



# Full wwPDB EM Validation Report ⓘ

Nov 5, 2024 – 03:11 AM EST

PDB ID : 8G4I  
EMDB ID : EMD-29721  
Title : 40S ribosomal subunit of the 80S Giardia intestinalis assemblage A ribosome with Emetine bound in V1 conformation  
Authors : Eiler, D.R.; Wimberly, B.T.; Bilodeau, D.Y.; Rissland, O.S.; Kieft, J.S.  
Deposited on : 2023-02-09  
Resolution : 3.24 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](mailto: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.dev113  
Mogul : 2022.3.0, CSD as543be (2022)  
MolProbity : 4.02b-467  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.39

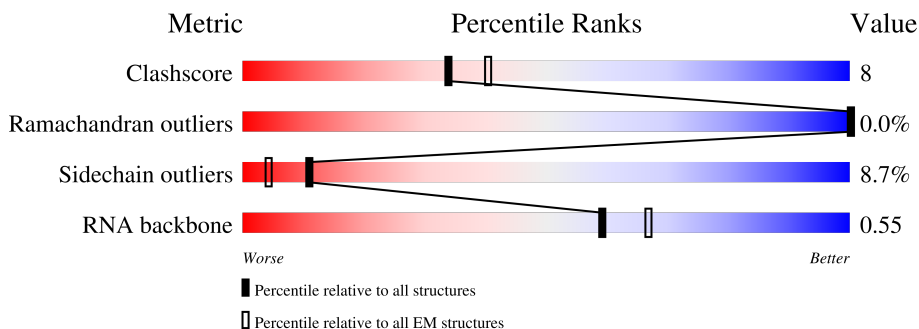
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 3.24 Å.

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



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

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 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	1451	
2	A	245	
3	B	248	
4	C	242	
5	D	217	
6	E	268	
7	F	190	

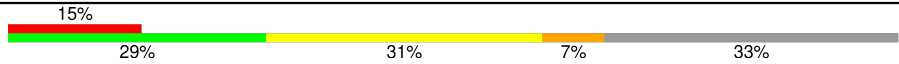

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
8	G	248	
9	H	201	
10	I	174	
11	J	189	
12	K	134	
13	L	199	
14	N	154	
15	O	145	
16	P	145	
17	Q	158	
18	R	137	
19	S	154	
20	T	158	
21	U	126	
22	V	89	
23	W	130	
24	X	143	
25	Y	132	
26	Z	88	
27	a	109	
28	b	124	
29	c	64	
30	d	137	
31	f	137	
32	g	74	

Continued on next page...

*Continued from previous page...*

Mol	Chain	Length	Quality of chain
33	M	125	
34	e	69	

## 2 Entry composition [i](#)

There are 38 unique types of molecules in this entry. The entry contains 118402 atoms, of which 51286 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	
			Total	C	H	N	O			P
1	2	1441	46630	13746	15711	5742	9991	1440	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
2	932	C	U	conflict	GB 2333213660

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

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
2	A	199	3194	1025	1608	275	278	8	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
3	B	212	3470	1092	1754	317	295	12	0	0

- Molecule 4 is a protein called Ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
4	C	209	3250	1025	1638	292	291	4	0	0

- Molecule 5 is a protein called Ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
5	D	204	3222	1013	1620	289	284	16	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
6	E	258	4204	1321	2140	378	352	13	0	0

- Molecule 7 is a protein called SSU ribosomal protein S7P (Fragment).

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
7	F	186	2905	899	1460	273	263	10	0	0

- Molecule 8 is a protein called 40S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
8	G	201	3277	1004	1680	310	275	8	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
9	H	165	2681	846	1363	227	239	6	0	0

- Molecule 10 is a protein called 40S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
10	I	167	2644	817	1338	250	236	3	0	0

- Molecule 11 is a protein called Ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
11	J	164	2706	828	1383	260	229	6	0	0

- Molecule 12 is a protein called Ribosomal protein S10B.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
12	K	104	1678	551	827	143	154	3	0	0

- Molecule 13 is a protein called SSU ribosomal protein S17P.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
13	L	170	2841	888	1436	278	232	7	0	0

- Molecule 14 is a protein called Ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
14	N	153	2532	780	1304	237	206	5	0	0

- Molecule 15 is a protein called Ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
15	O	139	2113	645	1058	210	196	4	0	0

- Molecule 16 is a protein called Ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
16	P	108	1803	560	925	171	139	8	0	0

- Molecule 17 is a protein called Ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
17	Q	158	2523	766	1293	243	217	4	0	0

- Molecule 18 is a protein called Ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
18	R	81	1349	405	699	130	113	2	0	0

- Molecule 19 is a protein called Ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
19	S	143	2294	701	1156	228	202	7	0	0

- Molecule 20 is a protein called SSU ribosomal protein S19E (Fragment).

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
20	T	137	2163	683	1089	203	185	3	0	0

- Molecule 21 is a protein called Ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
21	U	103	1634	516	824	146	144	4	0	0

- Molecule 22 is a protein called 40S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
22	V	81	1212	377	607	112	110	6	0	0

- Molecule 23 is a protein called SSU ribosomal protein S8P (Fragment).

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
23	W	129	2104	659	1074	192	176	3	0	0

- Molecule 24 is a protein called SSU ribosomal protein S12P.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
24	X	138	2231	680	1153	216	178	4	0	0

- Molecule 25 is a protein called Ribosomal protein S24.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
25	Y	122	1979	611	1014	181	166	7	0	0

- Molecule 26 is a protein called 40S ribosomal protein S25.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
26	Z	73	1182	366	605	104	101	6	0	0

- Molecule 27 is a protein called 40S ribosomal protein S26.



Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
27	a	96	1575	480	795	161	132	7	0	0

- Molecule 28 is a protein called Ribosomal protein S27.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
28	b	65	1009	327	503	86	89	4	0	0

- Molecule 29 is a protein called Ribosomal protein S28.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
29	c	60	957	293	483	91	88	2	0	0

- Molecule 30 is a protein called Ribosomal protein S29A.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
30	d	84	1309	418	639	127	118	7	0	0

- Molecule 31 is a protein called Ribosomal protein S27a.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
31	f	32	503	156	251	49	44	3	0	0

- Molecule 32 is a RNA chain called tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			P
32	g	74	2314	701	745	274	521	73	0	0

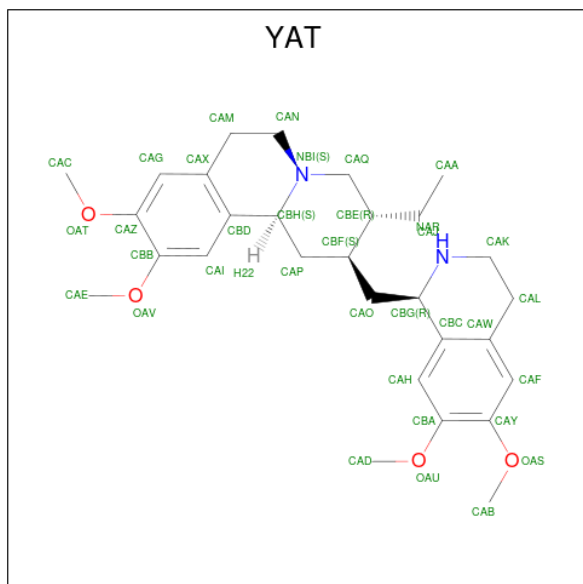
- Molecule 33 is a protein called Ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
33	M	84	1339	428	665	125	114	7	0	0

- Molecule 34 is a protein called 40S ribosomal protein S30.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	H	N	O		
34	e	48	798	246	406	80	66	0	0

- Molecule 35 is emetine (three-letter code: YAT) (formula:  $C_{29}H_{40}N_2O_4$ ) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
			Total	C	H	N	O	
35	2	1	75	29	40	2	4	0

- Molecule 36 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
			Total	Mg	
36	2	22	22	22	0
36	a	1	1	1	0

- Molecule 37 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
			Total	Zn	
37	a	1	1	1	0
37	d	1	1	1	0

- Molecule 38 is water.

Mol	Chain	Residues	Atoms	AltConf
38	2	579	Total O 579 579	0
38	B	2	Total O 2 2	0
38	C	9	Total O 9 9	0
38	D	1	Total O 1 1	0
38	E	11	Total O 11 11	0
38	F	5	Total O 5 5	0
38	G	1	Total O 1 1	0
38	I	8	Total O 8 8	0
38	K	1	Total O 1 1	0
38	L	4	Total O 4 4	0
38	N	11	Total O 11 11	0
38	O	3	Total O 3 3	0
38	P	2	Total O 2 2	0
38	Q	7	Total O 7 7	0
38	R	1	Total O 1 1	0
38	S	3	Total O 3 3	0
38	T	3	Total O 3 3	0
38	U	3	Total O 3 3	0
38	W	4	Total O 4 4	0
38	X	3	Total O 3 3	0
38	Z	2	Total O 2 2	0
38	a	8	Total O 8 8	0

*Continued on next page...*

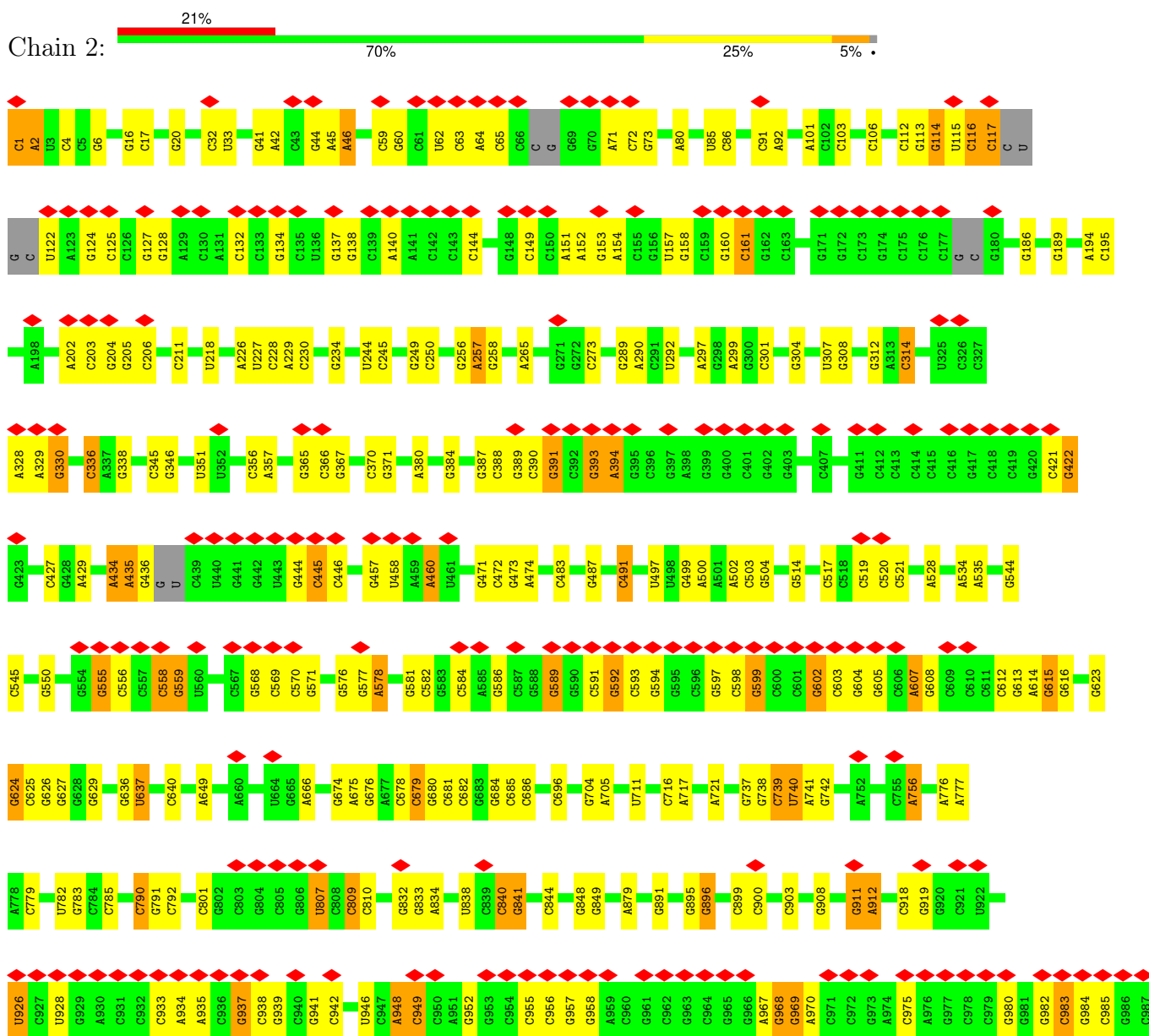
*Continued from previous page...*

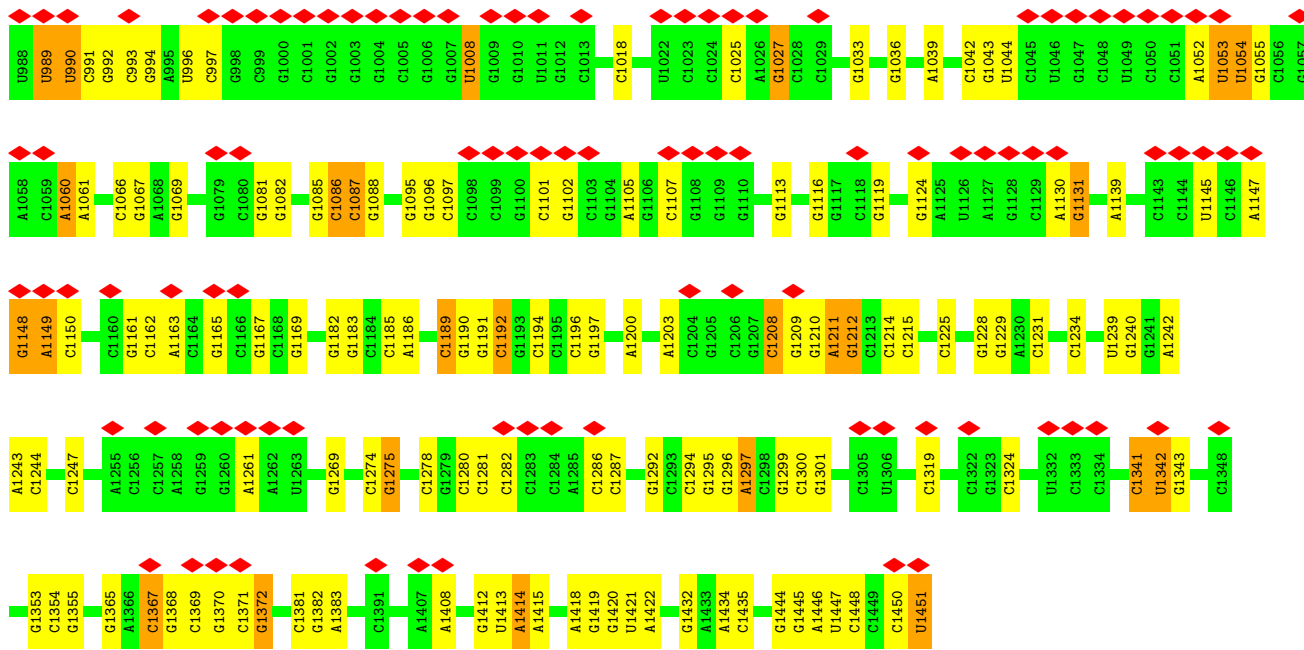
<b>Mol</b>	<b>Chain</b>	<b>Residues</b>	<b>Atoms</b>		<b>AltConf</b>
38	b	2	Total 2	O 2	0
38	d	2	Total 2	O 2	0
38	g	2	Total 2	O 2	0

### 3 Residue-property plots

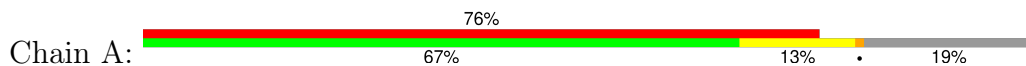
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

- Molecule 1: 18S rRNA

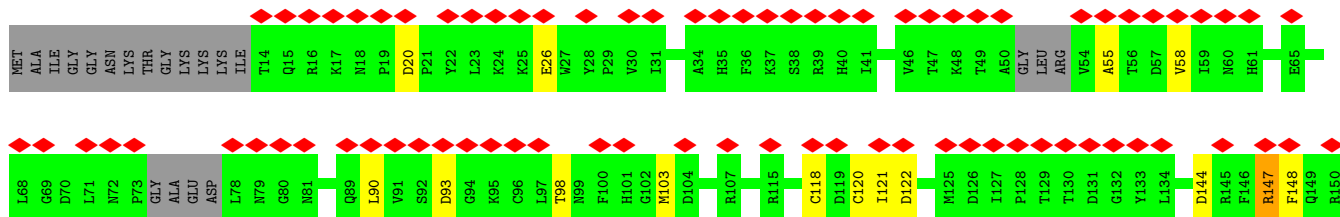
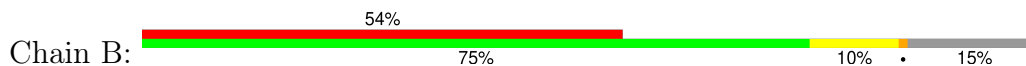


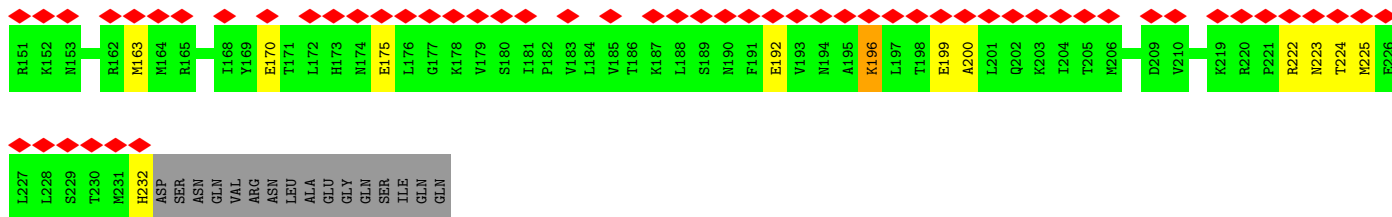


• Molecule 2: 40S ribosomal protein SA

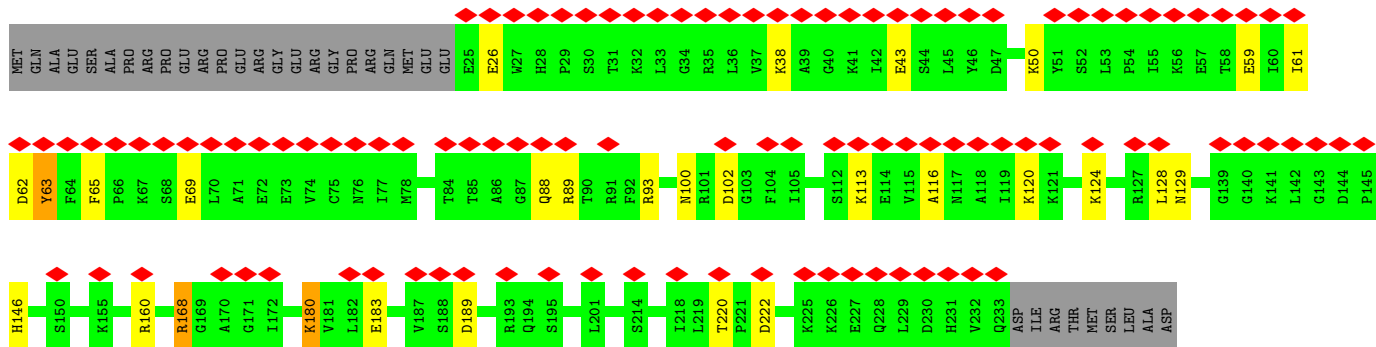
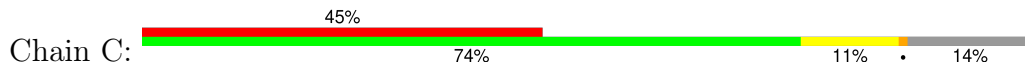


• Molecule 3: 40S ribosomal protein S3a

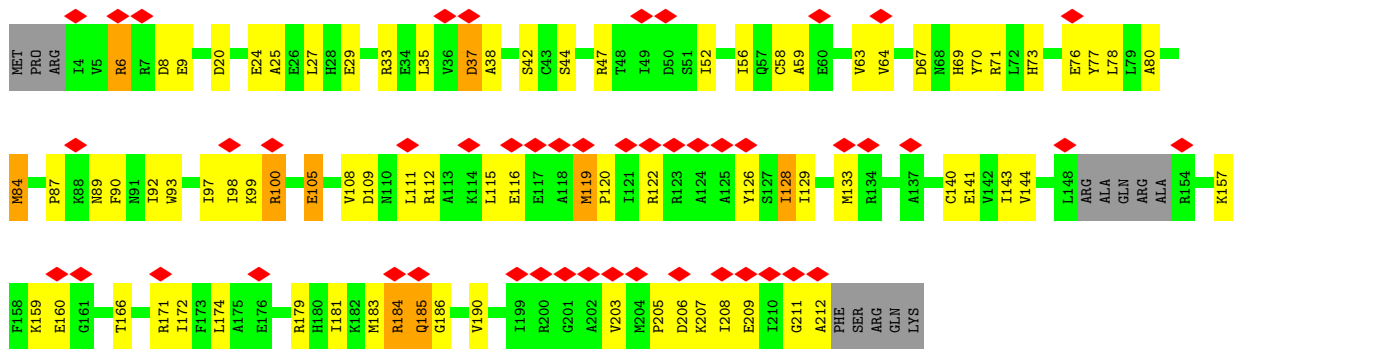




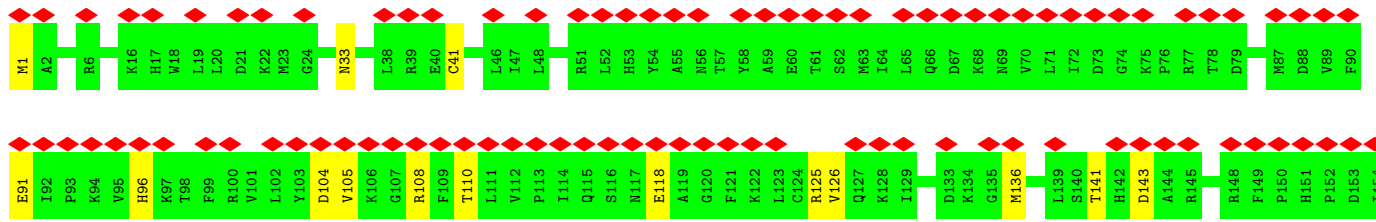
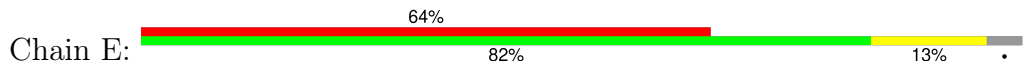
• Molecule 4: Ribosomal protein S2

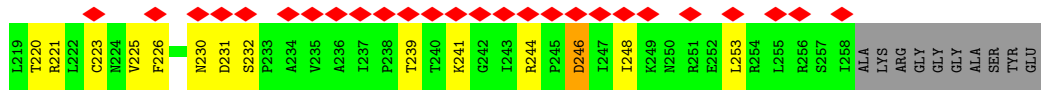
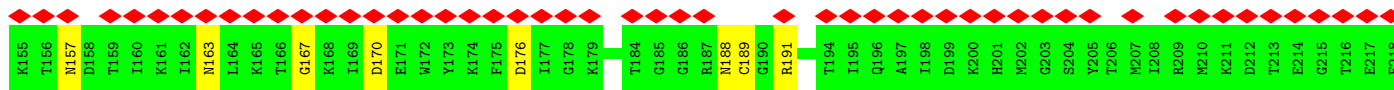


