



Full wwPDB EM Validation Report ⓘ

Mar 28, 2026 – 06:54 PM UTC

PDB ID : 7WTV / pdb_00007wtv
EMDB ID : EMD-32802
Title : Cryo-EM structure of a human pre-40S ribosomal subunit - State RRP12-A2
Authors : Cheng, J.; Lau, B.; Thoms, M.; Ameismeier, M.; Berninghausen, O.; Hurt, E.; Beckmann, R.
Deposited on : 2022-02-05
Resolution : 3.50 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:

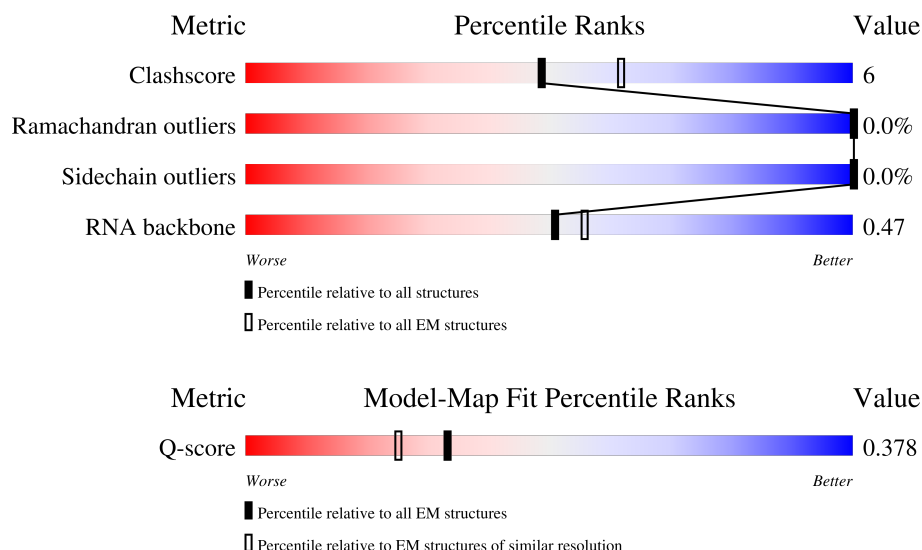
EMDB validation analysis : 0.0.1.dev132
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4-5-2 with Phenix2.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data 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 i

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

The reported resolution of this entry is 3.50 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.





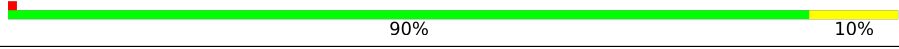



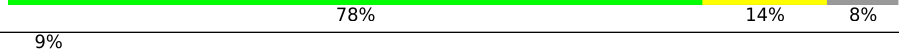
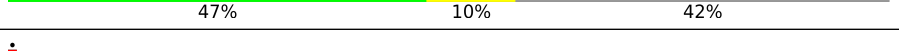
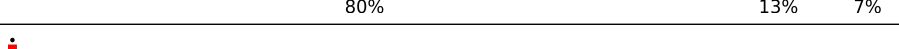
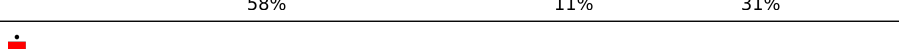
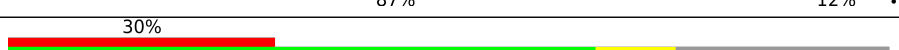

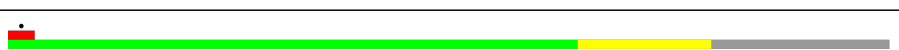

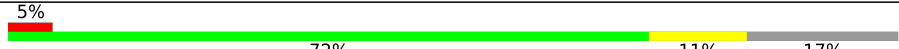





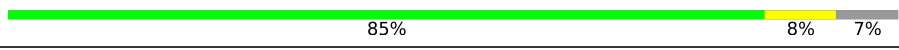
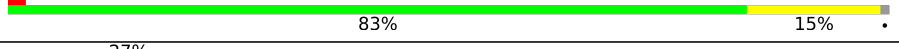



Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	13950 (3.00 - 4.00)

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	1873	
2	R	135	
3	b	84	

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Mol	Chain	Length	Quality of chain
4	B	264	
5	c	69	
6	E	263	
7	e	59	
8	F	204	
9	H	194	
10	G	249	
11	Z	125	
12	Y	133	
13	x	252	
14	X	143	
15	w	437	
16	W	130	
17	u	804	
18	T	145	
19	S	152	
20	Q	146	
21	P	145	
22	O	151	
23	N	151	
24	L	158	
25	J	194	
26	I	208	
27	r	125	
28	q	281	

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Mol	Chain	Length	Quality of chain
29	K	1297	
30	M	132	
31	f	156	
32	z	230	
33	A	295	
34	C	293	
35	V	83	

2 Entry composition

There are 37 unique types of molecules in this entry. The entry contains 84177 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 rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	2	1574	Total	C	N	O	P	0	0
			33614	15002	6033	11005	1574		

- Molecule 2 is a protein called 40S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	R	81	Total	C	N	O	S	0	0
			673	420	137	114	2		

- Molecule 3 is a protein called 40S ribosomal protein S27.

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

- Molecule 4 is a protein called 40S ribosomal protein S3a.

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

- Molecule 5 is a protein called 40S ribosomal protein S28.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	c	61	Total	C	N	O	S	0	0
			471	288	95	86	2		

- 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 S30.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	e	20	Total	C	N	O	S	0	0
			179	110	43	25	1		

- Molecule 8 is a protein called 40S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	F	189	Total	C	N	O	S	0	0
			1494	934	284	269	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 S6.

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

- Molecule 11 is a protein called 40S ribosomal protein S25.

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

- Molecule 12 is a protein called 40S ribosomal protein S24.

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

- Molecule 13 is a protein called RNA-binding protein PNO1.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	x	175	Total	C	N	O	S	0	0
			1372	881	249	238	4		

- Molecule 14 is a protein called 40S ribosomal protein S23.

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

- Molecule 15 is a protein called Bystin.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	w	331	Total	C	N	O	S	0	0
			2610	1671	477	453	9		

- Molecule 16 is a protein called 40S ribosomal protein S15a.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	W	129	Total	C	N	O	S	0	0
			1033	659	193	175	6		

- Molecule 17 is a protein called Pre-rRNA-processing protein TSR1 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	u	642	Total	C	N	O	S	0	0
			5168	3315	928	901	24		

- Molecule 18 is a protein called 40S ribosomal protein S19.

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

- Molecule 19 is a protein called 40S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	S	126	Total	C	N	O	S	0	0
			1046	663	204	178	1		

- Molecule 20 is a protein called 40S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	Q	125	Total	C	N	O	S	0	0
			998	637	185	173	3		

- Molecule 21 is a protein called 40S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	P	121	Total	C	N	O	S	0	0
			1006	643	186	170	7		

- Molecule 22 is a protein called 40S ribosomal protein S14.

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

- Molecule 23 is a protein called 40S ribosomal protein S13.

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

- Molecule 24 is a protein called 40S ribosomal protein S11.

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

- Molecule 25 is a protein called 40S ribosomal protein S9.

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

- Molecule 26 is a protein called 40S ribosomal protein S8.

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

- Molecule 27 is a protein called Multifunctional methyltransferase subunit TRM112-like protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	r	118	Total	C	N	O	S	0	0
			940	601	166	166	7		

- Molecule 28 is a protein called Probable 18S rRNA (guanine-N(7))-methyltransferase.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	q	235	Total	C	N	O	S	0	0
			1869	1182	333	343	11		

- Molecule 29 is a protein called RRP12-like protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	K	993	Total	C	N	O	S	0	0
			7707	4938	1337	1387	45		

- Molecule 30 is a protein called 40S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	M	108	Total	C	N	O	S	0	0
			837	530	147	153	7		

- Molecule 31 is a protein called Ubiquitin-40S ribosomal protein S27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	f	57	Total	C	N	O	S	0	0
			465	295	89	74	7		

- Molecule 32 is a protein called Ribosome biogenesis protein SLX9 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	z	52	Total	C	N	O	S	0	0
			416	255	80	79	2		

- Molecule 33 is a protein called 40S ribosomal protein SA.

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

- Molecule 34 is a protein called 40S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	C	216	Total	C	N	O	S	0	0
			1674	1085	287	292	10		

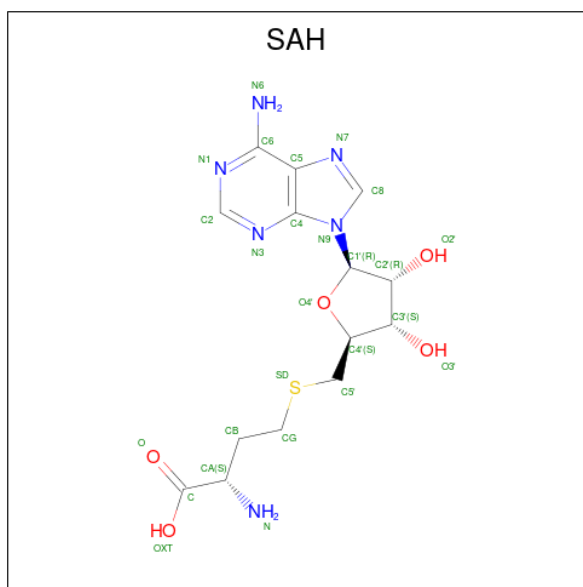
- Molecule 35 is a protein called 40S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	V	83	Total	C	N	O	S	0	0
			636	393	117	121	5		

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

Mol	Chain	Residues	Atoms		AltConf
36	2	1	Total	Zn	0
			1	1	

- Molecule 37 is S-ADENOSYL-L-HOMOCYSTEINE (CCD ID: SAH) (formula: C₁₄H₂₀N₆O₅S).

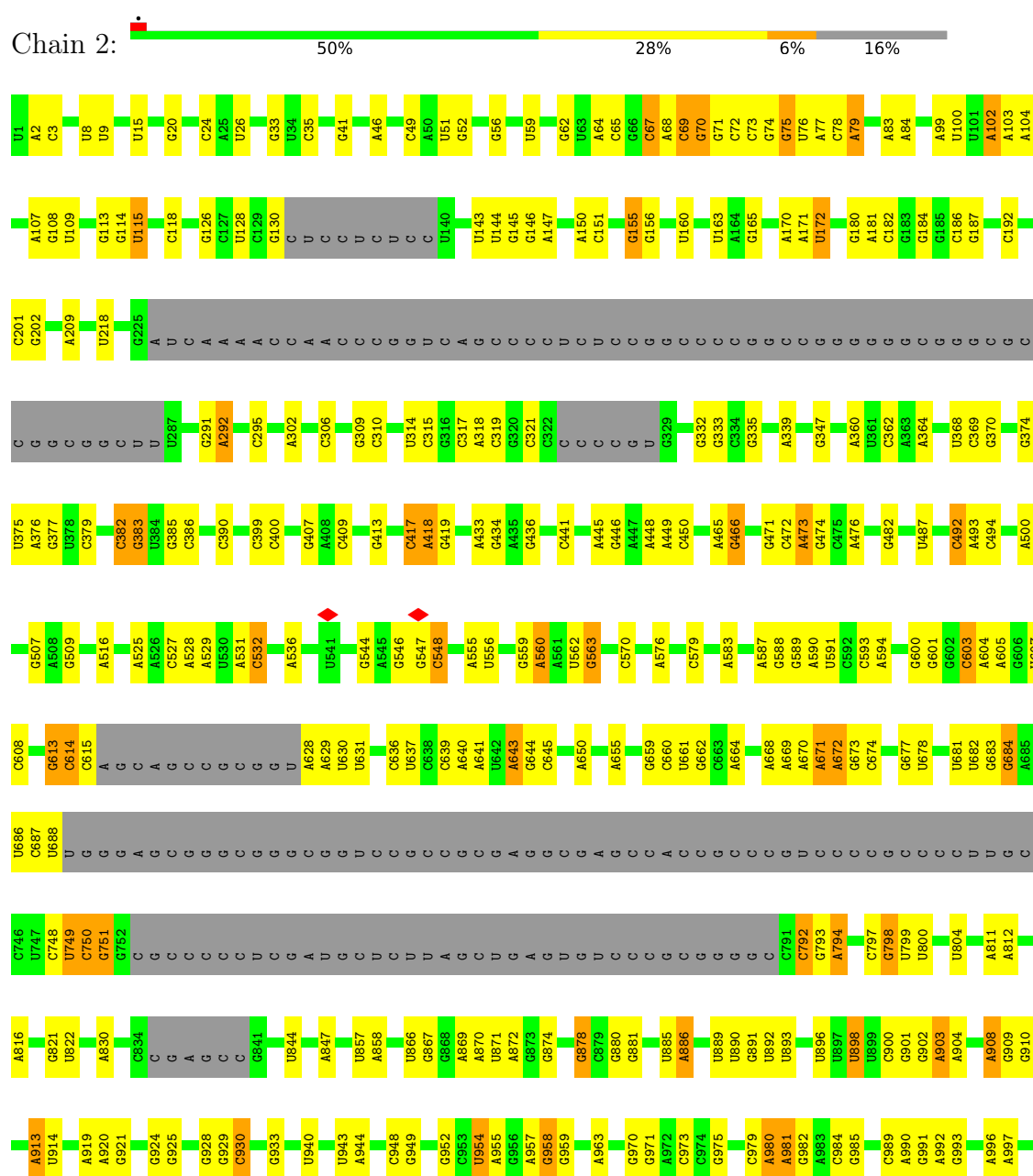


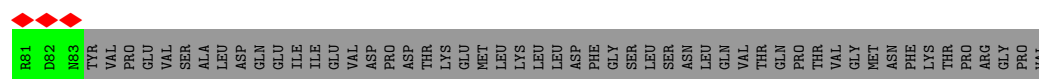
Mol	Chain	Residues	Atoms					AltConf
37	q	1	Total	C	N	O	S	0
			26	14	6	5	1	

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.

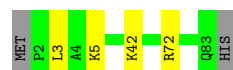
• Molecule 1: 18S rRNA





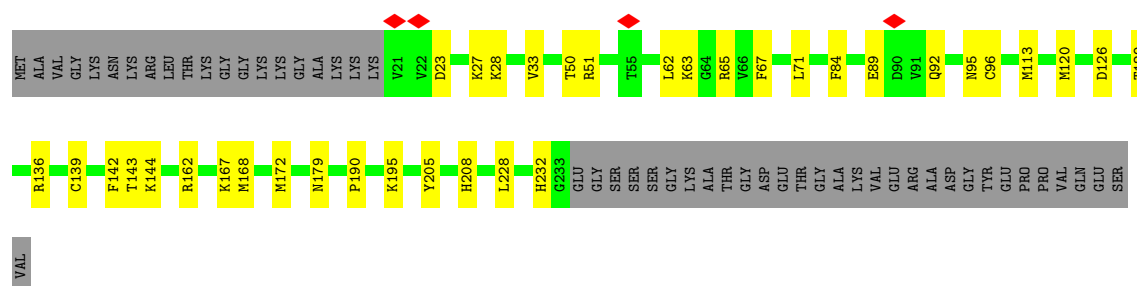
- Molecule 3: 40S ribosomal protein S27

Chain b: 93% 5%



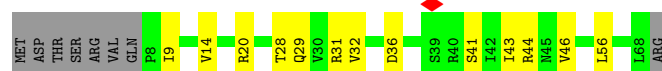
- Molecule 4: 40S ribosomal protein S3a

Chain B: 67% 14% 19%



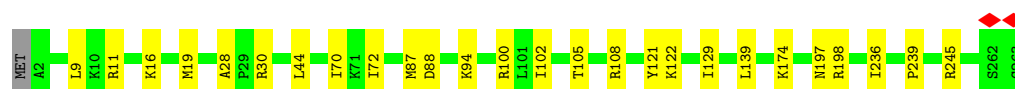
- Molecule 5: 40S ribosomal protein S28

Chain c: 70% 19% 12%



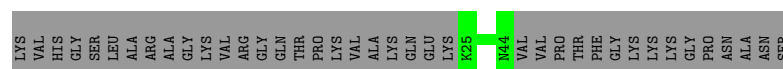
- Molecule 6: 40S ribosomal protein S4, X isoform

Chain E: 90% 10%



- Molecule 7: 40S ribosomal protein S30

Chain e: 34% 66%



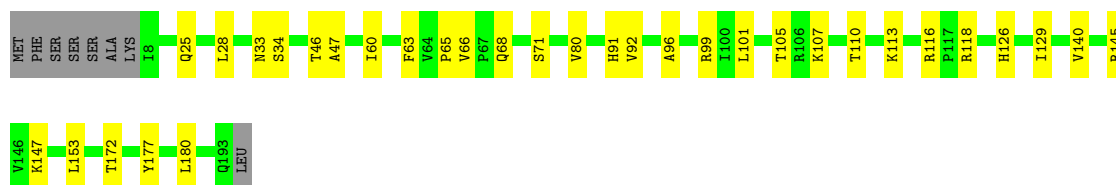
- Molecule 8: 40S ribosomal protein S5

Chain F: 84% 9% 7%



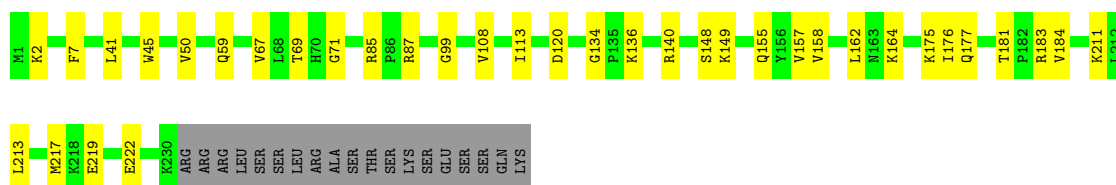
• Molecule 9: 40S ribosomal protein S7

Chain H: 79% 17%



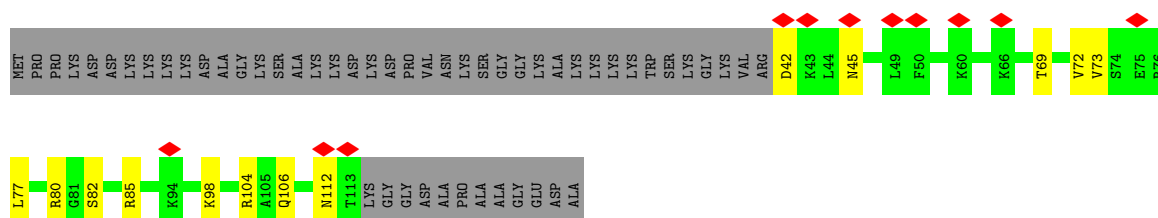
• Molecule 10: 40S ribosomal protein S6

Chain G: 78% 14% 8%



• Molecule 11: 40S ribosomal protein S25

Chain Z: 9% 47% 10% 42%



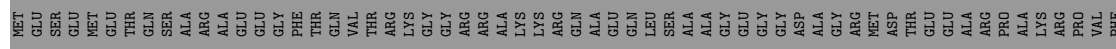
• Molecule 12: 40S ribosomal protein S24

Chain Y: 80% 13% 7%

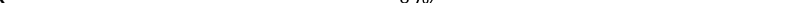


• Molecule 13: RNA-binding protein PNO1

Chain x: 58% 11% 31%

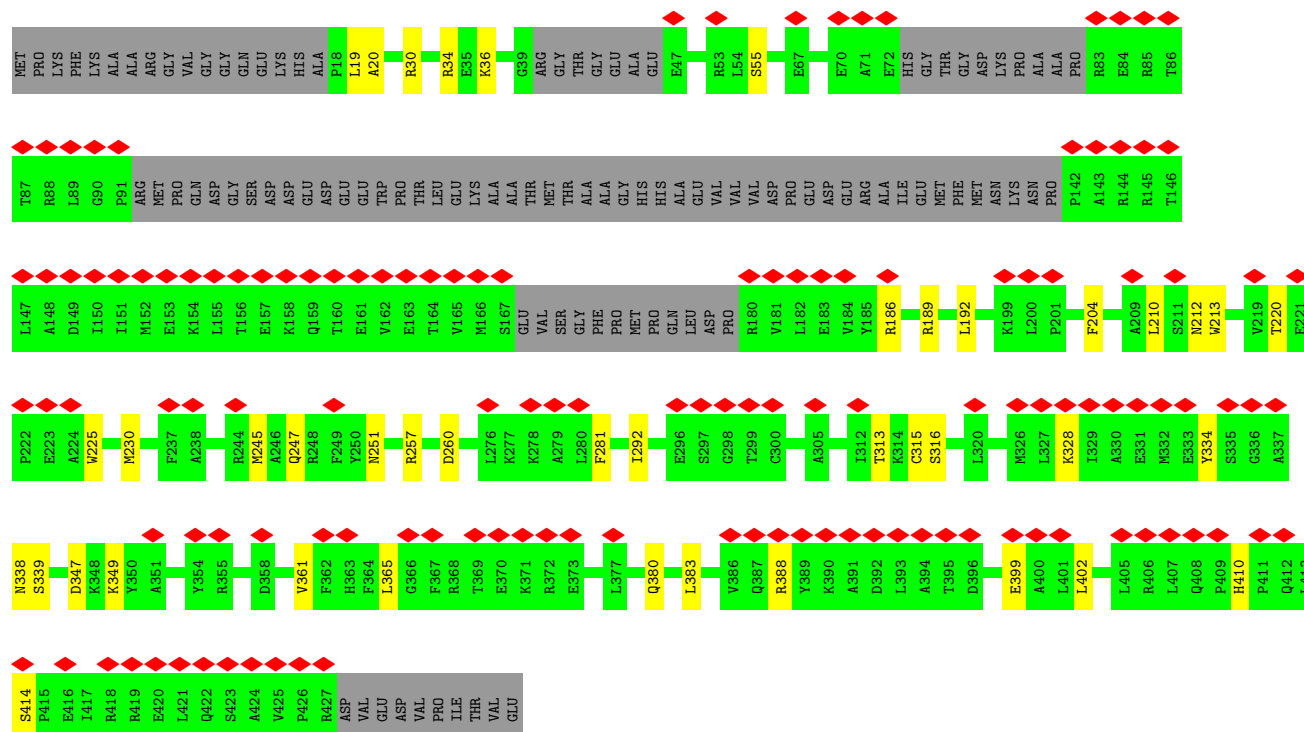




- Chain X: 



