



Full wwPDB EM Validation Report ⓘ

Mar 7, 2026 – 11:50 PM UTC

PDB ID : 6ZUO / pdb_00006zuo
EMDB ID : EMD-11440
Title : Human RIO1(kd)-StHA late pre-40S particle, structural state A (pre 18S rRNA cleavage)
Authors : Plassart, L.; Shayan, R.; Plisson-Chastang, C.
Deposited on : 2020-07-23
Resolution : 3.10 Å(reported)
Based on initial model : 6G51

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:

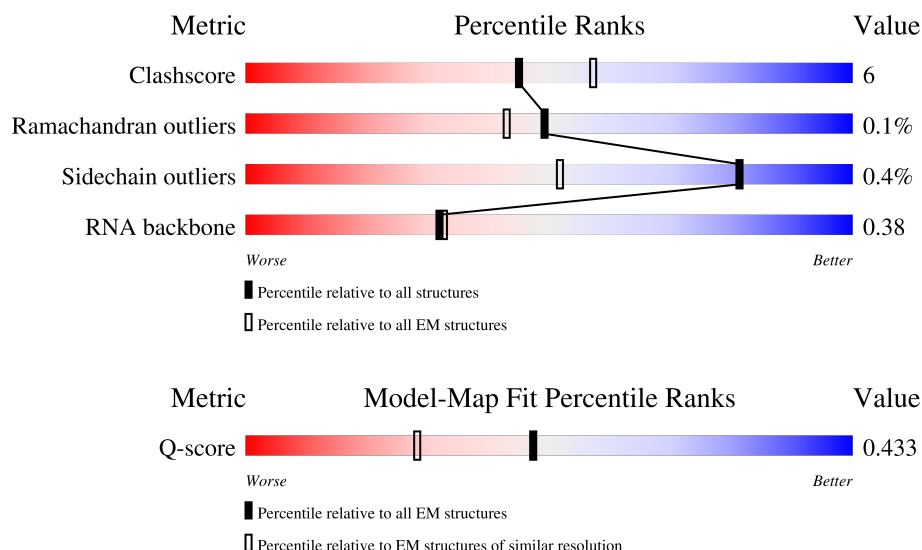
EMDB validation analysis : 0.0.1.dev132
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

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 3.10 Å.

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



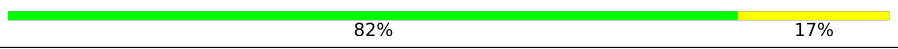
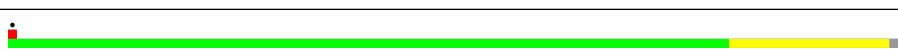
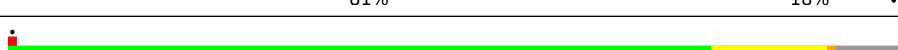
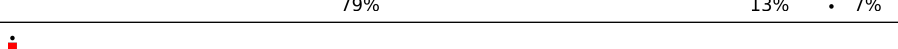
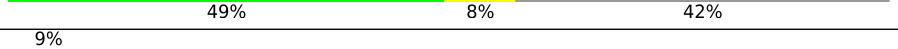
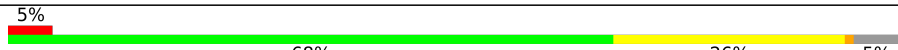
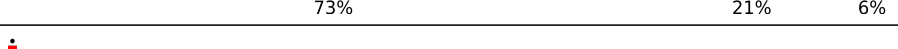
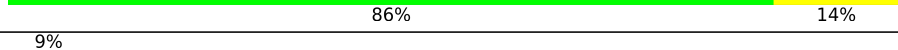
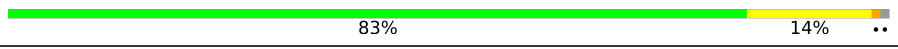
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	14724 (2.60 - 3.60)

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

Mol	Chain	Length	Quality of chain
1	2	1870	
2	A	295	
3	B	264	

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Mol	Chain	Length	Quality of chain
4	C	293	
5	D	243	
6	E	263	
7	F	204	
8	G	249	
9	H	194	
10	I	208	
11	J	194	
12	K	165	
13	L	158	
14	M	132	
15	N	151	
16	O	151	
17	P	145	
18	Q	146	
19	R	135	
20	S	152	
21	T	145	
22	U	119	
23	V	83	
24	W	130	
25	X	143	
26	Y	133	
27	Z	125	
28	b	84	

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Mol	Chain	Length	Quality of chain
29	c	69	13% 68% 19% 12%
30	d	56	5% 79% 20%
31	e	59	12% 90% 5% 5%
32	f	156	13% 29% 11% 60%
33	g	317	5% 76% 23%
34	x	252	52% 17% 31%
35	y	412	31% 65% 12% 23%

2 Entry composition

There are 36 unique types of molecules in this entry. The entry contains 77098 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 pre-18S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	2	1665	Total	C	N	O	P	0	0
			35550	15868	6384	11633	1665		

- Molecule 2 is a protein called 40S ribosomal protein SA.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	A	216	Total	C	N	O	S	0	0
			1705	1083	299	315	8		

- Molecule 3 is a protein called 40S ribosomal protein S3a.

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

- Molecule 4 is a protein called 40S ribosomal protein S2.

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

- Molecule 5 is a protein called 40S ribosomal protein S3.

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

- Molecule 6 is a protein called 40S ribosomal protein S4, X isoform.

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

- Molecule 7 is a protein called 40S ribosomal protein S5.

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 40S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	G	230	Total	C	N	O	S	0	0
			1862	1164	371	320	7		

- Molecule 9 is a protein called 40S ribosomal protein S7.

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 40S ribosomal protein S8.

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 40S ribosomal protein S9.

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 40S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	K	95	Total	C	N	O	S	0	0
			800	522	142	131	5		

- Molecule 13 is a protein called 40S ribosomal protein S11.

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 40S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	M	123	Total	C	N	O	S	0	0
			953	598	169	177	9		

- Molecule 15 is a protein called 40S ribosomal protein S13.

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 40S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	O	135	Total	C	N	O	S	0	0
			1009	618	198	187	6		

- Molecule 17 is a protein called 40S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	P	120	Total	C	N	O	S	0	0
			984	625	184	168	7		

- Molecule 18 is a protein called 40S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	Q	139	Total	C	N	O	S	0	0
			1109	704	210	192	3		

- Molecule 19 is a protein called 40S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	R	122	Total	C	N	O	S	0	0
			990	621	184	182	3		

- Molecule 20 is a protein called 40S ribosomal protein S18.

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 40S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	T	144	Total	C	N	O	S	0	0
			1122	703	217	199	3		

- Molecule 22 is a protein called 40S ribosomal protein S20.

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 40S ribosomal protein S21.

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 40S ribosomal protein S15a.

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 40S ribosomal protein S23.

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 40S ribosomal protein S24.

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 40S ribosomal protein S25.

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 40S ribosomal protein S27.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	b	82	Total	C	N	O	S	0	0
			640	402	118	113	7		

- Molecule 29 is a protein called 40S ribosomal protein S28.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	c	61	Total	C	N	O	S	0	0
			479	292	95	90	2		

- Molecule 30 is a protein called 40S ribosomal protein S29.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	d	55	Total	C	N	O	S	0	0
			458	286	94	73	5		

- Molecule 31 is a protein called 40S ribosomal protein S30.

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

- Molecule 32 is a protein called Ubiquitin-40S ribosomal protein S27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	f	63	Total	C	N	O	S	0	0
			510	320	97	86	7		

- Molecule 33 is a protein called Receptor of activated protein C kinase 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	g	314	Total	C	N	O	S	0	0
			2440	1537	425	466	12		

- Molecule 34 is a protein called RNA-binding protein PNO1.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	x	175	Total	C	N	O	S	0	0
			1365	878	249	234	4		

- Molecule 35 is a protein called RNA-binding protein NOB1.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	y	317	Total	C	N	O	S	0	0
			2490	1576	456	448	10		

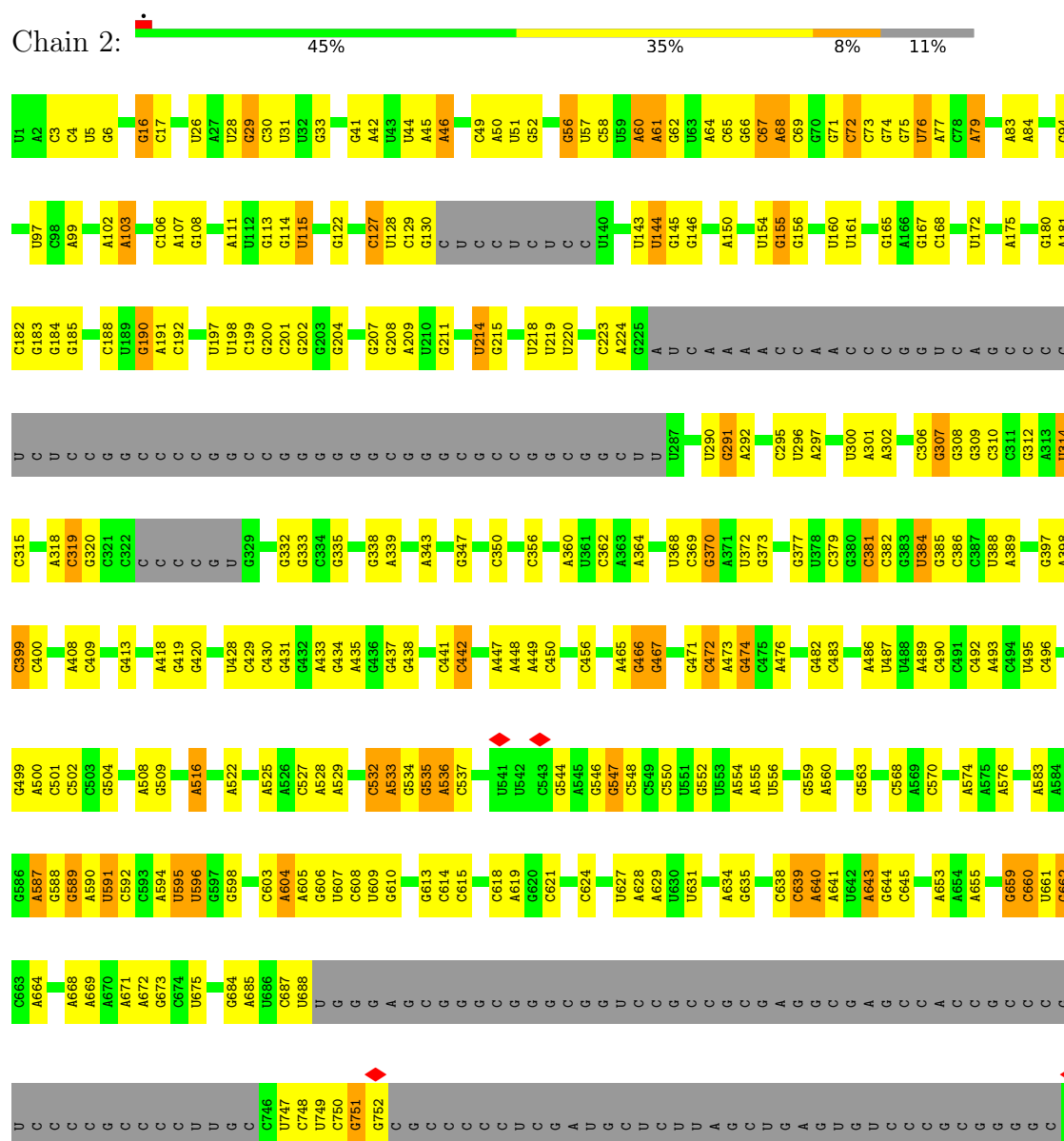
- Molecule 36 is ZINC ION (CCD ID: ZN) (formula: Zn).

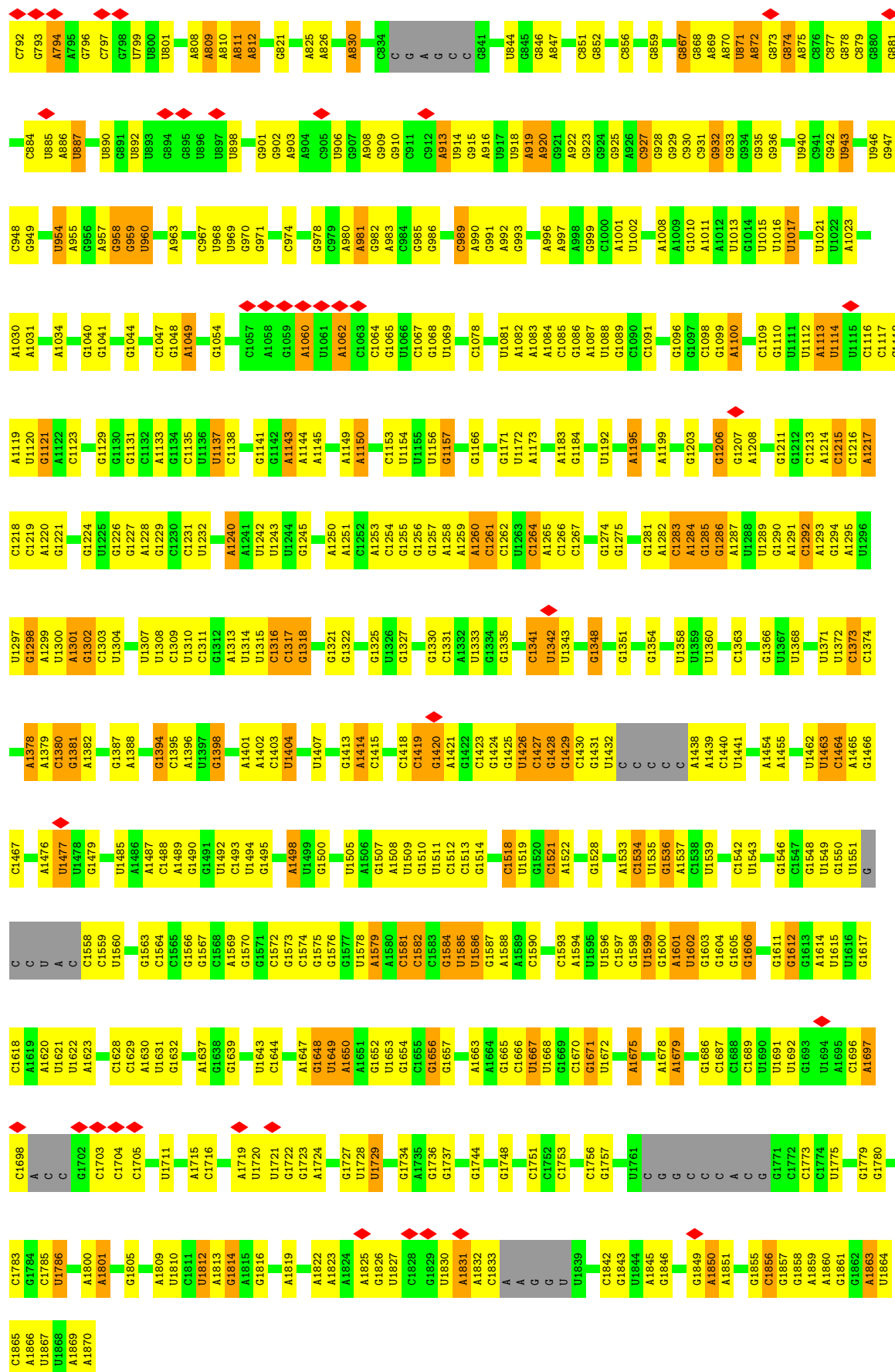
Mol	Chain	Residues	Atoms		AltConf
36	d	1	Total	Zn	0
			1	1	
36	f	1	Total	Zn	0
			1	1	
36	y	1	Total	Zn	0
			1	1	

3 Residue-property plots

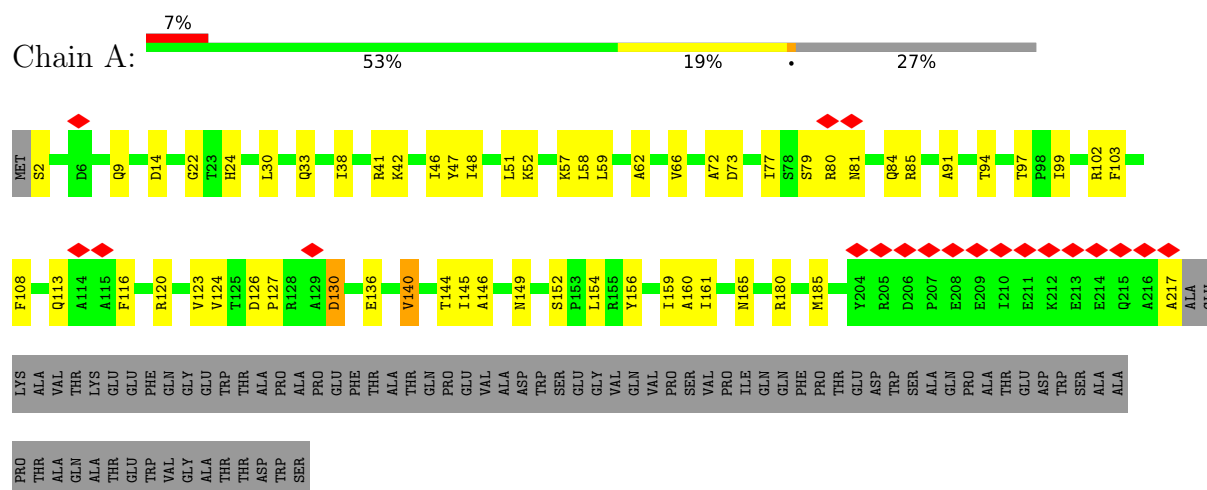
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