• Molecule 5: Ribosomal protein S3

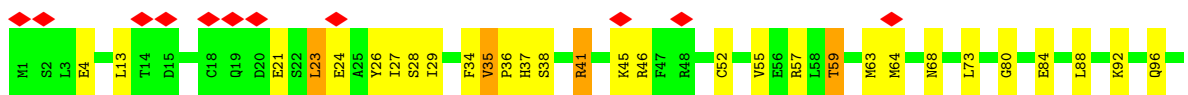


• Molecule 6: 40S ribosomal protein S4

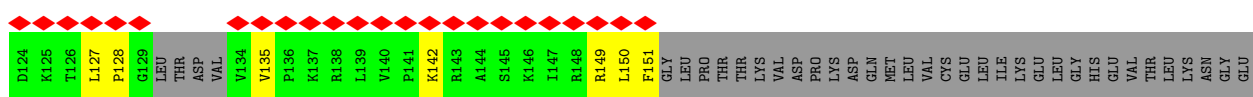
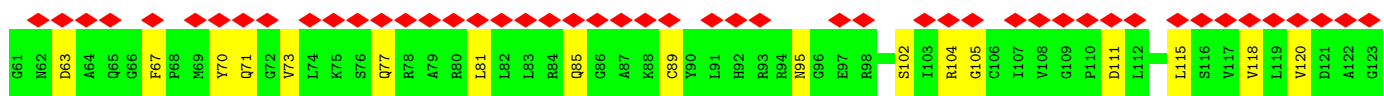
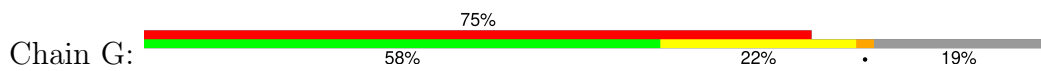




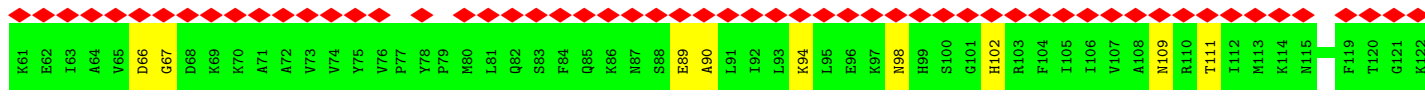
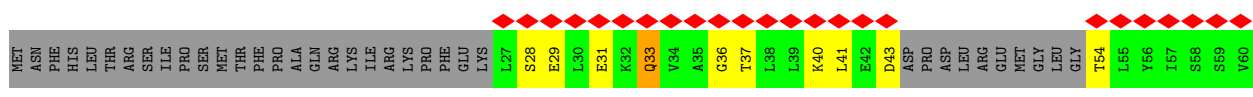
• Molecule 7: SSU ribosomal protein S7P (Fragment)



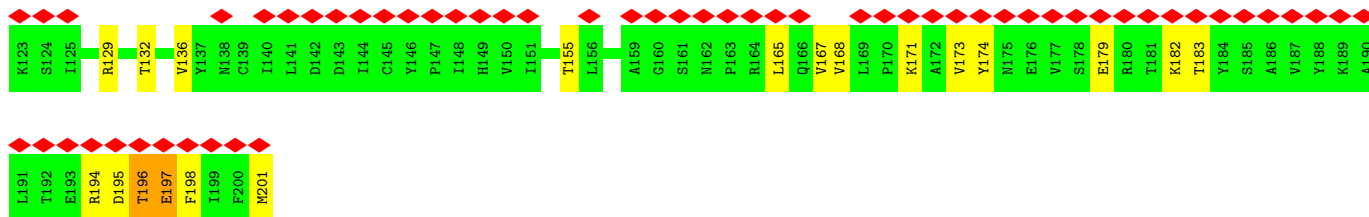
• Molecule 8: 40S ribosomal protein S6



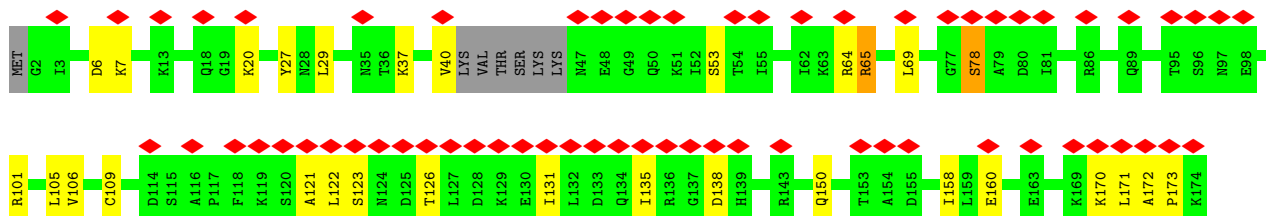
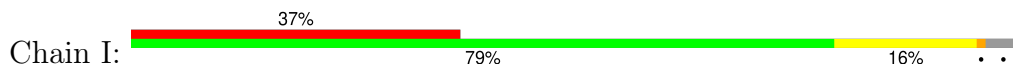
• Molecule 9: 40S ribosomal protein S7



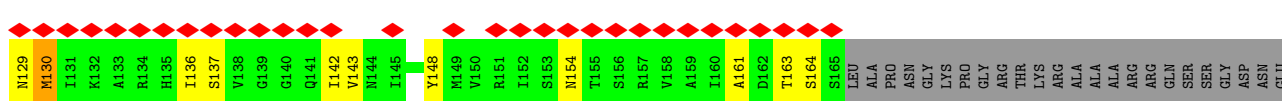




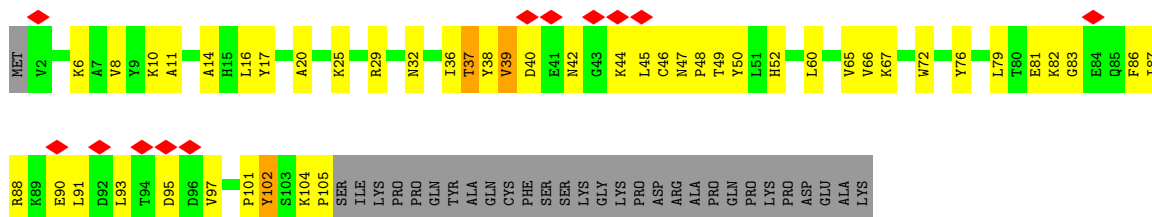
• Molecule 10: 40S ribosomal protein S8



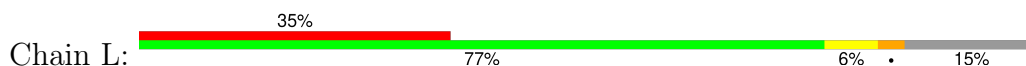
• Molecule 11: Ribosomal protein S9

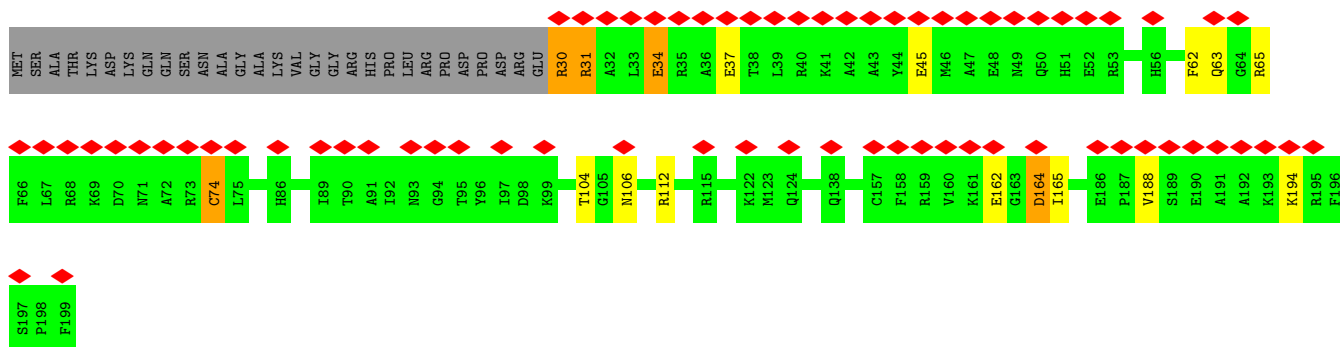


• Molecule 12: Ribosomal protein S10B

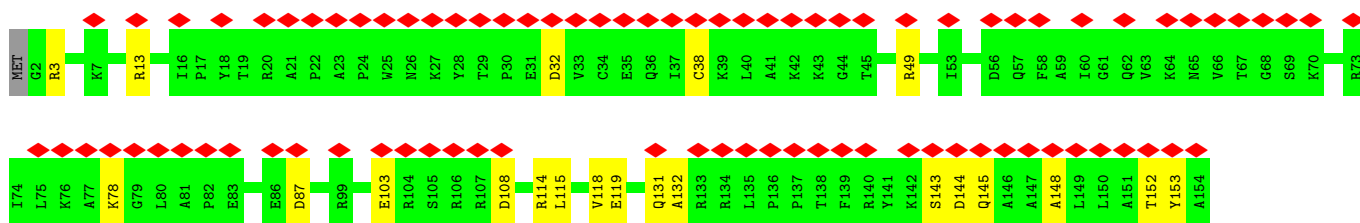
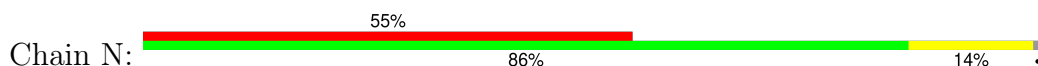


• Molecule 13: SSU ribosomal protein S17P

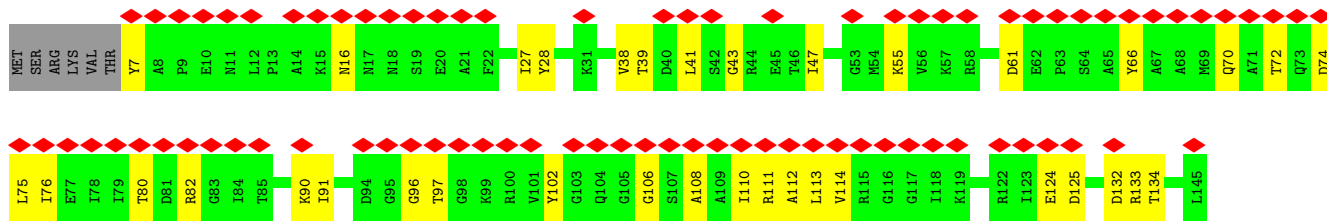




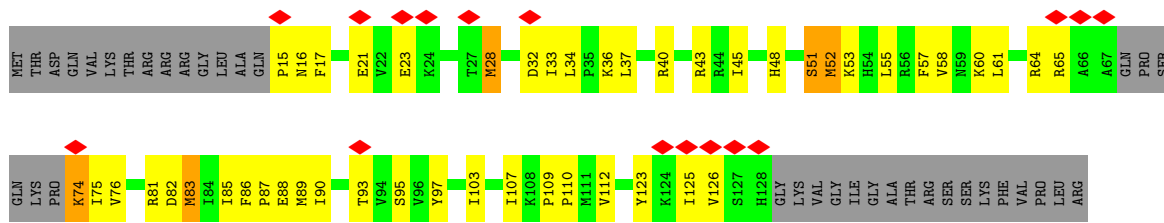
• Molecule 14: Ribosomal protein S13



• Molecule 15: Ribosomal protein S14

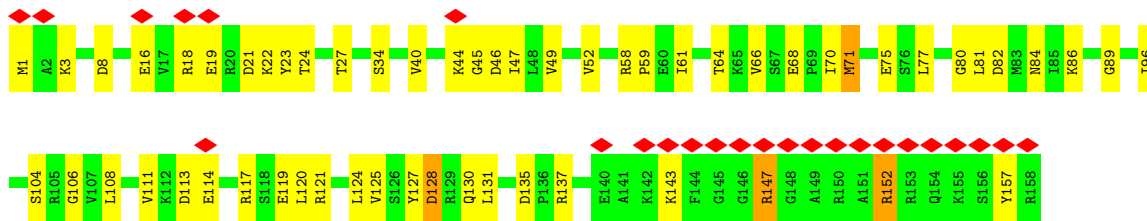


• Molecule 16: Ribosomal protein S15

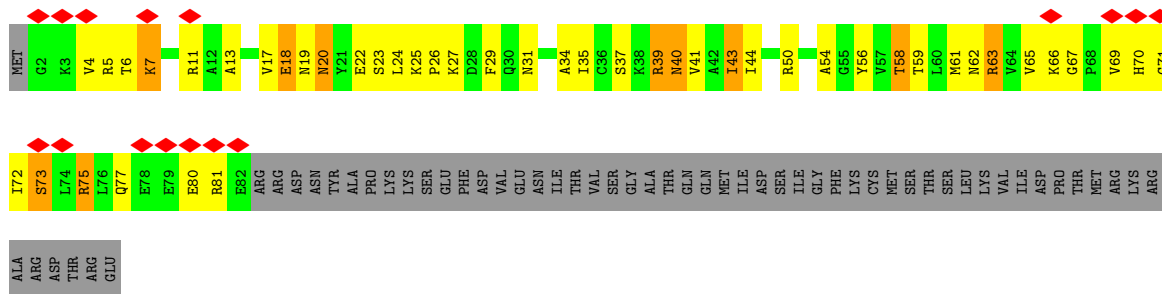
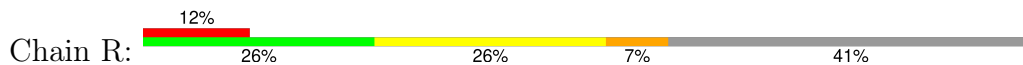


• Molecule 17: Ribosomal protein S16

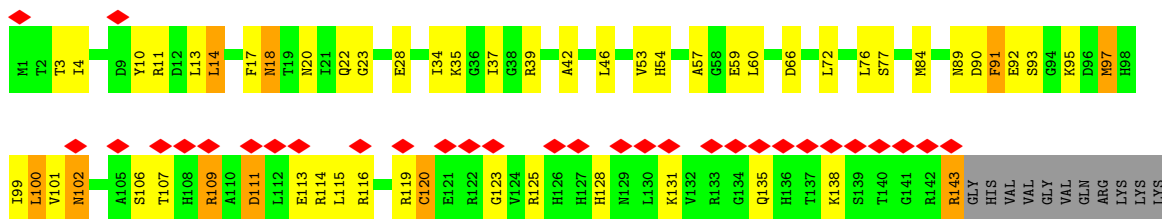




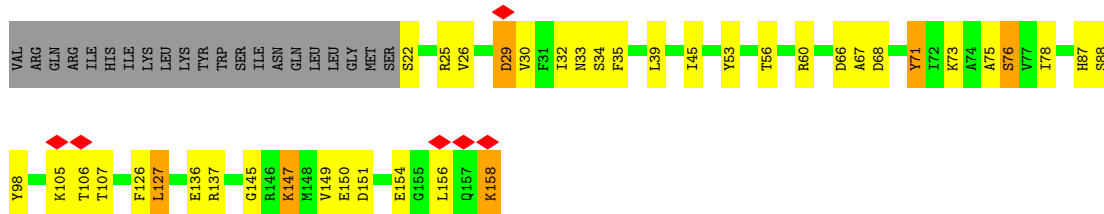
• Molecule 18: Ribosomal protein S17



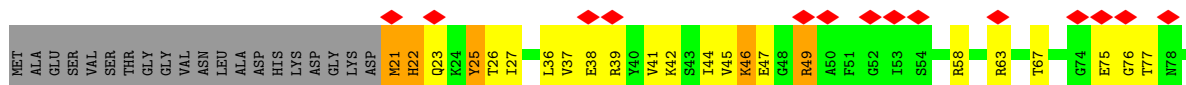
• Molecule 19: Ribosomal protein S18

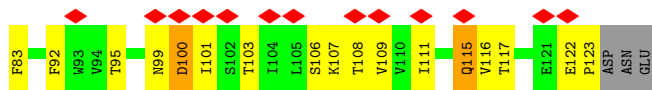


• Molecule 20: SSU ribosomal protein S19E (Fragment)

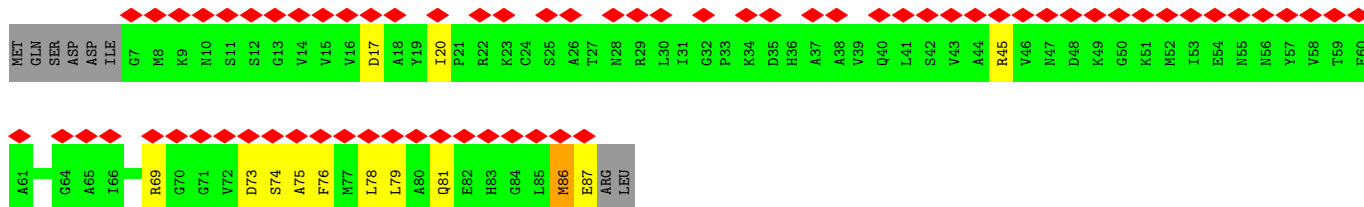
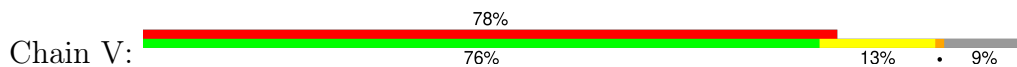


• Molecule 21: Ribosomal protein S20

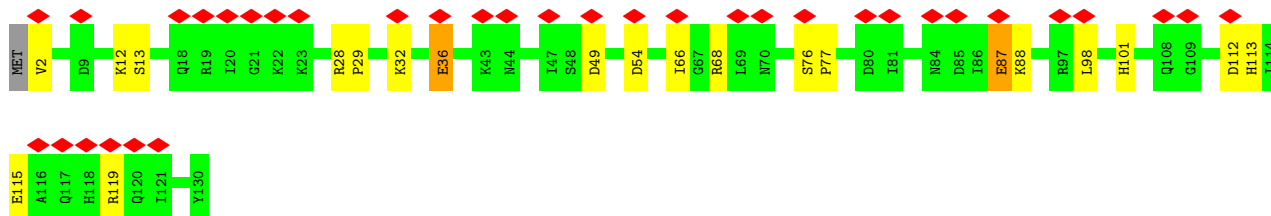
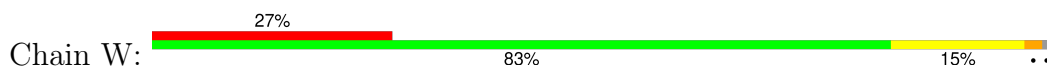




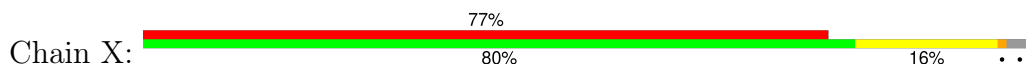
• Molecule 22: 40S ribosomal protein S21



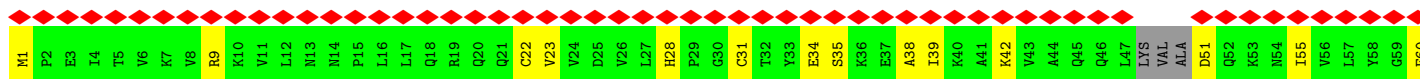
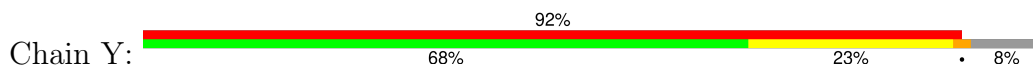
• Molecule 23: SSU ribosomal protein S8P (Fragment)

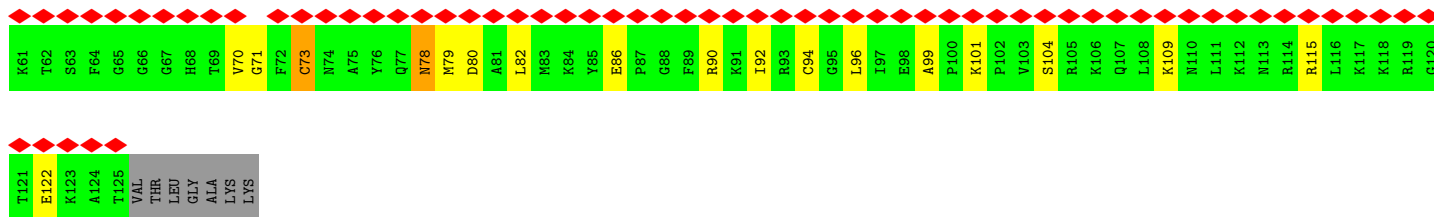


• Molecule 24: SSU ribosomal protein S12P

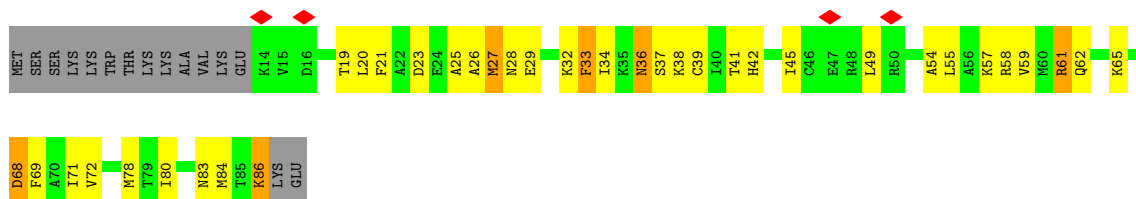


• Molecule 25: Ribosomal protein S24

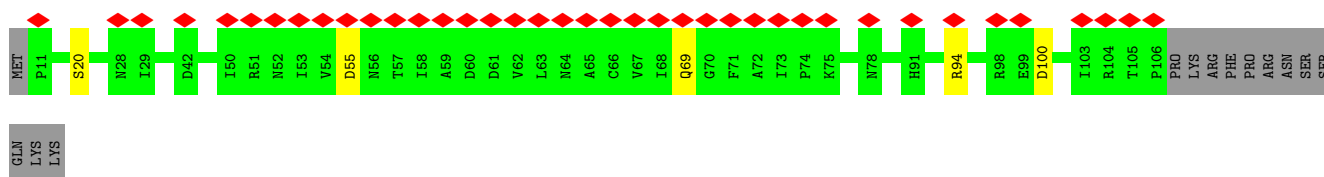
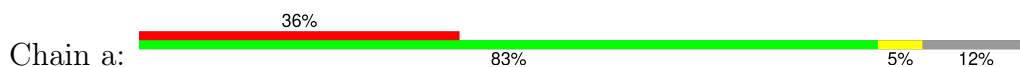




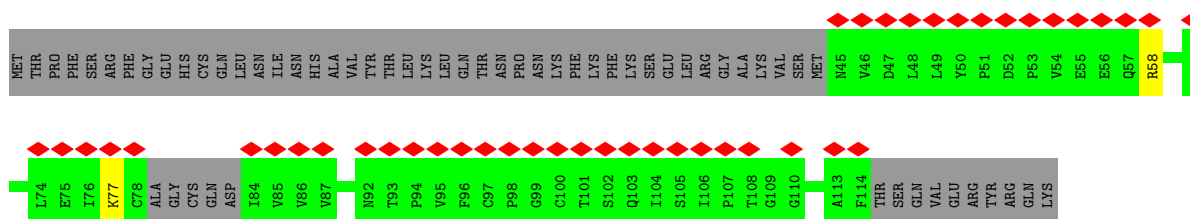
- Molecule 26: 40S ribosomal protein S25



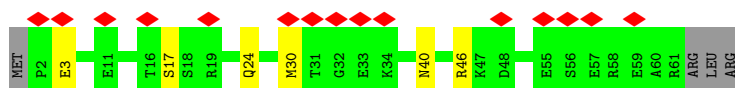
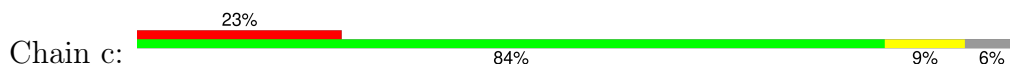
- Molecule 27: 40S ribosomal protein S26



- Molecule 28: Ribosomal protein S27

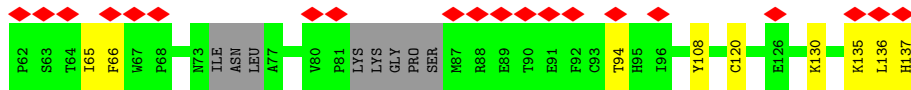
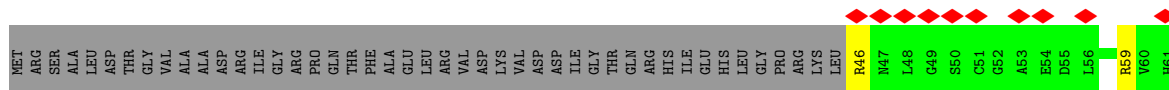