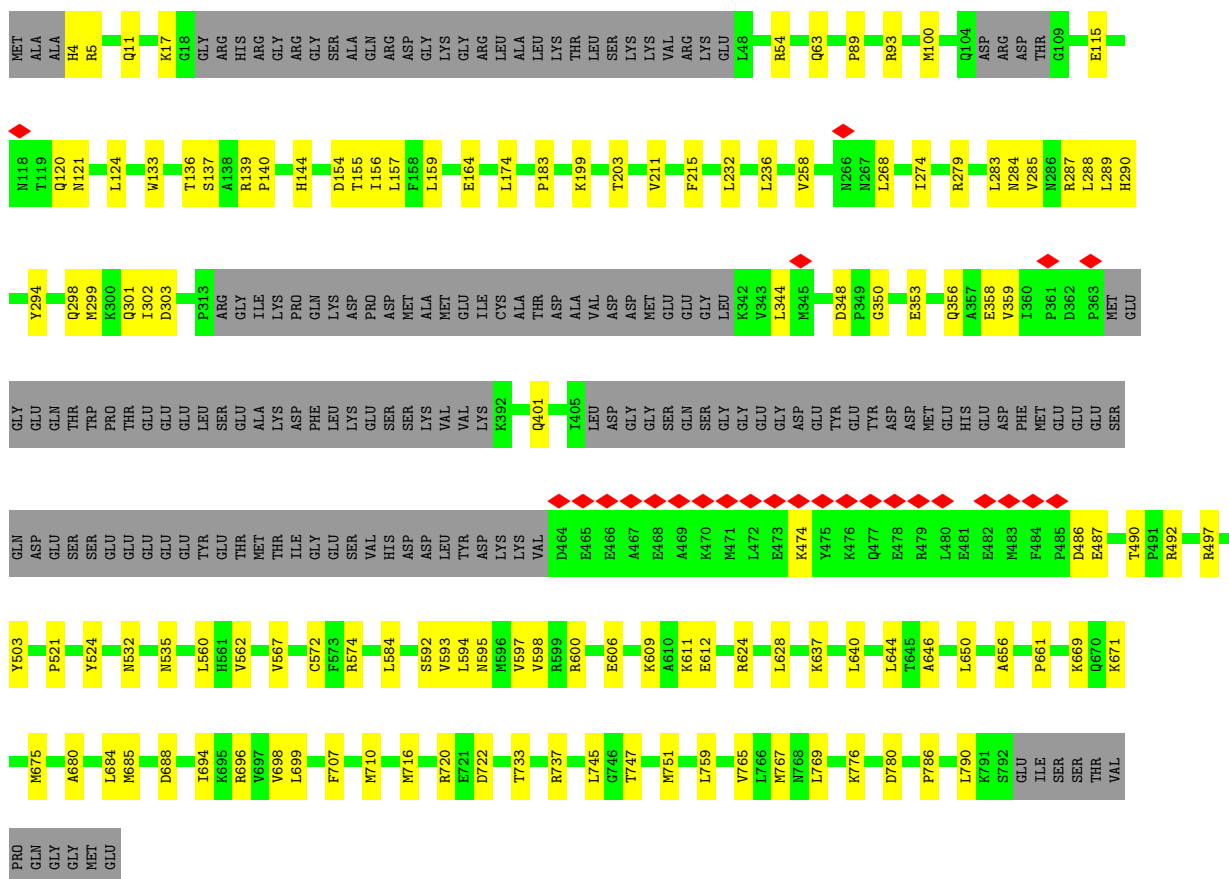
- Chain w: 30% 66% 9% 24%



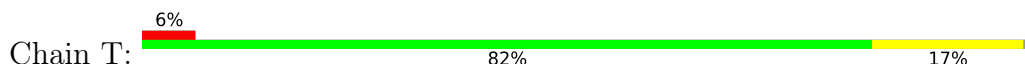
- Chain W:  92% 7%



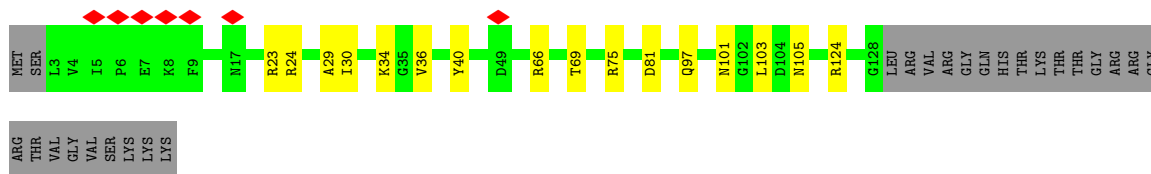
- Chain u: 



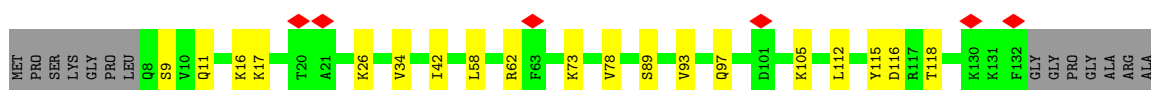
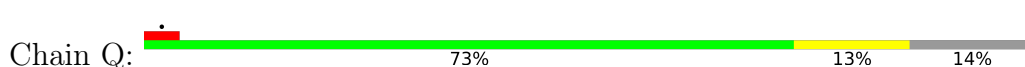
- Molecule 18: 40S ribosomal protein S19



- Molecule 19: 40S ribosomal protein S18



- Molecule 20: 40S ribosomal protein S16



ARG
TYR
GLN
LYS
SER
TYR
ARG

- Molecule 21: 40S ribosomal protein S15

Chain P:  70% 13% 17%


MET ALA GLU VAL GLN LYS LYS LYS ARG THR PHE ARG LYS F15 M28 S29 Y30 E31 Q32 P69 P70 T78 H79 L80 R81 D82 M83 M83 V96 K100 T101 F102 N103 E106 E110 G117 S120 Y123 V126 K127 H128 GLY ARG PRO GLY ILE GLY
ALA THR HIS SER S139 L144 K145

- Molecule 22: 40S ribosomal protein S14

Chain O:  69% 21% 11%


MET ALA PRO ARG LYS GLY LYS GLU LYS LYS GLU GLU VAL ILE SER L17 G18 P19 A22 E23 G24 E25 N26 V27 V30 F34 A36 S36 F37 F41 S48 E51 T52 R55 V56 T57 M60 K61 D80 T91 H94 I95 R98 A99 R117
R121 I126 I129 T133 S137 D138 R142 K143 G144 R149 R150 L151

- Molecule 23: 40S ribosomal protein S13

Chain N:  88% 11%


MET G2 R3 M4 R19 Q36 K39 L40 L45 R64 K78 G79 L80 D83 L84 R89 R104 R121 R124 Y141 V150 ALA

- Molecule 24: 40S ribosomal protein S11

Chain L:  80% 15%


MET A2 D3 T4 Q5 R8 K20 K21 R22 E27 T28 G29 K30 E31 K32 K38 N39 K59 V66 R71 G75 K79 I88 L93 F102 E103 K104 R105 V111 H112 L113 V120 L134 F140 K152 LYS GLN PHE GLN PHE

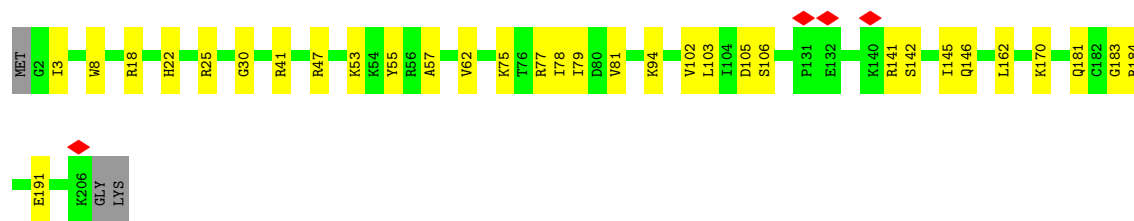
- Molecule 25: 40S ribosomal protein S9

Chain J:  85% 8% 7%

MET P2 R10 N39 R64 D88 K91 V114 I130 R133 R136 V142 N143 I144 D158 K174 N177 G181 GLN GLY GLY ALA ALA GLY ASP ASP GLU GLU ASP

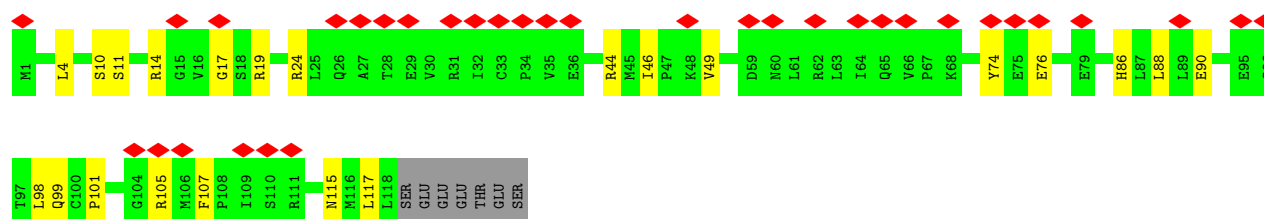
- Molecule 26: 40S ribosomal protein S8

Chain I:  83% 15%



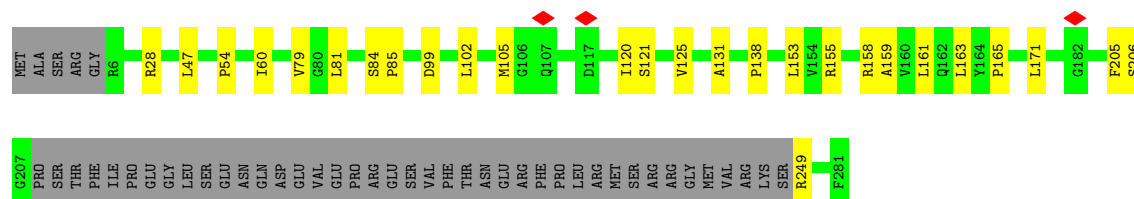
- Molecule 27: Multifunctional methyltransferase subunit TRM112-like protein

Chain r: 27% 77% 18% 6%



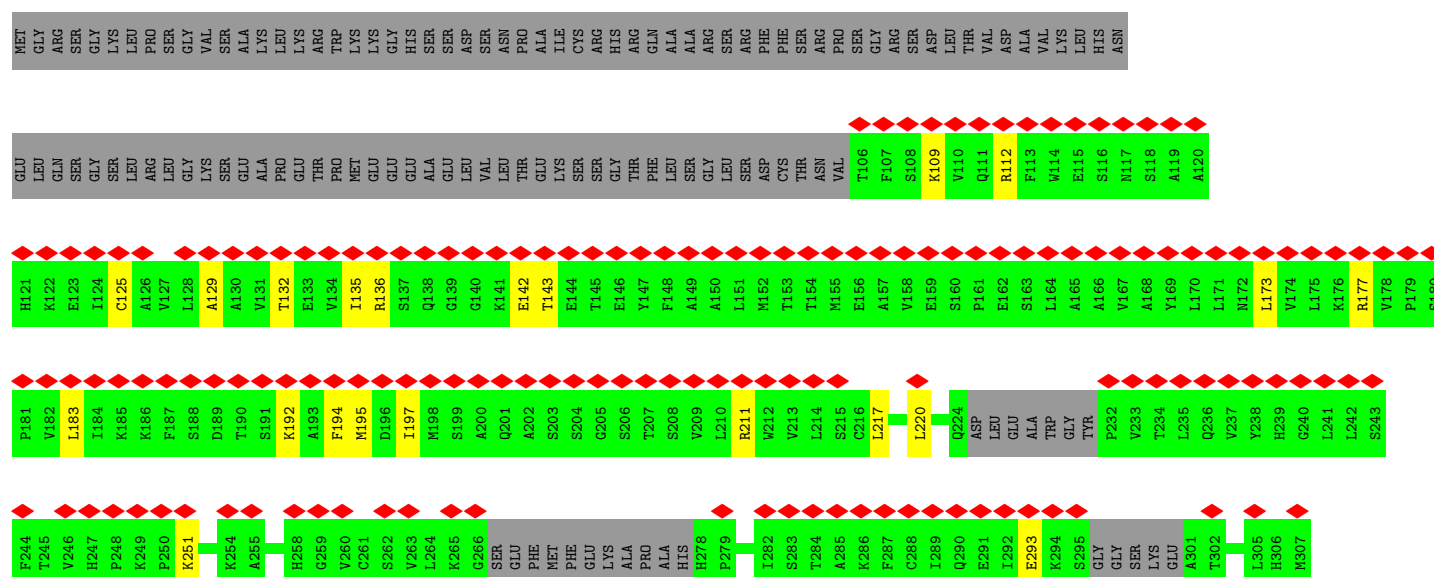
- Molecule 28: Probable 18S rRNA (guanine-N(7))-methyltransferase

Chain q: 74% 10% 16%



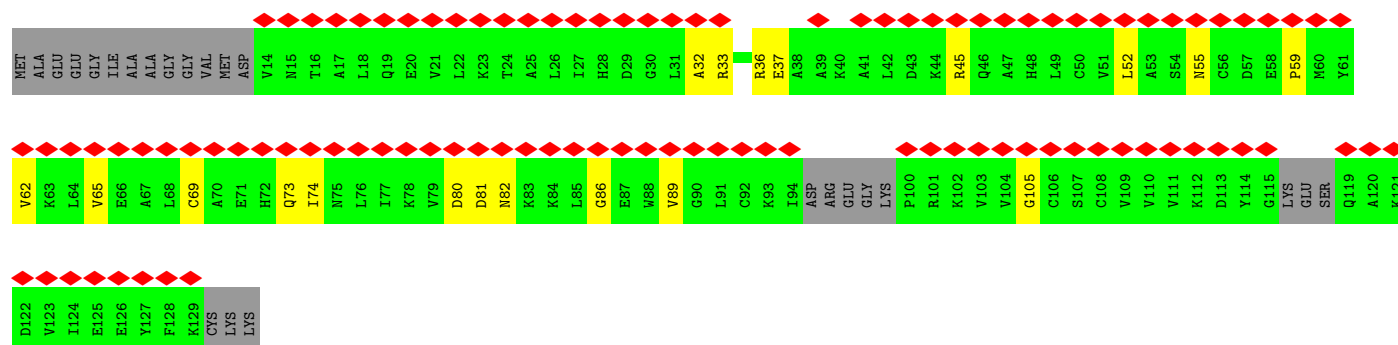
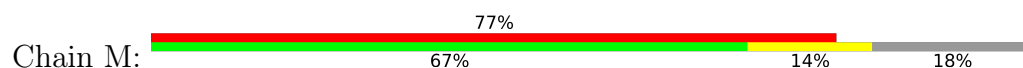
- Molecule 29: RRP12-like protein

Chain K: 50% 65% 11% 23%

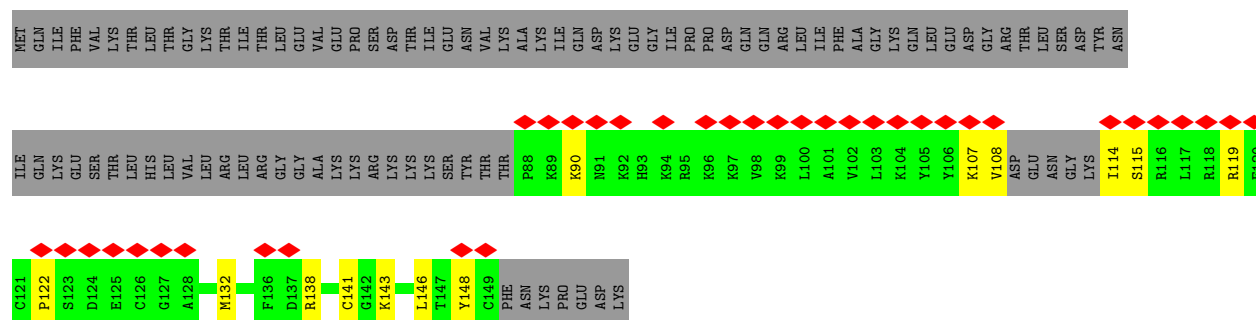




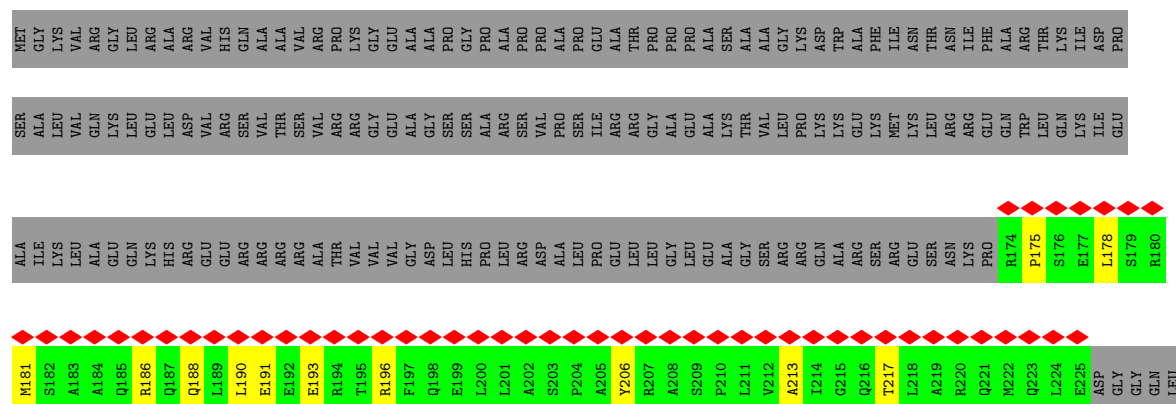
- Molecule 30: 40S ribosomal protein S12



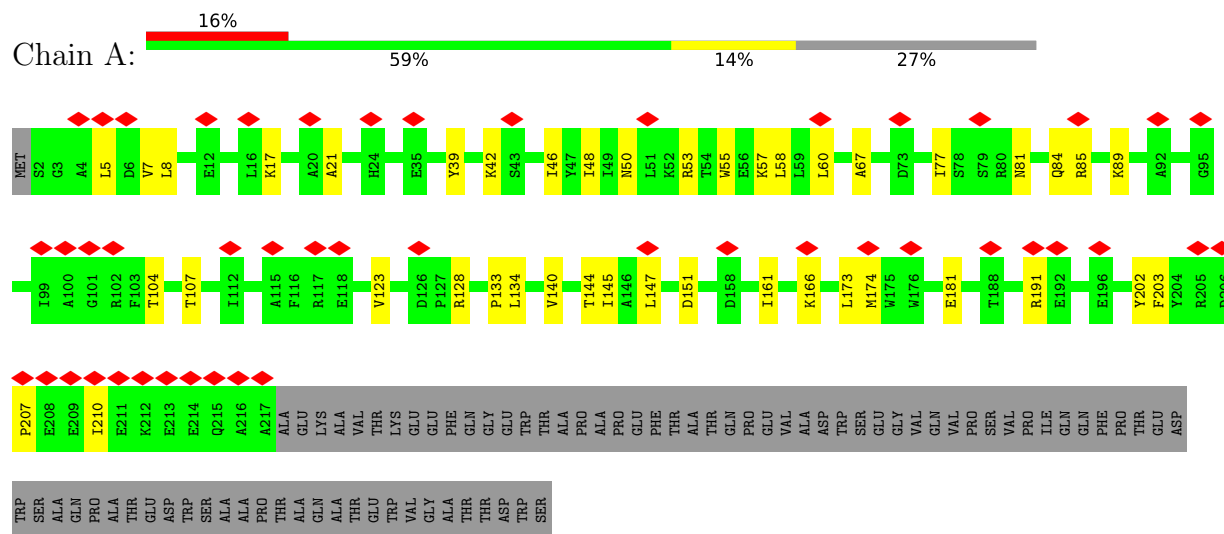
- Molecule 31: Ubiquitin-40S ribosomal protein S27a



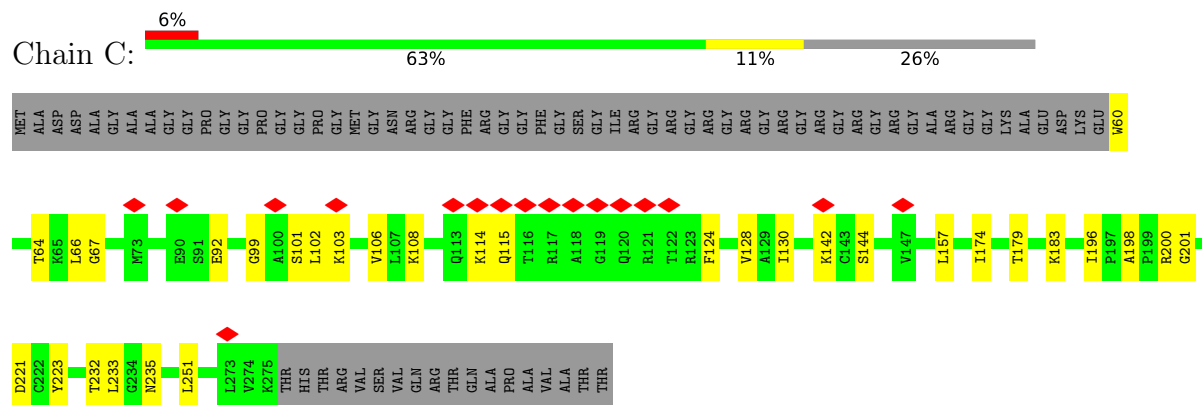
- Molecule 32: Ribosome biogenesis protein SLX9 homolog