- Molecule 1: pre-18S ribosomal RNA

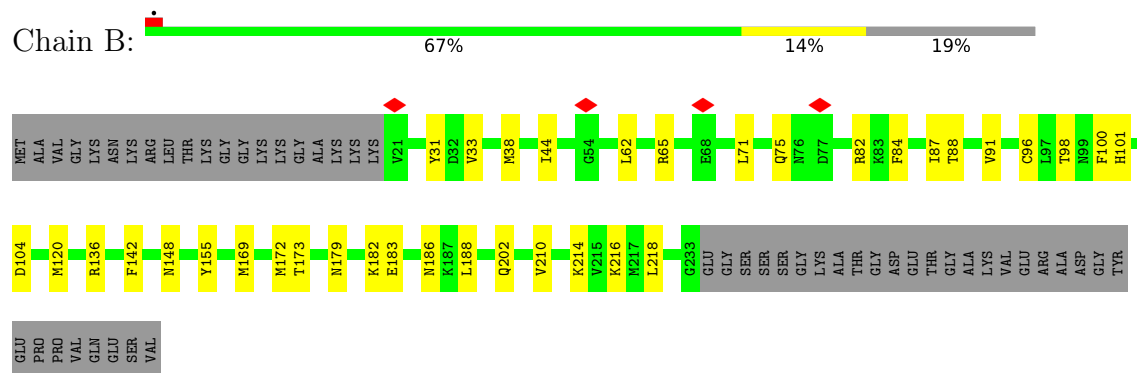




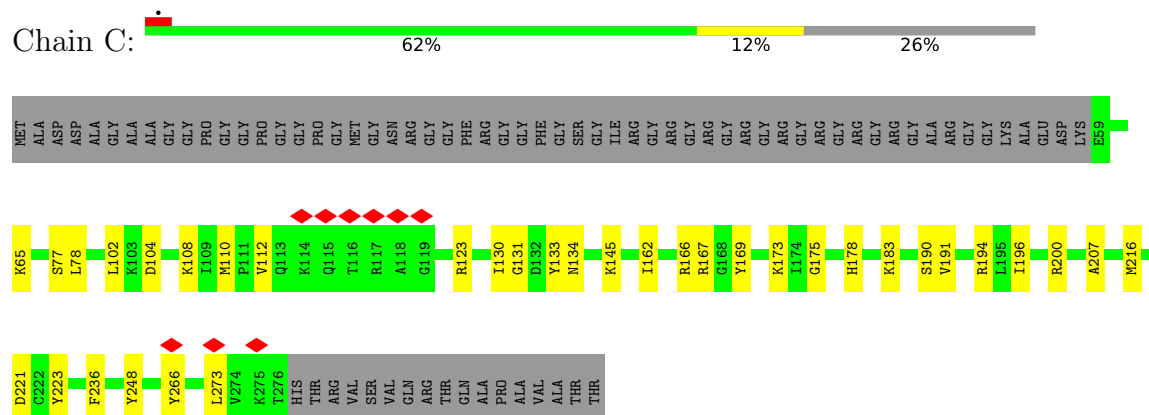
- Molecule 2: 40S ribosomal protein SA



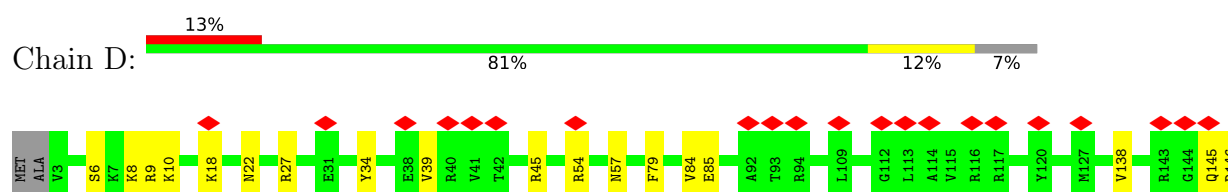
- Molecule 3: 40S ribosomal protein S3a

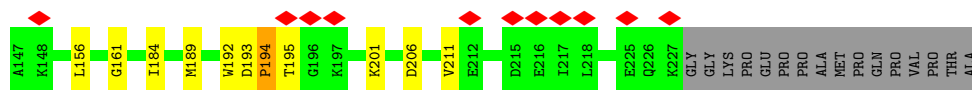


- Molecule 4: 40S ribosomal protein S2



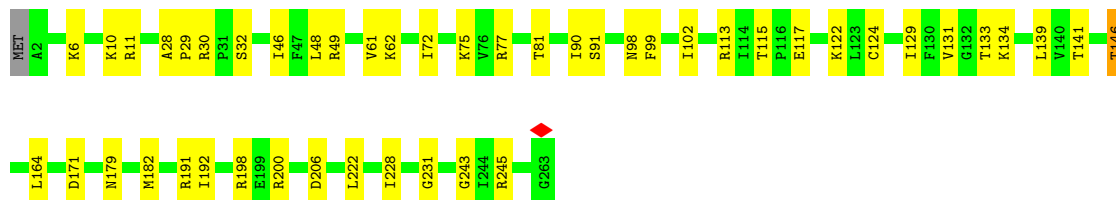
- Molecule 5: 40S ribosomal protein S3





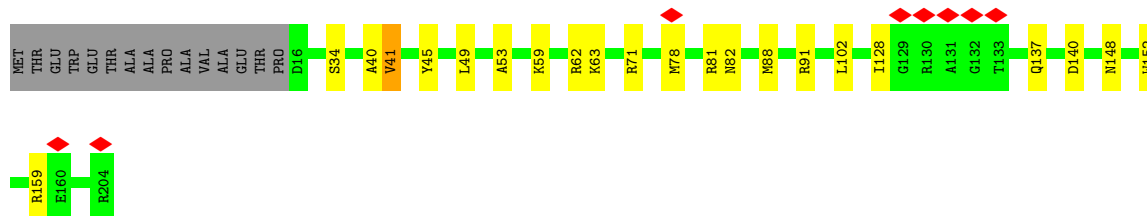
- Molecule 6: 40S ribosomal protein S4, X isoform

Chain E: 82% 17%



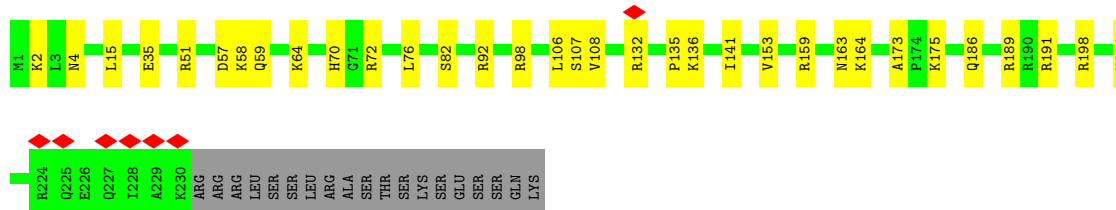
- Molecule 7: 40S ribosomal protein S5

Chain F: 82% 10% 7%



- Molecule 8: 40S ribosomal protein S6

Chain G: 79% 13% 8%



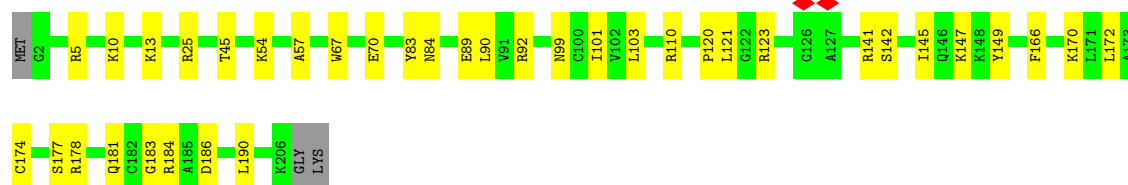
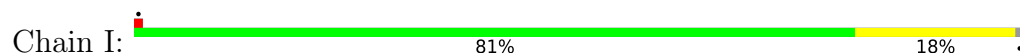
- Molecule 9: 40S ribosomal protein S7

Chain H: 53% 78% 18%

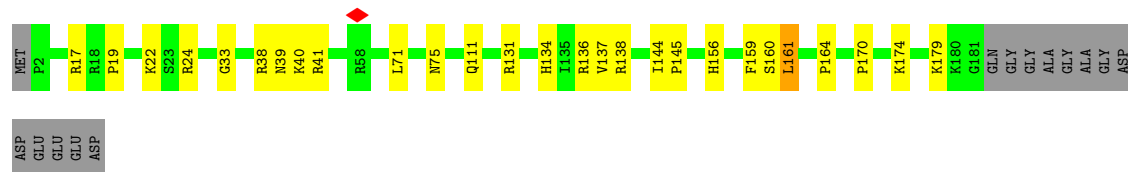
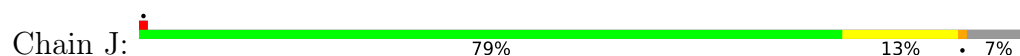




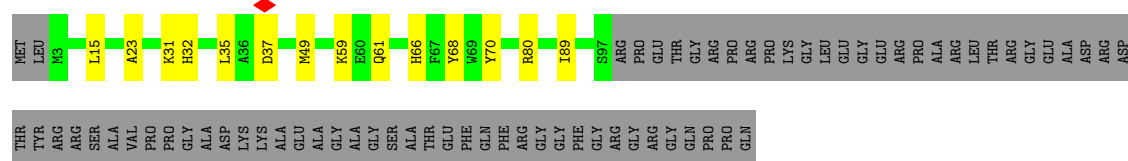
- Molecule 10: 40S ribosomal protein S8



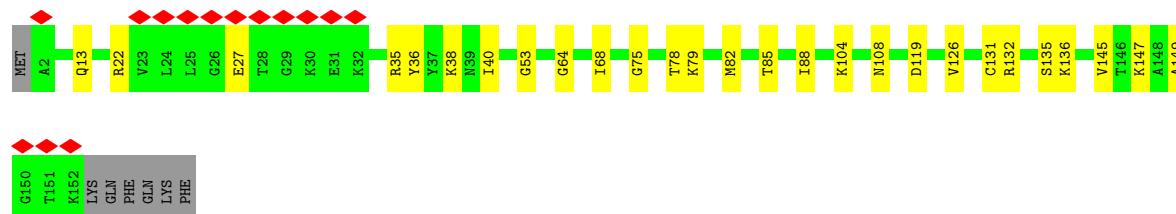
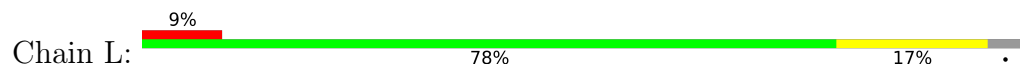
- Molecule 11: 40S ribosomal protein S9



- Molecule 12: 40S ribosomal protein S10

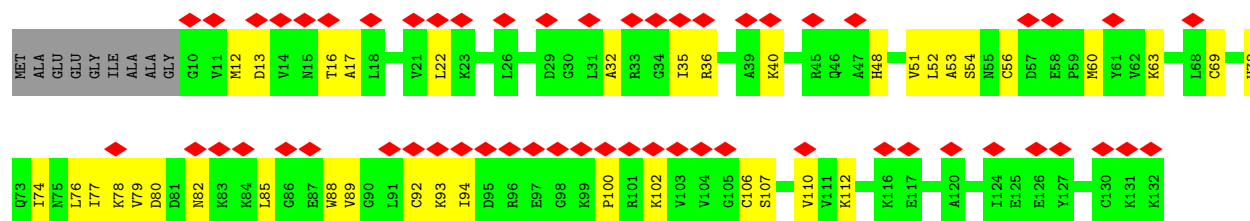


- Molecule 13: 40S ribosomal protein S11

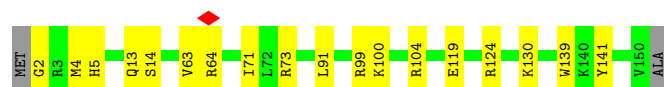
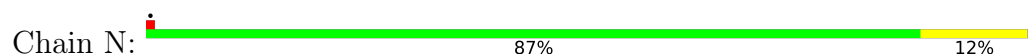


- Molecule 14: 40S ribosomal protein S12

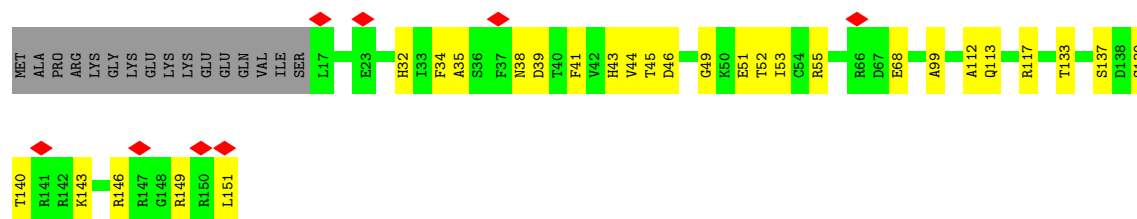




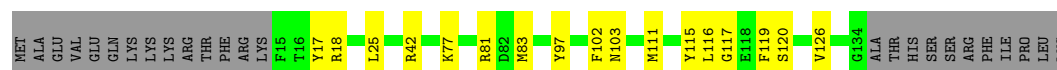
• Molecule 15: 40S ribosomal protein S13



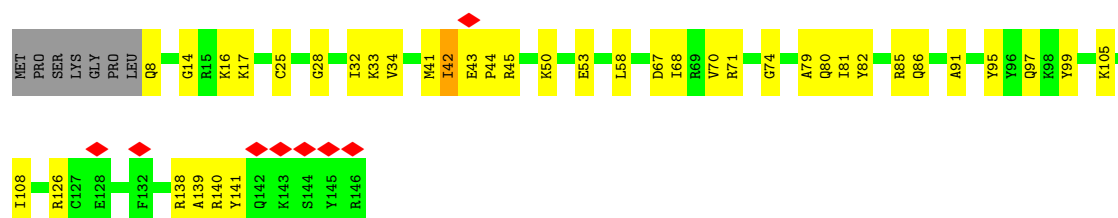
• Molecule 16: 40S ribosomal protein S14



• Molecule 17: 40S ribosomal protein S15

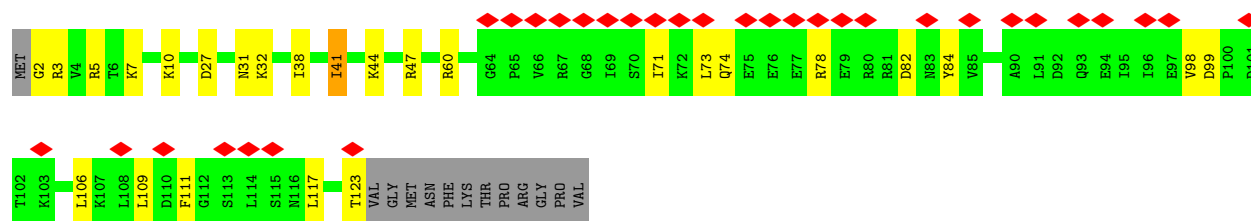


• Molecule 18: 40S ribosomal protein S16

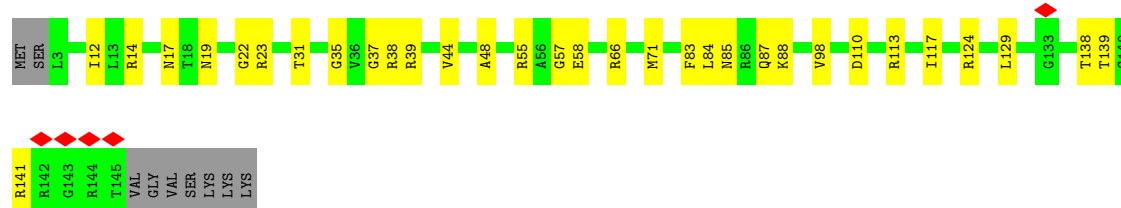


• Molecule 19: 40S ribosomal protein S17

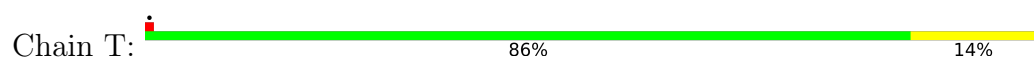




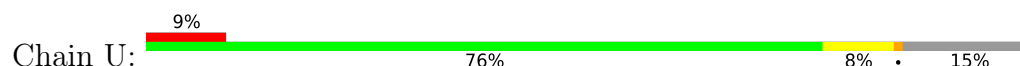
- Molecule 20: 40S ribosomal protein S18



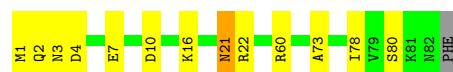
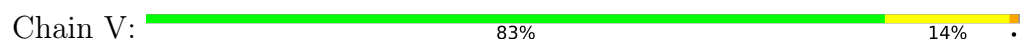
- Molecule 21: 40S ribosomal protein S19



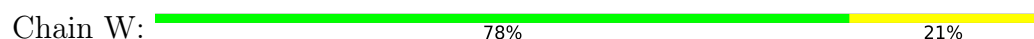
- Molecule 22: 40S ribosomal protein S20



- Molecule 23: 40S ribosomal protein S21

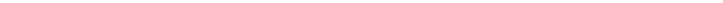


- Molecule 24: 40S ribosomal protein S15a

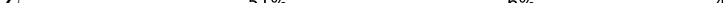


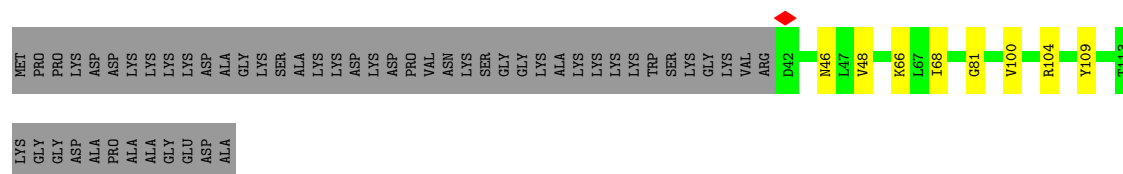
- Molecule 25: 40S ribosomal protein S23

MIT
C2
R5
R11
R17
Q61
P62
N63
R67
K68
F84
V85
P86
N87
D88
L91
R107
H110
A111
V112
G113
D114
V118
R119
K137
R142
SFR

- Chain Y:  74% 18% 7%

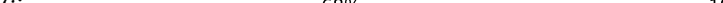


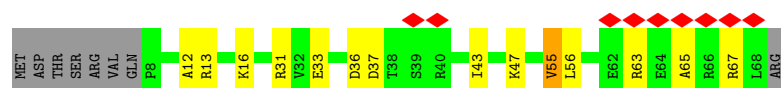
- Chain Z: 

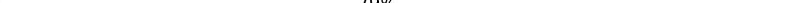


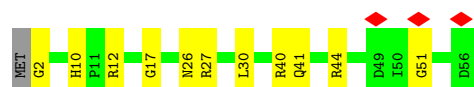
- Chain b:  7% 82% 15%

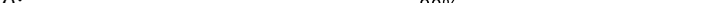


- Chain c: 



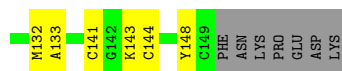
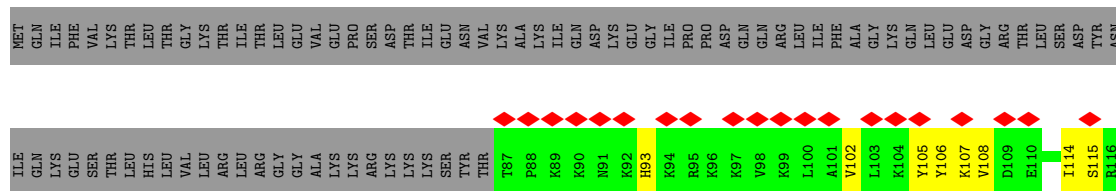
- Chain d: 



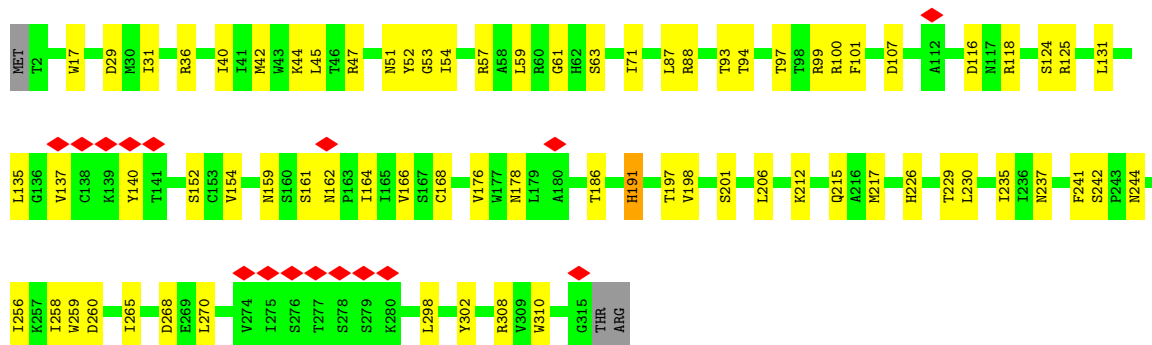
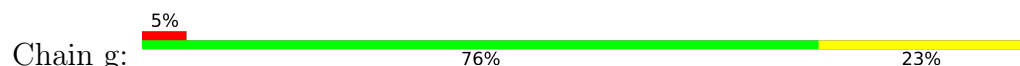
- Chain e:  12% 90% 5% 5%



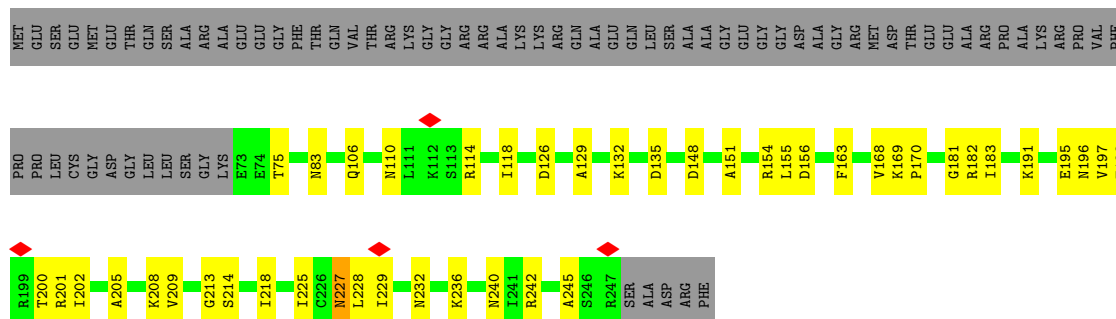
- Molecule 32: Ubiquitin-40S ribosomal protein S27a