- Molecule 29: Ribosomal protein S28

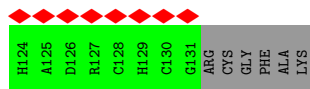
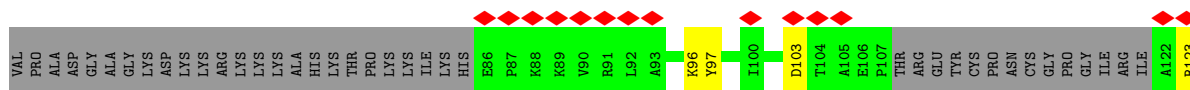
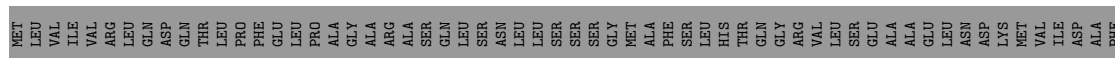


- Molecule 30: Ribosomal protein S29A

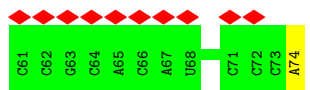
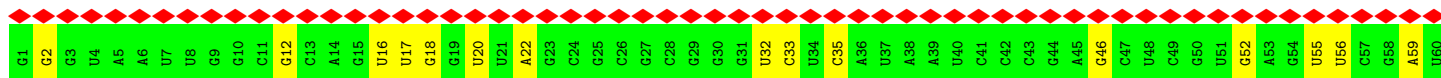
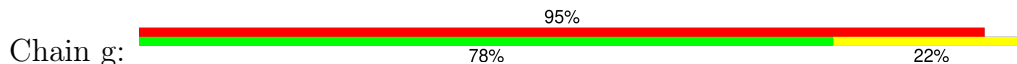




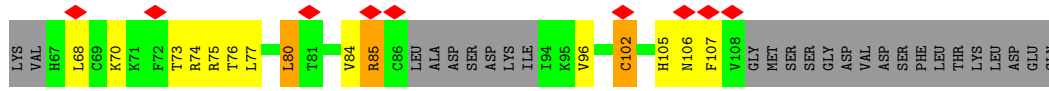
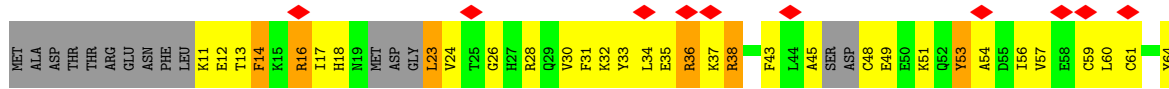
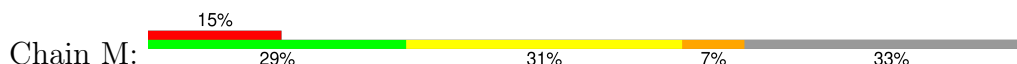
• Molecule 31: Ribosomal protein S27a



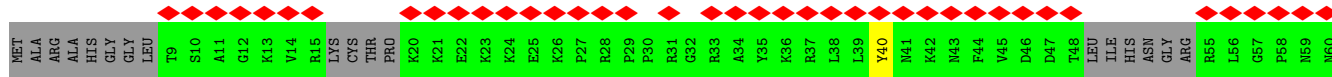
• Molecule 32: tRNA




• Molecule 33: Ribosomal protein S12



• Molecule 34: 40S ribosomal protein S30





L61	L62	L63	R64	R65	R66	LEU	GLY	PHE
-----	-----	-----	-----	-----	-----	-----	-----	-----

## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	143395	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	72.26	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	1900	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	23.022	Depositor
Minimum map value	-10.703	Depositor
Average map value	0.003	Depositor
Map value standard deviation	1.048	Depositor
Recommended contour level	4.54	Depositor
Map size (Å)	369.495, 369.495, 369.495	wwPDB
Map dimensions	450, 450, 450	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.8211, 0.8211, 0.8211	Depositor



## 5 Model quality i

### 5.1 Standard geometry i

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# $ Z  > 5$	RMSZ	# $ Z  > 5$
1	2	0.30	2/34573 (0.0%)	0.76	10/53952 (0.0%)
2	A	0.26	0/1620	0.50	0/2203
3	B	0.28	0/1749	0.55	0/2354
4	C	0.27	0/1645	0.51	0/2218
5	D	0.34	0/1627	0.57	0/2186
6	E	0.26	0/2110	0.54	0/2847
7	F	0.34	0/1467	0.58	0/1974
8	G	0.27	0/1618	0.57	0/2156
9	H	0.27	0/1341	0.50	0/1810
10	I	0.27	0/1326	0.54	0/1780
11	J	0.26	0/1341	0.58	0/1794
12	K	0.37	0/876	0.54	0/1193
13	L	0.29	0/1435	0.58	0/1919
14	N	0.28	0/1252	0.56	0/1681
15	O	0.28	0/1070	0.59	0/1436
16	P	0.35	0/893	0.62	0/1192
17	Q	0.32	0/1242	0.60	0/1660
18	R	0.34	0/656	0.59	0/875
19	S	0.32	0/1154	0.58	0/1549
20	T	0.35	0/1098	0.53	0/1476
21	U	0.32	0/826	0.60	0/1119
22	V	0.28	0/613	0.54	0/822
23	W	0.28	0/1047	0.53	0/1412
24	X	0.27	0/1092	0.60	0/1459
25	Y	0.28	0/979	0.54	0/1309
26	Z	0.33	0/583	0.54	0/777
27	a	0.28	0/792	0.57	0/1065
28	b	0.29	0/518	0.49	0/702
29	c	0.35	0/477	0.64	0/638
30	d	0.31	0/684	0.53	0/915
31	f	0.33	0/256	0.67	0/341
32	g	0.19	0/1751	0.75	0/2727

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
33	M	0.30	0/682	0.56	0/909
34	e	0.31	0/396	0.58	0/523
All	All	0.30	2/70789 (0.0%)	0.68	10/102973 (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	Q	0	1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	2	189	G	N3-C4	6.25	1.39	1.35
1	2	189	G	C5-C4	6.02	1.42	1.38

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	2	189	G	C6-N1-C2	18.65	136.29	125.10
1	2	189	G	N1-C2-N3	-12.85	116.19	123.90
1	2	189	G	C5-C6-N1	-11.61	105.69	111.50
1	2	189	G	C2-N3-C4	8.21	116.00	111.90
1	2	189	G	N3-C4-C5	-7.27	124.97	128.60
1	2	716	C	C2-N1-C1'	6.25	125.67	118.80
1	2	189	G	N3-C2-N2	5.49	123.74	119.90
1	2	189	G	C5-C6-O6	5.25	131.75	128.60
1	2	807	U	C2-N1-C1'	5.15	123.88	117.70
1	2	996	U	C2-N1-C1'	5.11	123.83	117.70

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
17	Q	58	ARG	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	30919	15711	15718	215	0
2	A	1586	1608	1613	24	0
3	B	1716	1754	1760	15	0
4	C	1612	1638	1645	18	0
5	D	1602	1620	1623	63	0
6	E	2064	2140	2151	15	0
7	F	1445	1460	1472	46	0
8	G	1597	1680	1686	26	0
9	H	1318	1363	1370	21	0
10	I	1306	1338	1349	16	0
11	J	1323	1383	1395	20	0
12	K	851	827	833	39	0
13	L	1405	1436	1443	12	0
14	N	1228	1304	1308	8	0
15	O	1055	1058	1068	22	0
16	P	878	925	938	41	0
17	Q	1230	1293	1306	40	0
18	R	650	699	704	39	0
19	S	1138	1156	1169	43	0
20	T	1074	1089	1101	27	0
21	U	810	824	830	28	0
22	V	605	607	612	5	0
23	W	1030	1074	1082	12	0
24	X	1078	1153	1166	9	0
25	Y	965	1014	1020	22	0
26	Z	577	605	617	26	0
27	a	780	795	808	0	0
28	b	506	503	510	0	0
29	c	474	483	503	0	0
30	d	670	639	642	0	0
31	f	252	251	252	0	0
32	g	1569	745	798	0	0
33	M	674	665	669	42	0
34	e	392	406	416	0	0
35	2	35	40	0	0	0
36	2	22	0	0	0	0
36	a	1	0	0	0	0

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
37	a	1	0	0	0	0
37	d	1	0	0	0	0
38	2	579	0	0	56	0
38	B	2	0	0	0	0
38	C	9	0	0	2	0
38	D	1	0	0	0	0
38	E	11	0	0	0	0
38	F	5	0	0	5	0
38	G	1	0	0	0	0
38	I	8	0	0	3	0
38	K	1	0	0	0	0
38	L	4	0	0	1	0
38	N	11	0	0	0	0
38	O	3	0	0	0	0
38	P	2	0	0	1	0
38	Q	7	0	0	2	0
38	R	1	0	0	0	0
38	S	3	0	0	0	0
38	T	3	0	0	3	0
38	U	3	0	0	1	0
38	W	4	0	0	1	0
38	X	3	0	0	0	0
38	Z	2	0	0	2	0
38	a	8	0	0	0	0
38	b	2	0	0	0	0
38	d	2	0	0	0	0
38	g	2	0	0	0	0
All	All	67116	51286	51577	829	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 8.

All (829) 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)
15:O:102:TYR:OH	15:O:125:ASP:OD1	1.84	0.94
1:2:1102:G:N2	1:2:1105:A:OP2	2.04	0.89
1:2:257:A:O2'	1:2:258:G:O4'	1.90	0.89
1:2:297:A:OP2	6:E:1:MET:N	2.05	0.89
17:Q:23:TYR:OH	17:Q:84:ASN:OD1	1.90	0.89
12:K:10:LYS:NZ	12:K:90:GLU:OE1	2.05	0.89

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1191:G:O2'	1:2:1192:C:OP2	1.90	0.87
1:2:678:C:O2'	15:O:132:ASP:OD2	1.92	0.86
5:D:211:GLY:O	18:R:19:ASN:ND2	2.07	0.86
20:T:29:ASP:O	20:T:33:ASN:ND2	2.07	0.86
7:F:113:ARG:NH2	7:F:114:ILE:O	2.08	0.86
6:E:141:THR:OG1	6:E:143:ASP:OD1	1.93	0.85
19:S:10:TYR:OH	19:S:23:GLY:O	1.91	0.85
5:D:109:ASP:OD1	5:D:179:ARG:NH1	2.10	0.85
17:Q:44:LYS:NZ	17:Q:45:GLY:O	2.10	0.85
25:Y:28:HIS:ND1	25:Y:31:CYS:O	2.10	0.85
26:Z:32:LYS:NZ	26:Z:36:ASN:OD1	2.10	0.84
7:F:110:ASP:OD1	7:F:111:SER:N	2.10	0.84
1:2:555:G:N2	1:2:558:C:O2	2.11	0.82
9:H:31:GLU:OE1	9:H:31:GLU:N	2.12	0.82
1:2:928:U:O4	38:2:1601:HOH:O	1.96	0.82
1:2:218:U:O2	13:L:112:ARG:NH1	2.13	0.82
20:T:30:VAL:O	38:T:201:HOH:O	1.98	0.82
1:2:591:C:N4	38:2:1630:HOH:O	2.12	0.81
1:2:384:G:OP2	38:2:1603:HOH:O	1.98	0.81
1:2:918:C:OP1	38:2:1601:HOH:O	1.99	0.81
1:2:1211:A:O2'	1:2:1212:G:OP2	2.00	0.80
18:R:22:GLU:OE2	18:R:22:GLU:N	2.14	0.80
7:F:180:ASN:OD1	38:F:201:HOH:O	1.98	0.80
1:2:1420:G:OP2	38:2:1604:HOH:O	1.99	0.79
19:S:143:ARG:H	19:S:143:ARG:HD2	1.46	0.79
1:2:63:C:OP1	8:G:142:LYS:NZ	2.15	0.79
7:F:126:ASP:OD1	38:F:202:HOH:O	2.00	0.79
1:2:741:A:OP2	38:2:1606:HOH:O	2.01	0.79
7:F:183:GLU:O	7:F:187:VAL:HG23	1.83	0.79
23:W:112:ASP:OD1	23:W:113:HIS:N	2.15	0.79
4:C:220:THR:OG1	4:C:222:ASP:OD1	2.01	0.78
26:Z:84:MET:O	38:Z:101:HOH:O	2.01	0.78
1:2:629:G:O6	38:2:1608:HOH:O	2.02	0.78
1:2:933:C:OP2	1:2:934:A:O2'	2.02	0.78
17:Q:40:VAL:O	38:Q:201:HOH:O	2.00	0.78
1:2:550:G:N7	38:2:1638:HOH:O	2.16	0.78
1:2:739:C:O2'	1:2:740:U:OP2	2.01	0.78
6:E:125:ARG:NH2	6:E:157:ASN:OD1	2.17	0.77
7:F:187:VAL:O	7:F:190:ARG:HG2	1.83	0.77
1:2:393:G:O2'	1:2:394:A:O4'	2.02	0.77
10:I:158:ILE:O	38:I:201:HOH:O	2.03	0.77

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:336:C:O2'	1:2:338:G:OP1	2.01	0.77
1:2:487:G:OP2	38:2:1607:HOH:O	2.02	0.77
5:D:63:VAL:O	5:D:71:ARG:NH2	2.18	0.76
15:O:55:LYS:NZ	15:O:74:ASP:OD2	2.18	0.76
33:M:48:CYS:SG	33:M:49:GLU:N	2.57	0.76
12:K:83:GLY:O	12:K:87:ILE:HD12	1.85	0.76
1:2:72:C:O2	1:2:132:C:O2'	2.04	0.76
1:2:1042:C:O2'	1:2:1061:A:OP2	2.03	0.76
1:2:640:C:O2'	1:2:740:U:OP1	2.01	0.75
21:U:25:TYR:HA	21:U:123:PRO:HA	1.69	0.75
1:2:1209:G:OP2	1:2:1209:G:N2	2.20	0.75
5:D:160:GLU:N	5:D:160:GLU:OE2	2.20	0.75
1:2:429:A:OP1	38:2:1609:HOH:O	2.04	0.74
1:2:299:A:N7	38:2:1644:HOH:O	2.19	0.74
18:R:73:SER:OG	18:R:75:ARG:NH1	2.20	0.74
1:2:390:C:OP2	38:2:1613:HOH:O	2.05	0.74
4:C:168:ARG:O	11:J:55:ARG:NH2	2.19	0.74
1:2:1169:G:O2'	1:2:1287:C:OP1	2.05	0.74
1:2:1415:A:OP2	38:2:1604:HOH:O	2.06	0.74
19:S:97:MET:SD	19:S:97:MET:N	2.61	0.74
1:2:446:C:OP1	38:2:1612:HOH:O	2.05	0.74
33:M:57:VAL:O	33:M:61:CYS:N	2.20	0.74
1:2:427:C:O2'	38:2:1610:HOH:O	2.04	0.74
2:A:33:ARG:NH1	2:A:51:THR:OG1	2.20	0.74
8:G:196:THR:OG1	8:G:198:GLU:OE1	2.05	0.74
24:X:109:GLY:O	24:X:119:ARG:NH1	2.21	0.74
1:2:103:C:O2'	1:2:245:C:O2	2.05	0.74
1:2:514:G:OP2	38:2:1611:HOH:O	2.05	0.73
5:D:140:CYS:SG	5:D:141:GLU:N	2.61	0.73
10:I:40:VAL:O	38:I:202:HOH:O	2.06	0.73
7:F:127:VAL:O	38:F:202:HOH:O	2.05	0.73
26:Z:38:LYS:NZ	26:Z:83:ASN:O	2.21	0.73
1:2:1131:G:OP2	38:2:1615:HOH:O	2.07	0.73
1:2:491:C:OP1	38:2:1614:HOH:O	2.06	0.72
11:J:161:ALA:O	11:J:164:SER:OG	2.06	0.72
1:2:154:A:OP2	38:2:1617:HOH:O	2.07	0.72
9:H:33:GLN:O	9:H:37:THR:HG23	1.89	0.72
1:2:1299:G:OP1	38:2:1616:HOH:O	2.07	0.72
18:R:34:ALA:O	18:R:37:SER:OG	2.04	0.72
1:2:393:G:O2'	1:2:394:A:O5'	2.08	0.71
5:D:35:LEU:HD13	5:D:64:VAL:HG22	1.71	0.71

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:F:21:GLU:N	7:F:21:GLU:OE1	2.23	0.71
1:2:1018:C:OP2	38:2:1618:HOH:O	2.07	0.71
3:B:20:ASP:OD2	15:O:7:TYR:OH	2.05	0.71
4:C:180:LYS:NZ	4:C:183:GLU:OE1	2.23	0.71
7:F:179:ARG:NE	38:F:201:HOH:O	2.24	0.71
33:M:11:LYS:N	33:M:80:LEU:HD21	2.06	0.71
1:2:205:G:O6	8:G:210:LYS:NZ	2.23	0.71
1:2:1242:A:O2'	16:P:82:ASP:OD2	2.09	0.70
12:K:16:LEU:O	12:K:20:ALA:N	2.24	0.70
1:2:968:G:O2'	1:2:969:G:OP1	2.09	0.70
10:I:150:GLN:OE1	38:I:203:HOH:O	2.09	0.70
1:2:1042:C:OP2	38:2:1622:HOH:O	2.09	0.70
20:T:34:SER:OG	38:T:201:HOH:O	1.97	0.70
20:T:145:GLY:O	20:T:149:VAL:HG23	1.91	0.70
12:K:42:ASN:ND2	12:K:46:CYS:SG	2.64	0.69
25:Y:78:ASN:OD1	25:Y:80:ASP:N	2.25	0.69
1:2:1192:C:O3'	38:2:1623:HOH:O	2.10	0.69
1:2:134:G:N3	38:2:1654:HOH:O	2.24	0.69
8:G:63:ASP:OD1	8:G:67:PHE:N	2.24	0.69
1:2:20:G:N3	38:2:1660:HOH:O	2.26	0.69
16:P:15:PRO:HB2	19:S:92:GLU:OE2	1.93	0.69
1:2:1008:U:OP2	38:2:1620:HOH:O	2.09	0.69
20:T:66:ASP:OD1	20:T:67:ALA:N	2.26	0.69
5:D:73:HIS:HB3	12:K:105:PRO:HG2	1.74	0.69
1:2:937:G:O2'	1:2:1287:C:O2'	2.11	0.69
1:2:756:A:OP2	38:2:1628:HOH:O	2.12	0.68
8:G:26:ASP:OD1	8:G:28:ARG:N	2.25	0.68
1:2:387:G:O2'	1:2:422:G:N2	2.26	0.68
1:2:1422:A:OP2	38:2:1624:HOH:O	2.10	0.68
7:F:121:ARG:NH1	7:F:122:ARG:O	2.26	0.68
5:D:119:MET:SD	5:D:120:PRO:HD2	2.34	0.68
1:2:113:G:O2'	1:2:114:G:OP1	2.10	0.68
1:2:194:A:N7	38:2:1661:HOH:O	2.26	0.68
1:2:528:A:OP2	38:2:1625:HOH:O	2.10	0.68
1:2:1355:G:O2'	1:2:1383:A:N6	2.27	0.68
24:X:77:ASN:O	24:X:78:SER:OG	2.12	0.68
1:2:46:A:OP2	38:2:1626:HOH:O	2.11	0.68
17:Q:24:THR:OG1	38:Q:201:HOH:O	2.12	0.68
22:V:86:MET:SD	22:V:86:MET:N	2.66	0.68
16:P:23:GLU:N	16:P:23:GLU:OE1	2.26	0.68
16:P:57:PHE:O	16:P:61:LEU:HD12	1.94	0.68

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:122:U:O4	1:2:202:A:N6	2.28	0.67
16:P:125:ILE:HD12	16:P:125:ILE:O	1.94	0.67
1:2:32:C:OP2	38:2:1627:HOH:O	2.11	0.67
1:2:989:U:O2'	1:2:990:U:OP1	2.13	0.67
5:D:64:VAL:O	5:D:71:ARG:NE	2.27	0.67
1:2:85:U:O4	38:2:1621:HOH:O	2.09	0.67
1:2:903:C:OP2	38:2:1632:HOH:O	2.13	0.67
13:L:104:THR:OG1	38:L:201:HOH:O	2.13	0.67
5:D:76:GLU:OE1	12:K:105:PRO:HB2	1.95	0.67
7:F:171:ASP:OD2	7:F:180:ASN:ND2	2.27	0.67
19:S:89:ASN:OD1	19:S:90:ASP:N	2.28	0.66
33:M:45:ALA:O	33:M:70:LYS:NZ	2.28	0.66
1:2:289:G:OP2	38:2:1635:HOH:O	2.14	0.66
4:C:146:HIS:ND1	4:C:189:ASP:OD2	2.22	0.66
4:C:89:ARG:NH1	38:C:301:HOH:O	2.27	0.66
10:I:6:ASP:OD1	10:I:7:LYS:N	2.27	0.66
1:2:1239:U:O2'	1:2:1282:C:O2'	2.13	0.66
10:I:78:SER:OG	10:I:160:GLU:OE1	2.12	0.66
12:K:49:THR:OG1	12:K:52:HIS:ND1	2.28	0.66
1:2:86:C:OP2	1:2:290:A:O2'	2.14	0.66
1:2:483:C:OP2	38:2:1631:HOH:O	2.12	0.66
6:E:91:GLU:N	6:E:91:GLU:OE1	2.24	0.66
19:S:111:ASP:OD1	19:S:114:ARG:NH2	2.28	0.66
20:T:34:SER:N	38:T:201:HOH:O	2.28	0.65
1:2:106:C:N3	38:2:1667:HOH:O	2.29	0.65
1:2:211:C:O2	6:E:33:ASN:ND2	2.30	0.65
16:P:65:ARG:NH1	38:P:201:HOH:O	2.29	0.65
1:2:993:C:OP1	33:M:32:LYS:NZ	2.20	0.65
5:D:67:ASP:OD2	12:K:102:TYR:OH	2.13	0.65
19:S:37:ILE:HD11	19:S:100:LEU:HD21	1.77	0.65
17:Q:66:VAL:HG13	17:Q:96:ILE:HG23	1.77	0.65
1:2:497:U:OP1	38:2:1633:HOH:O	2.13	0.65
2:A:45:ASP:OD1	2:A:46:ARG:N	2.29	0.64
19:S:28:GLU:OE2	19:S:39:ARG:NE	2.30	0.64
5:D:52:ILE:HD12	5:D:52:ILE:O	1.97	0.64
15:O:132:ASP:OD1	15:O:133:ARG:N	2.31	0.64
1:2:218:U:O4	38:2:1634:HOH:O	2.14	0.64
21:U:26:THR:N	21:U:122:GLU:O	2.30	0.64
1:2:785:C:HO2'	23:W:2:VAL:N	1.96	0.64
17:Q:46:ASP:OD1	17:Q:47:ILE:N	2.31	0.64
7:F:55:VAL:O	7:F:59:THR:HG23	1.97	0.64

