Full wwPDB EM Validation Report ⓘ

May 12, 2024 – 04:14 am BST

PDB ID	:	6RI5
EMDB ID	:	EMD-4884
Title	:	Cryo-EM structures of Lsg1-TAP pre-60S ribosomal particles
Authors	:	Kargas, V.; Warren, A.J.
Deposited on	:	2019-04-23
Resolution	:	3.30 Å(reported)
Based on initial model	:	4V88

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

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

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

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

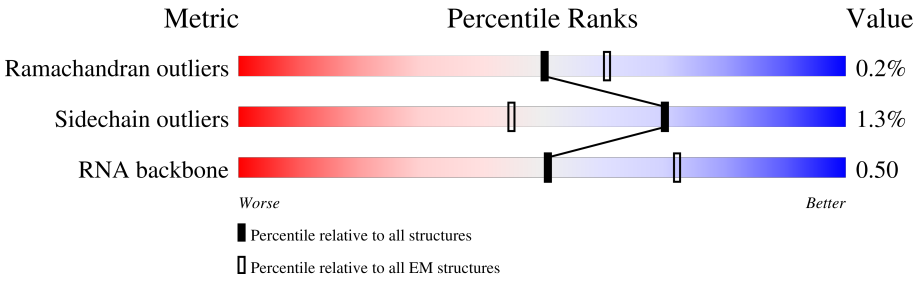
EMDB validation analysis	:	0.0.1.dev92
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36.2

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.30 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)
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

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

Mol	Chain	Length	Quality of chain
1	A	3396	6% 65% 26% 7%
2	B	254	95%
3	C	387	96%
4	D	362	99%
5	E	174	16% 96%
6	F	191	99%
7	G	176	26% 98%
8	H	256	12% 86% 13%

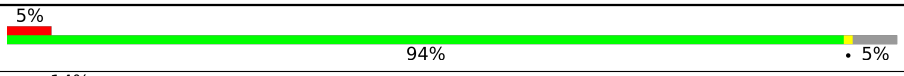
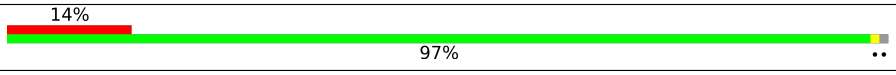
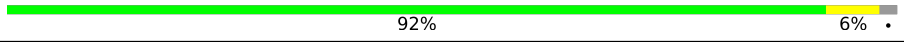
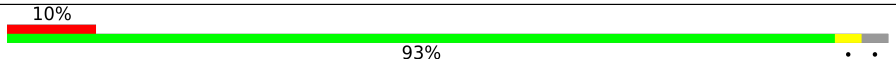
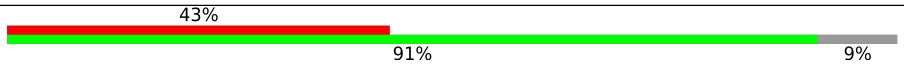
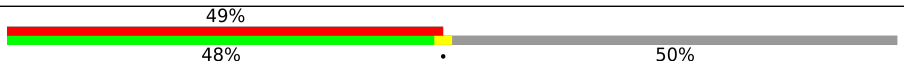
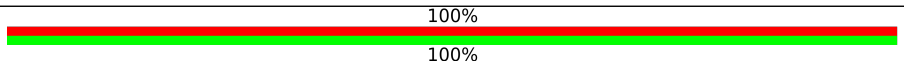
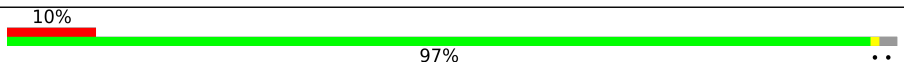
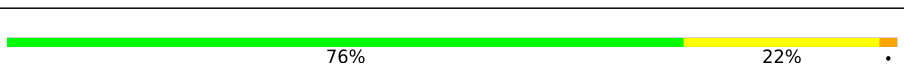
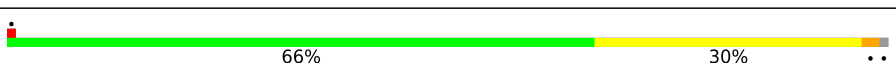
Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
9	J	198	5% 97%
10	K	199	7% 91% 7%
11	L	137	5% 98%
12	M	138	8% 96%
13	N	149	5% 99%
14	O	204	98%
15	P	297	5% 90% 9%
16	Q	186	99%
17	R	189	78% 21%
18	S	172	98%
19	T	160	6% 96%
20	U	184	82% 16%
21	V	121	10% 80% 18%
22	W	142	82% 15%
23	X	127	98%
24	Y	136	11% 99%
25	Z	120	97%
26	a	59	8% 88% 12%
27	b	244	89% 10%
28	c	105	11% 91% 8%
29	d	113	12% 93% 5%
30	e	130	5% 93% 5%
31	f	107	94% 5%
32	g	121	82% 15%
33	h	100	25% 97%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
34	i	88	
35	j	78	
36	k	51	
37	l	106	
38	m	92	
39	n	245	
40	z	432	
41	w	518	
42	v	155	
43	o	640	
44	p	210	
45	q	221	
46	t	128	
47	x	121	
48	y	158	

2 Entry composition

There are 49 unique types of molecules in this entry. The entry contains 130139 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a RNA chain called 25S RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	A	3147	67312	30071	12145	21951	3145	0	0

- Molecule 2 is a protein called 60S ribosomal protein L2-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	247	1878	1170	381	326	1	0	0

- Molecule 3 is a protein called 60S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	381	3039	1928	577	526	8	0	0

- Molecule 4 is a protein called 60S ribosomal protein L4-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	D	361	2748	1730	522	493	3	0	0

- Molecule 5 is a protein called 60S ribosomal protein L11-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	E	169	1352	847	253	248	4	0	0

- Molecule 6 is a protein called 60S ribosomal protein L9-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	F	189	1502	953	272	273	4	0	0

- Molecule 7 is a protein called 60S ribosomal protein L6-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	G	175	Total	C	N	O	S	0	0
			1399	902	251	245	1		

- Molecule 8 is a protein called 60S ribosomal protein L8-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	H	223	Total	C	N	O	S	0	0
			1742	1117	309	313	3		

- Molecule 9 is a protein called 60S ribosomal protein L16-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	J	197	Total	C	N	O	S	0	0
			1563	1005	292	265	1		

- Molecule 10 is a protein called 60S ribosomal protein L13-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
10	K	186	Total	C	N	O	0	0
			1486	929	304	253		

- Molecule 11 is a protein called 60S ribosomal protein L23-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	L	136	Total	C	N	O	S	0	0
			1002	628	189	178	7		

- Molecule 12 is a protein called 60S ribosomal protein L14-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	M	135	Total	C	N	O	S	0	0
			1045	669	197	177	2		

- Molecule 13 is a protein called 60S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	N	148	Total	C	N	O	S	0	0
			1172	749	231	189	3		

- Molecule 14 is a protein called 60S ribosomal protein L15-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	O	203	Total	C	N	O	S	0	0
			1719	1077	361	280	1		

- Molecule 15 is a protein called 60S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	P	269	Total	C	N	O	S	0	0
			2176	1378	375	421	2		

- Molecule 16 is a protein called 60S ribosomal protein L18-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	Q	185	Total	C	N	O	S	0	0
			1440	908	290	240	2		

- Molecule 17 is a protein called 60S ribosomal protein L19-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
17	R	150	Total	C	N	O	0	0
			1209	752	257	200		

- Molecule 18 is a protein called 60S ribosomal protein L20-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	S	171	Total	C	N	O	S	0	0
			1436	925	266	242	3		

- Molecule 19 is a protein called 60S ribosomal protein L21-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	T	159	Total	C	N	O	S	0	0
			1275	805	246	220	4		

- Molecule 20 is a protein called 60S ribosomal protein L17-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
20	U	154	Total	C	N	O	0	0
			1222	761	237	224		

- Molecule 21 is a protein called 60S ribosomal protein L22-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
21	V	99	Total	C	N	O	0	0
			786	510	129	147		

- Molecule 22 is a protein called 60S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	W	120	Total	C	N	O	S	0	0
			958	617	168	171	2		

- Molecule 23 is a protein called 60S ribosomal protein L26-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
23	X	125	Total	C	N	O	0	0
			984	620	191	173		

- Molecule 24 is a protein called 60S ribosomal protein L27-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
24	Y	135	Total	C	N	O	0	0
			1091	710	202	179		

- Molecule 25 is a protein called 60S ribosomal protein L35-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	Z	118	Total	C	N	O	S	0	0
			963	612	185	165	1		

- Molecule 26 is a protein called 60S ribosomal protein L29.

Mol	Chain	Residues	Atoms				AltConf	Trace
26	a	52	Total	C	N	O	0	0
			415	259	90	66		

- Molecule 27 is a protein called 60S ribosomal protein L7-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	b	219	Total	C	N	O	S	0	0
			1760	1138	320	301	1		

- Molecule 28 is a protein called 60S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	c	97	Total	C	N	O	S	0	0
			741	479	124	137	1		

- Molecule 29 is a protein called 60S ribosomal protein L31-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	d	107	Total	C	N	O	S	0	0
			872	553	165	153	1		

- Molecule 30 is a protein called 60S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	e	127	Total	C	N	O	S	0	0
			1020	646	205	167	2		

- Molecule 31 is a protein called 60S ribosomal protein L33-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	f	106	Total	C	N	O	S	0	0
			849	540	165	143	1		

- Molecule 32 is a protein called 60S ribosomal protein L34-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	g	103	Total	C	N	O	S	0	0
			812	504	167	137	4		

- Molecule 33 is a protein called 60S ribosomal protein L36-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	h	98	Total	C	N	O	S	0	0
			763	477	155	129	2		

- Molecule 34 is a protein called 60S ribosomal protein L37-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	i	84	Total	C	N	O	S	0	0
			665	405	145	110	5		

- Molecule 35 is a protein called 60S ribosomal protein L38.

Mol	Chain	Residues	Atoms				AltConf	Trace
35	j	77	Total 611	C 391	N 115	O 105	0	0

- Molecule 36 is a protein called 60S ribosomal protein L39.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	k	50	Total 435	C 272	N 97	O 64	S 2	0	0

- Molecule 37 is a protein called 60S ribosomal protein L42-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	l	94	Total 756	C 476	N 153	O 122	S 5	0	0

- Molecule 38 is a protein called 60S ribosomal protein L43-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	m	89	Total 680	C 421	N 136	O 117	S 6	0	0

- Molecule 39 is a protein called Eukaryotic translation initiation factor 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	n	224	Total 1691	C 1051	N 293	O 340	S 7	0	0

- Molecule 40 is a protein called Cytoplasmic 60S subunit biogenesis factor REH1.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	z	58	Total 491	C 301	N 100	O 87	S 3	0	0

- Molecule 41 is a protein called 60S ribosomal export protein NMD3.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	w	367	Total 2896	C 1845	N 497	O 534	S 20	0	0

- Molecule 42 is a protein called 60S ribosomal protein L24-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	v	60	Total	C	N	O	S	0	0
			500	322	98	79	1		

- Molecule 43 is a protein called Large subunit GTPase 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	o	319	Total	C	N	O	S	0	0
			2569	1645	443	474	7		

- Molecule 44 is a protein called uL1.

Mol	Chain	Residues	Atoms				AltConf	Trace
44	p	210	Total	C	N	O	0	0
			1050	630	210	210		

- Molecule 45 is a protein called 60S ribosomal protein L10.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	q	216	Total	C	N	O	S	0	0
			1754	1111	332	304	7		

- Molecule 46 is a protein called Ubiquitin-60S ribosomal protein L40.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	t	52	Total	C	N	O	S	0	0
			417	259	86	67	5		

- Molecule 47 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	x	121	Total	C	N	O	P	0	0
			2576	1152	461	843	120		

- Molecule 48 is a RNA chain called 5.8S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	y	156	Total	C	N	O	P	0	0
			3310	1482	582	1091	155		

- Molecule 49 is ZINC ION (three-letter code: ZN) (formula: Zn).

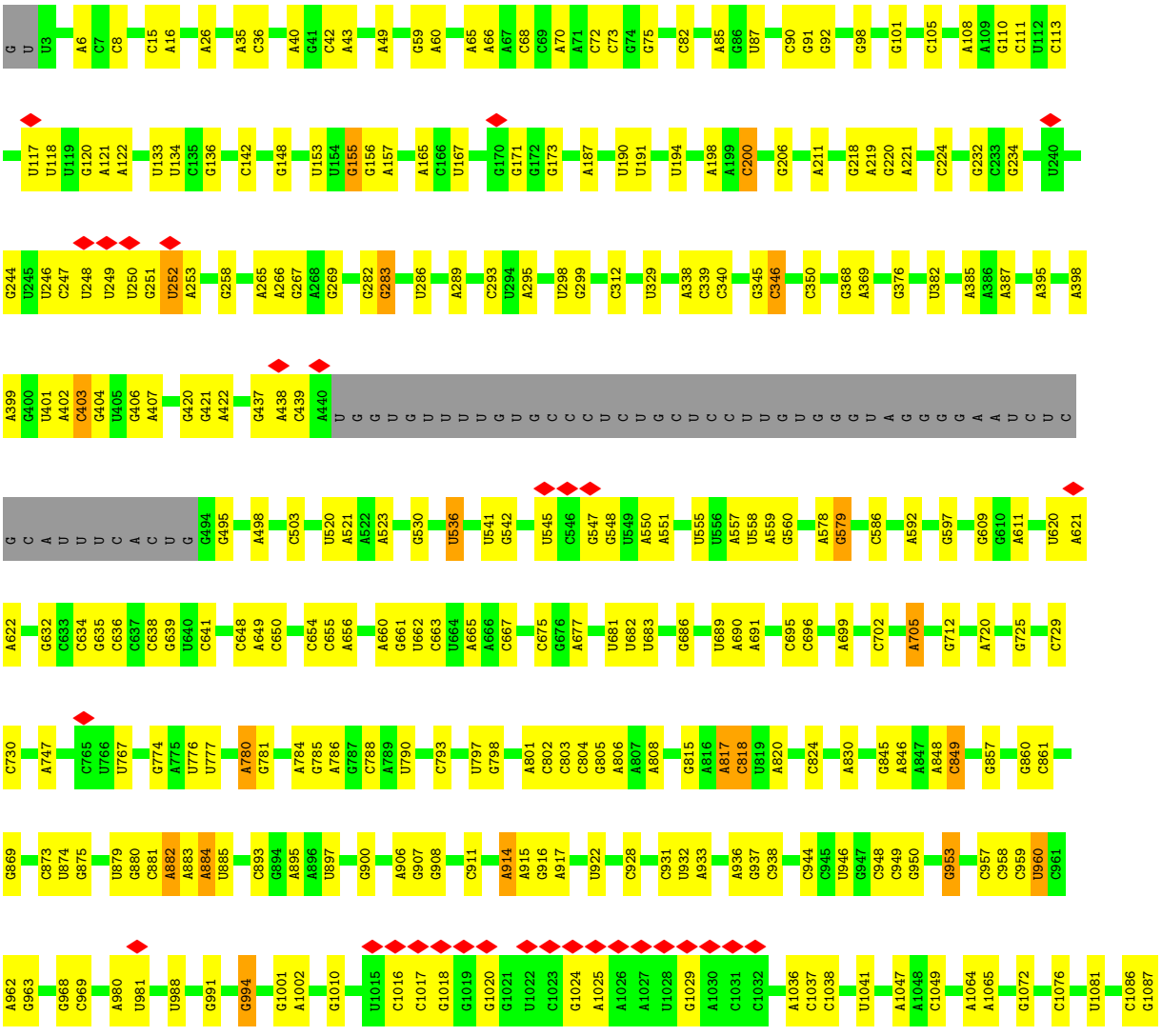
Mol	Chain	Residues	Atoms	AltConf
49	g	1	Total Zn 1 1	0
49	i	1	Total Zn 1 1	0
49	l	1	Total Zn 1 1	0
49	m	1	Total Zn 1 1	0
49	w	2	Total Zn 2 2	0
49	t	1	Total Zn 1 1	0

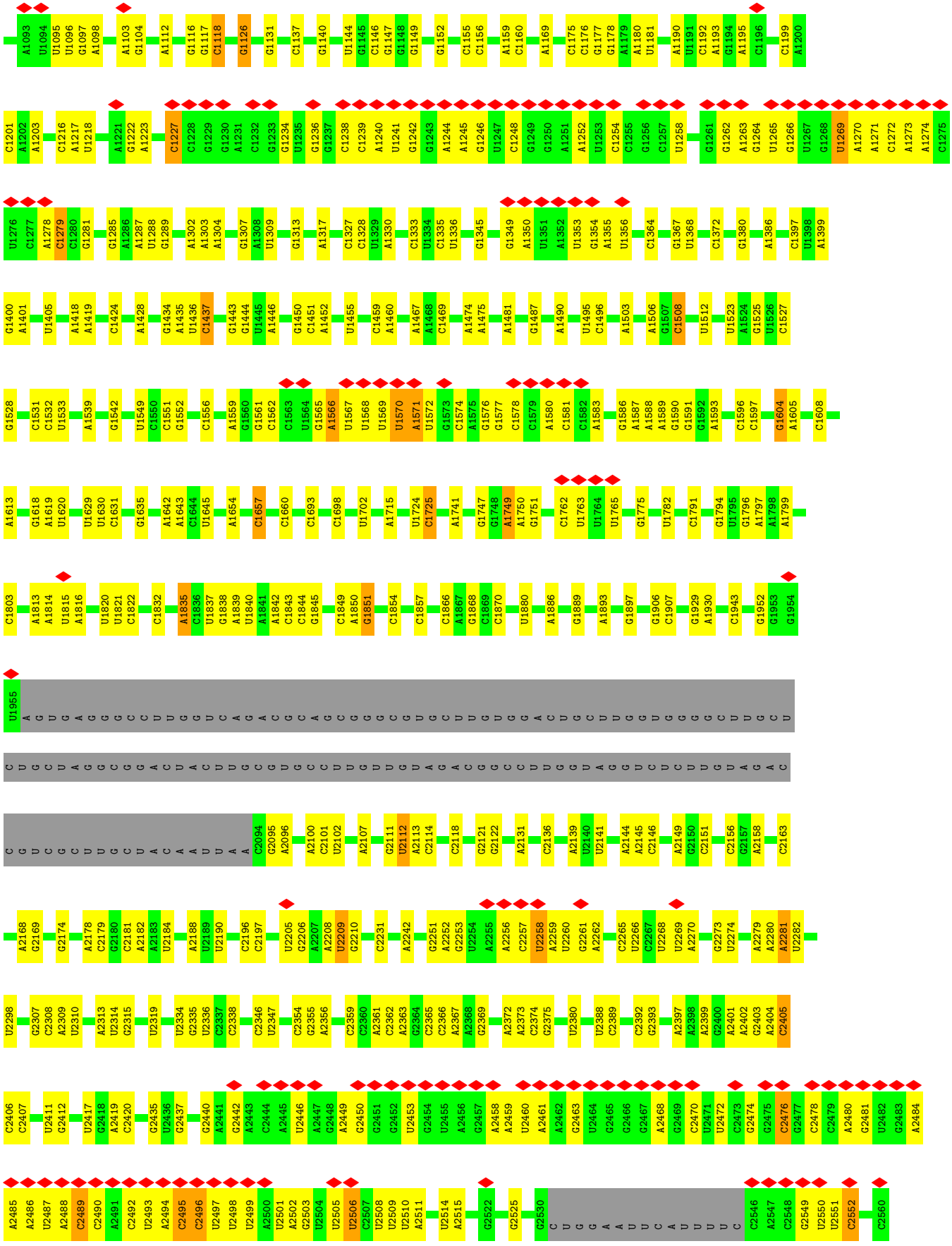
3 Residue-property plots (i)