- Molecule 33: Receptor of activated protein C kinase 1

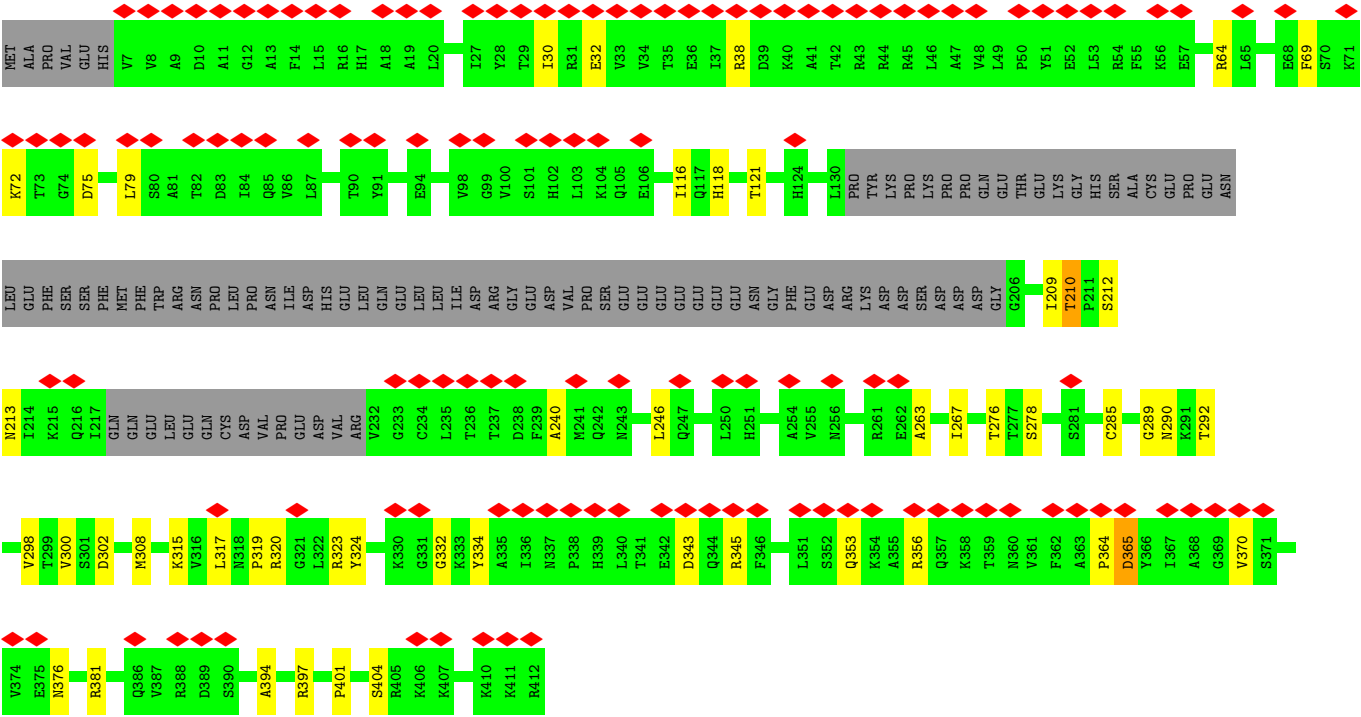


- Molecule 34: RNA-binding protein PNO1



- Molecule 35: RNA-binding protein NOB1





4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	104844	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	29.4	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.059	Depositor
Minimum map value	-0.030	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.002	Depositor
Recommended contour level	0.0045	Depositor
Map size (Å)	399.36, 399.36, 399.36	wwPDB
Map dimensions	384, 384, 384	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.04, 1.04, 1.04	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: ZN

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	0.43	0/39751	0.52	4/61945 (0.0%)
2	A	0.36	0/1742	0.68	1/2367 (0.0%)
3	B	0.42	0/1756	0.70	0/2350
4	C	0.45	0/1726	0.69	2/2332 (0.1%)
5	D	0.31	0/1780	0.66	0/2397
6	E	0.49	0/2118	0.70	0/2849
7	F	0.44	0/1516	0.75	0/2037
8	G	0.44	0/1885	0.68	0/2510
9	H	0.22	0/1524	0.55	0/2042
10	I	0.45	0/1711	0.72	0/2282
11	J	0.48	0/1524	0.72	2/2035 (0.1%)
12	K	0.39	0/824	0.67	0/1112
13	L	0.47	0/1250	0.64	0/1673
14	M	0.24	0/963	0.69	0/1291
15	N	0.42	1/1226 (0.1%)	0.67	0/1649
16	O	0.42	0/1022	0.79	0/1372
17	P	0.43	0/1003	0.74	0/1341
18	Q	0.45	0/1126	0.81	0/1506
19	R	0.31	0/1002	0.68	2/1345 (0.1%)
20	S	0.43	0/1202	0.77	0/1610
21	T	0.45	0/1142	0.71	0/1530
22	U	0.30	0/813	0.65	0/1092
23	V	0.34	0/631	0.65	0/844
24	W	0.46	0/1051	0.76	2/1406 (0.1%)
25	X	0.52	0/1116	0.77	1/1490 (0.1%)
26	Y	0.47	0/1031	0.71	0/1370
27	Z	0.38	0/580	0.74	0/780
28	b	0.32	0/653	0.75	0/876
29	c	0.41	0/481	0.77	2/643 (0.3%)
30	d	0.39	0/469	0.77	0/623
31	e	0.44	0/447	0.68	0/587
32	f	0.23	0/520	0.56	0/690

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	g	0.36	0/2497	0.70	0/3399
34	x	0.43	0/1387	0.72	0/1871
35	y	0.29	0/2539	0.67	1/3430 (0.0%)
All	All	0.42	1/82008 (0.0%)	0.62	17/118676 (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
3	B	0	1
5	D	0	2
7	F	0	2
9	H	0	1
14	M	0	1
18	Q	0	1
25	X	0	2
35	y	0	2
All	All	0	12

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
15	N	5	HIS	C-N	-5.92	1.25	1.33

All (17) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
35	y	116	ILE	N-CA-C	-7.00	105.68	111.91
29	c	36	ASP	CA-C-N	6.49	133.94	121.54
29	c	36	ASP	C-N-CA	6.49	133.94	121.54
24	W	46	TYR	CA-C-N	-6.01	116.46	122.77
24	W	46	TYR	C-N-CA	-6.01	116.46	122.77
25	X	61	GLN	N-CA-C	5.61	120.54	113.25
2	A	140	VAL	N-CA-C	-5.48	107.39	112.43
11	J	137	VAL	CA-C-N	5.39	131.84	121.54
11	J	137	VAL	C-N-CA	5.39	131.84	121.54
1	2	501	C	C2-N1-C1'	5.36	134.88	118.80
1	2	1137	U	C2'-C3'-O3'	5.35	121.73	113.70
4	C	133	TYR	CA-C-N	5.29	135.81	126.45
4	C	133	TYR	C-N-CA	5.29	135.81	126.45

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	2	547	G	P-O3'-C3'	5.28	128.11	120.20
1	2	1316	C	P-O3'-C3'	5.06	127.79	120.20
19	R	109	LEU	CA-C-N	5.06	131.20	121.54
19	R	109	LEU	C-N-CA	5.06	131.20	121.54

There are no chirality outliers.

All (12) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
3	B	75	GLN	Peptide
5	D	194	PRO	Peptide
5	D	195	THR	Peptide
7	F	40	ALA	Peptide
7	F	82	ASN	Peptide
9	H	88	SER	Peptide
14	M	79	VAL	Peptide
18	Q	42	ILE	Peptide
25	X	112	VAL	Peptide
25	X	119	ARG	Peptide
35	y	210	THR	Peptide
35	y	365	ASP	Peptide

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	2	35550	0	17950	368	0
2	A	1705	0	1706	46	0
3	B	1729	0	1803	27	0
4	C	1690	0	1777	23	0
5	D	1752	0	1848	20	0
6	E	2076	0	2177	28	0
7	F	1495	0	1549	15	0
8	G	1862	0	2018	28	0
9	H	1501	0	1593	23	0
10	I	1682	0	1769	26	0
11	J	1499	0	1618	19	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
12	K	800	0	818	8	0
13	L	1229	0	1302	18	0
14	M	953	0	990	24	0
15	N	1202	0	1289	12	0
16	O	1009	0	1034	24	0
17	P	984	0	1028	12	0
18	Q	1109	0	1174	29	0
19	R	990	0	1037	22	0
20	S	1184	0	1244	25	0
21	T	1122	0	1153	18	0
22	U	803	0	873	7	0
23	V	625	0	628	11	0
24	W	1034	0	1080	17	0
25	X	1098	0	1167	12	0
26	Y	1014	0	1082	16	0
27	Z	574	0	627	7	0
28	b	640	0	665	9	0
29	c	479	0	507	13	0
30	d	458	0	448	10	0
31	e	442	0	487	3	0
32	f	510	0	522	13	0
33	g	2440	0	2396	43	0
34	x	1365	0	1447	30	0
35	y	2490	0	2542	41	0
36	d	1	0	0	0	0
36	f	1	0	0	0	0
36	y	1	0	0	0	0
All	All	77098	0	61348	837	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 6.

All (837) 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)
1:2:1729:U:H3	1:2:1805:G:H1	1.02	0.95
1:2:185:G:H1	1:2:214:U:H3	1.10	0.93
1:2:150:A:H62	1:2:168:C:H42	1.19	0.91
1:2:925:G:H1	1:2:1017:U:H3	1.14	0.91
1:2:16:G:H21	1:2:1195:A:H62	1.16	0.89
1:2:1091:C:HO2'	24:W:2:VAL:N	1.71	0.89