*Continued on next page...*



*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:M:36:ARG:O	33:M:38:ARG:NH1	2.30	0.64
1:2:445:C:O2'	1:2:457:G:N2	2.30	0.64
1:2:776:A:OP2	38:2:1636:HOH:O	2.14	0.64
1:2:834:A:O2'	38:2:1619:HOH:O	2.09	0.64
1:2:1036:G:N2	1:2:1039:A:OP2	2.30	0.63
1:2:370:C:O2'	38:2:1637:HOH:O	2.15	0.63
1:2:1086:C:O2'	1:2:1087:C:OP2	2.12	0.63
1:2:1231:C:OP1	19:S:135:GLN:NE2	2.31	0.63
4:C:160:ARG:NH1	38:C:302:HOH:O	2.29	0.63
5:D:44:SER:OG	21:U:115:GLN:NE2	2.31	0.63
1:2:1367:C:OP2	8:G:71:GLN:NE2	2.31	0.63
5:D:9:GLU:OE1	5:D:9:GLU:N	2.32	0.62
1:2:1365:G:OP2	38:2:1639:HOH:O	2.16	0.62
8:G:26:ASP:OD1	8:G:27:PHE:N	2.32	0.62
1:2:314:C:O2	38:2:1629:HOH:O	2.12	0.62
17:Q:77:LEU:HD23	17:Q:77:LEU:H	1.64	0.62
18:R:77:GLN:O	18:R:81:ARG:N	2.31	0.62
12:K:66:VAL:HG12	12:K:79:LEU:HA	1.81	0.62
1:2:937:G:HO2'	1:2:1287:C:HO2'	1.48	0.62
19:S:3:THR:C	19:S:4:ILE:HD13	2.20	0.62
1:2:592:G:N1	1:2:597:G:O6	2.33	0.62
9:H:168:VAL:CG1	9:H:201:MET:HB3	2.30	0.62
4:C:26:GLU:OE2	4:C:38:LYS:NZ	2.28	0.61
33:M:56:ILE:HG23	33:M:57:VAL:H	1.65	0.61
20:T:56:THR:HG22	20:T:56:THR:O	2.00	0.61
13:L:65:ARG:NH1	13:L:74:CYS:O	2.34	0.61
2:A:68:ARG:O	2:A:72:THR:HG23	2.01	0.60
8:G:127:LEU:HD23	8:G:128:PRO:HD2	1.83	0.60
8:G:85:GLN:NE2	8:G:95:ASN:O	2.34	0.60
20:T:66:ASP:OD1	20:T:68:ASP:N	2.26	0.60
11:J:115:ILE:HD11	11:J:127:ALA:HB1	1.84	0.60
14:N:114:ARG:O	14:N:118:VAL:HG23	2.02	0.60
1:2:992:G:OP2	33:M:28:ARG:NH2	2.34	0.60
5:D:24:GLU:O	5:D:27:LEU:N	2.34	0.59
5:D:111:LEU:O	5:D:115:LEU:HD23	2.03	0.59
26:Z:19:THR:OG1	26:Z:20:LEU:HD12	2.02	0.59
5:D:52:ILE:HD11	5:D:90:PHE:CZ	2.37	0.59
7:F:23:LEU:HD13	7:F:27:ILE:HD12	1.84	0.59
4:C:88:GLN:OE1	4:C:88:GLN:N	2.35	0.59
15:O:47:ILE:O	15:O:82:ARG:NH1	2.34	0.59
1:2:791:G:OP1	2:A:37:ARG:NH1	2.34	0.59

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:K:93:LEU:HD12	12:K:97:VAL:HG21	1.84	0.59
14:N:38:CYS:SG	14:N:78:LYS:NZ	2.69	0.59
11:J:104:GLU:N	11:J:104:GLU:OE1	2.36	0.59
17:Q:46:ASP:O	17:Q:47:ILE:HD13	2.02	0.59
20:T:76:SER:OG	20:T:98:TYR:OH	2.20	0.59
33:M:75:ARG:NH2	33:M:96:VAL:HG13	2.18	0.59
16:P:76:VAL:O	16:P:76:VAL:HG13	2.02	0.59
26:Z:86:LYS:HB2	38:Z:101:HOH:O	2.03	0.59
1:2:517:C:O2	9:H:129:ARG:NH2	2.32	0.58
20:T:147:LYS:NZ	20:T:151:ASP:OD1	2.26	0.58
4:C:62:ASP:OD1	4:C:63:TYR:N	2.36	0.58
9:H:196:THR:OG1	9:H:197:GLU:N	2.34	0.58
7:F:13:LEU:HD23	7:F:13:LEU:O	2.04	0.58
1:2:989:U:HO2'	1:2:990:U:P	2.27	0.58
19:S:93:SER:O	19:S:95:LYS:NZ	2.28	0.58
5:D:29:GLU:OE2	5:D:33:ARG:NE	2.36	0.58
1:2:292:U:H4'	11:J:2:PRO:HG3	1.85	0.58
1:2:1192:C:O2	20:T:137:ARG:NH2	2.37	0.58
5:D:185:GLN:OE1	5:D:185:GLN:N	2.36	0.58
1:2:704:G:H2'	1:2:705:A:C8	2.38	0.58
4:C:59:GLU:OE1	4:C:59:GLU:N	2.36	0.58
7:F:112:CYS:SG	7:F:113:ARG:N	2.76	0.58
1:2:391:G:N2	1:2:393:G:O6	2.38	0.57
6:E:104:ASP:OD1	6:E:108:ARG:N	2.34	0.57
33:M:73:THR:HG22	33:M:75:ARG:H	1.69	0.57
3:B:55:ALA:HA	3:B:58:VAL:HG12	1.85	0.57
5:D:78:LEU:HD11	12:K:76:TYR:HD1	1.68	0.57
25:Y:94:CYS:HB3	25:Y:96:LEU:HD23	1.86	0.57
7:F:34:PHE:HB2	17:Q:64:THR:HG21	1.87	0.57
22:V:74:SER:O	22:V:78:LEU:HD23	2.03	0.57
12:K:38:TYR:O	12:K:46:CYS:N	2.37	0.57
12:K:65:VAL:HG13	12:K:66:VAL:HG13	1.85	0.57
26:Z:23:ASP:O	26:Z:25:ALA:N	2.36	0.57
5:D:77:TYR:HE1	12:K:105:PRO:HB3	1.69	0.57
19:S:113:GLU:OE1	19:S:113:GLU:HA	2.05	0.57
6:E:125:ARG:NH1	6:E:225:VAL:O	2.38	0.57
7:F:190:ARG:HD3	15:O:66:TYR:OH	2.05	0.57
11:J:67:ASN:O	11:J:67:ASN:ND2	2.36	0.57
33:M:12:GLU:O	33:M:16:ARG:NH2	2.37	0.56
17:Q:80:GLY:C	17:Q:81:LEU:HD12	2.25	0.56
23:W:12:LYS:NZ	38:W:201:HOH:O	2.37	0.56

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1225:C:O2'	38:2:1643:HOH:O	2.18	0.56
16:P:88:GLU:OE1	16:P:88:GLU:N	2.37	0.56
2:A:174:MET:HE2	2:A:174:MET:H	1.69	0.56
1:2:1281:C:O2	38:2:1640:HOH:O	2.16	0.56
9:H:66:ASP:OD1	9:H:67:GLY:N	2.39	0.56
17:Q:16:GLU:OE1	17:Q:18:ARG:N	2.39	0.56
1:2:460:A:OP2	38:2:1642:HOH:O	2.18	0.55
1:2:1186:A:OP2	17:Q:1:MET:N	2.39	0.55
9:H:37:THR:HG22	9:H:98:ASN:ND2	2.21	0.55
4:C:129:ASN:OD1	4:C:129:ASN:O	2.25	0.55
19:S:99:ILE:HD12	19:S:107:THR:HG21	1.87	0.55
1:2:678:C:HO2'	15:O:132:ASP:CG	2.05	0.55
3:B:90:LEU:HD13	3:B:225:MET:CE	2.36	0.55
8:G:239:ILE:O	8:G:240:TYR:HB2	2.06	0.55
14:N:148:ALA:O	14:N:152:THR:HG23	2.07	0.55
18:R:20:ASN:OD1	18:R:20:ASN:N	2.39	0.55
16:P:60:LYS:O	16:P:64:ARG:HG3	2.07	0.55
21:U:67:THR:N	38:U:201:HOH:O	2.33	0.55
18:R:25:LYS:HE3	18:R:25:LYS:HA	1.87	0.54
1:2:975:C:N4	38:2:1653:HOH:O	2.37	0.54
21:U:23:GLN:NE2	21:U:101:ILE:HG23	2.22	0.54
33:M:35:GLU:O	33:M:36:ARG:NE	2.40	0.54
1:2:969:G:O2'	1:2:970:A:OP2	2.21	0.54
18:R:63:ARG:NH2	18:R:67:GLY:O	2.37	0.54
21:U:49:ARG:HD3	21:U:49:ARG:N	2.22	0.54
7:F:113:ARG:HE	7:F:113:ARG:C	2.11	0.54
18:R:31:ASN:O	18:R:35:ILE:HG12	2.08	0.54
1:2:1189:C:OP2	21:U:63:ARG:NE	2.39	0.54
4:C:100:ASN:OD1	4:C:102:ASP:N	2.40	0.54
13:L:37:GLU:N	13:L:37:GLU:OE2	2.40	0.54
21:U:99:ASN:OD1	21:U:100:ASP:N	2.40	0.54
25:Y:55:ILE:HD12	25:Y:55:ILE:O	2.08	0.54
19:S:143:ARG:HD2	19:S:143:ARG:N	2.20	0.54
11:J:65:ASP:OD1	11:J:65:ASP:N	2.37	0.54
1:2:792:C:OP2	2:A:37:ARG:NH2	2.37	0.54
7:F:96:GLN:O	7:F:99:VAL:HG22	2.08	0.54
12:K:60:LEU:O	12:K:65:VAL:HG12	2.08	0.54
18:R:73:SER:O	18:R:75:ARG:NH2	2.35	0.54
15:O:38:VAL:HG23	15:O:75:LEU:HD21	1.89	0.53
26:Z:27:MET:SD	26:Z:28:ASN:N	2.81	0.53
26:Z:68:ASP:OD1	26:Z:68:ASP:N	2.41	0.53

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:D:38:ALA:CB	5:D:64:VAL:HG23	2.39	0.53
26:Z:86:LYS:HD2	26:Z:86:LYS:O	2.09	0.53
5:D:97:ILE:HD12	5:D:97:ILE:N	2.24	0.53
19:S:46:LEU:HD13	19:S:53:VAL:HG12	1.88	0.53
1:2:1208:C:H42	5:D:6:ARG:HG3	1.72	0.53
2:A:172:THR:OG1	2:A:175:SER:OG	2.00	0.53
19:S:35:LYS:HB3	19:S:101:VAL:HG12	1.89	0.53
7:F:34:PHE:CB	17:Q:64:THR:HG21	2.39	0.53
7:F:160:ALA:O	7:F:164:MET:SD	2.67	0.53
17:Q:66:VAL:CG1	17:Q:96:ILE:HG23	2.39	0.53
18:R:69:VAL:HG22	18:R:70:HIS:N	2.24	0.53
1:2:840:C:O2'	1:2:841:G:OP1	2.24	0.52
2:A:99:THR:HG22	2:A:99:THR:O	2.08	0.52
5:D:73:HIS:CB	12:K:105:PRO:HG2	2.39	0.52
6:E:230:ASN:O	6:E:232:SER:N	2.41	0.52
9:H:197:GLU:OE1	9:H:198:PHE:N	2.42	0.52
1:2:615:G:OP1	14:N:13:ARG:NH1	2.41	0.52
1:2:636:G:H2'	1:2:637:U:C6	2.43	0.52
1:2:637:U:OP2	38:2:1646:HOH:O	2.19	0.52
12:K:104:LYS:O	12:K:104:LYS:NZ	2.28	0.52
18:R:20:ASN:ND2	18:R:41:VAL:HG13	2.25	0.52
19:S:106:SER:OG	19:S:106:SER:O	2.25	0.52
13:L:31:ARG:HD3	13:L:31:ARG:H	1.74	0.52
33:M:75:ARG:HH22	33:M:96:VAL:HG13	1.75	0.52
1:2:1197:G:N2	1:2:1200:A:OP2	2.43	0.52
8:G:104:ARG:NE	8:G:111:ASP:OD2	2.34	0.52
17:Q:27:THR:HG21	17:Q:106:GLY:N	2.25	0.52
25:Y:23:VAL:HG13	25:Y:23:VAL:O	2.09	0.52
1:2:1055:G:O2'	1:2:1105:A:O2'	2.22	0.52
11:J:89:ASP:OD1	11:J:90:GLU:N	2.43	0.52
17:Q:108:LEU:HD21	17:Q:121:ARG:HG2	1.92	0.52
19:S:60:LEU:C	19:S:60:LEU:HD12	2.30	0.52
1:2:612:C:H2'	1:2:613:G:O4'	2.09	0.51
1:2:900:C:O2'	17:Q:157:TYR:OH	2.21	0.51
1:2:1194:C:H42	1:2:1203:A:H61	1.58	0.51
18:R:23:SER:O	18:R:24:LEU:HD22	2.10	0.51
21:U:99:ASN:ND2	21:U:103:THR:OG1	2.42	0.51
8:G:13:ASN:OD1	8:G:16:THR:OG1	2.27	0.51
1:2:844:C:N4	24:X:1:MET:O	2.44	0.51
1:2:1280:C:OP2	1:2:1281:C:N4	2.43	0.51
2:A:32:VAL:HG12	2:A:33:ARG:N	2.25	0.51

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:G:15:VAL:HG13	8:G:16:THR:HG23	1.93	0.51
9:H:28:SER:OG	9:H:29:GLU:N	2.42	0.51
17:Q:21:ASP:OD1	17:Q:21:ASP:N	2.39	0.51
1:2:740:U:O2'	38:2:1647:HOH:O	2.19	0.51
7:F:41:ARG:H	7:F:41:ARG:HD2	1.75	0.51
19:S:42:ALA:O	19:S:46:LEU:HD12	2.11	0.51
24:X:98:ASP:OD1	24:X:99:GLU:N	2.44	0.51
1:2:801:C:H42	1:2:809:C:H42	1.58	0.51
8:G:38:MET:SD	8:G:38:MET:N	2.84	0.51
21:U:108:THR:HA	21:U:111:ILE:HD11	1.91	0.51
1:2:140:A:N6	1:2:330:G:O6	2.43	0.51
16:P:125:ILE:HD12	16:P:125:ILE:C	2.30	0.51
5:D:8:ASP:OD1	5:D:8:ASP:N	2.36	0.51
12:K:11:ALA:C	12:K:36:ILE:HD11	2.31	0.51
24:X:139:GLU:OE1	24:X:139:GLU:HA	2.10	0.51
1:2:1239:U:O4	16:P:40:ARG:NH2	2.44	0.51
18:R:18:GLU:OE1	18:R:19:ASN:N	2.44	0.51
15:O:39:THR:HG21	15:O:43:GLY:HA2	1.92	0.51
15:O:72:THR:HG21	15:O:112:ALA:HB3	1.92	0.51
26:Z:57:LYS:O	26:Z:61:ARG:HG2	2.11	0.51
1:2:629:G:O2'	14:N:108:ASP:OD1	2.23	0.50
1:2:675:A:H2'	1:2:676:G:C8	2.47	0.50
2:A:96:CYS:O	2:A:100:HIS:N	2.44	0.50
3:B:224:THR:O	3:B:224:THR:OG1	2.27	0.50
21:U:103:THR:O	21:U:107:LYS:N	2.38	0.50
10:I:138:ASP:OD1	10:I:138:ASP:N	2.45	0.50
33:M:51:LYS:O	33:M:54:ALA:N	2.40	0.50
3:B:98:THR:O	3:B:232:HIS:NE2	2.43	0.50
5:D:205:PRO:O	5:D:206:ASP:OD1	2.30	0.50
8:G:73:VAL:HG21	8:G:105:GLY:HA2	1.94	0.50
14:N:144:ASP:OD1	14:N:145:GLN:N	2.45	0.50
1:2:919:G:C6	1:2:1165:G:O6	2.64	0.50
7:F:26:TYR:CD1	7:F:130:LEU:HD13	2.46	0.50
15:O:110:ILE:O	15:O:114:VAL:HG23	2.12	0.50
1:2:114:G:O2'	1:2:161:C:O2'	2.29	0.50
1:2:1113:G:N1	1:2:1116:G:OP2	2.40	0.50
33:M:33:TYR:HA	33:M:36:ARG:HH21	1.77	0.50
1:2:1240:G:N1	1:2:1243:A:OP2	2.37	0.50
5:D:203:VAL:O	5:D:203:VAL:HG13	2.12	0.50
8:G:51:TYR:CE1	8:G:127:LEU:HD11	2.45	0.50
16:P:65:ARG:NH2	16:P:90:ILE:O	2.45	0.50

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:Q:75:GLU:N	17:Q:75:GLU:OE1	2.44	0.50
25:Y:39:ILE:HG22	25:Y:39:ILE:O	2.11	0.50
1:2:678:C:C2'	15:O:132:ASP:OD2	2.59	0.50
25:Y:34:GLU:O	25:Y:35:SER:OG	2.25	0.50
1:2:1300:C:OP1	7:F:46:ARG:NH2	2.39	0.50
1:2:1371:C:O2'	1:2:1372:G:OP2	2.26	0.50
18:R:43:ILE:O	18:R:44:ILE:HD13	2.12	0.50
1:2:918:C:H41	19:S:138:LYS:HE2	1.77	0.49
5:D:183:MET:HB2	5:D:185:GLN:OE1	2.12	0.49
7:F:41:ARG:HG2	7:F:41:ARG:O	2.12	0.49
7:F:57:ARG:NH2	7:F:134:ASN:OD1	2.38	0.49
18:R:62:ASN:HA	18:R:65:VAL:HG12	1.94	0.49
21:U:27:ILE:HB	21:U:92:PHE:HB2	1.94	0.49
25:Y:38:ALA:O	25:Y:42:LYS:NZ	2.45	0.49
33:M:56:ILE:HG23	33:M:57:VAL:HG23	1.94	0.49
5:D:116:GLU:HA	5:D:116:GLU:OE2	2.12	0.49
16:P:95:SER:HA	16:P:103:ILE:O	2.12	0.49
17:Q:68:GLU:HA	17:Q:71:MET:HE2	1.93	0.49
17:Q:77:LEU:O	17:Q:81:LEU:HD13	2.12	0.49
17:Q:119:GLU:OE1	17:Q:120:LEU:HD23	2.12	0.49
26:Z:55:LEU:O	26:Z:59:VAL:HG23	2.12	0.49
33:M:34:LEU:HD23	33:M:60:LEU:HD23	1.94	0.49
1:2:371:G:OP1	25:Y:109:LYS:NZ	2.40	0.49
17:Q:127:TYR:O	17:Q:128:ASP:C	2.51	0.49
33:M:14:PHE:CD2	33:M:80:LEU:HD13	2.48	0.49
7:F:73:LEU:N	38:F:204:HOH:O	2.46	0.49
15:O:106:GLY:O	15:O:110:ILE:HG12	2.13	0.49
16:P:107:ILE:N	16:P:107:ILE:HD12	2.27	0.49
20:T:22:SER:OG	20:T:25:ARG:NH2	2.33	0.49
33:M:61:CYS:HB3	33:M:68:LEU:HB3	1.95	0.49
1:2:444:G:N1	1:2:460:A:OP1	2.42	0.49
17:Q:59:PRO:O	17:Q:61:ILE:N	2.42	0.49
18:R:6:THR:HG22	18:R:7:LYS:N	2.28	0.49
19:S:90:ASP:OD1	19:S:91:PHE:N	2.45	0.49
19:S:125:ARG:NE	19:S:131:LYS:O	2.40	0.49
20:T:35:PHE:O	20:T:39:LEU:HD13	2.13	0.49
33:M:17:ILE:HG22	33:M:23:LEU:HD21	1.95	0.49
1:2:679:C:O2'	1:2:696:C:OP2	2.17	0.49
11:J:126:HIS:O	11:J:130:MET:HG3	2.13	0.49
20:T:75:ALA:O	20:T:78:ILE:HG22	2.13	0.49
23:W:101:HIS:ND1	23:W:112:ASP:OD2	2.38	0.49

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:M:26:GLY:O	33:M:30:VAL:HG12	2.13	0.49
1:2:1039:A:OP1	4:C:93:ARG:NH1	2.45	0.49
12:K:8:VAL:HG22	12:K:38:TYR:CD2	2.48	0.49
19:S:22:GLN:OE1	19:S:22:GLN:HA	2.12	0.49
20:T:151:ASP:O	20:T:154:GLU:HG3	2.13	0.49
5:D:73:HIS:CD2	12:K:105:PRO:HD2	2.48	0.49
11:J:105:ASP:OD1	11:J:105:ASP:N	2.46	0.49
26:Z:29:GLU:O	26:Z:33:PHE:N	2.34	0.49
18:R:17:VAL:HG23	18:R:61:MET:SD	2.53	0.48
19:S:53:VAL:HG23	19:S:54:HIS:ND1	2.28	0.48
1:2:589:G:N1	1:2:602:G:O6	2.46	0.48
1:2:1033:G:O2'	1:2:1060:A:N1	2.43	0.48
9:H:36:GLY:O	9:H:40:LYS:HG2	2.12	0.48
10:I:106:VAL:HG22	10:I:109:CYS:SG	2.53	0.48
2:A:199:GLU:OE1	2:A:200:TRP:N	2.42	0.48
5:D:212:ALA:HA	18:R:19:ASN:HD21	1.78	0.48
9:H:173:VAL:HG23	9:H:174:TYR:N	2.28	0.48
18:R:20:ASN:ND2	18:R:41:VAL:HG22	2.28	0.48
1:2:576:G:H2'	1:2:577:G:O4'	2.14	0.48
1:2:1240:G:O6	16:P:43:ARG:NH1	2.46	0.48
1:2:982:G:C2'	1:2:983:C:H5'	2.43	0.48
5:D:208:ILE:HG22	5:D:209:GLU:N	2.29	0.48
12:K:32:ASN:ND2	12:K:47:ASN:O	2.47	0.48
18:R:56:TYR:O	18:R:59:THR:HG22	2.14	0.48
19:S:143:ARG:O	19:S:143:ARG:HG2	2.12	0.48
23:W:115:GLU:HA	23:W:115:GLU:OE1	2.13	0.48
2:A:160:LYS:O	2:A:161:PHE:HB2	2.13	0.48
1:2:336:C:O4'	1:2:336:C:O2	2.32	0.48
5:D:80:ALA:O	5:D:84:MET:N	2.47	0.48
15:O:76:ILE:O	15:O:80:THR:HG23	2.14	0.48
17:Q:135:ASP:OD2	17:Q:137:ARG:NH1	2.46	0.48
1:2:387:G:H2'	1:2:388:C:O2	2.14	0.48
1:2:840:C:C2'	1:2:841:G:OP1	2.62	0.48
16:P:75:ILE:HD12	16:P:93:THR:CG2	2.44	0.48
20:T:71:TYR:CD1	20:T:71:TYR:N	2.82	0.47
33:M:14:PHE:CG	33:M:80:LEU:HD22	2.49	0.47
12:K:14:ALA:HA	12:K:91:LEU:HD11	1.97	0.47
18:R:6:THR:HG22	18:R:7:LYS:H	1.77	0.47
24:X:30:ALA:HB3	24:X:31:HIS:CE1	2.49	0.47
33:M:77:LEU:H	33:M:77:LEU:HD12	1.77	0.47
5:D:59:ALA:HB1	5:D:100:ARG:HD2	1.96	0.47