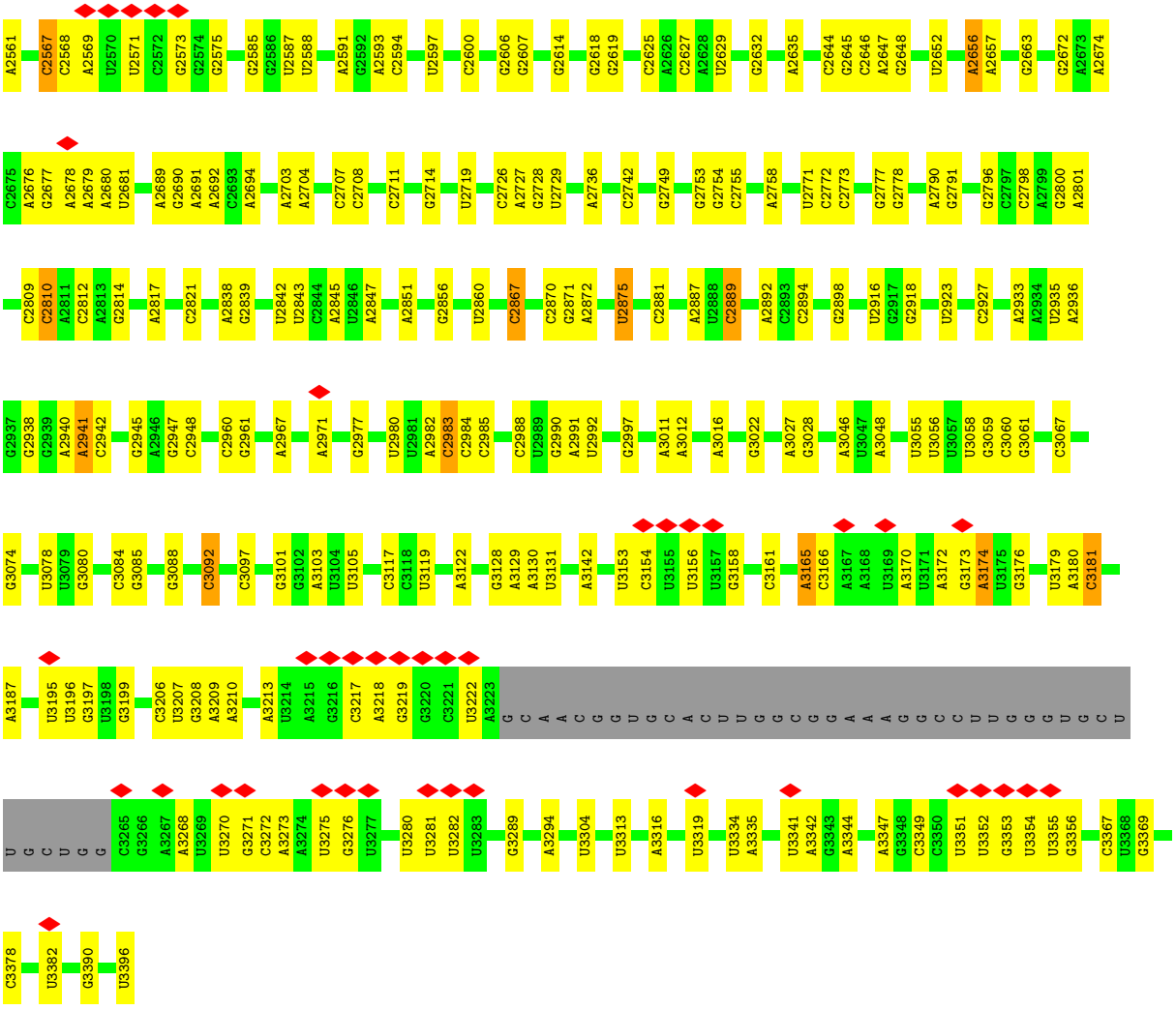
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

- Molecule 1: 25S RNA

Chain A:

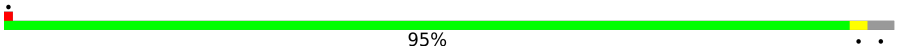






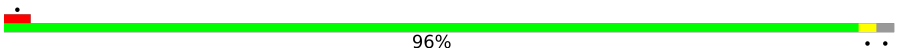
• Molecule 2: 60S ribosomal protein L2-A

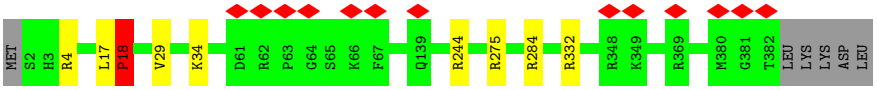
Chain B:



• Molecule 3: 60S ribosomal protein L3

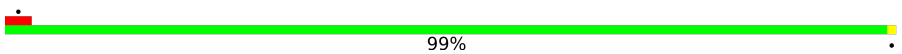
Chain C:

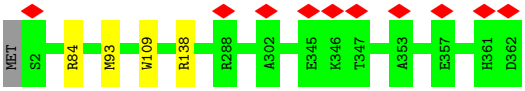




• Molecule 4: 60S ribosomal protein L4-A

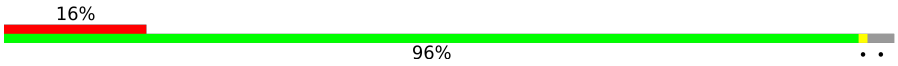
Chain D:

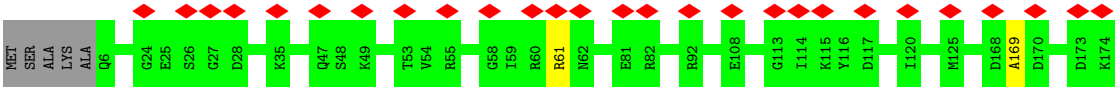




• Molecule 5: 60S ribosomal protein L11-A

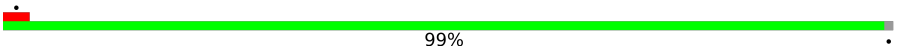
Chain E:

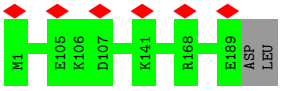




• Molecule 6: 60S ribosomal protein L9-A

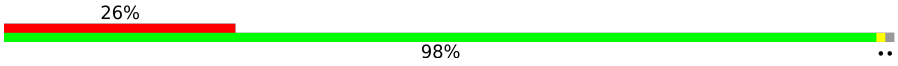
Chain F:

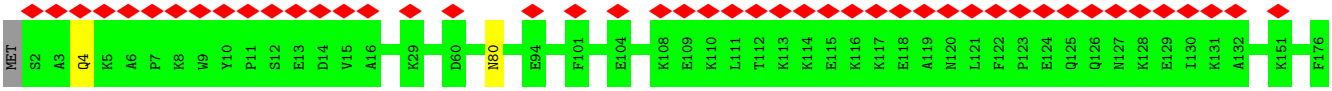




• Molecule 7: 60S ribosomal protein L6-A

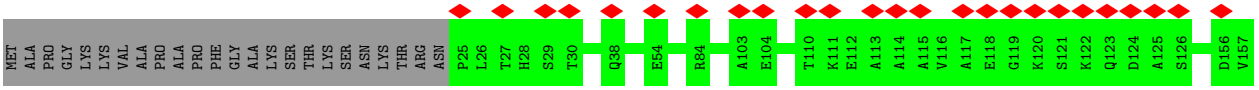
Chain G:

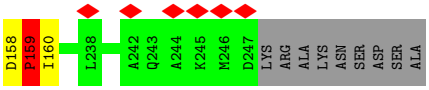




• Molecule 8: 60S ribosomal protein L8-A

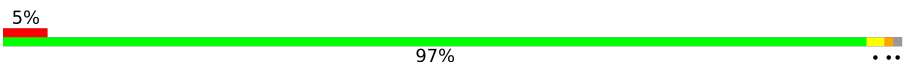
Chain H:

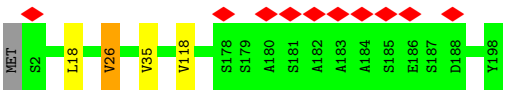




• Molecule 9: 60S ribosomal protein L16-B

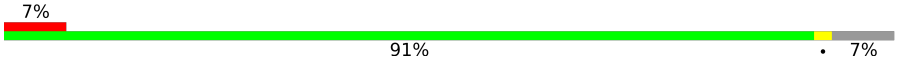
Chain J:

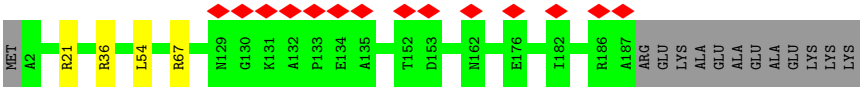




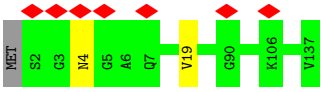
• Molecule 10: 60S ribosomal protein L13-A

Chain K:

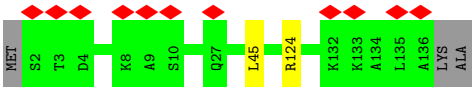




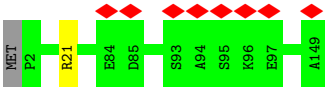
• Molecule 11: 60S ribosomal protein L23-A



• Molecule 12: 60S ribosomal protein L14-A

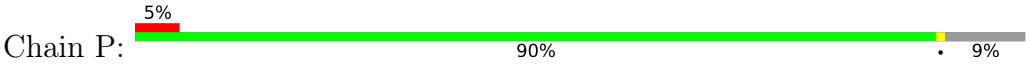


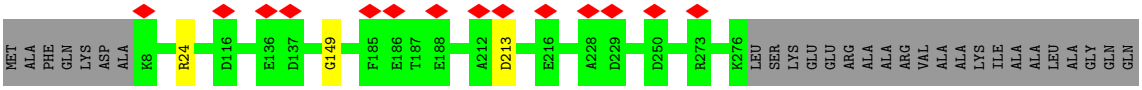
• Molecule 13: 60S ribosomal protein L28



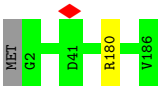
• Molecule 14: 60S ribosomal protein L15-A

• Molecule 15: 60S ribosomal protein L5



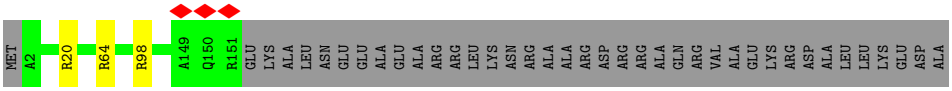


• Molecule 16: 60S ribosomal protein L18-A



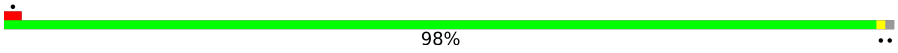
• Molecule 17: 60S ribosomal protein L19-A

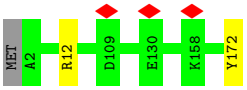
Chain R:



• Molecule 18: 60S ribosomal protein L20-A

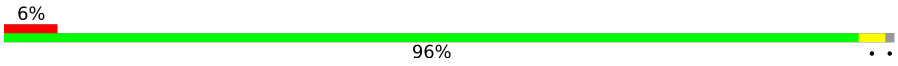
Chain S:

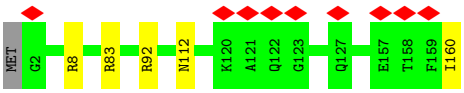




• Molecule 19: 60S ribosomal protein L21-A

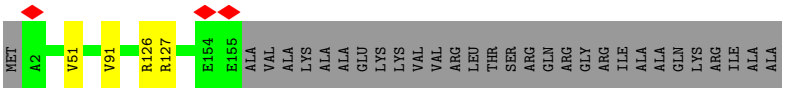
Chain T:





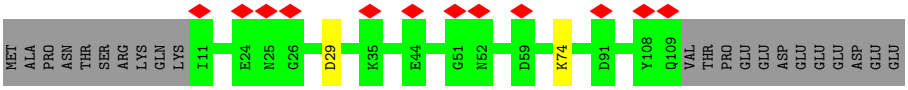
• Molecule 20: 60S ribosomal protein L17-A

Chain U:



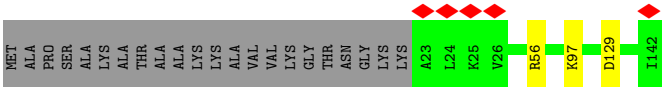
• Molecule 21: 60S ribosomal protein L22-A

Chain V:



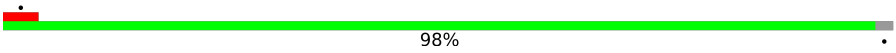
• Molecule 22: 60S ribosomal protein L25

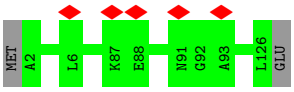
Chain W:



• Molecule 23: 60S ribosomal protein L26-A

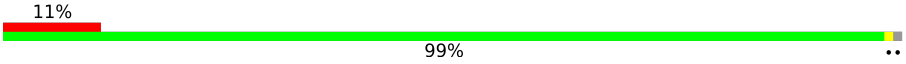
Chain X:

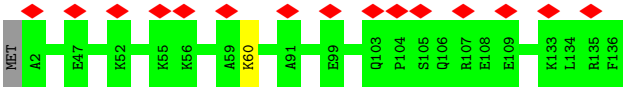




• Molecule 24: 60S ribosomal protein L27-A

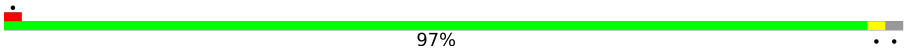
Chain Y:

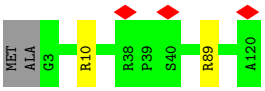




• Molecule 25: 60S ribosomal protein L35-A

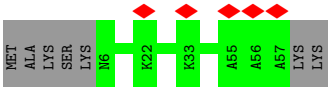
Chain Z:





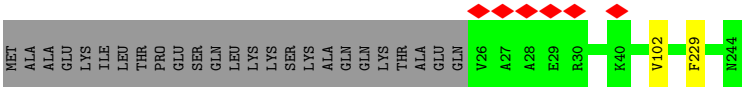
• Molecule 26: 60S ribosomal protein L29

Chain a:



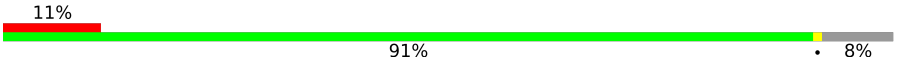
• Molecule 27: 60S ribosomal protein L7-A

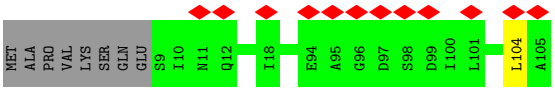
Chain b:



• Molecule 28: 60S ribosomal protein L30

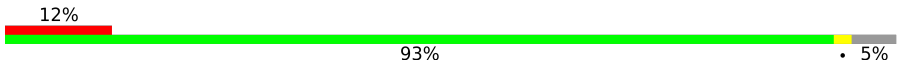
Chain c:

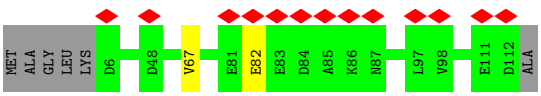




• Molecule 29: 60S ribosomal protein L31-A

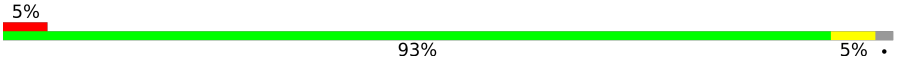
Chain d:

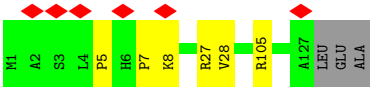




• Molecule 30: 60S ribosomal protein L32

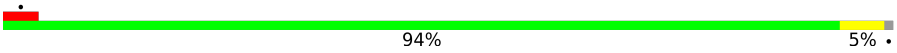
Chain e:

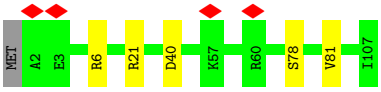




• Molecule 31: 60S ribosomal protein L33-A

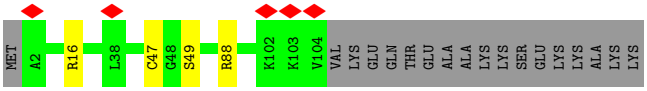
Chain f:





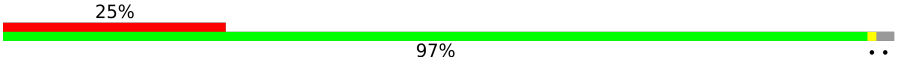
• Molecule 32: 60S ribosomal protein L34-A

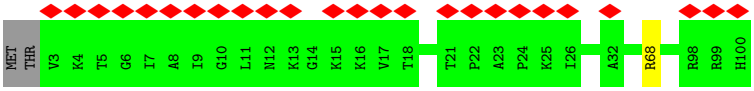
Chain g:



• Molecule 33: 60S ribosomal protein L36-A

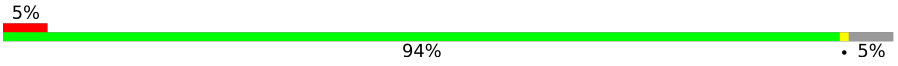
Chain h:

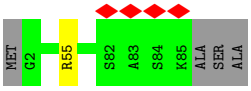




• Molecule 34: 60S ribosomal protein L37-A

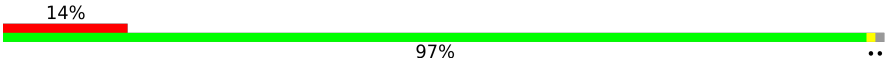
Chain i:

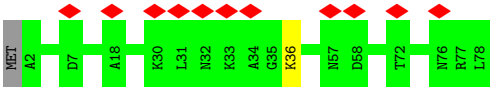




• Molecule 35: 60S ribosomal protein L38

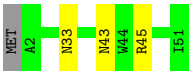
Chain j:





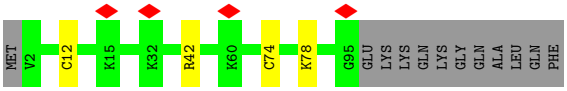
• Molecule 36: 60S ribosomal protein L39

Chain k:



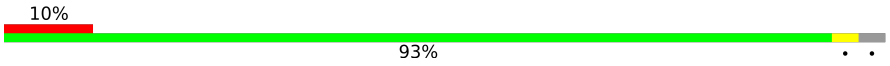
• Molecule 37: 60S ribosomal protein L42-A

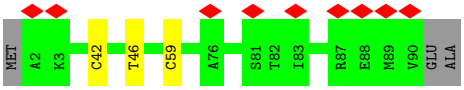
Chain l:



• Molecule 38: 60S ribosomal protein L43-A

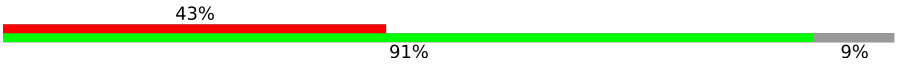
Chain m:

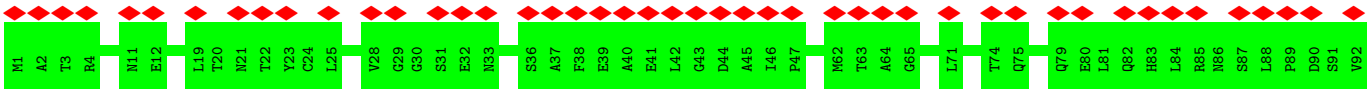


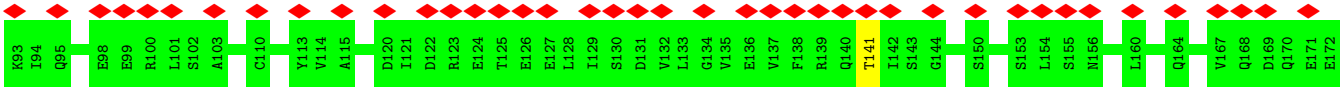


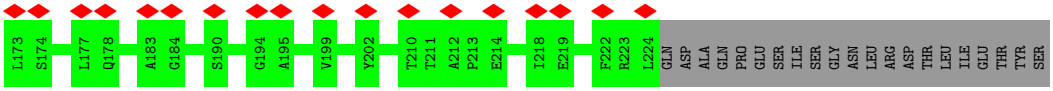
• Molecule 39: Eukaryotic translation initiation factor 6

Chain n:



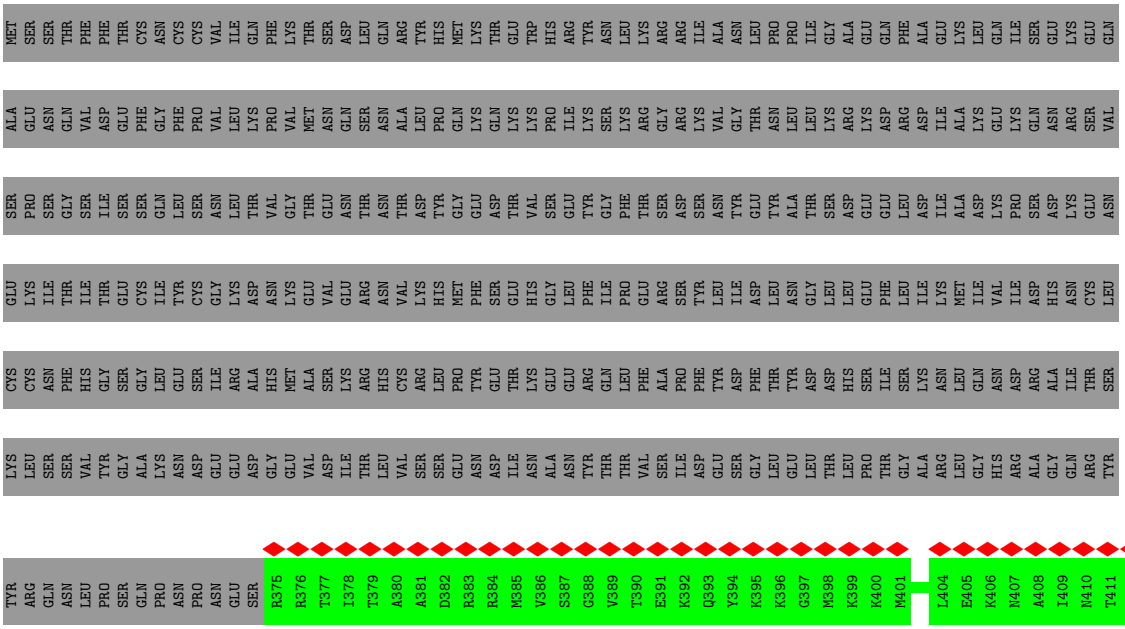


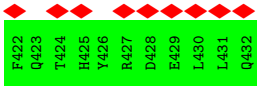




• Molecule 40: Cytoplasmic 60S subunit biogenesis factor REH1

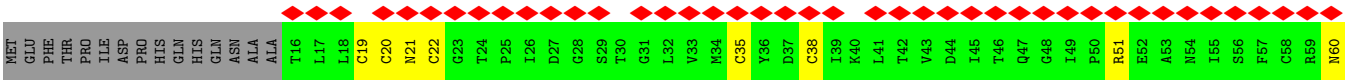
Chain z:

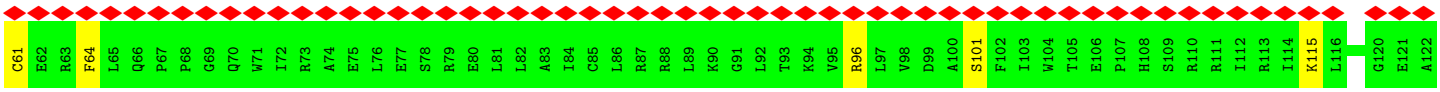


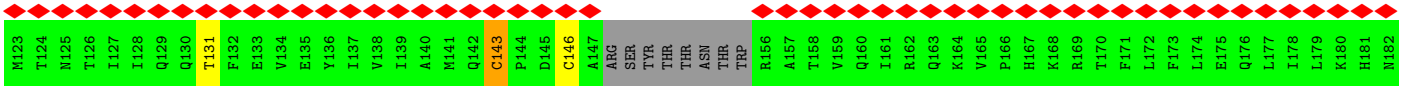


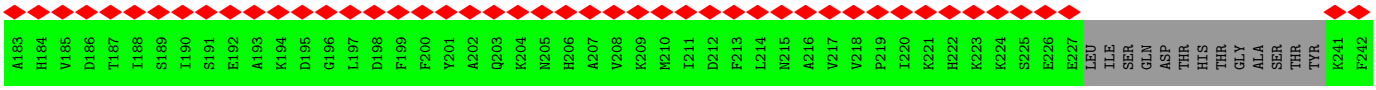
• Molecule 41: 60S ribosomal export protein NMD3

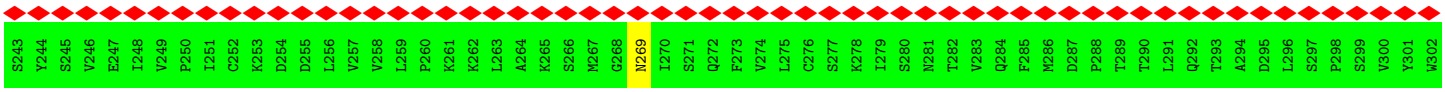
Chain w:

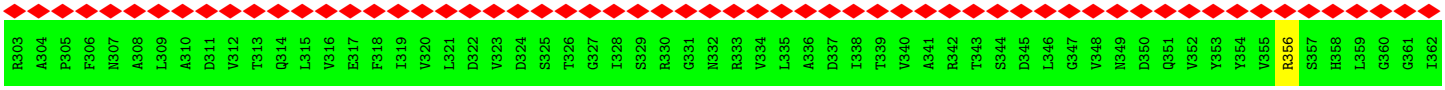


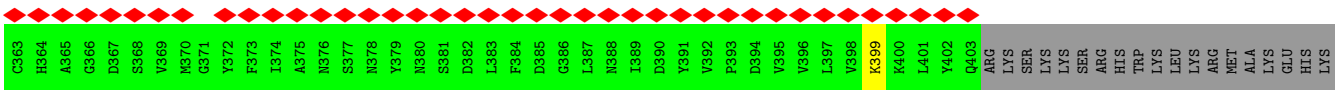






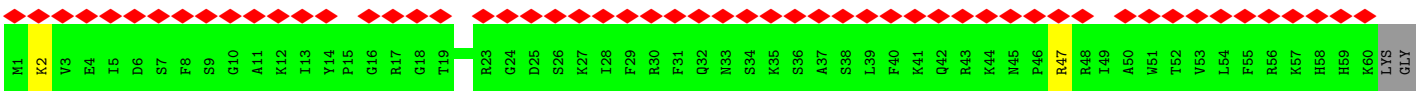






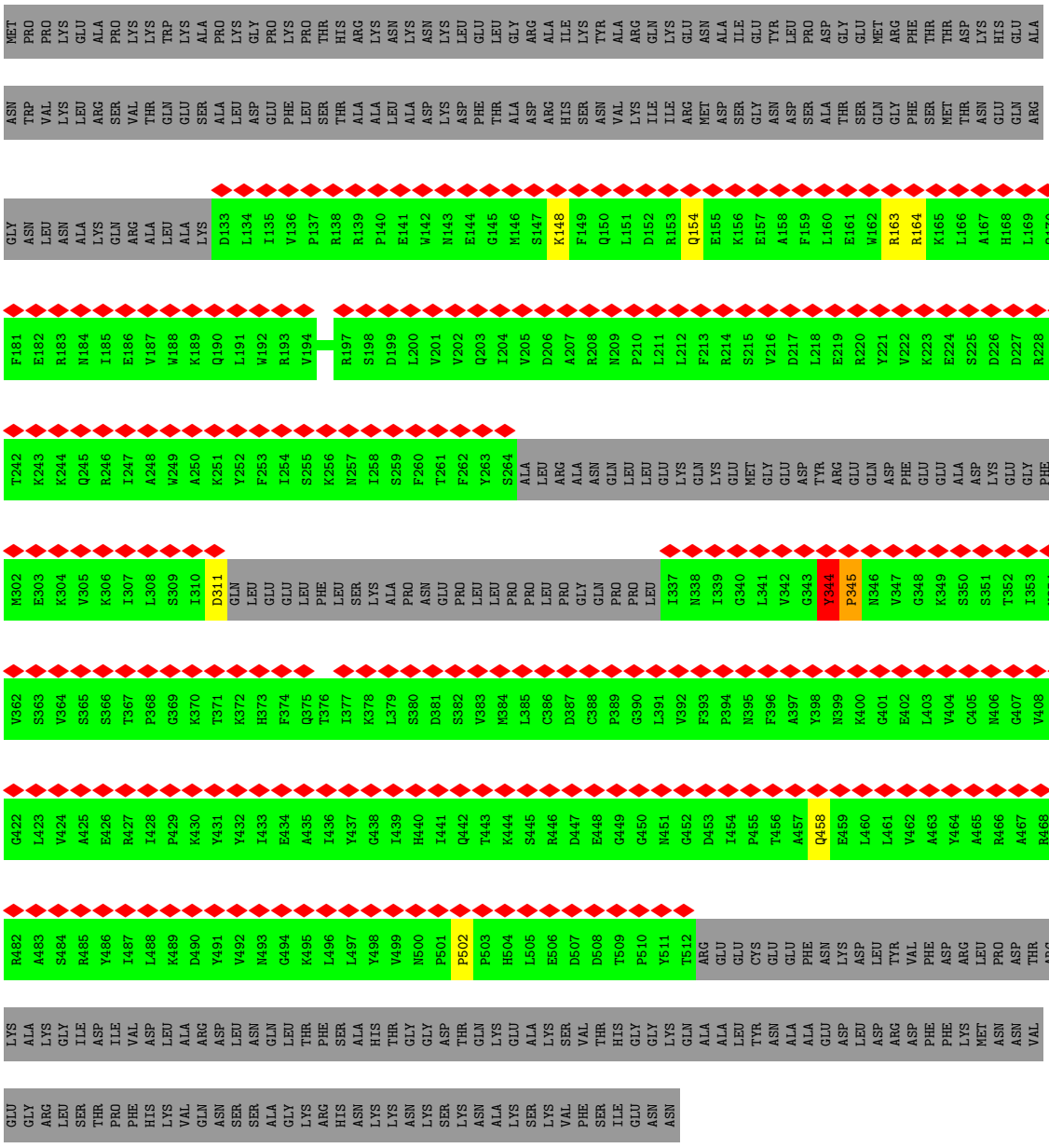
• Molecule 42: 60S ribosomal protein L24-A

Chain v:



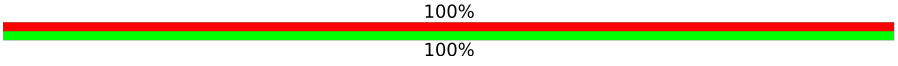
• Molecule 43: Large subunit GTPase 1

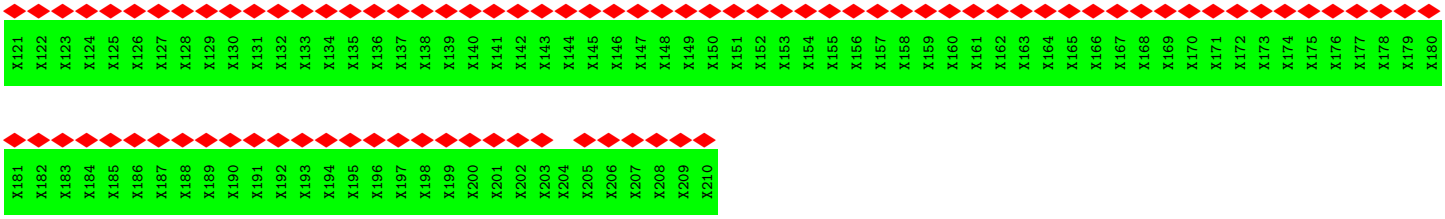
Chain o:



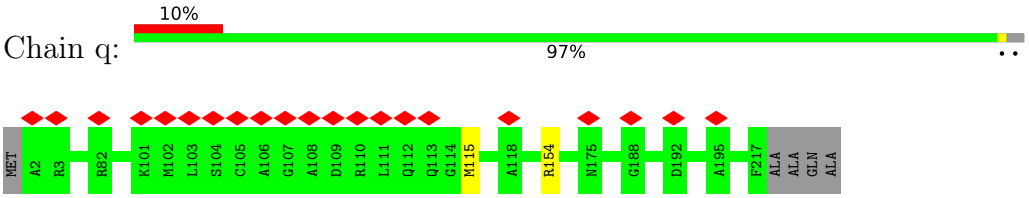
• Molecule 44: uL1

Chain p:

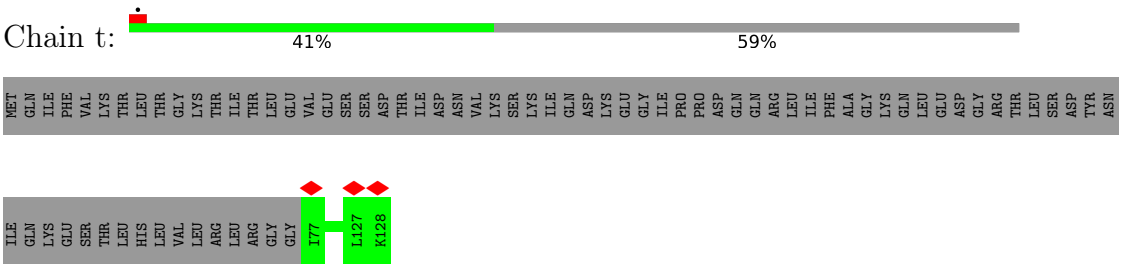




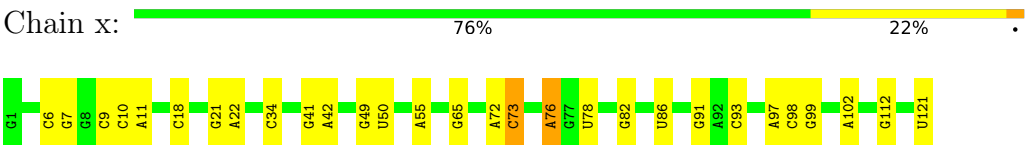
• Molecule 45: 60S ribosomal protein L10



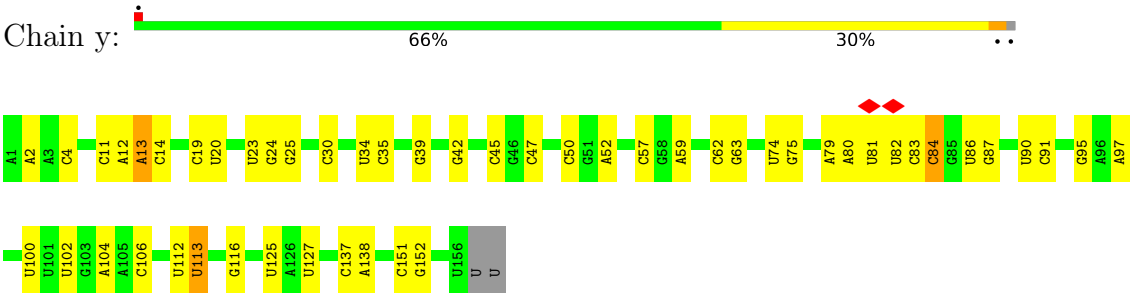
• Molecule 46: Ubiquitin-60S ribosomal protein L40



• Molecule 47: 5S rRNA



• Molecule 48: 5.8S rRNA



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	58493	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	63	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	0.414	Depositor
Minimum map value	-0.210	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.017	Depositor
Recommended contour level	0.06	Depositor
Map size (Å)	383.40002, 383.40002, 383.40002	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.065, 1.065, 1.065	Depositor

5 Model quality

5.1 Standard geometry

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	A	1.49	192/75349 (0.3%)	1.28	304/117474 (0.3%)
2	B	1.07	5/1912 (0.3%)	0.78	0/2569
3	C	0.99	1/3110 (0.0%)	0.80	4/4184 (0.1%)
4	D	1.03	1/2800 (0.0%)	0.74	2/3791 (0.1%)
5	E	0.53	0/1373	0.70	0/1841
6	F	0.66	0/1523	0.66	0/2051
7	G	0.69	0/1423	0.69	0/1911
8	H	0.82	0/1774	0.73	2/2395 (0.1%)
9	J	1.01	3/1593 (0.2%)	0.70	1/2137 (0.0%)
10	K	0.97	2/1511 (0.1%)	0.79	2/2031 (0.1%)
11	L	0.90	1/1017 (0.1%)	0.76	0/1368
12	M	0.78	0/1060	0.74	2/1428 (0.1%)
13	N	1.03	0/1203	0.77	1/1611 (0.1%)
14	O	1.14	1/1756 (0.1%)	0.82	2/2353 (0.1%)
15	P	0.82	0/2225	0.68	1/3004 (0.0%)
16	Q	0.97	0/1464	0.77	2/1964 (0.1%)
17	R	0.95	0/1226	0.82	3/1637 (0.2%)
18	S	0.94	0/1472	0.69	1/1979 (0.1%)
19	T	1.02	0/1299	0.80	2/1742 (0.1%)
20	U	1.10	2/1245 (0.2%)	0.77	2/1676 (0.1%)
21	V	0.71	0/802	0.64	0/1087
22	W	0.88	0/973	0.73	1/1313 (0.1%)
23	X	0.88	0/995	0.77	0/1329
24	Y	0.74	0/1117	0.67	0/1496
25	Z	0.82	0/972	0.78	3/1293 (0.2%)
26	a	0.78	0/426	0.66	0/570
27	b	1.09	1/1797 (0.1%)	0.73	0/2419
28	c	0.78	0/749	0.69	1/1007 (0.1%)
29	d	0.98	1/886 (0.1%)	0.78	0/1190
30	e	0.99	2/1041 (0.2%)	0.81	2/1393 (0.1%)
31	f	1.15	1/867 (0.1%)	0.89	2/1167 (0.2%)
32	g	0.97	0/822	0.80	2/1099 (0.2%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	h	0.67	0/770	0.72	0/1023
34	i	1.07	0/680	0.82	1/901 (0.1%)
35	j	0.75	0/617	0.70	0/825
36	k	0.96	0/442	0.84	0/587
37	l	0.90	0/768	0.82	1/1016 (0.1%)
38	m	1.01	0/687	0.80	0/915
39	n	0.48	0/1712	0.64	0/2330
40	z	0.45	0/494	0.71	0/654
41	w	0.42	1/2948 (0.0%)	0.66	0/3995
42	v	0.47	0/512	0.69	0/680
43	o	0.37	0/2623	0.67	1/3550 (0.0%)
45	q	0.65	0/1791	0.70	0/2402
46	t	0.51	0/423	0.71	0/562
47	x	1.36	4/2880 (0.1%)	1.21	8/4487 (0.2%)
48	y	1.56	8/3699 (0.2%)	1.28	13/5760 (0.2%)
All	All	1.27	226/138828 (0.2%)	1.11	366/204196 (0.2%)

