ILE:O	5:D:86:LEU:HD13	1.99	0.62
6:E:54:TYR:OH	6:E:97:GLU:OE2	2.10	0.62
8:G:150:GLU:N	8:G:150:GLU:OE1	2.31	0.62
13:L:49:GLU:HG3	13:L:118:ARG:HE	1.64	0.62
1:2:952:G:H21	16:O:52:THR:HG21	1.64	0.62
1:2:1447:G:H2'	1:2:1448:A:C8	2.35	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1456:G:OP1	19:R:59:LYS:NZ	2.32	0.62
10:I:101:ILE:HD12	10:I:190:LEU:HD11	1.80	0.62
12:K:35:LEU:HA	12:K:38:LYS:HD2	1.81	0.62
1:2:928:G:H2'	1:2:929:G:C8	2.34	0.62
10:I:38:ILE:HD11	10:I:81:VAL:HG23	1.80	0.62
34:g:3:GLU:OE1	34:g:245:ARG:NH1	2.32	0.62
8:G:49:VAL:HB	8:G:115:LYS:HB3	1.80	0.62
9:H:176:VAL:O	9:H:180:LEU:HD23	2.00	0.62
12:K:32:HIS:CD2	12:K:35:LEU:HG	2.34	0.62
1:2:1854:U:H2'	1:2:1855:G:H8	1.64	0.62
5:D:190:LEU:HD23	5:D:199:GLY:HA2	1.80	0.62
6:E:141:THR:HG22	6:E:145:ARG:H	1.64	0.62
10:I:106:SER:HB3	10:I:171:LEU:HG	1.82	0.62
20:S:8:LYS:HE3	20:S:61:GLU:HG2	1.81	0.62
5:D:101:GLN:HG3	5:D:126:ILE:HD11	1.81	0.62
1:2:677:G:OP1	15:N:124:ARG:NH1	2.32	0.61
1:2:996:A:H2'	1:2:997:A:C8	2.35	0.61
1:2:1630:A:O2'	20:S:34:LYS:O	2.15	0.61
5:D:107:TYR:HA	5:D:110:LEU:HD12	1.82	0.61
22:U:26:SER:HB2	22:U:110:VAL:HG13	1.81	0.61
1:2:194:C:H2'	1:2:195:C:C6	2.35	0.61
1:2:540:U:H2'	1:2:541:U:H2'	1.82	0.61
1:2:1256:G:H1	31:d:31:ILE:HG23	1.65	0.61
1:2:1548:G:O2'	1:2:1549:U:OP1	2.17	0.61
14:M:21:VAL:HG21	14:M:124:ILE:HD12	1.83	0.61
1:2:1279:C:H2'	1:2:1280:G:C8	2.35	0.61
34:g:166:VAL:HG22	34:g:176:VAL:HG13	1.82	0.61
1:2:1676:U:OP1	7:F:74:ASN:ND2	2.31	0.61
13:L:82:MET:CE	13:L:85:THR:HB	2.31	0.61
34:g:18:VAL:O	34:g:287:THR:OG1	2.19	0.61
1:2:293:C:O2	1:2:293:C:H2'	2.01	0.61
1:2:433:A:H5"	10:I:22:HIS:HB3	1.83	0.61
1:2:1036:A:H4'	1:2:1855:G:N2	2.15	0.61
1:2:1098:C:H2'	1:2:1099:G:C8	2.35	0.61
1:2:1274:G:C2	12:K:47:LYS:HE3	2.36	0.61
1:2:1456:G:P	19:R:59:LYS:HZ3	2.22	0.61
7:F:103:LEU:HD21	27:Z:67:LEU:HD13	1.82	0.61
34:g:215:GLN:O	34:g:215:GLN:NE2	2.34	0.61
1:2:125:C:OP1	1:2:127:C:N4	2.31	0.61
1:2:1223:A:H62	1:2:1224:G:H21	1.48	0.61
1:2:1309:C:H5'	33:f:133:ALA:HB2	1.83	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1609:C:C4	20:S:108:ARG:HD2	2.36	0.61
1:2:1010:G:H2'	1:2:1011:A:H8	1.66	0.60
6:E:45:ILE:HA	6:E:61:VAL:HG11	1.83	0.60
22:U:17:ILE:HG23	22:U:19:ARG:H	1.66	0.60
28:a:36:ILE:HD13	28:a:78:VAL:HG11	1.82	0.60
1:2:1406:G:O2'	1:2:1407:U:H5"	2.01	0.60
7:F:180:ALA:HA	7:F:190:ILE:HD11	1.83	0.60
1:2:306:C:H5"	1:2:308:G:H5'	1.83	0.60
1:2:1292:C:N4	33:f:147:THR:OG1	2.27	0.60
8:G:201:LYS:NZ	8:G:202:ASN:OD1	2.32	0.60
10:I:135:GLU:OE2	10:I:135:GLU:N	2.29	0.60
1:2:94:G:O2'	1:2:508:A:O2'	2.19	0.60
5:D:5:ILE:HG13	5:D:6:SER:H	1.67	0.60
7:F:204:ARG:NH1	30:c:60:GLU:OE2	2.35	0.60
1:2:913:A:H2	9:H:99:ARG:H	1.49	0.60
17:P:49:LEU:HD21	17:P:53:GLN:NE2	2.17	0.60
31:d:31:ILE:O	31:d:31:ILE:HD12	2.01	0.60
1:2:1273:C:N4	1:2:1506:A:O2'	2.35	0.60
1:2:1668:U:H2'	1:2:1669:G:C8	2.37	0.60
9:H:8:ILE:O	9:H:44:ASN:ND2	2.35	0.60
34:g:40:ILE:HD11	34:g:90:TRP:CE2	2.37	0.60
1:2:1496:U:O2'	1:2:1498:A:OP1	2.19	0.60
3:B:159:GLN:O	3:B:163:GLN:HG3	2.01	0.60
1:2:1845:A:H2'	1:2:1846:G:C8	2.37	0.59
6:E:102:ILE:HG12	6:E:182:MET:HE1	1.83	0.59
8:G:57:ASP:O	8:G:107:SER:OG	2.17	0.59
10:I:157:LYS:O	13:L:21:LYS:NZ	2.35	0.59
12:K:32:HIS:HB2	12:K:45:VAL:HG21	1.83	0.59
1:2:1509:U:OP2	33:f:83:LYS:NZ	2.35	0.59
1:2:1614:A:H2'	1:2:1615:U:C5	2.37	0.59
13:L:111:VAL:HG12	13:L:140:PHE:HB2	1.84	0.59
14:M:40:LYS:HG2	33:f:129:GLY:HA3	1.83	0.59
1:2:155:G:H4'	8:G:15:LEU:HD13	1.84	0.59
1:2:1238:U:H1'	17:P:127:LYS:HG2	1.84	0.59
2:A:117:ARG:HG3	2:A:119:PRO:HD3	1.84	0.59
5:D:157:MET:HA	5:D:189:MET:HE2	1.84	0.59
1:2:64:A:H2	1:2:83:A:H62	1.49	0.59
1:2:866:U:H2'	1:2:867:G:C8	2.36	0.59
1:2:1527:C:H4'	18:Q:142:GLN:HB3	1.84	0.59
5:D:94:ARG:O	5:D:101:GLN:NE2	2.32	0.59
1:2:1394:G:O2'	1:2:1474:A:O2'	2.20	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1447:G:H5'	22:U:29:VAL:HG11	1.85	0.59
1:2:1808:U:H3'	1:2:1809:A:H5"	1.84	0.59
14:M:112:LYS:HE3	14:M:117:GLU:HA	1.83	0.59
7:F:23:TRP:CD2	7:F:108:PRO:HG2	2.38	0.59
10:I:57:ALA:HB2	10:I:183:GLY:HA2	1.84	0.59
18:Q:50:LYS:HB3	18:Q:85:ARG:HH22	1.67	0.59
20:S:51:ASP:HB2	20:S:54:LYS:HE2	1.84	0.59
1:2:548:C:O2'	1:2:549:C:OP1	2.19	0.59
1:2:851:C:H5"	1:2:852:G:H5'	1.83	0.59
1:2:1007:C:H2'	1:2:1008:A:C8	2.37	0.59
1:2:1010:G:H2'	1:2:1011:A:C8	2.37	0.59
1:2:1237:C:H2'	1:2:1520:G:H1	1.67	0.59
1:2:1269:G:H2'	1:2:1270:G:C8	2.38	0.59
1:2:617:G:H4'	25:X:88:ASP:HB3	1.83	0.59
7:F:96:ALA:HA	7:F:99:ILE:HB	1.83	0.59
18:Q:16:LYS:HB2	18:Q:83:ALA:HB2	1.84	0.59
1:2:441:C:OP1	10:I:2:GLY:N	2.36	0.59
1:2:628:A:N6	5:D:144:GLY:O	2.32	0.59
1:2:1037:G:H4'	1:2:1845:A:H4'	1.85	0.59
1:2:1244:U:H2'	1:2:1245:G:C8	2.37	0.59
1:2:107:A:H2'	1:2:108:G:C8	2.38	0.58
1:2:617:G:N7	25:X:67:ARG:NH1	2.49	0.58
7:F:96:ALA:O	7:F:100:ILE:HG12	2.03	0.58
1:2:436:G:OP2	1:2:471:G:O2'	2.17	0.58
1:2:1283:C:OP1	14:M:101:ARG:NH2	2.36	0.58
1:2:1609:C:OP1	20:S:132:ARG:HG2	2.03	0.58
15:N:37:ILE:HD11	15:N:63:VAL:HG11	1.84	0.58
23:V:58:ALA:O	23:V:62:MET:HG3	2.03	0.58
1:2:1290:G:C8	1:2:1309:C:H2'	2.38	0.58
17:P:19:GLY:N	20:S:91:LYS:O	2.35	0.58
18:Q:140:ARG:HG2	18:Q:140:ARG:HH11	1.69	0.58
21:T:22:LEU:HD11	21:T:28:LEU:HB2	1.83	0.58
1:2:1374:C:OP1	19:R:14:ARG:NH2	2.36	0.58
21:T:22:LEU:HD21	21:T:28:LEU:HD12	1.85	0.58
1:2:1649:U:C2	1:2:1675:A:N7	2.71	0.58
18:Q:81:ILE:HD12	18:Q:82:TYR:H	1.67	0.58
1:2:798:G:O2'	9:H:108:SER:OG	2.18	0.58
1:2:1317:C:N4	1:2:1318:G:O6	2.37	0.58
2:A:213:GLU:OE2	19:R:84:TYR:OH	2.17	0.58
5:D:106:ARG:HH21	5:D:173:ARG:HD2	1.69	0.58
29:b:19:HIS:HB3	29:b:22:LYS:HG3	1.86	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:508:A:H3'	1:2:509:G:H8	1.69	0.58
1:2:1033:G:N1	1:2:1080:A:O2'	2.31	0.58
1:2:1268:C:O2'	1:2:1269:G:OP1	2.21	0.58
1:2:1798:C:H2'	1:2:1799:G:O4'	2.03	0.58
1:2:1325:G:H2'	1:2:1327:G:H8	1.69	0.58
1:2:1532:C:O2	1:2:1635:C:O2'	2.21	0.58
1:2:1613:G:OP2	17:P:42:ARG:NH1	2.37	0.58
2:A:206:ASP:OD1	2:A:209:GLU:HG3	2.03	0.58
14:M:112:LYS:HE2	14:M:121:LYS:HD3	1.85	0.57
1:2:106:C:H2'	1:2:107:A:H8	1.67	0.57
1:2:367:U:H4'	1:2:371:A:C8	2.39	0.57
1:2:862:A:C8	24:W:107:SER:HA	2.39	0.57
1:2:1657:G:H1	1:2:1667:U:H3	1.51	0.57
13:L:80:MET:CE	13:L:120:VAL:HG12	2.35	0.57
1:2:375:U:H2'	1:2:376:A:C8	2.39	0.57
1:2:1609:C:N3	20:S:108:ARG:HD2	2.19	0.57
8:G:5:ILE:HG22	8:G:124:LEU:HD21	1.87	0.57
21:T:116:ASP:OD1	21:T:116:ASP:N	2.36	0.57
1:2:84:A:N3	1:2:150:A:O2'	2.37	0.57
1:2:1563:G:OP1	21:T:121:ARG:NH1	2.37	0.57
17:P:21:ASP:OD2	17:P:24:GLN:NE2	2.36	0.57
26:Y:58:PHE:CZ	26:Y:74:MET:HE2	2.40	0.57
30:c:35:MET:HE3	30:c:36:ASP:N	2.20	0.57
1:2:121:U:H2'	1:2:122:G:C8	2.40	0.57
1:2:1653:U:H2'	1:2:1654:G:C8	2.40	0.57
2:A:206:ASP:OD1	2:A:209:GLU:N	2.37	0.57
11:J:63:LEU:HD21	11:J:69:ARG:HH21	1.70	0.57
15:N:34:LYS:HE2	15:N:67:THR:HG23	1.86	0.57
34:g:65:PHE:HB2	34:g:83:TRP:CD1	2.40	0.57
34:g:286:CYS:HA	34:g:302:TYR:HA	1.86	0.57
5:D:12:VAL:HG21	31:d:34:TYR:HB3	1.85	0.57
1:2:581:U:H4'	26:Y:66:GLY:HA2	1.86	0.57
1:2:672:A:N6	1:2:1027:A:OP1	2.36	0.57
8:G:5:ILE:HG21	8:G:45:TRP:HH2	1.70	0.57
7:F:92:ILE:HG12	7:F:170:ALA:HB2	1.86	0.57
8:G:159:ARG:HE	8:G:171:THR:HB	1.70	0.57
34:g:14:HIS:CE1	34:g:41:ILE:HG13	2.40	0.57
34:g:80:SER:HB2	34:g:90:TRP:HE1	1.69	0.57
1:2:1845:A:H2'	1:2:1846:G:H8	1.69	0.56
17:P:72:LYS:HD3	17:P:93:MET:HE1	1.87	0.56
19:R:31:ASN:HD22	19:R:54:VAL:HG12	1.70	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:T:76:THR:HG23	21:T:77:LYS:HG2	1.87	0.56
35:h:19:LYS:HE2	35:h:19:LYS:HA	1.87	0.56
8:G:32:MET:HG3	8:G:100:CYS:HB2	1.87	0.56
10:I:11:ARG:O	13:L:136:LYS:NZ	2.36	0.56
1:2:448:A:H5”	10:I:25:ARG:HA	1.86	0.56
1:2:560:A:H5’	11:J:174:LYS:HG3	1.85	0.56
3:B:131:ASP:OD1	3:B:131:ASP:N	2.38	0.56
7:F:23:TRP:CE3	7:F:108:PRO:HG2	2.40	0.56
7:F:69:VAL:O	7:F:73:THR:HG22	2.04	0.56
14:M:91:LEU:HD13	14:M:102:LYS:HB2	1.86	0.56
17:P:43:ARG:HH21	17:P:47:ARG:NH2	2.03	0.56
29:b:36:LYS:NZ	29:b:37:CYS:O	2.35	0.56
34:g:237:ASN:ND2	34:g:286:CYS:O	2.36	0.56
1:2:121:U:H2’	1:2:122:G:H8	1.69	0.56
1:2:118:C:H1’	1:2:445:A:C5	2.40	0.56
9:H:77:VAL:HB	9:H:78:ARG:NH1	2.20	0.56
16:O:31:CYS:HB2	16:O:93:LEU:HD13	1.87	0.56
1:2:632:C:H2’	1:2:632:C:O2	2.05	0.56
7:F:100:ILE:O	7:F:101:HIS:C	2.49	0.56
7:F:96:ALA:HB1	7:F:174:ALA:HB2	1.86	0.56
34:g:110:SER:HB2	34:g:153:CYS:HA	1.88	0.56
1:2:864:A:H2’	1:2:865:A:C8	2.40	0.56
1:2:1406:G:C2’	1:2:1407:U:H5”	2.35	0.56
4:C:262:THR:CG2	4:C:263:LYS:N	2.69	0.56
1:2:441:C:H2’	1:2:442:C:C6	2.41	0.56
1:2:819:G:OP1	11:J:79:ARG:NH2	2.38	0.56
5:D:106:ARG:HE	5:D:173:ARG:HB3	1.71	0.56
18:Q:32:ILE:O	18:Q:33:LYS:NZ	2.39	0.56
20:S:117:ILE:O	20:S:118:ARG:HD2	2.06	0.56
34:g:236:ILE:HG12	34:g:252:THR:HG22	1.88	0.56
1:2:1261:C:N4	1:2:1262:C:H41	2.04	0.56
1:2:1538:C:H2’	1:2:1539:U:H3	1.71	0.56
10:I:11:ARG:NH1	10:I:15:GLY:O	2.38	0.56
34:g:207:CYS:HB3	34:g:219:TRP:HB2	1.88	0.56
1:2:643:A:OP1	11:J:41:ARG:NH2	2.39	0.55
1:2:1256:G:C6	31:d:40:ARG:HG2	2.41	0.55
1:2:145:G:O6	8:G:178:ARG:NH2	2.39	0.55
1:2:641:A:O2’	1:2:645:C:OP1	2.23	0.55
1:2:1174:U:H2’	1:2:1175:G:C8	2.41	0.55
1:2:1189:A:H2’	1:2:1190:A:C8	2.41	0.55
1:2:1609:C:H5’	20:S:132:ARG:NE	2.20	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:G:43:GLU:OE2	8:G:43:GLU:N	2.36	0.55
12:K:17:LYS:HG3	12:K:18:GLU:HG3	1.87	0.55
18:Q:37:ARG:HH22	18:Q:41:MET:H	1.54	0.55
1:2:1144:A:H2'	1:2:1145:A:C8	2.42	0.55
1:2:1189:A:H2'	1:2:1190:A:H8	1.71	0.55
1:2:1230:C:OP2	20:S:139:THR:OG1	2.24	0.55
1:2:1552:G:HO2'	1:2:1555:U:HO2'	1.54	0.55
1:2:1554:C:H42	12:K:33:PRO:HB3	1.70	0.55
25:X:101:LEU:HB3	25:X:124:LYS:HB2	1.87	0.55
1:2:15:U:H2'	1:2:16:G:O4'	2.05	0.55
4:C:262:THR:HG22	4:C:263:LYS:N	2.20	0.55
1:2:531:A:N6	1:2:552:G:H1	2.05	0.55
1:2:982:G:H2'	1:2:983:A:H8	1.72	0.55
1:2:1668:U:OP2	18:Q:141:TYR:OH	2.21	0.55
25:X:52:LEU:HD11	25:X:73:GLN:HB2	1.87	0.55
1:2:379:C:O2	10:I:5:ARG:NE	2.35	0.55
1:2:1606:G:H5"	1:2:1633:A:H61	1.71	0.55
21:T:108:GLU:OE2	21:T:121:ARG:NE	2.40	0.55
22:U:56:MET:HE2	22:U:56:MET:HA	1.88	0.55
1:2:985:G:H4'	16:O:138:ASP:OD2	2.06	0.55
1:2:1453:C:H41	1:2:1476:A:H2	1.53	0.55
5:D:61:GLU:HB2	5:D:64:ARG:HH12	1.72	0.55
25:X:107:ARG:HB3	25:X:110:HIS:HB3	1.89	0.55
3:B:125:VAL:CG2	3:B:172:MET:HE3	2.36	0.55
10:I:160:SER:O	10:I:164:GLU:HG3	2.06	0.55
1:2:1736:G:H2'	1:2:1737:G:C8	2.42	0.55
7:F:99:ILE:O	7:F:102:LEU:HB2	2.06	0.55
8:G:32:MET:HG2	8:G:63:MET:HE2	1.89	0.55
21:T:39:LEU:HD22	21:T:47:PRO:HG3	1.89	0.55
1:2:65:C:N4	8:G:134:GLY:O	2.40	0.55
1:2:532:C:H2'	1:2:533:A:C8	2.42	0.55
1:2:1649:U:H4'	18:Q:138:ARG:HG3	1.89	0.55
12:K:23:ALA:HB3	12:K:67:PHE:HB2	1.89	0.55
16:O:99:ALA:H	16:O:133:THR:HB	1.70	0.55
34:g:145:GLU:O	34:g:175:LYS:NZ	2.39	0.55
1:2:180:G:H2'	1:2:181:A:C8	2.41	0.54
5:D:116:ARG:CZ	5:D:119:CYS:SG	2.94	0.54
17:P:81:ARG:NH2	17:P:97:TYR:O	2.39	0.54
21:T:75:MET:HE3	21:T:78:ILE:HB	1.87	0.54
1:2:1256:G:N2	31:d:30:LEU:O	2.36	0.54
1:2:1465:A:O3'	19:R:10:LYS:NZ	2.41	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:L:80:MET:HE1	13:L:120:VAL:O	2.07	0.54
13:L:82:MET:HE2	13:L:85:THR:HB	1.87	0.54
1:2:4:C:H4'	4:C:207:ALA:HB2	1.89	0.54
1:2:49:C:N4	1:2:473:A:OP2	2.35	0.54
1:2:1289:U:OP1	1:2:1302:G:O2'	2.18	0.54
1:2:1648:G:N2	1:2:1674:G:H3'	2.22	0.54
5:D:106:ARG:HD2	5:D:174:HIS:O	2.07	0.54
5:D:125:PHE:O	5:D:129:SER:OG	2.24	0.54
6:E:31:PRO:HG2	6:E:38:LEU:HG	1.89	0.54
8:G:193:ALA:O	8:G:197:GLN:HG2	2.06	0.54
15:N:87:ASP:N	15:N:87:ASP:OD1	2.39	0.54
1:2:952:G:H2'	1:2:953:C:C6	2.42	0.54
1:2:1253:A:H4'	1:2:1254:C:H5"	1.90	0.54
6:E:124:CYS:HA	6:E:142:HIS:CE1	2.42	0.54
7:F:35:LEU:HD12	7:F:35:LEU:O	2.07	0.54
12:K:83:LEU:HB3	12:K:85:LEU:HG	1.90	0.54
18:Q:30:GLY:N	18:Q:67:ASP:OD1	2.41	0.54
22:U:59:LYS:HB2	22:U:84:ILE:HD11	1.90	0.54
1:2:1651:A:O2'	7:F:83:ASN:ND2	2.41	0.54
3:B:73:ASP:OD1	16:O:128:ARG:NH1	2.40	0.54
3:B:135:LEU:CD2	3:B:217:MET:HE1	2.37	0.54
4:C:64:THR:OG1	4:C:90:GLU:OE2	2.25	0.54
4:C:194:ARG:HD3	4:C:196:ILE:HD11	1.88	0.54
12:K:24:LYS:HD3	12:K:66:HIS:NE2	2.23	0.54
16:O:34:PHE:HB3	16:O:41:PHE:HB2	1.90	0.54
1:2:1244:U:C2'	1:2:1245:G:H8	2.20	0.54
1:2:1270:G:H1	1:2:1513:C:N4	2.05	0.54
4:C:262:THR:CG2	4:C:263:LYS:H	2.20	0.54
21:T:75:MET:CE	21:T:78:ILE:HB	2.37	0.54
1:2:25:A:H2'	1:2:26:U:C6	2.43	0.54
1:2:1480:A:O2'	31:d:56:ASP:OXT	2.25	0.54
3:B:47:THR:OG1	3:B:65:ARG:NH1	2.41	0.54
1:2:639:C:HO2'	1:2:640:A:H8	1.55	0.54
1:2:1266:C:OP1	33:f:78:LYS:NZ	2.37	0.54
11:J:18:ARG:O	11:J:24:ARG:NH1	2.41	0.54
11:J:110:LEU:O	11:J:114:VAL:HG13	2.08	0.54
34:g:23:THR:HG22	34:g:31:ILE:HG13	1.89	0.54
1:2:1244:U:O2'	1:2:1245:G:H8	1.91	0.54
7:F:109:LEU:O	7:F:112:LEU:N	2.41	0.54
34:g:107:ASP:OD1	34:g:107:ASP:N	2.40	0.54
1:2:853:C:H2'	1:2:854:A:H8	1.72	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1679:A:H2'	7:F:60:ARG:HD2	1.90	0.53
10:I:92:ARG:HG2	10:I:92:ARG:HH11	1.73	0.53
22:U:69:PRO:O	31:d:40:ARG:NH2	2.34	0.53
27:Z:61:GLU:OE2	27:Z:61:GLU:N	2.33	0.53
31:d:20:SER:HA	31:d:30:LEU:HD21	1.88	0.53
1:2:1395:C:H5'	1:2:1474:A:H1'	1.90	0.53
1:2:1442:U:H2'	1:2:1443:C:C6	2.43	0.53
1:2:1459:G:H2'	1:2:1460:C:C6	2.42	0.53
2:A:85:ARG:NH2	19:R:82:ASP:O	2.31	0.53
10:I:165:GLN:HE22	10:I:195:LEU:HD11	1.72	0.53
34:g:22:ALA:HB3	34:g:32:LEU:HB2	1.89	0.53
1:2:1113:A:H2'	1:2:1114:U:C6	2.43	0.53
8:G:137:ARG:HB3	8:G:140:ARG:HG3	1.91	0.53
20:S:34:LYS:HD2	20:S:104:ASP:HB2	1.90	0.53
26:Y:86:GLU:OE2	26:Y:90:ARG:NH1	2.39	0.53
33:f:87:THR:HB	33:f:90:LYS:HG2	1.90	0.53
1:2:811:A:H2'	1:2:812:A:H8	1.74	0.53
1:2:822:U:H2'	1:2:824:C:OP2	2.09	0.53
1:2:1262:C:N3	31:d:16:GLN:N	2.56	0.53
1:2:1684:C:C5	1:2:1685:U:H5	2.26	0.53
2:A:11:LYS:O	2:A:15:VAL:HG23	2.09	0.53
5:D:126:ILE:HD12	5:D:188:ILE:HD11	1.90	0.53
6:E:160:ILE:HD12	6:E:162:ILE:HD11	1.90	0.53
19:R:24:LEU:HB2	19:R:58:MET:CE	2.38	0.53
1:2:860:G:N2	24:W:107:SER:HG	2.07	0.53
1:2:1513:C:OP1	1:2:1513:C:H3'	2.08	0.53
1:2:1556:A:N6	31:d:12:ARG:O	2.40	0.53
3:B:125:VAL:HG13	3:B:169:MET:HG2	1.91	0.53
14:M:18:LEU:HD23	14:M:85:LEU:HD11	1.89	0.53
1:2:1032:C:H5"	15:N:109:LYS:HD2	1.89	0.53
34:g:31:ILE:HG23	34:g:43:TRP:HD1	1.73	0.53
34:g:62:HIS:ND1	34:g:82:SER:HB2	2.24	0.53
1:2:1402:A:OP1	22:U:52:GLY:N	2.42	0.53
1:2:1456:G:OP2	19:R:59:LYS:NZ	2.42	0.53
1:2:1684:C:O5'	1:2:1684:C:H6	1.91	0.53
2:A:78:SER:HB2	2:A:87:VAL:HG21	1.90	0.53
9:H:78:ARG:HD3	9:H:78:ARG:N	2.24	0.53
30:c:17:VAL:HA	30:c:30:VAL:HG23	1.90	0.53
30:c:67:ARG:HE	30:c:68:LEU:H	1.57	0.53
24:W:39:THR:O	24:W:43:LYS:HG2	2.09	0.53
1:2:67:C:C5	8:G:162:LEU:HB3	2.44	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:661:U:OP2	25:X:3:LYS:NZ	2.41	0.53
1:2:804:U:H2'	1:2:805:U:C6	2.44	0.53
1:2:1727:G:H22	1:2:1807:C:P	2.30	0.53
2:A:196:GLU:CD	2:A:196:GLU:H	2.17	0.53
3:B:68:GLU:HG2	3:B:85:LYS:HG2	1.90	0.53
25:X:68:LYS:HB3	25:X:91:LEU:HD22	1.91	0.53
1:2:388:U:H2'	1:2:389:A:C8	2.44	0.53
1:2:1351:G:O2'	1:2:1378:A:N1	2.40	0.53
1:2:1616:U:H3'	1:2:1617:G:H5"	1.90	0.53
1:2:1684:C:H3'	1:2:1685:U:C5'	2.38	0.53
6:E:52:LEU:HB3	6:E:54:TYR:CE2	2.44	0.53
7:F:51:HIS:ND1	18:Q:82:TYR:OH	2.41	0.53
14:M:78:LYS:HE3	14:M:78:LYS:CA	2.39	0.53
15:N:106:ARG:NH1	15:N:106:ARG:HB3	2.24	0.53
21:T:110:LEU:O	21:T:112:MET:HE3	2.09	0.53
1:2:398:A:OP1	1:2:399:C:O2'	2.22	0.52
1:2:798:G:H5"	9:H:109:ARG:HD2	1.90	0.52
18:Q:53:GLU:OE2	18:Q:115:TYR:OH	2.23	0.52
19:R:104:GLU:HA	19:R:107:LYS:HG2	1.92	0.52
1:2:5:U:H2'	1:2:6:G:H8	1.74	0.52
1:2:860:G:H21	24:W:107:SER:HG	1.55	0.52
1:2:892:U:H2'	1:2:893:U:H5"	1.91	0.52
1:2:1614:A:N7	17:P:43:ARG:HD2	2.25	0.52
5:D:74:GLN:NE2	5:D:79:PHE:O	2.22	0.52
8:G:20:ASP:HB2	8:G:23:LYS:HG3	1.92	0.52
21:T:72:VAL:HG21	21:T:101:ARG:NH2	2.24	0.52
22:U:56:MET:HG3	22:U:86:LYS:HD2	1.92	0.52
1:2:106:C:H2'	1:2:107:A:C8	2.44	0.52