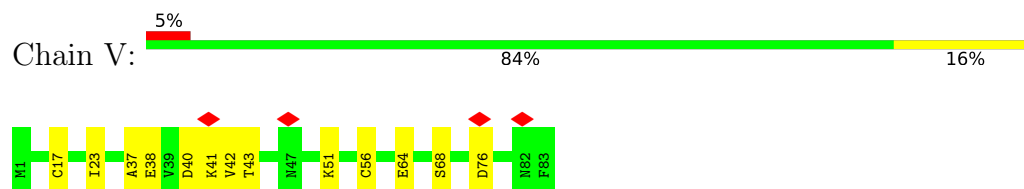
Chain A:



Chain C:



Chain V:



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	25441	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION; Relion	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	44	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.473	Depositor
Minimum map value	-0.222	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.008	Depositor
Recommended contour level	0.02	Depositor
Map size (\AA)	381.24, 381.24, 381.24	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.059, 1.059, 1.059	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, G7M, SAH

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	0.27	0/37551	0.38	0/58500
2	R	0.24	0/680	0.53	0/905
3	b	0.25	0/653	0.44	0/876
4	B	0.17	0/1756	0.42	0/2350
5	c	0.28	0/473	0.45	0/633
6	E	0.31	0/2118	0.43	0/2849
7	e	0.22	0/180	0.29	0/232
8	F	0.33	0/1515	0.51	0/2037
9	H	0.20	0/1524	0.43	0/2042
10	G	0.20	0/1885	0.37	0/2510
11	Z	0.31	0/580	0.65	0/780
12	Y	0.28	0/1031	0.42	0/1370
13	x	0.19	0/1394	0.43	0/1880
14	X	0.26	0/1116	0.43	0/1490
15	w	0.17	0/2656	0.42	0/3586
16	W	0.31	0/1050	0.45	0/1406
17	u	0.21	0/5296	0.41	0/7154
18	T	0.27	0/1142	0.48	2/1530 (0.1%)
19	S	0.30	0/1063	0.56	0/1426
20	Q	0.33	0/1012	0.58	0/1356
21	P	0.25	0/1025	0.46	0/1369
22	O	0.19	0/1022	0.44	1/1372 (0.1%)
23	N	0.22	0/1226	0.42	0/1649
24	L	0.31	0/1250	0.46	1/1673 (0.1%)
25	J	0.29	0/1524	0.46	0/2035
26	I	0.27	0/1711	0.47	0/2282
27	r	0.24	0/961	0.57	0/1301
28	q	0.26	0/1910	0.45	0/2572
29	K	0.24	0/7851	0.52	0/10624
30	M	0.13	0/845	0.38	0/1134
31	f	0.14	0/474	0.38	0/626
32	z	0.16	0/420	0.54	0/564

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	A	0.17	0/1742	0.47	1/2367 (0.0%)
34	C	0.20	0/1710	0.45	0/2310
35	V	0.18	0/643	0.38	0/860
All	All	0.25	0/88989	0.43	5/127650 (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
17	u	0	1
29	K	0	1
All	All	0	2

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
33	A	140	VAL	N-CA-C	-6.05	105.47	111.88
24	L	4	ILE	N-CA-C	-5.52	108.47	113.71
18	T	45	LEU	CA-C-N	5.12	131.92	121.48
18	T	45	LEU	C-N-CA	5.12	131.92	121.48
22	O	137	SER	N-CA-C	-5.03	105.48	110.97