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:197:U:H3	1:2:202:G:H1	1.24	0.83
1:2:1653:U:H3	1:2:1671:G:H1	1.25	0.81
1:2:1351:G:H1	1:2:1360:U:H3	1.27	0.80
1:2:150:A:H62	1:2:168:C:N4	1.80	0.80
1:2:16:G:N2	1:2:1195:A:H62	1.80	0.78
1:2:1302:G:H1	1:2:1307:U:H3	1.31	0.77
1:2:1748:G:H1	1:2:1786:U:H3	1.34	0.76
18:Q:8:GLN:N	18:Q:99:TYR:HH	1.88	0.72
1:2:1098:C:H5''	35:y:323:ARG:HH21	1.54	0.72
1:2:959:G:H5''	16:O:38:ASN:HD21	1.56	0.71
11:J:38:ARG:HA	31:e:31:ARG:HB3	1.71	0.71
2:A:41:ARG:HH21	35:y:319:PRO:HB2	1.57	0.69
2:A:120:ARG:HE	4:C:266:TYR:HB3	1.58	0.68
33:g:17:TRP:HB2	33:g:36:ARG:HD3	1.76	0.68
16:O:99:ALA:H	16:O:133:THR:HG22	1.59	0.68
5:D:194:PRO:HB3	5:D:201:LYS:HA	1.75	0.68
16:O:117:ARG:HG3	34:x:132:LYS:HE3	1.75	0.67
22:U:17:ILE:HB	22:U:94:PRO:HA	1.76	0.67
1:2:1657:G:H1	1:2:1667:U:H3	1.42	0.67
34:x:205:ALA:HB3	34:x:208:LYS:HB2	1.75	0.67
1:2:379:C:O2	10:I:5:ARG:NH1	2.28	0.66
1:2:1542:C:H5''	21:T:62:ARG:HH12	1.60	0.66
22:U:54:VAL:HG22	22:U:88:LEU:HB2	1.79	0.65
1:2:64:A:H2	1:2:83:A:H62	1.44	0.65
1:2:1489:A:N3	5:D:146:ARG:NH1	2.45	0.65
1:2:1143:A:H5'	4:C:190:SER:HB3	1.78	0.65
1:2:1729:U:O2	1:2:1805:G:N2	2.29	0.64
1:2:1757:G:O6	1:2:1775:U:C2	2.50	0.64
29:c:31:ARG:HA	29:c:43:ILE:HG23	1.80	0.64
29:c:63:ARG:NH1	35:y:364:PRO:O	2.31	0.64
2:A:77:ILE:HG12	2:A:99:ILE:HB	1.80	0.64
16:O:34:PHE:HB3	16:O:41:PHE:HB2	1.80	0.64
27:Z:68:ILE:HB	27:Z:109:TYR:HB2	1.80	0.63
18:Q:44:PRO:HG2	18:Q:81:ILE:HD11	1.79	0.63
29:c:13:ARG:HB2	29:c:33:GLU:HB3	1.79	0.63
18:Q:28:GLY:HA3	18:Q:67:ASP:HB2	1.79	0.63
20:S:12:ILE:HG23	20:S:19:ASN:HD21	1.64	0.63
4:C:131:GLY:HA3	4:C:216:MET:HB3	1.80	0.63
19:R:71:ILE:HG22	19:R:73:LEU:H	1.64	0.63
14:M:13:ASP:H	14:M:16:THR:HB	1.62	0.63
34:x:182:ARG:HH11	34:x:229:ILE:HA	1.64	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1387:G:N2	5:D:206:ASP:OD1	2.30	0.63
1:2:1477:U:OP2	19:R:3:ARG:NH2	2.30	0.62
1:2:1598:G:H2'	27:Z:81:GLY:H	1.64	0.62
33:g:258:ILE:HD12	33:g:268:ASP:HB3	1.81	0.62
1:2:587:A:H5'	1:2:592:C:H41	1.64	0.62
1:2:1550:G:H3'	1:2:1579:A:H61	1.64	0.62
8:G:59:GLN:HG3	8:G:72:ARG:HH21	1.63	0.62
10:I:142:SER:H	10:I:145:ILE:HB	1.63	0.62
35:y:210:THR:OG1	35:y:213:ASN:ND2	2.32	0.62
9:H:144:ILE:HB	24:W:52:ILE:HB	1.82	0.61
14:M:32:ALA:HB3	14:M:110:VAL:HB	1.82	0.61
14:M:48:HIS:ND1	14:M:112:LYS:O	2.32	0.61
10:I:99:ASN:ND2	10:I:174:CYS:SG	2.73	0.61
7:F:71:ARG:NH2	7:F:148:ASN:OD1	2.34	0.61
1:2:954:U:O2	16:O:55:ARG:NH2	2.34	0.61
35:y:30:ILE:HG22	35:y:32:GLU:H	1.66	0.61
1:2:1606:G:N2	1:2:1632:G:O2'	2.34	0.61
9:H:109:ARG:HD3	9:H:111:LYS:HE3	1.81	0.61
1:2:312:G:O2'	8:G:191:ARG:NH1	2.34	0.61
1:2:1462:U:H5''	1:2:1463:U:H5''	1.82	0.61
6:E:99:PHE:HE1	6:E:113:ARG:HG2	1.66	0.61
1:2:1396:A:O2'	1:2:1398:G:N7	2.31	0.61
8:G:35:GLU:HG2	8:G:51:ARG:HB3	1.83	0.60
1:2:5:U:H2'	1:2:6:G:H8	1.66	0.60
1:2:1286:G:N2	1:2:1287:A:N7	2.49	0.60
33:g:116:ASP:O	33:g:118:ARG:NH1	2.35	0.60
1:2:384:U:O4	10:I:5:ARG:NH2	2.34	0.60
2:A:30:LEU:HB3	35:y:323:ARG:HH12	1.67	0.60
33:g:31:ILE:HD12	33:g:45:LEU:HD11	1.84	0.60
35:y:209:ILE:O	35:y:213:ASN:ND2	2.35	0.60
1:2:204:G:OP1	10:I:147:LYS:NZ	2.35	0.60
33:g:152:SER:OG	33:g:168:CYS:SG	2.59	0.60
1:2:154:U:O2	8:G:4:ASN:ND2	2.33	0.59
1:2:535:G:H2'	1:2:536:A:H8	1.67	0.59
1:2:1048:G:N1	1:2:1069:U:OP2	2.32	0.59
29:c:43:ILE:H	35:y:364:PRO:HG2	1.67	0.59
1:2:830:A:OP2	1:2:846:G:N2	2.35	0.59
2:A:42:LYS:NZ	19:R:99:ASP:OD2	2.33	0.59
6:E:6:LYS:O	6:E:30:ARG:NH2	2.34	0.59
33:g:107:ASP:HB2	33:g:125:ARG:HD2	1.84	0.59
15:N:4:MET:SD	15:N:124:ARG:NH1	2.75	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:Q:74:GLY:O	18:Q:80:GLN:NE2	2.35	0.59
1:2:16:G:H21	1:2:1195:A:N6	1.93	0.59
1:2:1284:A:HO2'	14:M:106:CYS:HG	1.51	0.59
1:2:1455:A:OP1	19:R:5:ARG:NH2	2.36	0.59
9:H:65:PRO:HB2	9:H:67:PRO:HD2	1.85	0.59
1:2:885:U:O2	1:2:901:G:N2	2.35	0.59
4:C:130:ILE:HD11	4:C:162:ILE:HD11	1.85	0.59
13:L:75:GLY:HA3	13:L:88:ILE:HD12	1.85	0.58
16:O:35:ALA:HB2	16:O:112:ALA:HB2	1.85	0.58
1:2:1368:U:O3'	19:R:2:GLY:N	2.37	0.58
1:2:1652:G:H1	1:2:1672:U:H3	1.51	0.58
34:x:110:ASN:O	34:x:114:ARG:N	2.36	0.58
1:2:496:C:OP1	6:E:49:ARG:NH2	2.36	0.58
1:2:30:C:O2'	1:2:596:U:OP1	2.20	0.58
1:2:52:G:O2'	26:Y:105:LYS:NZ	2.34	0.58
18:Q:139:ALA:O	18:Q:140:ARG:NH1	2.36	0.58
20:S:138:THR:HA	20:S:141:ARG:HH21	1.67	0.58
32:f:106:TYR:HD1	32:f:114:ILE:HG21	1.68	0.58
33:g:124:SER:OG	33:g:125:ARG:N	2.36	0.58
1:2:1285:G:H1	14:M:56:CYS:HA	1.69	0.58
3:B:179:ASN:ND2	3:B:183:GLU:OE1	2.36	0.58
8:G:2:LYS:HB3	8:G:15:LEU:HD11	1.84	0.58
9:H:166:VAL:HG12	9:H:169:LYS:HD2	1.86	0.58
13:L:119:ASP:O	13:L:147:LYS:NZ	2.36	0.58
1:2:927:C:O2	28:b:51:GLN:NE2	2.36	0.58
1:2:1464:C:OP2	19:R:60:ARG:NH1	2.37	0.58
1:2:1593:C:O2'	21:T:12:GLN:NE2	2.36	0.58
2:A:73:ASP:OD2	2:A:120:ARG:NH1	2.36	0.58
2:A:102:ARG:HB2	35:y:345:ARG:HH12	1.69	0.58
5:D:79:PHE:HE2	5:D:84:VAL:HB	1.69	0.58
10:I:89:GLU:HG2	10:I:92:ARG:HH21	1.69	0.58
1:2:1218:C:H2'	1:2:1219:C:H6	1.69	0.58
1:2:1489:A:H1'	5:D:146:ARG:HH12	1.69	0.58
3:B:182:LYS:O	3:B:186:ASN:ND2	2.37	0.58
33:g:191:HIS:NE2	33:g:215:GLN:O	2.36	0.57
1:2:370:G:O2'	10:I:10:LYS:NZ	2.37	0.57
1:2:960:U:OP1	16:O:149:ARG:NH1	2.37	0.57
10:I:84:ASN:HD22	10:I:90:LEU:HB2	1.68	0.57
20:S:23:ARG:HB2	27:Z:48:VAL:HG21	1.87	0.57
1:2:1262:C:O2	30:d:17:GLY:N	2.37	0.57
7:F:63:LYS:O	7:F:71:ARG:NH1	2.36	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:g:166:VAL:HG11	33:g:198:VAL:HG11	1.85	0.57
1:2:103:A:OP2	1:2:356:C:N4	2.31	0.57
1:2:1304:U:H5'	32:f:93:HIS:HB2	1.86	0.57
1:2:1857:G:H3'	16:O:146:ARG:HH12	1.68	0.57
20:S:85:ASN:ND2	20:S:98:VAL:O	2.38	0.57
1:2:156:G:OP1	8:G:2:LYS:NZ	2.33	0.57
1:2:922:A:OP1	24:W:28:ARG:NH1	2.35	0.57
1:2:993:G:OP1	1:2:1131:G:N2	2.34	0.57
1:2:1192:U:OP2	25:X:119:ARG:NH2	2.37	0.57
13:L:13:GLN:NE2	13:L:36:TYR:O	2.38	0.57
29:c:65:ALA:HB2	35:y:364:PRO:HA	1.86	0.57
2:A:85:ARG:NH2	19:R:82:ASP:O	2.32	0.57
7:F:49:LEU:HD12	18:Q:50:LYS:HG2	1.87	0.57
1:2:1121:G:N2	3:B:202:GLN:O	2.34	0.57
16:O:45:THR:HA	16:O:52:THR:HA	1.86	0.57
34:x:227:ASN:ND2	34:x:232:ASN:OD1	2.37	0.57
1:2:1374:C:O2'	1:2:1464:C:O2	2.22	0.57
10:I:67:TRP:HD1	10:I:70:GLU:H	1.52	0.57
18:Q:32:ILE:HG12	18:Q:68:ILE:HD12	1.86	0.57
1:2:801:U:O4	9:H:106:ARG:NH2	2.38	0.57
5:D:18:LYS:HE2	5:D:39:VAL:HB	1.86	0.57
14:M:52:LEU:HD23	14:M:78:LYS:HE2	1.87	0.57
18:Q:16:LYS:HD3	18:Q:79:ALA:HA	1.86	0.57
33:g:57:ARG:NH1	33:g:94:THR:O	2.38	0.57
1:2:71:G:H1'	1:2:79:A:H61	1.70	0.56
1:2:868:G:H21	9:H:112:ASN:HD21	1.51	0.56
8:G:76:LEU:HD21	8:G:92:ARG:HD3	1.86	0.56
1:2:1549:U:OP2	5:D:8:LYS:NZ	2.38	0.56
1:2:989:C:OP2	3:B:155:TYR:OH	2.22	0.56
1:2:1301:A:O3'	30:d:2:GLY:N	2.38	0.56
3:B:136:ARG:HB2	3:B:218:LEU:HD11	1.88	0.56
5:D:45:ARG:NH1	5:D:85:GLU:OE2	2.39	0.56
33:g:256:ILE:HB	33:g:270:LEU:HB2	1.88	0.56
33:g:87:LEU:HB3	33:g:101:PHE:HB2	1.87	0.56
1:2:57:U:O2'	1:2:499:G:N3	2.39	0.56
1:2:1256:G:N2	30:d:30:LEU:O	2.38	0.56
1:2:1380:C:O2'	2:A:113:GLN:OE1	2.21	0.56
13:L:38:LYS:NZ	13:L:64:GLY:O	2.38	0.56
28:b:40:CYS:SG	28:b:41:TYR:N	2.79	0.56
11:J:138:ARG:HG2	11:J:156:HIS:HD2	1.70	0.56
34:x:163:PHE:HB2	34:x:209:VAL:HB	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:87:ILE:HG12	3:B:101:HIS:HB2	1.88	0.56
20:S:38:ARG:NH2	21:T:44:GLU:OE2	2.38	0.56
1:2:643:A:OP1	11:J:39:ASN:ND2	2.39	0.56
8:G:2:LYS:HB2	8:G:108:VAL:HG22	1.87	0.56
26:Y:15:ASN:ND2	26:Y:22:GLN:OE1	2.39	0.56
1:2:1599:U:OP2	27:Z:46:ASN:ND2	2.39	0.55
2:A:156:TYR:HA	23:V:60:ARG:HG2	1.88	0.55
1:2:307:G:N2	10:I:45:THR:O	2.40	0.55
17:P:81:ARG:NH2	17:P:117:GLY:O	2.39	0.55
29:c:67:ARG:NH2	35:y:370:VAL:O	2.39	0.55
33:g:131:LEU:HD12	33:g:140:TYR:HB3	1.88	0.55
1:2:981:A:H2'	1:2:982:G:C8	2.42	0.55
1:2:1620:A:OP1	17:P:115:TYR:OH	2.24	0.55
12:K:59:LYS:HB2	12:K:70:TYR:HB2	1.87	0.55
1:2:1013:U:OP1	1:2:1129:G:O2'	2.24	0.55
2:A:130:ASP:OD1	2:A:130:ASP:N	2.36	0.55
1:2:1546:G:N2	1:2:1670:C:O2	2.40	0.55
9:H:57:ARG:NH2	9:H:89:GLY:O	2.39	0.55
13:L:104:LYS:O	25:X:11:ARG:NH2	2.40	0.55
16:O:44:VAL:HG12	16:O:53:ILE:HD12	1.89	0.55
23:V:22:ARG:NH2	24:W:19:LYS:O	2.38	0.55
10:I:57:ALA:HB2	10:I:183:GLY:HA2	1.88	0.55
18:Q:53:GLU:OE1	18:Q:85:ARG:NH2	2.36	0.55
1:2:1575:G:H2'	1:2:1576:G:H8	1.72	0.55
4:C:134:ASN:O	4:C:167:ARG:NH1	2.39	0.55
34:x:106:GLN:O	34:x:118:ILE:HA	2.07	0.55
1:2:1156:U:O4	4:C:194:ARG:NH1	2.40	0.55
1:2:1704:C:O2'	1:2:1831:A:N1	2.38	0.55
1:2:867:G:H4'	13:L:149:ALA:HB1	1.89	0.54
1:2:1086:G:N2	1:2:1150:A:OP1	2.39	0.54
2:A:144:THR:OG1	23:V:60:ARG:NH2	2.40	0.54
18:Q:34:VAL:HA	18:Q:70:VAL:HB	1.89	0.54
1:2:1206:G:O6	1:2:1692:U:O4	2.25	0.54
12:K:31:LYS:NZ	12:K:37:ASP:OD1	2.41	0.54
17:P:17:TYR:HB3	17:P:25:LEU:HD11	1.89	0.54
1:2:466:G:O2'	8:G:72:ARG:NH2	2.40	0.54
2:A:41:ARG:NH1	2:A:47:TYR:OH	2.41	0.54
8:G:135:PRO:HG2	8:G:141:ILE:HD13	1.88	0.54
34:x:200:THR:HG22	34:x:213:GLY:HA3	1.90	0.54
1:2:1285:G:H5'	14:M:35:ILE:HB	1.88	0.54
6:E:182:MET:HB2	6:E:228:ILE:HD11	1.88	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:R:32:LYS:O	19:R:47:ARG:NH2	2.40	0.54
1:2:67:C:H41	8:G:163:ASN:HA	1.73	0.54
24:W:42:MET:HE2	24:W:49:GLU:HA	1.89	0.54
1:2:508:A:H3'	1:2:509:G:H8	1.71	0.54
1:2:106:C:H2'	1:2:107:A:H8	1.71	0.54
35:y:118:HIS:HB3	35:y:121:THR:HG23	1.88	0.54
1:2:46:A:N7	1:2:97:U:O2'	2.39	0.54
1:2:1309:C:OP1	32:f:118:ARG:NH1	2.41	0.54
16:O:117:ARG:NH2	34:x:156:ASP:OD1	2.40	0.54
15:N:100:LYS:HE2	15:N:104:ARG:HH22	1.73	0.53
35:y:290:ASN:HB2	35:y:292:THR:HG22	1.90	0.53
1:2:220:U:H5'	10:I:177:SER:HB2	1.90	0.53
1:2:1293:A:H2'	1:2:1294:G:H8	1.73	0.53
1:2:1394:G:OP1	18:Q:126:ARG:NH1	2.42	0.53
1:2:1404:U:OP1	22:U:21:ARG:NH2	2.41	0.53
2:A:103:PHE:HE2	2:A:136:GLU:HG3	1.73	0.53
21:T:13:GLU:OE2	21:T:16:ARG:NH1	2.42	0.53
1:2:1378:A:H5'	35:y:332:GLY:HA2	1.90	0.53
11:J:71:LEU:O	11:J:75:ASN:ND2	2.41	0.53
1:2:659:G:O2'	1:2:662:G:O2'	2.25	0.53
1:2:442:C:H4'	8:G:92:ARG:HH21	1.73	0.53
1:2:516:A:N1	1:2:643:A:O2'	2.39	0.53
1:2:1010:G:H2'	1:2:1011:A:C8	2.43	0.53
7:F:88:MET:SD	7:F:91:ARG:NH2	2.82	0.53
1:2:1172:U:H2'	1:2:1173:A:H8	1.74	0.53
1:2:1513:C:OP2	30:d:12:ARG:NH2	2.41	0.53
8:G:57:ASP:HA	8:G:106:LEU:HA	1.90	0.53
33:g:164:ILE:HG23	33:g:176:VAL:HG13	1.91	0.53
1:2:1398:G:H1'	33:g:63:SER:HB3	1.91	0.53
33:g:176:VAL:HB	33:g:186:THR:HB	1.91	0.53
1:2:1373:C:O2'	19:R:10:LYS:NZ	2.41	0.53
1:2:1611:G:OP1	20:S:113:ARG:NH2	2.42	0.53
12:K:23:ALA:O	12:K:66:HIS:ND1	2.42	0.53
19:R:78:ARG:O	19:R:82:ASP:N	2.41	0.53
7:F:53:ALA:HB3	18:Q:82:TYR:HE2	1.74	0.53
20:S:138:THR:HG23	20:S:139:THR:HG23	1.91	0.53
33:g:57:ARG:NH2	33:g:93:THR:O	2.42	0.53
1:2:1612:G:H1'	20:S:87:GLN:HG3	1.89	0.53
20:S:110:ASP:OD1	20:S:113:ARG:NH1	2.39	0.53
7:F:41:VAL:HA	7:F:45:TYR:HB2	1.91	0.52
8:G:159:ARG:HG2	8:G:173:ALA:HB2	1.90	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:I:67:TRP:CD1	10:I:70:GLU:H	2.26	0.52
35:y:263:ALA:HB3	35:y:300:VAL:HB	1.91	0.52
1:2:1010:G:H2'	1:2:1011:A:H8	1.75	0.52
1:2:1228:A:H2'	1:2:1229:G:C8	2.44	0.52
1:2:1415:C:O2'	21:T:132:ASP:OD2	2.27	0.52
1:2:1581:C:H5'	1:2:1582:C:H5	1.74	0.52
11:J:111:GLN:HB2	11:J:145:PRO:HB3	1.91	0.52
1:2:437:G:N2	1:2:1801:A:OP1	2.42	0.52
3:B:65:ARG:NH1	16:O:51:GLU:OE1	2.43	0.52
8:G:64:LYS:HE3	8:G:82:SER:HB3	1.91	0.52
14:M:35:ILE:HG23	14:M:36:ARG:HG3	1.90	0.52
1:2:925:G:N2	1:2:1017:U:O2	2.28	0.52
1:2:957:A:H3'	1:2:958:G:H21	1.73	0.52
4:C:196:ILE:HB	4:C:223:TYR:HB2	1.91	0.52
34:x:148:ASP:OD2	34:x:201:ARG:NH2	2.42	0.52
34:x:151:ALA:HB1	34:x:155:LEU:HD13	1.91	0.52
3:B:33:VAL:HA	3:B:96:CYS:HB2	1.91	0.52
4:C:112:VAL:HG23	4:C:123:ARG:HG3	1.91	0.52
9:H:165:ASN:O	9:H:169:LYS:NZ	2.42	0.52
14:M:82:ASN:HA	14:M:85:LEU:HB2	1.90	0.52
32:f:132:MET:HE1	32:f:148:TYR:HD2	1.75	0.52
15:N:99:ARG:NH2	15:N:119:GLU:OE2	2.41	0.52
23:V:73:ALA:HB1	23:V:78:ILE:HB	1.92	0.52
1:2:1215:C:H42	1:2:1220:A:H61	1.57	0.52
1:2:1757:G:O6	1:2:1775:U:O2	2.27	0.52
2:A:66:VAL:HG21	2:A:185:MET:HG2	1.92	0.52
16:O:46:ASP:HB3	16:O:49:GLY:H	1.73	0.52
26:Y:63:HIS:HD2	26:Y:68:LYS:HB2	1.75	0.52
2:A:42:LYS:HE2	2:A:46:ILE:HB	1.90	0.52
18:Q:34:VAL:HB	18:Q:42:ILE:HD11	1.92	0.52
22:U:67:LYS:HZ1	30:d:44:ARG:HH21	1.56	0.52
1:2:5:U:H2'	1:2:6:G:C8	2.45	0.52
1:2:84:A:N3	1:2:150:A:O2'	2.43	0.52
1:2:1255:G:O3'	30:d:40:ARG:NH2	2.43	0.52
1:2:1060:A:O2'	1:2:1062:A:N7	2.39	0.52
1:2:1302:G:O6	1:2:1307:U:O2	2.27	0.51
3:B:38:MET:SD	3:B:38:MET:N	2.83	0.51
26:Y:41:ARG:NH2	26:Y:52:PRO:O	2.43	0.51
1:2:1691:U:OP1	35:y:381:ARG:NH1	2.43	0.51
10:I:13:LYS:NZ	13:L:108:ASN:O	2.43	0.51
13:L:135:SER:OG	13:L:136:LYS:N	2.43	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:Q:41:MET:HA	18:Q:45:ARG:HH21	1.74	0.51
1:2:619:A:N1	25:X:114:ASP:HB2	2.25	0.51
1:2:808:A:O2'	1:2:809:A:O4'	2.29	0.51
1:2:851:C:H5''	1:2:852:G:H5'	1.92	0.51
4:C:191:VAL:HG11	4:C:236:PHE:HA	1.91	0.51
15:N:99:ARG:NH1	15:N:141:TYR:OH	2.41	0.51
32:f:123:SER:OG	32:f:144:CYS:SG	2.68	0.51
1:2:1564:C:OP1	21:T:121:ARG:NH2	2.44	0.51
8:G:141:ILE:HG21	8:G:153:VAL:HG13	1.92	0.51
12:K:80:ARG:NH2	12:K:89:ILE:O	2.44	0.51
1:2:223:C:H2'	1:2:224:A:C8	2.45	0.51
18:Q:16:LYS:HD2	18:Q:82:TYR:HB2	1.93	0.51
1:2:122:G:H21	6:E:146:THR:HG21	1.76	0.51
1:2:150:A:N6	1:2:168:C:H42	1.99	0.51
3:B:120:MET:HG3	3:B:142:PHE:HE1	1.75	0.51
16:O:113:GLN:NE2	34:x:135:ASP:OD2	2.44	0.51
20:S:39:ARG:HH22	21:T:37:VAL:HA	1.75	0.51
26:Y:104:ARG:HA	26:Y:107:ARG:HE	1.75	0.51
33:g:154:VAL:HA	33:g:166:VAL:O	2.11	0.51
1:2:1351:G:O2'	1:2:1378:A:N1	2.42	0.51
1:2:1407:U:OP1	18:Q:71:ARG:NH2	2.44	0.51
1:2:1703:C:O2'	1:2:1832:A:N6	2.42	0.51
34:x:214:SER:O	34:x:218:ILE:N	2.43	0.51
2:A:91:ALA:HA	2:A:94:THR:HB	1.93	0.50
1:2:918:U:O2'	1:2:919:A:O4'	2.29	0.50
34:x:197:VAL:HG23	34:x:198:THR:HG23	1.93	0.50
1:2:57:U:OP1	1:2:504:G:O2'	2.29	0.50
1:2:535:G:H2'	1:2:536:A:C8	2.47	0.50
1:2:613:G:N1	1:2:629:A:OP1	2.36	0.50
1:2:618:C:H41	25:X:67:ARG:HH21	1.58	0.50
1:2:1144:A:N3	1:2:1199:A:O2'	2.38	0.50
22:U:56:MET:HB2	22:U:86:LYS:HB3	1.94	0.50
1:2:490:C:O2'	1:2:574:A:N1	2.39	0.50
1:2:604:A:H4'	11:J:22:LYS:HD3	1.93	0.50
1:2:982:G:H2'	1:2:983:A:C8	2.47	0.50
8:G:2:LYS:HD3	8:G:15:LEU:HD21	1.94	0.50
10:I:178:ARG:NH1	10:I:181:GLN:OE1	2.44	0.50
16:O:151:LEU:HB3	34:x:168:VAL:HG12	1.92	0.50
13:L:35:ARG:NH2	13:L:53:GLY:O	2.35	0.50
26:Y:114:MET:O	26:Y:122:LYS:NZ	2.37	0.50
30:d:26:ASN:HD22	30:d:27:ARG:H	1.58	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:145:G:H2'	1:2:146:G:C8	2.47	0.50
4:C:166:ARG:NH1	23:V:10:ASP:OD2	2.45	0.50
6:E:48:LEU:HD23	6:E:61:VAL:HG13	1.92	0.50
33:g:197:THR:OG1	33:g:237:ASN:O	2.30	0.50
1:2:1265:A:O2'	1:2:1327:G:OP2	2.23	0.50
1:2:1813:A:N6	1:2:1814:G:N3	2.59	0.50
2:A:9:GLN:HE22	2:A:52:LYS:HE2	1.77	0.50
9:H:117:PRO:HG2	9:H:120:ARG:HH11	1.75	0.50
19:R:98:VAL:HG21	19:R:117:LEU:HD22	1.92	0.50
28:b:33:MET:HE3	28:b:48:SER:HA	1.92	0.50
34:x:183:ILE:HD11	34:x:225:ILE:HG23	1.92	0.50
1:2:1585:U:H5	21:T:67:ARG:HD2	1.77	0.50
1:2:1427:C:OP1	21:T:7:LYS:NZ	2.43	0.50
4:C:178:HIS:HD2	4:C:200:ARG:HH21	1.59	0.50
1:2:641:A:OP1	11:J:40:LYS:NZ	2.38	0.49
11:J:138:ARG:HG2	11:J:156:HIS:CD2	2.45	0.49
32:f:108:VAL:HG22	32:f:114:ILE:HG12	1.93	0.49
33:g:226:HIS:NE2	33:g:229:THR:OG1	2.45	0.49
1:2:1463:U:O4	35:y:38:ARG:NH2	2.45	0.49
2:A:24:HIS:HB3	2:A:51:LEU:HD11	1.94	0.49
3:B:96:CYS:O	3:B:98:THR:OG1	2.30	0.49
32:f:102:VAL:HA	32:f:105:TYR:HD2	1.77	0.49
35:y:210:THR:O	35:y:212:SER:N	2.45	0.49
1:2:1479:G:H5''	18:Q:138:ARG:HH12	1.76	0.49
32:f:126:CYS:HB3	32:f:143:LYS:HD2	1.94	0.49
1:2:106:C:H2'	1:2:107:A:C8	2.47	0.49
1:2:1648:G:N2	1:2:1675:A:OP2	2.35	0.49
4:C:169:TYR:OH	4:C:175:GLY:O	2.29	0.49
14:M:52:LEU:HB2	14:M:76:LEU:HD11	1.95	0.49
16:O:32:HIS:HB2	16:O:43:HIS:HB3	1.94	0.49
33:g:131:LEU:HB2	33:g:140:TYR:H	1.77	0.49
1:2:223:C:H2'	1:2:224:A:H8	1.75	0.49
1:2:1856:C:H2'	1:2:1857:G:C8	2.47	0.49
2:A:79:SER:HB3	2:A:130:ASP:HB3	1.93	0.49
9:H:65:PRO:HG2	9:H:68:GLN:HB2	1.95	0.49
1:2:1711:U:O4	1:2:1823:A:N6	2.46	0.49
3:B:169:MET:O	3:B:173:THR:OG1	2.21	0.49
4:C:102:LEU:HD11	4:C:130:ILE:HD12	1.94	0.49
7:F:78:MET:HB3	7:F:159:ARG:HH22	1.77	0.49
14:M:60:MET:HA	14:M:63:LYS:HB2	1.94	0.49
1:2:918:U:H5''	15:N:64:ARG:HH22	1.78	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:58:LEU:HD23	2:A:161:ILE:HD13	1.94	0.49
29:c:65:ALA:HB3	34:x:154:ARG:HD3	1.94	0.49
34:x:195:GLU:OE1	35:y:376:ASN:ND2	2.43	0.49
1:2:923:G:OP1	15:N:2:GLY:N	2.45	0.49
1:2:1605:G:OP1	21:T:84:ARG:NH2	2.35	0.49
1:2:381:C:OP2	10:I:54:LYS:NZ	2.34	0.49
6:E:198:ARG:HH21	6:E:200:ARG:HH21	1.61	0.49
12:K:32:HIS:HB3	12:K:35:LEU:HD12	1.95	0.49
1:2:946:U:H2'	1:2:947:G:H8	1.78	0.49
4:C:173:LYS:O	23:V:4:ASP:N	2.45	0.49
1:2:589:G:N2	1:2:591:U:H3	2.10	0.48
1:2:916:A:O2'	15:N:73:ARG:NH1	2.46	0.48
1:2:948:C:H2'	1:2:949:G:H8	1.78	0.48
1:2:1261:C:O2	30:d:10:HIS:NE2	2.41	0.48
2:A:2:SER:O	23:V:80:SER:N	2.46	0.48
2:A:80:ARG:O	2:A:84:GLN:NE2	2.33	0.48
6:E:129:ILE:HG12	6:E:139:LEU:HD23	1.95	0.48
19:R:71:ILE:HB	19:R:74:GLN:HB2	1.95	0.48
1:2:940:U:H3	1:2:1002:U:H3	1.61	0.48
1:2:991:G:H5'	35:y:404:SER:HB3	1.95	0.48
1:2:1294:G:H2'	1:2:1295:A:H8	1.78	0.48
1:2:1649:U:H2'	1:2:1650:A:H8	1.78	0.48
14:M:54:SER:N	14:M:80:ASP:O	2.41	0.48
1:2:388:U:H2'	1:2:389:A:H8	1.78	0.48
7:F:102:LEU:HD11	27:Z:100:VAL:HG21	1.96	0.48
13:L:126:VAL:HG23	13:L:145:VAL:HG22	1.95	0.48
18:Q:91:ALA:O	18:Q:95:TYR:N	2.44	0.48
12:K:61:GLN:HB3	12:K:68:TYR:HB2	1.95	0.48
31:e:31:ARG:O	31:e:35:ARG:N	2.44	0.48
1:2:1299:A:O2'	1:2:1301:A:OP1	2.26	0.48
19:R:106:LEU:HD22	19:R:111:PHE:HB2	1.93	0.48
33:g:162:ASN:ND2	33:g:178:ASN:OD1	2.45	0.48
34:x:183:ILE:HA	34:x:228:LEU:HD13	1.96	0.48
1:2:909:G:H2'	1:2:910:G:H8	1.79	0.48
1:2:1427:C:H2'	1:2:1429:G:H8	1.79	0.48
1:2:1850:A:H2'	1:2:1851:A:C8	2.49	0.48
2:A:59:LEU:HA	2:A:62:ALA:HB3	1.96	0.48
5:D:211:VAL:HB	19:R:38:ILE:HG23	1.95	0.48
15:N:13:GLN:HE21	28:b:21:LYS:HG3	1.78	0.48
1:2:1427:C:H2'	1:2:1429:G:C8	2.48	0.48
1:2:1513:C:H2'	1:2:1514:G:H8	1.79	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:f:132:MET:HG2	32:f:141:CYS:HB2	1.96	0.48
1:2:1030:A:H2'	1:2:1031:A:H8	1.79	0.48
1:2:1521:C:H5'	17:P:126:VAL:HB	1.96	0.48
20:S:48:ALA:O	20:S:66:ARG:NH2	2.46	0.48
1:2:115:U:OP1	1:2:382:C:O2'	2.28	0.48
9:H:11:PRO:HD2	9:H:14:GLU:HA	1.96	0.48
14:M:85:LEU:HA	14:M:88:TRP:HD1	1.79	0.48
16:O:39:ASP:HB3	16:O:68:GLU:HG2	1.96	0.48
33:g:44:LYS:N	33:g:54:ILE:O	2.46	0.48
1:2:1311:C:OP1	32:f:143:LYS:NZ	2.47	0.48
5:D:54:ARG:HG2	5:D:57:ASN:HD22	1.79	0.48
6:E:191:ARG:HH21	6:E:245:ARG:HD2	1.79	0.48
1:2:72:C:N4	1:2:79:A:N7	2.61	0.47
1:2:1617:G:N1	1:2:1620:A:OP2	2.47	0.47
4:C:221:ASP:OD1	4:C:221:ASP:N	2.47	0.47
9:H:91:HIS:HD2	9:H:169:LYS:HG2	1.79	0.47
33:g:40:ILE:HB	33:g:59:LEU:HB2	1.95	0.47
1:2:168:C:O2'	8:G:132:ARG:O	2.29	0.47
1:2:190:G:O2'	1:2:209:A:N6	2.46	0.47
1:2:1084:A:OP1	1:2:1858:G:O2'	2.23	0.47
1:2:1283:C:C2	14:M:102:LYS:HE3	2.48	0.47
11:J:136:ARG:HG2	11:J:160:SER:HA	1.96	0.47
16:O:139:SER:OG	16:O:140:THR:N	2.46	0.47
20:S:22:GLY:O	20:S:57:GLY:N	2.47	0.47
1:2:1293:A:H2'	1:2:1294:G:C8	2.49	0.47