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:Q:34:SER:HA	17:Q:89:GLY:HA3	1.97	0.47
18:R:37:SER:O	18:R:39:ARG:NH2	2.47	0.47
1:2:113:G:H3'	1:2:114:G:H5''	1.95	0.47
1:2:301:C:OP1	38:2:1649:HOH:O	2.20	0.47
6:E:105:VAL:O	6:E:244:ARG:NH1	2.47	0.47
1:2:1:C:O2'	1:2:2:A:OP1	2.30	0.47
13:L:162:GLU:N	13:L:162:GLU:OE2	2.48	0.47
20:T:26:VAL:HG21	20:T:156:LEU:HD11	1.96	0.47
1:2:1027:G:N7	1:2:1053:U:O2'	2.31	0.47
9:H:37:THR:HG22	9:H:98:ASN:HD22	1.79	0.47
23:W:76:SER:HB3	23:W:77:PRO:HD3	1.96	0.47
7:F:27:ILE:CG2	7:F:29:ILE:HG23	2.44	0.47
7:F:114:ILE:HG22	7:F:123:GLN:HG3	1.96	0.47
11:J:31:LYS:HG3	11:J:35:GLU:OE2	2.15	0.47
17:Q:147:ARG:NH1	17:Q:152:ARG:O	2.48	0.47
19:S:116:ARG:HB3	19:S:116:ARG:CZ	2.45	0.47
23:W:87:GLU:OE2	23:W:88:LYS:HG3	2.14	0.47
2:A:121:TYR:OH	2:A:123:GLU:OE2	2.30	0.47
8:G:227:LEU:O	8:G:228:LEU:HB2	2.14	0.47
33:M:53:TYR:CD1	33:M:53:TYR:O	2.68	0.47
5:D:105:GLU:O	5:D:108:VAL:HG12	2.14	0.47
13:L:30:ARG:HD3	13:L:31:ARG:H	1.80	0.47
18:R:23:SER:C	18:R:24:LEU:HD22	2.35	0.47
19:S:3:THR:O	19:S:4:ILE:HD13	2.14	0.47
19:S:115:LEU:N	19:S:115:LEU:HD23	2.30	0.47
26:Z:34:ILE:O	26:Z:37:SER:N	2.48	0.47
1:2:577:G:O2'	1:2:578:A:N7	2.42	0.47
7:F:113:ARG:CZ	7:F:114:ILE:O	2.62	0.47
18:R:59:THR:O	18:R:62:ASN:OD1	2.32	0.47
19:S:77:SER:O	19:S:77:SER:OG	2.23	0.47
1:2:682:C:O2'	3:B:118:CYS:O	2.34	0.46
5:D:185:GLN:OE1	5:D:186:GLY:N	2.48	0.46
16:P:76:VAL:O	16:P:76:VAL:CG1	2.62	0.46
16:P:85:ILE:HG23	16:P:89:MET:HE2	1.97	0.46
21:U:37:VAL:O	21:U:41:VAL:HG13	2.15	0.46
7:F:35:VAL:HG13	7:F:37:HIS:H	1.80	0.46
1:2:1234:C:O2'	19:S:89:ASN:O	2.31	0.46
5:D:144:VAL:HG22	5:D:190:VAL:HG23	1.97	0.46
12:K:65:VAL:HG23	12:K:83:GLY:HA2	1.97	0.46
5:D:56:ILE:HD13	5:D:58:CYS:SG	2.56	0.46
5:D:92:ILE:HG22	5:D:93:TRP:N	2.31	0.46

*Continued on next page...*



*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:I:69:LEU:HD11	10:I:105:LEU:HD13	1.98	0.46
12:K:36:ILE:HG23	12:K:48:PRO:HG3	1.96	0.46
16:P:109:PRO:O	16:P:112:VAL:HG23	2.15	0.46
17:Q:81:LEU:HD12	17:Q:81:LEU:N	2.31	0.46
21:U:116:VAL:O	21:U:117:THR:OG1	2.30	0.46
1:2:345:C:H2'	1:2:346:G:O4'	2.15	0.46
1:2:1414:A:OP2	38:2:1650:HOH:O	2.21	0.46
7:F:113:ARG:NE	7:F:114:ILE:O	2.48	0.46
10:I:171:LEU:HD12	10:I:171:LEU:O	2.15	0.46
16:P:21:GLU:HA	16:P:21:GLU:OE1	2.15	0.46
5:D:143:ILE:HG23	5:D:157:LYS:HG2	1.97	0.46
12:K:39:VAL:HB	12:K:45:LEU:HD22	1.98	0.46
23:W:66:ILE:HD12	23:W:68:ARG:HD2	1.96	0.46
25:Y:9:ARG:HB2	25:Y:23:VAL:HG13	1.96	0.46
1:2:1081:G:H21	21:U:58:ARG:HH12	1.62	0.46
33:M:13:THR:O	33:M:16:ARG:HB2	2.16	0.46
1:2:674:G:H2'	1:2:675:A:C8	2.51	0.46
1:2:1161:G:N3	1:2:1161:G:H2'	2.31	0.46
1:2:307:U:H2'	1:2:308:G:O4'	2.16	0.46
1:2:739:C:O2'	1:2:740:U:H6	1.98	0.46
4:C:43:GLU:N	4:C:43:GLU:OE1	2.49	0.46
5:D:67:ASP:O	5:D:70:TYR:N	2.49	0.46
6:E:239:THR:O	6:E:241:LYS:NZ	2.37	0.46
15:O:27:ILE:HB	15:O:91:ILE:HD12	1.98	0.46
33:M:56:ILE:HG23	33:M:57:VAL:N	2.29	0.46
1:2:116:C:H2'	1:2:117:C:O4'	2.16	0.46
1:2:625:C:H2'	1:2:626:G:C8	2.51	0.46
15:O:41:LEU:HD22	15:O:41:LEU:H	1.81	0.46
20:T:154:GLU:O	20:T:158:LYS:HE3	2.16	0.46
33:M:35:GLU:HG3	33:M:36:ARG:HD3	1.96	0.46
1:2:739:C:O2'	1:2:740:U:P	2.73	0.45
1:2:1066:C:C2	1:2:1067:G:C8	3.04	0.45
1:2:1162:C:H5'	16:P:126:VAL:HG21	1.98	0.45
7:F:80:GLY:O	7:F:84:GLU:OE2	2.34	0.45
9:H:132:THR:O	9:H:136:VAL:HG23	2.16	0.45
12:K:44:LYS:HD3	12:K:45:LEU:N	2.31	0.45
17:Q:18:ARG:O	17:Q:22:LYS:NZ	2.41	0.45
33:M:76:THR:O	33:M:80:LEU:N	2.32	0.45
1:2:1043:G:OP2	1:2:1044:U:O2'	2.27	0.45
2:A:21:LYS:HZ2	2:A:22:LYS:HG3	1.80	0.45
2:A:145:VAL:HG12	2:A:145:VAL:O	2.15	0.45

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:D:105:GLU:N	5:D:105:GLU:OE1	2.49	0.45
19:S:14:LEU:HD11	19:S:57:ALA:HB1	1.98	0.45
25:Y:115:ARG:HG3	25:Y:122:GLU:HG3	1.98	0.45
1:2:256:G:H2'	1:2:257:A:O4'	2.16	0.45
1:2:649:A:C2	1:2:666:A:C5	3.05	0.45
12:K:38:TYR:C	12:K:45:LEU:HD13	2.37	0.45
19:S:17:PHE:HD2	19:S:34:ILE:HD13	1.80	0.45
1:2:1212:G:H21	1:2:1274:C:H1'	1.81	0.45
1:2:1341:C:H5''	1:2:1342:U:H5'	1.98	0.45
9:H:37:THR:O	9:H:41:LEU:HG	2.17	0.45
20:T:150:GLU:O	20:T:154:GLU:HG2	2.17	0.45
16:P:86:PHE:HB3	16:P:88:GLU:OE1	2.17	0.45
17:Q:128:ASP:OD1	17:Q:130:GLN:N	2.50	0.45
19:S:3:THR:HG21	19:S:59:GLU:OE2	2.16	0.45
26:Z:78:MET:SD	26:Z:80:ILE:HD11	2.56	0.45
1:2:472:C:H2'	1:2:473:G:O4'	2.17	0.45
1:2:1354:C:H2'	1:2:1355:G:O4'	2.16	0.45
8:G:127:LEU:HD23	8:G:128:PRO:CD	2.47	0.45
13:L:194:LYS:HD2	13:L:194:LYS:C	2.36	0.45
24:X:69:ALA:HB1	24:X:83:ALA:O	2.17	0.45
1:2:1194:C:H42	1:2:1203:A:N6	2.14	0.45
18:R:27:LYS:O	18:R:27:LYS:HG2	2.16	0.45
21:U:42:LYS:NZ	21:U:46:LYS:HB2	2.32	0.45
26:Z:45:ILE:O	26:Z:49:LEU:N	2.43	0.45
3:B:192:GLU:HB3	3:B:196:LYS:NZ	2.32	0.45
8:G:212:GLU:O	8:G:216:LYS:HG3	2.16	0.45
11:J:50:MET:O	11:J:54:ILE:HG12	2.17	0.45
18:R:18:GLU:OE1	18:R:18:GLU:C	2.55	0.45
1:2:1274:C:H2'	1:2:1275:G:O4'	2.17	0.45
3:B:192:GLU:HB3	3:B:196:LYS:HZ1	1.82	0.45
5:D:87:PRO:O	5:D:89:ASN:N	2.41	0.45
5:D:111:LEU:HD21	5:D:190:VAL:HG21	1.99	0.45
10:I:121:ALA:HB1	10:I:122:LEU:HD22	1.98	0.45
11:J:143:VAL:HG11	11:J:148:TYR:CD2	2.52	0.45
11:J:163:THR:O	11:J:163:THR:HG22	2.17	0.45
12:K:11:ALA:HB1	12:K:36:ILE:HD11	1.97	0.45
20:T:22:SER:N	20:T:25:ARG:HE	2.15	0.45
5:D:77:TYR:CE1	12:K:105:PRO:HB3	2.51	0.45
6:E:246:ASP:OD2	6:E:248:ILE:N	2.46	0.45
9:H:90:ALA:O	9:H:94:LYS:HG3	2.16	0.45
11:J:93:ASP:OD1	11:J:93:ASP:N	2.50	0.45

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:U:115:GLN:HA	21:U:115:GLN:OE1	2.17	0.45
22:V:81:GLN:HB3	22:V:87:GLU:HB2	1.99	0.45
1:2:790:C:H2'	1:2:791:G:O4'	2.17	0.44
1:2:1191:G:HO2'	1:2:1192:C:P	2.31	0.44
1:2:1239:U:OP2	16:P:43:ARG:NH2	2.50	0.44
26:Z:54:ALA:O	26:Z:58:ARG:HG2	2.17	0.44
26:Z:61:ARG:O	26:Z:65:LYS:HD3	2.17	0.44
13:L:164:ASP:N	13:L:164:ASP:OD1	2.49	0.44
17:Q:124:LEU:HD11	17:Q:131:LEU:HD13	1.98	0.44
1:2:388:C:O2	1:2:388:C:O4'	2.32	0.44
1:2:1124:G:O2'	5:D:166:THR:OG1	2.27	0.44
5:D:126:TYR:O	5:D:129:ILE:HG13	2.17	0.44
11:J:137:SER:HA	11:J:142:ILE:HA	1.99	0.44
16:P:58:VAL:CG2	16:P:83:MET:HE1	2.48	0.44
18:R:75:ARG:HG3	18:R:75:ARG:HH11	1.82	0.44
26:Z:33:PHE:O	26:Z:36:ASN:ND2	2.51	0.44
33:M:37:LYS:HE2	33:M:37:LYS:HA	1.98	0.44
15:O:72:THR:HG23	15:O:113:LEU:HD23	1.99	0.44
20:T:156:LEU:HD12	20:T:156:LEU:O	2.17	0.44
21:U:42:LYS:O	21:U:45:VAL:HG12	2.18	0.44
21:U:47:GLU:O	21:U:49:ARG:NH1	2.44	0.44
26:Z:34:ILE:C	26:Z:34:ILE:HD12	2.37	0.44
1:2:607:A:OP1	9:H:111:THR:HG21	2.18	0.44
2:A:94:LYS:HE2	2:A:94:LYS:HA	2.00	0.44
7:F:187:VAL:HG12	7:F:190:ARG:HD2	2.00	0.44
16:P:16:ASN:N	19:S:92:GLU:OE2	2.40	0.44
20:T:71:TYR:N	20:T:71:TYR:HD1	2.15	0.44
2:A:57:GLN:OE1	2:A:57:GLN:N	2.37	0.44
5:D:37:ASP:OD1	5:D:37:ASP:N	2.49	0.44
7:F:131:ARG:HG3	7:F:131:ARG:HH11	1.82	0.44
16:P:57:PHE:CE1	16:P:61:LEU:HD11	2.52	0.44
18:R:26:PRO:HB2	18:R:62:ASN:HB3	2.00	0.44
25:Y:22:CYS:HB3	25:Y:73:CYS:H	1.83	0.44
26:Z:41:THR:HG22	26:Z:42:HIS:N	2.32	0.44
33:M:30:VAL:HG13	33:M:31:PHE:N	2.33	0.44
33:M:37:LYS:HD2	33:M:37:LYS:N	2.32	0.44
9:H:201:MET:HE2	9:H:201:MET:HB2	1.70	0.44
16:P:52:MET:SD	16:P:52:MET:C	2.96	0.44
1:2:16:G:OP1	38:2:1651:HOH:O	2.21	0.44
1:2:948:A:N3	1:2:948:A:H2'	2.33	0.44
1:2:948:A:O2'	1:2:949:C:O5'	2.24	0.44

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:968:G:HO2'	1:2:969:G:P	2.40	0.44
3:B:121:ILE:N	3:B:121:ILE:HD12	2.33	0.44
4:C:116:ALA:O	4:C:120:LYS:HG2	2.17	0.44
5:D:98:ILE:HG13	5:D:99:LYS:N	2.33	0.44
5:D:184:ARG:H	5:D:184:ARG:HD2	1.83	0.44
7:F:96:GLN:O	7:F:100:ASP:OD2	2.36	0.44
8:G:150:LEU:O	8:G:151:PHE:HB3	2.17	0.44
10:I:126:THR:O	10:I:126:THR:OG1	2.35	0.44
15:O:96:GLY:O	15:O:97:THR:OG1	2.20	0.44
17:Q:49:VAL:O	17:Q:52:VAL:N	2.51	0.44
18:R:44:ILE:HG21	18:R:50:ARG:N	2.33	0.44
19:S:13:LEU:HD21	19:S:20:ASN:HB2	2.00	0.44
33:M:105:HIS:CG	33:M:106:ASN:N	2.85	0.44
5:D:20:ASP:N	5:D:20:ASP:OD1	2.49	0.44
5:D:171:ARG:HG3	5:D:172:ILE:HG23	2.00	0.44
1:2:471:G:H2'	1:2:472:C:C6	2.53	0.43
1:2:1096:G:C2	1:2:1097:C:C6	3.06	0.43
1:2:1182:G:O2'	1:2:1183:G:H5'	2.18	0.43
3:B:90:LEU:HD13	3:B:225:MET:HE1	1.98	0.43
7:F:29:ILE:HD12	7:F:29:ILE:C	2.38	0.43
16:P:28:MET:CE	16:P:33:ILE:HB	2.47	0.43
16:P:75:ILE:HD12	16:P:93:THR:HG23	2.00	0.43
20:T:105:LYS:O	20:T:106:THR:HG22	2.18	0.43
21:U:106:SER:HA	21:U:109:VAL:HG22	2.00	0.43
1:2:556:C:OP2	25:Y:9:ARG:HD2	2.18	0.43
1:2:602:G:H2'	1:2:603:C:O4'	2.16	0.43
1:2:969:G:N2	1:2:994:G:O2'	2.50	0.43
8:G:202:ARG:O	8:G:206:VAL:HG23	2.18	0.43
9:H:129:ARG:O	9:H:132:THR:OG1	2.20	0.43
11:J:16:THR:HG23	11:J:17:PRO:HD2	2.00	0.43
14:N:131:GLN:O	14:N:132:ALA:HB3	2.18	0.43
21:U:21:MET:SD	21:U:22:HIS:N	2.90	0.43
25:Y:92:ILE:HD12	25:Y:99:ALA:HB2	2.00	0.43
2:A:129:VAL:HG12	2:A:130:ASN:N	2.34	0.43
3:B:122:ASP:N	3:B:122:ASP:OD1	2.51	0.43
3:B:175:GLU:HA	3:B:175:GLU:OE1	2.18	0.43
7:F:23:LEU:HD22	7:F:133:VAL:HG12	2.00	0.43
5:D:159:LYS:C	5:D:160:GLU:OE2	2.56	0.43
11:J:61:LEU:HD11	11:J:74:GLU:HB3	2.00	0.43
16:P:33:ILE:HD12	16:P:36:LYS:HB2	2.00	0.43
5:D:73:HIS:CG	12:K:105:PRO:HG2	2.54	0.43

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:P:15:PRO:HB2	16:P:16:ASN:H	1.63	0.43
18:R:75:ARG:NH1	18:R:75:ARG:HG3	2.34	0.43
25:Y:82:LEU:HD23	25:Y:82:LEU:O	2.17	0.43
26:Z:58:ARG:O	26:Z:62:GLN:HG2	2.18	0.43
1:2:742:G:O6	38:2:1645:HOH:O	2.19	0.43
8:G:230:ARG:H	8:G:230:ARG:HD3	1.83	0.43
10:I:131:ILE:O	10:I:135:ILE:HG12	2.18	0.43
16:P:45:ILE:HD13	16:P:45:ILE:N	2.32	0.43
17:Q:130:GLN:N	17:Q:130:GLN:OE1	2.43	0.43
23:W:49:ASP:OD1	23:W:49:ASP:N	2.52	0.43
1:2:989:U:O2'	1:2:990:U:P	2.75	0.43
1:2:1294:C:H2'	1:2:1295:G:O4'	2.18	0.43
5:D:24:GLU:OE1	5:D:25:ALA:N	2.52	0.43
7:F:64:MET:HE2	7:F:64:MET:HA	2.01	0.43
19:S:101:VAL:HG23	19:S:102:ASN:N	2.33	0.43
1:2:1381:C:H2'	1:2:1382:G:O4'	2.18	0.43
3:B:120:CYS:C	3:B:121:ILE:HD12	2.39	0.43
17:Q:108:LEU:O	17:Q:117:ARG:NH1	2.51	0.43
33:M:57:VAL:O	33:M:61:CYS:SG	2.77	0.43
1:2:1054:U:O2	18:R:4:VAL:HG11	2.19	0.43
1:2:1148:G:H3'	1:2:1149:A:C5'	2.48	0.43
7:F:37:HIS:O	7:F:38:SER:OG	2.25	0.43
12:K:17:TYR:CE2	12:K:88:ARG:HG3	2.53	0.43
12:K:65:VAL:HG13	12:K:66:VAL:N	2.34	0.43
21:U:75:GLU:HG2	21:U:76:GLY:N	2.33	0.43
25:Y:51:ASP:OD1	25:Y:51:ASP:C	2.57	0.43
33:M:34:LEU:HD23	33:M:60:LEU:CD2	2.48	0.43
2:A:22:LYS:O	2:A:25:VAL:HG22	2.19	0.43
18:R:54:ALA:O	18:R:58:THR:HG22	2.18	0.43
1:2:737:G:O2'	1:2:738:G:H5'	2.19	0.42
5:D:35:LEU:CD1	5:D:64:VAL:HG13	2.48	0.42
7:F:28:SER:OG	7:F:52:CYS:O	2.33	0.42
33:M:84:VAL:HG22	33:M:96:VAL:HA	2.01	0.42
7:F:122:ARG:HH11	7:F:122:ARG:HG2	1.83	0.42
12:K:91:LEU:HB3	12:K:93:LEU:HD23	2.00	0.42
16:P:17:PHE:CE1	19:S:91:PHE:HE1	2.37	0.42
17:Q:113:ASP:OD1	17:Q:114:GLU:N	2.52	0.42
18:R:59:THR:HA	18:R:62:ASN:OD1	2.19	0.42
20:T:127:LEU:C	20:T:127:LEU:HD23	2.40	0.42
1:2:623:G:H2'	1:2:624:G:C8	2.54	0.42
33:M:18:HIS:ND1	33:M:18:HIS:O	2.52	0.42

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:M:84:VAL:HG12	33:M:85:ARG:H	1.85	0.42
1:2:244:U:P	10:I:65:ARG:HH22	2.42	0.42
8:G:104:ARG:NH1	8:G:105:GLY:O	2.53	0.42
16:P:109:PRO:N	16:P:110:PRO:HD2	2.35	0.42
18:R:71:GLY:O	18:R:72:ILE:HD13	2.19	0.42
19:S:76:LEU:HD12	19:S:76:LEU:HA	1.87	0.42
24:X:24:ASP:OD1	24:X:27:TYR:N	2.36	0.42
26:Z:21:PHE:CD2	26:Z:26:ALA:HB2	2.54	0.42
17:Q:19:GLU:HA	17:Q:22:LYS:HE2	2.02	0.42
33:M:43:PHE:H	33:M:102:CYS:HB2	1.84	0.42
1:2:926:U:O2	1:2:926:U:H2'	2.20	0.42
5:D:47:ARG:HA	5:D:52:ILE:HG22	2.02	0.42
5:D:73:HIS:CG	12:K:105:PRO:HD2	2.55	0.42
9:H:41:LEU:HD22	9:H:94:LYS:HE3	2.02	0.42
16:P:32:ASP:OD1	16:P:32:ASP:C	2.58	0.42
21:U:26:THR:OG1	21:U:122:GLU:O	2.35	0.42
21:U:39:ARG:HG2	21:U:39:ARG:HH11	1.85	0.42
1:2:127:G:H2'	1:2:128:G:C8	2.54	0.42
1:2:558:C:H2'	1:2:559:G:OP1	2.19	0.42
5:D:128:ILE:HD13	5:D:128:ILE:N	2.35	0.42
6:E:220:THR:HG22	6:E:221:ARG:N	2.35	0.42
7:F:187:VAL:CG1	7:F:190:ARG:HD2	2.49	0.42
14:N:115:LEU:O	14:N:119:GLU:HG2	2.20	0.42
1:2:1353:G:H2'	1:2:1354:C:C6	2.55	0.42
16:P:81:ARG:NH1	16:P:97:TYR:O	2.46	0.42
18:R:40:ASN:OD1	18:R:40:ASN:N	2.52	0.42
1:2:598:C:H2'	1:2:599:G:O4'	2.20	0.42
1:2:848:G:O2'	1:2:849:G:H5'	2.20	0.42
1:2:1451:U:O2	1:2:1451:U:O4'	2.38	0.42
4:C:50:LYS:NZ	22:V:20:ILE:O	2.46	0.42
5:D:93:TRP:HA	5:D:93:TRP:CE3	2.55	0.42
7:F:35:VAL:HG22	7:F:36:PRO:HD2	2.02	0.42
7:F:88:LEU:HG	26:Z:39:CYS:HB3	2.02	0.42
8:G:220:GLN:O	8:G:223:GLU:HG3	2.20	0.42
10:I:29:LEU:HD12	10:I:29:LEU:C	2.40	0.42
19:S:11:ARG:HH22	19:S:60:LEU:HD11	1.85	0.42
23:W:28:ARG:CB	23:W:29:PRO:HD3	2.49	0.42
1:2:911:G:C2	1:2:912:A:C8	3.08	0.41
2:A:90:ARG:NH1	2:A:206:LEU:O	2.53	0.41
4:C:128:LEU:HD23	4:C:128:LEU:HA	1.93	0.41
5:D:112:ARG:HG3	5:D:181:ILE:HG12	2.01	0.41

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:K:44:LYS:HD3	12:K:44:LYS:C	2.40	0.41
13:L:34:GLU:CA	13:L:34:GLU:OE1	2.69	0.41
16:P:51:SER:O	16:P:55:LEU:HG	2.20	0.41
33:M:73:THR:HG22	33:M:75:ARG:N	2.34	0.41
2:A:21:LYS:O	2:A:25:VAL:HG13	2.20	0.41
9:H:54:THR:O	9:H:54:THR:HG23	2.20	0.41
19:S:4:ILE:HD13	19:S:4:ILE:N	2.34	0.41
19:S:109:ARG:HH11	19:S:109:ARG:HG2	1.84	0.41
25:Y:82:LEU:O	25:Y:86:GLU:HB2	2.19	0.41
25:Y:90:ARG:HH11	25:Y:90:ARG:HG3	1.85	0.41
25:Y:122:GLU:OE2	25:Y:122:GLU:N	2.50	0.41
1:2:1081:G:H2'	1:2:1082:G:O4'	2.20	0.41
3:B:199:GLU:OE1	3:B:200:ALA:N	2.53	0.41
5:D:111:LEU:C	5:D:111:LEU:HD23	2.41	0.41
12:K:36:ILE:HG13	12:K:37:THR:N	2.36	0.41
19:S:18:ASN:OD1	19:S:18:ASN:N	2.53	0.41
21:U:39:ARG:HB3	21:U:39:ARG:CZ	2.50	0.41
23:W:76:SER:HB3	23:W:77:PRO:CD	2.50	0.41
33:M:30:VAL:O	33:M:34:LEU:N	2.43	0.41
1:2:304:G:N7	38:2:1685:HOH:O	2.37	0.41
6:E:104:ASP:HB3	6:E:110:THR:HG21	2.03	0.41
16:P:64:ARG:NH2	16:P:74:LYS:HG2	2.35	0.41
17:Q:143:LYS:HB2	17:Q:152:ARG:HH12	1.86	0.41
20:T:66:ASP:OD1	20:T:66:ASP:C	2.59	0.41
2:A:90:ARG:O	2:A:94:LYS:HG2	2.20	0.41
24:X:119:ARG:NH1	24:X:119:ARG:HB3	2.36	0.41
7:F:63:MET:HB2	7:F:68:ASN:O	2.20	0.41
10:I:172:ALA:N	10:I:173:PRO:CD	2.84	0.41
21:U:99:ASN:OD1	21:U:103:THR:OG1	2.35	0.41
26:Z:34:ILE:HG22	26:Z:45:ILE:HD12	2.02	0.41
1:2:1214:C:C2	1:2:1215:C:C5	3.07	0.41
1:2:1296:G:O2'	1:2:1297:A:P	2.78	0.41
17:Q:121:ARG:O	17:Q:125:VAL:HG12	2.20	0.41
18:R:13:ALA:O	18:R:17:VAL:HG12	2.21	0.41
19:S:120:CYS:SG	19:S:123:GLY:N	2.83	0.41
20:T:158:LYS:HB3	20:T:158:LYS:HE2	1.84	0.41
1:2:112:C:H2'	1:2:113:G:O4'	2.21	0.41
1:2:1190:G:N2	1:2:1209:G:O2'	2.54	0.41
16:P:33:ILE:HG13	16:P:37:LEU:CD2	2.51	0.41
18:R:77:GLN:HA	18:R:80:GLU:HG2	2.03	0.41
8:G:135:VAL:HG13	8:G:135:VAL:O	2.21	0.41