2:A:38:ILE:HD11	2:A:150:THR:HG22	1.91	0.52
2:A:53:ARG:HH12	23:V:70:LEU:HD21	1.74	0.52
2:A:80:ARG:HH22	2:A:166:LYS:HA	1.74	0.52
5:D:66:ILE:O	5:D:69:LEU:HG	2.09	0.52
17:P:39:ALA:HA	17:P:42:ARG:HB3	1.92	0.52
17:P:40:ARG:O	17:P:41:GLN:HB2	2.08	0.52
7:F:104:THR:OG1	7:F:105:GLY:N	2.41	0.52
10:I:139:LYS:HE3	10:I:141:ARG:HE	1.73	0.52
12:K:31:LYS:HD3	12:K:39:ASN:HA	1.90	0.52
17:P:14:LYS:HE3	17:P:14:LYS:HA	1.90	0.52
21:T:84:ARG:HG3	21:T:86:GLY:H	1.75	0.52
34:g:40:ILE:C	34:g:41:ILE:HD13	2.35	0.52
1:2:1269:G:N2	1:2:1513:C:C5	2.73	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1534:C:H5'	1:2:1599:U:H3	1.74	0.52
13:L:49:GLU:CG	13:L:118:ARG:HE	2.22	0.52
1:2:17:C:H2'	1:2:18:C:C6	2.45	0.52
1:2:1073:U:H2'	1:2:1074:C:H6	1.73	0.52
1:2:1101:U:H2'	1:2:1102:G:H8	1.74	0.52
2:A:135:THR:O	2:A:138:SER:OG	2.19	0.52
7:F:87:LEU:HB2	7:F:88:MET:HE3	1.90	0.52
14:M:23:LYS:NZ	14:M:88:TRP:O	2.42	0.52
1:2:375:U:H2'	1:2:376:A:H8	1.73	0.52
1:2:629:A:O2'	1:2:631:U:OP1	2.28	0.52
9:H:157:HIS:HB3	9:H:190:PRO:HG3	1.90	0.52
18:Q:32:ILE:HB	18:Q:39:LEU:CD2	2.37	0.52
1:2:382:C:H2'	1:2:383:G:H8	1.75	0.52
10:I:73:THR:O	10:I:74:ARG:NH1	2.41	0.52
1:2:391:C:H2'	1:2:392:A:H8	1.74	0.52
2:A:94:THR:HG22	2:A:186:ARG:NH2	2.24	0.52
34:g:10:THR:CG2	34:g:306:LEU:HD13	2.40	0.52
1:2:180:G:O2'	1:2:181:A:OP1	2.26	0.52
8:G:44:GLU:OE1	8:G:44:GLU:N	2.39	0.52
34:g:17:TRP:HB2	34:g:36:ARG:HD2	1.92	0.52
1:2:1047:C:H5"	16:O:143:LYS:HA	1.93	0.51
1:2:1605:G:N2	1:2:1634:A:OP2	2.43	0.51
19:R:24:LEU:HB2	19:R:58:MET:HE2	1.92	0.51
25:X:84:PHE:CE2	25:X:86:PRO:HA	2.44	0.51
29:b:67:THR:OG1	29:b:70:LYS:O	2.28	0.51
1:2:1257:G:OP2	1:2:1659:U:O2'	2.21	0.51
1:2:1284:A:H1'	14:M:33:ARG:HG2	1.92	0.51
1:2:1452:A:O2'	1:2:1475:G:N2	2.42	0.51
2:A:2:SER:OG	2:A:3:GLY:N	2.41	0.51
3:B:33:VAL:HB	3:B:44:ILE:HG12	1.92	0.51
3:B:229:MET:HE3	3:B:229:MET:HA	1.91	0.51
1:2:1073:U:H2'	1:2:1074:C:C6	2.45	0.51
3:B:138:PHE:O	3:B:213:ARG:N	2.44	0.51
5:D:21:LEU:HD21	5:D:48:ILE:HG21	1.91	0.51
6:E:182:MET:HG3	6:E:192:ILE:HG12	1.92	0.51
17:P:115:TYR:HD1	17:P:117:GLY:H	1.57	0.51
19:R:104:GLU:OE1	19:R:107:LYS:NZ	2.39	0.51
26:Y:86:GLU:OE2	26:Y:90:ARG:HD2	2.10	0.51
1:2:380:G:O6	10:I:178:ARG:NH2	2.41	0.51
1:2:1344:A:N1	1:2:1385:G:O2'	2.39	0.51
2:A:121:LEU:HD12	2:A:143:PRO:HB2	1.91	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:D:135:GLU:C	5:D:135:GLU:OE2	2.52	0.51
10:I:92:ARG:HG2	10:I:92:ARG:NH1	2.25	0.51
10:I:107:THR:O	10:I:111:GLN:NE2	2.43	0.51
17:P:108:LYS:HB3	17:P:111:MET:HE3	1.92	0.51
28:a:40:VAL:HG13	28:a:69:VAL:HB	1.93	0.51
3:B:136:ARG:HB2	3:B:218:LEU:HD11	1.92	0.51
5:D:5:ILE:HD11	5:D:9:ARG:NH1	2.26	0.51
14:M:110:VAL:HG22	14:M:111:VAL:H	1.76	0.51
1:2:1229:G:H22	21:T:87:VAL:HB	1.76	0.51
2:A:75:SER:HB3	2:A:122:LEU:HD12	1.93	0.51
7:F:79:HIS:CE1	7:F:159:ARG:HE	2.28	0.51
15:N:127:ARG:O	15:N:131:THR:HG23	2.11	0.51
1:2:75:G:H21	1:2:76:U:H4'	1.76	0.51
1:2:609:U:H2'	1:2:610:G:H8	1.76	0.51
1:2:1608:U:C6	1:2:1632:G:N2	2.79	0.51
1:2:1609:C:H41	1:2:1631:U:H3	1.59	0.51
1:2:1618:C:N3	17:P:52:LYS:NZ	2.46	0.51
3:B:123:ALA:HB2	3:B:165:ARG:HG3	1.92	0.51
3:B:126:ASP:OD2	3:B:136:ARG:NH1	2.44	0.51
22:U:63:ILE:HG22	22:U:65:THR:HG22	1.92	0.51
1:2:563:G:O2'	1:2:564:A:H8	1.93	0.51
1:2:1605:G:H22	1:2:1633:A:H3'	1.76	0.51
1:2:1692:U:H2'	1:2:1693:G:C8	2.46	0.51
7:F:117:ILE:HA	7:F:146:ARG:HH22	1.74	0.51
17:P:108:LYS:HE3	17:P:110:GLU:HB2	1.92	0.51
25:X:98:ASP:OD2	25:X:140:ARG:NH2	2.44	0.51
34:g:188:HIS:NE2	34:g:224:GLY:O	2.44	0.51
1:2:178:C:H2'	1:2:179:C:H6	1.75	0.51
1:2:1244:U:H5"	1:2:1244:U:H6	1.76	0.51
7:F:68:ILE:H	7:F:68:ILE:HD12	1.76	0.51
8:G:103:ASP:OD1	8:G:105:ASN:N	2.42	0.51
10:I:41:ARG:HG2	10:I:41:ARG:HH11	1.76	0.51
10:I:165:GLN:HB3	10:I:171:LEU:HD23	1.92	0.51
1:2:12:U:H2'	1:2:13:C:C6	2.46	0.51
1:2:92:A:H1'	6:E:3:ARG:HB2	1.93	0.51
1:2:1407:U:H5'	1:2:1407:U:H6	1.76	0.51
1:2:1467:C:OP1	19:R:2:GLY:N	2.44	0.51
1:2:1684:C:H3'	1:2:1685:U:H5'	1.92	0.51
8:G:85:ARG:O	8:G:87:ARG:NH1	2.44	0.51
1:2:942:G:H2'	1:2:943:U:C6	2.46	0.50
1:2:1536:G:N7	27:Z:104:ARG:NH1	2.59	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1614:A:H2'	1:2:1615:U:C6	2.46	0.50
1:2:1856:C:H2'	1:2:1857:G:C8	2.46	0.50
7:F:107:ASN:OD1	7:F:109:LEU:HB2	2.11	0.50
8:G:57:ASP:HA	8:G:106:LEU:HA	1.92	0.50
18:Q:49:TYR:HA	18:Q:52:LEU:HB3	1.93	0.50
28:a:24:THR:HG21	28:a:71:LEU:HA	1.93	0.50
1:2:463:C:O2'	1:2:466:G:O6	2.29	0.50
5:D:172:VAL:HG23	5:D:185:LYS:HG2	1.92	0.50
9:H:30:LEU:O	9:H:34:SER:OG	2.17	0.50
18:Q:19:ALA:HA	18:Q:74:GLY:HA3	1.92	0.50
21:T:31:PRO:HB3	21:T:102:ARG:HH21	1.75	0.50
34:g:40:ILE:HG13	34:g:59:LEU:HB2	1.93	0.50
1:2:24:C:H2'	1:2:25:A:C8	2.46	0.50
1:2:495:U:O2'	6:E:27:PHE:O	2.24	0.50
1:2:1043:G:H2'	1:2:1044:G:O4'	2.12	0.50
1:2:1337:C:H5"	22:U:67:LYS:HG2	1.93	0.50
1:2:1499:U:H2'	1:2:1500:G:H8	1.76	0.50
3:B:142:PHE:O	3:B:208:HIS:N	2.44	0.50
1:2:1215:C:H42	1:2:1220:A:N6	2.05	0.50
6:E:192:ILE:HB	6:E:243:GLY:HA3	1.93	0.50
7:F:100:ILE:O	7:F:104:THR:HG23	2.12	0.50
1:2:563:G:N7	11:J:172:ARG:NH2	2.54	0.50
1:2:910:G:H2'	1:2:911:C:C6	2.46	0.50
1:2:1591:C:H4'	7:F:88:MET:HE2	1.92	0.50
12:K:64:TRP:CE2	31:d:23:VAL:HG13	2.46	0.50
14:M:76:LEU:HD12	14:M:78:LYS:NZ	2.26	0.50
1:2:1244:U:H2'	1:2:1245:G:H8	1.74	0.50
1:2:1539:U:C4	1:2:1594:A:C6	3.00	0.50
1:2:205:G:H2'	1:2:206:G:H8	1.77	0.50
1:2:628:A:C4	5:D:179:GLN:HG3	2.47	0.50
1:2:1101:U:H2'	1:2:1102:G:C8	2.47	0.50
1:2:1263:U:H4'	1:2:1264:C:OP2	2.11	0.50
1:2:1613:G:H5"	17:P:42:ARG:NH1	2.26	0.50
1:2:1684:C:C5	1:2:1685:U:C5	2.99	0.50
5:D:48:ILE:N	5:D:48:ILE:HD12	2.27	0.50
1:2:811:A:H2'	1:2:812:A:C8	2.45	0.50
3:B:65:ARG:NH2	16:O:51:GLU:OE1	2.45	0.50
10:I:113:TYR:CE1	10:I:119:LEU:HB2	2.46	0.50
1:2:297:A:H5'	6:E:132:GLY:HA2	1.94	0.50
1:2:980:A:H2'	1:2:981:A:C8	2.46	0.50
1:2:1129:G:H3'	1:2:1130:G:N2	2.26	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1215:C:N4	1:2:1220:A:H61	2.05	0.50
1:2:1598:G:O2'	27:Z:81:GLY:N	2.44	0.50
20:S:45:LEU:HB3	20:S:52:LEU:HD21	1.94	0.50
20:S:81:ASP:HA	20:S:84:LEU:HD12	1.94	0.50
1:2:205:G:H2'	1:2:206:G:C8	2.46	0.49
1:2:634:A:H2'	1:2:635:G:C8	2.47	0.49
1:2:1353:A:OP1	2:A:139:TYR:OH	2.28	0.49
3:B:33:VAL:HG13	3:B:96:CYS:HB2	1.94	0.49
22:U:31:SER:HB3	22:U:107:GLU:HG2	1.94	0.49
1:2:5:U:H2'	1:2:6:G:C8	2.47	0.49
1:2:202:G:H2'	1:2:203:G:C8	2.48	0.49
1:2:223:C:H2'	1:2:224:A:C8	2.47	0.49
1:2:1198:G:H2'	1:2:1199:A:C8	2.47	0.49
1:2:1337:C:H2'	1:2:1338:G:C8	2.40	0.49
5:D:6:SER:OG	5:D:9:ARG:HD2	2.13	0.49
7:F:66:CYS:SG	7:F:70:GLU:HB3	2.52	0.49
9:H:154:ILE:O	9:H:186:ASN:N	2.34	0.49
14:M:81:ASP:OD1	14:M:83:LYS:NZ	2.44	0.49
16:O:45:THR:HG22	16:O:52:THR:HG22	1.94	0.49
18:Q:66:VAL:HG21	18:Q:92:LEU:HD21	1.94	0.49
1:2:17:C:O2'	1:2:1194:A:N1	2.40	0.49
12:K:49:MET:HE1	12:K:53:LYS:NZ	2.28	0.49
20:S:112:GLU:HA	20:S:115:LYS:HB2	1.95	0.49
1:2:604:A:H2'	1:2:605:A:C8	2.47	0.49
1:2:656:G:H5'	1:2:662:G:N2	2.28	0.49
1:2:948:C:H2'	1:2:949:G:H8	1.77	0.49
1:2:1019:C:H2'	1:2:1020:A:O4'	2.12	0.49
1:2:1387:G:H22	5:D:206:ASP:HB2	1.77	0.49
8:G:38:ALA:O	8:G:45:TRP:HB3	2.13	0.49
10:I:177:SER:OG	10:I:182:CYS:SG	2.70	0.49
16:O:61:LYS:HE3	16:O:80:ASP:OD2	2.12	0.49
20:S:13:LEU:HB2	20:S:20:ILE:HD11	1.95	0.49
33:f:118:ARG:HH21	33:f:133:ALA:HA	1.77	0.49
1:2:959:G:OP2	16:O:38:ASN:ND2	2.38	0.49
1:2:1042:A:H2'	1:2:1043:G:O4'	2.13	0.49
1:2:1388:A:H5"	19:R:45:LYS:HE2	1.92	0.49
1:2:1592:C:O2'	18:Q:45:ARG:NH2	2.45	0.49
17:P:118:GLU:HB3	20:S:119:ALA:HB1	1.93	0.49
1:2:359:U:OP2	25:X:18:ARG:HD2	2.13	0.49
1:2:1335:G:H4'	5:D:172:VAL:HG21	1.95	0.49
7:F:32:ASP:HB3	7:F:35:LEU:HB3	1.93	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:R:109:LEU:HG	19:R:111:PHE:CD2	2.42	0.49
1:2:377:G:H5”	10:I:98:LYS:HB3	1.95	0.49
1:2:1174:U:H2’	1:2:1175:G:H8	1.76	0.49
3:B:183:GLU:O	3:B:187:LYS:HG2	2.13	0.49
22:U:48:LEU:HB3	22:U:50:VAL:HG13	1.94	0.49
1:2:16:G:H2’	1:2:17:C:C6	2.48	0.49
1:2:103:A:OP2	1:2:356:C:N4	2.46	0.49
1:2:186:C:H2’	1:2:187:G:C8	2.48	0.49
1:2:973:C:O2	16:O:55:ARG:NH1	2.46	0.49
1:2:1223:A:H1’	1:2:1651:A:H4’	1.94	0.49
1:2:1511:U:H5’	1:2:1514:G:H22	1.76	0.49
1:2:1673:U:H5”	18:Q:78:VAL:HG12	1.94	0.49
17:P:57:LEU:HA	17:P:60:LEU:HG	1.93	0.49
17:P:84:ILE:HD13	17:P:89:MET:HE2	1.95	0.49
18:Q:93:VAL:HA	18:Q:105:LYS:HG3	1.94	0.49
34:g:157:SER:OG	34:g:164:ILE:N	2.44	0.49
1:2:848:U:H2’	1:2:849:A:H8	1.78	0.49
5:D:67:ARG:NH1	12:K:93:THR:OG1	2.46	0.49
5:D:127:MET:HE3	5:D:154:ASP:CB	2.36	0.49
6:E:128:LYS:HG2	6:E:140:VAL:HB	1.95	0.49
7:F:51:HIS:HA	7:F:86:LYS:HE2	1.95	0.49
10:I:134:GLU:H	10:I:134:GLU:CD	2.21	0.49
20:S:59:LEU:HD21	20:S:64:VAL:HG13	1.94	0.49
1:2:167:G:O2’	8:G:131:ARG:NH2	2.45	0.49
1:2:1084:A:OP1	1:2:1858:G:O2’	2.27	0.49
1:2:1330:G:N7	1:2:1493:C:H5”	2.28	0.49
1:2:1643:U:H2’	1:2:1644:C:C6	2.48	0.49
1:2:1706:G:H2’	1:2:1707:U:H6	1.78	0.49
7:F:200:ALA:O	7:F:204:ARG:HG2	2.13	0.49
19:R:30:THR:O	19:R:34:VAL:HG12	2.13	0.49
1:2:370:G:O2’	10:I:10:LYS:NZ	2.46	0.48
1:2:1392:U:H2’	1:2:1393:G:C8	2.48	0.48
1:2:1454:A:H5”	19:R:3:ARG:HE	1.77	0.48
1:2:1507:G:O6	33:f:80:ARG:NH2	2.46	0.48
16:O:39:ASP:HB3	16:O:68:GLU:HG2	1.95	0.48
18:Q:105:LYS:HA	18:Q:108:ILE:HG12	1.95	0.48
34:g:170:TRP:HA	34:g:194:TYR:HB2	1.95	0.48
1:2:65:C:N3	8:G:133:LEU:HA	2.28	0.48
1:2:85:A:H2’	1:2:86:C:C6	2.48	0.48
1:2:957:A:H3’	1:2:958:G:H21	1.78	0.48
1:2:1339:U:H2’	1:2:1340:U:C6	2.48	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:E:20:LEU:HD21	6:E:46:ILE:HD12	1.94	0.48
11:J:179:LYS:HD2	11:J:179:LYS:HA	1.52	0.48
19:R:19:LYS:C	19:R:20:TYR:HD1	2.21	0.48
1:2:808:A:H2	1:2:855:G:H22	1.60	0.48
1:2:1560:U:N3	1:2:1575:G:N1	2.41	0.48
10:I:119:LEU:HA	10:I:156:ALA:HB1	1.95	0.48
16:O:28:PHE:HZ	28:a:58:VAL:HG21	1.78	0.48
34:g:189:ILE:HG22	34:g:190:GLY:N	2.25	0.48
1:2:1240:A:H2'	1:2:1241:A:C8	2.47	0.48
3:B:34:LYS:O	3:B:98:THR:OG1	2.17	0.48
6:E:133:THR:O	6:E:134:LYS:HG2	2.13	0.48
7:F:96:ALA:HB2	7:F:170:ALA:O	2.13	0.48
34:g:61:GLY:O	34:g:88:ARG:NH1	2.47	0.48
4:C:147:VAL:HB	36:n:171:ILE:HG23	1.94	0.48
1:2:1005:G:H2'	1:2:1006:C:H6	1.78	0.48
1:2:1439:A:N7	1:2:1440:C:C2	2.81	0.48
1:2:1535:U:H1'	7:F:82:ASN:ND2	2.28	0.48
1:2:1608:U:H4'	20:S:130:ARG:NE	2.29	0.48
5:D:156:LEU:HD12	5:D:156:LEU:C	2.38	0.48
7:F:168:THR:OG1	7:F:171:GLU:OE2	2.31	0.48
13:L:121:GLN:HG2	13:L:147:LYS:HZ3	1.79	0.48
17:P:108:LYS:HE2	20:S:118:ARG:HH12	1.77	0.48
29:b:59:CYS:HG	29:b:61:THR:HG1	1.57	0.48
1:2:385:G:H3'	13:L:136:LYS:HB2	1.94	0.48
1:2:595:U:H2'	1:2:596:U:C6	2.48	0.48
1:2:929:G:H2'	1:2:930:C:O4'	2.14	0.48
4:C:236:PHE:O	4:C:240:THR:HG22	2.13	0.48
17:P:21:ASP:O	17:P:25:LEU:N	2.38	0.48
28:a:64:LEU:HD22	28:a:64:LEU:H	1.78	0.48
1:2:29:G:H2'	1:2:30:C:C6	2.49	0.48
1:2:77:A:N7	8:G:154:ARG:HD2	2.29	0.48
1:2:165:G:OP2	1:2:165:G:N2	2.39	0.48
1:2:1285:G:H1'	1:2:1313:A:N6	2.28	0.48
1:2:1705:C:H2'	1:2:1706:G:H8	1.77	0.48
18:Q:97:GLN:HB2	18:Q:105:LYS:HD3	1.95	0.48
25:X:46:HIS:CD2	25:X:103:ALA:HB2	2.49	0.48
1:2:1232:U:OP2	20:S:135:HIS:NE2	2.45	0.48
1:2:1407:U:H1'	18:Q:11:GLN:HE22	1.76	0.48
4:C:202:THR:HG22	11:J:54:ARG:HH12	1.78	0.48
6:E:151:ASP:OD2	8:G:216:ARG:NH2	2.47	0.48
8:G:159:ARG:NH2	8:G:171:THR:O	2.47	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:L:56:ILE:O	13:L:84:ARG:NH2	2.46	0.48
19:R:103:LYS:HD3	19:R:119:VAL:HG22	1.96	0.48
22:U:27:ARG:HG2	22:U:84:ILE:HG22	1.96	0.48
1:2:194:C:H5"	1:2:194:C:H6	1.79	0.47
1:2:1022:U:O2	15:N:128:TYR:CE2	2.67	0.47
11:J:45:ARG:O	11:J:49:THR:HG23	2.13	0.47
17:P:20:VAL:HG11	17:P:36:LEU:HD13	1.96	0.47
34:g:64:HIS:HB3	34:g:83:TRP:HB2	1.96	0.47
1:2:870:A:H4'	1:2:871:U:O5'	2.14	0.47
7:F:39:ILE:HG23	7:F:68:ILE:HG12	1.95	0.47
13:L:121:GLN:HG2	13:L:147:LYS:NZ	2.29	0.47
16:O:117:ARG:HD3	16:O:121:ARG:HH21	1.79	0.47
1:2:1276:A:H61	1:2:1321:G:H2'	1.79	0.47
2:A:5:LEU:HD13	23:V:41:LYS:HA	1.96	0.47
2:A:52:LYS:HG3	19:R:109:LEU:HD13	1.96	0.47
3:B:217:MET:HA	3:B:217:MET:HE2	1.96	0.47
4:C:167:ARG:HB3	4:C:177:PRO:HB2	1.96	0.47
5:D:21:LEU:HD12	5:D:25:LEU:HD13	1.96	0.47
10:I:149:TYR:O	10:I:153:LYS:HD3	2.15	0.47
19:R:54:VAL:O	19:R:58:MET:HG2	2.14	0.47
1:2:380:G:N1	1:2:383:G:OP2	2.40	0.47
1:2:1004:U:H2'	1:2:1005:G:H8	1.80	0.47
1:2:1495:G:H2'	1:2:1496:U:O4'	2.14	0.47
1:2:1649:U:H2'	1:2:1675:A:H62	1.78	0.47
5:D:74:GLN:HB2	5:D:84:VAL:HG21	1.96	0.47
10:I:37:LYS:NZ	10:I:95:THR:OG1	2.44	0.47
11:J:78:LEU:CB	11:J:92:MET:HE3	2.42	0.47
16:O:142:ARG:HG3	16:O:143:LYS:N	2.29	0.47
21:T:75:MET:CE	21:T:79:TYR:CE2	2.94	0.47
25:X:127:ASN:O	25:X:127:ASN:ND2	2.34	0.47
1:2:949:G:H2'	1:2:950:C:C6	2.49	0.47
1:2:1297:U:H5'	17:P:77:LYS:HZ3	1.79	0.47
1:2:1864:U:OP2	28:a:5:ARG:NH2	2.41	0.47
5:D:85:GLU:C	5:D:86:LEU:HD22	2.39	0.47
5:D:106:ARG:CD	5:D:174:HIS:O	2.63	0.47
13:L:39:ASN:OD1	13:L:39:ASN:O	2.33	0.47
15:N:46:THR:HG21	15:N:86:GLU:HG3	1.95	0.47
27:Z:49:LEU:HG	27:Z:50:PHE:N	2.30	0.47
1:2:809:A:H2'	1:2:810:A:O4'	2.14	0.47
1:2:1713:C:H2'	1:2:1714:U:C6	2.49	0.47
1:2:1733:U:H2'	1:2:1734:G:O4'	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:H:28:LEU:O	9:H:32:MET:HG2	2.15	0.47
9:H:146:VAL:HG12	24:W:42:MET:HE1	1.97	0.47
11:J:114:VAL:HG11	11:J:135:ILE:HG21	1.96	0.47
34:g:5:MET:HB3	34:g:270:LEU:HD11	1.95	0.47
35:h:2:ARG:HB3	35:h:5:TRP:CD1	2.49	0.47
1:2:57:U:OP1	1:2:504:G:O2'	2.30	0.47
1:2:212:C:H2'	1:2:213:G:C8	2.50	0.47
1:2:376:A:H2'	1:2:377:G:O4'	2.14	0.47
1:2:634:A:H2'	1:2:635:G:H8	1.79	0.47
1:2:1174:U:H5"	1:2:1717:C:H5'	1.97	0.47
1:2:1201:U:H2'	1:2:1202:U:C6	2.49	0.47
1:2:1262:C:OP1	31:d:12:ARG:NH2	2.48	0.47
1:2:1300:U:O2'	17:P:51:ARG:NH2	2.47	0.47
1:2:1533:A:O2'	1:2:1536:G:H1'	2.15	0.47
1:2:1648:G:C8	18:Q:125:ARG:HB3	2.50	0.47
1:2:1689:C:H2'	1:2:1690:U:C6	2.50	0.47
1:2:1851:A:H5'	35:h:1:MET:HE3	1.97	0.47
2:A:118:GLU:O	4:C:65:LYS:NZ	2.47	0.47
4:C:132:ASP:OD1	4:C:136:HIS:HB2	2.14	0.47
4:C:191:VAL:HG11	4:C:236:PHE:HA	1.96	0.47
7:F:101:HIS:ND1	7:F:108:PRO:HD3	2.30	0.47
11:J:124:HIS:CE1	32:e:35:ARG:HB2	2.50	0.47
11:J:134:HIS:HB3	11:J:159:PHE:HE1	1.80	0.47
12:K:21:MET:HB3	12:K:69:TRP:CD2	2.50	0.47
16:O:129:ILE:HG21	28:a:44:ILE:HG21	1.97	0.47
16:O:145:GLY:O	28:a:22:ARG:NH2	2.47	0.47
19:R:76:GLU:O	19:R:79:GLU:HG3	2.15	0.47
21:T:12:GLN:HB3	21:T:16:ARG:NH1	2.29	0.47
34:g:159:ASN:HD22	34:g:204:GLY:HA3	1.79	0.47
1:2:77:A:O2'	8:G:174:PRO:O	2.27	0.47
1:2:388:U:H2'	1:2:389:A:H8	1.78	0.47
4:C:106:VAL:HA	4:C:128:VAL:HG22	1.97	0.47
5:D:175:VAL:HG12	5:D:177:LEU:HG	1.97	0.47
9:H:95:ILE:HD11	9:H:133:LEU:HG	1.97	0.47
10:I:148:LYS:O	10:I:151:GLU:HG2	2.15	0.47
14:M:74:ILE:HG23	14:M:128:PHE:HZ	1.80	0.47
14:M:85:LEU:HD23	14:M:88:TRP:HE3	1.80	0.47
18:Q:9:SER:HA	18:Q:24:HIS:CD2	2.50	0.47
19:R:32:LYS:HB2	19:R:47:ARG:HH11	1.80	0.47
19:R:34:VAL:O	19:R:38:ILE:HG13	2.15	0.47
34:g:79:LEU:HD11	34:g:87:LEU:HD22	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:g:237:ASN:OD1	34:g:238:ALA:N	2.48	0.47
1:2:28:U:H2'	1:2:29:G:C8	2.48	0.47
1:2:302:A:O2'	10:I:64:ASN:OD1	2.27	0.47
1:2:495:U:H2'	1:2:496:C:O4'	2.15	0.47
1:2:1119:A:H2'	1:2:1120:U:O4'	2.15	0.47
1:2:1335:G:O2'	1:2:1336:C:OP1	2.30	0.47
9:H:179:LYS:HD2	9:H:179:LYS:HA	1.80	0.47
29:b:59:CYS:SG	29:b:61:THR:OG1	2.70	0.47
2:A:206:ASP:O	2:A:210:ILE:HD12	2.14	0.47
6:E:102:ILE:HG21	6:E:239:PRO:HG3	1.97	0.47
15:N:91:LEU:HB3	15:N:122:ILE:HG12	1.97	0.47
18:Q:37:ARG:HH12	18:Q:41:MET:HB3	1.80	0.47
27:Z:99:LEU:HD21	27:Z:102:LYS:HB3	1.97	0.47
28:a:94:ASP:OD1	28:a:96:THR:HG22	2.15	0.47
1:2:293:C:O2'	1:2:294:U:H3'	2.14	0.46
1:2:944:A:H1'	16:O:136:PRO:HB3	1.97	0.46
1:2:1709:G:N3	1:2:1709:G:H2'	2.30	0.46
1:2:1751:C:N3	1:2:1782:G:N1	2.63	0.46
5:D:5:ILE:HD11	5:D:9:ARG:HH11	1.81	0.46
18:Q:41:MET:SD	21:T:10:ASN:HA	2.55	0.46
18:Q:57:LEU:HD21	18:Q:112:LEU:HA	1.97	0.46