3:B:84:PHE:HD1	3:B:100:PHE:HE1	1.62	0.47
1:2:1335:G:H1	1:2:1492:U:H3	1.62	0.47
6:E:91:SER:OG	6:E:98:ASN:ND2	2.46	0.47
6:E:102:ILE:HG23	6:E:182:MET:HE1	1.95	0.47
9:H:83:LEU:HD23	9:H:92:VAL:HG22	1.96	0.47
17:P:119:PHE:HE1	20:S:117:ILE:HG22	1.80	0.47
26:Y:55:ILE:HG22	26:Y:75:ILE:HG23	1.95	0.47
35:y:267:ILE:HD12	35:y:276:THR:HB	1.96	0.47
6:E:122:LYS:HD2	6:E:164:LEU:HD21	1.96	0.47
7:F:140:ASP:O	29:c:47:LYS:N	2.47	0.47
10:I:103:LEU:HD22	10:I:170:LYS:HB3	1.96	0.47
25:X:88:ASP:OD1	25:X:88:ASP:N	2.47	0.47
28:b:35:VAL:N	28:b:44:THR:O	2.47	0.47
1:2:920:A:H62	1:2:1021:U:H3	1.62	0.47
1:2:1729:U:O4	1:2:1805:G:O6	2.32	0.47
6:E:75:LYS:HE3	6:E:77:ARG:HH12	1.80	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
29:c:43:ILE:HD12	35:y:364:PRO:HD2	1.96	0.47
35:y:246:LEU:HD22	35:y:302:ASP:HA	1.95	0.47
1:2:522:A:O2'	11:J:131:ARG:NH2	2.48	0.47
1:2:609:U:H2'	1:2:610:G:H8	1.79	0.47
1:2:874:G:H2'	1:2:875:A:H8	1.79	0.47
1:2:1183:A:H2'	1:2:1184:G:H8	1.78	0.47
1:2:1373:C:OP2	19:R:7:LYS:NZ	2.48	0.47
1:2:1593:C:H2'	1:2:1594:A:H8	1.80	0.47
18:Q:25:CYS:SG	18:Q:68:ILE:HG12	2.55	0.47
1:2:472:C:O2'	1:2:474:G:OP1	2.25	0.47
1:2:982:G:H2'	1:2:983:A:H8	1.80	0.47
1:2:986:G:N7	16:O:137:SER:OG	2.44	0.47
1:2:1129:G:H5'	28:b:19:HIS:HB2	1.97	0.47
6:E:124:CYS:HB3	6:E:141:THR:HB	1.97	0.47
1:2:397:G:OP2	13:L:108:ASN:ND2	2.48	0.47
1:2:913:A:H1'	9:H:66:VAL:HB	1.97	0.47
1:2:1360:U:O2'	1:2:1379:A:OP2	2.28	0.47
1:2:420:G:OP1	24:W:88:LYS:NZ	2.48	0.47
1:2:1614:A:OP2	17:P:42:ARG:NH2	2.48	0.46
2:A:33:GLN:HB3	2:A:154:LEU:HD12	1.97	0.46
1:2:28:U:H2'	1:2:29:G:C8	2.51	0.46
1:2:1317:C:N4	1:2:1318:G:O6	2.48	0.46
26:Y:19:GLN:OE1	26:Y:85:ASN:ND2	2.46	0.46
29:c:63:ARG:HH12	35:y:365:ASP:HA	1.80	0.46
33:g:201:SER:HB2	33:g:206:LEU:HB2	1.97	0.46
22:U:22:ILE:HB	22:U:89:ILE:HG23	1.96	0.46
26:Y:54:VAL:HG22	26:Y:76:TYR:HB2	1.97	0.46
26:Y:76:TYR:OH	26:Y:86:GLU:OE1	2.33	0.46
1:2:198:U:O2'	1:2:201:C:N4	2.48	0.46
1:2:958:G:O3'	16:O:38:ASN:ND2	2.49	0.46
1:2:974:C:O2	16:O:55:ARG:NH1	2.49	0.46
1:2:1217:A:H2'	1:2:1218:C:C6	2.51	0.46
1:2:1857:G:H2'	1:2:1858:G:H8	1.79	0.46
1:2:943:U:OP2	3:B:216:LYS:NZ	2.40	0.46
1:2:1157:G:H8	25:X:5:ARG:HD3	1.80	0.46
6:E:72:ILE:HG12	6:E:90:ILE:HG12	1.98	0.46
35:y:298:VAL:HG12	35:y:308:MET:HG2	1.97	0.46
1:2:94:G:HO2'	1:2:508:A:HO2'	1.58	0.46
1:2:172:U:OP1	1:2:314:U:O2'	2.34	0.46
34:x:126:ASP:HB3	34:x:129:ALA:HB2	1.97	0.46
1:2:628:A:OP1	5:D:145:GLN:NE2	2.49	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1348:G:OP1	4:C:145:LYS:NZ	2.46	0.46
1:2:1757:G:C6	1:2:1775:U:O2	2.69	0.46
4:C:108:LYS:HE3	4:C:110:MET:HB3	1.98	0.46
34:x:75:THR:OG1	34:x:118:ILE:O	2.28	0.46
1:2:319:C:H2'	1:2:320:G:C8	2.50	0.46
1:2:1528:G:O2'	1:2:1666:C:OP1	2.26	0.46
1:2:1596:U:H2'	1:2:1597:C:H6	1.79	0.46
1:2:1845:A:H2'	1:2:1846:G:H8	1.81	0.46
14:M:94:ILE:HA	14:M:100:PRO:HA	1.98	0.46
24:W:78:ARG:HB3	24:W:124:LYS:HB3	1.97	0.46
29:c:12:ALA:HB3	29:c:56:LEU:H	1.80	0.46
1:2:748:C:H42	1:2:794:A:H61	1.63	0.46
2:A:85:ARG:HH22	19:R:84:TYR:HB3	1.79	0.46
8:G:136:LYS:NZ	8:G:175:LYS:O	2.43	0.46
14:M:12:MET:HB2	14:M:17:ALA:HB2	1.97	0.46
14:M:53:ALA:HB3	14:M:107:SER:HB2	1.98	0.46
21:T:76:THR:HG22	21:T:94:ARG:HB3	1.96	0.46
21:T:102:ARG:HA	21:T:105:GLN:HB3	1.97	0.46
24:W:112:ASP:HB2	24:W:115:GLU:H	1.78	0.46
29:c:16:LYS:H	29:c:31:ARG:HB3	1.80	0.46
1:2:1601:A:H4'	1:2:1602:U:H5'	1.98	0.46
2:A:123:VAL:HG22	2:A:145:ILE:HD13	1.98	0.46
33:g:97:THR:OG1	33:g:99:ARG:O	2.34	0.46
1:2:1294:G:H2'	1:2:1295:A:C8	2.52	0.45
6:E:115:THR:HG22	6:E:117:GLU:H	1.80	0.45
1:2:1498:A:OP2	5:D:27:ARG:NH2	2.48	0.45
10:I:172:LEU:HB3	10:I:190:LEU:HD12	1.97	0.45
1:2:1534:C:OP1	7:F:81:ARG:NH2	2.42	0.45
17:P:111:MET:HE2	20:S:117:ILE:HG23	1.97	0.45
1:2:659:G:H21	25:X:17:ARG:HH12	1.64	0.45
1:2:825:A:H2'	1:2:826:A:C8	2.52	0.45
1:2:1016:U:H5''	15:N:14:SER:HB3	1.99	0.45
1:2:1047:C:H5''	16:O:143:LYS:HA	1.99	0.45
1:2:1785:C:O2'	1:2:1786:U:O4'	2.32	0.45
2:A:124:VAL:HG12	2:A:126:ASP:H	1.81	0.45
14:M:72:HIS:HB2	14:M:74:ILE:HD11	1.98	0.45
18:Q:14:GLY:HA3	18:Q:86:GLN:HB2	1.99	0.45
1:2:433:A:OP1	10:I:25:ARG:NH2	2.39	0.45
1:2:871:U:H3'	1:2:872:A:H4'	1.97	0.45
1:2:1297:U:H1'	1:2:1301:A:H62	1.80	0.45
1:2:1551:U:OP1	5:D:9:ARG:NH2	2.49	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:38:MET:HE3	3:B:182:LYS:HA	1.98	0.45
35:y:75:ASP:OD1	35:y:278:SER:OG	2.32	0.45
1:2:388:U:H2'	1:2:389:A:C8	2.51	0.45
1:2:1282:A:H62	14:M:93:LYS:NZ	2.14	0.45
1:2:1426:U:OP1	18:Q:33:LYS:NZ	2.45	0.45
7:F:78:MET:HE1	7:F:152:TRP:CD1	2.52	0.45
18:Q:97:GLN:HB2	18:Q:105:LYS:HD2	1.98	0.45
24:W:87:GLU:HA	24:W:90:GLN:HE21	1.82	0.45
33:g:42:MET:HB3	33:g:57:ARG:HB2	1.99	0.45
33:g:212:LYS:HA	33:g:235:ILE:HG13	1.98	0.45
1:2:1736:G:H2'	1:2:1737:G:H8	1.81	0.45
4:C:65:LYS:HD3	4:C:273:LEU:HD13	1.98	0.45
28:b:49:HIS:CD2	28:b:70:LYS:HG2	2.51	0.45
34:x:236:LYS:O	34:x:240:ASN:ND2	2.50	0.45
5:D:156:LEU:HB2	5:D:189:MET:HE1	1.99	0.45
13:L:131:CYS:SG	13:L:132:ARG:N	2.90	0.45
18:Q:58:LEU:HD22	18:Q:108:ILE:HG23	1.99	0.45
24:W:20:ARG:HG2	24:W:22:LYS:HE3	1.98	0.45
35:y:69:PHE:HA	35:y:72:LYS:HB2	1.98	0.45
1:2:639:C:HO2'	1:2:640:A:H8	1.63	0.45
3:B:82:ARG:NH1	3:B:188:LEU:O	2.46	0.45
9:H:9:VAL:HG12	9:H:11:PRO:HD3	1.99	0.45
32:f:107:LYS:HB3	32:f:115:SER:HB3	1.98	0.45
1:2:920:A:H4'	24:W:57:ARG:HD3	1.99	0.45
1:2:1292:C:H2'	1:2:1293:A:H8	1.82	0.45
1:2:1867:U:O2'	34:x:83:ASN:O	2.34	0.45
12:K:15:LEU:HD22	12:K:49:MET:HE1	1.99	0.45
34:x:169:LYS:HA	34:x:170:PRO:HD3	1.84	0.45
1:2:1593:C:OP2	27:Z:104:ARG:NH2	2.50	0.44
1:2:1691:U:H2'	1:2:1692:U:H6	1.82	0.44
2:A:57:LYS:NZ	2:A:160:ALA:O	2.41	0.44
3:B:65:ARG:NH2	16:O:51:GLU:OE2	2.50	0.44
1:2:197:U:O2	1:2:202:G:N2	2.41	0.44
1:2:218:U:O2	10:I:184:ARG:NH1	2.47	0.44
1:2:419:G:N2	1:2:661:U:O2	2.50	0.44
1:2:913:A:OP2	9:H:99:ARG:NH1	2.50	0.44
1:2:31:U:H4'	1:2:595:U:H4'	1.99	0.44
2:A:42:LYS:HD3	2:A:48:ILE:HD11	1.97	0.44
3:B:104:ASP:HB3	3:B:214:LYS:HG3	2.00	0.44
19:R:27:ASP:O	19:R:31:ASN:ND2	2.50	0.44
19:R:123:THR:HG22	35:y:317:LEU:HD11	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
20:S:39:ARG:HE	21:T:38:LYS:HE3	1.83	0.44
20:S:55:ARG:HB2	20:S:58:GLU:HG3	2.00	0.44
34:x:110:ASN:O	34:x:114:ARG:CA	2.65	0.44
1:2:165:G:OP2	1:2:165:G:N2	2.38	0.44
5:D:192:TRP:CG	5:D:193:ASP:H	2.35	0.44
21:T:114:GLU:HB2	21:T:124:THR:HG22	2.00	0.44
1:2:297:A:H5''	6:E:133:THR:H	1.81	0.44
1:2:1380:C:H2'	1:2:1381:G:C8	2.53	0.44
6:E:192:ILE:HD12	6:E:243:GLY:HA3	1.99	0.44
9:H:145:ARG:NH1	24:W:51:GLU:OE2	2.51	0.44
16:O:43:HIS:HD2	16:O:55:ARG:HD3	1.83	0.44
20:S:124:ARG:HH11	20:S:129:LEU:HB3	1.82	0.44
1:2:493:A:H1'	1:2:574:A:H5'	1.99	0.44
1:2:528:A:H2'	1:2:529:A:C8	2.52	0.44
1:2:751:G:H2'	1:2:752:G:C8	2.53	0.44
1:2:996:A:H2'	1:2:997:A:C8	2.53	0.44
1:2:1113:A:H5''	1:2:1114:U:H4'	2.00	0.44
1:2:1723:G:N1	1:2:1812:U:O2	2.50	0.44
33:g:47:ARG:HA	33:g:52:TYR:HA	2.00	0.44
1:2:528:A:H2'	1:2:529:A:H8	1.83	0.44
1:2:596:U:OP1	25:X:137:LYS:NZ	2.50	0.44
1:2:1100:A:H5'	35:y:320:ARG:HD2	1.98	0.44
1:2:1832:A:OP2	1:2:1833:C:N4	2.50	0.44
13:L:40:ILE:HD12	13:L:40:ILE:HA	1.80	0.44
1:2:942:G:OP1	3:B:216:LYS:NZ	2.48	0.44
1:2:1292:C:H2'	1:2:1293:A:C8	2.53	0.44
1:2:60:A:O2'	1:2:61:A:O5'	2.36	0.44
1:2:946:U:H2'	1:2:947:G:C8	2.52	0.44
24:W:96:SER:OG	24:W:97:ARG:N	2.50	0.44
28:b:33:MET:HB2	28:b:79:PHE:HB2	2.00	0.44
1:2:1378:A:N6	2:A:136:GLU:OE2	2.51	0.43
1:2:1631:U:OP1	20:S:35:GLY:N	2.51	0.43
14:M:69:CYS:HA	14:M:74:ILE:HB	2.00	0.43
19:R:41:ILE:H	19:R:41:ILE:HG13	1.59	0.43
1:2:430:C:H2'	1:2:431:G:C8	2.53	0.43
1:2:925:G:H5''	15:N:91:LEU:HD21	1.99	0.43
5:D:22:ASN:OD1	5:D:34:TYR:OH	2.28	0.43
11:J:19:PRO:O	11:J:24:ARG:NH2	2.51	0.43
33:g:242:SER:OG	33:g:244:ASN:OD1	2.37	0.43
33:g:298:LEU:HB2	33:g:310:TRP:HB2	1.99	0.43
1:2:51:U:H2'	1:2:52:G:C8	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1428:G:H1'	21:T:67:ARG:HH11	1.83	0.43
2:A:127:PRO:HD3	2:A:146:ALA:HB1	2.01	0.43
3:B:172:MET:HE2	3:B:172:MET:HB3	1.93	0.43
18:Q:45:ARG:NH2	21:T:10:ASN:OD1	2.35	0.43
2:A:103:PHE:CE2	2:A:136:GLU:HG3	2.53	0.43
9:H:154:ILE:HB	9:H:185:VAL:HG22	1.99	0.43
33:g:260:ASP:HB3	33:g:265:ILE:HB	2.00	0.43
34:x:242:ARG:HA	34:x:245:ALA:HB3	2.00	0.43
1:2:1206:G:H1	1:2:1692:U:H3	0.73	0.43
4:C:77:SER:OG	4:C:78:LEU:N	2.52	0.43
7:F:59:LYS:HG2	7:F:62:ARG:HD2	2.01	0.43
13:L:22:ARG:HH21	13:L:27:GLU:HG3	1.83	0.43
33:g:88:ARG:HE	33:g:100:ARG:HG3	1.83	0.43
1:2:219:U:O2'	10:I:186:ASP:OD2	2.29	0.43
1:2:585:C:OP1	11:J:179:LYS:NZ	2.48	0.43
1:2:1226:G:N1	1:2:1639:G:OP2	2.37	0.43
5:D:54:ARG:HB3	5:D:57:ASN:HB2	2.01	0.43
6:E:11:ARG:HA	6:E:28:ALA:HB2	2.00	0.43
9:H:138:GLU:H	9:H:159:ASP:HB2	1.84	0.43
1:2:1206:G:N2	1:2:1692:U:O2	2.31	0.43
1:2:1678:A:H2'	1:2:1679:A:C8	2.54	0.43
33:g:298:LEU:O	33:g:310:TRP:N	2.52	0.43
1:2:68:A:OP2	8:G:164:LYS:NZ	2.49	0.43
1:2:1643:U:H2'	1:2:1644:C:C6	2.54	0.43
6:E:171:ASP:OD1	6:E:171:ASP:N	2.50	0.43
17:P:83:MET:HB3	17:P:116:LEU:HD12	2.00	0.43
1:2:1723:G:H2'	1:2:1724:A:C8	2.54	0.43
1:2:1845:A:H2'	1:2:1846:G:C8	2.53	0.43
6:E:32:SER:OG	6:E:81:THR:OG1	2.34	0.43
8:G:70:HIS:O	8:G:98:ARG:NE	2.52	0.43
26:Y:76:TYR:HE1	26:Y:85:ASN:HB2	1.84	0.43
33:g:159:ASN:ND2	33:g:161:SER:OG	2.52	0.43
35:y:267:ILE:HD11	35:y:308:MET:HE3	1.99	0.43
35:y:343:ASP:N	35:y:343:ASP:OD1	2.49	0.43
1:2:434:G:H2'	1:2:435:A:C8	2.53	0.43
1:2:1049:A:OP2	1:2:1068:G:N1	2.45	0.43
10:I:121:LEU:HD13	10:I:166:PHE:CE2	2.54	0.43
1:2:1034:A:N6	1:2:1081:U:C2	2.86	0.42
2:A:38:ILE:HD12	2:A:38:ILE:HA	1.82	0.42
9:H:170:VAL:HG13	9:H:187:PHE:HB2	2.01	0.42
18:Q:43:GLU:O	18:Q:45:ARG:N	2.52	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:x:196:ASN:HD21	35:y:376:ASN:HB2	1.82	0.42
1:2:300:U:H2'	1:2:301:A:C8	2.53	0.42
1:2:433:A:H2'	1:2:434:G:C8	2.54	0.42
1:2:811:A:H2'	1:2:812:A:C8	2.54	0.42
1:2:1240:A:N3	1:2:1267:C:O2'	2.41	0.42
1:2:1363:C:O3'	35:y:334:TYR:OH	2.37	0.42
1:2:1388:A:H61	5:D:161:GLY:HA3	1.82	0.42
1:2:1413:G:H2'	1:2:1414:A:C8	2.54	0.42
1:2:1736:G:H2'	1:2:1737:G:C8	2.54	0.42
2:A:108:PHE:HB3	2:A:140:VAL:HG21	2.01	0.42
15:N:130:LYS:HE2	15:N:139:TRP:HB3	2.00	0.42
1:2:1656:G:H1	1:2:1668:U:H3	1.67	0.42
2:A:14:ASP:OD2	2:A:180:ARG:NH2	2.48	0.42
10:I:120:PRO:HB3	10:I:123:ARG:HG3	1.99	0.42
25:X:84:PHE:HB2	25:X:118:VAL:HG11	2.01	0.42
1:2:296:U:O2'	6:E:131:VAL:O	2.31	0.42
1:2:1309:C:H5'	32:f:133:ALA:HA	2.02	0.42
1:2:1413:G:H2'	1:2:1414:A:H8	1.84	0.42
2:A:113:GLN:HB2	2:A:116:PHE:HB2	2.02	0.42
3:B:31:TYR:HD2	3:B:62:LEU:HD22	1.84	0.42
3:B:62:LEU:HD23	3:B:91:VAL:HG22	2.02	0.42
23:V:16:LYS:HD2	23:V:21:ASN:ND2	2.34	0.42
24:W:69:LEU:HD21	24:W:72:CYS:HB2	2.01	0.42
1:2:634:A:H2'	1:2:635:G:H8	1.85	0.42
1:2:1467:C:OP1	19:R:3:ARG:N	2.44	0.42
1:2:1539:U:OP1	21:T:44:GLU:N	2.47	0.42
1:2:1543:U:OP2	21:T:62:ARG:NH2	2.53	0.42
1:2:1593:C:H2'	1:2:1594:A:C8	2.55	0.42
2:A:22:GLY:HA2	2:A:24:HIS:CE1	2.55	0.42
14:M:92:CYS:HB3	14:M:100:PRO:HB3	2.01	0.42
23:V:3:ASN:OD1	23:V:7:GLU:N	2.52	0.42
26:Y:110:ARG:HE	26:Y:126:GLY:HA2	1.84	0.42
1:2:420:G:O2'	1:2:660:C:N3	2.44	0.42
1:2:1015:U:H5'	28:b:49:HIS:ND1	2.34	0.42
1:2:1260:A:H61	1:2:1617:G:H21	1.68	0.42
2:A:72:ALA:O	2:A:97:THR:OG1	2.37	0.42
8:G:58:LYS:HA	8:G:107:SER:HB2	2.01	0.42
11:J:33:GLY:HA3	31:e:38:TYR:CG	2.54	0.42
18:Q:82:TYR:O	18:Q:86:GLN:HG2	2.20	0.42
24:W:86:LEU:HD23	24:W:117:ARG:HH21	1.82	0.42
25:X:68:LYS:HB3	25:X:91:LEU:HD22	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:g:61:GLY:O	33:g:88:ARG:NH1	2.53	0.42
1:2:144:U:H2'	1:2:145:G:H8	1.84	0.42
1:2:1629:C:O2'	20:S:83:PHE:O	2.37	0.42
4:C:104:ASP:OD1	4:C:104:ASP:N	2.53	0.42
22:U:27:ARG:NH2	30:d:51:GLY:O	2.53	0.42
1:2:570:C:O2'	26:Y:34:THR:O	2.25	0.42
1:2:587:A:H2	1:2:589:G:H1	1.67	0.42
1:2:942:G:OP1	3:B:136:ARG:NH1	2.51	0.42
1:2:1298:G:H5'	17:P:77:LYS:HB2	2.02	0.42
1:2:1536:G:H2'	1:2:1537:A:C8	2.55	0.42
3:B:148:ASN:HA	35:y:315:LYS:HG3	2.01	0.42
9:H:140:VAL:N	9:H:157:HIS:O	2.46	0.42
20:S:84:LEU:HA	20:S:84:LEU:HD23	1.84	0.42
1:2:495:U:H2'	1:2:496:C:O4'	2.20	0.42
1:2:928:G:H2'	1:2:929:G:C8	2.54	0.42
1:2:1064:C:H2'	1:2:1065:G:C8	2.55	0.42
1:2:1264:C:N4	1:2:1518:C:N3	2.45	0.42
10:I:83:TYR:HD2	10:I:101:ILE:HD12	1.84	0.42
11:J:134:HIS:HE1	11:J:164:PRO:HD2	1.85	0.42
19:R:5:ARG:HB2	19:R:10:LYS:HE3	2.02	0.42
35:y:394:ALA:HA	35:y:397:ARG:HD3	2.02	0.42
1:2:76:U:H5'	8:G:159:ARG:NH2	2.35	0.42
1:2:1213:C:H2'	1:2:1214:A:C8	2.55	0.42
1:2:1228:A:H2'	1:2:1229:G:H8	1.85	0.42
13:L:82:MET:HE2	13:L:85:THR:HG23	2.02	0.42
20:S:31:THR:HG23	20:S:37:GLY:HA2	2.01	0.42
1:2:56:G:OP1	26:Y:111:LYS:NZ	2.49	0.41
1:2:527:C:H2'	1:2:528:A:H8	1.85	0.41
1:2:1351:G:N2	1:2:1360:U:O2	2.40	0.41
1:2:1668:U:OP2	18:Q:141:TYR:OH	2.29	0.41
1:2:1697:A:H5''	1:2:1698:C:H2'	2.02	0.41
3:B:104:ASP:OD1	3:B:104:ASP:N	2.53	0.41
4:C:248:TYR:OH	23:V:10:ASP:OD1	2.28	0.41
8:G:59:GLN:HG3	8:G:72:ARG:NH2	2.30	0.41
12:K:35:LEU:HD23	12:K:35:LEU:HA	1.89	0.41
19:R:44:LYS:HA	19:R:47:ARG:HG2	2.01	0.41
26:Y:63:HIS:CD2	26:Y:68:LYS:HB2	2.53	0.41
33:g:298:LEU:HD23	33:g:298:LEU:HA	1.88	0.41
35:y:285:CYS:HB2	35:y:289:GLY:H	1.85	0.41
35:y:324:TYR:CD1	35:y:401:PRO:HG2	2.55	0.41
1:2:886:A:C4	1:2:887:U:H1'	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1030:A:H2'	1:2:1031:A:C8	2.55	0.41
2:A:81:ASN:HA	2:A:84:GLN:HG2	2.01	0.41
23:V:1:MET:HG3	23:V:2:GLN:HG3	2.02	0.41
33:g:51:ASN:ND2	33:g:53:GLY:O	2.52	0.41
3:B:71:LEU:HD13	3:B:84:PHE:HE2	1.85	0.41
5:D:6:SER:O	5:D:10:LYS:N	2.53	0.41
11:J:134:HIS:CE1	11:J:164:PRO:HD2	2.56	0.41
17:P:103:ASN:OD1	17:P:120:SER:OG	2.36	0.41
26:Y:58:PHE:HE1	26:Y:74:MET:HE3	1.85	0.41
33:g:29:ASP:HA	33:g:45:LEU:HB2	2.02	0.41
1:2:107:A:H2'	1:2:108:G:C8	2.54	0.41
1:2:624:C:H41	25:X:63:ASN:HD22	1.67	0.41
1:2:653:A:H2	11:J:17:ARG:HH12	1.67	0.41
1:2:874:G:H2'	1:2:875:A:C8	2.56	0.41
1:2:1686:G:H2'	1:2:1687:C:C6	2.54	0.41
5:D:138:VAL:HG22	5:D:184:ILE:HG22	2.02	0.41
7:F:34:SER:HA	29:c:55:VAL:HG13	2.01	0.41
7:F:128:ILE:HD12	7:F:137:GLN:HB3	2.01	0.41
8:G:198:ARG:HA	8:G:201:LYS:HG2	2.03	0.41
10:I:141:ARG:HE	10:I:149:TYR:HD2	1.66	0.41
11:J:136:ARG:HH12	11:J:161:LEU:HG	1.84	0.41
14:M:36:ARG:HE	14:M:40:LYS:HZ1	1.69	0.41
18:Q:16:LYS:HG2	18:Q:17:LYS:H	1.86	0.41
33:g:191:HIS:NE2	33:g:217:MET:HG2	2.36	0.41
1:2:430:C:H2'	1:2:431:G:H8	1.86	0.41
1:2:1551:U:OP2	1:2:1579:A:N6	2.53	0.41
1:2:1779:G:H2'	1:2:1780:G:C8	2.55	0.41
2:A:30:LEU:HB3	35:y:323:ARG:NH1	2.34	0.41
11:J:170:PRO:HB2	11:J:174:LYS:HB3	2.02	0.41
17:P:97:TYR:HB2	17:P:102:PHE:CE1	2.56	0.41
33:g:230:LEU:HD13	33:g:259:TRP:CD2	2.55	0.41
34:x:110:ASN:O	34:x:114:ARG:HA	2.20	0.41
1:2:1419:C:OP2	1:2:1420:G:N1	2.53	0.41
4:C:183:LYS:HD3	4:C:194:ARG:HH21	1.84	0.41
13:L:78:THR:OG1	13:L:79:LYS:N	2.54	0.41
30:d:40:ARG:HE	30:d:41:GLN:NE2	2.18	0.41
33:g:135:LEU:HB2	33:g:137:VAL:HG23	2.02	0.41
1:2:398:A:OP1	1:2:399:C:O2'	2.21	0.41
1:2:1156:U:OP1	24:W:71:LYS:NZ	2.53	0.41
1:2:1245:G:O2'	1:2:1492:U:OP1	2.28	0.41
1:2:1341:C:H4'	1:2:1342:U:H5'	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1584:G:C8	1:2:1586:U:H1'	2.55	0.41
2:A:149:ASN:N	2:A:152:SER:OG	2.54	0.41
18:Q:25:CYS:HA	18:Q:67:ASP:O	2.20	0.41
1:2:31:U:O2'	1:2:643:A:N1	2.48	0.41
1:2:76:U:H5'	8:G:159:ARG:HH22	1.84	0.41
1:2:467:G:O5'	8:G:72:ARG:NH1	2.53	0.41
1:2:532:C:H2'	1:2:533:A:H8	1.86	0.41
1:2:641:A:O2'	1:2:645:C:OP1	2.38	0.41
1:2:1842:C:H2'	1:2:1843:G:C8	2.56	0.41
1:2:1863:A:O2'	34:x:181:GLY:O	2.38	0.41
2:A:80:ARG:NH2	2:A:165:ASN:O	2.52	0.41
2:A:217:ALA:HA	35:y:64:ARG:HH11	1.86	0.41
6:E:29:PRO:HG2	6:E:46:ILE:HD11	2.02	0.41
7:F:102:LEU:HB3	27:Z:66:LYS:O	2.21	0.41
20:S:14:ARG:HE	20:S:17:ASN:HA	1.86	0.41
25:X:107:ARG:HB3	25:X:110:HIS:HB2	2.02	0.41
35:y:79:LEU:HD12	35:y:240:ALA:HB1	2.02	0.41
35:y:353:GLN:OE1	35:y:356:ARG:NH2	2.54	0.41
1:2:155:G:H2'	1:2:156:G:H8	1.86	0.41
1:2:1144:A:H2'	1:2:1145:A:C8	2.55	0.41
1:2:1691:U:H2'	1:2:1692:U:C6	2.56	0.41
3:B:33:VAL:HG23	3:B:44:ILE:HG13	2.02	0.41
17:P:18:ARG:NH1	20:S:88:LYS:O	2.54	0.41
1:2:199:C:H3'	1:2:200:G:H8	1.85	0.40
2:A:41:ARG:HD3	2:A:47:TYR:CE1	2.56	0.40
14:M:22:LEU:HD13	14:M:89:VAL:HA	2.03	0.40
14:M:51:VAL:HG22	14:M:77:ILE:HB	2.03	0.40
20:S:85:ASN:HB3	20:S:98:VAL:H	1.87	0.40
33:g:302:TYR:CE2	33:g:308:ARG:HD2	2.57	0.40
1:2:291:G:N2	13:L:68:ILE:O	2.38	0.40
2:A:145:ILE:HG13	2:A:159:ILE:HG22	2.03	0.40
10:I:110:ARG:NH1	10:I:123:ARG:HH12	2.19	0.40
24:W:11:LEU:HA	24:W:14:ILE:HG12	2.03	0.40
34:x:191:LYS:HG3	34:x:202:ILE:HD11	2.03	0.40
1:2:4:C:H4'	4:C:207:ALA:HB2	2.02	0.40
1:2:127:C:O2	6:E:134:LYS:NZ	2.49	0.40
1:2:1309:C:O5'	32:f:105:TYR:OH	2.36	0.40
6:E:179:ASN:HD22	6:E:231:GLY:H	1.68	0.40
8:G:186:GLN:HA	8:G:189:ARG:HG2	2.04	0.40
20:S:44:VAL:HG11	20:S:71:MET:HG3	2.02	0.40
1:2:185:G:O6	1:2:214:U:O4	2.39	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:429:C:OP1	6:E:10:LYS:NZ	2.43	0.40
1:2:915:G:H5'	9:H:120:ARG:HH12	1.86	0.40
1:2:935:G:H2'	1:2:936:G:H8	1.86	0.40
1:2:1290:G:N2	1:2:1310:U:H1'	2.36	0.40
6:E:62:LYS:HE3	6:E:62:LYS:HB2	1.88	0.40
6:E:206:ASP:O	6:E:222:LEU:N	2.55	0.40
11:J:41:ARG:HH11	11:J:41:ARG:HD2	1.77	0.40
1:2:373:G:H4'	13:L:85:THR:HG21	2.03	0.40
1:2:931:C:H2'	1:2:932:G:C8	2.56	0.40
9:H:43:LEU:HD22	9:H:68:GLN:HB3	2.04	0.40
15:N:63:VAL:HG21	15:N:71:ILE:HD11	2.04	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	214/295 (72%)	201 (94%)	13 (6%)	0	100	100
3	B	211/264 (80%)	197 (93%)	14 (7%)	0	100	100
4	C	216/293 (74%)	203 (94%)	13 (6%)	0	100	100
5	D	223/243 (92%)	207 (93%)	16 (7%)	0	100	100
6	E	260/263 (99%)	250 (96%)	10 (4%)	0	100	100
7	F	187/204 (92%)	175 (94%)	11 (6%)	1 (0%)	24	57
8	G	228/249 (92%)	222 (97%)	6 (3%)	0	100	100
9	H	184/194 (95%)	176 (96%)	8 (4%)	0	100	100
10	I	203/208 (98%)	196 (97%)	7 (3%)	0	100	100
11	J	178/194 (92%)	165 (93%)	12 (7%)	1 (1%)	21	52
12	K	93/165 (56%)	91 (98%)	2 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
13	L	149/158 (94%)	142 (95%)	7 (5%)	0	100	100
14	M	121/132 (92%)	112 (93%)	9 (7%)	0	100	100
15	N	147/151 (97%)	140 (95%)	7 (5%)	0	100	100
16	O	133/151 (88%)	123 (92%)	10 (8%)	0	100	100
17	P	118/145 (81%)	111 (94%)	7 (6%)	0	100	100
18	Q	137/146 (94%)	131 (96%)	6 (4%)	0	100	100
19	R	120/135 (89%)	111 (92%)	9 (8%)	0	100	100
20	S	141/152 (93%)	133 (94%)	8 (6%)	0	100	100
21	T	142/145 (98%)	135 (95%)	7 (5%)	0	100	100
22	U	99/119 (83%)	92 (93%)	7 (7%)	0	100	100
23	V	80/83 (96%)	74 (92%)	6 (8%)	0	100	100
24	W	127/130 (98%)	122 (96%)	5 (4%)	0	100	100
25	X	139/143 (97%)	134 (96%)	4 (3%)	1 (1%)	18	49
26	Y	122/133 (92%)	116 (95%)	6 (5%)	0	100	100
27	Z	70/125 (56%)	68 (97%)	2 (3%)	0	100	100
28	b	80/84 (95%)	72 (90%)	8 (10%)	0	100	100
29	c	59/69 (86%)	53 (90%)	5 (8%)	1 (2%)	7	30
30	d	53/56 (95%)	51 (96%)	2 (4%)	0	100	100
31	e	54/59 (92%)	52 (96%)	2 (4%)	0	100	100
32	f	61/156 (39%)	56 (92%)	5 (8%)	0	100	100
33	g	312/317 (98%)	288 (92%)	24 (8%)	0	100	100
34	x	173/252 (69%)	168 (97%)	5 (3%)	0	100	100
35	y	311/412 (76%)	279 (90%)	32 (10%)	0	100	100
All	All	5145/6025 (85%)	4846 (94%)	295 (6%)	4 (0%)	49	78