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:G:209:GLU:O	8:G:212:GLU:HG3	2.21	0.41
9:H:168:VAL:HG11	9:H:201:MET:HB3	2.01	0.41
11:J:113:SER:O	11:J:117:GLU:HG2	2.21	0.41
12:K:101:PRO:O	12:K:105:PRO:HD3	2.20	0.41
17:Q:111:VAL:HG11	17:Q:117:ARG:HB2	2.02	0.41
18:R:29:PHE:O	18:R:29:PHE:CG	2.74	0.41
21:U:38:GLU:O	21:U:41:VAL:HG22	2.21	0.41
22:V:75:ALA:O	22:V:79:LEU:HD23	2.21	0.41
23:W:32:LYS:O	23:W:36:GLU:HG2	2.21	0.41
33:M:74:ARG:HA	33:M:77:LEU:HD13	2.02	0.41
1:2:982:G:H2'	1:2:983:C:H5'	2.02	0.41
6:E:163:ASN:O	6:E:167:GLY:N	2.51	0.41
16:P:74:LYS:C	16:P:75:ILE:HD13	2.41	0.41
16:P:87:PRO:O	16:P:90:ILE:HG12	2.21	0.41
26:Z:71:ILE:CG2	26:Z:72:VAL:N	2.84	0.41
26:Z:80:ILE:HD12	26:Z:80:ILE:N	2.36	0.41
1:2:434:A:O2'	1:2:435:A:O5'	2.22	0.40
11:J:136:ILE:HG22	11:J:137:SER:N	2.36	0.40
12:K:17:TYR:HE2	12:K:88:ARG:HG3	1.86	0.40
20:T:56:THR:O	20:T:60:ARG:HD3	2.21	0.40
1:2:895:G:H3'	1:2:896:G:H5''	2.02	0.40
38:2:1647:HOH:O	15:O:134:THR:OG1	2.22	0.40
2:A:129:VAL:HG12	2:A:131:ASP:H	1.85	0.40
4:C:61:ILE:O	4:C:65:PHE:N	2.54	0.40
6:E:188:ASN:HB3	6:E:191:ARG:HD3	2.03	0.40
10:I:64:ARG:HB3	10:I:64:ARG:NH1	2.36	0.40
25:Y:34:GLU:OE1	25:Y:38:ALA:HB2	2.21	0.40
25:Y:70:VAL:HG22	25:Y:71:GLY:N	2.36	0.40
1:2:955:C:H2'	1:2:956:C:C6	2.56	0.40
12:K:11:ALA:O	12:K:36:ILE:HD11	2.22	0.40
17:Q:70:ILE:HG22	17:Q:75:GLU:OE2	2.21	0.40
1:2:229:A:C2	1:2:265:A:C5	3.09	0.40
2:A:21:LYS:HE3	2:A:21:LYS:HB3	1.98	0.40
15:O:66:TYR:O	15:O:70:GLN:HG3	2.21	0.40
25:Y:22:CYS:HB3	25:Y:73:CYS:O	2.22	0.40
33:M:77:LEU:HD12	33:M:77:LEU:N	2.36	0.40
1:2:157:U:H2'	1:2:158:G:O4'	2.22	0.40
1:2:990:U:HO2'	1:2:991:C:H6	1.68	0.40
1:2:1161:G:H5''	1:2:1162:C:OP2	2.21	0.40
3:B:147:ARG:HD3	3:B:148:PHE:CE1	2.57	0.40
13:L:31:ARG:H	13:L:31:ARG:CD	2.33	0.40

*Continued on next page...*



Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:L:165:ILE:HD12	13:L:188:VAL:CG2	2.50	0.40
15:O:108:ALA:HA	15:O:111:ARG:HG2	2.03	0.40
21:U:23:GLN:HE21	21:U:101:ILE:HG23	1.86	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	A	197/245 (80%)	189 (96%)	8 (4%)	0	100	100
3	B	206/248 (83%)	198 (96%)	8 (4%)	0	100	100
4	C	207/242 (86%)	197 (95%)	10 (5%)	0	100	100
5	D	200/217 (92%)	180 (90%)	20 (10%)	0	100	100
6	E	256/268 (96%)	251 (98%)	5 (2%)	0	100	100
7	F	182/190 (96%)	170 (93%)	12 (7%)	0	100	100
8	G	195/248 (79%)	189 (97%)	6 (3%)	0	100	100
9	H	161/201 (80%)	154 (96%)	7 (4%)	0	100	100
10	I	163/174 (94%)	157 (96%)	6 (4%)	0	100	100
11	J	162/189 (86%)	159 (98%)	3 (2%)	0	100	100
12	K	102/134 (76%)	91 (89%)	11 (11%)	0	100	100
13	L	168/199 (84%)	161 (96%)	7 (4%)	0	100	100
14	N	151/154 (98%)	146 (97%)	5 (3%)	0	100	100
15	O	137/145 (94%)	132 (96%)	5 (4%)	0	100	100
16	P	104/145 (72%)	95 (91%)	9 (9%)	0	100	100
17	Q	156/158 (99%)	144 (92%)	11 (7%)	1 (1%)	22	54
18	R	79/137 (58%)	76 (96%)	3 (4%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
19	S	141/154 (92%)	126 (89%)	15 (11%)	0	100	100
20	T	135/158 (85%)	126 (93%)	9 (7%)	0	100	100
21	U	101/126 (80%)	94 (93%)	7 (7%)	0	100	100
22	V	79/89 (89%)	77 (98%)	2 (2%)	0	100	100
23	W	127/130 (98%)	117 (92%)	10 (8%)	0	100	100
24	X	134/143 (94%)	126 (94%)	8 (6%)	0	100	100
25	Y	118/132 (89%)	112 (95%)	6 (5%)	0	100	100
26	Z	71/88 (81%)	59 (83%)	12 (17%)	0	100	100
27	a	94/109 (86%)	94 (100%)	0	0	100	100
28	b	61/124 (49%)	58 (95%)	3 (5%)	0	100	100
29	c	58/64 (91%)	51 (88%)	7 (12%)	0	100	100
30	d	78/137 (57%)	67 (86%)	11 (14%)	0	100	100
31	f	28/137 (20%)	21 (75%)	7 (25%)	0	100	100
33	M	74/125 (59%)	61 (82%)	13 (18%)	0	100	100
34	e	42/69 (61%)	40 (95%)	2 (5%)	0	100	100
All	All	4167/5079 (82%)	3918 (94%)	248 (6%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
17	Q	128	ASP

### 5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	A	170/217 (78%)	164 (96%)	6 (4%)	31	60
3	B	190/220 (86%)	180 (95%)	10 (5%)	19	49
4	C	171/201 (85%)	165 (96%)	6 (4%)	31	60

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
5	D	167/182 (92%)	152 (91%)	15 (9%)	8	28
6	E	226/232 (97%)	213 (94%)	13 (6%)	17	46
7	F	154/157 (98%)	136 (88%)	18 (12%)	4	19
8	G	169/213 (79%)	145 (86%)	24 (14%)	2	12
9	H	147/181 (81%)	131 (89%)	16 (11%)	5	21
10	I	140/148 (95%)	131 (94%)	9 (6%)	14	43
11	J	143/164 (87%)	131 (92%)	12 (8%)	9	32
12	K	91/119 (76%)	77 (85%)	14 (15%)	2	10
13	L	147/171 (86%)	138 (94%)	9 (6%)	15	45
14	N	129/130 (99%)	122 (95%)	7 (5%)	18	49
15	O	107/113 (95%)	102 (95%)	5 (5%)	22	52
16	P	93/128 (73%)	84 (90%)	9 (10%)	6	25
17	Q	128/130 (98%)	120 (94%)	8 (6%)	15	44
18	R	71/123 (58%)	58 (82%)	13 (18%)	1	6
19	S	122/131 (93%)	107 (88%)	15 (12%)	4	17
20	T	113/133 (85%)	98 (87%)	15 (13%)	3	14
21	U	89/110 (81%)	77 (86%)	12 (14%)	3	14
22	V	63/72 (88%)	57 (90%)	6 (10%)	7	26
23	W	114/115 (99%)	108 (95%)	6 (5%)	19	49
24	X	110/114 (96%)	99 (90%)	11 (10%)	6	24
25	Y	104/113 (92%)	97 (93%)	7 (7%)	13	41
26	Z	65/79 (82%)	58 (89%)	7 (11%)	5	22
27	a	90/103 (87%)	85 (94%)	5 (6%)	17	48
28	b	58/112 (52%)	56 (97%)	2 (3%)	32	60
29	c	53/57 (93%)	47 (89%)	6 (11%)	4	20
30	d	71/116 (61%)	60 (84%)	11 (16%)	2	10
31	f	26/112 (23%)	22 (85%)	4 (15%)	2	10
33	M	71/112 (63%)	58 (82%)	13 (18%)	1	6
34	e	41/58 (71%)	40 (98%)	1 (2%)	44	68
All	All	3633/4366 (83%)	3318 (91%)	315 (9%)	11	30

All (315) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	A	21	LYS
2	A	97	LYS
2	A	121	TYR
2	A	143	SER
2	A	146	ASN
2	A	163	ASP
3	B	26	GLU
3	B	93	ASP
3	B	103	MET
3	B	144	ASP
3	B	147	ARG
3	B	163	MET
3	B	170	GLU
3	B	196	LYS
3	B	222	ARG
3	B	223	ASN
4	C	63	TYR
4	C	69	GLU
4	C	113	LYS
4	C	124	LYS
4	C	168	ARG
4	C	180	LYS
5	D	6	ARG
5	D	37	ASP
5	D	42	SER
5	D	69	HIS
5	D	84	MET
5	D	100	ARG
5	D	105	GLU
5	D	119	MET
5	D	122	ARG
5	D	128	ILE
5	D	133	MET
5	D	174	LEU
5	D	184	ARG
5	D	185	GLN
5	D	207	LYS
6	E	41	CYS
6	E	96	HIS
6	E	118	GLU
6	E	126	VAL
6	E	136	MET
6	E	170	ASP

*Continued on next page...*

*Continued from previous page...*

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
6	E	176	ASP
6	E	189	CYS
6	E	223	CYS
6	E	226	PHE
6	E	231	ASP
6	E	246	ASP
6	E	253	LEU
7	F	4	GLU
7	F	23	LEU
7	F	24	GLU
7	F	35	VAL
7	F	41	ARG
7	F	45	LYS
7	F	59	THR
7	F	92	LYS
7	F	112	CYS
7	F	113	ARG
7	F	120	VAL
7	F	142	THR
7	F	164	MET
7	F	177	SER
7	F	181	SER
7	F	182	VAL
7	F	188	SER
7	F	189	ASN
8	G	7	CYS
8	G	12	SER
8	G	15	VAL
8	G	28	ARG
8	G	32	THR
8	G	34	HIS
8	G	38	MET
8	G	43	ASP
8	G	70	TYR
8	G	77	GLN
8	G	81	LEU
8	G	89	CYS
8	G	102	SER
8	G	115	LEU
8	G	118	VAL
8	G	120	VAL
8	G	149	ARG

*Continued on next page...*

*Continued from previous page...*

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
8	G	188	TYR
8	G	195	VAL
8	G	200	TYR
8	G	203	LYS
8	G	230	ARG
8	G	233	LYS
8	G	234	GLN
9	H	33	GLN
9	H	43	ASP
9	H	89	GLU
9	H	102	HIS
9	H	109	ASN
9	H	155	THR
9	H	165	LEU
9	H	167	VAL
9	H	171	LYS
9	H	179	GLU
9	H	182	LYS
9	H	183	THR
9	H	194	ARG
9	H	195	ASP
9	H	196	THR
9	H	197	GLU
10	I	20	LYS
10	I	27	TYR
10	I	37	LYS
10	I	53	SER
10	I	65	ARG
10	I	78	SER
10	I	101	ARG
10	I	123	SER
10	I	170	LYS
11	J	19	LYS
11	J	46	ARG
11	J	67	ASN
11	J	71	ARG
11	J	84	MET
11	J	91	GLU
11	J	105	ASP
11	J	108	LYS
11	J	119	LYS
11	J	129	ASN

*Continued on next page...*

*Continued from previous page...*

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
11	J	130	MET
11	J	154	ASN
12	K	6	LYS
12	K	25	LYS
12	K	29	ARG
12	K	37	THR
12	K	39	VAL
12	K	40	ASP
12	K	50	TYR
12	K	67	LYS
12	K	72	TRP
12	K	81	GLU
12	K	82	LYS
12	K	86	PHE
12	K	95	ASP
12	K	102	TYR
13	L	30	ARG
13	L	31	ARG
13	L	34	GLU
13	L	45	GLU
13	L	62	PHE
13	L	63	GLN
13	L	74	CYS
13	L	106	ASN
13	L	164	ASP
14	N	3	ARG
14	N	32	ASP
14	N	49	ARG
14	N	87	ASP
14	N	103	GLU
14	N	143	SER
14	N	153	TYR
15	O	16	ASN
15	O	28	TYR
15	O	61	ASP
15	O	90	LYS
15	O	124	GLU
16	P	28	MET
16	P	34	LEU
16	P	48	HIS
16	P	51	SER
16	P	52	MET

*Continued on next page...*

*Continued from previous page...*

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
16	P	53	LYS
16	P	74	LYS
16	P	83	MET
16	P	123	TYR
17	Q	3	LYS
17	Q	8	ASP
17	Q	71	MET
17	Q	82	ASP
17	Q	86	LYS
17	Q	104	SER
17	Q	147	ARG
17	Q	152	ARG
18	R	5	ARG
18	R	7	LYS
18	R	11	ARG
18	R	18	GLU
18	R	20	ASN
18	R	39	ARG
18	R	40	ASN
18	R	43	ILE
18	R	58	THR
18	R	63	ARG
18	R	66	LYS
18	R	73	SER
18	R	75	ARG
19	S	14	LEU
19	S	18	ASN
19	S	66	ASP
19	S	72	LEU
19	S	84	MET
19	S	91	PHE
19	S	97	MET
19	S	100	LEU
19	S	102	ASN
19	S	109	ARG
19	S	111	ASP
19	S	119	ARG
19	S	120	CYS
19	S	128	HIS
19	S	143	ARG
20	T	29	ASP
20	T	32	ILE

*Continued on next page...*



*Continued from previous page...*

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
20	T	45	ILE
20	T	53	TYR
20	T	71	TYR
20	T	73	LYS
20	T	76	SER
20	T	87	HIS
20	T	88	SER
20	T	107	THR
20	T	126	PHE
20	T	127	LEU
20	T	136	GLU
20	T	147	LYS
20	T	158	LYS
21	U	21	MET
21	U	22	HIS
21	U	25	TYR
21	U	36	LEU
21	U	44	ILE
21	U	46	LYS
21	U	49	ARG
21	U	77	THR
21	U	83	PHE
21	U	95	THR
21	U	100	ASP
21	U	115	GLN
22	V	17	ASP
22	V	45	ARG
22	V	69	ARG
22	V	73	ASP
22	V	76	PHE
22	V	86	MET
23	W	13	SER
23	W	36	GLU
23	W	54	ASP
23	W	87	GLU
23	W	98	LEU
23	W	119	ARG
24	X	17	ARG
24	X	28	ARG
24	X	46	MET
24	X	68	LYS
24	X	71	ARG

*Continued on next page...*

*Continued from previous page...*

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
24	X	99	GLU
24	X	118	CYS
24	X	121	LYS
24	X	133	LEU
24	X	136	ARG
24	X	141	ARG
25	Y	1	MET
25	Y	60	PHE
25	Y	73	CYS
25	Y	78	ASN
25	Y	79	MET
25	Y	101	LYS
25	Y	104	SER
26	Z	27	MET
26	Z	33	PHE
26	Z	36	ASN
26	Z	61	ARG
26	Z	68	ASP
26	Z	69	PHE
26	Z	86	LYS
27	a	20	SER
27	a	55	ASP
27	a	69	GLN
27	a	94	ARG
27	a	100	ASP
28	b	58	ARG
28	b	77	LYS
29	c	3	GLU
29	c	17	SER
29	c	24	GLN
29	c	30	MET
29	c	40	ASN
29	c	46	ARG
30	d	46	ARG
30	d	59	ARG
30	d	65	ILE
30	d	66	PHE
30	d	94	THR
30	d	108	TYR
30	d	120	CYS
30	d	130	LYS
30	d	135	LYS

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
30	d	136	LEU
30	d	137	HIS
31	f	96	LYS
31	f	97	TYR
31	f	103	ASP
31	f	123	ARG
33	M	14	PHE
33	M	16	ARG
33	M	23	LEU
33	M	24	VAL
33	M	36	ARG
33	M	38	ARG
33	M	53	TYR
33	M	59	CYS
33	M	64	TYR
33	M	80	LEU
33	M	85	ARG
33	M	102	CYS
33	M	107	PHE
34	e	40	TYR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
8	G	85	GLN
11	J	129	ASN
18	R	19	ASN
20	T	33	ASN
21	U	23	GLN
21	U	115	GLN

### 5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	2	1437/1451 (99%)	240 (16%)	9 (0%)
32	g	73/74 (98%)	16 (21%)	0
All	All	1510/1525 (99%)	256 (16%)	9 (0%)

All (256) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	2	2	A
1	2	4	C
1	2	6	G
1	2	17	C
1	2	33	U
1	2	41	G
1	2	42	A
1	2	44	G
1	2	45	A
1	2	46	A
1	2	59	C
1	2	60	G
1	2	62	U
1	2	64	A
1	2	65	C
1	2	71	A
1	2	73	G
1	2	80	A
1	2	91	C
1	2	92	A
1	2	101	A
1	2	114	G
1	2	116	C
1	2	117	C
1	2	124	G
1	2	125	C
1	2	137	G
1	2	138	G
1	2	144	C
1	2	149	C
1	2	151	A
1	2	152	A
1	2	153	G
1	2	160	G
1	2	161	C
1	2	186	G
1	2	195	C
1	2	204	G
1	2	206	C
1	2	226	A
1	2	227	U
1	2	228	C
1	2	230	C

*Continued on next page...*

*Continued from previous page...*

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	2	234	G
1	2	249	G
1	2	250	C
1	2	257	A
1	2	273	C
1	2	312	G
1	2	314	C
1	2	328	A
1	2	329	A
1	2	330	G
1	2	336	C
1	2	351	U
1	2	356	C
1	2	357	A
1	2	365	G
1	2	366	C
1	2	367	G
1	2	380	A
1	2	389	G
1	2	391	G
1	2	393	G
1	2	394	A
1	2	422	G
1	2	434	A
1	2	435	A
1	2	436	G
1	2	445	C
1	2	458	U
1	2	460	A
1	2	474	A
1	2	491	C
1	2	499	G
1	2	500	A
1	2	502	A
1	2	503	C
1	2	504	G
1	2	519	C
1	2	520	C
1	2	521	C
1	2	534	A
1	2	535	A
1	2	544	G

*Continued on next page...*

*Continued from previous page...*

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	2	545	C
1	2	555	G
1	2	558	C
1	2	559	G
1	2	568	G
1	2	569	C
1	2	570	C
1	2	571	G
1	2	578	A
1	2	581	G
1	2	582	C
1	2	584	C
1	2	586	G
1	2	589	G
1	2	592	G
1	2	593	C
1	2	594	G
1	2	599	G
1	2	602	G
1	2	604	G
1	2	605	G
1	2	607	A
1	2	608	G
1	2	614	A
1	2	615	G
1	2	616	G
1	2	624	G
1	2	627	G
1	2	637	U
1	2	679	C
1	2	680	G
1	2	681	C
1	2	684	G
1	2	685	C
1	2	686	C
1	2	711	U
1	2	717	A
1	2	721	A
1	2	739	C
1	2	740	U
1	2	756	A
1	2	777	A

*Continued on next page...*

*Continued from previous page...*

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	2	779	C
1	2	782	U
1	2	783	G
1	2	790	C
1	2	807	U
1	2	809	C
1	2	810	C
1	2	832	G
1	2	833	G
1	2	838	U
1	2	841	G
1	2	879	A
1	2	891	G
1	2	896	G
1	2	899	C
1	2	908	G
1	2	911	G
1	2	912	A
1	2	926	U
1	2	935	A
1	2	937	G
1	2	938	C
1	2	939	G
1	2	941	G
1	2	942	C
1	2	946	U
1	2	948	A
1	2	949	C
1	2	952	G
1	2	957	G
1	2	958	G
1	2	967	A
1	2	968	G
1	2	969	G
1	2	980	G
1	2	983	C
1	2	984	G
1	2	985	C
1	2	990	U
1	2	997	C
1	2	1008	U
1	2	1025	C

*Continued on next page...*

*Continued from previous page...*

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	2	1027	G
1	2	1052	A
1	2	1053	U
1	2	1054	U
1	2	1060	A
1	2	1069	G
1	2	1085	G
1	2	1086	C
1	2	1087	C
1	2	1088	G
1	2	1095	G
1	2	1101	C
1	2	1107	C
1	2	1119	G
1	2	1130	A
1	2	1131	G
1	2	1139	A
1	2	1145	U
1	2	1147	A
1	2	1148	G
1	2	1149	A
1	2	1150	C
1	2	1163	A
1	2	1167	G
1	2	1185	C
1	2	1189	C
1	2	1192	C
1	2	1196	C
1	2	1208	C
1	2	1210	G
1	2	1211	A
1	2	1212	G
1	2	1228	G
1	2	1229	G
1	2	1244	C
1	2	1247	C
1	2	1261	A
1	2	1269	G
1	2	1275	G
1	2	1278	C
1	2	1286	C
1	2	1292	G

*Continued on next page...*



*Continued from previous page...*

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	2	1297	A
1	2	1301	G
1	2	1319	C
1	2	1324	C
1	2	1341	C
1	2	1342	U
1	2	1343	G
1	2	1367	C
1	2	1368	G
1	2	1369	C
1	2	1370	G
1	2	1372	G
1	2	1408	A
1	2	1412	G
1	2	1413	U
1	2	1414	A
1	2	1418	A
1	2	1419	G
1	2	1421	U
1	2	1432	G
1	2	1434	A
1	2	1435	C
1	2	1444	G
1	2	1445	G
1	2	1446	A
1	2	1447	U
1	2	1448	C
1	2	1450	C
1	2	1451	U
32	g	2	G
32	g	12	G
32	g	16	U
32	g	17	U
32	g	18	G
32	g	20	U
32	g	22	A
32	g	32	U
32	g	33	C
32	g	35	C
32	g	46	G
32	g	52	G
32	g	55	U

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
32	g	56	U
32	g	59	A
32	g	74	A

All (9) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	2	1	C
1	2	115	U
1	2	203	C
1	2	393	G
1	2	421	C
1	2	604	G
1	2	679	C
1	2	840	C
1	2	989	U

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

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

#### 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

#### 5.6 Ligand geometry [i](#)

Of 26 ligands modelled in this entry, 25 are 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
35	YAT	2	1501	-	39,39,39	3.23	18 (46%)	51,56,56	2.55	18 (35%)

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
35	YAT	2	1501	-	-	8/14/49/49	0/5/5/5

All (18) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
35	2	1501	YAT	CAN-CAM	-10.67	1.31	1.51
35	2	1501	YAT	CAN-NBI	10.28	1.66	1.47
35	2	1501	YAT	CAQ-NBI	4.21	1.54	1.47
35	2	1501	YAT	CBC-CBG	4.14	1.55	1.52
35	2	1501	YAT	OAT-CAZ	4.05	1.43	1.37
35	2	1501	YAT	CAI-CBB	3.75	1.45	1.38
35	2	1501	YAT	CAF-CAW	3.72	1.45	1.39
35	2	1501	YAT	CAX-CBD	3.44	1.45	1.40
35	2	1501	YAT	CAW-CBC	-3.23	1.34	1.40
35	2	1501	YAT	CBG-NAR	2.96	1.50	1.47
35	2	1501	YAT	CAG-CAX	2.94	1.44	1.39
35	2	1501	YAT	CAH-CBC	2.94	1.44	1.39
35	2	1501	YAT	CAG-CAZ	2.83	1.43	1.38
35	2	1501	YAT	OAS-CAY	2.76	1.41	1.37
35	2	1501	YAT	OAV-CBB	2.74	1.41	1.37
35	2	1501	YAT	OAU-CBA	2.55	1.41	1.37
35	2	1501	YAT	CAO-CBF	2.39	1.58	1.53
35	2	1501	YAT	CAI-CBD	2.35	1.43	1.39

All (18) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
35	2	1501	YAT	CAN-NBI-CAQ	11.51	132.44	110.32
35	2	1501	YAT	CAP-CBH-CBD	-4.99	105.97	113.07
35	2	1501	YAT	CAQ-CBE-CBF	4.42	116.74	108.12
35	2	1501	YAT	OAU-CBA-CAY	3.77	120.52	115.40
35	2	1501	YAT	CAL-CAK-NAR	3.69	114.02	109.02
35	2	1501	YAT	OAT-CAZ-CBB	3.43	120.06	115.40
35	2	1501	YAT	OAS-CAY-CBA	3.39	120.00	115.40
35	2	1501	YAT	CAJ-CBE-CAQ	-3.05	104.65	111.77
35	2	1501	YAT	CAP-CBF-CBE	2.91	115.34	110.57
35	2	1501	YAT	CAK-CAL-CAW	2.85	115.72	110.66
35	2	1501	YAT	CBE-CAQ-NBI	2.82	115.89	112.17

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
35	2	1501	YAT	OAV-CBB-CAZ	2.74	119.11	115.40
35	2	1501	YAT	CAC-OAT-CAZ	-2.68	113.58	117.51
35	2	1501	YAT	CAB-OAS-CAY	-2.57	113.75	117.51
35	2	1501	YAT	OAU-CBA-CAH	-2.54	119.70	124.08
35	2	1501	YAT	OAT-CAZ-CAG	-2.50	119.76	124.08
35	2	1501	YAT	CAJ-CBE-CBF	-2.32	108.62	114.56
35	2	1501	YAT	OAS-CAY-CAF	-2.29	120.13	124.08

There are no chirality outliers.