34:g:297:THR:OG1	34:g:311:GLN:CD	2.58	0.46
1:2:171:A:H5"	8:G:177:GLN:HG2	1.96	0.46
1:2:1129:G:H2'	1:2:1130:G:N3	2.30	0.46
1:2:1183:A:H2'	1:2:1184:G:H8	1.79	0.46
1:2:1560:U:O2	1:2:1575:G:N2	2.44	0.46
2:A:12:GLU:HG3	19:R:111:PHE:CE1	2.51	0.46
6:E:175:PHE:HE1	6:E:198:ARG:HD2	1.81	0.46
21:T:11:GLN:HB3	21:T:62:ARG:NH1	2.20	0.46
22:U:65:THR:HG21	31:d:43:PHE:HE2	1.80	0.46
26:Y:58:PHE:CE1	26:Y:74:MET:HE2	2.50	0.46
1:2:683:G:H4'	24:W:4:MET:HG2	1.97	0.46
1:2:1723:G:H1	1:2:1811:C:H42	1.63	0.46
4:C:183:LYS:HA	4:C:195:LEU:O	2.15	0.46
8:G:5:ILE:HG21	8:G:45:TRP:CH2	2.50	0.46
15:N:26:LEU:HD11	15:N:28:LEU:HD12	1.97	0.46
16:O:38:ASN:C	16:O:69:SER:HB3	2.41	0.46
1:2:1212:G:H1	1:2:1687:C:H42	1.64	0.46
1:2:1550:G:OP1	5:D:9:ARG:NE	2.47	0.46
1:2:1682:C:H5"	7:F:130:ARG:NH1	2.31	0.46
5:D:16:ILE:HD11	31:d:36:LEU:HD23	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:D:157:MET:HE3	5:D:157:MET:HB3	1.73	0.46
9:H:8:ILE:HA	9:H:24:SER:HB2	1.97	0.46
12:K:14:LEU:HA	12:K:17:LYS:CG	2.44	0.46
14:M:59:PRO:HA	14:M:62:VAL:HG22	1.98	0.46
18:Q:100:VAL:HG23	18:Q:101:ASP:OD1	2.15	0.46
1:2:30:C:O2'	1:2:596:U:OP1	2.34	0.46
1:2:453:C:O2'	8:G:92:ARG:O	2.22	0.46
1:2:1539:U:C6	1:2:1540:G:H1'	2.51	0.46
1:2:1673:U:OP1	18:Q:76:GLY:HA3	2.16	0.46
1:2:1690:U:H2'	1:2:1691:U:C6	2.51	0.46
1:2:1844:U:OP1	35:h:11:ARG:NH2	2.48	0.46
7:F:50:PRO:HB2	7:F:73:THR:HG21	1.98	0.46
20:S:9:PHE:CE1	27:Z:49:LEU:HD22	2.51	0.46
24:W:3:ARG:HD3	24:W:6:VAL:HG12	1.97	0.46
27:Z:91:LEU:HD22	27:Z:97:ILE:HB	1.98	0.46
32:e:25:LYS:HB2	32:e:25:LYS:HE3	1.75	0.46
1:2:501:C:H3'	1:2:501:C:H6	1.80	0.46
1:2:687:C:O2'	9:H:116:ARG:NH2	2.49	0.46
1:2:1232:U:H3'	1:2:1233:G:H8	1.81	0.46
1:2:1426:U:O2'	18:Q:36:GLY:O	2.26	0.46
3:B:137:LEU:HG	3:B:215:VAL:HG22	1.98	0.46
5:D:5:ILE:HG12	5:D:9:ARG:HD3	1.98	0.46
5:D:127:MET:HE1	5:D:133:GLY:HA2	1.97	0.46
7:F:101:HIS:O	7:F:105:GLY:N	2.49	0.46
7:F:188:TYR:CZ	7:F:192:LYS:HD2	2.50	0.46
34:g:46:THR:OG1	34:g:48:ASP:OD1	2.26	0.46
1:2:798:G:H1'	9:H:108:SER:H	1.81	0.46
4:C:62:PRO:HB2	4:C:68:ARG:HG2	1.98	0.46
4:C:255:LEU:HD13	23:V:23:ILE:HD11	1.97	0.46
7:F:30:ILE:HG22	7:F:33:ILE:H	1.80	0.46
18:Q:134:GLY:HA3	18:Q:140:ARG:HA	1.97	0.46
22:U:65:THR:O	22:U:77:TRP:HA	2.15	0.46
27:Z:69:THR:H	27:Z:72:VAL:HB	1.81	0.46
1:2:1005:G:H2'	1:2:1006:C:C6	2.51	0.46
1:2:1269:G:O2'	1:2:1270:G:O4'	2.28	0.46
1:2:1668:U:OP1	18:Q:133:GLY:N	2.47	0.46
9:H:43:LEU:HB3	9:H:72:PHE:CE2	2.51	0.46
12:K:24:LYS:HD2	12:K:25:LYS:H	1.81	0.46
23:V:62:MET:HE1	29:b:3:LEU:HD11	1.98	0.46
1:2:1294:G:H1	33:f:138:ARG:HH22	1.64	0.46
1:2:1535:U:P	7:F:169:ILE:HG12	2.56	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:C:187:ARG:HH11	4:C:187:ARG:HB3	1.81	0.46
13:L:126:VAL:HG12	13:L:145:VAL:HG22	1.97	0.46
15:N:64:ARG:HD3	15:N:70:LYS:HG2	1.98	0.46
19:R:76:GLU:N	19:R:76:GLU:OE1	2.48	0.46
20:S:42:HIS:CE1	21:T:45:LEU:HD22	2.50	0.46
24:W:101:PHE:HA	24:W:113:HIS:CE1	2.51	0.46
34:g:33:SER:HB2	34:g:43:TRP:HE1	1.79	0.46
1:2:641:A:H2'	1:2:642:U:O4'	2.16	0.46
1:2:685:A:H2'	1:2:686:U:O4'	2.15	0.46
1:2:945:U:H2'	1:2:946:U:C6	2.51	0.46
1:2:1231:C:O2	1:2:1528:G:N2	2.49	0.46
1:2:1275:G:O2'	1:2:1276:A:N7	2.48	0.46
15:N:45:LEU:HD23	15:N:49:GLN:HB3	1.98	0.46
20:S:24:ARG:HB3	20:S:29:ALA:HB2	1.97	0.46
34:g:163:PRO:HD2	34:g:179:LEU:HD21	1.97	0.46
1:2:867:G:H2'	1:2:868:G:C8	2.51	0.45
1:2:1464:C:H2'	1:2:1465:A:C8	2.51	0.45
6:E:107:GLY:HA2	6:E:189:LEU:HD22	1.98	0.45
7:F:107:ASN:O	7:F:108:PRO:C	2.58	0.45
12:K:24:LYS:HD3	12:K:66:HIS:CE1	2.51	0.45
16:O:30:VAL:HG23	16:O:47:LEU:HA	1.99	0.45
16:O:98:ARG:HB3	16:O:132:VAL:HG23	1.98	0.45
17:P:56:LEU:HD12	17:P:56:LEU:H	1.80	0.45
1:2:1004:U:H2'	1:2:1005:G:C8	2.51	0.45
9:H:138:GLU:OE2	15:N:21:SER:OG	2.30	0.45
9:H:170:VAL:C	9:H:172:THR:H	2.24	0.45
11:J:33:GLY:HA3	32:e:38:TYR:CG	2.51	0.45
15:N:19:ARG:NH2	29:b:83:GLN:OE1	2.49	0.45
19:R:17:ILE:HG21	19:R:69:ILE:HD12	1.99	0.45
21:T:127:GLY:O	21:T:131:LEU:HG	2.16	0.45
1:2:1297:U:H5'	17:P:77:LYS:NZ	2.31	0.45
1:2:1441:U:H1'	1:2:1442:U:H5	1.80	0.45
1:2:1599:U:N3	7:F:165:ASN:O	2.49	0.45
13:L:80:MET:HE3	13:L:120:VAL:CG1	2.45	0.45
18:Q:9:SER:HA	18:Q:24:HIS:HD2	1.81	0.45
20:S:119:ALA:O	20:S:123:LEU:HG	2.16	0.45
34:g:35:SER:HB3	34:g:37:ASP:OD1	2.15	0.45
1:2:1221:G:H2'	1:2:1222:G:H8	1.81	0.45
1:2:1325:G:H2'	1:2:1327:G:C8	2.51	0.45
1:2:1452:A:H4'	1:2:1453:C:O5'	2.16	0.45
5:D:119:CYS:O	5:D:122:VAL:HG12	2.15	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:E:19:MET:SD	6:E:108:ARG:HD2	2.56	0.45
12:K:46:MET:O	12:K:50:GLN:HG2	2.16	0.45
19:R:33:ARG:O	19:R:36:GLU:HG2	2.17	0.45
25:X:63:ASN:ND2	25:X:114:ASP:OD2	2.31	0.45
34:g:10:THR:HG21	34:g:306:LEU:HD13	1.97	0.45
1:2:53:C:O2'	1:2:507:G:N7	2.42	0.45
1:2:747:U:H3	1:2:795:A:H61	1.64	0.45
1:2:899:U:H4'	1:2:900:C:OP1	2.17	0.45
1:2:943:U:C2	1:2:944:A:C8	3.05	0.45
6:E:73:ASP:HA	6:E:164:LEU:HD13	1.98	0.45
7:F:27:ASP:O	7:F:29:GLN:NE2	2.49	0.45
9:H:85:LYS:HE3	9:H:85:LYS:HB3	1.67	0.45
14:M:89:VAL:HG23	14:M:91:LEU:HB2	1.97	0.45
25:X:25:LYS:HB3	25:X:25:LYS:HE3	1.76	0.45
1:2:443:U:H2'	1:2:444:G:O4'	2.16	0.45
1:2:1025:U:H2'	1:2:1026:C:O4'	2.16	0.45
1:2:1231:C:N3	1:2:1528:G:N1	2.64	0.45
1:2:1474:A:H2'	1:2:1475:G:C8	2.51	0.45
1:2:1553:C:N4	5:D:77:PHE:O	2.41	0.45
7:F:101:HIS:CE1	7:F:106:GLU:O	2.69	0.45
9:H:157:HIS:ND1	9:H:157:HIS:N	2.64	0.45
34:g:171:ASP:OD1	34:g:171:ASP:N	2.47	0.45
1:2:35:C:H5"	1:2:579:C:H5"	1.97	0.45
1:2:502:C:H4'	6:E:62:LYS:HD2	1.99	0.45
1:2:844:U:OP1	6:E:240:ARG:NH2	2.50	0.45
1:2:1565:C:N4	1:2:1566:G:O6	2.49	0.45
7:F:85:LYS:O	7:F:89:THR:HG23	2.16	0.45
8:G:222:GLU:O	8:G:225:GLN:HG2	2.16	0.45
30:c:29:GLN:OE1	30:c:67:ARG:NH2	2.49	0.45
1:2:395:G:H5'	13:L:82:MET:SD	2.57	0.45
1:2:1268:C:H2'	1:2:1269:G:C5	2.52	0.45
1:2:1485:U:H3'	1:2:1486:A:C8	2.51	0.45
1:2:1530:U:O3'	21:T:84:ARG:NH2	2.50	0.45
5:D:23:GLU:HG2	12:K:64:TRP:CD1	2.52	0.45
6:E:11:ARG:HA	6:E:28:ALA:HB2	1.97	0.45
13:L:37:TYR:CE2	13:L:51:ILE:HG23	2.52	0.45
30:c:29:GLN:NE2	30:c:66:ARG:O	2.50	0.45
1:2:1407:U:H6	1:2:1407:U:C5'	2.30	0.45
1:2:1562:C:OP1	21:T:72:VAL:N	2.37	0.45
1:2:1717:C:H4'	35:h:21:ARG:HH11	1.82	0.45
5:D:154:ASP:OD1	5:D:155:GLY:N	2.50	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:F:100:ILE:C	7:F:104:THR:HG23	2.42	0.45
8:G:56:ASN:ND2	8:G:60:GLY:O	2.49	0.45
11:J:111:GLN:NE2	11:J:127:ARG:HB2	2.32	0.45
20:S:41:ALA:HA	20:S:44:VAL:HG22	1.99	0.45
28:a:36:ILE:HG21	28:a:78:VAL:HG21	1.99	0.45
30:c:36:ASP:N	30:c:36:ASP:OD1	2.47	0.45
34:g:114:SER:HG	34:g:118:ARG:H	1.64	0.45
1:2:472:C:O2'	1:2:474:G:OP1	2.29	0.45
1:2:600:G:O3'	36:n:185:ASN:ND2	2.50	0.45
1:2:1060:A:O2'	1:2:1062:A:N7	2.35	0.45
1:2:1289:U:C5	1:2:1310:U:H6	2.35	0.45
1:2:1329:U:O2'	1:2:1332:A:OP2	2.32	0.45
1:2:1512:C:O2'	1:2:1513:C:P	2.75	0.45
1:2:1613:G:H8	17:P:42:ARG:HH22	1.64	0.45
1:2:1617:G:H2'	1:2:1619:A:OP2	2.17	0.45
1:2:1827:U:H2'	1:2:1828:C:C6	2.52	0.45
9:H:69:LEU:O	9:H:73:GLN:HG3	2.17	0.45
13:L:82:MET:HE3	13:L:85:THR:HB	1.99	0.45
21:T:41:LYS:HA	21:T:41:LYS:HD3	1.79	0.45
1:2:814:U:OP1	6:E:22:LYS:NZ	2.50	0.44
1:2:988:C:H5"	3:B:116:LYS:HG3	1.98	0.44
1:2:1128:C:H2'	1:2:1129:G:H8	1.82	0.44
1:2:1232:U:H3'	1:2:1233:G:C8	2.52	0.44
1:2:1528:G:H2'	1:2:1529:C:C6	2.51	0.44
2:A:85:ARG:HD3	2:A:203:PHE:O	2.17	0.44
7:F:149:GLN:O	7:F:153:LEU:HG	2.18	0.44
20:S:92:ASP:OD1	20:S:92:ASP:N	2.47	0.44
22:U:46:LYS:HB2	22:U:48:LEU:HD13	1.99	0.44
34:g:114:SER:HB3	34:g:119:GLN:HB2	1.99	0.44
1:2:85:A:H2'	1:2:86:C:H6	1.82	0.44
1:2:332:G:O2'	1:2:333:G:O5'	2.32	0.44
1:2:1134:G:H2'	1:2:1135:C:C6	2.53	0.44
1:2:1236:G:H21	1:2:1522:A:N6	2.16	0.44
1:2:1285:G:N7	14:M:36:ARG:HB2	2.33	0.44
1:2:1521:C:C5	20:S:137:LYS:HA	2.51	0.44
1:2:1657:G:H4'	31:d:33:LYS:HZ2	1.82	0.44
1:2:1807:C:H5'	1:2:1808:U:OP2	2.17	0.44
5:D:135:GLU:HG3	5:D:187:LYS:HB2	1.99	0.44
8:G:221:ARG:HE	8:G:221:ARG:HB3	1.54	0.44
14:M:42:LEU:HD22	14:M:68:LEU:HD21	1.98	0.44
15:N:70:LYS:HD3	15:N:73:ARG:HH21	1.83	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:P:44:ARG:NH1	17:P:115:TYR:OH	2.50	0.44
18:Q:81:ILE:HD11	18:Q:85:ARG:HH21	1.81	0.44
18:Q:100:VAL:HG23	18:Q:101:ASP:N	2.31	0.44
23:V:30:ALA:O	23:V:60:ARG:HD3	2.17	0.44
27:Z:103:HIS:HB3	27:Z:106:GLN:H	1.82	0.44
34:g:36:ARG:C	34:g:38:LYS:H	2.25	0.44
1:2:1657:G:H5'	1:2:1660:C:H42	1.82	0.44
3:B:146:ARG:HD2	3:B:146:ARG:HA	1.81	0.44
7:F:18:LYS:HB3	7:F:23:TRP:O	2.18	0.44
8:G:31:ARG:O	8:G:34:THR:OG1	2.27	0.44
10:I:109:TYR:O	10:I:113:TYR:HB2	2.18	0.44
11:J:125:HIS:HA	11:J:128:VAL:HG22	1.99	0.44
14:M:60:MET:HA	14:M:63:LYS:HE3	1.99	0.44
18:Q:140:ARG:HG2	18:Q:140:ARG:NH1	2.31	0.44
25:X:59:ALA:HB1	25:X:114:ASP:HB3	1.99	0.44
31:d:27:ARG:O	31:d:30:LEU:HB2	2.17	0.44
34:g:116:ASP:OD1	34:g:118:ARG:NH1	2.47	0.44
34:g:256:ILE:HG12	34:g:289:LEU:HD11	1.99	0.44
1:2:115:U:H2'	1:2:116:U:C6	2.52	0.44
1:2:535:G:O2'	1:2:536:A:OP1	2.30	0.44
1:2:853:C:H2'	1:2:854:A:C8	2.51	0.44
1:2:953:C:H2'	1:2:954:U:O4'	2.18	0.44
1:2:955:A:N1	1:2:968:U:O2'	2.50	0.44
1:2:1204:A:O2'	1:2:1700:C:OP2	2.35	0.44
5:D:156:LEU:HD12	5:D:189:MET:HE3	1.98	0.44
14:M:13:ASP:OD1	14:M:13:ASP:N	2.49	0.44
14:M:32:ALA:HB3	14:M:106:CYS:HB2	1.99	0.44
35:h:19:LYS:HE2	35:h:19:LYS:CA	2.47	0.44
1:2:982:G:H2'	1:2:983:A:C8	2.52	0.44
1:2:1220:A:H1'	1:2:1677:U:H2'	1.99	0.44
1:2:1374:C:O2'	1:2:1464:C:O2	2.33	0.44
1:2:1495:G:C5	31:d:41:GLN:HG2	2.52	0.44
1:2:1551:U:OP2	1:2:1577:G:N2	2.51	0.44
1:2:1621:U:O2'	1:2:1622:U:H2'	2.17	0.44
2:A:15:VAL:HG21	19:R:111:PHE:CD2	2.52	0.44
3:B:110:MET:HE2	3:B:213:ARG:HD2	1.99	0.44
5:D:8:LYS:HB2	22:U:61:LEU:HD11	2.00	0.44
6:E:141:THR:CG2	6:E:145:ARG:H	2.28	0.44
7:F:101:HIS:C	7:F:101:HIS:CD2	2.95	0.44
16:O:117:ARG:HH11	28:a:49:ALA:HA	1.82	0.44
27:Z:61:GLU:HA	27:Z:64:ASN:HB2	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:530:U:H2'	1:2:531:A:C8	2.52	0.44
1:2:1443:C:O2	18:Q:71:ARG:NH2	2.50	0.44
1:2:1684:C:C3'	1:2:1685:U:C5'	2.95	0.44
4:C:108:LYS:HB2	4:C:233:LEU:HD22	1.99	0.44
4:C:202:THR:HG23	11:J:54:ARG:HH22	1.82	0.44
7:F:101:HIS:O	7:F:102:LEU:C	2.61	0.44
25:X:127:ASN:HD22	25:X:127:ASN:C	2.23	0.44
1:2:116:U:H3	1:2:347:G:H1	1.66	0.44
1:2:178:C:H2'	1:2:179:C:C6	2.51	0.44
1:2:433:A:H2'	1:2:434:G:C8	2.53	0.44
1:2:1289:U:OP1	1:2:1290:G:N1	2.51	0.44
1:2:1322:G:H2'	1:2:1323:U:O4'	2.18	0.44
1:2:1571:G:O2'	1:2:1572:C:OP1	2.29	0.44
1:2:1709:G:C3'	1:2:1710:C:H5'	2.48	0.44
1:2:1797:U:H2'	1:2:1798:C:H6	1.80	0.44
4:C:183:LYS:NZ	24:W:91:ASN:O	2.50	0.44
4:C:199:PRO:HG3	11:J:58:ARG:CZ	2.48	0.44
10:I:26:LYS:HD2	10:I:29:LEU:HD23	2.00	0.44
13:L:79:LYS:HB2	13:L:87:VAL:HB	2.00	0.44
28:a:75:VAL:HA	28:a:78:VAL:HG12	1.99	0.44
1:2:658:U:O2	25:X:17:ARG:NH1	2.50	0.44
1:2:747:U:N3	9:H:109:ARG:HG2	2.33	0.44
1:2:1266:C:N4	1:2:1267:C:H41	2.16	0.44
1:2:1534:C:H5	1:2:1598:G:H5'	1.83	0.44
6:E:126:VAL:HG22	6:E:156:VAL:HA	2.00	0.44
7:F:107:ASN:O	7:F:109:LEU:N	2.50	0.44
8:G:23:LYS:HE2	8:G:41:LEU:HA	2.00	0.44
9:H:69:LEU:HD13	9:H:96:ALA:HB2	1.99	0.44
10:I:174:CYS:O	10:I:187:GLY:HA3	2.17	0.44
16:O:66:ARG:NH1	16:O:66:ARG:HB2	2.33	0.44
18:Q:29:ASN:HB2	18:Q:31:LEU:HG	1.99	0.44
34:g:247:TRP:NE1	34:g:267:VAL:HG21	2.33	0.44
1:2:338:G:H2'	1:2:339:A:H8	1.82	0.44
1:2:1335:G:HO2'	1:2:1336:C:P	2.40	0.44
1:2:1593:C:O2'	21:T:16:ARG:NH2	2.51	0.44
1:2:1844:U:H2'	1:2:1845:A:C8	2.53	0.44
3:B:71:LEU:HD22	3:B:84:PHE:HE1	1.83	0.44
6:E:94:LYS:O	26:Y:16:ARG:NH2	2.51	0.44
11:J:47:LYS:HB3	11:J:47:LYS:HE3	1.67	0.44
16:O:128:ARG:HE	28:a:62:TYR:HE1	1.64	0.44
1:2:384:U:H5'	13:L:133:PRO:O	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1293:A:H4'	17:P:62:LYS:NZ	2.33	0.43
1:2:1564:C:H5	21:T:101:ARG:NH2	2.16	0.43
10:I:139:LYS:HE3	10:I:141:ARG:NE	2.31	0.43
27:Z:88:LEU:HD13	27:Z:109:TYR:CZ	2.53	0.43
27:Z:97:ILE:HG13	27:Z:110:THR:O	2.17	0.43
1:2:54:A:OP1	26:Y:111:LYS:NZ	2.31	0.43
1:2:90:G:H2'	1:2:91:A:O4'	2.18	0.43
1:2:1315:U:H1'	12:K:2:LEU:HD21	2.00	0.43
1:2:1533:A:O3'	1:2:1534:C:H4'	2.18	0.43
1:2:1591:C:H2'	1:2:1592:C:C5	2.53	0.43
1:2:1648:G:O2'	1:2:1674:G:O6	2.35	0.43
1:2:1688:C:H2'	1:2:1689:C:C6	2.54	0.43
1:2:1706:G:H1	1:2:1828:C:H42	1.66	0.43
3:B:119:THR:HG21	3:B:156:ALA:H	1.83	0.43
7:F:104:THR:HG22	7:F:178:ILE:CD1	2.44	0.43
8:G:103:ASP:OD1	8:G:103:ASP:C	2.60	0.43
30:c:18:LEU:HD11	30:c:43:ILE:HD12	1.99	0.43
34:g:196:ASN:OD1	34:g:196:ASN:N	2.51	0.43
34:g:238:ALA:HB2	34:g:288:SER:HA	1.99	0.43
1:2:17:C:H4'	1:2:1166:G:C8	2.53	0.43
1:2:1650:A:H2'	1:2:1651:A:O4'	2.18	0.43
4:C:105:GLU:HB3	4:C:216:MET:HE1	2.00	0.43
4:C:203:GLY:H	4:C:221:ASP:HB3	1.83	0.43
12:K:5:LYS:HE3	12:K:9:ILE:HD12	1.99	0.43
21:T:38:LYS:NZ	21:T:43:LYS:O	2.31	0.43
34:g:42:MET:HE2	34:g:42:MET:HB3	1.78	0.43
34:g:217:MET:HA	34:g:217:MET:HE2	1.99	0.43
1:2:406:U:H5"	1:2:407:G:N2	2.33	0.43
1:2:639:C:O2'	1:2:640:A:H8	2.02	0.43
1:2:1182:A:O2'	1:2:1845:A:OP1	2.25	0.43
4:C:74:LYS:HD3	4:C:74:LYS:HA	1.64	0.43
5:D:109:LEU:HD23	5:D:109:LEU:HA	1.72	0.43
5:D:132:LYS:HB3	5:D:189:MET:HG2	1.99	0.43
7:F:87:LEU:HB2	7:F:88:MET:CE	2.47	0.43
7:F:188:TYR:HA	7:F:191:LYS:HD3	2.00	0.43
21:T:49:ASP:C	21:T:51:ASN:H	2.26	0.43
23:V:74:LYS:HE3	23:V:74:LYS:HB2	1.63	0.43
34:g:73:SER:OG	34:g:117:ASN:OD1	2.19	0.43
34:g:216:ALA:O	34:g:217:MET:HE2	2.17	0.43
1:2:86:C:O2'	1:2:171:A:N1	2.42	0.43
1:2:1046:U:H2'	1:2:1047:C:C6	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1218:C:H2'	1:2:1219:C:C6	2.54	0.43
1:2:1742:C:C2	1:2:1743:G:C8	3.06	0.43
2:A:134:LEU:O	2:A:137:ALA:HB3	2.17	0.43
9:H:71:SER:HA	9:H:74:LYS:HG3	2.01	0.43
15:N:72:LEU:HD13	15:N:76:LYS:HE3	2.01	0.43
21:T:113:VAL:HG13	21:T:121:ARG:HB3	2.00	0.43
34:g:45:LEU:HD22	34:g:52:TYR:CE2	2.54	0.43
34:g:191:HIS:CE1	34:g:215:GLN:HE22	2.37	0.43
1:2:823:U:H5	11:J:143:ASN:HB3	1.84	0.43
1:2:1013:U:C2	1:2:1014:G:C8	3.06	0.43
1:2:1430:C:N4	1:2:1431:G:O6	2.51	0.43
2:A:203:PHE:HZ	19:R:91:LEU:HD13	1.84	0.43
3:B:125:VAL:CG1	3:B:169:MET:HG2	2.49	0.43
3:B:128:LYS:HE3	3:B:128:LYS:HB3	1.81	0.43
5:D:5:ILE:HG13	5:D:6:SER:N	2.34	0.43
5:D:55:THR:HA	5:D:58:VAL:HG12	1.99	0.43
7:F:107:ASN:C	7:F:109:LEU:N	2.75	0.43
16:O:56:VAL:HG22	16:O:81:VAL:CG2	2.45	0.43
17:P:17:TYR:O	17:P:20:VAL:HG12	2.18	0.43
17:P:57:LEU:HD13	17:P:88:GLU:OE1	2.19	0.43
18:Q:37:ARG:NH1	18:Q:41:MET:HB3	2.33	0.43
22:U:50:VAL:HG12	22:U:91:LEU:HB2	2.00	0.43
24:W:41:MET:HB3	24:W:47:ILE:HG12	2.01	0.43
29:b:33:MET:HE3	29:b:33:MET:HB2	1.74	0.43
34:g:5:MET:SD	34:g:310:TRP:HB2	2.58	0.43
1:2:1128:C:H2'	1:2:1129:G:C8	2.54	0.43
1:2:1162:C:H2'	1:2:1163:C:O4'	2.19	0.43
1:2:1388:A:C2	5:D:205:PRO:HG2	2.54	0.43
1:2:1513:C:O3'	1:2:1514:G:H4'	2.18	0.43
1:2:1521:C:H41	20:S:137:LYS:HE3	1.83	0.43
12:K:27:VAL:HA	12:K:29:MET:HE3	2.01	0.43
13:L:148:ALA:O	13:L:151:THR:OG1	2.33	0.43
18:Q:41:MET:SD	21:T:10:ASN:CA	3.07	0.43
31:d:19:ARG:HH21	31:d:32:ARG:HH21	1.67	0.43
1:2:149:A:H3'	1:2:150:A:H8	1.84	0.43
1:2:222:U:H5"	13:L:17:PHE:CG	2.53	0.43
1:2:628:A:H1'	5:D:178:ARG:NH2	2.33	0.43
1:2:796:G:H21	9:H:109:ARG:HD3	1.84	0.43
4:C:165:VAL:HG21	4:C:217:ALA:HB1	2.00	0.43
5:D:8:LYS:HE2	5:D:8:LYS:HB3	1.88	0.43
7:F:50:PRO:HG2	7:F:90:VAL:HG12	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:L:33:LEU:HD12	13:L:34:PRO:HD2	2.01	0.43
19:R:9:VAL:HG13	19:R:50:ILE:HA	2.00	0.43
20:S:94:LYS:NZ	20:S:96:SER:HB3	2.33	0.43
1:2:53:C:P	26:Y:112:ASN:HD22	2.42	0.43
1:2:379:C:H5'	10:I:33:ALA:HA	2.00	0.43
1:2:588:G:H4'	1:2:589:G:H5'	2.01	0.43
1:2:653:A:H2'	1:2:654:A:O4'	2.18	0.43
1:2:678:U:C2	1:2:679:A:C8	3.07	0.43
1:2:1594:A:N3	1:2:1594:A:H2'	2.34	0.43
6:E:139:LEU:HD23	6:E:139:LEU:C	2.43	0.43
6:E:141:THR:HG23	6:E:143:ASP:H	1.83	0.43
8:G:159:ARG:HG2	8:G:173:ALA:HB2	2.00	0.43
9:H:118:ARG:HD3	9:H:118:ARG:HA	1.84	0.43