All (226) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	27	ALA	CA-CB	-9.15	1.33	1.52
41	w	143	CYS	C-N	8.40	1.50	1.34
1	A	2338	C	N1-C6	-7.77	1.32	1.37
1	A	804	C	N1-C6	-7.36	1.32	1.37
1	A	42	C	C4-C5	-7.04	1.37	1.43
1	A	639	G	N9-C8	-7.03	1.32	1.37
1	A	936	A	N9-C4	-6.94	1.33	1.37
1	A	931	C	N1-C6	-6.90	1.33	1.37
1	A	2727	A	N9-C4	-6.88	1.33	1.37
1	A	958	C	N1-C6	-6.85	1.33	1.37
1	A	818	C	C4-C5	-6.63	1.37	1.43
1	A	1437	C	C4-C5	-6.62	1.37	1.43
1	A	962	A	N9-C4	-6.59	1.33	1.37
1	A	1597	C	C4-C5	-6.58	1.37	1.43
1	A	883	A	N9-C4	-6.57	1.33	1.37
1	A	933	A	N9-C4	-6.56	1.33	1.37
10	K	21	ARG	CA-CB	-6.50	1.39	1.53
1	A	953	G	N9-C8	-6.38	1.33	1.37
1	A	2182	A	N9-C4	-6.32	1.34	1.37
1	A	1506	A	N9-C4	-6.32	1.34	1.37
1	A	2632	G	N9-C8	-6.30	1.33	1.37
2	B	4	VAL	CB-CG2	-6.26	1.39	1.52

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	2960	C	C4-C5	-6.25	1.38	1.43
1	A	2881	C	N1-C6	-6.24	1.33	1.37
1	A	2136	C	N1-C6	-6.23	1.33	1.37
1	A	2146	C	C4-C5	-6.20	1.38	1.43
1	A	1333	C	C4-C5	-6.20	1.38	1.43
1	A	911	C	N1-C6	-6.18	1.33	1.37
1	A	641	C	N1-C6	-6.15	1.33	1.37
1	A	1176	C	N1-C6	-6.14	1.33	1.37
1	A	1149	G	N9-C8	-6.13	1.33	1.37
1	A	1597	C	N1-C6	-6.11	1.33	1.37
1	A	1844	C	C4-C5	-6.09	1.38	1.43
1	A	1496	C	C4-C5	-6.07	1.38	1.43
1	A	1596	C	N1-C6	-6.07	1.33	1.37
1	A	2983	C	N1-C6	-6.05	1.33	1.37
1	A	2366	C	C4-C5	-5.99	1.38	1.43
1	A	1749	A	N9-C4	-5.92	1.34	1.37
1	A	788	C	N1-C6	-5.89	1.33	1.37
1	A	1532	C	N1-C6	-5.88	1.33	1.37
48	y	57	C	N1-C6	-5.88	1.33	1.37
1	A	696	C	N1-C6	-5.87	1.33	1.37
1	A	1459	C	C4-C5	-5.87	1.38	1.43
1	A	969	C	C4-C5	-5.85	1.38	1.43
1	A	803	C	N1-C6	-5.84	1.33	1.37
1	A	958	C	C4-C5	-5.84	1.38	1.43
1	A	663	C	N1-C6	-5.83	1.33	1.37
1	A	1835	A	C6-N1	-5.82	1.31	1.35
1	A	1660	C	C4-C5	-5.82	1.38	1.43
1	A	1368	U	C4-C5	-5.81	1.38	1.43
1	A	98	G	N7-C5	-5.80	1.35	1.39
1	A	1155	C	C4-C5	-5.79	1.38	1.43
1	A	803	C	C4-C5	-5.79	1.38	1.43
1	A	634	C	N1-C6	-5.78	1.33	1.37
1	A	1799	A	N9-C4	-5.78	1.34	1.37
1	A	98	G	N9-C8	-5.75	1.33	1.37
1	A	2359	C	C4-C5	-5.73	1.38	1.43
1	A	1791	C	N1-C6	-5.71	1.33	1.37
48	y	30	C	N1-C6	-5.71	1.33	1.37
1	A	632	G	N9-C8	-5.71	1.33	1.37
1	A	1152	G	N9-C4	-5.71	1.33	1.38
1	A	1845	G	N9-C8	-5.70	1.33	1.37
1	A	914	A	N9-C4	-5.70	1.34	1.37
1	A	340	C	N1-C6	-5.69	1.33	1.37

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	1870	C	N1-C6	-5.69	1.33	1.37
1	A	906	A	N9-C4	-5.69	1.34	1.37
1	A	586	C	N1-C6	-5.67	1.33	1.37
1	A	2362	C	N1-C6	-5.67	1.33	1.37
1	A	2181	C	N1-C6	-5.65	1.33	1.37
1	A	2346	C	N1-C6	-5.65	1.33	1.37
1	A	403	C	N1-C6	-5.64	1.33	1.37
1	A	2355	G	N9-C8	-5.64	1.33	1.37
1	A	936	A	C6-N6	-5.64	1.29	1.33
1	A	2736	A	N9-C4	-5.62	1.34	1.37
1	A	3067	C	N1-C6	-5.62	1.33	1.37
1	A	957	C	C4-C5	-5.60	1.38	1.43
1	A	2258	U	C1'-N1	5.60	1.57	1.48
1	A	346	C	N1-C6	-5.60	1.33	1.37
1	A	2389	C	C4-C5	-5.59	1.38	1.43
1	A	962	A	C5-C6	-5.58	1.36	1.41
10	K	54	LEU	C-N	-5.58	1.21	1.34
1	A	663	C	C4-C5	-5.56	1.38	1.43
1	A	881	C	C4-C5	-5.55	1.38	1.43
1	A	808	A	N9-C4	-5.55	1.34	1.37
1	A	2151	C	N1-C6	-5.55	1.33	1.37
1	A	1452	A	N9-C4	-5.55	1.34	1.37
1	A	1512	U	C4-C5	-5.54	1.38	1.43
1	A	2420	C	C4-C5	-5.53	1.38	1.43
1	A	2625	C	C4-C5	-5.51	1.38	1.43
1	A	2948	C	C4-C5	-5.50	1.38	1.43
1	A	1175	C	N1-C6	-5.50	1.33	1.37
9	J	26	VAL	CB-CG2	-5.50	1.41	1.52
1	A	2982	A	N9-C4	-5.50	1.34	1.37
1	A	957	C	N1-C6	-5.49	1.33	1.37
1	A	928	C	C4-C5	-5.49	1.38	1.43
1	A	350	C	N1-C6	-5.48	1.33	1.37
48	y	30	C	C4-C5	-5.47	1.38	1.43
1	A	655	C	C4-C5	-5.47	1.38	1.43
1	A	1328	C	N1-C6	-5.47	1.33	1.37
1	A	1401	A	N9-C4	-5.47	1.34	1.37
47	x	9	C	N1-C6	-5.47	1.33	1.37
1	A	1532	C	C4-C5	-5.46	1.38	1.43
1	A	1531	C	C4-C5	-5.45	1.38	1.43
1	A	2985	C	C4-C5	-5.45	1.38	1.43
1	A	2362	C	C4-C5	-5.45	1.38	1.43
1	A	950	G	N1-C2	-5.45	1.33	1.37

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	873	C	N1-C6	-5.45	1.33	1.37
1	A	938	C	C4-C5	-5.44	1.38	1.43
1	A	1591	G	N9-C8	-5.43	1.34	1.37
1	A	293	C	N1-C6	-5.42	1.33	1.37
1	A	948	C	C4-C5	-5.42	1.38	1.43
1	A	2365	C	C4-C5	-5.42	1.38	1.43
9	J	118	VAL	CB-CG2	-5.41	1.41	1.52
1	A	2145	A	C5-C6	-5.41	1.36	1.41
1	A	1372	C	C4-C5	-5.40	1.38	1.43
1	A	1693	C	N1-C6	-5.40	1.33	1.37
1	A	586	C	C4-C5	-5.39	1.38	1.43
1	A	90	C	C4-C5	-5.39	1.38	1.43
1	A	1527	C	C4-C5	-5.39	1.38	1.43
30	e	28	VAL	CB-CG2	-5.38	1.41	1.52
1	A	91	G	N9-C8	-5.38	1.34	1.37
1	A	2961	G	N9-C8	-5.38	1.34	1.37
1	A	82	C	N1-C6	-5.38	1.33	1.37
48	y	12	A	N9-C4	-5.37	1.34	1.37
1	A	2407	C	C4-C5	-5.37	1.38	1.43
1	A	68	C	C4-C5	-5.36	1.38	1.43
1	A	2156	C	N1-C6	-5.36	1.33	1.37
1	A	224	C	C4-C5	-5.35	1.38	1.43
1	A	1118	C	C4-C5	-5.35	1.38	1.43
1	A	648	C	N1-C6	-5.35	1.33	1.37
1	A	3060	C	N1-C6	-5.34	1.33	1.37
1	A	1176	C	C4-C5	-5.34	1.38	1.43
1	A	3061	G	N9-C8	-5.33	1.34	1.37
1	A	1137	C	N1-C6	-5.33	1.33	1.37
31	f	81	VAL	CB-CG1	-5.33	1.41	1.52
48	y	14	C	N1-C6	-5.33	1.33	1.37
1	A	802	C	N1-C6	-5.33	1.33	1.37
1	A	936	A	C5-C4	-5.33	1.35	1.38
1	A	949	C	C4-C5	-5.32	1.38	1.43
1	A	893	C	N1-C6	-5.31	1.33	1.37
1	A	1551	C	C4-C5	-5.31	1.38	1.43
1	A	1156	C	C4-C5	-5.31	1.38	1.43
1	A	2392	C	N1-C6	-5.30	1.33	1.37
20	U	91	VAL	CB-CG1	-5.30	1.41	1.52
1	A	113	C	C4-C5	-5.29	1.38	1.43
1	A	2985	C	N1-C6	-5.28	1.33	1.37
1	A	639	G	C8-N7	-5.28	1.27	1.30
1	A	946	U	C4-C5	-5.28	1.38	1.43

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	1372	C	N1-C6	-5.26	1.33	1.37
11	L	19	VAL	CB-CG1	-5.26	1.41	1.52
1	A	3048	A	N9-C4	-5.26	1.34	1.37
1	A	36	C	N1-C6	-5.26	1.33	1.37
1	A	339	C	C4-C5	-5.25	1.38	1.43
1	A	928	C	N1-C6	-5.25	1.33	1.37
1	A	1364	C	N1-C6	-5.25	1.34	1.37
1	A	2354	C	C4-C5	-5.25	1.38	1.43
9	J	35	VAL	CB-CG2	-5.25	1.41	1.52
1	A	1843	C	C4-C5	-5.24	1.38	1.43
1	A	638	C	N1-C6	-5.23	1.34	1.37
1	A	2163	C	N1-C6	-5.23	1.34	1.37
47	x	98	C	N1-C6	-5.23	1.34	1.37
1	A	802	C	C4-C5	-5.23	1.38	1.43
1	A	817	A	C6-N6	-5.22	1.29	1.33
1	A	805	G	N1-C2	-5.22	1.33	1.37
1	A	224	C	N1-C6	-5.22	1.34	1.37
1	A	695	C	N1-C6	-5.22	1.34	1.37
20	U	51	VAL	CB-CG2	-5.22	1.41	1.52
30	e	28	VAL	CB-CG1	-5.21	1.41	1.52
1	A	860	G	C2-N3	-5.21	1.28	1.32
1	A	2405	C	C4-C5	-5.21	1.38	1.43
1	A	35	A	N9-C4	-5.21	1.34	1.37
1	A	1698	C	C4-C5	-5.20	1.38	1.43
1	A	2967	A	N9-C4	-5.20	1.34	1.37
1	A	407	A	N9-C4	-5.20	1.34	1.37
2	B	202	VAL	CB-CG1	-5.18	1.42	1.52
1	A	1199	C	N1-C6	-5.18	1.34	1.37
1	A	638	C	C4-C5	-5.17	1.38	1.43
14	O	132	VAL	CB-CG1	-5.16	1.42	1.52
1	A	1495	U	N1-C6	-5.16	1.33	1.38
1	A	2867	C	C4-C5	-5.16	1.38	1.43
4	D	109	TRP	CB-CG	-5.16	1.41	1.50
1	A	636	C	C4-C5	-5.15	1.38	1.43
3	C	29	VAL	CB-CG2	-5.15	1.42	1.52
2	B	82	VAL	CB-CG2	-5.15	1.42	1.52
1	A	2646	C	N1-C6	-5.13	1.34	1.37
1	A	1854	C	C4-C5	-5.12	1.38	1.43
29	d	67	VAL	CB-CG2	-5.12	1.42	1.52
1	A	289	A	N9-C4	-5.12	1.34	1.37
47	x	82	G	N9-C8	-5.12	1.34	1.37
1	A	1930	A	N9-C4	-5.12	1.34	1.37

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	2889	C	C4-C5	-5.12	1.38	1.43
1	A	1397	C	N1-C6	-5.11	1.34	1.37
1	A	1152	G	C2-N3	-5.11	1.28	1.32
1	A	2812	C	N1-C6	-5.11	1.34	1.37
1	A	1152	G	N3-C4	-5.10	1.31	1.35
1	A	675	C	N1-C6	-5.10	1.34	1.37
1	A	884	A	N9-C4	-5.09	1.34	1.37
1	A	1857	C	N1-C6	-5.09	1.34	1.37
1	A	702	C	C4-C5	-5.09	1.38	1.43
1	A	1747	G	N9-C8	-5.09	1.34	1.37
1	A	2945	G	N9-C4	-5.08	1.33	1.38
1	A	2707	C	C4-C5	-5.08	1.38	1.43
1	A	1147	G	N9-C8	-5.08	1.34	1.37
1	A	636	C	N3-C4	-5.07	1.30	1.33
1	A	686	G	N9-C8	-5.07	1.34	1.37
27	b	102	VAL	CB-CG1	-5.07	1.42	1.52
1	A	900	G	N1-C2	-5.06	1.33	1.37
48	y	4	C	C4-C5	-5.06	1.38	1.43
1	A	654	C	N1-C6	-5.06	1.34	1.37
48	y	45	C	N1-C6	-5.06	1.34	1.37
1	A	2812	C	C4-C5	-5.06	1.39	1.43
2	B	113	VAL	CB-CG2	-5.05	1.42	1.52
1	A	2798	C	N1-C6	-5.05	1.34	1.37
47	x	6	C	N1-C6	-5.05	1.34	1.37
1	A	662	U	C4-C5	-5.05	1.39	1.43
48	y	137	C	N1-C6	-5.04	1.34	1.37
1	A	1608	C	C4-C5	-5.03	1.39	1.43
1	A	2356	A	C5-C6	-5.03	1.36	1.41
1	A	2711	C	N1-C6	-5.03	1.34	1.37
1	A	885	U	C4-C5	-5.02	1.39	1.43
1	A	963	G	N7-C5	-5.01	1.36	1.39
1	A	2991	A	N9-C4	-5.01	1.34	1.37
1	A	1444	G	N9-C8	-5.01	1.34	1.37
1	A	2941	A	N9-C8	-5.01	1.33	1.37
1	A	797	U	C4-C5	-5.01	1.39	1.43
1	A	660	A	N9-C4	-5.01	1.34	1.37

All (366) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
8	H	159	PRO	CA-N-CD	-12.54	93.94	111.50
1	A	818	C	C5-C4-N4	-11.34	112.26	120.20

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	C	18	PRO	CA-N-CD	-10.97	96.14	111.50
1	A	1144	U	C5-C4-O4	-10.30	119.72	125.90
1	A	1571	A	N1-C6-N6	10.07	124.64	118.60
1	A	818	C	N3-C4-N4	9.88	124.92	118.00
1	A	2625	C	N1-C2-O2	8.94	124.26	118.90
1	A	1144	U	N3-C4-O4	8.91	125.64	119.40
1	A	1279	C	C6-N1-C2	-8.84	116.77	120.30
1	A	938	C	C6-N1-C2	-7.93	117.13	120.30
1	A	1279	C	C5-C6-N1	7.92	124.96	121.00
1	A	1437	C	C5-C4-N4	-7.82	114.73	120.20
1	A	2420	C	N1-C2-O2	7.71	123.52	118.90
1	A	2405	C	C5-C4-N4	-7.67	114.83	120.20
1	A	2145	A	C5-C6-N6	-7.55	117.66	123.70
1	A	2145	A	N1-C6-N6	7.54	123.12	118.60
1	A	817	A	C5-C6-N1	7.47	121.43	117.70
1	A	2875	U	C2-N1-C1'	7.45	126.64	117.70
1	A	2118	C	C5-C4-N4	-7.23	115.14	120.20
1	A	1832	C	N1-C2-O2	7.22	123.23	118.90
1	A	793	C	C5-C4-N4	-7.08	115.25	120.20
1	A	1368	U	C5-C4-O4	-7.06	121.66	125.90
1	A	2490	C	C6-N1-C2	-7.05	117.48	120.30
1	A	350	C	C5-C4-N4	-7.05	115.27	120.20
1	A	1508	C	C5-C4-N4	-7.04	115.27	120.20
48	y	13	A	C5-C6-N6	-7.01	118.09	123.70
1	A	1527	C	N1-C2-O2	7.00	123.10	118.90
1	A	1333	C	C6-N1-C2	-6.99	117.50	120.30
1	A	950	G	N1-C2-N2	-6.99	109.91	116.20
1	A	2875	U	N1-C2-O2	6.97	127.68	122.80
1	A	2242	A	C5-C6-N6	-6.96	118.13	123.70
1	A	2983	C	C2-N3-C4	-6.96	116.42	119.90
1	A	2495	C	N1-C2-O2	6.92	123.05	118.90
1	A	730	C	C5-C4-N4	-6.90	115.37	120.20
25	Z	10	ARG	NE-CZ-NH2	-6.85	116.88	120.30
1	A	2567	C	N3-C2-O2	-6.84	117.11	121.90
1	A	406	G	O4'-C1'-N9	6.74	113.59	108.20
1	A	2644	C	C6-N1-C2	-6.74	117.60	120.30
1	A	962	A	N1-C6-N6	6.71	122.63	118.60
1	A	1857	C	N1-C2-O2	6.67	122.90	118.90
1	A	1368	U	N3-C4-O4	6.60	124.02	119.40
48	y	4	C	N1-C2-O2	6.54	122.82	118.90
1	A	2644	C	N1-C2-O2	6.51	122.81	118.90
1	A	1844	C	C5-C4-N4	-6.50	115.65	120.20