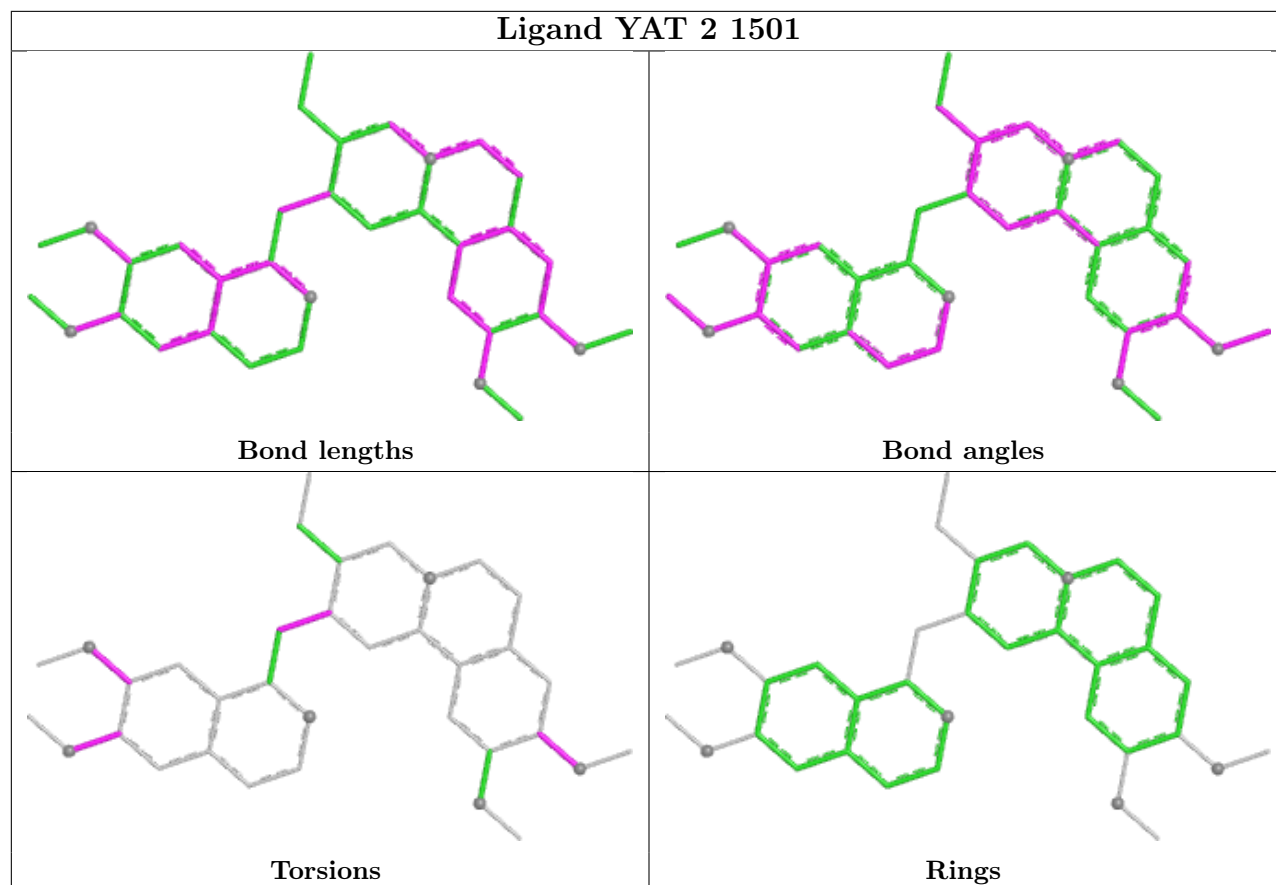
All (8) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
35	2	1501	YAT	CAF-CAY-OAS-CAB
35	2	1501	YAT	CAG-CAZ-OAT-CAC
35	2	1501	YAT	CBA-CAY-OAS-CAB
35	2	1501	YAT	CAY-CBA-OAU-CAD
35	2	1501	YAT	CBB-CAZ-OAT-CAC
35	2	1501	YAT	CAH-CBA-OAU-CAD
35	2	1501	YAT	CBG-CAO-CBF-CBE
35	2	1501	YAT	CBG-CAO-CBF-CAP

There are no ring outliers.

No monomer is involved in short contacts.

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.

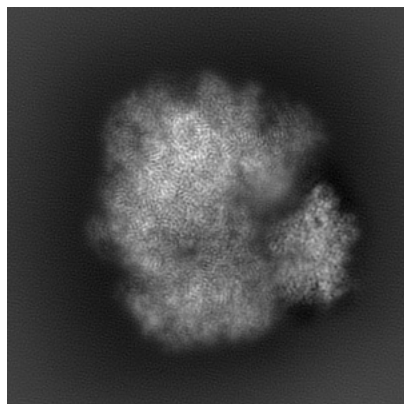
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-29721. These allow visual inspection of the internal detail of the map and identification of artifacts.

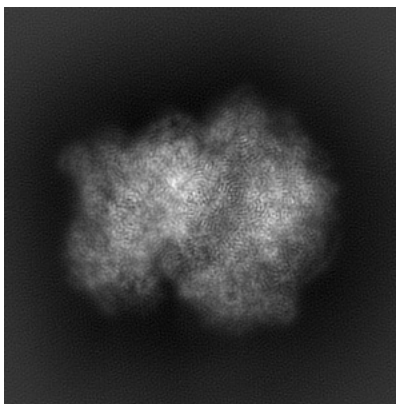
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

### 6.1 Orthogonal projections [i](#)

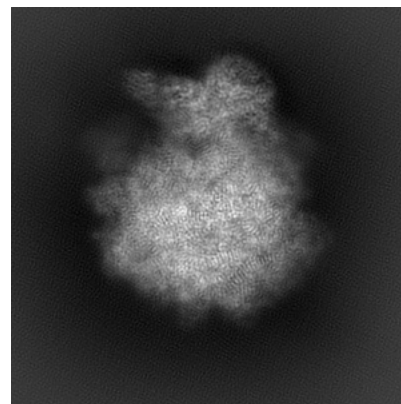
#### 6.1.1 Primary map



X

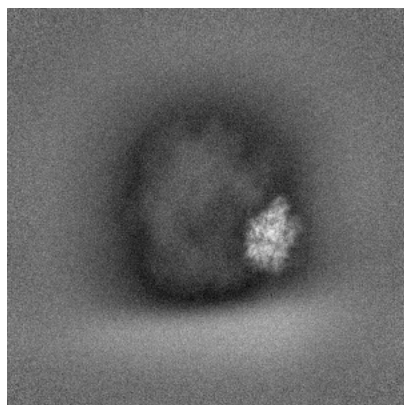


Y

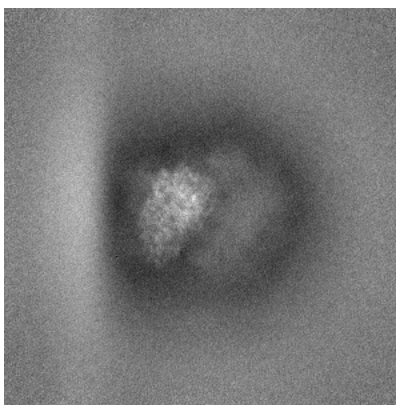


Z

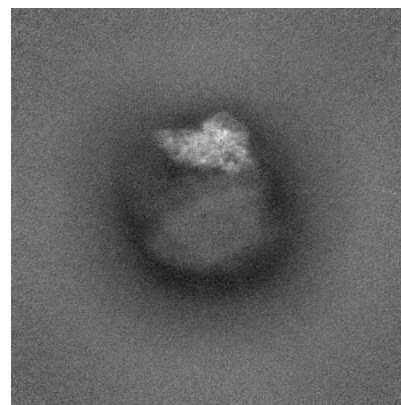
#### 6.1.2 Raw map



X



Y

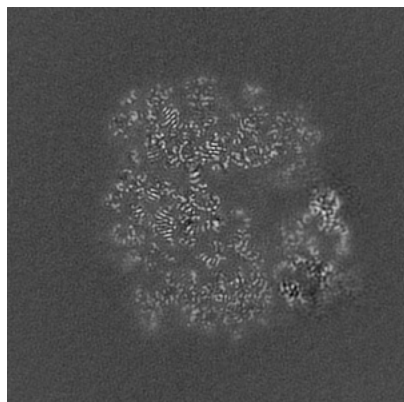


Z

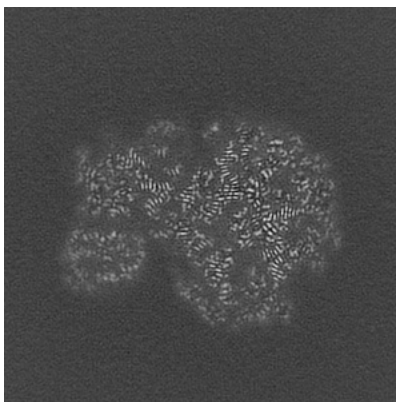
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

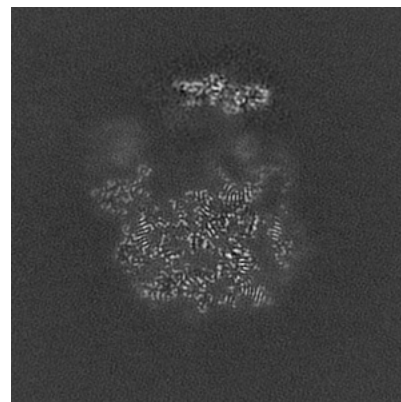
### 6.2.1 Primary map



X Index: 225

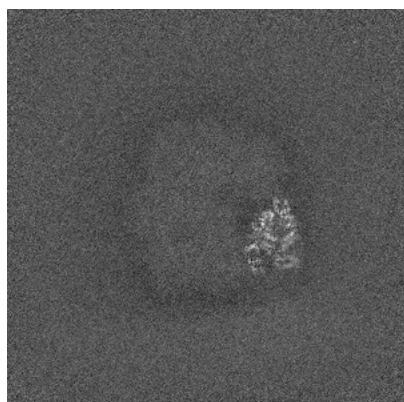


Y Index: 225

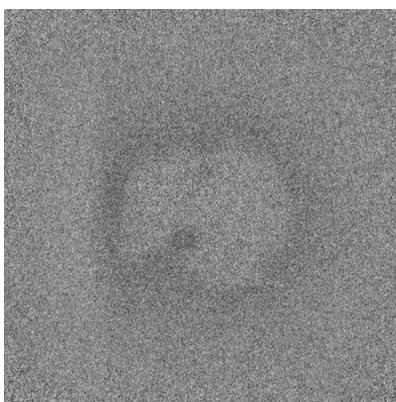


Z Index: 225

### 6.2.2 Raw map



X Index: 351



Y Index: 351

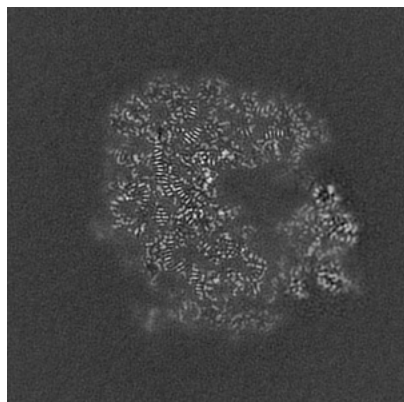


Z Index: 351

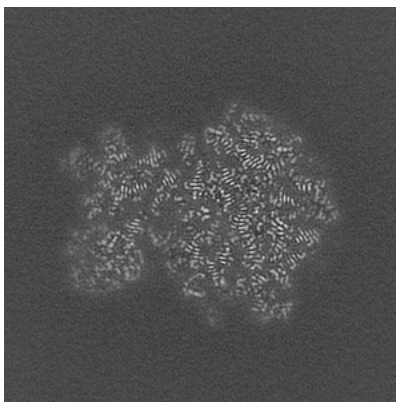
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

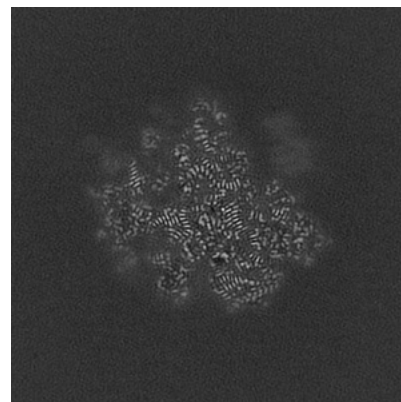
### 6.3.1 Primary map



X Index: 239

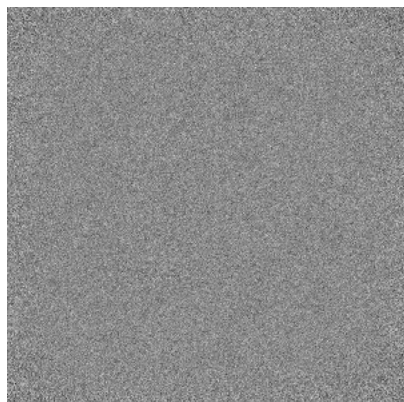


Y Index: 217

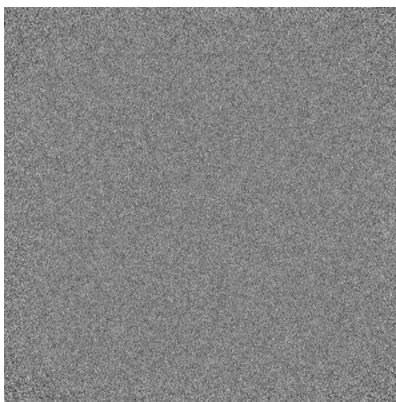


Z Index: 280

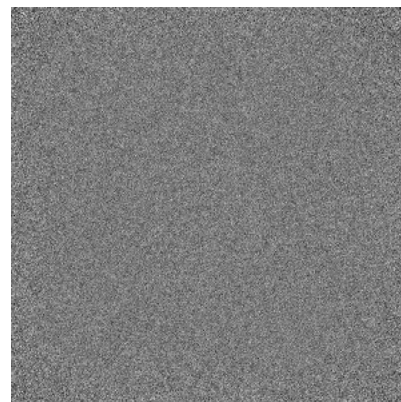
### 6.3.2 Raw map



X Index: 0



Y Index: 0



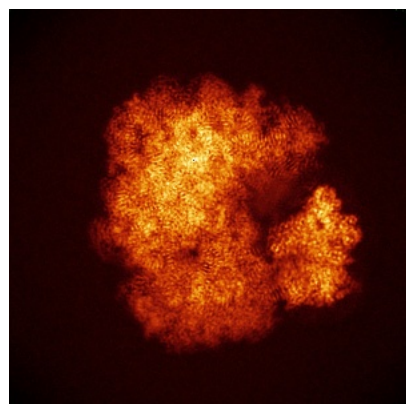
Z Index: 0

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

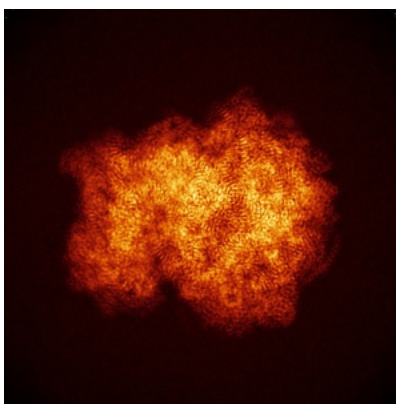


## 6.4 Orthogonal standard-deviation projections (False-color) [i](#)

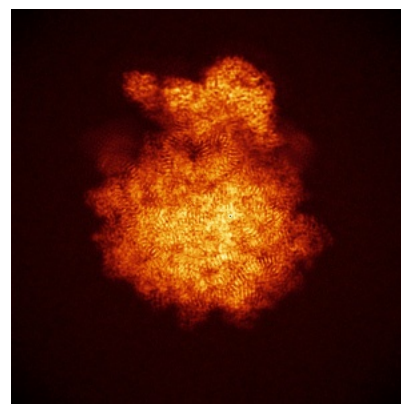
### 6.4.1 Primary map



X



Y

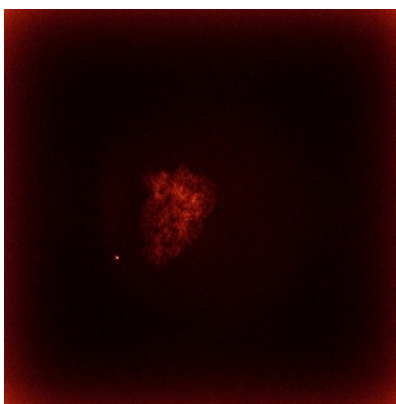


Z

### 6.4.2 Raw map



X



Y

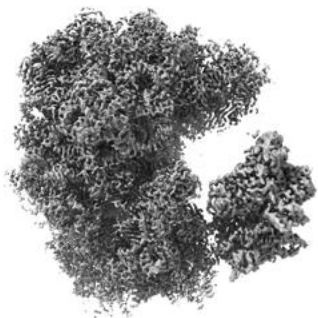


Z

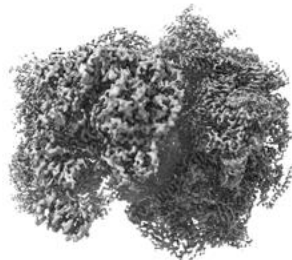
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

## 6.5 Orthogonal surface views [i](#)

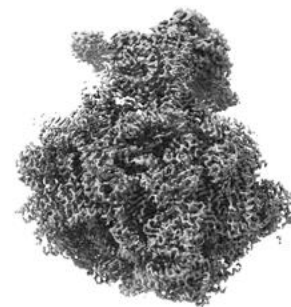
### 6.5.1 Primary map



X



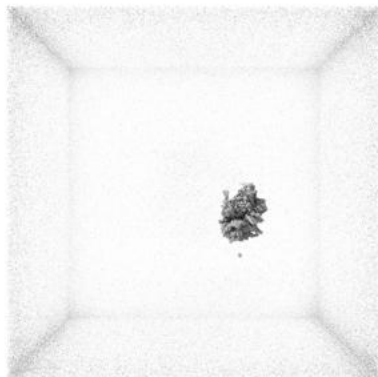
Y



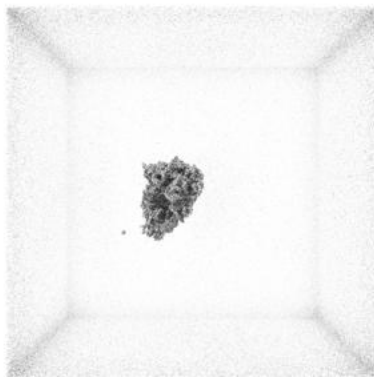
Z

The images above show the 3D surface view of the map at the recommended contour level 4.54. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

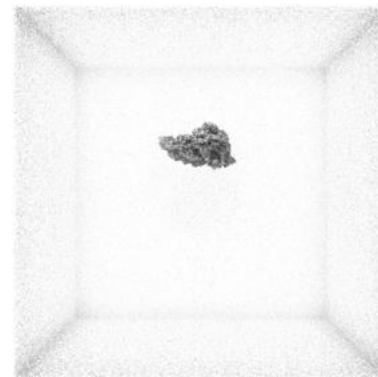
### 6.5.2 Raw map



X



Y



Z

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

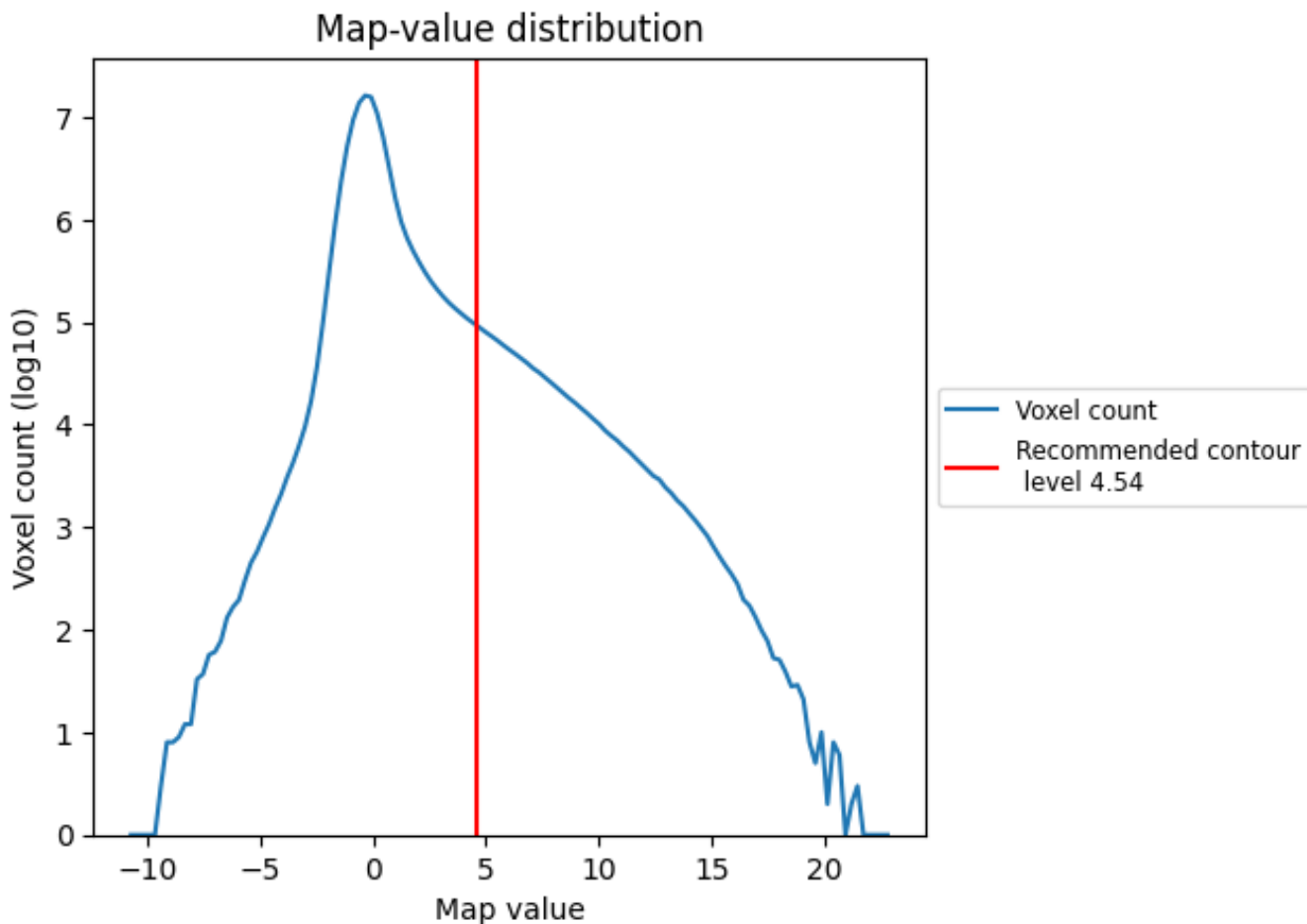
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