12:K:63:ALA:HB3	12:K:68:TYR:HE2	1.84	0.43
19:R:16:ILE:HG22	19:R:24:LEU:HD11	2.00	0.43
1:2:442:C:H2'	1:2:443:U:C6	2.54	0.43
12:K:43:LEU:O	12:K:47:LYS:HG2	2.19	0.43
14:M:12:MET:HB3	14:M:12:MET:HE3	1.72	0.43
1:2:318:A:H2'	1:2:319:C:C6	2.54	0.42
1:2:1378:A:H4'	1:2:1379:A:O5'	2.18	0.42
1:2:1788:A:H2'	1:2:1789:G:O4'	2.19	0.42
3:B:187:LYS:HE2	3:B:187:LYS:HB3	1.74	0.42
6:E:141:THR:CG2	6:E:145:ARG:HB3	2.48	0.42
17:P:59:ARG:NH1	17:P:77:LYS:HB3	2.34	0.42
18:Q:104:SER:O	18:Q:108:ILE:HG23	2.19	0.42
20:S:16:LEU:H	20:S:18:THR:HG22	1.84	0.42
20:S:24:ARG:HA	20:S:24:ARG:HH11	1.84	0.42
1:2:520:A:O2'	1:2:825:A:N3	2.42	0.42
1:2:1208:A:H2'	1:2:1209:A:C8	2.54	0.42
1:2:1244:U:H5"	1:2:1244:U:C6	2.54	0.42
1:2:1342:U:O2'	1:2:1483:A:N1	2.49	0.42
1:2:1534:C:OP1	7:F:163:PHE:HA	2.19	0.42
4:C:106:VAL:HG22	4:C:128:VAL:HG22	2.01	0.42
9:H:40:LEU:HD11	9:H:79:LEU:HD11	2.01	0.42
10:I:119:LEU:HB3	10:I:120:PRO:HD2	2.00	0.42
12:K:5:LYS:HB3	12:K:5:LYS:HE2	1.77	0.42
12:K:31:LYS:NZ	12:K:39:ASN:HA	2.34	0.42
1:2:418:A:H2'	1:2:419:G:C8	2.54	0.42
1:2:616:A:N3	32:e:12:VAL:HG21	2.34	0.42
1:2:1214:A:H2'	1:2:1217:A:N7	2.35	0.42
1:2:1222:G:C6	1:2:1224:G:N2	2.87	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1262:C:H5”	1:2:1263:U:OP2	2.19	0.42
1:2:1270:G:C8	1:2:1271:C:H5	2.35	0.42
1:2:1629:C:H5”	20:S:39:ARG:HG2	2.01	0.42
3:B:128:LYS:HA	3:B:134:LEU:HA	2.02	0.42
4:C:106:VAL:HB	36:n:191:THR:HG21	2.00	0.42
5:D:198:ILE:H	5:D:198:ILE:HG12	1.69	0.42
9:H:134:VAL:HG12	9:H:173:PHE:CD2	2.54	0.42
11:J:58:ARG:O	11:J:62:THR:HG23	2.19	0.42
22:U:22:ILE:HD11	22:U:89:ILE:HB	2.01	0.42
26:Y:23:MET:HE2	26:Y:23:MET:HB3	1.86	0.42
30:c:10:LYS:HE3	30:c:10:LYS:HB3	1.86	0.42
33:f:92:LYS:H	33:f:92:LYS:HG3	1.63	0.42
1:2:44:U:H5”	1:2:45:A:OP2	2.20	0.42
1:2:340:C:H2’	1:2:341:C:C6	2.54	0.42
1:2:1380:C:H2’	1:2:1381:G:O4’	2.20	0.42
1:2:1597:C:OP1	27:Z:80:ARG:NH1	2.52	0.42
7:F:133:THR:O	7:F:133:THR:OG1	2.34	0.42
8:G:135:PRO:HB2	8:G:141:ILE:HG13	2.00	0.42
17:P:108:LYS:CG	17:P:110:GLU:H	2.31	0.42
21:T:32:GLU:HG3	21:T:33:TRP:CD1	2.55	0.42
28:a:23:CYS:HA	28:a:72:HIS:O	2.20	0.42
1:2:186:C:H2’	1:2:187:G:H8	1.82	0.42
1:2:677:G:N1	1:2:1027:A:OP2	2.27	0.42
6:E:125:LYS:HE3	6:E:225:ILE:O	2.19	0.42
7:F:51:HIS:CE1	7:F:86:LYS:HD3	2.55	0.42
10:I:83:TYR:HB3	10:I:101:ILE:HB	2.00	0.42
11:J:113:GLN:OE1	11:J:154:GLN:NE2	2.33	0.42
12:K:15:LEU:O	12:K:19:GLY:N	2.52	0.42
18:Q:41:MET:O	18:Q:41:MET:CG	2.58	0.42
21:T:75:MET:HE2	21:T:79:TYR:CD2	2.55	0.42
1:2:180:G:O2’	1:2:181:A:P	2.78	0.42
1:2:606:G:H1’	32:e:58:ASN:OD1	2.20	0.42
1:2:916:A:C4	15:N:73:ARG:HD3	2.55	0.42
1:2:941:C:H2’	1:2:942:G:C8	2.54	0.42
1:2:1636:G:H3’	1:2:1637:A:H5’	2.00	0.42
1:2:1856:C:H2’	1:2:1857:G:H8	1.85	0.42
12:K:2:LEU:HD23	12:K:2:LEU:HA	1.85	0.42
17:P:51:ARG:HG2	17:P:52:LYS:H	1.85	0.42
18:Q:37:ARG:HG2	18:Q:37:ARG:HH11	1.85	0.42
18:Q:81:ILE:CD1	18:Q:82:TYR:H	2.31	0.42
28:a:59:PHE:HB2	28:a:62:TYR:HB2	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:g:37:ASP:O	34:g:38:LYS:HB2	2.20	0.42
34:g:247:TRP:HE1	34:g:267:VAL:HG21	1.84	0.42
1:2:90:G:OP1	1:2:445:A:N6	2.52	0.42
1:2:354:U:OP1	13:L:107:LYS:HD2	2.20	0.42
1:2:1035:A:O2'	1:2:1856:C:O2	2.34	0.42
1:2:1657:G:H2'	1:2:1658:G:C8	2.55	0.42
8:G:20:ASP:N	8:G:20:ASP:OD1	2.50	0.42
10:I:41:ARG:HG2	10:I:41:ARG:NH1	2.34	0.42
10:I:146:GLN:NE2	10:I:150:ASP:OD1	2.52	0.42
10:I:193:LYS:HB3	10:I:193:LYS:HE2	1.84	0.42
13:L:121:GLN:CG	13:L:147:LYS:HZ3	2.32	0.42
17:P:64:LYS:HA	17:P:73:PRO:HB3	2.01	0.42
1:2:190:G:OP1	10:I:149:TYR:OH	2.18	0.42
1:2:303:C:H2'	1:2:304:C:O4'	2.19	0.42
1:2:1199:A:H2'	1:2:1200:A:C8	2.55	0.42
1:2:1293:A:H2'	1:2:1294:G:C8	2.54	0.42
1:2:1520:G:H3'	1:2:1521:C:C5	2.55	0.42
1:2:1574:C:H2'	1:2:1575:G:H4'	2.02	0.42
5:D:138:VAL:HG22	5:D:184:ILE:HG12	2.01	0.42
9:H:68:GLN:O	9:H:71:SER:OG	2.28	0.42
11:J:54:ARG:O	11:J:58:ARG:HG3	2.20	0.42
16:O:136:PRO:HG3	16:O:139:SER:HB3	2.02	0.42
33:f:141:CYS:HB3	33:f:145:CYS:H	1.85	0.42
1:2:591:U:H5"	1:2:593:C:O4'	2.20	0.42
1:2:801:U:O4	9:H:106:ARG:NH1	2.51	0.42
1:2:944:A:H5"	16:O:134:PRO:CB	2.50	0.42
1:2:952:G:C6	1:2:975:G:C6	3.07	0.42
1:2:1461:G:N2	1:2:1464:C:H3'	2.35	0.42
1:2:1545:A:H2'	1:2:1546:G:C8	2.54	0.42
1:2:1559:C:N4	1:2:1577:G:O6	2.52	0.42
1:2:1597:C:H5"	27:Z:80:ARG:NH1	2.35	0.42
8:G:7:PHE:CD2	8:G:10:THR:HG23	2.55	0.42
9:H:66:VAL:N	9:H:67:PRO:HD2	2.35	0.42
9:H:109:ARG:HG3	9:H:110:THR:H	1.84	0.42
18:Q:32:ILE:O	18:Q:39:LEU:HD21	2.19	0.42
28:a:12:LYS:HG3	28:a:18:VAL:HG23	2.02	0.42
1:2:415:A:H2'	1:2:416:U:O4'	2.19	0.42
1:2:1534:C:H5"	1:2:1600:G:O6	2.20	0.42
1:2:1563:G:H2'	1:2:1564:C:C6	2.55	0.42
10:I:80:ASP:OD1	10:I:94:LYS:HE2	2.20	0.42
10:I:120:PRO:CG	10:I:158:ILE:H	2.28	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:O:38:ASN:O	16:O:68:GLU:HB3	2.19	0.42
19:R:17:ILE:HD11	19:R:58:MET:CE	2.50	0.42
19:R:77:GLU:HG3	19:R:81:ARG:HE	1.85	0.42
20:S:23:ARG:HH21	27:Z:46:ASN:HB2	1.84	0.42
23:V:16:LYS:HD2	23:V:21:ASN:O	2.19	0.42
27:Z:51:ASP:OD1	27:Z:54:THR:OG1	2.22	0.42
34:g:26:GLN:H	34:g:26:GLN:HG3	1.69	0.42
1:2:501:C:C3'	1:2:501:C:C6	3.03	0.41
1:2:863:U:N3	1:2:864:A:N7	2.67	0.41
1:2:1249:C:OP1	1:2:1251:A:H5"	2.20	0.41
1:2:1348:G:C8	1:2:1349:G:C8	3.08	0.41
1:2:1628:C:OP1	21:T:38:LYS:HE2	2.20	0.41
1:2:1836:G:OP1	1:2:1839:U:H4'	2.20	0.41
7:F:18:LYS:HA	7:F:25:THR:HG23	2.01	0.41
9:H:77:VAL:HA	9:H:80:VAL:HG12	2.02	0.41
14:M:24:THR:HA	14:M:27:ILE:HD12	2.02	0.41
15:N:125:LEU:HD12	15:N:125:LEU:HA	1.88	0.41
1:2:51:U:H2'	1:2:52:G:C8	2.55	0.41
1:2:1054:G:C6	1:2:1065:G:C6	3.08	0.41
1:2:1117:C:H2'	1:2:1118:C:C6	2.55	0.41
1:2:1601:A:H4'	1:2:1602:U:C6	2.55	0.41
1:2:1649:U:H5"	18:Q:137:ALA:HB3	2.02	0.41
1:2:1703:C:H2'	1:2:1704:C:O4'	2.20	0.41
5:D:113:LEU:HD23	5:D:114:ALA:O	2.20	0.41
5:D:222:PRO:HG2	34:g:226:HIS:HB2	2.02	0.41
6:E:45:ILE:HG13	6:E:61:VAL:HG21	2.02	0.41
9:H:73:GLN:HB3	9:H:135:PHE:CZ	2.55	0.41
12:K:61:GLN:HB3	12:K:68:TYR:HB2	2.02	0.41
16:O:125:LYS:HB3	28:a:58:VAL:HG13	2.01	0.41
1:2:218:U:O2	10:I:184:ARG:NH2	2.38	0.41
1:2:747:U:C4	9:H:109:ARG:HG2	2.55	0.41
1:2:812:A:H5'	6:E:16:LYS:HD2	2.02	0.41
1:2:886:A:N1	1:2:901:G:N2	2.66	0.41
1:2:1144:A:H5'	1:2:1355:C:H41	1.84	0.41
1:2:1723:G:N2	1:2:1812:U:H1'	2.35	0.41
1:2:1839:U:H2'	1:2:1840:U:C6	2.55	0.41
4:C:82:TYR:OH	4:C:162:ILE:HG22	2.20	0.41
5:D:156:LEU:HD12	5:D:189:MET:CE	2.50	0.41
8:G:57:ASP:HA	8:G:106:LEU:HD23	2.02	0.41
14:M:28:HIS:NE2	14:M:115:GLY:HA3	2.34	0.41
15:N:106:ARG:HB3	15:N:106:ARG:CZ	2.50	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:P:90:VAL:HA	17:P:107:ILE:HG21	2.03	0.41
34:g:142:VAL:HG12	34:g:146:SER:HB2	2.01	0.41
1:2:414:A:OP1	1:2:814:U:O2'	2.31	0.41
1:2:651:U:H2'	1:2:652:U:C6	2.55	0.41
1:2:1142:G:H2'	1:2:1144:A:OP2	2.21	0.41
1:2:1164:G:O2'	1:2:1165:G:H5'	2.19	0.41
1:2:1508:A:N1	1:2:1510:G:N1	2.69	0.41
2:A:177:MET:O	2:A:181:GLU:HG2	2.20	0.41
3:B:48:LEU:HD21	16:O:53:ILE:HD11	2.02	0.41
6:E:19:MET:HB2	6:E:19:MET:HE3	1.79	0.41
7:F:191:LYS:HG2	7:F:192:LYS:N	2.36	0.41
10:I:119:LEU:HD23	10:I:156:ALA:HA	2.02	0.41
13:L:4:ILE:HG21	13:L:54:THR:O	2.20	0.41
14:M:76:LEU:HD12	14:M:78:LYS:HZ2	1.86	0.41
34:g:17:TRP:O	34:g:35:SER:OG	2.25	0.41
1:2:441:C:H2'	1:2:442:C:H6	1.85	0.41
1:2:870:A:H62	1:2:915:G:H2'	1.86	0.41
1:2:917:U:H2'	1:2:918:U:C6	2.55	0.41
1:2:1011:A:H2'	1:2:1012:A:C8	2.55	0.41
1:2:1017:U:H2'	1:2:1018:U:H6	1.85	0.41
1:2:1070:A:H2'	1:2:1071:G:O4'	2.20	0.41
1:2:1121:G:O2'	3:B:204:ILE:O	2.34	0.41
1:2:1331:C:O2	1:2:1489:A:N6	2.54	0.41
1:2:1570:G:O3'	1:2:1615:U:H5'	2.19	0.41
1:2:1809:A:OP1	1:2:1809:A:H4'	2.20	0.41
1:2:1862:G:N1	28:a:75:VAL:HB	2.35	0.41
7:F:103:LEU:HD13	7:F:103:LEU:HA	1.87	0.41
7:F:188:TYR:HD1	7:F:191:LYS:HE2	1.85	0.41
8:G:55:GLY:HA2	8:G:110:ASN:OD1	2.20	0.41
1:2:987:A:C6	3:B:120:MET:HE1	2.55	0.41
1:2:1060:A:H4'	1:2:1061:U:H5'	2.01	0.41
1:2:1301:A:OP2	31:d:5:GLN:HB3	2.20	0.41
1:2:1428:G:H2'	1:2:1585:U:C5	2.55	0.41
1:2:1466:G:H2'	1:2:1467:C:C6	2.55	0.41
1:2:1534:C:N4	1:2:1598:G:O4'	2.54	0.41
1:2:1616:U:O2	1:2:1661:A:O2'	2.33	0.41
5:D:109:LEU:HD21	5:D:115:VAL:HA	2.02	0.41
10:I:6:ASP:OD2	10:I:8:TRP:CZ2	2.74	0.41
32:e:36:MET:HE3	32:e:36:MET:HB3	1.86	0.41
34:g:101:PHE:CE1	34:g:136:GLY:HA3	2.56	0.41
1:2:1036:A:H4'	1:2:1855:G:H21	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1088:U:H4'	1:2:1089:G:OP2	2.20	0.41
1:2:1324:G:H2'	1:2:1325:G:H5'	2.03	0.41
1:2:1651:A:H2'	1:2:1652:G:C8	2.55	0.41
1:2:1667:U:H2'	1:2:1668:U:C6	2.56	0.41
7:F:72:LEU:HD22	7:F:112:LEU:HD11	2.02	0.41
9:H:52:GLU:HB3	9:H:58:LYS:HE2	2.02	0.41
1:2:339:A:H2'	1:2:340:C:H6	1.86	0.41
1:2:344:U:H5"	1:2:345:U:OP1	2.20	0.41
1:2:863:U:C2	1:2:864:A:C8	3.09	0.41
1:2:919:A:OP2	15:N:64:ARG:NH2	2.49	0.41
1:2:963:A:H2'	1:2:964:A:C8	2.55	0.41
1:2:1046:U:H1'	16:O:140:THR:HB	2.02	0.41
1:2:1560:U:C4	1:2:1575:G:O6	2.74	0.41
1:2:1852:C:OP2	35:h:1:MET:HG3	2.21	0.41
2:A:67:ALA:O	2:A:68:ILE:HG13	2.21	0.41
10:I:145:ILE:HG23	10:I:148:LYS:HE2	2.03	0.41
12:K:15:LEU:HD13	12:K:69:TRP:CE3	2.55	0.41
14:M:64:LEU:HD23	14:M:64:LEU:HA	1.85	0.41
17:P:82:ASP:O	17:P:116:LEU:HB2	2.21	0.41
34:g:109:LEU:HD21	34:g:125:ARG:CG	2.50	0.41
1:2:111:A:H2'	1:2:112:U:C6	2.55	0.41
1:2:114:G:O6	1:2:351:G:H1'	2.21	0.41
1:2:190:G:H3'	10:I:145:ILE:HG13	2.01	0.41
1:2:332:G:H4'	1:2:333:G:OP1	2.21	0.41
1:2:853:C:O5'	1:2:853:C:H6	2.04	0.41
1:2:941:C:H2'	1:2:942:G:H8	1.85	0.41
1:2:947:G:H2'	1:2:948:C:C6	2.55	0.41
1:2:962:A:H2'	1:2:963:A:O4'	2.20	0.41
1:2:966:U:H2'	1:2:967:C:C6	2.56	0.41
1:2:1127:C:H5"	29:b:17:ARG:NH2	2.35	0.41
1:2:1134:G:H2'	1:2:1135:C:H6	1.85	0.41
1:2:1171:G:O2'	1:2:1187:G:O6	2.37	0.41
1:2:1407:U:O2	18:Q:11:GLN:NE2	2.44	0.41
1:2:1453:C:N3	1:2:1455:A:H1'	2.35	0.41
1:2:1459:G:H2'	1:2:1460:C:H6	1.83	0.41
2:A:73:ASP:HB3	2:A:120:ARG:HB2	2.03	0.41
5:D:109:LEU:HD13	5:D:182:LEU:HD12	2.03	0.41
5:D:113:LEU:HD22	5:D:118:ALA:HB2	2.03	0.41
7:F:22:LYS:HG3	7:F:23:TRP:CD2	2.55	0.41
8:G:207:ALA:O	8:G:211:LYS:HD2	2.21	0.41
12:K:14:LEU:O	12:K:17:LYS:HG2	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:P:43:ARG:HH21	17:P:47:ARG:HH21	1.68	0.41
20:S:16:LEU:HD11	20:S:99:LEU:O	2.20	0.41
20:S:25:LYS:HG2	27:Z:80:ARG:NH1	2.36	0.41
20:S:41:ALA:C	20:S:45:LEU:HD12	2.44	0.41
20:S:57:GLY:HA3	27:Z:49:LEU:HD13	2.03	0.41
21:T:115:LYS:HB3	21:T:115:LYS:HE3	1.55	0.41
26:Y:6:THR:HB	26:Y:28:LEU:HB2	2.02	0.41
30:c:37:ASP:C	30:c:39:SER:H	2.28	0.41
1:2:39:A:H61	1:2:515:G:H1'	1.86	0.41
1:2:1349:G:H2'	1:2:1350:U:C6	2.56	0.41
6:E:101:LEU:HD23	6:E:101:LEU:HA	1.83	0.41
8:G:228:ILE:HD12	8:G:228:ILE:HA	1.93	0.41
11:J:47:LYS:HG3	11:J:102:ILE:HD12	2.02	0.41
16:O:96:LYS:HB3	16:O:132:VAL:HG21	2.02	0.41
18:Q:102:GLU:HB2	34:g:55:PRO:O	2.21	0.41
26:Y:25:ILE:HD11	26:Y:73:GLY:HA3	2.02	0.41
36:n:173:ASP:HB2	36:n:186:LEU:HD21	2.02	0.41
1:2:29:G:H4'	25:X:129:SER:HB3	2.03	0.40
1:2:434:G:H2'	1:2:435:A:C8	2.56	0.40
1:2:1011:A:H2'	1:2:1012:A:H8	1.86	0.40
1:2:1320:G:O2'	1:2:1321:G:P	2.79	0.40
1:2:1395:C:H2'	1:2:1396:A:C4	2.56	0.40
1:2:1453:C:O2	19:R:28:PHE:CE2	2.74	0.40
1:2:1606:G:H4'	1:2:1607:A:H8	1.86	0.40
12:K:21:MET:HG3	12:K:22:VAL:H	1.85	0.40
18:Q:60:LYS:HD2	18:Q:60:LYS:HA	1.84	0.40
20:S:124:ARG:HE	20:S:129:LEU:HB2	1.86	0.40
29:b:63:LEU:HD12	29:b:63:LEU:HA	1.92	0.40
34:g:130:LYS:HG2	34:g:141:THR:HG22	2.03	0.40
36:n:170:TRP:O	36:n:186:LEU:HD23	2.21	0.40
1:2:96:C:H2'	1:2:97:U:C6	2.55	0.40
1:2:212:C:H2'	1:2:213:G:H8	1.84	0.40
1:2:389:A:H2'	1:2:390:C:C6	2.56	0.40
1:2:508:A:H5'	1:2:509:G:OP2	2.22	0.40
1:2:618:C:H2'	1:2:619:A:O4'	2.21	0.40
1:2:854:A:C4	1:2:855:G:C8	3.10	0.40
1:2:1454:A:C8	19:R:3:ARG:HG3	2.56	0.40
1:2:1507:G:N7	33:f:80:ARG:NH1	2.69	0.40
6:E:29:PRO:HG2	6:E:46:ILE:HD11	2.04	0.40
8:G:28:TYR:N	8:G:28:TYR:CD1	2.88	0.40
9:H:129:ILE:O	9:H:133:LEU:HB2	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:a:71:LEU:HD13	28:a:73:TYR:OH	2.21	0.40
29:b:36:LYS:NZ	29:b:40:CYS:O	2.49	0.40
1:2:319:C:H2'	1:2:320:G:C8	2.56	0.40
1:2:512:A:C2	1:2:513:G:C8	3.09	0.40
1:2:529:A:C6	1:2:530:U:C4	3.10	0.40
1:2:940:U:H2'	1:2:941:C:C6	2.55	0.40
1:2:1102:G:H2'	1:2:1103:C:C6	2.57	0.40
1:2:1456:G:OP1	19:R:59:LYS:CE	2.70	0.40
1:2:1471:C:H2'	1:2:1472:C:O4'	2.20	0.40
4:C:78:LEU:HG	4:C:82:TYR:CE2	2.56	0.40
5:D:47:GLU:C	5:D:48:ILE:HD12	2.46	0.40
5:D:69:LEU:O	5:D:72:VAL:HB	2.22	0.40
5:D:135:GLU:HB3	5:D:153:VAL:HG12	2.03	0.40
7:F:128:ILE:HD11	7:F:135:ARG:HH21	1.86	0.40
9:H:101:LEU:HD12	9:H:116:ARG:HG3	2.04	0.40
10:I:21:TYR:H	10:I:21:TYR:HD1	1.68	0.40
12:K:14:LEU:HD22	12:K:35:LEU:HD21	2.03	0.40
16:O:113:GLN:OE1	28:a:46:GLU:N	2.54	0.40
18:Q:21:ALA:HB2	18:Q:72:VAL:HG22	2.02	0.40
19:R:17:ILE:HD12	19:R:24:LEU:HD12	2.03	0.40
19:R:60:ARG:HH22	19:R:66:VAL:HG13	1.86	0.40
21:T:12:GLN:O	21:T:15:VAL:HG12	2.21	0.40
22:U:84:ILE:O	22:U:84:ILE:HD12	2.22	0.40
26:Y:13:MET:HG2	26:Y:22:GLN:HG3	2.03	0.40
1:2:293:C:O2	1:2:293:C:C2'	2.67	0.40
1:2:1573:G:H2'	1:2:1574:C:N1	2.36	0.40
5:D:137:VAL:CG1	5:D:151:LYS:HG2	2.52	0.40
7:F:40:ALA:N	7:F:68:ILE:HD11	2.37	0.40
8:G:181:THR:HG22	8:G:182:PRO:HD2	2.04	0.40
11:J:79:ARG:HE	11:J:79:ARG:HB3	1.52	0.40
17:P:72:LYS:HA	17:P:73:PRO:HD3	1.97	0.40
21:T:115:LYS:HD2	21:T:116:ASP:O	2.22	0.40
25:X:88:ASP:OD2	32:e:13:ARG:HB2	2.22	0.40
26:Y:11:LYS:O	26:Y:23:MET:HA	2.21	0.40
30:c:62:GLU:H	30:c:62:GLU:HG2	1.68	0.40
32:e:45:VAL:O	32:e:48:THR:HG22	2.20	0.40
1:2:154:U:O2'	8:G:4:ASN:OD1	2.27	0.40
1:2:600:G:H2'	1:2:601:G:H8	1.87	0.40
1:2:921:G:OP2	29:b:21:LYS:NZ	2.52	0.40
1:2:988:C:H5"	3:B:116:LYS:HA	2.04	0.40
1:2:1172:U:H2'	1:2:1173:A:H8	1.87	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1467:C:H2'	1:2:1468:C:C6	2.57	0.40
1:2:1561:A:H5'	21:T:72:VAL:O	2.22	0.40
1:2:1692:U:H2'	1:2:1693:G:H8	1.86	0.40
16:O:95:ILE:HB	16:O:129:ILE:HD13	2.03	0.40
18:Q:12:VAL:HG11	18:Q:91:ALA:N	2.36	0.40
34:g:34:ALA:HB1	34:g:66:VAL:HG13	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
2	A	211/295 (72%)	205 (97%)	5 (2%)	1 (0%)	25 49
3	B	211/264 (80%)	209 (99%)	2 (1%)	0	100 100
4	C	216/293 (74%)	210 (97%)	6 (3%)	0	100 100
5	D	223/243 (92%)	215 (96%)	8 (4%)	0	100 100
6	E	260/263 (99%)	256 (98%)	4 (2%)	0	100 100
7	F	187/204 (92%)	161 (86%)	23 (12%)	3 (2%)	8 21
8	G	228/249 (92%)	224 (98%)	4 (2%)	0	100 100
9	H	184/194 (95%)	178 (97%)	6 (3%)	0	100 100
10	I	203/208 (98%)	194 (96%)	8 (4%)	1 (0%)	25 49
11	J	178/194 (92%)	174 (98%)	4 (2%)	0	100 100
12	K	95/165 (58%)	88 (93%)	6 (6%)	1 (1%)	12 30
13	L	149/158 (94%)	146 (98%)	2 (1%)	1 (1%)	19 42
14	M	119/132 (90%)	107 (90%)	10 (8%)	2 (2%)	7 20
15	N	147/151 (97%)	147 (100%)	0	0	100 100
16	O	133/151 (88%)	128 (96%)	5 (4%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
17	P	124/145 (86%)	111 (90%)	12 (10%)	1 (1%)	16	38
18	Q	136/146 (93%)	123 (90%)	12 (9%)	1 (1%)	19	42
19	R	130/135 (96%)	126 (97%)	4 (3%)	0	100	100
20	S	141/152 (93%)	129 (92%)	12 (8%)	0	100	100
21	T	142/145 (98%)	135 (95%)	7 (5%)	0	100	100
22	U	99/119 (83%)	93 (94%)	6 (6%)	0	100	100
23	V	80/83 (96%)	79 (99%)	1 (1%)	0	100	100
24	W	127/130 (98%)	121 (95%)	6 (5%)	0	100	100
25	X	139/143 (97%)	135 (97%)	4 (3%)	0	100	100
26	Y	122/130 (94%)	121 (99%)	1 (1%)	0	100	100
27	Z	70/125 (56%)	68 (97%)	2 (3%)	0	100	100
28	a	97/100 (97%)	96 (99%)	0	1 (1%)	13	33
29	b	80/82 (98%)	77 (96%)	3 (4%)	0	100	100
30	c	60/62 (97%)	56 (93%)	4 (7%)	0	100	100
31	d	53/55 (96%)	49 (92%)	4 (8%)	0	100	100
32	e	54/56 (96%)	51 (94%)	3 (6%)	0	100	100
33	f	72/74 (97%)	60 (83%)	12 (17%)	0	100	100
34	g	312/315 (99%)	289 (93%)	22 (7%)	1 (0%)	37	61
35	h	20/25 (80%)	20 (100%)	0	0	100	100
36	n	24/193 (12%)	22 (92%)	2 (8%)	0	100	100
All	All	4826/5579 (86%)	4603 (95%)	210 (4%)	13 (0%)	38	61