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
29	K	378	VAL	Peptide
17	u	348	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	33614	0	16977	350	0
2	R	673	0	722	8	0
3	b	640	0	665	4	0
4	B	1729	0	1803	24	0
5	c	471	0	499	10	0
6	E	2076	0	2177	15	0
7	e	179	0	200	0	0
8	F	1494	0	1549	11	0
9	H	1501	0	1593	21	0
10	G	1862	0	2018	24	0
11	Z	574	0	627	11	0
12	Y	1014	0	1082	12	0
13	x	1372	0	1453	23	0
14	X	1098	0	1167	12	0
15	w	2610	0	2644	31	0
16	W	1033	0	1080	8	0
17	u	5168	0	5230	78	0
18	T	1122	0	1153	16	0
19	S	1046	0	1094	9	0
20	Q	998	0	1065	12	0
21	P	1006	0	1056	15	0
22	O	1009	0	1034	26	0
23	N	1202	0	1289	12	0
24	L	1229	0	1302	17	0
25	J	1499	0	1618	11	0
26	I	1682	0	1769	20	0
27	r	940	0	958	14	0
28	q	1869	0	1854	18	0
29	K	7707	0	7986	102	0
30	M	837	0	870	12	0
31	f	465	0	485	10	0
32	z	416	0	424	8	0
33	A	1705	0	1706	23	0
34	C	1674	0	1764	21	0
35	V	636	0	637	8	0
36	2	1	0	0	0	0
37	q	26	0	19	1	0
All	All	84177	0	69569	863	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 (863) 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)
1:2:536:A:N6	1:2:548:C:H42	1.45	1.14
1:2:748:C:H42	1:2:794:A:N6	1.48	1.12
1:2:536:A:H61	1:2:548:C:N4	1.46	1.11
1:2:748:C:N4	1:2:794:A:H61	1.46	1.11
1:2:1710:C:H42	1:2:1823:A:N6	1.51	1.07
1:2:1710:C:N4	1:2:1823:A:H61	1.53	1.07
1:2:1398:G:H1	1:2:1448:A:H2	1.01	1.01
1:2:1748:G:H1	1:2:1786:U:H3	0.98	0.96
1:2:1286:G:H21	1:2:1313:A:H62	1.10	0.93
1:2:674:C:H42	1:2:1031:A:N6	1.67	0.92
1:2:1296:U:H3	1:2:1301:A:H62	1.12	0.91
1:2:24:C:H42	1:2:650:A:H61	0.92	0.91
1:2:674:C:N4	1:2:1031:A:H61	1.68	0.91
1:2:24:C:H42	1:2:650:A:N6	1.70	0.90
1:2:1609:C:H42	1:2:1630:A:N6	1.70	0.89
1:2:1609:C:N4	1:2:1630:A:H61	1.69	0.88
1:2:674:C:H42	1:2:1031:A:H61	0.89	0.88
1:2:24:C:N4	1:2:650:A:H61	1.72	0.87
1:2:1719:A:H62	1:2:1814:G:H21	1.17	0.86
1:2:1286:G:N2	1:2:1313:A:H62	1.75	0.83
1:2:71:G:N1	1:2:79:A:C5	2.49	0.80
15:w:55:SER:HB2	29:K:1109:LEU:HD23	1.64	0.80
1:2:615:C:N4	1:2:628:A:N6	2.30	0.79
1:2:1335:G:H1	1:2:1492:U:H3	1.31	0.79
1:2:71:G:C6	1:2:79:A:C5	2.71	0.78
1:2:614:C:N4	1:2:629:A:N6	2.32	0.77
1:2:1398:G:N1	1:2:1448:A:C2	2.51	0.74
1:2:1398:G:N1	1:2:1448:A:H2	1.82	0.74
1:2:1286:G:H21	1:2:1313:A:N6	1.85	0.74
1:2:748:C:H42	1:2:794:A:H61	0.76	0.73
1:2:1710:C:N3	1:2:1823:A:N1	2.35	0.73
1:2:1534:C:C2	1:2:1598:G:N2	2.57	0.73
1:2:1719:A:H62	1:2:1814:G:N2	1.87	0.72
28:q:121:SER:HB2	28:q:161:LEU:HA	1.72	0.72
17:u:486:ASP:HB2	17:u:696:ARG:HE	1.55	0.72
1:2:1757:G:O6	1:2:1775:U:C2	2.44	0.71
1:2:70:G:H21	1:2:79:A:H62	1.39	0.71
33:A:77:ILE:HG21	33:A:133:PRO:HG3	1.73	0.71
1:2:1203:G:H1'	34:C:115:GLN:HB3	1.74	0.69
1:2:1710:C:H42	1:2:1823:A:H61	0.75	0.69
1:2:1757:G:C6	1:2:1775:U:O2	2.45	0.69
1:2:749:U:O4	1:2:793:G:O6	2.11	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:536:A:N1	1:2:548:C:N3	2.42	0.68
1:2:1472:C:O2	29:K:711:ARG:NH2	2.27	0.68
1:2:1719:A:N6	1:2:1814:G:H21	1.91	0.68
1:2:957:A:H3'	1:2:958:G:H21	1.58	0.68
1:2:1609:C:N3	1:2:1630:A:N1	2.42	0.67
13:x:230:LEU:HD22	22:O:149:ARG:HD2	1.75	0.67
17:u:157:LEU:HD11	17:u:232:LEU:HD21	1.77	0.67
9:H:105:THR:HG23	9:H:107:LYS:H	1.58	0.67
27:r:98:LEU:HB2	27:r:107:PHE:HB2	1.75	0.67
1:2:1272:C:C4	1:2:1273:C:N4	2.63	0.66
1:2:804:U:OP1	16:W:82:GLN:NE2	2.27	0.66
1:2:1472:C:OP2	29:K:834:ARG:NH2	2.27	0.66
1:2:1730:U:O4	1:2:1805:G:O6	2.14	0.65
35:V:38:GLU:OE2	35:V:51:LYS:NZ	2.29	0.65
6:E:100:ARG:NH2	6:E:121:TYR:O	2.30	0.65
17:u:733:THR:HG22	17:u:765:VAL:HG12	1.78	0.65
1:2:71:G:C6	1:2:79:A:C6	2.83	0.65
10:G:69:THR:HG22	10:G:71:GLY:H	1.62	0.65
29:K:1118:LEU:HD12	29:K:1128:ARG:HD2	1.78	0.65
18:T:40:ALA:HB3	18:T:43:LYS:HG2	1.79	0.65
29:K:539:VAL:HG22	29:K:547:VAL:HG21	1.79	0.64
17:u:699:LEU:HB2	17:u:767:MET:HB3	1.78	0.64
17:u:303:ASP:HB3	17:u:344:LEU:HD12	1.79	0.64
29:K:626:LEU:HD22	29:K:664:ALA:HB1	1.78	0.64
1:2:913:A:H2	9:H:99:ARG:H	1.45	0.64
1:2:1288:U:H3	1:2:1311:C:H42	1.43	0.64
1:2:1314:U:O2'	15:w:281:PHE:O	2.14	0.64
1:2:1302:G:O6	1:2:1307:U:O4	2.14	0.64
1:2:944:A:H61	1:2:982:G:H1	1.45	0.64
1:2:1331:C:N4	1:2:1499:U:H3	1.96	0.64
6:E:87:MET:HE1	6:E:236:ILE:HD13	1.79	0.63
1:2:674:C:N3	1:2:1031:A:N1	2.46	0.63
1:2:1565:C:OP2	18:T:101:ARG:NH1	2.32	0.63
4:B:144:LYS:HE2	4:B:208:HIS:HA	1.80	0.63
13:x:168:VAL:HG23	22:O:149:ARG:HH11	1.62	0.63
1:2:71:G:O6	1:2:79:A:N7	2.31	0.63
1:2:1730:U:C4	1:2:1805:G:C6	2.86	0.63
31:f:119:ARG:HH12	31:f:122:PRO:HD3	1.63	0.63
29:K:1002:MET:HA	29:K:1005:ARG:HB3	1.80	0.63
1:2:8:U:O4	1:2:15:U:O4	2.15	0.63
1:2:925:G:H1	1:2:1017:U:H3	1.47	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1367:U:C2	1:2:1373:C:C4	2.87	0.63
20:Q:89:SER:HB2	20:Q:112:LEU:HD21	1.80	0.62
1:2:748:C:N4	1:2:794:A:N6	2.24	0.62
29:K:468:VAL:HA	29:K:471:MET:HG2	1.79	0.62
15:w:334:TYR:HE1	15:w:339:SER:HB3	1.64	0.62
1:2:1398:G:O6	1:2:1448:A:N1	2.33	0.62
22:O:30:VAL:HG12	22:O:94:HIS:HB2	1.81	0.62
13:x:200:THR:HG22	13:x:213:GLY:HA3	1.81	0.62
34:C:102:LEU:HD12	34:C:130:ILE:HG12	1.80	0.62
29:K:513:LEU:HD11	29:K:542:MET:HE1	1.82	0.61
1:2:1204:A:H61	17:u:5:ARG:H	1.47	0.61
17:u:285:VAL:HG23	17:u:299:MET:HG3	1.82	0.61
1:2:1277:C:C2	1:2:1322:G:N2	2.68	0.61
17:u:401:GLN:OE1	21:P:103:ASN:ND2	2.34	0.61
26:I:62:VAL:HG11	26:I:75:LYS:HE3	1.81	0.61
29:K:211:ARG:HD3	29:K:251:LYS:HB3	1.81	0.61
1:2:643:A:OP1	25:J:39:ASN:ND2	2.34	0.61
33:A:42:LYS:HE3	33:A:46:ILE:HB	1.83	0.61
1:2:1203:G:H2'	1:2:1204:A:H8	1.65	0.61
22:O:34:PHE:HB3	22:O:41:PHE:HB2	1.83	0.61
26:I:57:ALA:HB2	26:I:183:GLY:HA2	1.83	0.61
14:X:112:VAL:HG12	14:X:114:ASP:H	1.66	0.61
13:x:201:ARG:HG2	15:w:19:LEU:HD12	1.82	0.61
21:P:81:ARG:NH2	21:P:117:GLY:O	2.34	0.61
27:r:115:ASN:HB3	28:q:102:LEU:HD23	1.83	0.60
1:2:1637:A:OP2	28:q:28:ARG:NH1	2.33	0.60
8:F:70:GLU:O	8:F:74:ASN:ND2	2.34	0.60
10:G:157:VAL:HG11	10:G:176:ILE:HD11	1.83	0.60
17:u:675:MET:HE1	17:u:790:LEU:H	1.66	0.60
18:T:124:THR:HG22	18:T:126:GLN:H	1.66	0.60
19:S:75:ARG:NH1	19:S:81:ASP:OD2	2.35	0.60
1:2:993:G:OP1	1:2:1131:G:N2	2.30	0.60
1:2:1213:C:OP2	15:w:34:ARG:NH1	2.34	0.60
33:A:17:LYS:HB3	33:A:173:LEU:HD11	1.83	0.60
17:u:289:LEU:HB2	17:u:299:MET:HE2	1.84	0.60
33:A:50:ASN:HB3	33:A:53:ARG:HB2	1.83	0.60
1:2:1367:U:N3	1:2:1373:C:N4	2.50	0.60
1:2:1091:C:HO2'	16:W:2:VAL:N	2.00	0.59
10:G:2:LYS:HB2	10:G:108:VAL:HG22	1.84	0.59
1:2:1761:U:O2	1:2:1771:G:N2	2.35	0.59
13:x:229:ILE:O	22:O:149:ARG:NH2	2.36	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:991:G:H22	1:2:1099:G:H22	1.48	0.59
17:u:497:ARG:NH1	17:u:722:ASP:OD1	2.35	0.59
17:u:503:TYR:HB3	17:u:769:LEU:HD12	1.84	0.59
1:2:952:G:H21	22:O:52:THR:HG21	1.67	0.59
30:M:32:ALA:HB1	30:M:37:GLU:HB3	1.85	0.59
1:2:975:G:OP1	22:O:98:ARG:NH1	2.35	0.59
1:2:1232:U:N3	1:2:1527:C:N4	2.51	0.59
28:q:158:ARG:HG3	28:q:205:PHE:HB3	1.85	0.59
1:2:65:C:OP1	10:G:136:LYS:NZ	2.36	0.59
13:x:154:ARG:HH21	15:w:20:ALA:HB3	1.67	0.59
1:2:984:C:O2'	22:O:138:ASP:OD2	2.19	0.58
1:2:878:G:H1	1:2:908:A:H61	1.51	0.58
1:2:1033:G:N1	1:2:1080:A:O2'	2.34	0.58
29:K:379:PRO:HD2	29:K:387:LEU:HD13	1.85	0.58
33:A:85:ARG:NH2	33:A:203:PHE:O	2.34	0.58
1:2:812:A:H5'	6:E:16:LYS:HE3	1.85	0.58
1:2:919:A:OP2	23:N:64:ARG:NH1	2.34	0.58
9:H:46:THR:HG23	9:H:65:PRO:HD3	1.85	0.58
34:C:99:GLY:HA2	34:C:102:LEU:HD23	1.84	0.58
1:2:1005:G:OP2	4:B:162:ARG:NH1	2.37	0.58
1:2:1277:C:O2	1:2:1322:G:N2	2.37	0.58
1:2:1473:G:N2	1:2:1476:A:OP2	2.35	0.58
17:u:124:LEU:HB3	17:u:133:TRP:HB2	1.86	0.58
18:T:22:LEU:HD23	18:T:28:LEU:HD11	1.85	0.58
29:K:1030:ARG:O	29:K:1034:ASN:ND2	2.36	0.58
1:2:1296:U:O4	1:2:1301:A:N7	2.36	0.57
2:R:17:ILE:HD11	2:R:54:VAL:HG13	1.84	0.57
30:M:86:GLY:HA3	30:M:105:GLY:HA2	1.86	0.57
35:V:51:LYS:HE2	35:V:76:ASP:HB3	1.86	0.57
1:2:71:G:N1	1:2:79:A:C4	2.72	0.57
1:2:507:G:OP2	12:Y:104:ARG:NH2	2.36	0.57
22:O:99:ALA:H	22:O:133:THR:HG22	1.68	0.57
33:A:81:ASN:HA	33:A:84:GLN:HE22	1.69	0.57
1:2:1288:U:H3	1:2:1311:C:N4	2.02	0.57
15:w:349:LYS:HG2	15:w:388:ARG:HD2	1.87	0.57
30:M:45:ARG:NH1	30:M:73:GLN:OE1	2.37	0.57
1:2:69:C:OP2	10:G:164:LYS:NZ	2.36	0.57
1:2:614:C:H42	1:2:629:A:N6	1.99	0.57
1:2:615:C:N3	1:2:628:A:N1	2.51	0.57
1:2:1348:G:O6	1:2:1381:G:O6	2.23	0.57
5:c:46:VAL:HG12	8:F:140:ASP:HB2	1.85	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:r:24:ARG:HB2	27:r:99:GLN:HB2	1.86	0.57
1:2:374:G:OP1	24:L:59:LYS:NZ	2.37	0.57
24:L:111:VAL:HG12	24:L:140:PHE:HB2	1.85	0.57
1:2:1329:U:O2	1:2:1500:G:O6	2.23	0.57
1:2:1726:G:C6	1:2:1809:A:N1	2.73	0.57
26:I:77:ARG:HH11	26:I:79:ILE:HG12	1.68	0.57
8:F:47:LYS:NZ	20:Q:115:TYR:O	2.38	0.57
22:O:95:ILE:HB	22:O:129:ILE:HA	1.86	0.57
17:u:595:ASN:ND2	17:u:688:ASP:OD1	2.38	0.57
28:q:47:LEU:HA	28:q:158:ARG:HD2	1.86	0.57
20:Q:58:LEU:HB3	20:Q:62:ARG:HD2	1.86	0.56
15:w:247:GLN:O	15:w:251:ASN:ND2	2.39	0.56
1:2:1811:C:O2'	17:u:63:GLN:OE1	2.22	0.56
22:O:26:ASN:ND2	22:O:91:THR:OG1	2.37	0.56
1:2:1330:G:N1	1:2:1499:U:N3	2.52	0.56
1:2:1482:C:H41	29:K:999:HIS:HA	1.70	0.56
14:X:85:VAL:HG11	14:X:91:LEU:HG	1.87	0.56
17:u:598:VAL:HB	17:u:680:ALA:HB1	1.88	0.56
1:2:434:G:OP2	26:I:25:ARG:NH2	2.38	0.56
1:2:928:G:H2'	1:2:929:G:C8	2.41	0.56
2:R:58:MET:HA	2:R:61:ILE:HG22	1.88	0.56
4:B:139:CYS:HB2	4:B:172:MET:HE1	1.88	0.56
29:K:956:ARG:HE	29:K:996:MET:HE1	1.71	0.56
2:R:10:LYS:HB3	2:R:14:ARG:HH21	1.69	0.56
29:K:1021:LYS:HG3	29:K:1029:HIS:HD2	1.71	0.56
1:2:390:C:O2'	24:L:8:ARG:NH1	2.39	0.56
1:2:1228:A:H2'	1:2:1229:G:H8	1.71	0.56
28:q:153:LEU:HD11	28:q:159:ALA:HB2	1.87	0.56
29:K:589:PHE:O	29:K:593:ALA:N	2.37	0.56
17:u:298:GLN:NE2	17:u:356:GLN:OE1	2.38	0.56
27:r:105:ARG:NH2	27:r:117:LEU:O	2.39	0.56
29:K:679:ARG:HG3	29:K:723:ILE:HD11	1.88	0.56
30:M:33:ARG:NH1	30:M:89:VAL:O	2.39	0.56
34:C:174:ILE:O	34:C:200:ARG:NH2	2.38	0.56
15:w:292:ILE:HG21	15:w:328:LYS:HE3	1.87	0.56
17:u:350:GLY:HA2	17:u:353:GLU:HB3	1.88	0.56
21:P:96:VAL:HG13	21:P:120:SER:HB2	1.87	0.55
1:2:1757:G:O6	1:2:1775:U:O2	2.24	0.55
1:2:954:U:O2	22:O:55:ARG:NH2	2.39	0.55
17:u:637:LYS:HD2	17:u:694:ILE:HG13	1.89	0.55
28:q:155:ARG:NH1	28:q:206:SER:O	2.40	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1393:G:O6	1:2:1477:U:O2	2.24	0.55
15:w:315:CYS:SG	15:w:316:SER:N	2.80	0.55
21:P:100:LYS:HG3	21:P:101:THR:HG23	1.87	0.55
1:2:64:A:H2	1:2:83:A:H62	1.52	0.55
28:q:163:LEU:HD12	28:q:165:PRO:HD3	1.88	0.55
1:2:306:C:OP2	26:I:41:ARG:NH2	2.37	0.55
1:2:1312:G:H2'	30:M:36:ARG:HH22	1.72	0.55
19:S:124:ARG:NH1	21:P:123:TYR:OH	2.39	0.55
20:Q:116:ASP:OD2	20:Q:118:THR:OG1	2.23	0.55
35:V:17:CYS:HB2	35:V:56:CYS:HB3	1.89	0.55
17:u:294:TYR:OH	17:u:572:CYS:SG	2.64	0.55
21:P:28:MET:HG3	21:P:32:GLN:HG2	1.87	0.55
26:I:103:LEU:HD22	26:I:170:LYS:HB3	1.89	0.55
1:2:1236:G:H21	1:2:1522:A:H62	1.54	0.54
4:B:28:LYS:HD2	4:B:50:THR:HA	1.90	0.54
30:M:69:CYS:HB2	30:M:74:ILE:HB	1.89	0.54
33:A:5:LEU:HG	33:A:7:VAL:HG12	1.89	0.54
1:2:792:C:H2'	1:2:793:G:H8	1.72	0.54
1:2:1480:A:OP2	29:K:956:ARG:NH1	2.40	0.54
1:2:885:U:O2	1:2:901:G:O6	2.25	0.54
16:W:115:GLU:OE1	16:W:119:LYS:NZ	2.40	0.54
27:r:24:ARG:HH12	27:r:101:PRO:HB3	1.73	0.54
17:u:611:LYS:HZ1	17:u:776:LYS:H	1.56	0.54
26:I:78:ILE:HD11	26:I:102:VAL:HG21	1.89	0.54
1:2:1228:A:H2'	1:2:1229:G:C8	2.43	0.54
5:c:20:ARG:HA	5:c:28:THR:HA	1.88	0.54
1:2:466:G:H8	10:G:59:GLN:HE21	1.55	0.54
29:K:136:ARG:NH2	29:K:173:LEU:O	2.35	0.54
15:w:230:MET:HE3	15:w:257:ARG:HG2	1.90	0.54
25:J:54:ARG:NH2	34:C:200:ARG:O	2.34	0.54
1:2:1367:U:C2	1:2:1373:C:N3	2.76	0.54
5:c:14:VAL:HG12	5:c:32:VAL:HG12	1.90	0.54
4:B:33:VAL:HA	4:B:96:CYS:HB3	1.88	0.54
1:2:1333:U:H2'	1:2:1495:G:H1	1.73	0.53
24:L:113:LEU:HD21	24:L:120:VAL:HG11	1.90	0.53
29:K:977:HIS:HA	29:K:980:LYS:HZ1	1.73	0.53
2:R:24:LEU:HD11	2:R:58:MET:HE3	1.90	0.53
14:X:11:ARG:NH2	24:L:104:LYS:O	2.39	0.53
1:2:1279:C:H2'	1:2:1280:G:H8	1.73	0.53
29:K:132:THR:O	29:K:136:ARG:NH1	2.41	0.53
1:2:62:G:O2'	1:2:172:U:OP1	2.27	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1673:U:H5''	20:Q:78:VAL:HG22	1.90	0.53
1:2:1563:G:OP1	18:T:121:ARG:NH1	2.42	0.53
17:u:358:GLU:HG2	17:u:359:VAL:HG23	1.90	0.53
22:O:117:ARG:O	22:O:121:ARG:NH1	2.42	0.53
10:G:134:GLY:HA3	10:G:158:VAL:HG11	1.90	0.53
13:x:76:ARG:HH22	22:O:126:ILE:HG21	1.73	0.53
1:2:1390:U:N3	1:2:1481:G:N1	2.56	0.53
9:H:66:VAL:HG12	9:H:96:ALA:HB1	1.91	0.53
29:K:897:GLU:OE2	29:K:897:GLU:N	2.39	0.53
30:M:52:LEU:HD13	30:M:65:VAL:HG11	1.90	0.53
1:2:1292:C:O2	31:f:138:ARG:NH2	2.42	0.53
1:2:1536:G:H2'	1:2:1537:A:C8	2.44	0.53
1:2:1209:A:O2'	13:x:242:ARG:NH2	2.41	0.53
1:2:1325:G:O2'	1:2:1327:G:OP2	2.27	0.53
1:2:1130:G:OP2	1:2:1130:G:N2	2.36	0.52
8:F:42:LYS:HG3	8:F:43:GLU:H	1.72	0.52
14:X:93:PHE:O	14:X:140:ARG:NH1	2.39	0.52
18:T:140:ALA:HA	18:T:144:LYS:HD3	1.91	0.52
29:K:1000:PHE:HD1	29:K:1003:LYS:HD2	1.74	0.52
1:2:99:A:H4'	17:u:54:ARG:HH22	1.74	0.52
1:2:750:C:N4	1:2:751:G:O6	2.42	0.52
1:2:1238:U:H1'	21:P:126:VAL:HG23	1.91	0.52
1:2:1862:G:H21	17:u:11:GLN:HE22	1.56	0.52
25:J:177:ASN:HD22	25:J:177:ASN:C	2.13	0.52
28:q:79:VAL:HG23	28:q:99:ASP:HB3	1.90	0.52
29:K:192:LYS:HA	29:K:195:MET:HG2	1.91	0.52
29:K:638:ILE:O	29:K:641:LYS:NZ	2.42	0.52
1:2:1726:G:C6	1:2:1809:A:C6	2.97	0.52
34:C:196:ILE:HB	34:C:223:TYR:HB2	1.90	0.52
1:2:570:C:O2'	12:Y:34:THR:O	2.24	0.52
1:2:1617:G:N1	1:2:1620:A:OP2	2.42	0.52
8:F:167:LYS:NZ	8:F:175:ASP:OD2	2.43	0.52
29:K:194:PHE:HD1	29:K:197:ILE:HD12	1.75	0.52
1:2:1004:U:H2'	1:2:1005:G:H8	1.75	0.52
17:u:290:HIS:HB2	17:u:584:LEU:HD11	1.92	0.52
4:B:23:ASP:OD1	4:B:23:ASP:N	2.43	0.52
15:w:399:GLU:HA	15:w:402:LEU:HD12	1.92	0.52
1:2:1609:C:H42	1:2:1630:A:H61	0.84	0.52
17:u:93:ARG:NH2	17:u:164:GLU:OE2	2.43	0.52
22:O:36:SER:OG	22:O:37:PHE:N	2.43	0.52
27:r:24:ARG:HH22	27:r:101:PRO:HA	1.74	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:170:A:OP2	10:G:140:ARG:NH1	2.38	0.52
1:2:1286:G:H1	30:M:36:ARG:HH21	1.56	0.52
1:2:1593:C:OP2	11:Z:104:ARG:NH1	2.43	0.52
17:u:258:VAL:HG22	17:u:274:ILE:HG22	1.92	0.52
24:L:59:LYS:HG2	24:L:134:LEU:HD22	1.92	0.52
34:C:60:TRP:NE1	34:C:92:GLU:OE2	2.43	0.52
1:2:1657:G:H1	1:2:1667:U:H3	1.56	0.51
10:G:120:ASP:OD1	10:G:120:ASP:N	2.42	0.51
15:w:186:ARG:HH11	15:w:189:ARG:HD3	1.74	0.51
1:2:878:G:H1	1:2:908:A:N6	2.08	0.51
1:2:1461:G:H3'	1:2:1463:U:H3	1.75	0.51
1:2:1536:G:H2'	1:2:1537:A:H8	1.74	0.51
1:2:1183:A:H2'	1:2:1184:G:H8	1.75	0.51
10:G:41:LEU:HG	10:G:45:TRP:HZ3	1.76	0.51
1:2:1562:C:H2'	1:2:1563:G:H8	1.74	0.51
2:R:66:VAL:HA	2:R:69:ILE:HD12	1.91	0.51
17:u:474:LYS:NZ	17:u:612:GLU:OE1	2.43	0.51
33:A:134:LEU:HD11	33:A:144:THR:HG21	1.91	0.51
1:2:70:G:N2	1:2:79:A:H62	2.05	0.51
1:2:1748:G:O6	1:2:1786:U:O4	2.28	0.51
8:F:19:LEU:HB3	8:F:23:TRP:HB2	1.91	0.51
1:2:317:C:OP2	10:G:183:ARG:NH1	2.34	0.51
1:2:668:A:OP1	17:u:17:LYS:NZ	2.43	0.51
1:2:1024:A:OP2	23:N:124:ARG:NH2	2.42	0.51
1:2:1468:C:H2'	1:2:1469:A:C8	2.46	0.51
11:Z:69:THR:HB	11:Z:72:VAL:HG22	1.92	0.51
1:2:536:A:H61	1:2:548:C:H42	0.67	0.51
32:z:193:GLU:OE2	32:z:196:ARG:NH2	2.44	0.51
34:C:101:SER:O	34:C:103:LYS:NZ	2.43	0.51
34:C:108:LYS:HB2	34:C:233:LEU:HD22	1.91	0.51
14:X:27:TYR:O	14:X:31:HIS:ND1	2.44	0.51
1:2:677:G:N1	1:2:1027:A:OP2	2.41	0.51
1:2:1761:U:N3	1:2:1771:G:N1	2.59	0.51
10:G:181:THR:H	10:G:184:VAL:HG12	1.76	0.51
17:u:592:SER:OG	17:u:593:VAL:N	2.44	0.51
1:2:1029:G:H2'	1:2:1030:A:H8	1.76	0.50
1:2:1367:U:O2	1:2:1373:C:C4	2.64	0.50
1:2:1468:C:H2'	1:2:1469:A:H8	1.75	0.50
9:H:110:THR:O	9:H:113:LYS:NZ	2.41	0.50
12:Y:114:MET:HB3	12:Y:125:VAL:HG21	1.92	0.50
15:w:220:THR:HG22	15:w:225:TRP:HE1	1.75	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:u:157:LEU:HD12	17:u:236:LEU:HD11	1.93	0.50
1:2:928:G:H1	1:2:1013:U:H3	1.57	0.50
19:S:34:LYS:HE3	19:S:103:LEU:HD23	1.93	0.50
1:2:944:A:N6	1:2:982:G:H1	2.08	0.50
1:2:1471:C:O3'	29:K:793:ARG:NH1	2.44	0.50
1:2:1598:G:OP2	11:Z:82:SER:OG	2.28	0.50
5:c:31:ARG:NH1	5:c:41:SER:OG	2.40	0.50
26:I:142:SER:O	26:I:146:GLN:NE2	2.44	0.50
34:C:251:LEU:HD13	35:V:23:ILE:HD11	1.93	0.50
1:2:1331:C:N4	1:2:1499:U:N3	2.59	0.50
29:K:312:LYS:HE2	29:K:347:GLN:HE22	1.76	0.50
29:K:520:ARG:HG2	29:K:531:LEU:HD13	1.93	0.50
32:z:175:PRO:HG2	32:z:181:MET:HE3	1.93	0.50
1:2:613:G:H22	1:2:630:U:H2'	1.76	0.50
1:2:1385:G:O6	29:K:1013:ARG:NH1	2.37	0.50
1:2:1730:U:C4	1:2:1805:G:O6	2.65	0.50
1:2:115:U:OP1	1:2:382:C:O2'	2.27	0.50
27:r:74:TYR:N	27:r:76:GLU:OE1	2.44	0.50
1:2:1277:C:O2	1:2:1322:G:C2	2.65	0.50
11:Z:73:VAL:HG13	11:Z:77:LEU:HD12	1.94	0.50
29:K:582:LEU:N	29:K:635:ASP:OD1	2.39	0.50
1:2:528:A:H2'	1:2:529:A:H8	1.77	0.50
1:2:1010:G:H2'	1:2:1011:A:H8	1.77	0.50
1:2:1339:U:H3	1:2:1488:C:N4	2.10	0.49
6:E:11:ARG:HA	6:E:28:ALA:HB2	1.94	0.49
1:2:614:C:N4	1:2:630:U:O2	2.44	0.49
1:2:1297:U:H3	1:2:1299:A:H3'	1.77	0.49
5:c:36:ASP:N	5:c:36:ASP:OD1	2.45	0.49
6:E:44:LEU:HD13	6:E:72:ILE:HD11	1.94	0.49
6:E:88:ASP:OD1	6:E:122:LYS:NZ	2.45	0.49
22:O:61:LYS:NZ	22:O:80:ASP:OD2	2.37	0.49
29:K:417:PHE:CE1	29:K:439:LEU:HD13	2.46	0.49
29:K:700:PRO:HA	29:K:748:PHE:HE2	1.76	0.49
29:K:721:LEU:HD21	29:K:760:LEU:HD22	1.92	0.49
1:2:1295:A:H2'	1:2:1296:U:H6	1.77	0.49
1:2:1513:C:H2'	1:2:1514:G:H8	1.76	0.49
10:G:148:SER:OG	10:G:149:LYS:N	2.45	0.49
14:X:11:ARG:HH22	24:L:105:ARG:HG2	1.77	0.49
29:K:386:PRO:O	29:K:390:TRP:N	2.42	0.49
1:2:1663:A:O2'	1:2:1664:A:O4'	2.29	0.49
18:T:90:SER:O	18:T:91:HIS:ND1	2.45	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:u:600:ARG:NH2	17:u:606:GLU:O	2.46	0.49
32:z:188:GLN:HA	32:z:191:GLU:HG2	1.95	0.49
1:2:996:A:H2'	1:2:997:A:C8	2.47	0.49
1:2:1599:U:OP1	11:Z:80:ARG:NH1	2.45	0.49
1:2:1726:G:H2'	1:2:1727:G:H8	1.76	0.49
1:2:1780:G:H2'	1:2:1781:A:C8	2.47	0.49
33:A:67:ALA:HB2	35:V:37:ALA:HB2	1.94	0.49
1:2:1025:U:OP1	1:2:1090:C:O2'	2.30	0.49
1:2:1339:U:OP2	29:K:1041:ARG:NE	2.45	0.49
19:S:66:ARG:HA	19:S:69:THR:HG22	1.95	0.49
1:2:1283:C:O2'	1:2:1313:A:N1	2.36	0.49
4:B:62:LEU:HA	4:B:65:ARG:HE	1.78	0.49
6:E:44:LEU:HD11	6:E:70:ILE:HG21	1.95	0.49
9:H:140:VAL:HG12	23:N:19:ARG:HD3	1.93	0.49
33:A:58:LEU:HD21	33:A:174:MET:HE3	1.95	0.49
1:2:614:C:N3	1:2:629:A:N1	2.60	0.49
1:2:1272:C:N4	1:2:1273:C:N4	2.61	0.49
1:2:1273:C:H2'	1:2:1274:G:C8	2.48	0.49
1:2:1276:A:OP1	15:w:316:SER:OG	2.31	0.49
6:E:129:ILE:HG12	6:E:139:LEU:HD12	1.95	0.49
20:Q:93:VAL:HG13	29:K:1117:PRO:HG3	1.95	0.49
26:I:81:VAL:HG12	26:I:94:LYS:HD3	1.95	0.48
27:r:17:GLY:O	27:r:19:ARG:NH2	2.45	0.48
30:M:55:ASN:ND2	30:M:82:ASN:OD1	2.46	0.48
31:f:141:CYS:HB3	31:f:146:LEU:H	1.78	0.48
1:2:109:U:O2	24:L:71:ARG:NH2	2.47	0.48
17:u:155:THR:HG21	17:u:236:LEU:HD22	1.94	0.48
29:K:512:CYS:O	29:K:516:LEU:N	2.33	0.48
1:2:1736:G:H2'	1:2:1737:G:C8	2.48	0.48
29:K:960:LYS:O	29:K:960:LYS:NZ	2.38	0.48
1:2:677:G:OP1	23:N:124:ARG:NH1	2.42	0.48
4:B:228:LEU:HD11	4:B:232:HIS:HE1	1.78	0.48
13:x:75:THR:HG23	13:x:119:ARG:HB3	1.95	0.48
13:x:132:LYS:HD2	13:x:153:ILE:HA	1.94	0.48
14:X:67:ARG:HE	14:X:84:PHE:HE1	1.60	0.48
1:2:1588:A:H2'	1:2:1589:A:C8	2.49	0.48
8:F:170:ALA:HB3	11:Z:106:GLN:HE21	1.78	0.48
17:u:716:MET:HB3	17:u:751:MET:HE1	1.95	0.48
18:T:25:SER:HB2	18:T:27:LYS:HD2	1.95	0.48
1:2:980:A:H2'	1:2:981:A:C8	2.48	0.48
5:c:46:VAL:HG11	5:c:56:LEU:HD21	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:L:93:LEU:HG	24:L:102:PHE:HB3	1.95	0.48
29:K:217:LEU:HD23	29:K:220:LEU:HD21	1.95	0.48
1:2:1157:G:O2'	16:W:76:SER:N	2.45	0.48
1:2:1682:C:OP2	15:w:34:ARG:NH2	2.47	0.48
1:2:379:C:OP2	26:I:181:GLN:NE2	2.41	0.48
1:2:1205:C:O2	17:u:4:HIS:ND1	2.36	0.48
11:Z:98:LYS:NZ	11:Z:112:ASN:O	2.47	0.48
20:Q:34:VAL:HB	20:Q:42:ILE:HD11	1.96	0.48
34:C:232:THR:HG22	34:C:235:ASN:H	1.79	0.48
1:2:816:A:OP2	25:J:10:ARG:NH2	2.45	0.48
16:W:94:LEU:O	34:C:183:LYS:NZ	2.47	0.48
29:K:904:VAL:O	32:z:206:TYR:OH	2.28	0.48
1:2:1217:A:H2'	1:2:1218:C:C6	2.49	0.48
1:2:925:G:OP1	23:N:121:ARG:NH1	2.41	0.47
17:u:720:ARG:HB2	17:u:747:THR:H	1.78	0.47
1:2:640:A:H2'	1:2:641:A:C8	2.49	0.47
1:2:1311:C:H5'	31:f:143:LYS:HD3	1.96	0.47
1:2:1560:U:H2'	1:2:1561:A:H8	1.79	0.47
26:I:3:ILE:O	26:I:30:GLY:N	2.47	0.47
1:2:99:A:O2'	17:u:54:ARG:NH1	2.43	0.47
1:2:684:G:O6	1:2:1021:U:C4	2.67	0.47
1:2:560:A:H5'	25:J:174:LYS:HE3	1.96	0.47
17:u:594:LEU:HG	17:u:656:ALA:HB3	1.96	0.47
17:u:628:LEU:HD11	17:u:640:LEU:HD11	1.96	0.47
19:S:40:TYR:CZ	19:S:97:GLN:HG2	2.50	0.47
24:L:4:ILE:HG13	24:L:5:GLN:HE21	1.78	0.47
32:z:213:ALA:O	32:z:217:THR:OG1	2.30	0.47
34:C:64:THR:HG23	34:C:67:GLY:H	1.79	0.47
1:2:527:C:H2'	1:2:528:A:H8	1.79	0.47
1:2:943:U:H2'	1:2:944:A:H8	1.79	0.47
13:x:84:ARG:HD2	13:x:84:ARG:HA	1.71	0.47
13:x:198:THR:HG22	13:x:220:MET:HE2	1.94	0.47
29:K:481:TYR:HB3	29:K:1125:VAL:HG13	1.97	0.47
1:2:615:C:H42	1:2:628:A:N6	2.08	0.47
1:2:681:U:H4'	14:X:9:THR:HG22	1.95	0.47
1:2:913:A:OP2	9:H:99:ARG:NH2	2.48	0.47
1:2:943:U:H2'	1:2:944:A:C8	2.49	0.47
1:2:1004:U:H2'	1:2:1005:G:C8	2.50	0.47
1:2:1331:C:H2'	1:2:1332:A:C8	2.50	0.47
1:2:1653:U:H3	1:2:1671:G:H1	1.62	0.47
17:u:121:ASN:HB3	17:u:136:THR:HG22	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:u:612:GLU:OE2	17:u:669:LYS:NZ	2.47	0.47
20:Q:97:GLN:HB2	20:Q:105:LYS:HG3	1.97	0.47
29:K:693:LEU:HB3	29:K:717:ILE:HD11	1.97	0.47
1:2:24:C:N3	1:2:650:A:N1	2.63	0.47
1:2:494:C:N4	1:2:509:G:H21	2.12	0.47
1:2:886:A:H1'	1:2:900:C:H42	1.80	0.47
9:H:91:HIS:HD1	9:H:172:THR:HG21	1.80	0.47
33:A:181:GLU:OE2	33:A:191:ARG:NH2	2.40	0.47
34:C:179:THR:HG21	34:C:198:ALA:H	1.80	0.47
35:V:64:GLU:O	35:V:68:SER:OG	2.30	0.47
33:A:8:LEU:O	33:A:55:TRP:NE1	2.40	0.47
9:H:129:ILE:HG21	9:H:180:LEU:HD11	1.96	0.47
18:T:13:GLU:OE2	18:T:16:ARG:NH1	2.48	0.47
24:L:38:LYS:NZ	24:L:66:VAL:O	2.36	0.47
29:K:846:LYS:HA	29:K:846:LYS:HD3	1.74	0.47
11:Z:45:ASN:OD1	19:S:23:ARG:NH2	2.48	0.46
13:x:132:LYS:HZ3	13:x:153:ILE:HG12	1.80	0.46
29:K:512:CYS:SG	29:K:513:LEU:N	2.87	0.46
31:f:107:LYS:HZ3	31:f:115:SER:H	1.62	0.46
34:C:142:LYS:HB2	34:C:157:LEU:HD12	1.96	0.46
1:2:1212:G:OP1	15:w:30:ARG:NH2	2.39	0.46
1:2:1331:C:H2'	1:2:1332:A:H8	1.80	0.46
4:B:28:LYS:NZ	22:O:51:GLU:OE2	2.48	0.46
15:w:410:HIS:O	15:w:414:SER:OG	2.31	0.46
17:u:258:VAL:O	17:u:574:ARG:NH2	2.48	0.46
33:A:21:ALA:HB2	33:A:173:LEU:HD13	1.97	0.46
1:2:1758:G:H2'	1:2:1759:G:C8	2.49	0.46
9:H:145:ARG:HD2	16:W:51:GLU:HB2	1.98	0.46
15:w:361:VAL:HG22	15:w:365:LEU:HD23	1.96	0.46
17:u:89:PRO:HA	17:u:159:LEU:HB2	1.98	0.46
1:2:671:A:O2'	1:2:1089:G:OP2	2.33	0.46
1:2:924:G:H1	1:2:1018:U:H3	1.62	0.46
10:G:50:VAL:HG12	10:G:113:ILE:HD13	1.97	0.46
13:x:202:ILE:HD13	13:x:225:ILE:HD11	1.96	0.46
29:K:338:HIS:HE1	29:K:340:LEU:HB2	1.79	0.46
30:M:80:ASP:OD1	30:M:81:ASP:N	2.48	0.46
15:w:334:TYR:HA	15:w:338:ASN:HD21	1.80	0.46
29:K:621:GLN:O	29:K:624:THR:OG1	2.30	0.46
29:K:719:THR:O	29:K:722:THR:OG1	2.27	0.46
29:K:825:LEU:HD11	29:K:861:GLU:HG2	1.98	0.46
30:M:55:ASN:HD21	30:M:82:ASN:H	1.64	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1473:G:O6	29:K:834:ARG:NH1	2.49	0.46
1:2:1486:A:H2'	1:2:1487:A:H8	1.80	0.46
1:2:1726:G:O6	1:2:1809:A:C6	2.68	0.46
25:J:114:VAL:HG21	25:J:130:ILE:HD11	1.97	0.46
29:K:112:ARG:NH2	29:K:125:CYS:SG	2.88	0.46
1:2:8:U:H3	1:2:1196:A:H62	1.63	0.46
1:2:857:U:H2'	1:2:858:A:C8	2.50	0.46
13:x:230:LEU:HA	22:O:149:ARG:HE	1.79	0.46
27:r:44:ARG:NH1	28:q:54:PRO:O	2.48	0.46
29:K:384:LEU:HD12	29:K:428:HIS:HB3	1.97	0.46
35:V:42:VAL:HG23	35:V:43:THR:HG23	1.96	0.46
1:2:979:C:H2'	1:2:980:A:C8	2.51	0.46
1:2:1534:C:O2	1:2:1598:G:N2	2.49	0.46
1:2:1598:G:H3'	11:Z:80:ARG:HD3	1.98	0.46
1:2:1821:U:H2'	1:2:1822:A:C8	2.51	0.46
4:B:143:THR:HB	4:B:205:TYR:HE2	1.81	0.46
17:u:100:MET:HE2	17:u:137:SER:HB3	1.98	0.46
17:u:487:GLU:HA	17:u:698:VAL:HB	1.97	0.46
21:P:29:SER:OG	21:P:30:TYR:N	2.49	0.46
34:C:201:GLY:N	34:C:221:ASP:OD2	2.48	0.46
1:2:659:G:HO2'	1:2:662:G:HO2'	1.61	0.46
4:B:92:GLN:HB2	4:B:95:ASN:HB3	1.97	0.46
1:2:186:C:H2'	1:2:187:G:H8	1.81	0.46
1:2:641:A:O2'	1:2:645:C:OP1	2.33	0.46
1:2:948:C:H2'	1:2:949:G:H8	1.81	0.46
1:2:671:A:H4'	1:2:672:A:H5''	1.98	0.45
1:2:889:U:H2'	1:2:898:U:H3	1.80	0.45
13:x:183:ILE:HD11	13:x:229:ILE:HG23	1.97	0.45
15:w:347:ASP:HA	15:w:388:ARG:HH12	1.80	0.45
4:B:167:LYS:HB2	4:B:167:LYS:HE2	1.70	0.45
1:2:118:C:H1'	1:2:445:A:C5	2.52	0.45
1:2:979:C:H2'	1:2:980:A:H8	1.80	0.45
1:2:1781:A:H2'	1:2:1782:G:C8	2.51	0.45
4:B:63:LYS:NZ	4:B:89:GLU:O	2.38	0.45
13:x:206:ASP:OD1	13:x:207:VAL:N	2.49	0.45
17:u:532:ASN:ND2	17:u:535:ASN:OD1	2.50	0.45
25:J:133:ARG:HG2	25:J:143:ASN:HD21	1.80	0.45
29:K:129:ALA:O	29:K:132:THR:OG1	2.28	0.45
1:2:145:G:H2'	1:2:146:G:C8	2.51	0.45
15:w:192:LEU:HD11	15:w:204:PHE:HE1	1.80	0.45
18:T:38:LYS:HB2	18:T:38:LYS:HE3	1.76	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
29:K:897:GLU:HA	29:K:900:GLN:HB2	1.98	0.45
33:A:128:ARG:NH1	33:A:151:ASP:O	2.47	0.45
33:A:147:LEU:HA	33:A:161:ILE:HB	1.97	0.45
1:2:909:G:H2'	1:2:910:G:H8	1.81	0.45
10:G:211:LYS:HB3	10:G:211:LYS:HE2	1.78	0.45
28:q:60:ILE:HD12	28:q:81:LEU:HB3	1.98	0.45
1:2:71:G:C6	1:2:79:A:N7	2.83	0.45
1:2:614:C:N4	1:2:629:A:H61	2.12	0.45
1:2:1296:U:H3	1:2:1301:A:N6	1.95	0.45
2:R:73:LEU:HB3	29:K:610:VAL:HG23	1.99	0.45
24:L:75:GLY:HA3	24:L:88:ILE:HD12	1.99	0.45
29:K:109:LYS:HG2	29:K:135:ILE:HG21	1.98	0.45
29:K:136:ARG:HG2	29:K:177:ARG:HG3	1.99	0.45
1:2:1486:A:H2'	1:2:1487:A:C8	2.52	0.45
3:b:3:LEU:HA	16:W:22:LYS:HD3	1.99	0.45
28:q:125:VAL:HG21	28:q:161:LEU:HD23	1.98	0.45
29:K:725:ASP:OD1	29:K:725:ASP:N	2.46	0.45
31:f:146:LEU:HD21	31:f:148:TYR:CZ	2.52	0.45
1:2:681:U:O2'	1:2:1160:U:OP1	2.28	0.45
1:2:1189:A:H2'	1:2:1190:A:C8	2.52	0.45
10:G:85:ARG:O	10:G:87:ARG:NH1	2.50	0.45
12:Y:114:MET:O	12:Y:122:LYS:NZ	2.50	0.45
15:w:213:TRP:CD1	15:w:245:MET:HE1	2.52	0.45
29:K:868:GLU:HA	32:z:178:LEU:HD22	1.98	0.45
31:f:107:LYS:HG3	31:f:108:VAL:HG23	1.99	0.45
1:2:1683:C:H2'	1:2:1684:C:H6	1.82	0.45
5:c:29:GLN:HE21	5:c:43:ILE:HG12	1.82	0.45
9:H:80:VAL:HG23	9:H:92:VAL:HB	1.99	0.45
17:u:284:ASN:HD22	17:u:287:ARG:NH1	2.15	0.45
21:P:83:MET:HE3	21:P:83:MET:HB3	1.78	0.45
23:N:78:LYS:HB3	23:N:80:LEU:HD13	1.99	0.45
1:2:1451:G:O2'	1:2:1475:G:O6	2.30	0.44
12:Y:12:PHE:HZ	12:Y:21:LYS:HD2	1.81	0.44
17:u:302:ILE:HG12	17:u:560:LEU:HD13	1.98	0.44
17:u:671:LYS:HB2	17:u:675:MET:HB2	1.98	0.44
29:K:1021:LYS:HD2	29:K:1032:LEU:HD22	1.98	0.44
1:2:84:A:N3	1:2:150:A:O2'	2.48	0.44
1:2:686:U:O2	9:H:118:ARG:NH2	2.37	0.44
29:K:478:GLY:HA2	29:K:483:PHE:CZ	2.53	0.44
33:A:166:LYS:HE3	33:A:166:LYS:HB3	1.71	0.44
35:V:40:ASP:OD1	35:V:41:LYS:N	2.50	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1036:A:N3	1:2:1844:U:O2'	2.50	0.44
17:u:299:MET:HA	17:u:562:VAL:HA	1.99	0.44
1:2:507:G:OP1	12:Y:108:LYS:NZ	2.49	0.44
1:2:1289:U:H2'	1:2:1290:G:C8	2.52	0.44
9:H:126:HIS:O	9:H:177:TYR:OH	2.29	0.44
17:u:144:HIS:CD2	17:u:786:PRO:HD3	2.53	0.44
18:T:9:VAL:O	18:T:11:GLN:NE2	2.49	0.44
29:K:861:GLU:HG3	32:z:190:LEU:HD11	1.98	0.44
1:2:562:U:H2'	1:2:563:G:C8	2.52	0.44
9:H:68:GLN:O	9:H:71:SER:OG	2.29	0.44
26:I:105:ASP:OD1	26:I:106:SER:N	2.51	0.44
1:2:165:G:OP2	1:2:165:G:N2	2.47	0.44
1:2:682:U:O2'	16:W:4:MET:SD	2.71	0.44
1:2:1119:A:O2'	3:b:72:ARG:NH2	2.46	0.44
1:2:1471:C:P	29:K:834:ARG:HH21	2.41	0.44
4:B:129:THR:OG1	4:B:179:ASN:O	2.31	0.44
9:H:25:GLN:HA	9:H:28:LEU:HB2	2.00	0.44
15:w:260:ASP:OD1	15:w:260:ASP:N	2.50	0.44
33:A:57:LYS:HD2	33:A:57:LYS:HA	1.71	0.44
1:2:35:C:H5''	1:2:579:C:H5''	2.00	0.44
1:2:171:A:H5'	10:G:177:GLN:HG2	1.99	0.44
1:2:1203:G:H2'	1:2:1204:A:C8	2.50	0.44
1:2:1516:G:H2'	1:2:1517:G:C8	2.53	0.44
1:2:1798:C:H2'	1:2:1799:G:O4'	2.18	0.44
1:2:1821:U:H2'	1:2:1822:A:H8	1.83	0.44
15:w:257:ARG:HA	15:w:257:ARG:HD2	1.80	0.44
17:u:156:ILE:HG13	17:u:183:PRO:HG2	2.00	0.44
23:N:99:ARG:NH1	23:N:141:TYR:OH	2.50	0.44
26:I:8:TRP:HA	26:I:18:ARG:HD2	1.99	0.44
29:K:788:GLN:NE2	29:K:827:SER:O	2.40	0.44
29:K:1110:LYS:HB3	29:K:1128:ARG:HG2	2.00	0.44
1:2:1598:G:N7	11:Z:85:ARG:NH2	2.66	0.44
9:H:33:ASN:OD1	9:H:34:SER:N	2.51	0.44
17:u:303:ASP:OD1	17:u:303:ASP:N	2.45	0.44
21:P:80:LEU:HD23	21:P:80:LEU:HA	1.86	0.44
29:K:362:LEU:HD21	29:K:367:ASN:HD21	1.83	0.44
1:2:102:A:H5'	1:2:104:A:C4	2.53	0.44
1:2:433:A:H5''	26:I:22:HIS:HB3	2.00	0.44
1:2:1296:U:H3'	1:2:1297:U:H6	1.82	0.44
5:c:9:ILE:HD12	5:c:9:ILE:HA	1.85	0.44
12:Y:76:TYR:HE2	12:Y:85:ASN:HB2	1.82	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:u:707:PHE:HB3	17:u:710:MET:HB3	2.00	0.44
26:I:141:ARG:HB3	26:I:145:ILE:HB	2.00	0.44
29:K:830:SER:OG	32:z:186:ARG:NH1	2.51	0.44
33:A:60:LEU:HD12	33:A:60:LEU:HA	1.90	0.44
1:2:218:U:O2	26:I:184:ARG:NH1	2.46	0.43
1:2:973:C:N3	22:O:55:ARG:NH1	2.65	0.43
1:2:1734:G:O2'	1:2:1800:A:N6	2.50	0.43
2:R:26:ASN:HD21	2:R:62:GLN:HE21	1.65	0.43
4:B:190:PRO:O	4:B:195:LYS:NZ	2.51	0.43
29:K:407:ASP:OD1	29:K:407:ASP:N	2.48	0.43
33:A:104:THR:O	33:A:107:THR:OG1	2.33	0.43
1:2:677:G:H21	1:2:1028:A:H62	1.64	0.43
1:2:1101:U:H2'	1:2:1102:G:H8	1.82	0.43
1:2:1693:G:O2'	1:2:1694:U:OP2	2.33	0.43
17:u:268:LEU:HD12	17:u:567:VAL:HG11	2.00	0.43
26:I:162:LEU:HD11	26:I:191:GLU:HG2	1.99	0.43
28:q:131:ALA:HB2	28:q:138:PRO:HD3	1.99	0.43
29:K:505:ALA:HB3	29:K:509:MET:HE3	2.00	0.43
29:K:561:THR:OG1	29:K:563:ASP:OD1	2.30	0.43
29:K:1002:MET:SD	29:K:1002:MET:N	2.91	0.43
1:2:940:U:H3	1:2:1002:U:H3	1.67	0.43
10:G:67:VAL:HB	10:G:99:GLY:HA2	1.98	0.43
1:2:1101:U:H2'	1:2:1102:G:C8	2.53	0.43
1:2:1330:G:O6	1:2:1499:U:O4	2.37	0.43
4:B:120:MET:HG3	4:B:142:PHE:CE1	2.53	0.43
9:H:60:ILE:HB	9:H:92:VAL:HG22	2.00	0.43
14:X:67:ARG:NH1	14:X:88:ASP:OD1	2.47	0.43
15:w:210:LEU:HD23	15:w:212:ASN:H	1.81	0.43
17:u:609:LYS:HE3	17:u:612:GLU:HB3	1.99	0.43
21:P:110:GLU:N	21:P:110:GLU:OE1	2.51	0.43
29:K:848:SER:OG	29:K:849:ALA:N	2.51	0.43
1:2:929:G:H2'	1:2:930:C:O4'	2.17	0.43
6:E:197:ASN:OD1	6:E:198:ARG:N	2.52	0.43
17:u:644:LEU:HG	17:u:650:LEU:HD12	1.99	0.43
24:L:79:LYS:HB3	24:L:79:LYS:HE3	1.75	0.43
1:2:1753:C:H2'	1:2:1754:G:H8	1.82	0.43
18:T:75:MET:HE3	18:T:75:MET:HB3	1.86	0.43
20:Q:73:LYS:HB3	20:Q:73:LYS:HE3	1.76	0.43
24:L:22:ARG:HE	24:L:27:GLU:HA	1.83	0.43
29:K:568:TRP:CD1	29:K:568:TRP:H	2.36	0.43
29:K:1002:MET:O	29:K:1006:ASN:N	2.51	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:981:A:H2'	1:2:982:G:C8	2.54	0.43
1:2:1010:G:H2'	1:2:1011:A:C8	2.53	0.43
33:A:39:TYR:HD2	33:A:48:ILE:HD11	1.84	0.43
34:C:102:LEU:HB3	34:C:130:ILE:HD11	2.00	0.43
1:2:1568:C:H2'	1:2:1569:A:C8	2.54	0.43
1:2:1736:G:H2'	1:2:1737:G:H8	1.82	0.43
9:H:147:LYS:HE2	9:H:153:LEU:HD13	2.00	0.43
17:u:154:ASP:OD2	17:u:279:ARG:NH2	2.52	0.43
19:S:24:ARG:HB2	19:S:29:ALA:HB2	2.01	0.43
27:r:4:LEU:HD12	27:r:88:LEU:HD13	1.99	0.43
29:K:183:LEU:HD11	29:K:220:LEU:HA	1.99	0.43
33:A:89:LYS:HB3	33:A:202:TYR:CE1	2.54	0.43
1:2:1862:G:N2	17:u:11:GLN:HE22	2.17	0.43
6:E:94:LYS:HB3	6:E:94:LYS:HE3	1.84	0.43
29:K:142:GLU:HA	29:K:143:THR:HA	1.55	0.43
29:K:426:SER:HA	29:K:427:PRO:HD3	1.90	0.43
29:K:680:ALA:O	29:K:684:ARG:N	2.50	0.43
1:2:885:U:O2	1:2:902:G:C6	2.72	0.43
6:E:105:THR:HG21	6:E:245:ARG:HA	2.00	0.43
18:T:101:ARG:O	18:T:105:GLN:HG2	2.18	0.43
34:C:66:LEU:HD23	34:C:66:LEU:HA	1.85	0.43
4:B:71:LEU:HD13	4:B:84:PHE:HE2	1.83	0.42
30:M:59:PRO:HA	30:M:62:VAL:HG12	2.00	0.42
1:2:75:G:N1	10:G:155:GLN:OE1	2.50	0.42
1:2:417:C:O2'	1:2:418:A:OP1	2.35	0.42
1:2:903:A:H2'	1:2:904:A:C8	2.54	0.42
1:2:1478:U:H2'	1:2:1479:G:C8	2.55	0.42
8:F:102:LEU:HD23	8:F:102:LEU:HA	1.84	0.42
31:f:132:MET:HE3	31:f:132:MET:HB3	1.73	0.42
1:2:151:C:OP1	12:Y:120:THR:OG1	2.33	0.42
1:2:375:U:H2'	1:2:376:A:C8	2.54	0.42
1:2:1398:G:C6	1:2:1448:A:N1	2.86	0.42
1:2:1776:G:H2'	1:2:1777:G:C8	2.55	0.42
12:Y:101:LYS:HA	12:Y:101:LYS:HD3	1.77	0.42
13:x:135:ASP:HB3	13:x:152:LEU:HD21	2.00	0.42
14:X:91:LEU:HD23	14:X:91:LEU:HA	1.90	0.42
17:u:199:LYS:HD2	17:u:199:LYS:HA	1.75	0.42
18:T:24:LYS:HE3	18:T:24:LYS:HB3	1.82	0.42
21:P:29:SER:H	21:P:32:GLN:NE2	2.18	0.42
1:2:639:C:H2'	1:2:640:A:C8	2.54	0.42
1:2:1284:A:H5'	1:2:1285:G:H8	1.83	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1497:G:N1	1:2:1499:U:C2	2.87	0.42
4:B:168:MET:HE3	4:B:168:MET:HB2	1.83	0.42
9:H:101:LEU:O	9:H:116:ARG:NH1	2.52	0.42
10:G:7:PHE:HD1	10:G:113:ILE:HB	1.84	0.42
13:x:99:ILE:HG23	13:x:103:LEU:HD23	2.01	0.42
17:u:301:GLN:HG2	17:u:344:LEU:HD11	2.01	0.42
28:q:171:LEU:HD23	28:q:171:LEU:HA	1.83	0.42
1:2:1699:A:H61	1:2:1838:U:H3	1.67	0.42
8:F:28:VAL:O	8:F:42:LYS:NZ	2.48	0.42
17:u:139:ARG:HG3	17:u:140:PRO:HD2	2.01	0.42
18:T:39:LEU:HD23	18:T:39:LEU:H	1.84	0.42
22:O:19:PRO:HG2	22:O:27:VAL:HG21	2.02	0.42
29:K:293:GLU:OE2	29:K:332:ARG:NE	2.52	0.42
29:K:544:PRO:HD2	29:K:580:THR:HG21	2.01	0.42
1:2:955:A:H4'	22:O:60:MET:HE1	2.02	0.42
27:r:10:SER:OG	27:r:11:SER:N	2.52	0.42
29:K:516:LEU:HD23	29:K:516:LEU:HA	1.77	0.42
29:K:538:ALA:HB1	29:K:542:MET:HE2	2.02	0.42
29:K:953:SER:HB3	29:K:958:VAL:HG11	2.00	0.42
1:2:49:C:N4	1:2:473:A:OP2	2.48	0.42
1:2:107:A:H2'	1:2:108:G:C8	2.55	0.42
1:2:155:G:H2'	1:2:156:G:H8	1.85	0.42
1:2:446:G:OP2	26:I:47:ARG:NH2	2.44	0.42
1:2:1730:U:O4	1:2:1805:G:C6	2.71	0.42
4:B:27:LYS:O	4:B:51:ARG:NE	2.51	0.42
17:u:733:THR:HG21	17:u:759:LEU:HD11	2.00	0.42
17:u:745:LEU:HD12	17:u:745:LEU:HA	1.88	0.42
31:f:107:LYS:O	31:f:114:ILE:N	2.52	0.42
1:2:419:G:N2	1:2:661:U:O2	2.52	0.42
1:2:1025:U:O3'	1:2:1089:G:N2	2.53	0.42
1:2:1203:G:OP1	34:C:114:LYS:NZ	2.48	0.42
1:2:1279:C:H2'	1:2:1280:G:C8	2.52	0.42
4:B:67:PHE:CE2	22:O:48:SER:HB3	2.54	0.42
14:X:40:PRO:O	14:X:77:ASN:ND2	2.51	0.42
17:u:283:LEU:HD21	17:u:560:LEU:HD11	2.02	0.42
29:K:970:VAL:HG11	29:K:1011:PHE:HE1	1.85	0.42
1:2:201:C:H3'	1:2:202:G:H8	1.85	0.42
1:2:615:C:C4	1:2:628:A:N6	2.88	0.42
1:2:1628:C:H2'	1:2:1629:C:C6	2.54	0.42
15:w:410:HIS:H	15:w:414:SER:HB3	1.85	0.42
17:u:115:GLU:HA	17:u:120:GLN:HA	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:r:14:ARG:H	27:r:14:ARG:HD2	1.85	0.42
29:K:395:GLU:HG3	29:K:442:ILE:HD11	2.02	0.42
1:2:78:C:H1'	10:G:175:LYS:HB2	2.01	0.42
1:2:1272:C:N4	1:2:1273:C:H42	2.16	0.42
1:2:1330:G:O6	1:2:1499:U:C4	2.73	0.42
1:2:1810:U:H2'	1:2:1811:C:C6	2.55	0.42
5:c:44:ARG:HE	5:c:44:ARG:HB3	1.62	0.42
17:u:600:ARG:HD3	17:u:646:ALA:HB2	2.01	0.42
23:N:40:LEU:HD22	23:N:45:LEU:HD12	2.01	0.42
29:K:871:VAL:HG13	29:K:875:LYS:HZ1	1.85	0.42
1:2:51:U:H2'	1:2:52:G:C8	2.54	0.41
1:2:528:A:H2'	1:2:529:A:C8	2.54	0.41
1:2:1525:C:O2'	29:K:1239:LYS:NZ	2.47	0.41
12:Y:27:VAL:HB	12:Y:69:THR:HB	2.01	0.41
29:K:413:LEU:HD23	29:K:413:LEU:HA	1.84	0.41
29:K:916:MET:HE3	29:K:916:MET:HB3	1.76	0.41
1:2:20:G:O2'	1:2:603:C:N4	2.53	0.41
1:2:594:A:H61	1:2:643:A:H5''	1.84	0.41
1:2:630:U:OP1	28:q:249:ARG:NH1	2.53	0.41
1:2:1298:G:H4'	21:P:78:THR:HA	2.01	0.41
1:2:1776:G:H2'	1:2:1777:G:H8	1.84	0.41
1:2:1778:C:H2'	1:2:1779:G:C8	2.55	0.41
13:x:89:LYS:HA	13:x:89:LYS:HD2	1.81	0.41
14:X:46:HIS:HB3	14:X:101:LEU:HD11	2.02	0.41
17:u:737:ARG:HE	17:u:759:LEU:HD13	1.85	0.41
21:P:81:ARG:NH2	21:P:120:SER:O	2.53	0.41
23:N:36:GLN:HA	23:N:39:LYS:HG2	2.02	0.41
27:r:86:HIS:HA	27:r:90:GLU:HB2	2.02	0.41
1:2:292:A:O2'	24:L:39:ASN:O	2.24	0.41
3:b:42:LYS:HD3	3:b:42:LYS:HA	1.76	0.41
5:c:14:VAL:HA	5:c:32:VAL:HA	2.02	0.41
10:G:213:LEU:HG	10:G:217:MET:HE2	2.02	0.41
22:O:142:ARG:HG3	22:O:144:GLY:H	1.84	0.41
23:N:83:ASP:OD1	23:N:84:LEU:N	2.53	0.41
1:2:798:G:H21	9:H:107:LYS:NZ	2.18	0.41
1:2:903:A:H2'	1:2:904:A:H8	1.84	0.41
1:2:984:C:H2'	1:2:985:G:C8	2.55	0.41
1:2:1098:C:H2'	1:2:1099:G:C8	2.56	0.41
1:2:1797:U:H2'	1:2:1798:C:C6	2.55	0.41
6:E:19:MET:SD	6:E:108:ARG:HD2	2.60	0.41
25:J:174:LYS:HE3	25:J:174:LYS:HB2	1.91	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:A:207:PRO:HA	33:A:210:ILE:HD12	2.02	0.41
1:2:1037:G:H4'	1:2:1845:A:H4'	2.02	0.41
1:2:1348:G:N7	1:2:1381:G:N1	2.66	0.41
1:2:1656:G:H1	1:2:1668:U:H3	1.68	0.41
4:B:126:ASP:OD1	4:B:136:ARG:NE	2.51	0.41
8:F:82:ASN:HA	8:F:85:LYS:HE2	2.01	0.41
9:H:47:ALA:HB3	9:H:63:PHE:HB2	2.01	0.41
17:u:490:THR:HB	17:u:492:ARG:HH21	1.86	0.41
20:Q:16:LYS:HG3	20:Q:17:LYS:H	1.86	0.41
26:I:53:LYS:HD2	26:I:55:TYR:CZ	2.55	0.41
28:q:84:SER:HA	28:q:85:PRO:HD3	1.92	0.41
28:q:120:ILE:HD12	28:q:120:ILE:HA	1.93	0.41
1:2:67:C:C5	10:G:162:LEU:HB3	2.56	0.41
1:2:382:C:H2'	1:2:383:G:H8	1.85	0.41
1:2:1007:C:O2'	23:N:104:ARG:NH2	2.51	0.41
17:u:600:ARG:HD2	17:u:644:LEU:HD22	2.02	0.41
19:S:30:ILE:HG22	19:S:36:VAL:HG21	2.02	0.41
1:2:51:U:H2'	1:2:52:G:H8	1.86	0.41
1:2:531:A:H2'	1:2:532:C:C6	2.56	0.41
1:2:1681:U:O4	15:w:36:LYS:NZ	2.53	0.41
6:E:102:ILE:HD12	6:E:239:PRO:HD3	2.03	0.41
8:F:162:ALA:C	8:F:164:ARG:H	2.29	0.41
10:G:219:GLU:HA	10:G:222:GLU:HG2	2.01	0.41
15:w:380:GLN:HA	15:w:383:LEU:HB3	2.03	0.41
17:u:661:PRO:HG3	17:u:684:LEU:HD22	2.03	0.41
25:J:88:ASP:HB2	25:J:91:LYS:HG2	2.02	0.41
25:J:136:ARG:HE	25:J:158:ASP:HB3	1.86	0.41
34:C:106:VAL:HA	34:C:128:VAL:HG12	2.03	0.41
1:2:492:C:OP2	12:Y:107:ARG:NH2	2.52	0.41
1:2:866:U:H2'	1:2:867:G:C8	2.56	0.41
1:2:885:U:H1'	1:2:902:G:N2	2.36	0.41
1:2:1383:A:H5'	29:K:1014:LYS:HG2	2.03	0.41
2:R:49:LYS:HA	2:R:49:LYS:HD3	1.71	0.41
4:B:27:LYS:HE3	4:B:27:LYS:HB3	1.88	0.41
11:Z:42:ASP:OD1	11:Z:42:ASP:N	2.53	0.41
13:x:169:LYS:HD3	22:O:149:ARG:NH2	2.36	0.41
17:u:597:VAL:HG23	17:u:685:MET:HB2	2.03	0.41
19:S:101:ASN:O	19:S:105:ASN:ND2	2.54	0.41
20:Q:9:SER:HB3	20:Q:26:LYS:HB3	2.03	0.41
22:O:57:THR:H	22:O:60:MET:HG2	1.86	0.41
26:I:142:SER:H	26:I:145:ILE:HD12	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:q:105:MET:HG2	37:q:301:SAH:N1	2.36	0.41
29:K:932:LYS:HB3	29:K:972:VAL:HG23	2.02	0.41
29:K:1017:PHE:O	29:K:1021:LYS:NZ	2.31	0.41
33:A:123:VAL:HG22	33:A:145:ILE:HB	2.03	0.41
1:2:1271:C:O3'	31:f:90:LYS:NZ	2.52	0.41
13:x:169:LYS:HB2	22:O:149:ARG:HG2	2.03	0.41
20:Q:11:GLN:HB3	29:K:1120:PHE:HB2	2.02	0.41
29:K:478:GLY:HA2	29:K:483:PHE:CE1	2.56	0.41
29:K:884:MET:HE2	29:K:884:MET:HB2	1.88	0.41
34:C:124:PHE:N	34:C:144:SER:O	2.54	0.41
4:B:92:GLN:N	4:B:95:ASN:O	2.53	0.40
15:w:55:SER:OG	29:K:1107:ALA:O	2.28	0.40
24:L:20:LYS:O	24:L:22:ARG:NH1	2.54	0.40
24:L:30:LYS:HD3	24:L:32:LYS:HB3	2.03	0.40
4:B:113:MET:HE2	4:B:113:MET:HB3	1.72	0.40
17:u:174:LEU:HD23	17:u:174:LEU:HA	1.95	0.40
17:u:624:ARG:NH2	17:u:780:ASP:OD2	2.54	0.40
21:P:93:MET:HE1	21:P:106:GLU:HB2	2.03	0.40
29:K:694:PHE:HZ	29:K:760:LEU:HD21	1.85	0.40
29:K:808:LEU:HD12	29:K:811:GLN:NE2	2.37	0.40
1:2:1726:G:H2'	1:2:1727:G:C8	2.55	0.40
3:b:5:LYS:HA	3:b:5:LYS:HD3	1.88	0.40
6:E:174:LYS:HB3	6:E:174:LYS:HE3	1.70	0.40
12:Y:100:LYS:HE2	12:Y:100:LYS:HB2	1.85	0.40
17:u:288:LEU:HB2	17:u:584:LEU:HD13	2.03	0.40
18:T:39:LEU:HD22	18:T:47:PRO:HG3	2.02	0.40
23:N:4:MET:HE3	23:N:121:ARG:HG2	2.03	0.40
25:J:142:VAL:HG12	25:J:144:ILE:H	1.86	0.40
29:K:328:GLU:O	29:K:332:ARG:HG3	2.22	0.40
29:K:1026:GLU:HA	29:K:1029:HIS:ND1	2.37	0.40
1:2:1511:U:H2'	1:2:1512:C:H6	1.86	0.40
1:2:1628:C:H2'	1:2:1629:C:H6	1.86	0.40
17:u:199:LYS:HB3	17:u:203:THR:HG23	2.03	0.40
29:K:561:THR:OG1	29:K:562:LEU:N	2.55	0.40
1:2:1275:G:O2'	15:w:313:THR:O	2.34	0.40
1:2:1606:G:H22	1:2:1632:G:H1'	1.86	0.40
6:E:9:LEU:HB2	6:E:30:ARG:HD2	2.04	0.40
13:x:150:LEU:HG	13:x:153:ILE:HD12	2.04	0.40
17:u:211:VAL:HG13	17:u:215:PHE:HD2	1.87	0.40
17:u:521:PRO:HD2	17:u:524:TYR:HD2	1.84	0.40
27:r:46:ILE:HA	27:r:49:VAL:HG12	2.04	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
29:K:374:LEU:HA	29:K:374:LEU:HD23	1.89	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	R	79/135 (58%)	78 (99%)	1 (1%)	0	100	100
3	b	80/84 (95%)	73 (91%)	7 (9%)	0	100	100
4	B	211/264 (80%)	202 (96%)	9 (4%)	0	100	100
5	c	59/69 (86%)	57 (97%)	2 (3%)	0	100	100
6	E	260/263 (99%)	249 (96%)	11 (4%)	0	100	100
7	e	18/59 (30%)	18 (100%)	0	0	100	100
8	F	187/204 (92%)	176 (94%)	10 (5%)	1 (0%)	24	57
9	H	184/194 (95%)	176 (96%)	8 (4%)	0	100	100
10	G	228/249 (92%)	217 (95%)	11 (5%)	0	100	100
11	Z	70/125 (56%)	63 (90%)	7 (10%)	0	100	100
12	Y	122/133 (92%)	119 (98%)	3 (2%)	0	100	100
13	x	173/252 (69%)	167 (96%)	6 (4%)	0	100	100
14	X	139/143 (97%)	138 (99%)	1 (1%)	0	100	100
15	w	321/437 (74%)	314 (98%)	7 (2%)	0	100	100
16	W	127/130 (98%)	123 (97%)	4 (3%)	0	100	100
17	u	630/804 (78%)	601 (95%)	29 (5%)	0	100	100
18	T	142/145 (98%)	139 (98%)	3 (2%)	0	100	100
19	S	124/152 (82%)	117 (94%)	7 (6%)	0	100	100
20	Q	123/146 (84%)	116 (94%)	7 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
21	P	117/145 (81%)	116 (99%)	1 (1%)	0	100	100
22	O	133/151 (88%)	125 (94%)	8 (6%)	0	100	100
23	N	147/151 (97%)	141 (96%)	6 (4%)	0	100	100
24	L	149/158 (94%)	138 (93%)	11 (7%)	0	100	100
25	J	178/194 (92%)	169 (95%)	9 (5%)	0	100	100
26	I	203/208 (98%)	194 (96%)	9 (4%)	0	100	100
27	r	116/125 (93%)	108 (93%)	8 (7%)	0	100	100
28	q	231/281 (82%)	223 (96%)	8 (4%)	0	100	100
29	K	973/1297 (75%)	934 (96%)	39 (4%)	0	100	100
30	M	102/132 (77%)	100 (98%)	2 (2%)	0	100	100
31	f	53/156 (34%)	51 (96%)	2 (4%)	0	100	100
32	z	50/230 (22%)	49 (98%)	1 (2%)	0	100	100
33	A	214/295 (72%)	209 (98%)	5 (2%)	0	100	100
34	C	214/293 (73%)	206 (96%)	8 (4%)	0	100	100
35	V	81/83 (98%)	78 (96%)	3 (4%)	0	100	100
All	All	6238/7887 (79%)	5984 (96%)	253 (4%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
8	F	163	PHE