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
11	J	161	LEU
7	F	41	VAL
29	c	37	ASP
25	X	86	PRO

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	A	180/243 (74%)	179 (99%)	1 (1%)	78	83
3	B	194/231 (84%)	192 (99%)	2 (1%)	68	79
4	C	184/225 (82%)	184 (100%)	0	100	100
5	D	189/202 (94%)	189 (100%)	0	100	100
6	E	224/225 (100%)	223 (100%)	1 (0%)	84	86
7	F	159/170 (94%)	159 (100%)	0	100	100
8	G	200/218 (92%)	200 (100%)	0	100	100
9	H	167/174 (96%)	167 (100%)	0	100	100
10	I	178/180 (99%)	178 (100%)	0	100	100
11	J	160/168 (95%)	158 (99%)	2 (1%)	61	77
12	K	86/136 (63%)	86 (100%)	0	100	100
13	L	135/142 (95%)	135 (100%)	0	100	100
14	M	104/108 (96%)	104 (100%)	0	100	100
15	N	130/131 (99%)	130 (100%)	0	100	100
16	O	105/119 (88%)	105 (100%)	0	100	100
17	P	107/130 (82%)	107 (100%)	0	100	100
18	Q	115/121 (95%)	115 (100%)	0	100	100
19	R	110/122 (90%)	109 (99%)	1 (1%)	70	80
20	S	124/132 (94%)	124 (100%)	0	100	100
21	T	114/115 (99%)	113 (99%)	1 (1%)	70	80
22	U	93/107 (87%)	92 (99%)	1 (1%)	65	78
23	V	66/67 (98%)	65 (98%)	1 (2%)	57	75
24	W	112/113 (99%)	112 (100%)	0	100	100
25	X	113/115 (98%)	113 (100%)	0	100	100
26	Y	108/115 (94%)	106 (98%)	2 (2%)	50	73
27	Z	64/103 (62%)	64 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
28	b	74/76 (97%)	73 (99%)	1 (1%)	59	76
29	c	54/62 (87%)	53 (98%)	1 (2%)	50	73
30	d	48/49 (98%)	48 (100%)	0	100	100
31	e	45/48 (94%)	45 (100%)	0	100	100
32	f	56/140 (40%)	56 (100%)	0	100	100
33	g	272/275 (99%)	269 (99%)	3 (1%)	65	78
34	x	146/208 (70%)	145 (99%)	1 (1%)	76	82
35	y	275/367 (75%)	275 (100%)	0	100	100
All	All	4491/5137 (87%)	4473 (100%)	18 (0%)	81	86