All (13) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	A	189	ILE
7	F	100	ILE
10	I	129	LEU
14	M	109	VAL
14	M	110	VAL
28	a	63	VAL
7	F	104	THR
7	F	106	GLU
18	Q	13	PHE
17	P	41	GLN

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Mol	Chain	Res	Type
13	L	32	LYS
12	K	30	PRO
34	g	235	ILE

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
2	A	179/243 (74%)	172 (96%)	7 (4%)	27 56
3	B	194/231 (84%)	184 (95%)	10 (5%)	19 44
4	C	184/225 (82%)	179 (97%)	5 (3%)	40 69
5	D	189/202 (94%)	180 (95%)	9 (5%)	21 48
6	E	224/225 (100%)	219 (98%)	5 (2%)	47 76
7	F	159/170 (94%)	147 (92%)	12 (8%)	11 28
8	G	200/218 (92%)	192 (96%)	8 (4%)	27 55
9	H	167/174 (96%)	159 (95%)	8 (5%)	21 48
10	I	178/180 (99%)	173 (97%)	5 (3%)	38 68
11	J	160/168 (95%)	155 (97%)	5 (3%)	35 64
12	K	88/136 (65%)	88 (100%)	0	100 100
13	L	135/142 (95%)	127 (94%)	8 (6%)	16 38
14	M	102/108 (94%)	100 (98%)	2 (2%)	50 78
15	N	130/131 (99%)	124 (95%)	6 (5%)	23 49
16	O	105/119 (88%)	102 (97%)	3 (3%)	37 67
17	P	112/130 (86%)	110 (98%)	2 (2%)	54 80
18	Q	114/121 (94%)	111 (97%)	3 (3%)	41 70
19	R	119/122 (98%)	107 (90%)	12 (10%)	6 15
20	S	124/132 (94%)	121 (98%)	3 (2%)	44 73
21	T	114/115 (99%)	112 (98%)	2 (2%)	54 80
22	U	93/107 (87%)	89 (96%)	4 (4%)	25 52