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	R	72/122 (59%)	72 (100%)	0	100	100
3	b	74/76 (97%)	74 (100%)	0	100	100
4	B	194/231 (84%)	194 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
5	c	52/62 (84%)	52 (100%)	0	100	100
6	E	224/225 (100%)	224 (100%)	0	100	100
7	e	18/48 (38%)	18 (100%)	0	100	100
8	F	159/170 (94%)	159 (100%)	0	100	100
9	H	167/174 (96%)	167 (100%)	0	100	100
10	G	200/218 (92%)	200 (100%)	0	100	100
11	Z	64/103 (62%)	64 (100%)	0	100	100
12	Y	108/115 (94%)	107 (99%)	1 (1%)	70	76
13	x	148/208 (71%)	148 (100%)	0	100	100
14	X	113/115 (98%)	113 (100%)	0	100	100
15	w	262/370 (71%)	262 (100%)	0	100	100
16	W	112/113 (99%)	112 (100%)	0	100	100
17	u	561/705 (80%)	561 (100%)	0	100	100
18	T	114/115 (99%)	114 (100%)	0	100	100
19	S	110/132 (83%)	110 (100%)	0	100	100
20	Q	106/121 (88%)	106 (100%)	0	100	100
21	P	111/130 (85%)	111 (100%)	0	100	100
22	O	105/119 (88%)	105 (100%)	0	100	100
23	N	130/131 (99%)	130 (100%)	0	100	100
24	L	135/142 (95%)	135 (100%)	0	100	100
25	J	160/168 (95%)	160 (100%)	0	100	100
26	I	178/180 (99%)	178 (100%)	0	100	100
27	r	105/112 (94%)	105 (100%)	0	100	100
28	q	198/240 (82%)	198 (100%)	0	100	100
29	K	846/1094 (77%)	846 (100%)	0	100	100
30	M	91/108 (84%)	91 (100%)	0	100	100
31	f	51/140 (36%)	51 (100%)	0	100	100
32	z	44/185 (24%)	44 (100%)	0	100	100
33	A	180/243 (74%)	180 (100%)	0	100	100
34	C	182/225 (81%)	182 (100%)	0	100	100
35	V	67/67 (100%)	67 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
All	All	5441/6707 (81%)	5440 (100%)	1 (0%)	100	100