All (18) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	A	130	ASP
3	B	88	THR
3	B	210	VAL
6	E	146	THR
11	J	144	ILE
11	J	159	PHE
19	R	41	ILE
21	T	134	ILE
22	U	54	VAL
23	V	21	ASN
26	Y	17	LEU
26	Y	107	ARG
28	b	53	VAL
29	c	55	VAL
33	g	71	ILE
33	g	191	HIS
33	g	241	PHE
34	x	227	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (69) such sidechains are listed below:

Mol	Chain	Res	Type
2	A	9	GLN
2	A	33	GLN
2	A	50	ASN

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Mol	Chain	Res	Type
2	A	113	GLN
3	B	186	ASN
4	C	120	GLN
5	D	57	ASN
5	D	145	GLN
6	E	98	ASN
6	E	157	ASN
6	E	179	ASN
6	E	201	HIS
7	F	79	HIS
7	F	114	ASN
8	G	81	HIS
8	G	105	ASN
9	H	73	GLN
9	H	91	HIS
9	H	112	ASN
9	H	114	GLN
10	I	52	ASN
10	I	87	ASN
10	I	99	ASN
10	I	116	HIS
10	I	138	ASN
11	J	132	GLN
11	J	156	HIS
12	K	61	GLN
13	L	18	GLN
13	L	39	ASN
13	L	65	ASN
13	L	112	HIS
14	M	15	ASN
14	M	28	HIS
15	N	13	GLN
15	N	105	ASN
16	O	32	HIS
16	O	38	ASN
16	O	43	HIS
19	R	29	HIS
19	R	118	GLN
20	S	11	HIS
20	S	19	ASN
21	T	12	GLN
21	T	83	GLN

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Mol	Chain	Res	Type
22	U	47	ASN
23	V	21	ASN
23	V	29	HIS
25	X	16	HIS
25	X	61	GLN
25	X	63	ASN
26	Y	63	HIS
27	Z	46	ASN
27	Z	103	HIS
29	c	29	GLN
30	d	26	ASN
30	d	28	HIS
31	e	58	ASN
33	g	4	GLN
33	g	117	ASN
33	g	159	ASN
34	x	217	ASN
34	x	227	ASN
34	x	232	ASN
35	y	21	GLN
35	y	124	HIS
35	y	213	ASN
35	y	290	ASN
35	y	348	GLN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	2	1655/1870 (88%)	510 (30%)	46 (2%)

All (510) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	2	3	C
1	2	16	G
1	2	17	C
1	2	26	U
1	2	29	G
1	2	33	G
1	2	41	G
1	2	42	A

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Mol	Chain	Res	Type
1	2	44	U
1	2	45	A
1	2	46	A
1	2	49	C
1	2	50	A
1	2	56	G
1	2	58	C
1	2	60	A
1	2	61	A
1	2	62	G
1	2	65	C
1	2	66	G
1	2	67	C
1	2	68	A
1	2	69	C
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	79	A
1	2	99	A
1	2	103	A
1	2	111	A
1	2	113	G
1	2	114	G
1	2	115	U
1	2	127	C
1	2	128	U
1	2	129	C
1	2	130	G
1	2	143	U
1	2	144	U
1	2	155	G
1	2	160	U
1	2	161	U
1	2	167	G
1	2	175	A
1	2	181	A
1	2	182	C
1	2	183	G

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Mol	Chain	Res	Type
1	2	184	G
1	2	188	C
1	2	190	G
1	2	191	A
1	2	192	C
1	2	207	G
1	2	208	G
1	2	211	G
1	2	214	U
1	2	215	G
1	2	290	U
1	2	291	G
1	2	292	A
1	2	295	C
1	2	302	A
1	2	306	C
1	2	307	G
1	2	308	G
1	2	309	G
1	2	310	C
1	2	315	C
1	2	318	A
1	2	319	C
1	2	332	G
1	2	333	G
1	2	335	G
1	2	338	G
1	2	339	A
1	2	343	A
1	2	347	G
1	2	350	C
1	2	360	A
1	2	362	C
1	2	364	A
1	2	368	U
1	2	369	C
1	2	370	G
1	2	372	U
1	2	377	G
1	2	381	C
1	2	384	U
1	2	385	G

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Mol	Chain	Res	Type
1	2	386	C
1	2	399	C
1	2	400	C
1	2	408	A
1	2	409	C
1	2	413	G
1	2	418	A
1	2	428	U
1	2	438	G
1	2	441	C
1	2	442	C
1	2	447	A
1	2	448	A
1	2	449	A
1	2	450	C
1	2	456	C
1	2	465	A
1	2	466	G
1	2	467	G
1	2	471	G
1	2	472	C
1	2	473	A
1	2	474	G
1	2	476	A
1	2	482	G
1	2	483	C
1	2	486	A
1	2	487	U
1	2	489	A
1	2	492	C
1	2	500	A
1	2	502	C
1	2	516	A
1	2	525	A
1	2	532	C
1	2	533	A
1	2	534	G
1	2	535	G
1	2	536	A
1	2	537	C
1	2	544	G
1	2	546	G

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Mol	Chain	Res	Type
1	2	548	C
1	2	550	C
1	2	552	G
1	2	554	A
1	2	555	A
1	2	556	U
1	2	559	G
1	2	560	A
1	2	563	G
1	2	568	C
1	2	576	A
1	2	583	A
1	2	587	A
1	2	588	G
1	2	589	G
1	2	590	A
1	2	591	U
1	2	594	A
1	2	595	U
1	2	596	U
1	2	598	G
1	2	603	C
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	615	C
1	2	621	C
1	2	627	U
1	2	631	U
1	2	638	C
1	2	639	C
1	2	640	A
1	2	643	A
1	2	644	G
1	2	655	A
1	2	659	G
1	2	660	C
1	2	662	G
1	2	664	A

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Mol	Chain	Res	Type
1	2	668	A
1	2	669	A
1	2	671	A
1	2	672	A
1	2	673	G
1	2	675	U
1	2	684	G
1	2	685	A
1	2	687	C
1	2	688	U
1	2	747	U
1	2	749	U
1	2	750	C
1	2	751	G
1	2	792	C
1	2	794	A
1	2	796	G
1	2	797	C
1	2	799	U
1	2	809	A
1	2	810	A
1	2	812	A
1	2	821	G
1	2	830	A
1	2	844	U
1	2	847	A
1	2	856	C
1	2	859	G
1	2	867	G
1	2	869	A
1	2	870	A
1	2	871	U
1	2	872	A
1	2	873	G
1	2	874	G
1	2	877	C
1	2	878	G
1	2	879	C
1	2	881	G
1	2	884	C
1	2	887	U
1	2	890	U

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Mol	Chain	Res	Type
1	2	892	U
1	2	898	U
1	2	902	G
1	2	903	A
1	2	906	U
1	2	908	A
1	2	913	A
1	2	914	U
1	2	919	A
1	2	920	A
1	2	927	C
1	2	930	C
1	2	932	G
1	2	933	G
1	2	943	U
1	2	954	U
1	2	955	A
1	2	958	G
1	2	959	G
1	2	960	U
1	2	963	A
1	2	967	C
1	2	968	U
1	2	969	U
1	2	970	G
1	2	971	G
1	2	978	G
1	2	981	A
1	2	985	G
1	2	989	C
1	2	990	A
1	2	992	A
1	2	999	G
1	2	1001	A
1	2	1008	A
1	2	1017	U
1	2	1023	A
1	2	1040	G
1	2	1041	G
1	2	1044	G
1	2	1049	A
1	2	1054	G

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Mol	Chain	Res	Type
1	2	1060	A
1	2	1062	A
1	2	1067	C
1	2	1078	C
1	2	1082	A
1	2	1083	A
1	2	1085	C
1	2	1087	A
1	2	1088	U
1	2	1089	G
1	2	1096	G
1	2	1099	G
1	2	1100	A
1	2	1109	C
1	2	1110	G
1	2	1112	U
1	2	1113	A
1	2	1114	U
1	2	1116	C
1	2	1117	C
1	2	1118	C
1	2	1119	A
1	2	1120	U
1	2	1121	G
1	2	1123	C
1	2	1133	A
1	2	1135	C
1	2	1137	U
1	2	1138	C
1	2	1141	G
1	2	1143	A
1	2	1149	A
1	2	1150	A
1	2	1153	C
1	2	1154	U
1	2	1157	G
1	2	1166	G
1	2	1171	G
1	2	1195	A
1	2	1203	G
1	2	1206	G
1	2	1207	G

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Mol	Chain	Res	Type
1	2	1208	A
1	2	1211	G
1	2	1215	C
1	2	1216	C
1	2	1217	A
1	2	1221	G
1	2	1224	G
1	2	1227	G
1	2	1232	U
1	2	1240	A
1	2	1242	U
1	2	1243	U
1	2	1250	A
1	2	1251	A
1	2	1253	A
1	2	1254	C
1	2	1257	G
1	2	1258	A
1	2	1259	A
1	2	1260	A
1	2	1261	C
1	2	1264	C
1	2	1266	C
1	2	1274	G
1	2	1275	G
1	2	1281	G
1	2	1283	C
1	2	1284	A
1	2	1285	G
1	2	1286	G
1	2	1289	U
1	2	1291	A
1	2	1292	C
1	2	1298	G
1	2	1300	U
1	2	1301	A
1	2	1302	G
1	2	1303	C
1	2	1308	U
1	2	1313	A
1	2	1314	U
1	2	1315	U

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Mol	Chain	Res	Type
1	2	1317	C
1	2	1318	G
1	2	1321	G
1	2	1322	G
1	2	1325	G
1	2	1330	G
1	2	1331	C
1	2	1333	U
1	2	1341	C
1	2	1343	U
1	2	1348	G
1	2	1354	G
1	2	1358	U
1	2	1366	G
1	2	1371	U
1	2	1372	U
1	2	1373	C
1	2	1378	A
1	2	1380	C
1	2	1381	G
1	2	1382	A
1	2	1394	G
1	2	1395	C
1	2	1398	G
1	2	1401	A
1	2	1402	A
1	2	1404	U
1	2	1414	A
1	2	1418	C
1	2	1419	C
1	2	1420	G
1	2	1421	A
1	2	1424	G
1	2	1425	G
1	2	1426	U
1	2	1427	C
1	2	1428	G
1	2	1429	G
1	2	1430	C
1	2	1431	G
1	2	1432	U
1	2	1439	A

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Mol	Chain	Res	Type
1	2	1441	U
1	2	1454	A
1	2	1463	U
1	2	1464	C
1	2	1465	A
1	2	1466	G
1	2	1477	U
1	2	1485	U
1	2	1487	A
1	2	1488	C
1	2	1490	G
1	2	1493	C
1	2	1494	U
1	2	1495	G
1	2	1498	A
1	2	1500	G
1	2	1505	U
1	2	1507	G
1	2	1508	A
1	2	1509	U
1	2	1510	G
1	2	1512	C
1	2	1518	C
1	2	1519	U
1	2	1521	C
1	2	1522	A
1	2	1533	A
1	2	1534	C
1	2	1535	U
1	2	1536	G
1	2	1548	G
1	2	1559	C
1	2	1560	U
1	2	1563	G
1	2	1566	G
1	2	1567	G
1	2	1569	A
1	2	1570	G
1	2	1572	C
1	2	1574	C
1	2	1578	U
1	2	1579	A

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Mol	Chain	Res	Type
1	2	1581	C
1	2	1582	C
1	2	1584	G
1	2	1585	U
1	2	1586	U
1	2	1587	G
1	2	1588	A
1	2	1590	C
1	2	1599	U
1	2	1600	G
1	2	1601	A
1	2	1602	U
1	2	1603	G
1	2	1604	G
1	2	1606	G
1	2	1612	G
1	2	1615	U
1	2	1618	C
1	2	1621	U
1	2	1622	U
1	2	1623	A
1	2	1628	C
1	2	1630	A
1	2	1637	A
1	2	1647	A
1	2	1649	U
1	2	1650	A
1	2	1654	G
1	2	1656	G
1	2	1663	A
1	2	1665	G
1	2	1667	U
1	2	1671	G
1	2	1675	A
1	2	1679	A
1	2	1689	C
1	2	1696	C
1	2	1697	A
1	2	1705	C
1	2	1715	A
1	2	1716	C
1	2	1719	A

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Mol	Chain	Res	Type
1	2	1720	U
1	2	1721	U
1	2	1722	G
1	2	1727	G
1	2	1728	U
1	2	1729	U
1	2	1744	G
1	2	1751	C
1	2	1753	C
1	2	1756	C
1	2	1773	C
1	2	1783	C
1	2	1786	U
1	2	1800	A
1	2	1801	A
1	2	1809	A
1	2	1810	U
1	2	1812	U
1	2	1814	G
1	2	1816	G
1	2	1819	A
1	2	1822	A
1	2	1825	A
1	2	1826	G
1	2	1827	U
1	2	1830	U
1	2	1831	A
1	2	1849	G
1	2	1850	A
1	2	1855	G
1	2	1856	C
1	2	1859	A
1	2	1860	A
1	2	1861	G
1	2	1863	A
1	2	1864	U
1	2	1865	C
1	2	1866	A
1	2	1869	A
1	2	1870	A

All (46) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	2	60	A
1	2	65	C
1	2	102	A
1	2	114	G
1	2	143	U
1	2	180	G
1	2	291	G
1	2	314	U
1	2	332	G
1	2	368	U
1	2	465	A
1	2	547	G
1	2	554	A
1	2	594	A
1	2	604	A
1	2	750	C
1	2	793	G
1	2	811	A
1	2	870	A
1	2	958	G
1	2	980	A
1	2	1137	U
1	2	1231	C
1	2	1253	A
1	2	1316	C
1	2	1330	G
1	2	1342	U
1	2	1403	C
1	2	1423	C
1	2	1425	G
1	2	1430	C
1	2	1431	G
1	2	1438	A
1	2	1440	C
1	2	1464	C
1	2	1476	A
1	2	1494	U
1	2	1511	U
1	2	1558	C
1	2	1573	G
1	2	1587	G
1	2	1601	A
1	2	1648	G

Continued on next page...

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Mol	Chain	Res	Type
1	2	1649	U
1	2	1734	G
1	2	1849	G

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 3 ligands modelled in this entry, 3 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

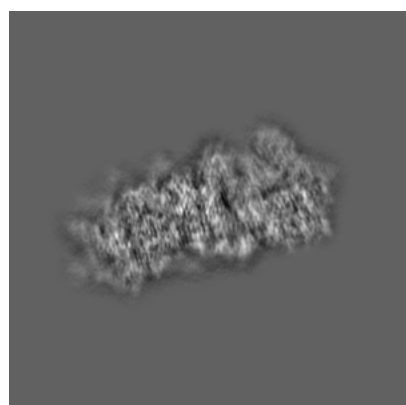
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-11440. These allow visual inspection of the internal detail of the map and identification of artifacts.

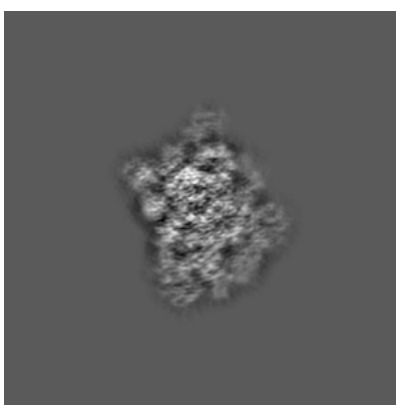
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

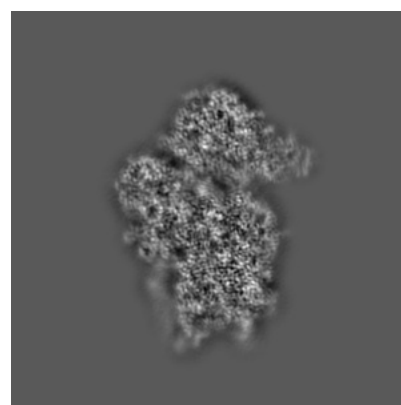
6.1.1 Primary map



X



Y

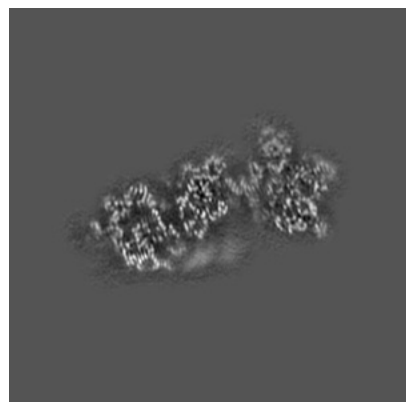


Z

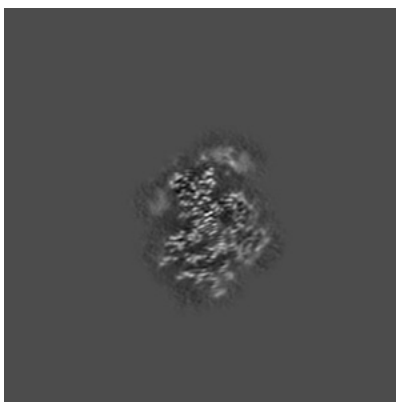
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

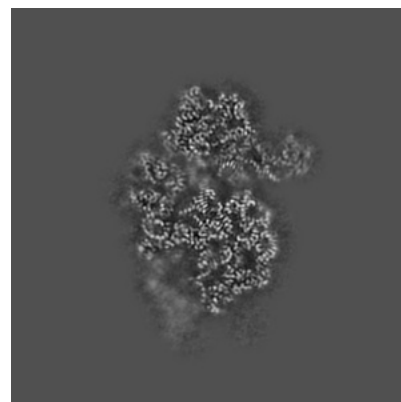
6.2.1 Primary map



X Index: 192



Y Index: 192

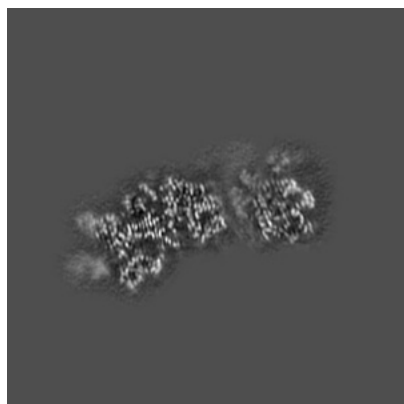


Z Index: 192

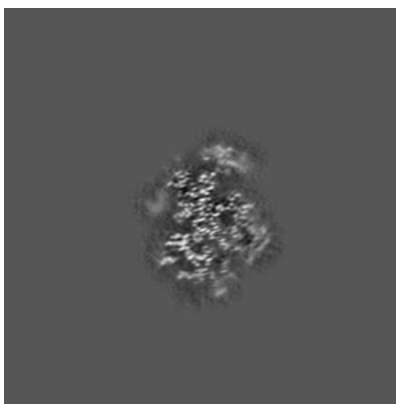
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

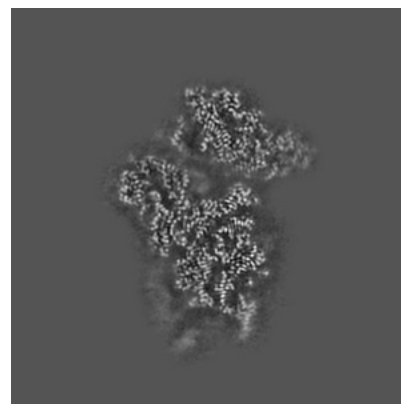
6.3.1 Primary map



X Index: 223



Y Index: 190

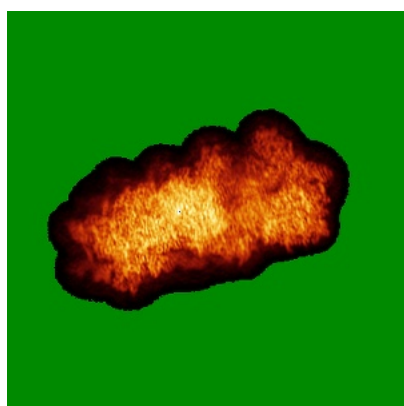


Z Index: 181

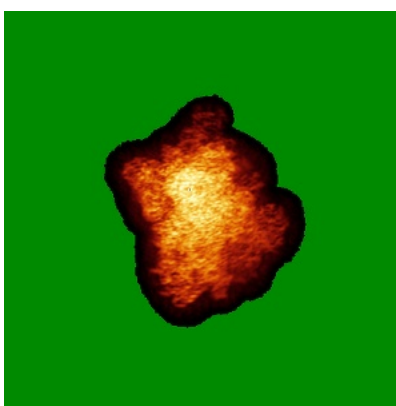
The images above show the largest variance slices of the map in three orthogonal directions.