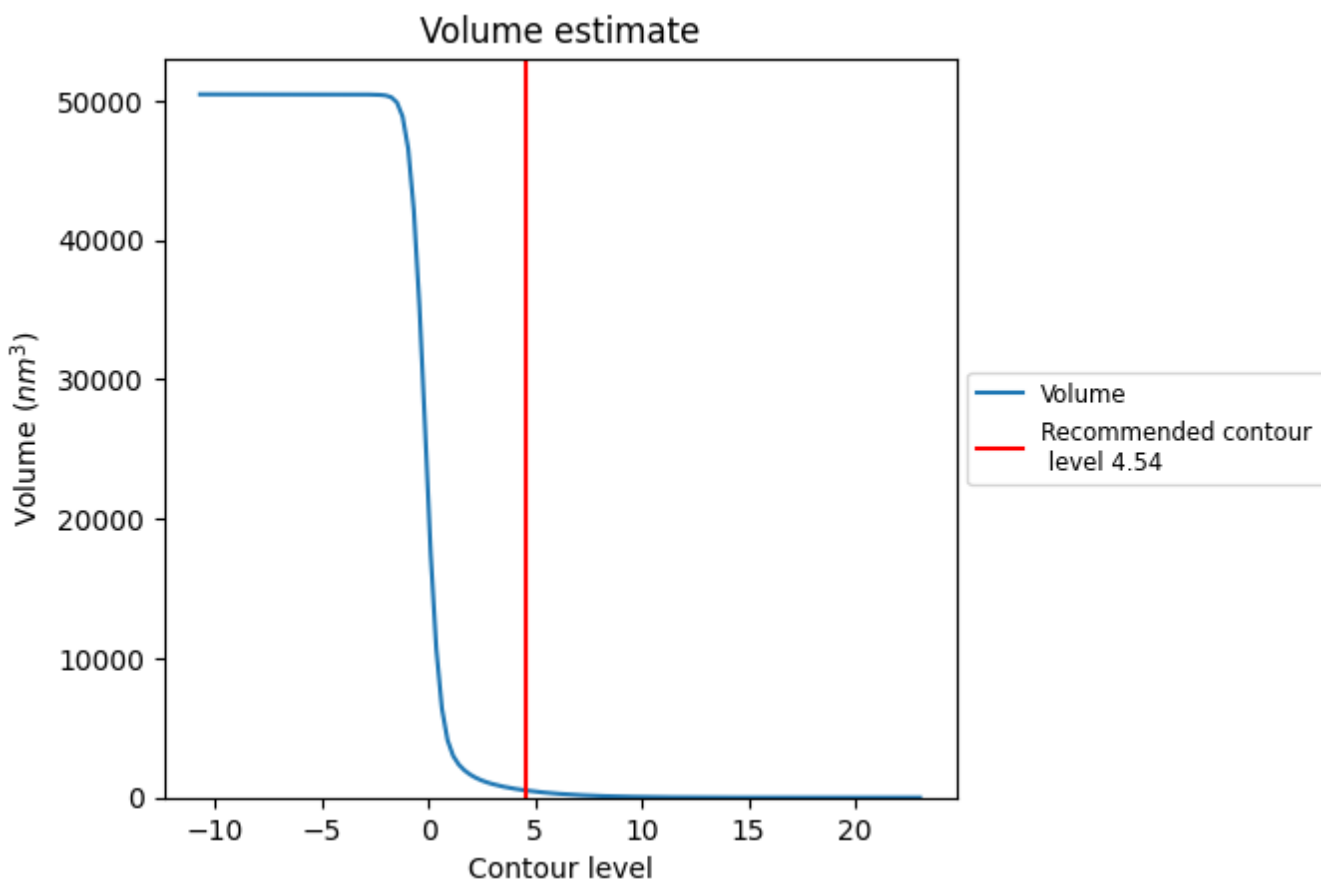
This section contains the results of statistical analysis of the map.

### 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.

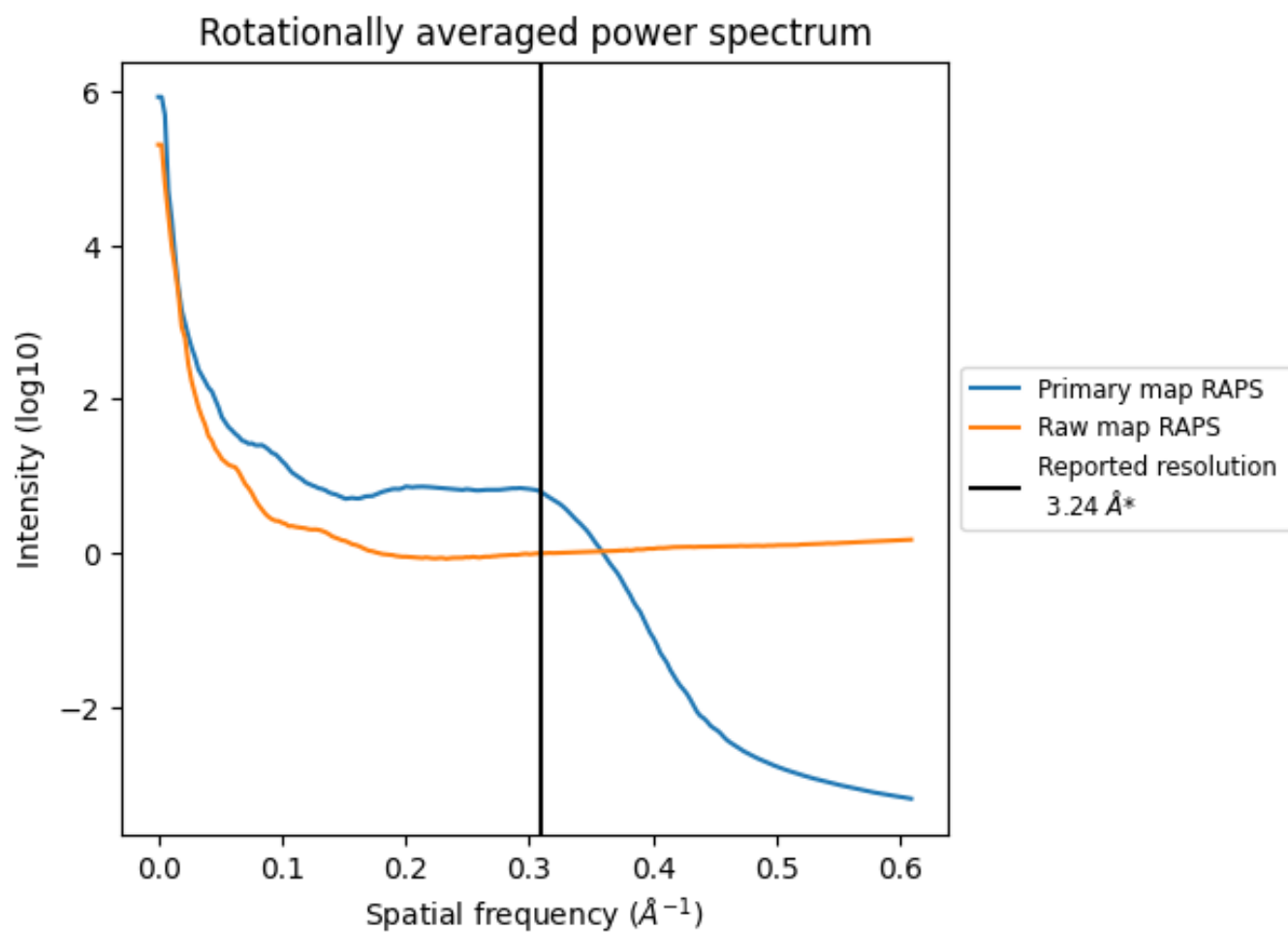
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 516 nm<sup>3</sup>; this corresponds to an approximate mass of 466 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](#)

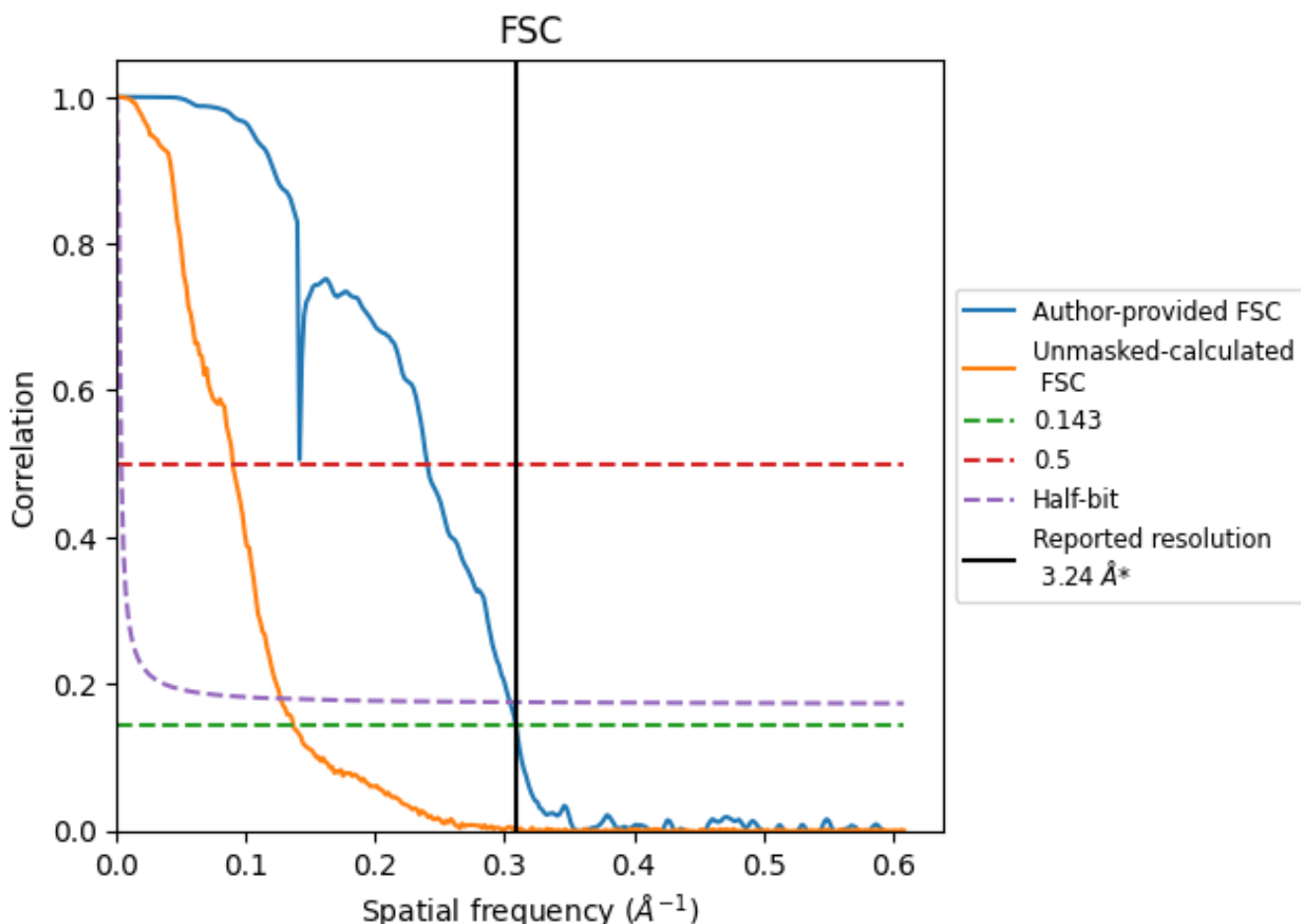


\*Reported resolution corresponds to spatial frequency of 0.309 Å<sup>-1</sup>

## 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 0.309 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

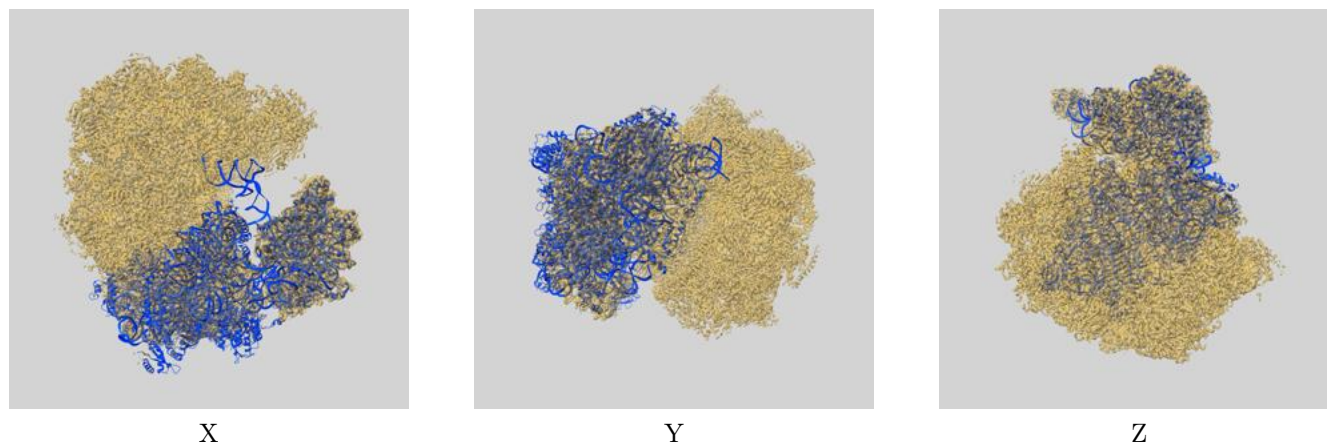
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.24	-	-
Author-provided FSC curve	3.24	4.16	3.29
Unmasked-calculated*	7.32	11.14	7.89

\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 7.32 differs from the reported value 3.24 by more than 10 %

## 9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-29721 and PDB model 8G4I. Per-residue inclusion information can be found in section 3 on page 13.

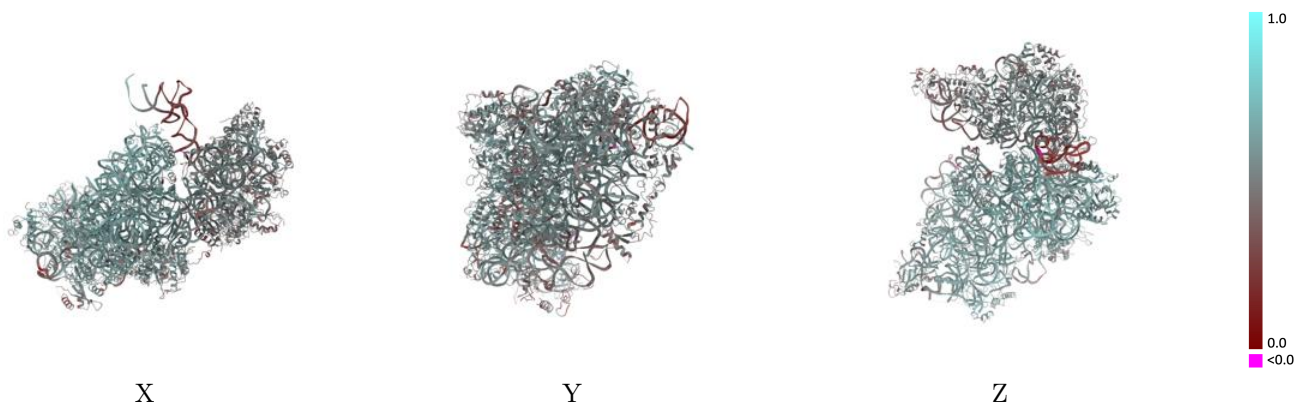
### 9.1 Map-model overlay [i](#)



The images above show the 3D surface view of the map at the recommended contour level 4.54 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.

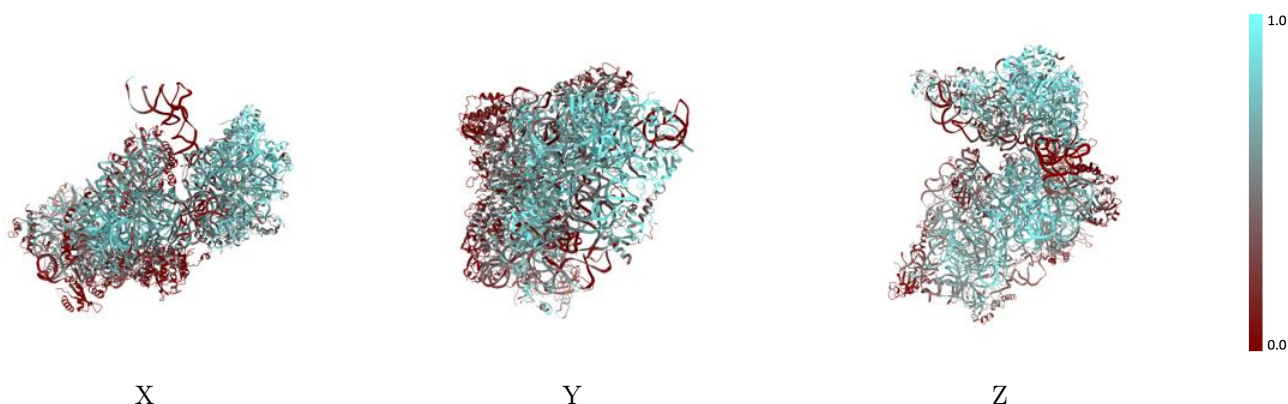


## 9.2 Q-score mapped to coordinate model [i](#)



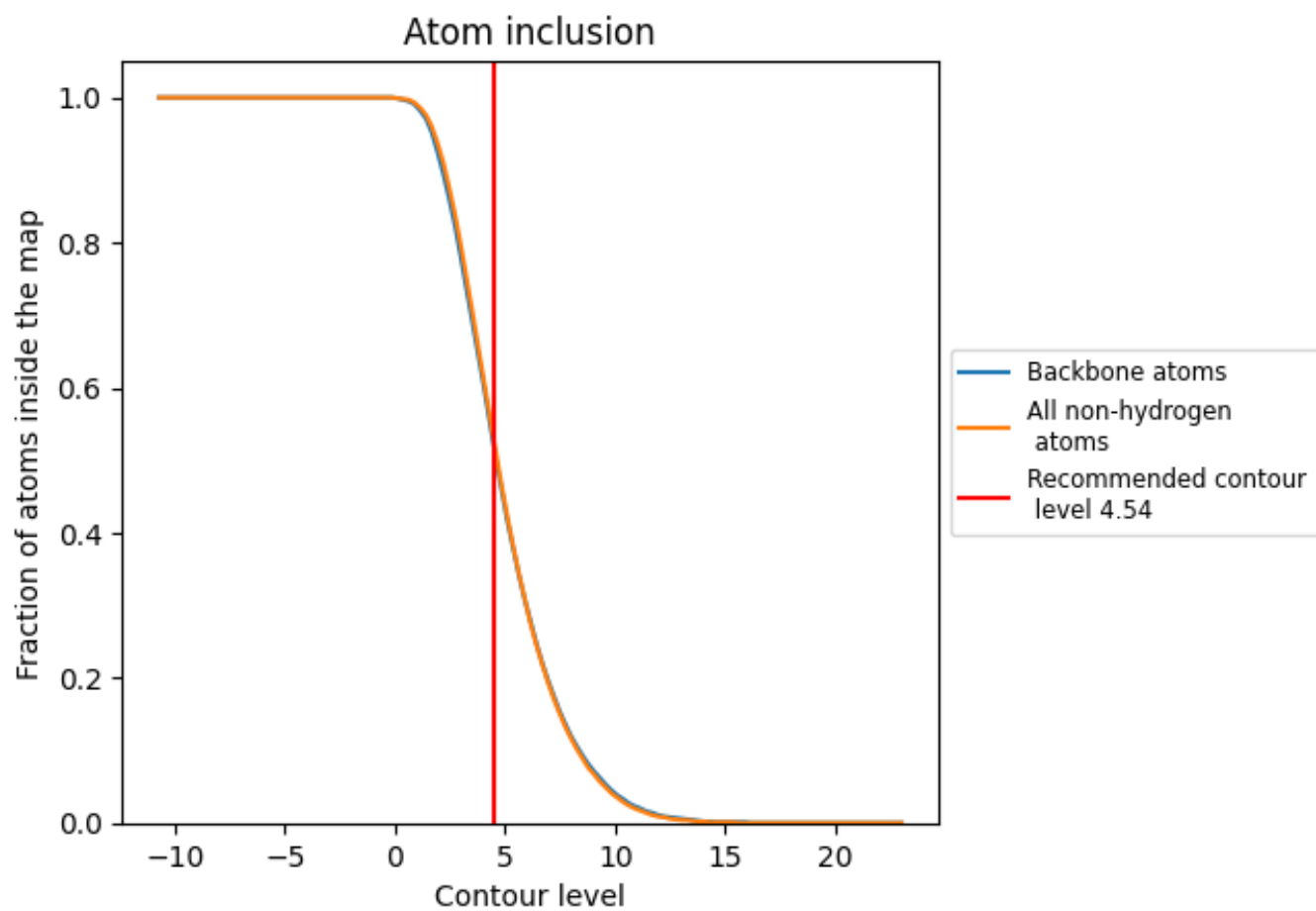
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (4.54).







































































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 51% of all backbone atoms, 52% 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 (4.54) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.5210	 0.5440
2	 0.6420	 0.5730
A	 0.1440	 0.5250
B	 0.3310	 0.5910
C	 0.3820	 0.5750
D	 0.6000	 0.4760
E	 0.3360	 0.5820
F	 0.7060	 0.4950
G	 0.1190	 0.5030
H	 0.1620	 0.5150
I	 0.4850	 0.6030
J	 0.2640	 0.5470
K	 0.6880	 0.4730
L	 0.4760	 0.6120
M	 0.6130	 0.4170
N	 0.3500	 0.5770
O	 0.3500	 0.5890
P	 0.6600	 0.4760
Q	 0.6710	 0.4900
R	 0.5870	 0.4360
S	 0.6560	 0.4900
T	 0.7920	 0.5130
U	 0.5740	 0.4690
V	 0.1870	 0.5270
W	 0.5280	 0.6010
X	 0.2320	 0.5840
Y	 0.0710	 0.4880
Z	 0.7880	 0.4820
a	 0.4640	 0.6060
b	 0.2910	 0.5700
c	 0.6050	 0.4720
d	 0.5380	 0.4950
e	 0.0710	 0.3340
f	 0.3160	 0.3310
g	 0.0650	 0.2900