All (1) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
12	Y	15	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (48) such sidechains are listed below:

Mol	Chain	Res	Type
3	b	51	GLN
4	B	118	GLN
4	B	202	GLN
5	c	29	GLN
6	E	142	HIS
9	H	112	ASN
9	H	168	HIS
11	Z	112	ASN
12	Y	85	ASN
13	x	216	GLN
13	x	232	ASN
15	w	363	HIS
15	w	412	GLN
15	w	422	GLN
16	W	24	GLN
16	W	70	ASN
17	u	53	GLN
17	u	59	GLN
17	u	104	GLN
17	u	121	ASN
17	u	286	ASN
17	u	298	GLN
17	u	532	ASN
17	u	683	HIS
17	u	719	ASN
17	u	740	HIS
18	T	105	GLN
18	T	142	ASN
19	S	72	GLN
19	S	73	ASN
21	P	128	HIS

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Mol	Chain	Res	Type
22	O	103	ASN
25	J	143	ASN
26	I	52	ASN
26	I	138	ASN
28	q	177	GLN
29	K	369	GLN
29	K	412	HIS
29	K	506	HIS
29	K	576	HIS
29	K	674	GLN
29	K	981	HIS
32	z	198	GLN
32	z	223	GLN
33	A	111	GLN
33	A	141	ASN
34	C	113	GLN
35	V	29	HIS

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	2	1555/1873 (83%)	353 (22%)	22 (1%)

All (353) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	2	2	A
1	2	3	C
1	2	9	U
1	2	26	U
1	2	33	G
1	2	41	G
1	2	46	A
1	2	56	G
1	2	59	U
1	2	67	C
1	2	68	A
1	2	69	C
1	2	70	G
1	2	72	C
1	2	73	C

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Mol	Chain	Res	Type
1	2	74	G
1	2	75	G
1	2	76	U
1	2	77	A
1	2	79	A
1	2	100	U
1	2	103	A
1	2	113	G
1	2	114	G
1	2	115	U
1	2	126	G
1	2	128	U
1	2	130	G
1	2	143	U
1	2	144	U
1	2	147	A
1	2	155	G
1	2	160	U
1	2	163	U
1	2	172	U
1	2	181	A
1	2	182	C
1	2	184	G
1	2	192	C
1	2	209	A
1	2	292	A
1	2	295	C
1	2	302	A
1	2	309	G
1	2	310	C
1	2	315	C
1	2	318	A
1	2	319	C
1	2	321	C
1	2	332	G
1	2	333	G
1	2	335	G
1	2	339	A
1	2	347	G
1	2	360	A
1	2	362	C
1	2	364	A

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Mol	Chain	Res	Type
1	2	368	U
1	2	369	C
1	2	370	G
1	2	377	G
1	2	382	C
1	2	383	G
1	2	385	G
1	2	386	C
1	2	399	C
1	2	400	C
1	2	407	G
1	2	409	C
1	2	413	G
1	2	418	A
1	2	436	G
1	2	441	C
1	2	448	A
1	2	449	A
1	2	450	C
1	2	466	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	487	U
1	2	492	C
1	2	493	A
1	2	500	A
1	2	516	A
1	2	525	A
1	2	532	C
1	2	544	G
1	2	546	G
1	2	547	G
1	2	548	C
1	2	555	A
1	2	556	U
1	2	559	G
1	2	560	A
1	2	563	G

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Mol	Chain	Res	Type
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	593	C
1	2	600	G
1	2	601	G
1	2	603	C
1	2	604	A
1	2	605	A
1	2	607	U
1	2	608	C
1	2	613	G
1	2	614	C
1	2	631	U
1	2	637	U
1	2	643	A
1	2	644	G
1	2	655	A
1	2	660	C
1	2	664	A
1	2	669	A
1	2	670	A
1	2	671	A
1	2	672	A
1	2	673	G
1	2	678	U
1	2	683	G
1	2	684	G
1	2	687	C
1	2	688	U
1	2	749	U
1	2	750	C
1	2	751	G
1	2	792	C
1	2	794	A
1	2	797	C
1	2	798	G
1	2	799	U

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Mol	Chain	Res	Type
1	2	800	U
1	2	811	A
1	2	821	G
1	2	822	U
1	2	830	A
1	2	844	U
1	2	847	A
1	2	869	A
1	2	870	A
1	2	871	U
1	2	872	A
1	2	874	G
1	2	878	G
1	2	880	G
1	2	881	G
1	2	886	A
1	2	890	U
1	2	891	G
1	2	892	U
1	2	893	U
1	2	896	U
1	2	898	U
1	2	903	A
1	2	908	A
1	2	913	A
1	2	914	U
1	2	920	A
1	2	921	G
1	2	930	C
1	2	933	G
1	2	954	U
1	2	959	G
1	2	963	A
1	2	970	G
1	2	971	G
1	2	981	A
1	2	989	C
1	2	990	A
1	2	992	A
1	2	1002	U
1	2	1017	U
1	2	1023	A