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
23	V	66/67 (98%)	64 (97%)	2 (3%)	36 65
24	W	112/113 (99%)	108 (96%)	4 (4%)	30 59
25	X	113/115 (98%)	109 (96%)	4 (4%)	31 60
26	Y	108/112 (96%)	104 (96%)	4 (4%)	29 58
27	Z	64/103 (62%)	64 (100%)	0	100 100
28	a	87/88 (99%)	85 (98%)	2 (2%)	45 74
29	b	74/74 (100%)	71 (96%)	3 (4%)	26 54
30	c	55/55 (100%)	53 (96%)	2 (4%)	30 59
31	d	48/48 (100%)	46 (96%)	2 (4%)	25 53
32	e	45/45 (100%)	41 (91%)	4 (9%)	8 20
33	f	67/67 (100%)	66 (98%)	1 (2%)	60 83
34	g	272/273 (100%)	255 (94%)	17 (6%)	15 35
35	h	21/24 (88%)	21 (100%)	0	100 100
36	n	22/160 (14%)	21 (96%)	1 (4%)	23 50
All	All	4224/4743 (89%)	4059 (96%)	165 (4%)	30 56

All (165) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	A	2	SER
2	A	13	GLU
2	A	82	THR
2	A	112	ILE
2	A	152	SER
2	A	188	THR
2	A	206	ASP
3	B	32	ASP
3	B	33	VAL
3	B	53	GLN
3	B	75	GLN
3	B	119	THR
3	B	125	VAL
3	B	147	ASN
3	B	192	SER
3	B	203	SER
3	B	220	LYS
4	C	105	GLU

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Mol	Chain	Res	Type
4	C	116	THR
4	C	130	ILE
4	C	221	ASP
4	C	259	THR
5	D	35	SER
5	D	42	THR
5	D	49	ILE
5	D	105	LEU
5	D	115	VAL
5	D	123	LEU
5	D	137	VAL
5	D	182	LEU
5	D	188	ILE
6	E	59	ASP
6	E	105	THR
6	E	126	VAL
6	E	159	THR
6	E	199	GLU
7	F	17	ILE
7	F	39	ILE
7	F	47	LYS
7	F	59	LYS
7	F	69	VAL
7	F	82	ASN
7	F	102	LEU
7	F	104	THR
7	F	117	ILE
7	F	178	ILE
7	F	190	ILE
7	F	203	ASN
8	G	6	SER
8	G	20	ASP
8	G	34	THR
8	G	107	SER
8	G	126	ASP
8	G	152	ASP
8	G	171	THR
8	G	219	GLU
9	H	30	LEU
9	H	51	ILE
9	H	53	VAL
9	H	105	THR

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Mol	Chain	Res	Type
9	H	112	ASN
9	H	157	HIS
9	H	170	VAL
9	H	181	THR
10	I	4	SER
10	I	56	ARG
10	I	71	CYS
10	I	111	GLN
10	I	129	LEU
11	J	5	ARG
11	J	6	SER
11	J	10	ARG
11	J	50	LEU
11	J	114	VAL
13	L	23	VAL
13	L	54	THR
13	L	66	VAL
13	L	69	ARG
13	L	74	SER
13	L	79	LYS
13	L	81	LYS
13	L	82	MET
14	M	37	GLU
14	M	113	ASP
15	N	19	ARG
15	N	29	THR
15	N	46	THR
15	N	53	ILE
15	N	72	LEU
15	N	77	SER
16	O	21	VAL
16	O	103	ASN
16	O	133	THR
17	P	37	TYR
17	P	51	ARG
18	Q	22	VAL
18	Q	66	VAL
18	Q	118	THR
19	R	15	VAL
19	R	17	ILE
19	R	24	LEU
19	R	45	LYS

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Mol	Chain	Res	Type
19	R	71	ILE
19	R	85	VAL
19	R	88	VAL
19	R	98	VAL
19	R	102	THR
19	R	113	SER
19	R	123	THR
19	R	124	VAL
20	S	64	VAL
20	S	90	VAL
20	S	117	ILE
21	T	37	VAL
21	T	115	LYS
22	U	24	LEU
22	U	39	LEU
22	U	65	THR
22	U	102	THR
23	V	1	MET
23	V	39	VAL
24	W	30	CYS
24	W	57	ARG
24	W	85	ASP
24	W	107	SER
25	X	36	LEU
25	X	72	VAL
25	X	115	ILE
25	X	127	ASN
26	Y	4	THR
26	Y	46	LYS
26	Y	74	MET
26	Y	104	ARG
28	a	40	VAL
28	a	45	VAL
29	b	45	THR
29	b	52	THR
29	b	53	VAL
30	c	46	VAL
30	c	55	VAL
31	d	3	HIS
31	d	26	ASN
32	e	6	LEU
32	e	8	ARG

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Mol	Chain	Res	Type
32	e	24	LYS
32	e	29	THR
33	f	140	TYR
34	g	18	VAL
34	g	19	THR
34	g	40	ILE
34	g	73	SER
34	g	86	THR
34	g	97	THR
34	g	98	THR
34	g	108	VAL
34	g	109	LEU
34	g	111	VAL
34	g	113	PHE
34	g	128	THR
34	g	174	VAL
34	g	186	THR
34	g	215	GLN
34	g	249	CYS
34	g	267	VAL
36	n	191	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (36) such sidechains are listed below:

Mol	Chain	Res	Type
2	A	29	ASN
2	A	36	GLN
2	A	141	ASN
3	B	76	ASN
3	B	147	ASN
3	B	157	GLN
3	B	159	GLN
3	B	177	GLN
6	E	36	HIS
6	E	142	HIS
7	F	31	ASN
7	F	149	GLN
8	G	163	ASN
9	H	162	GLN
10	I	7	ASN
10	I	111	GLN
10	I	146	GLN

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Mol	Chain	Res	Type
10	I	165	GLN
12	K	77	GLN
13	L	100	ASN
15	N	13	GLN
15	N	58	HIS
16	O	20	GLN
17	P	53	GLN
18	Q	29	ASN
23	V	35	ASN
24	W	64	ASN
25	X	31	HIS
26	Y	85	ASN
27	Z	103	HIS
27	Z	106	GLN
28	a	8	ASN
30	c	29	GLN
34	g	14	HIS
34	g	56	GLN
34	g	215	GLN

5.3.3 RNA

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	2	1649/1869 (88%)	492 (29%)	30 (1%)

All (492) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	2	2	A
1	2	4	C
1	2	11	A
1	2	17	C
1	2	33	G
1	2	41	G
1	2	44	U
1	2	45	A
1	2	46	A
1	2	56	G
1	2	65	C
1	2	66	G
1	2	67	C

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Mol	Chain	Res	Type
1	2	68	A
1	2	72	C
1	2	73	C
1	2	74	G
1	2	75	G
1	2	76	U
1	2	77	A
1	2	84	A
1	2	103	A
1	2	113	G
1	2	115	U
1	2	126	G
1	2	127	C
1	2	128	U
1	2	130	G
1	2	143	U
1	2	149	A
1	2	155	G
1	2	158	A
1	2	161	U
1	2	163	U
1	2	170	A
1	2	180	G
1	2	181	A
1	2	182	C
1	2	184	G
1	2	190	G
1	2	191	A
1	2	192	C
1	2	198	U
1	2	199	C
1	2	200	G
1	2	202	G
1	2	206	G
1	2	210	U
1	2	214	U
1	2	215	G
1	2	216	C
1	2	217	A
1	2	305	U
1	2	306	C
1	2	307	G

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Mol	Chain	Res	Type
1	2	308	G
1	2	309	G
1	2	310	C
1	2	313	A
1	2	315	C
1	2	316	G
1	2	318	A
1	2	320	G
1	2	321	C
1	2	322	C
1	2	331	C
1	2	333	G
1	2	335	G
1	2	344	U
1	2	345	U
1	2	351	G
1	2	362	C
1	2	364	A
1	2	370	G
1	2	377	G
1	2	385	G
1	2	386	C
1	2	400	C
1	2	409	C
1	2	413	G
1	2	436	G
1	2	438	G
1	2	448	A
1	2	449	A
1	2	450	C
1	2	464	A
1	2	465	A
1	2	471	G
1	2	472	C
1	2	473	A
1	2	474	G
1	2	478	G
1	2	482	G
1	2	487	U
1	2	492	C
1	2	496	C
1	2	501	C

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Mol	Chain	Res	Type
1	2	502	C
1	2	517	C
1	2	523	A
1	2	529	A
1	2	532	C
1	2	534	G
1	2	535	G
1	2	536	A
1	2	537	C
1	2	538	U
1	2	543	C
1	2	544	G
1	2	546	G
1	2	547	G
1	2	549	C
1	2	550	C
1	2	552	G
1	2	553	U
1	2	554	A
1	2	555	A
1	2	556	U
1	2	559	G
1	2	575	A
1	2	576	A
1	2	587	A
1	2	588	G
1	2	589	G
1	2	590	A
1	2	591	U
1	2	604	A
1	2	605	A
1	2	606	G
1	2	607	U
1	2	608	C
1	2	614	C
1	2	617	G
1	2	626	G
1	2	629	A
1	2	631	U
1	2	632	C
1	2	633	C
1	2	640	A

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Mol	Chain	Res	Type
1	2	643	A
1	2	644	G
1	2	655	A
1	2	660	C
1	2	668	A
1	2	669	A
1	2	670	A
1	2	671	A
1	2	672	A
1	2	673	G
1	2	675	U
1	2	688	U
1	2	751	G
1	2	752	G
1	2	795	A
1	2	796	G
1	2	797	C
1	2	798	G
1	2	811	A
1	2	821	G
1	2	822	U
1	2	823	U
1	2	824	C
1	2	830	A
1	2	847	A
1	2	862	A
1	2	869	A
1	2	870	A
1	2	871	U
1	2	872	A
1	2	873	G
1	2	878	G
1	2	885	U
1	2	887	U
1	2	888	U
1	2	890	U
1	2	891	G
1	2	892	U
1	2	893	U
1	2	894	G
1	2	896	U
1	2	897	U

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Mol	Chain	Res	Type
1	2	899	U
1	2	901	G
1	2	902	G
1	2	903	A
1	2	904	A
1	2	905	C
1	2	913	A
1	2	914	U
1	2	916	A
1	2	917	U
1	2	920	A
1	2	922	A
1	2	933	G
1	2	943	U
1	2	963	A
1	2	971	G
1	2	972	A
1	2	978	G
1	2	990	A
1	2	992	A
1	2	999	G
1	2	1001	A
1	2	1017	U
1	2	1023	A
1	2	1027	A
1	2	1040	G
1	2	1055	A
1	2	1061	U
1	2	1062	A
1	2	1083	A
1	2	1085	C
1	2	1087	A
1	2	1089	G
1	2	1096	G
1	2	1109	C
1	2	1115	U
1	2	1116	C
1	2	1117	C
1	2	1118	C
1	2	1121	G
1	2	1123	C
1	2	1130	G

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Mol	Chain	Res	Type
1	2	1138	C
1	2	1148	A
1	2	1154	U
1	2	1157	G
1	2	1171	G
1	2	1181	A
1	2	1195	A
1	2	1207	G
1	2	1208	A
1	2	1215	C
1	2	1216	C
1	2	1227	G
1	2	1228	A
1	2	1229	G
1	2	1231	C
1	2	1232	U
1	2	1233	G
1	2	1234	C
1	2	1236	G
1	2	1243	U
1	2	1244	U
1	2	1247	C
1	2	1248	U
1	2	1251	A
1	2	1253	A
1	2	1254	C
1	2	1256	G
1	2	1257	G
1	2	1258	A
1	2	1259	A
1	2	1261	C
1	2	1262	C
1	2	1263	U
1	2	1264	C
1	2	1266	C
1	2	1267	C
1	2	1268	C
1	2	1269	G
1	2	1271	C
1	2	1272	C
1	2	1273	C
1	2	1274	G

Continued on next page...