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	1126	G	C6-C5-N7	-6.50	126.50	130.40
1	A	1335	C	C5-C4-N4	-6.50	115.65	120.20
1	A	252	U	C2-N1-C1'	6.49	125.49	117.70
1	A	1570	U	C6-N1-C2	-6.47	117.12	121.00
1	A	2627	C	C6-N1-C2	-6.46	117.72	120.30
1	A	875	G	C4-C5-N7	6.45	113.38	110.80
1	A	2600	C	N1-C2-O2	6.43	122.76	118.90
1	A	2961	G	C4-N9-C1'	6.43	134.86	126.50
1	A	42	C	C5-C4-N4	-6.41	115.71	120.20
1	A	962	A	C4-C5-N7	6.41	113.90	110.70
1	A	2625	C	N3-C2-O2	-6.35	117.45	121.90
1	A	2984	C	C6-N1-C2	-6.34	117.76	120.30
1	A	2405	C	C6-N1-C2	-6.33	117.77	120.30
48	y	113	U	C2-N1-C1'	6.31	125.27	117.70
48	y	13	A	N1-C6-N6	6.26	122.36	118.60
1	A	2190	U	C5-C4-O4	-6.25	122.15	125.90
1	A	1155	C	C6-N1-C2	-6.24	117.80	120.30
1	A	1604	G	C4-N9-C1'	6.22	134.58	126.50
1	A	2984	C	C5-C6-N1	6.22	124.11	121.00
1	A	1460	A	C5-C6-N6	-6.21	118.73	123.70
1	A	2490	C	C2-N1-C1'	6.21	125.63	118.80
1	A	911	C	C5-C4-N4	-6.18	115.87	120.20
1	A	2406	C	C5-C4-N4	-6.18	115.87	120.20
1	A	2366	C	N1-C2-O2	6.17	122.61	118.90
48	y	11	C	N1-C2-O2	6.17	122.60	118.90
1	A	2405	C	C2-N1-C1'	6.16	125.57	118.80
1	A	2146	C	C5-C4-N4	-6.15	115.89	120.20
1	A	2961	G	N7-C8-N9	6.15	116.17	113.10
1	A	2625	C	C2-N1-C1'	6.14	125.55	118.80
10	K	36	ARG	NE-CZ-NH1	6.13	123.37	120.30
1	A	962	A	C5-N7-C8	-6.13	100.83	103.90
1	A	1146	C	C6-N1-C2	-6.13	117.85	120.30
1	A	2552	C	C2-N1-C1'	6.13	125.54	118.80
14	O	203	ARG	NE-CZ-NH1	6.13	123.36	120.30
19	T	8	ARG	NE-CZ-NH2	6.12	123.36	120.30
30	e	105	ARG	NE-CZ-NH1	6.12	123.36	120.30
1	A	950	G	C2-N3-C4	-6.11	108.84	111.90
1	A	2644	C	N3-C2-O2	-6.11	117.62	121.90
1	A	2960	C	N1-C2-O2	6.10	122.56	118.90
17	R	98	ARG	NE-CZ-NH1	6.10	123.35	120.30
1	A	650	C	N1-C2-O2	6.09	122.56	118.90
1	A	2118	C	N3-C4-N4	6.08	122.26	118.00

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	387	A	C5-C6-N6	-6.07	118.84	123.70
1	A	2960	C	C5-C4-N4	-6.05	115.96	120.20
1	A	2146	C	N3-C4-N4	6.00	122.20	118.00
1	A	938	C	C5-C6-N1	6.00	124.00	121.00
1	A	2506	U	N3-C2-O2	-5.99	118.00	122.20
1	A	2980	U	C5-C4-O4	-5.99	122.31	125.90
1	A	968	G	N1-C2-N2	-5.99	110.81	116.20
43	o	344	TYR	CB-CA-C	5.98	122.36	110.40
1	A	960	U	C2-N1-C1'	5.97	124.87	117.70
1	A	2362	C	C5-C4-N4	-5.97	116.02	120.20
1	A	988	U	C5-C4-O4	-5.97	122.32	125.90
1	A	1571	A	C5-C6-N6	-5.96	118.93	123.70
31	f	21	ARG	NE-CZ-NH2	-5.95	117.32	120.30
13	N	21	ARG	NE-CZ-NH1	5.93	123.27	120.30
1	A	1144	U	C5-C6-N1	5.92	125.66	122.70
4	D	138	ARG	NE-CZ-NH2	-5.90	117.35	120.30
22	W	56	ARG	NE-CZ-NH2	5.90	123.25	120.30
1	A	936	A	C5-C6-N1	5.90	120.65	117.70
1	A	16	A	N9-C4-C5	-5.89	103.44	105.80
1	A	946	U	N3-C4-O4	5.88	123.52	119.40
1	A	382	U	C5-C4-O4	-5.88	122.37	125.90
1	A	1279	C	C2-N1-C1'	5.88	125.27	118.80
47	x	34	C	N3-C4-N4	5.88	122.12	118.00
1	A	2506	U	C6-N1-C2	-5.87	117.48	121.00
1	A	2988	C	N1-C2-O2	5.87	122.42	118.90
1	A	882	A	C5-N7-C8	-5.86	100.97	103.90
1	A	16	A	C4-C5-N7	5.86	113.63	110.70
1	A	2960	C	C2-N1-C1'	5.86	125.24	118.80
1	A	922	U	C2-N1-C1'	5.84	124.71	117.70
1	A	1126	G	C4-N9-C1'	5.84	134.09	126.50
1	A	536	U	N3-C4-O4	5.83	123.48	119.40
1	A	345	G	C2-N3-C4	-5.83	108.99	111.90
1	A	1155	C	C2-N1-C1'	5.80	125.18	118.80
1	A	1327	C	N1-C2-O2	5.80	122.38	118.90
1	A	875	G	N1-C6-O6	5.78	123.37	119.90
17	R	20	ARG	NE-CZ-NH1	5.78	123.19	120.30
1	A	1725	C	C5-C4-N4	-5.78	116.16	120.20
12	M	45	LEU	CA-CB-CG	5.78	128.59	115.30
1	A	747	A	N9-C4-C5	-5.77	103.49	105.80
1	A	2927	C	C5-C4-N4	-5.76	116.17	120.20
1	A	950	G	N3-C2-N2	5.74	123.92	119.90
1	A	1851	G	N1-C6-O6	5.74	123.35	119.90

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	2405	C	N3-C4-N4	5.74	122.02	118.00
1	A	2644	C	C5-C6-N1	5.74	123.87	121.00
1	A	1851	G	C6-C5-N7	-5.72	126.97	130.40
1	A	1459	C	C5-C4-N4	-5.72	116.20	120.20
1	A	3367	C	N1-C2-O2	5.72	122.33	118.90
3	C	244	ARG	NE-CZ-NH1	5.71	123.16	120.30
1	A	2495	C	N3-C2-O2	-5.71	117.91	121.90
1	A	1889	G	C4-N9-C1'	5.70	133.91	126.50
1	A	2591	A	N1-C6-N6	5.70	122.02	118.60
1	A	1437	C	N3-C4-N4	5.69	121.99	118.00
1	A	962	A	C5-C6-N6	-5.69	119.15	123.70
1	A	2380	U	C5-C4-O4	-5.69	122.49	125.90
1	A	3058	U	C2-N1-C1'	5.69	124.53	117.70
1	A	200	C	N3-C4-C5	5.68	124.17	121.90
34	i	55	ARG	NE-CZ-NH1	5.68	123.14	120.30
1	A	1437	C	C2-N1-C1'	5.67	125.04	118.80
1	A	42	C	N3-C4-N4	5.67	121.97	118.00
1	A	42	C	N1-C2-O2	5.67	122.30	118.90
1	A	1837	U	C5-C4-O4	-5.67	122.50	125.90
1	A	1571	A	C4-C5-N7	5.66	113.53	110.70
47	x	10	C	N3-C4-C5	5.66	124.16	121.90
1	A	705	A	C5-C6-N1	5.66	120.53	117.70
1	A	2625	C	C5-C4-N4	-5.66	116.24	120.20
1	A	2875	U	N3-C2-O2	-5.66	118.24	122.20
1	A	3174	A	C4-N9-C1'	5.66	136.48	126.30
1	A	881	C	C5-C4-N4	-5.65	116.24	120.20
1	A	2242	A	N1-C6-N6	5.65	121.99	118.60
1	A	2190	U	N3-C4-O4	5.64	123.35	119.40
1	A	2870	C	C6-N1-C2	-5.63	118.05	120.30
1	A	369	A	C5-C6-N6	-5.62	119.20	123.70
1	A	1279	C	N1-C2-O2	5.62	122.27	118.90
19	T	92	ARG	NE-CZ-NH1	5.62	123.11	120.30
1	A	1496	C	C2-N1-C1'	5.62	124.98	118.80
1	A	639	G	N9-C4-C5	-5.61	103.16	105.40
1	A	536	U	C5-C4-O4	-5.61	122.54	125.90
1	A	1126	G	N7-C8-N9	5.60	115.90	113.10
1	A	1279	C	N3-C4-C5	-5.60	119.66	121.90
1	A	2346	C	C2-N1-C1'	5.60	124.96	118.80
1	A	1857	C	N3-C2-O2	-5.59	117.98	121.90
9	J	18	LEU	CA-CB-CG	5.58	128.14	115.30
47	x	34	C	C5-C4-N4	-5.58	116.29	120.20
1	A	1367	G	N1-C6-O6	5.58	123.25	119.90

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	1269	U	C2-N1-C1'	5.58	124.39	117.70
1	A	1586	G	C2-N3-C4	-5.57	109.11	111.90
1	A	1837	U	N3-C4-O4	5.57	123.30	119.40
1	A	2145	A	C4-C5-N7	5.57	113.49	110.70
1	A	2231	C	C5-C4-N4	-5.57	116.30	120.20
1	A	798	G	N1-C2-N2	-5.57	111.19	116.20
1	A	875	G	C6-C5-N7	-5.57	127.06	130.40
1	A	1474	A	C4-C5-N7	5.57	113.48	110.70
1	A	1169	A	C5-C6-N6	-5.55	119.26	123.70
1	A	1604	G	C8-N9-C1'	-5.55	119.79	127.00
1	A	1279	C	N3-C4-N4	5.54	121.88	118.00
1	A	2645	G	N3-C2-N2	-5.53	116.03	119.90
1	A	2575	G	C5-C6-O6	5.53	131.92	128.60
1	A	98	G	C2-N3-C4	-5.53	109.14	111.90
1	A	1169	A	C5-N7-C8	-5.53	101.14	103.90
1	A	1336	U	N3-C4-O4	5.53	123.27	119.40
3	C	4	ARG	NE-CZ-NH1	5.53	123.06	120.30
25	Z	10	ARG	NE-CZ-NH1	5.52	123.06	120.30
1	A	1782	U	C5-C4-O4	-5.50	122.60	125.90
1	A	2369	G	N1-C2-N2	-5.50	111.25	116.20
1	A	2417	U	N3-C4-O4	5.50	123.25	119.40
1	A	1496	C	C6-N1-C2	-5.50	118.10	120.30
1	A	2112	U	P-O3'-C3'	5.50	126.30	119.70
1	A	3174	A	C8-N9-C1'	-5.49	117.81	127.70
47	x	73	C	N3-C4-N4	-5.49	114.15	118.00
1	A	968	G	N1-C2-N3	5.49	127.19	123.90
1	A	3085	G	N3-C4-N9	-5.48	122.71	126.00
8	H	159	PRO	CB-CA-C	5.48	125.70	112.00
1	A	340	C	C2-N1-C1'	5.48	124.83	118.80
1	A	790	U	N3-C4-O4	5.47	123.23	119.40
1	A	1929	G	C2-N3-C4	-5.47	109.17	111.90
1	A	1844	C	N1-C2-O2	5.46	122.18	118.90
1	A	948	C	N1-C2-O2	5.46	122.18	118.90
1	A	1571	A	C6-C5-N7	-5.46	128.48	132.30
1	A	282	G	N3-C4-C5	5.45	131.32	128.60
1	A	1112	A	C5-C6-N1	5.45	120.42	117.70
1	A	1269	U	C5-C6-N1	5.44	125.42	122.70
1	A	1525	G	C4-N9-C1'	5.44	133.57	126.50
1	A	882	A	N7-C8-N9	5.44	116.52	113.80
1	A	2362	C	N3-C4-N4	5.44	121.81	118.00
1	A	16	A	C5-N7-C8	-5.43	101.18	103.90
14	O	63	ARG	NE-CZ-NH1	5.43	123.02	120.30

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	2488	A	C2-N3-C4	5.43	113.32	110.60
48	y	100	U	N3-C4-O4	5.43	123.20	119.40
1	A	282	G	N3-C4-N9	-5.42	122.75	126.00
1	A	994	G	N3-C4-N9	-5.42	122.75	126.00
10	K	36	ARG	NE-CZ-NH2	-5.42	117.59	120.30
1	A	1155	C	C5-C6-N1	5.40	123.70	121.00
1	A	928	C	N1-C2-O2	5.40	122.14	118.90
1	A	382	U	N3-C4-O4	5.39	123.17	119.40
1	A	2726	C	C2-N1-C1'	5.39	124.73	118.80
47	x	76	A	N1-C6-N6	-5.38	115.37	118.60
1	A	1635	G	N3-C4-N9	-5.38	122.77	126.00
1	A	656	A	C5-N7-C8	-5.38	101.21	103.90
37	l	42	ARG	NE-CZ-NH1	5.38	122.99	120.30
47	x	78	U	N3-C4-O4	5.38	123.16	119.40
1	A	1227	C	C6-N1-C2	-5.37	118.15	120.30
1	A	1333	C	N3-C4-N4	5.37	121.76	118.00
1	A	2727	A	N1-C6-N6	5.36	121.82	118.60
1	A	8	C	N1-C2-O2	5.36	122.11	118.90
1	A	656	A	C4-C5-N7	5.36	113.38	110.70
1	A	968	G	C4-N9-C1'	5.35	133.45	126.50
31	f	6	ARG	NE-CZ-NH1	5.35	122.97	120.30
1	A	3181	C	C2-N1-C1'	5.34	124.68	118.80
1	A	1459	C	N3-C4-N4	5.34	121.74	118.00
1	A	1796	G	N3-C4-N9	-5.33	122.80	126.00
1	A	2960	C	N3-C4-N4	5.33	121.73	118.00
48	y	20	U	N3-C4-O4	5.33	123.13	119.40
1	A	2960	C	C6-N1-C2	-5.33	118.17	120.30
1	A	312	C	N1-C2-O2	5.33	122.09	118.90
1	A	1474	A	C5-N7-C8	-5.33	101.24	103.90
25	Z	89	ARG	NE-CZ-NH1	5.32	122.96	120.30
1	A	820	A	C5-C6-N1	5.31	120.36	117.70
32	g	88	ARG	NE-CZ-NH1	5.31	122.95	120.30
20	U	126	ARG	NE-CZ-NH1	-5.30	117.65	120.30
1	A	283	G	C5-N7-C8	-5.30	101.65	104.30
1	A	1635	G	N3-C4-C5	5.30	131.25	128.60
1	A	350	C	N3-C4-N4	5.30	121.71	118.00
1	A	702	C	C5-C4-N4	-5.29	116.49	120.20
1	A	2366	C	C5-C4-N4	-5.29	116.50	120.20
1	A	101	G	O4'-C1'-N9	5.29	112.43	108.20
1	A	963	G	N1-C6-O6	5.29	123.07	119.90
1	A	3097	C	N1-C2-O2	5.29	122.07	118.90
1	A	142	C	C5-C4-N4	-5.29	116.50	120.20

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	1155	C	N1-C2-O2	5.29	122.07	118.90
1	A	682	U	C2-N1-C1'	5.28	124.03	117.70
1	A	1657	C	C6-N1-C2	-5.28	118.19	120.30
1	A	1803	C	N1-C2-O2	5.27	122.06	118.90
1	A	113	C	N1-C2-O2	5.27	122.06	118.90
1	A	2961	G	C8-N9-C1'	-5.26	120.16	127.00
48	y	20	U	C5-C4-O4	-5.26	122.74	125.90
1	A	1178	G	N1-C2-N2	-5.26	111.47	116.20
1	A	3165	A	N1-C6-N6	5.26	121.76	118.60
1	A	2875	U	C6-N1-C1'	-5.25	113.85	121.20
15	P	24	ARG	NE-CZ-NH1	5.25	122.93	120.30
1	A	2356	A	C5-C6-N6	-5.25	119.50	123.70
1	A	2476	C	C6-N1-C2	-5.25	118.20	120.30
28	c	104	LEU	CA-CB-CG	5.25	127.37	115.30
1	A	2359	C	C5-C4-N4	-5.24	116.53	120.20
4	D	84	ARG	NE-CZ-NH1	5.24	122.92	120.30
1	A	962	A	O4'-C1'-N9	5.23	112.39	108.20
48	y	84	C	N3-C4-N4	-5.23	114.34	118.00
1	A	2755	C	C5-C4-N4	-5.23	116.54	120.20
1	A	1840	U	C5-C6-N1	5.23	125.31	122.70
1	A	609	G	N3-C2-N2	-5.22	116.24	119.90
1	A	793	C	N3-C4-N4	5.22	121.66	118.00
1	A	2145	A	N9-C4-C5	-5.22	103.71	105.80
47	x	86	U	C5-C6-N1	5.22	125.31	122.70
1	A	849	C	N1-C2-O2	5.22	122.03	118.90
1	A	1597	C	C5-C4-N4	-5.21	116.55	120.20
1	A	2809	C	N3-C4-C5	5.21	123.98	121.90
1	A	1566	A	N1-C2-N3	5.21	131.90	129.30
1	A	155	G	N3-C2-N2	5.20	123.54	119.90
1	A	2707	C	C5-C4-N4	-5.20	116.56	120.20
16	Q	180	ARG	NE-CZ-NH1	5.20	122.90	120.30
1	A	90	C	C5-C4-N4	-5.20	116.56	120.20
1	A	407	A	N1-C6-N6	5.19	121.72	118.60
1	A	780	A	C5-C6-N6	-5.19	119.55	123.70
1	A	2209	U	C2-N1-C1'	5.19	123.92	117.70
1	A	857	G	N3-C4-N9	-5.18	122.89	126.00
1	A	2867	C	C5-C4-N4	-5.18	116.57	120.20
1	A	113	C	C6-N1-C2	-5.18	118.23	120.30
1	A	2362	C	C2-N1-C1'	5.18	124.49	118.80
1	A	2362	C	N1-C2-O2	5.17	122.00	118.90
1	A	2647	A	N9-C4-C5	-5.17	103.73	105.80
12	M	124	ARG	NE-CZ-NH1	5.17	122.88	120.30

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
17	R	64	ARG	NE-CZ-NH1	5.17	122.88	120.30
18	S	12	ARG	NE-CZ-NH1	5.17	122.88	120.30
1	A	3084	C	N1-C2-O2	5.16	122.00	118.90
1	A	3092	C	C6-N1-C1'	-5.16	114.61	120.80
1	A	1570	U	N1-C2-N3	5.15	117.99	114.90
1	A	1531	C	C5-C4-N4	-5.15	116.60	120.20
48	y	19	C	C5-C4-N4	-5.15	116.60	120.20
16	Q	180	ARG	NE-CZ-NH2	-5.15	117.73	120.30
30	e	27	ARG	NE-CZ-NH1	5.15	122.87	120.30
1	A	938	C	C2-N1-C1'	5.14	124.45	118.80
1	A	3344	A	C4-N9-C1'	5.14	135.55	126.30
1	A	1654	A	C5-C6-N1	5.13	120.27	117.70
1	A	2366	C	C2-N1-C1'	5.13	124.44	118.80
1	A	2692	A	C5-N7-C8	-5.13	101.34	103.90
1	A	3074	G	N3-C4-N9	-5.13	122.92	126.00
48	y	39	G	C2-N3-C4	-5.13	109.34	111.90
1	A	1333	C	N1-C2-O2	5.12	121.97	118.90
1	A	656	A	C5-C6-N6	-5.12	119.61	123.70
1	A	2692	A	N7-C8-N9	5.12	116.36	113.80
1	A	1155	C	N3-C4-N4	5.12	121.58	118.00
1	A	824	C	N1-C2-O2	5.11	121.97	118.90
1	A	2656	A	O4'-C1'-N9	5.11	112.29	108.20
1	A	282	G	C2-N3-C4	-5.11	109.34	111.90
1	A	635	G	N3-C4-N9	-5.11	122.93	126.00
1	A	3085	G	N3-C2-N2	-5.11	116.32	119.90
1	A	579	G	N3-C4-N9	-5.11	122.94	126.00
47	x	97	A	C4-C5-N7	5.11	113.25	110.70
1	A	2496	C	C6-N1-C2	-5.10	118.26	120.30
1	A	2810	C	N3-C4-C5	5.10	123.94	121.90
1	A	2369	G	N3-C2-N2	5.10	123.47	119.90
1	A	2726	C	N3-C2-O2	-5.10	118.33	121.90
1	A	933	A	C5-N7-C8	-5.09	101.35	103.90
1	A	1469	C	C6-N1-C2	-5.09	118.26	120.30
1	A	730	C	N3-C4-N4	5.09	121.56	118.00
1	A	636	C	N1-C2-O2	5.09	121.95	118.90
1	A	2359	C	N1-C2-O2	5.09	121.95	118.90
1	A	665	A	C5-N7-C8	-5.08	101.36	103.90
1	A	1076	C	C5-C4-N4	-5.08	116.64	120.20
32	g	16	ARG	NE-CZ-NH1	-5.08	117.76	120.30
1	A	1512	U	N3-C4-O4	5.08	122.95	119.40
1	A	915	A	C5-C6-N1	5.08	120.24	117.70
1	A	1835	A	C5-N7-C8	-5.08	101.36	103.90