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Mol	Chain	Res	Type
1	2	1026	C
1	2	1030	A
1	2	1041	G
1	2	1045	U
1	2	1049	A
1	2	1055	A
1	2	1083	A
1	2	1085	C
1	2	1086	G
1	2	1089	G
1	2	1096	G
1	2	1099	G
1	2	1114	U
1	2	1116	C
1	2	1117	C
1	2	1118	C
1	2	1120	U
1	2	1121	G
1	2	1138	C
1	2	1139	C
1	2	1149	A
1	2	1153	C
1	2	1154	U
1	2	1155	U
1	2	1157	G
1	2	1165	G
1	2	1170	A
1	2	1171	G
1	2	1195	A
1	2	1202	U
1	2	1203	G
1	2	1206	G
1	2	1211	G
1	2	1215	C
1	2	1217	A
1	2	1221	G
1	2	1224	G
1	2	1227	G
1	2	1232	U
1	2	1235	G
1	2	1238	U
1	2	1242	U

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Mol	Chain	Res	Type
1	2	1243	U
1	2	1269	G
1	2	1274	G
1	2	1275	G
1	2	1284	A
1	2	1285	G
1	2	1286	G
1	2	1296	U
1	2	1298	G
1	2	1301	A
1	2	1302	G
1	2	1303	C
1	2	1305	C
1	2	1307	U
1	2	1308	U
1	2	1309	C
1	2	1313	A
1	2	1315	U
1	2	1317	C
1	2	1322	G
1	2	1323	U
1	2	1325	G
1	2	1327	G
1	2	1335	G
1	2	1364	U
1	2	1372	U
1	2	1376	A
1	2	1383	A
1	2	1387	G
1	2	1388	A
1	2	1389	C
1	2	1396	A
1	2	1397	U
1	2	1398	G
1	2	1445	U
1	2	1446	A
1	2	1454	A
1	2	1455	A
1	2	1462	U
1	2	1463	U
1	2	1464	C
1	2	1465	A

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Mol	Chain	Res	Type
1	2	1476	A
1	2	1477	U
1	2	1478	U
1	2	1480	A
1	2	1486	A
1	2	1489	A
1	2	1490	G
1	2	1491	G
1	2	1494	U
1	2	1495	G
1	2	1497	G
1	2	1498	A
1	2	1503	C
1	2	1512	C
1	2	1519	U
1	2	1527	C
1	2	1533	A
1	2	1534	C
1	2	1535	U
1	2	1536	G
1	2	1551	U
1	2	1560	U
1	2	1566	G
1	2	1569	A
1	2	1570	G
1	2	1580	A
1	2	1584	G
1	2	1585	U
1	2	1586	U
1	2	1588	A
1	2	1598	G
1	2	1599	U
1	2	1600	G
1	2	1601	A
1	2	1606	G
1	2	1618	C
1	2	1621	U
1	2	1623	A
1	2	1636	G
1	2	1637	A
1	2	1639	G7M
1	2	1640	A

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Mol	Chain	Res	Type
1	2	1641	A
1	2	1647	A
1	2	1648	G
1	2	1654	G
1	2	1657	G
1	2	1658	G
1	2	1661	A
1	2	1663	A
1	2	1664	A
1	2	1665	G
1	2	1669	G
1	2	1671	G
1	2	1675	A
1	2	1694	U
1	2	1704	C
1	2	1705	C
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	1756	C
1	2	1761	U
1	2	1783	C
1	2	1784	G
1	2	1786	U
1	2	1800	A
1	2	1801	A
1	2	1805	G
1	2	1806	A
1	2	1808	U
1	2	1826	G
1	2	1829	G
1	2	1836	G
1	2	1839	U
1	2	1841	C
1	2	1846	G
1	2	1848	U
1	2	1849	G
1	2	1851	A
1	2	1861	G

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Mol	Chain	Res	Type
1	2	1864	U
1	2	1872	G

All (22) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
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	417	C
1	2	465	A
1	2	604	A
1	2	636	C
1	2	958	G
1	2	980	A
1	2	1231	C
1	2	1295	A
1	2	1304	U
1	2	1497	G
1	2	1511	U
1	2	1534	C
1	2	1565	C
1	2	1693	G
1	2	1726	G

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

1 non-standard protein/DNA/RNA residue is modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
1	G7M	2	1639	1	23,26,27	2.78	9 (39%)	34,39,42	1.88	10 (29%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	G7M	2	1639	1	-	1/7/25/26	0/3/3/3

All (9) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	2	1639	G7M	C2-N2	6.53	1.49	1.34
1	2	1639	G7M	C4-N3	6.46	1.49	1.34
1	2	1639	G7M	C2-N3	5.41	1.46	1.33
1	2	1639	G7M	C5-N7	-4.35	1.34	1.39
1	2	1639	G7M	C5-C6	3.77	1.53	1.43
1	2	1639	G7M	C2-N1	2.76	1.44	1.37
1	2	1639	G7M	O6-C6	-2.71	1.18	1.23
1	2	1639	G7M	C6-N1	2.62	1.43	1.38
1	2	1639	G7M	C8-N7	2.18	1.36	1.33

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	2	1639	G7M	C2-N3-C4	4.81	120.58	112.30
1	2	1639	G7M	C5-C6-N1	4.27	120.67	111.84
1	2	1639	G7M	C5-C4-N3	-3.88	120.81	128.15
1	2	1639	G7M	O6-C6-C5	-3.23	120.81	128.01
1	2	1639	G7M	C2-N1-C6	-3.07	119.54	125.11
1	2	1639	G7M	CN7-N7-C5	2.95	130.47	126.80
1	2	1639	G7M	N9-C4-N3	2.57	131.09	125.95
1	2	1639	G7M	CN7-N7-C8	-2.48	121.04	124.79
1	2	1639	G7M	N9-C8-N7	-2.19	107.17	112.48
1	2	1639	G7M	N1-C2-N3	-2.10	119.47	123.32

There are no chirality outliers.

All (1) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	2	1639	G7M	C3'-C4'-C5'-O5'

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 2 ligands modelled in this entry, 1 is monoatomic - leaving 1 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# $ Z > 2$	Counts	RMSZ	# $ Z > 2$
37	SAH	q	301	-	27,28,28	1.14	4 (14%)	36,40,40	2.18	10 (27%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
37	SAH	q	301	-	-	3/15/31/31	0/3/3/3

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
37	q	301	SAH	OXT-C	-2.31	1.23	1.30
37	q	301	SAH	C5-N7	-2.31	1.34	1.39
37	q	301	SAH	C2-N1	2.30	1.38	1.33
37	q	301	SAH	C2-N3	2.18	1.37	1.33

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
37	q	301	SAH	N3-C2-N1	-5.88	119.69	128.58
37	q	301	SAH	C5'-SD-CG	-4.38	89.26	102.26
37	q	301	SAH	N9-C8-N7	-4.25	107.90	113.94
37	q	301	SAH	C5-C4-N3	-4.21	120.92	126.72
37	q	301	SAH	C5-N7-C8	3.38	108.76	103.45
37	q	301	SAH	C2-N3-C4	3.34	120.00	111.83
37	q	301	SAH	N3-C4-N9	3.05	132.35	127.17
37	q	301	SAH	OXT-C-O	-2.79	117.75	124.08
37	q	301	SAH	C4-N9-C8	2.56	108.43	105.74
37	q	301	SAH	C4-C5-N7	-2.10	108.18	110.58

There are no chirality outliers.

All (3) torsion outliers are listed below:

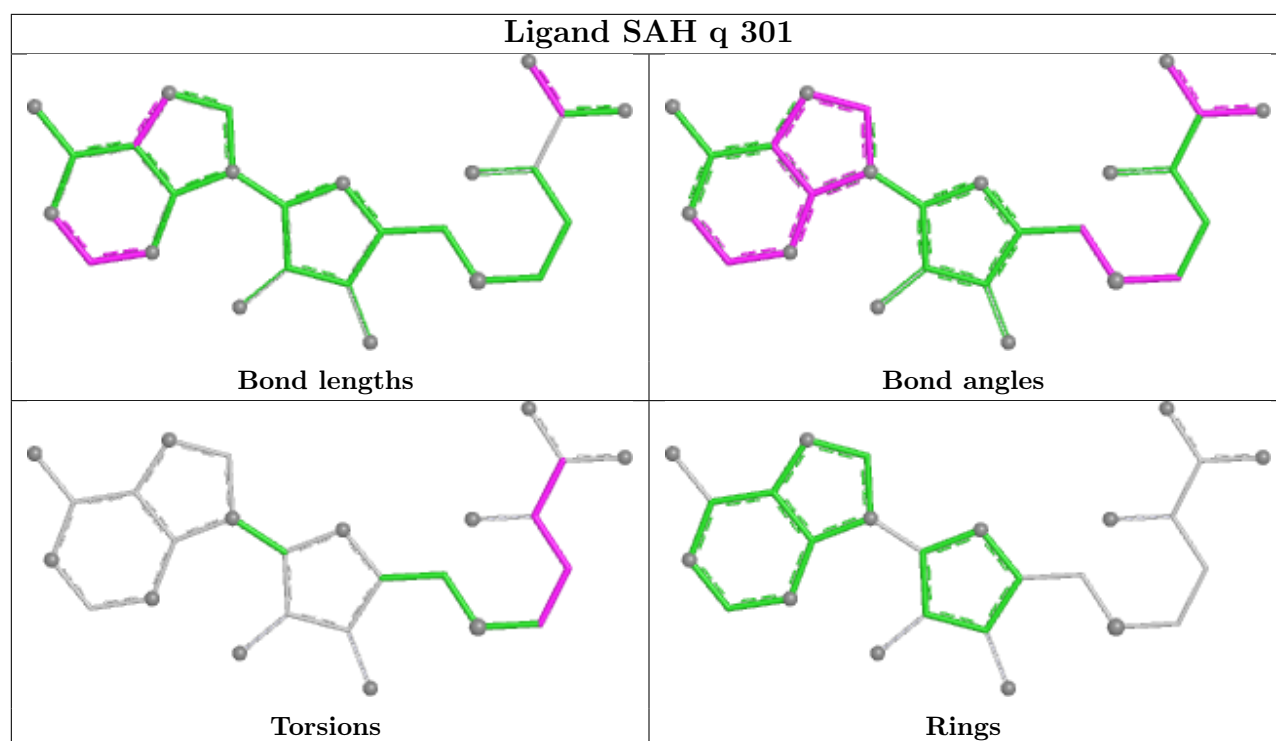
Mol	Chain	Res	Type	Atoms
37	q	301	SAH	C-CA-CB-CG
37	q	301	SAH	CA-CB-CG-SD
37	q	301	SAH	OXT-C-CA-N

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
37	q	301	SAH	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



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.

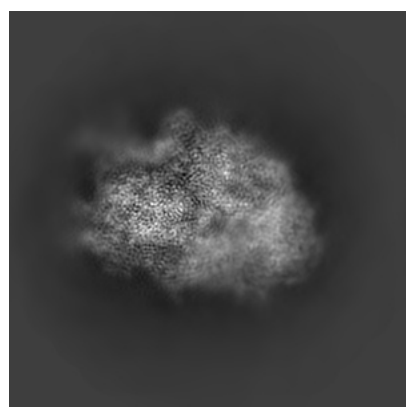
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-32802. These allow visual inspection of the internal detail of the map and identification of artifacts.

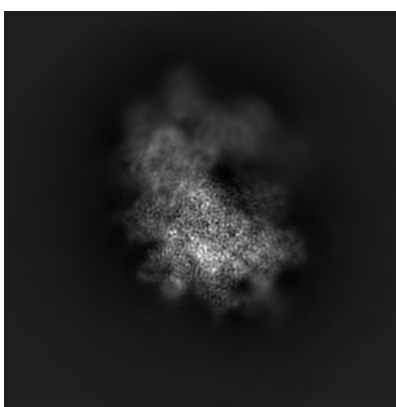
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

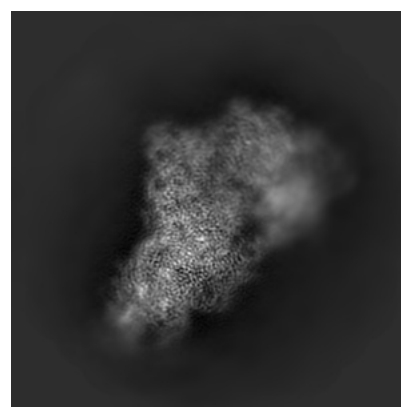
6.1.1 Primary map



X



Y

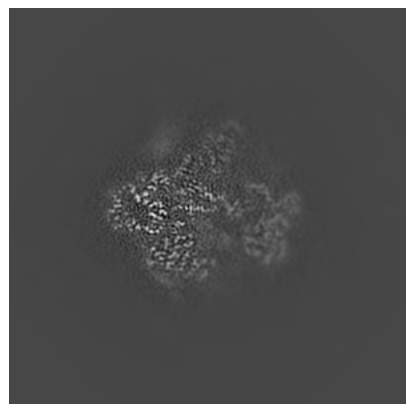


Z

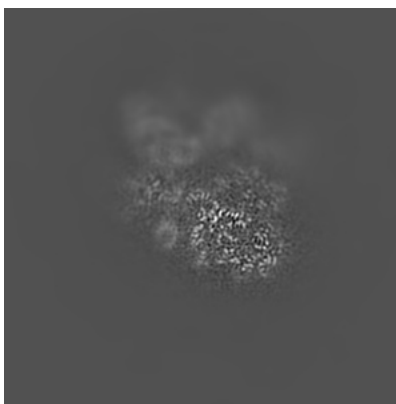
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

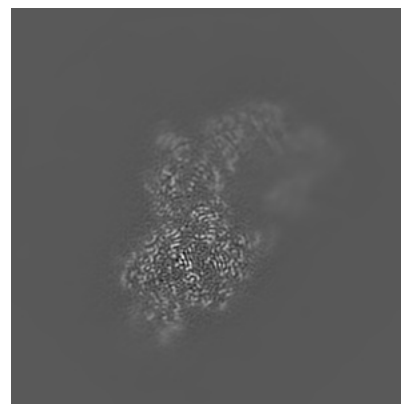
6.2.1 Primary map



X Index: 180



Y Index: 180

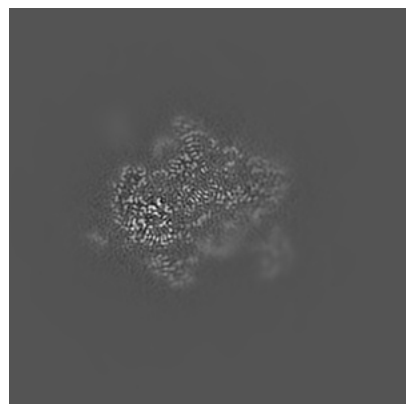


Z Index: 180

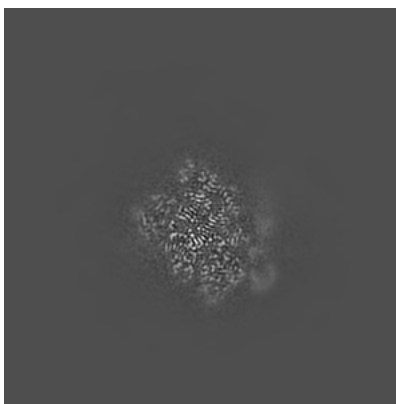
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

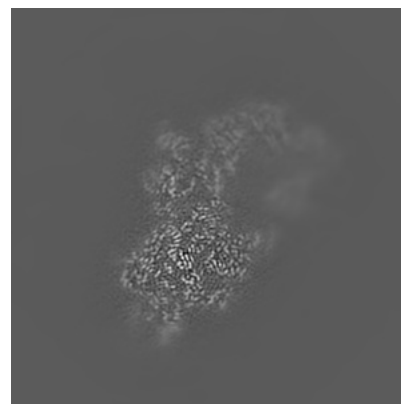
6.3.1 Primary map



X Index: 161



Y Index: 132

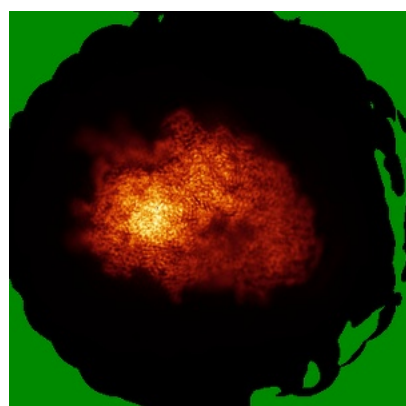


Z Index: 181

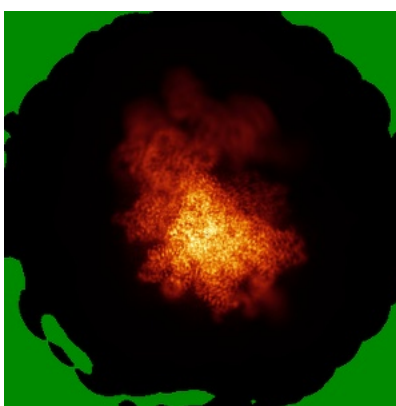
The images above show the largest variance slices of the map in three orthogonal directions.

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

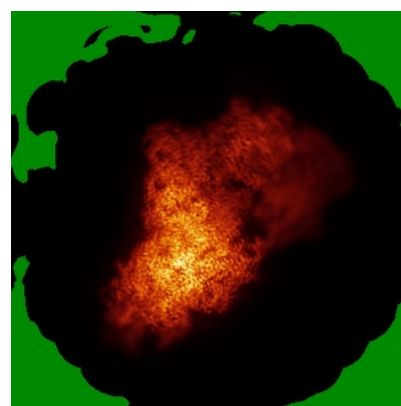
6.4.1 Primary map



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 [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.02. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

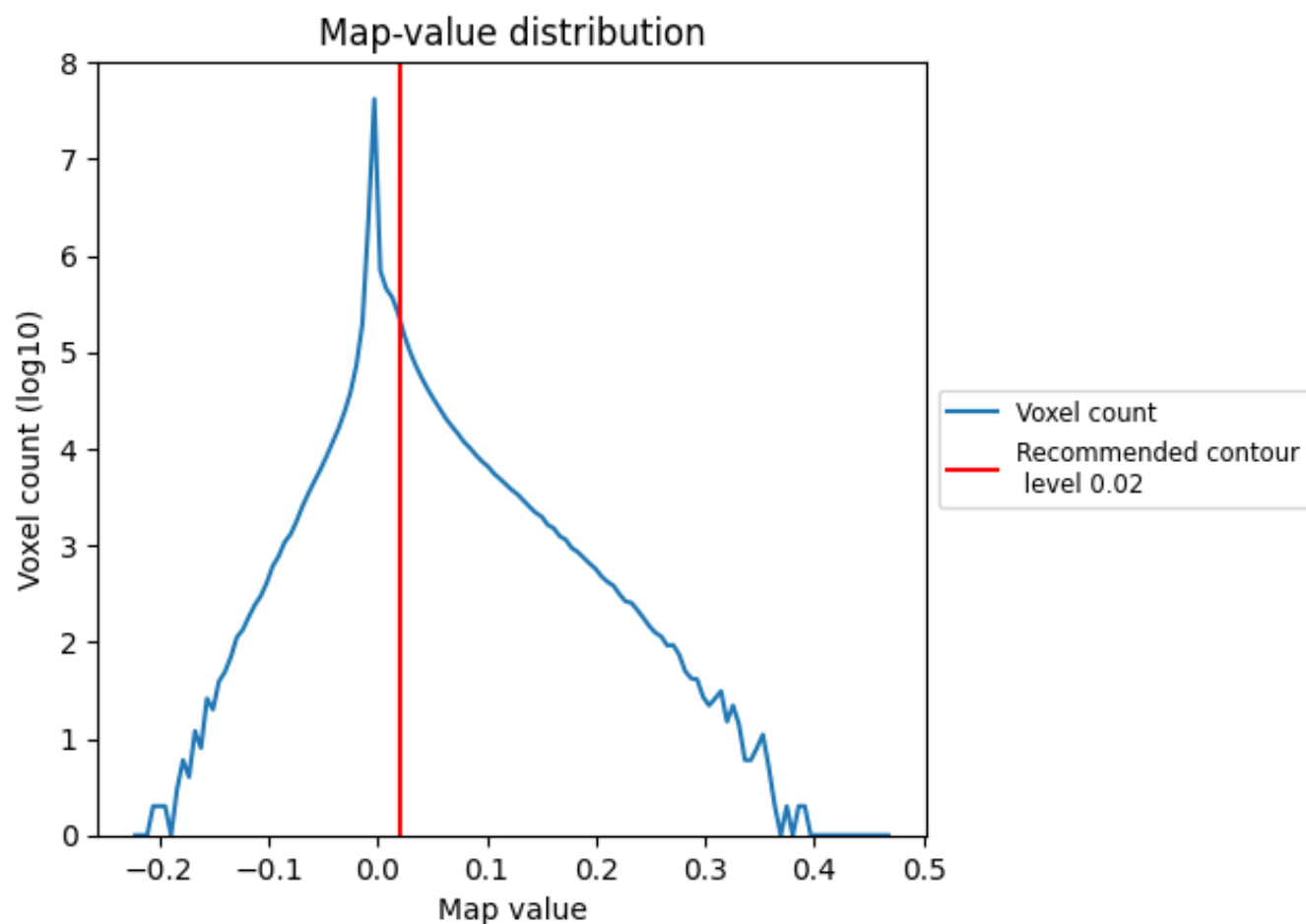
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