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Mol	Chain	Res	Type
1	2	1275	G
1	2	1277	C
1	2	1278	A
1	2	1279	C
1	2	1280	G
1	2	1283	C
1	2	1284	A
1	2	1285	G
1	2	1286	G
1	2	1287	A
1	2	1290	G
1	2	1291	A
1	2	1292	C
1	2	1293	A
1	2	1295	A
1	2	1298	G
1	2	1299	A
1	2	1302	G
1	2	1303	C
1	2	1306	U
1	2	1309	C
1	2	1310	U
1	2	1312	G
1	2	1313	A
1	2	1315	U
1	2	1319	U
1	2	1320	G
1	2	1321	G
1	2	1323	U
1	2	1324	G
1	2	1326	U
1	2	1327	G
1	2	1330	G
1	2	1331	C
1	2	1332	A
1	2	1333	U
1	2	1334	G
1	2	1335	G
1	2	1336	C
1	2	1341	C
1	2	1342	U
1	2	1344	A

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Mol	Chain	Res	Type
1	2	1371	U
1	2	1372	U
1	2	1378	A
1	2	1394	G
1	2	1398	G
1	2	1402	A
1	2	1404	U
1	2	1405	A
1	2	1407	U
1	2	1409	A
1	2	1410	C
1	2	1411	G
1	2	1412	C
1	2	1413	G
1	2	1416	C
1	2	1426	U
1	2	1428	G
1	2	1430	C
1	2	1439	A
1	2	1440	C
1	2	1441	U
1	2	1442	U
1	2	1447	G
1	2	1449	G
1	2	1454	A
1	2	1463	U
1	2	1465	A
1	2	1485	U
1	2	1490	G
1	2	1494	U
1	2	1497	G
1	2	1498	A
1	2	1499	U
1	2	1500	G
1	2	1501	C
1	2	1504	U
1	2	1506	A
1	2	1507	G
1	2	1508	A
1	2	1509	U
1	2	1510	G
1	2	1512	C

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Mol	Chain	Res	Type
1	2	1513	C
1	2	1514	G
1	2	1519	U
1	2	1520	G
1	2	1521	C
1	2	1523	C
1	2	1524	G
1	2	1527	C
1	2	1528	G
1	2	1531	A
1	2	1532	C
1	2	1534	C
1	2	1535	U
1	2	1536	G
1	2	1538	C
1	2	1539	U
1	2	1540	G
1	2	1541	G
1	2	1542	C
1	2	1549	U
1	2	1551	U
1	2	1552	G
1	2	1553	C
1	2	1554	C
1	2	1555	U
1	2	1556	A
1	2	1557	C
1	2	1558	C
1	2	1559	C
1	2	1568	C
1	2	1569	A
1	2	1570	G
1	2	1572	C
1	2	1573	G
1	2	1575	G
1	2	1576	G
1	2	1578	U
1	2	1579	A
1	2	1580	A
1	2	1581	C
1	2	1582	C
1	2	1583	C

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Mol	Chain	Res	Type
1	2	1586	U
1	2	1588	A
1	2	1592	C
1	2	1593	C
1	2	1595	U
1	2	1598	G
1	2	1601	A
1	2	1603	G
1	2	1605	G
1	2	1606	G
1	2	1608	U
1	2	1611	G
1	2	1612	G
1	2	1613	G
1	2	1615	U
1	2	1617	G
1	2	1618	C
1	2	1619	A
1	2	1620	A
1	2	1621	U
1	2	1623	A
1	2	1624	U
1	2	1625	U
1	2	1626	C
1	2	1627	C
1	2	1628	C
1	2	1630	A
1	2	1636	G
1	2	1641	A
1	2	1642	U
1	2	1646	C
1	2	1647	A
1	2	1648	G
1	2	1650	A
1	2	1651	A
1	2	1658	G
1	2	1659	U
1	2	1660	C
1	2	1663	A
1	2	1664	A
1	2	1665	G
1	2	1671	G

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Mol	Chain	Res	Type
1	2	1674	G
1	2	1675	A
1	2	1676	U
1	2	1678	A
1	2	1680	G
1	2	1683	C
1	2	1685	U
1	2	1688	C
1	2	1695	A
1	2	1698	C
1	2	1699	A
1	2	1709	G
1	2	1710	C
1	2	1711	U
1	2	1716	C
1	2	1717	C
1	2	1720	U
1	2	1721	U
1	2	1724	A
1	2	1728	U
1	2	1744	G
1	2	1749	G
1	2	1750	C
1	2	1752	C
1	2	1757	G
1	2	1782	G
1	2	1783	C
1	2	1800	A
1	2	1802	C
1	2	1803	U
1	2	1804	U
1	2	1805	G
1	2	1806	A
1	2	1807	C
1	2	1808	U
1	2	1809	A
1	2	1812	U
1	2	1813	A
1	2	1814	G
1	2	1815	A
1	2	1819	A
1	2	1823	A

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Mol	Chain	Res	Type
1	2	1825	A
1	2	1829	G
1	2	1831	A
1	2	1835	A
1	2	1836	G
1	2	1838	U
1	2	1849	G
1	2	1850	A
1	2	1851	A
1	2	1852	C
1	2	1861	G
1	2	1862	G
1	2	1863	A
1	2	1864	U
1	2	1865	C
1	2	1867	U
1	2	1869	A

All (30) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	2	65	C
1	2	102	A
1	2	179	C
1	2	180	G
1	2	293	C
1	2	320	G
1	2	332	G
1	2	501	C
1	2	535	G
1	2	548	C
1	2	604	A
1	2	632	C
1	2	870	A
1	2	1016	U
1	2	1244	U
1	2	1263	U
1	2	1268	C
1	2	1271	C
1	2	1292	C
1	2	1298	G
1	2	1308	U

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Mol	Chain	Res	Type
1	2	1320	G
1	2	1335	G
1	2	1409	A
1	2	1464	C
1	2	1548	G
1	2	1571	G
1	2	1610	G
1	2	1649	U
1	2	1801	A

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

There are no ligands in this entry.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

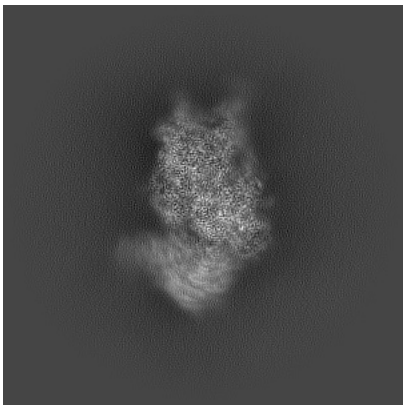
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-62449. These allow visual inspection of the internal detail of the map and identification of artifacts.

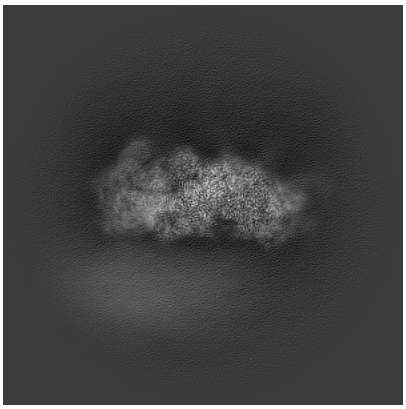
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

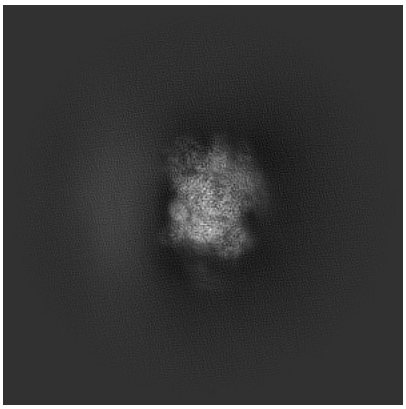
6.1.1 Primary map



X

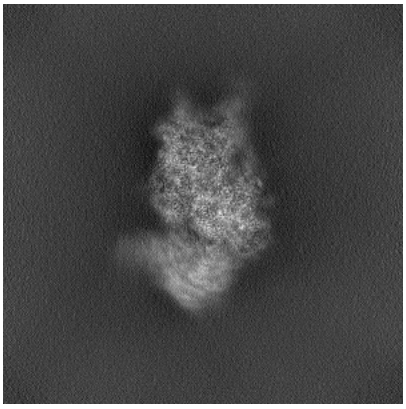


Y

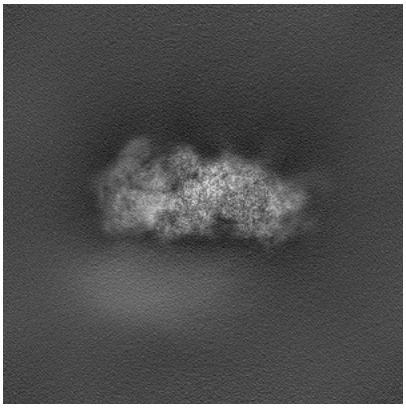


Z

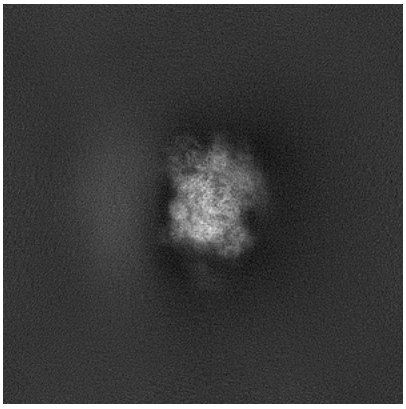
6.1.2 Raw map



X



Y

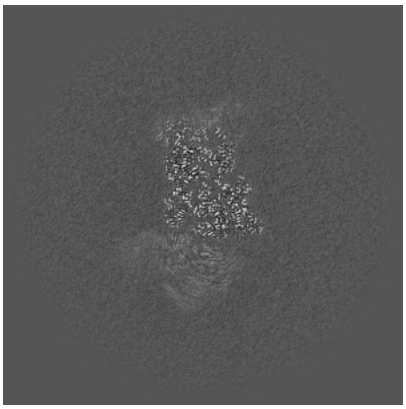


Z

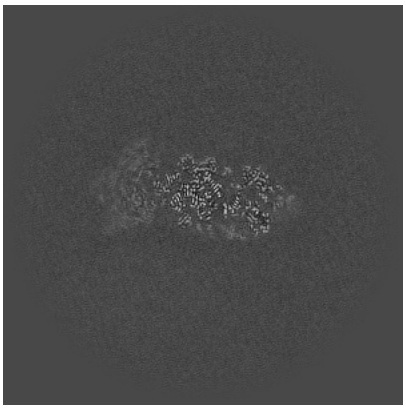
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

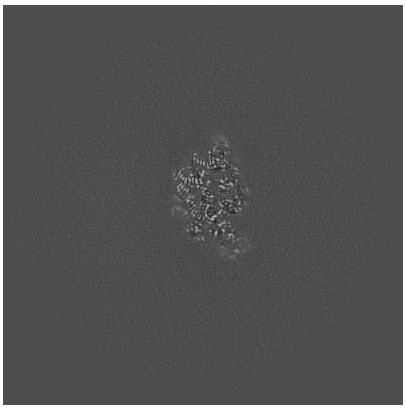
6.2.1 Primary map



X Index: 256

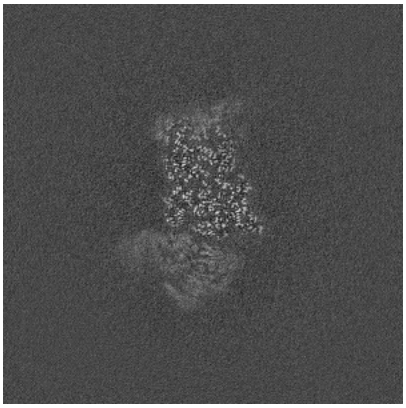


Y Index: 256

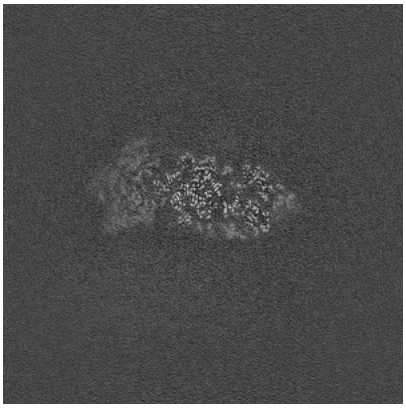


Z Index: 256

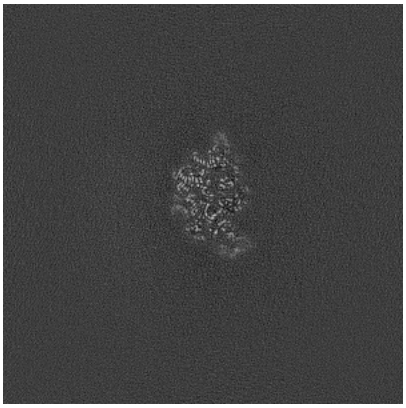
6.2.2 Raw map



X Index: 256



Y Index: 256

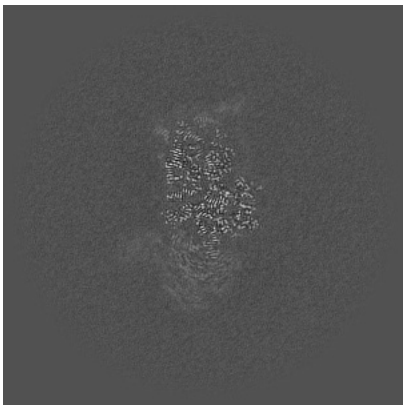


Z Index: 256

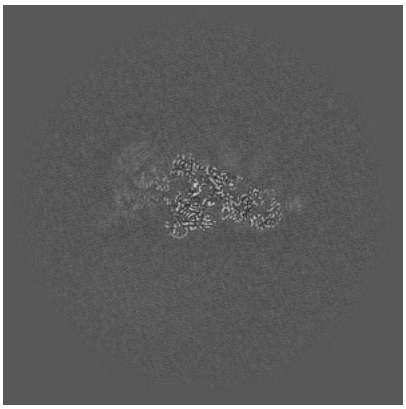
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

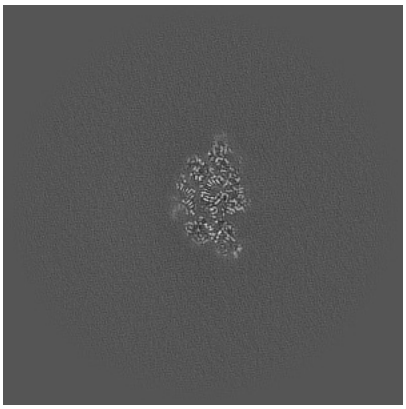
6.3.1 Primary map



X Index: 262

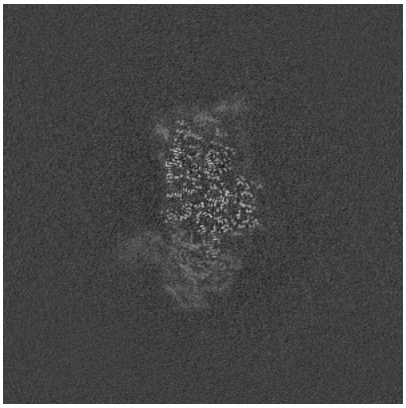


Y Index: 276

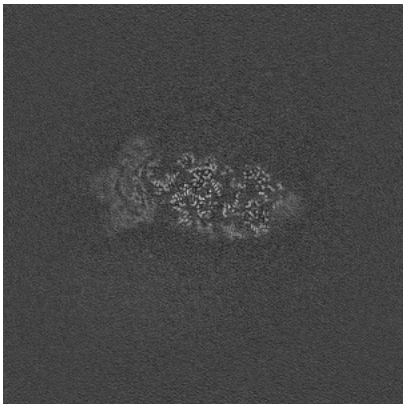


Z Index: 262

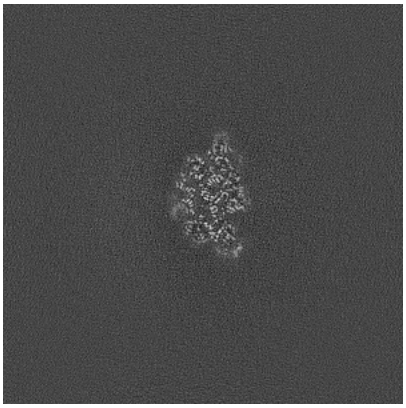
6.3.2 Raw map



X Index: 262



Y Index: 255

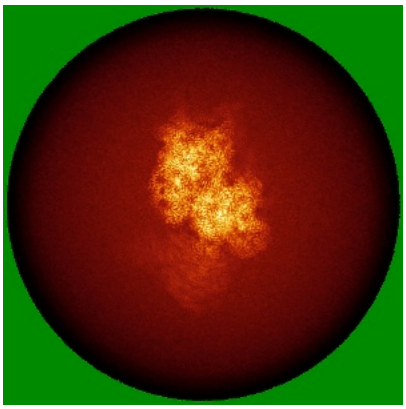


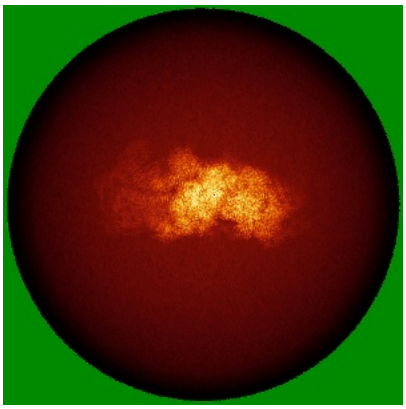
Z Index: 262

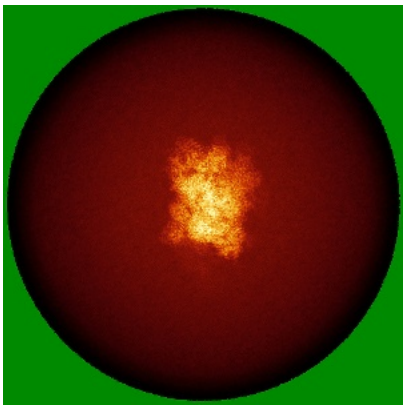
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

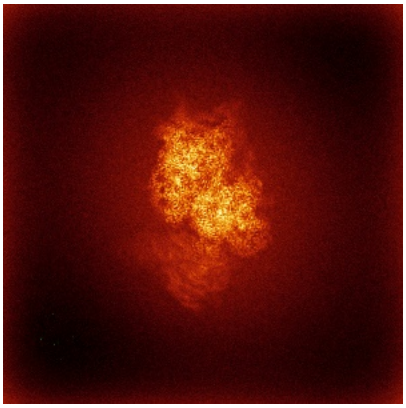
6.4.1 Primary map

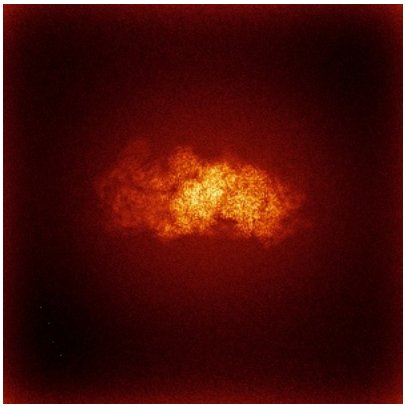

X

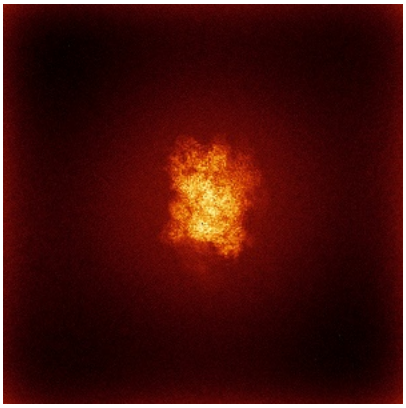

Y


Z

6.4.2 Raw map


X

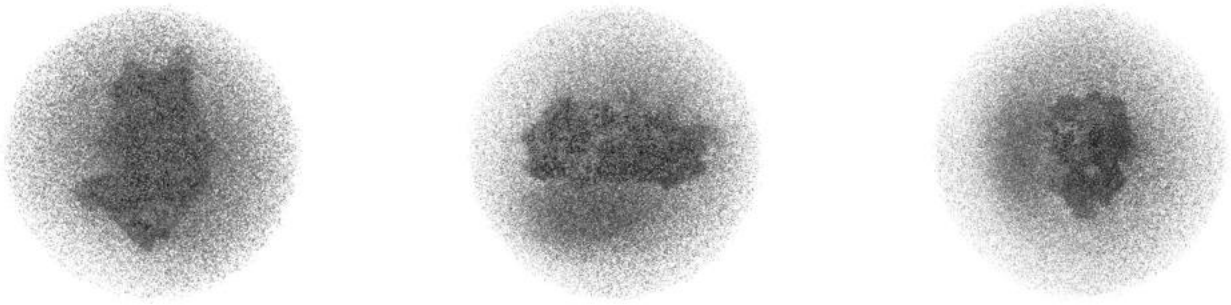

Y


Z

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

6.5 Orthogonal surface views (i)

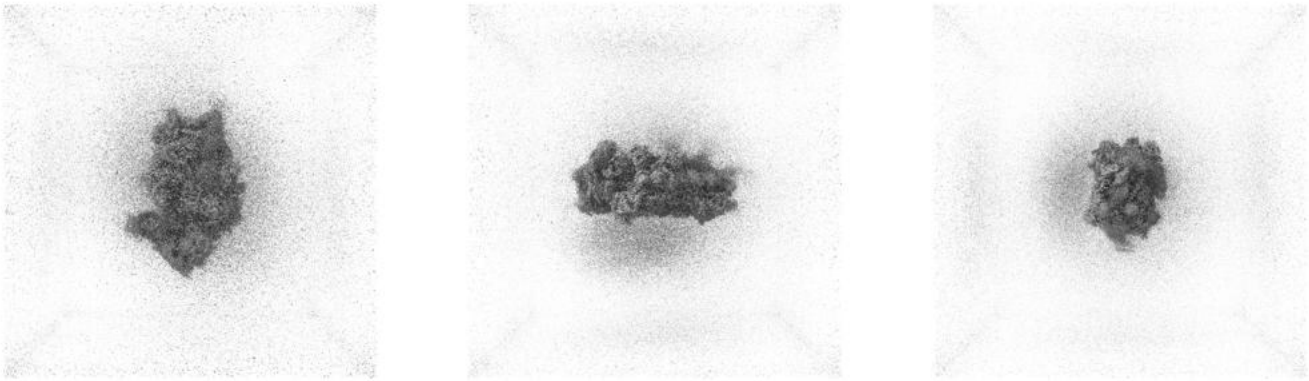
6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.181. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



X Y Z

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

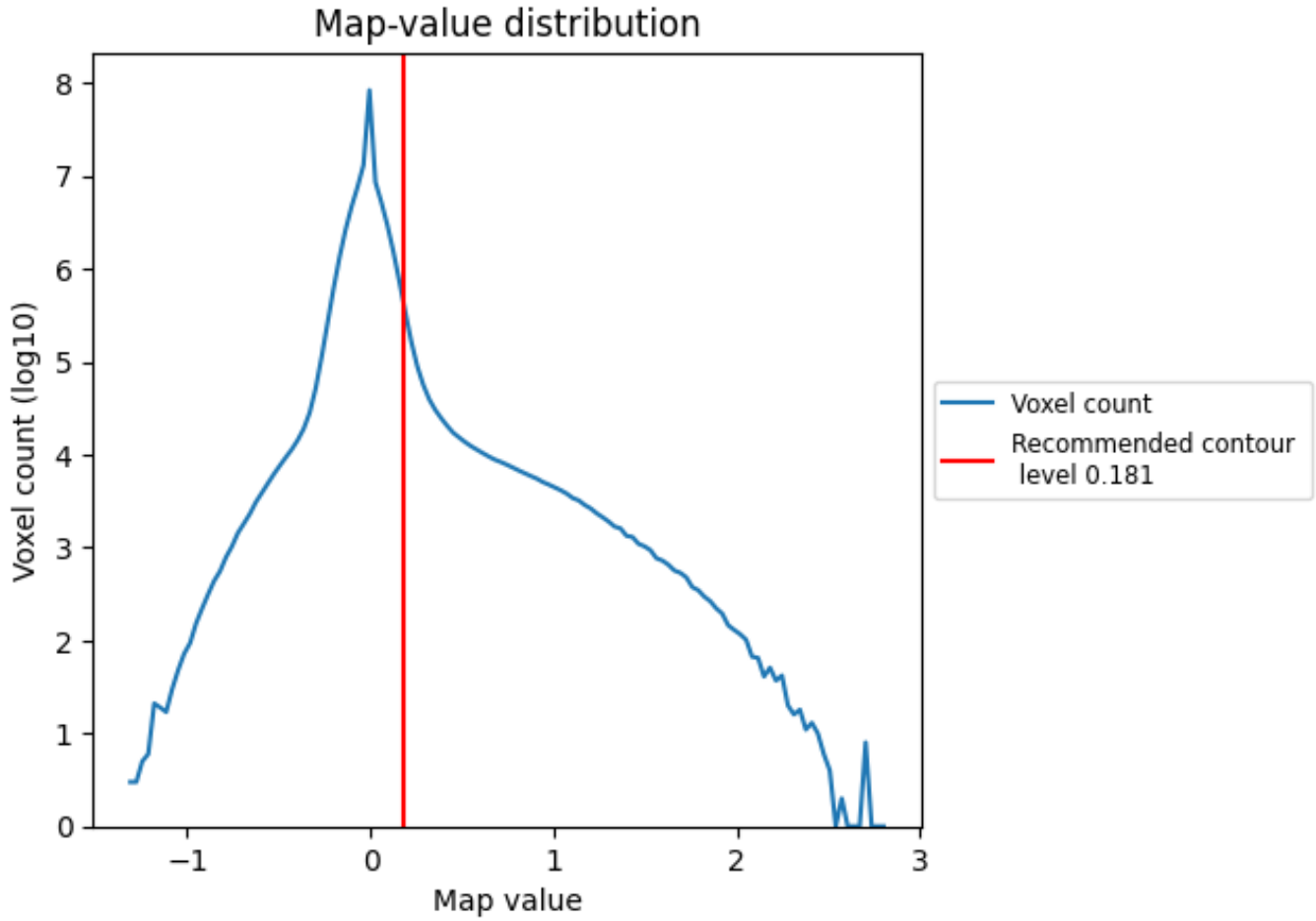
6.6 Mask visualisation (i)