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	946	U	C5-C4-O4	-5.06	122.86	125.90
1	A	2281	A	O4'-C1'-N9	5.06	112.25	108.20
20	U	127	ARG	NE-CZ-NH1	5.06	122.83	120.30
1	A	729	C	C6-N1-C2	-5.05	118.28	120.30
1	A	994	G	C8-N9-C1'	5.05	133.56	127.00
1	A	2356	A	N9-C4-C5	-5.05	103.78	105.80
48	y	47	C	N1-C2-O2	5.04	121.92	118.90
1	A	2892	A	C5-C6-N6	-5.04	119.67	123.70
1	A	1424	C	C2-N1-C1'	5.03	124.34	118.80
1	A	969	C	C6-N1-C2	-5.03	118.29	120.30
1	A	2892	A	C5-C6-N1	5.03	120.22	117.70
1	A	2407	C	C5-C4-N4	-5.03	116.68	120.20
1	A	1199	C	C5-C4-N4	-5.02	116.68	120.20
1	A	2489	C	N1-C2-O2	5.02	121.91	118.90
1	A	2356	A	C4-C5-N7	5.02	113.21	110.70
1	A	2367	A	N7-C8-N9	5.02	116.31	113.80
1	A	1605	A	O4'-C1'-N9	5.02	112.22	108.20
1	A	1086	C	N1-C2-O2	5.02	121.91	118.90
1	A	1460	A	N1-C6-N6	5.02	121.61	118.60
1	A	1571	A	C5-N7-C8	-5.01	101.39	103.90
1	A	2231	C	N3-C4-N4	5.01	121.51	118.00
1	A	1605	A	N1-C6-N6	-5.01	115.59	118.60
1	A	1590	G	C4-N9-C1'	5.01	133.01	126.50
3	C	284	ARG	NE-CZ-NH1	5.01	122.80	120.30
1	A	1552	G	C2-N3-C4	-5.00	109.40	111.90
1	A	2399	A	N9-C4-C5	-5.00	103.80	105.80
1	A	2597	U	C5-C4-O4	-5.00	122.90	125.90
48	y	42	G	C2-N3-C4	-5.00	109.40	111.90

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

Due to software issues we are unable to calculate clashes - this section is therefore empty.

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	B	245/254 (96%)	222 (91%)	23 (9%)	0	100	100
3	C	379/387 (98%)	340 (90%)	37 (10%)	2 (0%)	29	61
4	D	359/362 (99%)	327 (91%)	32 (9%)	0	100	100
5	E	167/174 (96%)	147 (88%)	19 (11%)	1 (1%)	25	57
6	F	187/191 (98%)	170 (91%)	17 (9%)	0	100	100
7	G	173/176 (98%)	152 (88%)	21 (12%)	0	100	100
8	H	221/256 (86%)	202 (91%)	17 (8%)	2 (1%)	17	48
9	J	195/198 (98%)	189 (97%)	6 (3%)	0	100	100
10	K	184/199 (92%)	165 (90%)	19 (10%)	0	100	100
11	L	134/137 (98%)	123 (92%)	11 (8%)	0	100	100
12	M	133/138 (96%)	121 (91%)	12 (9%)	0	100	100
13	N	146/149 (98%)	125 (86%)	21 (14%)	0	100	100
14	O	201/204 (98%)	185 (92%)	16 (8%)	0	100	100
15	P	267/297 (90%)	241 (90%)	25 (9%)	1 (0%)	34	66
16	Q	183/186 (98%)	169 (92%)	14 (8%)	0	100	100
17	R	148/189 (78%)	145 (98%)	3 (2%)	0	100	100
18	S	169/172 (98%)	152 (90%)	17 (10%)	0	100	100
19	T	157/160 (98%)	145 (92%)	12 (8%)	0	100	100
20	U	152/184 (83%)	144 (95%)	8 (5%)	0	100	100
21	V	97/121 (80%)	87 (90%)	10 (10%)	0	100	100
22	W	118/142 (83%)	107 (91%)	11 (9%)	0	100	100
23	X	123/127 (97%)	114 (93%)	9 (7%)	0	100	100
24	Y	133/136 (98%)	121 (91%)	12 (9%)	0	100	100
25	Z	116/120 (97%)	113 (97%)	3 (3%)	0	100	100
26	a	50/59 (85%)	41 (82%)	9 (18%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
27	b	217/244 (89%)	197 (91%)	20 (9%)	0	100 100
28	c	95/105 (90%)	91 (96%)	4 (4%)	0	100 100
29	d	105/113 (93%)	94 (90%)	11 (10%)	0	100 100
30	e	125/130 (96%)	108 (86%)	15 (12%)	2 (2%)	9 36
31	f	104/107 (97%)	90 (86%)	13 (12%)	1 (1%)	15 46
32	g	101/121 (84%)	89 (88%)	12 (12%)	0	100 100
33	h	96/100 (96%)	88 (92%)	8 (8%)	0	100 100
34	i	82/88 (93%)	70 (85%)	12 (15%)	0	100 100
35	j	75/78 (96%)	69 (92%)	6 (8%)	0	100 100
36	k	48/51 (94%)	42 (88%)	6 (12%)	0	100 100
37	l	92/106 (87%)	85 (92%)	6 (6%)	1 (1%)	14 45
38	m	87/92 (95%)	80 (92%)	7 (8%)	0	100 100
39	n	222/245 (91%)	196 (88%)	26 (12%)	0	100 100
40	z	56/432 (13%)	49 (88%)	7 (12%)	0	100 100
41	w	361/518 (70%)	327 (91%)	34 (9%)	0	100 100
42	v	58/155 (37%)	56 (97%)	2 (3%)	0	100 100
43	o	313/640 (49%)	244 (78%)	65 (21%)	4 (1%)	12 40
45	q	214/221 (97%)	192 (90%)	22 (10%)	0	100 100
46	t	50/128 (39%)	44 (88%)	6 (12%)	0	100 100
All	All	6938/8392 (83%)	6258 (90%)	666 (10%)	14 (0%)	50 77

All (14) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	C	18	PRO
5	E	169	ALA
8	H	159	PRO
8	H	160	ILE
43	o	344	TYR
43	o	175	ASP
43	o	345	PRO
31	f	78	SER
37	l	78	LYS
15	P	149	GLY
30	e	5	PRO

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
43	o	502	PRO
30	e	7	PRO
3	C	17	LEU

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	B	189/196 (96%)	189 (100%)	0	100	100
3	C	317/323 (98%)	313 (99%)	4 (1%)	69	82
4	D	288/289 (100%)	287 (100%)	1 (0%)	92	96
5	E	147/150 (98%)	146 (99%)	1 (1%)	84	90
6	F	169/171 (99%)	169 (100%)	0	100	100
7	G	152/153 (99%)	150 (99%)	2 (1%)	69	82
8	H	183/208 (88%)	181 (99%)	2 (1%)	73	85
9	J	163/164 (99%)	162 (99%)	1 (1%)	86	91
10	K	149/159 (94%)	148 (99%)	1 (1%)	84	90
11	L	104/105 (99%)	103 (99%)	1 (1%)	76	86
12	M	107/109 (98%)	107 (100%)	0	100	100
13	N	118/119 (99%)	118 (100%)	0	100	100
14	O	175/176 (99%)	174 (99%)	1 (1%)	86	91
15	P	227/245 (93%)	226 (100%)	1 (0%)	91	95
16	Q	150/151 (99%)	150 (100%)	0	100	100
17	R	124/154 (80%)	124 (100%)	0	100	100
18	S	155/156 (99%)	154 (99%)	1 (1%)	86	91
19	T	136/137 (99%)	133 (98%)	3 (2%)	52	74
20	U	125/146 (86%)	125 (100%)	0	100	100
21	V	86/107 (80%)	84 (98%)	2 (2%)	50	73
22	W	104/118 (88%)	102 (98%)	2 (2%)	57	77

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
23	X	108/110 (98%)	108 (100%)	0	100	100
24	Y	115/116 (99%)	114 (99%)	1 (1%)	78	87
25	Z	104/105 (99%)	104 (100%)	0	100	100
26	a	41/47 (87%)	41 (100%)	0	100	100
27	b	184/205 (90%)	183 (100%)	1 (0%)	88	93
28	c	81/88 (92%)	81 (100%)	0	100	100
29	d	94/97 (97%)	93 (99%)	1 (1%)	73	85
30	e	109/111 (98%)	108 (99%)	1 (1%)	78	87
31	f	90/91 (99%)	89 (99%)	1 (1%)	73	85
32	g	88/103 (85%)	86 (98%)	2 (2%)	50	73
33	h	80/82 (98%)	79 (99%)	1 (1%)	69	82
34	i	69/71 (97%)	69 (100%)	0	100	100
35	j	68/69 (99%)	67 (98%)	1 (2%)	65	81
36	k	45/46 (98%)	42 (93%)	3 (7%)	16	45
37	l	81/91 (89%)	79 (98%)	2 (2%)	47	72
38	m	70/72 (97%)	67 (96%)	3 (4%)	29	59
39	n	192/211 (91%)	191 (100%)	1 (0%)	88	93
40	z	53/392 (14%)	53 (100%)	0	100	100
41	w	328/467 (70%)	309 (94%)	19 (6%)	20	50
42	v	53/129 (41%)	51 (96%)	2 (4%)	33	62
43	o	282/555 (51%)	270 (96%)	12 (4%)	29	59
45	q	185/187 (99%)	183 (99%)	2 (1%)	73	85
46	t	47/116 (40%)	47 (100%)	0	100	100
All	All	5935/7097 (84%)	5859 (99%)	76 (1%)	70	82

All (76) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	C	18	PRO
3	C	34	LYS
3	C	275	ARG
3	C	332	ARG
4	D	93	MET
5	E	61	ARG

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
7	G	4	GLN
7	G	80	ASN
8	H	158	ASP
8	H	159	PRO
9	J	26	VAL
10	K	67	ARG
11	L	4	ASN
14	O	114	ARG
15	P	213	ASP
18	S	172	TYR
19	T	83	ARG
19	T	112	ASN
19	T	160	ILE
21	V	29	ASP
21	V	74	LYS
22	W	97	LYS
22	W	129	ASP
24	Y	60	LYS
27	b	229	PHE
29	d	82	GLU
30	e	8	LYS
31	f	40	ASP
32	g	47	CYS
32	g	49	SER
33	h	68	ARG
35	j	36	LYS
36	k	33	ASN
36	k	43	ASN
36	k	45	ARG
37	l	12	CYS
37	l	74	CYS
38	m	42	CYS
38	m	46	THR
38	m	59	CYS
39	n	141	THR
41	w	19	CYS
41	w	20	CYS
41	w	21	ASN
41	w	22	CYS
41	w	35	CYS
41	w	38	CYS
41	w	51	ARG

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
41	w	60	ASN
41	w	61	CYS
41	w	64	PHE
41	w	96	ARG
41	w	101	SER
41	w	115	LYS
41	w	131	THR
41	w	143	CYS
41	w	146	CYS
41	w	269	ASN
41	w	356	ARG
41	w	399	LYS
42	v	2	LYS
42	v	47	ARG
43	o	148	LYS
43	o	154	GLN
43	o	163	ARG
43	o	164	ARG
43	o	175	ASP
43	o	176	LEU
43	o	177	LEU
43	o	179	THR
43	o	311	ASP
43	o	344	TYR
43	o	345	PRO
43	o	458	GLN
45	q	115	MET
45	q	154	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
36	k	33	ASN
41	w	21	ASN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	A	3142/3396 (92%)	689 (21%)	17 (0%)
47	x	120/121 (99%)	20 (16%)	0

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
48	y	155/158 (98%)	37 (23%)	0
All	All	3417/3675 (92%)	746 (21%)	17 (0%)

All (746) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	A	6	A
1	A	15	C
1	A	26	A
1	A	40	A
1	A	43	A
1	A	49	A
1	A	59	G
1	A	60	A
1	A	65	A
1	A	66	A
1	A	70	A
1	A	72	C
1	A	73	C
1	A	75	G
1	A	85	A
1	A	87	U
1	A	92	G
1	A	105	C
1	A	108	A
1	A	110	G
1	A	111	C
1	A	117	U
1	A	118	U
1	A	120	G
1	A	121	A
1	A	122	A
1	A	133	U
1	A	134	U
1	A	136	G
1	A	148	G
1	A	153	U
1	A	155	G
1	A	156	G
1	A	157	A
1	A	165	A
1	A	167	U

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	171	G
1	A	173	G
1	A	187	A
1	A	190	U
1	A	191	U
1	A	194	U
1	A	198	A
1	A	200	C
1	A	206	G
1	A	211	A
1	A	218	G
1	A	219	A
1	A	220	G
1	A	221	A
1	A	232	G
1	A	234	G
1	A	244	G
1	A	246	U
1	A	247	C
1	A	248	U
1	A	249	U
1	A	250	U
1	A	251	G
1	A	252	U
1	A	253	A
1	A	258	G
1	A	265	A
1	A	266	A
1	A	267	G
1	A	269	G
1	A	283	G
1	A	286	U
1	A	295	A
1	A	298	U
1	A	299	G
1	A	329	U
1	A	338	A
1	A	346	C
1	A	368	G
1	A	376	G
1	A	385	A
1	A	395	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	398	A
1	A	399	A
1	A	401	U
1	A	402	A
1	A	403	C
1	A	404	G
1	A	420	G
1	A	421	G
1	A	422	A
1	A	437	G
1	A	438	A
1	A	439	C
1	A	495	G
1	A	498	A
1	A	503	C
1	A	520	U
1	A	521	A
1	A	523	A
1	A	530	G
1	A	536	U
1	A	541	U
1	A	542	G
1	A	545	U
1	A	547	G
1	A	548	G
1	A	550	A
1	A	551	A
1	A	555	U
1	A	557	A
1	A	558	U
1	A	559	A
1	A	560	G
1	A	578	A
1	A	579	G
1	A	592	A
1	A	597	G
1	A	611	A
1	A	620	U
1	A	621	A
1	A	622	A
1	A	649	A
1	A	661	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	667	C
1	A	677	A
1	A	681	U
1	A	683	U
1	A	689	U
1	A	690	A
1	A	691	A
1	A	699	A
1	A	705	A
1	A	712	G
1	A	720	A
1	A	725	G
1	A	767	U
1	A	774	G
1	A	776	U
1	A	777	U
1	A	780	A
1	A	781	G
1	A	784	A
1	A	785	G
1	A	786	A
1	A	801	A
1	A	806	A
1	A	815	G
1	A	817	A
1	A	818	C
1	A	830	A
1	A	845	G
1	A	846	A
1	A	848	A
1	A	849	C
1	A	861	C
1	A	869	G
1	A	874	U
1	A	879	U
1	A	880	G
1	A	882	A
1	A	884	A
1	A	895	A
1	A	897	U
1	A	907	G
1	A	908	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	914	A
1	A	916	G
1	A	917	A
1	A	932	U
1	A	937	G
1	A	944	C
1	A	953	G
1	A	959	C
1	A	960	U
1	A	980	A
1	A	981	U
1	A	991	G
1	A	994	G
1	A	1001	G
1	A	1002	A
1	A	1010	G
1	A	1016	C
1	A	1017	C
1	A	1018	G
1	A	1020	G
1	A	1024	G
1	A	1025	A
1	A	1029	G
1	A	1036	A
1	A	1037	C
1	A	1038	C
1	A	1041	U
1	A	1047	A
1	A	1049	C
1	A	1064	A
1	A	1065	A
1	A	1072	G
1	A	1081	U
1	A	1087	G
1	A	1095	U
1	A	1096	U
1	A	1097	G
1	A	1098	A
1	A	1103	A
1	A	1104	G
1	A	1116	G
1	A	1117	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	1118	C
1	A	1126	G
1	A	1131	G
1	A	1140	G
1	A	1159	A
1	A	1160	C
1	A	1177	G
1	A	1180	A
1	A	1181	U
1	A	1190	A
1	A	1192	C
1	A	1193	A
1	A	1195	A
1	A	1201	C
1	A	1203	A
1	A	1216	C
1	A	1217	A
1	A	1218	U
1	A	1222	G
1	A	1223	A
1	A	1227	C
1	A	1234	G
1	A	1236	G
1	A	1238	C
1	A	1239	C
1	A	1240	A
1	A	1241	U
1	A	1242	G
1	A	1244	A
1	A	1245	A
1	A	1246	G
1	A	1248	C
1	A	1252	A
1	A	1254	C
1	A	1258	U
1	A	1262	G
1	A	1263	A
1	A	1264	G
1	A	1265	U
1	A	1266	G
1	A	1269	U
1	A	1270	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	1271	A
1	A	1272	C
1	A	1274	A
1	A	1278	A
1	A	1279	C
1	A	1281	G
1	A	1285	G
1	A	1287	A
1	A	1288	U
1	A	1289	G
1	A	1302	A
1	A	1303	A
1	A	1304	A
1	A	1307	G
1	A	1309	U
1	A	1313	G
1	A	1317	A
1	A	1330	A
1	A	1345	G
1	A	1349	G
1	A	1350	A
1	A	1353	U
1	A	1354	G
1	A	1355	A
1	A	1356	U
1	A	1380	G
1	A	1386	A
1	A	1399	A
1	A	1400	G
1	A	1405	U
1	A	1418	A
1	A	1419	A
1	A	1428	A
1	A	1434	G
1	A	1435	A
1	A	1436	U
1	A	1437	C
1	A	1443	G
1	A	1446	A
1	A	1450	G
1	A	1451	C
1	A	1455	U

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	1467	A
1	A	1475	A
1	A	1481	A
1	A	1487	G
1	A	1490	A
1	A	1503	A
1	A	1508	C
1	A	1523	U
1	A	1528	G
1	A	1533	U
1	A	1539	A
1	A	1542	G
1	A	1549	U
1	A	1556	C
1	A	1559	A
1	A	1561	G
1	A	1562	C
1	A	1565	G
1	A	1566	A
1	A	1567	U
1	A	1568	U
1	A	1569	U
1	A	1570	U
1	A	1571	A
1	A	1572	U
1	A	1574	C
1	A	1576	G
1	A	1577	G
1	A	1578	C
1	A	1580	A
1	A	1581	C
1	A	1583	A
1	A	1587	A
1	A	1588	A
1	A	1589	A
1	A	1593	A
1	A	1604	G
1	A	1613	A
1	A	1618	G
1	A	1619	A
1	A	1620	U
1	A	1629	U