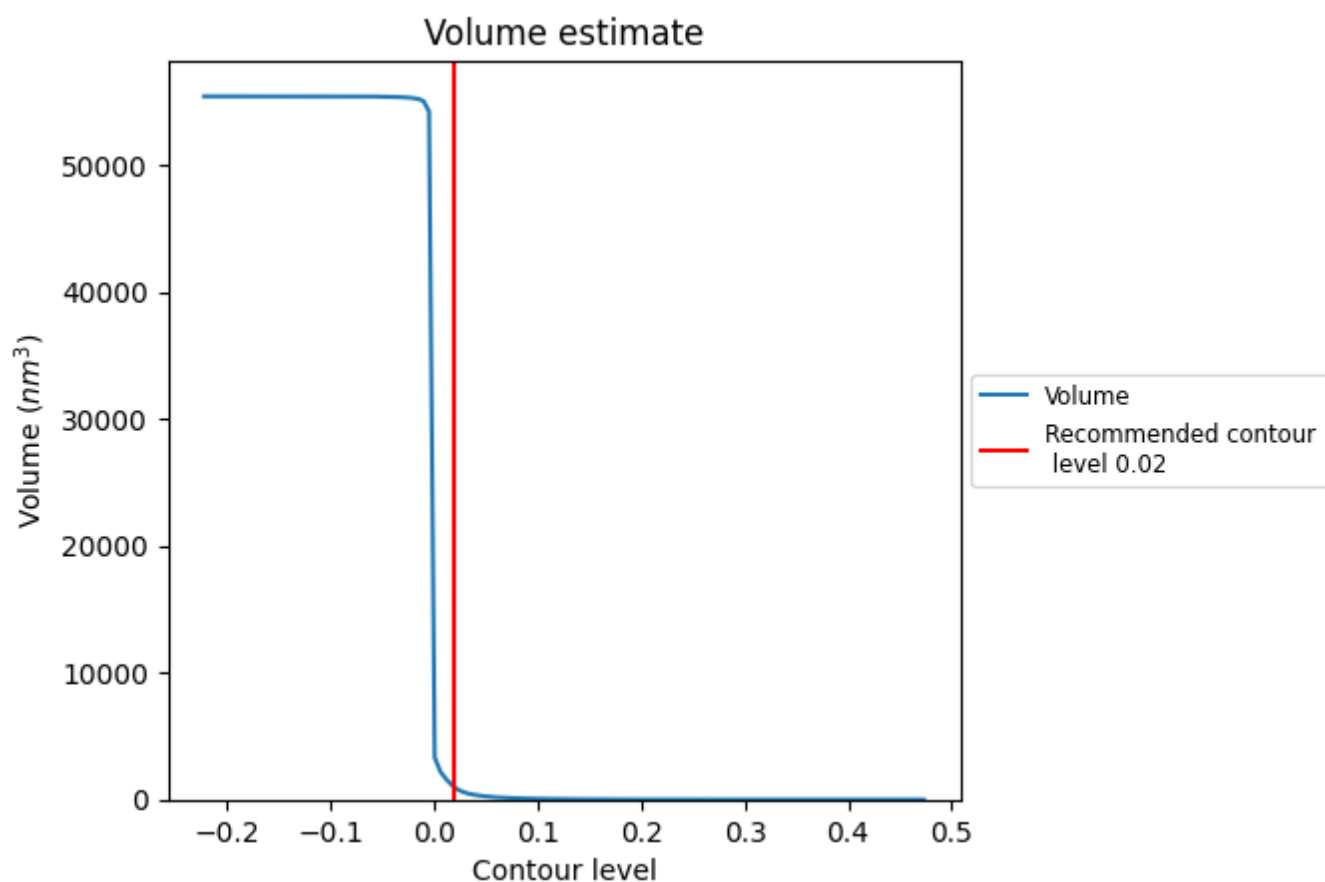
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

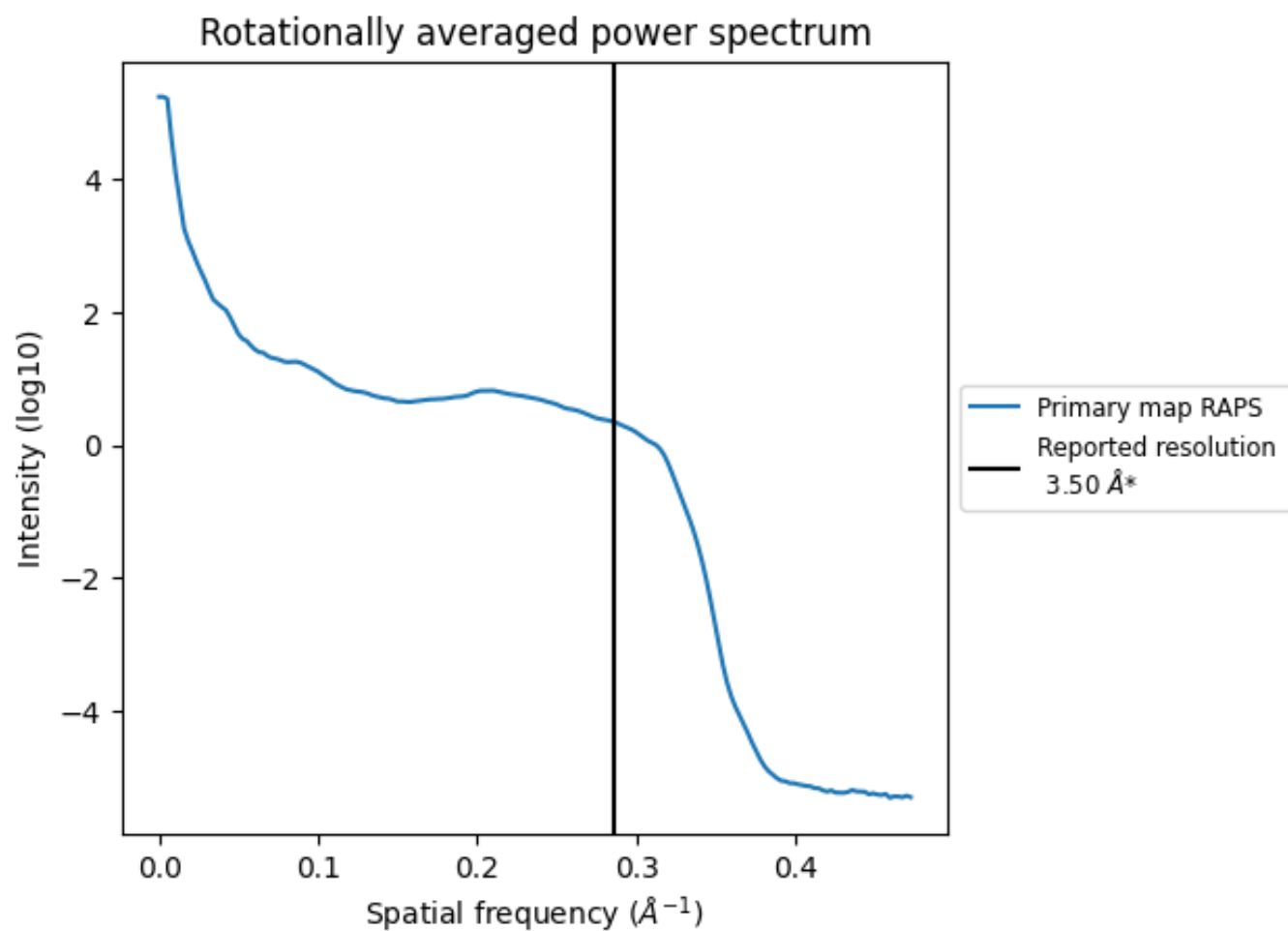
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 979 nm^3 ; this corresponds to an approximate mass of 884 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](#)

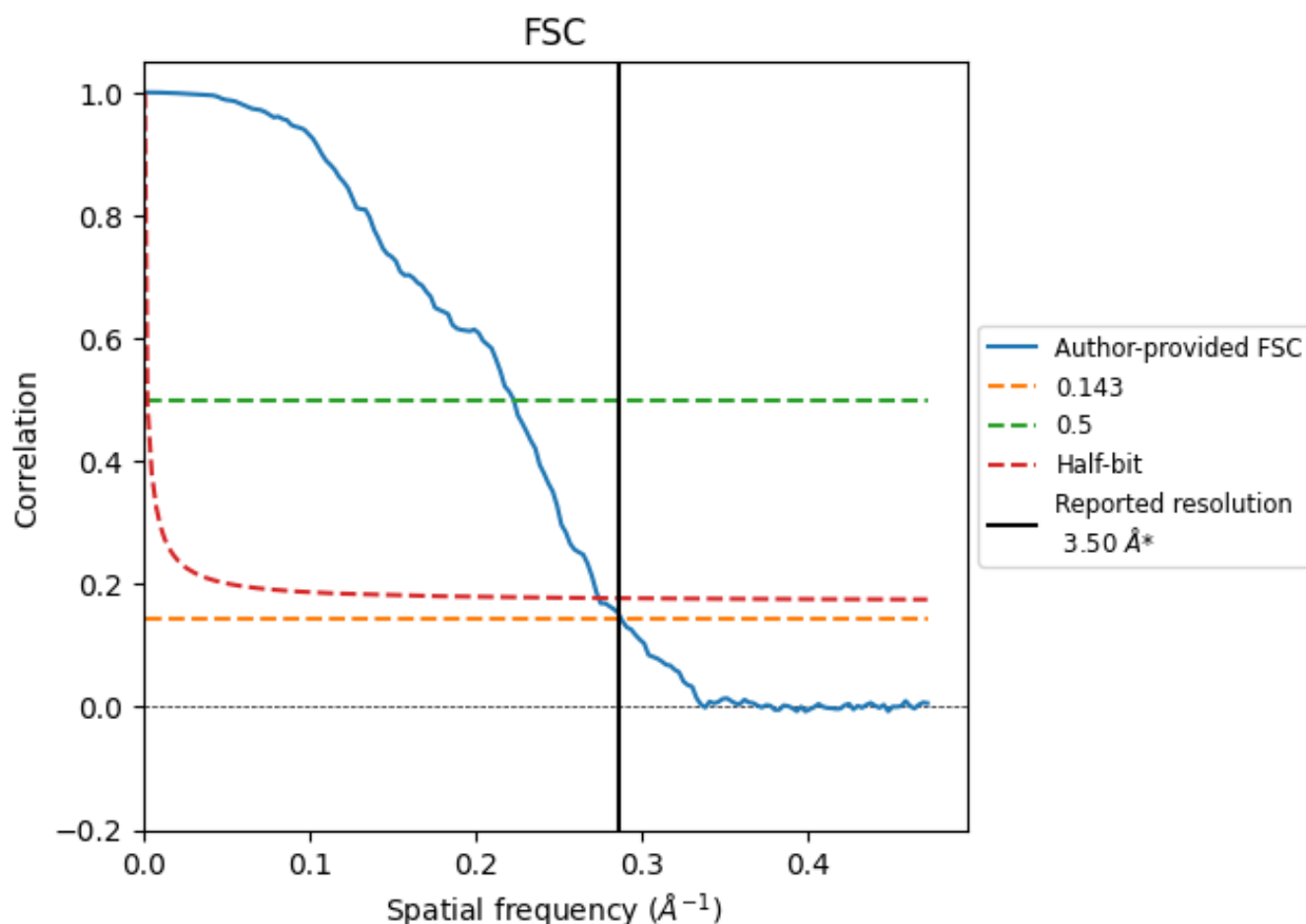


*Reported resolution corresponds to spatial frequency of 0.286 Å⁻¹

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.286 Å⁻¹

8.2 Resolution estimates [i](#)

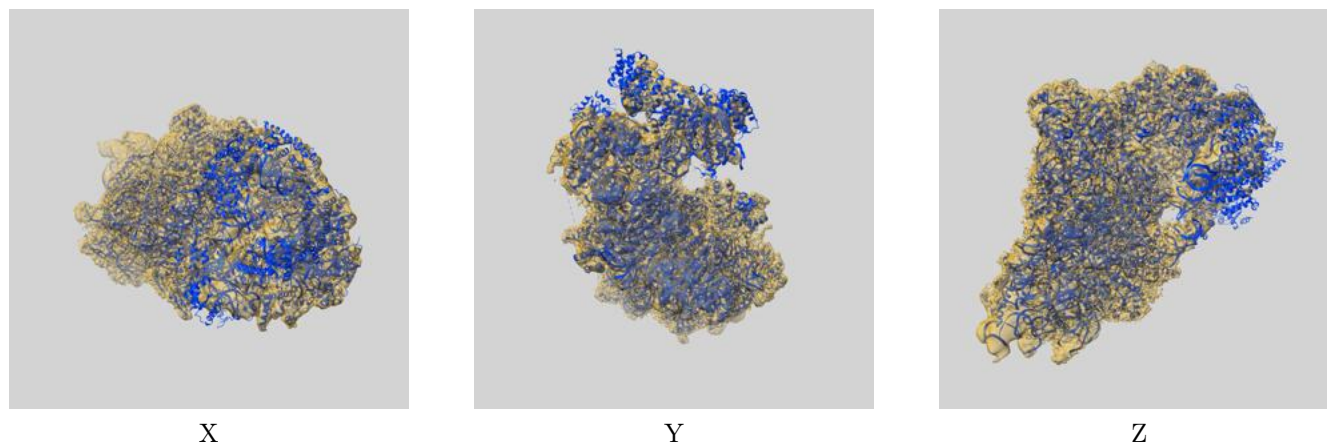
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.50	-	-
Author-provided FSC curve	3.47	4.48	3.65
Unmasked-calculated*	-	-	-

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

9 Map-model fit [i](#)

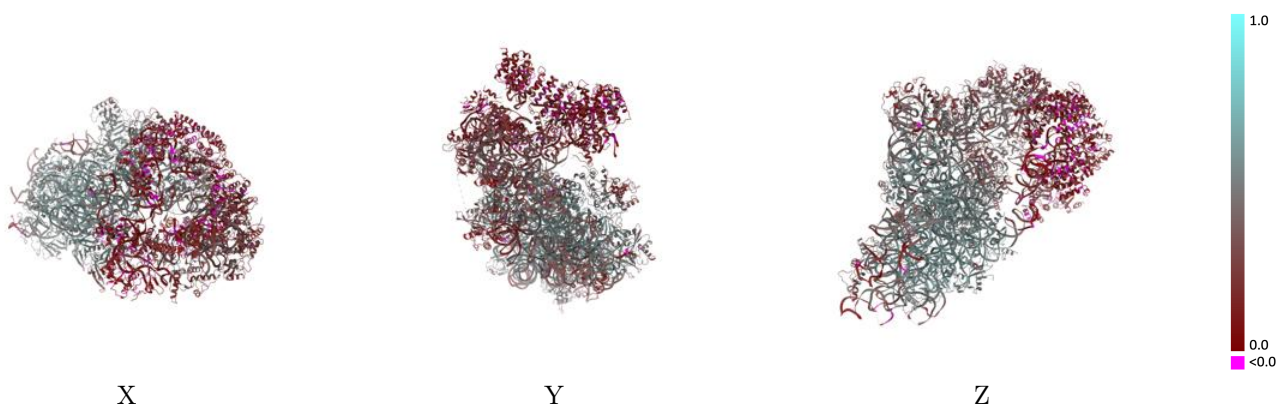
This section contains information regarding the fit between EMDB map EMD-32802 and PDB model 7WTV. Per-residue inclusion information can be found in [section 3](#) on [page 11](#).

9.1 Map-model overlay [i](#)



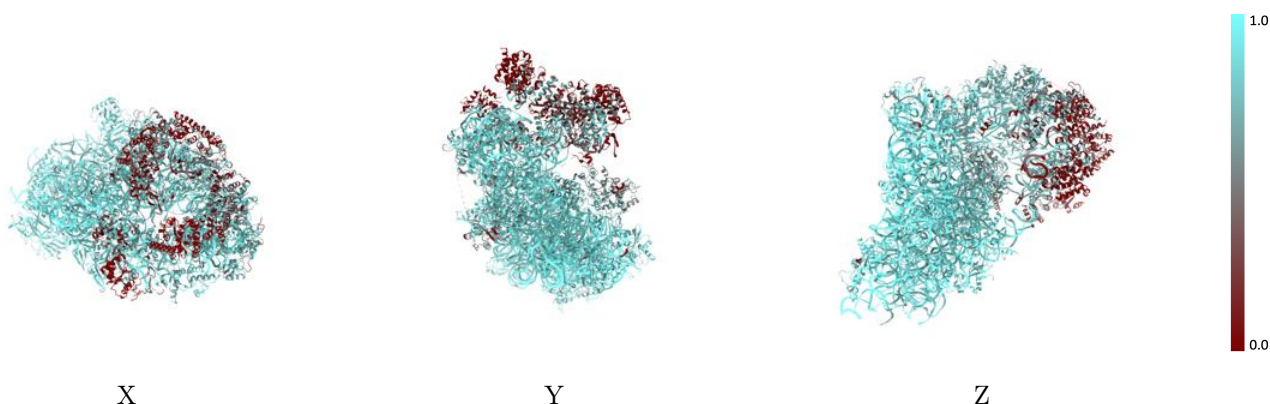
The images above show the 3D surface view of the map at the recommended contour level 0.02 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



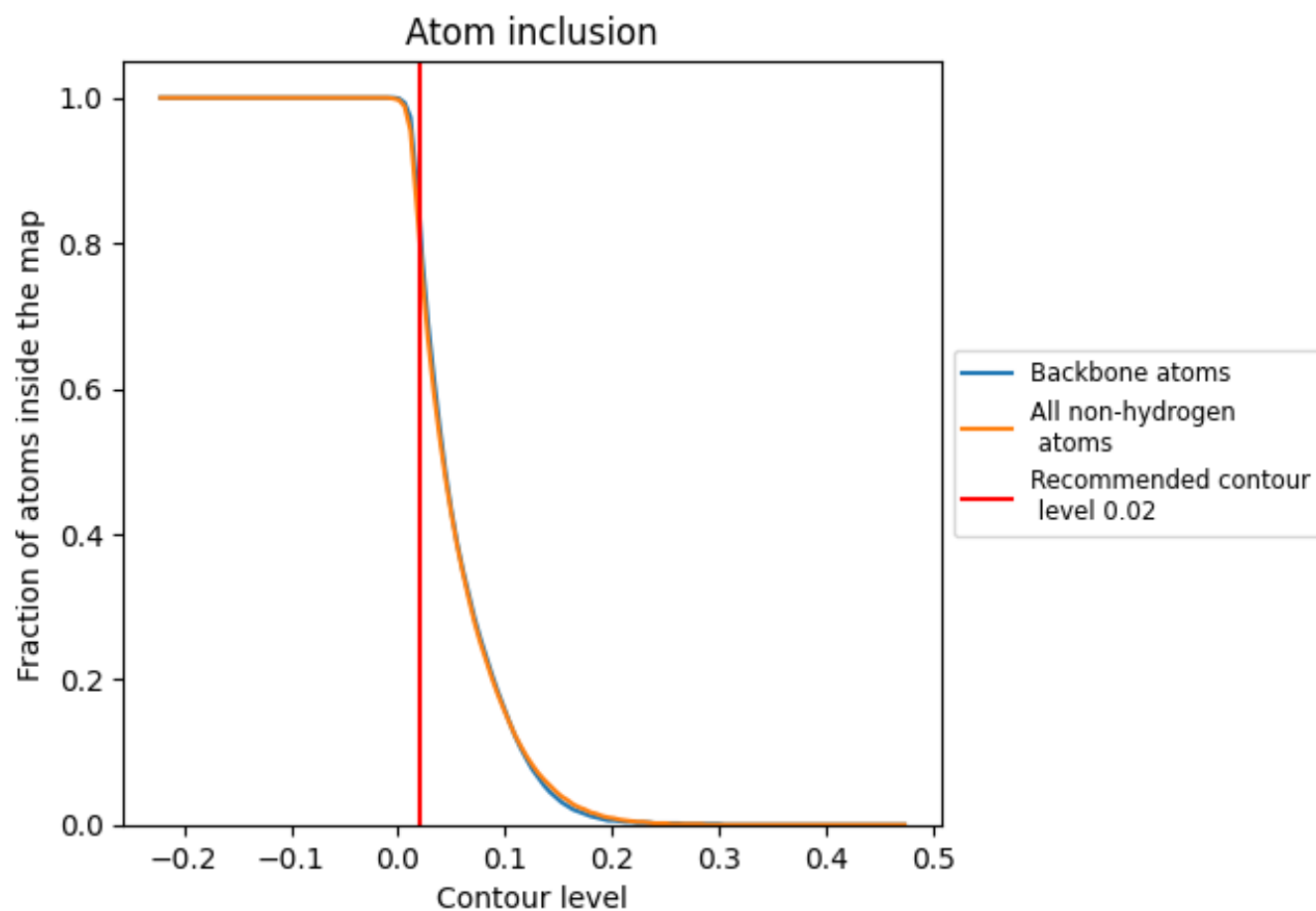
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.02).









































































9.4 Atom inclusion ⓘ



At the recommended contour level, 84% of all backbone atoms, 81% 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 (0.02) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8080	 0.3780
2	 0.9350	 0.4200
A	 0.5760	 0.3680
B	 0.8510	 0.3800
C	 0.7490	 0.4480
E	 0.9730	 0.5700
F	 0.8120	 0.3130
G	 0.9390	 0.4770
H	 0.9120	 0.4390
I	 0.9300	 0.4780
J	 0.9650	 0.5480
K	 0.3070	 0.1340
L	 0.9400	 0.5330
M	 0.0540	 0.0900
N	 0.9470	 0.4990
O	 0.8660	 0.3740
P	 0.8090	 0.2890
Q	 0.7380	 0.2690
R	 0.4880	 0.1420
S	 0.7530	 0.2760
T	 0.7620	 0.2810
V	 0.7170	 0.4530
W	 0.9800	 0.5620
X	 0.9210	 0.5240
Y	 0.9630	 0.5380
Z	 0.6540	 0.2010
b	 0.9710	 0.5110
c	 0.8460	 0.3470
e	 0.9820	 0.5500
f	 0.2860	 0.0440
q	 0.8110	 0.3510
r	 0.5260	 0.1940
u	 0.8810	 0.4490
w	 0.5150	 0.1430
x	 0.9160	 0.4260
z	 0.0000	 0.0370