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

7 Map analysis

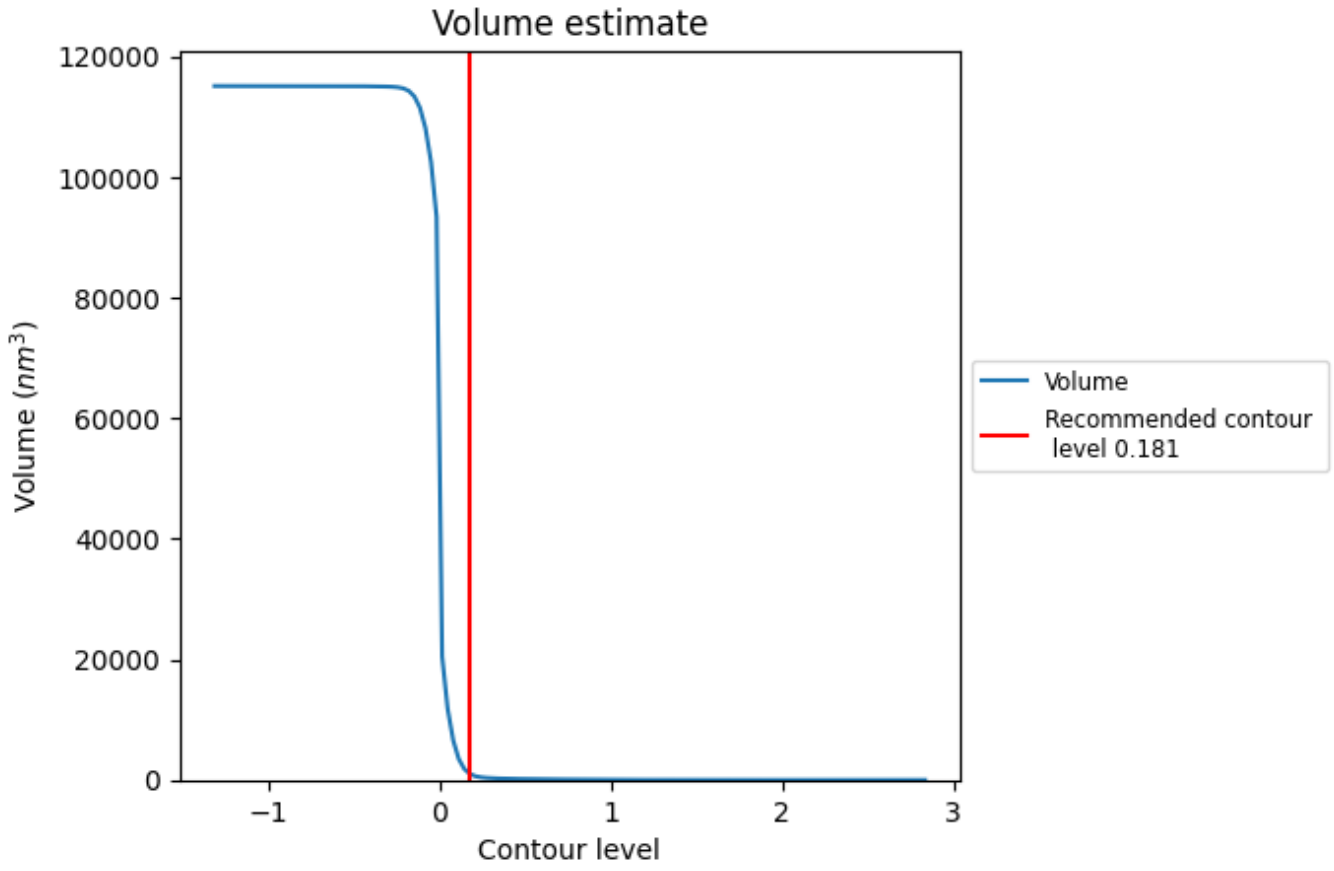
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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.

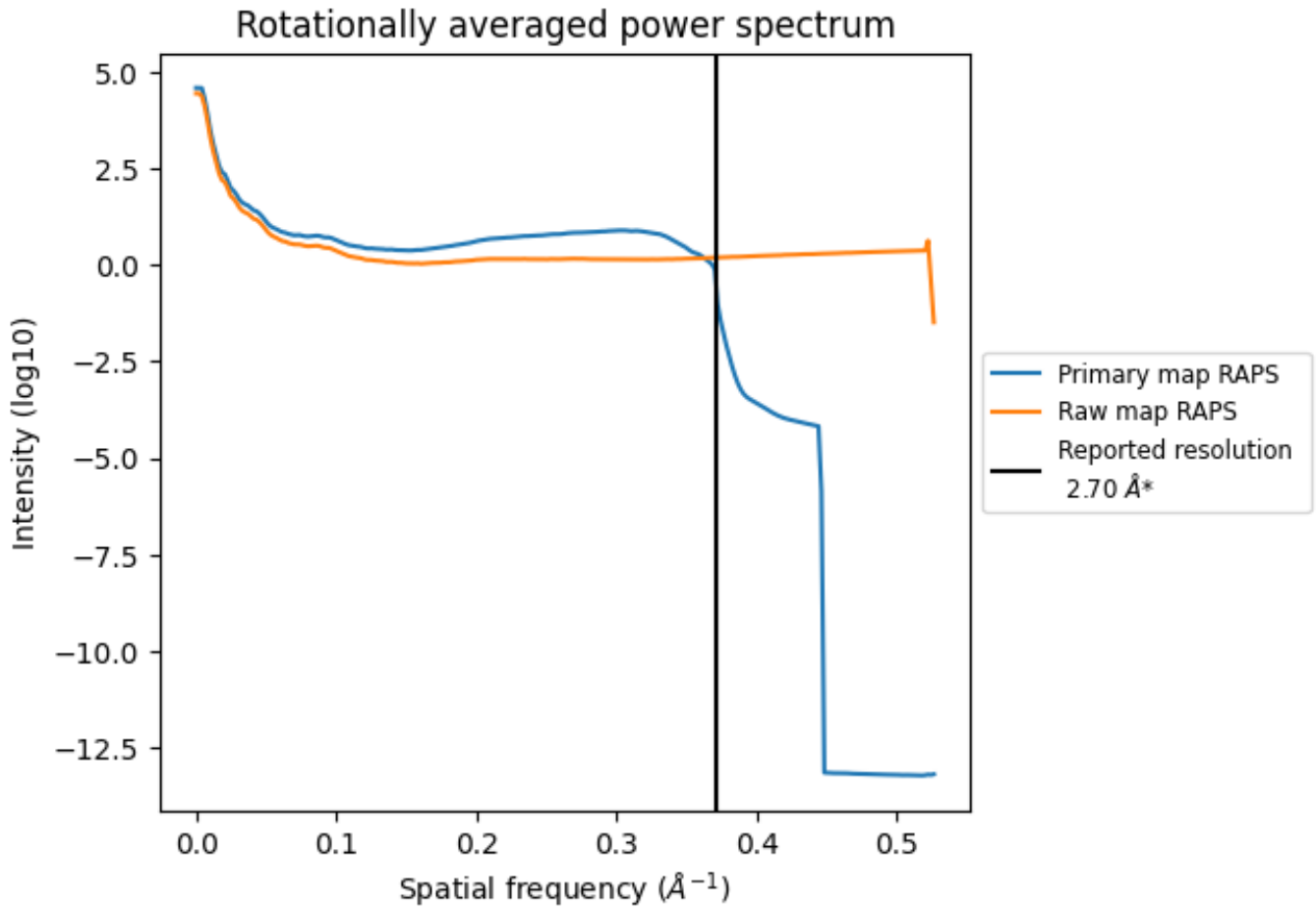
7.2 Volume estimate



The volume at the recommended contour level is 976 nm^3; this corresponds to an approximate mass of 881 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)

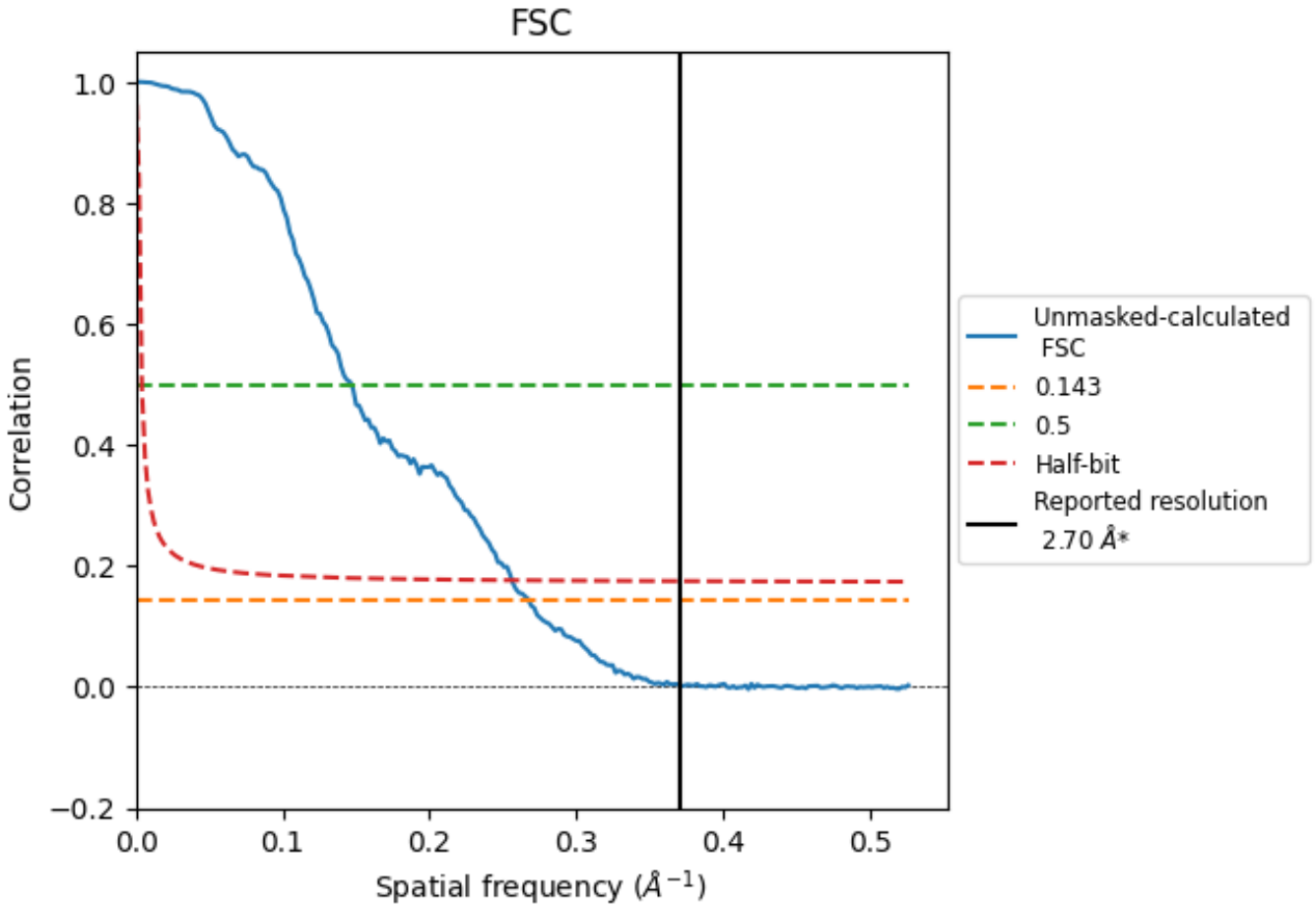


*Reported resolution corresponds to spatial frequency of 0.370 $Å^{-1}$

8 Fourier-Shell correlation

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

8.1 FSC



*Reported resolution corresponds to spatial frequency of 0.370 Å^{-1}

8.2 Resolution estimates (i)

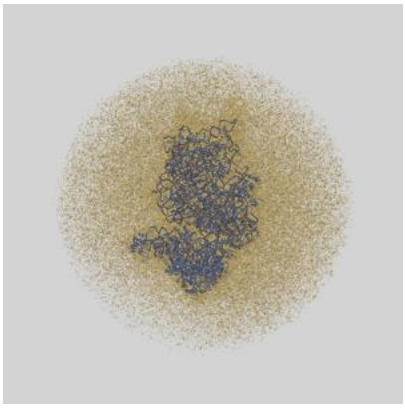
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.70	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.74	6.82	3.90

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.74 differs from the reported value 2.7 by more than 10 %

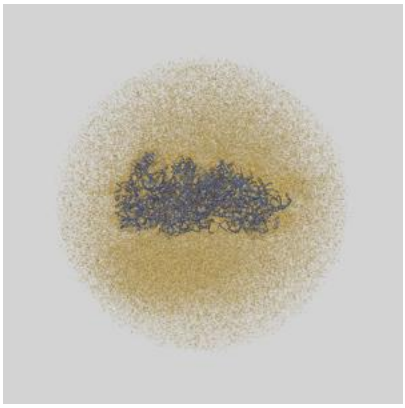
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-62449 and PDB model 9KMY. Per-residue inclusion information can be found in section 3 on page 11.

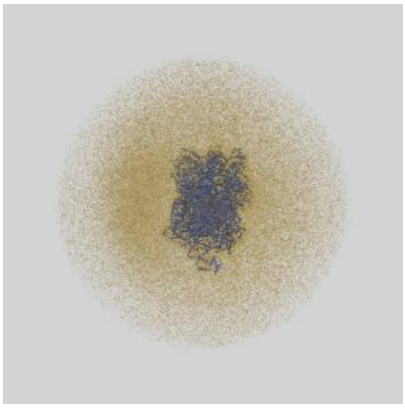
9.1 Map-model overlay



X



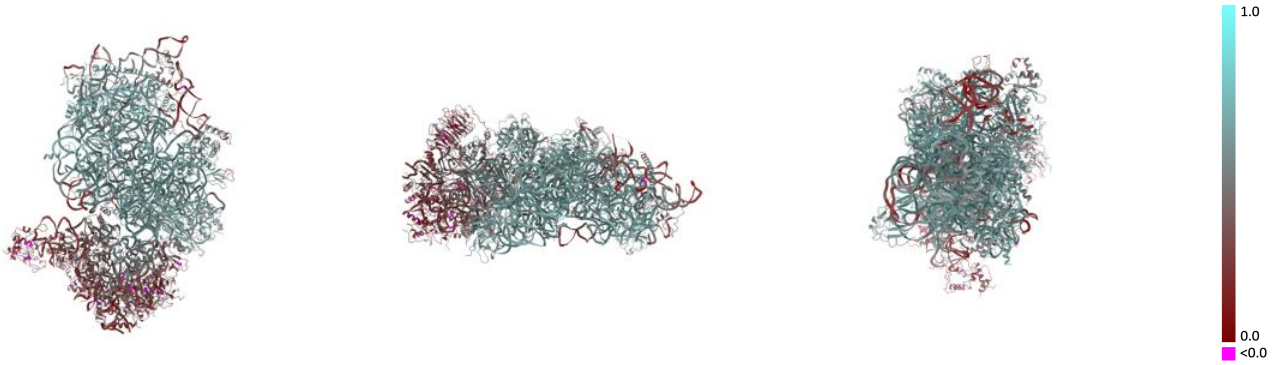
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.181 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.

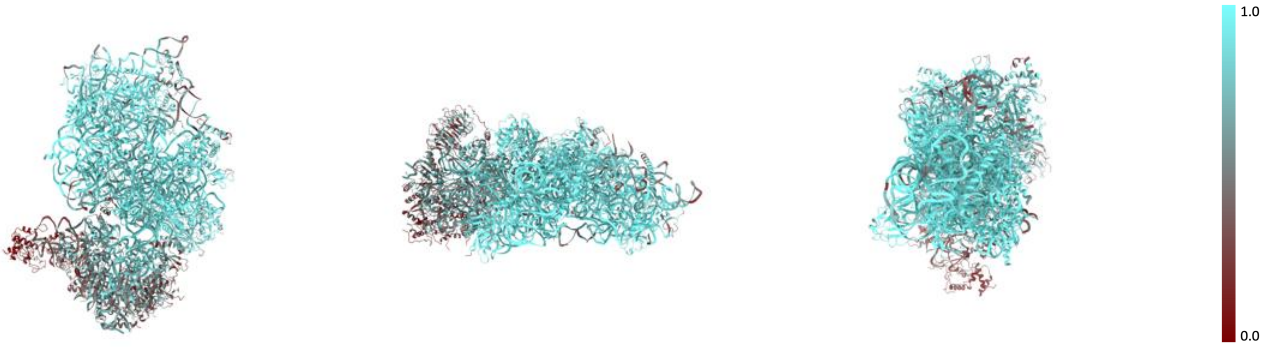
9.2 Q-score mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according 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.

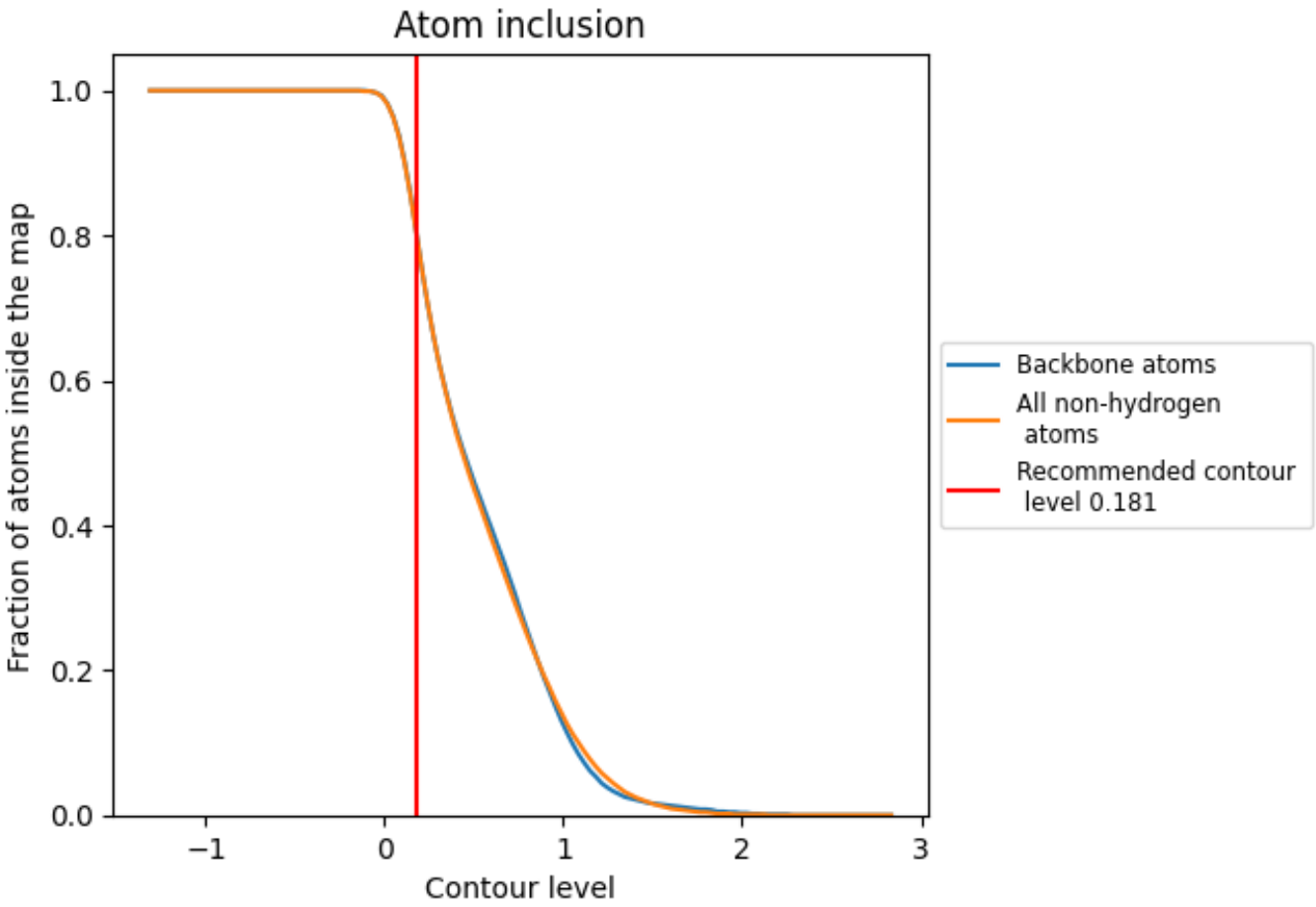
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

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 (0.181).

9.4 Atom inclusion (i)



At the recommended contour level, 80% of all backbone atoms, 80% 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 (0.181) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7980	0.4920
2	0.8620	0.5040
A	0.9430	0.6010
B	0.9280	0.5980
C	0.9580	0.6280
D	0.5960	0.3890
E	0.9680	0.6310
F	0.5060	0.3130
G	0.9080	0.5700
H	0.7910	0.5100
I	0.8950	0.5740
J	0.9670	0.6300
K	0.3950	0.2540
L	0.9180	0.6120
M	0.1450	0.2240
N	0.9540	0.6080
O	0.9070	0.5890
P	0.3460	0.2520
Q	0.5850	0.3390
R	0.7530	0.4910
S	0.3180	0.2470
T	0.4780	0.2840
U	0.5470	0.3440
V	0.9570	0.6170
W	0.9820	0.6400
X	0.9690	0.6310
Y	0.9670	0.6220
Z	0.3280	0.2230
a	0.9480	0.6100
b	0.9060	0.5610
c	0.5410	0.3320
d	0.5580	0.3540
e	0.8430	0.5730
f	0.1280	0.2040
g	0.4850	0.2980

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Chain	Atom inclusion	Q-score
h	0.8870	0.5900
n	0.5670	0.4730