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	1630	U
1	A	1631	C
1	A	1642	A
1	A	1643	A
1	A	1645	U
1	A	1657	C
1	A	1702	U
1	A	1715	A
1	A	1724	U
1	A	1725	C
1	A	1741	A
1	A	1749	A
1	A	1750	A
1	A	1751	G
1	A	1762	C
1	A	1763	U
1	A	1765	U
1	A	1775	G
1	A	1794	G
1	A	1797	A
1	A	1813	A
1	A	1814	A
1	A	1815	U
1	A	1816	A
1	A	1820	U
1	A	1821	U
1	A	1822	C
1	A	1835	A
1	A	1838	G
1	A	1839	A
1	A	1842	A
1	A	1849	C
1	A	1850	A
1	A	1851	G
1	A	1866	C
1	A	1868	G
1	A	1880	U
1	A	1886	A
1	A	1893	A
1	A	1897	G
1	A	1906	G
1	A	1907	C

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	1943	C
1	A	1952	G
1	A	2095	G
1	A	2096	A
1	A	2100	A
1	A	2101	C
1	A	2102	U
1	A	2107	A
1	A	2111	G
1	A	2112	U
1	A	2113	A
1	A	2114	C
1	A	2121	G
1	A	2122	G
1	A	2131	A
1	A	2139	A
1	A	2141	U
1	A	2144	A
1	A	2149	A
1	A	2158	A
1	A	2168	A
1	A	2169	G
1	A	2174	G
1	A	2178	A
1	A	2179	C
1	A	2184	U
1	A	2188	A
1	A	2196	C
1	A	2197	C
1	A	2205	U
1	A	2206	G
1	A	2208	A
1	A	2209	U
1	A	2210	G
1	A	2251	G
1	A	2252	A
1	A	2253	G
1	A	2256	A
1	A	2257	C
1	A	2258	U
1	A	2259	A
1	A	2260	U

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	2261	G
1	A	2262	A
1	A	2265	C
1	A	2266	U
1	A	2268	U
1	A	2269	U
1	A	2270	A
1	A	2273	G
1	A	2274	U
1	A	2279	A
1	A	2280	A
1	A	2281	A
1	A	2282	U
1	A	2298	U
1	A	2307	G
1	A	2308	C
1	A	2309	A
1	A	2310	U
1	A	2313	A
1	A	2314	U
1	A	2315	G
1	A	2319	U
1	A	2334	U
1	A	2335	G
1	A	2336	U
1	A	2347	U
1	A	2361	A
1	A	2363	A
1	A	2372	A
1	A	2373	A
1	A	2374	C
1	A	2375	G
1	A	2388	U
1	A	2393	G
1	A	2397	A
1	A	2401	A
1	A	2402	A
1	A	2403	G
1	A	2404	A
1	A	2405	C
1	A	2411	U
1	A	2412	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	2419	A
1	A	2435	G
1	A	2437	G
1	A	2440	G
1	A	2442	G
1	A	2446	U
1	A	2449	A
1	A	2450	G
1	A	2453	U
1	A	2458	A
1	A	2459	A
1	A	2460	U
1	A	2461	A
1	A	2463	G
1	A	2468	A
1	A	2470	C
1	A	2472	U
1	A	2474	G
1	A	2476	C
1	A	2478	C
1	A	2480	A
1	A	2481	G
1	A	2484	A
1	A	2485	A
1	A	2486	A
1	A	2487	U
1	A	2489	C
1	A	2492	C
1	A	2493	U
1	A	2494	A
1	A	2495	C
1	A	2496	C
1	A	2497	U
1	A	2498	U
1	A	2499	U
1	A	2501	U
1	A	2502	A
1	A	2503	G
1	A	2505	U
1	A	2506	U
1	A	2508	U
1	A	2509	U

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	2510	U
1	A	2511	A
1	A	2514	U
1	A	2515	A
1	A	2525	G
1	A	2549	G
1	A	2550	U
1	A	2551	U
1	A	2552	C
1	A	2561	A
1	A	2567	C
1	A	2568	C
1	A	2569	A
1	A	2571	U
1	A	2573	G
1	A	2585	G
1	A	2587	U
1	A	2588	U
1	A	2593	A
1	A	2594	C
1	A	2606	G
1	A	2607	G
1	A	2614	G
1	A	2618	G
1	A	2619	G
1	A	2629	U
1	A	2635	A
1	A	2648	G
1	A	2652	U
1	A	2656	A
1	A	2657	A
1	A	2663	G
1	A	2672	G
1	A	2674	A
1	A	2676	A
1	A	2677	G
1	A	2678	A
1	A	2679	A
1	A	2680	A
1	A	2681	U
1	A	2689	A
1	A	2690	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	2691	A
1	A	2694	A
1	A	2703	A
1	A	2704	A
1	A	2708	C
1	A	2714	G
1	A	2719	U
1	A	2728	G
1	A	2729	U
1	A	2742	C
1	A	2749	G
1	A	2753	G
1	A	2754	G
1	A	2758	A
1	A	2771	U
1	A	2772	C
1	A	2773	C
1	A	2777	G
1	A	2778	G
1	A	2790	A
1	A	2791	G
1	A	2796	G
1	A	2800	G
1	A	2801	A
1	A	2810	C
1	A	2814	G
1	A	2817	A
1	A	2821	C
1	A	2838	A
1	A	2839	G
1	A	2842	U
1	A	2843	U
1	A	2845	A
1	A	2847	A
1	A	2851	A
1	A	2856	G
1	A	2860	U
1	A	2867	C
1	A	2871	G
1	A	2872	A
1	A	2875	U
1	A	2887	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	2889	C
1	A	2894	C
1	A	2898	G
1	A	2916	U
1	A	2918	G
1	A	2923	U
1	A	2933	A
1	A	2935	U
1	A	2936	A
1	A	2938	G
1	A	2940	A
1	A	2941	A
1	A	2942	C
1	A	2947	G
1	A	2971	A
1	A	2977	G
1	A	2983	C
1	A	2990	G
1	A	2992	U
1	A	2997	G
1	A	3011	A
1	A	3012	A
1	A	3016	A
1	A	3022	G
1	A	3027	A
1	A	3028	G
1	A	3046	A
1	A	3056	U
1	A	3059	G
1	A	3078	U
1	A	3080	G
1	A	3088	G
1	A	3092	C
1	A	3101	G
1	A	3103	A
1	A	3105	U
1	A	3117	C
1	A	3119	U
1	A	3122	A
1	A	3128	G
1	A	3129	A
1	A	3130	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	3131	U
1	A	3142	A
1	A	3153	U
1	A	3154	C
1	A	3156	U
1	A	3158	G
1	A	3161	C
1	A	3165	A
1	A	3166	C
1	A	3170	A
1	A	3172	A
1	A	3173	G
1	A	3174	A
1	A	3176	G
1	A	3179	U
1	A	3180	A
1	A	3181	C
1	A	3187	A
1	A	3195	U
1	A	3196	U
1	A	3197	G
1	A	3199	G
1	A	3206	C
1	A	3207	U
1	A	3208	G
1	A	3209	A
1	A	3210	A
1	A	3213	A
1	A	3217	C
1	A	3218	A
1	A	3219	G
1	A	3222	U
1	A	3268	A
1	A	3270	U
1	A	3271	G
1	A	3272	C
1	A	3273	A
1	A	3275	U
1	A	3276	G
1	A	3280	U
1	A	3281	U
1	A	3282	U

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	3289	G
1	A	3294	A
1	A	3304	U
1	A	3313	U
1	A	3316	A
1	A	3319	U
1	A	3334	U
1	A	3335	A
1	A	3341	U
1	A	3342	A
1	A	3347	A
1	A	3349	C
1	A	3351	U
1	A	3352	U
1	A	3353	G
1	A	3354	U
1	A	3355	U
1	A	3356	G
1	A	3369	G
1	A	3378	C
1	A	3382	U
1	A	3390	G
1	A	3396	U
47	x	7	G
47	x	11	A
47	x	18	C
47	x	21	G
47	x	22	A
47	x	41	G
47	x	42	A
47	x	49	G
47	x	50	U
47	x	55	A
47	x	65	G
47	x	72	A
47	x	73	C
47	x	76	A
47	x	91	G
47	x	93	C
47	x	99	G
47	x	102	A
47	x	112	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
47	x	121	U
48	y	2	A
48	y	13	A
48	y	23	U
48	y	24	G
48	y	25	G
48	y	34	U
48	y	35	C
48	y	50	C
48	y	52	A
48	y	59	A
48	y	62	C
48	y	63	G
48	y	74	U
48	y	75	G
48	y	79	A
48	y	80	A
48	y	81	U
48	y	82	U
48	y	83	C
48	y	84	C
48	y	86	U
48	y	87	G
48	y	90	U
48	y	91	C
48	y	95	G
48	y	97	A
48	y	102	U
48	y	104	A
48	y	106	C
48	y	112	U
48	y	113	U
48	y	116	G
48	y	125	U
48	y	127	U
48	y	138	A
48	y	151	C
48	y	152	G

All (17) RNA pucker outliers are listed below:

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	620	U
1	A	621	A
1	A	916	G
1	A	1064	A
1	A	1217	A
1	A	1273	A
1	A	1287	A
1	A	1288	U
1	A	1355	A
1	A	1629	U
1	A	1815	U
1	A	2112	U
1	A	2404	A
1	A	2501	U
1	A	3055	U
1	A	3206	C
1	A	3353	G

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 7 ligands modelled in this entry, 7 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

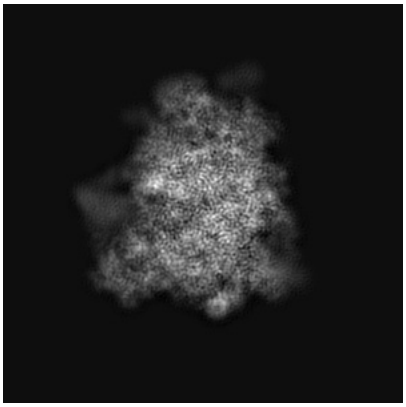
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-4884. These allow visual inspection of the internal detail of the map and identification of artifacts.

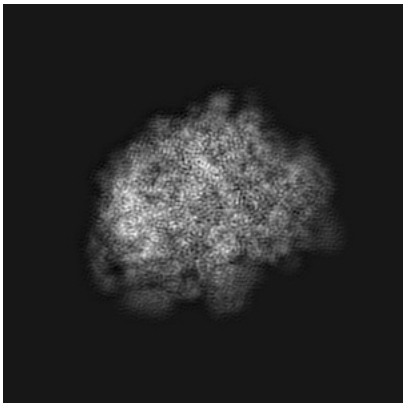
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

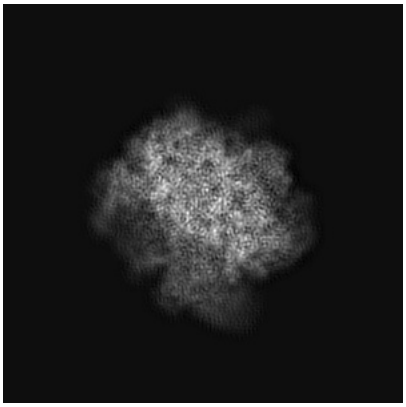
6.1.1 Primary map



X



Y

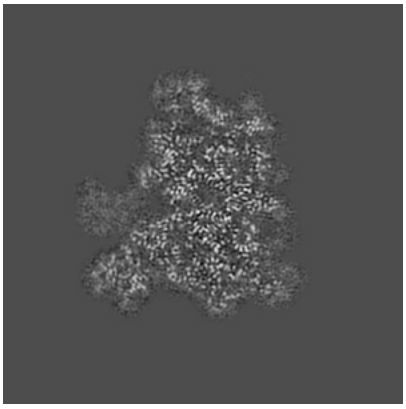


Z

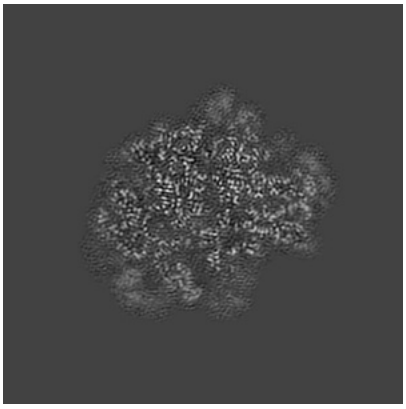
The images above show the map projected in three orthogonal directions.

6.2 Central slices

6.2.1 Primary map



X Index: 180



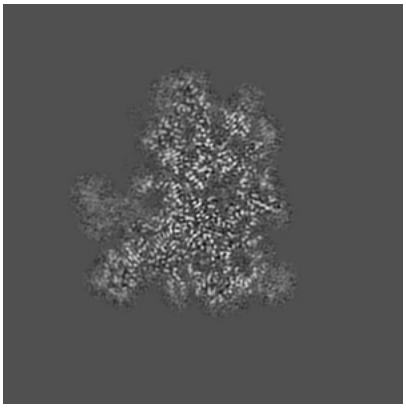
Y Index: 180

Z Index: 180

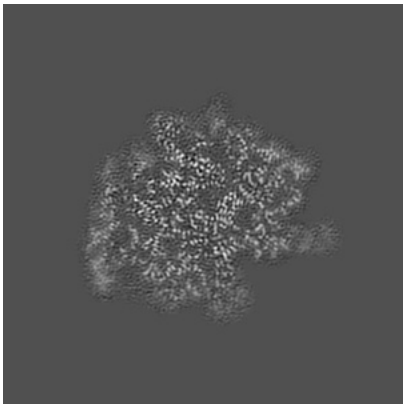
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

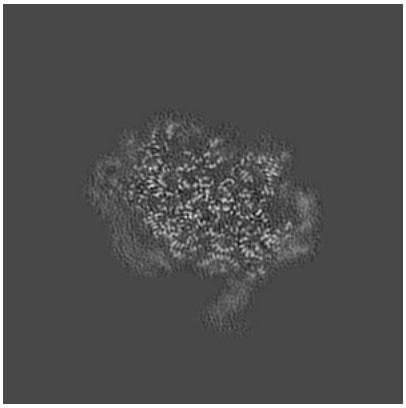
6.3.1 Primary map



X Index: 190



Y Index: 196

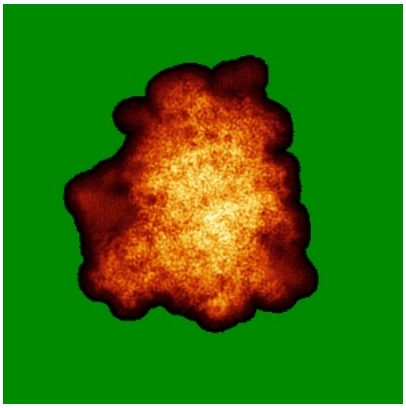


Z Index: 199

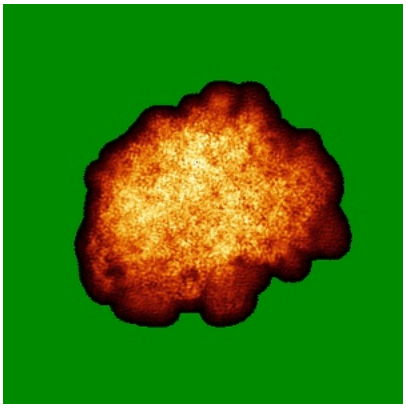
The images above show the largest variance slices of the map in three orthogonal directions.

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

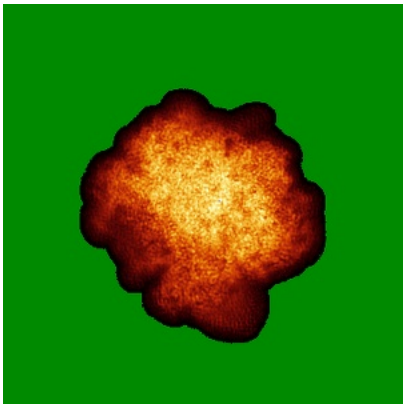
6.4.1 Primary map



X



Y

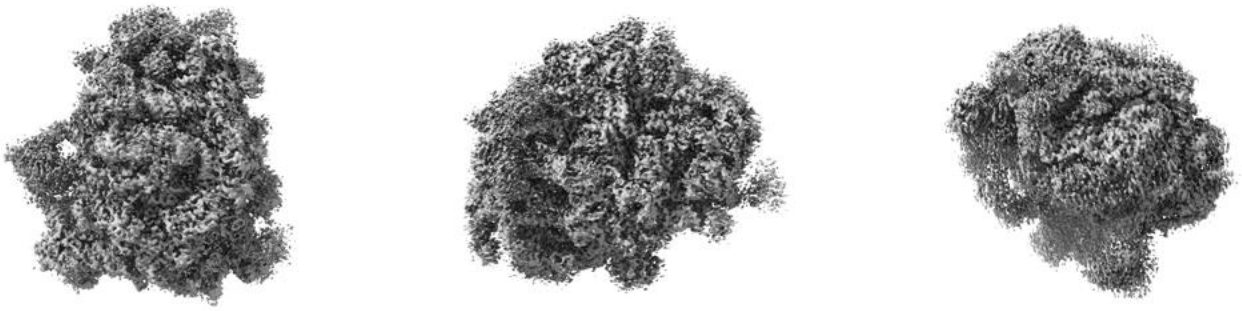


Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.06. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

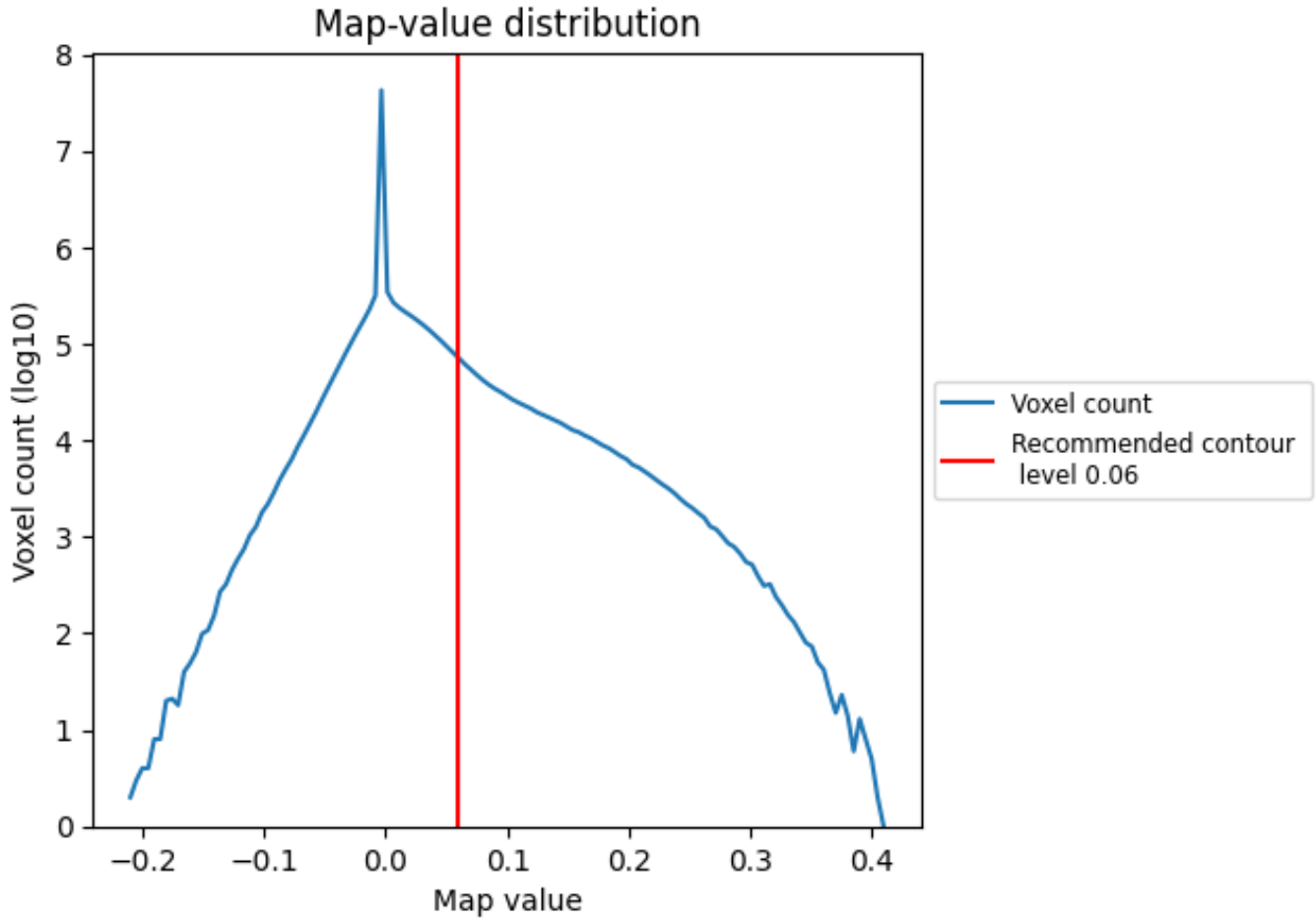
6.6 Mask visualisation (i)