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

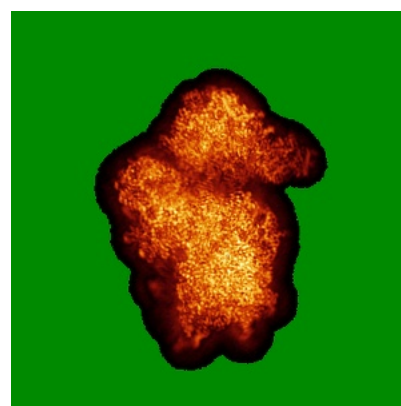
6.4.1 Primary map



X



Y



Z

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

6.5 Orthogonal surface views

This section was not generated.

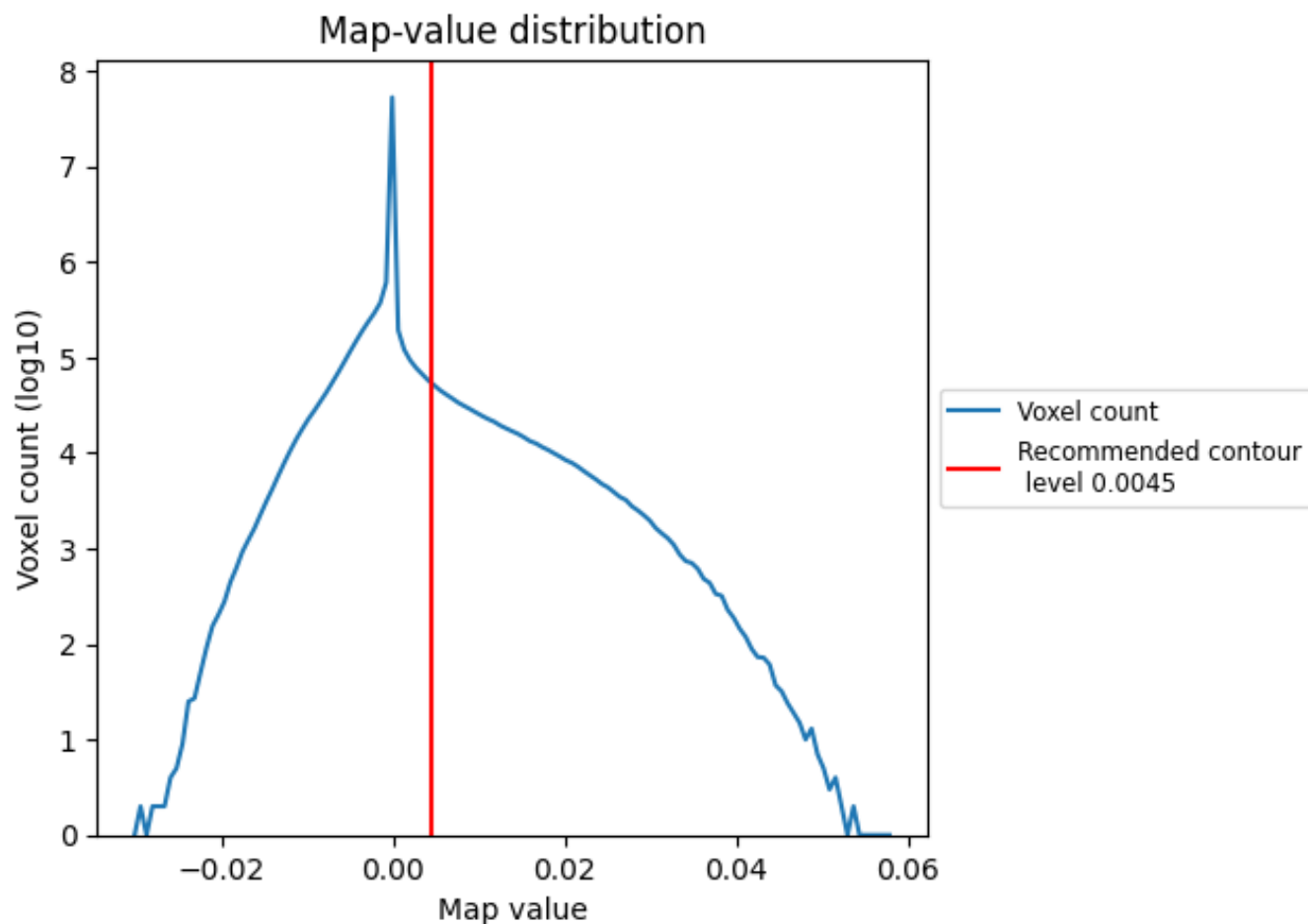
6.6 Mask visualisation

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

7 Map analysis [i](#)

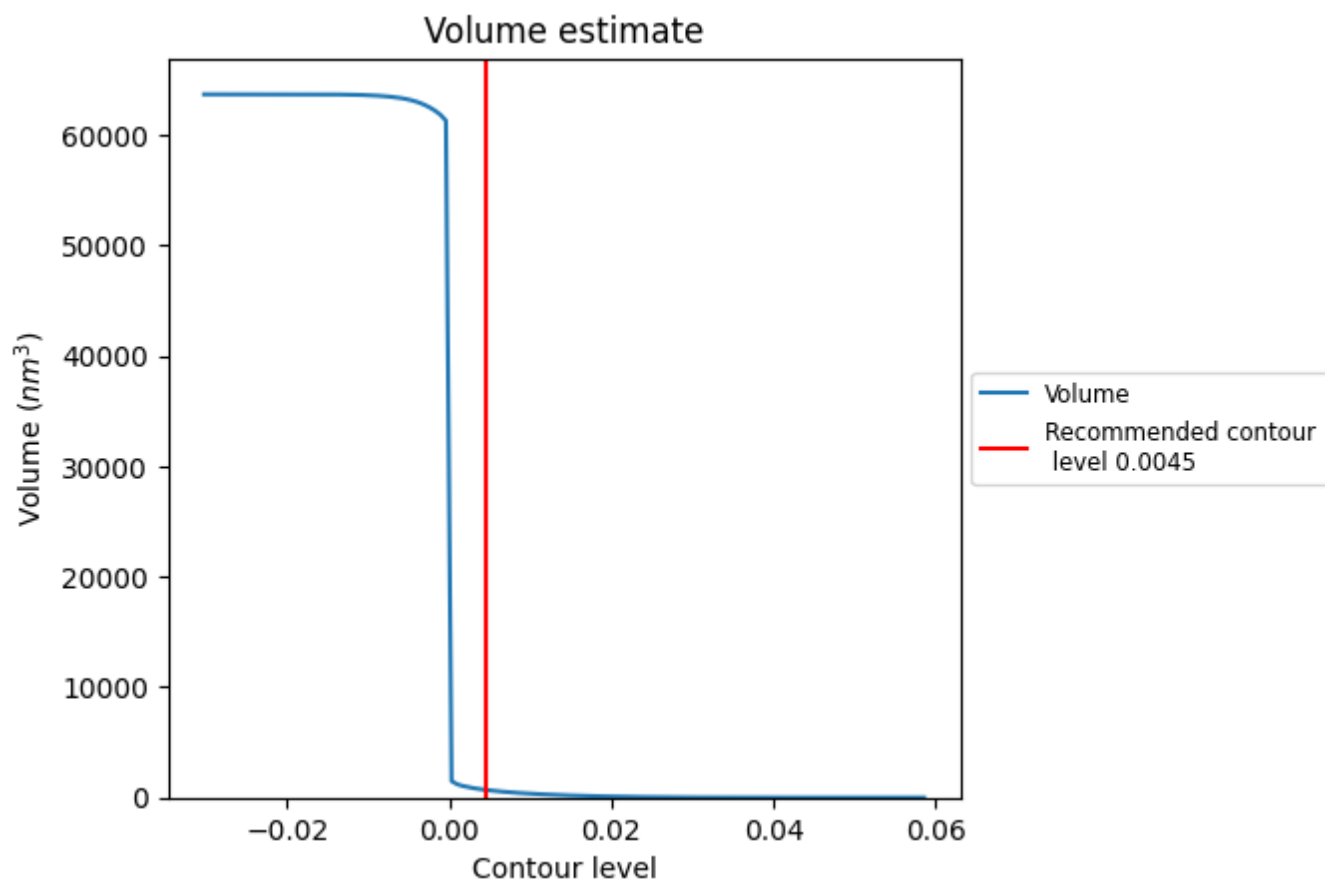
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

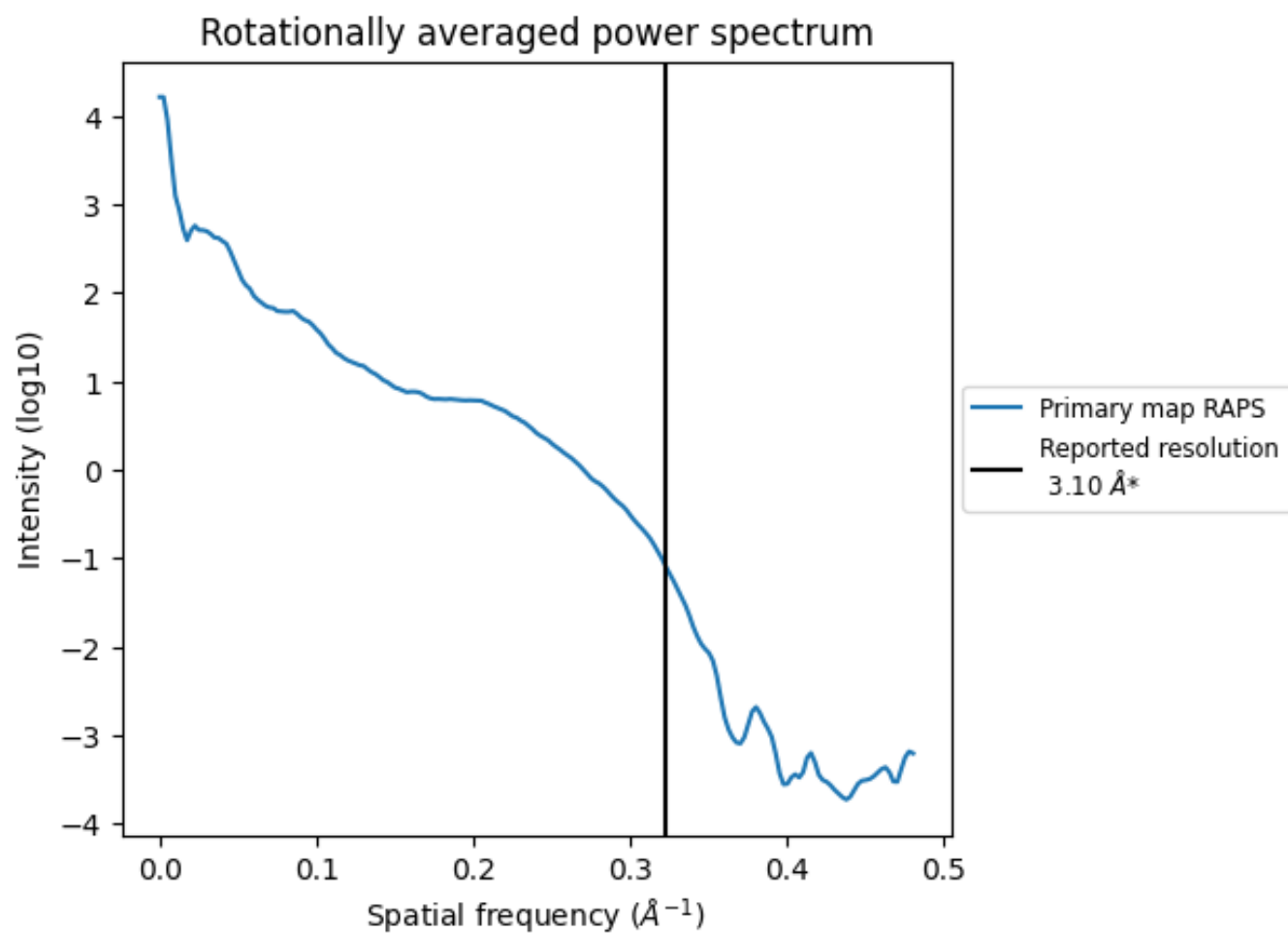
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 693 nm³; this corresponds to an approximate mass of 626 kDa.

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

7.3 Rotationally averaged power spectrum ⓘ



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

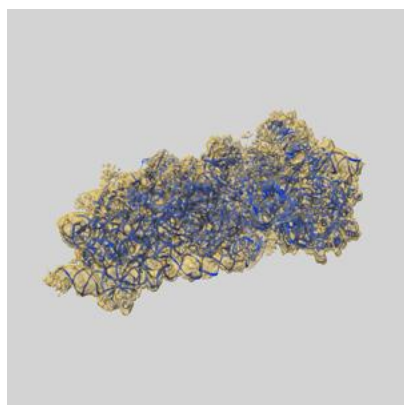
8 Fourier-Shell correlation

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

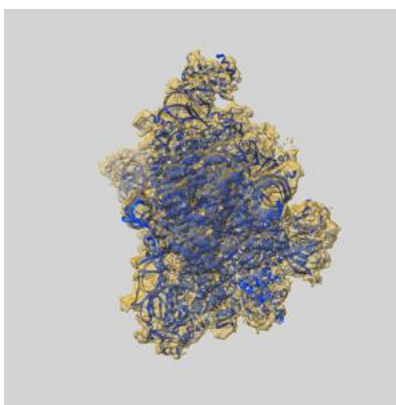
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-11440 and PDB model 6ZUO. Per-residue inclusion information can be found in section 3 on page 11.

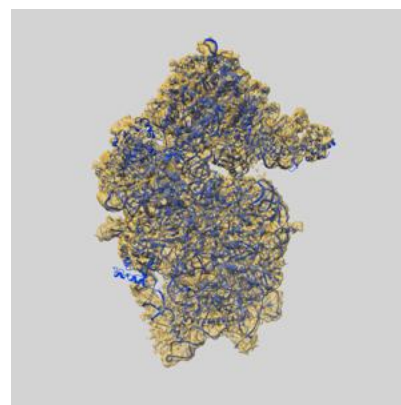
9.1 Map-model overlay [i](#)



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0045 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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

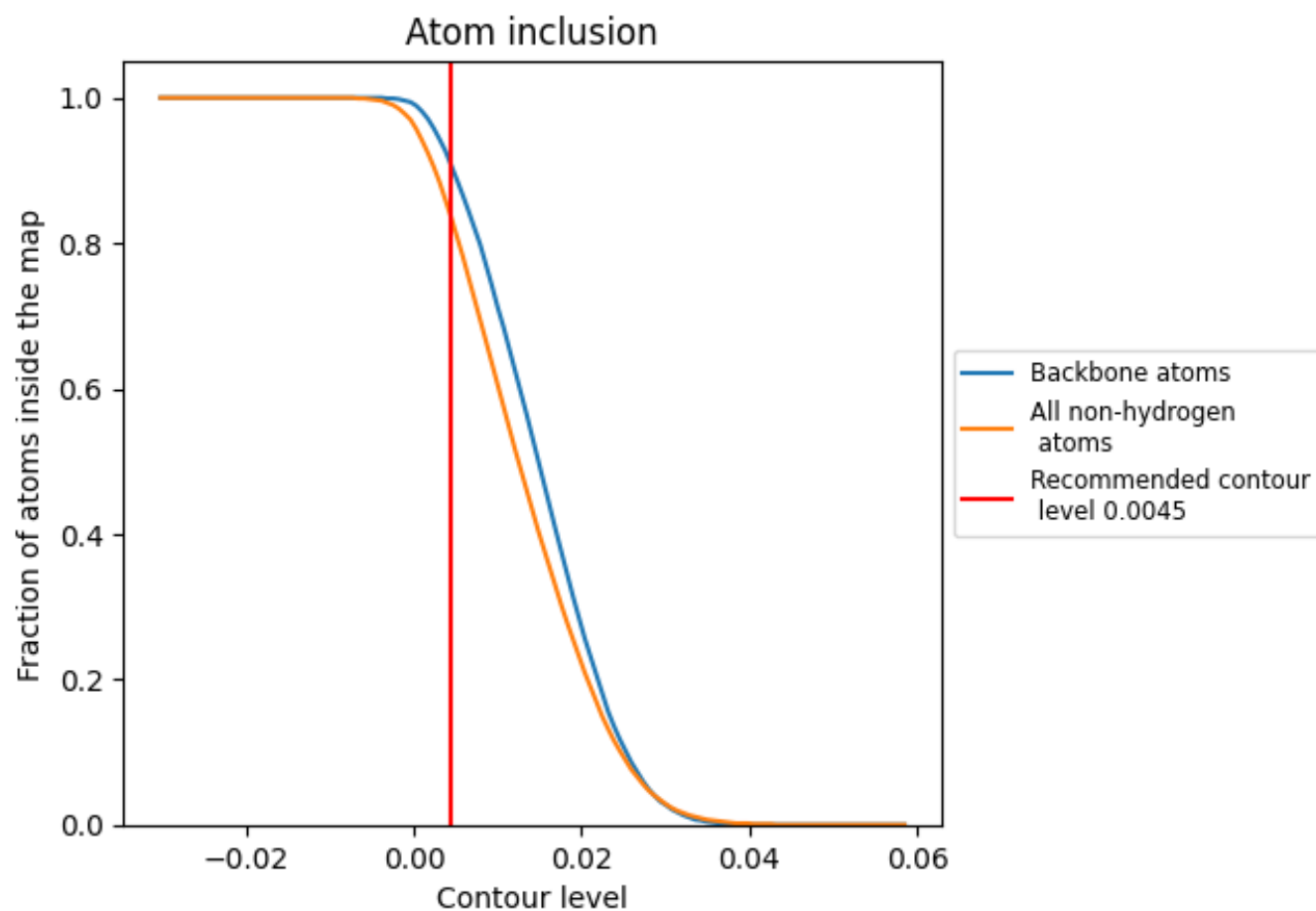


The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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

This section was not generated.

9.4 Atom inclusion [i](#)



At the recommended contour level, 91% of all backbone atoms, 83% 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 (0.0045) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8340	 0.4330
2	 0.9230	 0.4530
A	 0.7330	 0.3740
B	 0.8130	 0.4190
C	 0.8320	 0.4610
D	 0.6520	 0.3940
E	 0.8730	 0.5060
F	 0.8230	 0.4590
G	 0.8620	 0.4500
H	 0.3630	 0.2770
I	 0.8520	 0.4580
J	 0.8790	 0.4980
K	 0.8080	 0.4150
L	 0.8100	 0.4840
M	 0.4480	 0.1480
N	 0.8080	 0.4210
O	 0.7880	 0.4170
P	 0.8610	 0.4730
Q	 0.7690	 0.4640
R	 0.5860	 0.3450
S	 0.8020	 0.4420
T	 0.8510	 0.4640
U	 0.6790	 0.4110
V	 0.8020	 0.4000
W	 0.8090	 0.4890
X	 0.8640	 0.5100
Y	 0.8870	 0.4800
Z	 0.8090	 0.4300
b	 0.7740	 0.4240
c	 0.7270	 0.3910
d	 0.7370	 0.4790
e	 0.7450	 0.4380
f	 0.5550	 0.2530
g	 0.7890	 0.3720
x	 0.7880	 0.4250
y	 0.4910	 0.2900