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

7 Map analysis

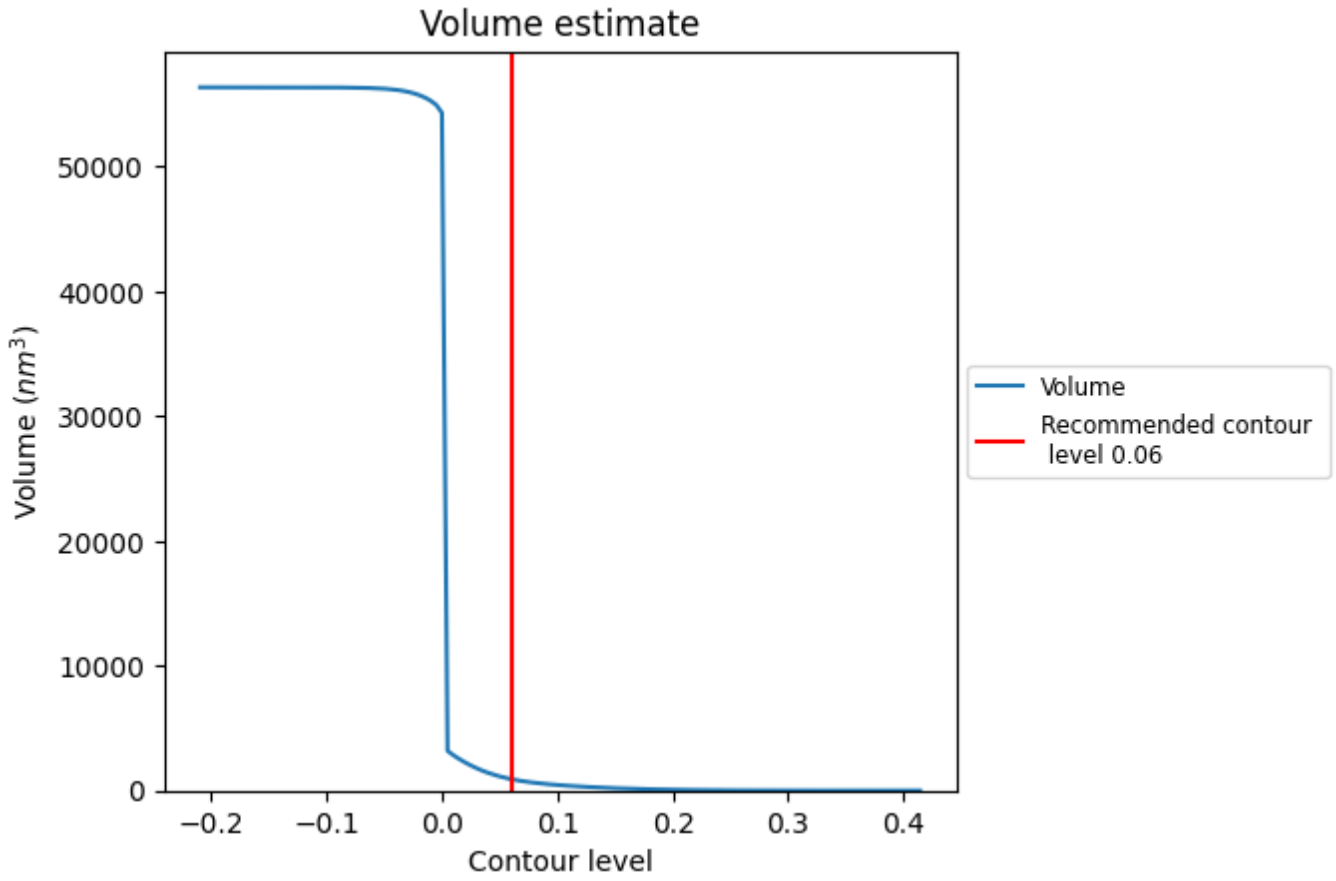
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

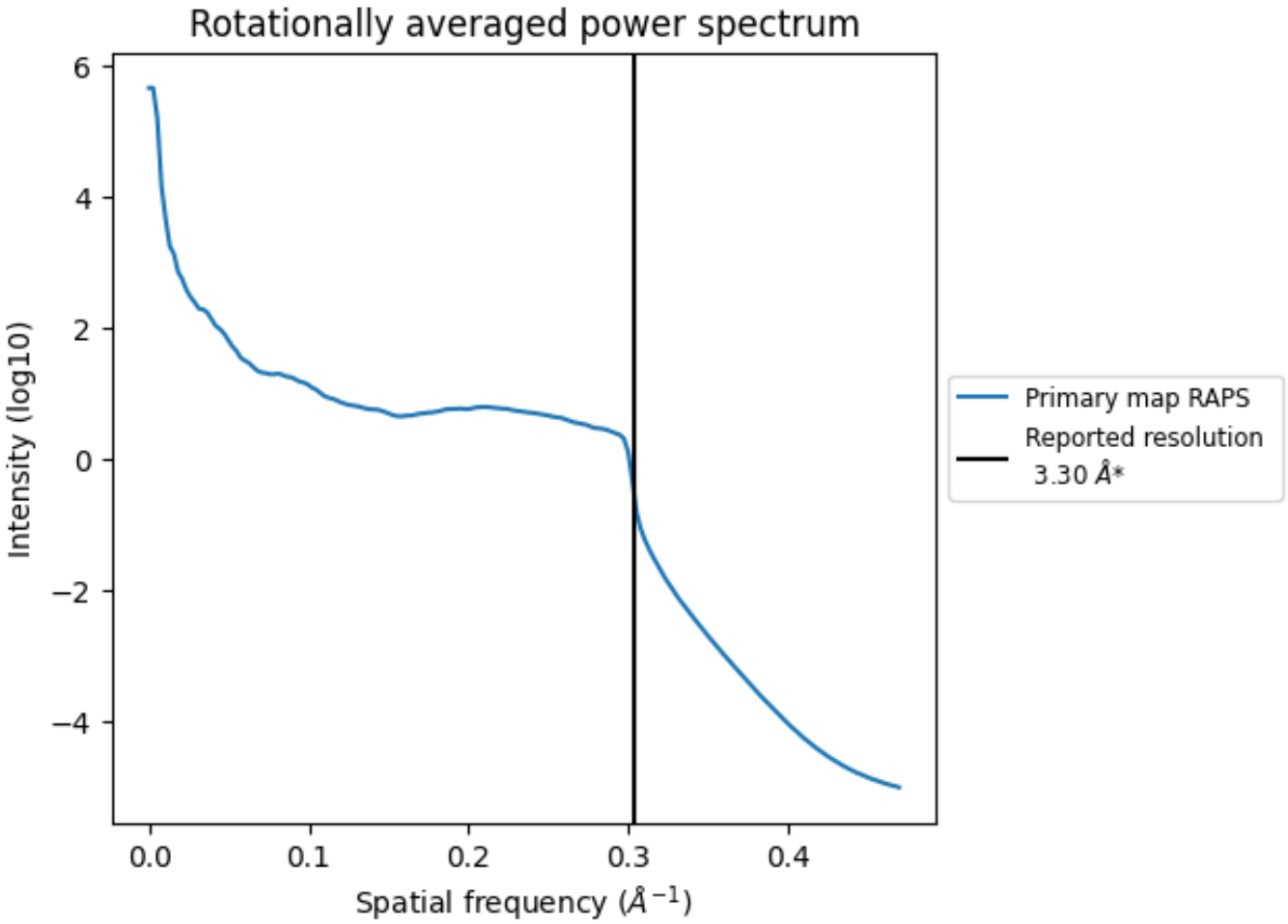
7.2 Volume estimate



The volume at the recommended contour level is 914 nm^3; this corresponds to an approximate mass of 826 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 0.303 Å^{-1}

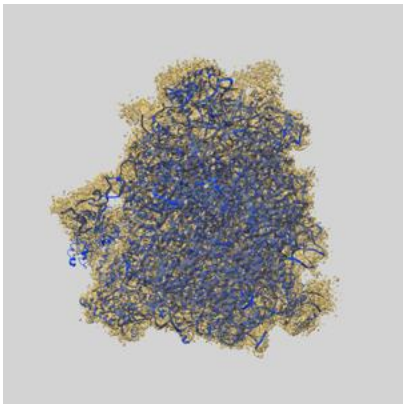
8 Fourier-Shell correlation

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

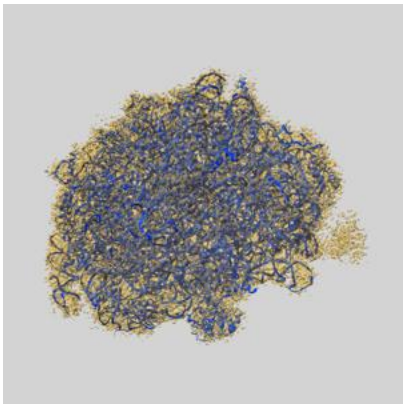
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-4884 and PDB model 6RI5. Per-residue inclusion information can be found in section 3 on page 13.

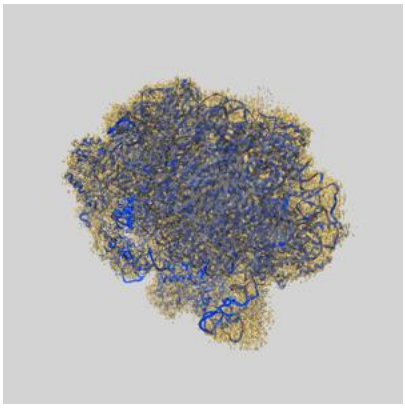
9.1 Map-model overlay



X



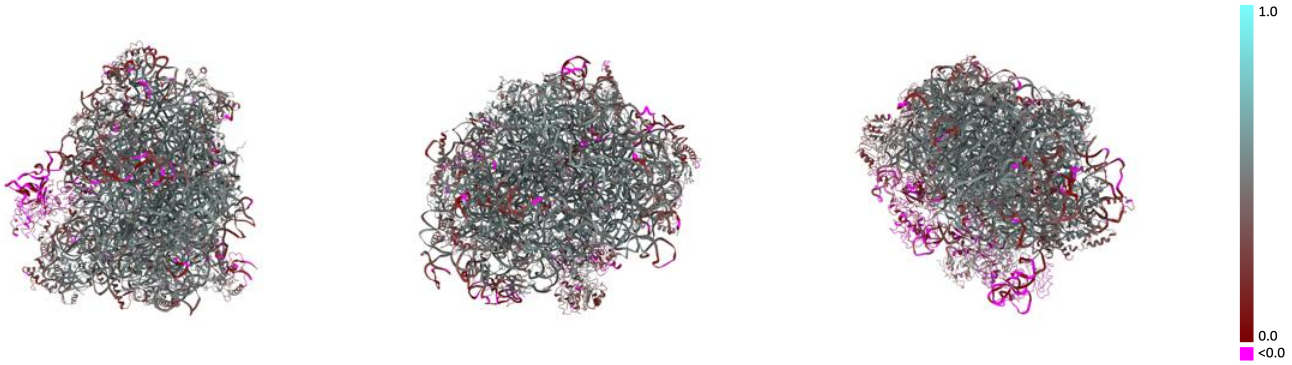
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.06 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

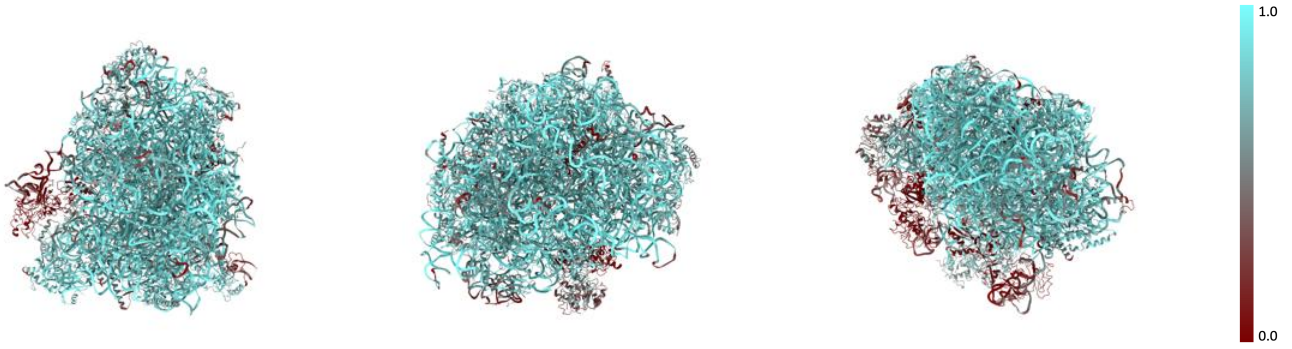
9.2 Q-score mapped to coordinate model (i)



X Y Z

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

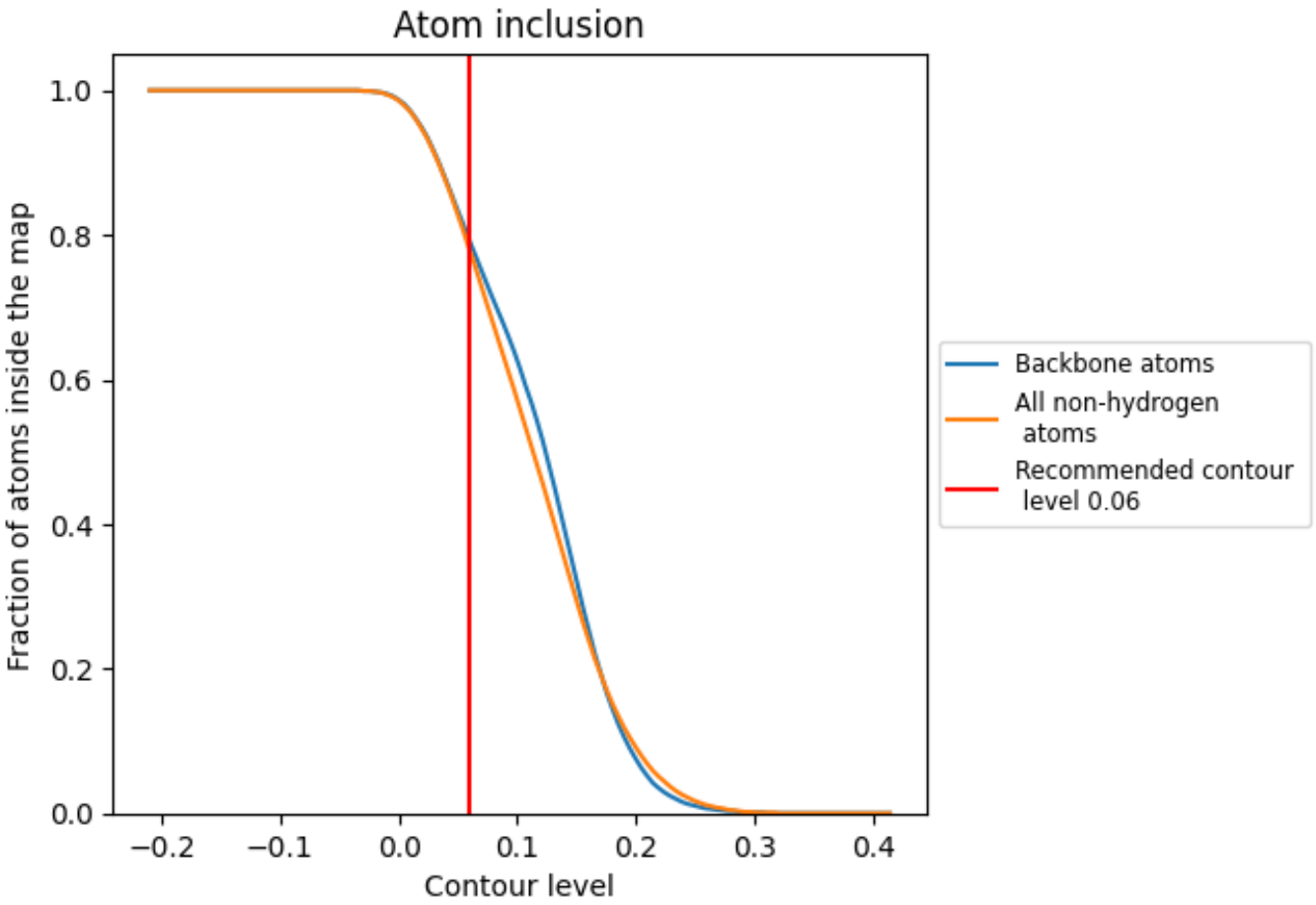
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.06).

9.4 Atom inclusion (i)



At the recommended contour level, 79% of all backbone atoms, 78% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.06) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7780	0.4390
A	0.8650	0.4630
B	0.7960	0.5150
C	0.8010	0.4900
D	0.8100	0.5000
E	0.6360	0.2960
F	0.7560	0.4330
G	0.5960	0.3440
H	0.6790	0.3870
J	0.7840	0.4870
K	0.7630	0.4600
L	0.7310	0.4810
M	0.7500	0.4340
N	0.8200	0.5120
O	0.8360	0.5360
P	0.7750	0.4150
Q	0.8270	0.5170
R	0.8040	0.4920
S	0.7910	0.5020
T	0.7680	0.4830
U	0.8170	0.5270
V	0.6460	0.3660
W	0.7540	0.4700
X	0.7970	0.4900
Y	0.7010	0.3730
Z	0.7890	0.4620
a	0.7210	0.4610
b	0.8040	0.4990
c	0.6860	0.3580
d	0.7150	0.4440
e	0.7770	0.4900
f	0.7950	0.5110
g	0.7890	0.4980
h	0.5810	0.3720
i	0.8230	0.5280

Continued on next page...

Continued from previous page...

Chain	Atom inclusion	Q-score
j	0.6740	0.3820
k	0.7990	0.5320
l	0.7600	0.4940
m	0.7390	0.4540
n	0.4290	0.3080
o	0.0580	0.0650
p	0.0510	0.0250
q	0.6960	0.4250
t	0.6810	0.4090
v	0.0930	0.2250
w	0.0530	0.0380
x	0.9480	0.4860
y	0.9320	0.5120
z	0.1180	0.2150